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UNIVERGE SV8100/SV8300

System Hardware Manual

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Technology Development

PREFACE

GENERAL INFORMATION

Congratulations! You have purchased the NEC UNIVERGE SV8100/SV8300 System.

The feature-rich UNIVERGE SV8100/SV8300 key system provides over 200 features including Computer Telephony Integration, Least Cost Routing, Automatic Call Distribution, T1, ISDN-BRI Voice Trunks, ISDN-PRI Voice Trunks, Voice over Internet Protocol, and many others.

The UNIVERGE SV8100/SV8300 system provides what the customer needs today, and as business expands the system can be expanded to grow as well.

The UNIVERGE SV8100/SV8300 system has a set of manuals that provide all the information necessary to install and support the system. This preface describes these manuals.

THIS MANUAL

This manual contains detailed instructions to install the UNIVERGE SV8100/SV8300 chassis, Blades, Multiline Terminals, and optional equipment in the following chapters.

Regulatory

This chapter provides important regulatory information.

Chapter 1 – Introduction to SV8100/SV8300

This chapter provides an overview of the UNIVERGE SV8100/SV8300 system.

Chapter 2 – SV8100 System Specifications

This chapter contains detailed specifications for the SV8100 system and should be carefully reviewed by the technician **before** installing the system.

Chapter 3 – SV8300 System Specifications

This chapter contains detailed specifications for the SV8300 system and should be carefully reviewed by the technician **before** installing the system.

Chapter 4 – Installing the SV8100 Chassis

This chapter contains the information necessary for installing the SV8100 chassis. The technician should become familiar with this section **before** starting installation.

Chapter 5 – Installing the SV8300 Chassis

This chapter contains the information necessary for installing the SV8300 chassis. The technician should become familiar with this section **before** starting installation.

Chapter 6 – Installing the SV8100/SV8300 Blades

This chapter contains instructions for installing the blades in the UNIVERGE SV8100/SV8300 chassis.

Chapter 7 – Installing DT300/DT700 Series (DTL/ITL) Digital and IP Multiline Terminals

This chapter provides information about the UNIVERGE SV8100/SV8300 system digital and IP terminals in addition to the single line telephones, cordless telephones and wireless telephones.

Chapter 8 – Installing SV8100/SV8300 Cordless Telephones

This chapter provides information regarding cordless telephones that can be used in conjunction with the UNIVERGE SV8100/SV8300 system.

Chapter 9 – Installing SV8100/SV8300 Wireless Telephones

The wireless telephones provide wireless freedom that also allows access to features provided by the UNIVERGE SV8100/SV8300 system.

Chapter 10 – Installing SV8100/SV8300 Conference Solutions

Conferencing solutions provide premium, full-duplex audio to small conference rooms as a single unit or to larger rooms when expanded by up to three units that also expand microphone access and loudspeaker coverage.

Chapter 11 – Installing SV8100/SV8300 Optional Equipment

This chapter provides information for installing optional equipment, such as PGD(2)-U10 ADPs, background music, door boxes, DSS consoles, *D^{term}* VSR, external paging as well as other handsets, recording devices and adapters on the UNIVERGE SV8100/SV8300 digital and IP telephones.

Chapter 12 – Installing D^{term} Series i Telephones

The UNIVERGE SV8100/SV8300 system supports several different Electra Elite IPK II *D^{term}* Series i Multiline Terminals and an Attendant Console. This chapter describes each terminal and the console and provides instructions for attaching the terminals to the system and for wall mounting.

Chapter 13 – Installing D^{term} Series i Optional Equipment

The UNIVERGE SV8100/SV8300 system provides several adapters that allow peripheral equipment to be attached to the IPK II *D^{term}* Series i Multiline Terminals. This chapter describes each adapter and provides applicable installation instructions.

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Regulatory

GENERAL INFORMATION

This equipment complies with Part 68 of the FCC Rules and the requirements adopted by the ACTA. On the equipment is a label that contains, among other information, a product identifier in the format: **US:AAAEQ##TXXXX**. If requested, this number must be provided to the telephone company.

The telephone company may make changes in its technical operations and procedures. When such changes affect the compatibility or use of the UNIVERGE SV8100/SV8300 system, the telephone company is required to give adequate notice of the changes in order for you to maintain uninterrupted service.

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is the product identifier in format: **US:AAAEQ##TXXXX**. The digits represented by **##** are the REN without a decimal point (e.g., 03 is a REN of 0.3).

Connection to party line service is subject to state tariffs. Contact the state public utilities commission, public service commission or corporation commission for information.

For single and two-line equipment that connects to the telephone network via a plug and jack, the plug and jack used with this equipment must comply with FCC Part 68 rules.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant.

TELEPHONE/SERVICE PROVIDER COMPANY NOTIFICATION

Before connecting this telephone system to the telephone network, the following information must be provided to the telephone company:

1. Your telephone number.
2. FCC registration number:

For SV8100 CHS2U-US (6-blade, 19" chassis) use SN1750 CYGMA:

- ☐ When the system is to be installed as a Key Function system (no dial access to Trunk Groups/Route Advance Blocks), use the following number:

US:NIFKF07BSN1750

- ☐ When the system is to be installed as a Multifunction system, use the following number:

US:NIFMF07BSN1750

Ringer Equivalence Number (REN): **0.7B**

USOC jacks required: **RJ11C, RJEX, RJ2FX, RJ2HX, RJ48C**

INCIDENCE OF HARM

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain interrupted service.

REPAIR SERVICE REQUIREMENTS

If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

If equipment malfunctions, all repairs must be performed by an authorized agent of NEC Unified Solutions, Inc. or by NEC Unified Solutions, Inc. The user requiring service is responsible for reporting the need for service to an NEC Unified Solutions, Inc. authorized agent or to NEC Unified Solutions, Inc.

PRIVATE (LEASED) LINES

For Private (Leased) Line (Analog Data Format) equipment, type JM8 jack is required. Refer to ATIS Technical Report No. 5 for details on this connector.

The Facility Interface Code (FIC) associated with each private line application represents the type of service that will be provided by the telephone company. The user instructions must contain a detailed list of private line ports and the associated FICs for which the equipment has been approved. In addition, the Service Order Code (SOC) must also be included for analog systems. The SOC indicates the degree of network protection provided by the equipment,.

For Private (Leased) Line (Digital Format) equipment, in addition to the general requirements for all equipment, certain digital connections require that an encoded analog content and billing protection affidavit be provided the telephone company. Customer instructions must contain information on the preparation and submission of the affidavit.

To comply with state tariffs, the telephone company must be given notification prior to connection. In some states, the state public utility commission, public service commission or corporation commission must give prior approval of connection.

TOLL RESTRICTION AND LEAST COST ROUTING EQUIPMENT

The consumer/purchaser/supplier instructions accompanying this equipment and/or software features must contain the following notice:

- The software contained in the UNIVERGE SV8100/SV8300 to allow user access to the network must be upgraded to recognize newly established network area codes and exchange codes as they are placed into service.
- Failure to upgrade the premises systems or peripheral equipment to recognize the new codes as they are established will restrict the customer and the customer's employees from gaining access to the network and these codes.

DIRECT INWARD DIALING

ALLOWING THIS EQUIPMENT TO BE OPERATED IN SUCH A MANNER AS TO NOT PROVIDE FOR PROPER ANSWER SUPERVISION IS A VIOLATION OF PART 68 OF THE FCC RULES.

Direct Inward Dialing (DID) must contain the following:

Proper Answer Supervision is when:

- This equipment returns answer supervision to the Public Switched Telephone Network (PSTN) when Direct Inward Dialing (DID) calls are:
 - ☐ Answered by the called station.
 - ☐ Answered by the Attendant.

- ☐ Routed to a recorded announcement that can be administered by the Customer Premise Equipment (CPE) user.
- ☐ Routed to a dial prompt.
- This equipment returns answer supervision on all DID calls forwarded to the Public Switched Telephone Network (PSTN). Permissible exceptions are:
 - ☐ A call is unanswered.
 - ☐ A busy tone is received.
 - ☐ A reorder tone is received.

VOICE ANNOUNCEMENT/MONITORING OVER DID LINES

When using voice announcement or monitoring over DID Lines, observe the following.

CAUTION

Using the Voice Announcement feature to eavesdrop or record sound activities at the other end of the telephone line may be illegal under certain circumstances and laws. Consult a legal advisor before implementing any practice to monitor or record a telephone conversation. Some federal and state laws require a party monitoring or recording a telephone to use a beep-tone(s), notify all parties to the telephone conversation and/or obtain consent of all parties to the telephone conversation. In monitoring or recording sound activities at the other end of the telephone line using the Voice Announcement feature, the sound of the alert tone at the beginning of the Voice Announcement may or may not be considered sufficient under applicable laws. Some of the applicable laws provide for strict penalties for illegal monitoring or recording of telephone conversations.

EQUAL ACCESS REQUIREMENTS

If equipment such as Private Branch Exchanges (PBX), key systems or customer-owned coin/credit card telephones is sold to a call aggregator, it must be capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

ELECTRICAL SAFETY ADVISORY

Parties responsible for equipment requiring AC power should consider including an advisory notice in their customer information suggesting the customer use a surge arrestor. Telephone companies report that electrical surges, typically lightening transients, are very destructive to customer terminal equipment connected to AC power sources. This has been identified as a major nationwide problem.

HEARING AID COMPATIBILITY

NEC Multiline Terminals and NEC Single Line Telephones that are provided for this system are hearing aid compatible. The manufacturer of other Single Line Telephones for use with the system must provide notice of hearing aid compatibility to comply with FCC rules that now prohibit the use of non-hearing aid compatible telephones.

MUSIC ON HOLD

IMPORTANT NOTE

"In accordance with U.S. Copyright Law, a license may be required from the American Society of Composers, Authors and Publishers, or other similar organization, if radio or TV broadcasts are transmitted through the Music On Hold feature of this telecommunication system. NEC Unified Solutions, Inc., hereby disclaims any liability arising out of the failure to obtain such a license."

RADIO FREQUENCY INTERFERENCE

In compliance with FCC Part 15 rules, the following statement is provided:

IMPORTANT NOTE

"This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the System Hardware Manual, may cause interference to radio communications. This equipment has been tested and approved for compliance with the limits for a Class B (except as noted below) computing device pursuant to subpart J of Part 15 of FCC Rules, that are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this telephone system in a residential area is likely to cause interference, in which case, the user, at his or her own expense, is required to take whatever measures may be required to correct the interference."

When equipped with the CHS2U-US Chassis and MPS7101 PSU, the UNIVERGE SV8100/SV8300 can be operated as a Class B device except when using one of the blades in the following table. The system then becomes a Class A device that may not be used in a residential area.

CD-PVAA	CD-CCTA	CD-VM00	PZ-VM21	CD-ETIA
---------	---------	---------	---------	---------

SAFETY INFORMATION

This equipment has been certified by Canadian Standards Association and found to comply with all applicable requirements:

- CAN/CSA C22.2 No. 0-M – General Requirements – Canadian Electrical Code, Part II
- CAN/CSA C22.2 No. 60950-1-03 – Safety of Information Technology Equipment – Part I: General Requirements
- UL 60950-1-SAFETY, 1st Edition – Safety of Information Technology Equipment – Part I: General Requirements

INDUSTRY CANADA REQUIREMENTS

Industry Canada has established rules that permit this telephone system to be directly connected to the telephone network. Prior to the connection or disconnection of this telephone system to or from the telephone network, the telephone company must be provided with the following information.

This product meets the applicable Industry Canada Technical Specifications/Le présent matériel est conforme aux spécifications techniques applicables d'industrie Canada.

1. Your telephone number.
2. IC registration number: IC: 140L-SN1750
 IC: 140L-SN1759
3. Ringer Equivalence Number (REN) of the equipment: **0.7**

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, when present, are connected together. This precaution may be particularly important in rural areas.

CAUTION

Users should not attempt to make such connections themselves, but should contact the applicable electrical inspection authority or electrician.

The Ringer Equivalence Number (REN) is an indication of the maximum number of devices allowed to be connected to the telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of RENs of all the devices does not exceed five/L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

This equipment has been certified by the Canadian Standards Association and found to comply with all applicable requirements of the standard for telephone equipment **C 22.2 No. 225**.

This equipment meets IC requirements **CS03, PART II, PART III, PART VI**.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada/Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

BATTERY DISPOSAL

The UNIVERGE SV8100/SV8300 system includes the batteries listed below. When disposing of these batteries, Chassis, and/or Blades, you must comply with applicable federal and state regulations regarding proper disposal procedures.

Table R-1 Battery Types and Quantities for Chassis and Blades

Unit Name	Type of Battery	Quantity
CD-CP00-US	Lithium	1
CT-12 Headset Cordless	Ni MH	1
DTH-4R-2	Ni MH	1
DTL-8R-1	Ni MH	1
DTR-1HM-1 TEL	Lithium	1
DTR-1R-2	Nickel-Cadmium	1
DTR-4R-2 TEL	Nickel-Cadmium	1
DTU-4R-1 TEL	Lead Acid	1
C124 (SIP DECT Wireless)	Ni MH	1

Table R-1 Battery Types and Quantities for Chassis and Blades (Continued)

Unit Name	Type of Battery	Quantity
CHS LARGE BATT SET	Sealed Lead	6
Headset Cordless II	Ni MH	1
Internal Batteries	Sealed Lead	2

The UNIVERGE SV8100/SV8300 CD-CP00-US provides memory backup for approximately three years. The Lithium battery should be replaced every two years.

IMPORTANT SAFEGUARDS FOR BATTERY DISPOSAL

DO NOT PLACE USED BATTERIES IN YOUR REGULAR TRASH! THE PRODUCT YOU PURCHASED CONTAINS LITHIUM, NICKEL-CADMIUM OR SEALED LEAD BATTERIES. LITHIUM, NICKEL-CADMIUM OR SEALED LEAD BATTERIES MUST BE COLLECTED, RECYCLED, OR DISPOSED OF IN AN ENVIRONMENTALLY SOUND MANNER.

The incineration, landfilling or mixing of nickel-cadmium or sealed lead batteries with the municipal solid waste stream is PROHIBITED BY LAW in most areas. Contact your local solid waste management officials for other information regarding the environmentally sound collection, recycling, and disposal of the battery.

Nickel-Cadmium (or sealed lead) batteries must be returned to a federal or state approved nickel-cadmium (or sealed lead) battery recycler. This may be where the batteries were originally sold or a local seller of automotive batteries. Contact your local waste management officials for other information regarding the environmentally sound collection, recycling and disposal of the battery contained in this product. For Ni-Cd batteries, you can also call 1-800-8-BATTERYSM when further information is required.

The packaging for the UNIVERGE SV8100/SV8300 system contains the following labels regarding proper disposal.

PRODUCT PACKAGE LABELING**Ni-Cd**

CONTAINS NICKEL-CADMIUM BATTERY.
BATTERY MUST BE RECYCLED OR
DISPOSED OF PROPERLY. MUST NOT BE
DISPOSED OF IN MUNICIPAL WASTE.

**Pb**

CONTAINS SEALED LEAD BATTERY.
BATTERY MUST BE RECYCLED. MUST NOT
BE DISPOSED OF IN MUNICIPAL WASTE.

**Ni-MH**

CONTAINS NICKEL-METAL HYDRIDE
BATTERY. BATTERY MUST BE RECYCLED
OR DISPOSED OF PROPERLY. MUST NOT
BE DISPOSED OF IN MUNICIPAL WASTE.

EUROPEAN UNION INFORMATION

Notice to the user

The system described in this manual is intended to be connected to analog and digital networks and supports a wide range of peripheral equipment. The following interfaces are available for connection to public analog and digital telecommunication networks:

- TBR3 ISDN basic rate interface
- TBR4 ISDN primary rate interface
- ES203-021 Analogue interface

To take advantage of all features of this system and the connected equipment, the country or network specific features should match the supported features of the system. For an overview of the supported features, refer to the detailed documentation that comes with this system, contact your local NEC Philips representative or the support desk of NEC Philips Unified Solutions.

Declaration of conformity

Hereby, "NEC Philips Unified Solutions", declares that the SV8100 and SV8300 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

<http://www.nec-philips.com/doc>



Electromagnetic Compatibility

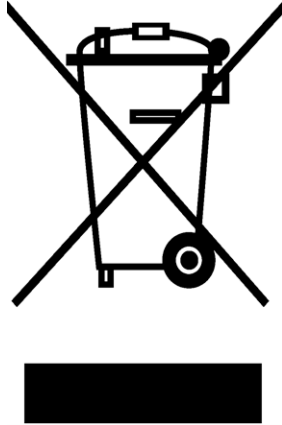
For the SV8100 and SV8300 system the following warning is applicable:

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

PRODUCT DISPOSAL INFORMATION

For Countries in the European Union



The symbol depicted here has been affixed to your product in order to inform you that electrical and electronic products should not be disposed of as municipal waste.

Electrical and electronic products including the cables, plugs and accessories should be disposed of separately in order to allow proper treatment, recovery and recycling. These products should be taken to a designated facility where the best available treatment, recovery and recycling techniques are available. Separate disposal has significant advantages: valuable materials can be re-used and it prevents the dispersion of unwanted substances into the municipal waste stream. This contributes to the protection of human health and the environment.

Please be informed that a fine may be imposed for illegal disposal of electrical and electronic products via the general municipal waste stream.

In order to facilitate separate disposal and environmentally sound recycling arrangements have been made for local collection and recycling. In case your electrical and electronic products need to be disposed of please refer to your supplier or the contractual agreements that your company has made upon acquisition of these products.

At www.nec-philips.com/weee you can find information about separate disposal and environmentally sound recycling.

Battery information

Defective or exhausted batteries should never be disposed of as municipal waste. Return old batteries to the battery supplier, a licensed battery dealer or a designated collection facility. Do not incinerate batteries. This product uses Lithium batteries. Do not use any other type.

For an overview of the location of batteries used in these systems, the battery replacement or removal instructions, please refer to the UNIVERGE SV8100/SV8300 System Hardware Manual.


- - NOTES - -

Introduction to SV8100/SV8300

SECTION 1 GENERAL INFORMATION

The SV8100/SV8300 is a full-featured IP based communications system providing a rich feature set of existing system, with pure Voice over IP (VoIP) communications, across corporate Local and Wide Area Networks (LAN and WAN).

The DT700 series telephones provide a converged infrastructure at the desktop, with a 10Base-T/100Base-TX connection to the LAN and built-in hub for a PC connection to the telephone itself. The system can provide peer-to-peer connections between the DT700 series telephones with voice compression, offering existing IP telephone features with an enhanced user interface. On the WAN side, the system can provide peer-to-peer connections over IP networks with the voice compression, on CCIS over IP or Remote Unit over IP.

 *Remote Unit over IP is available only for the SV8300.*

The SV8100/SV8300 can provide legacy line/trunk interfaces to support the existing Time Division Multiplexing (TDM) based infrastructure, such as analog telephones, digital telephones (DT300 series), analog networks and digital networks (T1/E1, ISDN, etc.).

The new compact 19" chassis provides 104 total ports (80 digital terminals) and can be expanded, using three additional 19" chassis, for a maximum of 416 ports (320 digital terminals). Through IP connection and four additional 19" chassis, the system can be expanded to a maximum of 512 ports for SV8100 and a maximum of 1024 for SV8300 (refer to [Table 2-2 SV8100 Maximum System Capacities – Trunks/Ports/Channels on page 2-5](#) or [Table 3-2 SV8300 Maximum System Capacity on page 3-5](#)).

Communications between legacy stations/trunks and DT700 series telephones/IP networks are made using a VoIP blade, which converts packet-based voice data to TDM-based voice data, and vice versa. Both peer-to-peer connections and TDM-based connections are controlled by the CPU blade. The CPU incorporates a built-in Device Registration Server (DRS) and a single interface point of IP connection to IP telephone, PCPro and OAI / ACD servers. Figure 1-1 shows a simplified view of SV8100 system connectivity and Figure 1-2 shows a simplified view of SV8300 system connectivity.



Figure 1-1 Simplified SV8100 System Connectivity

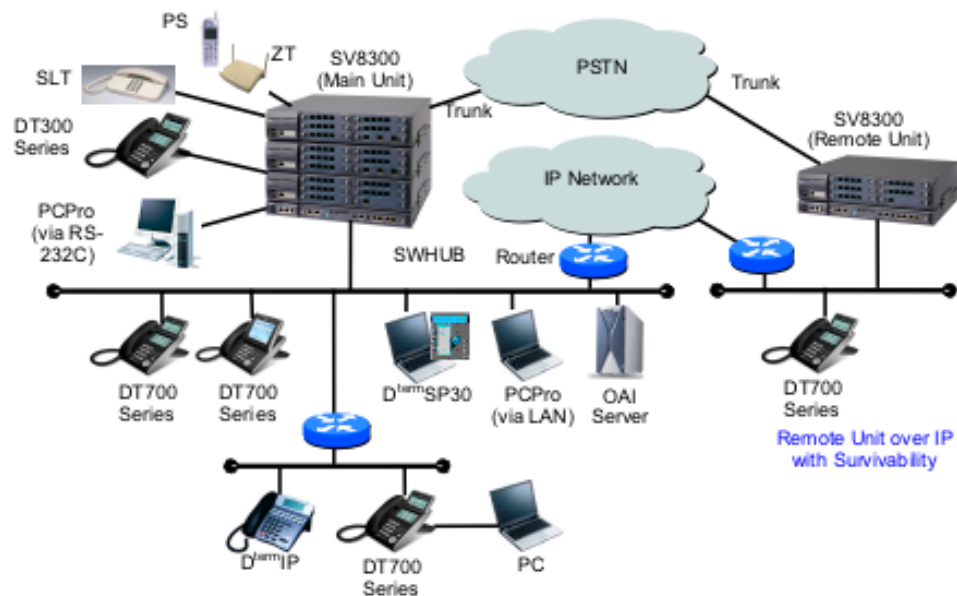



Figure 1-2 Simplified SV8300 System Connectivity

Highlights of the UNIVERGE SV8100/SV8300 are as follows:

❑ Pure IP System capable TDM configuration


The SV8100/SV8300 supports both pure IP switching (peer-to-peer connections) and Time Division Switching. The pure IP switching is provided for communications between DT700 series telephones and for CCIS / Remote Unit connections with other SV8100/SV8300/SV7000. On the other hand, the TDM switching is provided for communications between legacy stations/trunks. Connection between IP network and legacy network is made via VoIP blade on the CPU blade, which converts packet-based voice data to TDM-based voice data, and vice versa.

 *Remote Unit over IP is available only for the SV8300.*

❑ Powerful CPU Blade with Built-in Functionalities

The CPU blade of SV8100/SV8300 is a heart of pure IP connections and TDM-based connections. The CPU blade employs a 32 bit microprocessor. With this processing power and DSP technology, it integrates the following functions on one board. These functions are managed with software licenses.

- DTMF receivers
- Caller ID receivers
- Caller ID senders
- MF senders / receivers
- 10/100 Ethernet Port
- 2 Control Relays
- MOH Input Port
- Paging Output Port
- In-Mail (VMDB)
- VoIP

 *In-Mail is available only for the SV8100.*

In addition, by means of advanced LSI technology, size of the CPU blade is minimized, O&M NIC port (10/100M) is built in and VoIPDB which has VoIP NIC port (Gigabit Ethernet) is mountable without additional slots in the chassis. The O&M NIC port is linked with LAN/WAN for inter-work with PCPro, SMDR, OAI server, and the VoIP NIC port is linked with LAN/WAN for control signaling and voice signaling (RTP) for DT700 series, etc.

☐ High Density Legacy Line/Trunk Blades

Major legacy line/trunk blades used in SV8100/SV8300 are provided with main blade + daughter blade architecture. When the main blade is mounted only in an initial supply, line/trunk interfaces can be easily expanded by adding the daughter blade. The maximum number of ports for the line/trunk blades is 8/16 ports with daughter blade, respectively. This allows the physical system size to be compact.

☐ Universal Blade Slot (19" Chassis)

A 19" Chassis is used for legacy line/trunk blades. One 19" Chassis provides six universal slots and one expansion slot. Also, the universal slots can be used for special application blades without complicated limitation. This makes easy quotation and installation.

☐ Easy Installation (Front Cabling and Enhanced O&M Tool)

Cable connectors (RJ-45 or RJ-61) are located on the front panel of each chassis and blade. It increases efficiency of the cabling work. Also, PCPro provides an enhanced user interface. A Quick Setup tool provides easy setup (system data programming) for a basic system configuration in shorter time.

☐ Remote Unit over IP with Survivability (SV8300 only)

The SV8300 can provide Remote Unit configuration, main site and remote unit(s) through IP network. The main unit controls call processing and service features access for station users located in both main unit and remote unit(s). When the remote unit cannot be connected with main unit due to IP network failure or main unit failure, the remote unit initializes the system and re-starts operation by its own CPU (survival mode). In the survival mode, almost service features are provided to the station users accommodated in the remote unit. When IP network/main unit is recovered, the remote unit can be restored to normal mode with system reset by automatic or manual operation (Selectable by system data setting).

SECTION 2 EQUIPMENT LIST

The following tables list all equipment for the SV8100/SV8300 systems. The product code column indicates whether the equipment is available for the SV8100 product line only (**SV8100**), for SV8300 product line only (**SV8300**) or is common for both SV8100/SV8300 product lines (SV8100/SV8300).

Table 1-1 Chassis Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
670015	CHS2U-US	19" Chassis (6-slot)	SV8100/SV8300
670017	CHS1U-US	19" Chassis (1-slot)	SV8300
670018	MPS7101	Power Supply Unit for 19" Chassis (2U)	SV8100/SV8300
670527	PZ-PW146(1U)	Power Supply Unit for 19" Chassis (1U)	SV8300

Table 1-2 Chassis Installation Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
670019	CHS BASE UNIT	Floor Mount Set for all chassis (CHS1U-US and CHS2U-US)	SV8100/SV8300
670500	CHS2U BLANK SLOT COVER KIT	Blank Slot Cover Set	SV8100/SV8300
670501	CHS2U JOINT BRACKET KIT	Upper Joint Bracket for 6-slot Chassis	SV8100/SV8300
670502	CHS1U RACK MOUNT KIT	Rack Mount Set for CHS1U-US Chassis	SV8300
670508	CHS2U RACK MOUNT KIT	Rack Mount for CHS2U-US Chassis	SV8100/SV8300
670510	CHS1U/2U WALL MOUNT KIT	Wall Mount Set for CHS2U-US Chassis	SV8100/SV8300
670513	CHS Stand Kit (K)	Stand Mount Kit for 2U Chassis	SV8100/SV8300
670522	CHS2U STAND KIT (EXT)	Expansion Plate for Stand Mount Kit for 6-blade Chassis, 2 sets	SV8100/SV8300
670523	CHS1U BLANK SLOT COVER KIT(BUS)	Blank Bus Cover	SV8100/SV8300

Table 1-3 Battery Mount Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
670503	CHS1U BATT MTG KIT	CHS1U-US Battery mounting kit Backup Time – 10 minutes	SV8300

Table 1-3 Battery Mount Equipment List (Continued)

Stock Number	Equipment Name	Equipment Description	Product Code
670505	CHS LARGE BATT BOX	Long Term Battery Box for CHS1U-US and CHS2U-US Chassis Cable between batteries – 9.06in/230mm Fuse Unit to Batteries – 18.11in/460mm Cable from chassis to battery box – 81.1in/2060mm	SV8100/SV8300
670509	CHS2U BATT MTG KIT	Battery Mount for CHS2U-US Chassis Backup time – 10 minutes	SV8100/SV8300
670512	CHS LARGE BATT SET	Long term battery set (3) 12V 7Ah SLA Batteries with Faston 187 terminals	SV8100/SV8300
670532	CHS1U BATT SET	Internal battery set for CHS1U-US chassis 12V 0.8Ah SLA battery with Tyco/Amp	SV8300
670533	CHS2U INT BATT SET	Internal battery set for CHS2U-US chassis 12V 2.3Ah SLA Battery with Faston 187	SV8100/SV8300

Table 1-4 Blade Equipment List

Stock Number	Equipment Name	Abbreviations	Equipment Description	Product Code
670005	CD-CP00-US	CPU	Main Processor Blade for KTS	SV8100
670006	CC-CP00	CPU	Main Processor Blade for IPS	SV8300
670100	PZ-BS10	BUS0	Expansion Chassis Interface Unit, 3-jack	SV8100/SV8300
670101	PZ-BS11	BUS1	Expansion Chassis Interface Unit, 1-jack	SV8100/SV8300
670103	PZ-VM21	VMDB	16 Channels for Voice Mail with a Single Channel V34 Modem	SV8100/SV8300
670104	PZ-32IPLA	VoIPDB	32-channel VOIP on CCPU	SV8100
670105	PZ-64IPLA	VoIPDB	64-channel VOIP on CCPU	SV8100/SV8300
670106	PZ-128IPLA	VoIPDB	128-channel VOIP on CCPU	SV8100/SV8300
670107	CD-8DLCA	DLC	8-port Digital Station Interface	SV8100/SV8300
670108	PZ-8DLCB	DLADB	8-port Digital Station Interface on CD-8DLCA	SV8100/SV8300
670109	CD-16DLCA	DLC	16-port Digital Station Interface	SV8100/SV8300
670110	CD-4COTB	COT	4-port Loop/ground Start Trunks	SV8100/SV8300
670111	PZ-4COTF	COTDB	4-port Loop/ground Start Trunks on CD-4COTB	SV8100/SV8300
670112	CD-4LCA	LC	4-port Single Line Telephone Interface	SV8100/SV8300

Table 1-4 Blade Equipment List (Continued)

Stock Number	Equipment Name	Abbreviations	Equipment Description	Product Code
670113	PZ-4LCA	LCDB	4-port Single Line Telephone Interface on CD-4LCA and CD-8LCA	SV8100/SV8300
670114	CD-8LCA	LC	8-port Single Line Telephone Interface	SV8100/SV8300
670115	PZ-8LCE	LCDB	8-port Single Line Telephone Interface on CD-4LCA and CD-8LCA	SV8100/SV8300
670116	CD-2BRIA	BRT	2 Basic Rate Interface	SV8100/SV8300
670117	PZ-2BRIA	BRTDB	2 Basic Rate Interface on CD-2BRIA	SV8100/SV8300
670118	CD-PRTA	PRT	1 Primary Rate Interface	SV8100/SV8300
670119	CD-CCTA	CCT	Common Channel Interoffice Signalling Trunk Interface/Common Channel Handler	SV8100/SV8300
670120	CD-4DIOPA	DIOP	4 DID/OPX	SV8100/SV8300
670121	CD-4ODTA	ODT	4-port Tie Line Interface (E&M)	SV8100/SV8300
670122	CD-RTB	RTB	Router	SV8100/SV8300
670123	CD-VM00	VM00	Voice Mail and Server	SV8100/SV8300
670124	CD-ETIA	GSWU	PoE Gigabit Switch Unit	SV8100/SV8300
670126	CD-4CSIB	CSI	4-ch CS/ZT Interface for IPS	SV8300
670127	PZ-ME50	MEM	Memory Expansion on CD-CP00-US	SV8100
670128	CD-LTA	LTA	8 Digital Station/2SLT for CD-CP00-US only	SV8100
670131	CD-PVAA	CNF	Packet Voice Application	SV8100

Table 1-5 Cable Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
670515	CHS1U BATT CA INT BATT	CHS1U-US Battery cable for internal battery Cable – 10.63ln/270mm	SV8300
670516	RS CONSOLE CA-A	MAT (PCPro) Cable 6.6 ft. (2.0m)	SV8100/SV8300
670517	RS NORM-4S CA-F	RS-232C Cable (normal) 13.1 ft (4m)	SV8100/SV8300
670518	RS RVS-15S CA-F	RS-232C Cable (reverse) 49.2 ft (15.0m)	SV8100/SV8300
670519	RS RVS-4S CA-F	RS 232C Cable (reverse) 13.1 ft (4.0m)	SV8100/SV8300
670520	RS RVS-4S CA-G	RS 232C Cable (reverse) 13.1 ft (4.0m)	SV8100/SV8300
670521	RS PRT-15S CA-F	RS-232C Cable (printer) 49.2 ft (15.0m)	SV8100/SV8300
670528	BUS CABLE	Bus Cable	SV8100/SV8300

Table 1-5 Cable Equipment List (Continued)

Stock Number	Equipment Name	Equipment Description	Product Code
670529	AC CORD	AC Power Cable for US	SV8100/SV8300
670530	CHS2U BATT CA INT	CHS2U-US Battery Cable for Internal Battery 2U Chassis Cable A – 18.9in/480mm Cable B – 3.15in/80mm	SV8100/SV8300
670531	CHS2U BATT CA EXT-A	Battery Cable for External Battery 6-slot Chassis	SV8100/SV8300

Table 1-6 Digital Multiline Terminal (DT300 Series) Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
680000	DTL-2E-1 (BK) TEL	Economy Digital 2-button Telephone (No-Display)	SV8100/SV8300
680001	DTL-6DE-1 (BK) TEL	Economy Digital 6-button Display Telephone	SV8100/SV8300
680002 680003	DTL-12D-1 (BK) TEL DTL-12D-1 (WH) TEL	Value Digital 12-button Display Telephone	SV8100/SV8300
680004 680005	DTL-24D-1 (BK) TEL DTL-24D-1 (WH) TEL	Value Digital 24-button Display Telephone	SV8100/SV8300
680006 680007	DTL-32D-1 (BK) TEL DTL-32D-1 (WH) TEL	Value Digital 32-button Display Telephone	SV8100/SV8300
680008	DTL-12BT-1 (BK) TEL	12D + BCH	SV8100
680009	DTL-12PA-1 (BK) TEL	Value Digital 12-button Telephone with Power Failure Adapter	SV8100/SV8300
680010 680011	DTL-8LD-1 (BK) TEL DTL-8LD-1 (WH) TEL	Value Digital 8-button Telephone (DESI-less)	SV8100/SV8300
680012 680013	DCL-60-1 (BK) CONSOLE DCL-60-1 (WH) CONSOLE	60-button Direct Station Selection (DSS) Console	SV8100/SV8300
680014 680015	8LK-L (BK) UNIT 8LK-L (WH) UNIT	8-button Line Key Unit	SV8100/SV8300
680016 680017	8LKD (LD)-L (BK) UNIT 8LKD (LD)-L (WH) UNIT	DESI-less 8-button Line Key Unit/LCD Unit for Digital Telephone	SV8100/SV8300

Table 1-7 IP Multiline Terminal (DT700 Series) Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
690000	ITL-2E-1 (BK) TEL	Economy IP 2-button Telephone (No Display)	SV8100/SV8300
690001	ITL-6DE-1 (BK) TEL	Economy IP 6-button Display Telephone	SV8100/SV8300
690002 690003	ITL-12D-1 (BK) TEL ITL-12D-1 (WH) TEL	Value IP 12-button Display Telephone	SV8100/SV8300
690004 690005	ITL-24D-1 (BK) TEL ITL-24D-1 (WH) TEL	Value IP 24-button Display Telephone	SV8100/SV8300
690006 690007	ITL-32D-1 (BK) TEL ITL-32D-1 (WH) TEL	Value IP 32-button Display Telephone	SV8100/SV8300
690008	ITL-12BT-1 (BK) TEL	12D + BCH	SV8300
690009	ITL-12PA-1 (BK) TEL	Value IP 12-button Telephone with Power Failure Adapter	SV8100/SV8300
690010 690011	ITL-8LD-1 (BK) TEL ITL-8LD-1 (WH) TEL	Value IP 8 Line Key Display Telephone Value IP Telephone: DESI-less	SV8100/SV8300
690012	ITL-320C-1 (BK) TEL	Sophisticated Telephone	SV8100/SV8300
690013 690014	8LKI (LD)-L (BK) UNIT 8LKI (LD)-L (WH) UNIT	DESI-less LK/LCD Unit for IP	SV8100/SV8300

Table 1-8 DT300/DT700 Series Optional Equipment List

Stock Number	Equipment Name	Equipment Description	Product Code
680600	APR-L UNIT	APR	SV8100
680601	ADA-L UNIT	ADA	SV8100
680603 680604	PSA-L (BK) UNIT PSA-L (WH) UNIT	PSA	SV8100/SV8300
680606 680607	12LK-L (BK) KIT 12LK-L (WH) KIT	12-button Line Key Kit	SV8100/SV8300
680608 680609	LCD (BL)-L (BK) UNIT LCD (BL)-L (WH) UNIT	LCD Unit (No Backlight)	SV8100/SV8300
680610	WM-L UNIT	Wall Mount Unit	SV8100/SV8300
680650	DESI ITL/DTL-2E (25 PKG)	DESI Sheet for Economy 2-button Telephone (2 Labels per Sheet)	SV8100/SV8300
680651	DESI ITL/DTL-6DE (25 PKG)	DESI Sheet for Economy 6-button Display Telephone (2 Labels per Sheet)	SV8100/SV8300

Table 1-8 DT300/DT700 Series Optional Equipment List (Continued)

Stock Number	Equipment Name	Equipment Description	Product Code
680652	DESI ITL/DTL-12D (25 PKG)	DESI Sheet for Value 12-button Display Telephone (2 Labels per Sheet)	SV8100/SV8300
680653	DESI ITL/DTL-8LK (25 PKG)	DESI Sheet for 8-button Line Key (2 Labels per Sheet)	SV8100/SV8300
680654	DESI DCL-60 (25 PKG)	DESI Sheet for 60DSS (1 Label per Sheet)	SV8100/SV8300
680655	DESI ITL/DTL-SIDE(25 PKG)	DESI Sheet for Clear Side Panel (Left and Right Label each Sheet)	SV8100/SV8300
680656	DESI ITL/DTL-SIDE-LCDV(25 PKG)	DESI Sheet for Value Telephone LCD (Clear Side)	SV8100/SV8300
680657	DESI ITL/DTL-SIDE-LCDS(25 PKG)	DESI Sheet for Sophisticated Telephone LCD (Clear Side)	SV8100/SV8300
680658	DESI ITL/DTL Directory Card	Directory Card	SV8100/SV8300
680659	DESI ITL/DTL-24D (25 PKG)	DESI Sheet for Value 24-button Display Telephone (2 Labels per Sheet)	SV8100/SV8300
680700	Panel (Red-Base)-L UNIT	Color Side Panel for Base (Red)	SV8100/SV8300
680701	Panel (Red-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Red)	SV8100/SV8300
680702	Panel (Red-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Red)	SV8100/SV8300
680703	Panel (Blue-Base)-L UNIT	Color Side Panel for Base (Blue)	SV8100/SV8300
680704	Panel (Blue-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Blue)	SV8100/SV8300
680705	Panel (Blue-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Blue)	SV8100/SV8300
680706	Panel (Silver-Base)-L UNIT	Color Side Panel for Base (Silver)	SV8100/SV8300
680707	Panel (Silver-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Silver)	SV8100/SV8300
680708	Panel (Silver-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Silver)	SV8100/SV8300
680709	Panel (Wood-Base)-L UNIT	Color Side Panel for Base (Wood)	SV8100/SV8300
680710	Panel (Wood-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Wood)	SV8100/SV8300
680711	Panel (Wood-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Wood)	SV8100/SV8300
680712	Panel(Logo-Base)-L UNIT	Color Side Panel for Base (Wood with Logo)	SV8100/SV8300
680713	Panel (Clear-Base)-L UNIT	Color Side Panel for Base (Clear)	SV8100/SV8300

Table 1-8 DT300/DT700 Series Optional Equipment List (Continued)

Stock Number	Equipment Name	Equipment Description	Product Code
680714	LKPANEL(2BTN)-L (BK) UNIT	Spare Plastic Cover Kit (2-button) (BK)	SV8100/SV8300
680715	LKPANEL(6BTN)-L (BK) UNIT	Spare Plastic Cover Kit (6-button) (BK)	SV8100/SV8300
680716 680717	LKPANEL(12BTN)-L (BK) UNIT LKPANEL(12BTN)-L (WH) UNIT	Spare Plastic Cover Kit (12-button)	SV8100/SV8300
680718 680719	LKPANEL(24BTN)-L (BK) UNIT LKPANEL(24BTN)-L (WH) UNIT	Spare Plastic Cover Kit (24-button)	SV8100/SV8300
680720 680721	LKPANEL(8BTN)-L (BK) UNIT LKPANEL(8BTN)-L (WH) UNIT	Spare Plastic Cover Kit (8-button)	SV8100/SV8300
680722 680723	LKPANEL(60BTN)-L (BK) UNIT LKPANEL(60BTN)-L (WH) UNIT	Spare Plastic Cover Kit (60-button)	SV8100/SV8300
680724	DTL (Value)-Base-1 unit	Digital Base	SV8100/SV8300
680725 680726	LCDD(S)-L (BK) UNIT LCDD(S)-L (WH)) UNIT	Digital Standard Telephone LCD	SV8100/SV8300
680727	TENKEY(STD)-L SET	Standard 10-Key	SV8100/SV8300
680728 680729	FNCKEY(STD)-L (BK) SET FNCKEY(STD)-L (WH) SET	Standard Function Key	SV8100/SV8300
680730 680731	12LKSoft-L (BK) SET 12LKSoft-L (WH) SET	12LK without Soft Key	SV8100/SV8300
680732 680733	12LK(STD)-L (BK) SET 12LK(STD)-L (WH) SET	12LK	SV8100/SV8300
680734 680735	TKPANEL(STD)-L (BK) UNIT TKPANEL(STD)-L (WH) UNIT	10-Key Panel	SV8100/SV8300
680736 680737	Cradle (STD)-L(BK) Cradle (STD)-L(WH)	Cradle	SV8100/SV8300
680738	VAL DIRECTORY CARD UNIT(L)	Directory Card Holder for Value Telephone	SV8100/SV8300
680739	ECO DIRECTORY CARD UNIT(L)	Directory Card Holder for Economy Telephone	SV8100/SV8300

Table 1-8 DT300/DT700 Series Optional Equipment List (Continued)

Stock Number	Equipment Name	Equipment Description	Product Code
680741	Panel (Clear-VLCD)-L UNIT	Color Side Panel for Value Telephone LCD (Clear)	SV8100/SV8300
680742	Panel (Clear-SLCD)-L UNIT	Color Side Panel for Sophisticated Telephone LCD (Clear)	SV8100/SV8300
680743 680744	LKPANEL(16BTN)-L (BK) UNIT LKPANEL(16BTN)-L (WH) UNIT	Spare Plastic Cover Kit (16-button)	SV8100/SV8300
680745 680746	KeyKitPanel (Value) (BK) Unit KeyKitPanel (Value) (WH) Unit	Spare Plastic Cover Key Kit for Value Telephone	SV8100/SV8300
680747 680748	KeyKitPanel (Retro) (BK) Unit KeyKitPanel (Retro) (WH) Unit	Spare Plastic Cover Key Kit for Retro Telephone	SV8100/SV8300
680749 680750	KeyKitPanel (Sophi) (BK) Unit KeyKitPanel (Sophi) (WH) Unit	Spare Plastic Cover Key Kit for Sophisticated Telephone	SV8100/SV8300
690600 690601	BS (F)-L (BK) KIT BS (F)-L (WH) KIT	French Keypad	SV8100/SV8300
690602 690603	BS (S)-L (BK) KIT BS (S)-L (WH) KIT	Spanish Keypad	SV8100/SV8300
690604 690605	BS (ACD)-L (BK) KIT BS (ACD)-L (WH) KIT	ACD Support Keypad	SV8100/SV8300
690606 690607	BS (ICON)-L (BK) KIT BS (ICON)-L (WH) KIT	ICON Support Keypad	SV8100/SV8300
690608 690609	BS (Retro)-L (BK) KIT BS (Retro)-L (WH) KIT	Retrofit Support Keypad	SV8100/SV8300
690610 690611	BS (RetroCON)-L (BK) KIT BS (RetroCON)-L (WH) KIT	Retrofit ICON Support Keypad	SV8100/SV8300
690612 690613	BS (Braille)-L (BK) KIT BS (Braille)-L (WH) KIT	Braille Support Keypad	SV8100/SV8300
690614 690615	HANDSET(NARROW)-L (BK) UNIT HANDSET(NARROW)-L (WH) UNIT	Spare Narrowband Handset	SV8100/SV8300
690616 690617	HANDSET(WIDE)-L (BK) UNIT HANDSET(WIDE)-L (WH) UNIT	Spare Wideband Handset	SV8100/SV8300

Table 1-8 DT300/DT700 Series Optional Equipment List (Continued)

Stock Number	Equipment Name	Equipment Description	Product Code
690618 690619	HandsetCord(12FT)-L (BK) SET HandsetCord(12FT)-L (WH) SET	Spare Handset Cord 12 Feet	SV8100/SV8300
690620 690621	HandsetCord(25FT)-L (BK) SET HandsetCord(25FT)-L (WH) SET	Spare Handset Cord 25 Feet	SV8100/SV8300
690622 690623	HandsetHanger-L (BK) SET HandsetHanger-L (WH) SET	Spare Handset Hanger	SV8100/SV8300
690624	ITL (Value)-Base-1 unit	IP Base	SV8100/SV8300
690625 690626	LCDI(S)-L (BK) UNIT LCDI(S)-L (WH)) UNIT	IP LCD Unit (without Backlight)	SV8100/SV8300
690627	LineCord-L (BK) SET	Spare Line Cord (BK)	SV8100/SV8300
690628	ITL/DTL PTM Handset (BK)	Push to Mute Handset	SV8100/SV8300
690629	ITL/DTL PTT Handset (BK)	Push to Talk Handset	SV8100/SV8300
690630	ITL-GigADP-1	Gigabit Adapter	SV8100/SV8300

- - NOTES - -

SV8100 System Specifications

SECTION 1 GENERAL INFORMATION

This chapter provides detailed specifications for the SV8100 system technician. The technician should review this information carefully **before** installing the system.

SECTION 2 SYSTEM BLOCK DIAGRAM

[Figure 2-1 SV8100 System Block Diagram](#) shows the Blades that can be installed in the chassis and the number of channels supported when the Blade is installed. [Table 2-1 List of Abbreviations](#) lists abbreviations used in the diagram.

Table 2-1 List of Abbreviations

Abbreviation	Description
ACD	Automatic Call Distribution
ADA	Analog Recording Adapter
APR	Analog Port Adapter (with ringer)
AUX IN/OUT	BGM/MOH Port (on CPU)
BRI	Basic Rate Interface
BRIDB	Expansion Basic Rate Interface Blade on BRI
BRT	Basic Rate Interface Blade/ISDN Terminal Interface Blade
BUS0	BUS Interface Blade (for 1U chassis)
BUS1	BUS Interface Blade (for 2U chassis)
CCT	CCIS Interface Blade
CF	Compact Flash
CFT	Conference Trunk (on CPU)
CNF	Conference Bridge Blade (PVA)
CPU	Central Processing Unit

Table 2-1 List of Abbreviations (Continued)

Abbreviation	Description
DID	Direct Inward Dialing
DIOP	DID/OPX Blade
DLC	Digital Multiline Terminal Interface Blade
DLCB	Expansion Digital Multiline Terminal Interface Blade on DLC
DRS	Device Registration Server (on CPU)
DSS	Direct Station Selection Console
DTI	Digital Trunk Interface
DTG	Digital Tone Generator (on CPU)
ETHERNET	Ethernet Port (on CPU)
FT1	Fractional T1
GSWU	Power over Ethernet Gigabit Switch
IDF	Intermediate Distribution Frame
IPT	IP Trunk (P2P CCIS) (on CPU)
ISDN	Integrated Service Digital Network
LAN	Local Area Network
LC	Single Line Telephone Interface Blade
LCDB	Expansion Single Line Telephone Interface Blade on LC
MDF	Main Distribution Frame
MEM	Main Memory (on CPU)
MIS	Management Information System
MOH	Music On Hold
OAI	Open Application Interface (on CPU)
ODT	Tie Line Interface Blade (2W/4W E&M)
OPX	Off-Premise Extension
PBR	PB Receiver (on CPU)
PBSND	PB Sender (on CPU)
PCPro	PC Programming
PFT	Power Failure Transfer
PLO	Phase Locked Oscillator (on CPU)

Table 2-1 List of Abbreviations (Continued)

Abbreviation	Description
PMS	Property Management System
PRI	Primary Rate Interface
PRT	Primary Rate Interface Blade
PS	Personal Station
PSA	PSTN Adapter (analog)
PVA	Packet Voice Application
RTB	Router Blade
SERIAL	Serial Port (on CPU)
SLT	Single Line Telephone
SMDR	Station Message Detail Recording
TDSW	Time Division Switch (on CPU)
USB	Universal Serial Bus (on CPU)
VM00	UMS Blade Server Blade (SV8100 only)
VMDB	VMS Daughter Board with V34 Modem (SV8100 only)
VMS	Voice Mail System
VoIP	Voice over Internet Protocol
VoIPDB	VoIP Blade (on CPU)
VRS	Voice Response System
WAN	Wide Area Network
WebPro	Web-Based PC Programming

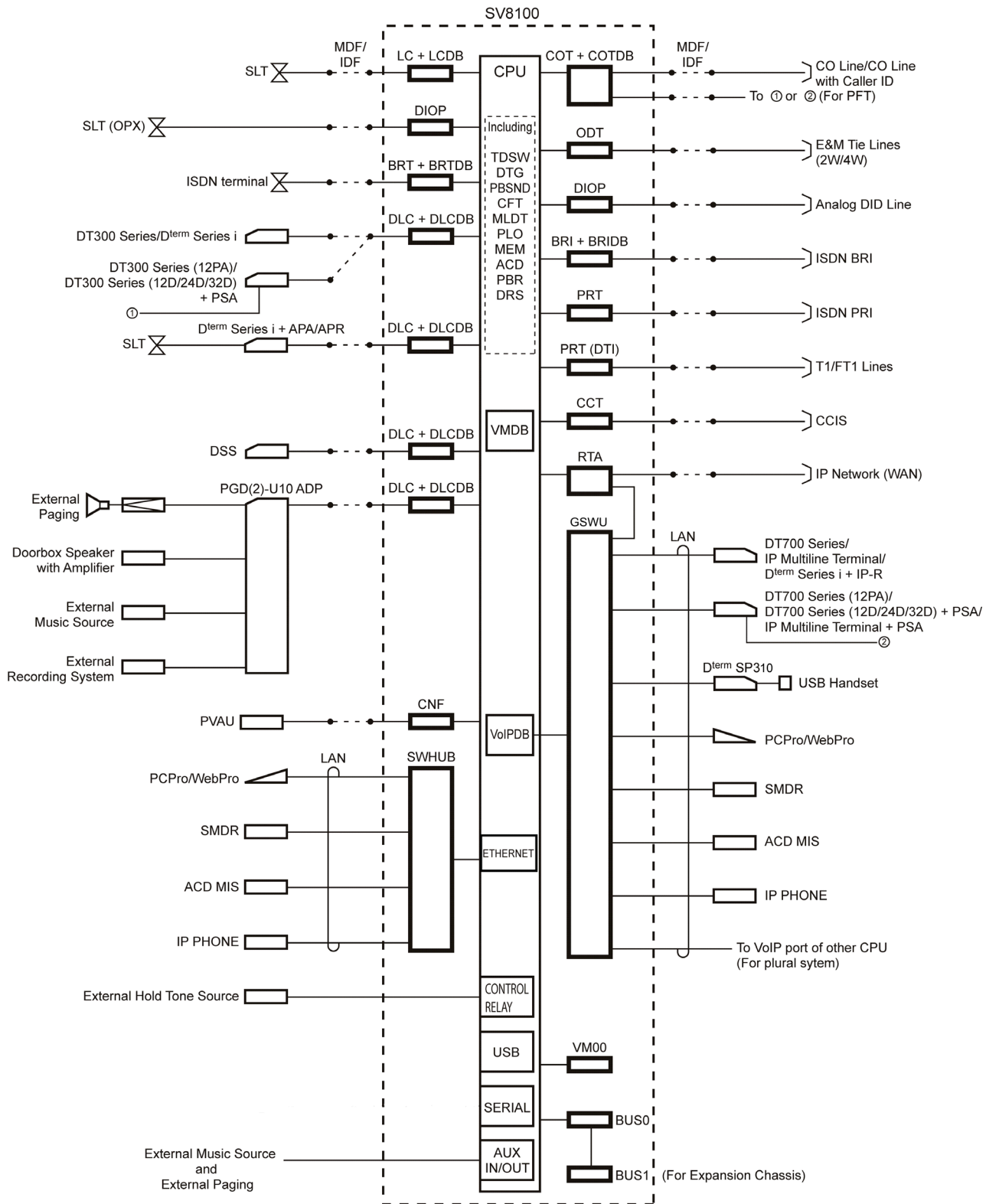


Figure 2-1 SV8100 System Block Diagram

SECTION 3 MAXIMUM SYSTEM CAPACITIES

The CHS2U-US is a compact 19" chassis that has six universal slots, one expansion slot and one MPS7101 (power supply unit). When the CD-CP00-US is installed in the first CHS2U-US, it is referred to as the *Controlling Chassis*. Additional chassis, referred to as *Expansion Chassis*, can be installed to increase the capacity of the system to meet the customer's business needs.

As [Figure 2-2 19" Controlling and Expansion Chassis](#) and [Table 2-2 SV8100 Maximum System Capacities – Trunks/Ports/Channels](#) illustrate, the system can be expanded from 104 ports to 512 ports by vertically stacking a maximum of three additional chassis onto the controlling chassis. This provides a maximum of 24 slots and 320 digital terminals. To obtain the maximum port capacity of 512 ports, two systems can be linked together via an IP connection.

The maximum slot and channel capacities are listed in [Table 2-2 SV8100 Maximum System Capacities – Trunks/Ports/Channels](#).

Table 2-2 SV8100 Maximum System Capacities – Trunks/Ports/Channels

Number of:	19” Chassis				System Maximum
	x 1 (6 Slots)	x 2 (12 Slots)	x 3 (18 Slots)	X4 (24 Slots)	
Number of Timeslots	111	222	333	444	444
Number of TDM (Time Division Multiplexing) Ports	104	208	312	416	416
$D^{term}_{-48V} *1$	80	160	240	320	Total 512
SLT (-24V)	80	176	272	368	
SLT (-48V)	20	44	68	92	
D^{term}_{IP}	512				
SIP/WLAN	512				
Analog Trunks (COT)	40	88	136	184	Total 200
BRI	40	88	136	184	
PRI (1.5M)	96	192	192	192	
IP Trunk (SIP)	200				
VoIP Channels	128				

Table 2-2 SV8100 Maximum System Capacities – Trunks/Ports/Channels

Number of:	19" Chassis				System Maximum
	x 1 (6 Slots)	x 2 (12 Slots)	x 3 (18 Slots)	X4 (24 Slots)	
Voice Mail Channels on CPU	16 channels				
V90 Modem	1 channel				

*1 = Maximum 80 *Digital Terminals* per 19" chassis due to power consumption

3.1 System Configuration – SV8100

The SV8100 19" chassis provides 104 total ports (80 digital terminals) and can be expanded, using three additional 19" chassis, for a maximum of 416 ports (320 digital terminals). Through IP connection and use of additional 19" chassis, the system can be expanded to a maximum of 512 ports.

The 19" chassis consists of a controlling chassis (chassis with CPU blade), and the ability to expand the system using expansion blades depending on system configuration.

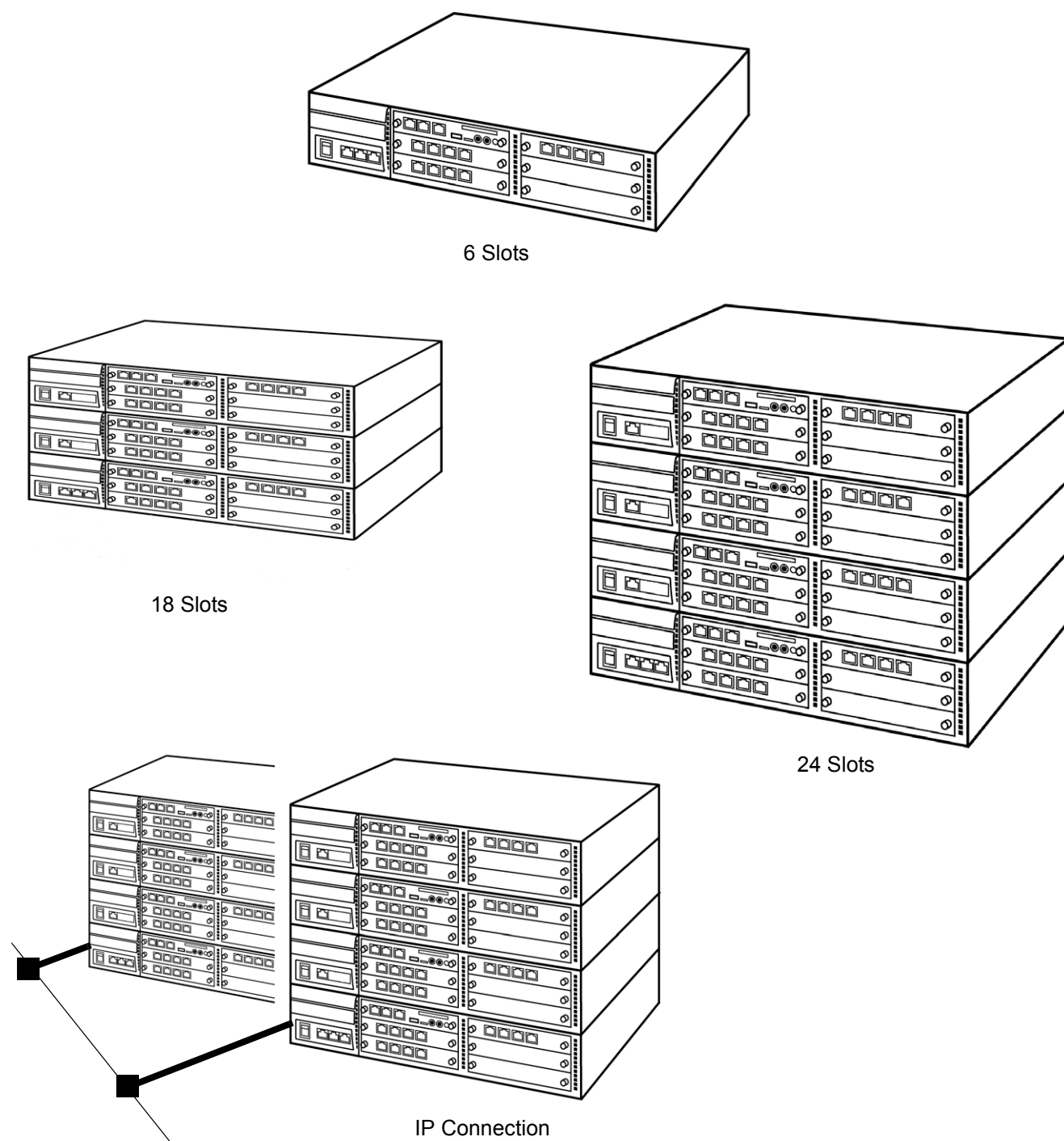


Figure 2-2 19" Controlling and Expansion Chassis

Table 2-3 Maximum System Capacities – Chassis shows the maximum number of chassis and related equipment that can be installed in a system.

Table 2-3 Maximum System Capacities – Chassis

Hardware	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis	Comments
Number of Slot(s) for Interface Package	5 Slots	6 Slots	23 Slots		
Chassis:					
CHS2U-US (19" Chassis)	1	3	4	16 x (1+3)	Virtual slot in NetLink is limited to maximum of 240
Expansion:					
PZ-BS10 3-jack Expansion Board for Controlling Chassis	1	0	0	16 x 1	–
PZ-BS11 1-jack Expansion Board for Expansion Chassis	0	1	3	16 x 3	–
Battery:					
CHS LARGE BATT BOX (External Battery Box)	1	1	4	16 x (1+3)	–
Fan Box:					
CHS2U FAN BOX SET	1	1	4	–	1 is factory installed with each chassis
Power Supply:					
MPS7101	1	2	4	–	1 is factory installed with each chassis

[Table 2-4 Maximum System Capacities – Blades](#) shows the maximum number for each blade that can be installed in a system.

This is determined by the maximum blade configuration allowed. When installing single line sets, DISA, or tie lines, CPU circuits must be allocated for DTMF receivers. To install single line sets with CO/PBX line access, or when installing immediate-start tie lines, CPU circuits must be allocated for dial tone detection.

Table 2-4 Maximum System Capacities – Blades

Hardware	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis	Comments
Number of Slot(s) for Interface Package	5 Slots	6 Slots	23 Slots		
Common Control Blades:					
CD-CP00-US	1	0	0	16	–
PZ-32IPLA (32-port VoIP Daughter Board)	1	0	0	16	This unit provides 32 VOIP Gateway channels
PZ-64IPLA (64-port VoIP Daughter Board)	1	0	0	16	This unit provides 64 VOIP Gateway channels
PZ-128IPLA (128-port VoIP Daughter Board)	1	0	0	16	This unit provides 128 VOIP Gateway channels
PZ-ME50 (Memory Expansion Board)	1	0	0	16	–
PZ-VM21 (Voice Mail Daughter)	1	0	0	1	Does include modem
Station Blades:					
CD-4DIOPA (4 DID/OPX)	5	6	23	128	When installed as an OPX blade
CD-4LCA (4 Single Line Telephone Interface)	5	6	23	32	–
PZ-4LCA (4 Single Line Telephone Interface Daughter Board)	5	6	23	32	–
CD-8DLCA (8 Digital Station Interface)	5	6	23	32	Maximum of 80 Digital Terminals per chassis

Table 2-4 Maximum System Capacities – Blades (Continued)

Hardware	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis	Comments
Number of Slot(s) for Interface Package	5 Slots	6 Slots	23 Slots		
PZ-8DLCB (8 Digital Station Interface Daughter Board)	5	5	20	32	Maximum of 80 Digital Terminals per chassis
CD-8LCA (8 Single Line Telephone Interface)	5	6	23	32	Maximum of 80 Analog Terminals per chassis
PZ-8LCE (8 Single Line Telephone Interface Daughter Board)	5	5	20	32	Maximum of 80 Digital Terminals per chassis
CD-16DLCA (16 Digital Station Interface)	5	5	20	32	Maximum of 80 Analog Terminals per chassis
CD-LTA (8 Digital/2 Single Line)	1	1	4	5	An optional PZ-4COTF or PZ-2BRIA can be installed
Trunk Blades:					
CD-2BRIA (2 Basic Rate Interface)	5	6	23	25	–
PZ-2BRIA (2 Basic Rate Interface Daughter Board)	5	6	23	25	–
CD-4COTB (4 Loop/Ground Start Trunk)	5	6	23	25	–
PZ-4COTF (4 Loop/Ground Start Trunk Daughter Board)	5	6	23	25	–
CD-4DIOPA (4 DID/OPX)	5	6	23	50	When installed as a DID blade
CD-4ODTA (4 E&M)	5	6	23	50	–
CD-PRTA (1 Primary Rate Interface)	4	4	16	8	This blade is used for Primary Rate Interface or T-1 Interface.

Table 2-4 Maximum System Capacities – Blades (Continued)

Hardware	19” Chassis with CPU	19” Chassis without CPU	19” Chassis x4	Networked Chassis	Comments
Number of Slot(s) for Interface Package	5 Slots	6 Slots	23 Slots		
Optional Blades:					
CD-PVAA (Conference Bridge)	5	6	23	32	—
CD-ETIA (Switching Hub with Power over Ethernet)	3	3	12	64	—
CD-CCTA (CCIS Trunk Interface/Common Channel Handler)	4	4	4	4	—
CD-RTB (Router)	1	2	1	50	—
CD-VM00 (Voice Mail and Server)	1	1	1	100 (2 x 50)	Maximum of One per system
EXIFU-B (for Controlling Chassis)	1	1	3	16 x 1	—
EXIFU-E (for Expansion Chassis)	1	1	3	16 x 3	—

[Table 2-5 Daughter Board Combinations](#) shows each blade and associated daughter board combinations. The daughter boards that can be mounted on specific blades are indicated by a checkmark. For example, the CD-LTA can have a PZ-2BRIA or the PZ-4COTF daughter board mounted.

Table 2-5 Daughter Board Combinations

	Daughter Board				
	PZ-2BRIA	PZ-4COTF	PZ-4LCA	PZ-8LCE	PZ-8DLCB
Controlling Chassis					
CD-LTA (8 Digital/2 Single Line)	✓	✓	–	–	–
CD-4COTB (4 Loop Ground Start)	–	✓	–	–	–
CD-4LCA (4 Single Line Interface)	–	–	✓	✓	–
CD-8LCA (8 Single Line Interface)	–	–	✓	✓	–
CD-8DLCA (8 Digital Station Interface)	–	–	–	–	✓
CD-16DLCA (16 Digital Station Interface)	–	–	–	–	–
CD-2BRIA (2 Basic Rate Interface)	✓	–	–	–	–

– = Does not apply

✓ = Does apply

SECTION 4 LICENSING

[Table 2-6 System Licenses](#) provides a list of the licensing available with the system.

Table 2-6 System Licenses

License	Function	Description
System:		
LK-SYS-UPG FM 65 TO 256 PORT-LIC	System Ports - 256 Port License	This system license supports a maximum of 256 System Port Licenses. Supports flexible port configuration with the onboard memory daughter board (PZ-ME50) and System license.
LK-SYS-UPG FM 257 TO 712 PORT-LIC	System Port - upgrade from 257 to 712 Port License	This System License supports a maximum of 712 System Port Licenses. Supports flexible port configuration with the onboard memory daughter board (PZ-ME50) and System license. Requires a locally provided USB Flash Memory.
LK-SYS-NETLINK1-LIC	Netlink - One node	The Netlink one node license will support one remote node. The primary chassis will require a license for each remote node. The memory daughter board is required by both primary chassis and remote nodes to support this feature.
LK-SYS-NETLINK2-LIC	Netlink - Two nodes	The Netlink two node license will support two remote nodes. The primary chassis will require a license for each remote node. The memory daughter board is required by both primary chassis and remote nodes to support this feature.
LK-SYS-NETLINK5- LIC	Netlink - Five nodes	The Netlink five node license will support five remote nodes. The primary chassis will require a license for each remote node. The memory daughter board is required by both primary chassis and remote nodes to support this feature.
LK-SYS-NETLINK10-LIC	Netlink - 10 nodes	The Netlink 10 node license will support 10 remote nodes. The primary chassis will require a license for each remote node. The memory daughter board is required by both primary chassis and remote nodes to support this feature.
LK-SYS-HM-LIC	Hotel/Motel (PMS) License	Enables system Hotel/Motel and PMS features.

Table 2-6 System Licenses (Continued)

License	Function	Description
LK-SYS-SMDR-LIC	SMDR License	Enables system SMDR feature which provides a record of system trunk calls.
LK-SYS-ACD-LIC	InACD Activation License	System wide activation key supporting InACD.
LK-SYS-IP-TRUNK1-LIC	IP Trunk (SIP and/or H.323) - One Trunk License	One IP Trunk License Supports one system SIP or H.323 Trunk. This license is NOT REQUIRED to support the CCISOIP Trunking Feature.
LK-SYS-IP-TRUNK4-LIC	IP Trunk (SIP and/or H.323) - Four Trunk License	Four IP Trunk License Supports four system SIP or H.323 Trunks. This license is NOT REQUIRED to support the CCISOIP Trunking Feature.
LK-SYS-IP-TRUNK8-LIC	IP Trunk (SIP and/or H.323) - Eight Trunk License	Eight IP Trunk License Supports Eight system SIP or H.323 Trunks. This license is NOT REQUIRED to support the CCISOIP Trunking Feature.
LK-SYS-IP-TRUNK16-LIC	IP Trunk (SIP and/or H.323) - 16 Trunk License	16 IP Trunk License Supports 16 system SIP or H.323 Trunks. This license is NOT REQUIRED to support the CCISOIP Trunking Feature.
LK-SYS-IP-TERMINAL-1-LIC	NEC SIP Client - One license	One NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-4-LIC	NEC SIP Client - Four license	Four NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-8-LIC	NEC SIP Client - Eight license	Eight NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-16-LIC	NEC SIP Client - 16 license	16 NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-32-LIC	NEC SIP Client - 32 license	32 NEC SIP Client - supports NEC MLT SIP Terminal and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-SIP1-LIC	SIP Client - One license	One SIP Client - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-SIP4-LIC	SIP Client - Four license	Four SIP Clients - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-SIP8-LIC	SIP Client - Eight license	Eight SIP Clients - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).

Table 2-6 System Licenses (Continued)

License	Function	Description
LK-SYS-IP-TERMINAL-SIP16-LIC	SIP Client - 16 license	16 SIP Clients - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).
LK-SYS-IP-TERMINAL-SIP32-LIC	SIP Client - 32 license	32 SIP Clients - supports 3rd party SIP telephones, NEC MLT SIP Terminals and/or NEC Softphone (SP310).
LK-SYS-1ST-CTI1-LIC	1st Party CTI (Ethernet) - One license	One 1st party CTI (Ethernet) Client License supports CTI over Ethernet and may support maximum of 128 clients.
LK-SYS-3RD-CTI-LIC	3rd Party CTI license	3rd Party CTI License Enables 3rd Party CTI (System Wide)
LK-SYS-UCB-LIC	Unified Communications for Business	Supports Unified Communication for Business application.
LK-DESKTOP SUITE- PC ASSISTANT1-LIC	Desktop Suite PC Assistant Client - One license	One Desktop Suite - PC Assistant Client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD. The NEC Softphone (SP310) client license and NEC SIP Client license is provided with each PC Assistant client license.
LK-DESKTOP SUITE- PC ASSISTANT4-LIC	Desktop Suite PC Assistant Client - Four license	Four Desktop Suite - PC Assistant Client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD. The NEC Softphone (SP310) client license and NEC SIP Client license is provided with each PC Assistant client license.
LK-DESKTOP SUITE- PC ASSISTANT16-LIC	Desktop Suite PC Assistant Client - 16 license	16 Desktop Suite - PC Assistant Client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD. The NEC Softphone (SP310) client license and NEC SIP Client license is provided with each PC Assistant client license.
LK-DESKTOP SUITE- PC ASSISTANT32-LIC	Desktop Suite PC Assistant Client - 32 license	32 Desktop Suite - PC Assistant Client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD. The NEC Softphone (SP310) client license and NEC SIP Client license is provided with each PC Assistant client license.

Table 2-6 System Licenses (Continued)

License	Function	Description
LK-DESKTOP SUITE- PC ASSISTANT64-LIC	Desktop Suite PC Assistant Client - 64 license	64 Desktop Suite - PC Assistant Client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD. The NEC Softphone (SP310) client license and NEC SIP Client license is provided with each PC Assistant client license.
LK-DESKTOP SUITE- PC ATTENDANT1-LIC	Desktop Suite PC Attendant Client - One license	One Desktop Suite - PC Attendant Client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD. The NEC Softphone (SP310) client license and NEC SIP Client license is provided with each PC Assistant client license.
LK-DESKTOP SUITE- PC ATTENDANT4-LIC	Desktop Suite PC Attendant Client - Four license	Four Desktop Suite - PC Attendant Client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD. The NEC Softphone (SP310) client license and NEC SIP Client license is provided with each PC Assistant client license.
LK-DESKTOP SUITE-ENHANCE PKG1-LIC	Desktop Suite Enhancement Pkg Client - One license	One Desktop Suite - Enhancement Pkg client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).
LK-DESKTOP SUITE-ENHANCE PKG4-LIC	Desktop Suite Enhancement Pkg Client - Four license	Four Desktop Suite - Enhancement Pkg client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).
LK-DESKTOP SUITE-ENHANCE PKG16-LIC	Desktop Suite Enhancement Pkg Client - 16 license	16 Desktop Suite - Enhancement Pkg client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).

Table 2-6 System Licenses (Continued)

License	Function	Description
LK-DESKTOP SUITE-ENHANCE PKG32-LIC	Desktop Suite Enhancement Pkg Client - 32 license	32 Desktop Suite - Enhancement Pkg client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).
LK-DESKTOP SUITE-ENHANCE PKG64-LIC	Desktop Suite Enhancement Pkg Client - 64 license	64 Desktop Suite - Enhancement Pkg client license used in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AK DESKTOP PC APP-CD provides enhanced features (White board, File Transfer, File Sharing, Instant Msg).
Voice Mail and Unified Messaging:		
LKS-VM-VRS2-LIC	VRS Port - Two license	Two Port License VRS – supports general message, personal greeting, Automated Attendant, ACD messages. Supports a maximum 16 dynamic VRS ports and/or eight dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-VRS4-LIC	VRS Port - Four license	Four Port License VRS – supports general message, personal greeting, Automated Attendant, ACD messages. Supports a maximum 16 dynamic VRS ports and/or eight dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-VRS8-LIC	VRS Port - Eight license	Eight Port License VRS – supports general message, personal greeting, Automated Attendant, ACD messages. Supports a maximum 16 dynamic VRS ports and/or eight dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-VRS16-LIC	VRS Port - 16 license	16 Port License VRS – supports general message, personal greeting, Automated Attendant, ACD messages. Supports a maximum 16 dynamic VRS ports and/or eight dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.

Table 2-6 System Licenses (Continued)

License	Function	Description
LKS-VM-INMAIL2-LIC	VM8000 InMail Port - Two license	Two Port license (VM8000 InMail) - Approximately 33 hours of storage and requires stock no. 670831 AKS InMail-512M - APP CF Supports a maximum of 16 Dynamic VRS Ports and/or eight Dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-INMAIL4-LIC	VM8000 InMail Port - Four license	Four Port license (VM8000 InMail) - Approximately 33 hours of storage and requires stock no. 670831 AKS InMail-512M - APP CF Supports a maximum of 16 Dynamic VRS Ports and/or eight Dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-INMAIL8-LIC	VVM8000 InMail Port - Eight license	Eight Port license (VM8000 InMail) - Approximately 33 hours of storage and requires stock no. 670831 AKS InMail-512M - APP CF Supports a maximum of 16 Dynamic VRS Ports and/or eight Dynamic InMail ports. May not exceed 16 simultaneous ports used among both InMail and VRS.
LKS-VM-LANGUAGE-LIC	VM8000 InMail Multi language support - One license	One Language activation license. Supports a maximum of 20 languages.
LKS-UMS-CLIENT1-LIC	UM8000 Mail View App Session - One license	One Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.
LKS-UMS-CLIENT4-LIC	UM8000 Mail View App Session - Four license	Four Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.
LKS-UMS-CLIENT8-LIC	UM8000 Mail View App Session - Eight license	Eight Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.
LKS-UMS-CLIENT16-LIC	UM8000 Mail View App Session - 16 license	16 Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.

Table 2-6 System Licenses (Continued)

License	Function	Description
LKS-UMS-CLIENT32-LIC	UM8000 Mail View App Session - 32 license	32 Client View App Session UMS8000 Mail. Supports client, View Mail, View Call Plus, VMM (outlook), VML (Lotus Notes), VMG (GroupWise) and Web Mailbox Manager.
LKS-UMS-PORT4-LIC	UM8000 Mail Port - Four license	Four UMS port license
LKS-UMS-PORT8-LIC	UM8000 Mail Port - Eight license	Eight UMS port license
LKS-UMS-PORT16-LIC	UM8000 Mail Port - 16 license	16 UMS port license
LKS-UMS-PORT 2 LITE-LIC	UM8000 Mail Lite Port (Two License)	Two UMS Lite Port License The Lite port license does not support Text-to-speech, Networking and will support up to two ports of fax. UPGRADES - The 2 UMS Lite requires stock number: 670851 LKS-UMS2 PORT LITE UPG KIT
LKS-UMS-PORT 4 LITE-LIC	UM8000 Mail Lite Port (Four License)	Four UMS Lite Port License The Lite port license does not support Text-to-speech, Networking and will support up to two ports of fax.
LKS-UMS-PORT 8 LITE-LIC	UM8000 Mail Lite Port (Eight License)	Eight UMS Lite Port License The Lite port license does not support Text-to-speech, Networking and will support up to two ports of fax.
LKS-UMS-PORT 16 LITE-LIC	UM8000 Mail Lite Port (16 License)	16 UMS Lite Port License The Lite port license does not support Text-to-speech, Networking and will support up to two ports of fax.
LKS-UMS UPG FM LITE TO FULL-LIC	UM8000 Mail Upgrade from LITE to FULL License	Upgrade from UMS LITE to FULL License
LKS-UMS-PORT2 LITE UPG KIT-LIC	UM8000 Mail Two Port Lite Upgrade Kit License	Two-port LITE Upgrade Kit - License
LKS-UMS PORT 4 UPG-LIC	UM8000 Mail Four Port (FULL) Upgrade License	Four-port Upgrade Kit - License
LKS-UMS VIDEO MAIL CLIENT1-LIC	UM8000 Mail Video Mail Client - One License	One Video Mail Client - One License
LKS-UMS VIDEO MAIL CLIENT5-LIC	UM8000 Mail Video Mail Client - Five License	Five Video Mail Client - One License
LKS-UMS-LANGUAGE-LIC	UM8000 Mail Multi language Support - One license	One language activation license. Supports a maximum of 24 languages.
LKS-UMS-FAX-LIC	UMS000 Mail FAX Port - One license	One port FAX

Table 2-6 System Licenses (Continued)

License	Function	Description
LKS-UMS-HOTEL-PMS-LIC	UM8000 Mail Hospitality/ PMS license	Hospitality and PMS activation license
LKS-UMS-HOTEL-LANGUAGE-LIC	UM8000 Mail Hospitality Language - One license	One hospitality language activation license
LKS-UMS-AMIS-PLUS-LIC	UM8000 Mail AMIS/Plus Net	
Communications Analyst:		
LKS-CA - 20 STATION PKG-LIC	SMB8000 Communications Analyst - 20 STA license pack	Communications Analyst X.X-Full-featured call accounting with support for up to 20 stations. Can be upgraded to 256 STA Base Package License. Network users may be added by purchasing Communications Analyst - Network User Pack licenses. This package also includes additional features such as: CallAlert, Project, Case Billing Manager and Campaign Manager.
LKS-CA -256 STATION PKG-LIC	SMB8000 Communications Analyst - 256 STA license pack	Communications Analyst X.X-Full-featured call accounting with 256 stations that can be upgraded to support Network users and additional stations. More stations may be supported by purchasing additional 256 Stations Pack licenses and Network users may be added by purchasing Communications Analyst - Network User Pack licenses. This package also includes additional features such as: CallAlert, Project, Case Billing Manager and Campaign Manager.
LKS-CA-NW-1CLIENT-LIC	SMB8000 Communications Analyst - Network user pack	Provides five additional concurrent network users access to application from desktop PCs on the network. Network user license is supported on both the 20 STA or 256 STA Base packages (reference stock numbers 670802 or 670803).
LKS-CA-UPG 20TO256-LIC	SMB8000 Communications Analyst - Upgrade from 20 to 256 stations	Communications Analyst – upgrade from 20 STA Base Package License to 256 STA Base Package License.
LKS-CA-ADD REMOTE SITE-LIC	SMB8000 Communications Analyst - Additional remote site	Additional remote phone system (SMDR/ CDR data source) support. Required for each additional phone system the Communications Analyst will collect SMDR data from. This license can be used in conjunction with part number 670803 LKS-CA-256 STATION BASE PKG-LIC.

Table 2-6 System Licenses (Continued)

License	Function	Description
LKS-CA-TRAFFIC ANALYSIS-LIC	SMB8000 Communications Analyst - Traffic analysis	Communication Analyst Traffic Analysis – Enables understanding of trunk utilization and what-if analysis for trunk capacity and bandwidth optimization.
LKS-CA-PMS INTEGRATION-LIC	SMB8000 Communications Analyst - PMS integration	Communication Analyst PMS Integration – Provides the interface to property management systems for guest billing services.
LK-CA-IPK II CES MIGRATION-LIC	SMB8000 Communications Analyst - ELITE IPK II CES MIGRATION	Version Upgrade (This part number will not be available in the first release. This part number to be released only when migration of Elite IPK II to SMB100 is announced).
LKS-CA-REMOTE SITE SOFTWARE-LIC	SMB8000 Communications Analyst - Remote site software (Serial-IP connector)	Software that runs on a PC at the remote site that helps buffer local data during network downtime and help connect serial SMDR data sources to Communications Analyst server over IP network. This optional software, running on a PC at the remote site, substitutes for a Serial-to-IP hardware buffer adapter. This license can be used in conjunction with part number 670803 LKS-CA-256 STATION BASE PKG-LIC.
LKS-CA-ADDITIONAL STATION 256-LIC	SMB8000 Communications Analyst - Additional 256 stations pack	Supports additional 256 stations. This license can be used in conjunction with part number 670803 LKS-CA-256 BASE STATION PKG-LIC.
LKS-CA-WEB REPORTING-LIC	SMB8000 Communications Analyst - Web reporting user pack	Each license unit provides Internet browser access to reports for five additional named users. Web Reporting User Pack license is supported on both the 20 STA and 256 STA base packages (reference stock numbers 670802 and 670803).
ACD/MIS:		
LKS-ACDMIS-BASIC-LIC	ACD-MIS Basic License	
LKS-ACDMIS-ADDMON-LIC	ACD-MIS Add. Monitor	ACD MIS additional monitor report license
LKS-ACDMIS-AGENT-LIC	ACD-MIS Agent Client - One license	ACD MIS agent client license
PVA Conference:		
LKS-PVA-CONF-PORT8-LIC	Multimedia Conference Port - Eight ports	Eight-port Conference license Requires Stock Number 670838 AKS CONF BRIDGE APP CF
LKS-PVA-CONF-PVA-Enhancement PKG-LIC	Multimedia Conference Enhancement Package	Requires Stock Number 670838 AKS CONF BRIDGE APP CF

Table 2-6 System Licenses (Continued)

License	Function	Description
PVA IVR:		
LKS-PVA-IVR-PORT8-LIC	IVR Port - Eight license	Eight license ports to support the IVR Application. Requires Stock Number 670839 AKS IVR APP CF.
Desktop Suite:		
LKS-DESKTOP SUITE-SOFTPHONE1-LIC	Desktop Suite Soft Phone (SP310) Client - One license	One Desktop Suite - Soft Phone (SP310) client license fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AKS DESKTOP PC APP-CD. The NEC Softphone SP310 requires a NEC SIP client license stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.
LKS-DESKTOP SUITE-SOFTPHONE4-LIC	Desktop Suite Soft Phone (SP310) Client - Four license	Four Desktop Suite - Soft Phone (SP310) client license fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AKS DESKTOP PC APP-CD. The NEC Softphone SP310 requires a NEC SIP client license stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.
LKS-DESKTOP SUITE-SOFTPHONE16-LIC	Desktop Suite Soft Phone (SP310) Client - 16 license	16 Desktop Suite - Soft Phone (SP310) client license fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AKS DESKTOP PC APP-CD. The NEC Softphone SP310 requires a NEC SIP client license stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.
LKS-DESKTOP SUITE-SOFTPHONE32-LIC	Desktop Suite Soft Phone (SP310) Client - 32 license	32 Desktop Suite - Soft Phone (SP310) client license fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AKS DESKTOP PC APP-CD. The NEC Softphone SP310 requires a NEC SIP client license stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.
LKS-DESKTOP SUITE-SOFTPHONE64-LIC	Desktop Suite Soft Phone (SP310) Client - 64 license	64 Desktop Suite - Soft Phone (SP310) client license fused in conjunction with NEC Desktop Suite (Assistant, Attendant, SP310) Part No. 670829 AKS DESKTOP PC APP-CD. The NEC Softphone SP310 requires a NEC SIP client license stock number 670716 LK-SYS-IP-TERMINAL-1-LIC.

SECTION 5 POWER-BASED CALCULATOR CHART

The Univerge SV8100 system uses two types of power factors. For a single chassis chart refer to [Table 2-7 Board Power Factor](#). For the maximum number of specific blades per package, see [Table 2-8 Maximum Number of Package Installed](#). Refer to [Table 2-9 Terminal Power Factor](#) below, for the Terminal/ Adapter power chart.

Table 2-7 Board Power Factor

Board Power Factor	
Total	=<7
Item	Power Factor
CD-CP00-US	1
CD-RTB	2
CD-VM00	2
CD-ETIA	2
CD-PVAA	1
PZ-32IPLA	1
PZ-64IPLA	2
PZ-128IPLA	2

Table 2-8 Maximum Number of Package Installed

Board (Power Factor)	Maximum Number of Package Installed		
	19 inch with CCPU	19 inch without CCPU	4 x 19 inch
CD-ETIA (2)	3	3	12
CD-PVAA (1)	5	6	23
CD-RTB (2)	2	2	8

Table 2-9 Terminal Power Factor

Terminal Power Factor	
19 inch Chassis	
=<80	
Item	Power Factor
DTL-24D-1 TEL	1
DTL-8LD-1 TEL	1.5
ADA-L UNIT	2
APR-L UNIT	2
Power Save Adapter	1
8LK-L UNIT	0
DCL-60-1 CONSOLE	2
ITL-320C-1 TEL	6
ITL-24D-1 TEL	4
ITL-2E-1 TEL	4
ITL-6DE-1 TEL	4
SLT	1
PGD(2)-U10 ADP	2
SLT Adapter	5



ITL factors are calculated using the CD-ETIA blade.

Table 2-10 IP Terminal Power Chart

IP Terminal	IEEE802.3af Class	Label Indication (Maximum Current with All Options)				Maximum Current Without Options			
		48VDC		24VDC		48VDC		24VDC	
ITL-320C-1 TEL	Class 3	160mA	7.7W	290mA	7.0W	111mA	5.3W	192mA	4.6W
ITL-32D-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	90mA	4.3W	153mA	3.7W
ITL-8LD-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	81mA	3.9W	137mA	3.3W
ITL-24D-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	81mA	3.9W	137mA	3.3W
ITL-12D-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	81mA	3.9W	137mA	3.3W

Table 2-10 IP Terminal Power Chart (Continued)

IP Terminal	IEEE802.3af Class	Label Indication (Maximum Current with All Options)				Maximum Current Without Options			
		48VDC		24VDC		48VDC		24VDC	
ITL-24PA-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	—	0.0W	—	0.0W
ITL-24PD-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	—	0.0W	—	0.0W
ITL-24BT-1 TEL	Class 2	130mA	6.2W	235mA	5.6W	—	0.0W	—	0.0W
ITL-6DE-1 TEL	Class 1	68mA	3.3W	122mA	2.9W	68mA	3.3W	122mA	2.9W
ITL-2E-1 TEL	Class 1	68mA	3.3W	122mA	2.9W	68mA	3.3W	122mA	2.9W

Label Indication:

IP Value/Sophisticated – Maximum watts when adding options or modular upgrades.

IP Value – Maximum watts when ITL-12D-1 TEL is changed to ITL-8LD-1 TEL or ITL-24D-1 TEL.

Table 2-11 IEEE802.af Class Specifications

IEEE802.3af	Minimum	Maximum
Class 4	—	—
Class 3	6.49W	12.95W
Class 2	3.84W	6.49W
Class 1	0.44W	3.84W
Class 0	0.44W	12.95W

SECTION 6 SYSTEM REQUIREMENTS AND SPECIFICATIONS

6.1 Cabling

This section provides cabling requirements and specifications for various equipment used in the SV8100 system.

[Figure 2-3 Connecting the DLC Using Twisted 2-Pair Cable](#) is a diagram of the chassis connected with each of the multiline terminals and single line telephones by a separate twisted 1-pair cable or 2-pair cable (only for Multiline Terminals).

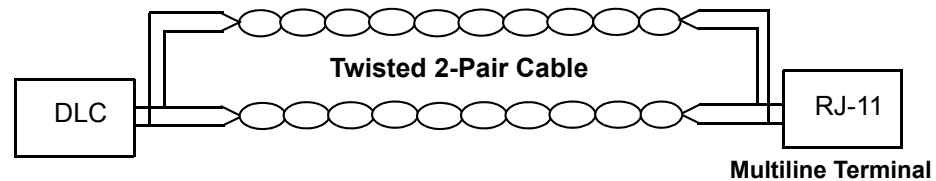


Figure 2-3 Connecting the DLC Using Twisted 2-Pair Cable

Refer to the following tables for cabling requirements and specifications.

- [Table 2-12 DT300 Series Loop Resistance and Cable Length](#)
- [Table 2-13 DT700 Series Loop Resistance and Cable Length](#)
- [Table 2-14 D^{term} Series i or D^{term} IP Terminal Loop Resistance and Cable Length](#)
- [Table 2-15 Cable Connection Between the Analog Port and the Single Line Equipment](#)
- [Table 2-16 Cabling Requirements](#)

Table 2-12 DT300 Series Loop Resistance and Cable Length

Terminal or Adapter	By Twisted 1-Pair Cable (without AC Adapter) 24 AWG
DTL-2E-1 (BK) TEL	1,969 ft (600m)
DTL-6DE-1 (BK) TEL	1,969 ft (600m)
DTL-8LD-1 (BK) TEL DTL-8LD-1 (WH) TEL	1,969 ft (600m)
DTL-12BT-1 (BK) TEL	1,969 ft (600m)
DTL-12PA-1 (BK) TEL	1,969 ft (600m)

Table 2-12 DT300 Series Loop Resistance and Cable Length (Continued)

Terminal or Adapter	By Twisted 1-Pair Cable (without AC Adapter) 24 AWG
DTL-12D-1 (BK) TEL DTL-12D-1 (WH) TEL	1,969 ft (600m)
DTL-24D-1(BK) TEL DTL-24D-1(WH) TEL	1,969 ft (600m)
DTL-32D-1 (BK) TEL DTL-32D-1 (WH) TEL	1,969 ft (600m)
DCL-60-1 Console*	1,969 ft (600m)

* An AC Adapter is required.

Table 2-13 DT700 Series Loop Resistance and Cable Length

Terminal or Adapter	Ethernet Cable
ITL-2E-1 (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-6DE-1 (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-8LD-1 (BK) TEL ITL-8LD-1 (WH) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-12BT-1 (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-12D-1 (BK) TEL ITL-12D-1 (WH) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-12PA-1 (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-24D-1 (BK) TEL ITL-24D-1 (WH) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100 m)
ITL-32D-1 (BK) TEL ITL-32D-1 (WH) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)
ITL-32OC-1 (BK) TEL	Cat 5/Cat 6 Ethernet 328.1 ft (100m)

Table 2-14 D^{term} Series i or D^{term} IP Terminal Loop Resistance and Cable Length

Terminal or Adapter	Maximum Loop Resistance (without AC Adapter) (Ohms)	By Twisted 1-Pair Cable (without AC Adapter) 24 AWG	By Twisted 2-Pair Cable (without AC Adapter) 24 AWG	Maximum Loop Resistance (with AC Adapter) (Ohms)	By Twisted 1-Pair Cable (with AC Adapter) 24 AWG	By Twisted 2-Pair Cable (with AC Adapter) 24 AWG
DTH-8-1 TEL DTR-8-1 TEL	37	700	1400	107	2000	2000
DTH-8D-1 TEL DTR-8D-1 TEL	37	700	1400	107	2000	2000
DTH-16-1 TEL DTR-16-1 TEL	35	660	1320	107	2000	2000
DTH-16D-1 TEL DTR-16D-1 TEL	35	660	1320	107	2000	2000
DTH-32D-1 TEL DTR-32D-1 TEL	26	500	1000	107	2000	2000
DTH-16LD-1 TEL	37	700	1400	107	2000	2000
DCR-60-1 Console*	—	—	—	107	2000	2000

* An AC Adapter is required.

Table 2-15 Cable Connection Between the Analog Port and the Single Line Equipment

Connected Equipment	Cable	Maximum Feet from Connected Equipment to Telephone
ADA-L UNIT	Twisted Pair	10 ft (3.048m)
APR-L UNIT	Twisted Pair	50 ft (15.24m)
PSA-L (BK) UNIT	Twisted Pair	1,700 ohms
PSA-L (WH) UNIT	Twisted Pair	1,700 ohms


 *Mixing digital and analog ports through the same 25-pair cable runs is not recommended.*

Table 2-16 Cabling Requirements

Connected Equipment	Cable
Music on Hold and Background Music Sources	Hi-Fi Shielded Audio Cable
External Amplifier	Hi-Fi Shielded Audio Cable
ITL Cabling	Cat 5 Straight Data Network Cable – 328.1 ft (100m) maximum distance.

6.2 Power Requirements

A dedicated 120VAC 60 Hz circuit located within seven feet of the chassis is required. A separate dedicated outlet for each chassis should be installed.



Double Pole/Neutral Fusing
(power supply fuses are located at both the L and N side).

6.2.1 Power Supply Specifications

AC Power Supply:

- ☐ Dedicated 15 Amp circuit
- ☐ Power Requirements: 120 VAC @ 15A Controlling/Base Chassis
- ☐ Power Consumption: Base Chassis=324VA, Expansion Chassis=324VA, total 1296VA
- ☐ Input Voltage: 90VAC to 264VAC
(Rated Voltage: 100VAC/120VAC/220VAC - 240VAC)
- ☐ Frequency: 45Hz - 66Hz (Rated frequency: 50/60Hz)
- ☐ Phase and Wire: Single Phase, 2 Line + PE Type
- ☐ Grounding Requirements: No. 14 AWG copper wire
- ☐ Feeding Voltage: D^{term} /OPX/DID: -48V
SLT: 25mA / -28V

With input voltage of 120 VAC and with full load conditions:

Output Power: Base chassis=136W, Expansion chassis=136W, total 544W

AC Input I: Base chassis=2.7A, Expansion chassis=2.7A, total 10.8A

VA @ 120V: Base chassis=324VA, Expansion chassis=324VA, total 1296VA

KWh @ AC Input I x 120V/1000: Base chassis=0.324 KWh, Expansion chassis=0.324 KWh, total 1.296 KWh

BTU (KWh x 3413): Base chassis=1106 BTU, Expansion chassis=1106 BTU, total 4424 BTU



Double Pole/Neutral Fusing
(power supply fuses are located at both the L and N side).

- ☐ Dedicated 120 Vac
- ☐ 60 Hz circuit located within seven feet of the chassis
- ☐ Dedicated 15A circuit
- ☐ Single Phase
- ☐ A dedicated outlet, separately fused and grounded for each chassis should be installed



Double Pole/Neutral Fusing
(power supply fuses are located at both the L and N side).

6.2.2 Power Supply Consumption

Table 2-17 Power Consumption

Chassis	Maximum RMS Current	Watts Used (Idle)	Watts Used (Maximum)
Basic Chassis – CD-CP00-US Chassis	2.7 A	120	180
Basic Chassis + Expansion Chassis	5.4 A	240	360
Basic Chassis + 2 Expansion Chassis	8.1 A	360	540
Basic Chassis + 3 Expansion Chassis	10.8 A	480	720

6.3 Environmental Conditions

6.3.1 Temperature and Humidity

Chassis, Telephones, 16LK, Console, ADA, APR

- ☐ Operating Temperature: +32°F ~ +104°F (0°C ~ 40°C)
- ☐ Recommended Long Term Temperature: -4°F ~ +140°F (-20°C ~ 60°C)

☐ Operating Humidity: 10 ~ 90% RH (non-condensing)

☐ Recommended Long Term Humidity: 10 ~ 90% RH

Blades – PZ-BS10, PZ-BS11, PZ-VM21, PZ-ME50, CD-8DLCA, CD-16DLCA, PZ-8DLCB

☐ Operating Temperature: +32°F ~ +104°F (0°C ~ 40°C)

☐ Recommended Long Term Temperature: -4°F ~ +140°F (-20°C ~ 60°C)

☐ Humidity: 10 ~ 90% RH (non-condensing)

☐ Recommended Long Term Humidity: 10 ~ 90% RH

Blades - CD-4LCA, PZ-4LCA, CD-8LCA, PZ-8LCE, CD-4COTB, PZ-4COTF, CD-PRTA

☐ Operating Temperature: +32°F ~ +104°F (0°C ~ 40°C)

☐ Recommended Long Term Temperature: -4°F ~ +140°F (-20°C ~ 60°C)

☐ Operating Humidity: 10 ~ 90% RH (non-condensing)

☐ Recommended Long Term Humidity: 20 ~ 90% RH

Door Box

☐ Operating Temperature: -4°F ~ +104°F (-20°C ~ 60°C)

☐ Operating Humidity: 20 ~ 80% (non-condensing)

SV8100 Power Supply – MPS7101

☐ Operating Temperature: +32°F ~ +104°F (0°C ~ +40°C)


☐ Recommended Long Term Temperature: -4°F ~ 167°F (-40°C ~ 75°C)

☐ Operating Humidity: 20 ~ 95% RH (non-condensing)

☐ Recommended Long Term Humidity: 10 ~ 95% RH

6.4 Outside Line Types

The following outside lines can be used with the UNIVERGE SV8100/SV8300 system.

- 2-wire, Loop Start or Ground Start Trunks – SV8300 only
- 2-wire, 2-way DID Lines (Dial Pulse or DTMF) – SV8300 only
 -  *DID feature is not available for Europe and Australia market.*
- 4-wire, E&M Tie Lines (Type I or V, Dial Pulse, or DTMF)
- Digital Trunk T1/FT1 (Loop Start, Ground Start, Tie Line (E&M), or DID Signaling)
- ISDN-BRI Trunks
- ISDN-PRI Trunks

- VoIP Trunks (Internet Protocols)

6.5 Transmission, Network, and Control Specifications

6.5.1 Transmission

- ☐ Data Length:
 - From Multiline Terminal to CD-8DLCA: 23 bits
 - From CD-8DLCA to Multiline Terminal: 23 bits
- ☐ Data Transmission Rates:
 - Between CD-8DLCA and Multiline Terminal: 184K bps (voice and signaling)
- ☐ Scanning Time for each Multiline Terminal: 32 ms.

6.5.2 Network

Time Division Multiplexing (TDM) allows transmission of data and voice simultaneously over one communications medium. The specifications that the UNIVERGE SV8100/SV8300 system uses for switching, clock, data bus, and timeframe are shown below.

- ☐ TDM Switching: PCM (μ Law)
- ☐ TDM Clock: 2.048 MHz
- ☐ TDM Data Bus: 8 bit
- ☐ TDM Timeframe: 125 μ s.

6.5.3 Control

This section indicates the speed or capacity:

- ☐ Control: Stored program with distributed processing
- ☐ Central Processor: 32-bit microprocessor
- ☐ Clock: 266 MHz
- ☐ Interface Blade: 8- or 16-bit microprocessor
- ☐ Optional Blades: 16- or 32-bit microprocessor
- ☐ Multiline Terminal (TDM): 8-bit microprocessor
- ☐ Multiline Terminal (IP): 32-bit microprocessor
- ☐ IP Adapter: 32-bit microprocessor
- ☐ Attendant Console: 4-bit microprocessor
- ☐ SLT Adapter: 4-bit microprocessor

6.5.4 Electra Elite IPK Terminals and Equipment

The voltage, current, and ring signal for the Electra Elite IPK Multiline Terminals, Single Line Telephone equipment, and AP(A)-R/AP(R)-R Units are listed below:

☐ Multiline Terminal

Voltage: -11 ~ -26 Vdc

Maximum Current: 250 mA

Acoustical characteristics meet Electronic Industry Association (EIA) standard proposal SP-1286 and standard EIA RS-470.
--

☐ Single Line Telephone

Standard 2500 Set: 500 type network

Nominal Current: 25 mA

Ring Signal: 56 Vac RMS @ 20 Hz

☐ SLTII(1)-U() ADP

Standard 2500 Set: 500 type network

Nominal Current: 30 mA

Ring Signal: 56 Vac RMS @ 20 Hz

☐ AP(A)-R Unit

Standard 2500 Set: 500 type network

Nominal Current: 30 mA

☐ AP(R)-R Unit

Standard 2500 Set: 500 type network

Nominal Current: 30 mA

Ring Signal: 56 Vac RMS @ 20 Hz

6.5.5 Series i Terminals

- ☐ The voltage and current for the D^{term} Series i Multiline Terminals are listed below:

Voltage: -11 ~ -48 Vdc

Maximum Current: 250 mA

Acoustical characteristics meet Electronic Industry Association (EIA) standard proposal SP-1286 and standard EIA RS-470.

- ☐ Voltage, current, and ring signal information for Single Line Telephone equipment, AP(A)-R Unit, and AP(R)-R Unit are the same as those listed in the previous paragraph.

6.6 Dialing Specifications

6.6.1 Dial Pulse Address Signaling

Dial Pulse Address Signaling uses dial pulses (regular momentary interruptions) to signal the equipment. The following Dial Pulse specifications are used in the UNIVERGE SV8100/SV8300 system.

- ☐ Pulse Rate: 10 ± 0.5 pps/ 20 ± 1.0 pps
- ☐ Percent Break: $60 \pm 1.5\%$
- ☐ Interdigit Interval: 0 pps/20 pps 770 ms. ~ 830 ms.

6.6.2 Dual-Tone Multifrequency (DTMF) Address Signaling

DTMF signaling includes push button or Touchtone dialing. When a key on a telephone is pushed, two tones (one high frequency and one low frequency) are provided. In the UNIVERGE SV8100/SV8300 system, the following DTMF specifications are used.

- ☐ Frequencies

Two sinusoidal frequencies are provided, one from the high frequency group and one from the low frequency group.
- ☐ Frequency Deviation: Less than $\pm 1.5\%$
- ☐ Signal Level:

Nominal level per frequency: -6 ~ -4 dBm

Minimum level per frequency

Low Group: -10 dBm

High Group: -8 dBm

Maximum level per frequency: 0 dBm

- ☐ Rise Time: Within 5 ms.
- ☐ Duration of Dual Frequency Signal:
110 ms. default/60 ms. minimum
- Interdigital Time: 140 ms. default/45 ms. minimum

Nominal **High** Group
Frequencies (Hz)Nominal **Low** Group
Frequencies (Hz)

	1209	1336	1477
697	1	2	3
770	4	5	6
852	7	8	9
941	Q	0	#

6.6.3 External Equipment Connection

- ☐ Door Phone or TV Door Phone
- ☐ External Speaker via amplifier
- ☐ External music source for MOH and BGM
- ☐ Tape recorder for voice recording via PGD(2)-U10 ADP
- ☐ Door Lock/Release or General Purpose Relay via PGD(2)-U10 ADP
- ☐ Printer for SMDR by LAN
- ☐ PC by LAN

6.6.4 Music Source for Music on Hold via Chassis

- ☐ Auxiliary Input: 0.6V PPS Signal Level
- ☐ Input Impedance: 600 Ω

6.6.5 Music Source for Station Background Music via ACI

- ☐ Auxiliary Input: 0.6V PPS Signal Level
- ☐ Input Impedance: 600 Ω

6.6.6 External Paging (Audio)

- ☐ Output Power: -10 dBm Signal Level
- ☐ Output Impedance: 600 Ω
- ☐ Relay Contact Rating: 500 mA, 24 Vdc

6.6.7 External Tone Ringer/Night Chime Output

- ☐ Output Level: -10 dBm
- ☐ Output Impedance: 600 Ω
- ☐ Relay Contact Rating: 500 mA, 24 Vdc

6.6.8 SMDR Output

- ☐ Female Connector (LAN) Standard DB-9 (straight)

6.6.9 PC Connection

- ☐ Female Connector (LAN) Standard DB-9 (straight)

6.6.10 Relay Contact

- ☐ All Relay Contact Ratings: 500 mA, 24Vdc

6.7 Battery Backup

The UNIVERGE SV8100/SV8300 system has battery backup functions for system backup and for memory backup.

6.7.1 System Backup (Optional)

During a power failure, the system can be backed up using the CHS2U BATT MTG KIT for a backup time of 10 minutes or one of the CHS LARGE BATT SETs for a backup time ranging from 45~180 minutes.

6.7.2 Memory Backup

The CD-CP00-US Blade battery retains the Clock/Calendar and Last Number redial (LNR) buffers for each station when the CD-CP00-US Blade encounters a power loss. With a fully charged battery, the settings are retained for about three years. The System Programmed memory (Customer Database) is stored in non-volatile Memory and can be erased only by a First Initialization. After power is restored, the system Blade returns to normal operation.

6.8 Weights and Dimensions

Table 2-18 SV8100 Weights and Dimensions on page 2-37 shows the shipping weight, height, width and depth of each SV8100 digital multiline terminal, IP multiline terminal, D^{term} , Series i multiline terminal, chassis, assorted blades and adapters.

Table 2-18 SV8100 Weights and Dimensions

Unit	Shipping Weight ¹	Height	Width	Depth
SV8100				
CHS2U-US	278.7 oz (7.9 kg)	3.47 in (88 mm)	16.9 in (430 mm)	14.17 in (360 mm)
CD-CP00-US	7.06 oz (0.2 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.09 in (180 mm)
PZ-ME50	.353 oz (0.01 kg)	0.12 in (3 mm)	2.56 in (65 mm)	1.22 in (31 mm)
CD-LTA	6.70 oz (0.19 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.09 in (180 mm)
CHS LARGE BATT BOX	352.7 oz (10 kg)	23.23 in (590 mm)	17.72 in (450 mm)	10.43 in (265 mm)
CHS LARGE BATT SET	194 oz (5.5 kg)	6.69 in (170 mm)	5.91 in (150 mm)	4.33 in (110 mm)
Common				
MPS7101	31.75 oz (0.9 kg)	2.36 in (60 mm)	7.08 in (180 mm)	6.10 in (155 mm)
PZ-BS10	2.29 oz (.065 kg)	0.91 in (23 mm)	2.17 in (55 mm)	7.28 in (185 mm)
PZ-BS11	1.975 oz (0.056 kg)	0.91 in (23 mm)	2.17 in (55 mm)	7.28 in (185 mm)
PZ-VM21	1.76 oz (0.05 kg)	0.60" (15 mm)	2.09 in (53 mm)	3.35 in (85 mm)
PZ-32IPLA	1.76 oz (0.05 kg)	0.60 in (15 mm)	3.15 in (80 mm)	6.3 in (160 mm)
PZ-64IPLA	1.76 oz (0.05 kg)	0.60 in (15 mm)	3.15 in (80 mm)	6.3 in (160 mm)
PZ-128IPLA	1.76 oz (0.05 kg)	0.60 in (15 mm)	3.15 in (80 mm)	6.3 in (160 mm)
CD-8DLCA	5.89 oz (0.167 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.09 in (180 mm)
PZ-8DLCB	4.41 oz (0.125 kg)	0.60 in (15 mm)	4.72 in (120 mm)	5.12 in (130 mm)

Table 2-18 SV8100 Weights and Dimensions (Continued)

Unit	Shipping Weight ¹	Height	Width	Depth
CD-16DLCA	7.831 oz (0.222 kg)	1.89 in (48 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-4COTB	6.35 oz (0.18 kg)	1.89 in (48 mm)	9.45 in (240 mm)	7.68 in (195 mm)
PZ-4COTF	3.53 oz (0.10 kg)	1.89 in (48 mm)	9.45 in (240 mm)	5.12 in (130 mm)
CD-4LCA	5.99 oz (0.17 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
PZ-4LCA	3.10 oz (0.09 kg)	0.60 in (15 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-8LCA	6.46 oz (0.183 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
PZ-8LCE	3.70 oz (0.105 kg)	0.60 in (15 mm)	9.45 in (240 mm)	5.12 in (130 mm)
CD-2BRIA	5.99 oz (0.17 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
PZ-2BRIA	4.02 oz (0.114 kg)	0.60 in (15 mm)	4.72 in (120 mm)	7.68 in (195 mm)
CD-PRTA	5.5 oz (0.156 kg)	0.98 in (25 mm)	9.45 in (240 mm)	3.94 in (100 mm)
CD-CCTA	5.5 oz (0.156 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-4ODTA	8.25 oz (0.234 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-RTB	12.17 oz (0.345 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.68 in (195 mm)
CD-VM00	7.76 oz (0.22 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CD-PVAA	10.05 oz (0.285 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.68 in (195 mm)
CD-ETIA	12.17 oz (0.345 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.68 in (195 mm)
CD-4DIOPA	7.73 oz (0.219 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
CHS BASE UNIT	21.87 oz (0.62 kg)	23.23 in (590 mm)	17.72 in (450 mm)	10.43 in (265 mm)
CHS2U BLANK SLOT COVER KIT	1.76 oz (0.05 kg)	2.32 in (60 mm)	1.57 in (40 mm)	1.57 in (40 mm)

Table 2-18 SV8100 Weights and Dimensions (Continued)

Unit	Shipping Weight ¹	Height	Width	Depth
CHS L BATT BOX RACK MOUNT BRACKET	352.7 oz (10 kg)	18.5 in (470 mm)	14.6 in (370 mm)	2.76 in (70 mm)
CHS2U INT BATT SET	95.24 oz (2.7 kg)	4.33 in (110 mm)	2.76 in (70 mm)	3.15 in (80 mm)
CHS2U RACK MOUNT KIT	17.6 oz (0.5 kg)	0.91 in (23 mm)	9.65 in (245 mm)	3.35 in (85 mm)
CHS1U/2U WALL MOUNT KIT	35.27 oz (1 kg)	1.18 in (30 mm)	13.8 in (350 mm)	1.77 in (45 mm)
CHS LARGE BATT BOX	458.6 oz (13 kg)	5.24 in (133 mm)	16.93 in (430 mm)	14.3 in (363 mm)
CHS2U JOINT BRACKET KIT	7.06 oz (0.2 kg)	0.19 in (3 mm)	5.91 in (150 mm)	1.7 in (43 mm)
CHS2U BATT MTG KIT 6 Slot	106 oz (3.0 kg)	2.95 in (75 mm)	4.45 in (113 mm)	4.13 in (105 mm)
Digital Multiline Terminal				
DTL-2E-1 (BK) TEL	35.27 oz (1.0 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
DTL-6DE-1 (BK) TEL	38.8 oz (1.1 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
DTL-8LD-1 (BK) TEL DTL-8LD-1 (WH) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	7.05 in (179 mm)	10.39 in (264 mm)
DTL-12BT-1 (BK) TEL	45.6 oz (1.3 kg)	4.29 in (109 mm)	7.6 in (183 mm)	10.16 in (258 mm)
DTL-12PA-1 (BK) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	7.6 in (183 mm)	10.16 in (258 mm)
DTL-12D-1 (BK) TEL DTL-12D-1 (WH) TEL	42.33 oz (1.2 kg)	4.39 in (111.7 mm)	7.05 in (179 mm)	10.16 in (258 mm)
DTL-24D-1 (BK) TEL DTL-24D-1 (WH) TEL	42.33 oz (1.2 kg)	4.39 in (111.7 mm)	7.05 in (179 mm)	10.16 in (258 mm)
DTL-32D-1 (BK) TEL DTL-32D-1 (WH) TEL	45.6 oz (1.3 kg)	4.39 in (111.7 mm)	8.1 in (205.8 mm)	10.16 in (258 mm)
IP Multiline Terminal				
ITL-2E-1 (BK) TEL	35.27 oz (1.0 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
ITL-6DE-1 (BK) TEL	38.8 oz (1.1 kg)	4.41 in (112 mm)	7.05 in (179 mm)	8.86 in (225 mm)
ITL-8LD-1 (BK) TEL ITL-8LD-1 (WH) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	7.05 in (179 mm)	10.39 in (264 mm)

Table 2-18 SV8100 Weights and Dimensions (Continued)

Unit	Shipping Weight ¹	Height	Width	Depth
ITL-12BT-1 (BK) TEL	45.6 oz (1.3 kg)	4.29 in (109 mm)	7.59 in (193 mm)	10.16 in (258 mm)
ITL-12D-1 (BK) TEL ITL-12D-1 (WH) TEL	42.33 oz (1.2 kg)	4.41 in (112 mm)	7.05 in (179 mm)	10.16 in (258 mm)
ITL-12PA-1 (BK) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	7.59 in (193 mm)	10.16 in (258 mm)
ITL-24D-1 (BK) TEL ITL-24D-1 (WH) TEL	42.33 oz (1.2 kg)	4.41 in (112 mm)	7.05 in (179 mm)	10.16 in (258 mm)
ITL-32D-1 (BK) TEL ITL-32D-1 (WH) TEL	45.6 oz (1.3 kg)	4.41 in (112 mm)	8.1 in (205.8 mm)	10.16 in (258 mm)
ITL-320C-1 (BK) TEL	56.44 oz (1.6 kg)	4.41 in (112 mm)	8.94 in (227 mm)	9.84 in (250 mm)
Optional				
8LK-L (BK) UNIT 8LK-L (WH) UNIT	7.05 oz (0.2 kg)	1.77 in (45 mm)	1.15 in (29.3 mm)	8.82 in (224 mm)
ADA-L UNIT	2.82 oz (0.08 kg)	.98 in (25 mm)	2.56 in (65 mm)	3.23 in (82 mm)
APR-L UNIT	5.29 oz (0.15 kg)	0.98 in (25 mm)	2.56 in (65 mm)	3.23 in (82 mm)
IPLA-R UNIT	2.82 oz (0.08 kg)	0.98 in (25 mm)	2.24 in (57 mm)	3.94 in (100 mm)
PGD(2)-U10 ADP	12.4 oz (0.35 kg)	1.58 in (40 mm)	6.81 in (173 mm)	4.13 in (105 mm)
DCL-60-1 (BK) CONSOLE DCL-60-1 (WH) CONSOLE	21.16 oz (.6 kg)	3.23 in (82 mm)	5.39 in (137 mm)	8.82 in (224 mm)
PSA-L (BK) UNIT PSA-L (WH) UNIT	10.58 oz (0.3 kg)	3.15 in (80 mm)	2.91 in (74 mm)	8.8 in (223 mm)
WM-L UNIT	1.58 oz (0.045 kg)	0.996 in (25.3 mm)	3.996 in (101.5 mm)	4.92 in (125 mm)

¹ Shipping weight includes the shipping carton.

6.8.1 Tone Patterns

[Table 2-19 Tone Patterns](#) lists the frequency and the pattern for the tones. Tones are used to inform UNIVERGE SV8100/SV8300 station users of system functions such as dial tone, busy tone, or ringback tone.

6.8.2 Multiline Terminal LED Flash Patterns

The UNIVERGE SV8100/SV8300 system has several colored LEDs installed. Green is used primarily for I-Use conditions and for outside calls. Red is used primarily for Other Use conditions and internal calls.

The Large LED provides the user a variety of programmable colors and preferences. Refer to [Table 2-20 Multiline Terminal LED Flash Pattern](#).

Table 2-19 Tone Patterns

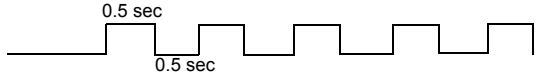
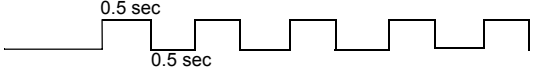

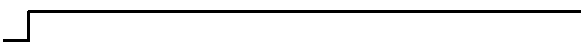
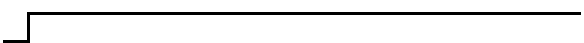
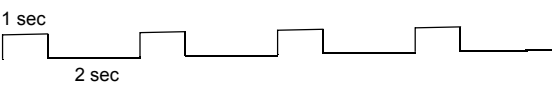
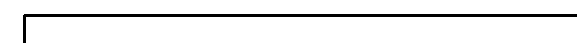
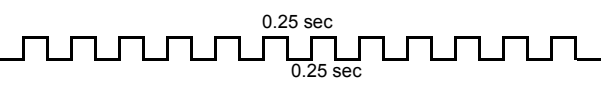

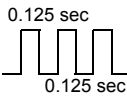


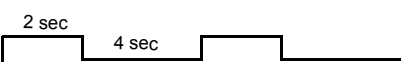

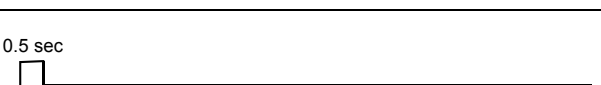
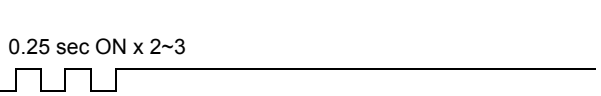
System Tone (Fixed)	Frequency (Hz) (Fixed)	Intermit (Default)	Cycle
Busy Tone	480/620	60 IPM	
Call Waiting Tone	440	60 IPM	
Second Dial Tone	350/440	120 IPM	
Howler Tone	2400 Modulation (16 Hz)	Continuous	
Internal Dial Tone	350/440	Continuous	
Internal Ringback Tone	440/480	1 sec On 2 sec Off	
LCR Dial Tone	440	Continuous	
Reorder Tone	480/620	120 IPM	
Service Set Tone	440	Continuous	
Special Dial Tone	440	240 IPM	
Tone Burst 1 Tone	440	Continuous	
Tone Burst 2 Tone	620	Continuous	
Tie/DID Ringback Tone	440/480	2 sec On 4 sec Off	
Camp-On Tone Call Alert Notification Attendant Tone Override	440	Continuous	
DIT Alert Tone	480/620	Continuous	
Call Forward Alert Tone Call Forward Configuration Tone	350/440	120 IPM	

Table 2-20 Multiline Terminal LED Flash Pattern

LED	Condition	Color	Flash Patterns				
Line Key	I-Use	Green					
	Busy	Red					
	Incoming Call	Red	—	—	—	—	—
	I-Hold	Green	—	—	—	—	—
	Call Hold	Red	—	—	—	—	—
	Hold Recall	Green	—	—	—	—	—
	Transfer Recall	Green	—	—	—	—	—
	Live Monitoring Mode	Green	—	—	—	—	—
	Message Waiting on Line Key	Red	—	—	—	—	—
Microphone	ON	Red					
Mic	ON (Series i)	Red					
Large LED ¹	Incoming Internal Call	Red	—	—	—	—	—
	Incoming Outside Call	Green	—	—	—	—	—
	Message from Attendant	Green	—	—	—	—	—
	Voice Mail Message	Red	—	—	—	—	—
Speaker	ON	Red					
	System Data Entry	Red	—	—	—	—	—
Answer	Incoming Trunk	Red	—	—	—	—	—
	Exclusive Hold	Green	—	—	—	—	—
	User Ringing Line Preference	Red	—	—	—	—	—
	Voice Over with Broker's Call	Green	—	—	—	—	—
Feature	Callback Set	Red	—	—	—	—	—
	Auto Repeat Set	Red	—	—	—	—	—
	ON (to set function)	Red	—	—	—	—	—
	Call FWD - All Calls Set	Red	—	—	—	—	—
BLF or DSS Key	Use, Hold	Red					
	DND, Call FWD-All Calls Set	Red	—	—	—	—	—
	Special Mode (while pressing Feature or going off-line)	Red	—	—	—	—	—

0 0.5 1.0 1.5 2.0 sec.


1) The Large LED provides the user a variety of programmable colors and preferences.

SECTION 7 TRAFFIC CAPACITY

[Table 2-21 Traffic Capacity](#) provides information about the traffic capacity for the basic system package and expanded system package.

Table 2-21 Traffic Capacity

Traffic Capacity	Basic System Package	Expanded System Package
Traffic Capacity (CD-CP00-US)	4800 BHCA	4800 BHCA

 *4800 Busy-Hour Call Attempts (BHCA) is based on a 176Trunk/240 station configuration.*

The CD-CP00-US provides:

- ☐ 200 trunk ports maximum
- ☐ 512 extension ports maximum
 - 512 ports digital/IP extensions maximum
 - 256 analog ports maximum
- ☐ 256 virtual extensions
- ☐ Connection for 32/64/128 VoIP Daughter Board (PZ-32IPLA/PZ-64IPLA/PZ-128IPLA)
- ☐ Connection for Voice Mail Daughter Board (PZ-VM21)
- ☐ Connection for Expanded Memory (PZ-ME50)
- ☐ Supports TAPI 1.x
- ☐ 1 Green Status LED
- ☐ 4 Red Status LEDs
- ☐ Five diagnostic LEDs which indicate the status of various system functions
- ☐ During normal operation, the "RUN" LED will be flashing and the remaining LEDs will be off.
- ☐ 700x700 Time Division Multiplex Switch (TDM Switch)
- ☐ Digital Phase Locked Loop (DPLL)

SV8300 System Specifications

SECTION 1 GENERAL INFORMATION

This chapter provides detailed specifications for the SV8300 system technician. The technician should review this information carefully **before** installing the system.

SECTION 2 SYSTEM BLOCK DIAGRAM

[Figure 3-1 SV8300 System Block Diagram](#) shows the Blades that can be installed in the chassis and the number of channels supported when the Blade is installed. [Table 3-1 List of Abbreviations](#) lists abbreviations used in the diagram.

Table 3-1 List of Abbreviations


Abbreviation	Description
ACD	Automatic Call Distribution
APA	Analog Port Adapter (without ringer)
BRI	Basic Rate Interface
BRIDB	Expansion Basic Rate Interface Blade on BRI
BRT	Basic Rate Interface Blade/ISDN Terminal Interface Blade
BUS0	BUS Interface Blade (for Controlling chassis)
BUS1	BUS Interface Blade (for Expansion chassis)
CCT	CCIS Interface Blade
CFT	Conference Trunk (on CPU)
CPU	Central Processing Unit
CSH	ZT Handler (on CPU)
CSI	ZT Interface Blade (U-Interface)
DID	Direct Inward Dialing
DIOP	DID/OPX Blade
DK	External Relay Interface (on CPU)
DLC	Digital Multiline Terminal Interface Blade

Table 3-1 List of Abbreviations (Continued)

Abbreviation	Description
DLCB	Expansion Digital Multiline Terminal Interface Blade on DLC
DRS	Device Registration Server (on CPU)
DSS	Direct Station Selection Console
DTI	Digital Trunk Interface
DTG	Digital Tone Generator (on CPU)
ETHERNET	Ethernet Port (on CPU)
EX IN/EX OUT	Unit Synchronization Port (IN/OUT) (on CPU)
FT1	Fractional T1
IDF	Intermediate Distribution Frame
IP-R	IP Converter/Adapter
IPT	IP Trunk (P2P CCIS) (on CPU)
ISDN	Integrated Service Digital Network
LAN	Local Area Network
LC	Single Line Telephone Interface Blade
LCDB	Expansion Single Line Telephone Interface Blade on LC
MCI	Message Center Interface
MDF	Main Distribution Frame
MEM	Main Memory (on CPU)
MLDT	Melody Trunk (on CPU)
MOH	Music On Hold
OAI	Open Application Interface (on CPU)
ODT	Tie Line Interface Blade (2W/4W E&M)
OPX	Off-Premise Extension
PBR	PB Receiver (on CPU)
PBSND	PB Sender (on CPU)
PCPro	PC Programming
PFT	Power Failure Transfer
PLO	Phase Locked Oscillator (on CPU)
PMS	Property Management System
PRI	Primary Rate Interface
PRT	Primary Rate Interface Blade

Table 3-1 List of Abbreviations (Continued)

Abbreviation	Description
PS	Personal Station
PSA	PSTN Adapter (analog)
RTA	In-Skin Router Blade
RS1/RS2	Serial Port (on CPU)
SLT	Single Line Telephone
SMDR	Station Message Detail Recording
SWHUB	Power over Ethernet Hub
TDSW	Time Division Switch (on CPU)
VM00	In-Skin UMS Blade
VMDB	Built-In Modem Blade
VMS	Voice Mail System
VoIP	Voice over Internet Protocol
VoIPDB	VoIP Blade (on CPU)
VRS	Voice Response System
WAN	Wide Area Network
ZT	Zone Transceiver

 The SV8300 has a USB port. However, the USB port cannot be used.

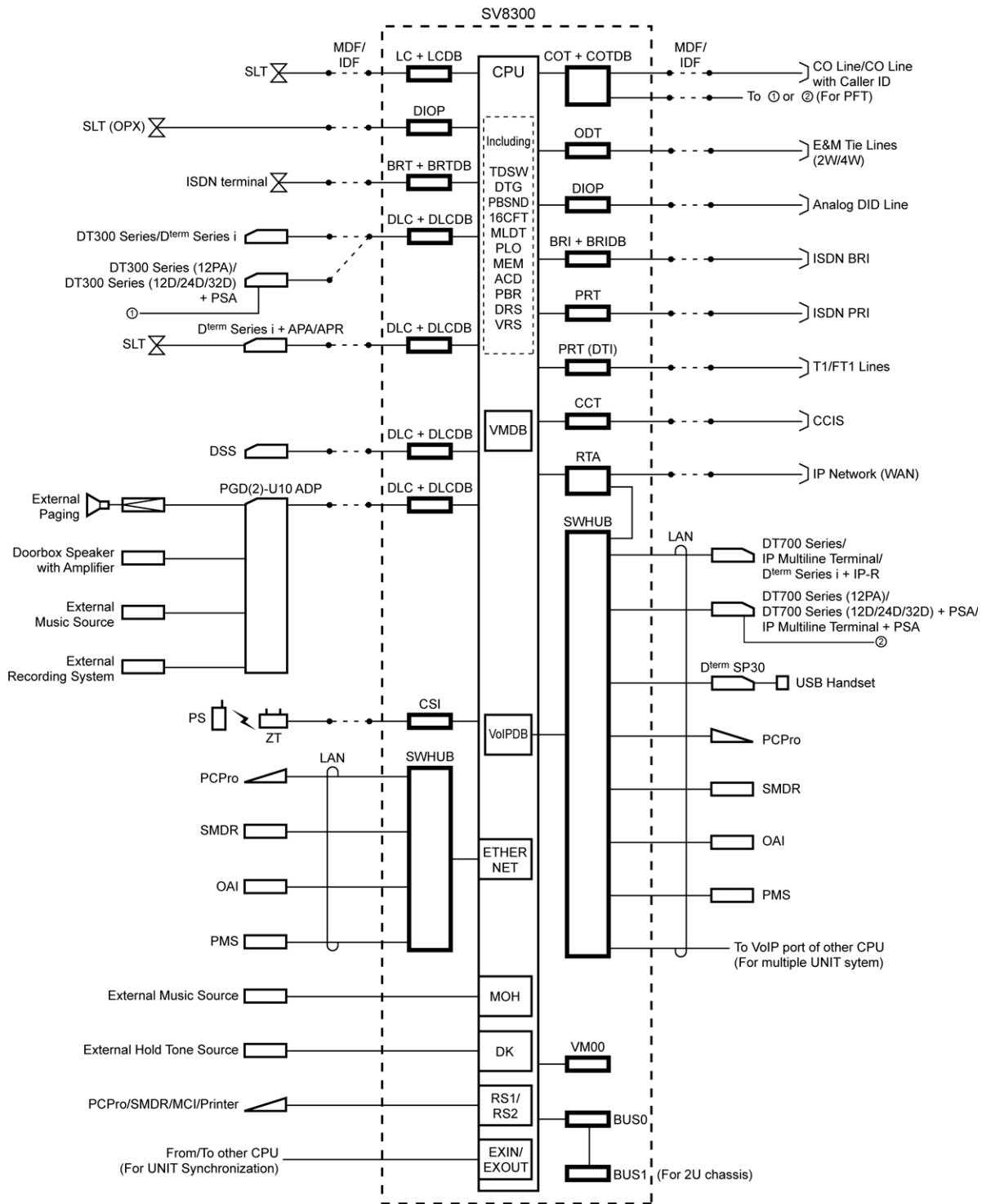


Figure 3-1 SV8300 System Block Diagram

SECTION 3 **MAXIMUM SYSTEM CAPACITIES**

The CHS1U-US is a single slot, 19" chassis holding the CC-CP00 blade and one PSU. The CHS1U-US can be expanded by adding a maximum of three additional CHS2U-US chassis (referred to as a Unit), increasing the capacity of the system to meet the customer's business needs.

As [Table 3-2 SV8300 Maximum System Capacity](#) illustrate, the system can be expanded from 108 ports to 324 ports by vertically stacking a maximum of tree additional chassis onto the controlling chassis. This provides a maximum of 72 slots and 324 ports. To obtain a maximum port capacity of 1296 ports in standalone system, 4 UNITS can be linked together via an IP connection in. And also, to obtain a maximum port capacity of 2048 ports in Remote Unit system, the system can be also linked together via an IP connection.

The maximum slot, port and channel capacities are listed in [Table 3-2 SV8300 Maximum System Capacity](#).

Table 3-2 SV8300 Maximum System Capacity

Item		1 Unit			2 Units	3 Units	4 Units	System Maximum		
		2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit	
Blade Slots		6	12	18	36	54	72	72	900	
Ports	Physical Port	108	216	324	648	972	1296	1296	1296	1500
	Virtual Port	1024						1024		2048
Physical Port	SLT (-24V)	96	192	288	576	864	1152	1152	1296	1500
	SLT (-48V)	24	48	96	192	288	384	384		1500
	Digital Multiline Terminal (-48V) (D ^{term} Series i/ DT300)	80	160	240	480	720	960	960		1500
	Digital Multiline Terminal (-48V) (D ^{term} Series i with APR [Dual Port Mode])*	54 (54)	108 (108)	162 (162)	324 (324)	486 (486)	648 (648)	648 (648)		750 (750)
	DSS console	32						32		32

Table 3-2 SV8300 Maximum System Capacity (Continued)

Item			1 Unit			2 Units	3 Units	4 Units	System Maximum			
			2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone		Remote Unit	
Physical Port	ISDN Terminal (BRI)		24	48	72	128			128	1296	128	1500
	ZT interface (CSI)		72	144	216	384			384		384	
	In-Skin UMS		16						16		16	
Virtual Port	IP Multiline Terminal		1024						1024		1500	
	SIP Multiline Terminal		1024						1024		1500	
	Softphone		1024						1024		1500	
	PS		512						512		512	
Physical Port	Central Office Trunk	COT	48	96	144	288	432	512	512	512	512	512
		DID	24	48	72	144	216	288	288		512	
	Tie Line Trunk	E&M	24	48	72	144	216	288	288		512	
	BRI Trunk		48	96	144	256			256		256	
	PRI (23B+D) Trunk		96	192	288	504			504		504	
	PRI (30B+D) Trunk		93	186	279	512			512		512	
	DTI (T1) Trunk		96	192	288	504			504		504	
	CCIS (24ch) Trunk		96	192	288	384			384		384	
Virtual Port	IP Trunk (P2P CCIS)		512						512		512	
	SIP Trunk**		97						97	97		
VoIP Channel with sRTP			96			192	288	384	384		384 +	
Modem channel**			1						1		1	
VRS Message**			8						8		8	
DTMF Receiver			64						64		64	
MF Sender			64			N/A			64	64	64	64
Caller ID Receiver***			52			64			64		64	
MF Receiver***			52			64			64		64	

Table 3-2 SV8300 Maximum System Capacity (Continued)

Item	1 Unit			2 Units	3 Units	4 Units	System Maximum	
	2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit
DTMF Receiver***	32						32	32
Caller ID Sender***	16						16	16
3/4-Party Conference	16			32			32	32

2U = Expansion Chassis

* = When using D^{term} Series i with APR (Dual Port Mode), the physical ports for analog station shown in parenthesis are required in addition to the physical ports for Multiline Terminal.

** = accommodated at main unit (UNIT#1) only

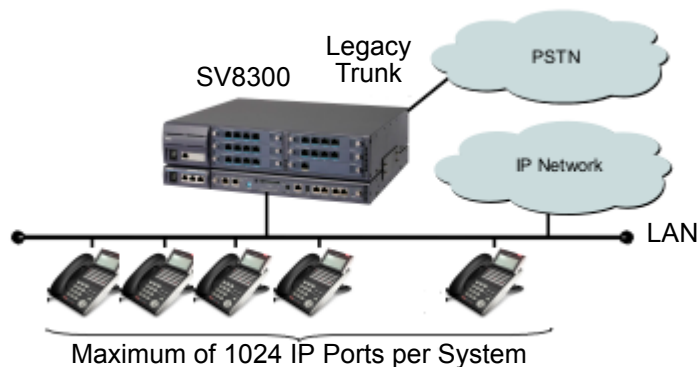
*** = The total number of following functions is maximum 52 per Unit.

- Caller ID Receiver
- MF Receiver
- DTMF Receiver
- Caller ID Sender

3.1 System Configuration – SV8300

The SV8300 consists of a CHS1U-US chassis and CHS2U-US chassis depending on the system configuration. The CC-CP00 blade in the CHS1U-US chassis can control a maximum of three CHS2U-US Chassis, collectively called (a "UNIT"). The SV8300 can be configured for a maximum of four UNITS.

Figure 3-2 System Configuration Example (IP-Oriented System) shows a system configuration IP-oriented example, Figure 3-3 System Configuration Example (TDM-Oriented System) on page 3-8 shows a TDM-oriented system and Figure 3-4 System Configuration Example (Remote Unit Over IP System) on page 3-8 gives a Remote Unit over IP configuration example.

**Figure 3-2 System Configuration Example (IP-Oriented System)**

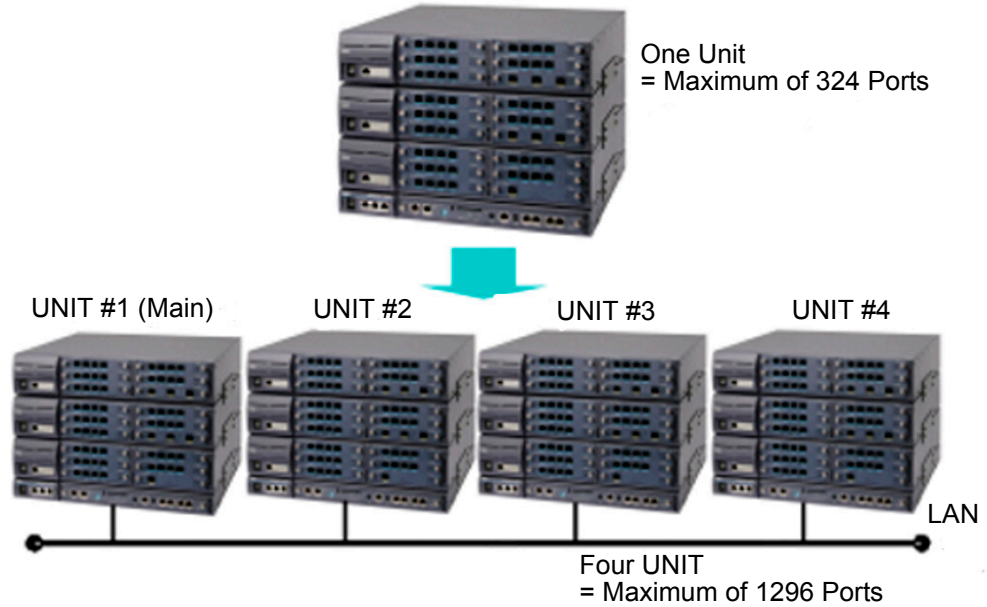


Figure 3-3 System Configuration Example (TDM-Oriented System)

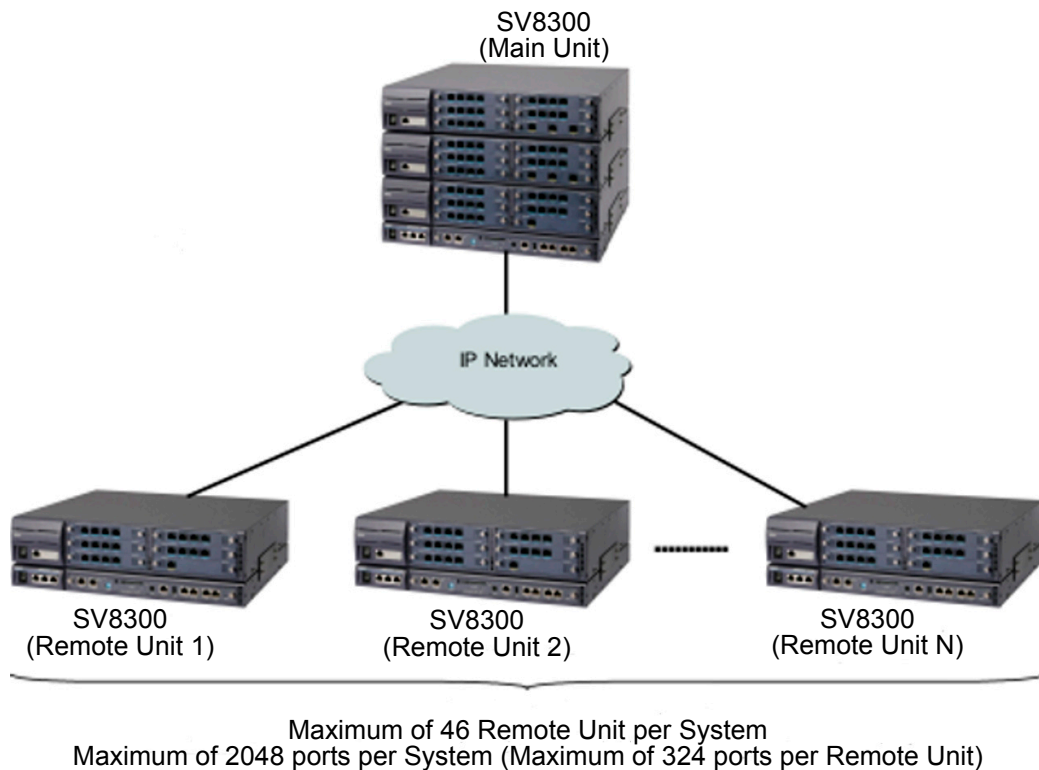


Figure 3-4 System Configuration Example (Remote Unit Over IP System)

[Table 3-3 Maximum System Capacity – Chassis](#) shows the maximum number of chassis and related equipment that can be installed in a system.

Table 3-3 Maximum System Capacity – Chassis

Equipment		1 Unit			2 Units	3 Units	4 Units	System Maximum	
		2Ux1	2Ux2	2Ux3	2Ux6	2Ux9	2Ux12	Standalone	Remote Unit
Chassis:									
CHS1U-US		1			2	3	4	4	50
CHS2U-US		1	2	3	6	9	12	12	50
Expansion:									
PZ-BS10		1			2	3	4	4	50
PZ-BS11		1	2	3	6	9	12	12	50
Battery:									
CHS1U BATT MTG KIT		1			2	3	4	4	50
CHS2U BATT MTG KIT		1	2	3	6	9	12	12	50
CHS LARGE BATT BOX	45 minutes backup	1			2	3	4	4	50
	3 hours backup	1	2	3	6	9	12	12	*
Fan Box:									
CHS1U FAN BOX SET		1			2	3	4	4	50
CHS2U FAN BOX SET		1	2	3	6	9	12	12	*
Battery Supply:									
PZ-PW146(1U)		1			2	3	4	4	50
MPS7101		1	2	3	6	9	12	12	*
Mounting Equipment:									
CHS1U RACK MOUNT KIT		1			2	3	4	4	50
CHS2U RACK MOUNT KIT		1	2	3	6	9	12	12	50
CHS BASE UNIT		1			2	3	4	4	50
CHS1U/2U WALL MOUNT KIT		1	–	–	2	3	4	4	50
CHS STAND KIT (K)		1	–	–	2	3	4	4	50
CHS2U STAND KIT (EXT)		–	1		2	3	4	4	50

Table 3-3 Maximum System Capacity – Chassis (Continued)

Equipment	1 Unit			2 Units	3 Units	4 Units	System Maximum	
	2Ux1	2Ux2	2Ux3	2Ux6	2Ux9	2Ux12	Standalone	Remote Unit
CHS2U JOINT BRACKET KIT	1	2	3	6	9	12	12	50
CHS2U BLANK SLOT COVER KIT	5	10	15	30	45	60	60	250
CHS1U BLNK SLOT COVER KIT(BUS)	1	2	3	6	9	12	12	50

2U = Expansion Chassis

* = Depends on the system configuration.

Table 3-4 Maximum System Capacity – Blades shows the maximum number for each blade that can be installed in a system. These are determined by the maximum blade configuration allowed. When installing single line sets, DISA, or tie lines, CPU circuits must be allocated for DTMF receivers. To install single line sets with CO/PBX line access, or when installing immediate-start tie lines, CPU circuits must be allocated for dial tone detection.

Table 3-4 Maximum System Capacity – Blades

Equipment	1 Unit			2 Units	3 Units	4 Units	System Maximum	
	2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit
Common Control Blades:								
CC-CP00	1			2	3	4	4	50
PZ-64IPLA	1	2	3	6	9	12	12	50
PZ-128IPLA	1	2	3	6	9	12	12	50
PZ-VM21*	1			N/A			1	1
Station Blades:								
CD-4LCA	6	12	18	36	54	72	72	375
PZ-4LCA	6	12	18	36	54	72	72	375
CD-8LCA	6	12	18	36	54	72	72	187
PZ-8LCE	5	10	15	30	45	60	60	93
CD-8DLCA	6	12	18	36	54	72	72	187
PZ-8DLCB	6	12	18	36	54	72	72	93

Table 3-4 Maximum System Capacity – Blades (Continued)

Equipment	1 Unit			2 Units	3 Units	4 Units	System Maximum	
	2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit
CD-16DLCA	5	10	15	30	45	60	60	93
Trunk Blades:								
CD-2BRIA	6	12	18	32	32	32	32	32
PZ-2BRIA	6	12	18	32	32	32	32	32
CD-4COTB	6	12	18	36	54	72	72	128
PZ-4COTF	6	12	18	36	54	56	56	64
CD-4DIOPA	6	12	18	36	54	72	72	128
CD-4ODTA	6	12	18	36	54	72	72	128
CD-PRTA	4	8	12	21	21	21	21	21
CD-CCTA	4	8	12	16			16	16
Option Blades:								
CD-ETIA	3	6	9	12			12	12
CD-RTB	1						1	1
CD-VM00	8						8	8

2U = Expansion Chassis

N/A = Not Available

* = accommodated at CPU blade of main unit (UNIT#1) only.

Table 3-5 Daughter Blade Combinations shows each blade and associated daughter blade combinations. The daughter blades that can be mounted on specific blades are indicated by a checkmark. For example, the CD-4COTB can have a PZ-4COTF daughter blade mounted.

Table 3-5 Daughter Blade Combinations

Blades	Daughter Blades				
	PZ-2BRIA	PZ-4COTF	PZ-4LCA	PZ-8DLCE	PZ-8DLCB
CD-4COTB	–	✓	–	–	–
CD-4LCA	–	–	✓	✓	–
CD-8LCA	–	–	✓	✓	–
CD-8DLCA	–	–	–	–	✓
CD-16DLCA	–	–	–	–	–

Table 3-5 Daughter Blade Combinations (Continued)

Blades	Daughter Blades				
	PZ-2BRIA	PZ-4COTF	PZ-4LCA	PZ-8DLCE	PZ-8DLCB
CD-2BRIA	✓	–	–	–	–

– = Does not apply

✓ = Does apply

Table 3-6 Maximum System Capacity – Terminals shows the maximum number of terminals that can be installed in a system.

Table 3-6 Maximum System Capacity – Terminals

Equipment		1 Unit			2 Units	3 Units	4 Units	System Max.			
		2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone		Remote Unit	
SLT (-24V)		108	216	324	648	972	1296	1296	1296	1500	1500
SLT (-48V)		24	48	96	192	288	384	384		1500	
Digital Multiline Terminal		80	160	240	480	720	960	960		1500	
Digital Multiline Terminal (D ^{term} Series i) with APR (Dual Port Mode)		54	108	162	325	486	648	648		750	
DSS Console		32						32		32	
ISDN Terminal	P-P	24	48	72	128			128	1296	128	
	P-MP	192	384	576	1024			1024		1024	
IP Multiline Terminal		1024						1024	1296	1500	1500
Softphone		1024						1024		1500	
SIP Multiline Terminal		1024						1024		1500	
PS		512						512		512	
ZT		24	48	72	128			128	128		

2U=Expansion Chassis

[Table 3-7 Maximum System Capacity – Optional Equipment](#) shows the maximum number of optional equipment that can be installed in a system.


Table 3-7 Maximum System Capacity – Optional Equipment

Equipment	1 Unit			2 Units	3 Units	4 Units	System Maximum	
	2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit
PCPro	4						4	4
SMDR (RS-232C)*	1	N/A					1	1
Voice Mail (MCI Interface)*	1	N/A					1	1
SMDR (LAN Interface)*	1	N/A					1	1
Hotel Server (LAN Interface)*	1	N/A					1	1
Printer*	1	N/A					1	1

2U = Expansion Chassis

N/A = Not Available

* accommodated at CPU blade of main unit (UNIT#1) only.

 Up to four PCPro can be connected to the CPU blade with main unit. The number of connections allowed per connection mode is as follows. But, when the remote unit is in survival mode, the PCPro can be connected to each unit.

IP connection : Up to 2

RS-232C connection (direct connection) : Up to 2 (on a modem connection, 1)

 Modem connection (using VMDB): 1

[Table 3-8 Maximum System Capacity – Cables](#) shows the maximum number of cables that can be installed in a system.

Table 3-8 Maximum System Capacity – Cables

Equipment	1 Unit			2 Units	3 Units	4 Units	System Max.	
	2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit
CHS1U BATT CA INT	1			2	3	4	4	50
CHS2U BATT CA INT	1	2	3	6	9	12	12	50
CHS BATT CA EXT-A	2	3	4	8	12	16	16	100
RS CONSOLE CA-A	2			N/A			2	2
RS NORM-4S CA-F	1			N/A			1	1
RS RVS-15S CA-F	1			N/A			1	1

Table 3-8 Maximum System Capacity – Cables (Continued)

Equipment	1 Unit			2 Units	3 Units	4 Units	System Max.	
	2Ux 1	2Ux 2	2Ux 3	2Ux 6	2Ux 9	2Ux 12	Standalone	Remote Unit
RS RVS-4S CA-F	1			N/A			1	1
RS RVS-4S CA-G	1			N/A			1	1
RS PRT-15S CA-F	1			N/A			1	1
BUS CABLE	1	2	3	4	5	6	6	*
AC CORD	1			2	3	4	4	50

2U = Expansion Chassis

N/A = Not Available

* Depends on the system configuration.

SECTION 4 LICENSING

Table 3-9 System Licenses provides a list of the licensing available with the system.

Table 3-9 System Licenses

Category	License	Description
System	LS-SYS-PORT CAPACITY-LIC	Port Capacity
	LS-SYS-IPPAD-LIC	VoIP Channels (VoIPDB)
	LS-SYS-R1-LIC	System Version License R1
Extension	LS-EXT-PHS-LIC	PS
	LS-EXT-IPPHONE-LIC	IP Multiline Terminal, SIP Multiline Terminal
	LS-EXT-SP30-LIC	D ^{term} SP30
	LS-EXT-SP3-ACD-LIC	D ^{term} SP30 ACD
	LS-EXT-ISDN-Term-LIC	ISDN Terminal
Trunks	LS-TRK-SIP-LIC	SIP Trunk Channels
	LS-TRK-P2PCCIS-LIC	P2P CCIS Channels
Network	LS-NW-CCIS-LIC	CCIS
	LS-NW-REMOTE-PIM-LIC	Number of Remote Unit
	LS-NW-MA-LIC	MA Licenses

Table 3-9 System Licenses (Continued)

Category	License	Description
Feature	LS-FEA-SMDR-LIC	SMDR
	LS-FEA-OAI-LIC	OAI
	LS-FEA-SIP-T-LIC	SIP Trunk
	LS-FEA-ISDN-LIC	ISDN
UM8000	LKS-UMS-CLIENT1-LIC	UMS800 Mail View App Sessions 1 clients
	LKS-UMS-CLIENT4-LIC	UMS800 Mail View App Sessions 4 clients
	LKS-UMS-CLIENT8-LIC	UMS800 Mail View App Sessions 8 clients
	LKS-UMS-CLIENT16-LIC	UMS800 Mail View App Sessions 16 clients
	LKS-UMS-CLIENT32-LIC	UMS800 Mail View App Sessions 32 clients
	LKS-UMS-PORT2-LIC	UMS800 Mail Port license 2 ports
	LKS-UMS-PORT4-LIC	UMS800 Mail Port license 4 ports
UM8000	LKS-UMS-PORT8-LIC	UMS800 Mail Port license 8 ports
	LKS-UMS-PORT16-LIC	UMS800 Mail Port license 16 ports
	LKS-UMS-LANGUAGE-LIC	UMS800 Mail System Language (1 Language)
	LKS-UMS-TTS-PORT-LIC	UMS800 Mail TTS (1port) for MS Outlook
	LKS-UMS-TTS-LANGUAGE-LIC	UMS800 Mail TTS Language (1 Language)
	LKS-UMS-FAX-LIC	UMS800 Mail FAX port (1port)
	LKS-UMS-HOTEL-PMS-LIC	UMS800 Mail Hospitality and PMS
	LKS-UMS-HOTEL-LANGUAGE-LIC	UMS800 Mail Hospitality Language (1 Language)
	LKS-UMS-AMIS-PLUS-LIC	UMS800 Mail Amis/Plus Net

Table 3-9 System Licenses (Continued)

Category	License	Description
Communications Analyst	LKS-CA-20 STATION PKG-LIC	SMB8000 Communications Analyst-20 STA License Pack
	LKS-CA-256 STATION PKG-LIC	SMB8000 Communications Analyst-256 STA License Pack
	LKS-CA-NW-1CLIENT-LIC	SMB8000 Communications Analyst-Network Client
	LKS-CA UPG 20TO256-LIC	SMB8000 Communications Analyst-Upgrade from 20 to 256 stations
	LK-CA-IPK II CA MIGRATION - LIC	SMB8000 Communications Analyst-ELITE IPK II CA MIGRATION
	LKS-CA-ADD REMOTE SITE-LIC	SMB8000 Communications Analyst-Additional Remote Site
	LKS-CA-TRAFFIC ANALYSIS-LIC	SMB8000 Communications Analyst-Traffic Analysis
	LKS-CA-PMS INTEGRATION-LIC	SMB8000 Communications Analyst-PMS Integration
	LKS-CA-REMOTE SITE SOFTWARE-LIC	SMB8000 Communications Analyst-Remote Site Software (Serial-IP connector)
	LKS-CA ADDITIONAL STATION 256-LIC	SMB8000 Communications Analyst-Additional 256 stations Pack
	LKS-CA-WEB REPORTING-LIC	SMB8000 Communication Analyst-Web Reporting User Pack
Desktop Suite	LKS-DESKTOP SUITE-SOFTPHONE1-LIC	PC Soft Phone (Value) 1
	LKS-DESKTOP SUITE-SOFTPHONE4-LIC	PC Soft Phone (Value) 4
	LKS-DESKTOP SUITE-SOFTPHONE16-LIC	PC Soft Phone (Value) 16
	LKS-DESKTOP SUITE-SOFTPHONE32-LIC	PC Soft Phone (Value) 32
	LKS-DESKTOP SUITE-SOFTPHONE64-LIC	PC Soft Phone (Value) 64

SECTION 5 POWER-BASED CALCULATOR CHART

The SV8300 system used two types of power factors. For a single chassis chart refer to [Table 3-10 Blade Power Factor](#). Refer to [Table 3-11 Terminal Power Factor](#) below, for the Terminal/Adapter power chart

Table 3-10 Blade Power Factor

Blade Power Factor	
Total=<7	
Item	Power Factor
CD-RTB	2
CD-VM00	2
CD-ETIA	2

Table 3-11 Terminal Power Factor

Terminal Power Factor	
Expansion Chassis=<80	
Item	Power Factor
DTL-24D-1 TEL	1
DTL-8LD-1 TEL	1.5
APR-L UNIT	2
PSA-L UNIT	1
8LK-L UNIT	0
DCL-60-1 CONSOLE	2
ITL-320C-1 TEL	6
ITL-24D-1 TEL	4
ITL-2E-1 TEL	4
ITL-6DE-1 TEL	4
SLT	1
PGD(2)-U10 ADP	2
SLT Adapter	5
ZT	6.5

SECTION 6 SYSTEM REQUIREMENTS AND SPECIFICATIONS

6.1 Cabling

This section provides cabling requirements and specifications for various equipment used in the SV8300 system.

[Figure 3-5 Connecting the DLC Using Twisted 2-Pair Cable](#) provides a diagram of the chassis connected with each of the multiline terminals and single line telephones by a separate twisted 1-pair cable or 2-pair cable (only for Multiline Terminals).

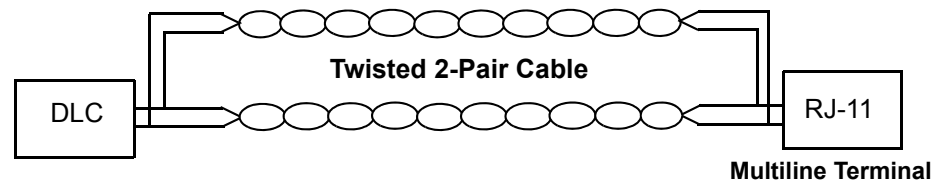


Figure 3-5 Connecting the DLC Using Twisted 2-Pair Cable

Refer to the following tables for cabling requirements and specifications.

- [Table 3-12 Cable Length of Terminals](#)
- [Table 3-13 Cable Length of Optional Equipment](#)

Table 3-12 Cable Length of Terminals

Terminal	Cable		Cable Length between SV8300 and Terminal	Remarks
	Kind of Cable	Pair		
DT300 Series/ D ^{term} Series i	Twisted Pair Cable	1-pair	1219 ft (400m) with 22 AWG	—
			1968 ft (600m) with 24 AWG	—
			1968 ft (800m) with 26 AWG	—
DT700 Series	LAN Cable (UTP cable 10BASE-T/ 100BASE-TX)	2-pair	328 ft (100m) or less	—
Analog Telephone (SLT, G3FAX, etc.)	Twisted Pair Cable	1-pair	3281 ft (1000m) with 22 AWG	Loop Resistance: Maximum 600ohms (including telephone set)
			4920 ft (1500m) with 24 AWG	
			8202 ft (2500m) with 26 AWG	

Table 3-12 Cable Length of Terminals (Continued)

Terminal	Cable		Cable Length between SV8300 and Terminal	Remarks
	Kind of Cable	Pair		
Long Line Telephone	Twisted Pair Cable	1-pair	13123 ft (4000m) with 22 AWG	Loop Resistance: Maximum 1500ohms (including telephone set)
			20997 ft (6400m) with 24 AWG	
			14777 ft (10600m) with 26 AWG	
ISDN Terminal/ G4 FAX	Twisted Pair Cable	2-pair	328 ft (100m) with 24 AWG	P-MP Connection
			984 ft (300m) with 24 AWG	P-MP Connection
			1640 ft (500m) with 24 AWG	P-P Connection
ZT	Twisted Pair Cable	1-pair	853 ft (260m) with 22 AWG	PBX Power Supply (-48V)
			1345 ft (410m) with 24 AWG	
			2231 ft (680m) with 26 AWG	
		2-pair	1706 ft (520m) with 22 AWG	PBX Power Supply (-48V)
			2690 ft (820m) with 24 AWG	
			4462 ft (1360m) with 26 AWG	
			19842 ft (3000m)	Local Power Supply

Table 3-13 Cable Length of Optional Equipment

Terminal	Cable		Cable Length between SV8300 and Terminal	Remarks
	Kind of Cable	Pair		
DSS Console	Twisted Pair Cable	1-pair	1312 ft (400m) with 22 AWG	—
			1968 ft (600m) with 24 AWG	
			2625 ft (800m) with 26 AWG	
PSA	Twisted Pair Cable	1-pair	Depending on Loop Resistance	Loop Resistance: Maximum 1700ohms (Including the PSA [350 ohms])
PGD(2)-U10 ADP	Twisted Pair Cable	1-pair	1968 ft (600m) with 22 AWG	—
			2625 ft (800m) with 24 AWG	
			2625 ft (800m) with 26 AWG	
SMDR (RS-232C)	RS-232C Cable (RS RVS-15S CA-F)	—	50 ft (15m)	—

Table 3-13 Cable Length of Optional Equipment (Continued)

Terminal	Cable		Cable Length between SV8300 and Terminal	Remarks
	Kind of Cable	Pair		
SMDR (LAN)	LAN Cable (UTP cable 10BASE-T/100BASE-TX)	2-pair	328 ft (100m) or less	–
Hotel Server	LAN Cable (UTP cable 10BASE-T/100BASE-TX)	2-pair	328 ft (100m) or less	–
Printer	RS-232C Cable (RS PRT-15S CA-F)	–	50 ft (15m)	–

6.2 Power Requirements

A dedicated 110 VAC → 120 VAC 60 Hz circuit located within seven feet of the chassis is required. A separate dedicated outlet for each chassis should be installed.



Double Pole/Neutral Fusing
(power supply fuses are located at both the L and N side).

6.2.1 Power Supply Specifications

AC Power Supply:

- ☐ Dedicated 15 Amp circuit
- ☐ Power Requirements: 120 VAC @ 15A Controlling Chassis Power Consumption: Controlling Chassis=263 VA, Expa Chassis=263 VA, total 526 VA
- ☐ Input Voltage: 90 VAC to 264 VAC
(Rated Voltage: 100 VAC/120 VAC/220 VAC/230 VA /240 VAC)
- ☐ Frequency: 45 Hz - 66 Hz (Rated frequency: 50/60 Hz)
- ☐ Phase and Wire: Single Phase 2 Line Type + PE Type
- ☐ Grounding Requirements: No.14 AWG copper wire
- ☐ Feeding Voltage: Digital Multiline Terminal/OPX/DID: -48V
SLT: 25mA / -28V

With input voltage of 120 VAC and with full load conditions:
AC Input I: Controlling Chassis=2.19A, Expansion Chassis=2.19A, total 4.38A

VA @ 120V: Controlling Chassis=263 VA, Expansion Chassis=263 VA, total 526 VA
 KWh @ AC Input I x 120V/1000: Controlling Chassis=0.263 KWh, Expansion Chassis=0.263 KWh, total 0.526 KWh

BTU (KWh x 3413): Controlling Chassis=1795 BTU, Expansion Chassis=1795 BTU, total 3590 BTU



Double Pole/Neutral Fusing
(power supply fuses are located at both the L and N side).

6.2.2 Power Supply Consumption

Table 3-14 Power Consumption

Chassis	Maximum RMS Current	Watts Used (Idle)	Watts Used (Maximum)
Controlling Chassis	0.7 A	40 w	45 w
Controlling Chassis + Expansion Chassis	3.4 A	160 w	225 w
Controlling Chassis + 2 Expansion Chassis	6.1 A	280 w	405 w
Controlling Chassis + 3 Expansion Chassis	8.8 A	400 w	585 w

6.3 Environmental Conditions

6.3.1 Temperature and Humidity

Chassis, Telephones, 16LK, Console, ADA, APR

- ☐ Operating Temperature: +32°F ~ +104°F (0°C ~ 40°C)
- ☐ Recommended Long Term Temperature: -4°F ~ +140°F (20°C ~ 60°C)
- ☐ Operating Humidity: 10 ~ 90% RH (non-condensing)
- ☐ Recommended Long Term Humidity: 10 ~ 90% RH

Blades – PZ-BS10, PZ-BS11, CD-8DLCA, CD-16DLCA, PZ-8DLCA

- ☐ Operating Temperature: +32°F ~ +104°F (0°C ~ 40°C)
- ☐ Recommended Long Term Temperature: -4°F ~ +140°F (20°C ~ 60°C)

- ☐ Humidity: 10 ~ 90% RH (non-condensing)
- ☐ Recommended Long Term Humidity: 10 ~ 90% RH

Blades - CD-4LCA, PZ-4LCA, CD-8LCA, PZ-8LCE, CD-4COTB, PZ-4COTF, CD-PRTA, CD-CCTA

- ☐ Operating Temperature: +32°F ~ +104°F (0°C ~ 40°C)
- ☐ Recommended Long Term Temperature: -4°F ~ +140°F (20°C ~ 60°C)
- ☐ Operating Humidity: 10 ~ 90% RH (non-condensing)
- ☐ Recommended Long Term Humidity: 20 ~ 90% RH

Door Box


- ☐ Operating Temperature: -4°F ~ +104°F (-20°C ~ 60°C)
- ☐ Operating Humidity: 20 ~ 80% (non-condensing)

SV8300 Power Supply – MPS7101

- ☐ Operating Temperature: +32°F ~ +104°F (0°C ~ +40°C)
- ☐ Recommended Long Term Temperature: -4°F ~ 167°F (-40°C ~ 75°C)
- ☐ Operating Humidity: 20 ~ 95% RH (non-condensing)
- ☐ Recommended Long Term Humidity: 10 ~ 95% RH

6.4 Outside Line Types

The following outside lines can be used with the SV8300 system.

- 2-wire, Loop Start or Ground Start Trunks
- 2-wire, 2-way DID Lines (Dial Pulse or DTMF)
-  *DID feature is not available for Europe and Australia market.*
- 2-wire/4-wire, E&M Tie Lines (Type I or V, Dial Pulse, or DTMF)
- Digital Trunk T1/FT1 (Loop Start, Ground Start, Tie Line (E&M), or DID Signaling)
- ISDN-BRI Trunks
- ISDN-PRI Trunks
- VoIP Trunks (Internet Protocols)

6.5 Transmission, Network, and Control Specifications

6.5.1 Transmission

☐ Data Length:

From Multiline Terminal to CD-8DLCA: 23 bits

From CD-8DLCA to Multiline Terminal: 23 bits

☐ Data Transmission Rates:

Between CD-8DLCA and Multiline Terminal: 184K bps (voice and signaling)

☐ Scanning Time for each Multiline Terminal: 32 ms.

6.5.2 Network

Time Division Multiplexing (TDM) allows transmission of data and voice simultaneously over one communications medium. The specifications that the SV8300 system uses for switching, clock, data bus, and timeframe are shown below.

☐ TDM Switching: PCM (μ Law)

☐ TDM Clock: 2.048 MHz

☐ TDM Data Bus: 8 bit

☐ TDM Timeframe: 125 μ s.

6.5.3 Control

This section indicates the speed or capacity:

☐ Control: Stored program with distributed processing

☐ Central Processor: 32-bit microprocessor

☐ Clock: 266 MHz

☐ Interface Blade: 8- or 16-bit microprocessor

☐ Optional Blades: 16- or 32-bit microprocessor

☐ Multiline Terminal (TDM): 8-bit microprocessor

☐ Multiline Terminal (IP): 32-bit microprocessor

☐ IP Adapter: 32-bit microprocessor

☐ Attendant Console: 4-bit microprocessor

☐ SLT Adapter: 4-bit microprocessor

6.5.4 Multiline Terminals and Equipment

The voltage, current, and ring signal for the Multiline Terminals, Single Line Telephone equipment, and AP(A)-R/AP(R)-R Units are listed below:

☐ Multiline Terminal

Voltage: -11 ~ -26 Vdc

Maximum Current: 250 mA

Acoustical characteristics meet Electronic Industry Association (EIA) standard proposal SP-1286 and standard EIA RS-470.
--

☐ Single Line Telephone

Standard 2500 Set: 500 type network

Nominal Current: 25 mA

Ring Signal: 56 Vac RMS @ 20 Hz

☐ SLTII(1)-U() ADP

Standard 2500 Set: 500 type network

Nominal Current: 30 mA

Ring Signal: 56 Vac RMS @ 20 Hz

☐ AP(A)-R Unit

Standard 2500 Set: 500 type network

Nominal Current: 30 mA

☐ AP(R)-R Unit

Standard 2500 Set: 500 type network

Nominal Current: 30 mA

Ring Signal: 56 Vac RMS @ 20 Hz

6.5.5 Series i Terminals

- ☐ The voltage and current for the D^{term} Series i Multiline Terminals are listed below:

Voltage: -11 ~ -48 Vdc

Maximum Current: 250 mA

Acoustical characteristics meet Electronic Industry Association (EIA) standard proposal SP-1286 and standard EIA RS-470.

- ☐ Voltage, current, and ring signal information for Single Line Telephone equipment, AP(A)-R Unit, and AP(R)-R Unit are the same as those listed in the previous paragraph.

6.6 Dialing Specifications

6.6.1 Dial Pulse Address Signaling

Dial Pulse Address Signaling uses dial pulses (regular momentary interruptions) to signal the equipment. The following Dial Pulse specifications are used in the SV8300 system.

- ☐ Pulse Rate: 10 ± 0.5 pps/ 20 ± 1.0 pps
- ☐ Percent Break: $60 \pm 1.5\%$
- ☐ Interdigit Interval: 0 pps/20 pps 770 ms. ~ 830 ms.

6.6.2 Dual-Tone Multifrequency (DTMF) Address Signaling

DTMF signaling includes push button or Touchtone dialing. When a key on a telephone is pushed, two tones (one high frequency and one low frequency) are provided. In the SV8300 system, the following DTMF specifications are used.

- ☐ Frequencies

Two sinusoidal frequencies are provided, one from the high frequency group and one from the low frequency group.

- ☐ Frequency Deviation: Less than $\pm 1.5\%$
- ☐ Signal Level:

Nominal level per frequency: -6 ~ -4 dBm

Minimum level per frequency

Low Group: -10 dBm

High Group: -8 dBm

Maximum level per frequency: 0 dBm

- ☐ Rise Time: Within 5 ms.
- ☐ Duration of Dual Frequency Signal:
110 ms. default/60 ms. minimum
Interdigital Time: 140 ms. default/45 ms. minimum

Nominal **High** Group
Frequencies (Hz)Nominal **Low** Group
Frequencies (Hz)

	1209	1336	1477
697	1	2	3
770	4	5	6
852	7	8	9
941	Q	0	#

6.6.3 External Equipment Connection

- ☐ Door Phone or TV Door Phone
- ☐ External Speaker via amplifier
- ☐ External music source for MOH and BGM
- ☐ Tape recorder for voice recording via PGD(2)-U10 ADP
- ☐ Door Lock/Release or General Purpose Relay via PGD(2)-U10 ADP
- ☐ Printer for SMDR by LAN
- ☐ PC by LAN

6.6.4 Music Source for Music on Hold via Chassis

- ☐ Auxiliary Input: 0.6V PPS Signal Level
- ☐ Input Impedance: 600 Ω

6.6.5 Music Source for Station Background Music via ACI

- ☐ Auxiliary Input: 0.6V PPS Signal Level
- ☐ Input Impedance: 600 Ω

6.6.6 External Paging (Audio)

- ☐ Output Power: -10 dBm Signal Level
- ☐ Output Impedance: 600 Ω
- ☐ Relay Contact Rating: 500 mA, 24 Vdc

6.6.7 External Tone Ringer/Night Chime Output

- ☐ Output Level: -10 dBm
- ☐ Output Impedance: 600 Ω
- ☐ Relay Contact Rating: 500 mA, 24 Vdc

6.6.8 SMDR Output

- ☐ Female Connector (LAN) Standard DB-9 (straight)

6.6.9 PC Connection

- ☐ Female Connector (LAN) Standard DB-9 (straight)

6.6.10 Relay Contact

- ☐ All Relay Contact Ratings: 500 mA, 24Vdc

6.7 Battery Backup

The SV8300 system has battery backup functions for system backup and for memory backup.

6.7.1 System Backup (Optional)

During a power failure, the system is backed up using a rechargeable battery. This battery backup supports all system operations for approximately 30 minutes.

6.7.2 Memory Backup

The CPU Blade battery retains the Clock/Calender and Last Number redial (LNR) buffers for each station when the CPU Blade encounters a power loss. With a fully charged battery, the settings are retained for about three years. The System Programmed memory (Customer Database) is stored in non-volatile Memory and can be erased only by a First Initialization. After power is restored, the system Blade returns to normal operation.

6.8 Weights and Dimensions

Table 3-15 SV8300 Weights shows the weight of main equipment for SV8300. And Figure 3-6 SV8300 Dimensions shows the dimension of main equipment for SV8300.

6.8.1 Weights

Table 3-15 SV8300 Weights

Equipment	Weight	Remarks
Chassis:		
CHS1U-US	176.4 oz (5.0 kg)	With all slots occupied, but no built-in battery included
CHS2U-US	289.2 oz (8.2 kg)	With all slots occupied, but no built-in battery included
UNIT (CHS1U-US+CHS2U-USx3)	1086.4 oz (30.8 kg)	Including JOINT BRACKET
Battery:		
CHS1U BATT MTG KIT	7.05 oz (0.2 kg)	CHS1U-US Battery mounting kit
CHS2U BATT MTG KIT	14.1 oz (0.4 kg)	Battery Mount for CHS2U-US Chassis
CHS LARGE BATT BOX	352.7 oz (10 kg)	Long Term Battery Box for CHS1U-US and CHS2U-US Chassis
Mounting Equipment:		
CHS1U RACK MOUNT KIT	7.05 oz (0.2 kg)	Rack Mount Set for CHS1U-US Chassis
CHS2U RACK MOUNT KIT	14.1 oz (0.4 kg)	Rack Mount for CHS2U-US Chassis
CHS BASE UNIT	218.7 oz (6.2 kg)	Floor Mount Set for all chassis (CHS1U-US and CHS2U-US)
CHS1U/2U WALL MOUNT KIT	24.7 oz (0.7 kg)	Wall Mount Set for CHS2U-US Chassis
CHS STAND KIT (K)	38.8 oz (1.1 kg)	Stand Mount Kit for 2U Chassis
CHS2U STAND KIT (EXT)	17.6 oz (0.5kg)	Expansion Plate for Stand Mount Kit for CHS2U-US Chassis, 2 sets
CHS2U JOINT BRACKET KIT	7.05 oz (0.2 kg)	Upper Joint Bracket for 2U Chassis

6.8.2 Dimensions

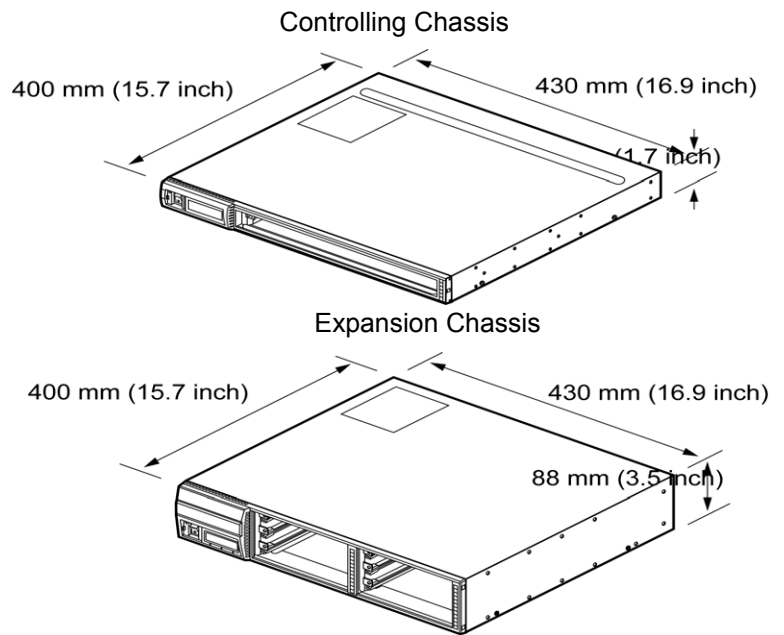


Figure 3-6 SV8300 Dimensions

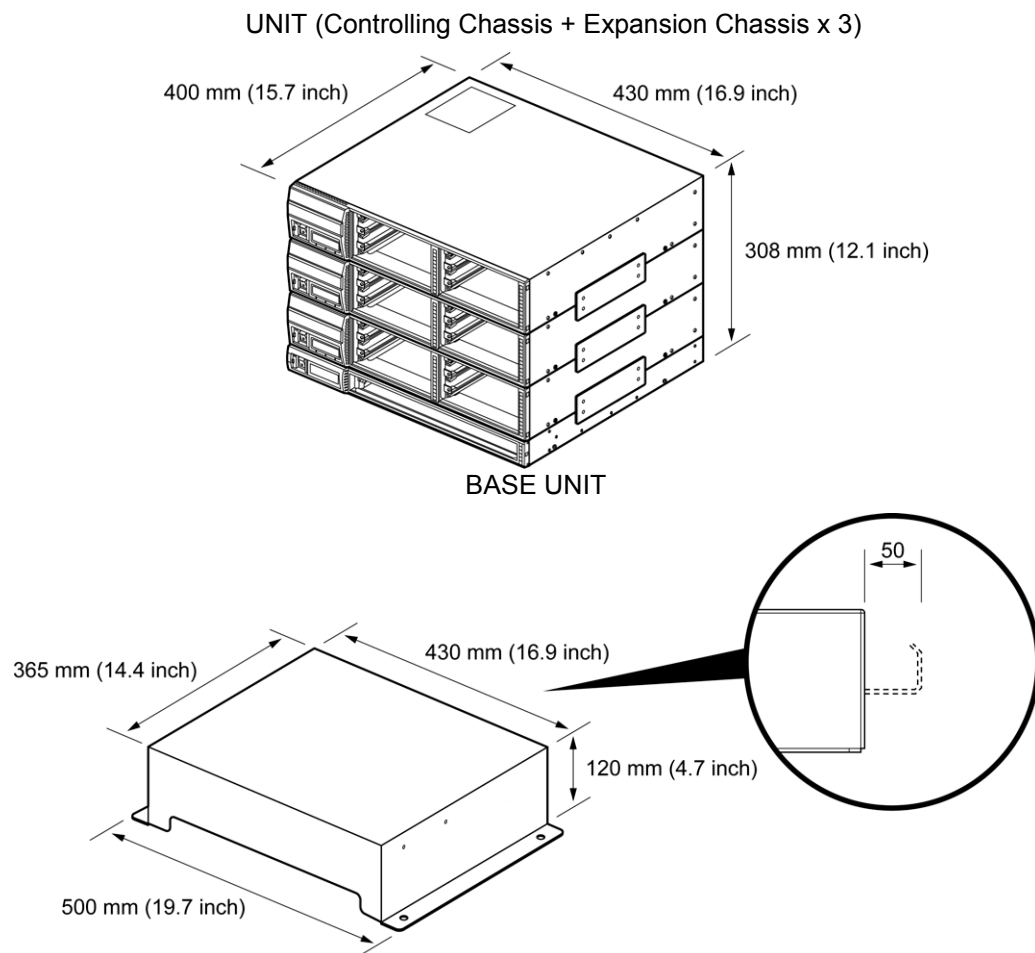



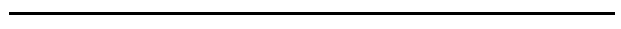

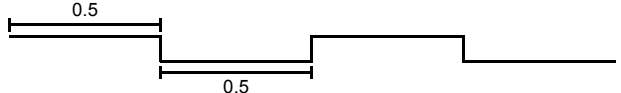

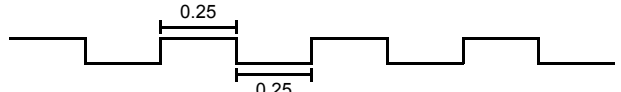

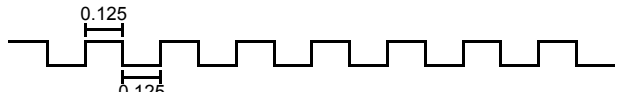

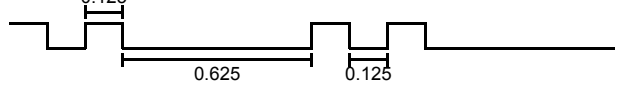

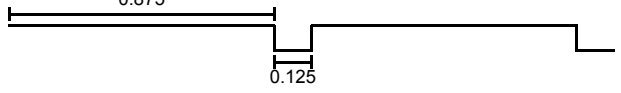

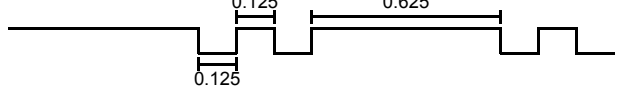

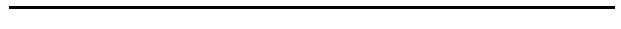
Figure 3-7 SV8300 Dimensions, Continued

6.9 Audible and Visual Indication

6.9.1 Lamp Display

[Table 3-16 Lamp Display on page 3-31](#) shows the state of the Multiline Terminal.

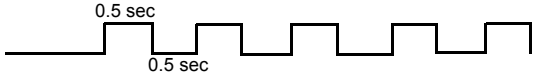


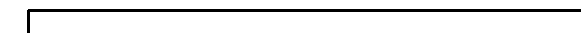
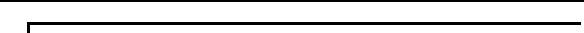
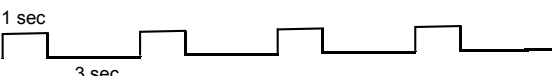
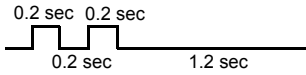


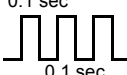
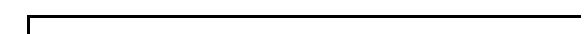
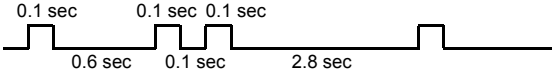
Table 3-16 Lamp Display

No.	Display	State	Cycle (second)
0		Turning off	On Off 
1		Slow blinking	On Off 
2		Blinking	On Off 
3		Fast blinking	On Off 
4		Intermittent blinking	On Off 
5		Intermittent turning off	On Off 
6		Intermittent lit	On Off 
7		Lit	On Off 

6.9.2 Tone Patterns

[Table 3-17 Tone Patterns on page 3-32](#) lists the frequency and the pattern for the tones. Tones are used to inform SV8300 station users of system functions such as dial tone, busy tone, or ringback tone.

Table 3-17 Tone Patterns

System Tone (Fixed)	Frequency (Hz) (Fixed)	Intermit (Default)	Cycle
Busy Tone	480/620	0.5 sec On 0.5 sec Off	
Call Waiting Tone	440/480	1 sec On 1 sec Off	
Second Dial Tone	350/440	Continuous	
Howler Tone	2500 Modulation (16 Hz)	Continuous	
Internal Dial Tone	350/440	Continuous	
Internal Ringback Tone	440/480	1 sec On 3 sec Off	
LCR Dial Tone	440/480	0.2 sec On 0.2 sec Off 0.2 sec On 1.2 sec Off	
Reorder Tone	480/620	0.2 sec On 0.3 sec Off	
Service Set Tone	440	Continuous	
Special Dial Tone	350/440	0.1 sec On 0.1 sec Off	
Camp-On Tone Call Alert Notification Attendant Tone Override	440	Continuous	
Hold Tone	480/620	0.1 sec On 0.6 sec Off 0.1 sec On 0.1 sec Off 0.1 sec On 2.8 sec Off	

6.9.3 Multiline Terminal LED Flash Patterns

The SV8300 system has 2-color LEDs. Green is used primarily for I-Use conditions and for outside calls. Red is used primarily for Other Use conditions and internal calls. Refer to [Table 3-18 Multiline Terminal LED Flash Pattern](#).

Table 3-18 Multiline Terminal LED Flash Pattern

LED	Condition	Color	Flash Patterns				
Line Key	I-Use	Green					
	Busy	Red					
	Incoming Call	Red	—	—	—	—	—
	I-Hold	Green	—	—	—	—	—
	Call Hold	Red	—	—	—	—	—
	Hold Recall	Green	—	—	—	—	—
	Transfer Recall	Green	—	—	—	—	—
	Live Monitoring Mode	Green	—	—	—	—	—
	Message Waiting on Line Key	Red	—	—	—	—	—
Microphone	ON	Red					
Mic	ON (Series i)	Red					
ICM	I-Use	Red					
	ICM Incoming Call	Red	—	—	—	—	—
	Voice Over Broker	Red	—	—	—	—	—
Large LED	Incoming Internal Call	Red	—	—	—	—	—
	Incoming Outside Call	Green	—	—	—	—	—
	Message from Attendant	Green	—	—	—	—	—
	Voice Mail Message	Red	—	—	—	—	—
Speaker	ON	Red					
	System Data Entry	Red	—	—	—	—	—
Conf	Conference in Progress/Barge In	Red					
	All Conference Circuits Used	Red					
	Hold Conference Call	Red	—	—	—	—	—
	ICM Call Hold	Red	—	—	—	—	—
	SPD Confirmation	Red	—	—	—	—	—
Answer	Incoming Trunk	Red	—	—	—	—	—
	Exclusive Hold	Green	—	—	—	—	—
	User Ringing Line Preference	Red	—	—	—	—	—
	Voice Over with Broker's Call	Green	—	—	—	—	—
Feature	Callback Set	Red	—	—	—	—	—
	Auto Repeat Set	Red	—	—	—	—	—
	ON (to set function)	Red	—	—	—	—	—
	Call FWD - All Calls Set	Red	—	—	—	—	—
BLF or DSS Key	Use, Hold	Red					
	DND, Call FWD-All Calls Set	Red	—	—	—	—	—
	Special Mode (while pressing Feature or going off-line)	Red	—	—	—	—	—

0 0.5 1.0 1.5 2.0 sec.

SECTION 7 TRAFFIC CAPACITY

Table 3-19 Traffic Capacity provides information about the traffic capacity for the basic system package and expanded system package.

Table 3-19 Traffic Capacity

	Traffic Capacity (CC-CP00)
System Max.	12000BHCA
System with IP Trunk (P2P CCIS)/SIP Trunk	4000BHCA

This CC-CP00 provides:

- ☐ 512 trunk ports maximum
- ☐ 1296 extension ports maximum (Standalone)
 - 960 ports digital extension number
 - 1024 ports IP extension number
 - 1296 analog ports maximum
- ☐ 1500 extension ports maximum (Remote Unit)
 - 1500 ports digital/IP extensions number
 - 1500 analog ports maximum
- ☐ 1000 virtual extensions
- ☐ Connection for 64/128 VoIP Daughter Blade (PZ-64IPLA/PZ-128IPLA)
- ☐ Connection for Modem Daughter Blade (PZ-VM21)
- ☐ 1 Blue Status LED
- ☐ 3 Green Status LEDs
- ☐ 2 Red Status LEDs
- ☐ Six diagnostic LEDs which indicate the status of various system functions
- ☐ During normal operation, the "RUN" LED will be flashing and the remaining LEDs will be off.
- ☐ 700x700 Time Division Multiplex Switch (TDM Switch)
- ☐ Digital Phase Locked Loop (DPLL)

Installing the SV8100 Chassis

SECTION 1 GENERAL INFORMATION

This chapter contains information to help the technician install the chassis for the SV8100 system. The technician should be familiar with this section ***before installing*** any equipment.

SECTION 2 SITE PREPARATION AND MDF/IDF CONSTRUCTION

Pre-installation planning is essential. Advanced planning minimizes installation time, cost, and disruption of the customer business activities.

2.1 Precautionary Information



Observe the following warnings during installation.

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- To avoid shock or equipment damage, do not plug in or turn the system power on before completing the installation process.
- Avoid working with the equipment during electrical storms.
- Use only commercial AC power to prevent shock or fire.
- Use the power cord supplied for the chassis.
- To prevent overheating, do not bundle AC power cords together.
- Make sure the chassis has a proper earth ground.
- Install batteries with the correct polarity to prevent damaging equipment.

- To avoid damage, the chassis should not be placed on unstable surfaces.
- Although it is recommended to install the blades with the system power **off**, all blades can be installed hot, *except for the following*:
 - ☐ CD-CP00-US
 - ☐ PZ-BS10 and PZ-BS11
 - ☐ PZ-ME50
 - ☐ PZ-32IPLA, PZ-64IPLA and PZ-128IPLA
 - ☐ PZ-VM21

2.2 Surveying the Customer Site

In most cases, a survey of the customer site is necessary to determine the proper placement of the Main Distribution Frame (MDF), the exact dimensions of the area selected for the MDF, cabling requirements, and possible Intermediate Distribution Frame (IDF) locations.

The information obtained at the customer site can permit the installer to partially assemble the MDF before installation at the customer premise. This can reduce the time spent installing at the customer site and reduce downtime.

2.3 Selecting the Best Location for Proper Installation

2.3.1 Selecting the Chassis Installation Site

When selecting an installation site for the chassis, consider the following conditions to ensure proper installation:

- ☐ Chassis are normally rack mounted to protect against accident or flooding.
- ☐ The chassis should not be located directly beneath pipes. Leaks or condensation could damage the UNIVERGE SV8100/SV8300 system equipment.
- ☐ The area where the chassis is located must be free of corrosive and inflammable gases, excessive chemical or industrial dusts, and other materials that could cause a hazard to personnel or to the proper functioning of the equipment.
- ☐ The operating ambient temperature and humidity must be within the limits specified in [6.3 Environmental Conditions on page 2-30](#) in Chapter 2 System Specifications.

- ☐ The operation of the system is virtually noiseless and allows wide selection of installation sites. Take care to ensure the chassis or cabling do not present a hazard to office traffic. To minimize cabling costs, a centralized location must be chosen.
- ☐ Locate the chassis at a site where a dedicated AC power source can be easily accessed.
- ☐ Connect the chassis to a dedicated AC receptacle that is **not being used** for any other device.

2.3.2 Selecting a Permanent MDF Location

When selecting a permanent site for the MDF, the technician may encounter some of the following conditions:

- ☐ Limited space is available but must be used.
- ☐ The available space may pose one or more environmental hazards.
- ☐ The proposed location has limitations such as insufficient lighting or the lack of a suitable ground for the chassis.
- ☐ The technician that encounters these conditions must provide the best possible solution for installing the equipment. This document cannot cover all possible situations, precautions, and actions.

2.3.3 Selecting a Site for Installing the Telephones

When a site is being selected for telephone installation, consider the following conditions to ensure proper installation:

- ☐ Ensure cable length and line resistance (loop), between the chassis and telephones, comply with the specifications listed in [Table 2-14 D^{term} Series i or D^{term} IP Terminal Loop Resistance and Cable Length on page 2-28](#).
- ☐ Select a place where devices that require an external power supply can be easily connected to an AC outlet.

2.4 Constructing the Main Distribution Frame (MDF)

The Main Distribution Frame (MDF) has two different standard quick-connect terminal blocks that are mounted on a 3/4-inch plywood backboard. Mounting these blocks on standoffs for ease of access is recommended. The recommended blocks are 66B50 for termination of the MDF Cable Assembly and 66M50 for termination of the station cables.

The Intermediate Distribution Frame (IDF) requires the 66M50 blocks only.

Both the MDF and the IDF use standard bridging clips for each terminal block. The bridging clips mate the left half of the terminal block (terminated cable run) to the right half of the terminal block (cross connection wire) to the terminal block (cross connection wire). The bridging clips are also useful during troubleshooting to help isolate the cable runs and terminals/telephones from the central equipment and the Central Office Network from the system.

The SV8100 system can be floor-mounted, wall-mounted, desk-mounted or rack mounted. Plywood should first be installed on the wall where the chassis will be positioned, to allow for secure anchoring. It is equipped with a bracket, which can be used to secure each chassis in any of these installations. Ensure that enough space is available to allow the installation of the additional chassis above and below the Controlling Chassis.

The system requires a 3-prong dedicated 110 VAC 60 Hz circuit (NEMA 5-15 receptacle) located within 7 feet of the AC receptacle. Telco should install the RJ21X to the right of the Controlling Chassis. Extension blocks should be installed to the left of the Controlling Chassis.

The chassis is shipped fully assembled. The following are shipped with the chassis:

- 1 black 3-prong power cord (packed outside the chassis)
- CHS2U RACK MOUNT KIT

2.5 Power Failure Transfer

The Power Failure Transfer relays are located on the COIU Blades (CN3). When selecting a Single Line Telephone for power failure transfer, make sure it matches the CO line dialing type (10 pps, 20 pps, or DTMF) where it is connected. Each COIU Blade supports two power failure transfer connections. During a power failure condition, CO Ports 1 and 2 on the COIU Blade are used for Power Failure Transfer relays 1 and 2 consecutively. [Table 4-1 Power Failure Transfer Connections](#) is a relay diagram. The relay is shown with the power ON.


 *Power Failure and FAX Branch Connection do not function simultaneously at the same time on the same port. Use Program 14-02-21 (Fax Branch Connection) to enable this feature on a per trunk basis.*

Table 4-1 Power Failure Transfer Connections

Pin Number	Description	Pin Number	Description
1	Not in Use	2	Not in Use
3	Tip for Circuit 2	4	Ring for Circuit 1
5	Tip for Circuit 1	6	Ring for Circuit 2
7	Not in Use	8	Not in Use

2.6 Fax CO Branch Connection

The Fax Branch Connection feature uses the Power Failure Transfer relays located on the COIU Blades (CN3). Each COIU Blade supports two Fax CO Branch Connections.


 *Power Failure and FAX Branch Connection do not function simultaneously at the same time on the same port. Use Program 14-02-21 (Fax Branch Connection) to enable this feature on a per trunk basis.*

Table 4-2 Power Failure Transfer Connections (Fax CO)

Pin Number	Description	Pin Number	Description
1	Not in Use	2	Not in Use
3	Tip for Circuit 2	4	Ring for Circuit 1
5	Tip for Circuit 1	6	Ring for Circuit 2
7	Not in Use	8	Not in Use

SECTION 3 INSTALLING THE CHASSIS

The CHS2U-US chassis has six universal blade slots for legacy line/trunk blade (Single Line Telephone Interface, Digital Multiline Terminal Interface, Central Office Trunk, ISDN PRI Interface, etc.), In-skin Application Blades (In-skin UMS, In-Skin Router, etc.). It also houses the BUS Interface Blade, Power Supply Unit (PSU) and Cooling FAN.

When the CD-CP00-US blade is installed in the first 19" chassis, it is referred to as the controlling chassis. Additional chassis, referred to as expansion chassis, can be installed to increase the capacity of the system to meet the customer's business needs. Each chassis (Expansion or Controlling), is powered by a MPS7101 power supply.

The chassis can be wall mounted, floor mounted, stand mounted or rack mounted. Refer to [Section 2 Site Preparation and MDF/IDF Construction on page 4-1](#) to ensure proper site preparation. The first part of this chapter describes the differing types of mounting options and the rest of this section describes how to install the chassis.

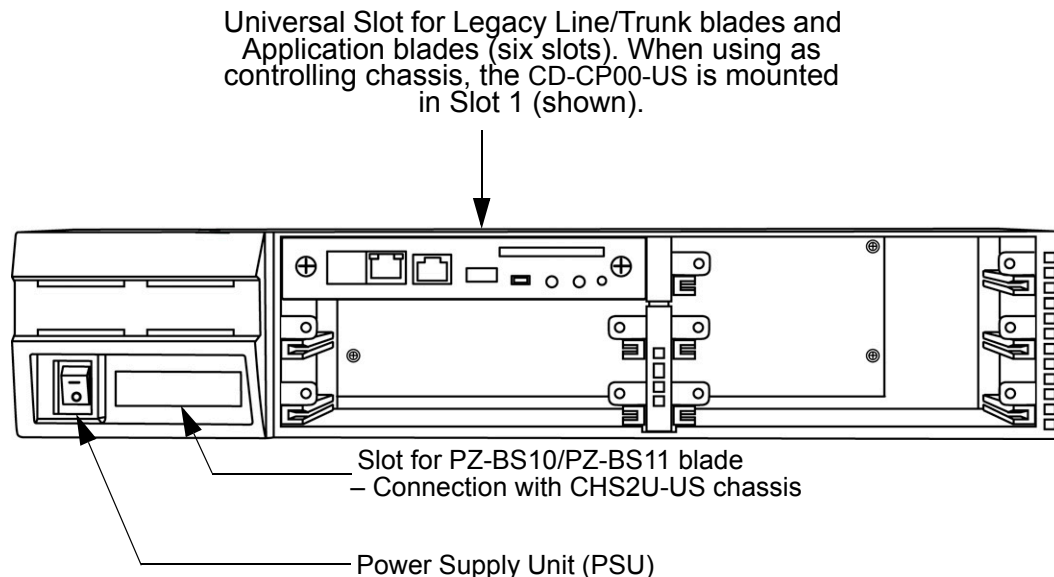


Figure 4-1 CHS2U-US Chassis (Front View)

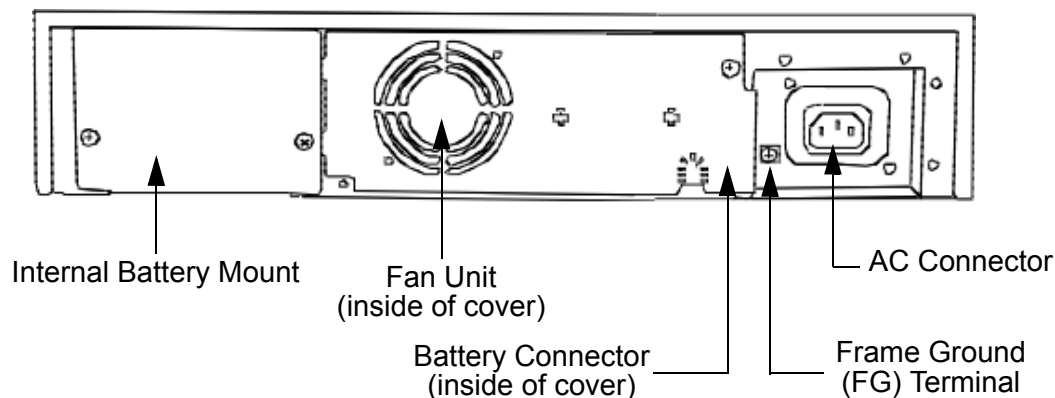


Figure 4-2 CHS2U-US Chassis (Rear View)

3.1 Wall Mounting the 19" Chassis

When wall mounting the chassis, ensure the wall can support the weight of the chassis (55 lbs per system chassis ---- including blades, cords, power supply, etc.). The chassis is secured to the wall with a wall mount bracket. Ensure that enough space is available to allow the installation of additional expansion chassis.

3.1.1 CHS2U-US Chassis Wall Mount Installation

1. Use the template shown in [Figure 4-3 Wall Mount Spacing Guide \(19" Chassis\)](#) on page 4-8 for required spacing before drilling.



- *Plywood should first be installed on the wall where the chassis will be positioned. This allows secure anchoring of the screws which support the weight of the chassis.*
- *Due to chassis weight, NEC recommends only a single CHS2U-US chassis per wall mount.*

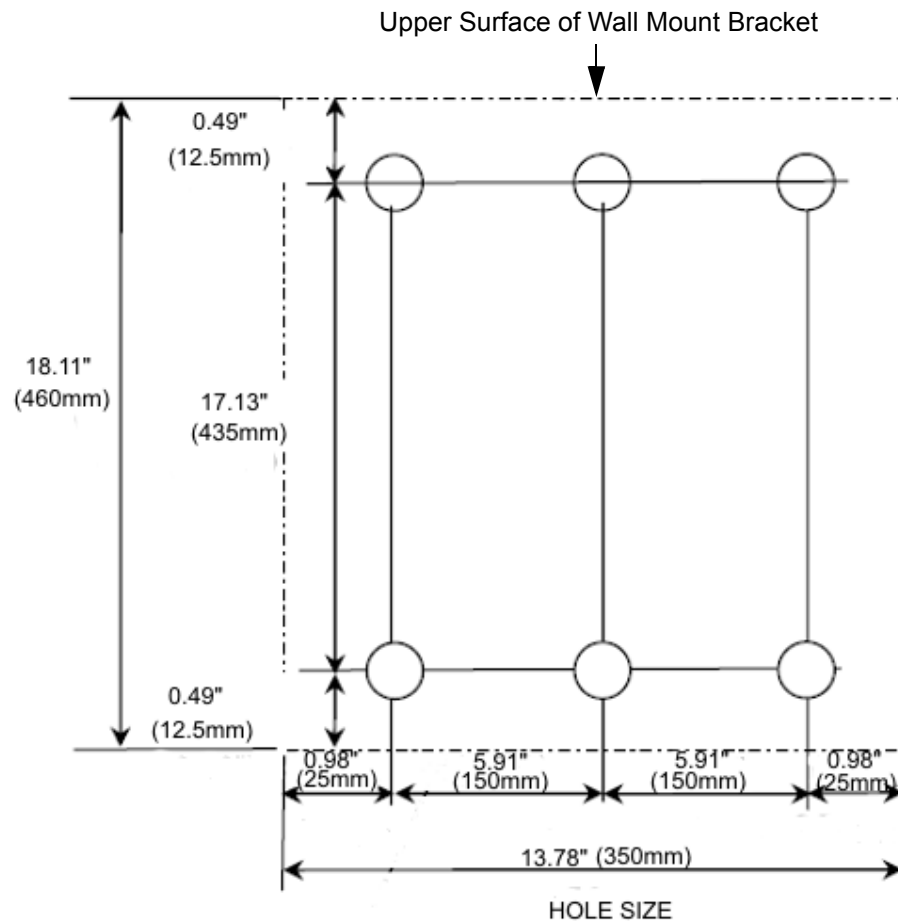


Figure 4-3 Wall Mount Spacing Guide (19" Chassis)

2. Mark and drill the six holes required for a wall installation.
3. Align screw holes in wall mount brackets with drilled holes.

4. Using six screws, secure the two wall mount brackets to the wall. Refer to [Figure 4-4 Install Wall Mount Brackets with Screws](#) for screw location.

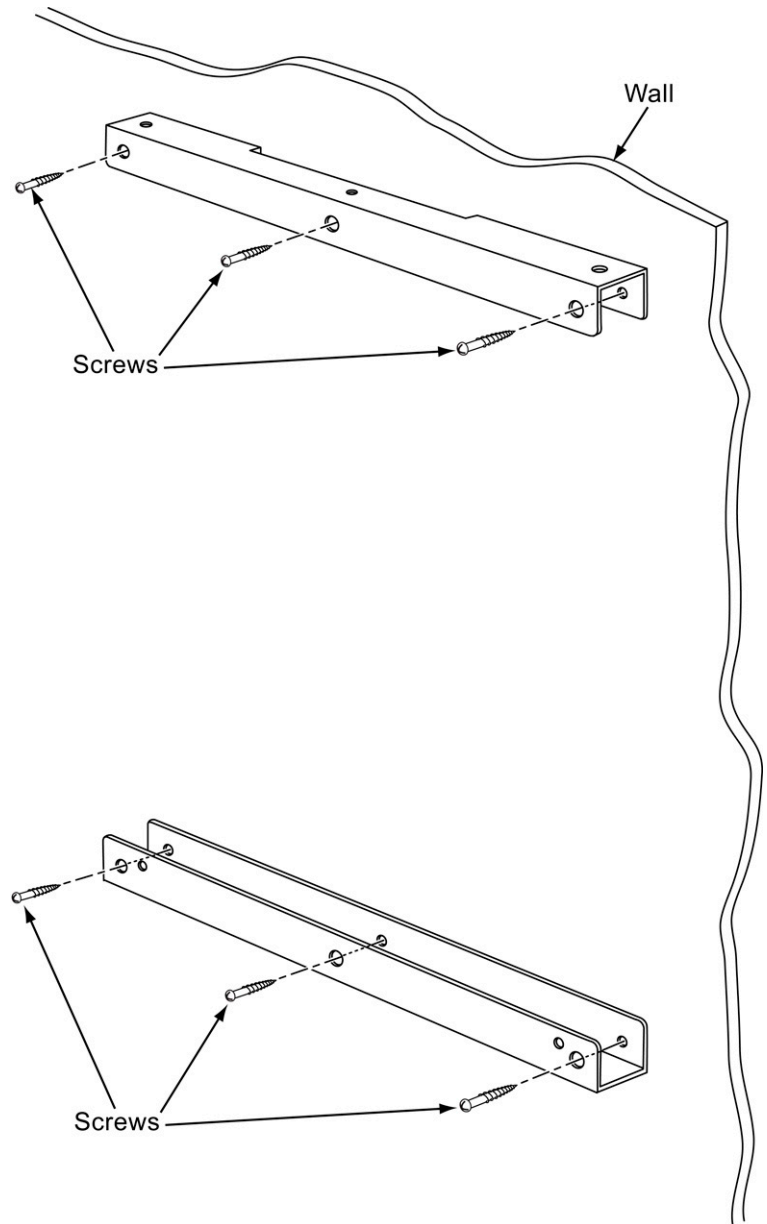


Figure 4-4 Install Wall Mount Brackets with Screws

5. Using four screws, secure the metal fittings on the Left and Right sides of the 19" chassis. Refer to [Figure 4-5 Install Wall Mount Brackets with Screws on page 4-10](#) for screw location.

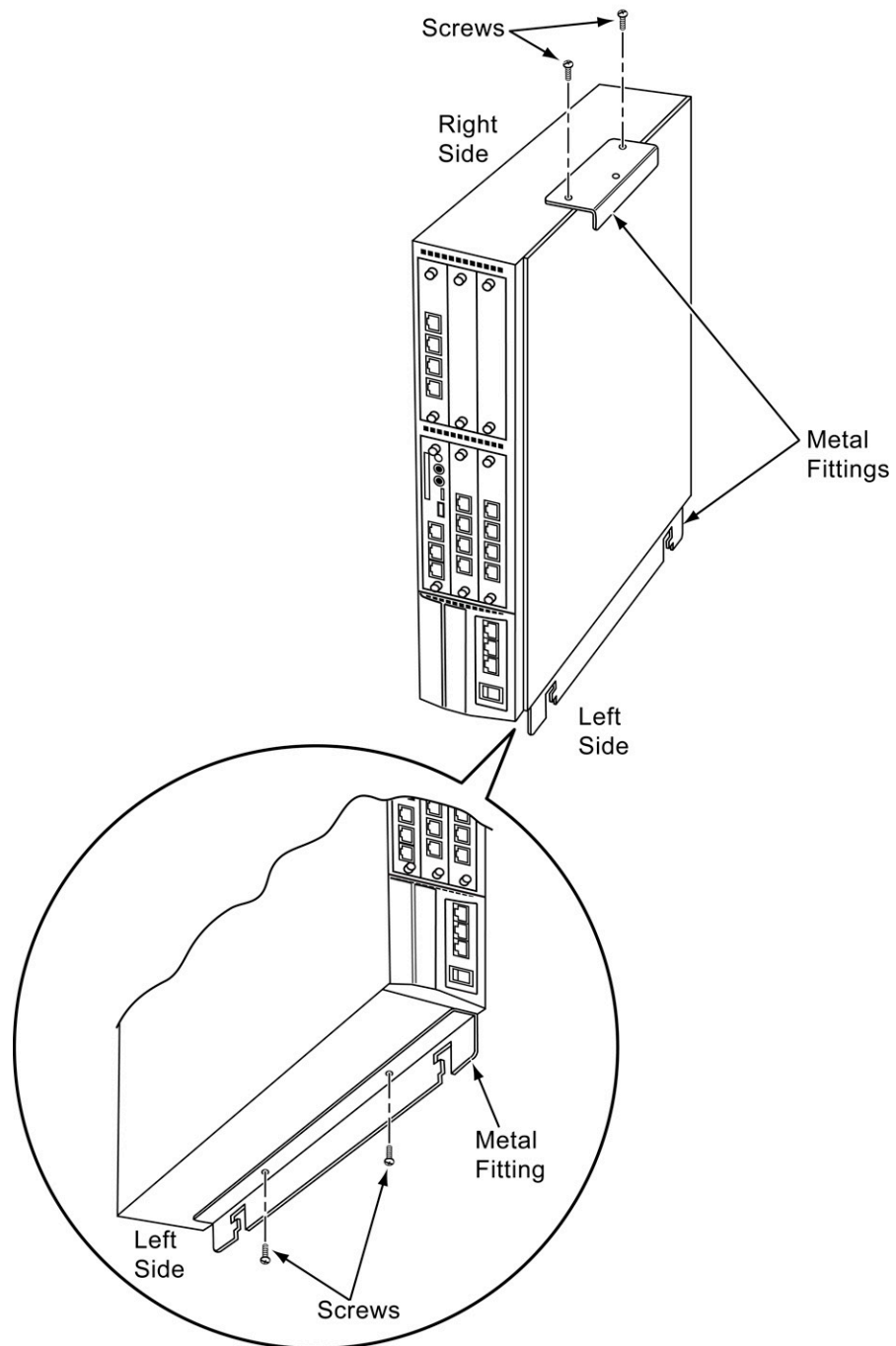


Figure 4-5 Install Wall Mount Brackets with Screws

6. Align the metal fitting with the upper wall mount bracket. The lower metal fitting will rest against the lower wall mount bracket. Secure the metal fitting and upper wall mount bracket with a single screw (see [Figure 4-6 Secure Metal Fitting to Upper Wall Mount Bracket with a Screw](#)).

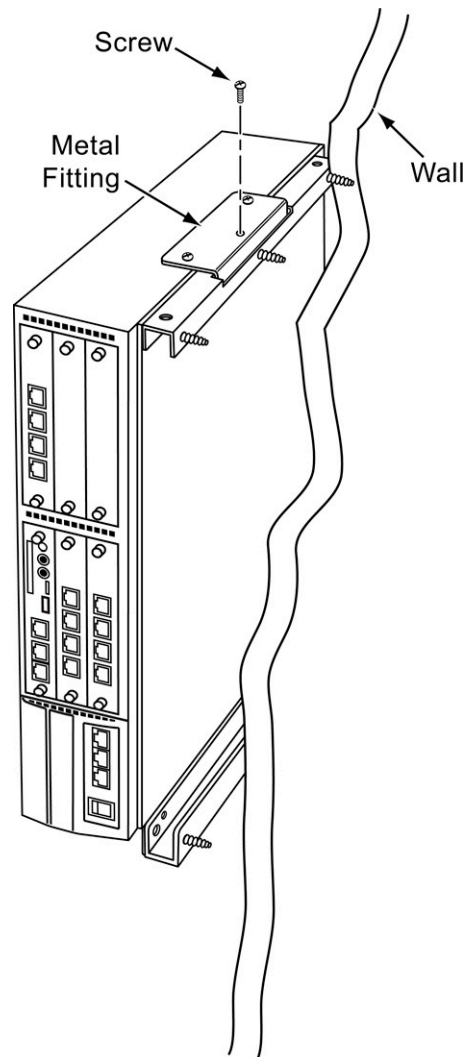


Figure 4-6 **Secure Metal Fitting to Upper Wall Mount Bracket with a Screw**

7. Using two screws, secure the metal fitting to the lower wall mount bracket. Refer to [Figure 4-7 Secure Metal Fitting to Lower Wall Mount Bracket with Screws](#) on page 4-12 for screw location.

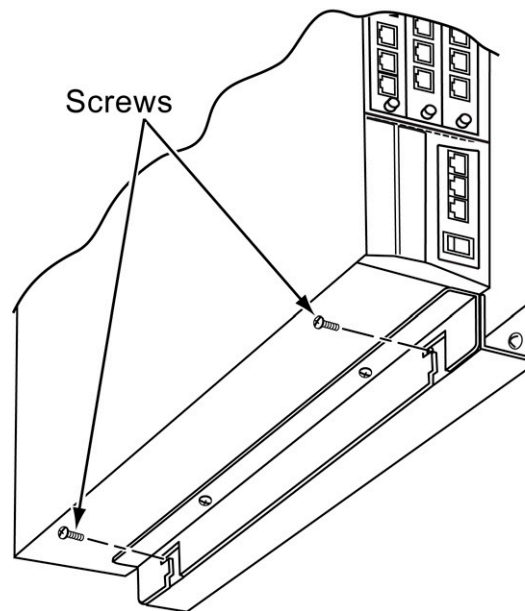


Figure 4-7 Secure Metal Fitting to Lower Wall Mount Bracket with Screws

8. Attach the supplied cable support bracket to either end of the lower wall mount bracket with a single screw (refer to [Figure 4-8 Attach Cable Support Bracket with Screw on page 4-13](#)).

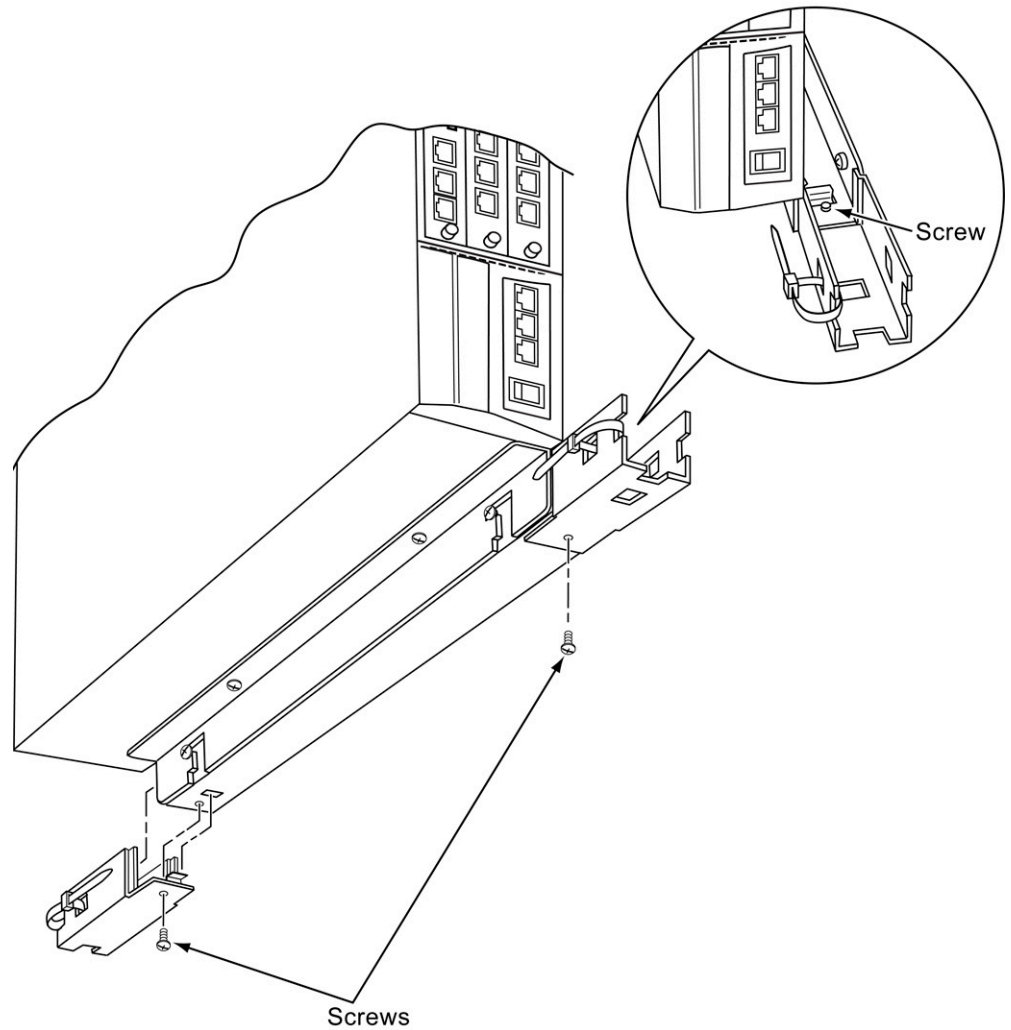


Figure 4-8 Attach Cable Support Bracket with Screw

9. The cable support bracket can be installed any of the four corners of the 19" chassis (refer to [Figure 4-9 Attach Cable Support Bracket with Screw on page 4-14](#)).

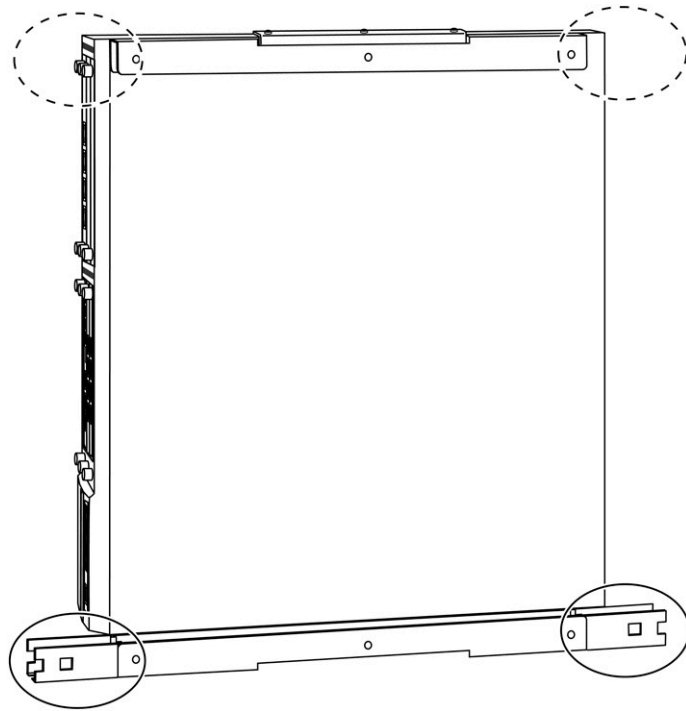


Figure 4-9 Attach Cable Support Bracket with Screw

10. Connect the ground wire to all chassis. Refer to [3.5.5 Install 19" Chassis Grounding on page 4-39](#) for complete details on grounding the system.
11. Refer to [3.5 Installing the 19" Chassis on page 4-27](#) to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade on page 6-4](#) for installation of blades.

3.2 Floor Mounting the 19" Chassis

The CHS2U-US controlling and expansion chassis can be mounted on the floor using the CHS BASE UNIT and the CHS2U JOINT BRACKET KIT.

3.2.1 CHS2U-US Chassis Installation

1. Use the template shown in [Figure 4-10 Floor Mount Spacing Guide](#) for required spacing before drilling holes for 0.39" (10mm) anchor bolts (locally procured).

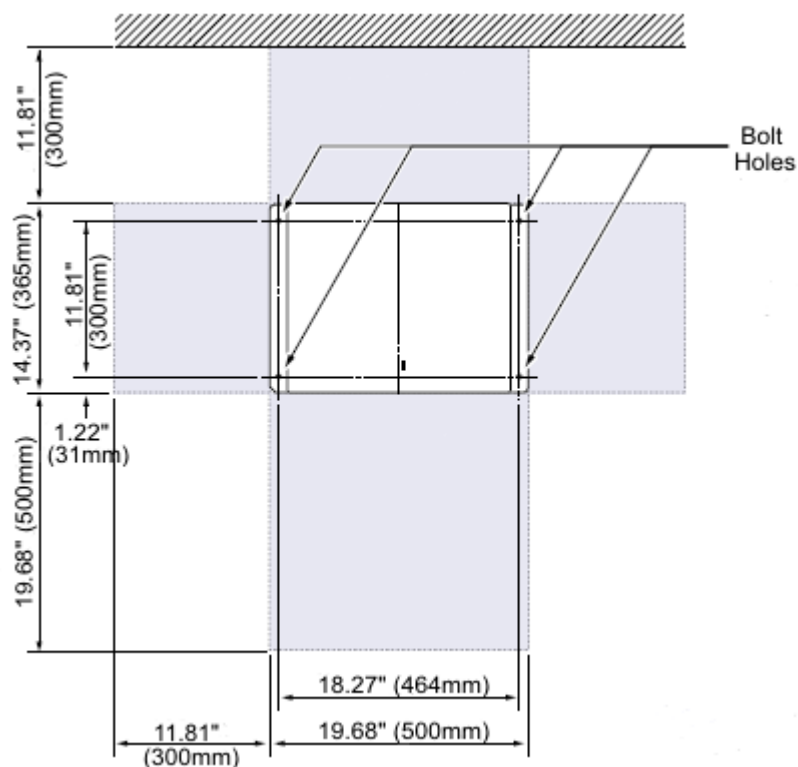


Figure 4-10 Floor Mount Spacing Guide

2. Mark and drill the four holes required for installing the CHS BASE UNIT.
3. Using anchor bolts, secure the CHS BASE UNIT to the floor. Refer to [Figure 4-11 Secure CHS BASE UNIT with Anchor Bolts](#) on page 4-16 for screw location.

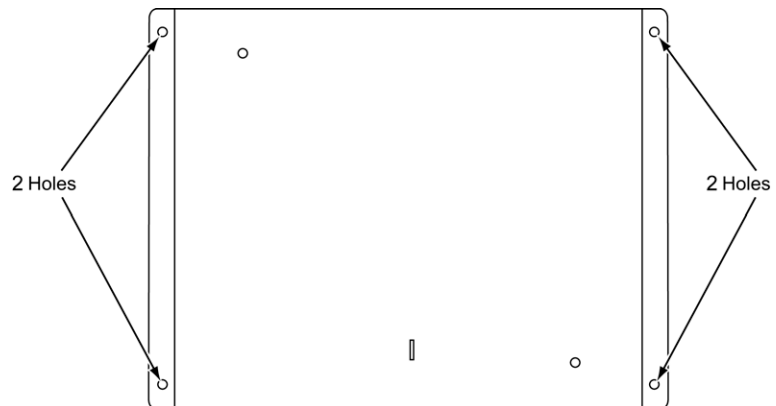


Figure 4-11 Secure CHS BASE UNIT with Anchor Bolts

4. Install the five rubber feet to the bottom of the chassis.

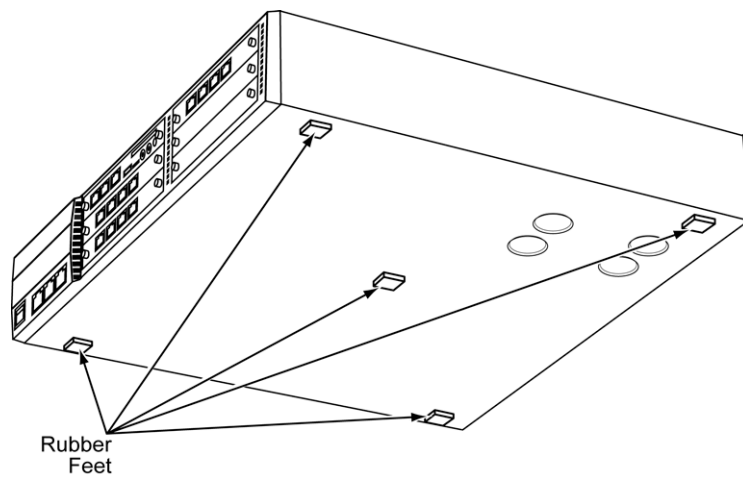


Figure 4-12 Install Rubber Feet

5. Position the chassis on top of the CHS BASE UNIT.
6. Secure the chassis to the CHS BASE UNIT using eight screws supplied with the CHS2U JOINT BRACKET KIT.

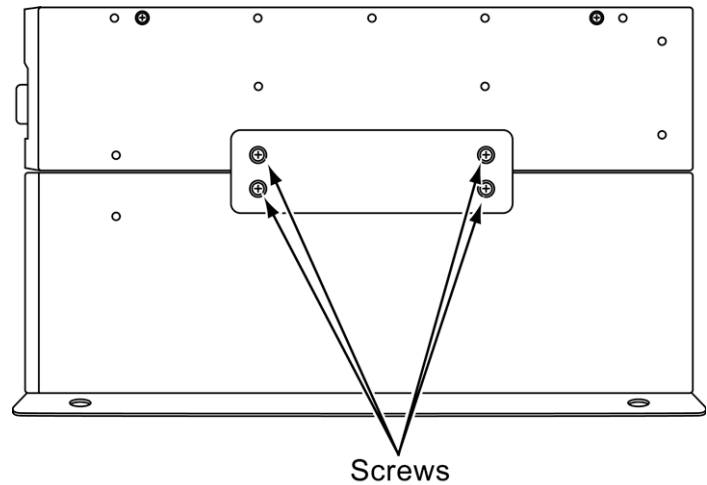


Figure 4-13 Install CHS2U JOINT BRACKET KIT

7. Connect the ground wire to all chassis. Refer to [3.5.5 Install 19" Chassis Grounding on page 4-39](#) for complete details on grounding the system.
8. Refer to [3.5 Installing the 19" Chassis on page 4-27](#) to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade on page 6-4](#) for installation of blades.

3.2.2 Multiple CHS2U-US Chassis Installation

Expansion chassis can be secured to the CHS BASE UNIT and will require an additional CHS2U JOINT BRACKET KIT per chassis.

1. Install the five rubber feet to the bottom of each chassis.

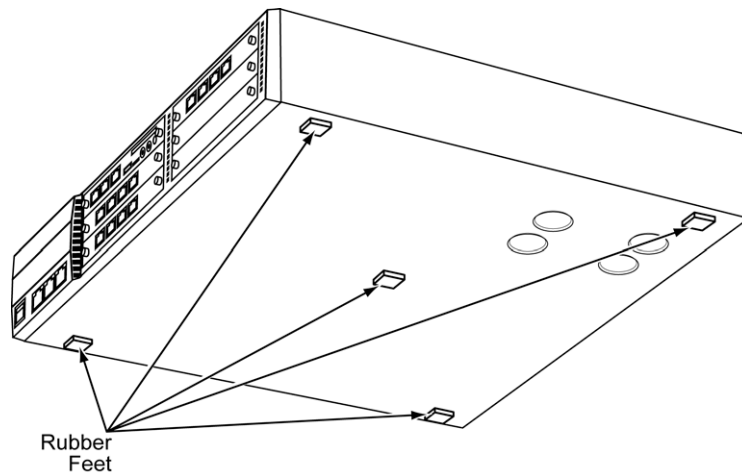


Figure 4-14 Install Rubber Feet

2. Using supplied screws in the CHS2U JOINT BRACKET KIT, attach metal brackets to both ends of the 19" chassis and the CHS BASE UNIT. Refer to [Figure 4-15 Install Metal Brackets with Screws](#).

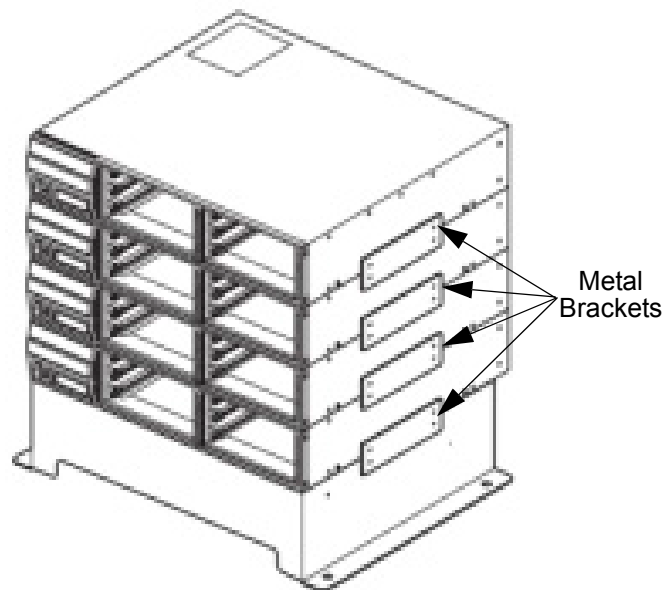


Figure 4-15 Install Metal Brackets with Screws

3. Connect the ground wire to all chassis. Refer to [3.5.5 Install 19" Chassis Grounding on page 4-39](#) for complete details on grounding the system.
4. Refer to [3.5 Installing the 19" Chassis on page 4-27](#) to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade on page 6-4](#) for installation of blades.

3.3 Stand Mounting the 19" Chassis

A single or multiple chassis can be stand mounted. Controlling and Expansion chassis can be stand mounted using the CHS2U STAND KIT(K) and CHS2U STAND KIT (EXT).

3.3.1 CHS2U-US Chassis Installation

1. Using the supplied screws, assemble the CHS2U STAND KIT(K) and CHS2U STAND KIT (EXT) (refer to [Figure 4-16 Assemble Stand Mount with Screws](#)).

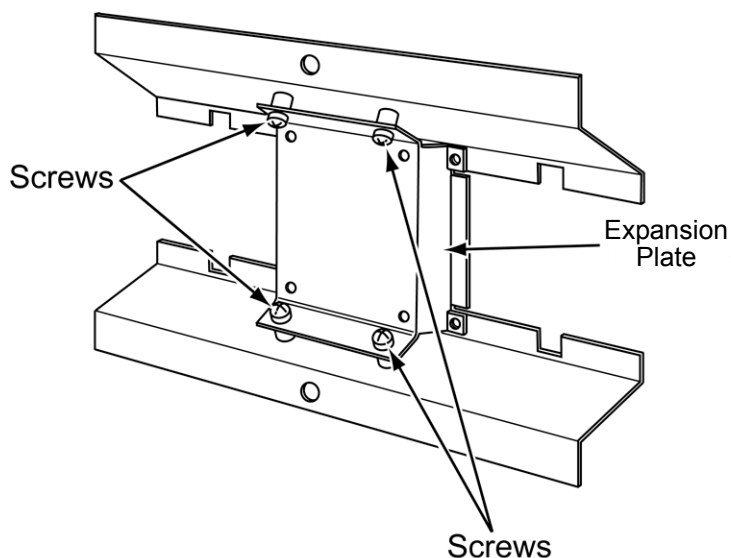


Figure 4-16 Assemble Stand Mount with Screws

2. Secure the CHS2U-US chassis to the assembled CHS2U STAND KIT, see [Figure 4-17 Secure CHS2U-US Chassis to CHS2U STAND KIT with Screws on page 4-20](#).

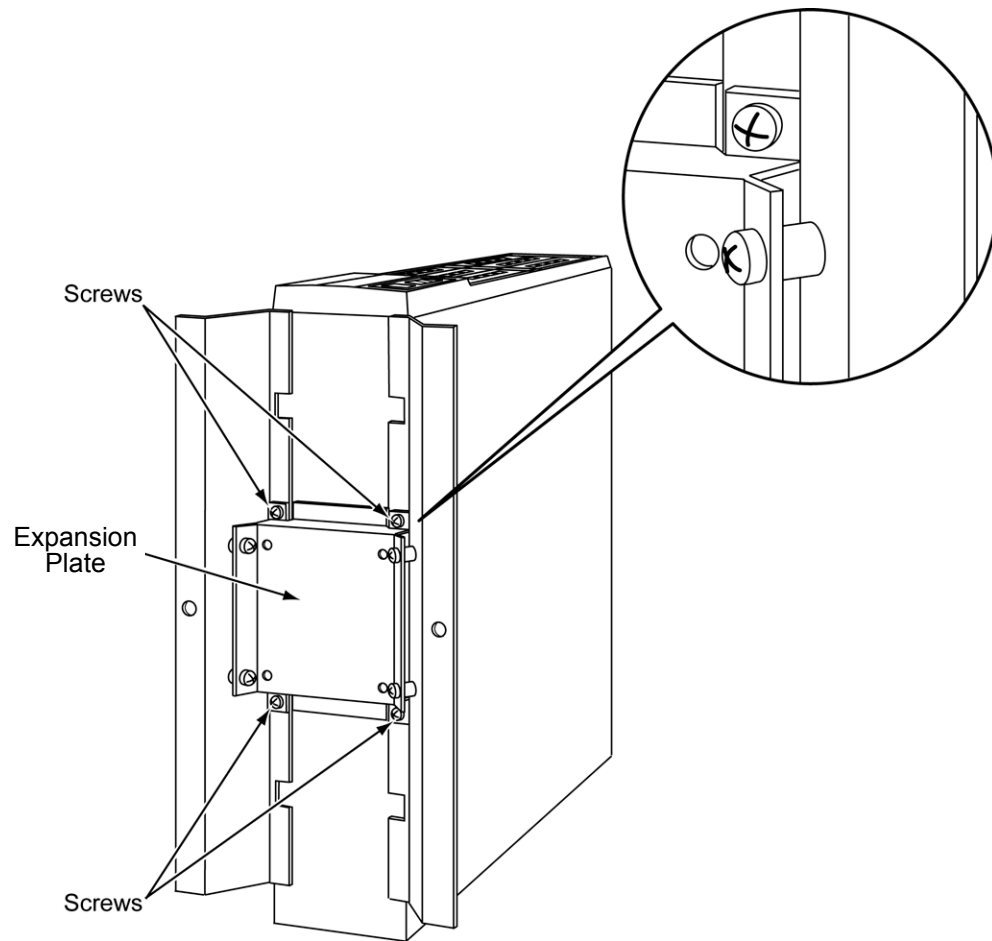


Figure 4-17 Secure CHS2U-US Chassis to CHS2U STAND KIT with Screws

3. Using supplied screws, secure the CHS2U STAND KIT to the floor (refer to [Figure 4-18 Secure Stand Mount to Floor with Screws on page 4-21](#)).



To prevent possible damage to the 19" chassis due to falling, NEC recommends screws be installed in the stand mount brackets as soon as possible.

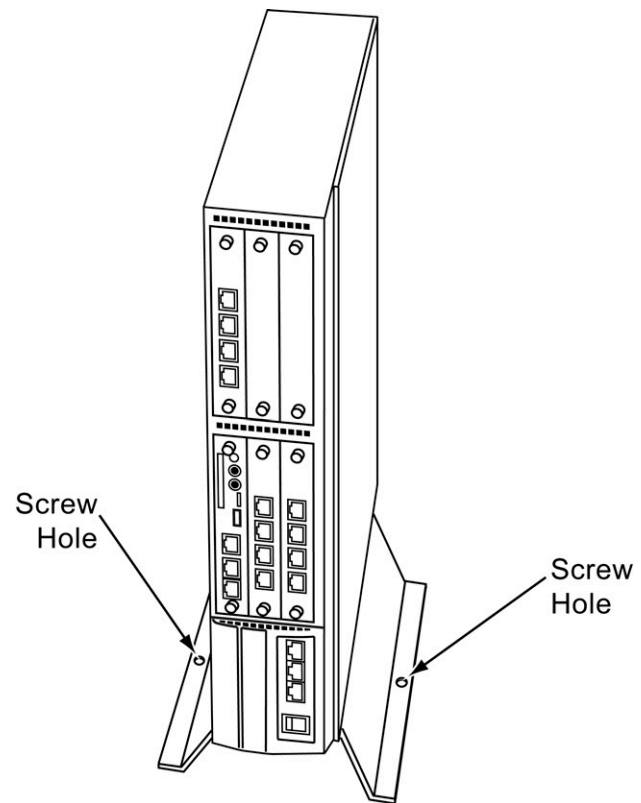


Figure 4-18 Secure Stand Mount to Floor with Screws

4. Connect the ground wire to all chassis. Refer to [3.5.5 Install 19" Chassis Grounding on page 4-39](#) for complete details on grounding the system.
5. Refer to [3.5 Installing the 19" Chassis on page 4-27](#) to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade on page 6-4](#) for installation of blades.

3.3.2 Multiple CHS2U-US Chassis Installation

Expansion chassis (maximum of three) can be added to the CHS2U STAND KIT and will require an additional CHS2U STAND KIT (EXT) per chassis.

1. Install the five rubber feet to the bottom of each chassis.

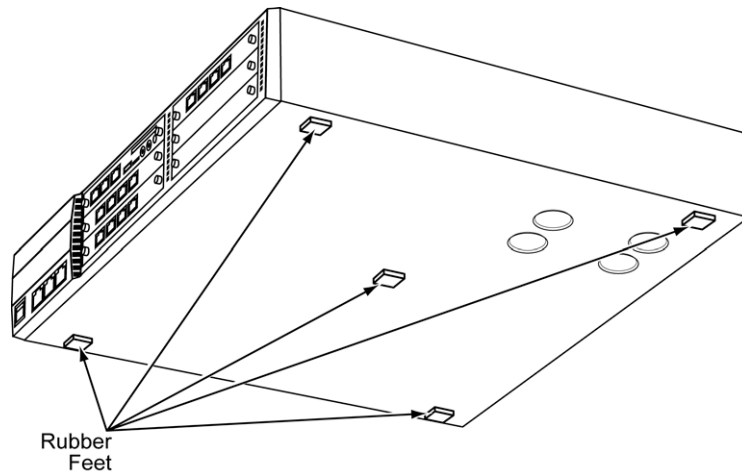


Figure 4-19 Attach Rubber Feet to CHS2U-US Chassis

2. Each additional chassis will require CHS2U STAND KIT (EXT) to be installed (refer to [Figure 4-20 Install Additional CHS2U STAND KIT \(EXT\)](#) on page 4-23).

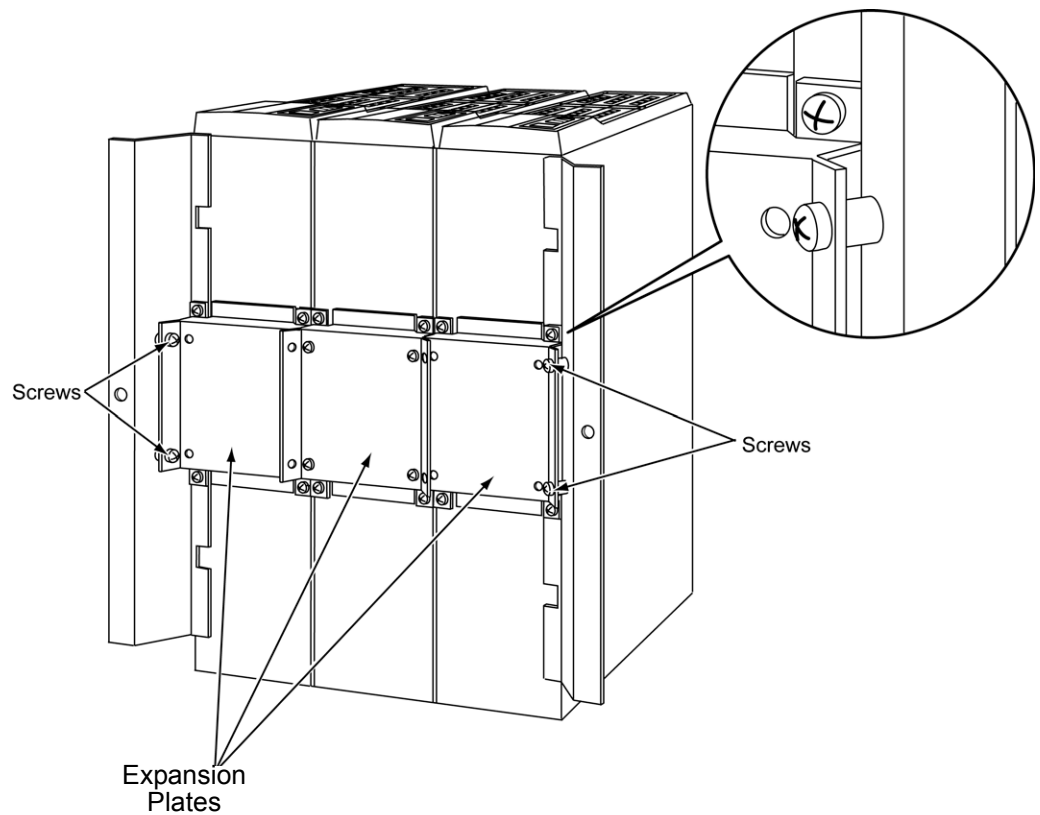


Figure 4-20 Install Additional CHS2U STAND KIT (EXT)

3. Metal brackets from the CHS2U JOINT BRACKET KITs will be required to secure the top end of the chassis with screws. See [Figure 4-21 Install Additional CHS2U STAND KIT \(EXT\)](#) on page 4-24.

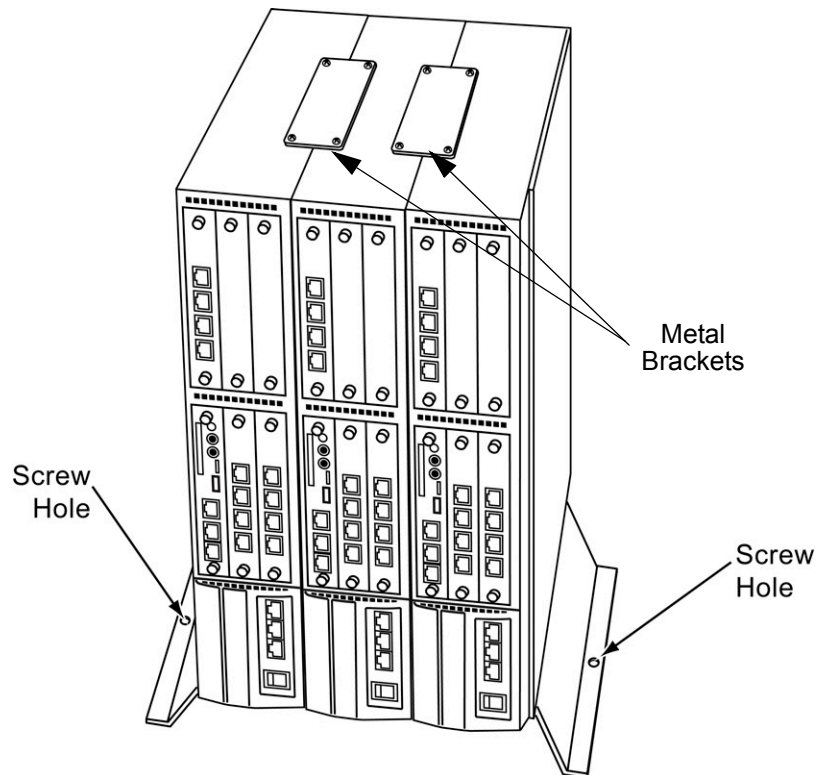


Figure 4-21 Install Additional CHS2U STAND KIT (EXT)

4. Using supplied screws, secure the CHS2U STAND KIT to the floor (refer to [Figure 4-21 Install Additional CHS2U STAND KIT \(EXT\)](#) on page 4-24).



To prevent possible damage to the 19" chassis due to falling, NEC recommends screws be installed in the stand mount brackets as soon as possible.

5. Connect the ground wire to all chassis. Refer to [3.5.5 Install 19" Chassis Grounding](#) on page 4-39 for complete details on grounding the system.
6. Refer to [3.5 Installing the 19" Chassis](#) on page 4-27 to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade](#) on page 6-4 for installation of blades.

3.4 Rack Mounting the 19" Chassis

A single or multiple chassis can be rack mounted. Controlling and Expansion chassis can be racked mounted by stacking them horizontally.

1. The 19" chassis requires two rack mount brackets per chassis for mounting. Refer to [Figure 4-22 CHS2U-US Rack Mount Brackets](#).

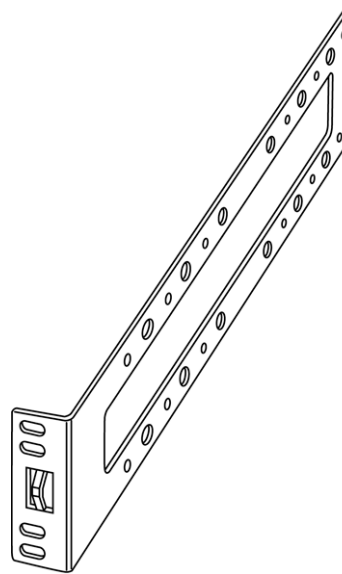


Figure 4-22 CHS2U-US Rack Mount Brackets

2. Line up the Rack Mount Bracket(s) with the pre-drilled holes on each side of the 19" chassis.
3. Secure the brackets to the chassis using the supplied screws. Refer to [Figure 4-23 Rack Mount Bracket Installed 19" CHS2U-US on page 4-26](#) for the 19" chassis.

Repeat for additional chassis mounting.

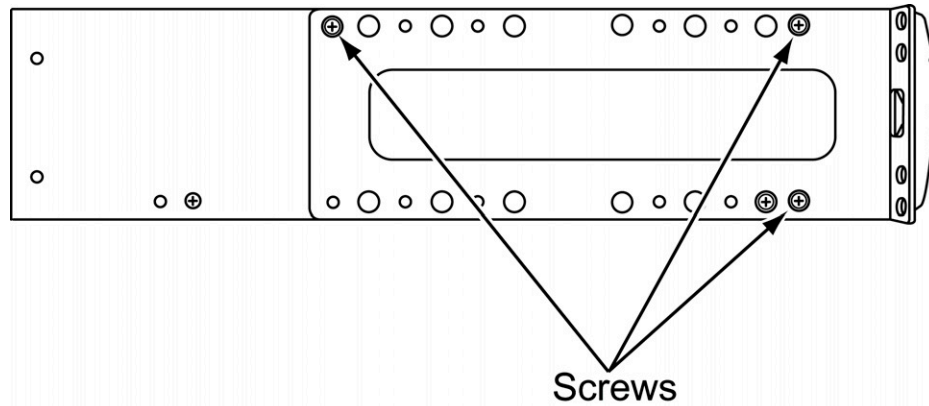


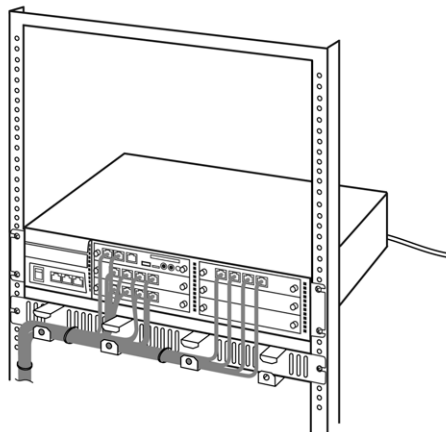
Figure 4-23 Rack Mount Bracket Installed 19" CHS2U-US

4. Carefully slide the chassis into desired location within the rack. Make sure the hooks on the mounting bracket are inserted into the back of the chassis, securing it in place. Note that the cabling is run through the front of the rack for ease of access.

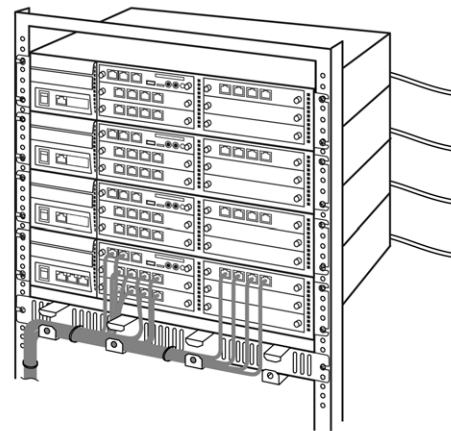


Each CHS2U-US chassis will require approximately 3.5" of height within the rack.

5. Secure the brackets to the rack using the screws supplied.
Repeat for additional chassis mounting.



Single CHS2U-US Rack Mount



Single CHS2U-US Rack Mount
with Three Expansion Chassis

Figure 4-24 Rack Mount 19" CHS2U-US

6. Connect the ground wire to all chassis. Refer to [3.5.5 Install 19" Chassis Grounding on page 4-39](#) for complete details on grounding the system.
7. Refer to [3.5 Installing the 19" Chassis on page 4-27](#) to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade on page 6-4](#) for installation of blades.

3.5 Installing the 19" Chassis

There are two types of chassis; the controlling (with the CD-CP00-US installed) and the expansion (that does not have the CCPU blade installed). As discussed in other chapters, multiple chassis can be linked together to expand the port size of the system.

3.5.1 Unpacking the Equipment

Inspect the equipment for any physical damage. If you are not sure about the function of a component, review the associated information within this manual. Contact your authorized NEC Sales Representative if you have additional questions. Note that the chassis does not initially contain any blades.

Make sure you have appropriate tools for the job, including: a test set, a punch down tool, and a digital voltmeter.

Ensure that you have a building plan showing common equipment, extensions, the Telco demarcation and earth ground location before you start installation. Be sure to properly plan your installation site and that you are familiar with the installation safety precautions. If you have not done that, please do so now. Refer to [Section 2 Site Preparation and MDF/IDF Construction on page 4-1](#).

3.5.2 Before Installation

Before installing the chassis check the following:

- ☐ Ensure that the MPS7101(Power Supply Unit) is **OFF** and that that the power cord is disconnected from the AC outlet.
- ☐ When installing the blades, *do not touch* the soldered surfaces as this may cause damage.
- ☐ Follow safety precautions indicated in section [2.1 Precautionary Information on page 4-1](#).

3.5.3 Installing the 19" Controlling Chassis

1. Ensure the chassis is powered down.



Do not remove or install this blade with the power on.

2. Align the CD-CP00-US blade with the Slot 1 guides of the Controlling Chassis.

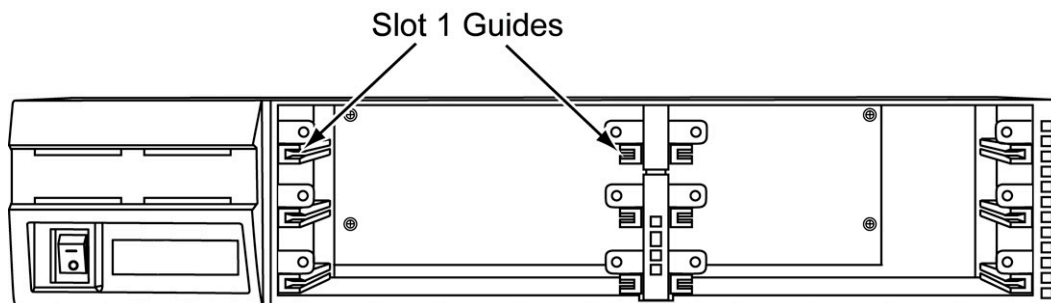


Figure 4-25 19" Controlling Chassis – Guides Slot 1

3. Slide the CD-CP00-US blade into the chassis until resistance (back plane) is felt.

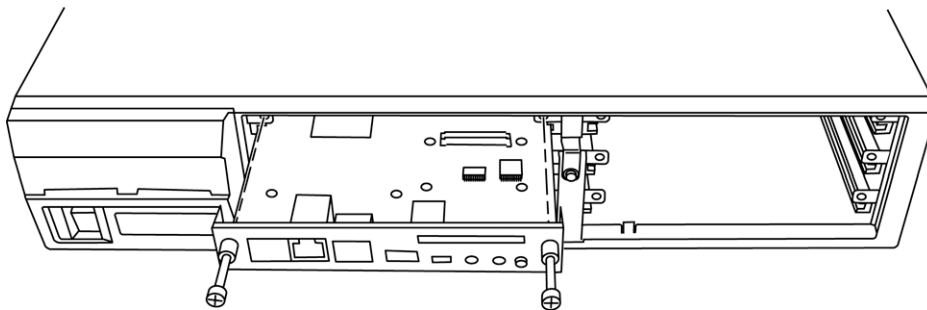


Figure 4-26 Installing the CD-CP00-US Blade

4. Gently push until the blade seats. Tighten the two retaining screws on front of the blade.

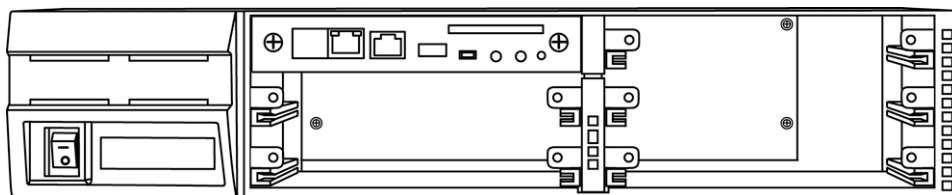


Figure 4-27 CD-CP00-US Blade Installed

3.5.4 Installing Expansion Blades in the 19" Chassis (Optional)

When adding additional chassis to the system to expand the capacity, a PZ-BS10 must be installed in the Controlling Chassis and a PZ-BS11 must be installed in all Expansion Chassis. This connection is required with any multiple-chassis setup.

The PZ-BS10 connects the Controlling Chassis to the Expansion Chassis by connecting to a PZ-BS11, which is installed on each Expansion Chassis. These Expansion Interface Units allow the CPU to transmit/receive data as required to the additional chassis.

The PZ-BS10 is installed in the EXIFU slot of the Controlling Chassis which is equipped with a CPU card. The PZ-BS11 is installed in the expansion slot of the Expansion Chassis, which does not have a CPU.

The EXIFU cable connects the Controlling Chassis and its EXIFU-B1 interface to the second, third, and fourth EXIFU-E1 interface.

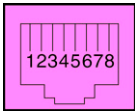
Use only the CAT 5 cables provided by NEC to make the connections between the Controlling and Expansion Chassis.

The PZ-BS10 provides:

- ☐ Communication Processor Interface for data handling through Communication Channel (24 slots maximum)
- ☐ 32 Channels for Telephony Resource (e.g., DTMF Tone Receiver, Call Progress Tone Detector, MFC Tone Receiver, Caller ID Receiver, Caller ID Signal Sender)
- ☐ DSP Resource Management

3.5.4.1 Connector Pin-Out on the PZ-BS10/PZ-BS11

Table 4-3 PZ-BS10/PZ-BS11 Connector Pin-Out

RJ-61 Cable Connector PZ-BS10 – CN2, CN3, CN 4 PZ-BS11 – CN3		
	Pin No.	Connection
	1	HW_UP (+)
	2	HW_UP (-)
	3	HW_DWN (+)
	4	FS (+)
	5	FS (-)
	6	HW_DWN (-)
	7	CK8M (+)
	8	CK8M (-)

3.5.4.2 Install the PZ-BS10 Expansion Base Blade in the CHS2U-US Controlling Chassis



Do not remove or install this blade with the power on.

1. Ensure the chassis is powered down.
2. Locate the door positioned on the left end (expansion bay) of the Controlling Chassis.

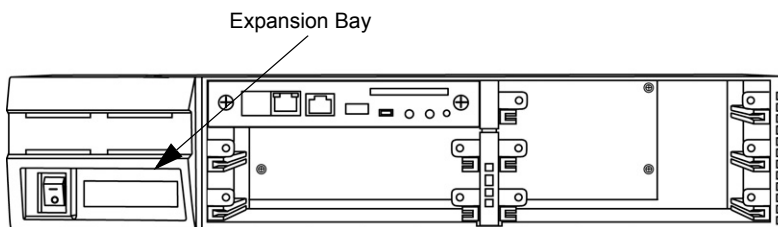


Figure 4-28 PZ-BS10 Expansion Bay in Controlling Chassis

3. From the left side of the chassis, pull cover outward to expose the expansion bay.

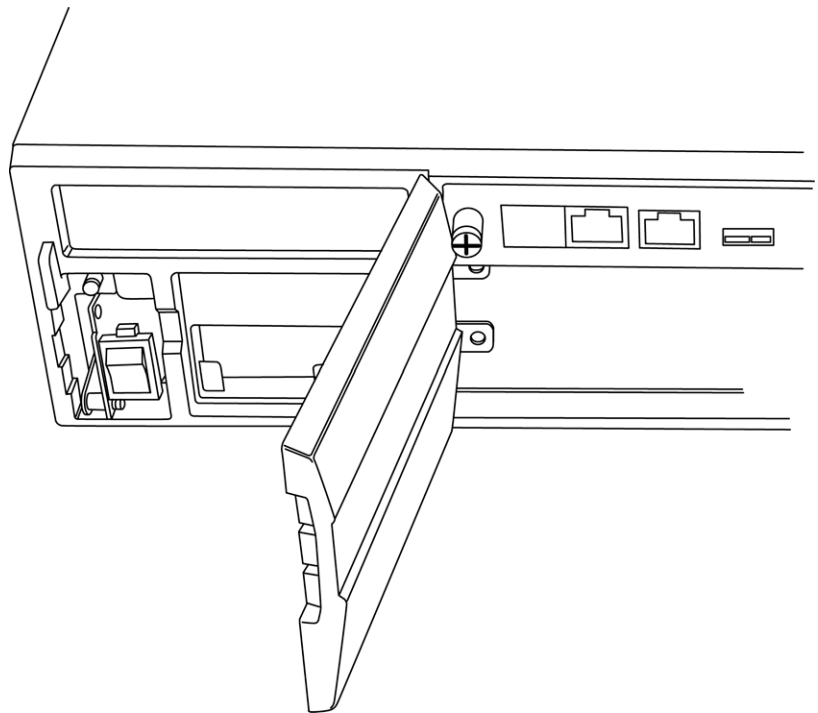



Figure 4-29 Open Base Chassis Cover

4. Pull the cover toward you to remove.
 -  *Cover must be removed prior to installation of PZ-BS10 blade.*
5. Align the PZ-BS10 blade with the guides located in the expansion bay.

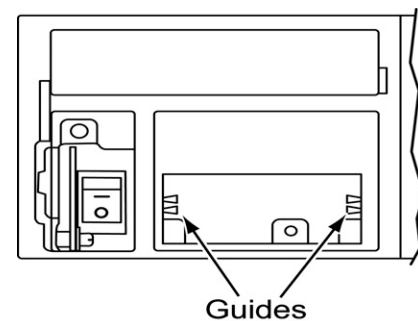


Figure 4-30 PZ-BS10 Blade Guides

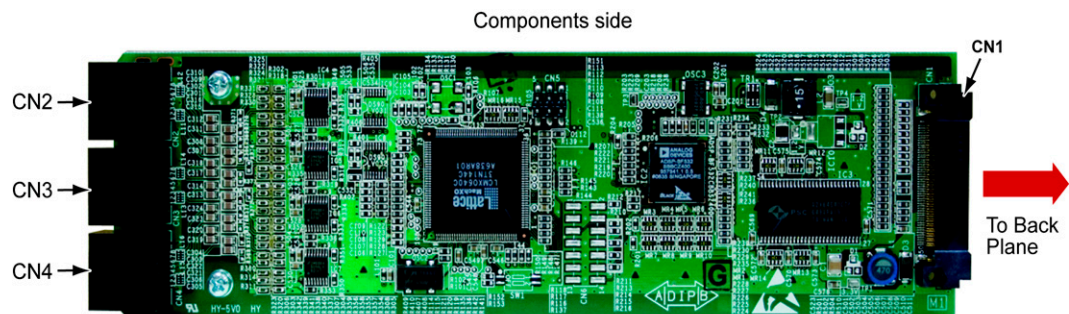


Figure 4-31 PZ-BS10 Components

6. Slide the PZ-BS10 blade into the chassis until resistance (back plane) is felt.

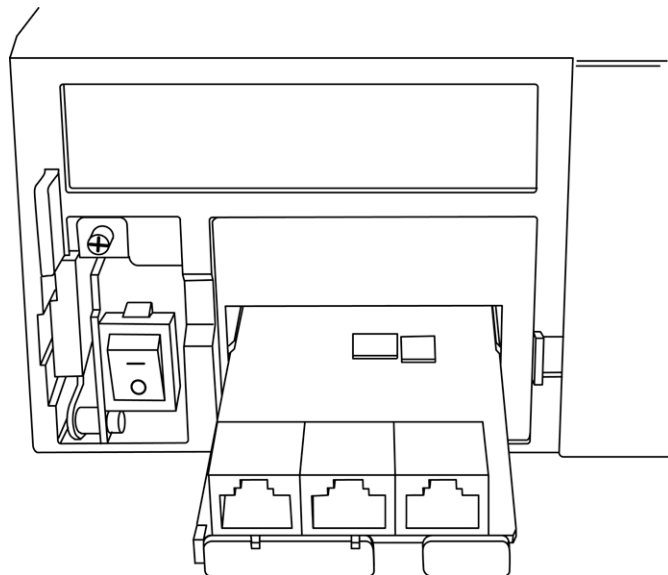


Figure 4-32 Installing PZ-BS10 Blade in Expansion Bay

7. Gently push until the blade seats and install the supplied retaining screw.

8. Align the door tabs with hinges and reattach the cover.

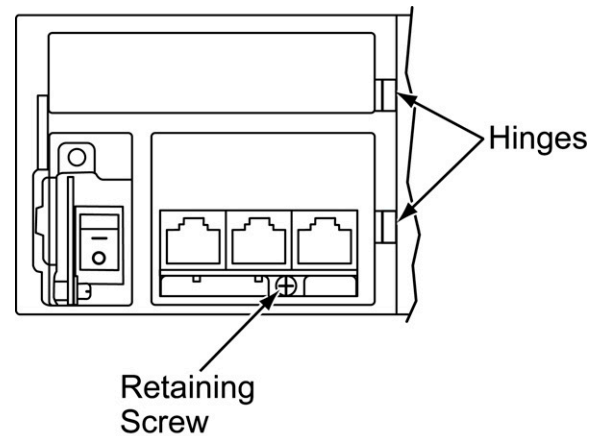


Figure 4-33 PZ-BS10 Blade Installed

9. Close the PZ-BS10 cover.

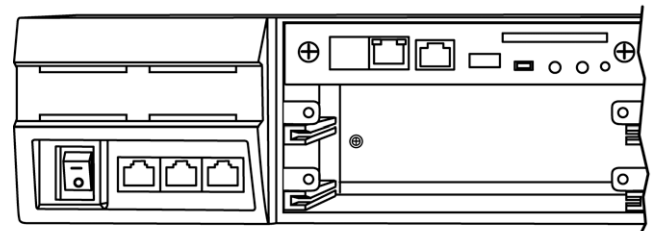


Figure 4-34 PZ-BS10 Installed (Cover Closed)

3.5.4.3 Install the PZ-BS11 Expansion Blade in the CHS2U-US Expansion Chassis

For the Expansion Chassis to function, the PZ-BS10 blade must be installed in Controlling Chassis.



Do not remove or install this blade with the power on.

1. Ensure the chassis is powered down.

2. Locate the door positioned on the left end (expansion bay) of the Expansion Chassis.

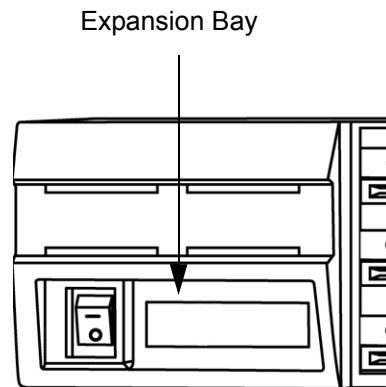


Figure 4-35 PZ-BS11 Expansion Bay in Expansion Chassis

3. From the left side of the chassis, pull cover outward to expose the expansion bay.

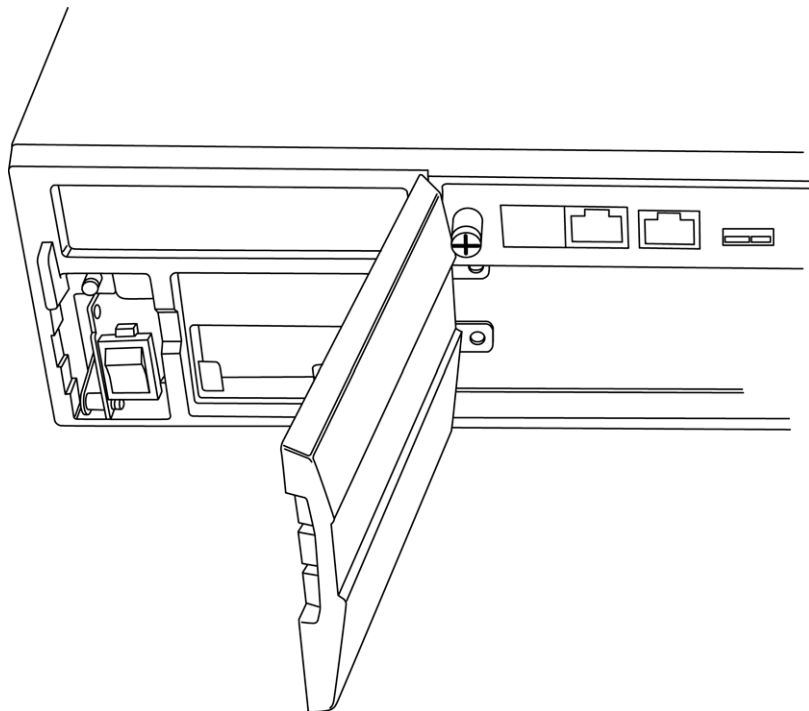



Figure 4-36 Open Expansion Chassis Cover

4. Pull the cover toward you to remove.

 *Cover must be removed to install PZ-BS11 blade.*

5. Align the PZ-BS11 blade with the guides located within the expansion bay.

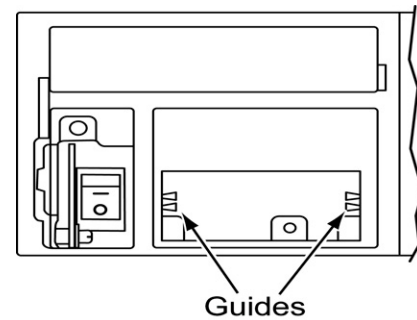


Figure 4-37 PZ-BS11 Blade Guides

6. Slide the PZ-BS11 blade into the chassis until resistance (back plane) is felt.

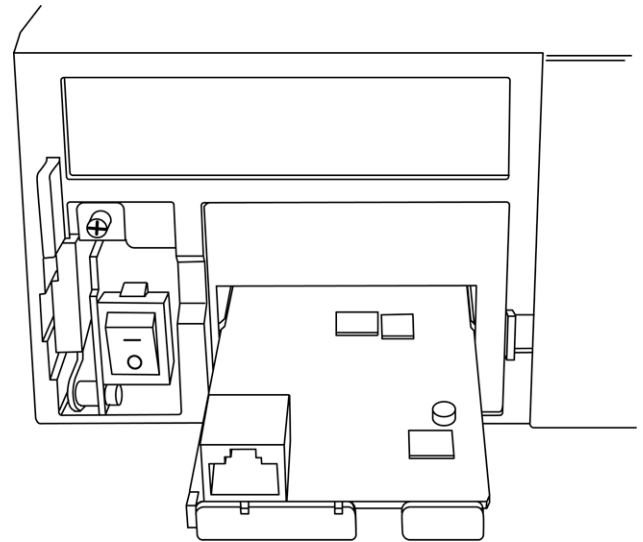


Figure 4-38 Installing PZ-BS11 Blade in Expansion Chassis

7. Gently push until the blade seats and install the supplied retaining screw.

8. Align the door tabs with hinges and reattach the cover.

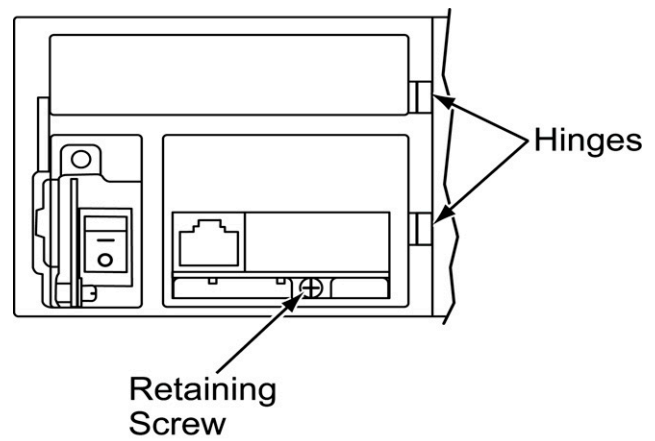


Figure 4-39 PZ-BS11 Blade Installed

9. Close the PZ-BS11 blade cover.

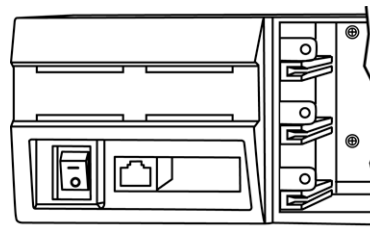
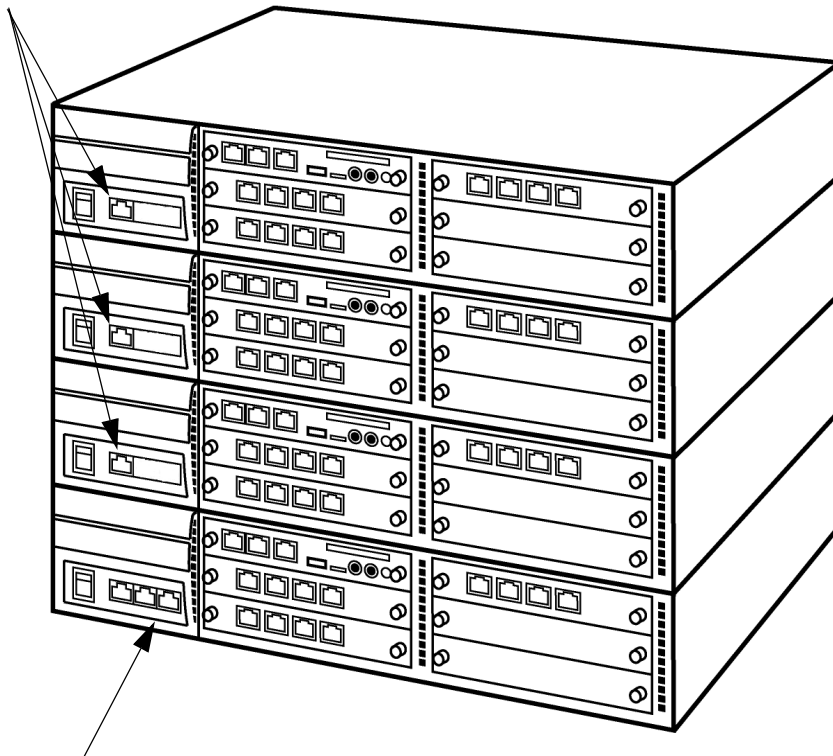


Figure 4-40 PZ-BS11 Installed (Cover Closed)

3.5.4.4 Connect the Controlling and Expansion Chassis

Installation of the PZ-BS10 blade and PZ-BS11 blade(s) must be completed prior to installation of the provided (Cat 5) expansion cabling.

Expansion Chassis Interface Unit
for the Expansion Chassis
PZ-BS11



Expansion Chassis Interface Unit
for the Controlling Chassis
PZ-BS10

Figure 4-41 19" Expansion Chassis Interface Units

1. Ensure Controlling and Expansion chassis are powered down.
2. Using the NEC provided CAT5 straight-through cable(s), attach one end to each Expansion Chassis CN2 connector on the PZ-BS11 blade (see [Figure 4-42 System Expansion Cabling on page 4-38](#)). Attach the opposite end to the CN2, CN3 or CN4 connector on the PZ-BS10 of the Controlling Chassis.

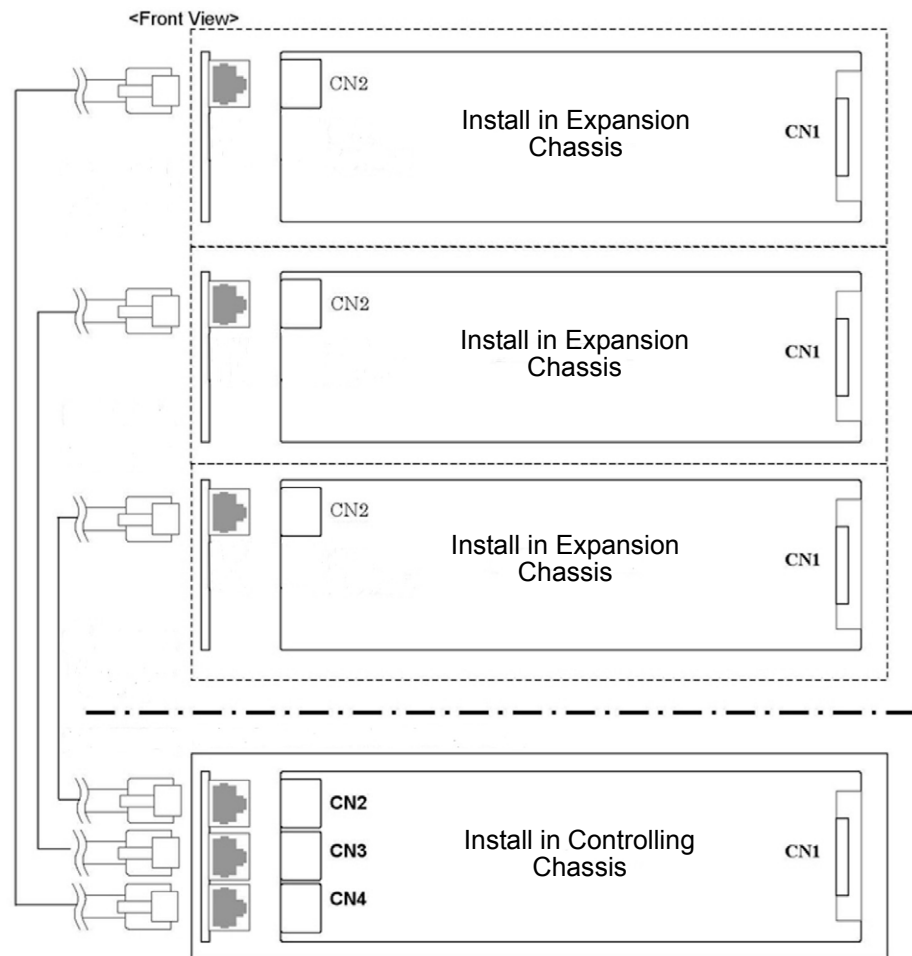


Figure 4-42 System Expansion Cabling

3. Repeat for additional Expansion Chassis.

3.5.5 Install 19" Chassis Grounding

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

Each chassis (CHS2U-US) in the system must be grounded separately using the procedure listed below.

1. Ensure each Chassis is powered down and unplugged.
2. Ground **each** chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).

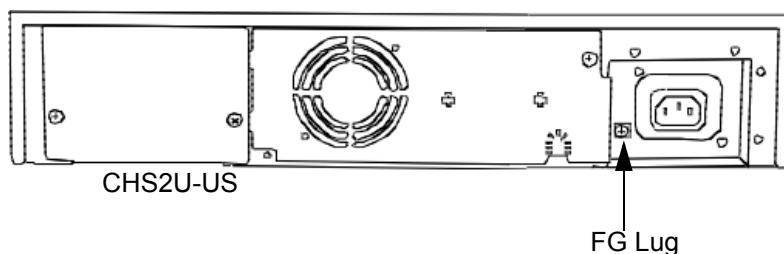


Figure 4-43 Chassis Grounding Lug

3.5.6 Install 19" Grounding on Multiple Chassis (Optional)

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

Each chassis (CHS2U-US) in the system must be grounded separately using the procedure listed below.

1. Ensure all Controlling and Expansion Chassis are powered down and unplugged.
2. Ground **each** chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).

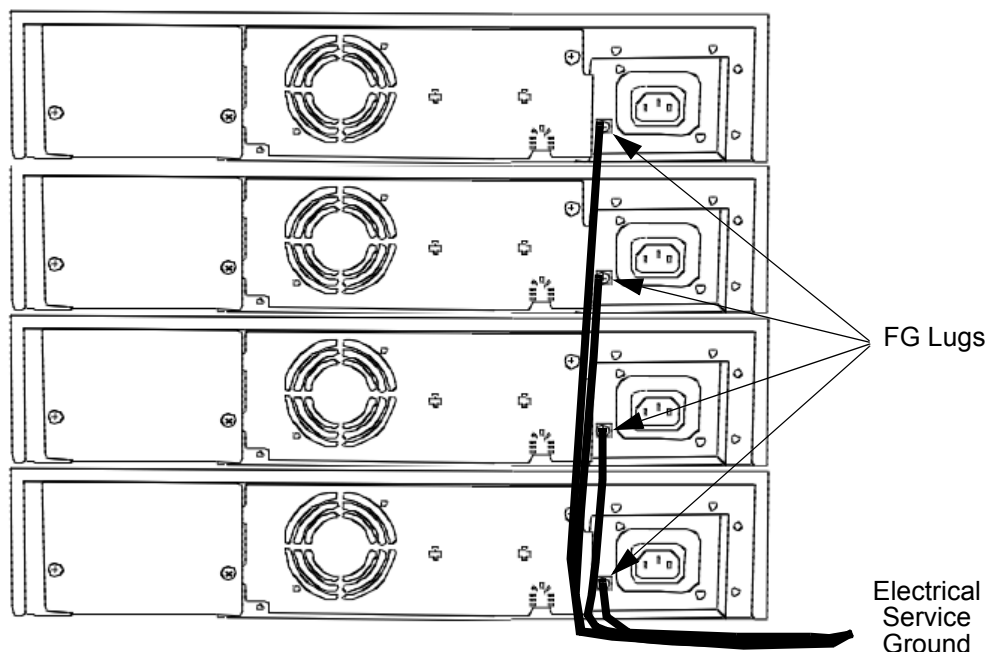


Figure 4-44 19" Chassis Grounding Lug (Multiple-Chassis)

3.5.7 Install AC Power Cords

1. Locate the supplied AC power cord and attach to the AC Inlet located on the back of the Controlling Chassis.

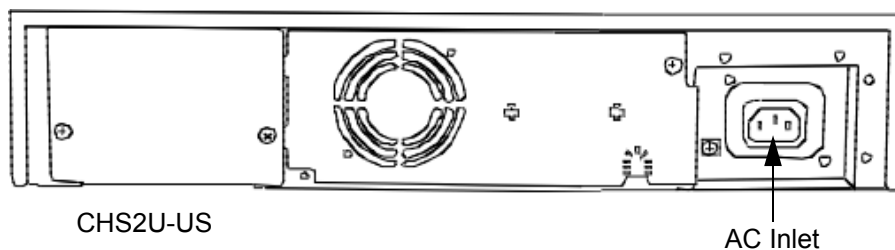


Figure 4-45 Install the AC Power Cord

3.5.8 Install AC Power Cords on Multiple-Chassis (Optional)

1. Locate the supplied AC power cords and attach to the AC Inlets located on the back of the Controlling and Expansion Chassis.

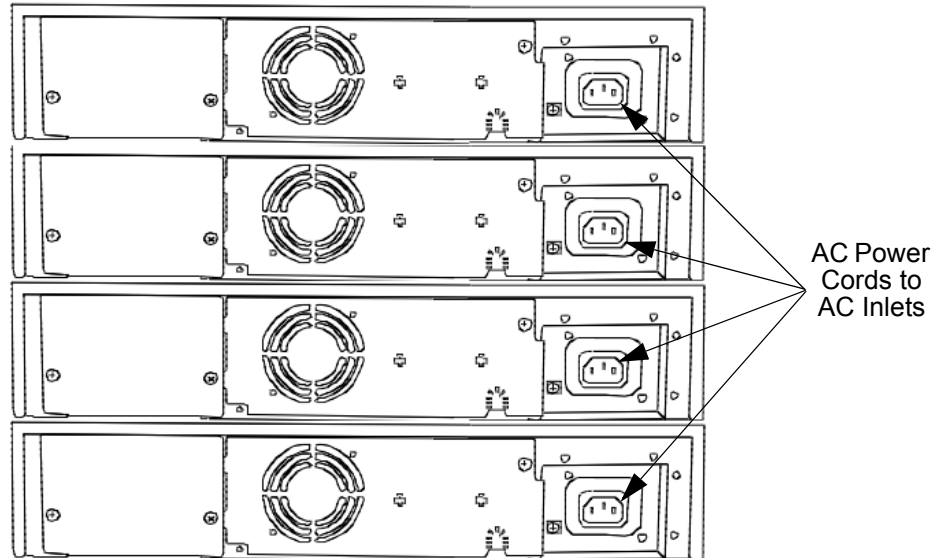


Figure 4-46 Install 19" AC Power Cords (Multiple-Chassis)

3.5.9 Install Additional Blades

Refer to Chapter 5, [2.1 Installation and Safety Precautions](#) on page [6-3](#).

3.5.10 Apply Power to the 19" Chassis

Refer to Chapter 5, [2.6 Powering Up the SV8100](#) on page [6-8](#).

SECTION 4 BATTERY CONNECTION

There are two types of battery connection to provide battery life in the event of a power failure, the internal battery and an external battery with CHS LARGE BATT BOX.

4.1 Installing the Internal Batteries

An internal battery source using two batteries can be installed using the CHS2U BATT MTG KIT (mounting kit) and CHS2U BATT CABLE INT (internal cabling).

CHS2U BATT MTG KIT (Backup time = 10 Minutes/24 Terminals)

1. Ensure the chassis is powered down.



Ensure the CHS2U-US chassis is powered OFF.

2. Disconnect AC power and grounding cable from rear of chassis.
3. Remove screws from battery access panel on rear of chassis. Refer to [Figure 4-47 Removing Battery Access Panel](#).

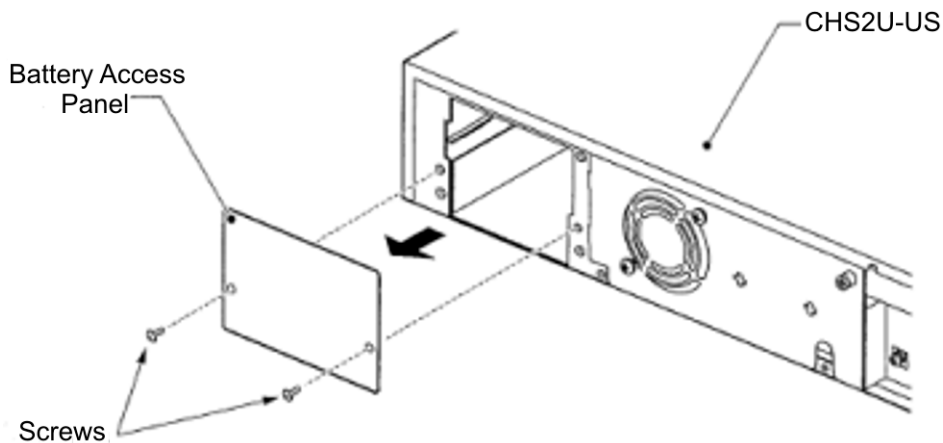


Figure 4-47 Removing Battery Access Panel

4. Remove access panel containing the fan. Refer to [Figure 4-48 Removing Access Panel](#) and [Figure 4-49 Access Panel Removed](#).

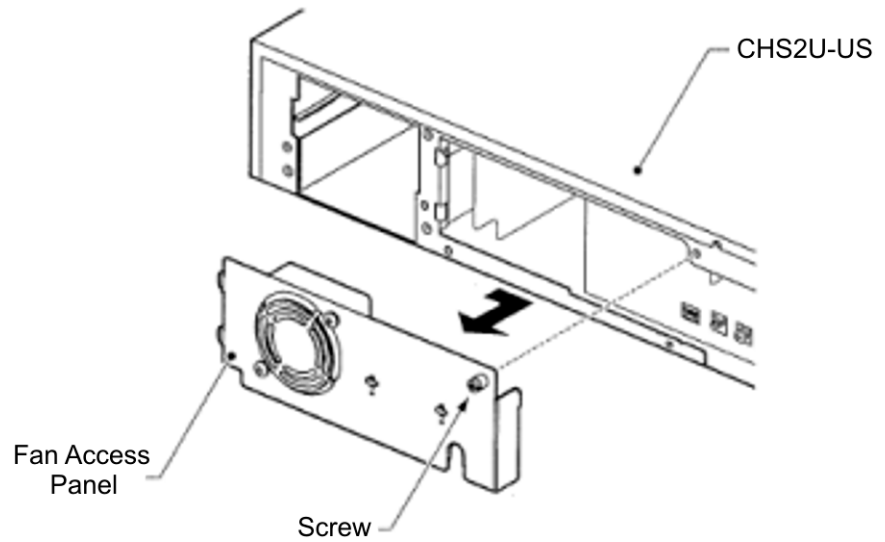


Figure 4-48 Removing Access Panel

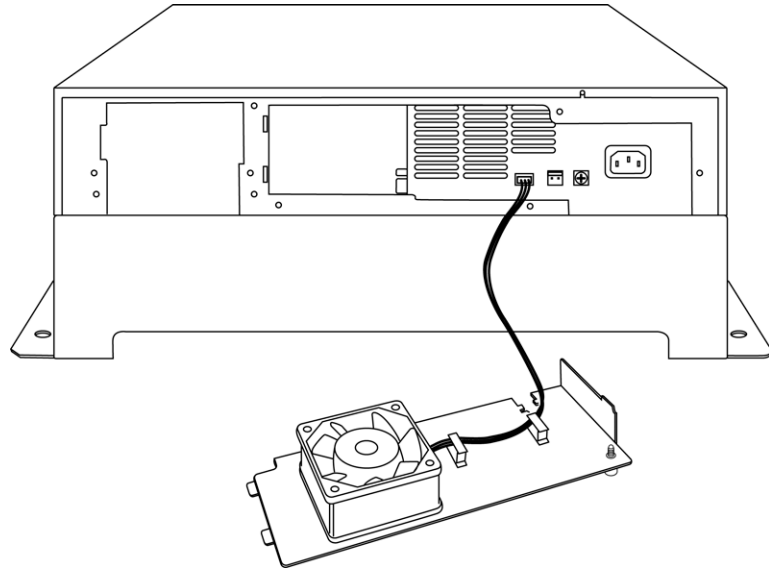


Figure 4-49 Access Panel Removed

5. Using tie wraps, secure CHS2U BATT CABLE INT in cable guide bracket (refer to [Figure 4-50 Installing Cable Guide](#)).

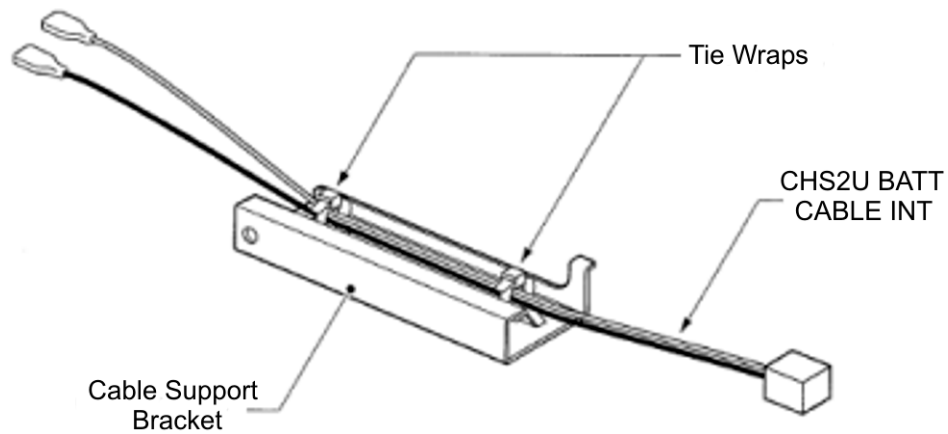


Figure 4-50 Installing Cable Guide

6. With supplied screw, install cable guide in chassis (refer to [Figure 4-51 Installing Cable Guide](#)).

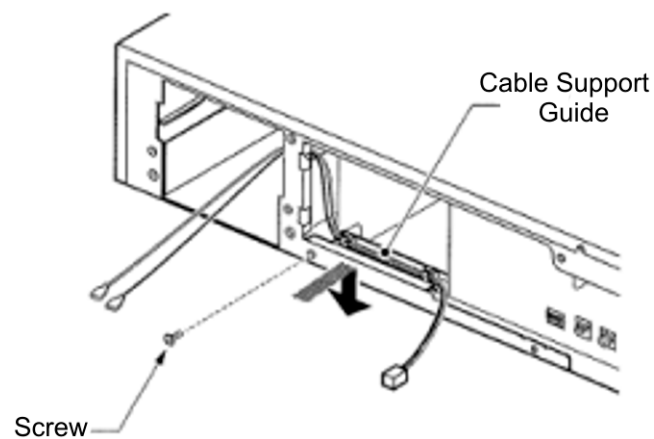



Figure 4-51 Installing Cable Guide

7. Install two 2.3 AH-12V batteries (locally procured) into the CHS2U BATT MTG KIT (refer to [Figure 4-52 Installing Two Batteries](#)).

 *The first battery must be installed on the left side, then slid to the right due to an installation tab on the mounting kit.*

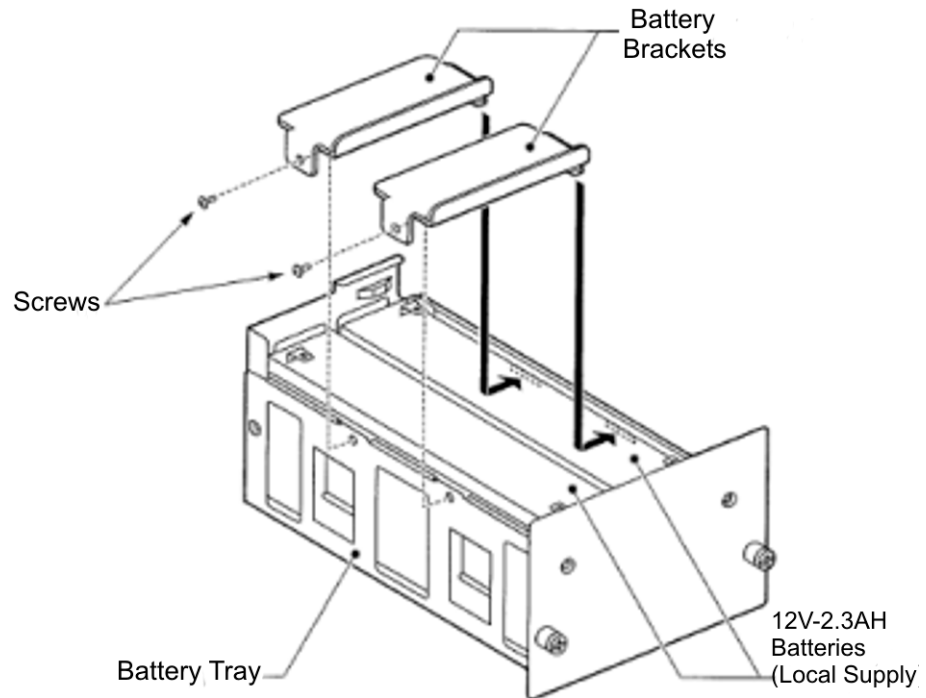


Figure 4-52 Installing Two Batteries

8. Using the supplied screws, secure the brackets to the CHS2U BATT MTG KIT (refer to [Figure 4-52 Installing Two Batteries on page 4-45](#)).

9. Connect the provided battery cables to the batteries (refer to [Figure 4-53 Installing Battery Cable](#)).

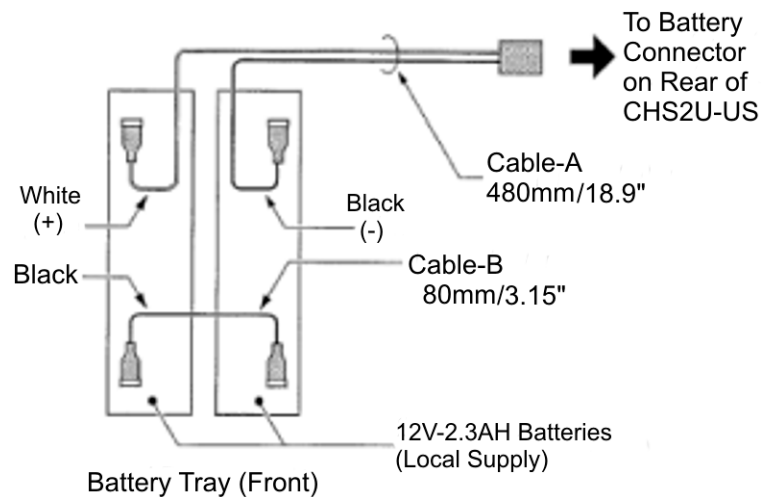


Figure 4-53 Installing Battery Cable

10. Connect CHS2U BATT CABLE INT to battery connector (refer to [Figure 4-54 Connecting CHS2U BATT CABLE INT](#)).

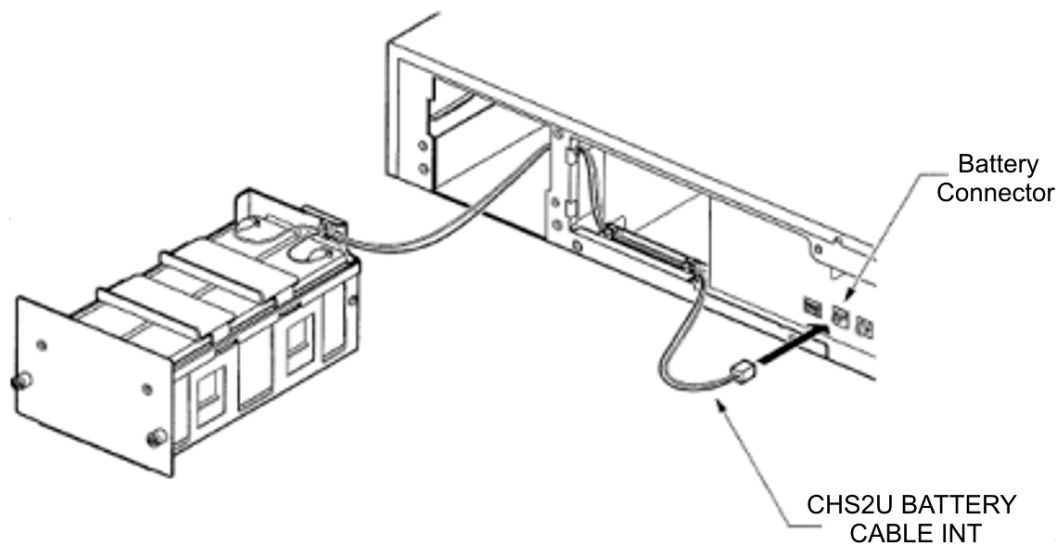


Figure 4-54 Connecting CHS2U BATT CABLE INT

11. Install CHS2U BATT MTG KIT into CHS2U-US chassis and tighten the retaining screws (see [Figure 4-55 Installing Battery Tray into CHS2U-US Chassis](#)).

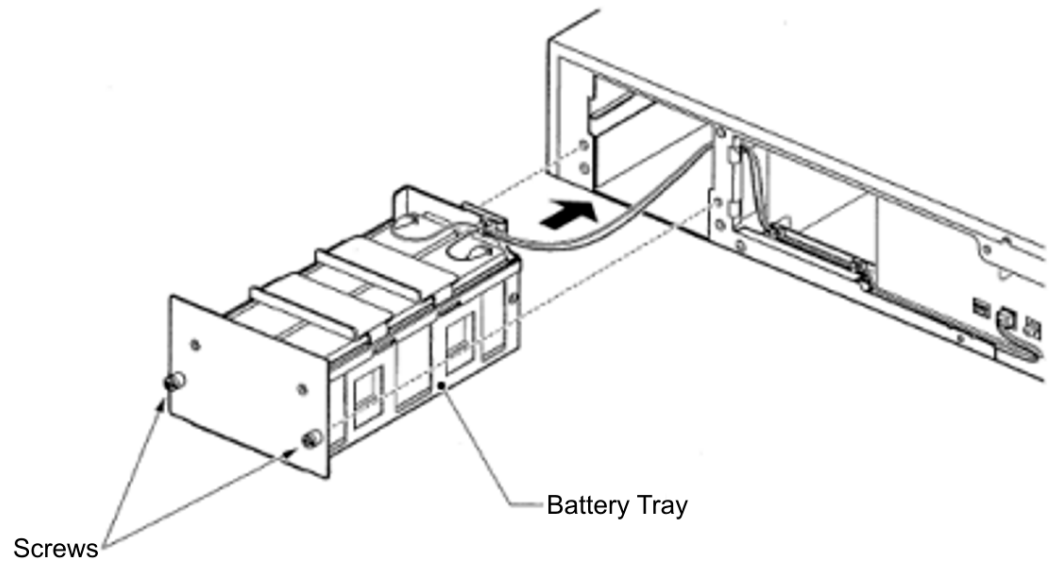


Figure 4-55 Installing Battery Tray into CHS2U-US Chassis

12. Reinstall access panel containing the fan and secure with supplied screw (refer to [Figure 4-56 Installing the Access Panel](#)).

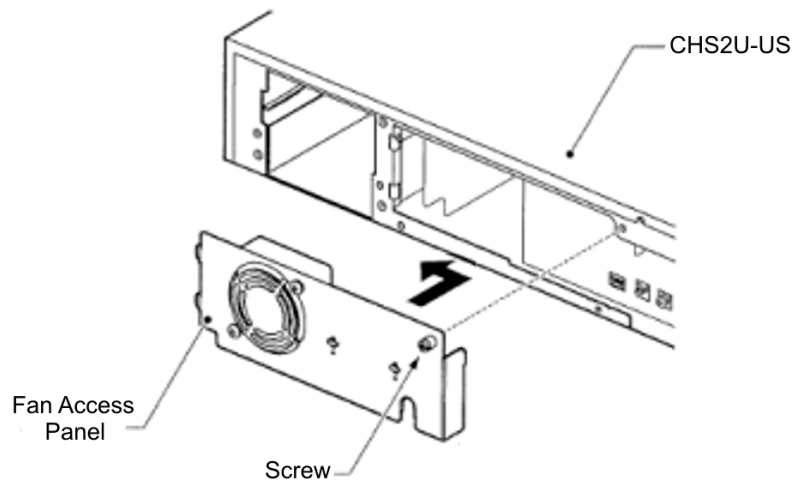


Figure 4-56 Installing the Access Panel

13. Connect grounding and AC power cable.


4.2 Installing the External Batteries

An optional (locally procured), external battery source can be used to provide power in the event of a power failure.

CHS LARGE BATT BOX (Backup time = Three Hours for 30 Terminals)

Table 4-4 CHS LARGE BATT BOX Capacity

Configuration	Battery Capacity (Number of Batteries)	Number of CHS LARGE BATT BOX
SV8100		
2U x 1	21AH (=3 sets of [2x12V-7AH])	1
2U x 2	42AH (=6 sets of [2x12V-7AH])	2
2U x 3	63AH (=9 sets of [2x12V-7AH])	3
2U x 4	84AH (=12 sets of [2x12V-7AH])	4

 One CHS LARGE BATT BOX can be used for 4 x 2U chassis for approximately 45 minutes.

4.2.1 Floor Mounting the CHS LARGE BATT BOX



- *Because of injury from falling equipment, wall mounting the CHS LARGE BATT BOX is not recommended.*
- *Mounting the CHS LARGE BATT BOX directly on the floor is not recommended.*



- *The CHS BASE UNIT raises the height of the CHS LARGE BATT BOX 120mm (4.72").*
- *When the CHS LARGE BATT BOX and CHS2U-US are connected for long term use, the CHS2U JOINT BRACKET KIT is used.*

1. Use the template shown in [Figure 4-57 Floor Mount Spacing Guide on page 4-49](#) for required spacing before drilling holes for 0.39" (10mm) anchor bolts (locally procured).

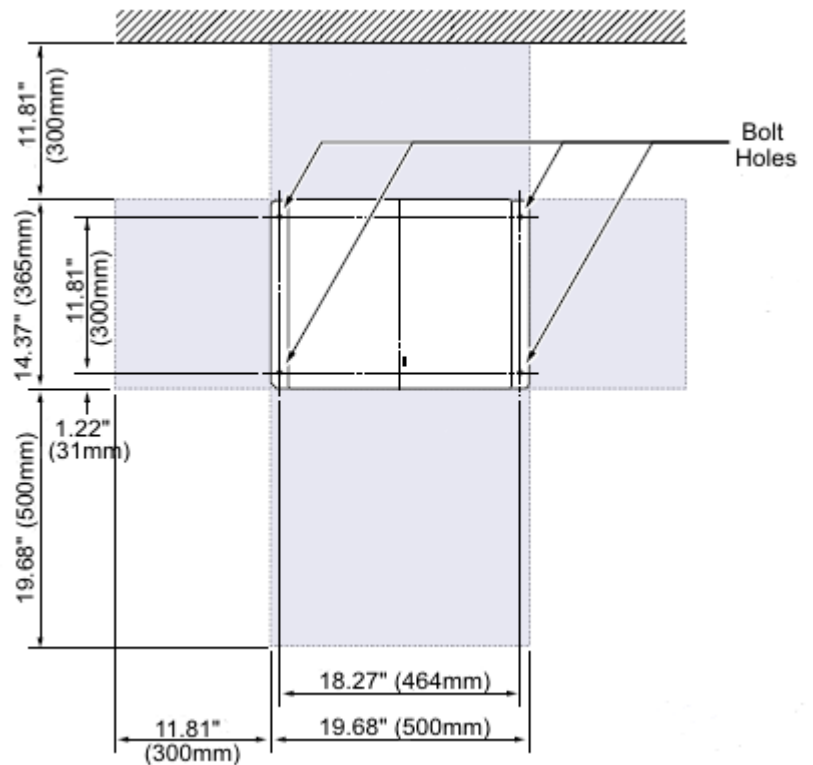


Figure 4-57 Floor Mount Spacing Guide

2. Mark and drill the four holes required for installing the CHS BASE UNIT.
3. Align bolt holes in CHS BASE UNIT (see [Figure 4-57 Floor Mount Spacing Guide on page 4-49](#)) with holes drilled in floor and secure using four anchor bolts.
4. Align and install the CHS LARGE BATT BOX on top of the CHS BASE UNIT. Refer to [Figure 4-58 Installing the CHS LARGE BATT BOX using the CHS2U JOINT BRACKET KIT on page 4-50](#).

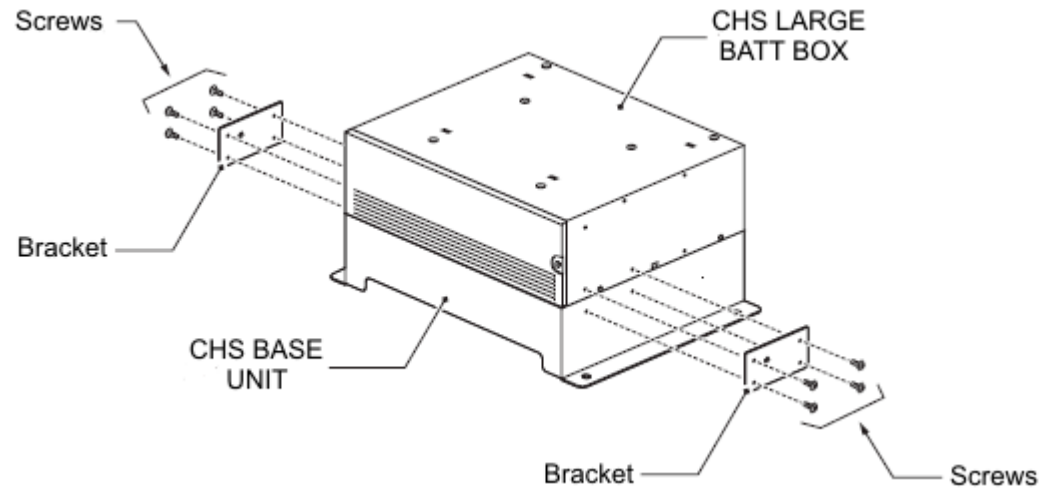


Figure 4-58 Installing the CHS LARGE BATT BOX using the CHS2U JOINT BRACKET KIT

5. Secure the CHS LARGE BATT BOX to the CHS BASE UNIT using the CHS2U JOINT BRACKET KIT. Refer to [Figure 4-58 Installing the CHS LARGE BATT BOX using the CHS2U JOINT BRACKET KIT](#) on page 4-50.

4.2.2 Battery Installation

1. Loosen screw on front of CHS LARGE BATT BOX. Refer to [Figure 4-59 Removing CHS LARGE BATT BOX Cover](#).

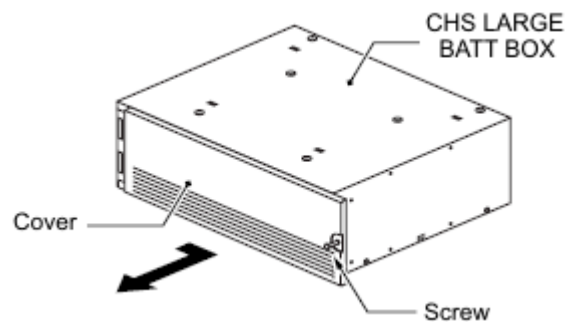


Figure 4-59 Removing CHS LARGE BATT BOX Cover

2. Swing cover outward and detach from CHS LARGE BATT BOX.

3. Remove two screws from front of Battery Tray Suppressor. Refer to [Figure 4-60 Removing Battery Tray Suppressor](#).

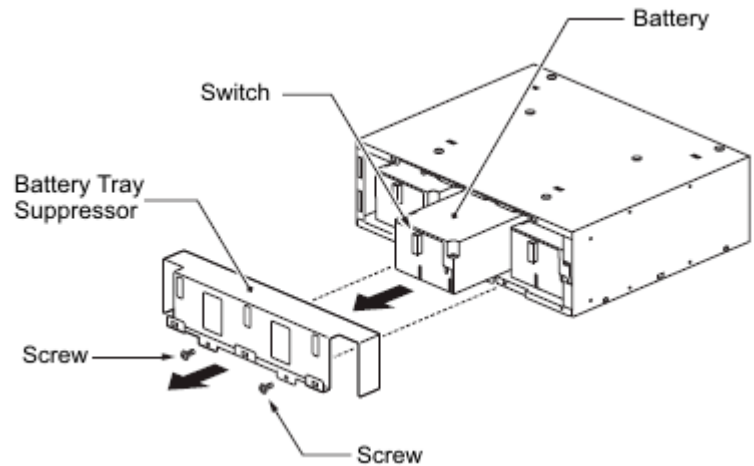


Figure 4-60 Removing Battery Tray Suppressor

4. Slide Battery Tray Suppressor outward to remove.
5. Slide Battery Tray(s) out of CHS LARGE BATT BOX.
6. Loosen two screws and remove the Battery Tray Cover. Refer to [Figure 4-61 Removing Battery Tray Cover](#).

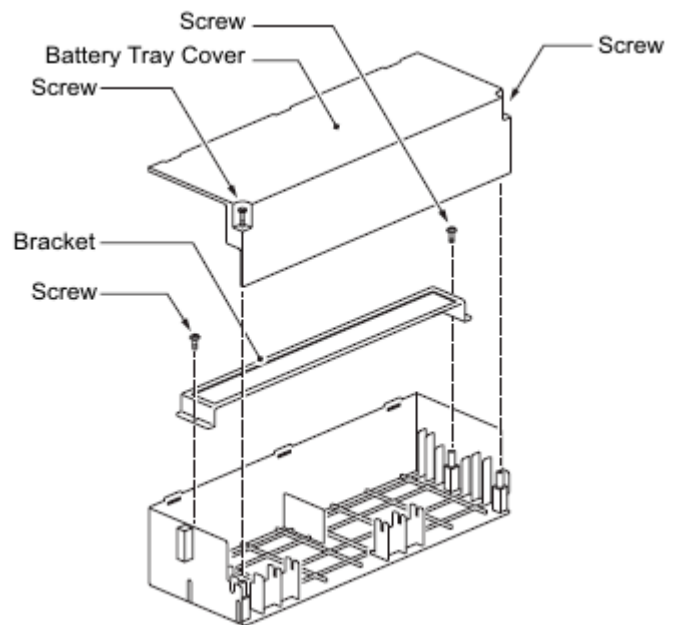


Figure 4-61 Removing Battery Tray Cover

7. Remove two screws and remove the Battery Tray Bracket. Refer to [Figure 4-62 Removing Battery Tray Bracket](#).

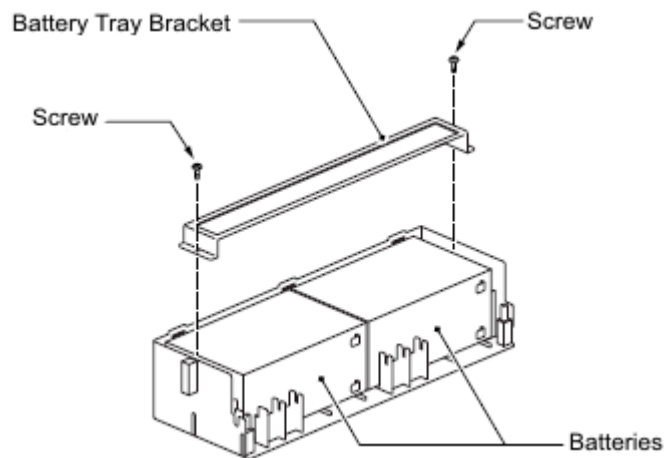


Figure 4-62 Removing Battery Tray Bracket

8. Refer to [Figure 4-63 Connecting Battery Cables](#) for connection of battery cable to battery terminals. Repeat for additional battery connection.



Incorrect installation of batteries may cause damage to the Fuse Unit or possible fire.

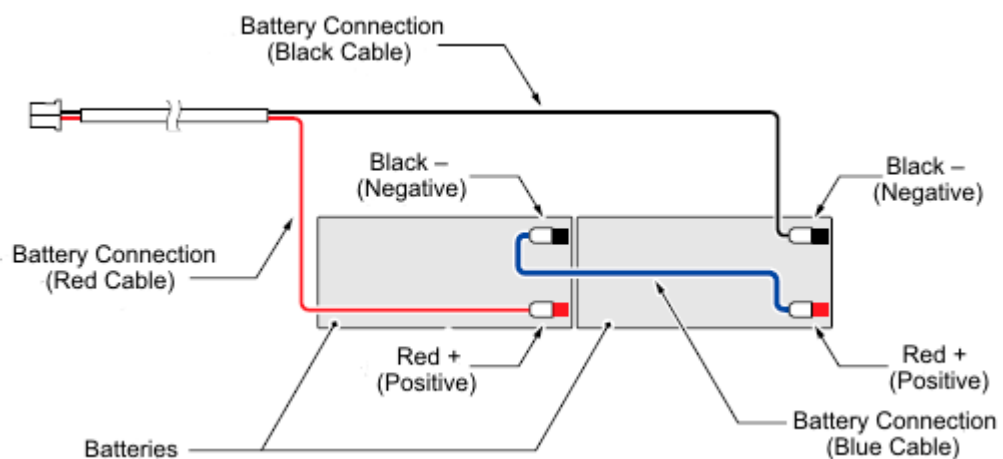


Figure 4-63 Connecting Battery Cables

9. Install batteries into Battery Tray. Refer to [Figure 4-64 Connecting Battery Cables](#).
10. Using two screws, install the Battery Tray Bracket. Refer to [Figure 4-62 Removing Battery Tray Bracket on page 4-52](#).

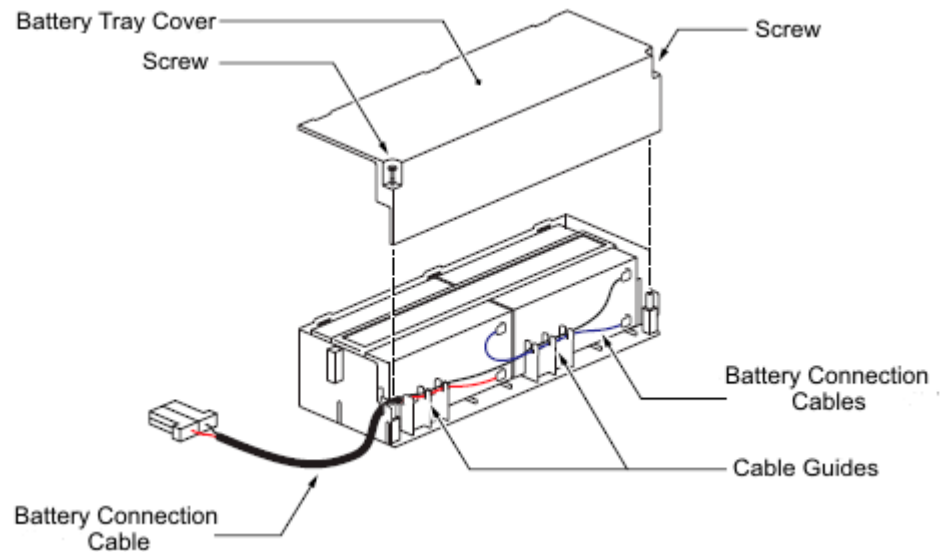


Figure 4-64 Connecting Battery Cables

11. Insert Battery Connection Cable into cable guides. Refer to [Figure 4-64 Connecting Battery Cables on page 4-53](#).
12. Install the Battery Tray Cover and tighten the two screws. Refer to [Figure 4-64 Connecting Battery Cables on page 4-53](#).
13. Slide the Battery Trays into the CHS LARGE BATT BOX.
14. Install the Battery Tray Suppressor while pulling the Battery Connection Cable(s) through the cutouts provided. Refer to [Figure 4-65 Connecting Battery Cables on page 4-54](#). Secure with two screws.
15. Plug the Battery Connection Cable(s) into the Fuse Unit. Refer to [Figure 4-65 Connecting Battery Cables on page 4-54](#).

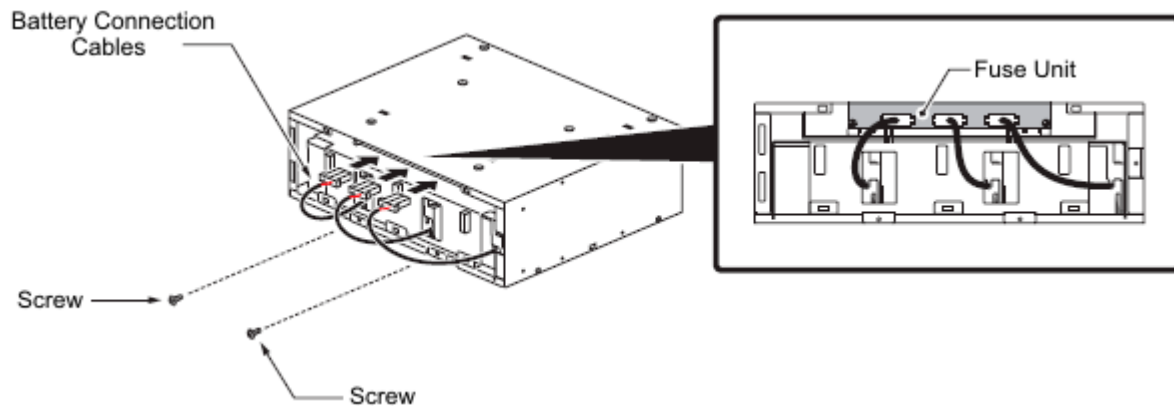


Figure 4-65 Connecting Battery Cables

16. Insert tabs on cover into holes on CHS LARGE BATT BOX. Slide the cover left until seated and tighten the screw. Refer to [Figure 4-66 Installing Cover Battery](#).

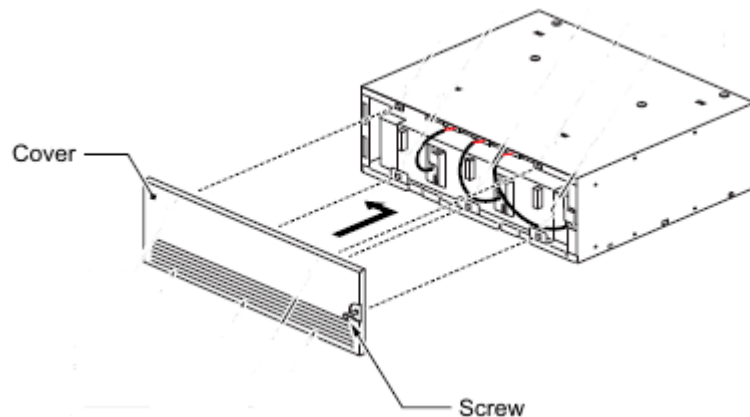


Figure 4-66 Installing Cover Battery

4.2.3 CHS LARGE BATT BOX to CHS2U-US Connection

1. Power down the CHS2U-US chassis.



Ensure the CHS2U-US chassis is powered OFF.

2. Disconnect AC power cable from rear of chassis.

3. Remove fan access panel from rear of CHS2U-US chassis. Refer to [Figure 4-67 Removing Fan Access Panel](#).

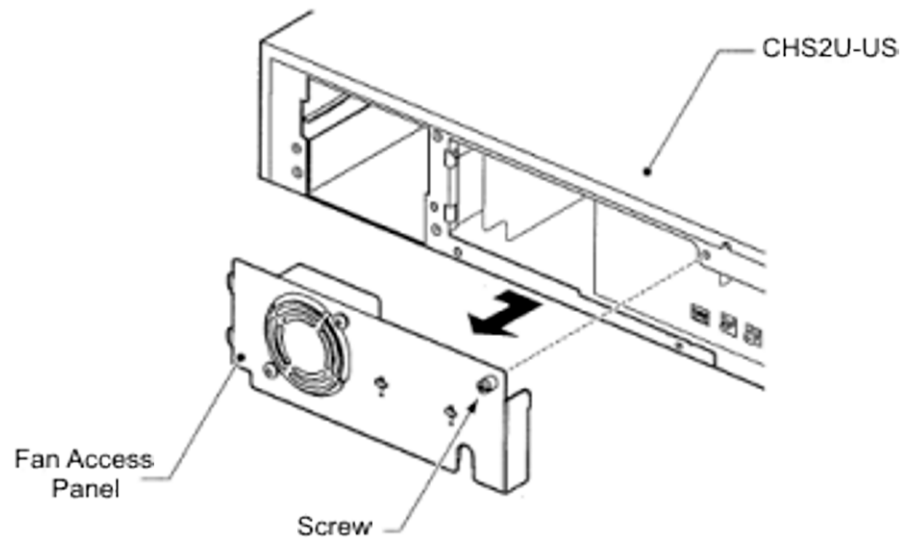


Figure 4-67 Removing Fan Access Panel

4. Connect one end of Battery Connection Cable to Battery Connector on rear of Basic and Expansion chassis.

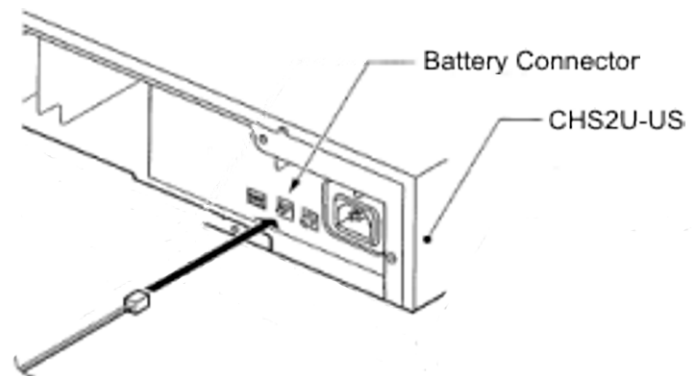


Figure 4-68 Connecting External Battery to CHS2U-US

5. Connect other end of cable to Battery Connector on rear of CHS LARGE BATT BOX chassis. Refer to [Figure 4-69 Single CHS LARGE BATT BOX Connection](#) or [Figure 4-70 Dual CHS LARGE BATT BOX Connection](#).

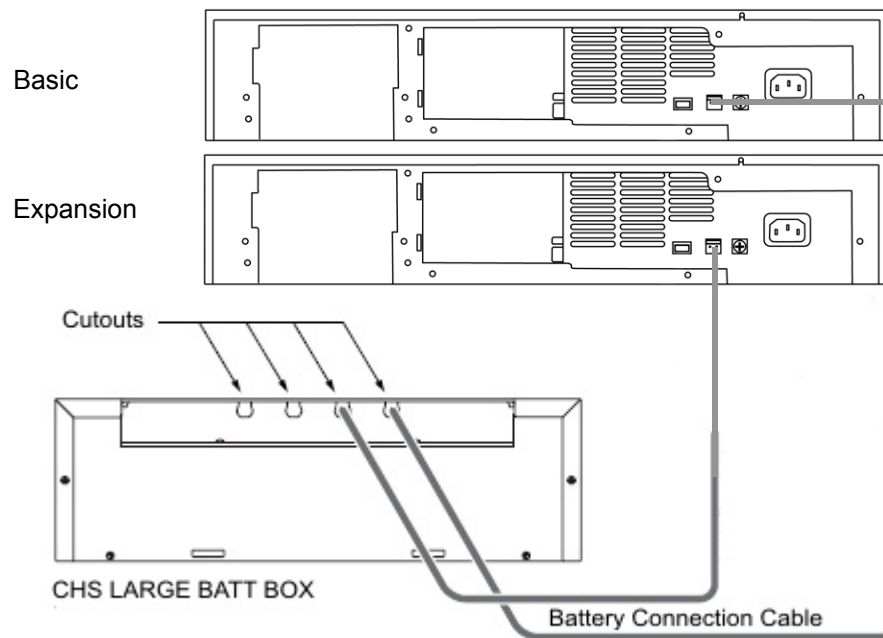


Figure 4-69 Single CHS LARGE BATT BOX Connection

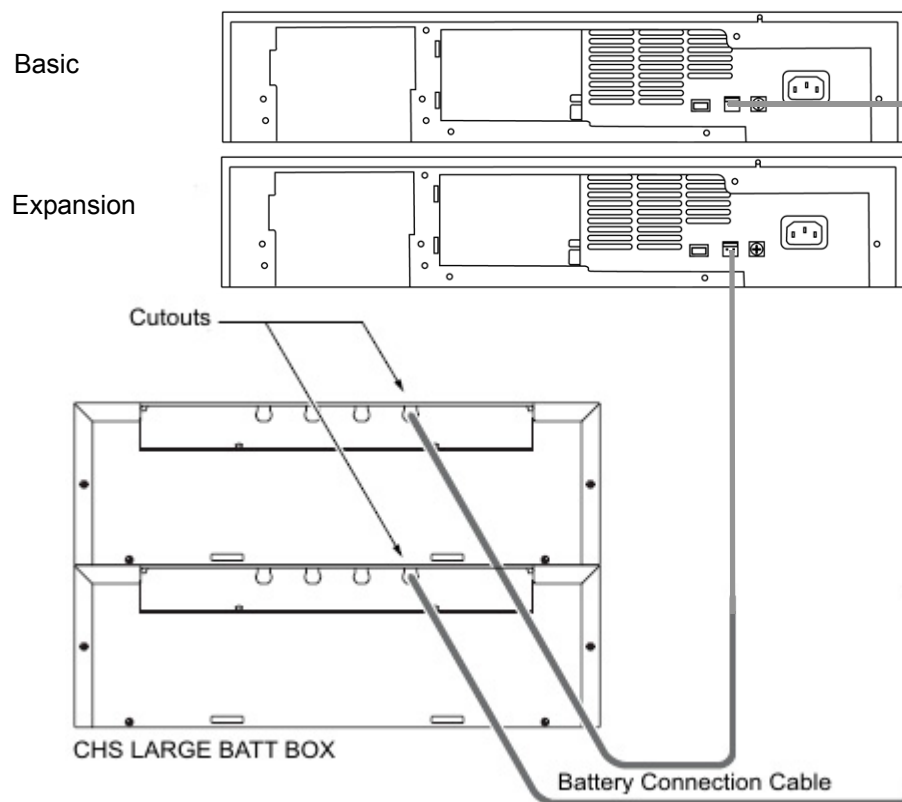


Figure 4-70 Dual CHS LARGE BATT BOX Connection

6. Insert the access panel tab into the rear of the CHS1U-US chassis running the Battery Connection Cable through the cutout. Secure panel with the retaining screw. Refer to [Figure 4-71 Install the Fan Access Panel](#).

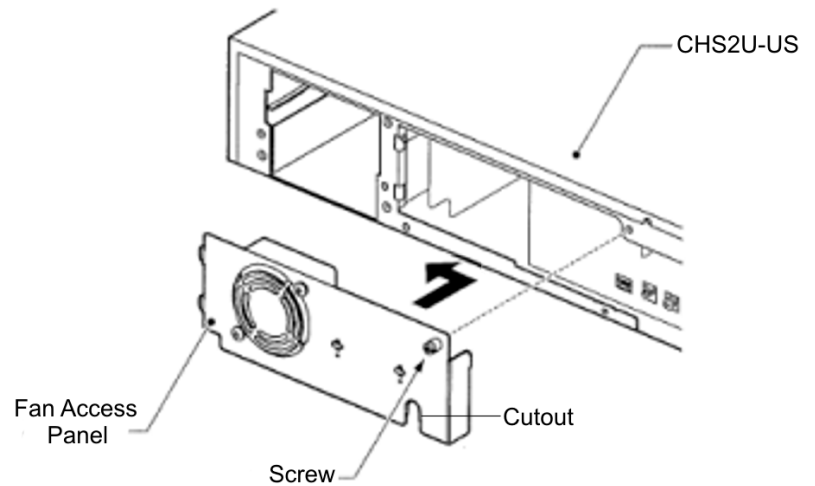


Figure 4-71 Install the Fan Access Panel

7. Connect grounding and AC power cables.

SECTION 5 REMOVE AND INSTALL POWER SUPPLY

If required, the power supply installed in the CHS2U-US chassis can be removed and replaced. The following provides the procedure for the CHS2U-US chassis.

5.1 CHS2U-US Chassis

5.1.1 Remove MPS7101



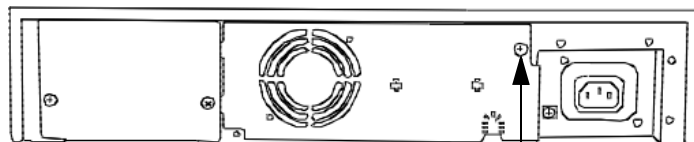
To reduce the possibility of electrical shock or damage to equipment, NEC recommends powering Off the chassis and disconnecting the AC cable from the power source before removing the chassis cover.

1. Ensure the chassis is powered down.
2. If used, disconnect the BUS cabling to any expansion chassis.
3. Disconnect AC power and grounding cable from rear of chassis.
4. Remove four screws from the chassis covering.
5. Lift the chassis covering and set aside.



To reduce the possibility of damage to equipment, the installer must wear a grounded wrist strap to protect the equipment from static electricity.

6. Loosen retaining screw from chassis access panel.



Retaining Screw

Figure 4-72 19" Chassis Access Panel

7. Swing access panel outward and unplug fan power cable. See [Figure 4-73 Opening Chassis Access Panel \(19" Chassis\)](#).

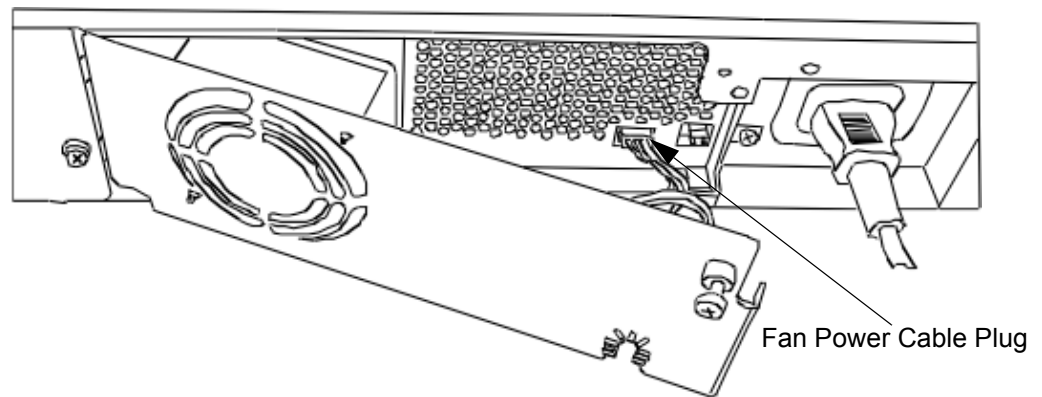


Figure 4-73 Opening Chassis Access Panel (19" Chassis)

8. Remove the access panel and set aside.
9. Loosen screw and remove the fan ventilation hood (refer to [Figure 4-74 Removing Fan Ventilation Hood](#)).

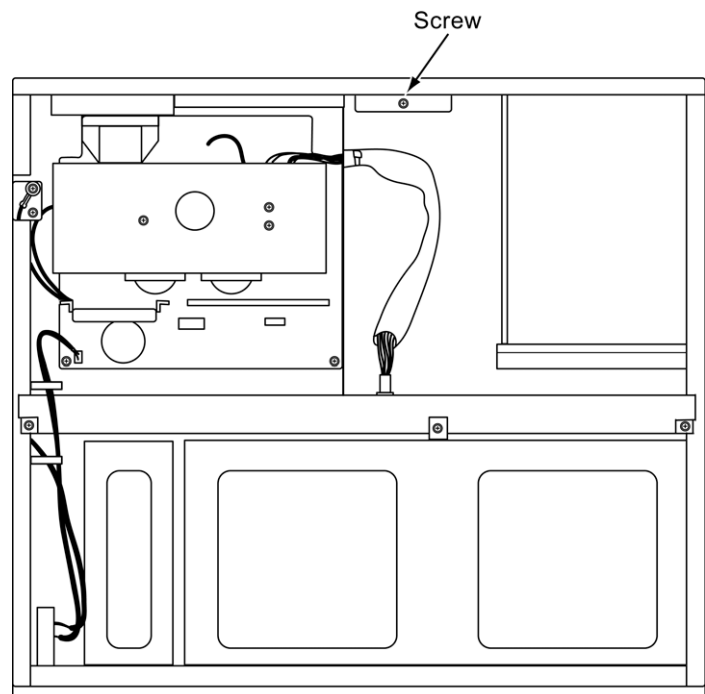


Figure 4-74 Removing Fan Ventilation Hood

10. Carefully unplug both plugs securing the wiring harness to the back plane (refer to [Figure 4-75 Unplugging Wiring Harness](#)).

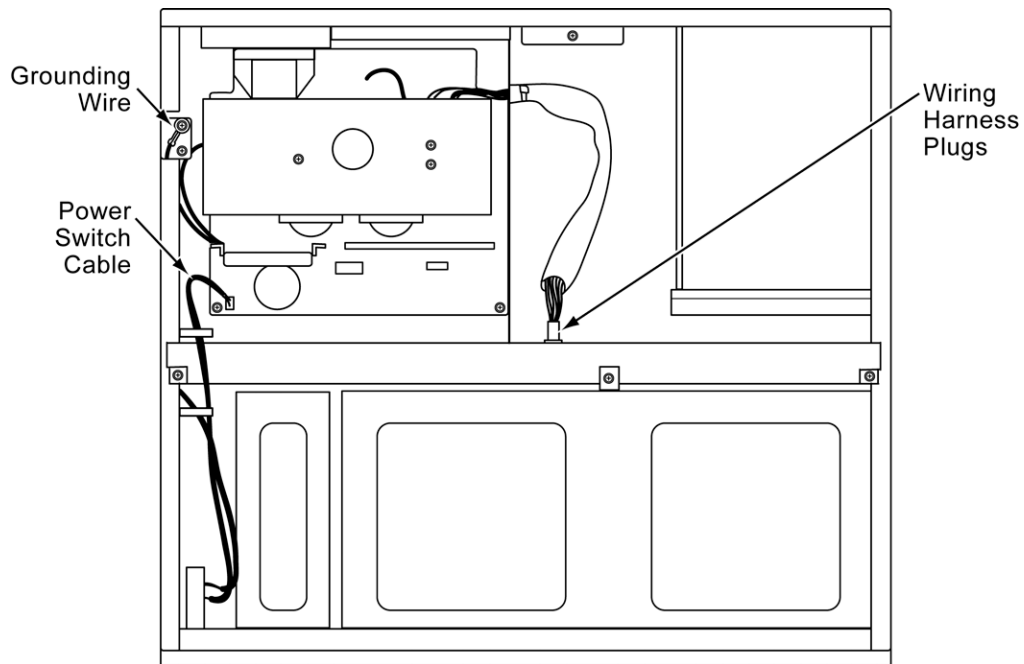


Figure 4-75 Unplugging Wiring Harness

11. Unplug the MPS7101 power switch cable. Refer to [Figure 4-75 Unplugging Wiring Harness](#).
12. Loosen and remove the green screw securing the grounding wire to the chassis. Refer to [Figure 4-75 Unplugging Wiring Harness](#).
13. Loosen and remove the FG lug.

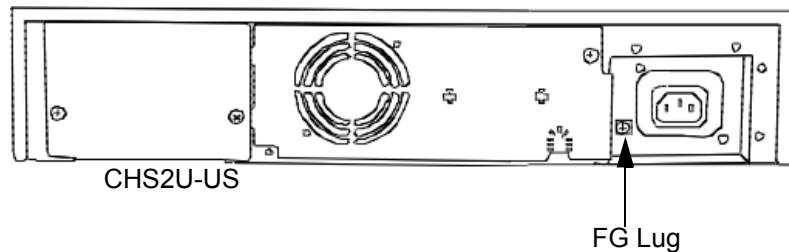


Figure 4-76 Chassis Grounding Lug

14. Loosen and remove the screws securing the MPS7101 to the chassis (refer to [Figure 4-77 Removing the MPS7101 Screws](#)).

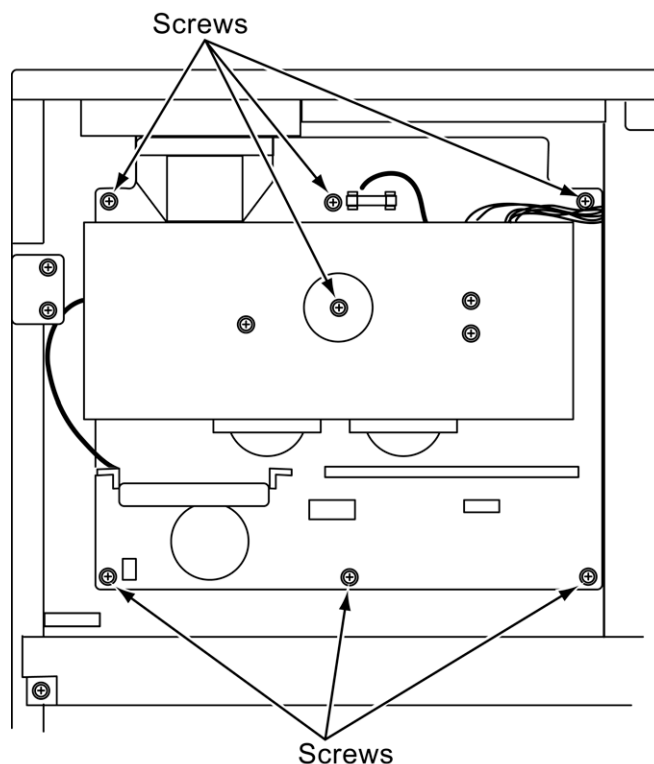


Figure 4-77 Removing the MPS7101 Screws

15. Carefully lift the MPS7101 from the chassis and set aside.

5.1.2 Install MPS7101

1. Align replacement MPS7101 circuit board with screw holes in chassis.



Overtightening the screws can damage the MPS7101 circuit board.

2. Install the screws securing MPS7101 the to the chassis (refer to [Figure 4-77 Removing the MPS7101 Screws on page 4-61](#)).
3. Install the FG lug. See [Figure 4-76 Chassis Grounding Lug on page 4-60](#).

4. Install Ground Screw (green) securing grounding wire to chassis (refer to [Figure 4-75 Unplugging Wiring Harness on page 4-60](#)).
5. Install power switch cable (refer to [Figure 4-75 Unplugging Wiring Harness on page 4-60](#)).
6. Carefully install both plugs securing the wiring harness to the back plane (refer to [Figure 4-75 Unplugging Wiring Harness on page 4-60](#)).
7. Plug fan power cable into three prong plug (refer to [Figure 4-73 Opening Chassis Access Panel \(19" Chassis\) on page 4-59](#)).
8. Reinstall access cover and secure with retaining screw (refer to [Figure 4-72 19" Chassis Access Panel on page 4-58](#)).
9. Install the fan ventilation hood and secure with screw removed earlier.

Ensure insulation of harness is located to protect possible damage to wiring by the ventilation hood bracket. (refer to [Figure 4-78 Wiring Harness on page 4-63](#)).

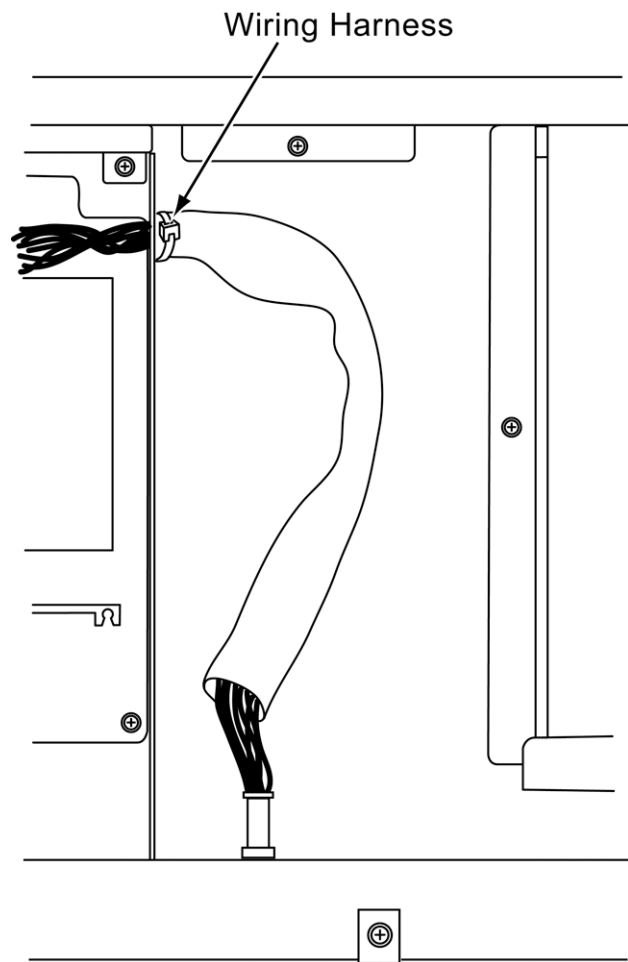


Figure 4-78 Wiring Harness

10. Install chassis covering and secure with four screws.
11. Connect grounding and AC power cable.
12. If used, connect EXIFU cabling to any expansion chassis.

SECTION 6 REMOVE AND INSTALL COOLING FAN

If required, the cooling fan installed in the CHS2U-US chassis can be removed and replaced. The following provides the procedure for the CHS2U-US chassis.

6.1 CHS2U-US Chassis

6.1.1 Remove Cooling Fan



To reduce the possibility of electrical shock or damage to equipment, NEC recommends powering Off the chassis and disconnecting the AC cable from the power source before removing the chassis cover.

1. Ensure the chassis is powered down.



To reduce the possibility of damage to equipment, the installer must wear a grounded wrist strap to protect the equipment from static electricity.

2. Loosen retaining screw from chassis access panel.

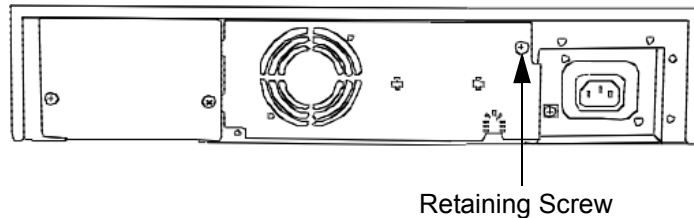


Figure 4-79 19" Chassis Access Panel

3. Swing access panel outward and unplug fan power cable. See [Figure 4-80 Opening Chassis Access Panel \(19" Chassis\)](#).

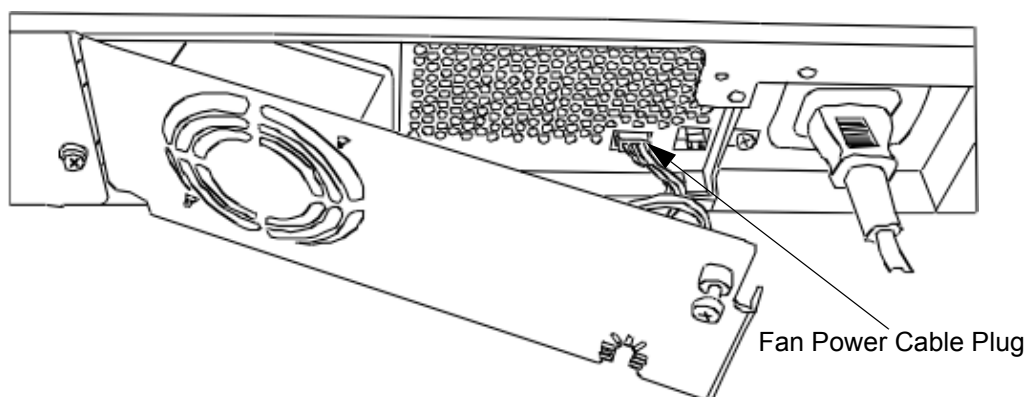


Figure 4-80 Opening Chassis Access Panel (19" Chassis)

4. Remove chassis access panel from rear of chassis.
5. Remove cabling from retention clips. See [Figure 4-81 Chassis Access Panel Removed](#).

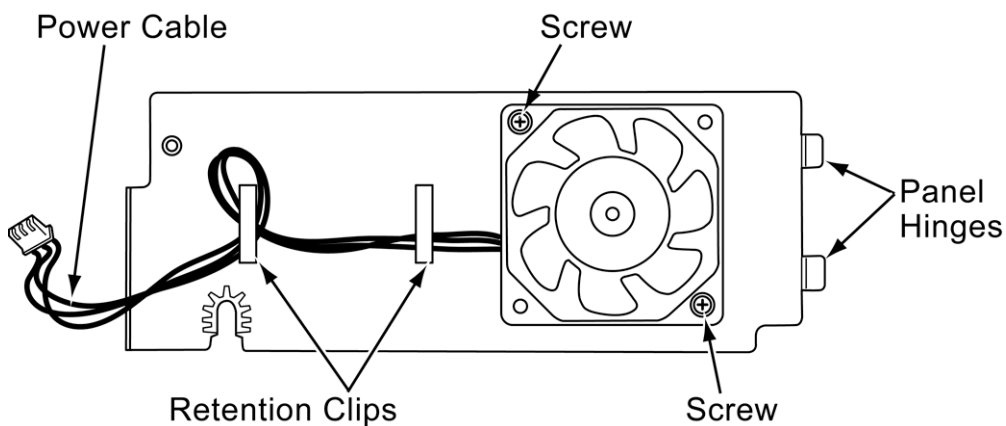


Figure 4-81 Chassis Access Panel Removed

6. Remove two screws securing fan to access cover. Keep screws for use when installing replacement fan (refer to [Figure 4-81 Chassis Access Panel Removed on page 4-65](#)).

6.1.2 Install Cooling Fan

1. Align replacement fan with holes and secure with two screws (refer to [Figure 4-81 Chassis Access Panel Removed on page 4-65](#)).
2. Install cabling into retention clips (refer to [Figure 4-81 Chassis Access Panel Removed on page 4-65](#)).
3. Insert access panel hinges into slots on rear of chassis.
4. Plug fan power cable into three prong plug (refer to [Figure 4-80 Opening Chassis Access Panel \(19" Chassis\) on page 4-65](#)).
5. Reinstall access cover and secure with retaining screw (refer to [Figure 4-79 19" Chassis Access Panel on page 4-64](#)).

Installing the SV8300 Chassis

SECTION 1 GENERAL INFORMATION

This chapter contains information to help the technician install the chassis for the SV8300 system. The technician should be familiar with this section ***before installing*** any equipment.

SECTION 2 SITE PREPARATION AND MDF/IDF CONSTRUCTION

Pre-installation planning is essential. Advanced planning minimizes installation time, cost, and disruption of the customer business activities.

2.1 Precautionary Information



Observe the following warnings during installation.

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- To avoid shock or equipment damage, do not plug in or turn the system power on before completing the installation process.
- Avoid working with the equipment during electrical storms.
- Use only commercial AC power to prevent shock or fire.
- Use the power cord supplied for the chassis.
- To prevent overheating, do not bundle AC power cords together.
- Make sure the chassis has a proper earth ground.
- Install batteries with the correct polarity to prevent damaging equipment.

- To avoid damage, the chassis should not be placed on unstable surfaces.
- Although it is recommended to install the blades with the system power **off**, all blades can be installed hot, *except for the following*:
 - ☐ CC-CP00
 - ☐ PZ-BS10 and PZ-BS11
 - ☐ PZ-64IPLA and PZ-128IPLA
 - ☐ PZ-VM21

2.2 Surveying the Customer Site

In most cases, a survey of the customer site is necessary to determine the proper placement of the Main Distribution Frame (MDF), the exact dimensions of the area selected for the MDF, cabling requirements, and possible Intermediate Distribution Frame (IDF) locations.

The information obtained at the customer site can permit the installer to partially assemble the MDF before installation at the customer premise. This can reduce the time spent installing at the customer site and reduce downtime.

2.3 Selecting the Best Location for Proper Installation

2.3.1 Selecting the Chassis Installation Site

When selecting an installation site for the chassis, consider the following conditions to ensure proper installation:

- ☐ The chassis should not be located directly beneath pipes. Leaks or condensation could damage the SV8300 system equipment.
- ☐ The area where the chassis is located must be free of corrosive and inflammable gases, excessive chemical or industrial dusts, and other materials that could cause a hazard to personnel or to the proper functioning of the equipment.
- ☐ The operating ambient temperature and humidity must be within the limits specified in [6.3 Environmental Conditions on page 2-30](#) in Chapter 3 System Specifications.
- ☐ The operation of the system is virtually noiseless and allows wide selection of installation sites. Take care to ensure the chassis or cabling do not present a hazard to office traffic. To minimize cabling costs, a centralized location must be chosen.
- ☐ Locate the chassis at a site where a dedicated AC power source can be easily accessed.
- ☐ Connect the chassis to a dedicated AC receptacle that is **not being used** for any other device.

2.3.2 Selecting a Permanent MDF Location

When selecting a permanent site for the MDF, the technician may encounter some of the following conditions:

- ☐ Limited space is available but must be used.
- ☐ The available space may pose one or more environmental hazards.
- ☐ The proposed location has limitations such as insufficient lighting or the lack of a suitable ground for the chassis.
- ☐ The technician that encounters these conditions must provide the best possible solution for installing the equipment. This document cannot cover all possible situations, precautions, and actions.

2.3.3 Selecting a Site for Installing the Telephones

When a site is being selected for telephone installation, consider the following conditions to ensure proper installation:

- ☐ Ensure cable length, between the chassis and telephones, comply with the specifications listed in [Table 3-12 Cable Length of Terminals on page 3-18](#).
- ☐ Select a place where devices that require an external power supply can be easily connected to an AC outlet.

2.4 Constructing the Main Distribution Frame (MDF)

The Main Distribution Frame (MDF) has two different standard quick-connect terminal blocks that are mounted on a 3/4-inch plywood backboard. Mounting these blocks on standoffs for ease of access is recommended. The recommended blocks are 66B50 for termination of the MDF Cable Assembly and 66M50 for termination of the station cables.

The Intermediate Distribution Frame (IDF) requires the 66M50 blocks only.

Both the MDF and the IDF use standard bridging clips for each terminal block. The bridging clips mate the left half of the terminal block (terminated cable run) to the right half of the terminal block (cross connection wire) to the terminal block (cross connection wire). The bridging clips are also useful during troubleshooting to help isolate the cable runs and terminals/telephones from the central equipment and the Central Office Network from the system.

The SV8300 system can be floor-mounted, wall-mounted, desk-mounted or rack mounted. Plywood should first be installed on the wall where the chassis will be positioned, to allow for secure anchoring. It is equipped with a bracket, which can be used to secure each chassis in any of these installations. Ensure that enough space is available to allow the installation of the additional chassis above and below the Controlling Chassis.

The system requires a 3-prong dedicated 110 VAC 60 Hz circuit (NEMA 5-15 receptacle) located within 7 feet of the AC receptacle. Telco should install the RJ21X to the right of the Controlling Chassis. Extension blocks should be installed to the left of the Controlling Chassis.

The chassis is shipped fully assembled. The following are shipped with the chassis:

- 1 black 3-prong power cord (packed outside the chassis)

2.5 Power Failure Transfer

The Power Failure Transfer relays are located on the COT Blades (CN3). When selecting a Single Line Telephone for power failure transfer, make sure it matches the CO line dialing type (10 pps, 20 pps, or DTMF) where it is connected. Each COT Blade supports two power failure transfer connections. During a power failure condition, CO Ports 1 and 2 on the COT Blade are used for Power Failure Transfer relays 1 and 2 consecutively. [Table 5-1 Power Failure Transfer Connections](#) is a relay diagram. The relay is shown with the power ON.

Table 5-1 Power Failure Transfer Connections

Pin Number	Description	Pin Number	Description
1	Not in Use	2	Not in Use
3	Tip for Circuit 2	4	Ring for Circuit 1
5	Tip for Circuit 1	6	Ring for Circuit 2
7	Not in Use	8	Not in Use

SECTION 3 INSTALLING THE CHASSIS

There are two types of chassis, the 19" CHS1U-US chassis and the 19" CHS2U-US chassis. The CHS1U-US chassis mounts the CC-CP00 blade, PZ-BS10 for the CHS2U-US chassis expansion, PZ-PW146(1U) Power Supply and Cooling FAN.

The CHS2U-US chassis has six universal blade slots for legacy line / trunk blade (Single Line Telephone Interface, Digital Multiline Terminal Interface, Central Office Trunk, ISDN PRI Interface, etc.), In-skin Application Blades (In-skin UMS, In-Skin Router, etc.). It also houses BUS Interface Blade, Power Supply Unit (PSU) and Cooling FAN.

The chassis can be wall mounted, floor mounted, stand mounted or rack mounted. Refer to [Section 2 Site Preparation and MDF/IDF Construction on page 5-1](#) to ensure proper site preparation. The first part of this section describes the differing types of mounting options and the rest of this section describes how to install the chassis.

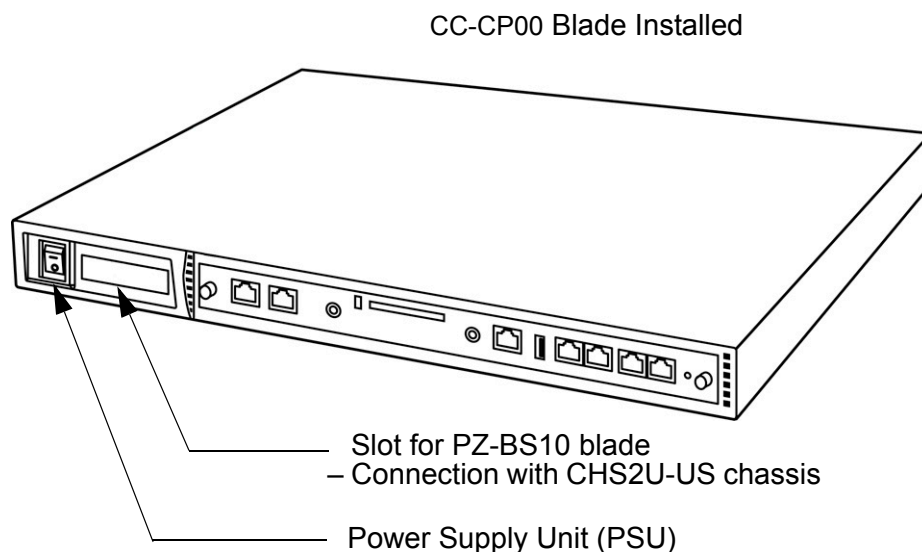


Figure 5-1 CHS1U-US Chassis (Front View)

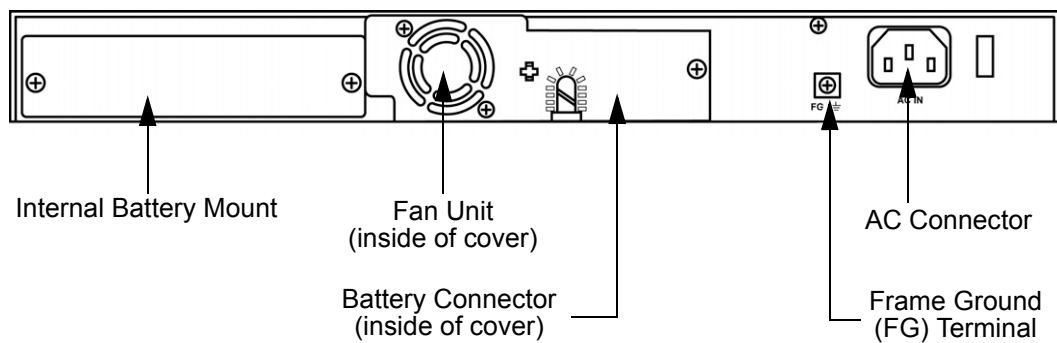


Figure 5-2 CHS1U-US Chassis (Rear View)

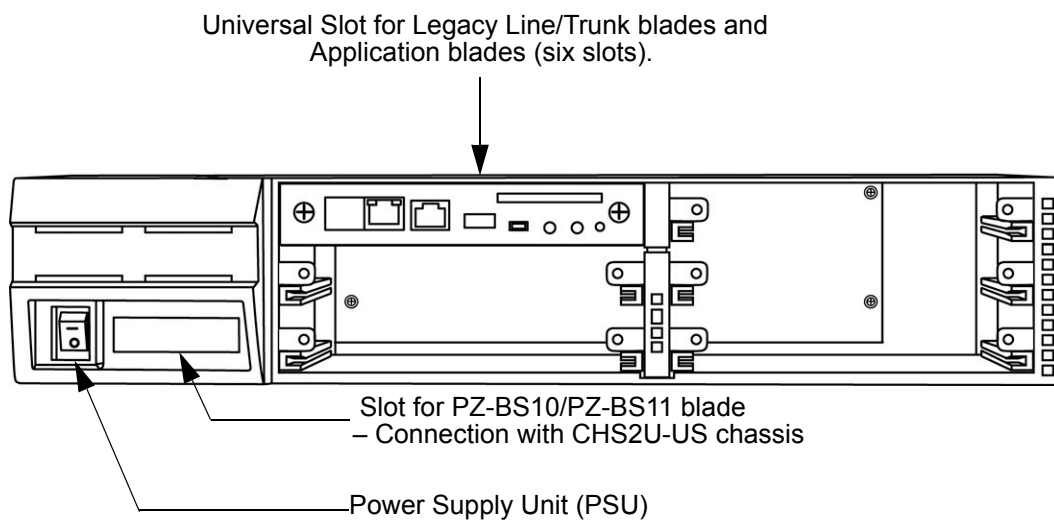


Figure 5-3 CHS2U-US Chassis (Front View)

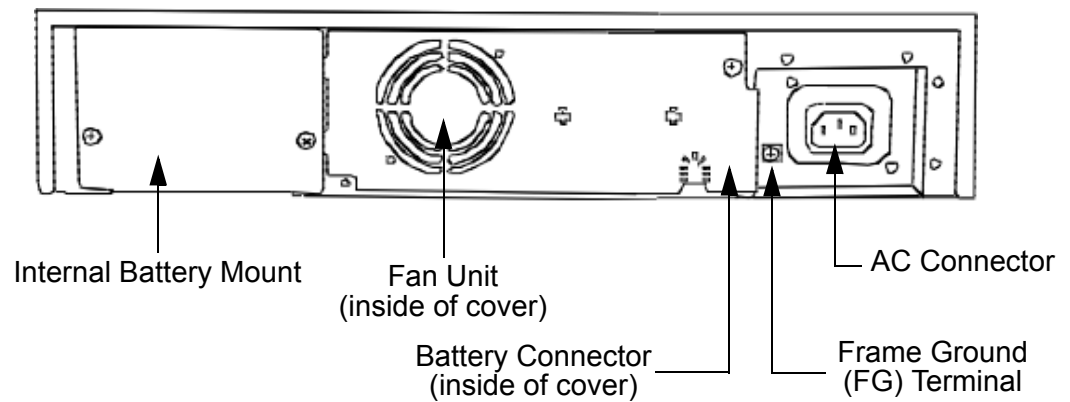


Figure 5-4 CHS2U-US Chassis (Rear View)

3.1 Wall Mounting the 19" Chassis


When wall mounting the chassis, ensure the wall can support the weight of the chassis (31 lbs per system chassis including blades, cords, power supply, etc.). The chassis is secured to the wall with a wall mount bracket. Ensure that enough space is available to allow the installation of additional expansion chassis.

3.1.1 CHS1U-US and CHS2U-US Chassis Installation

1. Using the spacing guide shown below, align two wall mount brackets. Refer to [Figure 5-5 Wall Mount Spacing Guide \(19" Chassis\)](#) on page 5-8 for required spacing before drilling.



- *It is suggested that plywood first be installed on the wall where the chassis will be positioned. This allows for secure anchoring of the screws which will be supporting the weight of the chassis.*
- *For wall mount, only a single CHS1U-US chassis and single CHS2U-US chassis configuration is available.*

 *Select screws to match with the wall type as follows:
A concrete wall is recommended because it is the most firm to mount the SV8300 of the two. The plaster board is the most firm wall of the two.*

Wall Type	Recommended Screw (Anchor Bolt Type)
Concrete	4 mm (0.16 inch) by 25 mm (0.98 inch)
Wood	Maximum 3.5 mm (0.14 inch) DIA or Maximum 4.5 mm (0.17 inch) DIA

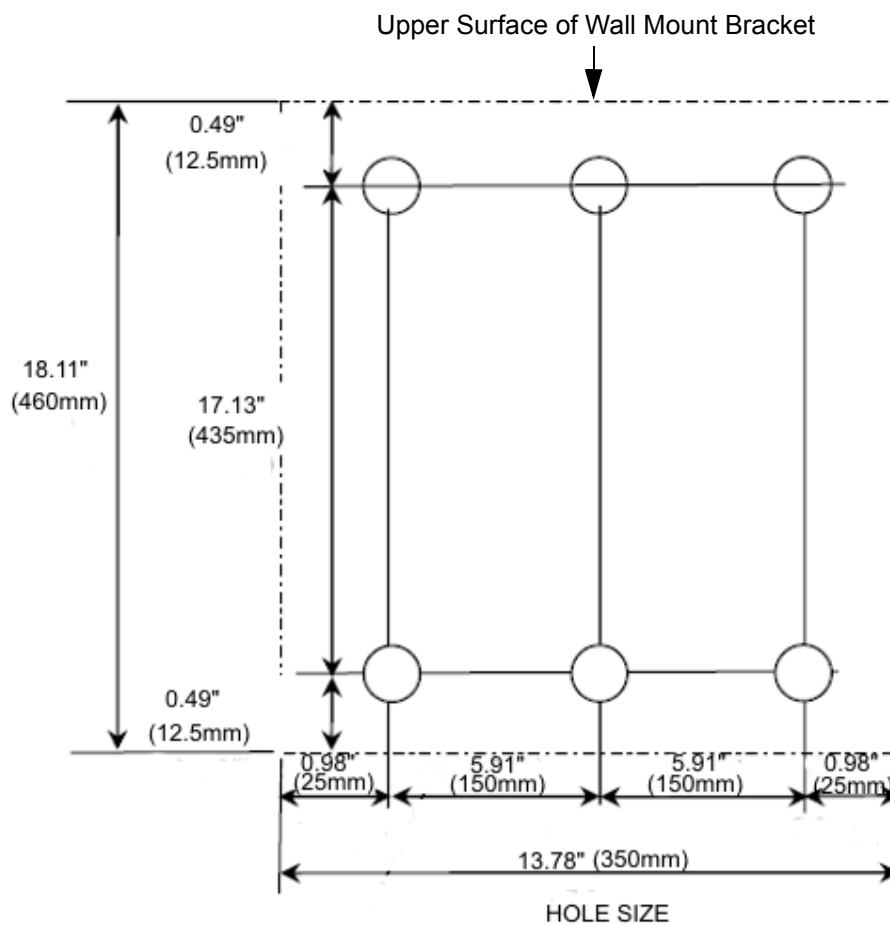


Figure 5-5 Wall Mount Spacing Guide (19" Chassis)

2. Mark and drill the six holes required for a wall installation.

Drilling:

- a. Make a preliminary hole in the concrete, using a drill bit for small-diameter holes.
- b. Drill a hole in the concrete with a drill suitable for a plug bolt a little deeper than the plug bolt length.

Anchor Bolt Size:

0.39" (10mm) DIA for Fixed Equipment

0.24" (6mm) DIA for Stationary Equipment

- c. Insert the anchor bolt into the hole.
- d. Push anchor bolt until the bolt stays permanently in place.
- e. Turn bolt counterclockwise and remove.
- f. Insert bolts correctly into the holes for equipment installation, then tighten them properly.

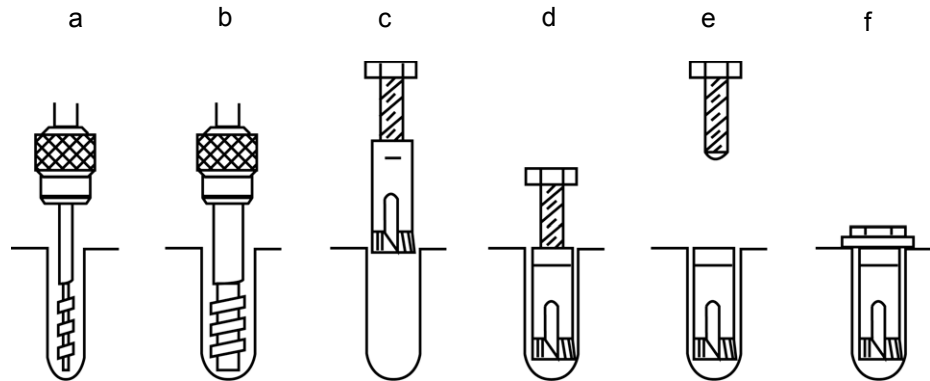


Figure 5-6 Drilling Instructions for Anchor Bolt

3. Align screw holes in wall mount brackets with pre-drilled holes in wall.

4. Using six screws, secure the two wall mount brackets to the wall. Refer to [Figure 5-7 Install Wall Mount Brackets with Screws](#) for screw location.

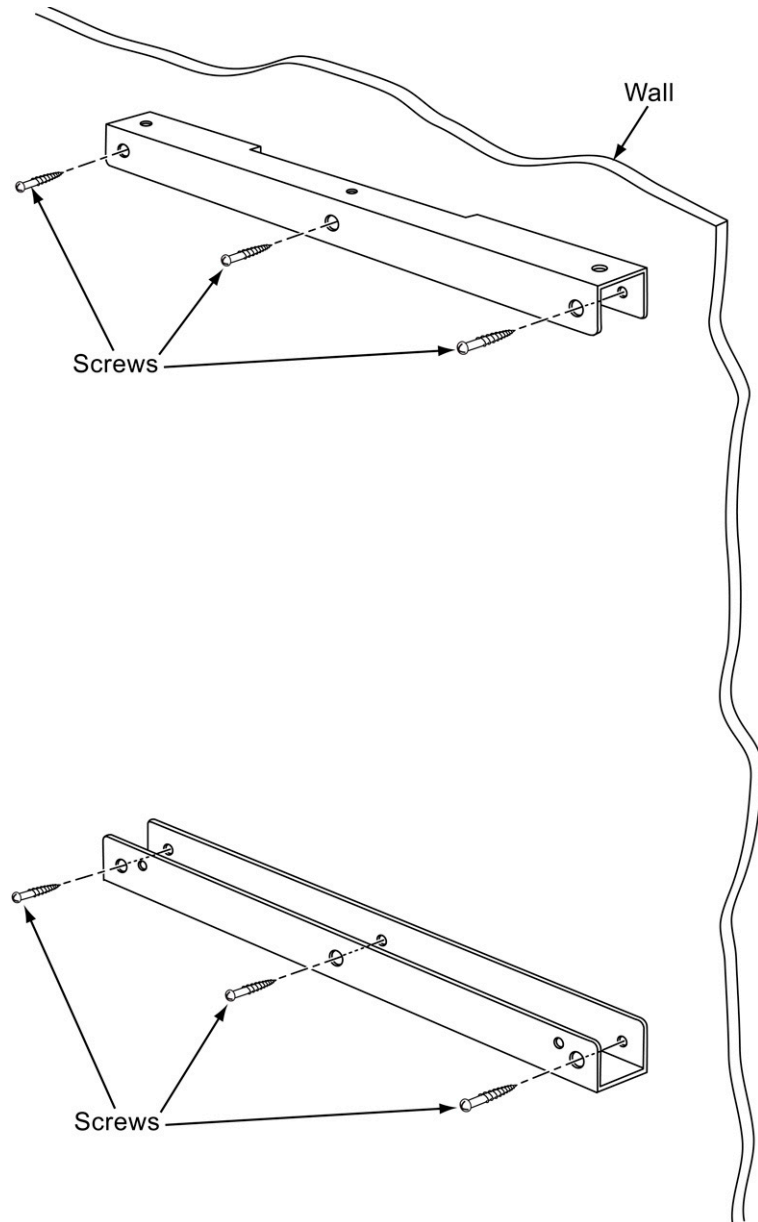


Figure 5-7 Install Wall Mount Brackets with Screws

5. Using four screws, secure the metal fittings on the Left and Right sides of the 19" chassis. Refer to [Figure 5-8 Install Wall Mount Brackets with Screws](#) for screw location.

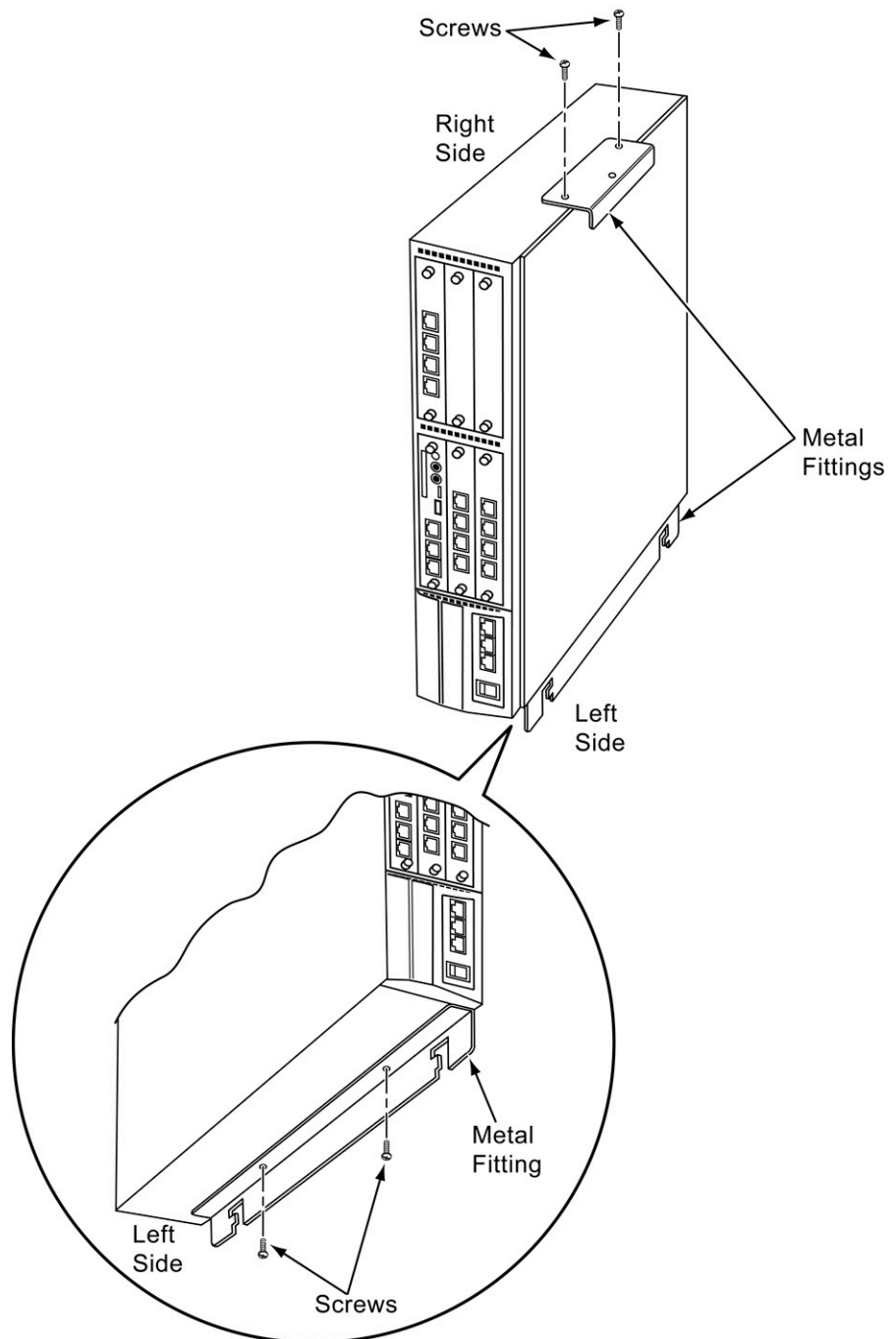


Figure 5-8 Install Wall Mount Brackets with Screws

6. Install five rubber feet on bottom of CHS1U-US chassis.
7. Align CHS1U-US and CHS2U-US chassis. Secure the two chassis together with a joint bracket and four screws on both sides of the chassis. Refer to [Figure 5-9 Install Joint Brackets with Screws](#) for bracket location.

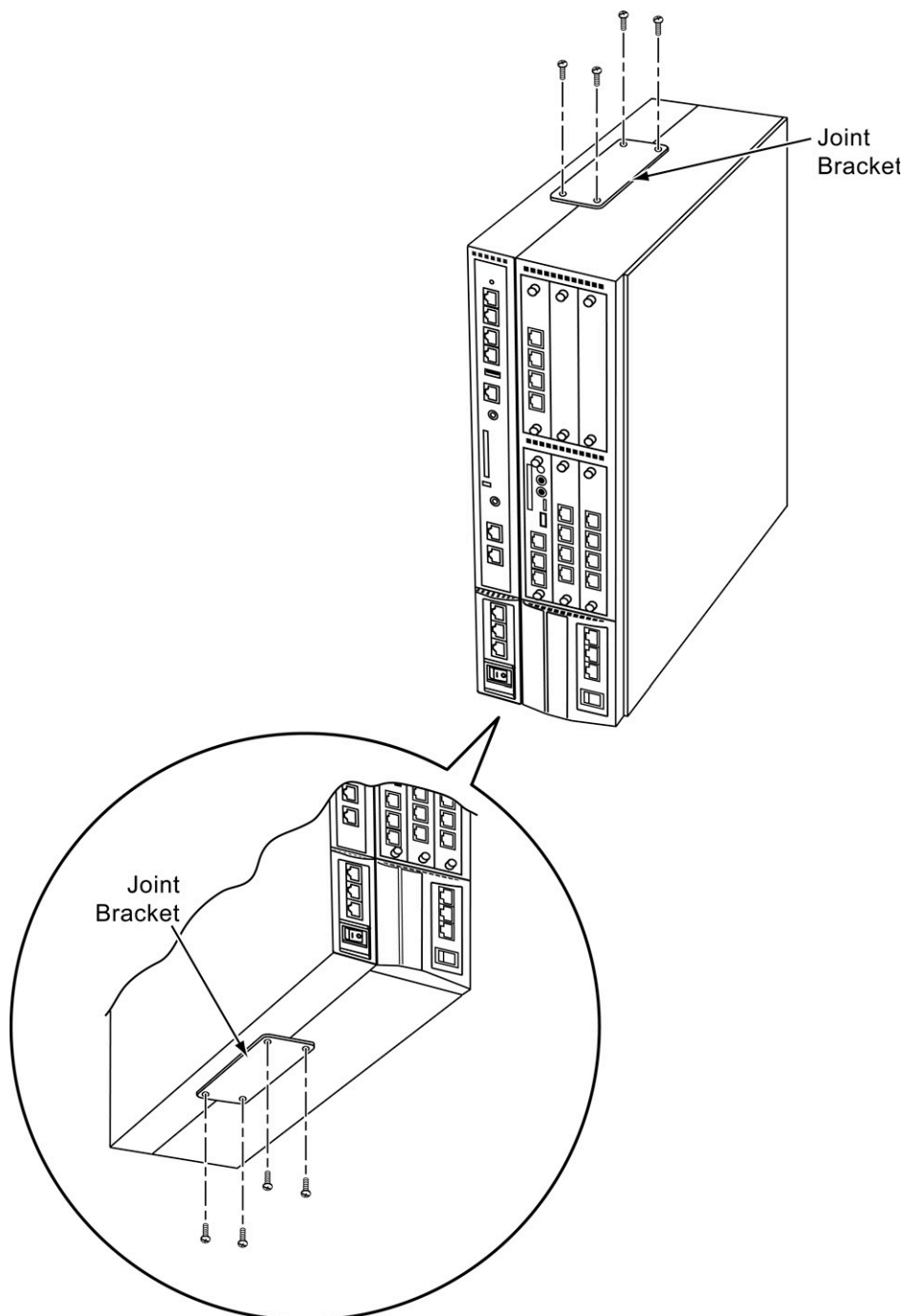


Figure 5-9 Install Joint Brackets with Screws

8. Align the metal fitting with the upper wall mount bracket. The lower metal fitting will rest against the lower wall mount bracket. Secure the metal fitting and upper wall mount bracket with a single screw (see [Figure 5-10 Secure Metal Fitting to Upper Wall Mount Bracket with a Screw](#)).

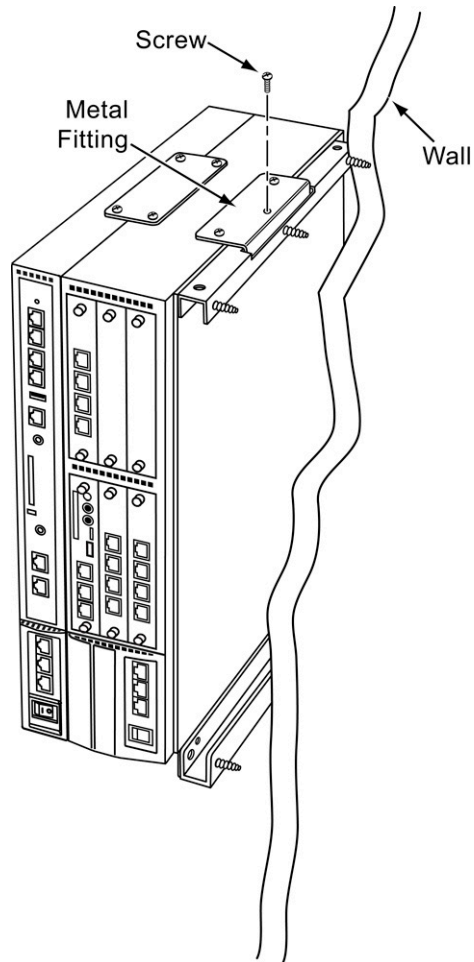


Figure 5-10 Secure Metal Fitting to Upper Wall Mount Bracket with a Screw

9. The cable support bracket can be installed any of the four corners of the 19" chassis (refer to [Figure 5-11 Attach Cable Support Bracket with Screw](#)).

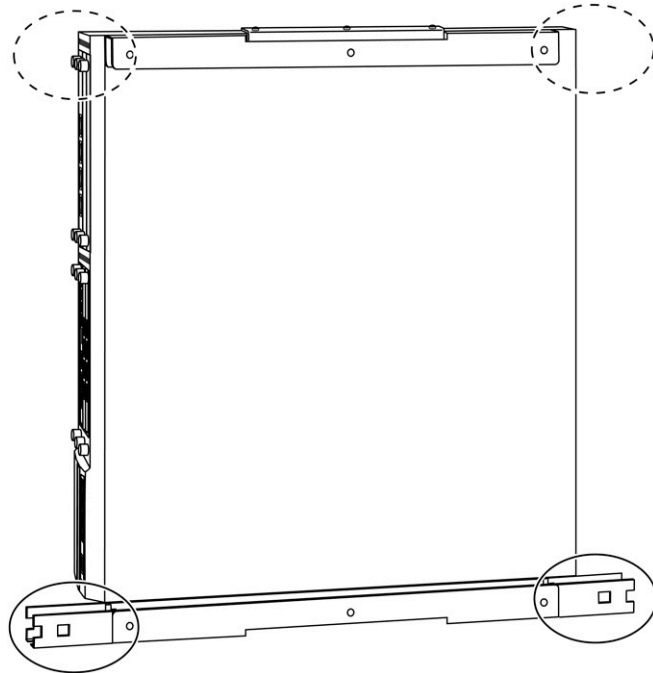


Figure 5-11 Attach Cable Support Bracket with Screw

10. Attach the supplied cable support bracket to either end of the lower wall mount bracket with a single screw (refer to [Figure 5-12 Attach Cable Support Bracket with Screw](#)).

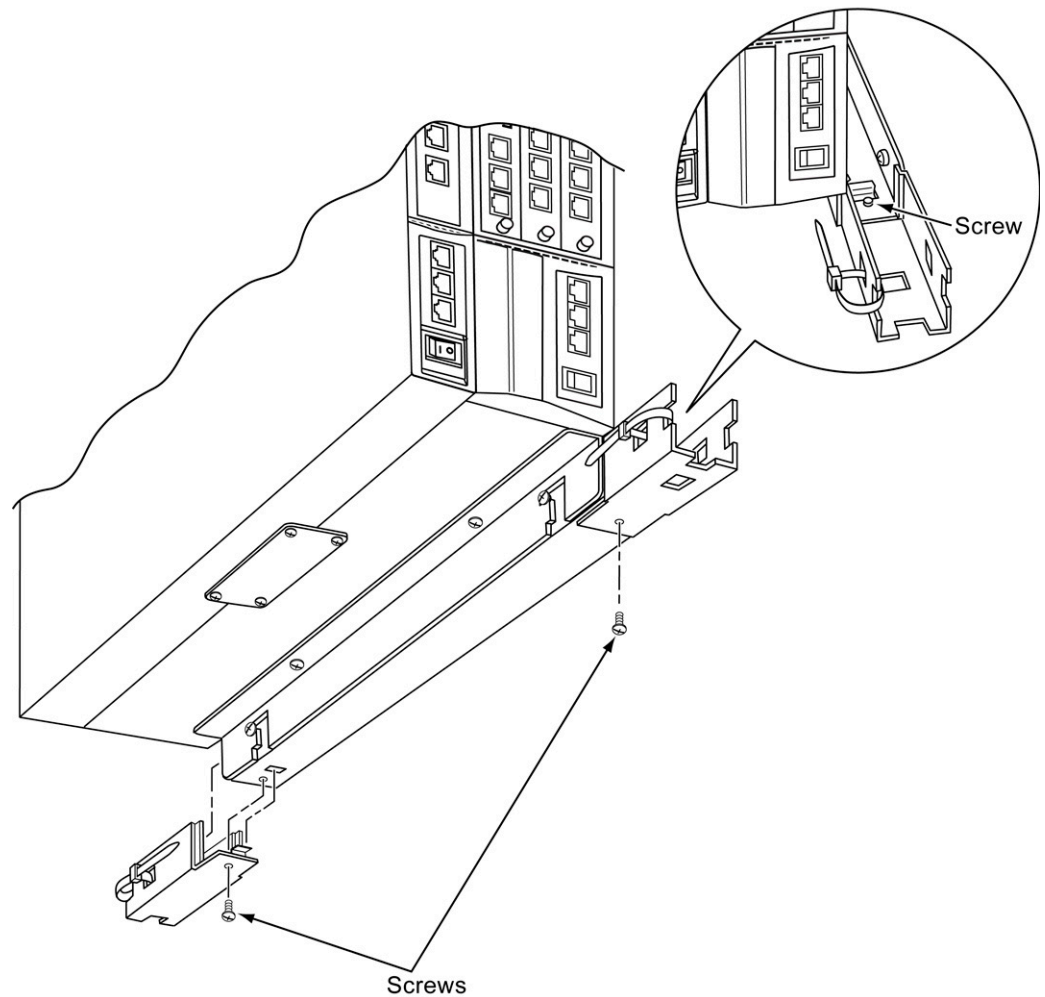


Figure 5-12 Attach Cable Support Bracket with Screw

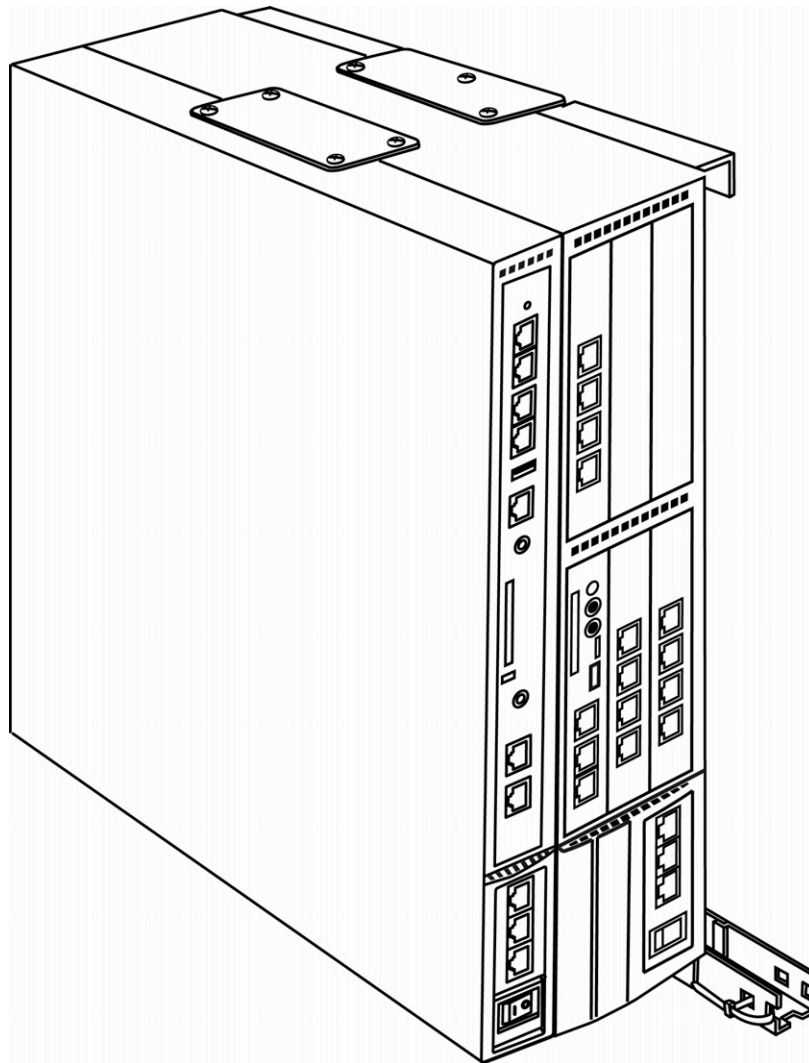


Figure 5-13 CHS1U-US and CHS2U-US Chassis Wall Mounted

11. Connect the ground wire to all chassis. Refer to [3.5.7 Install 19" Chassis Grounding on page 5-46](#) for complete details on grounding the system.
12. Refer to [3.5 Installing the 19" Chassis on page 5-34](#) to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade on page 6-4](#) for installation of blades.

3.2 Floor Mounting the 19" Chassis

The CHS1U-US controlling and the CHS2U-US expansion chassis can be mounted on the floor using the CHS BASE UNIT and the CHS2U JOINT BRACKET KIT.

3.2.1 CHS1U-US Chassis Installation

1. Position the CHS BASE UNIT on desired surface and mark four holes to be drilled (refer to [Figure 5-14 CHS BASE UNIT](#)).

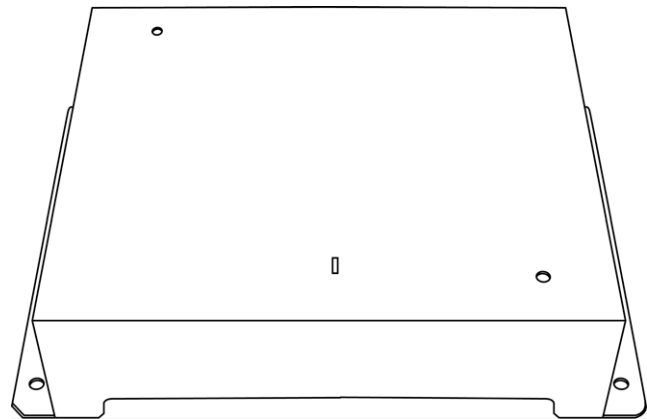


Figure 5-14 CHS BASE UNIT

2. Drill the four holes required for floor installation.
3. Using four screws, secure the CHS BASE UNIT to the floor. Refer to [Figure 5-15 Secure CHS BASE UNIT with Screws](#) for screw location.

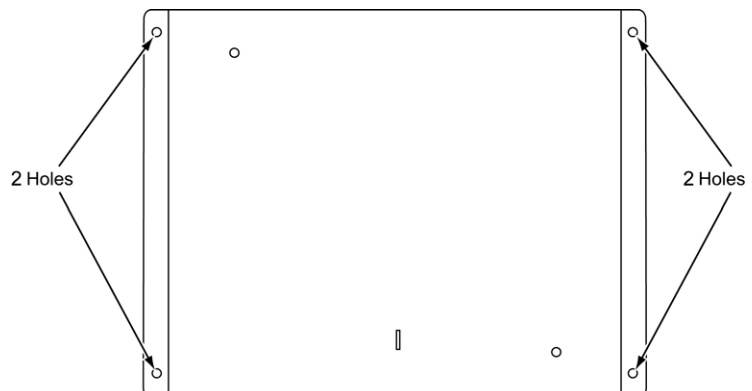


Figure 5-15 Secure CHS BASE UNIT with Screws

4. Install the five rubber feet to the bottom of the chassis.

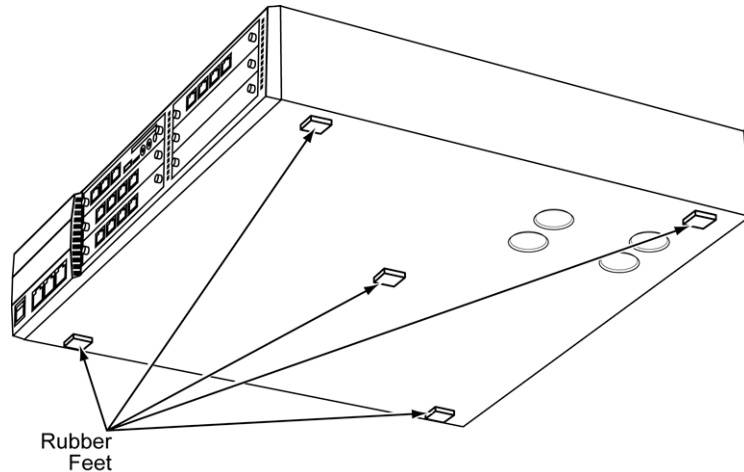


Figure 5-16 Install Rubber Feet

5. Position the CHS1U-US and CHS2U-US chassis on top of the CHS BASE UNIT.
6. Secure the chassis to the CHS BASE UNIT using screws supplied with the CHS STAND KIT (K).

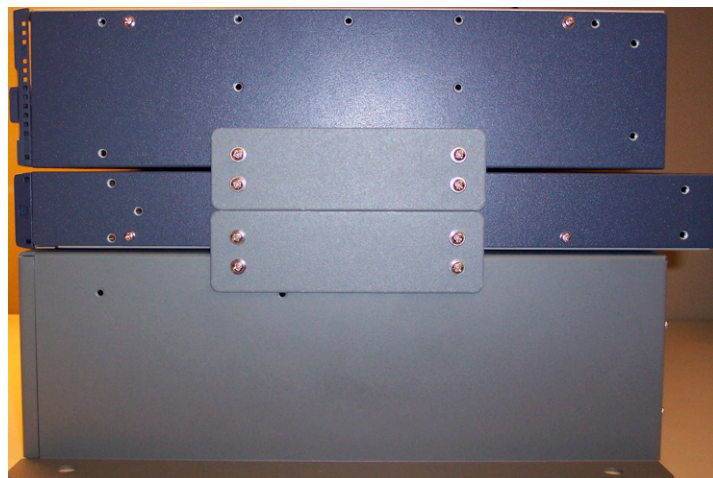


Figure 5-17 Install CHS2U JOINT BRACKET KIT

7. Connect the ground wire to all chassis. Refer to [3.5.7 Install 19" Chassis Grounding on page 5-46](#) for complete details on grounding the system.

8. Refer to [3.5 Installing the 19" Chassis on page 5-34](#) to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade on page 6-4](#) for installation of blades.

3.2.2 Multiple CHS2U-US Chassis Installation

Expansion chassis can be secured to the CHS BASE UNIT and will require an additional CHS2U JOINT BRACKET KIT per chassis.

1. Install the five rubber feet to the bottom of each chassis.

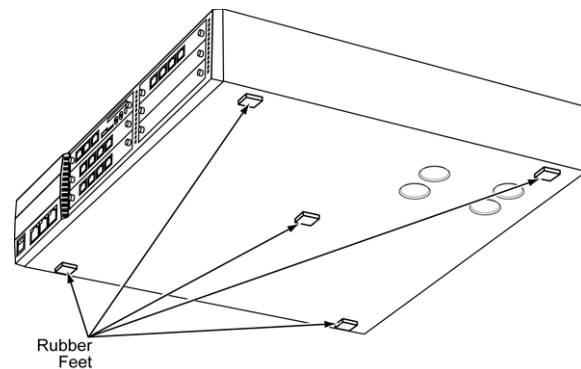


Figure 5-18 Install Rubber Feet

2. Using supplied screws, attach joint brackets to both ends of the 19" chassis and the CHS BASE UNIT. Refer to [Figure 5-19 Install Joint Brackets with Screws on page 5-19](#).

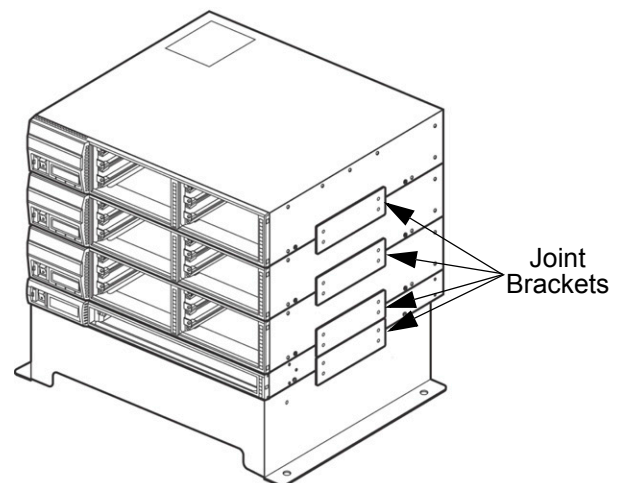


Figure 5-19 Install Joint Brackets with Screws

3. Connect the ground wire to all chassis. Refer to [3.5.7 Install 19" Chassis Grounding on page 5-46](#) for complete details on grounding the system.
4. Refer to [3.5 Installing the 19" Chassis on page 5-34](#) to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade on page 6-4](#) for installation of blades.

3.3 Stand Mounting the 19" Chassis

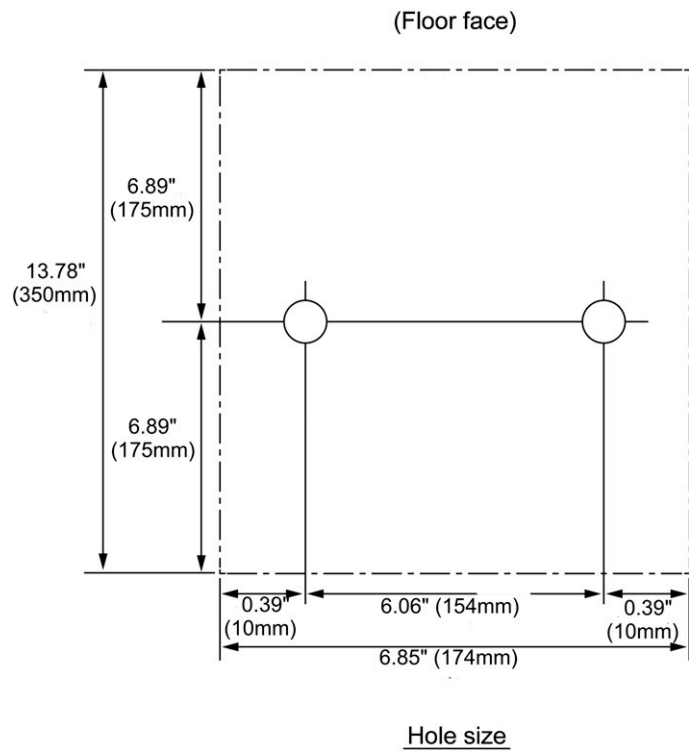
The SV8300 can be stand mounted. Controlling and Expansion chassis can be stand mounted using the CHS STAND KIT (K), the CHS2U STAND KIT (EXT) and the CHS2U JOINT BRACKET KIT.

3.3.1 CHS1U-US+CHS2U-USx1 Chassis Installation

1. Using the spacing guide shown below, mark two holes to be drilled. Refer to [Figure 5-20 Stand Mount Spacing Guide \(CHS1U-US+CHS2U-USx1 Chassis Installation\)](#) on page 5-21 for required spacing before drilling.



- *It is suggested that plywood first be installed on the floor where the chassis will be positioned. This allows for secure anchoring of the screws which will be supporting the weight of the chassis.*
- *For Stand Mount, up to three CCHS2U-US chassis can stand with a CHS1U-US chassis.*



**Figure 5-20 Stand Mount Spacing Guide
(CHS1U-US+CHS2U-USx1 Chassis Installation)**

2. Drill the two holes required for a floor installation.
3. Install the five rubber feet to the bottom of each chassis.

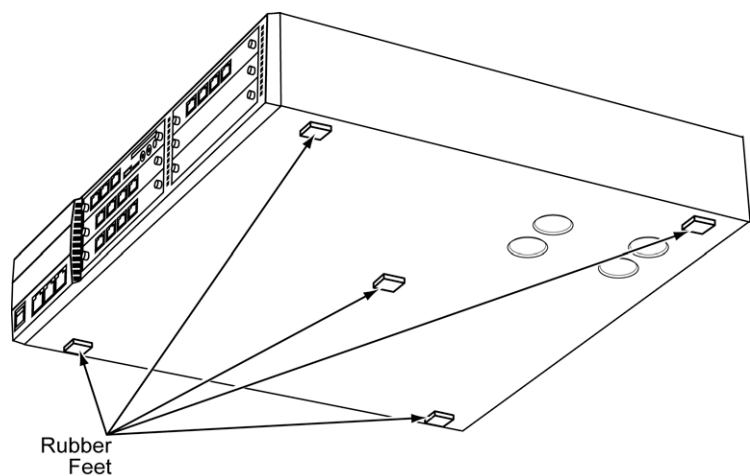


Figure 5-21 Attach Rubber Feet to CHS2U-US Chassis

4. Align CHS1U-US chassis and CHS2U-US chassis. Secure the two chassis together with a joint bracket and four screws on top sides of the chassis. Refer to [Figure 5-22 Install Joint Brackets with Screws](#) for bracket location.

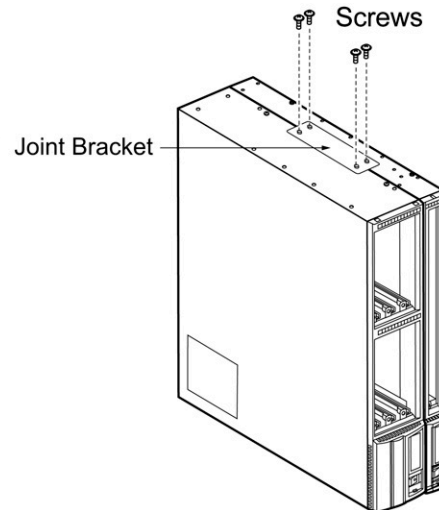


Figure 5-22 Install Joint Brackets with Screws

5. Using supplied screws, assemble the CHS STAND KIT (K). Refer to [Figure 5-23 Assemble Stand Mount with Screws](#).

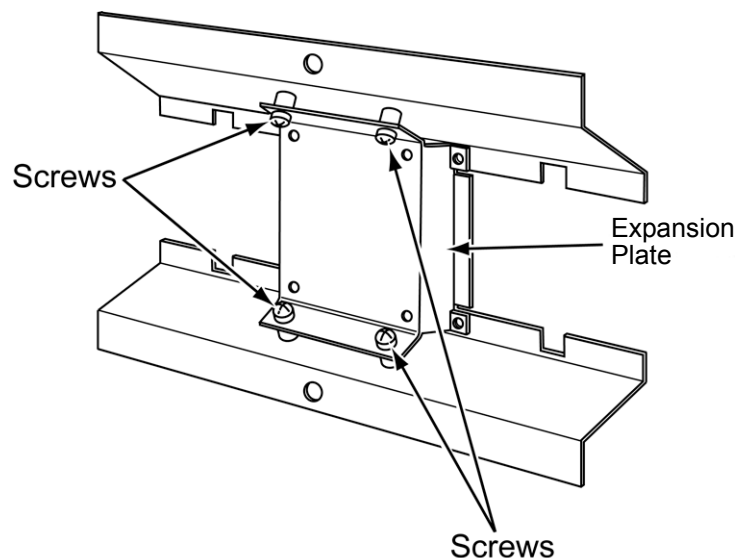


Figure 5-23 Assemble Stand Mount with Screws

6. Using supplied screws, secure the chassis to the assembled CHS STAND KIT (K). Refer to [Figure 5-24 Attach Floor Mount Brackets to Chassis with Screws](#) for screw location.

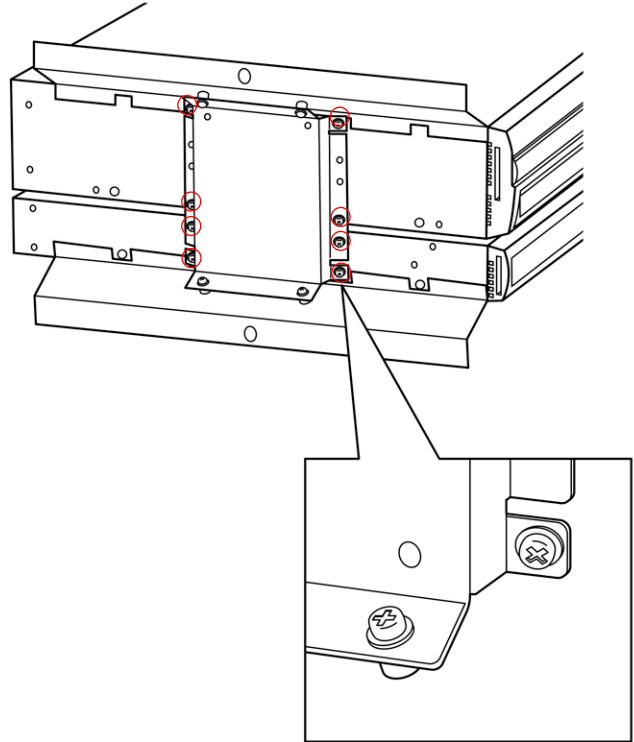


Figure 5-24 Attach Floor Mount Brackets to Chassis with Screws

7. Align screw holes in floor mount bracket with pre-drilled holes in floor.
8. Using supplied screws, secure the CHS STAND KIT (K) to the floor. Refer to [Figure 5-25 CHS2U-US/CHS1U-US Chassis Stand Mount](#) on page 5-24.



To prevent damage to the 19" chassis due to falling, install the chassis with stand mount brackets.

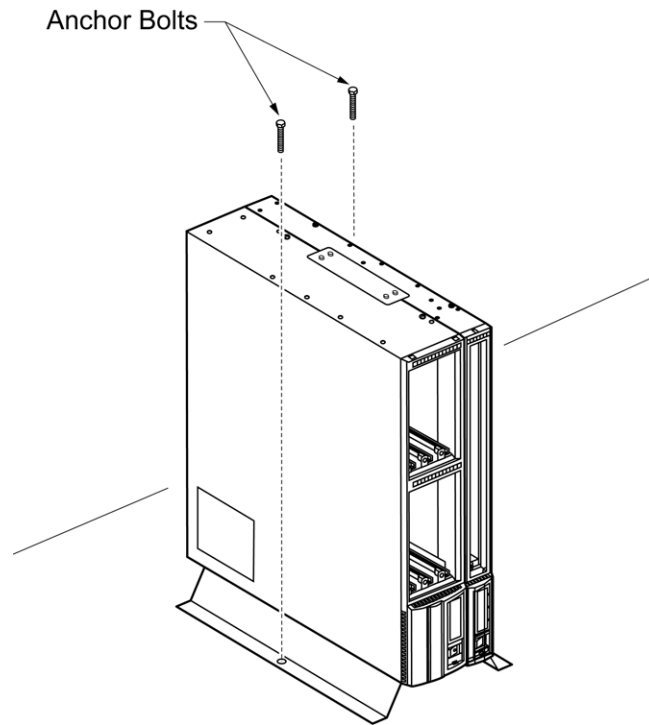


Figure 5-25 CHS2U-US/CHS1U-US Chassis Stand Mount

9. Connect the ground wire to all chassis. Refer to [3.5.7 Install 19" Chassis Grounding on page 5-46](#) for complete details on grounding the system.
10. Refer to [3.5 Installing the 19" Chassis on page 5-34](#) to continue installation of the chassis or, Chapter 5 paragraph 2.2 Installing an Extension or Trunk Blade on page 6-4 for installation of blades.

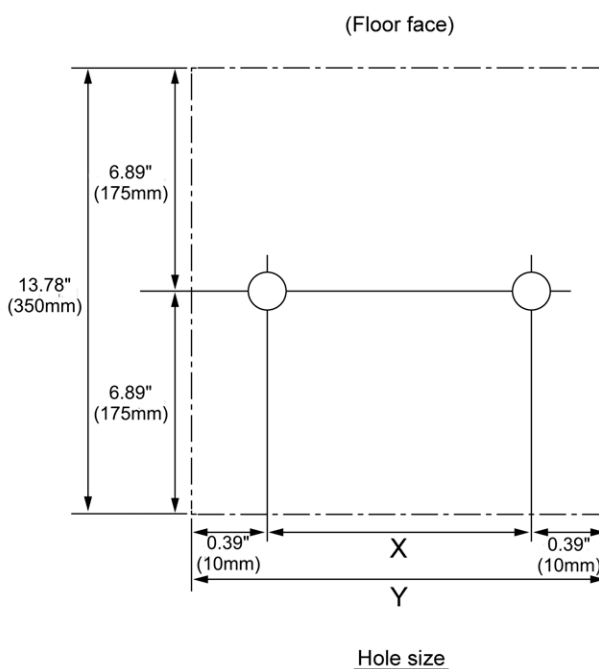
3.3.2 CHS1U-US+CHS2U-USxN Chassis Installation

Expansion chassis (maximum of three) can be added to create a UNIT and will require an additional CHS2U STAND KIT (EXT) per chassis.

1. Using the spacing guide shown below, mark two holes to be drilled. Refer to [Figure 5-26 Stand Mount Spacing Guide \(CHS1U-US+CHS2U-USxN Chassis Installation\) on page 5-25](#) for required spacing before drilling.



- *It is suggested that plywood first be installed on the floor where the chassis will be positioned. This allows for secure anchoring of the screws which will be supporting the weight of the chassis.*
- *For Stand Mounting, up to three CHS2U-US chassis can stand with a CHS1U-US chassis.*



Chassis Configuration	X	Y
Controlling Chassis+Expansion Chassisx2	11.46" (291mm)	12.24" (311mm)
Controlling Chassis+Expansion Chassisx3	15" (381mm)	15.83" (402mm)

Figure 5-26 Stand Mount Spacing Guide (CHS1U-US+CHS2U-USXN Chassis Installation)

2. Mark and drill the two holes required for a floor installation.

3. Install the five rubber feet to the bottom of each chassis.

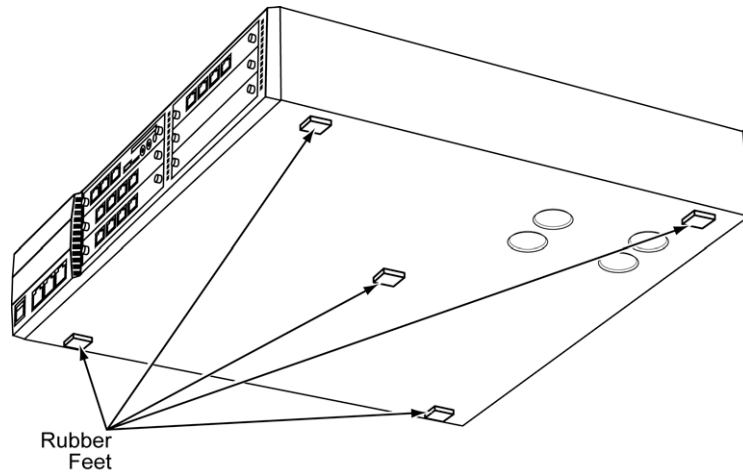
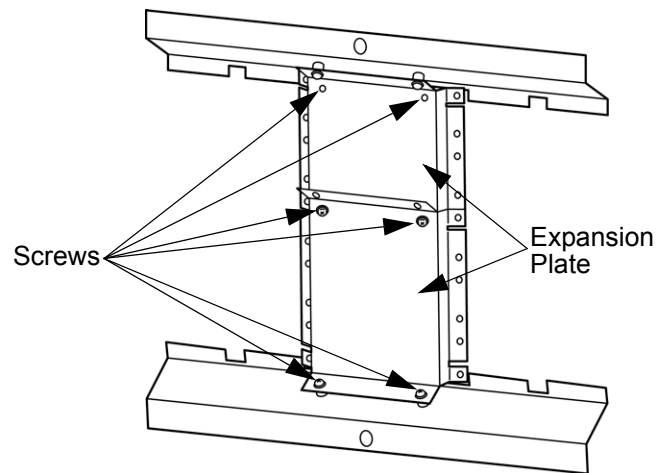


Figure 5-27 Attach Rubber Feet to CHS2U-US Chassis

4. Align CHS1U-US chassis and CHS2U-US chassis. Secure the chassis together with a joint bracket on top sides of the chassis.
5. Using supplied screws, assemble the CHS STAND KIT (K) and CHS2U STAND KIT (EXT). Refer to [Figure 5-23 Assemble Stand Mount with Screws on page 5-22](#).

3.3.2.1 CHS1U-US+CHS2U-USx2 Stand Mount Assembly

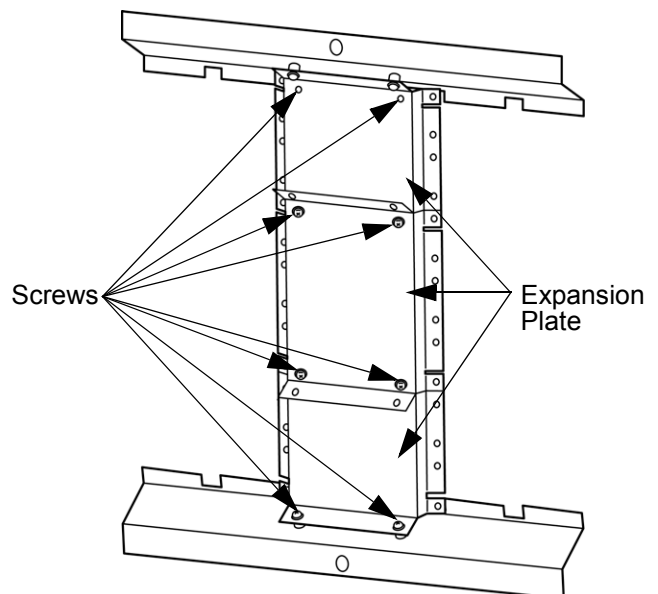
Using supplied screws, assemble the CHS STAND KIT (K) and CHS2U STAND KIT (EXT). Refer to [Figure 5-28 Assemble Stand Mount with Screws \(CHS1U-US+CHS2U-USx2 Configuration\) on page 5-27](#) for screw location.



**Figure 5-28 Assemble Stand Mount with Screws
(CHS1U-US+CHS2U-USx2 Configuration)**

3.3.2.2 CHS1U-US+CHS2U-USx3 Stand Mount Assembly

Using supplied screws, assemble the CHS STAND KIT (K) and CHS2U STAND KIT (EXT). Refer to [Figure 5-29 Assemble Stand Mount with Screws \(CHS1U-US+CHS2U-USx3 Configuration\)](#) for screw location.



**Figure 5-29 Assemble Stand Mount with Screws
(CHS1U-US+CHS2U-USx3 Configuration)**

6. Using supplied screws, secure the chassis to the assembled CHS STAND KIT (K). Refer to [Figure 5-30 Attach Stand Mount Brackets to Chassis with Screws \(CHS1U-US+CHS2U-USx2 Configuration\)](#) for screw location.

3.3.2.3 CHS1U-US+CHS2U-USx2 Install Chassis

Using supplied screws, secure the chassis to the assembled CHS STAND KIT (K). Refer to [Figure 5-30 Attach Stand Mount Brackets to Chassis with Screws \(CHS1U-US+CHS2U-USx2 Configuration\)](#) for screw location.

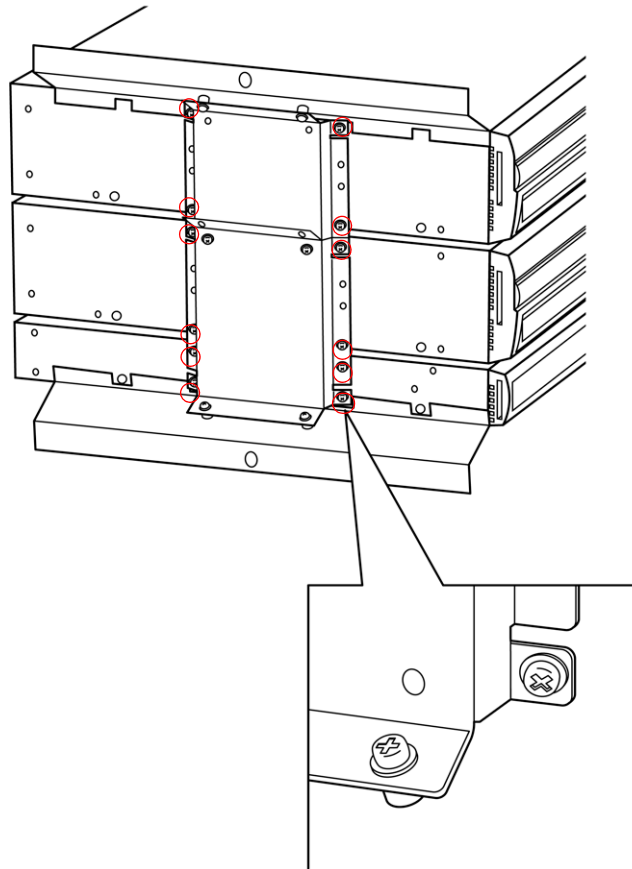


Figure 5-30 Attach Stand Mount Brackets to Chassis with Screws (CHS1U-US+CHS2U-USx2 Configuration)

3.3.2.4 CHS1U-US+CHS2U-USx3 Install Chassis

Using supplied screws, secure the chassis to the assembled CHS STAND KIT (K). Refer to [Figure 5-31 Attach Stand Mount Brackets to Chassis with Screws \(CHS1U-US+CHS2U-USx3 Configuration\)](#) for screw location.

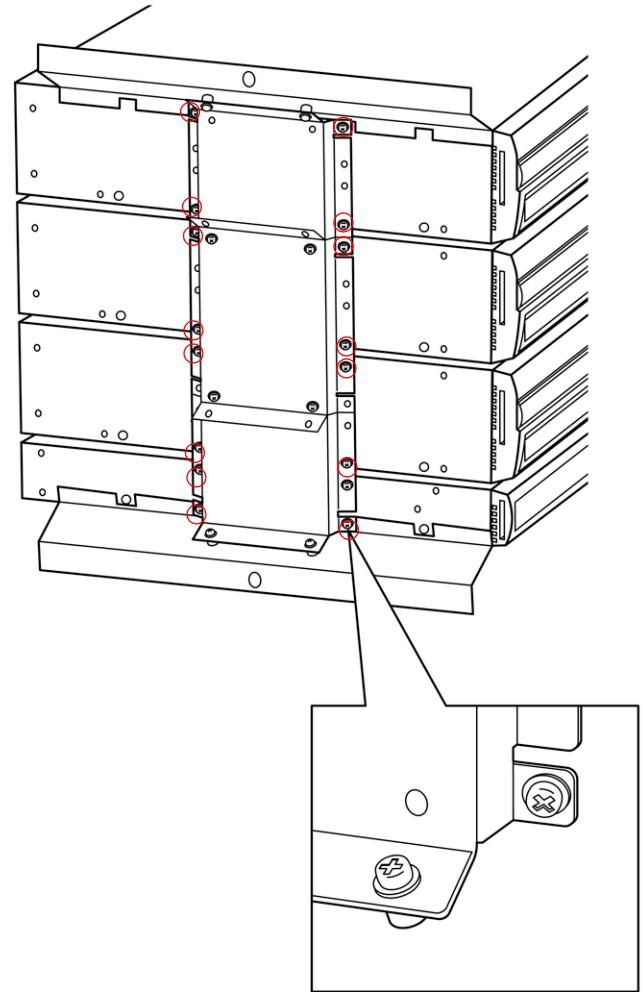


Figure 5-31 Attach Stand Mount Brackets to Chassis with Screws (CHS1U-US+CHS2U-USx3 Configuration)

7. Align screw holes in floor mount bracket with pre-drilled holes in floor.

8. Using supplied screws, secure the CHS STAND KIT (K) to the floor. Refer to [Figure 5-32 CHS1U-US+CHS2U-USx2 Chassis Configuration](#) and [Figure 5-33 CHS1U-US+CHS2U-USx3 Chassis Configuration](#) on page 5-31.



To prevent damage to the 1U/2U chassis due to falling, NEC recommends screws be installed in the floor mount brackets as soon as possible.

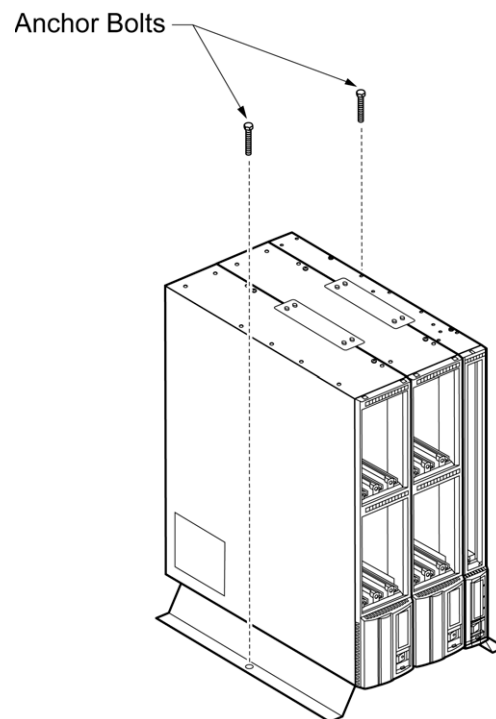


Figure 5-32 CHS1U-US+CHS2U-USx2 Chassis Configuration

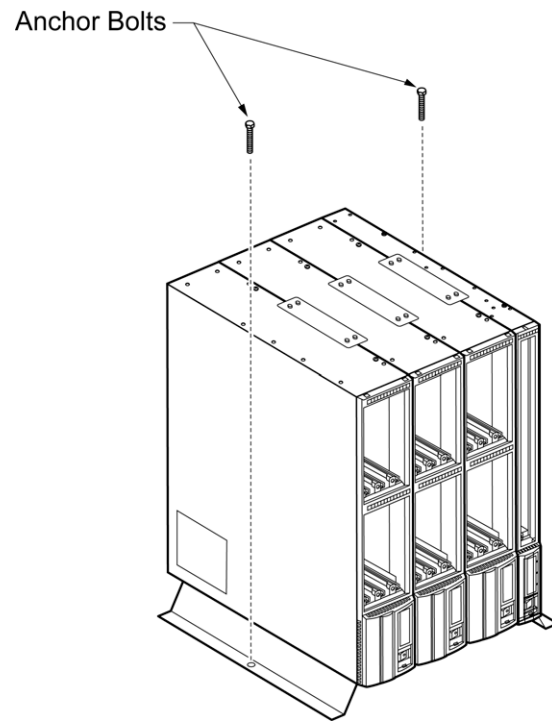


Figure 5-33 CHS1U-US+CHS2U-USx3 Chassis Configuration

9. Connect the ground wire to all chassis. Refer to [3.5.7 Install 19" Chassis Grounding on page 5-46](#) for complete details on grounding the system.
10. Refer to [3.5 Installing the 19" Chassis on page 5-34](#) to continue installation of the chassis or, Chapter 5 paragraph 2.3 Installing an Extension or Trunk Blade on page 6-5 for installation of blades.

3.4 Rack Mounting the 19" Chassis

A single or multiple chassis can be rack mounted. Controlling and Expansion chassis can be racked mounted by stacking them vertically.

1. The 19" chassis requires two rack mount brackets per chassis for mounting. Refer to [Figure 5-34 19" Rack Mount Brackets](#).

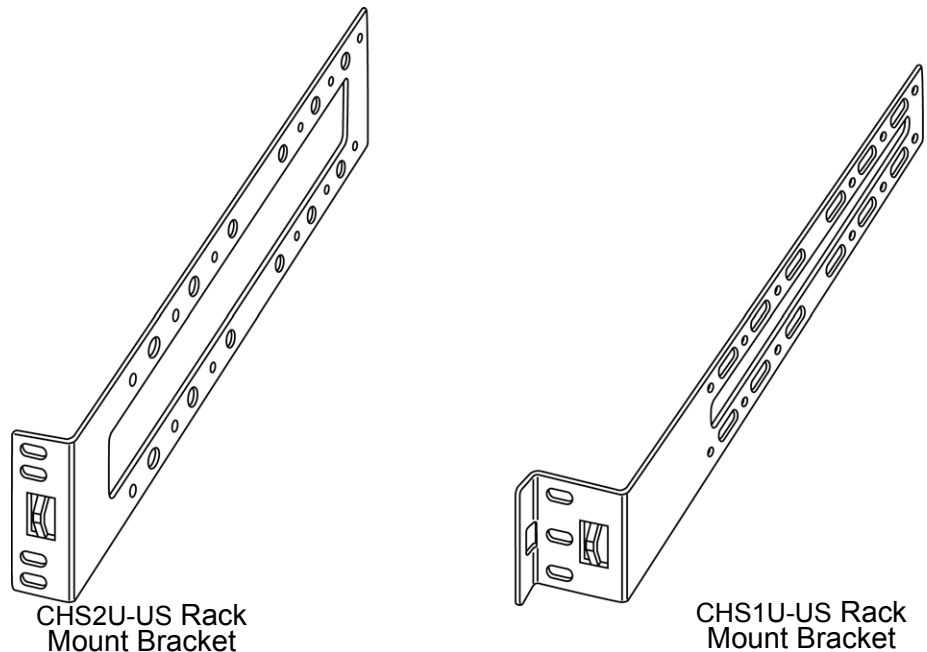


Figure 5-34 19" Rack Mount Brackets

2. Line up the Rack Mount Bracket(s) with the pre-drilled holes on each side of the 19" chassis.
3. Secure the brackets to the chassis using the supplied screws. Refer to [Figure 5-35 Rack Mount Bracket Installed 19" CHS1U-US Chassis on page 5-33](#) or [Figure 5-36 Rack Mount Bracket Installed 19" CHS2U-US Chassis on page 5-33](#) for the 19" chassis.

Repeat for additional chassis mounting.

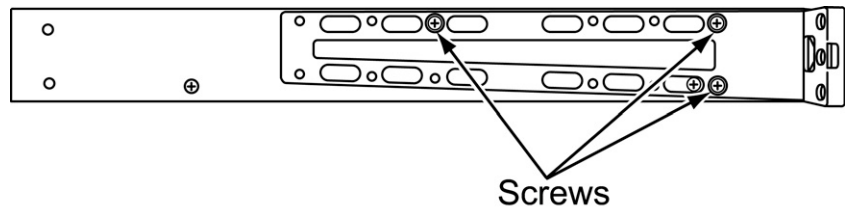


Figure 5-35 Rack Mount Bracket Installed 19" CHS1U-US Chassis

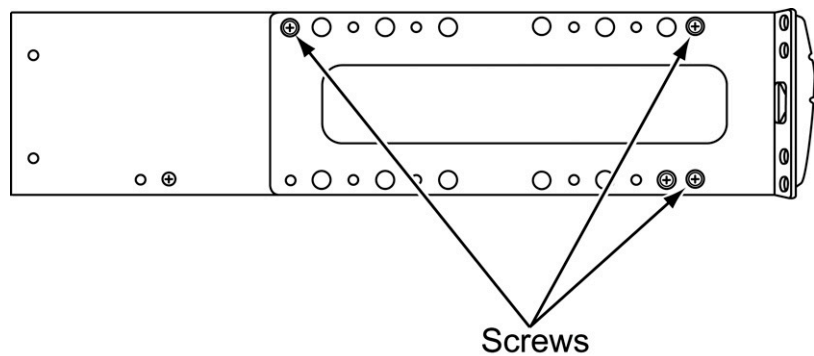


Figure 5-36 Rack Mount Bracket Installed 19" CHS2U-US Chassis

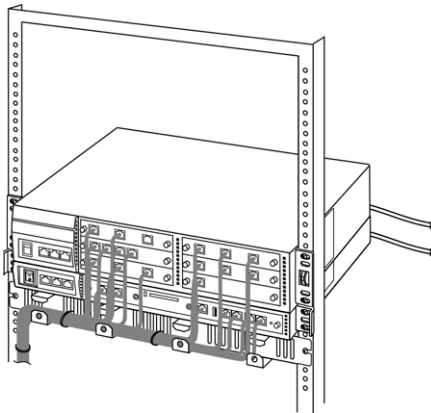
4. Carefully slide the chassis into desired location within the rack. Make sure the hooks on the mounting bracket are inserted into the back of the chassis, securing it in place. Note that the cabling is run through the front of the rack for ease of access.



- *Each CHS1U-US chassis will require approximately 1.75" of height within the rack.*
- *Each CHS2U-US chassis will require approximately 3.5" of height within the rack.*

5. Secure the brackets to the rack using the screws supplied.

Repeat for additional chassis mounting.



Single CHS1U-US Rack Mount with One CHS2U-US Expansion Chassis



Single CHS1U-US Rack Mount with Three CHS2U-US Expansion Chassis

Figure 5-37 Rack Mount 19" CHS1U-US and CHS2U-US Chassis

6. Connect the ground wire to all chassis. Refer to [3.5.7 Install 19" Chassis Grounding on page 5-46](#) for complete details on grounding the system.
7. Refer to [3.5 Installing the 19" Chassis on page 5-34](#) to continue installation of the chassis or, Chapter 5 paragraph [2.2 Installing an Extension or Trunk Blade on page 6-4](#) for installation of blades.

3.5 Installing the 19" Chassis

There are two types of chassis; the controlling (with the CC-CP00 installed) and the expansion (that does not have the CPU blade installed). As discussed in other chapters, multiple chassis can be linked together to expand the port size of the system.

3.5.1 Unpacking the Equipment

Inspect the equipment for any physical damage. If you are not sure about the function of a component, review the associated information within this manual. Contact your authorized NEC Sales Representative if you have additional questions. Note that the chassis does not initially contain any blades.

Make sure you have appropriate tools for the job, including: a test set, a punch down tool, and a digital voltmeter.

Ensure that you have a building plan showing common equipment, extensions, the Telco demarcation and earth ground location before you start installation. Be sure to properly plan your installation site and that you are familiar with the installation safety precautions. If you have not done that, please do so now. Refer to [Section 2 Site Preparation and MDF/IDF Construction on page 5-1](#).

3.5.2 Before Installation

Before installing the chassis check the following:

- ☐ Ensure that the PSU is **OFF** and that the power cord is disconnected from the AC outlet.
- ☐ When installing the blades, *do not touch* the soldered surfaces as this may cause damage.
- ☐ Follow safety precautions indicated in section [2.1 Precautionary Information on page 5-1](#).

3.5.3 Installing the 19" Controlling Chassis



Do not remove or install this blade with the power on.

1. Ensure the chassis is powered down.
2. Align the CC-CP00 blade with the slot guide of the Controlling Chassis.

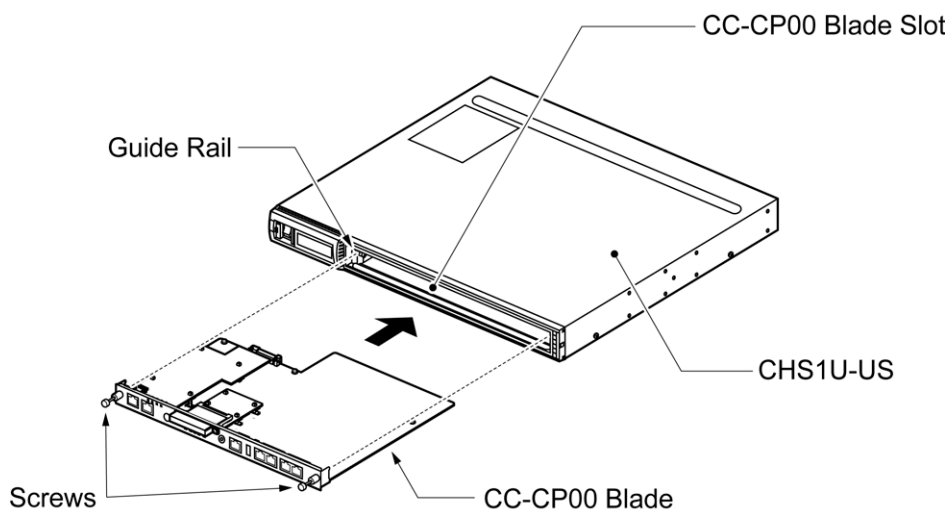


Figure 5-38 19" CHS1U-US Controlling Chassis

3. Slide the CC-CP00 blade into the chassis until resistance (back plane) is felt.
4. Gently push until the blade seats. Tighten the two retaining screws on front of the blade.

3.5.4 Installing the 19" Expansion Chassis



Do not remove or install this blade with the power on.

1. Ensure the chassis is powered down.
2. Align the blade with the universal slots of the Expansion Chassis.

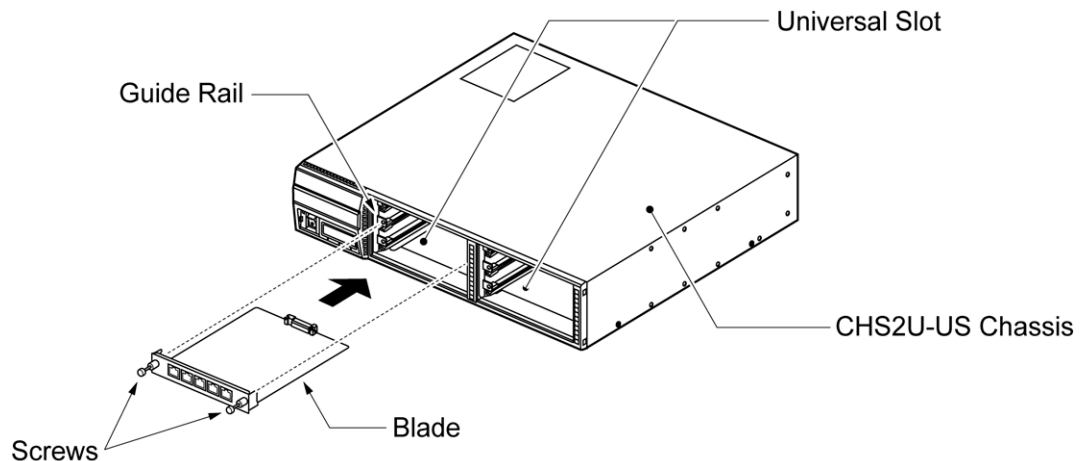


Figure 5-39 19" CHS2U-US Expansion Chassis

3. Slide the blade into the chassis until resistance (back plane) is felt.
4. Gently push until the blade seats. Tighten the two retaining screws on front of the blade.

3.5.5 Installing Expansion Blades in the 19" Chassis (Optional)

When adding additional chassis to the system to expand the capacity, a PZ-BS10 must be installed in the Controlling Chassis and a PZ-BS11 must be installed in all Expansion Chassis. This connection is required with any multiple-chassis setup.

The PZ-BS10 connects the Controlling Chassis to the Expansion Chassis by connecting to a PZ-BS11, which is installed on each Expansion Chassis. These Expansion Interface Units allow the CPU to transmit/receive data as required to the additional chassis.

The PZ-BS10 is installed in the BUS slot of the Controlling Chassis. The PZ-BS11 is installed in the expansion slot of the Expansion Chassis.

The BUS cable is used to connect the Controlling Chassis and its PZ-BS10 to the second, third, and fourth PZ-BS11 interface.

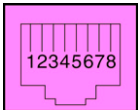
Use only the CAT 5 cables provided by NEC to make the connections between the Controlling and Expansion Chassis.

The PZ-BS10 provides:

- ☐ Communication Processor Interface for data handling through Communication Channel (18 slots maximum)
- ☐ 32 Channels for Telephony Resource (e.g., DTMF Tone Receiver, Call Progress Tone Detector, Caller ID Receiver, Caller ID Signal Sender)
- ☐ DSP Resource Management

3.5.5.1 Connector Pin-Out on the PZ-BS10/PZ-BS11

Table 5-2 PZ-BS10/PZ-BS11 Connector Pin-Out

RJ-61 Cable Connector PZ-BS10 – CN2, CN3, CN 4 PZ-BS11 – CN3		
	Pin No.	Connection
	1	HW_UP (+)
	2	HW_UP (-)
	3	HW_DWN (+)
	4	FS (+)
	5	FS (-)
	6	HW_DWN (-)
	7	CK8M (+)
	8	CK8M (-)

3.5.5.2 Install the PZ-BS10 Expansion Base Blade in the CHS1U-US Controlling Chassis

1. Ensure the chassis is powered down.



Do not remove or install this blade with the power on.

2. Locate the door positioned on the left end (expansion bay) of the Controlling Chassis (refer to [Figure 5-40 PZ-BS10 Expansion Bay in Controlling Chassis](#)).

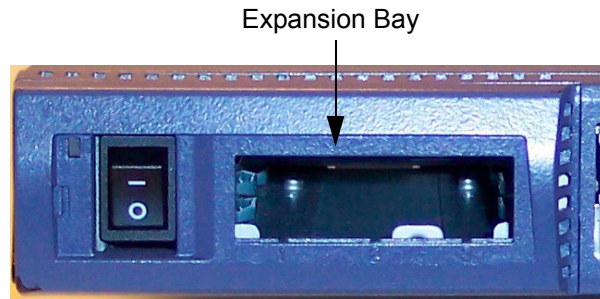


Figure 5-40 PZ-BS10 Expansion Bay in Controlling Chassis

3. From the left side of the chassis, pull cover outward to expose the expansion bay.

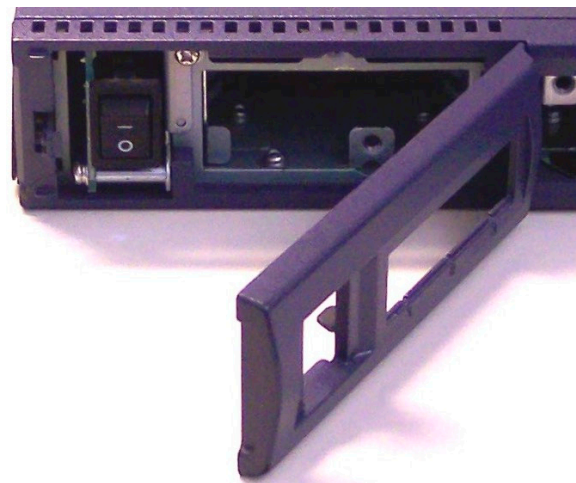



Figure 5-41 Open Base Chassis Cover

4. Pull the cover toward you to remove.

 Cover must be removed prior to installation of PZ-BS10 blade.

5. Align the PZ-BS10 blade with the guides located within the expansion bay (refer to [Figure 5-42 PZ-BS10 Blade Guides](#)).

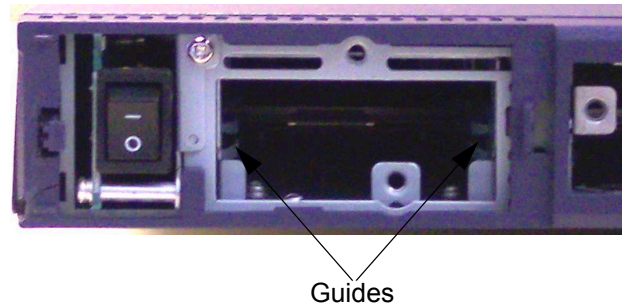


Figure 5-42 PZ-BS10 Blade Guides

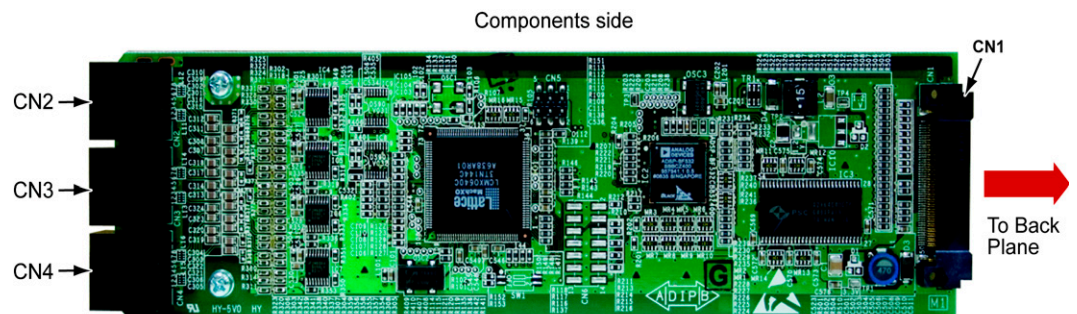


Figure 5-43 PZ-BS10 Components

6. Slide the PZ-BS10 blade into the chassis until resistance (back plane) is felt.

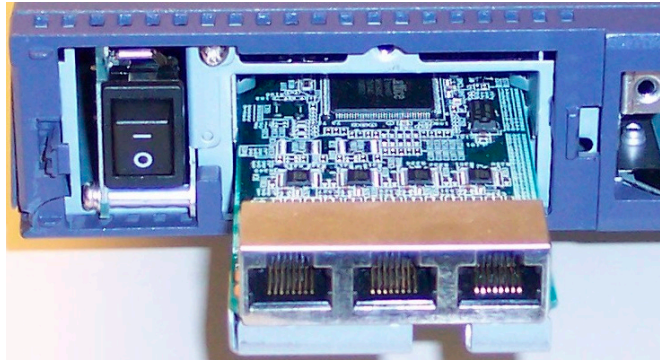


Figure 5-44 Installing PZ-BS10 Blade in Expansion Bay

7. Gently push until the blade seats and install the supplied retaining screw.
8. Align the door with the hinge and reattach the door.

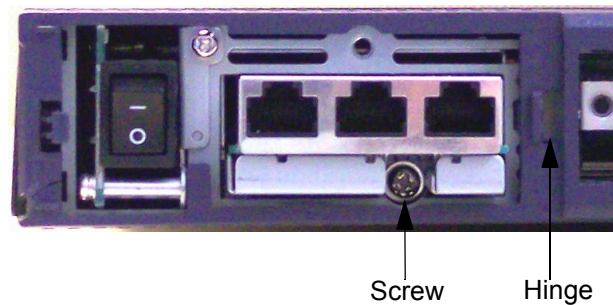


Figure 5-45 PZ-BS10 Blade Installed

9. Close the PZ-BS10 cover.

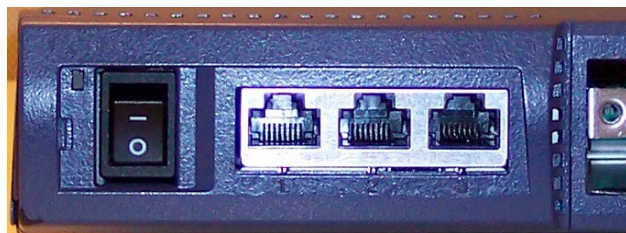



Figure 5-46 PZ-BS10 Installed (Cover Closed)

3.5.5.3 Install the PZ-BS11 Expansion Blade in the CHS2U-US Expansion Chassis

 *For the Expansion Chassis to function, the PZ-BS10 blade must be installed in Controlling Chassis.*



Do not remove or install this blade with the power on.

1. Ensure the chassis is powered down.
2. Locate the door positioned on the left end (expansion bay) of the Expansion Chassis.

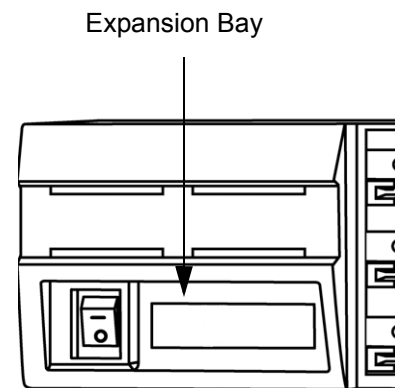


Figure 5-47 PZ-BS11 Expansion Bay in Expansion Chassis

3. From the left side of the chassis, pull cover outward to expose the expansion bay.

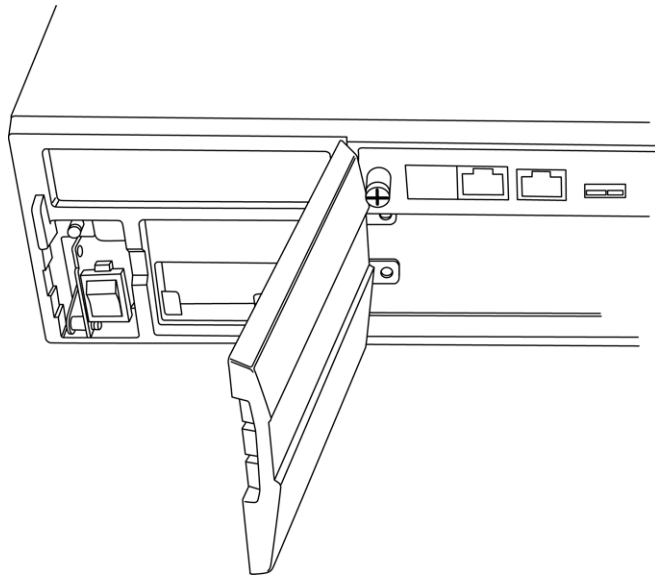



Figure 5-48 Open Expansion Chassis Cover

4. Pull the cover toward you to remove.

 *Cover must be removed to install PZ-BS11 blade.*

5. Align the PZ-BS11 blade with the guides located within the expansion bay.

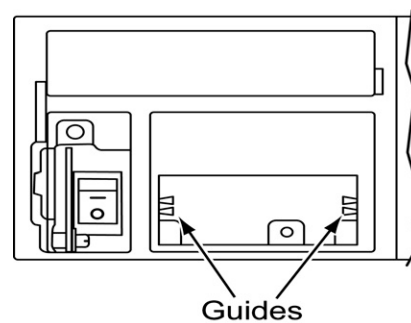


Figure 5-49 PZ-BS11 Blade Guides

6. Slide the PZ-BS11 blade into the chassis until resistance (back plane) is felt.

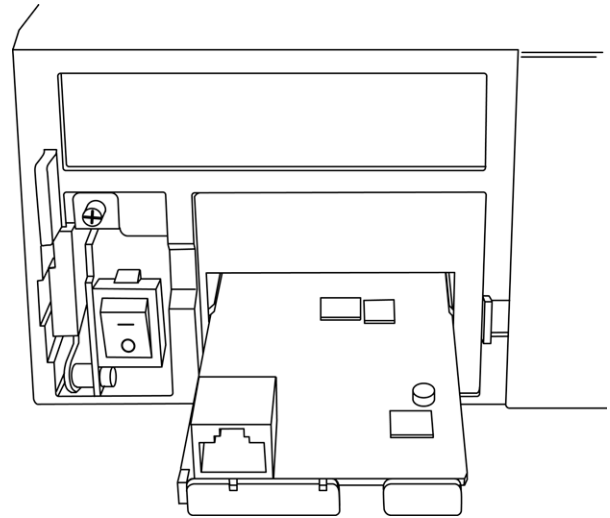


Figure 5-50 Installing PZ-BS11 Blade in Expansion Chassis

7. Gently push until the blade seats and install the supplied retaining screw.
8. Align the door tabs with hinges and reattach the cover.

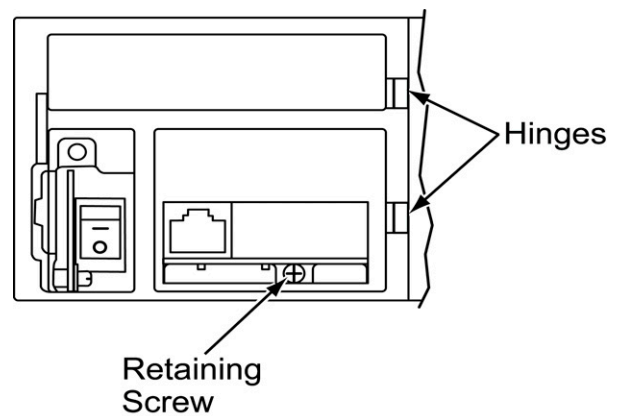


Figure 5-51 PZ-BS11 Blade Installed

9. Close the PZ-BS11 blade cover.

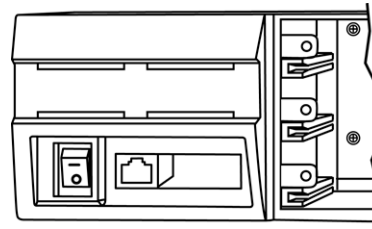


Figure 5-52 PZ-BS11 Installed (Cover Closed)

3.5.5.4 Connect the Controlling and Expansion Chassis



Installation of the PZ-BS10 blade and PZ-BS11 blade(s) must be completed prior to installation of the provided (Cat 5) expansion cabling

Expansion Chassis Interface Unit
for the Expansion Chassis
PZ-BS11



Expansion Chassis Interface Unit
for the Controlling Chassis
PZ-BS10

Figure 5-53 19" Expansion Chassis Interface Units

1. Ensure Controlling and Expansion chassis are powered down.
2. Using the NEC provided CAT5 straight-through cable(s), attach one end to each Expansion Chassis BUS connector on the PZ-BS11 blade (see [Figure 5-54 System Expansion Cabling](#)). Attach the opposite end to the BUS connector on the PZ-BS10 of the Controlling Chassis.

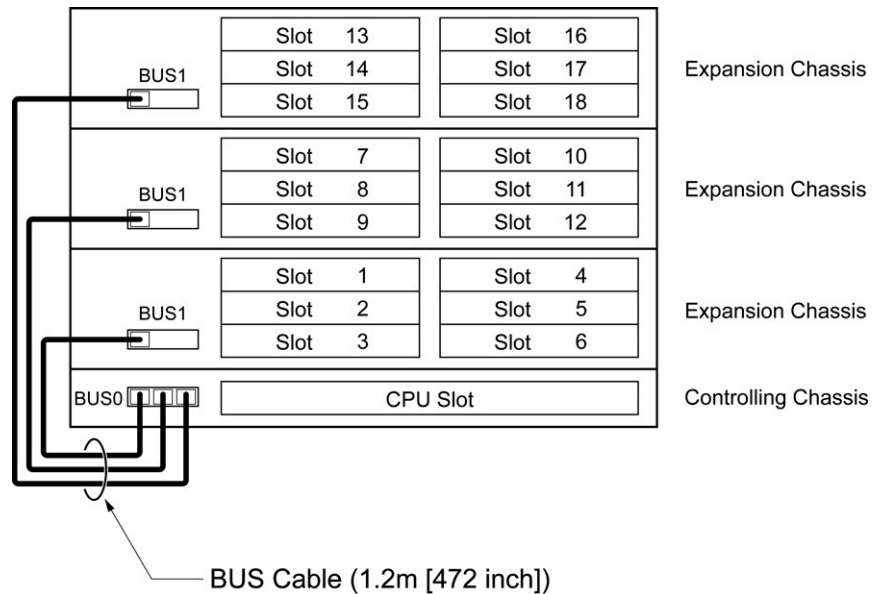
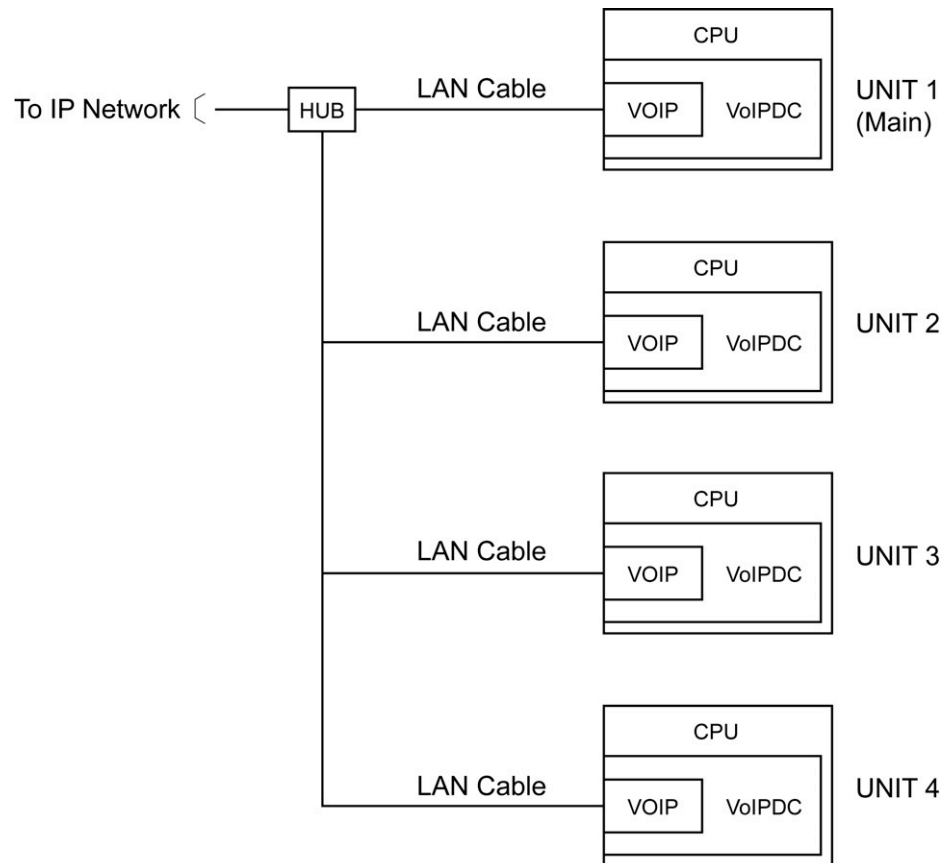


Figure 5-54 System Expansion Cabling

3. Repeat for additional Expansion Chassis.

3.5.6 Cable Connection between CPU Blades

When providing multiple-unit configuration, the IP connection between UNITS is required. The UNIT is connected to IP network via the VoIPDB blade on the CPU blade. Refer to [Figure 5-55 Cable Connection between CPU Blades](#).



LAN Cable: 10BASE-T/100BASE-TX/1000 BASE-T

Figure 5-55 Cable Connection between CPU Blades

3.5.7 Install 19" Chassis Grounding

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

Each chassis (CHS1U-US or CHS2U-US) in the system must be grounded separately using the procedure listed below.

1. Ensure each Chassis is powered down and unplugged.

2. Ground **each** chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).

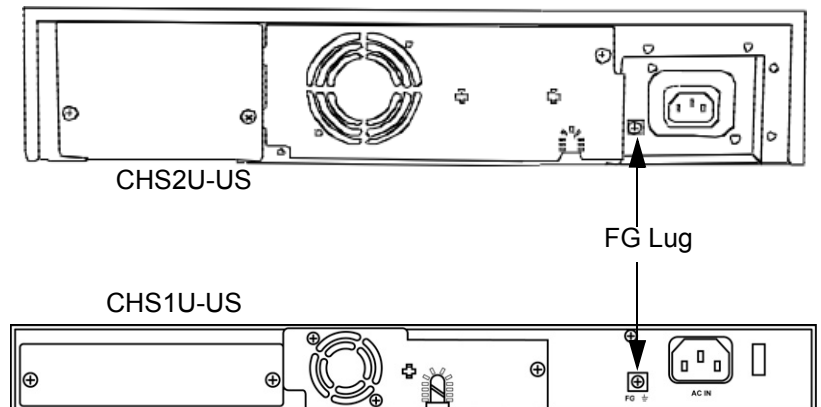


Figure 5-56 Chassis Grounding Lug

3.5.8 Install 19" Grounding on Multiple-Chassis (Optional)

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

Each chassis (CHS1U-US or CHS2U-US) in the system must be grounded separately using the procedure listed below.

1. Ensure all Controlling and Expansion Chassis are powered down and unplugged.

2. Ground **each** chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).

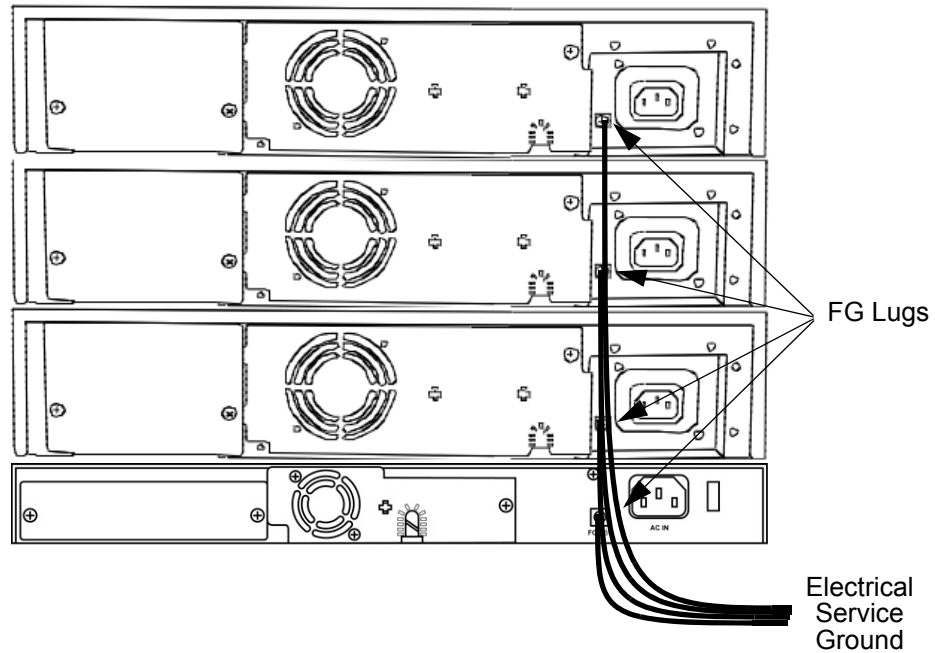


Figure 5-57 19" Chassis Grounding Lug (Multiple-Chassis)

3.5.9 Install AC Power Cords

Locate the supplied AC power cord and attach to the AC Inlet located on the back of the Controlling Chassis.

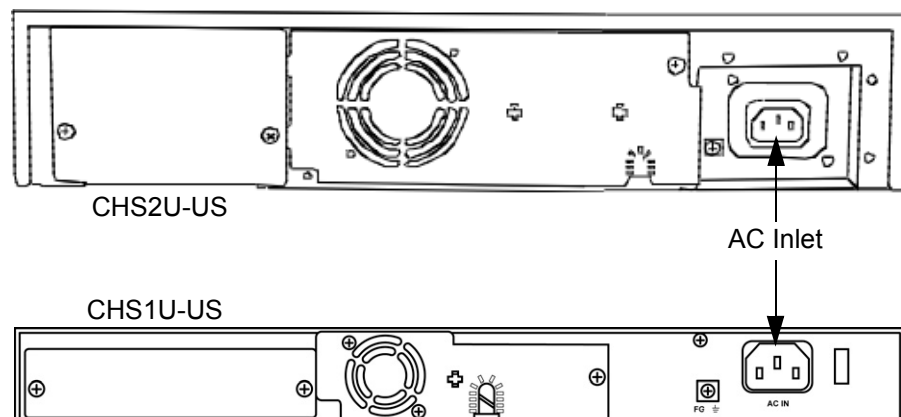


Figure 5-58 Install the AC Power Cord

3.5.10 Install AC Power Cords on Multiple-Chassis (Optional)

Locate the supplied AC power cords and attach to the AC Inlets located on the back of the Controlling and Expansion Chassis.

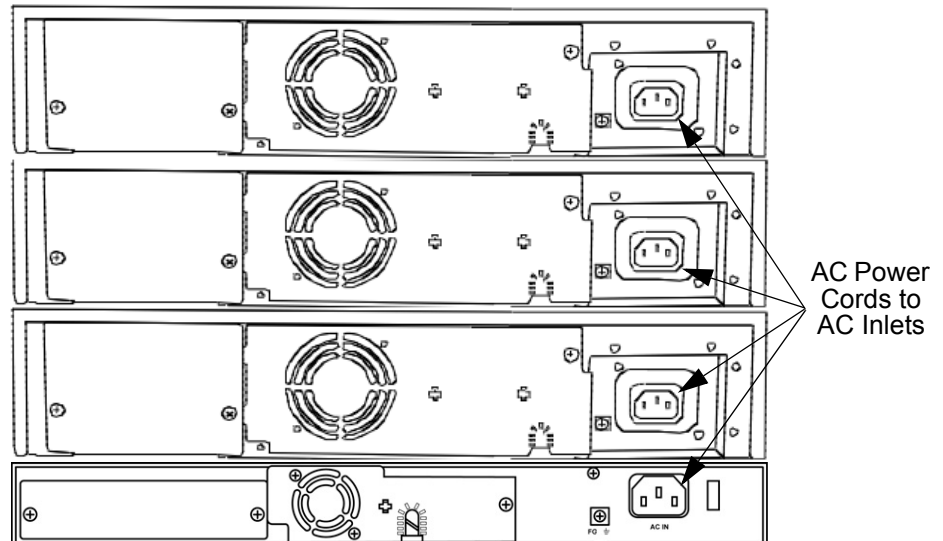


Figure 5-59 Install 19" AC Power Cords (Multiple-Chassis)

3.5.11 Install Additional Blades

Refer to Chapter 5, [2.1 Installation and Safety Precautions](#) on page [6-3](#).

3.5.12 Apply Power to the 19" Chassis

Refer to Chapter 5, [2.6 Powering Up the SV8100](#) on page [6-8](#).

SECTION 4 BATTERY CONNECTION

There are three types of battery connection to provide battery life in the event of a power failure, internal battery, external battery without CHS LARGE BATT BOX and external battery with CHS LARGE BATT BOX.

4.1 Install Internal Batteries

4.1.1 Install Internal Batteries CHS1U-US Chassis

An internal battery source using two batteries can be installed using the CHS1U BATT MTG KIT (mounting kit) and CHS1U BATT CA INT (internal cabling).

1. Ensure the chassis is powered down.
2. Disconnect AC power and grounding cable from rear of chassis.
3. Remove screws from battery access panel on rear of chassis (see [Figure 5-60 Removing Battery Access Panel](#)).

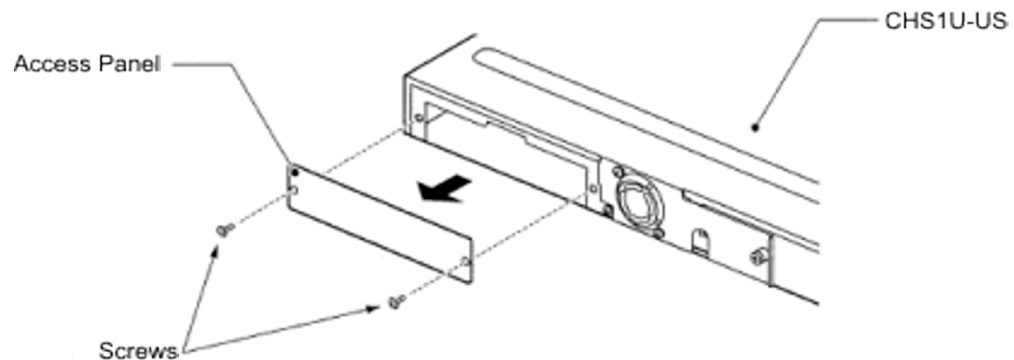


Figure 5-60 Removing Battery Access Panel

4. Remove battery access panel and set aside (refer to [Figure 5-60 Removing Battery Access Panel](#)).

5. Remove access panel containing the fan (refer to [Figure 5-61 Removing Access Panel](#)).

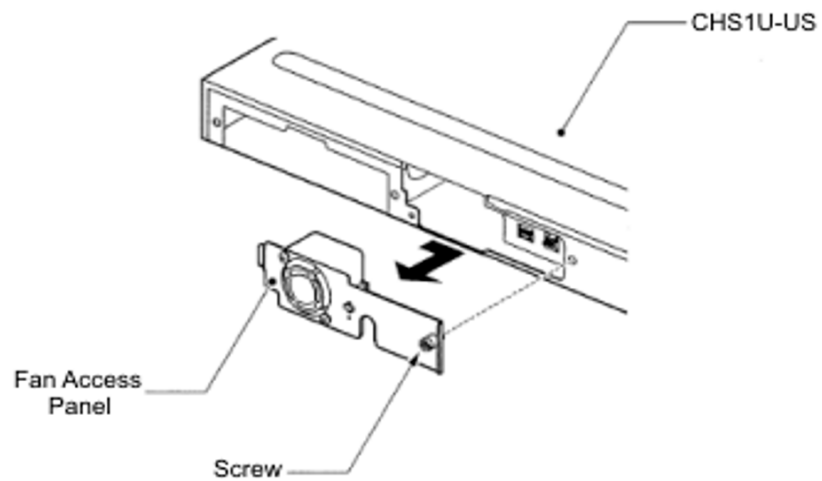


Figure 5-61 Removing Access Panel

6. Using tie wraps, secure the CHS1U BATT CA INT to the Cable support bracket (refer to [Figure 5-62 Securing Cable to Support Bracket](#)).

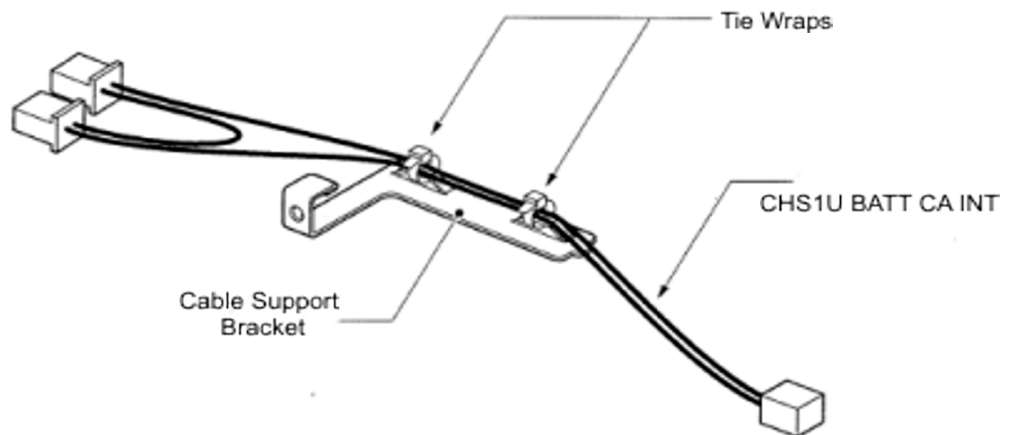


Figure 5-62 Securing Cable to Support Bracket

7. Using supplied screw, secure Cable Support Bracket to CHS1U-US (see [Figure 5-63 Securing Cable Support Bracket to Chassis](#)).

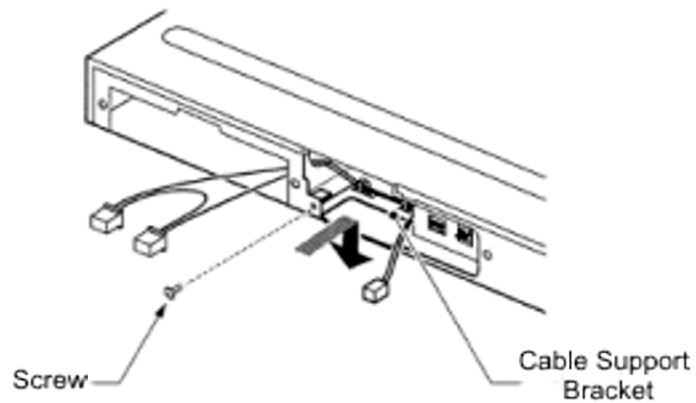


Figure 5-63 Securing Cable Support Bracket to Chassis

8. Using supplied screws, secure two 12V-0.8AH (locally supplied) batteries to battery tray (see [Figure 5-64 Securing Batteries to Battery Tray](#)).

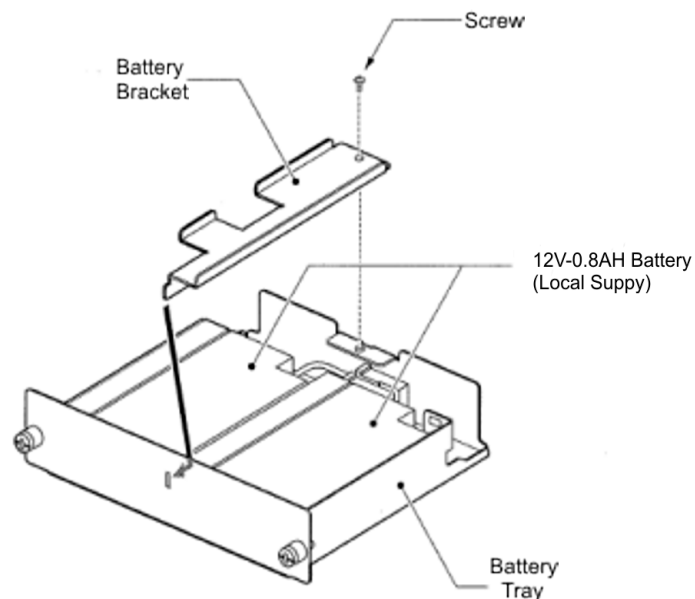


Figure 5-64 Securing Batteries to Battery Tray

9. Secure battery bracket to tray (refer to [Figure 5-64 Securing Batteries to Battery Tray](#) on page 5-52).

10. Connect CHS1U BATT CA INT to internal batteries (12V-0.8AH battery). Refer to [Figure 5-65 Battery Connections to CHS1U BATT CA INT](#).

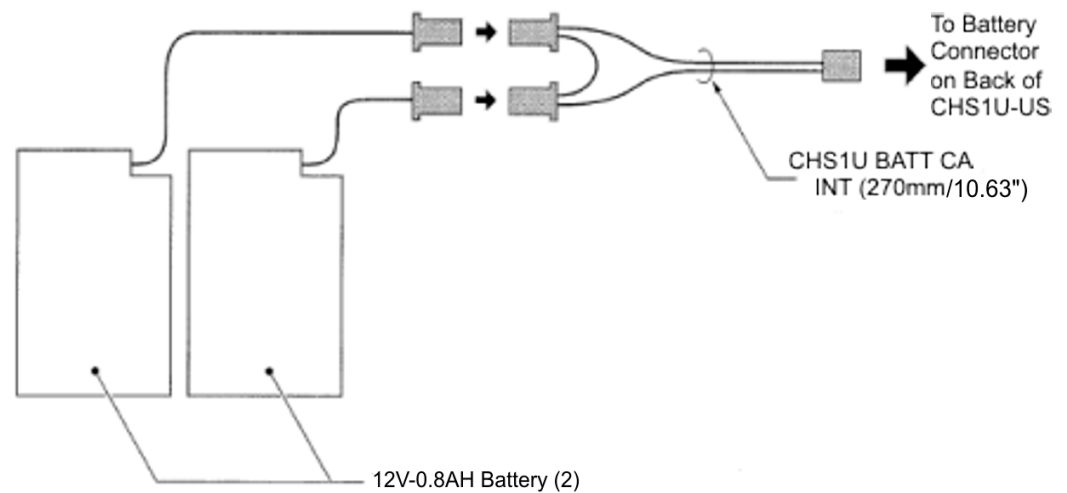


Figure 5-65 Battery Connections to CHS1U BATT CA INT

11. Connect CHS1U BATT CA INT to battery connection on PSU (Power Supply Unit) on rear of CHS1U-US (refer to [Figure 5-66 Connect CHS1U BATT CA INT Cable to PSU Battery Connection](#)).

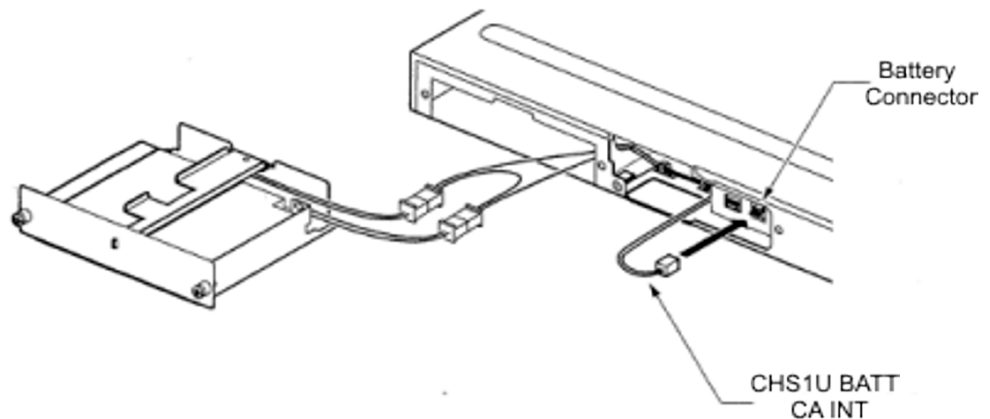


Figure 5-66 Connect CHS1U BATT CA INT Cable to PSU Battery Connection

12. Slide battery tray into space on rear of chassis (see [Figure 5-67 Install Battery Tray into CHS1U-US Chassis](#)).

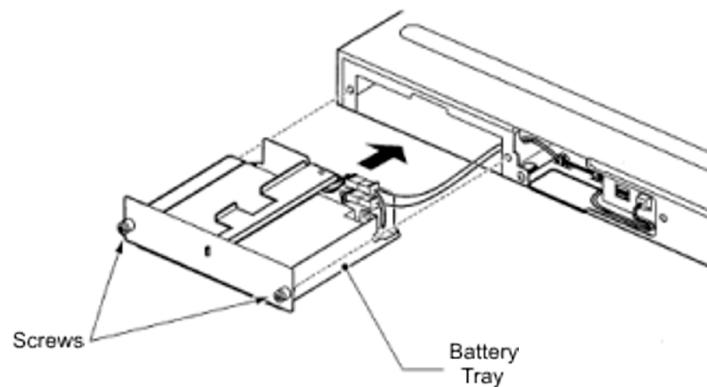


Figure 5-67 Install Battery Tray into CHS1U-US Chassis

13. Secure battery tray using two retaining screws (refer to [Figure 5-67 Install Battery Tray into CHS1U-US Chassis](#)).
14. Insert the access panel tab into the slot on the rear of the CHS1U-US chassis (see [Figure 5-68 Re-Install Fan Access Panel](#)).

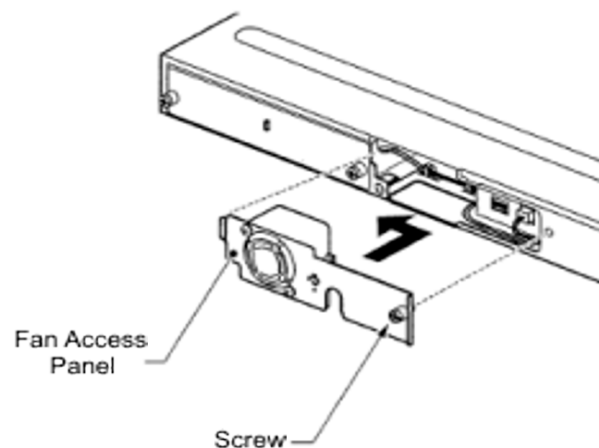


Figure 5-68 Re-Install Fan Access Panel

15. Secure panel with the retaining screw (refer to [Figure 5-68 Re-Install Fan Access Panel](#)).

4.1.2 Install Internal Batteries CHS2U-US Chassis

An internal battery source using two batteries can be installed using the CHS2U BATT MTG KIT (mounting kit) and CHS2U BATT CA INT (internal cabling).

1. Remove screws from battery access panel on rear of chassis.

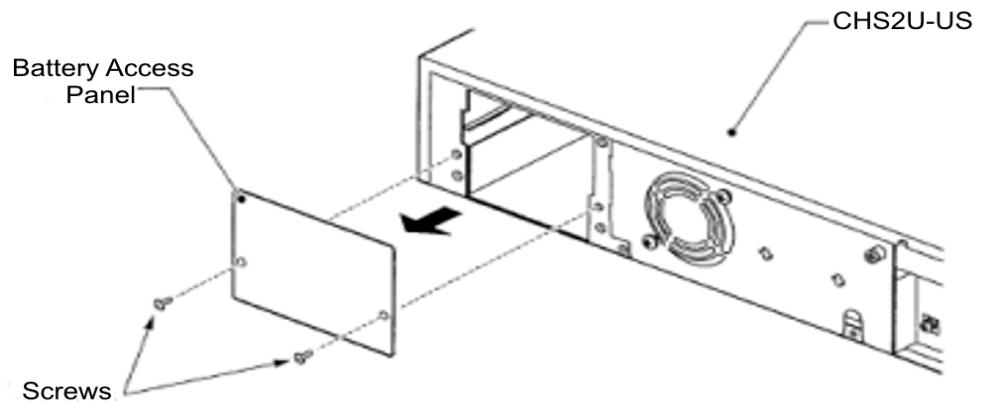


Figure 5-69 Removing Battery Access Panel

2. Remove access panel containing the fan. Refer to [Figure 5-70 Removing Access Panel](#).

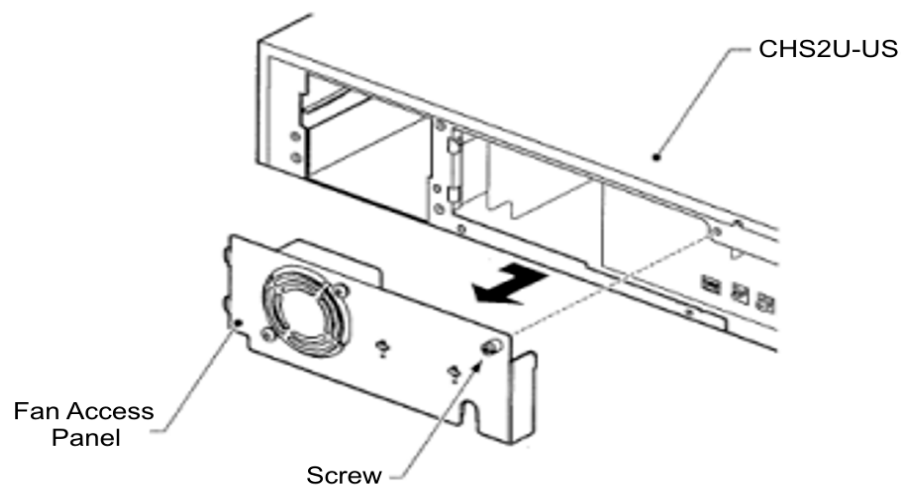


Figure 5-70 Removing Access Panel

3. Using tie wraps, secure CHS2U BATT CA INT in cable guide bracket (refer to [Figure 5-71 Installing Cable Guide](#)).

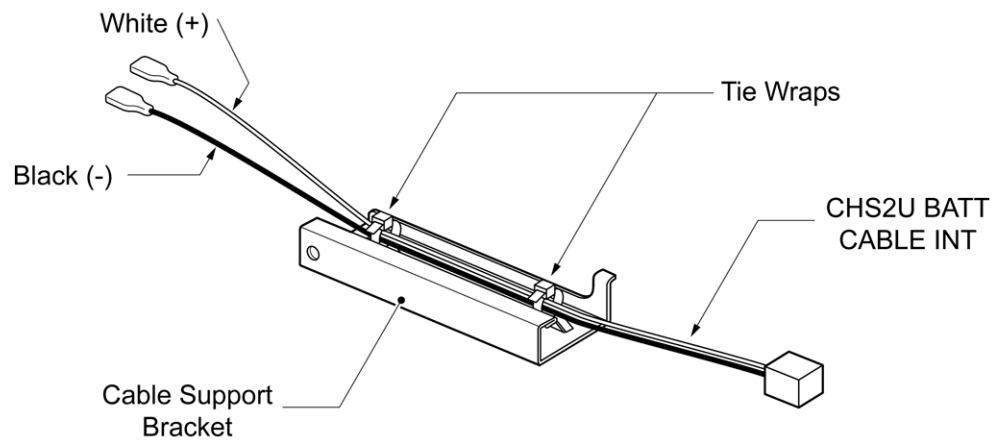


Figure 5-71 Installing Cable Guide

4. With supplied screw, install cable guide in chassis (refer to [Figure 5-72 Installing Cable Guide](#)).

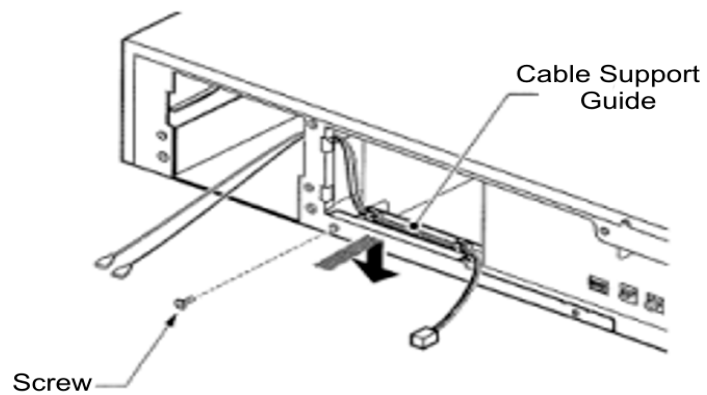



Figure 5-72 Installing Cable Guide

5. Install two batteries (12V-2.3AH) into the CHS2U BATT MTG KIT (refer to [Figure 5-73 Installing Two Batteries](#)).

 *The first battery must be installed on the left side, then slid to the right due to an installation tab on the mounting kit.*

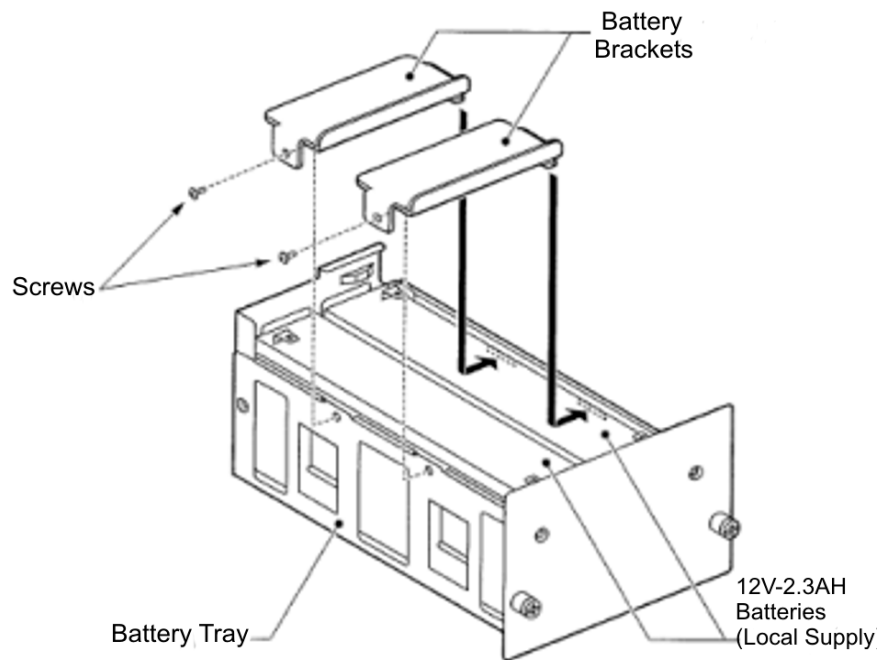


Figure 5-73 Installing Two Batteries

6. Using the supplied screws, secure the brackets to the CHS2U BATT MTG KIT (refer to [Figure 5-73 Installing Two Batteries on page 5-57](#)).

7. Connect the provided battery cables to the batteries (refer to [Figure 5-74 Installing Battery Cable](#)).

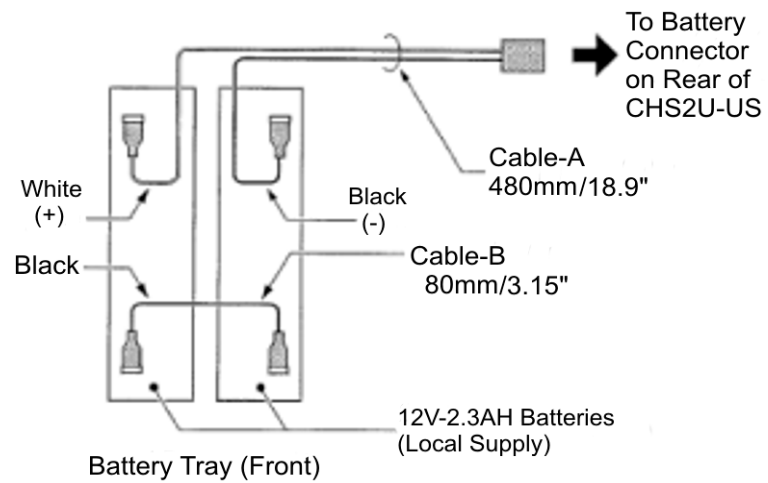


Figure 5-74 Installing Battery Cable

8. Connect CHS2U BATT CA INT to battery connector (refer to [Figure 5-75 Connecting CHS2U BATT CA INT](#)).

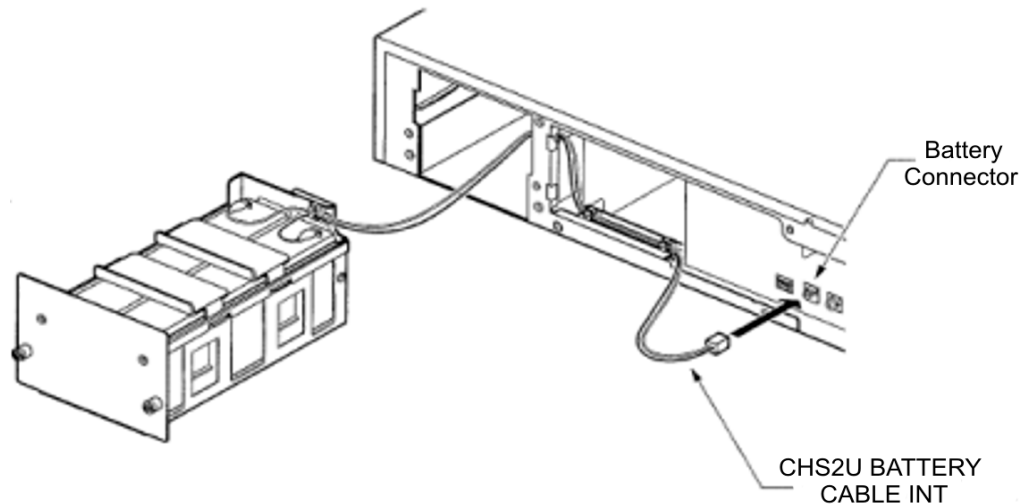


Figure 5-75 Connecting CHS2U BATT CA INT

9. Install CHS2U BATT MTG KIT into CHS2U-US chassis (see [Figure 5-76 Installing Battery Tray into CHS2U-US Chassis](#)).

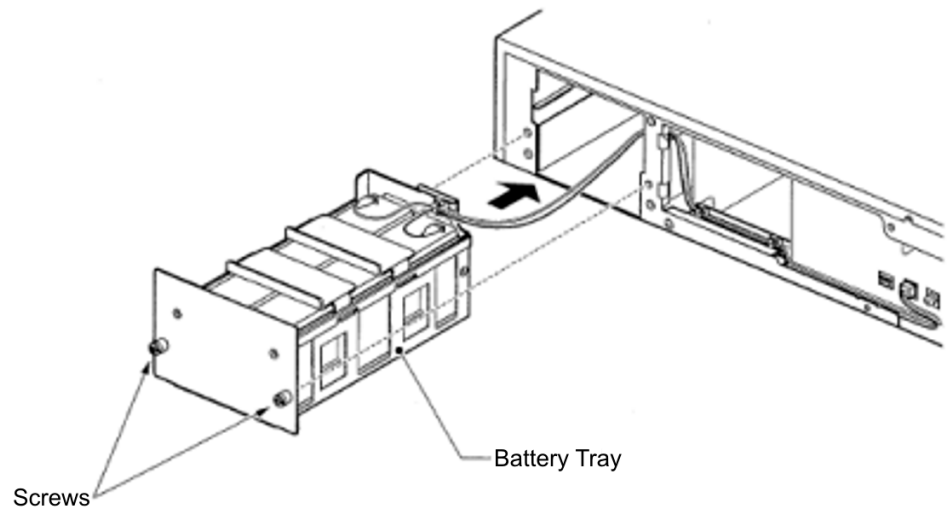


Figure 5-76 Installing Battery Tray into CHS2U-US Chassis

10. Tighten the retaining screws (refer to [Figure 5-76 Installing Battery Tray into CHS2U-US Chassis](#)).
11. Reinstall access panel containing the fan (refer to [Figure 5-77 Installing the Access Panel](#)).

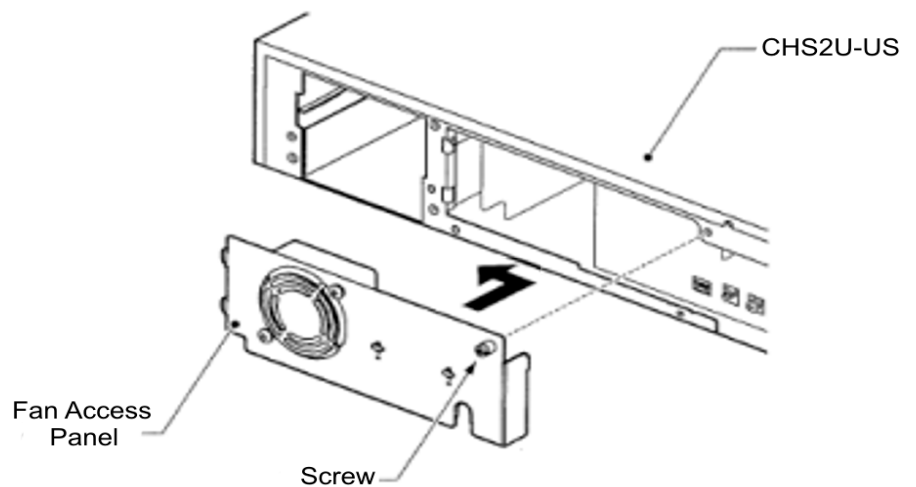


Figure 5-77 Installing the Access Panel

12. Connect grounding and AC power cable.

4.2 Install External Batteries (without CHS LARGE BATT BOX)

An external battery source can be used to provide longer battery life in the event of a power failure.

1. Remove fan access panel from rear of CHS1U-US chassis (refer to [Figure 5-78 External Battery Box](#)).

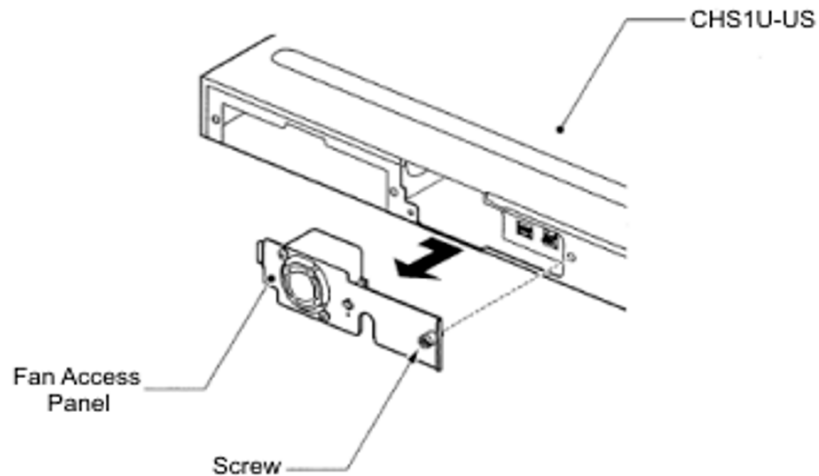


Figure 5-78 External Battery Box

2. Remove fan access panel from rear of CHS2U-US chassis (refer to [Figure 5-79 External Battery Box](#)).

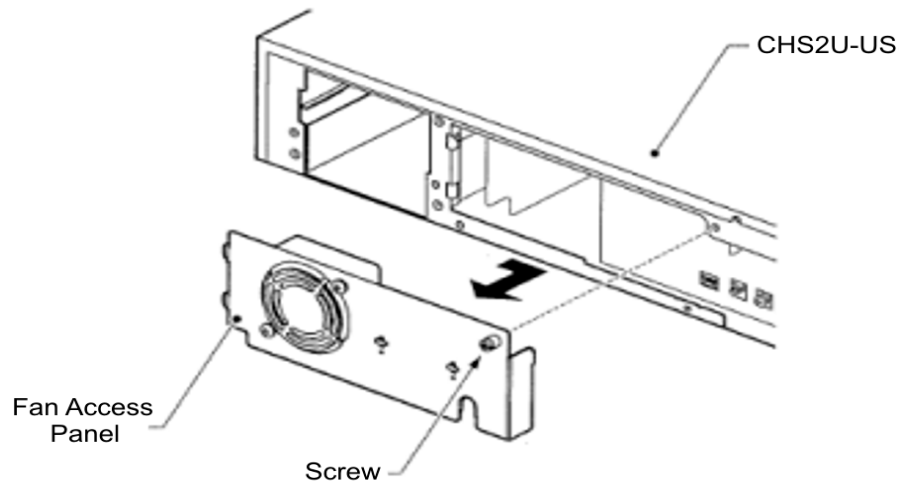


Figure 5-79 External Battery Box

3. Connect locally supplied external batteries and CHS2U BATT CA EXT-A (see [Figure 5-80 External Battery Box \(1U+2Ux1 Configuration\) – Two Batteries](#)) for two batteries and (see [Figure 5-81 External Battery Box \(1U+2Ux2/1U=2Ux3 Configuration\) – Four Batteries](#)) for four batteries.

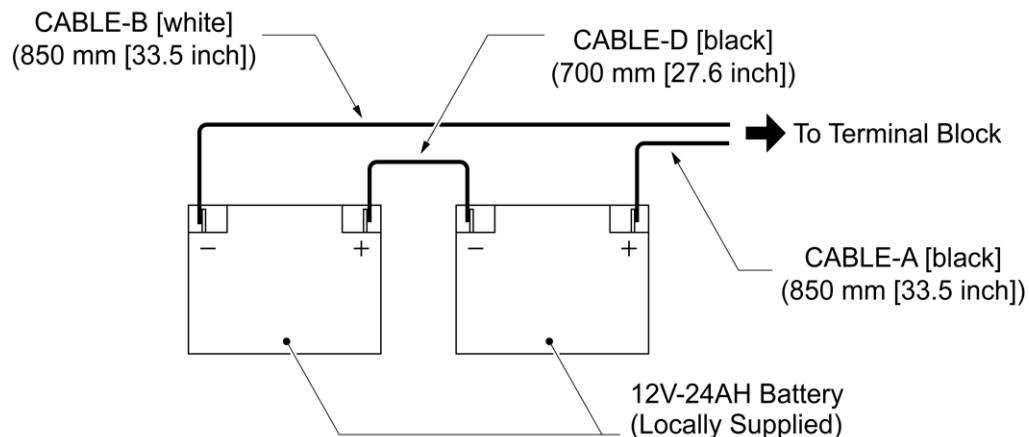


Figure 5-80 External Battery Box (1U+2Ux1 Configuration) – Two Batteries

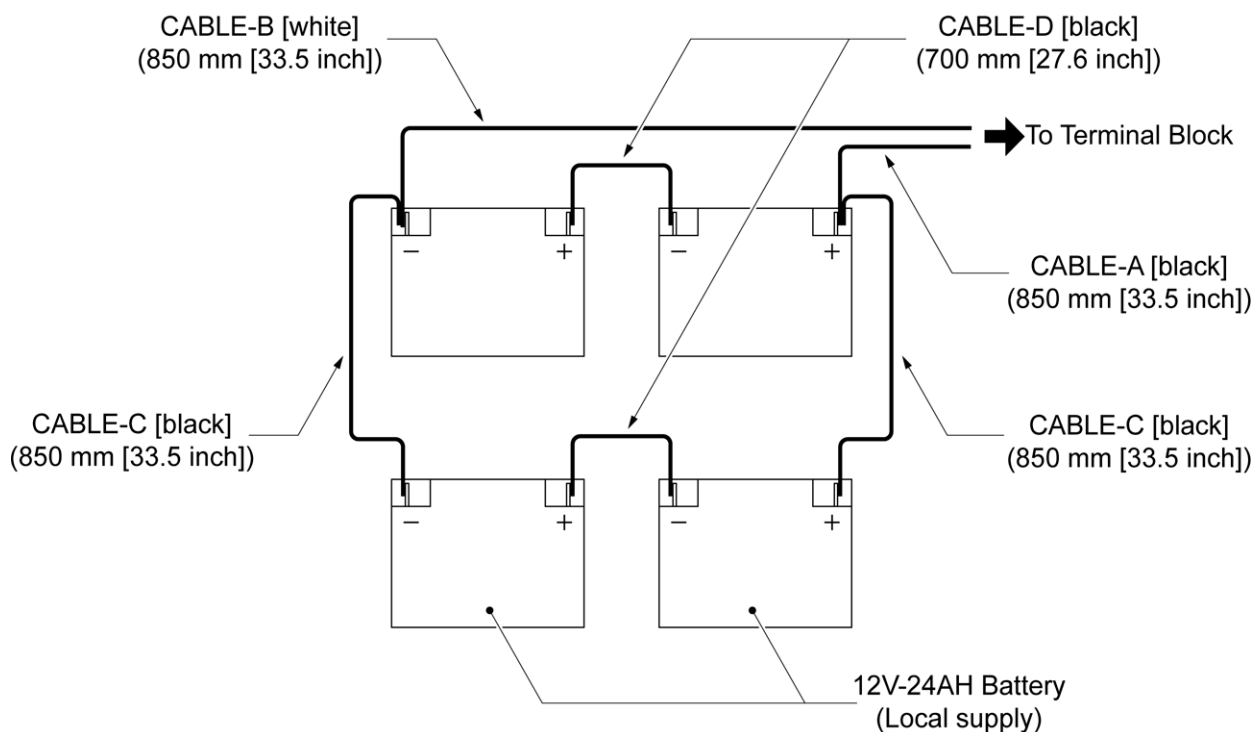


Figure 5-81 External Battery Box (1U+2Ux2/1U=2Ux3 Configuration) – Four Batteries

4. Connect other end of cable to battery connector on rear of CHS1U-US and CHS2U-US chassis (refer to [Figure 5-82 Connecting External Battery Box to CHS1U-US and CHS2U-US Chassis](#)).

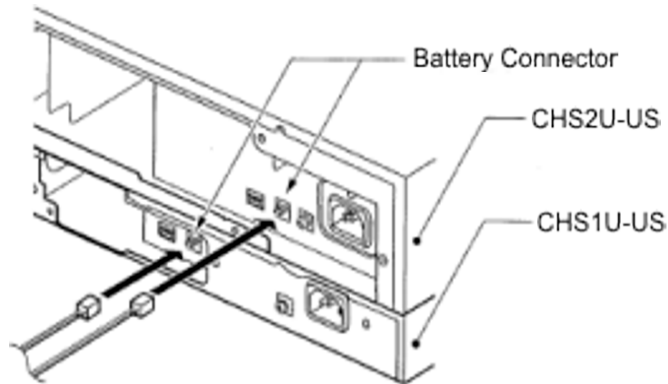


Figure 5-82 Connecting External Battery Box to CHS1U-US and CHS2U-US Chassis

5. Insert the access panel tab into the slot on the rear of the CHS1U-US chassis (see [Figure 5-83 Re-Install Fan Access Panel \(CHS1U-US Chassis\)](#)).

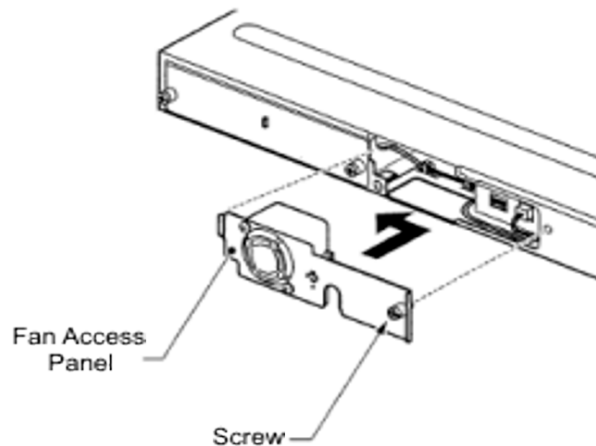


Figure 5-83 Re-Install Fan Access Panel (CHS1U-US Chassis)

6. Secure panel with the retaining screw (refer to [Figure 5-83 Re-Install Fan Access Panel \(CHS1U-US Chassis\)](#) on page 5-62).

7. Insert the access panel tab into the slot on the rear of the CHS2U-US chassis (see [Figure 5-84 Re-Install Fan Access Panel \(CHS2U-US Chassis\)](#)).

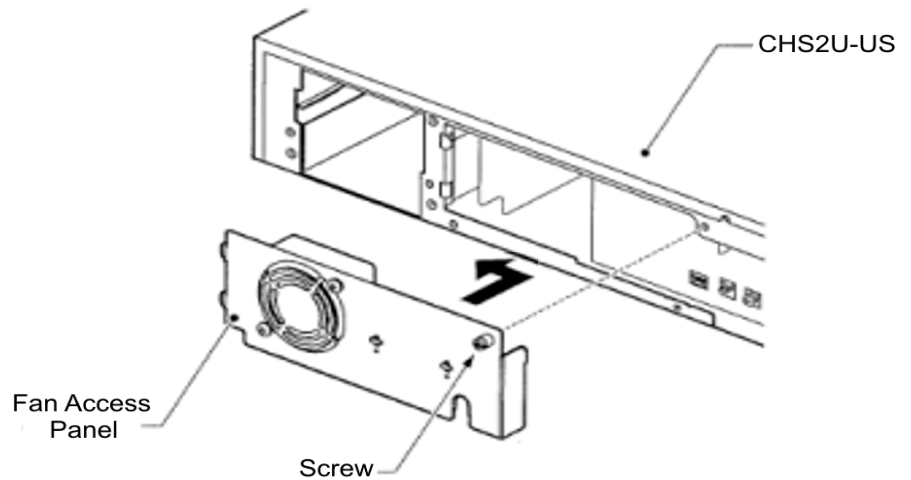


Figure 5-84 Re-Install Fan Access Panel (CHS2U-US Chassis)

8. Secure panel with the retaining screw (refer to [Figure 5-84 Re-Install Fan Access Panel \(CHS2U-US Chassis\)](#)).

4.3 Install External Batteries (with CHS LARGE BATT BOX)

An external battery source with CHS LARGE BATT BOX can be used to long battery life in the event of a power failure.

The CHS LARGE BATT BOX can provide 45 minutes backup time or 3 hours backup time.

- 4.3.1
- When providing 45 minutes backup time:
One CHS LARGE BATT BOX can support per one UNIT (1U+2Ux3).

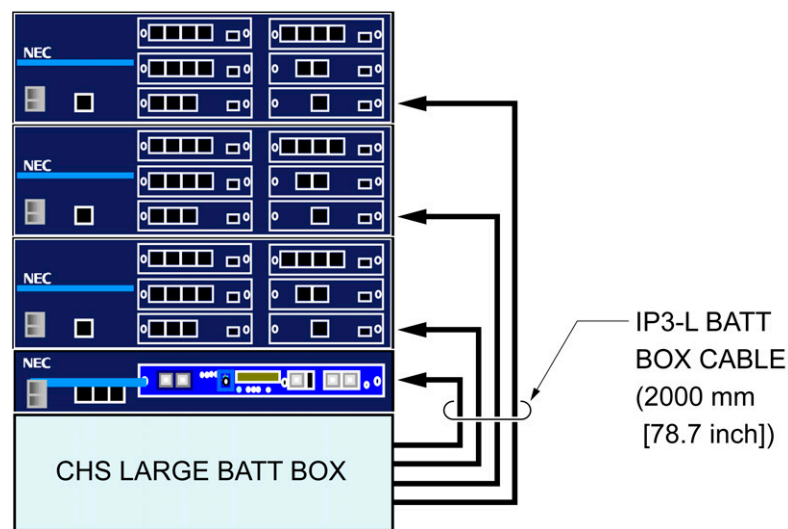


Figure 5-85 CHS LARGE BATT BOX (45 Minutes Battery Backup)

Table 5-3 Battery Capacity of External Battery

Configuration	Battery Capacity (Number of Batteries)	Numbers of CHS LARGE BATT BOX
1U	21AH (3 sets of [2x12V-7AH])	1
1U+2U		
1U+2Ux2		
1U+2Ux3		

 Battery: Locally supplied

4.3.2 When providing 3 hours backup time:

One CHS LARGE BATT BOX can support one chassis (1U or 2U).

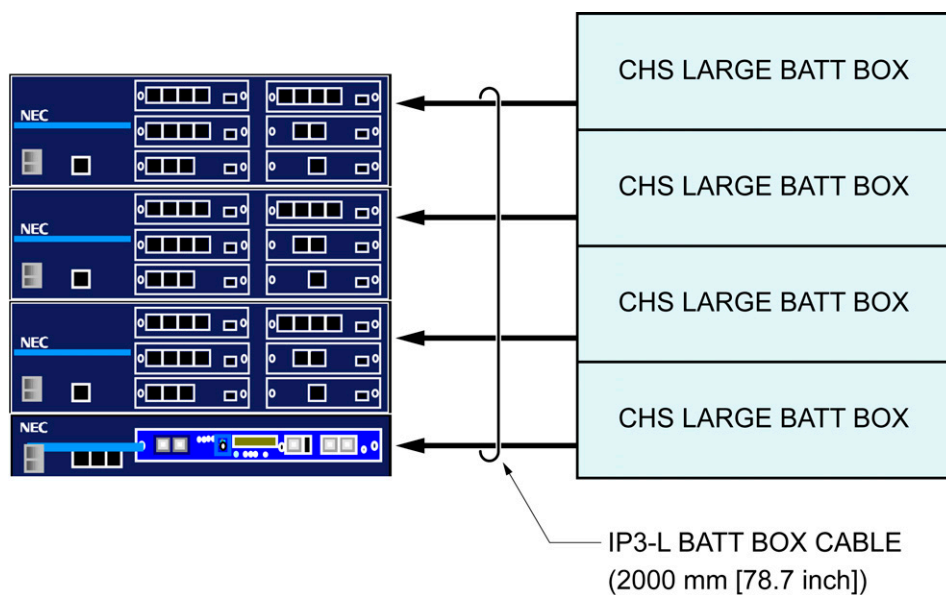


Figure 5-86 CHS LARGE BATT BOX (3 Hours Battery Backup)

Table 5-4 Battery Capacity of External Battery

Configuration	Battery Capacity (Number of Batteries)	Numbers of CHS LARGE BATT BOX
1U	21AH (3 sets of [2x12V-7AH])	1
1U+2U	42AH (6 sets of [2x12V-7AH])	2
1U+2Ux2	63AH (9 sets of [2x12V-7AH])	3
1U+2Ux3	84AH (12 sets of [2x12V-7AH])	4

 Battery: Locally supplied

1. Position the CHS BASE UNIT on desired surface and mark four holes to be drilled (refer to [Figure 5-87 CHS BASE UNIT](#)).

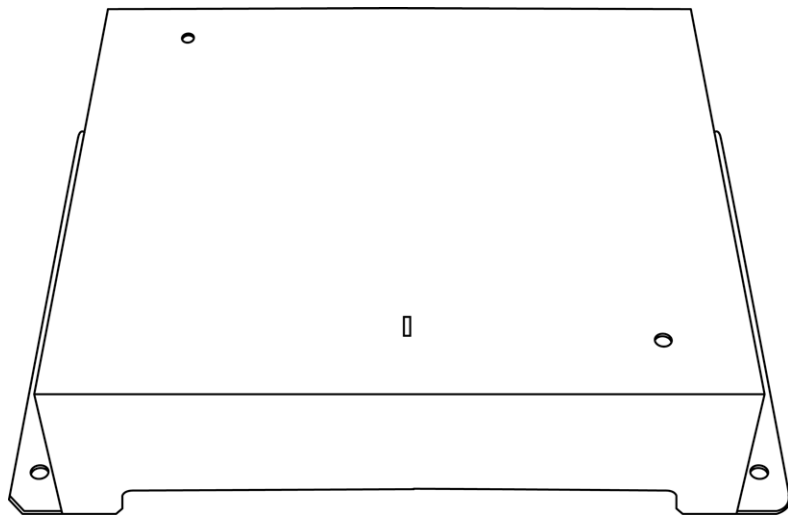


Figure 5-87 CHS BASE UNIT

2. Drill the four holes required for floor installation.
3. Using four screws, secure the CHS BASE UNIT to the floor (refer to [Figure 5-88 Secure CHS BASE UNIT with Screws](#) for screw location).

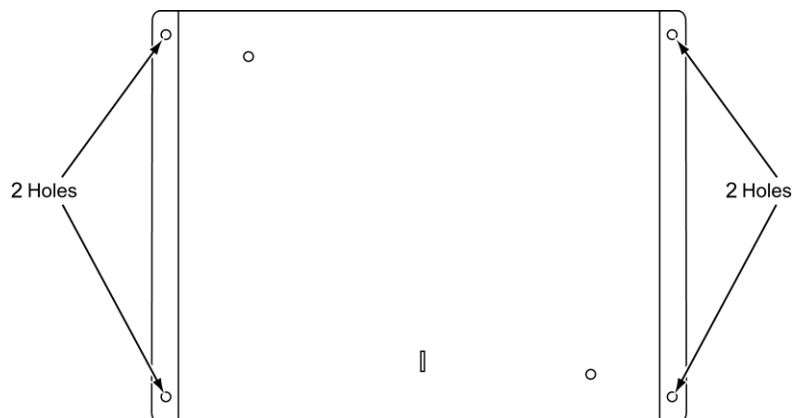


Figure 5-88 Secure CHS BASE UNIT with Screws

4. Position the CHS LARGE BATT BOX on top of the CHS BASE UNIT.

5. Secure the CHS LARGE BATT BOX to the CHS BASE UNIT using eight screws supplied with the CHS2U JOINT BRACKET KIT (refer to [Figure 5-89 Install Joint Brackets with Screws](#) for bracket location).

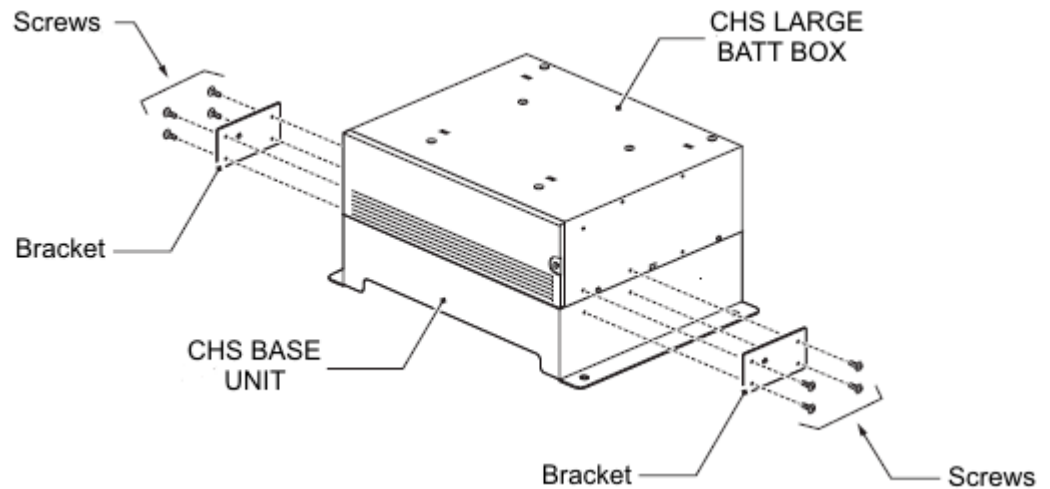


Figure 5-89 Install Joint Brackets with Screws

6. Remove the front cover of CHS LARGE BATT BOX (refer to [Figure 5-90 Removing the Front Cover of CHS LARGE BATT BOX](#)).

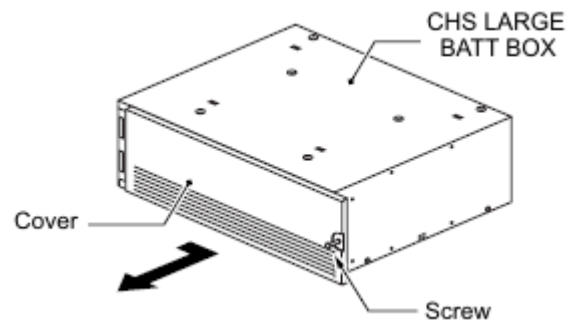


Figure 5-90 Removing the Front Cover of CHS LARGE BATT BOX

7. Remove the battery tray bracket, then pull out the battery tray from CHS LARGE BATT BOX (refer to [Figure 5-91 Removing Battery Tray](#)).

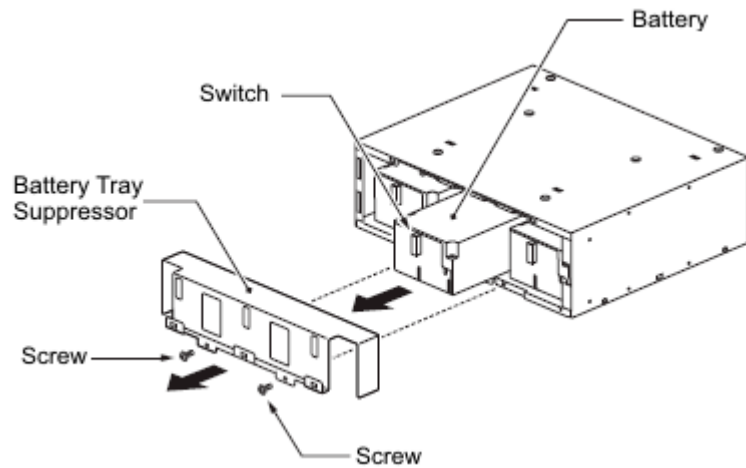


Figure 5-91 Removing Battery Tray

8. Remove the top cover and battery bracket from the battery tray (refer to [Figure 5-92 Removing Top Cover and Battery Bracket](#)).

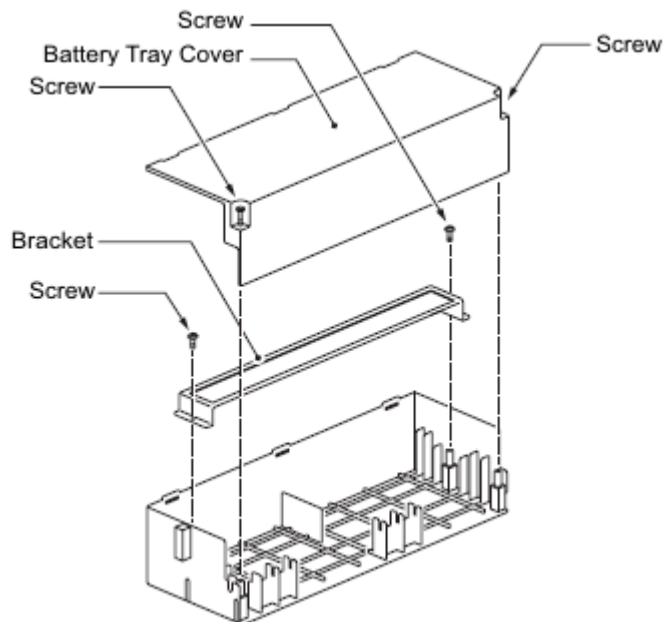


Figure 5-92 Removing Top Cover and Battery Bracket

9. Mount the batteries in the battery tray, then fix the batteries by the battery bracket (refer to [Figure 5-93 Mounting Batteries](#)).

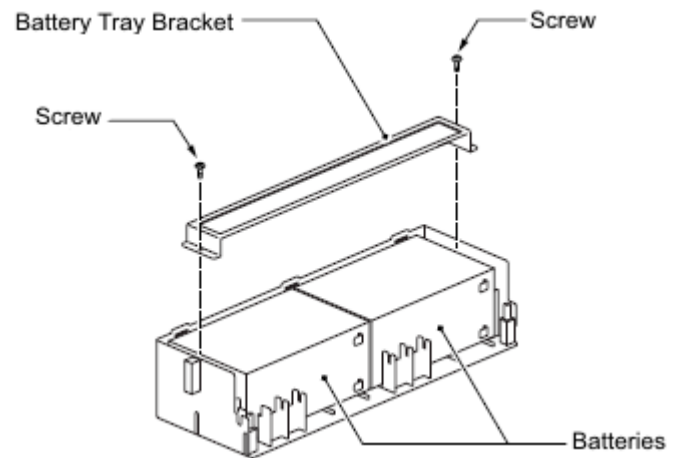


Figure 5-93 Mounting Batteries

10. Connect the provided battery cables to the batteries (7AH-12V battery). (Refer to [Figure 5-94 Connecting Battery Cables](#)).

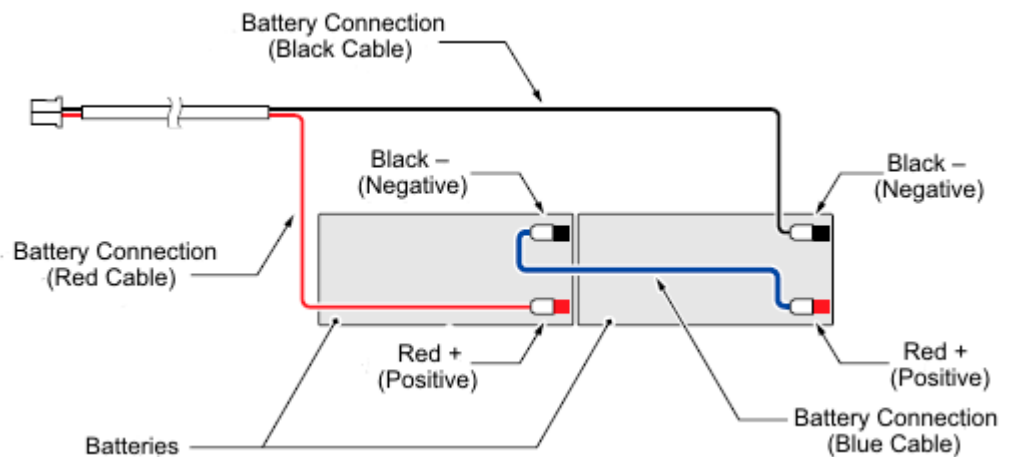


Figure 5-94 Connecting Battery Cables

11. Install the top cover of battery tray (refer to [Figure 5-95 Install Top Cover of Battery Tray](#)).

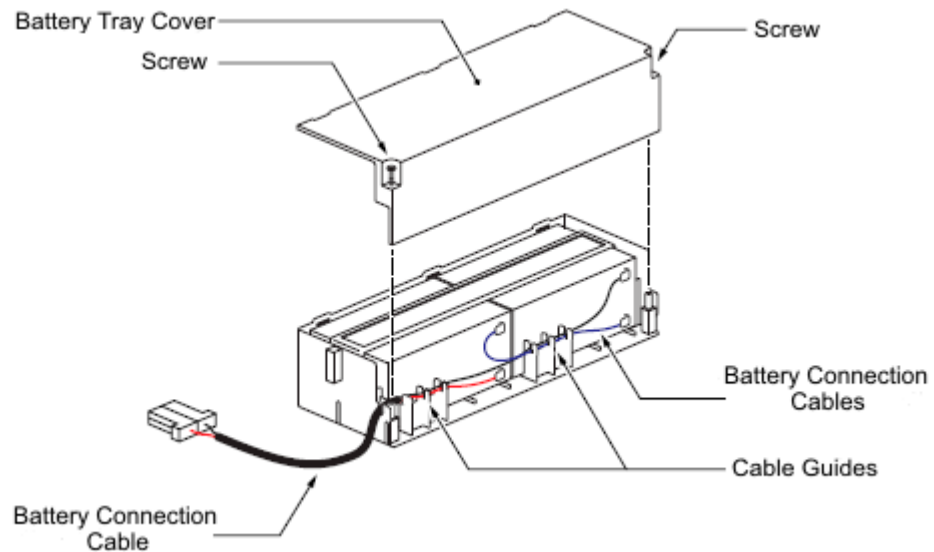


Figure 5-95 Install Top Cover of Battery Tray

12. Insert the battery tray into the CHS LARGE BATT BOX.
13. Do the STEP 7 to STEP 12 for the remained battery tray.
14. Using two screws, install the battery bracket.
15. Connect the battery cables to the fuse unit (refer to [Figure 5-96 Connecting Battery Cable to Fuse Unit](#)).

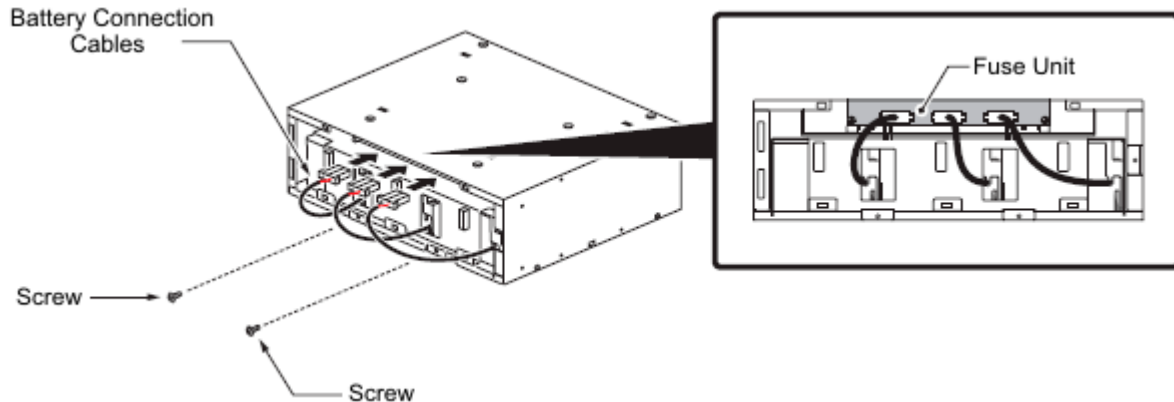


Figure 5-96 Connecting Battery Cable to Fuse Unit

16. Install the front cover (refer to [Figure 5-97 Install CHS LARGE BATT BOX Front Cover](#)).

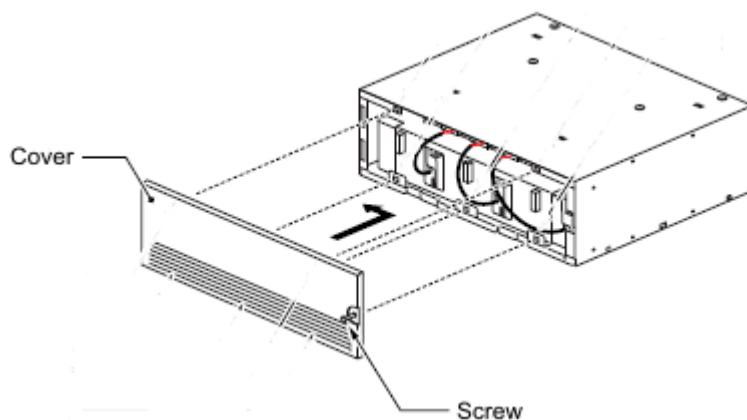


Figure 5-97 Install CHS LARGE BATT BOX Front Cover

17. Connect the IP3-L BATT BOX CABLE between the terminal unit in the CHS LARGE BATT BOX and battery connector of the chassis through holes (refer to [Figure 5-98 Cable Connection between Chassis and CHS LARGE BATT BOX \(45 Minutes Battery Backup\)](#)).

When providing 45 minutes backup time:

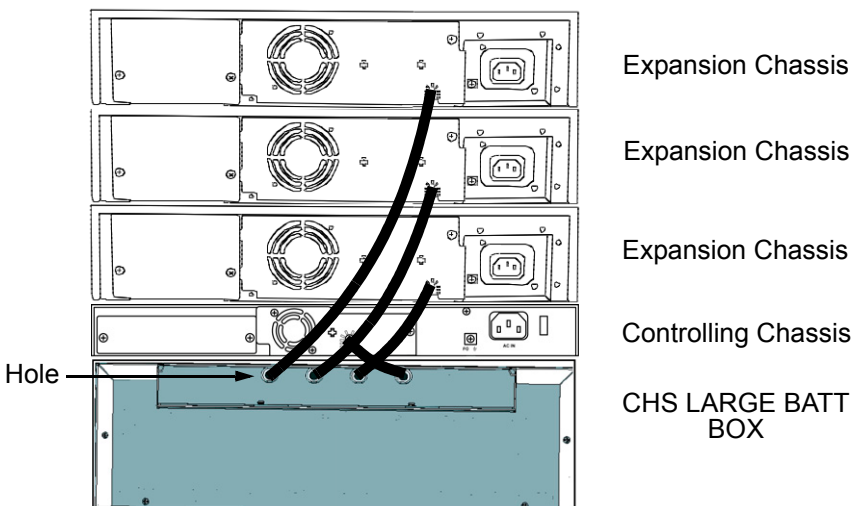


Figure 5-98 Cable Connection between Chassis and CHS LARGE BATT BOX (45 Minutes Battery Backup)

When providing 3 hours backup time:

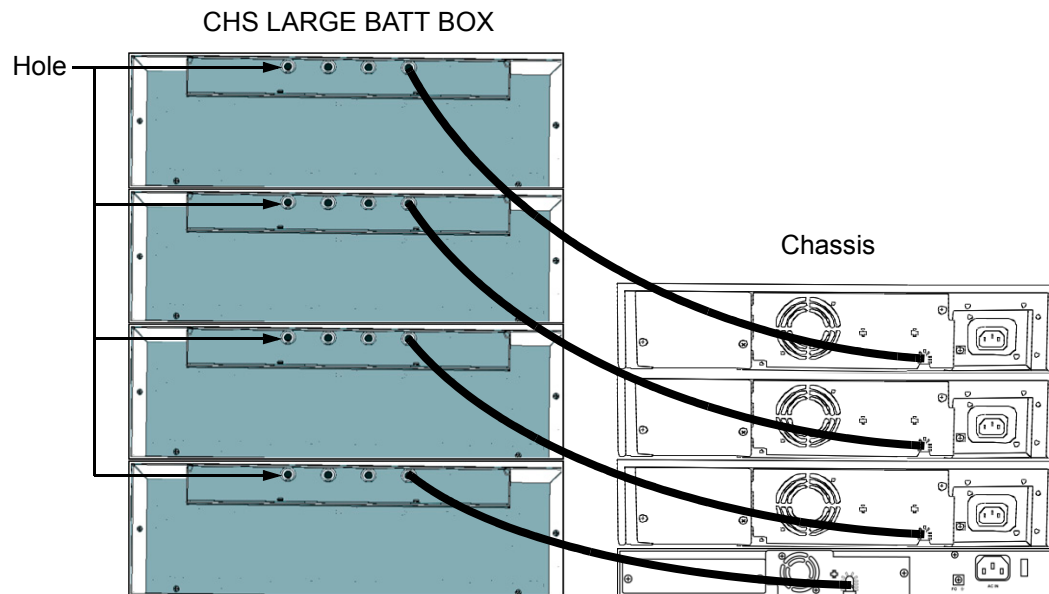


Figure 5-99 Cable Connection between Chassis and CHS LARGE BATT BOX (3 Hours Battery Backup)

SECTION 5 REMOVE AND INSTALL COOLING FAN

If required, the cooling fan installed in the CHS1U-US and the CHS2U-US chassis can be removed and replaced. The following provide separate procedures for both types of chassis.

5.1 CHS1U-US Chassis

5.1.1 Remove Cooling Fan



To reduce the possibility of electrical shock or damage to equipment, NEC recommends powering Off the chassis and disconnecting the AC cable from the power source before removing the chassis cover.

1. Ensure the chassis is powered down.



To reduce the possibility of damage to equipment, the installer must wear a grounded wrist strap to protect the equipment from static electricity.

2. Loosen retaining screw from chassis access panel.

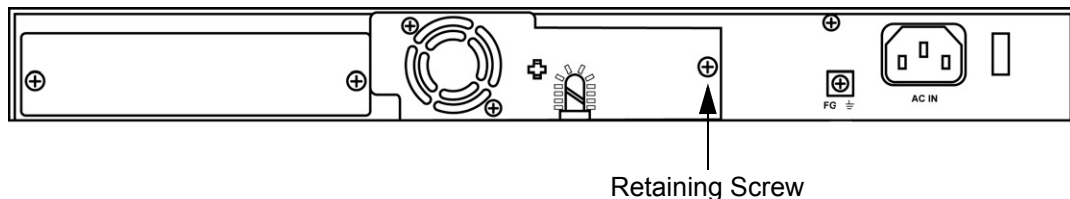


Figure 5-100 CHS1U-US Chassis Access Panel

3. Swing access panel outward and unplug fan power cable. See [Figure 5-101 Opening Chassis Access Panel \(CHS1U-US Chassis\)](#).

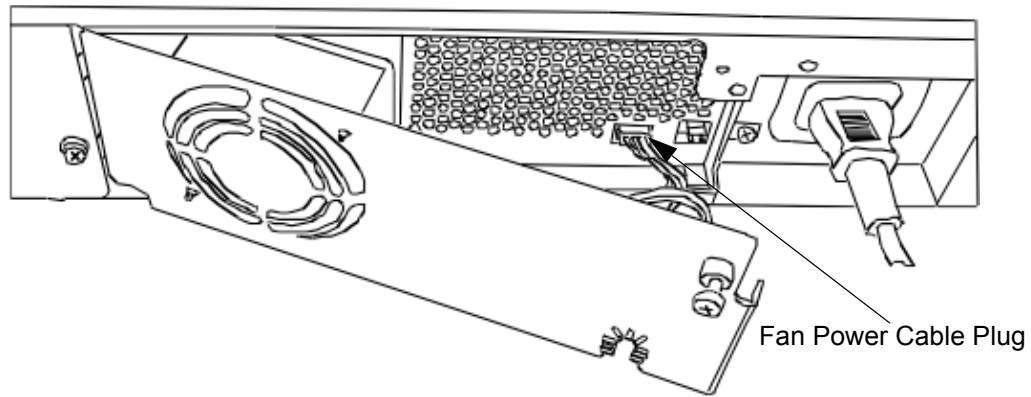


Figure 5-101 Opening Chassis Access Panel (CHS1U-US Chassis)

4. Remove chassis access panel from rear of chassis.
5. Remove cabling from retention clips. See [Figure 5-102 Chassis Access Panel Removed](#).

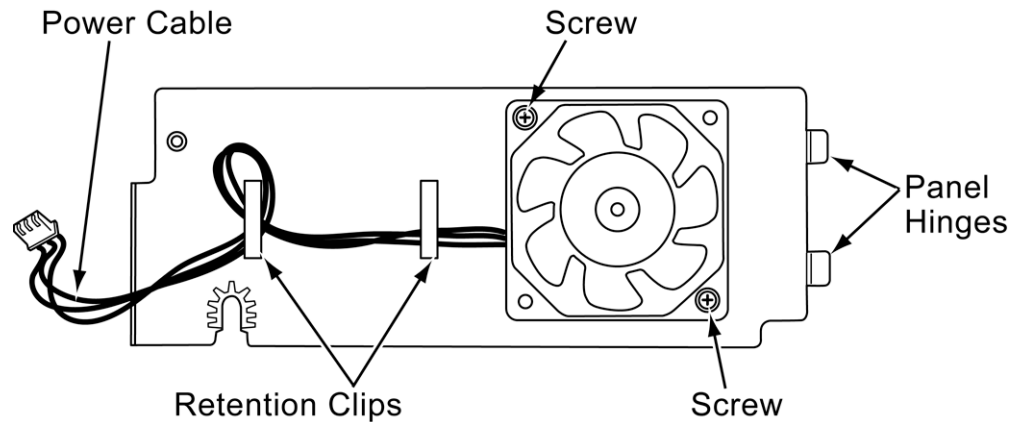


Figure 5-102 Chassis Access Panel Removed

6. Remove two screws securing fan to access cover. Keep screws for use when installing replacement fan (refer to [Figure 5-102 Chassis Access Panel Removed](#) on page 5-74).

5.1.2 Install Cooling Fan

1. Align replacement fan with holes and secure with two screws (refer to [Figure 5-102 Chassis Access Panel Removed on page 5-74](#)).
2. Install cabling into retention clips (refer to [Figure 5-102 Chassis Access Panel Removed on page 5-74](#)).
3. Insert access panel hinges into slots on rear of chassis.
4. Plug fan power cable into three prong plug (refer to [Figure 5-101 Opening Chassis Access Panel \(CHS1U-US Chassis\) on page 5-74](#)).
5. Reinstall access cover and secure with retaining screw (refer to [Figure 5-100 CHS1U-US Chassis Access Panel on page 5-73](#)).

5.2 CHS2U-US Chassis

5.2.1 Remove Cooling Fan



To reduce the possibility of electrical shock or damage to equipment, NEC recommends powering Off the chassis and disconnecting the AC cable from the power source before removing the chassis cover.

1. Ensure the chassis is powered down.



To reduce the possibility of damage to equipment, the installer must wear a grounded wrist strap to protect the equipment from static electricity.

2. Loosen retaining screw from chassis access panel.

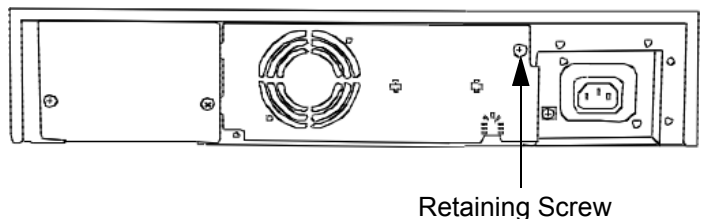


Figure 5-103 CHS2U-US Chassis Access Panel

3. Swing access panel outward and unplug fan power cable. See [Figure 5-104 Opening Chassis Access Panel \(CHS2U-US Chassis\)](#).

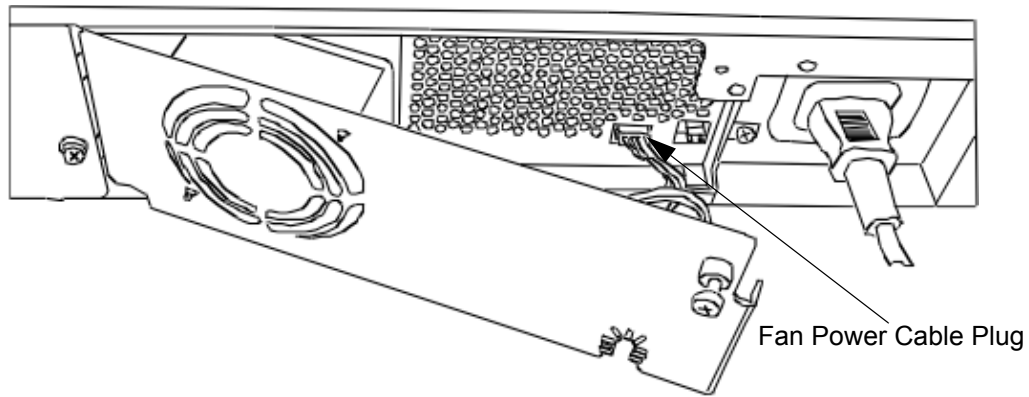


Figure 5-104 Opening Chassis Access Panel (CHS2U-US Chassis)

4. Remove chassis access panel from rear of chassis.
5. Remove cabling from retention clips. See [Figure 5-105 Chassis Access Panel Removed](#).

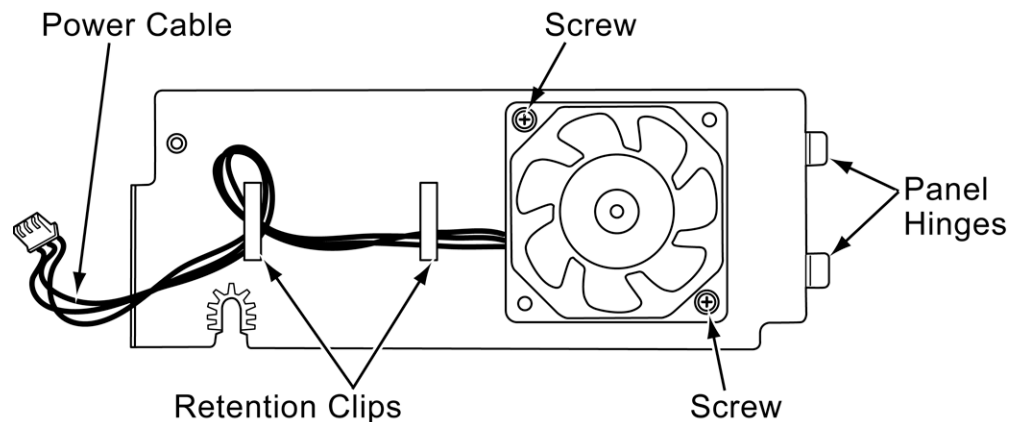


Figure 5-105 Chassis Access Panel Removed

6. Remove two screws securing fan to access cover. Keep screws for use when installing replacement fan (refer to [Figure 5-105 Chassis Access Panel Removed](#) on page 5-76).

5.2.2 Install Cooling Fan

1. Align replacement fan with holes and secure with two screws (refer to [Figure 5-105 Chassis Access Panel Removed on page 5-76](#)).
2. Install cabling into retention clips (refer to [Figure 5-105 Chassis Access Panel Removed on page 5-76](#)).
3. Insert access panel hinges into slots on rear of chassis.
4. Plug fan power cable into three prong plug (refer to [Figure 5-104 Opening Chassis Access Panel \(CHS2U-US Chassis\) on page 5-76](#)).
5. Reinstall access cover and secure with retaining screw (refer to [Figure 5-103 CHS2U-US Chassis Access Panel on page 5-75](#)).

- - NOTES - -

Installing the SV8100/SV8300 Blades

SECTION 1 **GENERAL INFORMATION**

This chapter contains information to help the technician install the blades for the UNIVERGE SV8100/SV8300 system. The technician should be familiar with this section before installing any equipment.

1.1 Slot Locations

Each CHS2U-US has six slots. In the Controlling Chassis, the CD-CP00-US (for Key Systems) must be installed in the first slot (slot 1). The CC-CP00 (for IPS systems) ***must be*** installed in the CHS1U-US.

Slot Locations in the Controlling Chassis:

- Slot 1 – dedicated for the CPU
- Slots 2~6 – are universal

Slot Locating in the Expansion Chassis:

- Slots 1~6 are universal. (i.e., any type of blade can be installed in these slots).

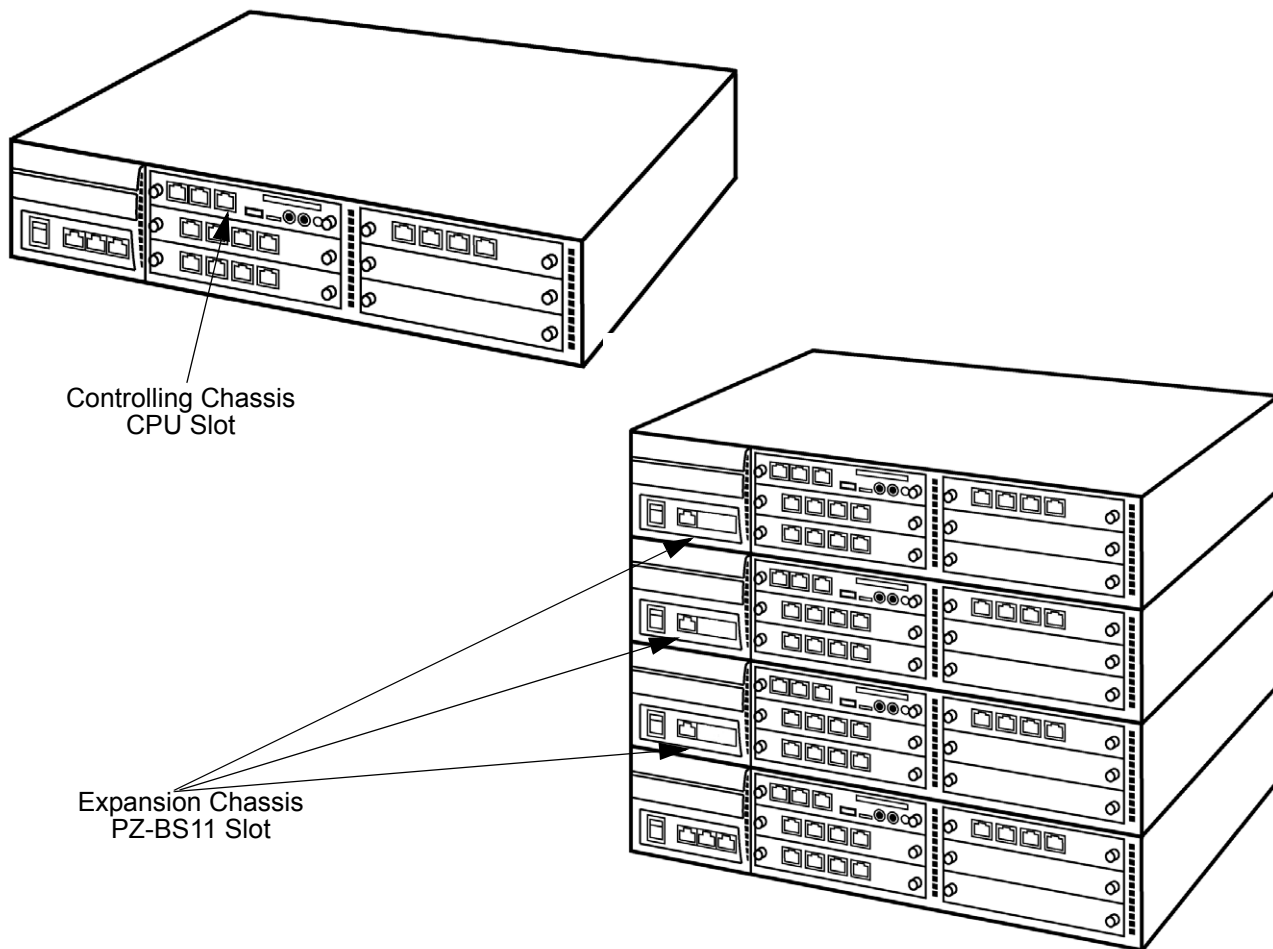


Figure 6-1 19" Chassis CPU and Expansion Slot Locations

SECTION 2 INSTALLATION

Pre-installation planning is essential. Advanced planning minimizes installation time, cost, and disruption of the customer business activities.

2.1 Installation and Safety Precautions



Observe the following precautions when installing the blades to avoid static electricity damage to hardware or exposure to hazardous voltages.

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Ground the Controlling and Expansion chassis before installing or removing the blades.
- The Expansion Chassis **must be installed with the system power OFF**.
- *Do not* touch the blade components.
- Carry the blade in a conductive polyethylene bag to prevent static electricity until ready to install the blade.
- When installing or removing the blades from the chassis, the installer must wear a grounded wrist strap to protect the blade from static electricity.
- Although it is recommended to install the blades with the **system power OFF**, most blades can be installed hot except for the following that **must be installed with the power OFF**:
 - ❑ CD-CP00-US
 - ❑ CC-CP00
 - ❑ PZ-BS10 and PZ-BS11
 - ❑ PZ-ME50
 - ❑ PZ-32IPLA, PZ-64IPLA and PZ-128IPLA
 - ❑ PZ-VM21

2.2 Installing an Extension or Trunk Blade

2.2.1 Installing the Blades

To install an extension/trunk blade with the system running:

1. Insert the blade within the guide rail and push the blade securely into position. Tighten the thumb screws on either side of the blade.
2. The Status LED starts flashing when the blade starts processing (15 seconds).

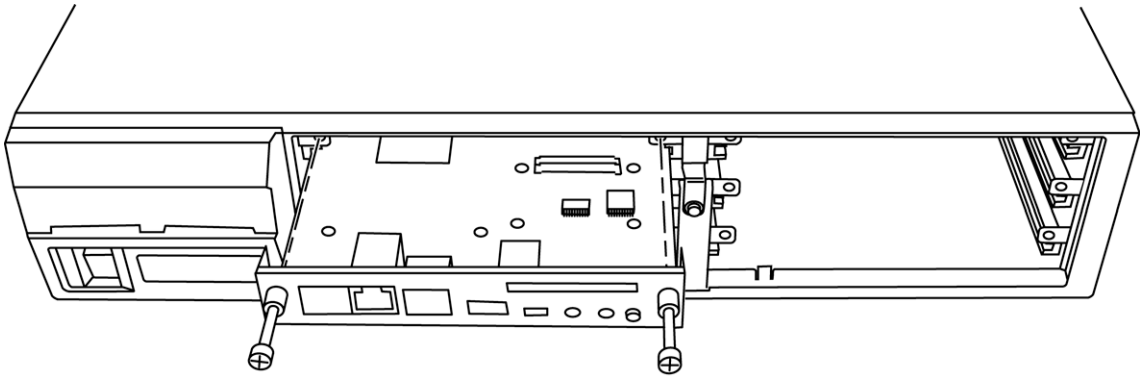


Figure 6-2 Inserting Blades in the 19" CHS2U-US Chassis

2.2.2 Order of Installing Extension Blades

The order in which the station blades (CD-8DLCA, CD-16DLCA, PZ-8DLCB and CD-4LCA, CD-8LCA, PZ-8LCE) are physically inserted determines the numbering plan.



To avoid unexpected extension/trunk numbering if the VoIP or Voice Mail blades register with the system first, install these blades after the other types of extension and trunk blades have been installed.

For example, when a digital station blade (CD-16DLCA) is in Slot 1 (ext. 101~116) and three additional digital station blades are installed **in the following order**, the numbering plan below in [Table 6-1 Extension Blade Installation Order Example on page 6-5](#) applies.

Table 6-1 Extension Blade Installation Order Example

Order of Installation	Blade Slot Number	Blade	Extension Numbers
1	1	CD-16DLCA	101~116
2	2	CD-16DLCA	117~132
3	4	CD-8DLCA PZ-8LCE	133~148
4	3	CD-8DLCA	149~164

After the initial powering up of the system, subsequent powering up or resets do not change the slot identification. System programming (Program 90-05) must be performed to change the slot identification.

Adding any daughter board to increase the available ports or going to a higher capacity blade (e.g., CD-16DLCA) may require that the slot be deleted in programming and the blade reinstalled. In the following example, to add a daughter board to slot 2, the blade must be removed, deleted in Program 90-05-01, then reinstalled with the daughter board attached, otherwise the additional ports are not recognized. This however, uses new ports for the combined blade – the initial ports (ports 17~24 using the example below) are not used.

Table 6-2 Adding Daughter Board to Chassis Example

Initial Blade			Updated Blade		
Blade Slot #	Blade	Extension Numbers	Blade Slot #	Blade	Extension Numbers
1	CD-16DLCA	101~116	1	CD-16DLCA	101~116
2	CD-8DLCA (no daughter board)	117~124	2	—	—
3	CD-16DLCA	125~140	3	CD-16DLCA	125~140
—	—	—	4	CD-8DLCA (with daughter board)	141~156

The system automatically recognizes each blade installed in the system. *If a blade has previously been installed* in a slot and another type of blade is to be installed in that same slot, the blade must first be removed from the chassis and then the slot definition removed using Program 90-05 prior to installing the new blade.

This same condition applies to extensions and other devices connected to the system. For example, if a port was previously used for a telephone and a DSS Console is to be installed in that same port, it must first be undefined in Program 10-03 before the console is connected.

2.2.3 Order of Installing Trunk Blades

2.2.3.1 Installing CD-4COTB, CD-4DIOPA, CD-4ODTA or CD-2BR1A blades

The order in which trunk blades are physically inserted determines the numbering plan.



To avoid unexpected extension/trunk numbering if the VoIP or Voice Mail blades register with the system first, install these blades after the other types of extension and trunk blades have been installed.

For example, if four blades are installed *in the following order*, the numbering plan below applies.

Table 6-3 Trunk Blade Installation Order Example

Order of Installation	Blade Slot Number	Blade	Line Circuits
1	4	CD-4COTB with PZ-4COTF	1~8
2	5	CD-4COTB	9~12
3	7	CD-4ODTA	13~16
4	6	CD-4ODTA	17~20

2.2.3.2 Installing CD-PRTA (T1/PRI) Blades

The CD-PRTA (T1/PRI) Interface blade uses the first block of 24 consecutive trunks.

For example, if an CD-4COTB and PZ-4COTF blade is installed for trunks 1~8, the CD-PRTA (T1/PRI) blade automatically uses trunks 9~32. If CD-4COTB and PZ-4COTF blades are installed for trunks 1~8 and 17~24, the CD-PRTA (T1/PRI) blade uses trunks 25~48. The CD-PRTA (T1/PRI) blade cannot use trunks 9~16 (even if available) since they are not part of a consecutive block of 24 trunks.

2.3 Remove an Extension or Trunk Blade

Any blade, **EXCEPT** the ones listed below can be removed while the system is powered up. To remove any of the blades listed below, the system *must first be powered down*.

- CD-CP00-US
- CC-CP00
- PZ-BS10 and PZ-BS11
- PZ-ME50
- PZ-32IPLA, PZ-64IPLA and PZ-128IPLA
- PZ-VM21

To remove an extension/trunk blade with the system running:

1. When LED 2 is extinguished, all extensions/trunks are idle.
2. Loosen the thumb screws on either side of the blade and pull it out of the chassis.

2.4 Uninstalling a Blade Slot Through Software

The installer can turn off (busy out) and delete (remove from software) blade slots in the Controlling and Expansion Chassis in programming for port renumbering or to replace it with a different blade. Deleting a blade may affect blade slot programming capability. Refer to Program 90-05 in the Univerge SV8100 Programming Manual for detailed programming information.

2.5 Blade Capacities

The universal architecture of the UNIVERGE SV8100/SV8300 provides flexibility when installing blades. With the exception of the CD-CP00-US and CC-CP00 blades, any blade can be installed in any slot. [Table 2-4 Maximum System Capacities – Blades on page 2-9](#) (SV8100) or [Table 3-3 Maximum System Capacity – Chassis on page 3-9](#) (SV8300) provide a list of the blades and the maximum capacities with various chassis configurations.

2.6 Powering Up the SV8100

2.6.1 Performing a Cold Start

This section describes the process for starting the system for the first time or starting a system that has been turned off.



IMPORTANT CONSIDERATIONS

- *System software loaded from flash memory and the customer data is erased from RAM memory.*
- *To avoid extension and trunk renumbering, if certain blades are recognized first, remove them from their respective slots until the system has been reset. Then, slot the blade cards in the correct order to retain the proper system numbering (Use Program 10-03 prior to performing a cold start to record the current slot definitions.).*

To perform a cold start:

1. Turn the system power off.
2. Once the system has powered down, push in and hold the **Load** button.
3. Turn the power switch back on to power the system back up.
 - With a multi-chassis system, turn on the Expansion Chassis power supply, then the Controlling Chassis power supply.
4. Continue holding the **Load** button for approximately three seconds or until LED 2 starts flashing red.
5. Release the **Load** button.
6. When the system has completed reloading the software (two minutes), the Status LED is flashing on the CD-CP00-US.

2.6.2 Performing a Hot Start

The section describes how to load system software from flash memory and customer data from RAM memory.



IMPORTANT CONSIDERATIONS

System software is loaded from flash memory and the customer data is loaded from RAM memory.

1. Turn the system power off.
2. Once it has powered down, press the button again to power the system back up. Wait approximately two minutes.
3. When the system has completed reloading the software, the Status LED is flashing on the CD-CP00-US.

2.6.3 Resetting the System

This section describes the process of resetting a system that is running. Observe the important information listed in below.

To reset the system:


2.6.3.1 Initial Programming

The system can be programmed using three methods:

- Programming using a multiline terminal
- PC Programming
- Web Programming

To program using a multiline terminal, enter programming mode:

1. Go to any working display telephone.
2. *Do not* lift the handset.

 *In a newly installed system, use extension (port 1).*

3. Press **Speaker**.
4. **#*#* .**

Password

5. Dial the system password + **Transfer**.

2.6.3.2 Port Defaults

With the default settings, the ports are assigned as follows:

Table 6-4 Default Port Settings

Station Ports:	Port 1~99 : 101~199 Port 100~199 : 3101~3200 Port 200~512 : 3201~3513
Virtual Station Ports:	Port 1~99 : 201~299 Port 100~199 : 3601~3700 Port 200~256 : 3701~3757
Trunk Ports:	1~200


In the initial configuration:

- All Programmable Function keys are line keys (e.g., key 1 is line 1).
- All trunks are loop start DTMF.

2.6.3.3 Setting Up Extension Circuit Types

Run Program 10-03 to set up extension circuit types as required. The system will automatically detect and assign most circuit types when the device is connected.

1. Dial 10-03-01.
2. Press TRANSFER to Select the slot, port or channel (with ESIU Blades) to be programmed.
3. Set the terminal type or option as needed.

 *If the system has DSS Consoles, Program 30-02 must be used to define DSS extension assignments.*

As the system recognizes the extension devices automatically, when replacing the type of device connected, the type must be undefined in Program 10-03 prior to connecting the new device. For example, if a port was previously used for a telephone and a DSS Console is to be installed in that same port, the telephone must first be undefined in Program 10-03 before the console is connected.

2.6.3.4 Saving Your Configuration

When programming is completed, to exit out of the program option and save changes to the CD-CP00-US:

1. Press **EXIT** to exit the program options, if needed.
2. Press **Speaker**.
Saving System Data is displayed if changes were made to system programming.
3. The display shows Complete Data Save when completed and the telephone becomes idle.

2.6.3.5 Backing Up/Restoring a Database

As a precaution, it is recommended that the customer database be saved prior to updating the system software. There are two methods of saving the database – either using the PCPro application or saving directly to USB Memory on CD-CP00-US. Using PCPro, download the database and save the file on the PC hard drive. To save the database using a blank USB Memory, insert the USB Memory into the USB Port on the CD-CP00-US blade and, using Program 90-03, save the software. Due to the file naming structure, note that a USB Memory can only hold one customer database (each database is saved to a directory called DATA – this directory is overwritten if a second database is saved to the same card). Each database to be saved will require its own separate card (unless you choose to rename the directory after it is saved, then rename it back to DATA when you need to access the database).

If the customer data needs to be reloaded, the method for restoring the database is determined by how the database was saved. Using PCPro, the customer database is uploaded using the Upload option within the application. If the database is stored on a USB Memory, use Program 90-04, with the database to be restored installed in the USB Port on the CD-CP00-US blade.

When restoring a database file, as the slot definitions may be different, remove all blades from the system except the CD-CP00-US and the CD-8DLCA/CD-16DLCA in slot 2. After the system has been reset, blades can be reinstalled. Program 10-03 or Program 90-04 can be used prior to updating to record the current slot definitions. If the blades are not removed, the trunk and extension port assignments may be reassigned, depending on which blade syncs up with the system first.

After reloading the customer data to the system, exit programming mode (this could take a minute or more to save the database), **then reset the system by powering down and back up.** If the system is not reset, not all the uploaded programming changes are in effect. Wait a few minutes for the programming to take affect before accessing any line or special system feature. Otherwise, some unusual LED indications may be experienced. To prevent the USB Memory from possibly being overwritten, remove the card after reloading the database.

2.6.4 Performing a Software Upgrade

This section describes the procedure to perform a software upgrade on the CD-CP00-US.



IMPORTANT CONSIDERATIONS

- *To save customer data prior to updating, a blank USB Memory is required. Insert the USB Memory into the USB Port on the CD-CP00-US blade. Use Program 90-03 to save the software to the USB Memory. Note that a USB Memory can only hold one customer database. Each database to be saved requires its own separate USB Drive. Use Program 90-04, with the database to be restored installed in the CD-CP00-US, to reload the customer data if necessary.*
- *After uploading programming data to the system using Program 90-04, exit programming mode (this could take a minute or more to save the database), then reset the system by powering down and back up. Wait a few minutes for the programming to take affect before accessing any line or special system feature. Otherwise some unusual LED indications may be experienced. To prevent the USB Memory from possibly being over-written, remove the USB Memory after downloading the database.*
- *When restoring a database file, as the slot definitions may be different, remove all blades from the system except the CD-CP00-US and CD-8DLCA/CD-16DLCA in slot 2. After the system has been reset, the blades can be reinstalled. Use Program 10-03 prior to updating to record the current slot definitions.*

To perform a system software and firmware upgrade:

1. Turn the system power off.
2. Once the system has powered down, insert the USB Memory containing the software upgrade into the USB port on the CD-CP00-US.
3. Push in and hold the **Load** button.
4. Turn the system power on.
5. Continue holding the **Load** button for approximately 10 seconds or until Status LED5 begins flashing red.
6. Release the **Load** button.
7. Wait until the Status LEDs on the CD-CP00-US have the following indications (approximately two minutes):
 - LED 2: Flashing Red
 - LED 3: Flashing Red
 - LED 4: Flashing Red
 - LED 5: Steady Red
8. Turn the system power off and un-install the USB Memory.
9. Turn the system power back on.
10. When the system has completed reloading the software, the Status LED begins flashing on the CD-CP00-US. The remaining four LEDs are off.
 - To confirm the new software version has been installed, the system version number can be viewed by pressing the FEATURE + 3 keys on any display multiline terminal.
 - The existing system software in the flash memory is replaced, but the customer data (stored in the RAM) is saved.

SECTION 3 COMMON CONTROL BLADES

The blades described in this section control the common functions of the chassis.

3.1 CD-CP00-US (SV8100 Central Processing Unit)

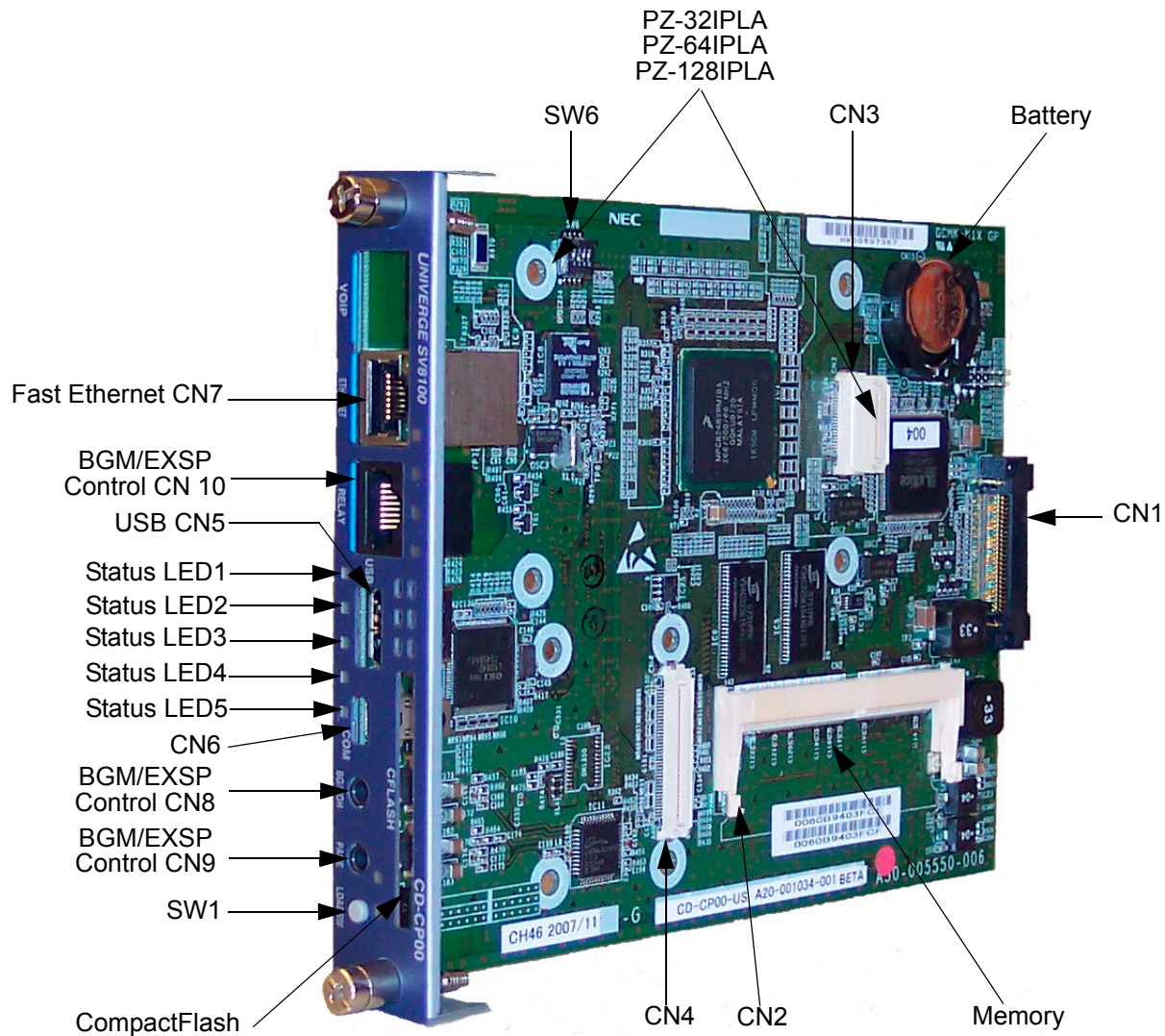


Figure 6-3 CD-CP00-US Blade Layout

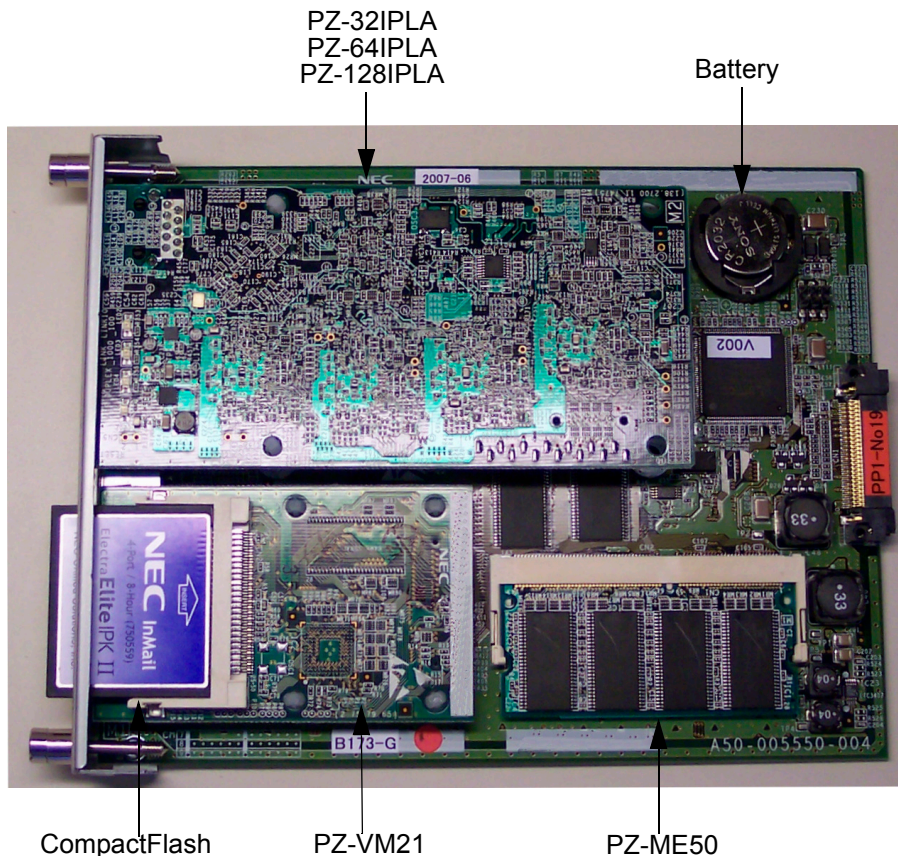


Figure 6-4 CD-CP00-US Blade with Daughter Boards Installed

3.1.1 Description

The CD-CP00-US blade is available only for the SV8100 system.

The CD-CP00-US controls all the functions and operations of the SV8100 system using the system software loaded into the CD-CP00-US memory. The system software can be upgraded as new software becomes available.

One CD-CP00-US blade must be installed in the Controlling Chassis.

The CD-CP00-US functions are:

- ☐ Music on Hold tone Circuit, External Source Control Circuit
- ☐ PZ-VM21 Interface Circuit
- ☐ System Program and System Data Storing Memory Circuit

- ☐ USB Interface Circuit
- ☐ Ethernet Interface Circuit
- ☐ PZ-BS10/PZ-BS11 Interface Circuit
- ☐ Main Processing 32-Bit CPU Circuit (MPC8260 @ 266 MHz)
- ☐ Time Switch, Optional Blade Control Circuit
- ☐ Backboard Interface Circuit

The CD-CP00-US provides:

- ☐ 200 trunk ports maximum
- ☐ 512 extension ports maximum
 - 512 ports digital/IP extensions maximum
 - 256 analog ports maximum
- ☐ 256 virtual extensions
- ☐ Connection for PZ-32IPLA/PZ-64IPLA/PZ-128IPLA Daughter Board
- ☐ Connection for PZ-VM21 Daughter Board
- ☐ Connection for Expanded Memory (PZ-ME50)
- ☐ Supports TAPI 2.x
- ☐ One Green Status LED
- ☐ Four Red Status LEDs
- ☐ Five diagnostic LEDs which indicate the status of various system functions
- ☐ During normal operation, the “RUN” LED will be flashing and the remaining LEDs are off
- ☐ Time Division Multiplex Switch (TDM Switch)
- ☐ Digital Phase Locked Loop (DPLL)
- ☐ Tone Generator
- ☐ Tone Processing DSP
- ☐ Connection for Memory Module
- ☐ DSP
- ☐ DTMF Tone Sender
- ☐ DTMF Tone Receiver
- ☐ DTG
- ☐ 32 Tone Resources (for DTMF Receiver, Caller ID Receiver, and Call Progress Tone Detection)
- ☐ System Tone Sender
- ☐ MF Receiver

- ☐ MF Sender
- ☐ MFC Tone Sender
- ☐ MF Signal Sender (Sends caller information to CO for E911)
- ☐ Call Progress Time Detection
- ☐ C-Channel Control
- ☐ Conference: 64 Channels
- ☐ Caller ID Receiver; 32 Channels
- ☐ Caller ID Generator; 4 or 10 Channels for Analog Stations
- ☐ This can be expanded up to 20 by disabling 32 channels of the Conference circuits and disabling the MFC Tone Sender
- ☐ A load switch which is used for initial system startup, resetting the system, or when upgrading system software
- ☐ One Serial Port (null modem/cross-over cable required)
- ☐ One USB Port – USB 1.1/2.0 (requires USB driver – download from NEC web site)
- ☐ One Gbit Ethernet Port for VoIP function
- ☐ One CompactFlash Card Slot
- ☐ Background Music/EXSP Control Port
- ☐ Status LED
- ☐ BGM LED
- ☐ EXSP Control LED
- ☐ Two Audio Input/Output Terminals
- ☐ One General Purpose Control Terminal
- ☐ One Music On Hold External Source
- ☐ HDLC Packet Processing
- ☐ Real Time Clock (tolerance 30 seconds/month)
- ☐ Internal MOH Generation (supplied from Melody IC)
- ☐ Call Control Server (ex: Conference Bridge Server, Voice Mail Server, SIP Server, RTP Forwarding, VoCoder Conversion)
- ☐ One lithium battery (Sony CR2032 or equivalent) which provides battery back-up of system data and RAM memory for approximately 30 months.

The CD-CP00-US functions provided are:

- ☐ Call Control Server
- ☐ Conference Bridge Server

- ☐ Voice Mail Server (voice mail requires a compact flash card)
- ☐ SIP Server
- ☐ RTP Forwarding
- ☐ VoCoder Conversion

3.1.2 Installation

Each SV8100 system **must have the** CD-CP00-US **installed in Slot 1** of the Controlling Chassis.



IMPORTANT INSTALLATION NOTES

- *The chassis power must be off when installing or removing the CD-CP00-US.*
 - *After removing a previously installed CD-CP00-US, handle the blade, carefully, from the edges. If certain solder points/resistors are touched on the back of the blade, some RAM/temporary memory may be lost (e.g., time, date, user-defined settings, etc.)*
1. Install the battery on the CD-CP00-US. The polarity “+” symbol must be on top as illustrated in [Figure 6-5 CD-CP00-US Battery Installation](#).

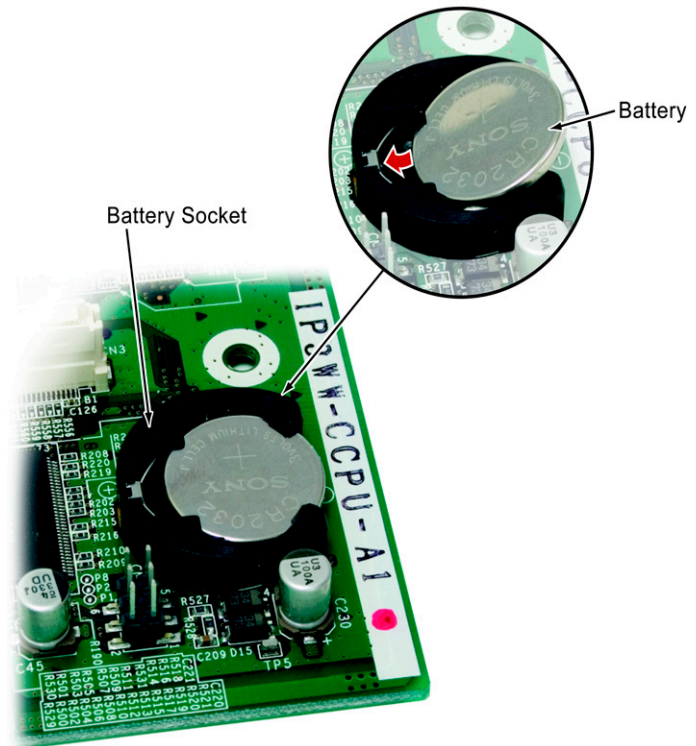


Figure 6-5 CD-CP00-US Battery Installation

2. Refer to [Figure 6-4 CD-CP00-US Blade with Daughter Boards Installed on page 6-15](#) to Install the PZ-VM21, PZ-ME50 and/or PZ-32IPLA/PZ-64IPLA/PZ-128IPLA daughter board, if required.
3. Ensure the power supply is **OFF**, then slide the CPU into the CCPU slot in the Controlling Chassis.
4. If external Background Music (BGM) or Music on Hold (MOH) is being installed, plug the cable into the CN8 or CN9 pin jack connector on the CPU. The other end of the cable plugs into the music source.
 - Refer to the PGD(2)-U10 ADP in the [Chapter 11 Installing SV8100/SV8300 Optional Equipment](#) section [2.1 Using a PGD\(2\)-U10 ADP on page 11-1](#) for details on connecting to a music source.
 - When the system software is upgraded, the flash memory is updated with the new software version. Either the Hot or Cold start-up method can be used or the system can be upgraded using system software. Refer to [2.6.1 Performing a Cold Start on page 6-8](#), [2.6.2 Performing a Hot Start on page 6-9](#), or [2.6.4 Performing a Software Upgrade on page 6-12](#).

- Customer information is stored in the RAM memory and, in case of a power failure, will be restored. The lithium battery in the system saves the RAM memory when power is lost.

3.1.3 Switch Settings

Refer to [Table 6-5 CD-CP00-US Switch Settings](#) for system restart/system reset and with system power on. [Figure 6-3 CD-CP00-US Blade Layout on page 6-14](#) shows the location of the SW1 switch on the CD-CP00-US blade.

Table 6-5 CD-CP00-US Switch Settings

	USB Memory Status	Operation
Switch SW1 - Load Switch	With a system restart or a system reset while holding the SW1 switch:	
	When USB Memory is not installed:	Cold Start occurs.
	When USB Memory is installed:	USB Memory contents loaded.
	When an unauthorized USB device is installed:	System does not start and an "Illegal USB device is connected" alarm is recorded.
Switch SW1 - Load Switch	With the system power on, pressing the SW1 switch:	
	When USB Memory is not installed:	No operation.
	When USB Memory is installed:	USB Memory contents loaded.
	When an unauthorized USB is installed:	No operation.

Table 6-6 CD-CP00-US Switch 6 Settings

	Configuration	Note
SW6-1	OFF	Not Used
SW6-2	ON	Test Mode ON = Test Mode OFF = Normal
SW6-3	OFF	RS232C Select ON = Use OFF = Not Used

Table 6-6 CD-CP00-US Switch 6 Settings (Continued)

	Configuration	Note
SW6-4	ON	Reset Configuration ON = Normal OFF = ICE Mode

3.1.4 LED Indications

The LEDs on the CPU indicate the following:

- ☐ RUN (LED 1) = The CPU is operating (green)
- ☐ LED 2, and 3 = Alarms (red)
- ☐ LED 4 = Flash access indication (red)
- ☐ LED 5 = The USB memory connection status (red)
(LED off when no USB memory installed)
- ☐ Refer to Program 90-10: System Alarm Setup for details on assigning alarm LEDs.

[Table 6-7 CD-CP00-US LED Indications on page 6-21](#) provides a list of each LED and associated operation and status indications. Refer to [Figure 6-3 CD-CP00-US Blade Layout on page 6-14](#) for the location of the LEDs on the CD-CP00-US.

Table 6-7 CD-CP00-US LED Indications

LED Indication					Status
RUN (LED1)	LED2	LED3	LED4	LED5	
Blinking	Off	Off	Off	On Steady When USB Memory is Installing	System operating normally
Off	Off	Off	Off	Blinking	Boot is starting
Off	On	Off	Off	Off	Initializing the disk or formatting
Blinking	Blinking	Off	Access Blink	On Steady When USB Memory is Installing	Boot program is initializing in the flash memory
Off	On	On	Access Blink	On Steady When USB Memory is Installing	Reading system software
Off	On	Off	Access Blink	On Steady When USB Memory is Installing	Upgrading system software

Table 6-7 CD-CP00-US LED Indications (Continued)

LED Indication					Status
RUN (LED1)	LED2	LED3	LED4	LED5	
On	Blinking	Blinking	Blinking	On Steady When USB Memory is Installing	Finish formatting (SRAM, Flash)
Blinking	Off	Off	Off	Off	DRAM error
Blinking	Off	Off	On	On Steady When USB Memory is Installing	FPGA version error
Blinking	Off	On	Off	On Steady When USB Memory is Installing	SRAM error
Blinking	Off	On	On	On Steady When USB Memory is Installing	Flash memory booting error
Blinking	On	On	On	On Steady When USB Memory is Installing	Flash memory data error
Blinking	Blinking	Blinking	Blinking	On Steady When USB Memory is Installing	Reading error of system program
On	Off	Off	Off	Off	System starting up

3.1.5 Connectors

[Table 6-8 CD-CP00-US Connections](#) describes each connector on the CD-CP00-US, [Table 6-9 CD-LTA RJ11 Cable Connector Pin-Outs](#) describes the pin-outs for connectors on the CCPU-A. Refer to [Figure 6-3 CD-CP00-US Blade Layout on page 6-14](#) for the location of the connections on the CD-CP00-US blade.

Table 6-8 CD-CP00-US Connections

Connector	Connector Description
CN1	Backboard Connection
CN2	PZ-ME50 (Expanded Memory) Connection
CN3	PZ-32IPLA/PZ-64IPLA/PZ-128IPLA Blade Connection
CN4	PZ-VM21 Blade Connection
CN5	USB Memory Connection (used for upgrading software or downloading system data)

Table 6-8 CD-CP00-US Connections (Continued)

Connector	Connector Description
CN6/SW2	Used for Debug Purposes
CN7	Ethernet Cable Connection (for PCPro or WebPro, CTI, ACD MIS, IP Phone)
CN8/CN9	Pin Jack for External Source Connection (External MOH, External Speaker, etc.)
CN10	External Source Control Connection
SW1	Load Switch
BAT	Lithium Battery Socket (for backup of SRAM memory data)

Table 6-9 CD-LTA RJ11 Cable Connector Pin-Outs

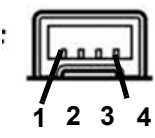
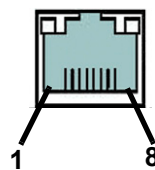

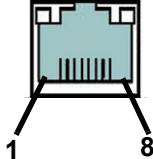
USB Cable Connector – CN5 (Type A, Female) (USB 1.1/2.0 Standard)		
	Pin No.	Signal
	1	Vcc
	2	-D
	3	+D
	4	GND
Ethernet Cable Connector – CN7 (RJ-45) (10Base-T/100Base-TX Port)		
	Pin No.	Connection
	1	Tx+
	2	Tx-
	3	Rx+
	4	–
	5	–
	6	Rx-
	7	–
	8	–

Table 6-9 CD-LTA RJ11 Cable Connector Pin-Outs (Continued)

Pin Jack – CN8/CN9 (Polarity)		
	Pin No.	Signal
	1	EXT1
	2	EXT2
RJ-45 Cable Connector – CN10 (External Source Control) (No Polarity)		
	Pin No.	Connection
	1	NC
	2	NC
	3	EXCNT2
	4	EXCNT1
	5	EXCNT1
	6	EXCNT2
	7	NC
	8	NC

3.2 CC-CP00 (SV8300 Central Processing Unit)

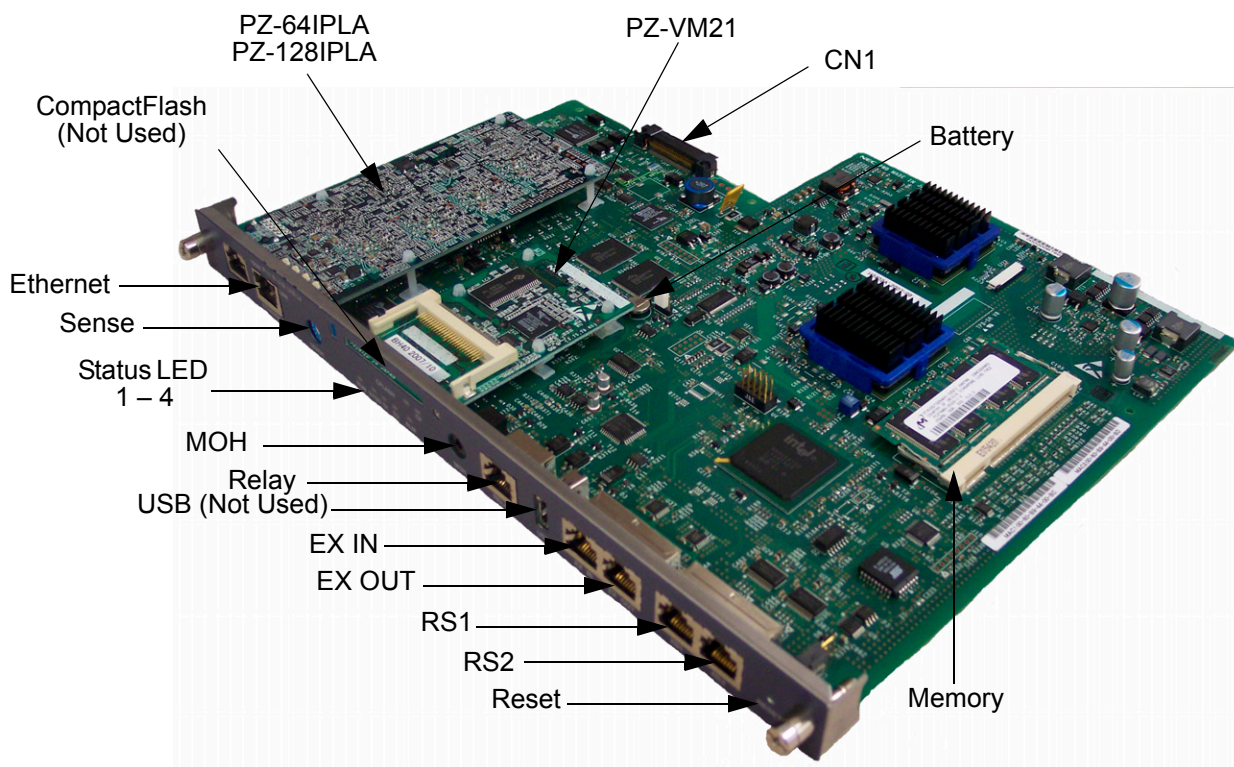


Figure 6-6 CC-CP00 Blade

3.2.1 Description

The CC-CP00 blade is available only for the SV8300 system.

The CC-CP00 controls all the functions and operations of the SV8300 system using the system software loaded into the CC-CP00 memory. The system software can be upgraded as new software becomes available.

One CC-CP00 blade must be installed in the Controlling Chassis. A second CPU can be installed in the first Expansion Chassis if additional VoIP or voice mail resources are required. A second CCPU can also be used for a CCPU redundancy feature (primary/secondary CCPUs) as a backup in case of a hardware failure. (The CCPUs must be programmed for primary/secondary operation.)

The CC-CP00 functions are:

- ☐ Music on Hold tone Circuit, External Source Control Circuit
- ☐ PZ-VM21 Interface Circuit

- ☐ System Program and System Data Storing Memory Circuit
- ☐ USB Interface Circuit
- ☐ Ethernet Interface Circuit
- ☐ PZ-BS10/PZ-BS11 Interface Circuit
- ☐ Main Processing 32-Bit CPU Circuit (MPC8260 @ 266 MHz)
- ☐ Time Switch, Optional Blade Control Circuit
- ☐ Backboard Interface Circuit

The CC-CP00 provides:

- ☐ 512 trunk ports maximum
- ☐ 1290 extension ports maximum (standalone)
 - 960 ports digital extension number
 - 1024 ports IP extension number
 - 1296 analog ports maximum
- ☐ 1500 extension ports maximum (Remote Unit)
 - 1500 ports digital and IP extension number
 - 1500 analog ports maximum
- ☐ 1000 virtual extensions
- ☐ Connection for 64/128 VoIP Daughter Blade (PZ-64IPLA, PZ-128IPLA)
- ☐ Connection for Modem Daughter blade (PZ-VM21)
- ☐ One Blue Status LED
- ☐ Three Green Status LEDs
- ☐ Two Red Status LEDs
- ☐ Six diagnostic LEDs which indicate the status of various system functions
- ☐ During normal operation, the “RUN” LED will be flashing and the remaining LEDs will be off.
- ☐ 1019x1019 Time Division Multiplex Switch (TDM Switch)
- ☐ Digital Phase Locked Loop (DPLL)
- ☐ Tone Generator
- ☐ Tone Processing DSP
- ☐ Connection for Memory Module
- ☐ DSP
- ☐ TDSW
- ☐ DTMF Tone Sender: 64 channels
- ☐ DTMF Tone Receiver: 64 channels

- ☐ DTG
- ☐ System Tone Sender
- ☐ MF Receiver: 64 channels
- ☐ MF Sender: 64 channels
- ☐ MF Signal Sender (Sends caller information to CO for E911)
- ☐ CFT
- ☐ Call Progress Time Detection
- ☐ C-Channel Control
- ☐ Conference: 32 Channels
- ☐ Caller ID Receiver; 64 Channels
- ☐ Caller ID Generator; 16 Channels for Analog Stations
- ☐ A reset switch which is used for initial system startup, resetting the system, or when upgrading system software
- ☐ Two Serial Ports (null modem/cross-over cable required)
- ☐ One USB Port – USB 1.1/2.0 (requires USB driver – download from NEC web site) Not Used
- ☐ One Gbit Ethernet Port for VOIPDB
- ☐ One Fast Ethernet Port (10 Base-T/100 Base-TX)
- ☐ One CompactFlash Card Slot
- ☐ Status LED
- ☐ One EXIFU Interface Connector
- ☐ One Music On Hold External Source
- ☐ HDLC Packet Processing
- ☐ Real Time Clock (tolerance 30 seconds/month)
- ☐ Internal MOH Generation (supplied from Melody IC)
- ☐ Call Control Server (ex: Voice Mail Server, SIP Server, RTP Forwarding, VoCoder Conversion)
- ☐ One Connector for PAL EPROM
- ☐ One lithium battery (Sony CR2032 or equivalent) which provides battery back-up of system data and RAM memory for approximately 30 months

The CC-CP00 functions provided are:

- ☐ Call Control Server
- ☐ Voice Mail Server (voice mail requires a compact flash card)
- ☐ SIP Server

- ☐ RTP Forwarding
- ☐ VoCoder Conversion

3.2.2 Installation

Each SV8300 system **must have the** CC-CP00 **installed in** the Controlling Chassis.



IMPORTANT INSTALLATION NOTES

- *The power to the chassis must be off when installing or removing the CC-CP00.*
 - *After removing a previously installed CPU handle the blade, carefully, from the edges. If certain solder points/resistors are touched on the back of the blade, some RAM/temporary memory may be lost (e.g., time, date, user-defined settings, etc.)*
1. Remove the CC-CP00 and install the VMDB blade, MEMDB blade and/or VOIPDB daughter board, if required.
 2. Ensure the power supply is **OFF**, then slide the CPU into the CCPU slot in the Controlling Chassis.
 3. When the second CPU blade is installed in the Expansion Chassis, the system automatically assigns the primary and secondary designation. The CPU installed first is assigned as the primary.
 4. If external Music on Hold (MOH) is being installed, plug the cable into the CN8 or CN9 pin jack connector on the CPU. The other end of the cable plugs into the music source.
 - Refer to the PGD(2)-U10 ADP in [Section 2 PGD\(2\)-U10 ADP on page 11-1](#) for details on connecting to a music source.
 - When the system software is upgraded, the flash memory is updated with the new software version. Either the Hot or Cold start-up method can be used or the system can be upgraded using system software. Refer to [2.6.1 Performing a Cold Start on page 6-8](#), [2.6.2 Performing a Hot Start on page 6-9](#), or [2.6.4 Performing a Software Upgrade on page 6-12](#).
 - Customer information is stored in the RAM memory and, in case of a power failure is saved. The lithium battery in the system saves the RAM memory when power is lost.

3.2.3 Switch Settings

Refer to [Table 6-10 CC-CP00 Switch Settings](#) for system restart/ system reset and with system power on. [Figure 6-6 CC-CP00 Blade on page 6-25](#) shows the location of the switches on the CC-CP00 blade.

Table 6-10 CC-CP00 Switch Settings

Switch	Setting Position	Function
Reset (Push Switch)	–	For system reset
Sense (Rotary Switch)	0	On-line (Call processing is in progress): for Remote Unit
	1	On-line (Call processing is in progress): for Unit 1
	2	On-line (Call processing is in progress): for Unit 2
	3	On-line (Call processing is in progress): for Unit 3
	4	On-line (Call processing is in progress): for Unit 4
	8	Off-line (Call processing is stopped): Program upgrade (FTP)
	A	Off-line (Call processing is stopped): Standard office data setting
	E	Off-line (Call processing is stopped) RS1/RS2 port: 9600bps fixed ETHERNET/VOIP port: Default setting*
	F	Off-line (Call processing is stopped) RS1/RS2 port: AS per CM40Y=08 ETHERNET/VOIP port: Default setting*
	5-7, B-D	Not Used

* = For details, refer to Command Manual

3.2.4 LED Indications

[Table 6-11 CC-CP00 LED Indications](#) provides a list of each LED and its associated operation and status indications. Refer to [Figure 6-6 CC-CP00 Blade on page 6-25](#) for the location of the LEDs on the CC-CP00.

Table 6-11 CC-CP00 LED Indications

LED	Color	Status	
RUN	Blue	Status indications of CPU blade operation.	
		Off	This blade is not operating.
		Blinking (Slowly)	Off-line/program upgrade (Off-line).
		Blinking (120IPM)	On-line (system operating normally).
SYSD	Red	Status indications of Flash ROM access	
		Off	Normal Status
		Blinking	Blinking while copying the system data from the flash memory to the SDRAM.
S1	Green	Status indications on system reset.	
		Blinking (120IPM)	Blinking while copying the CPU program from the flash memory to the SDRAM
		Status indications on CPU Program Upgrade (On-line).	
		On	Remains lit when the CPU program downloaded to the flash memory (outdated side) is completed.
		Blinking (240IPM)	Blinking while downloading the CPU program to the flash memory (outdated side).
		Blinking (120IPM)	Blinking when the CPU program download to the flash memory (outdated side) is interrupted/fails.
		Blinking (60IPM)	Blinking while copying the program of flash memory (upgraded side) to the flash memory (outdated side).
		Blinking specially (On : Off = 7 : 3)	Blinking when the program copy from the flash memory (upgraded side) to the flash memory (outdated side) is completed.
		Off	Off when the program change of the flash memory (outdated side) is completed.
		Status indications on CPU Program Upgrade (Off-line)	
		On	Remains lit when the CPU program downloaded to the flash memory (outdated side) is completed.
		Off	Off when the program change of the flash memory (outdated side) and the flash memory (upgraded side) is completed.

Table 6-11 CC-CP00 LED Indications (Continued)

LED	Color	Status	
S2	Green	Status indications on system reset.	
		Blinking	Blinking while copying the system data from the flash memory to the SDRAM/Blinking while downloading the DSP firmware program.
		Status indications of VoIPDB.	
		Off	VoIPDB blade is not mounted/Office data is not assigned/VoIP license is short.
		On	VoIPDB blade is mounted (When the connection is established).
		Blinking	VoIPDB blade is mounted (when sending/receiving a packet).
ALM	Red	Status indications of MJ/MN alarm.	
		On	MJ alarm
		Blinking	MN alarm
		Off	Normal status
LINK	Green	Status indications of link on ETHERNET port.	
		On	Link is established
		Blinking	Link is established (When receiving a packet)
		Off	Link is not established
100M	Green	Status indications of data speed on ETHERNET port.	
		On	100Mbps
		Off	10Mbps
CF	–	Not Used	

3.2.5 Connectors

[Table 6-12 CC-CP00 Connections](#) describes each connector on the CD-CP00-US, [Table 6-13 CC-CP00 Connector Pin-Outs on page 6-33](#) describes the pin-outs for connectors on the CCPU-A. Refer to [Figure 6-6 CC-CP00 Blade on page 6-25](#) for the location of the connections on the CCPU-A1 blade.

Table 6-12 CC-CP00 Connections

Connector	Connector Description
CN1	Backboard connection
J13	VoIPDB blade connection
J8	VMDB blade connection
ETHERNET	Ethernet cable connection (for PCPro, SMDR, PMS or OAI)
MOH	Pin jack for external source connection (External MOH)
RELAY	External source control connection
EX IN/EX OUT	Unit synchronization connection for the wireless system
RESET	System reset switch
RS1/RS2	RS-232C port (for PCPro, SMDR, MCI or printer)

The CPU supports the following:

- ☐ Expansion Chassis
- ☐ DSPDB Daughter Board (providing 32 channels for the DTMF Receiver, Call Progress Tone Detection and Caller ID Receivers)
- ☐ Third-Party CTI/TAPI 2
- ☐ 16VOIPU Blade and 16VOIPDB
- ☐ T1 Trunks
- ☐ ACD/inDepth
- ☐ PRI Trunks
- ☐ BRI S-Bus/T-Bus
- ☐ E&M Trunks
- ☐ Networking

Table 6-13 CC-CP00 Connector Pin-Outs

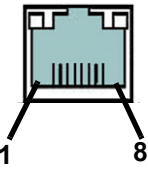

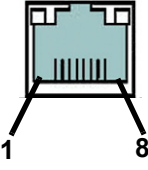
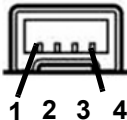
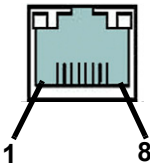
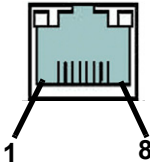
Ethernet Cable Connector – ETHERNET (RJ-45) (10Base-T/100Base-TX)		
	Pin No.	Signal
	1	TX-
	2	Rx+
	3	NC
	4	NC
	5	Rx-
	6	NC
	7	NC
	8	TX+
Pin Jack – MOH (No Polarity)		
	Pin No.	Signal
	1	EXT1
	2	EXT2
RJ-45 Cable Connector – RELAY (External Source Control) (No Polarity)		
	Pin No.	Signal
	1	NC
	2	NC
	3	EXCNT2
	4	EXCNT1
	5	EXCNT1
	6	EXCNT2
	7	NC
	8	NC

Table 6-13 CC-CP00 Connector Pin-Outs (Continued)

USB Cable Connector – USB (Type A, Female) (USB 1.1/2.0 Standard) [Not Used]		
	Pin No.	Signal
	1	Vcc
	2	-D
	3	+D
	4	GND
RJ-45 Cable Connector – EX IN/EX OUT (Polarity)		
	Pin No.	Signal
	1	NC
	2	NC
	3	NC
	4	FS-
	5	FS+
	6	NC
	7	NC
	8	NC
RJ-45 Cable Connector – RS1/RS2 (RS-232C)		
	Pin No.	Signal
	1	CTS
	2	DTR
	3	TXD
	4	DCD
	5	GND
	6	RXD
	7	DSR
	8	RTS

3.3 PZ-ME50 (Memory Expansion Daughter Board)

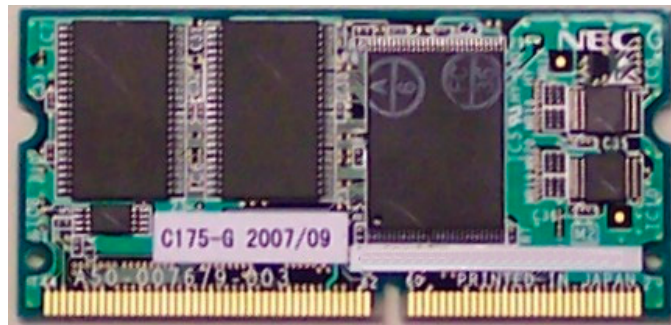


Figure 6-7 PZ-ME50 Daughter Board

3.3.1 Description

The PZ-ME50 blade is available for both UNIVERGE SV8100/ SV8300 systems.

The Memory Expansion daughter board (PZ-ME50) provides additional memory for the system for use with license control, expanded system networking, and software updates. This daughter board is mounted on the CD-CP00-US and provides the SDRAM, Flash Memory and SRAM. [Table 6-15 PZ-ME50 Capacities on page 6-36](#) lists the memory types and their capacities.

[Table 6-14 PZ-ME50 Maximum Upgrade Capacities](#) provides the maximum capacities for the PZ-ME50 blades when they are upgraded.

Table 6-14 PZ-ME50 Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
1	0	0	50

[Table 6-15 PZ-ME50 Capacities](#) provides the memory capacities for the PZ-ME50 blades.

Table 6-15 PZ-ME50 Capacities

Description	Memory Capacity	Equipped Memory
SDRAM	128 MB	256 MB / 16 bit x 4 pcs
Flash Memory	32 MB	256 MB / 16 bit x 1 pc
SRAM	1 MB	4 MB / 16 bit x 2 pcs

[Table 6-16 PZ-ME50 Capacities](#) provides the maximum capacities for the PZ-ME50 blade.


Table 6-16 PZ-ME50 Capacities

	Basic System (CD-CP00-US)	Memory Expansion Board PZ-ME50	System 256 Port License	System Unlimited Port License	* NetLink (Networked Chassis)
64 Ports without PZ-ME50	X	–	–	–	–
64 Ports with PZ-ME50 (Memory Expansion Board)	X	X	–	–	X
256 Ports	X	X	X	–	X
Unlimited Ports (Up to 512)	X	X	X	X	X

X = Supported

– = Not Supported

***** = Refer to NetLink feature in the SV8100 Features and Specifications Manual for more details regarding the NetLink feature.

 Only 1 CD-LTA blade can be installed when the CD-CP00-US is installed with the PZ-ME50. Up to 4 CD-LTA blades can be installed per system (one per chassis) when the PZ-ME50 is installed on the CD-CP00-US.


3.3.2 Installation

To install a PZ-ME50 on the CD-CP00-US or CC-CP00:



Do not remove or install the CD-CP00-US or CC-CP00 with the power on.

For installation on the CD-CP00-US blade refer to [Figure 6-4 CD-CP00-US Blade with Daughter Boards Installed on page 6-15](#). For installation on the CC-CP00 blade, refer to [Figure 6-6 CC-CP00 Blade on page 6-25](#).

 This daughter board does not have any switches which need to be set and does not require any hardware setting.

- ***Each node in a NetLink network requires the PZ-ME50.***
- ***CD-CP00-US without the PZ-ME50 installed, supports a single chassis system only (Six slots only).***
- ***CD-CP00-US with the PZ-ME50 is required to support a system with multiple chassis.***
- ***CD-CP00-US without the PZ-ME50 supports only (One) CD-LTA (8 Digital Station/2SLT) blade.***



3.4 PZ-VM21 (Voice Mail Daughter Board)

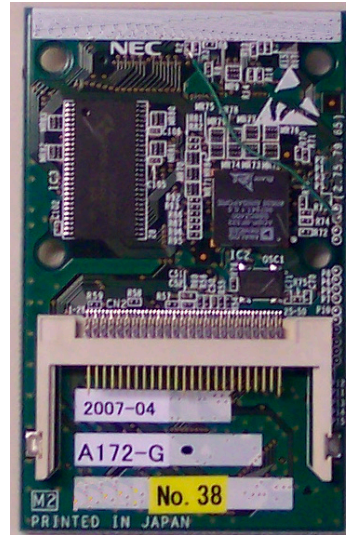


Figure 6-8 PZ-VM21 Daughter Board

3.4.1 Description

The PZ-VM21 is common to both UNIVERGE SV8100/SV8300 systems.

The SV8100 voice mail is a fully integrated, “in-skin” voice mail with Automated Attendant. In addition to the voice mail function, the daughter board provides Voice Response System (VRS) and an optional modem ability for remote maintenance functions. Its robust feature set rivals the capabilities of standalone products on a single, plug-in voice mail blade.

In the SV8300, the PZ-VM21 can only provide an optional modem ability for remote maintenance functions.

This daughter board is installed on either the CD-CP00-US or CC-CP00.

The daughter board available is:

- ☐ PZ-VM21 – providing 16 channels for voice mail (a compact flash card is required for voice mail) and a single channel V34 modem.

[Table 6-17 PZ-VM21 Maximum Upgrade Capacities](#) provides the maximum capacities for the PZ-VM21 blades when they are upgraded.

Table 6-17 PZ-VM21 Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
1	0	0	50

Depending on the compact flash card used, the voice mail can provide:

Table 6-18 CompactFlash Voice Mail Specifications

UNIVERGE SV8100/SV8300 VM8000 InMail Part Numbers and Capacities	
P/N 670831	UNIVERGE SV8100/SV8300 VM8000 InMail 512M Drive ○ (1) 32-hour CompactFlash Card with software.
P/N 670784	UNIVERGE SV8100/SV8300 VM8000 InMail 8-Port License
P/N 670872	UNIVERGE SV8100/SV8300 VM8000 InMail 2-Port License
P/N 670873	UNIVERGE SV8100/SV8300 VM8000 InMail 4-Port License
P/N 670874	Language License
P/N 670103	○ (1) Daughter Board Interface for InMail CF.
Mailboxes:	Station Mailboxes = 512 Routing Mailboxes = 32 Group Mailboxes = 32 Total Mailboxes = 576


3.4.2 Installation

To install a PZ-VM21 on the CD-CP00-US or CC-CP00:



Do not remove or install the CD-CP00-US or CC-CP00 with the power on.

1. Included with the PZ-VM21 are four plastic spacers. Install the plastic spacers onto the PZ-VM21. Make sure to attach the spacers so that they extend out on the side of the daughter board which has the CN1 connector. Refer to [Figure 6-9 Installing the PZ-VM21 on page 6-41](#).
2. For installation on the CD-CP00-US blade refer to [Figure 6-4 CD-CP00-US Blade with Daughter Boards Installed on page 6-15](#). For installation on the CC-CP00 blade, refer to [Figure 6-6 CC-CP00 Blade on page 6-25](#).
3. Position the PZ-VM21 CN1 connector over the CN4 connector on the CD-CP00-US blade. Press the boards together, ensuring the plastic spacers lock in place.
4. Insert the CompactFlash card into the CN2 slot.

 *The LED1 status lights steadily when a card is installed.*

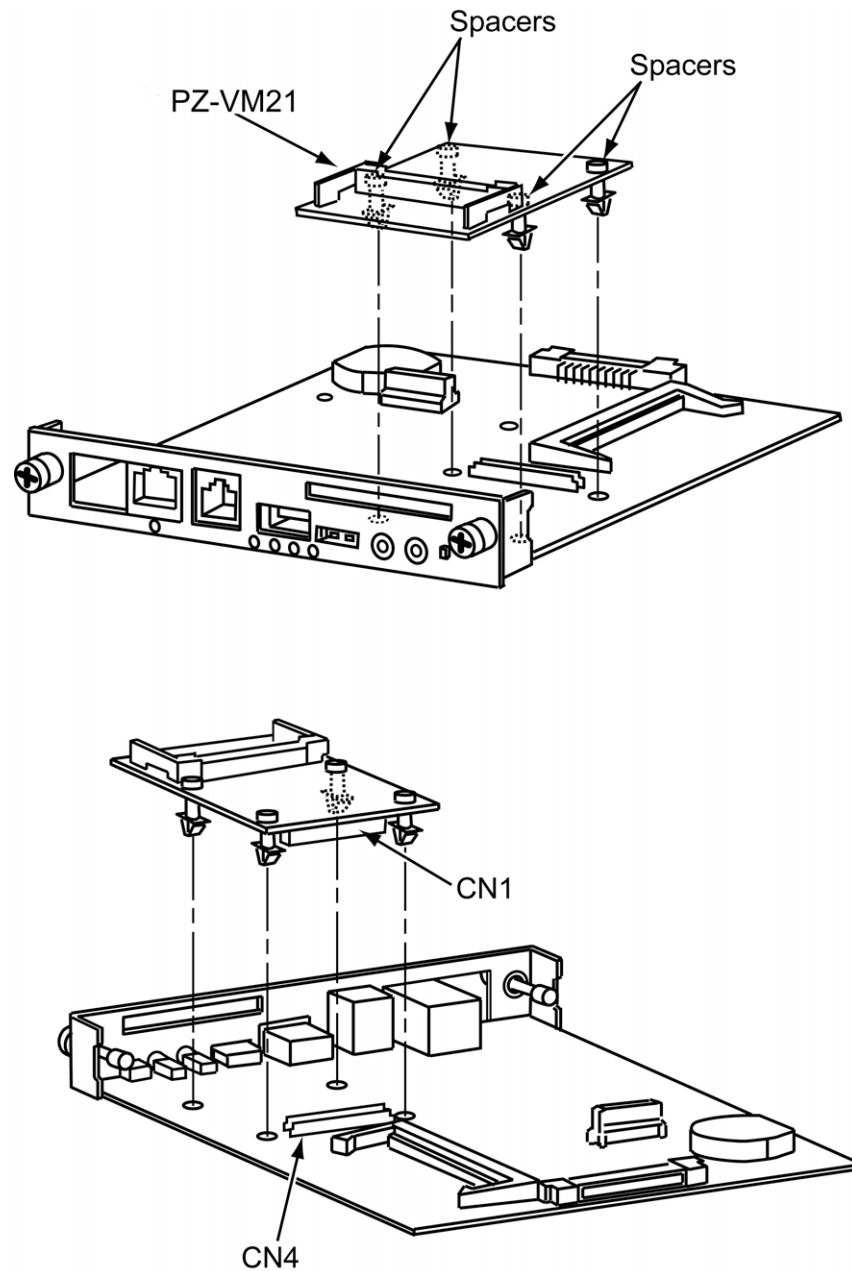


Figure 6-9 Installing the PZ-VM21

One InMail can be installed per system.

Refer to the Univerge UNIVERGE SV8100/SV8300 System InMail System Guide for complete set-up information.

3.4.3 Switch Settings

This daughter board does not have any switch that needs to be set and does not require any hardware setting.

3.5 PZ-32IPLA/PZ-64IPLA/PZ-128IPLA (Voice over IP Daughter Boards)

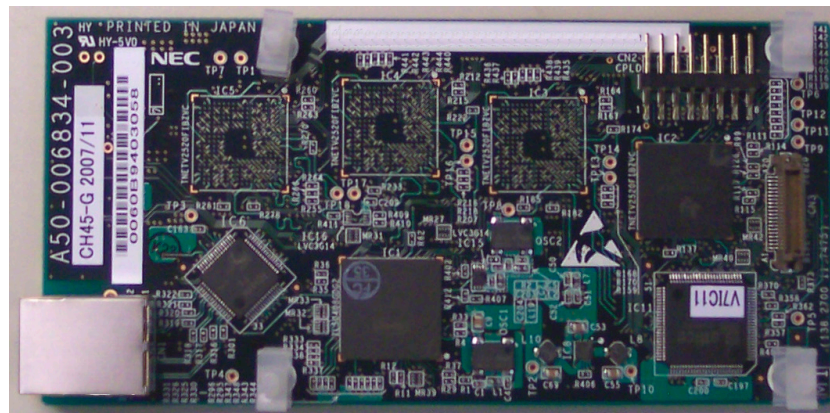


Figure 6-10 PZ-32IPLA VoIPDB-32 Daughter Board

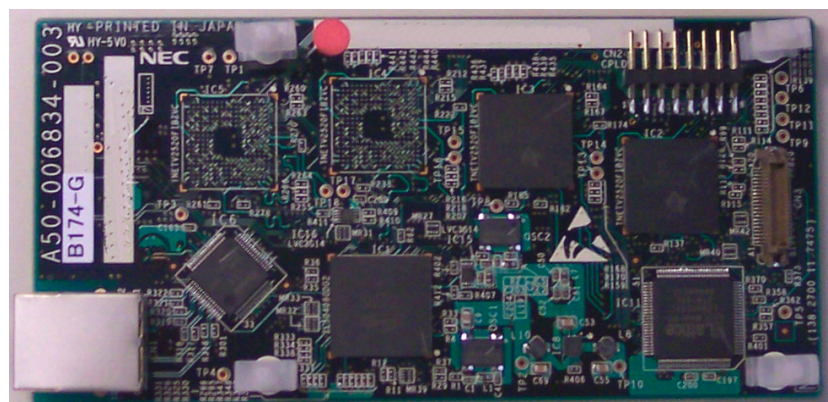


Figure 6-11 PZ-64IPLA VoIPDB-64 Blade

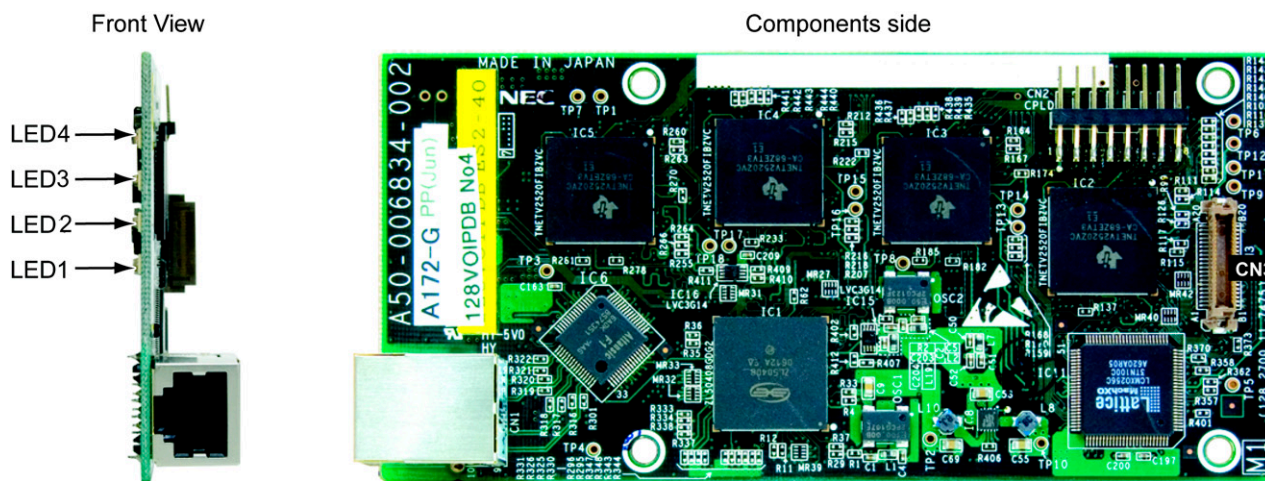


Figure 6-12 PZ-128IPLA VoIPDB-128 Blade

3.5.1 Description

The PZ-32IPLA, PZ-64IPLA and PZ-128IPLA daughter boards are common to both UNIVERGE SV8100/SV8300 systems.

The PZ-32IPLA/PZ-64IPLA/PZ-128IPLA daughter boards are used for converting the RTP (Real Time Transfer Protocol) packets via the IP network and PCM highway. The daughter board is installed on the CD-CP00-US/CC-CP00. The IP telephones are connected directly to the IP bus. When IP telephones need to be connected to a conventional PCM-based digital circuit, this board converts the IP packet signal into a PCM signal format and connects to the PCM time division switch.

The PZ-32IPLA/PZ-64IPLA/PZ-128IPLA daughter board is required for IP telephones to communicate with non-VoIP UNIVERGE SV8100/SV8300 telephones, and place or receive outside calls.

The VoIP daughter board provides the voice (RTP/RTCP) processing function. The call control function is mounted on the CPU. Only one version of the VOIPDB (32, 64, or 128) can be installed on the CPU at a time.

The VOIPDB daughter board provides:

- ☐ 32 (PZ-32IPLA) channels
- ☐ 64 (PZ-64IPLA) channels
- ☐ 128 (PZ-128IPLA) channels

[Table 6-19 VOIPDB Maximum Upgrade Capacities](#) provides the maximum capacities for the VOIPDB blades when they are upgraded.

Table 6-19 VOIPDB Maximum Upgrade Capacities

VOIPU	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
PZ-32IPLA	1	0	0	50
PZ-64IPLA	1	0	0	50
PZ-128IPLA	1	0	0	50

When installing a VoIPDB blade, the system allocates the maximum number of trunk ports for the blade being installed.

This daughter board is installed on either the CD-CP00-US or the CC-CP00.

3.5.2 Installation

To install a PZ-32IPLA/PZ-64IPLA/PZ-128IPLA on the CD-CP00-US or CC-CP00 :



Do not remove or install the CD-CP00-US or CC-CP00 with the power on.

1. With the system power off, remove the CD-CP00-US or CC-CP00.
2. Install the VOIPDB onto the CD-CP00-US or CC-CP00 blade.
3. Insert the CD-CP00-US into slot 1 in the Controlling Chassis or, the CC-CP00 into the CHS1U-US.

 Refer to [Figure 4-25 19" Controlling Chassis – Guides Slot 1](#) on page 4-28 for more details.

4. Connect the VOIPDB to the CD-RTB or to an external switching hub using an ethernet cable.
5. Refer to the Univerge SV8100 Programming Manual for detailed programming instructions.

3.5.3 Switch Settings

These daughter boards do not have any switches that need to be set and do not require any hardware setting.

3.5.4 LED Indications

LED indications for the PZ-32IPLA, PZ-64IPLA and PZ-128IPLA Daughter Boards are indicated in [Table 6-20 VOIPDB LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-4 CD-CP00-US Blade with Daughter Boards Installed on page 6-15](#) or [Figure 6-6 CC-CP00 Blade on page 6-25](#) for the location of the LEDs on the blades.

Table 6-20 VOIPDB LED Indications

LED	Function	LED Status	Operation Status
Link 10/100 (LED 1)	10Base-T/100Base-TX link speed indicator	On Red	100Base-TX link up
LINK 1000 (LED2)	1000Base-T link speed indicator	On Red	1000Base-T link up
DUPLEX (LED3)	Duplex Status	On Yellow	Full duplex operation
ACT (LED4)	Link activity or data transmission and reception	On Green	Link up completed

The following table shows the LED indication when transmitting or receiving data on CN1.

Table 6-21 VOIPDB LED CN1 Transmit/Receive Data Indications

LED	Link Up									
	Auto Negotiation Mode					Force Mode				
	1000 M bps	100Mbps		10Mbps		1000 M bps	100Mbps		10Mbps	
		Half	Full	Half	Full		Half	Full	Half	Full
ACT (LED4)	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
DUPLEX (LED3)	ON	OFF	ON	OFF	ON	ON	OFF	ON	OFF	ON
LINK1000 (LED2)	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
LINK10_100 (LED1)	OFF	ON	ON	OFF	OFF	OFF	ON	ON	ON	ON

3.5.5 Connectors

Figure 6-13 VoIP Connections shows a typical connection layout. Figure 6-14 Connecting a VOIPDB to a Network/PC illustrates how to connect a VoIP Daughter Board to a Network or PC.

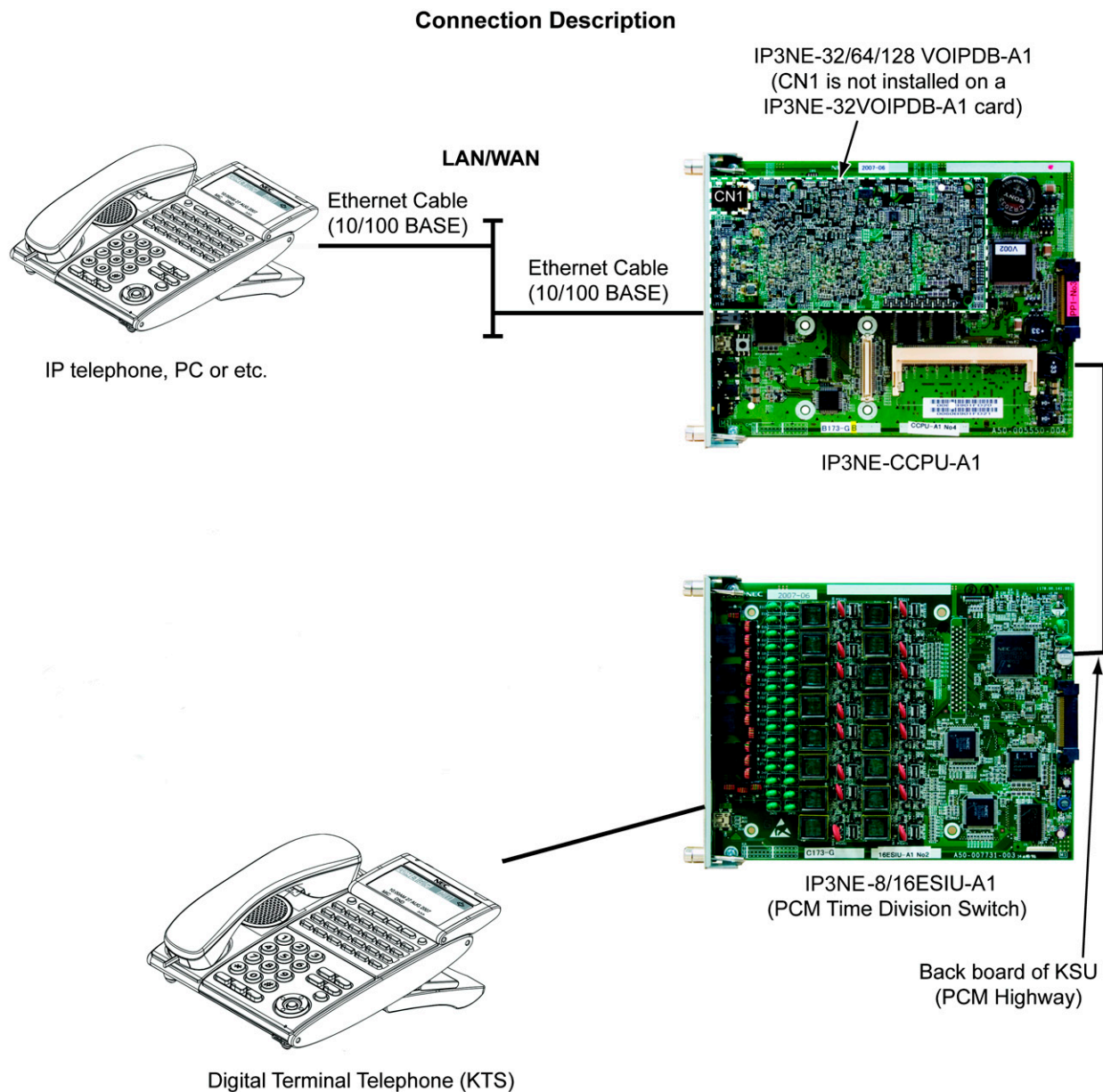


Figure 6-13 VoIP Connections

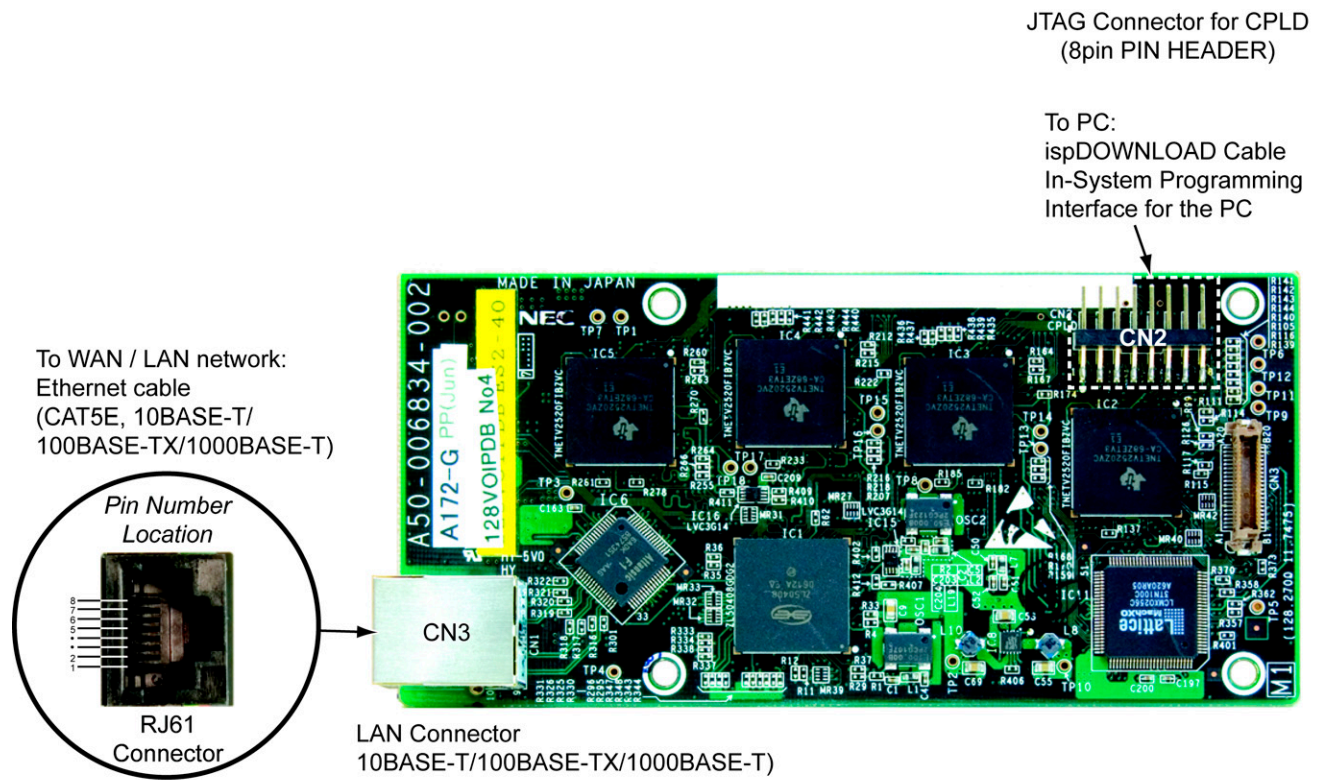


Figure 6-14 Connecting a VOIPDB to a Network/PC

SECTION 4 STATION BLADES

4.1 CD-8DLCA/CD-16DLCA (Digital Station Interface)

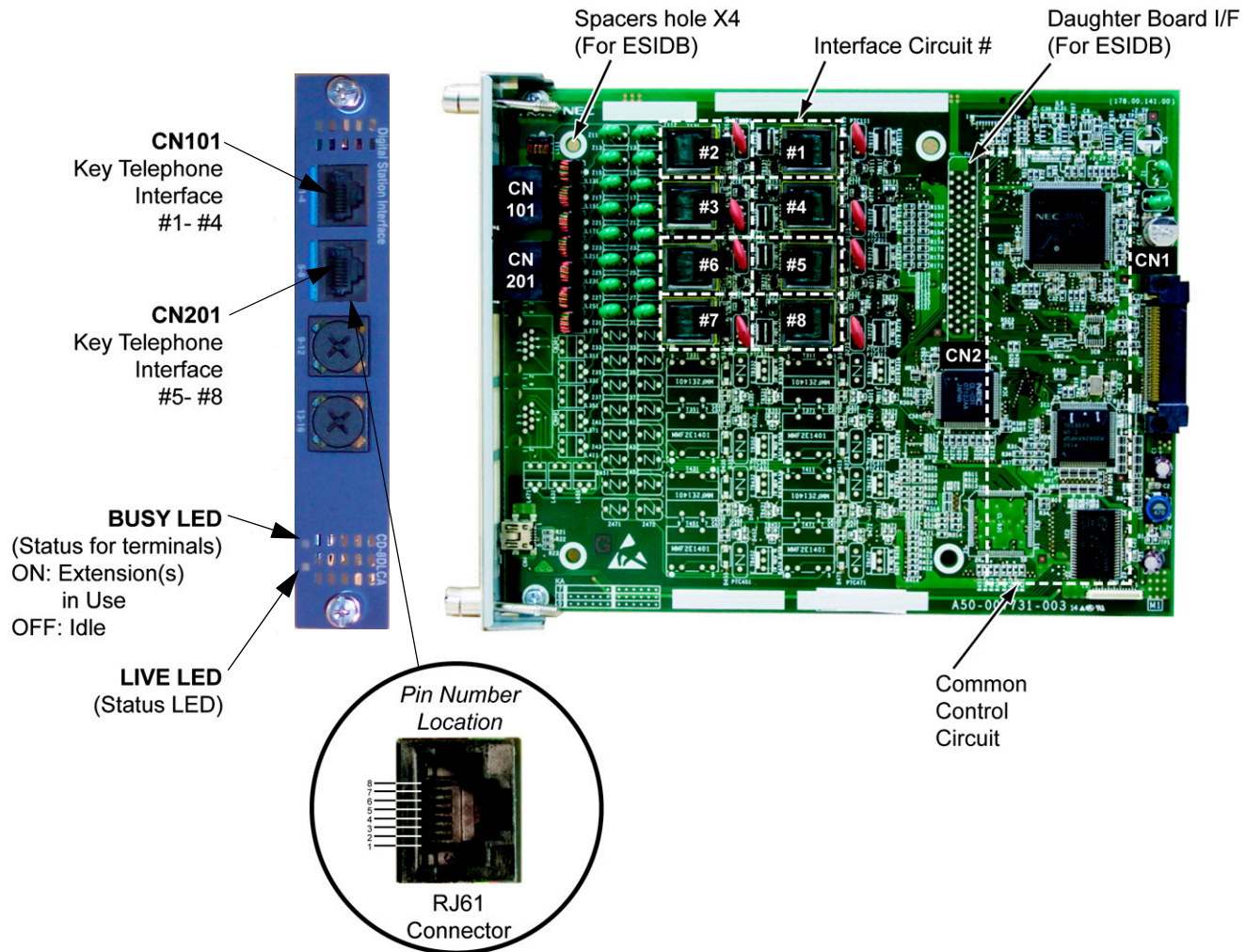


Figure 6-15 CD-8DLCA Blade

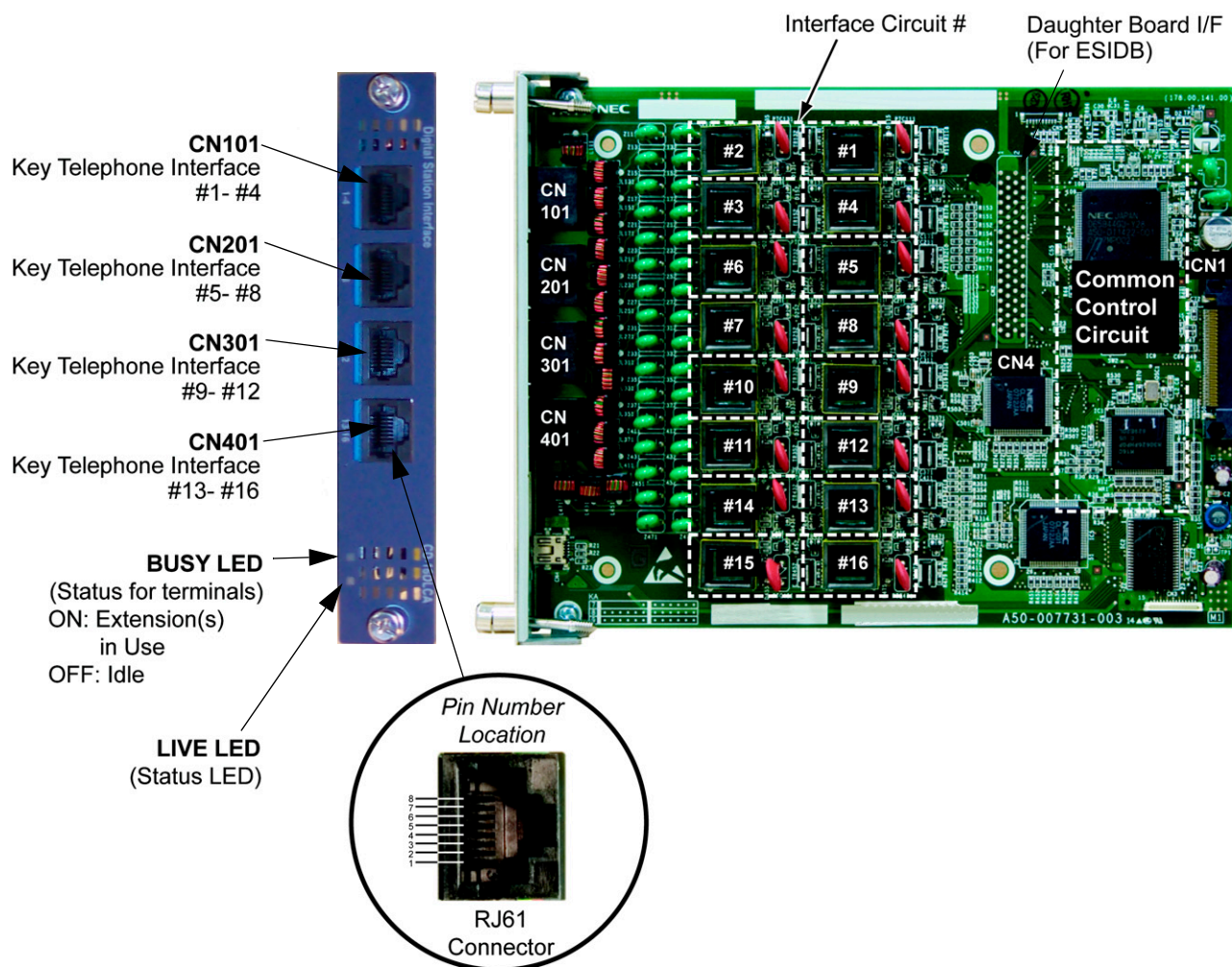


Figure 6-16 CD-16DLCA Blade

4.1.1 Description

The CD-8DLCA and the CD-16DLCA are available for both the SV8100 and SV8300 systems. Both are discussed in this section. Any differences between the two are noted. These blades provide:

- ☐ 8 (CD-8DLCA) OR 16 (CD-16DLCA) digital extension circuits (used for digital telephones, DSS consoles, SLT(1)-U() ADP, PGD(2)-U10 ADP adapters)
- ☐ These ports provide -48V feeding.
- ☐ Two blade status LEDs – One Live LED, One Busy/Idle LED

[Table 6-22 CD-8DLCA/CD-16DLCA Maximum Upgrade Capacities](#) provides the maximum capacities for the ESIU blades when they are upgraded.

Table 6-22 CD-8DLCA/CD-16DLCA Maximum Upgrade Capacities

ESIU	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
CD-8DLCA	5	6	23	32
CD-16DLCA	5	5	20	32

4.1.2 Installation

The CD-8DLCA/CD-16DLCA blades can be installed in any universal slot in the system and up to a maximum of 20 DLCA blades can be installed per system, providing up to 320 digital ports.

To install the PZ-8DLCA/CD-16DLCA:

1. If installing the CD-8DLCA and the PZ-8DLCA daughter board is to be attached, do so now. Refer to [4.2.2 Installation on page 6-54](#).
2. Each CNx01 connector (CN101, CN201, CN301, CN401) is used to connect up to four digital extensions.

4.1.3 LED Indications

LEDs for the CD-8DLCA/CD-16DLCA are described in [Table 6-23 CD-8DLCA/CD-16DLCA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-15 CD-8DLCA Blade](#) and [Figure 6-16 CD-16DLCA Blade](#) for the location of the LEDs on the blades.

Table 6-23 CD-8DLCA/CD-16DLCA LED Indications

LED Indication		Operation Status	Remarks
Live LED (Green)	Busy LED (Red)		
On	On	System Initializing	–
Flash (1s)	On	The assignment of the unit is refused.	When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.	–

Table 6-23 CD-8DLCA/CD-16DLCA LED Indications (Continued)

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash (100ms On/Off)	Downloading firmware.		–

4.1.4 Connectors

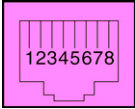
The CNx01 connectors provide connection to four digital station ports. With the CD-16DLCA blade, the CN101, CN201, CN301, and CN401 connectors are available. With the CD-8DLCA blade the CN301 and CN401 connectors are removed from the blade.



Any cabling to the DLCA blade must be within the building - no outside cabling is permitted.

[Table 6-24 CD-8DLCA/CD-16DLCA/ RJ-61 Cable Connector Pin-Outs on page 6-52](#) show the pin-outs for the RJ-61 connector. Refer to [Figure 6-15 CD-8DLCA Blade on page 6-48](#) and [Figure 6-16 CD-16DLCA Blade on page 6-49](#) for the location of the connectors on the ESIU blades.

Table 6-24 CD-8DLCA/CD-16DLCA/ RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector CD-8DLCA – CN101 (ports 1~4), CN201 (ports 5~8) CD-16DLCA – CN101 (ports 1~4), CN201 (ports 5~8), CN301 (ports 9~12), CN401 (ports 13~16)		
	Pin No.	Connection
	1	T4 (Tip for port 4)
	2	T3 (Tip for port 3)
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2)
	7	R3 (Ring for port 3)
	8	R4 (Ring for port 4)

4.2 PZ-8DLCB (Digital Station Daughter Board)

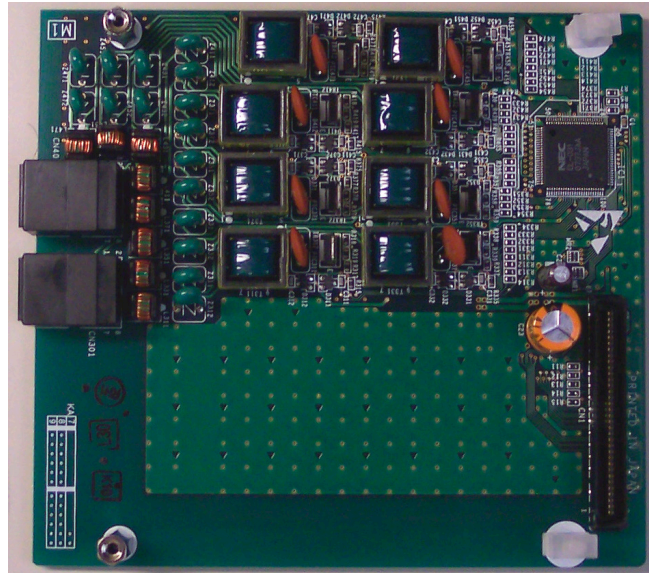


Figure 6-17 PZ-8DLCB Blade

4.2.1 Description

The PZ-8DLCB blade is common to both UNIVERGE SV8100/SV8300 systems.

The PZ-8DLCB daughter board provides eight digital extensions. This daughter board is installed on the CD-8DLCA and expands the port capacity for the combined blades to 16.

[Table 6-25 PZ-8DLCB Maximum Upgrade Capacities](#) provides the maximum capacities for the ESIU blades when they are upgraded.

Table 6-25 PZ-8DLCB Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
5	5	20	32

4.2.2 Installation

The PZ-8DLCB is installed on the CD-8DLCA. To install:

- 1. Connect the PZ-8DLCB to the CN2 connector on the CD-8DLCA blade. Refer to [Figure 6-15 CD-8DLCA Blade on page 6-48](#) for the location of the connectors on the blade.
- 2. Install the CD-8DLCA into a slot.
- 3. Each CNx01 connector (CN101, CN201, CN301, CN401) is used to connect up to four digital extensions.

4.2.3 PZ-8DLCB Daughter Board Cable Connection

The PZ-8DLCB blade has connections for CN301 and CN401 Refer to [Figure 6-16 CD-16DLCA Blade](#) for connector locations.

The following tables show the cable connections of the two RJ-61 connectors on the PZ-8DLCB.

Table 6-26PZ-8DLCB CN301 Connection


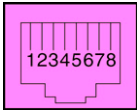
RJ-61 Cable Connector CN301 (ports 9~12)		
	Pin No.	Connection
	1	(T4) Tip for port 12
	2	(T3) Tip for port 11
	3	(T2) Tip for port 10
	4	(R1) Ring for port 9
	5	(T1) Tip for port 9
	6	(R2) Ring for port 10
	7	(R3) Ring for port 11
	8	(R4) Ring for port 12

Table 6-27 PZ-8DLCB CN401 Connection

RJ-61 Cable Connector CN401 (ports 13~16)		
	Pin No.	Connection
	1	(T4) Tip for port 16
	2	(T3) Tip for port 15
	3	(T2) Tip for port 14
	4	(R1) Ring for port 13
	5	(T1) Tip for port 13
	6	(R2) Ring for port 14
	7	(R3) Ring for port 15
	8	(R4) Ring for port 16

4.3 CD-4LCA/ CD-8LCA (4-Port/8-Port Single Line Interface)

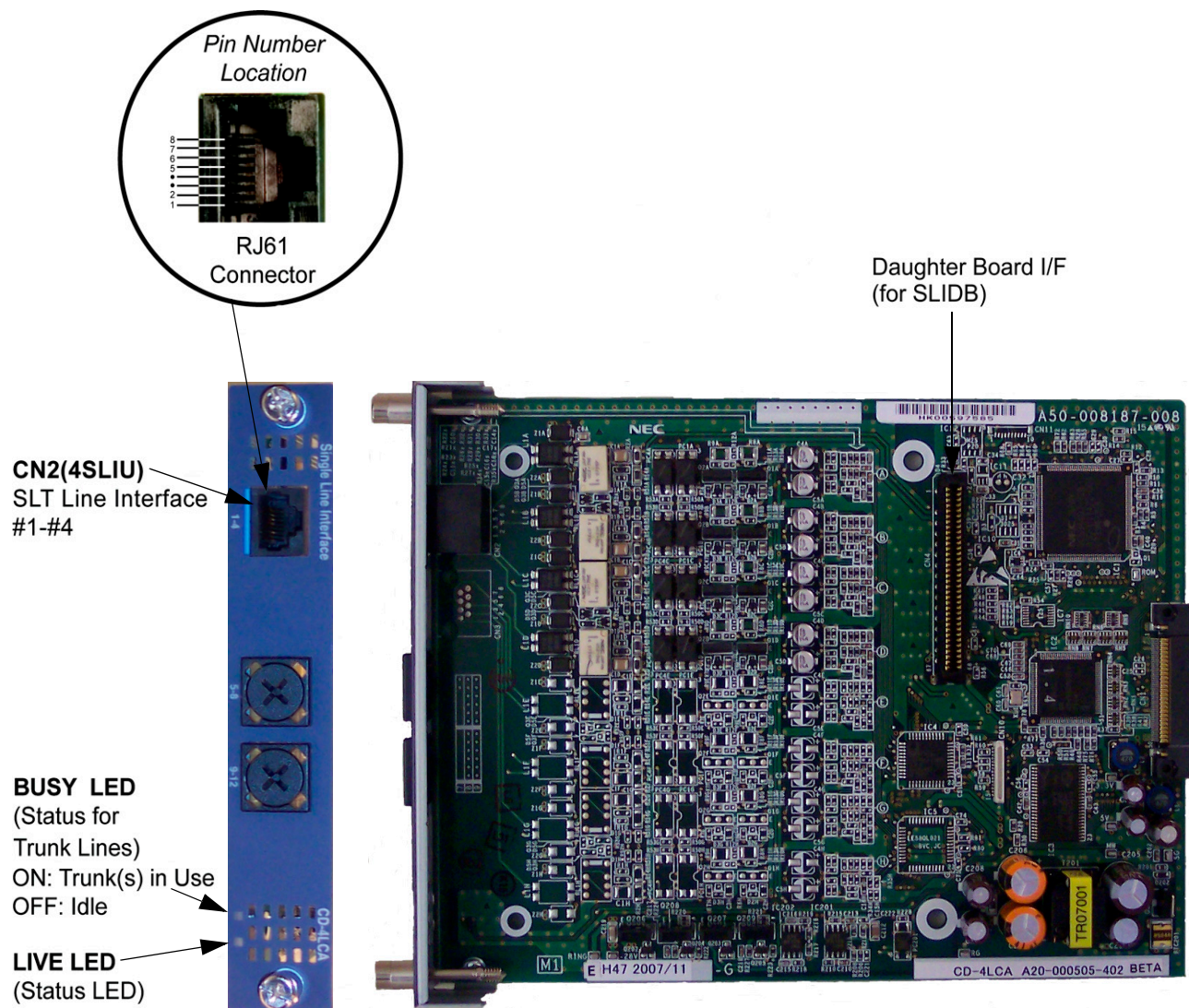


Figure 6-18 CD-4LCA Blade

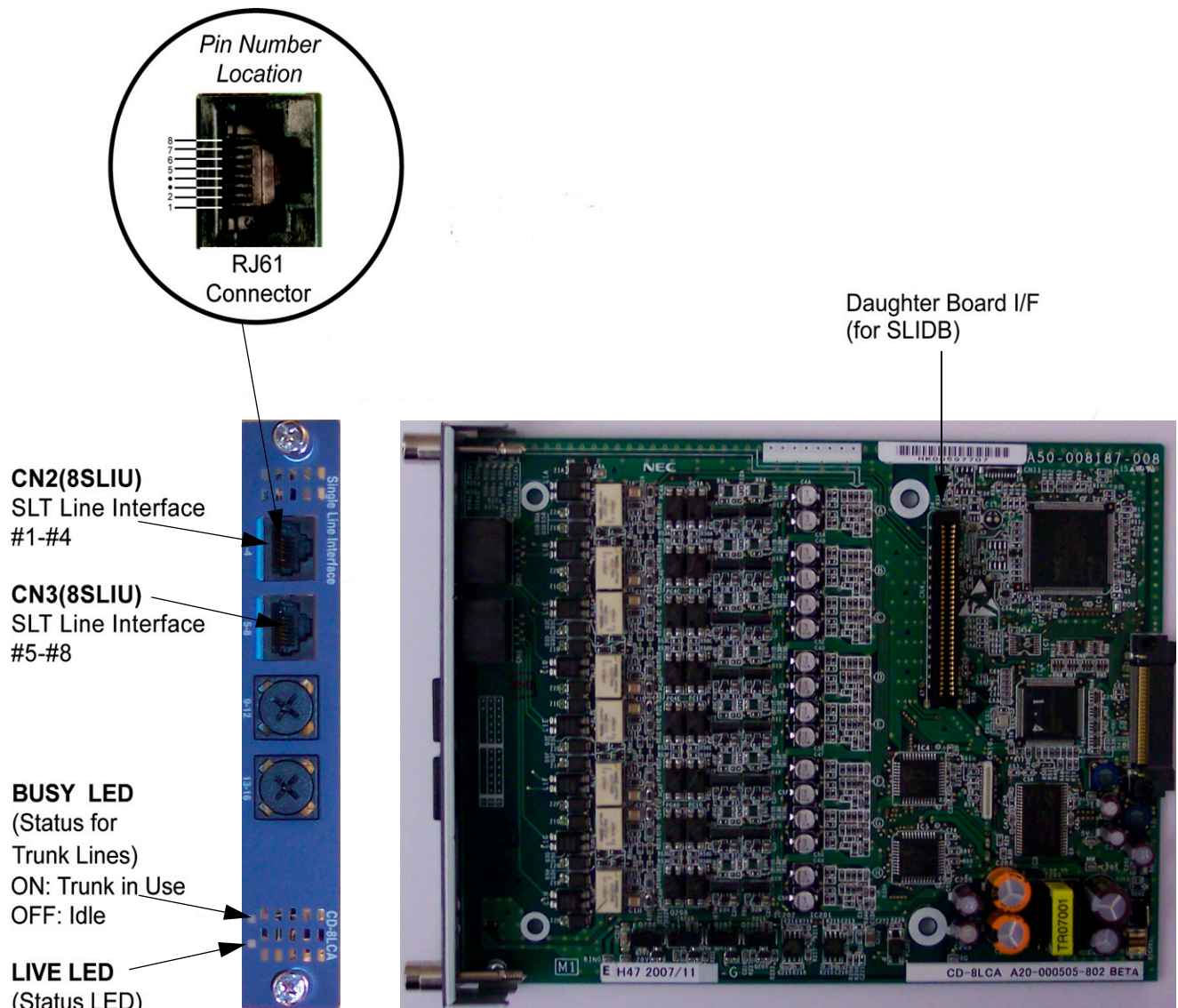


Figure 6-19 CD-8LCA Blade

4.3.1 Description

The CD-4LCA/CD-8LCA blade is common to both UNIVERGE SV8100/SV8300 systems.

The 4/8SLIU blade provides four (4SLIU) analog extension ports or eight (8SLIU) analog extension ports (used for on-premise analog telephones, fax machines, and analog modems).

The 4SLIU and 8SLIU are not rated for OPX use. A 4DIOPU blade should be used instead (it supports the analog DID and single line telephone interface functions, such as Off-Premise Extensions).

- ☐ One extension status LED
- ☐ Two blader status LEDs
- ☐ Constant current type battery feeding (25mA / -28Vdc)
- ☐ Feeding Polarity Reverse Ability
- ☐ Connector for PZ-4LCA/PZ-8LCE Daughter Boards
- ☐ Ring Generator
- ☐ Caller ID Sending Ability
- ☐ Message Wait Lamping Ability

The CD-8LCA consumes eight ports ranging between ports 001~256. The CN3 and CN5 connectors each provide connection to four analog station ports. The CNx connectors are not polarity sensitive.

Table 6-28 CD-4LCA/CD-8LCA Maximum Upgrade Capacities


SLIU	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
CD-4LCA	5	6	23	32
CD-8LCA	5	6	23	32

4.3.2 Installation



- *When connecting a fax machine or analog modem, make sure to set Program 15-03-03 to 1 (special terminal) to avoid communication problems.*
- *The SLIU and SLIDB are categorized as TNV2. With this designation, off-premise wiring is not acceptable. Any cabling to the SLIU blade must be within the building – no outside cabling is permitted.*
- *Branch connection is not acceptable.*

Install the CD-4LCA/ CD-8LCA blade into any available universal slot.

 If the PZ-4LCA/PZ-8LCE is used, install this prior to inserting the CD-8LCA into the chassis

4.3.3 LED Indications

LED indications for the CD-4LCA/CD-8LCA are listed in [Table 6-29 CD-4LCA/CD-8LCA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-18 CD-4LCA Blade on page 6-56](#) and [Figure 6-19 CD-8LCA Blade on page 6-57](#) for the location of the LEDs on the blades.

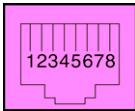
Table 6-29 CD-4LCA/CD-8LCA LED Indications

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash (100ms On/Off)	Downloading firmware.		–

4.3.4 Connectors

Table 6-30 CD-4LCA/CD-8LCA RJ-61 Cable Connector Pin-Outs show the pin-outs for the RJ-61 connector. Refer to [Figure 6-18 CD-4LCA Blade on page 6-56](#) and [Figure 6-19 CD-8LCA Blade on page 6-57](#) for illustrations showing the location of the connectors and the pin number locations on the SLIU blades

Table 6-30 CD-4LCA/CD-8LCA RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector 8SLIU – CN2 (ports 1~4) 8SLIU – CN2 (ports 1~4), CN3 (ports 5~8)		
	Pin No.	Connection
	1	T4 (Tip for port 4)
	2	T3 (Tip for port 3)
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2)
	7	R3 (Ring for port 3)
	8	R4 (Ring for port 4)

4.4 PZ-4LCA/PZ-8LCE (4-Port/8-Port SLI Daughter Boards)

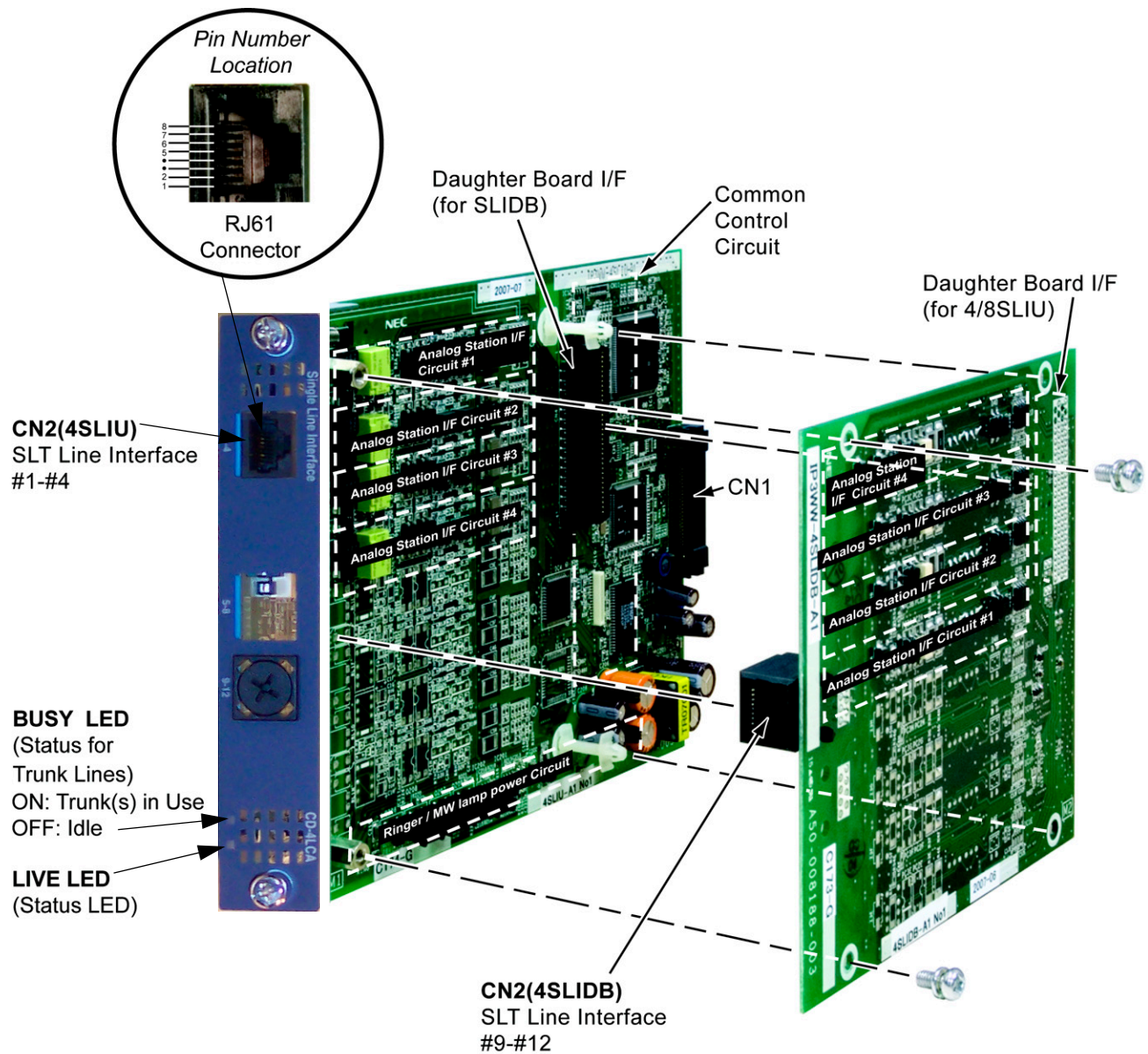


Figure 6-20 Installing the PZ-4LCA Daughter Board

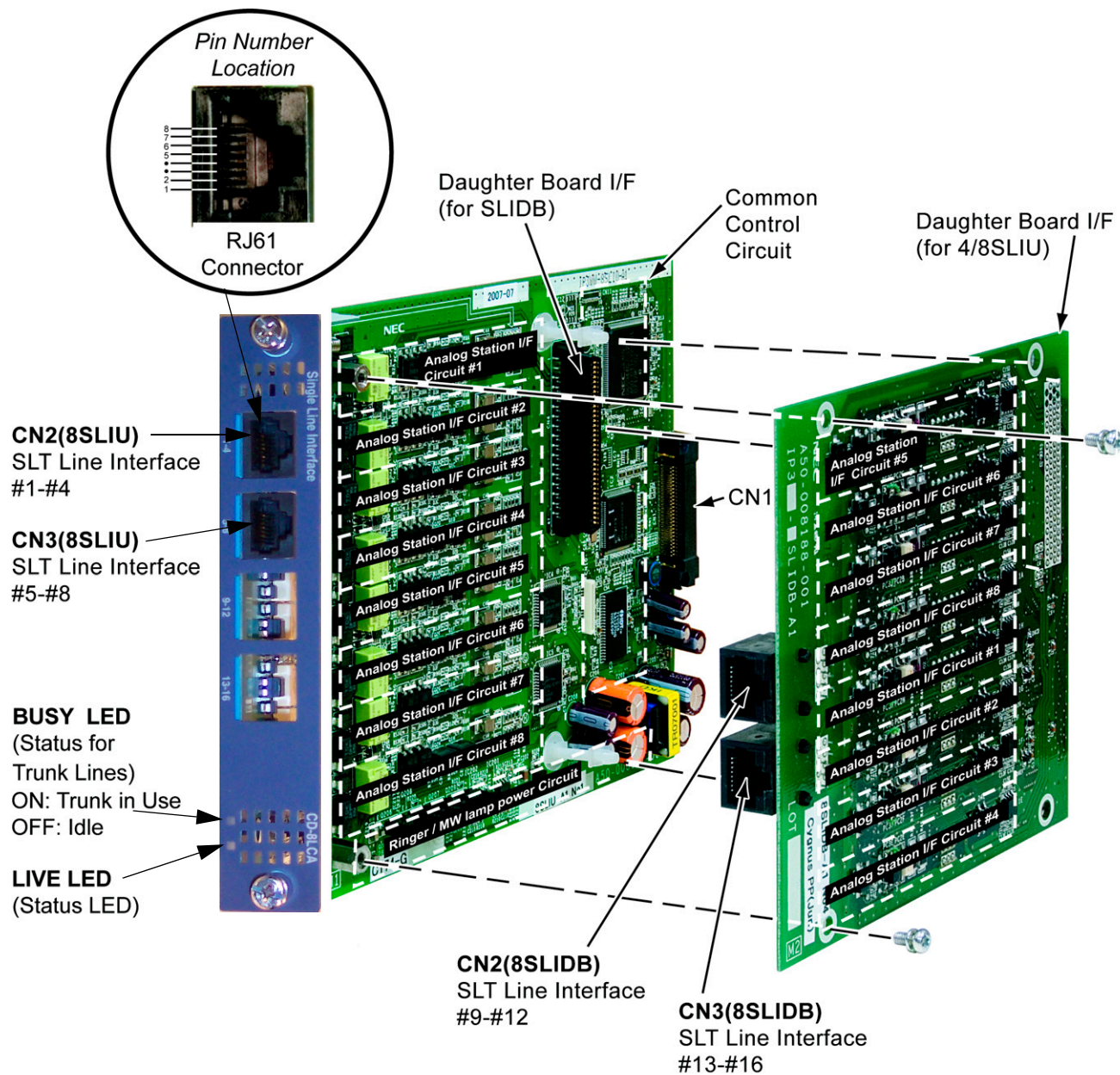



Figure 6-21 Installing the PZ-8LCE Daughter Board

4.4.1 Description

The PZ-4LCA and PZ-8LCE daughter boards are mounted on the CD-4LCA/CD-8LCA. These boards provide:

- ☐ 4-Port Single Line and 8-Port Single Line analog extension ports (used for on-premise analog telephones, fax machines, and analog modems).

 *The CD-4LCA/CD-8LCA is not rated for OPX use. A CD-4DIOPA blade should be used instead (it supports the analog DID and single line telephone interface functions, such as Off-Premise Extensions).*

- ☐ Connector for CD-4LCA and CD-8LCA Blades
- ☐ One extension status LED
- ☐ Two status LEDs
- ☐ Ring Generator
- ☐ Caller ID Sending Ability
- ☐ Message Wait Lamping Ability
- ☐ Constant current type battery feeding (25mA / -28Vdc)
- ☐ Feeding Polarity Reverse Ability

The CN2 (PZ-4LCA/PZ-8LCE) and CN3 (PZ-8LCE only) connectors each provide connection to four analog station ports and are not polarity sensitive. The PZ-8LCE consumes eight ports ranging between ports 001~256 (remember that the 8SLIU consumes eight ports).

Table 6-31 CD-4LCA/CD-8LCA Maximum Upgrade Capacities

SLIU	19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
PZ-4LCA	5	6	23	32
PZ-8LCE	5	6	20	32

4.4.2 Installation



- *When connecting a fax machine or analog modem, make sure to set Program 15-03-03 to 1 (special terminal) to avoid communication problems.*
- *The SLIU and SLIDB are categorized as TNV2. With this designation, off-premise wiring is not acceptable. Any cabling to the SLIDB PCB must be within the building – no outside cabling is permitted.*
- *Branch connection is not acceptable.*

These daughter boards can be installed on the CD-4LCA or CD-8LCA blades.

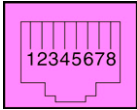
To install the PZ-4LCA/PZ-8LCE:

1. Included with the SLIDB are four plastic spacers. Install the plastic spacers onto either the CD-4LCA or CD-8LCA. Make sure to attach the spacers so that they extend out on the side of the daughter board which has the CN1 connector. Refer to [Figure 6-20 Installing the PZ-4LCA Daughter Board on page 6-61](#) and [Figure 6-21 Installing the PZ-8LCE Daughter Board on page 6-62](#).
2. Position the SLIDB CN1 connector over the CN4 connector on the SLIU blade. Press the boards together, ensuring the plastic spacers lock in place. Refer to [Figure 6-20 Installing the PZ-4LCA Daughter Board on page 6-61](#) and [Figure 6-21 Installing the PZ-8LCE Daughter Board on page 6-62](#).
3. Install the SLIU blade into the slot on the chassis.

4.4.3 Connectors

Table 6-32 PZ-4LCA/PZ-8LCE/ RJ-61 Cable Connector Pin-Outs show the pin-outs for the RJ-61 connector. Refer to [Figure 6-20 Installing the PZ-4LCA Daughter Board on page 6-61](#) and [Figure 6-21 Installing the PZ-8LCE Daughter Board on page 6-62](#) for illustrations showing the location of the connectors on the SLIDB blades.

Table 6-32 PZ-4LCA/PZ-8LCE/ RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector – 48SLIDB – CN2 (ports 9~12) 8SLIDB – CN2 (ports 9~12), CN3 (ports 13~16)		
	Pin No.	Connection
	1	T4 (Tip for port 4)
	2	T3 (Tip for port 3)
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2)
	7	R3 (Ring for port 3)
	8	R4 (Ring for port 4)

4.5 CD-LTA (D^{term} /SLT Combination)

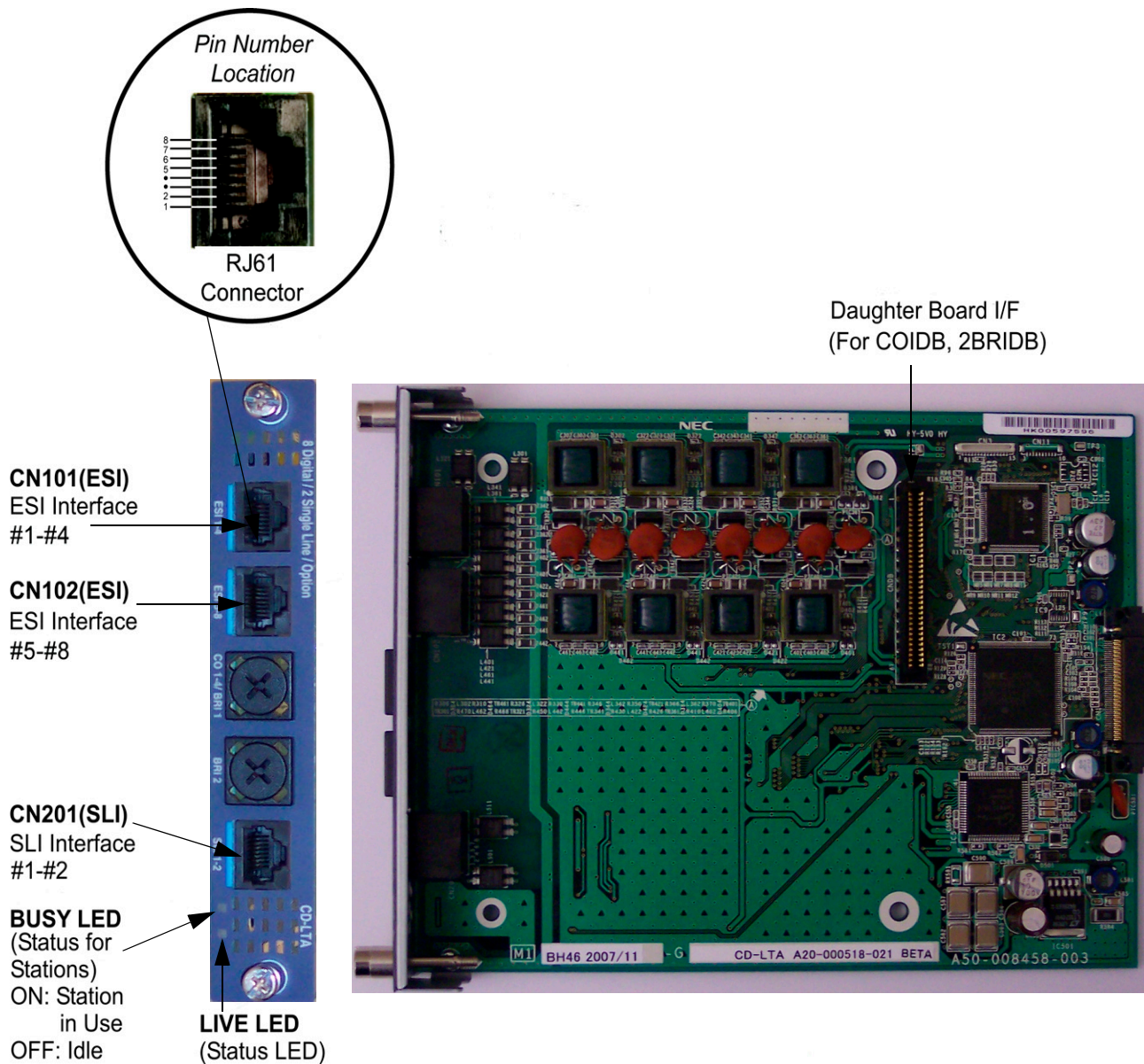


Figure 6-22 CD-LTA Blade

4.5.1 Description

The CD-LTA blade is available only for the SV8100 system.

The Digital Station/SLT Combination blade provides eight Digital Station ports and two analog ports. This blade allows for either a PZ-4COTF analog trunk daughter board or PZ-2BR1A daughter board to be installed.

The blade provides:

- ☐ Eight Digital Station ports
- ☐ Two analog extension ports
- ☐ Two status LEDs

[Table 6-33 CD-LTA Maximum Upgrade Capacities](#) provides the maximum capacities for the CD-LTA blades when they are upgraded.

Table 6-33 CD-LTA Maximum Upgrade Capacities

CCPU	CD-LTA
Without PZ-ME50	Only one supported
With PZ-ME50	Maximum of four per system One per chassis

4.5.2 Installation

Install the CD-LTA blade into any available universal slot.



- *When connecting a fax machine or analog modem, make sure to set Program 15-03-03 to 1 (special terminal) to avoid communication problems.*
- *The SLIU and SLIDB are categorized as TNV2. With this designation, off-premise wiring is not acceptable. Any cabling to the SLIDB PCB must be within the building – no outside cabling is permitted.*
- *Branch connection is not acceptable.*

4.5.3 LED Indications

LED indications for the CD-LTA are indicated in [Table 6-34 CD-LTA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-22 CD-LTA Blade on page 6-66](#) for the location of the LEDs on the blade.

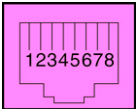
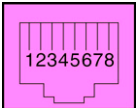
Table 6-34 CD-LTA LED Indications

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash (100ms On/Off)	Downloading firmware.		–

4.5.4 Connectors

Table 6-35 CD-LTA RJ11 Cable Connector Pin-Outs on page 6-69 shows the pin-outs for the RJ-61 connector. Refer to Figure 6-22 CD-LTA Blade on page 6-66 for an illustration showing the location of the connectors on the CD-LTA blade.

Table 6-35 CD-LTA RJ11 Cable Connector Pin-Outs

RJ11 Cable Connector Digital: CN101 (ports 1~4) Digital: CN102 (ports 5~8)		
	Pin No.	Connection
	1	T4/T8 (Tip for port 4 or 8)
	2	T3/T7 (Tip for port 3 or 7)
	3	T2/T6 (Tip for port 2 or 6)
	4	R1/R5 (Ring for port 1 or 5)
	5	T1/T5 (Tip for port 1 or 5)
	6	R2/R6 (Ring for port 2 or 6)
	7	R3/R7 (Ring for port 3 or 7)
	8	R4/R8 (Ring for port 4 or 8)
RJ11 Cable Connector Analog: CN201 (ports 1~2)		
	Pin No.	Connection
	1	—
	2	—
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2)
	7	—
	8	—

SECTION 5 TRUNK BLADES

5.1 CD-4COTB (4 Loop and Ground Start Interface)

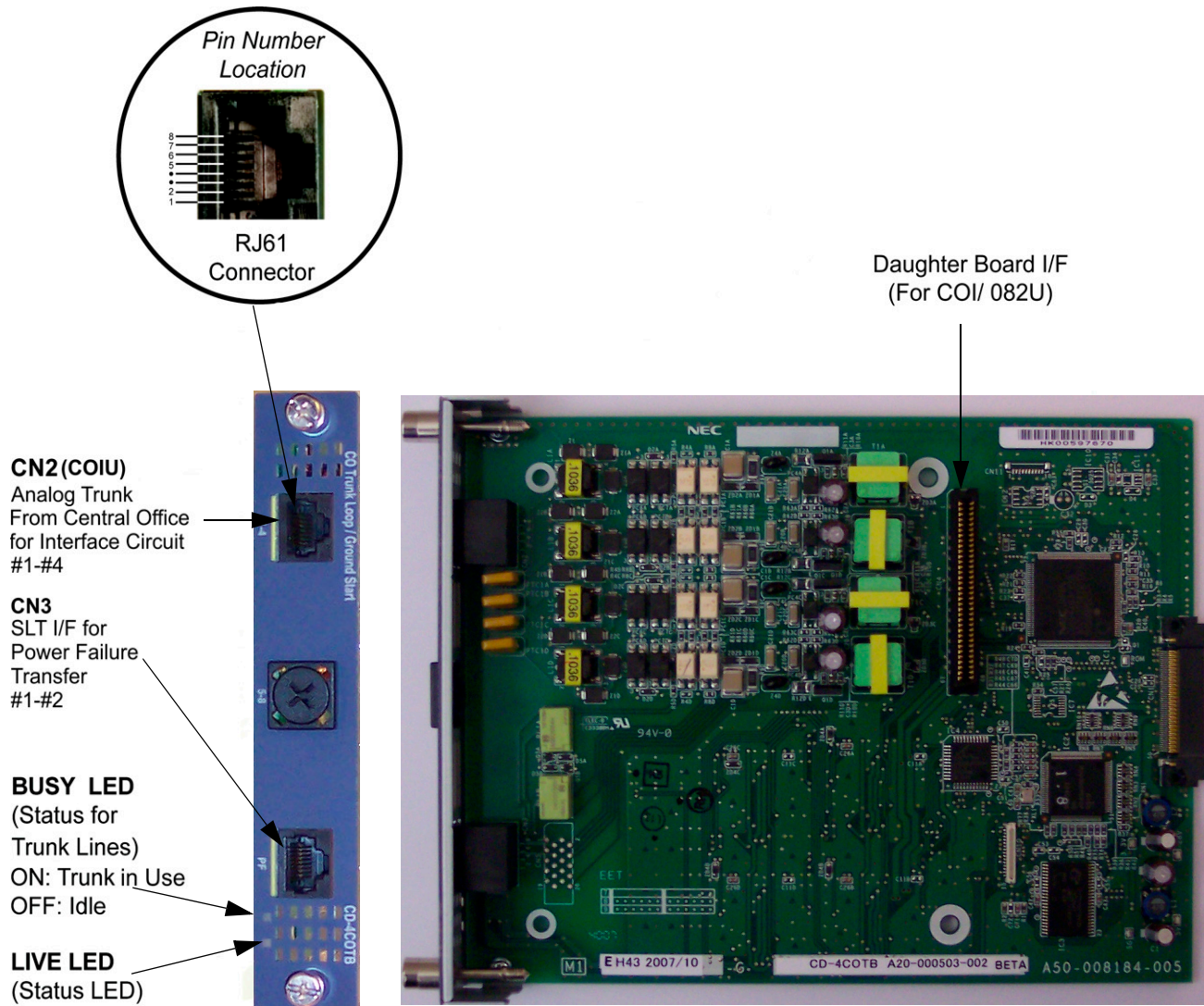


Figure 6-23 CD-4COTB Blade

5.1.1 Description

The CD-4COTB blade is common to both UNIVERGE SV8100/SV8300 systems.

The COIU blade provides:

- ☐ CD-4COTB: Four analog loop start/ground start trunk circuits

- ☐ One trunk status LED
- ☐ One Blade status LED
- ☐ Four Caller ID Circuits
- ☐ Two Power Failure Transfer Circuits
- ☐ Connection for COIDB Daughter Board

The 4COIU blade consumes four trunk ports ranging between ports 001~200. The CN2 connector provides connection to four analog trunk ports, **which are polarity sensitive (tip-to-tip, ring-to-ring)**. The power failure circuits (CN3), however, are not polarity sensitive.



- *When using the CD-4COTB blade for ground start trunks, the PBX ground must be connected as described in Chapter 4 Installing the SV8100 Chassis , section 3.5.5 Install 19" Chassis Grounding on page 4-39 or the trunks will not function correctly.*
- *The trunk ports are polarity sensitive. Be careful when wiring the trunks.*
- *When connecting the RJ-61 cables to the CD-4COTB blades, note the position of the Power Failure connector (CN3). Do not confuse this connector as the trunk connector (CN2).*
- *Switching from Loop Start to Ground Start is set in system programming.*
- *Do not wire an RJ-11 directly to the CD-4COTB interface. Use the appropriate RJ-61 wiring when connecting to the CD-4COTB.*


Table 6-36 CD-4COTB Maximum Upgrade Capacities provides the maximum capacities for the 4COIU blades when they are upgraded.

Table 6-36 CD-4COTB Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
5	6	23	25

5.1.2 Installation

Install the COIU blade into an available slot in the chassis. (Refer to [Figure 6-23 CD-4COTB Blade on page 6-70](#) for a layout of the blade.)

 If the PZ-4COTF is to be used, install this prior to inserting the CD-4COTB blade into the chassis.

5.1.3 LED Indications

LED indications for the CD-4COTB are listed in [Table 6-37 CD-4COTB LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-23 CD-4COTB Blade on page 6-70](#) for the location of the LEDs on the blades.

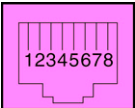
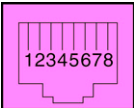
Table 6-37 CD-4COTB LED Indications

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash (100ms On/Off)	Downloading firmware.		–

5.1.4 Connectors

Table 6-38 CD-4COTB RJ-61 Cable Connector Pin-Outs on page 6-73 shows the pin-outs for the RJ-61 connector. Refer to Figure 6-23 CD-4COTB Blade on page 6-70 for an illustration showing the location of the connectors on the 4COIU blades.

Table 6-38 CD-4COTB RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector – CN2, Trunks The CN2 connector is <i>polarity sensitive (tip-to-tip, ring-to-ring)</i> .		
	Pin No.	Connection
	1	Circuit 4 – Tip
	2	Circuit 3 – Tip
	3	Circuit 2 – Tip
	4	Circuit 1 – Ring
	5	Circuit 1 – Tip
	6	Circuit 2 – Ring
	7	Circuit 3 – Ring
	8	Circuit 4 – Ring
RJ-61 Cable Connector – CN3, SLT Interface for Power Failure		
	Pin No.	Connection
	1	–
	2	–
	3	Circuit 2 – Tip
	4	Circuit 1 – Ring
	5	Circuit 1 – Tip
	6	Circuit 2 – Ring
	7	–
	8	–

5.2 PZ-4COTF (4 Loop and Ground Start Interface Daughter Board)

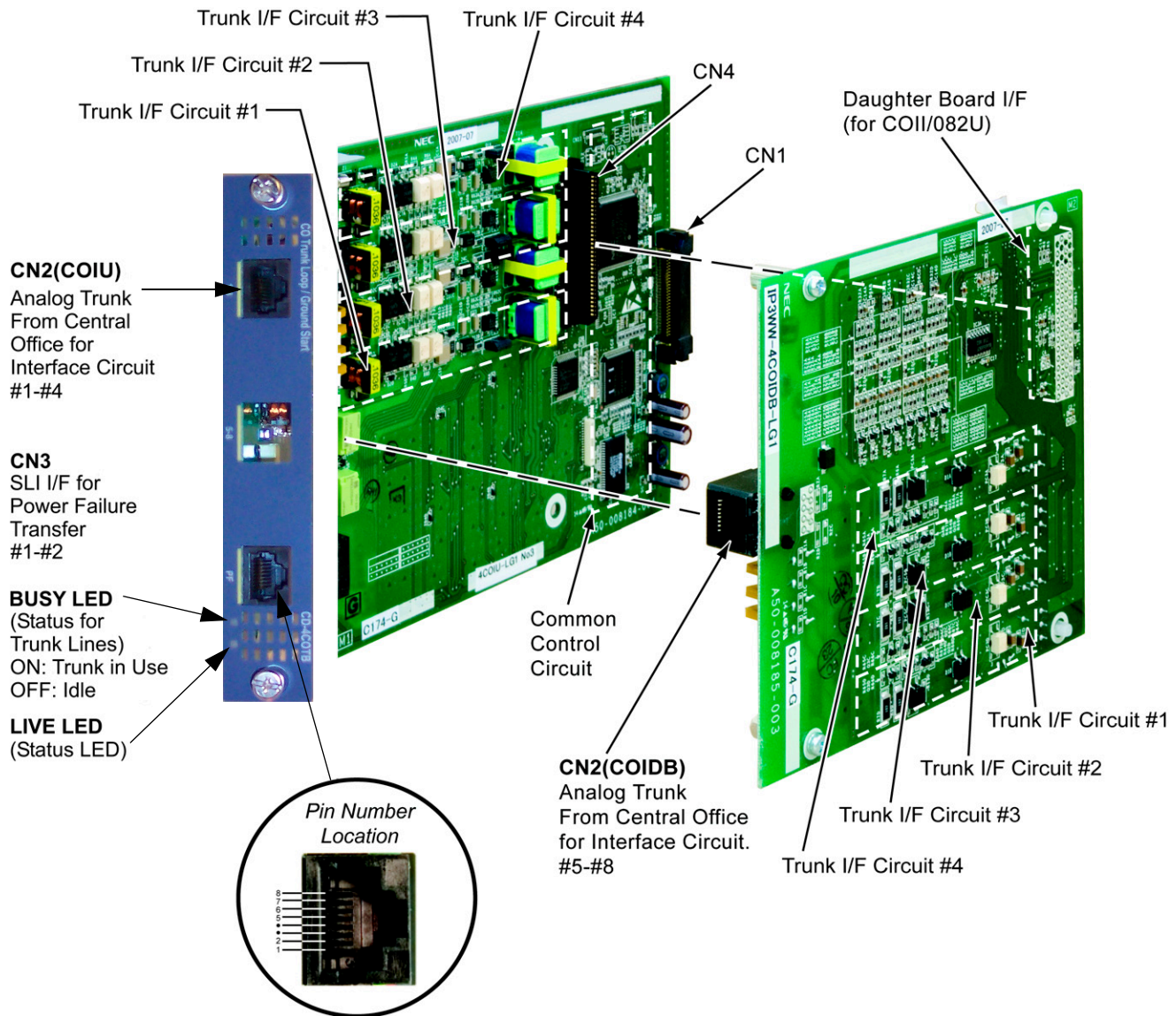


Figure 6-24 Installing the PZ-4COTF Daughter Board

5.2.1 Description

The PZ-4COTF daughter board is common to both UNIVERGE SV8100/SV8300 systems.

The PZ-4COTF blade provides:

- ☐ PZ-4COTF: Four analog loop start/ground start trunk circuits
- ☐ Four Caller ID Circuits

- ☐ Connector for COIU Blade
- ☐ Connector for CD-LTA

The PZ-4COTF consumes four trunk ports ranging between ports 001~200. The CN2 connector provides connection to four analog trunk ports, **which are polarity sensitive (tip-to-tip, ring-to-ring)**. The power failure circuits (CN3), however, are not polarity sensitive.



- *When using the PZ-4COTF blades for ground start trunks, the PBX ground must be connected as described in Chapter 4 Installing the SV8100 Chassis , section 3.5.5 Install 19" Chassis Grounding on page 4-39 or the trunks will not function correctly.*
- *The trunk ports are polarity sensitive. Be careful when wiring the trunks.*
- *When connecting the RJ-61 cable to the PZ-4COTF blade, note the position of the Power Failure connector (CN3). Do not confuse this connector as the trunk connector (CN2).*
- *Switching from Loop Start to Ground Start is set in system programming.*
- *Do not wire an RJ-11 directly to the CD-4COTB interface. Use the appropriate RJ-61 wiring when connecting to the CD-4COTB.*

Table 6-39 PZ-4COTF Maximum Upgrade Capacities provides the maximum capacities for the ESIU blades when they are upgraded.

Table 6-39 PZ-4COTF Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
5	6	23	32

5.2.2 Installation

To install the PZ-4COTF:

- 1. Four plastic spacers are included with the COIDB. Install the plastic spacers on the CD-4COTB or CD-LTA blade. Make sure to attach the spacers so that they extend out on the side of the daughter board which has the CN1 connector.
- 2. Position the PZ-4COTF CN1 connector over the CN4 connector on the CD-4COTB or CD-LTA. Press the blades together, ensuring the plastic spacers lock in place.
- 3. Install the PZ-4COTF blade (refer to [Figure 6-24 Installing the PZ-4COTF Daughter Board on page 6-74](#)).

5.2.3 Connectors

[Table 6-40 PZ-4COTF RJ-61 Cable Connector Pin-Outs on page 6-76](#) shows the pin-outs for the RJ-61 connector. Refer to [Figure 6-24 Installing the PZ-4COTF Daughter Board on page 6-74](#) for an illustration showing the location of the connectors on the PZ-4COTF blades.

Table 6-40 PZ-4COTF RJ-61 Cable Connector Pin-Outs

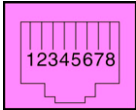
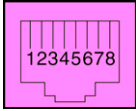
RJ-61 Cable Connector CN2, Trunks – Connecting to COIU Blade The CN2 connector is <i>polarity sensitive</i> (tip-to-tip, ring-to-ring).		
	Pin No.	Connection
	1	Circuit 8 – Tip
	2	Circuit 7 – Tip
	3	Circuit 6 – Tip
	4	Circuit 5 – Ring
	5	Circuit 5 – Tip
	6	Circuit 6 – Ring
	7	Circuit 7 – Ring
	8	Circuit 8 – Ring

Table 6-40 PZ-4COTF RJ-61 Cable Connector Pin-Outs (Continued)

RJ-61 Cable Connector CN2, Trunks – Connecting to CD-LTB/CD-LTA Blade The CN2 connector is <i>polarity sensitive</i> (tip-to-tip, ring-to-ring).		
	Pin No.	Connection
	1	Circuit 4 – Tip
	2	Circuit 3 – Tip
	3	Circuit 2 – Tip
	4	Circuit 1 – Ring
	5	Circuit 1 – Tip
	6	Circuit 2 – Ring
	7	Circuit 3 – Ring
	8	Circuit 4 – Ring

5.3 CD-2BRIA (2 Basic Rate Interface)

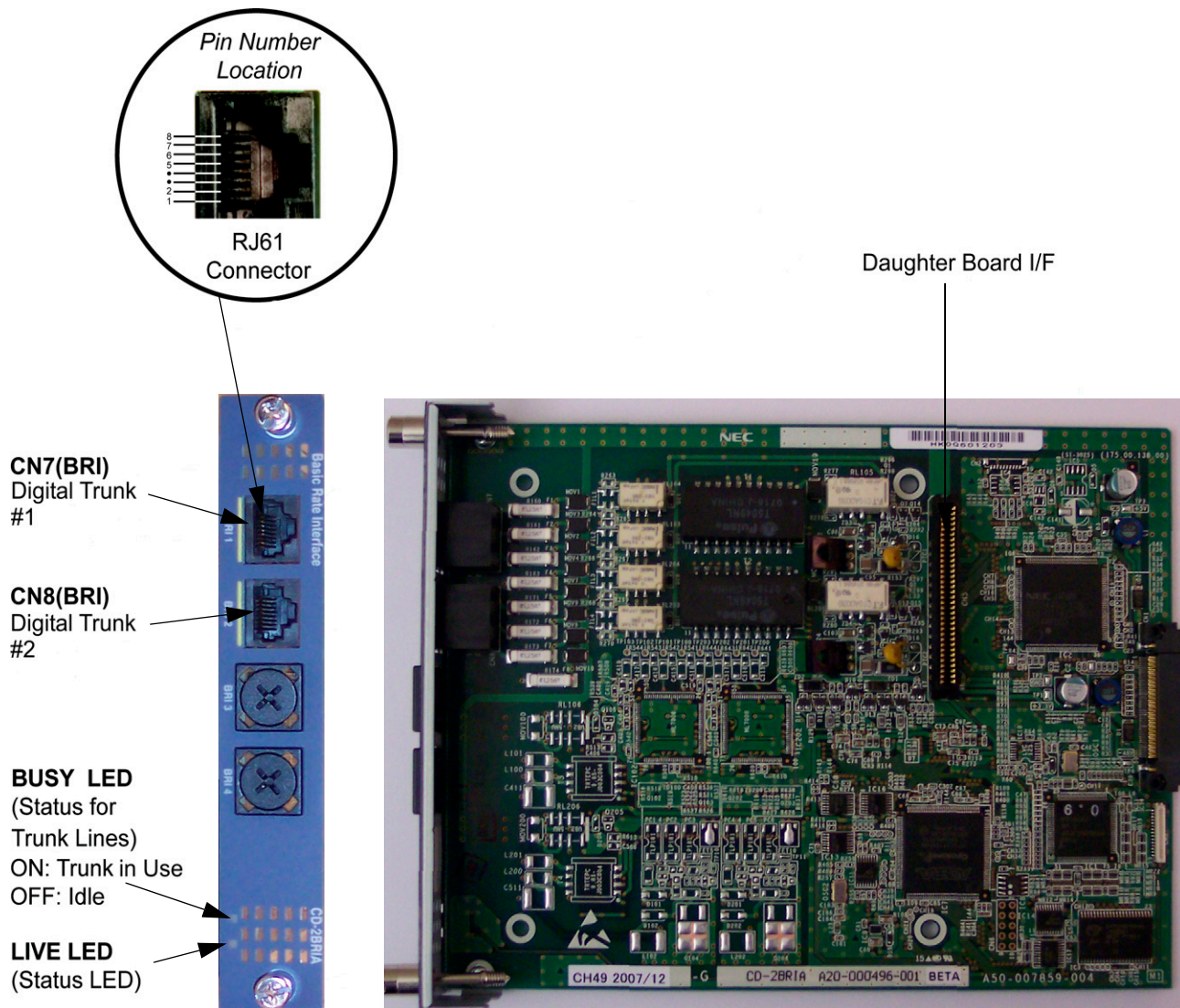


Figure 6-25 CD-2BRIA Blade

5.3.1 Description

The CD-2BRIA blade is common to both UNIVERGE SV8100/SV8300 systems.

This unit is an interface unit that accommodates an ISDN (Basic Rate) circuit.

The BRI blade provides:


- ☐ Two (CD-2BRIA) 2-Channel Circuits (2B + D) configured as T-Bus
- ☐ 64 Kb/s Clear B-Channel and 16 Kb/s D-Channel
- ☐ Two Status LEDs
- ☐ Connector for PZ-2BRIA

These trunk circuits T-Bus (SV8100) or S-Bus (SV8300 only) can be connected to either ISDN trunks or ISDN telephones, depending on the switch setting within system programming. All ISDN telephone circuits (#1-2 and #3-4 with the BRI daughter board) are supplied DC power from the system.

The BRI Interface blade uses a single universal slot. Each blade connects to the network via an NTI Network Termination.

In order to block new calls on the blade, system programming must be used. This program will prevent new calls from being established on the blade, but it will not terminate any existing calls.

With the maximum number of blades installed, the following can be provided:

 *The 2BRI provides 30 BRI circuits and 60 BRI channels.
(Port Consumption: T-Bus=4 ports)*

[Table 6-41 CD-2BRIA Maximum Upgrade Capacities](#) provides the maximum capacities for the CD-2BRIA blade when they are upgraded.

Table 6-41 CD-2BRIA Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
5	6	23	25

5.3.2 Installation

To install the CD-2BRIA:

1. Plug the CD-2BRIA blade into the system chassis.
2. Before proceeding to Step 3, wait to verify that the STATUS LED starts to flash. (Refer to [Figure 6-25 CD-2BRIA Blade on page 6-78](#) for the location of the LEDs on the blade.)



- *With normal operation, the status LED flashes fast. If trouble was found during the self diagnostics routine, the status LED flashes slow.*
- *Once connected, the ISDN Layer Link Status LEDs are on steady when the Layer I link is established. If there is no link, the LED is off.*

3. Connect the cable from the NT1 Network Termination cable to the CN7 or CN8 connector on the CD-2BRIA blade and/or PZ-2BRIA daughter board. (Refer to [Figure 6-25 CD-2BRIA Blade on page 6-78](#) for the location of the connectors on the blade.)

5.3.3 LED Indications

LED indications for the CD-2BRIA are listed in [Table 6-42 CD-2BRIA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-25 CD-2BRIA Blade on page 6-78](#) for the location of the LEDs on the blade.

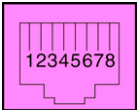
Table 6-42 CD-2BRIA LED Indications

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		—
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		—
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	—
	Off		All channels are idle.	—
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	—
	Off		All channels are idle.	—
	Flash (100ms On/Off)	Downloading firmware.		—

5.3.4 Connectors

[Table 6-43 CD-2BRIA RJ-45 T-Bus Cable Connector Pin-Outs](#) show the pin-outs for the RJ-45 cable connector for S-Bus and T-Bus connections. Refer to [Figure 6-25 CD-2BRIA Blade on page 6-78](#) for an illustration showing the location of the connectors on the CD-2BRIA blade.

Table 6-43 CD-2BRIA RJ-45 T-Bus Cable Connector Pin-Outs

RJ-45 Cable Connector – CN7, CN8		
	Pin No.	Connection
	1	—
	2	—
	3	TA
	4	RA
	5	RB
	6	TB
	7	—
	8	—

5.4 PZ-2BRIA (2 Basic Rate Interface Daughter Board)

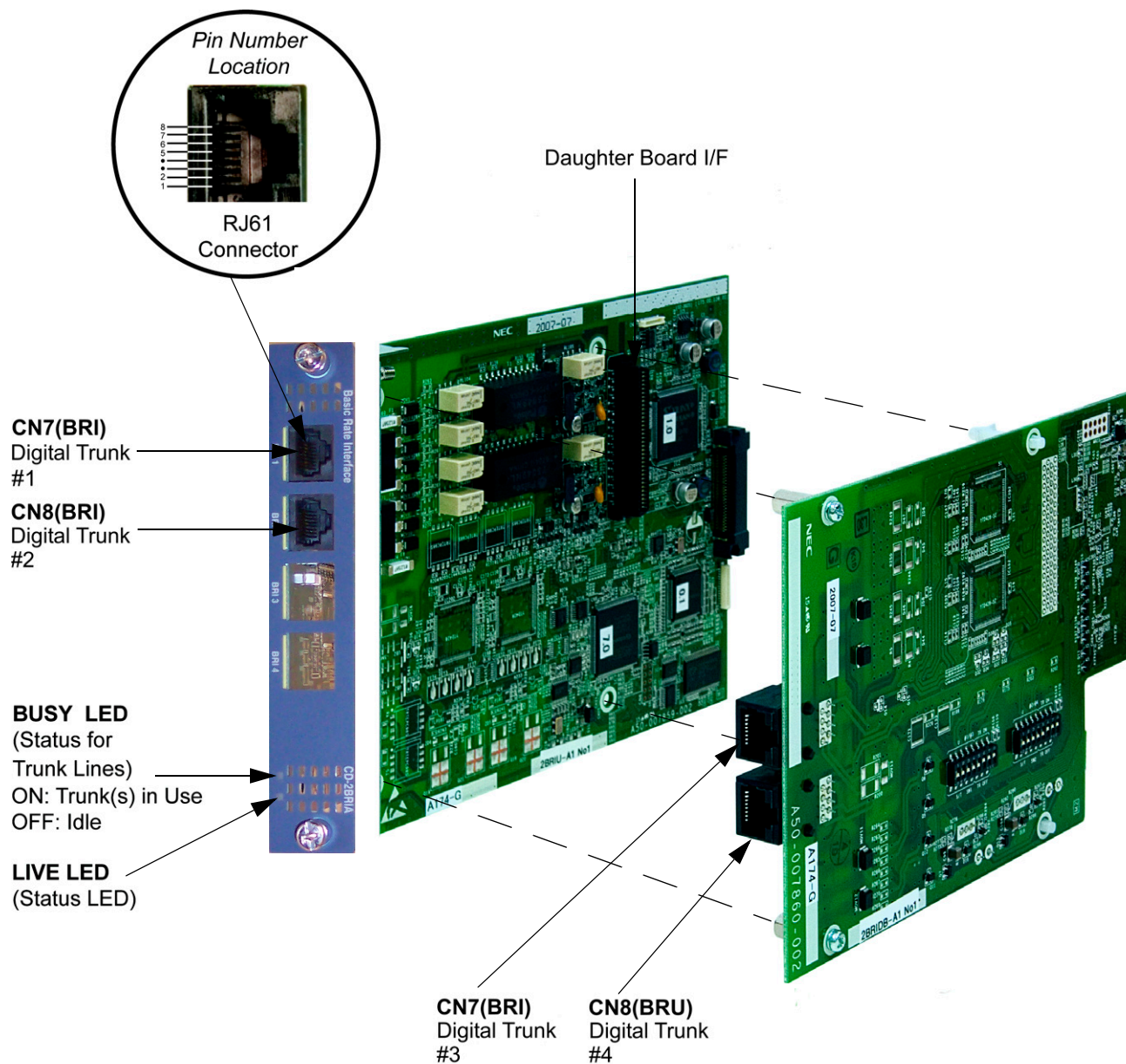


Figure 6-26 Installing the PZ-2BRIA Daughter Board

5.4.1 Description

The PZ-2BRIA daughter board is common to both UNIVERGE SV8100/SV8300 systems.

This daughter board provides two BRI circuits and is installed on the CD-2BRIA blade. This board provides:

- ☐ Two (CD-2BRIA) 2-Channel Circuits (2B + D) configured as T-Bus or S-Bus
- ☐ 64 Kb/s Clear B-Channel and 16 Kb/s D-Channel
- ☐ Connection point for CD-2BRIA
- ☐ Connection point for CD-LTA

These trunk circuits T-Bus (SV8100) or S-Bus (SV8300 only) can be connected to ISDN trunks or ISDN telephones, depending on the switch setting within system programming. All ISDN telephone circuits [#1-2 (BRI blade) and #3-4 (with the BRI daughter board)] are supplied DC power from the UNIVERGE SV8100/SV8300s systems.

System programming must be used to block new calls on the blade. This program will prevent new calls from being established on the blade, but it will not terminate any existing calls.


[Table 6-44 PZ-2BRIA Maximum Upgrade Capacities](#) provides the maximum capacities for the CD-2BRIA blade when they are upgraded.

Table 6-44 PZ-2BRIA Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
5	6	23	25

5.4.2 Installation

To install the PZ-2BRIA on the CD-2BRIA:

-  *Attach the PZ-2BRIA daughter board to the CD-2BRIA blade by lining up the CN5 connectors and pressing the boards together. (Refer to [Figure 6-26 Installing the PZ-2BRIA Daughter Board on page 6-82.](#))*

1. Install the CD-2BRIA blade into the system chassis.

2. Before proceeding to Step 3, wait to verify that the STATUS LED starts to flash.



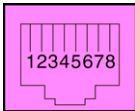
- *With normal operation, the status LED flashes fast. If trouble was found during the self diagnostics routine, the status LED flashes slow.*
- *Once connected, the ISDN Layer Link Status LEDs are on steady when the Layer I link is established. If there is no link, the LED is off.*

3. Connect the cable from the NT1 Network Termination cable to the CN7 or CN8 connector on the CD-2BRIA and/or PZ-2BRIA daughter board.

5.4.3 Connectors

Table 6-45 PZ-2BRIA RJ-45 T-Bus Cable Connector Pin-Outs show the pin-outs for the RJ-45 cable connector for S-Bus and T-Bus connections. Refer to Figure 6-26 Installing the PZ-2BRIA Daughter Board on page 6-82 for an illustration showing the location of the connectors on the PZ-2BRIA daughter board.

Table 6-45 PZ-2BRIA RJ-45 T-Bus Cable Connector Pin-Outs

RJ-45 Cable Connector – CN7, CN8		
	Pin No.	Connection
	1	—
	2	—
	3	TA
	4	RA
	5	RB
	6	TB
	7	—
	8	—

5.5 CD-4DIOPA (DID/OPX Interface)

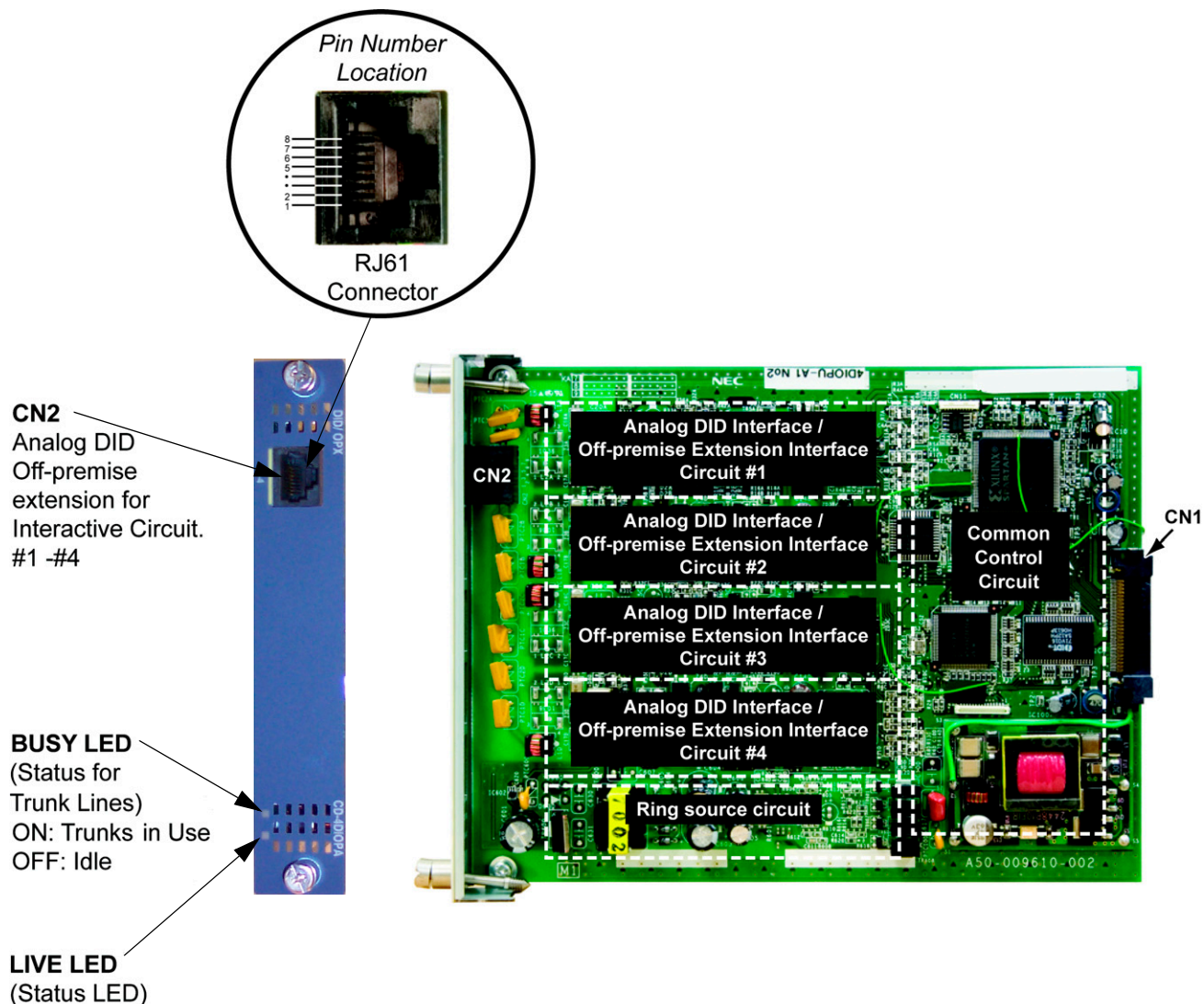


Figure 6-27 CD-4DIOPA Blade

5.5.1 Description

The CD-4DIOPA blade is common to both UNIVERGE SV8100/ SV8300 systems.

The CD-4DIOPA supports the analog DID and single line telephone interface functions (such as Off-Premise Extension). The function type is assigned in programming for each port. The circuit types, however, should be grouped together. For example, with three DID circuits and one OPX circuit, they should be grouped as DID, DID, DID and OPX and not DID, DID, OPX and DID.

The CD-4DIOPA provides:

- ☐ Four (4DIOPU) DID trunk circuits or four OPX circuits
- ☐ Two Blade status LEDs

[Table 6-46 CD-4DIOPA Maximum Upgrade Capacities](#) provides the maximum capacities for the CD-4DIOPA blades when they are upgraded.

Table 6-46 CD-4DIOPA Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
5	6	23	50

5.5.2 Installation

The CD-4DIOPA can be installed in any universal slot.

5.5.3 LED Indications

LED indications for the CD-4DIOPA are listed in [Table 6-47 CD-4DIOPA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-27 CD-4DIOPA Blade on page 6-85](#) for the location of the LEDs on the blade.

Table 6-47 CD-4DIOPA LED Indications

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–

Table 6-47 CD-4DIOPA LED Indications (Continued)

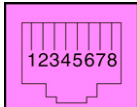
LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash (100ms On/Off)	Downloading firmware.		–

5.5.4 Connectors

The CN2 connector provides connection to four analog DID trunk ports, **which are polarity sensitive (tip-to-tip, ring-to-ring)**. The OPX circuits, however, are not polarity sensitive. The DIOPU requires one universal slot. (Refer to [Figure 6-27 CD-4DIOPA Blade on page 6-85](#).) If Program 10-03-01 has OPX defined, note that the blade consumes four (4DIOPU) trunks or eight (8DIOPU) trunks and extension ports when installed. If OPX is not defined, then only trunks ports are consumed.

[Table 6-48 CD-4DIOPA RJ-61 Cable Connector Pin-Outs on page 6-87](#) shows the pin-outs for the RJ-61 connector. Refer to [Figure 6-27 CD-4DIOPA Blade on page 6-85](#) for an illustration showing the location of the connectors on the 4DOIPU blade.

Table 6-48 CD-4DIOPA RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector – CN2			
	Line No.	Pin No.	Connection
	1	5	Tip
		4	Ring
	2	3	Tip
		6	Ring
	3	2	Tip
		7	Ring
	4	1	Tip
		8	Ring

5.6 CD-PRTA (PRI/T1 Interface)

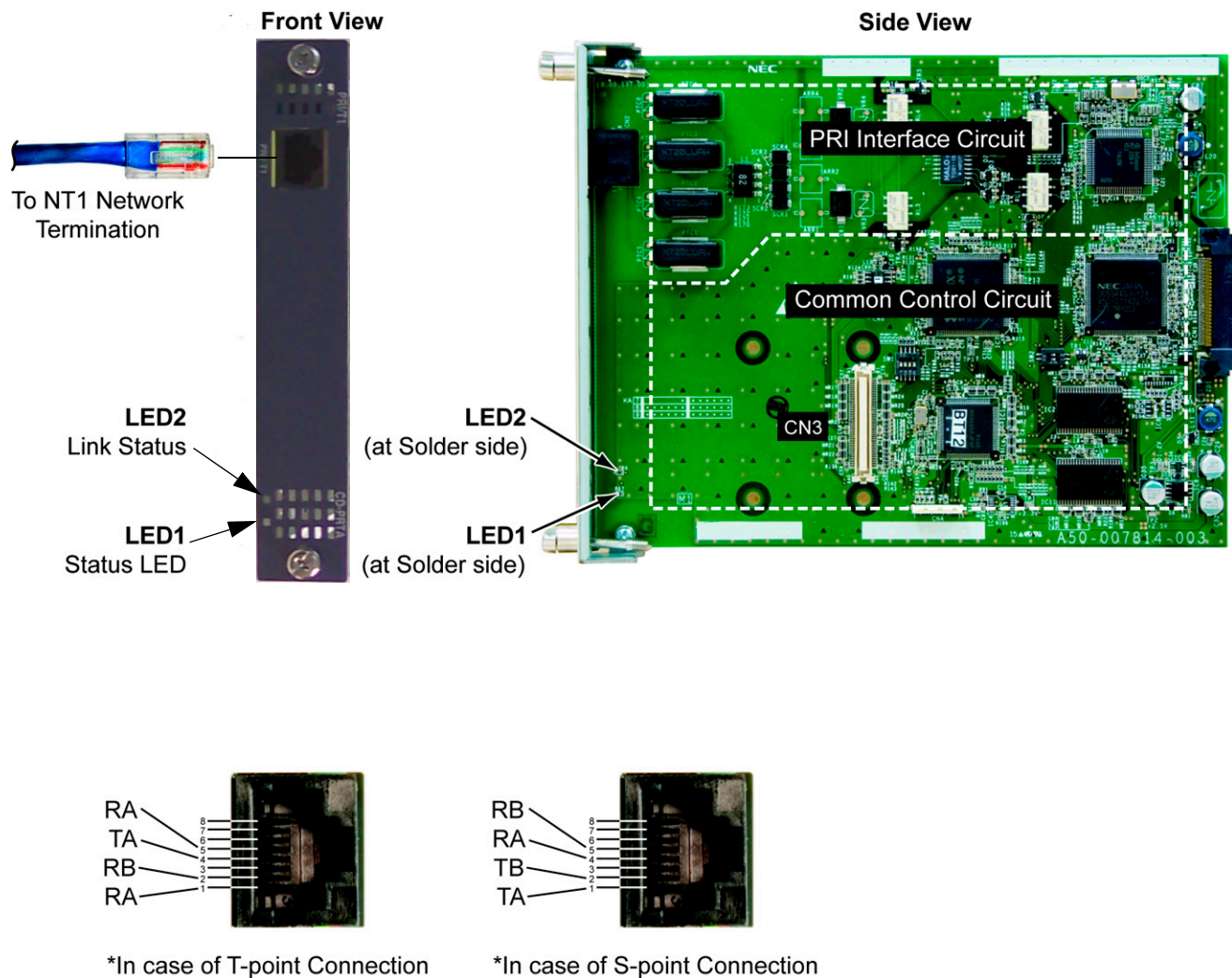


Figure 6-28 CD-PRTA Blade (Front and Side View)

5.6.1 Description

The CD-PRTA blade is common to both UNIVERGE SV8100/SV8300 systems.

The CD-PRTA T1/PRI blade provides an interface for T1 and ISDN Primary Rate Interface (PRI) applications. This blade has a single 24-channel 64Kb per second digital signal circuit that can be configured for either T1 trunks or PRI. Each blade connects to the network via an NTI Network Termination.

If set for T1, the T1/PRI blade provides 24 trunks in a single universal slot. These trunks can be one of the following:

- ☐ Loop Start
- ☐ Ground Start
- ☐ DID
- ☐ E&M Trunks
- ☐ ANI/DNIS E&M Trunks

T1 provides the system the advantage of advanced digital trunking and conserving universal slots. For example, a system with 12 loop start trunks, two tie lines and six DID trunks would use up to five universal slots. With T1, all these trunks are available in a single universal slot. This frees up four additional universal slots for other uses.

If set for PRI, each T1/PRI blade provides 24 PRI (23 B & 1 D) channels running at 1.544Mbps with 64Kb/s clear channel. This blade supports the following PRI services:

- ☐ Basic PRI Call Control (BCC)
- ☐ Display of incoming caller's name and number (when allowed by the telco)
- ☐ Speech and 3.1 KHz audio

When installed, CD-PRTA uses the first block of 24 consecutive trunk ports. For example, if a COIU blade is installed for trunks 1~8, the CD-PRTA automatically uses trunks 9~32. If the COIU blades are installed for trunks 1~8 and 17~24, CD-PRTA uses trunks 25~48. The CD-PRTA cannot use trunks 9~16 (even if available) since they are not part of a consecutive block of 24 trunks. Each CD-PRTA requires 24 ports in the system, even if not all the ports are used, otherwise the blade does not function.

The CD-PRTA requires one universal slot and provides:

- ☐ 1.5M or T1 Function

[Table 6-49 CD-PRTA Maximum Upgrade Capacities](#) provides the maximum capacities for the CD-PRTA blades when they are upgraded.

Table 6-49 CD-PRTA Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
4	4	16	8

5.6.2 Installation

To install the CD-PRTA:

1. Plug the CD-PRTA into any universal slot on the chassis.
2. Use Program 10-51-01 (PRI/T-1) to set the CD-PRTA blade to either PRI or T-1.



With normal operation, LED 1 flashes green.

3. Connect the cable from the NT1 Network Termination cable to the CN2 connector on the CD-PRTA. (Refer to [Figure 6-29 PRI Layout for NT-1 Network on page 6-91](#) for a cabling diagram.)



- *The CSU connects to the network through an 8-pin RJ-45/RJ48C connector. Use either the RJ48C plug-to-RJ48C plug, which ships with the CSU or an RJ-45/48C plug-to RJ-45/48C plug straight through or CAT5 cable to connect the T1 to the CSU. (Refer to [Table 6-52 CD-PRTA RJ48C Connector Pin-outs on page 6-93.](#))*
- *With PRI Networking, a cross-over cable must be used on the master system's T1/PRI blade or CSU to the telco demarcation. If the systems are networked side by side and not through telco, then a straight-through cable is used.*

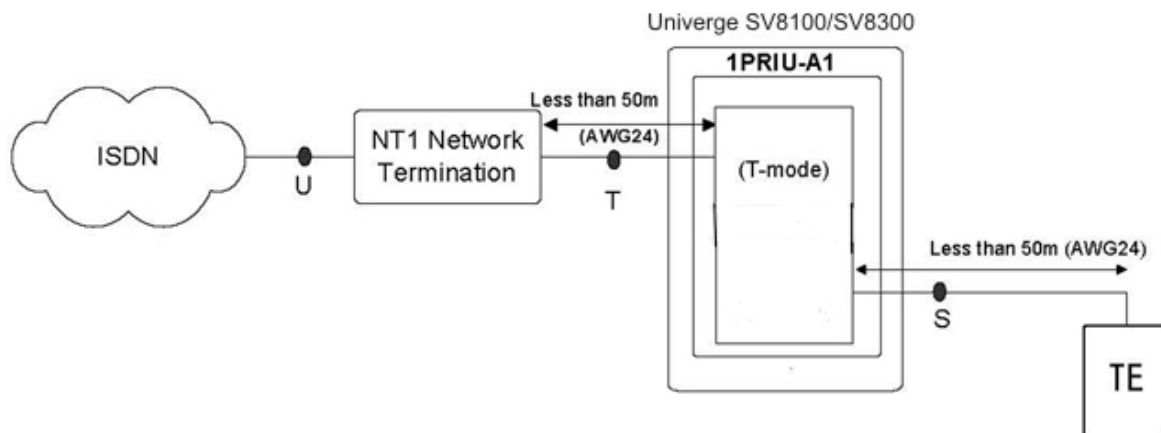


Figure 6-29 PRI Layout for NT-1 Network

5.6.3 LED Indications

LED indications for the CD-PRTA are listed in [Table 6-50 CD-PRTA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-30 CD-PRTA LED Indication Pattern of Layer 1 on T1 Unit on page 6-92](#) for LED pattern information.

Table 6-50 CD-PRTA LED Indications

Alarm	Details of the Alarm	LED Indication Pattern
LOS	Loss of Signal (Red Alarm) No Signal (Analog Interface)	Following an alarm blink (red, green, red, green) a Red LED will light.
AIS	Alarm Indication Signal (Blue Alarm)	Following an alarm blink (red, green, red, green) a Red LED slowly flashes On and Off twice.
OOF	Out Of Frame (Red Alarm)	Following an alarm blink (red, green, red, green) a Red LED and Green LED flash On and Off three times simultaneously.
RAI	Remote Alarm Indication (Yellow Alarm)	Following an alarm blink (red, green, red, green) a Green LED flashes On and Off twice.
No Alarm	The system does the LED control.	

The order of priority is set up to alarm in the order LOS>AIS>OOF>RAI.

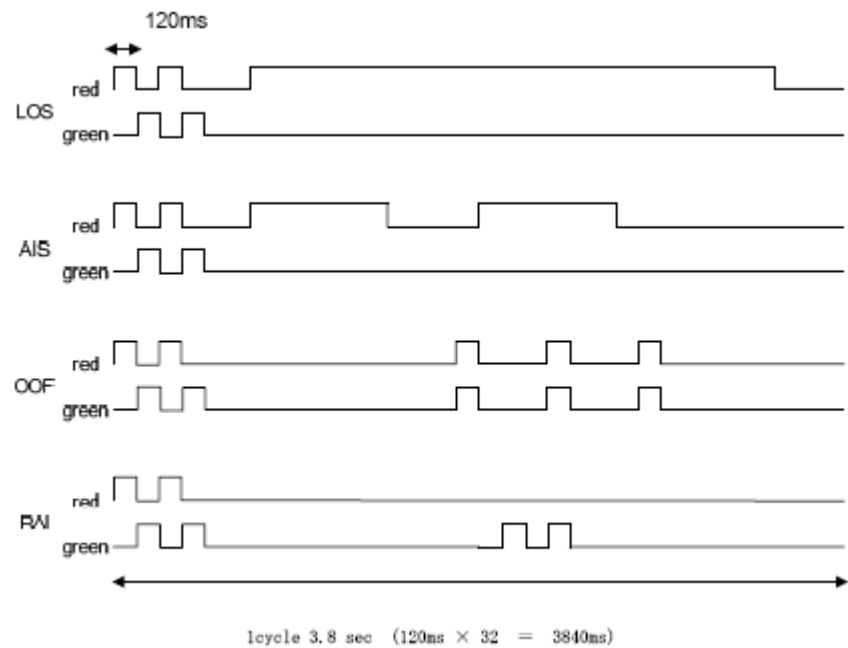
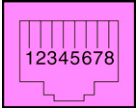


Figure 6-30 CD-PRTA LED Indication Pattern of Layer 1 on T1 Unit

5.6.4 Connectors

Table 6-51 CD-PRTA RJ-45 Cable Connector Pin-Outs shows the pin-outs for the RJ-45 connector. Refer to Figure 6-28 CD-PRTA Blade (Front and Side View) on page 6-88 for an illustration showing the location of the connectors on the PRIU blade.

Table 6-51 CD-PRTA RJ-45 Cable Connector Pin-Outs

RJ-45 Cable Connector – CN2		
	Pin No.	Connection
	1	RA
	2	RB
	3	—
	4	TA
	5	TB
	6	—
	7	—
	8	—

[Table 6-52 CD-PRTA RJ48C Connector Pin-outs](#) shows the pin-outs for the 8-pin RJ48C connector for the network and terminal interfaces.

Table 6-52 CD-PRTA RJ48C Connector Pin-outs

Network Interface Pinout for the 8-Pin RJ48C Connector		For connection to T1 network: Use AT&T Type ABAM cable or equivalent (individually- shielded twisted pair, rated at 100 ohms at 1 MHz).	Terminal Interface Pinout for the 8-Pin RJ48C Connector	
Pin No.	Connection		Pin No.	Connection
1	RxD (R1)		1	RxD (R)
2	RxD (T1)		2	RxD (T)
4	TxD (R)		4	TxD (R1)
5	TxD (T)		5	TxD (T1)
3, 6	No Connection		3, 6	No Connection
7, 8	No Connection		7, 8	No Connection

5.7 CD-4ODTA (4-Port Tie Line Interface Blade)

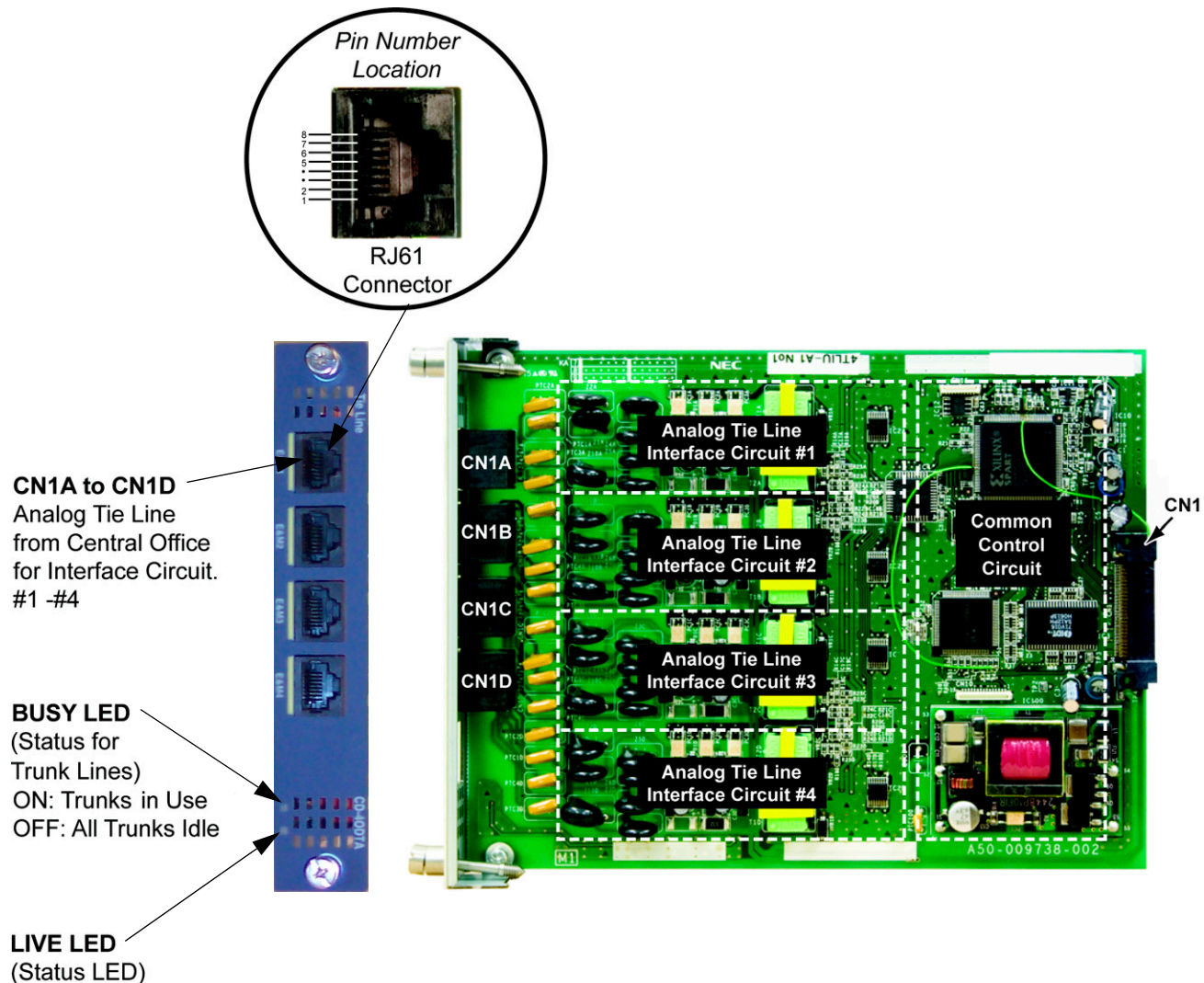


Figure 6-31 CD-4ODTA Blade

5.7.1 Description

The CD-4ODTA Tie Line blade is an out band dial type analog tie line interface blade. This blade supports system connections to either 2-wire (four lead, tip/ring) or 4-wire (eight lead, tip/ring/tip 1/ ring 1) E&M signalling tie lines (determined in Program 10-13 [SV8100] and CM35Y=105 [SV8300]). System programming is also used to select the connection types with Type 1 or Type V. The CD-4ODTA consumes 4 ports ranging between ports 001~200 (SV8100) and 000~511 (SV8300). Each blade requires one universal slot and provides:

- ☐ Four analog 4-circuit tie line interfaces
- ☐ Two Blade status LEDs
- ☐ Two straps and one switch per circuit to determine the circuit type



Limitation depends on the connecting Router, Multiplexer or Exchange. If the UNIVERGE SV8100/SV8300 is connected to another UNIVERGE SV8100/SV8300 directly, there is up to 1,500 ohms loop resistance (including system).

Table 6-53 CD-4ODTA Maximum Upgrade Capacities provides the maximum capacities for the ODT blades when they are upgraded.

Table 6-53 CD-4ODTA Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
5	6	23	50

5.7.2 Installation



- *When a router or multiplexer is connected instead of a trunk, the SG terminal of the router or multiplexer must be connected to the FG grounding terminal on the UNIVERGE SV8100/SV8300 chassis. When a tie line trunk is connected, the FG terminal must be connected to the ground. If the FG terminal is not connected correctly, the signal may fail.*
- *When tie lines are connected to the system, be careful of the Tip and Ring polarity.*

1. Set the straps for either the 2-wire or 4-wire. Refer to [Figure 6-31 CD-4ODTA Blade on page 6-94](#).
2. Install the CD-4ODTA into a slot in the chassis.

5.7.3 LED Indications

LED indications for the CD-4ODTA are listed in [Table 6-54 CD-4ODTA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-31 CD-4ODTA Blade on page 6-94](#) for the location of the LEDs on the blade.


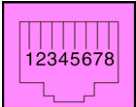

Table 6-54 CD-4ODTA LED Indications

LED Indication		Operation Status		Remarks
Live LED (Green)	Busy LED (Red)			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Flash (100ms)	On	Normal Operation	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash (100ms On/Off)	Downloading firmware.		–

5.7.4 Connectors

[Table 6-55 CD-4ODTA RJ-61 Cable Connector Pin-Outs on page 6-97](#) shows the pin-outs for the RJ-61 connector. Refer to [Figure 6-31 CD-4ODTA Blade on page 6-94](#) for an illustration showing the location of the connectors on the ODT blade.

Table 6-55 CD-4ODTA RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector – 2-Wire E&M, CN1A~CN1D																															
	Pin No.	Connection	Description																												
	1	—	Not Used																												
	2	M	Control signal to trunk																												
	3	—	Not Used																												
	4	R	Voice signal both ways																												
	5	T	Voice signal both ways																												
	6	—	Not Used																												
	7	E	Control signal from trunk																												
	8	—	Not Used																												
RJ-61 Cable Connector – 4-Wire E&M, CN100~CN400																															
	Pin No.	Connection	Description																												
	1	—	Not Used																												
	2	M	Control signal to trunk																												
	3	R	Voice signal to trunk																												
	4	R1	Voice signal from trunk																												
	5	T1	Voice signal from trunk																												
	6	T	Voice signal to trunk																												
	7	E	Control signal from trunk																												
	8	—	Not Used																												
<p> Using Type I or Type V, a system loopback test can be performed by connecting E&M1 to E&M2.</p> <table> <tr> <th colspan="2"><2-Wire E&M></th><th colspan="2"><4-Wire E&M></th></tr> <tr> <th><u>E&M1</u></th><th><u>E&M2</u></th><th><u>E&M1</u></th><th><u>E&M2</u></th></tr> <tr> <td>E →</td><td>M</td><td>E →</td><td>M</td></tr> <tr> <td>M →</td><td>E</td><td>M →</td><td>E</td></tr> <tr> <td>R →</td><td>T</td><td>R →</td><td>T1</td></tr> <tr> <td>T →</td><td>R</td><td>T →</td><td>R1</td></tr> <tr> <td></td><td></td><td>R1 →</td><td>T</td></tr> </table>				<2-Wire E&M>		<4-Wire E&M>		<u>E&M1</u>	<u>E&M2</u>	<u>E&M1</u>	<u>E&M2</u>	E →	M	E →	M	M →	E	M →	E	R →	T	R →	T1	T →	R	T →	R1			R1 →	T
<2-Wire E&M>		<4-Wire E&M>																													
<u>E&M1</u>	<u>E&M2</u>	<u>E&M1</u>	<u>E&M2</u>																												
E →	M	E →	M																												
M →	E	M →	E																												
R →	T	R →	T1																												
T →	R	T →	R1																												
		R1 →	T																												

5.7.5 Connections

Figure 6-32 Voice Signal Connection for Type I And V on page 6-98 and Figure 6-33 Control Signal Connection on page 6-99 show the signaling methods for circuit types.

(1) Voice signal connection for type I and V.

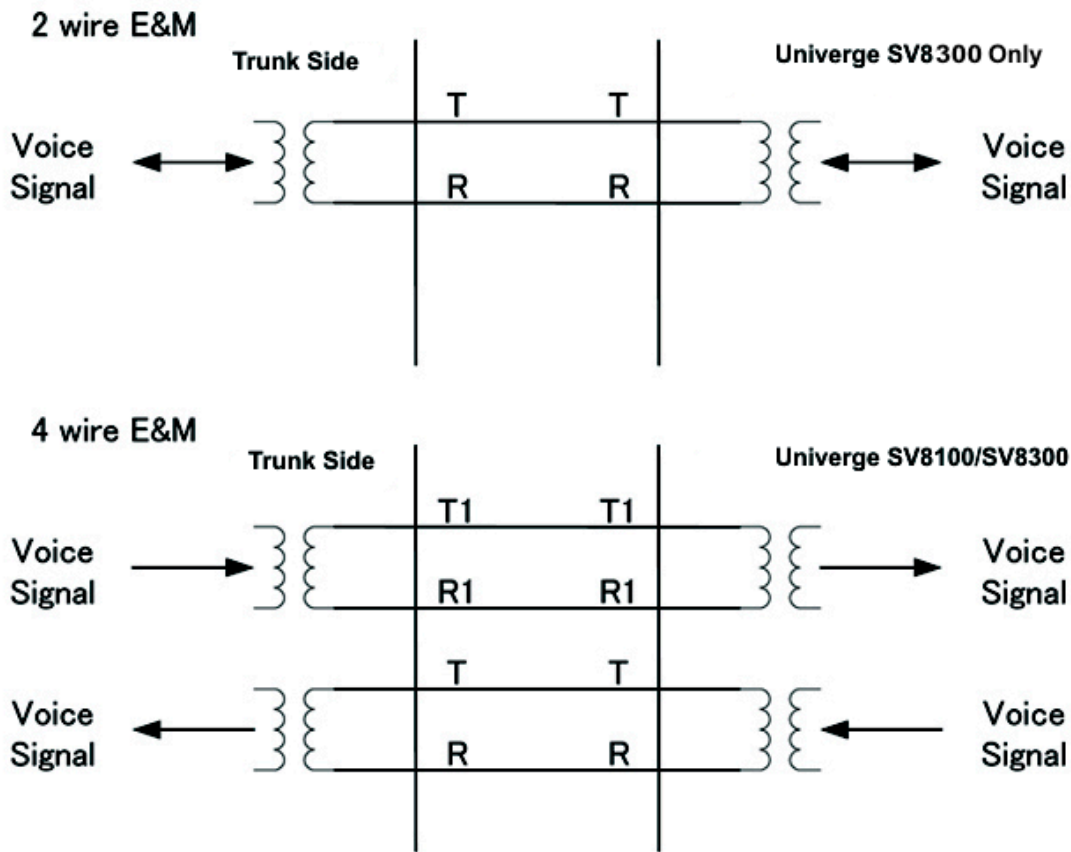
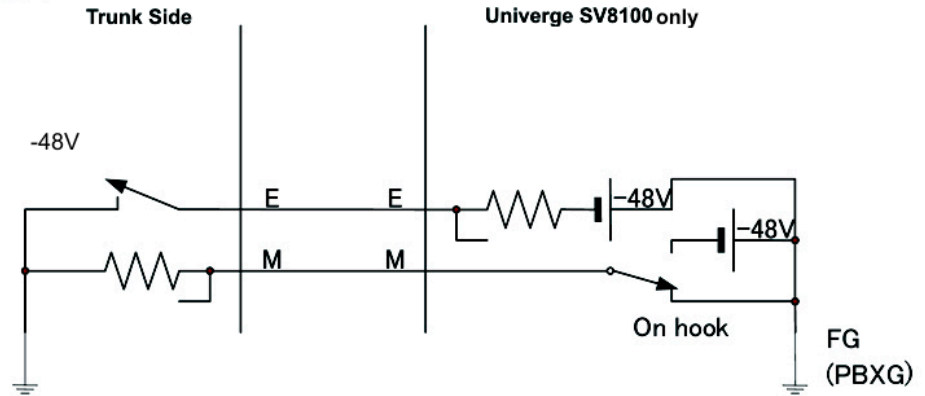


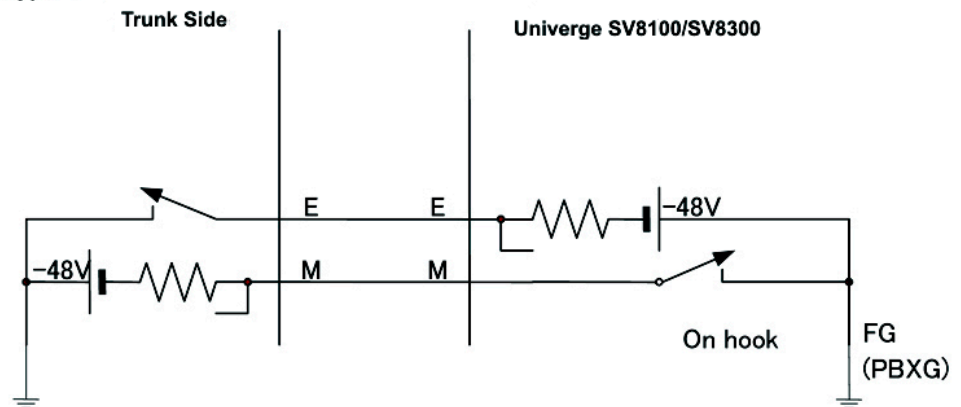
Figure 6-32 Voice Signal Connection for Type I And V

(2) Control Signal connection

Type I



Type V



Type V (Back to Back connection)

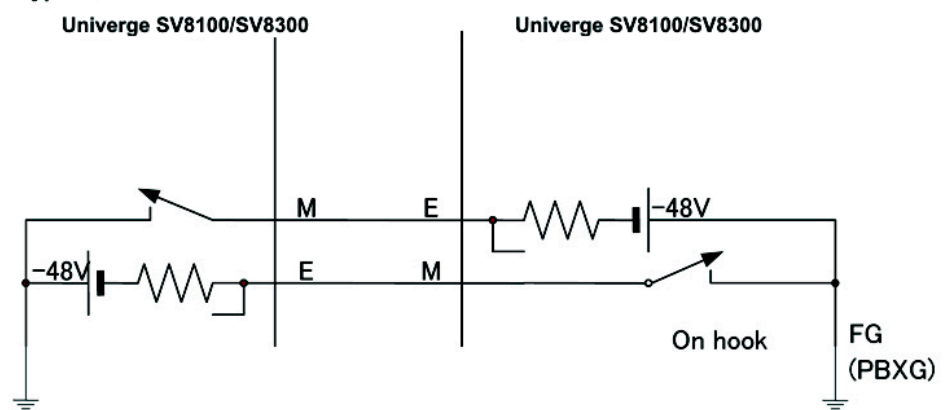


Figure 6-33 Control Signal Connection

SECTION 6 OPTIONAL BLADES

6.1 CD-VM00 (Voice Mail and Server)

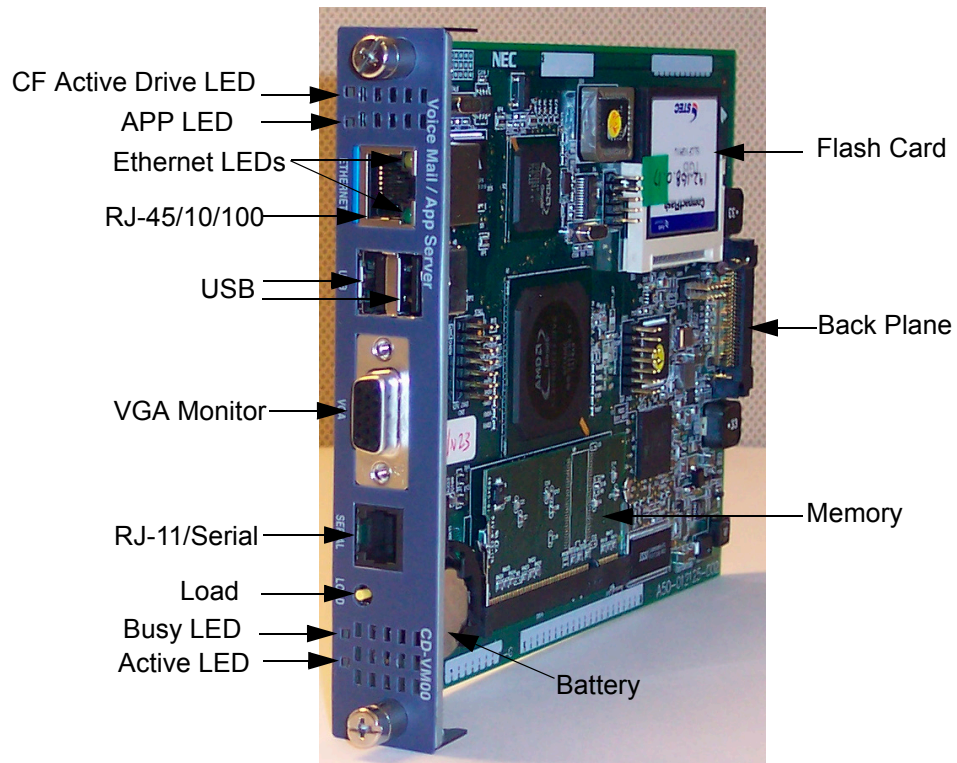


Figure 6-34 CD-VM00 Blade

6.1.1 Description

The CD-VM00 blade is common to both UNIVERGE SV8100/SV8300 systems.

This blade is a PC platform installed in the UNIVERGE SV8100/SV8300 that contains data storage for voice recording and application software supporting a maximum of 16 ports.

A digital signal processor/voice processing section handles the following functions:

- ☐ DTMF detection
- ☐ DTMF generation
- ☐ General tone detection
- ☐ FAX CNG tone detection
- ☐ PCM compression for audio recording/playback

- ☐ Automatic Gain Control (AGC)
- ☐ Two USB 1.0 ports for USB keyboard support, database backup and software upgrades
- ☐ One 15-pin VGA connector for VHA monitor support

6.1.2 Installation

Only one CD-VM00 can be installed per system.

- *Handle the drive and DSP carefully. To prevent damage, do not drop the drive or apply pressure to it.*



- *This unit makes extensive use of CMOS technology and is very susceptible to static; extreme care must be taken to avoid static discharge when handling.*

1. Wear a grounding strap while handling the CD-VM00 and DSP, and lay both on a flat workspace.
2. Mount the CR-2032 battery with the + side up in the BATT slot on the CD-VM00 (refer to [Figure 6-35 Install the CR-2032 Battery on page 6-101](#)).

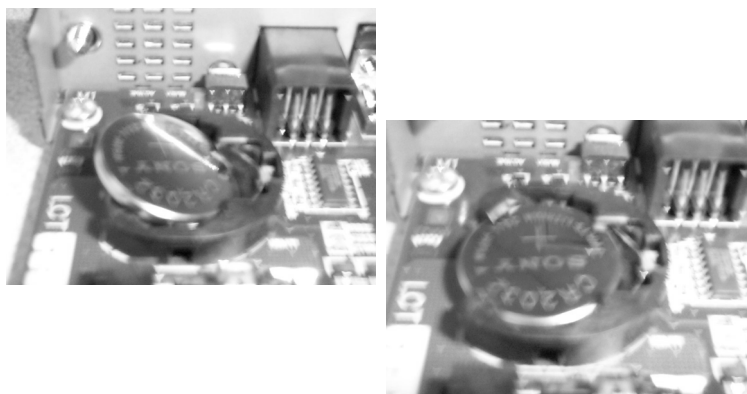


Figure 6-35 Install the CR-2032 Battery

3. Install the SO-DIMM memory on the CD-VM00 blade, start by inserting the end with the brass connectors into the CN14 1 slot first.
4. Push the other end down until the locks on both sides lock into place (refer to [Figure 6-36 Install the SO-DIMM Memory on page 6-102](#)).

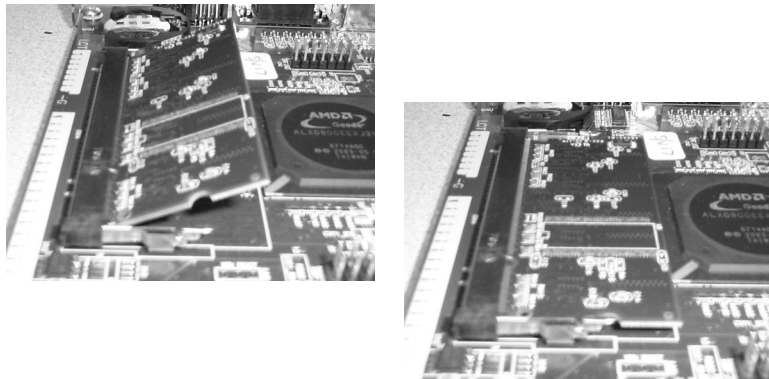


Figure 6-36 Install the SO-DIMM Memory

5. Install the Compact Flash drive into slot CN7, make sure the drive is fully seated in the slot (refer to [Figure 6-37 Install the Compact Flash Drive](#)).

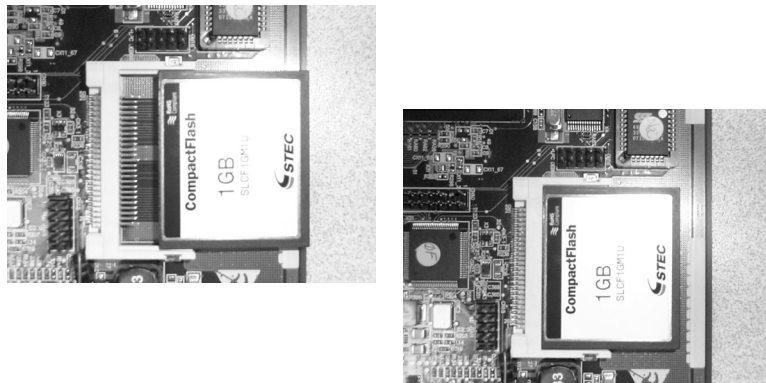


Figure 6-37 Install the Compact Flash Drive

6.1.3 LED Indications

6.1.3.1 Active LED – Green

The Active LED is controlled by the DSP and indicates the board operational status.

- Off: Power off.
- On: Reset.
- Slow Flash: Board is running but not in sync with the chassis yet.
- Fast Flash: Board is in sync with the chassis and operating normally.

6.1.3.2 Busy LED – Red

The Busy LED is controlled by the DSP and indicates the port status.

- Off: Power off or idle.
- On: Reset.
- Flash: Indicates how many ports on the VM Card are currently in use. Faster flash rates indicate heavier use.

6.1.3.3 Application LED – Red/Green (Dual Color)

The Application LED is controlled by the DSP indicates the state of the software running on the APSU.

- Off: Power off.
- Solid Red/Green (Yellow): Reset.
- Flashing Green: OS is running, application not started.
- Solid Green: Application running.
- Solid Red: Application problem.

6.1.3.4 CompactFlash Card Activity LED – Red

The CompactFlash Card Activity LED is controlled by the IDE controller and indicates read/write activity on the CompactFlash card.

6.1.4 Connectors

The following sections go into detail on each of the user interfaces.

6.1.4.1 RS-232 Interface

An RS-232 interface shall be provided as a debug port to the CPU. The AMD Geode companion chip, (CS5536) provides a serial port interface. The CS5536 shall be connected to an Intersil-Harris HIN202ECBN (or equivalent) RS-232 transceiver providing a DTE interface (COM1) with the following signals: TD, RD, DSR, DTR and GND. The APSU uses the same 6-pin modular jack as the DSX system. A standard telephone line cord is used as the RS-232 cable. A DB9 to 6-pin modular adapter is used on the device end of the cable. The pin connections of RS-232 signal pairs are symmetrical around the center line of the 6-pin modular connector. This signal layout permits the construction of a null serial cable by simply reversing one of the modular connectors on the serial cable line cord. The cable used for a PC type DTE connection is a standard line cord shown in [6.1.4.3 RS-232 Serial Cable \(DTE\)](#). The connection for a DCE device uses the swapped line cord shown in [6.1.4.4 RS-232 Serial Cable \(DCE\)](#).

6.1.4.2 DB9 to 6-pin Modular RS-232 Adapter

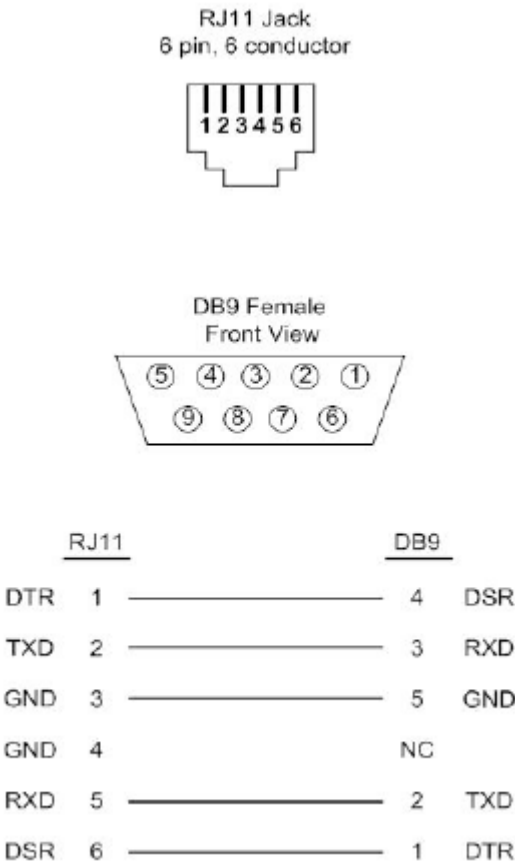


Figure 6-38 CD-VM00 DB9 to 6-Pin Modular RS-232 Adapter

6.1.4.3 RS-232 Serial Cable (DTE)

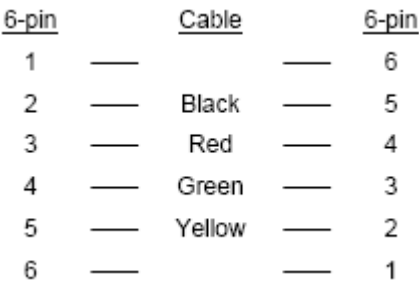


Figure 6-39 CD-VM00 RS-232 Serial Cable (DTE)

6.1.4.4 RS-232 Serial Cable (DCE)

<u>6-pin</u>		<u>Cable</u>		<u>6-pin</u>
1	—		—	1
2	—	Black	—	2
3	—	Red	—	3
4	—	Green	—	4
5	—	Yellow	—	5
6	—		—	6

Figure 6-40 CD-VM00 RS-232 Serial Cable (DCE)

6.1.4.5 USB Interface

The APSU provides two USB interfaces that are in full compliance with the Universal Serial Bus Specification, Revision 2.0. The connections to the USB interface are through a dual Type-A plug connector. Some possible USB devices are the following:

- USB Keyboard
- USB Memory Device

Per the USB spec, each USB device must start up in a low power mode drawing one unit (100mA) of current. The device may then request more power, up to 5 unit loads. For the APSU application, current draw of greater than one unit load per device shall not be allowed. To limit the current draw on the 5V received from the backplane, a dual power switch, TI TPS2046A or equivalent, shall be utilized to allow power enable control to the USB ports and to protect against short circuit events. If it becomes necessary to connect a high power USB device to the APSU, an externally powered USB hub could be inserted between the APSU and the high power device.

6.1.4.6 VGA Display Interface

The APSU card provides a VGA display interface through a standard DB-15 connector. The AMD LX-800 Processor interfaces directly to the VGA connector. The VESA standard pin-out shall be used. Per the VESA standard, 5V is required to be supplied to the connector in order to support the DDC I2C communication channel to the monitor only when the monitor is in sleep mode. When the monitor is not in sleep mode, 5V is provided by the monitor power source.

On the APSU, 5V shall be provided to the VGA connector in a manner where it can be removed from the connector via component depopulation to reduce current draw on the 5V power supply should this feature not be needed.

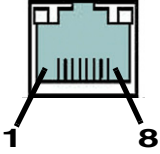
6.1.4.7 10/100 BASE-TX Ethernet Interface

The APSU card provides a 10/100 Ethernet interface through an RJ-45 connector. Some possible uses for the Ethernet port are the following:

- Unified Messaging (Email)
- Software Update
- Application Configuration
- Text to Speech and Speech Recognition using an external server
- Network Attached Storage (NAS)

The Via VT6107 Ethernet controller shall be used. It interfaces to the CPU over a 33 MHz PCI bus and connects directly to an Ethernet RJ-45 connector with built-in magnetic and LEDs. The RJ-45 connector pin-out is shown in [Table 6-56 Ethernet Connector Pin-Out on page 6-106](#).

Table 6-56 Ethernet Connector Pin-Out

View	Pin No.	Signal	Note
PIN1 ---- PIN8	1	Tx+	10BASE-T/100BASE-TX port (RJ-45 connector)
	2	Tx-	
	3	Rx+	
	4	NC	
	5	NC	
	6	Rx-	
	7	NC	
	8	NC	

6.2 CD-PVAA (Conference Bridge)

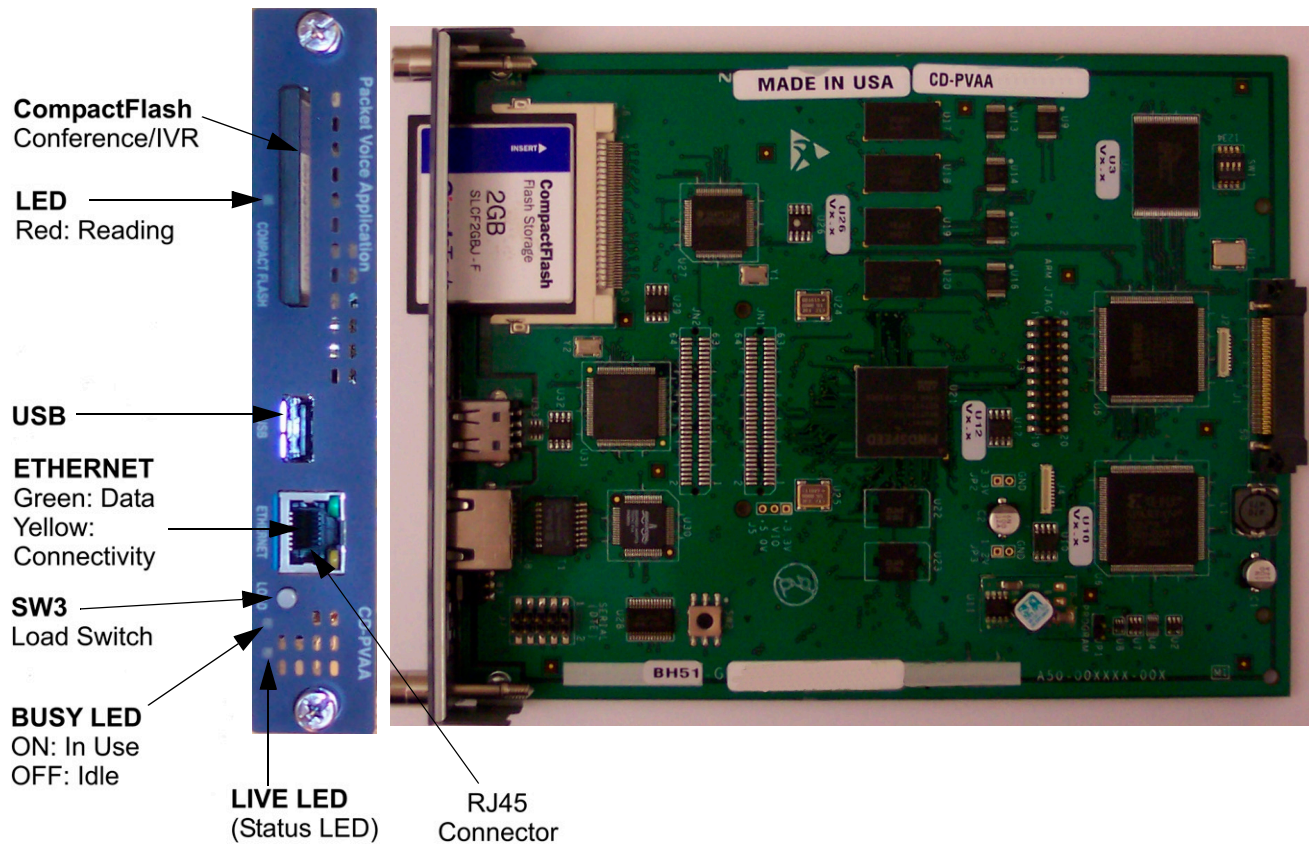


Figure 6-41 CD-PVAA Blade

6.2.1 Description

The CD-PVAA blade is common to both UNIVERGE SV8100/SV8300 systems.

The Packet Voice Application, CD-PVAA blade is an optional interface that supports Application Packages (Univerge Multimedia Conference Bridge, and Interactive Voice Response Application). This blade can be assigned as a CNF package to support Multimedia Conference Bridge or IVR package to support the Interactive Voice Response Application supporting a maximum of 16 ports.

A digital signal processor/voice processing section handles the following functions:

- ☐ DTMF detection
- ☐ DTMF generation
- ☐ General tone detection
- ☐ Automatic Gain Control (AGC)

Basic Support Package

Each blade installed with the CNF or IVR package accounts for up to 16 Extension Ports of the Total Port capacity (One Conference or One IVR blade maximum).

6.2.2 Installation

To install the CD-PVAA

- ☐ Install CompactFlash into CD-PVAA.
- ☐ Plug the into any universal slot on the chassis.
- ☐ Refer to Program 10-55-01 to configure the IP Address of the CD-PVAA.
- ☐ Refer to Program 10-55-04 to configure the Subnet Mask of the CD-PVAA.
- ☐ Refer to Program 10-55-05 to configure the Gateway of the CD-PVAA.
- ☐ The CD-PVAA blade is hot swappable and can be removed from the chassis without powering down the blade or the SV8100 system.
- ☐ When the SV8100 requires system reset, this blade comes back on line.

6.2.3 Switch Settings

The CD-PVAA blade has the following switches:

LOAD Switch SW3

- ☐ This switch allows the technician to reset the CD-PVAA without having to remove and reinsert the blade into the chassis.

6.2.4 LED Indications

Active LED – Green

The Active LED is controlled by the DSP and indicates the board operational status.

- ☐ Off: Power off
- ☐ On: Reset
- ☐ Slow Flash: Board is running but not in sync with the chassis

- ☐ Fast Flash: Board is in sync with the chassis and operating normally

Busy LED – Red

- ☐ On: Application problem

CompactFlash Card Activity LED – Red

- ☐ CompactFlash Card Activity LED is controlled by the IDE controller and indicates read/write activity on the CompactFlash card.

6.2.5 Connectors

Ethernet Connector

This connector is a single 10/100 Mbps Ethernet connector. This port has Auto-Medium Dependent Interface Crossover (MDIX) to allow using either a straight-through Ethernet cable for connection to a PC or a crossover Ethernet cable.

6.3 CD-CCTA (CCIS Trunk Interlace)

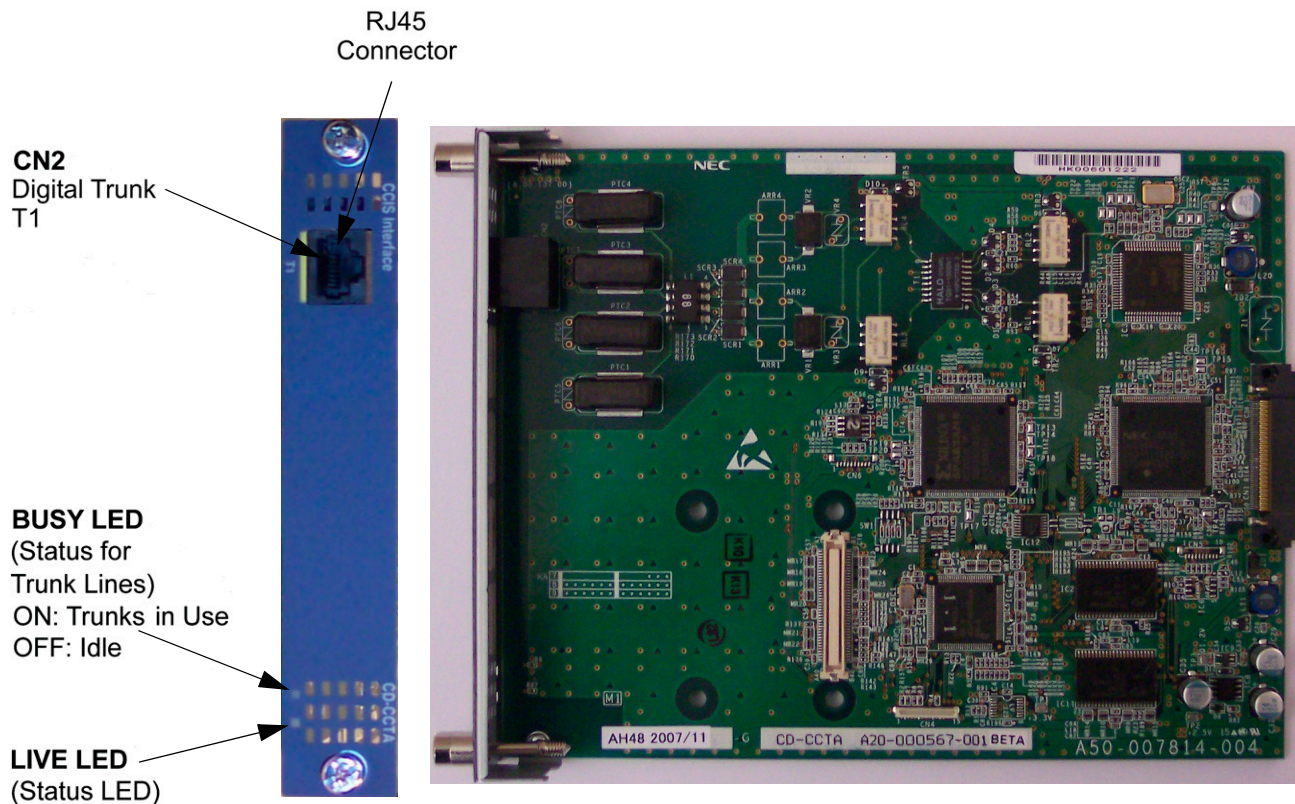


Figure 6-42 CD-CCTA Blade

6.3.1 Description

The CD-CCTA blade is common to both UNIVERGE SV8100/SV8300 systems.

The Common Channel Handler Interface blade is a digital trunk ETU that terminates FT1 trunks (up to 24 DS-0 channels) providing a common channel signal interface.

The CD-CCTA (Common Channel Handler) is an optional blade that provides a common channel signal through the CD-CCTA to a K-CCIS network and controls the signaling between the KTS and the CP00. Each CD-CCTA blade supports one K-CCIS links. Four CD-CCTA blades can be installed per system.

The T1 interface has a single 24 channel 64kb/s digital signal circuit which can be configured either for T1 trunking.

6.3.2 Installation


Install the CD-CCTA in any universal slot.

6.3.3 LED Indications

LED indications for the CD-CCTA are listed in [Table 6-57 CD-CCTA LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-43 CD-CCTA LED Indication Pattern of Layer 1 on T1 Unit on page 6-112](#) for LED pattern information.

Table 6-57 CD-CCTA LED Indications

Alarm	Details of the Alarm	LED Indication Pattern
LOS	Loss of Signal (Red Alarm) No Signal (Analog Interface)	Following an alarm blink (red, green, red, green) a Red LED will light.
AIS	Alarm Indication Signal (Blue Alarm)	Following an alarm blink (red, green, red, green) a Red LED slowly flashes On and Off twice.
OOF	Out Of Frame (Red Alarm)	Following an alarm blink (red, green, red, green) a Red LED and Green LED flash On and Off three times simultaneously.
RAI	Remote Alarm Indication (Yellow Alarm)	Following an alarm blink (red, green, red, green) a Green LED flashes On and Off twice.
No Alarm	The system does the LED control.	

 The order of priority is set up to alarm in the order LOS>AIS>OOF>RAI.

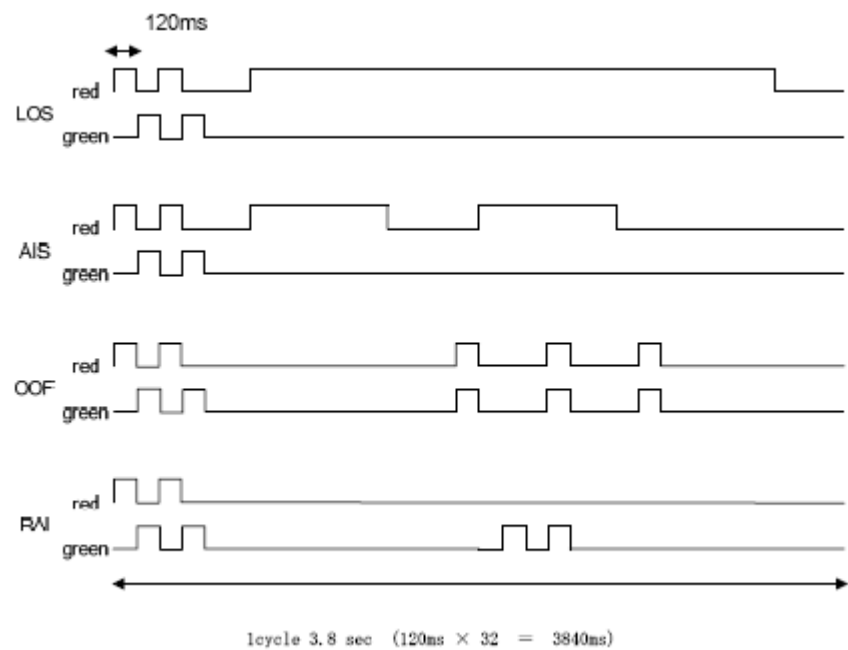
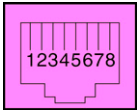


Figure 6-43 CD-CCTA LED Indication Pattern of Layer 1 on T1 Unit

6.3.4 Connectors

Table 6-58 CD-CCTA RJ-45 Cable Connector Pin-Outs shows the pin-outs for the RJ-45 connector. Refer to Figure 6-42 CD-CCTA Blade on page 6-110 for an illustration showing the location of the connectors on the CD-CCTA blade.

Table 6-58 CD-CCTA RJ-45 Cable Connector Pin-Outs

RJ-45 Cable Connector – CN2		
	Pin No.	Connection
	1	RA
	2	RB
	3	—
	4	TA
	5	TB
	6	—
	7	—
	8	—

6.4 CD-RTB (4-Port Router)

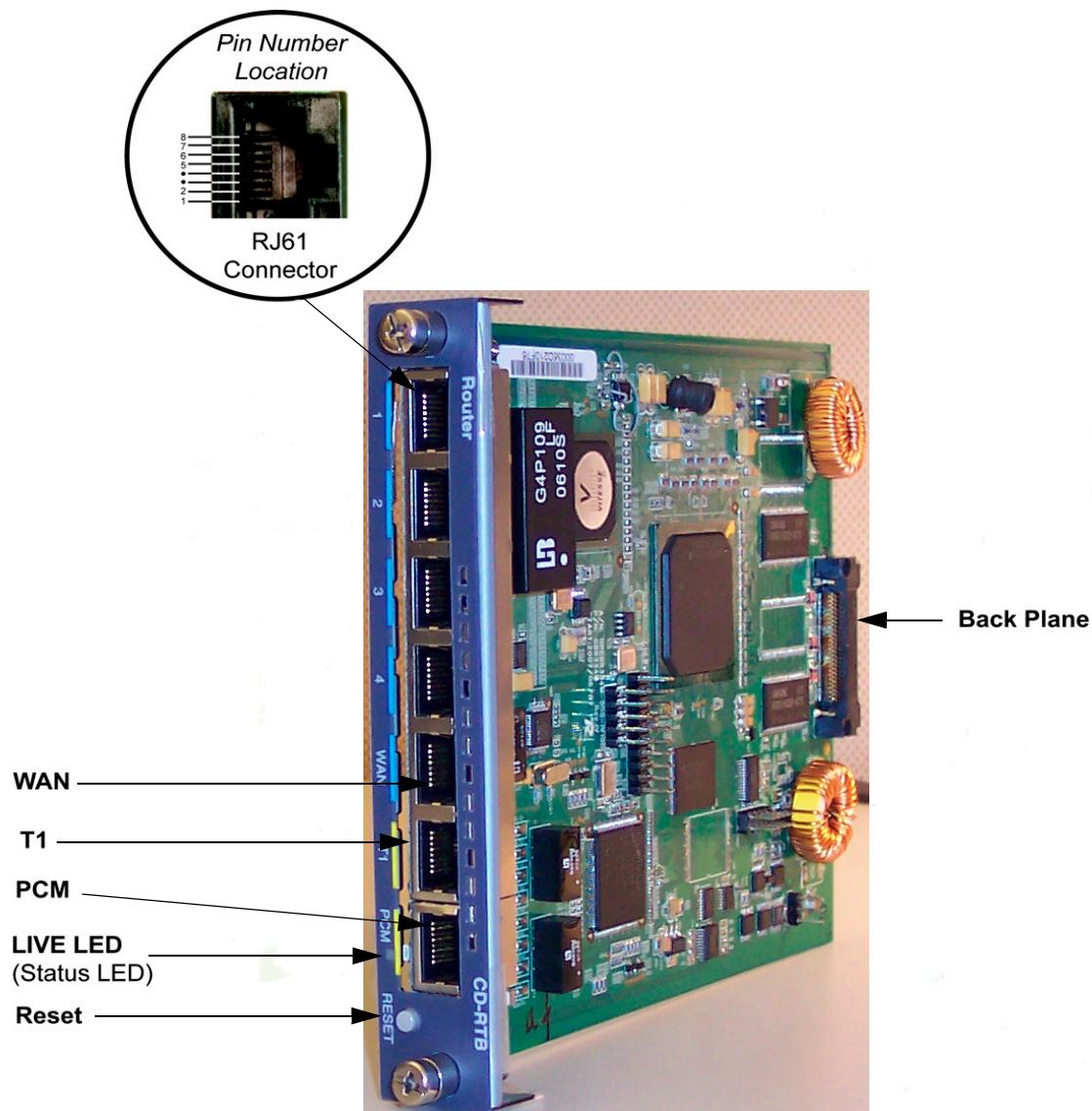


Figure 6-44 CD-RTB Blade

6.4.1 Description

This blade is common for both the UNIVERGE SV8100/SV8300 systems.

The Router blade is a 4-port switching hub which complies with the ethernet specification for both 100Base-TX and 10Base-T. This blade is compatible in LAN applications using 10Mbps and 100Mbps. All ports automatically identify and switch 100Base-TX, 10Base-T and Full/Half Duplex. This blade provides:

- ☐ Configurable on Each Port: Auto Negotiation/Full Duplex/Half Duplex
- ☐ MDI/MDI-X Auto Crossover
- ☐ Tag VLAN Based on IEEE802.1Q
- ☐ Port-Base VLAN
- ☐ Port Mirroring
- ☐ PPPoE Client
- ☐ Multi-Protocol Bridge
- ☐ RIP/RIPV2/OSPFv2/BGP4
- ☐ Policy Routing
- ☐ DHCP
- ☐ NAT/NAPT
- ☐ SIP-NAT
- ☐ IPnP NAT Traversal
- ☐ DNS Proxy
- ☐ NTP/SNTP
- ☐ QoS (PQ, CBQ, LLQ, Shaping)
- ☐ VPN (IPSec/IKE)
- ☐ AAA (Login)
- ☐ Firewall (Static/Dynamic Filter)
- ☐ SNMPv1
- ☐ Syslog
- ☐ TFTP Client
- ☐ Backpressure/Flow Control Feature
- ☐ Auto MAC Address Learning/Migrating/Aging
- ☐ Learn Maximum 8k MAC Addresses
- ☐ Store and Forward Switching Method
- ☐ Maximum 100m Transmission Distance by CAT-5 Cable
- ☐ 2 Status LEDs

The VoIPDB, which is required for IP telephones to communicate with non-VoIP UNIVERGE SV8100/SV8300 telephones, and place or receive outside calls, must be connected to either an external switching hub or to the Router blade.

The blade plugs into a universal slot and does not consume any ports. Each blade provides eight RJ-45 port connectors. These are used to connect to LAN terminals. Depending on the type of LAN terminal, the blade may not be able to detect the difference between straight cable and cross-cable automatically. If auto-crossover is not functioning, use straight cable for that terminal connection.

[Table 6-59 CD-RTB Maximum Upgrade Capacities](#) provides the maximum capacities for the ESIU blades when they are upgraded.

Table 6-59 CD-RTB Maximum Upgrade Capacities

19" Chassis with CPU	19" Chassis without CPU	19" Chassis x4	Networked Chassis
1	2	8	50

The Router blade can also be used to provide power over category 5 network cables. This eliminates installing separate power adapters for each IP telephone and it allows for centralized power backup.

6.4.2 Installation

To install the CD-RTB:

1. Plug the CD-RTB blade into any universal slot.
2. Refer to the Univerge SV8100 Programming Manual for required programming.

6.4.3 LED Indications

LED indications for the CD-RTB are indicated in [Table 6-60 CD-RTB LED Indications](#). Each LED is listed with its associated function and LED and Operational status. Refer to [Figure 6-44 CD-RTB Blade on page 6-113](#) for the location of the LEDs on the blade.

Table 6-60 CD-RTB LED Indications

LED	Function	LED Status	Operation Status	Comments
CN2, CN3 LINK/ACT	LAN Operation Status	Green On	Link Established	Individually for Ports 1~8
		Green Flashing	Communicating Data	Individually for Ports 1~8
		Green Off	Not Activated	Individually for Ports 1~8
CN2, CN3 10/100	LAN Speed Status	Orange On	100Mbps	Individually for Ports 1~8
		Orange Off	10Mbps	Individually for Ports 1~8

6.5 CD-ETIA (Gigabit PoE Switch)

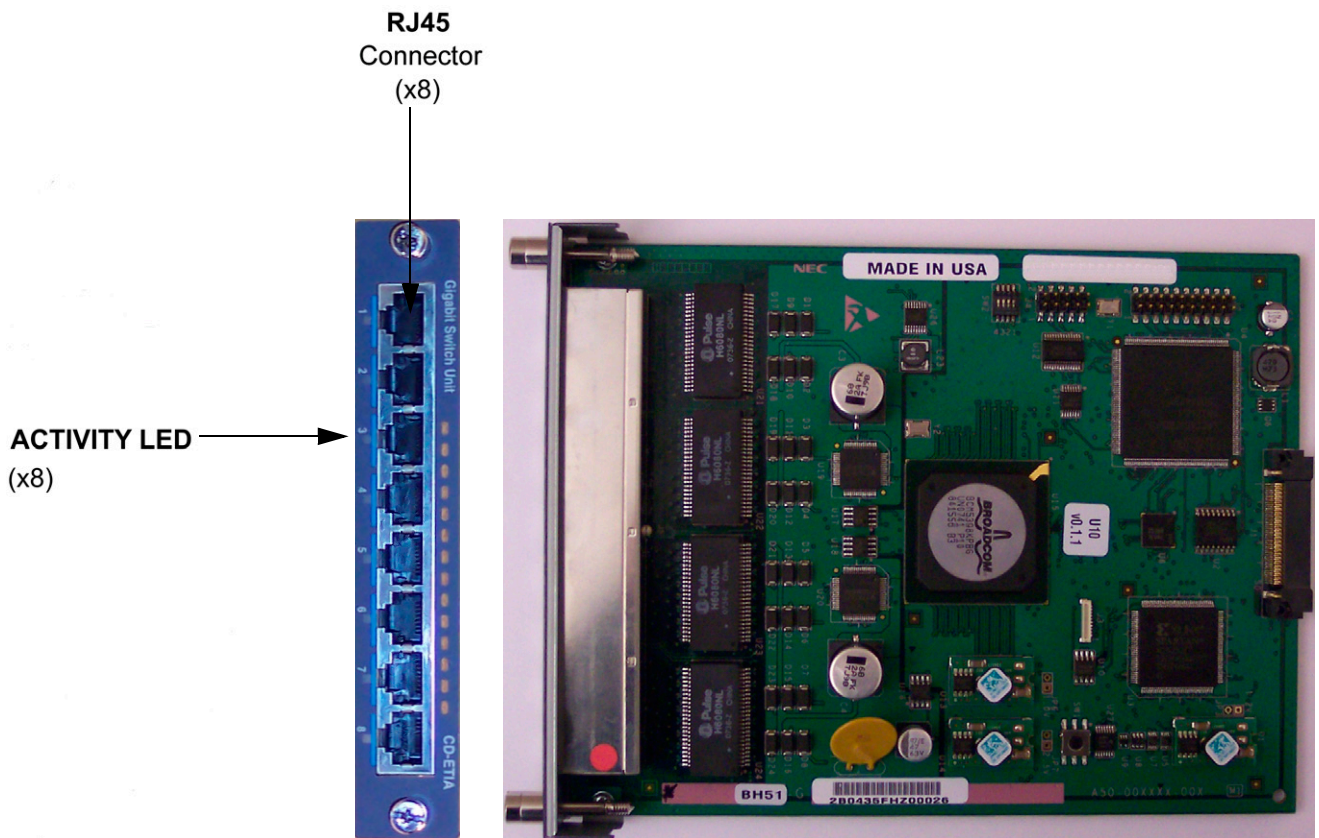


Figure 6-45 CD-ETIA Blade

6.5.1 Description

The CD-ETIA blade is common to both UNIVERGE SV8100/SV8300 systems.

The CD-ETIA blade is a managed 8-port gigabit ethernet PoE switch. Ports 1 and 8 are the default uplink ports. All the user management and stacking is based on this setup. This blade provides:

- ☐ 8 Gigabit Ethernet (10/100/1000) Ports
- ☐ Per Port Status LED Indicating Link, Speed and Activity
- ☐ 802.3af PoE on All Ports Providing up to 15.4W of Power
 - Selectable level per port via web-based management interface
- ☐ Auto-MDI/MDI-X Auto Crossover (when auto-negotiation is available)
- ☐ Layer 2 Switching

- ☐ QoS
- ☐ 802.1Q VLANs
- ☐ 802.1p Priority Queuing
- ☐ Port Mirroring
- ☐ 802.3x Flow Control
- ☐ Independent VLAN Learning Support
- ☐ TCP/IP Networking Stack
- ☐ Multi-Unit Stacking (multiple blades in a system are managed from the same user interface)
- ☐ Dynamic PoE Control (allows setting the proper PoE classifications for each port to stay within the system power budget)
- ☐ Switch Management Through Web-Based GUI
- ☐ Software Upgrades Via TFTP

6.5.2 Installation

6.5.2.1 Stacking Architecture

The idea of stacking is to allow the user the ability to manage the multiple GSWU cards in one system as one switch, instead of individual units and IP addresses, etc. For example, a set of three blades would appear to the UI as a 24 port switch instead of three 8-port switches. The stacking will work by assigning a Master Management Card which provides all the GUI information for all the blades in the same stack. The CCPU assigns the Master by issuing an IP address via PAW/PRW. All other GSWU cards detected in the system are not assigned an IP address signifying them as Slave blades.

A single system can have up to 12 GSWU cards per system. However, only three GSWU units can be grouped together forming a single 20 port switch. When more than three GSWU units are present within a system, the additional units will not have any of the software features specified in this document. They will behave as an unmanaged Gigabit Ethernet switch, as defined later in this document.

The three GSWU boards can be categorized into one **Main** board, with two additional **Add-on** boards.

6.5.2.2 CD-CP00-USIP Address Assignment

The GSWU Main board will be provided with an IP address from the back plane CPU during the initialization sequence. The provision of an IP address from the back plane will identify the Main board. If during initialization, the IP address is set to **0** by the CPU, the blade is then determined to be an **Add-on**.

The IP address for the GSWU is assigned in Program 10-55 on the system. It contains the settings for the IP Address, Subnet Mask and Gateway IP Address.


6.5.2.3 Group Formation

When a GSWU determines that it is an **Add-on** board due to the lack of an IP address from the backplane, it sends a broadcast P2P message (defined in separate documentation) to all the GSWU units in the system until it receives an acknowledge message from the Main board.

The Main board receiving this broadcast message will acknowledge by sending port identification information to the Add-on board.

6.5.2.4 Port Number Determination

When a Main board is initialized, the board assigns the first eight ports as port 1 ~ 8. When subsequent Add-on boards' broadcast messages are received, the Main board assigns port numbers on a first come, first serve basis.

 *To have deterministic port assignment, it is recommended the the Add-on boards be inserted sequentially starting with the desired lower port numbers first.*

When a board is removed, the port numbers are not automatically removed. The operator, however, can remove any assignment by accessing the Main board GUI.

Example:


Main board is inserted in slot 3, one Add-on board inserted in slot 5. Main board has ports 1 ~ 8; Add-on board has ports 9 ~ 16.


1. User inserts a new Add-on board in slot 2.

- ☐ The new board gets assigned ports 17 ~ 24.

2. User removes Add-on board and moves it to slot 6.

- ☐ The re-inserted board automatically gets ports 17 ~ 24 (9 ~ 16 are unavailable).

 *User can erase the ports 9 ~ 16.*

 *Then reinsert the board in slot 6 to get ports 9 ~ 16.*

3. User relocates the Main board to slot 4.

- ☐ None of the port numbers change. However, the programming in Program 10-55 must be changed to reflect this move.

The grouping of the three GSWU units to form a 20 port switch is restricted to reside in a single system location. The grouping is not allowed where the GSWU units are placed as part of the NetLink feature in the Univerge SV8100 system.

6.5.2.5 Unmanaged Switch Functions

In the unmanaged mode, a GSWU unit will have the following functions only:

- ☐ 10/100/1000 Ethernet ports (x8)
- ☐ PoE Class 3 (lowest power class)

6.5.3 LED Indications

Table 6-61 CD-ETIA LED Indications

Port State	LED Display
1000Mbps Link	Green Solid
10/100Mbps Link	Yellow Solid
No Link	Off
Port Activity	LED Blinking

6.5.4 Connectors

Backplane Connector – J1 connection to system CPU board and other boards in the chassis.

SECTION 7 CABLING AND MDF CONNECTION

7.1 Connection Requirements

The chassis is connected with each multiline terminal, single line telephone, optional equipment, CD-PVAA, DID/OPX, E&M Tie lines and digital trunks by a separate twisted-pair cable through the Main Distribution Frame (MDF). The E&M Tie lines are T1/FT1 lines and require multiple twisted pair cabling.

7.2 Cabling Precautions

When selecting cables and the MDF, future expansion or assignment changes should be given due consideration. Avoid running cables in the following places:

- A place exposed to the wind or rain.
- A place near heat radiating equipment or where the PVC covering could be affected by gases or chemicals.
- An unstable place subject to vibration.

7.3 Wiring Between the Chassis and the MDF

7.3.1 Chassis Cables

The chassis is equipped with two MDF Cable Assemblies. NEC recommends that the MDF Cable Assembly be used to connect the multiline terminals, single line telephones (except PFT), PVAA and DID/OPX lines. Refer to [Figure 6-46 MDF Pin-Out \(Connectors 1~6\) on page 6-121](#) and [Table 6-63 MDF Cable Connections \(Station\) on page 6-122](#) or [Table 6-64 MDF Cable Connections \(Trunk\) on page 6-124](#). When installing E&M Tie lines, single line telephones with PFT, and other optional equipment with the CD-8DLCA/CD-16DLCA, the connector and cabling must be locally provided.

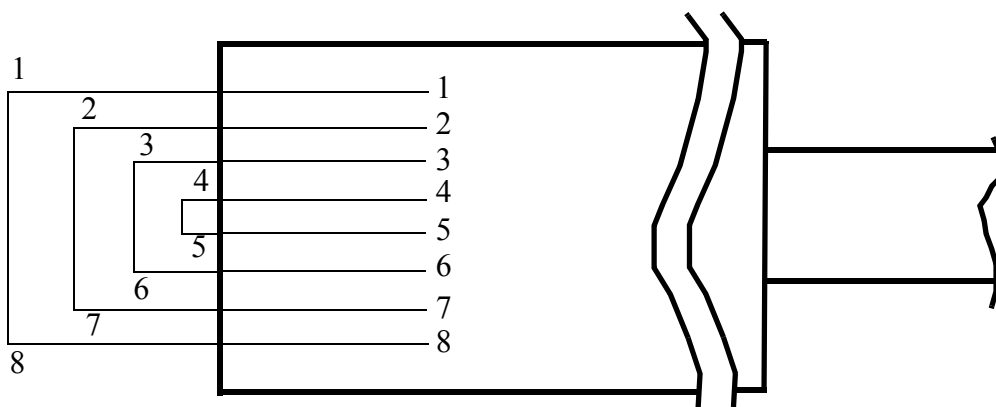


Figure 6-46 MDF Pin-Out (Connectors 1~6)

Table 6-62 MDF Cable Colors

Pin Outs	Cable Colors					
	1	2	3	4	5	6
1	BR-WH	GN-RD	BR-BK	BL-YL	SL-YL	BR-VI
2	GN-WH	OR-RD	BL-BK	SL-BK	BR-YL	GN-VI
3	OR-WH	BL-RD	SL-RD	BR-GN	GN-YL	OR-VI
4	WH-BL	WH-SL	RD-BR	BK-GN	YL-OR	VI-BL
5	BL-WH	SL-WH	BR-RD	GN-BK	OR-YL	BL-VI
6	WH-OR	RD-BL	RD-SL	GN-BR	YL-GN	VI-OR
7	WH-GN	RD-OR	BK-BL	BK-SL	YL-BR	VI-GN
8	WH-BR	RD-GN	BK-OR	YL-BL	YL-SL	VI-BR

Table 6-63 MDF Cable Connections (Station)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	DLCA		LCA		LTA			
				8	16	4	8	DLCA	LCA	BRI	COTB
1	26 1	WH-BL BL-WH	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	27 2	WH-OR OR-WH	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	28 3	WH-GN GN-WH	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	29 4	WH-BR BR-WH	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
2	30 5	WH-SL SL-WH	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	31 6	RD-BL BL-RD	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	32 7	RD-OR OR-RD	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	33 8	RD-GN GN-RD	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R

Table 6-63 MDF Cable Connections (Station) (Continued)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	DLCA		LCA		LTA			
				8	16	4	8	DLCA	LCA	BRI	COTB
3	34 9	RD-BR BR-RD	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	35 10	RD-SL SL-RD	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	36 11	BK-BL BL-BK	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	37 12	BK-OR OR-BK	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
4	38 13	BK-GN GN-BK	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	39 14	BK-BR BR-BK	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	40 15	BK-SL SL-BK	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	41 16	YL-BL BL-YL	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
5	42 17	YL-OR OR-YL	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	43 18	YL-GN GN-YL	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	44 19	YL-BR BR-YL	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	45 20	YL-SL SL-YL	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
6	46 21	VI-BL BL-VI	GN RD	T R	T R	T R	T R	T R	T R	TA-1 TB-1	T R
	47 22	VI-OR OR-VI	GN RD	T R	T R	T R	T R	T R	T R	RA-1 RB-1	T R
	48 23	VI-GN GN-VI	GN RD	T R	T R	T R	T R	T R	T R	TA-2 TB-2	T R
	49 24	VI-BR BR-VI	GN RD	T R	T R	T R	T R	T R	T R	RA-2 RB-2	T R
	50	—	—	—	—	—	—	—	—	—	—
	25	—	—	—	—	—	—	—	—	—	—

Table 6-64 MDF Cable Connections (Trunk)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	COTB		DIOPA		PRTA		BRIA	CCTA
				4	8	DID	OPX	PRI	T1		
1	26 1	WH-BL BL-WH	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	27 2	WH-OR OR-WH	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	28 3	WH-GN GN-WH	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	29 4	WH-BR BR-WH	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
2	30 5	WH-SL SL-WH	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	31 6	RD-BL BL-RD	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	32 7	RD-OR OR-RD	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	33 8	RD-GN GN-RD	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
3	34 9	RD-BR BR-RD	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	35 10	RD-SL SL-RD	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	36 11	BK-BL BL-BK	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	37 12	BK-OR OR-BK	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
4	38 13	BK-GN GN-BK	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	39 14	BK-BR BR-BK	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	40 15	BK-SL SL-BK	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	41 16	YL-BL BL-YL	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
5	42 17	YL-OR OR-YL	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	43 18	YL-GN GN-YL	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	44 19	YL-BR BR-YL	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	45 20	YL-SL SL-YL	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -

Table 6-64 MDF Cable Connections (Trunk) (Continued)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	COTB		DIOPA		PRTA		BR1A	CCTA
				4	8	DID	OPX	PRI	T1		
6	46 21	VI-BL BL-VI	GN RD	T R	T R	T R	T R	RA RB	RA RB	TA-1 TB-1	RA RB
	47 22	VI-OR OR-VI	GN RD	T R	T R	T R	T R	- TA	- TA	RA-1 RB-1	- TA
	48 23	VI-GN GN-VI	GN RD	T R	T R	T R	T R	TB -	TB -	TA-2 TB-2	TB -
	49 24	VI-BR BR-VI	GN RD	T R	T R	T R	T R	- -	- -	RA-2 RB-2	- -
	50	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-

7.3.2 Outside Lines

The FCC authorized connector for the connection of CO lines is an RJ-61. The lines are connected in sequence in this termination block. Therefore, the lines must be ordered in the appearance order best suited to the user. Refer to [Table 6-63 MDF Cable Connections \(Station\) on page 6-122](#) or [Table 6-64 MDF Cable Connections \(Trunk\) on page 6-124](#) for information about the MDF Connector Assembly Cable positions, the cable number, and lead functions.

Ground Start and/or Loop Start, Loop Dial, DID/OPX, E&M Tie lines, and T1 can be connected to this system. Using only twisted-pair wiring to cross connect the lines from the RJ-61 termination block to the MDF is recommended.

- - NOTES - -

Installing DT300/DT700 Series (DTL/ITL) Digital and IP Multiline Terminals

SECTION 1 GENERAL DESCRIPTION

This chapter provides information about the DT300/DT700 Series digital and IP terminals in addition to the single line telephones, cordless telephones and wireless telephones.

Table 7-1 Terminal Category Reference Chart

Category		DT300/DT700 Series Terminals		
		Equipment	Product Name (idea)	Note
Digital Terminal	Economy	2-button without LCD	DTL-2E-1 (BK) TEL	–
		6-button with LCD	DTL-6DE-1 (BK) TEL	–
	Value	12-button with LCD	DTL-12D-1 (BK)/(WH) TEL	–
		24-button with LCD	DTL-24D-1 (BK)/(WH) TEL	–
		32-button with LCD	DTL-32D-1 (BK)/(WH) TEL	24-button + 8-button LK Unit
		DESI-less	DTL-8LD(BK)/(WH) TEL	–
		12-button with PSA	DTL-12PA-1 (BK) TEL	with Power Save Adapter (PSA)
IP Terminal	Economy	2-button without LCD	ITL-2E-1 (BK) TEL	–
		6-button with LCD	ITL-6DE-1 (BK) TEL	–
	Value	12-button with LCD	ITL-12D-1 (BK)/(WH) TEL	–
		24-button with LCD	ITL-24D-1 (BK)/(WH) TEL	–
		32-button with LCD	ITL-32D-1 (BK)/(WH) TEL	24-button + 8-button LK Unit
		DESI-less	ITL-8LD-1 (BK)/(WH) TEL	–
		12-button with PSA	ITL-12PA-1 (BK) TEL	with Power Save Adapter (PSA)
	Sophi	32-button	ITL-320C-1 (BK) TEL	with large color touch LCD

The DT300/DT700 Series offers a line up of modular telephones. This modular design allows the telephones to be upgraded and customized. Optional LCD panels, keypads, handset cradles, face plates and colored side panels can easily be snapped on and off.

The easy-to-use adjustable footplate allows for a variety of height positions.

There are several easy-to-read LCD displays available, including a new large color touch panel LCD.

The following tables list each terminal and the options available.

[Table 7-2 Terminal and Adapter Compatibility](#) show the compatibility between the terminals and adapter used in the system.

Table 7-2 Terminal and Adapter Compatibility

Terminal	Adapter Unit			
	ADA-L	APR-L	ILPA	PSA-L
IP Terminals:				
ITL-2E-1 (BK) TEL	—	—	✓	—
ITL-6DE-1 (BK) TEL	—	—	✓	—
ITL-8LD-1 (BK)/(WH) TEL	✓	—	✓	✓
ITL-12D-1 (BK)/(WH) TEL	✓	—	✓	✓
ITL-12PA-1 (BK) TEL	✓	—	✓	✓
ITL-24D-1 (BK)/(WH) TEL	✓	—	✓	✓
ITL-32D-1 (BK)/(WH) TEL	✓	—	✓	✓
ITL-320C-1 (BK) TEL	✓	—	✓	✓
Digital Terminals:				
DTL-2E-1 (BK) TEL	—	—	—	—
DTL-6DE-1 (BK) TEL	—	—	—	—
DTL-8LD(BK)/(WH) TEL	✓	✓	—	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	—	✓
DTL-12PA-1 (BK) TEL	✓	✓	—	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	—	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	—	✓
Console:				
DCL-60-1 (BK)/(WH) CONSOLE	—	—	—	—

— = Option Not Available

✓ = Optional Available

Table 7-3 Terminal and Line Key/LCD Compatibility

Terminal	Line Key/LCD					
	8 LK-L	8LKD(LD)-L	8LKI(LD)-L	12LK-L	LCD (BL-L)	DCL-60
IP Terminals:						
ITL-2E-1 (BK) TEL	—	—	—	—	—	—
ITL-6DE-1 (BK) TEL	—	—	—	—	—	—
ITL-8LD-1 (BK)/(WH) TEL	✓	—	—	—	—	✓
ITL-12D-1 (BK)/(WH) TEL	✓	—	✓	✓	✓	✓
ITL-12PA-1 (BK) TEL	✓	—	✓	✓	✓	✓
ITL-24D-1 (BK)/(WH) TEL	✓	—	✓	—	✓	✓
ITL-32D-1 (BK)/(WH) TEL	✓	—	✓	—	✓	—
ITL-320C-1 (BK) TEL	✓	—	—	—	✓	✓
Digital Terminals:						
DTL-2E-1 (BK) TEL	—	—	—	—	—	—
DTL-6DE-1 (BK) TEL	—	—	—	—	—	—
DTL-8LD(BK)/(WH) TEL	✓	—	—	—	—	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	—	✓	✓	✓
DTL-12PA-1 (BK) TEL	✓	✓	—	✓	✓	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	—	—	✓	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	—	—	✓	—

— = Option Not Available

✓ = Optional Available

Table 7-4 Terminal and Tenkey Kit Compatibility

Terminal	Tenkey Kit				
	BS(F)-L	BS(S)-L	BS(ACD)-L	BS(Braille)-L	BS(Retro)-I
IP Terminals:					
ITL-2E-1 (BK) TEL	—	—	—	—	✓
ITL-6DE-1 (BK) TEL	—	—	—	—	✓
ITL-8LD-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓
ITL-12D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓
ITL-12PA-1 (BK) TEL	✓	✓	✓	✓	✓
ITL-24D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓
ITL-32D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓
ITL-320C-1 (BK) TEL	✓	✓	✓	✓	✓
Digital Terminals:					
DTL-2E-1 (BK) TEL	—	—	—	—	✓
DTL-6DE-1 (BK) TEL	—	—	—	—	✓
DTL-8LD(BK)/(WH) TEL	✓	✓	✓	✓	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓
DTL-12PA-1 (BK) TEL	✓	✓	✓	✓	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	✓	✓	✓

— = Option Not Available

✓ = Optional Available

Table 7-5 Terminal and Optional Equipment Compatibility

Terminal	Equipment		
	PSA-L	WM-L*	PANEL-L
IP Terminals:			
ITL-2E-1 (BK) TEL	—	✓	✓
ITL-6DE-1 (BK) TEL	—	✓	✓
ITL-8LD-1 (BK)/(WH) TEL	✓	✓	✓
ITL-12D-1 (BK)/(WH) TEL	✓	✓	✓
ITL-12PA-1 (BK) TEL	—	✓	✓
ITL-24D-1 (BK)/(WH) TEL	✓	✓	✓
ITL-32D-1 (BK)/(WH) TEL	✓	✓	✓
ITL-320C-1 (BK) TEL	✓	✓	✓
Digital Terminals:			
DTL-2E-1 (BK) TEL	—	✓	✓
DTL-6DE-1 (BK) TEL	—	✓	✓
DTL-8LD(BK)/(WH) TEL	✓	✓	✓
DTL-12D-1 (BK)/(WH) TEL	✓	✓	✓
DTL-12PA-1 (BK) TEL	—	✓	✓
DTL-24D-1 (BK)/(WH) TEL	✓	✓	✓
DTL-32D-1 (BK)/(WH) TEL	✓	✓	✓
Console:			
DCL-60-1 CONSOLE **	—	✓	—

— = Option Not Available


✓ = Optional Available

* The WM-L is required if the ADA-L UNIT or APR-L UNIT are installed on the telephone.

** DCL-60-1 = Special Wall Mount

SECTION 2 DT300 SERIES DIGITAL MULTILINE TERMINALS

The DT300 Series offers a new exciting line up of digital telephones. These telephones (except economy), have a modular design that allows the telephones to be upgraded and customized. Optional LCD panels, dial pads, feature key kits, handset cradles, face plates and colored side panels can easily be snapped on and off to upgrade and customize as the customer desires.

 *The DT300 Series Digital Multiline Terminals are supported by the Electra Elite IPK II system (similar to the D^{term} Series i Telephones) with optional Retro key pad installed.*

2.1 Digital MultilineTerminals

2.1.1 DTL-2E-1 (BK) TEL

This digital economy non-display Multiline Terminal has two programmable line keys and is available in black only. The terminal features:

- ☐ Non-modular design
- ☐ Four step adjustable base
- ☐ Half-duplex speaker phone
- ☐ Two line keys (Red, Green)
- ☐ Four soft keys (Help, Exit)
- ☐ Three color LED



Figure 7-1 DTL-2E-1 TEL

2.1.2 DTL-6DE-1 (BK) TEL

This digital economy Multiline Terminal has six line keys with display and is available in black only. The terminal features:

- ☐ Non-modular design
- ☐ Four step adjustable base
- ☐ Half-duplex speaker phone
- ☐ Six line keys (Red, Green)
- ☐ Four soft keys (Help, Exit)
- ☐ Three color LED
- ☐ 24 X 3 character LCD display with cursor keys



Figure 7-2 DTL-6DE-1 TEL

2.1.3 DTL-8LD-1 (BK) TEL/DTL-8LD-1 (WH) TEL

This digital value Multiline Terminal has eight line keys with display and is available in both black and white. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Eight line keys (Red, Green)
- ☐ Four soft keys (Help, Exit)
- ☐ DESI-less line key displays eight lines per page (four pages of eight lines available using scroll key)
- ☐ Three color LED
- ☐ Two 168 X 55 dot matrix backlit LCDs with cursor keys

- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation



Figure 7-3 DTL-8LD-1 TEL

2.1.4 DTL-12D-1 (BK) TEL/DTL-12D-1 (WH) TEL

This digital value Multiline Terminal has 12 line keys and is available in both black and white. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Eight line keys (Red, Green)
- ☐ Four soft keys (Help, Exit)
- ☐ Three color LED
- ☐ 168 X 58 dot matrix backlit LCD with cursor keys
- ☐ Menu/Softkey operation provided on the LCD
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation

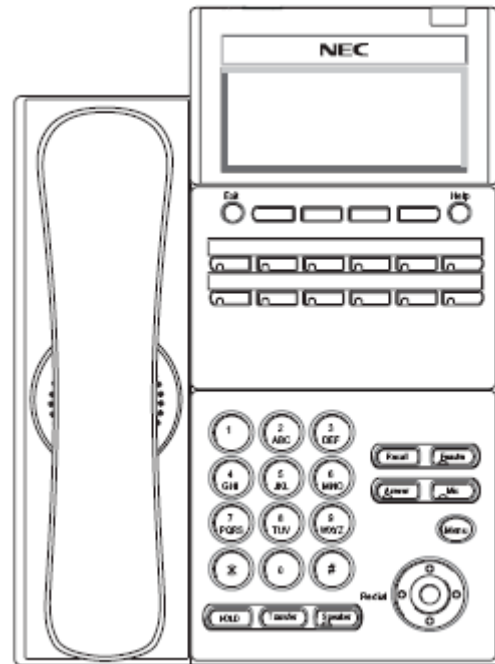


Figure 7-4 DTL-12D-1 TEL

2.1.5 DTL-12PA-1 (BK) TEL

This digital value multiline terminal with Analog Power Failure adapter has 12 line keys and is available in black only. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Eight line keys (Red, Green)
- ☐ Four soft keys (Help, Exit)
- ☐ Three color LED
- ☐ 168 X 58 dot matrix backlit LCD with cursor keys
- ☐ Menu/Softkey operation provided on the LCD
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation
- ☐ PSA-L adapter

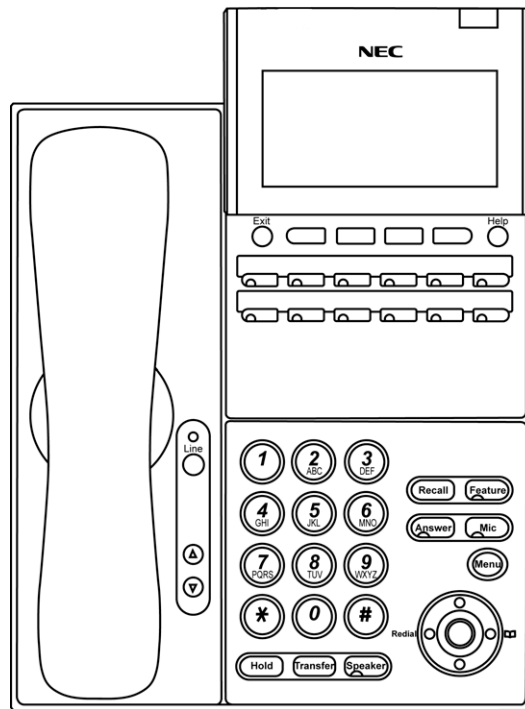


Figure 7-5 DTL-12PA-1 TEL

2.1.6 DTL-24D-1 (BK) TEL/DTL-24D-1 (WH) TEL

This digital value Multiline Terminal has 24 line keys and is available in both black and white. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Eight line keys (Red, Green)
- ☐ Four soft keys (Help, Exit)
- ☐ Three color LED
- ☐ 168 X 58 dot matrix backlit LCD with cursor keys
- ☐ Menu/Softkey operation provided on the LCD
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation



Figure 7-6 DTL-24D-1 TEL

2.1.7 DTL-32D-1 (BK) TEL/DTL-32D-1 (WH) TEL

This digital value Multiline Terminal has 32 line keys (24 line keys plus eight line key LK Unit) and is available in both black and white. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Eight line keys (Red, Green)
- ☐ Four soft keys (Help, Exit)
- ☐ Three color LED
- ☐ 168 X 58 dot matrix backlit LCD with cursor keys
- ☐ Menu/Softkey operation provided on the LCD
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation

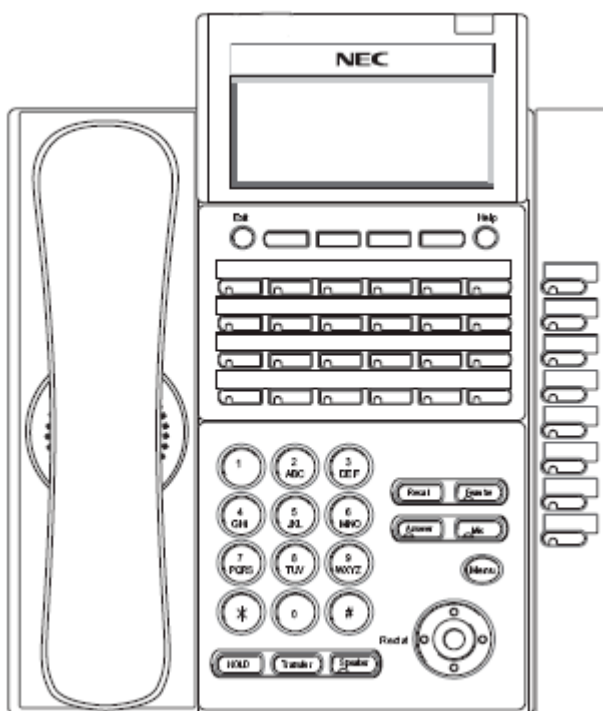



Figure 7-7 DTL-32D-1 TEL

SECTION 3 DT700 SERIES IP MULTILINE TERMINALS

The DT700 Series offers a new exciting line up of IP telephones. These telephones (except economy), have a modular design that allows the telephones to be upgraded and customized. Optional LCD panels, dial pads, feature key kits, handset cradles, face plates and colored side panels can easily be snapped on and off to upgrade and customize as the customer desires.

 *The DT700 Series IP Multiline Terminals are not supported by the Electra Elite IPK II system.*

3.1 IP MultilineTerminals

3.1.1 ITL-2E-1 (BK) TEL

This IP economy non-display Multiline Terminal has two programmable line keys and is available in black only. The terminal features:

- ☐ Non-modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Three color LED
- ☐ IEEE 802.3af compliant
- ☐ XML open interface (limited)
- ☐ 10Base-T/100Base-TX network interface
- ☐ Remote Login and Maintenance



Figure 7-8 ITL-2E-1 TEL

3.1.2 ITL-6DE-1 (BK) TEL

This IP economy Multiline Terminal has six line keys with display and is available in black only. The terminal features:

- ☐ Non-modular design
- ☐ Four step adjustable base
- ☐ Remote login and maintenance
- ☐ Full-duplex speaker phone
- ☐ Three color LED for message waiting
- ☐ 168 X 41 full dot black and white LCD with cursor keys
- ☐ IEEE 802.3af compliant
- ☐ XML open interface (limited)
- ☐ 10Base-T/100Base-TX network interface



Figure 7-9 ITL-6DE-1 TEL

3.1.3 ITL-8LD-1 (BK) TEL/ITL-8LD-1 (WH) TEL

This IP value Multiline Terminal has eight line keys with display and is available in both black and white. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ DESI-less line key displays eight lines per page (four pages of eight lines available using scroll key)
- ☐ Protection button (lock)
- ☐ Seven color LED for incoming calls

- ☐ Two 224 X 96 full dot gray scale LCDs with cursor keys
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation
- ☐ Wideband handset
- ☐ IEEE 802.3af compliant
- ☐ XML open interface
- ☐ 10Base-T/100Base-TX network interface
- ☐ Backlit LCD



Figure 7-10 ITL-8LD-1 TEL

3.1.4 ITL-12D-1 (BK) TEL/ITL-12D-1 (WH) TEL

This IP value Multiline Terminal has 12 line keys and is available in both black and white. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Protection button
- ☐ Seven color LED for incoming calls
- ☐ 224 X 96 full dot gray scale LCD with cursor keys
- ☐ Menu/Softkey operation provided on the LCD
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation
- ☐ IEEE 802.3af compliant

- ☐ XML open interface
- ☐ 10Base-T/100Base-TX network interface
- ☐ Backlit LCD

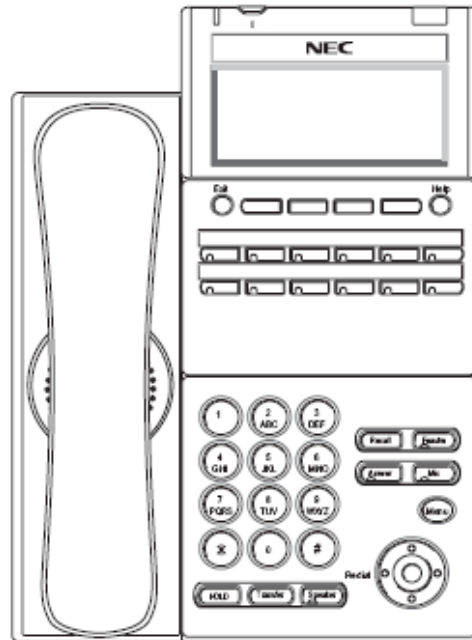


Figure 7-11 ITL-12D-1 TEL

3.1.5 ITL-12PA-1 (BK) TEL

This IP value Multiline Terminal with Analog Power Failure adapter has 12 line keys and is available in black only. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Protection button
- ☐ Seven color LED for incoming calls
- ☐ 224 X 96 full dot gray scale LCD with cursor keys
- ☐ Menu/Softkey operation provided on the LCD
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation
- ☐ IEEE 802.3af compliant
- ☐ XML open interface
- ☐ 10Base-T/100Base-TX network interface

- ☐ Backlit LCD
- ☐ PSA Adapter for Power Failure

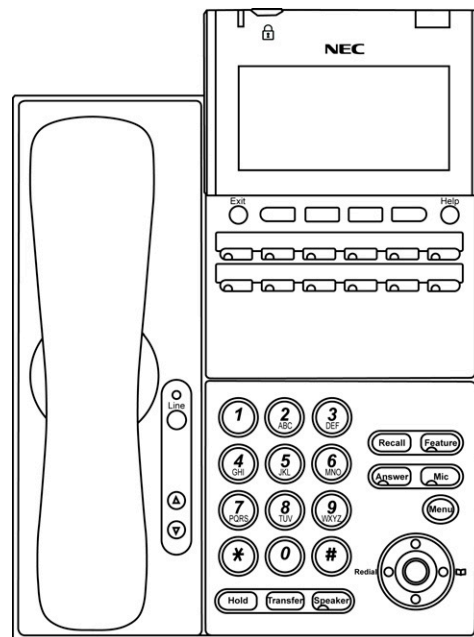


Figure 7-12 ITL-12PA-1 TEL

3.1.6 ITL-24D-1 (BK) TEL/ITL-24D-1 (WH) TEL

This IP value Multiline Terminal has 24 line keys and is available in both black and white. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Protection button
- ☐ Seven color LED for incoming calls
- ☐ 224 X 96 full dot gray scale LCD with cursor keys
- ☐ Menu/Softkey operation provided on the LCD
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation
- ☐ IEEE 802.3af compliant
- ☐ XML open interface
- ☐ 10Base-T/100Base-TX network interface
- ☐ Backlit LCD



Figure 7-13 ITL-24D-1 TEL

3.1.7 ITL-32D-1 (BK) TEL/ITL-32D-1 (WH) TEL

This IP value Multiline Terminal has 32 line keys (24 line keys plus an eight line key LK Unit) and is available in both black and white. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Protection button
- ☐ Seven color LED for incoming calls
- ☐ 224 X 96 full dot gray scale LCD with cursor keys
- ☐ Menu/Softkey operation provided on the LCD
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation
- ☐ IEEE 802.3af compliant
- ☐ XML open interface
- ☐ 10Base-T/100Base-TX network interface
- ☐ Backlit LCD

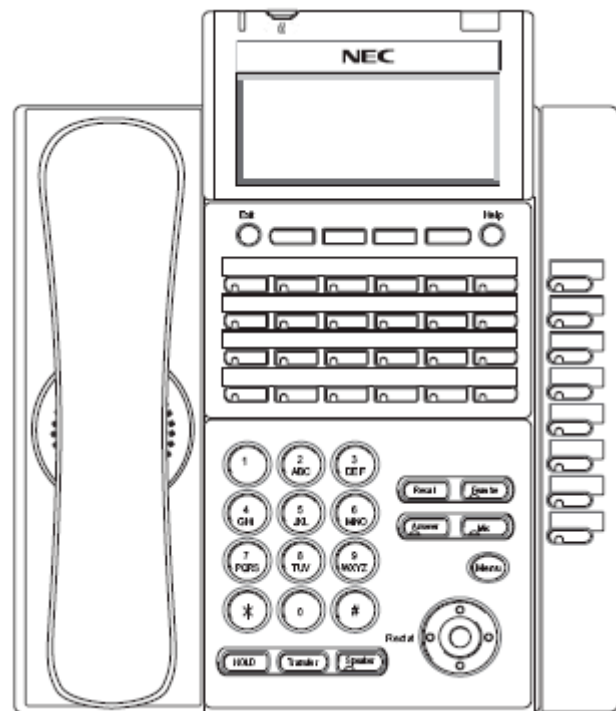


Figure 7-14 ITL-32D-1 TEL

3.1.8 ITL-320C-1 (BK) TEL

This IP Multiline Terminal features a large color touch panel LCD and is available in black only. The terminal features:

- ☐ Modular design
- ☐ Four step adjustable base
- ☐ Full-duplex speaker phone
- ☐ Protection button
- ☐ Seven color LED for incoming calls
- ☐ Large touch color LCD
- ☐ Menu/Softkey operation provided on the LCD
- ☐ Backlit 10-key dial pad for easy viewing
- ☐ Full-duplex handsfree operation
- ☐ IEEE 802.3af compliant
- ☐ XML open interface
- ☐ 10Base-T/100Base-TX network interface
- ☐ Backlit LCD

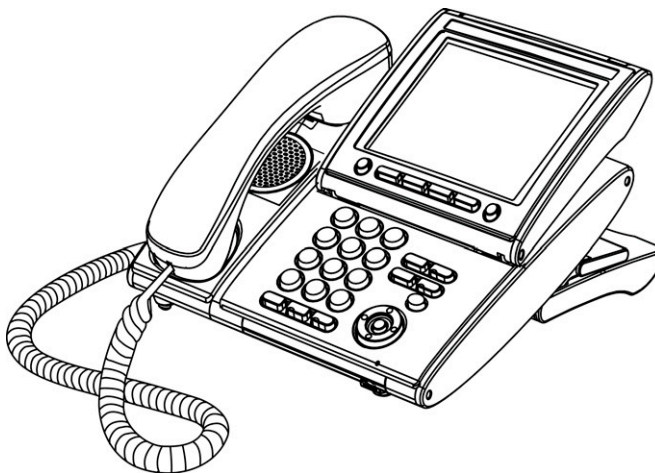


Figure 7-15 ITL-320C-1 TEL

SECTION 4 INSTALL MULTILINE TERMINALS

4.1 Connecting the DT300 Series Multiline Terminal to the System

This instruction applies to all DT300 Series Multiline Terminals.

1. Plug the telephone cord into the modular jack on the bottom side of the Multiline Terminal. The handset is also attached to the bottom side of the Multiline Terminal.

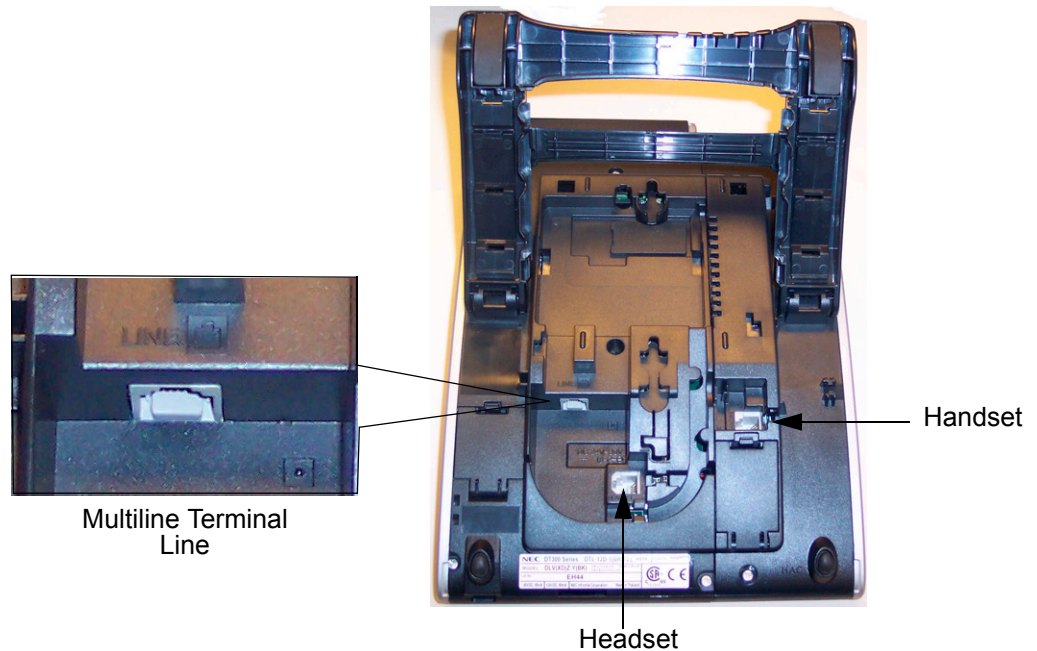
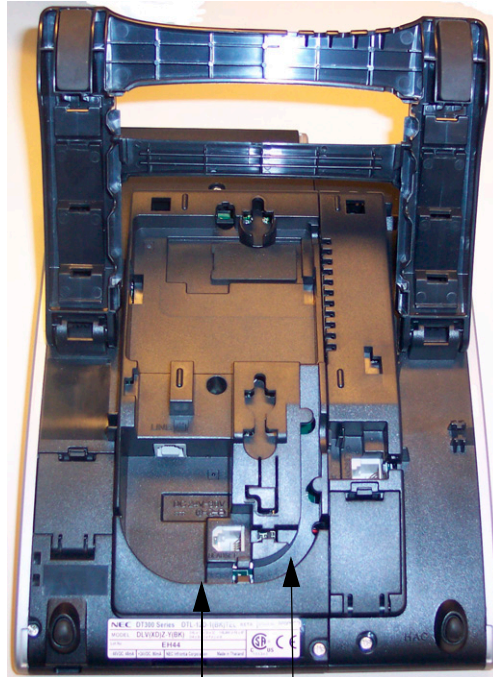


Figure 7-16 Connecting a Multiline Terminal to the System

2. Lead the Line and Handset cables through the applicable grooves.



Groove for Line and Handset Cables

Figure 7-17 Leading Line Cords on a Multiline Terminal

4.2 Applying Power to the DT700 Multiline Terminals

The DT700 terminals support two different methods to power the terminal:

- AC-2R/AC-3R
Plug the optional AC-2R/AC-3R AC Adapter input Jack in the terminal base unit, and plug the 2-prong wall plug of the AC Adapter in a standard 120 Vac wall outlet.
- In-Line Power/PoE (Power over Ethernet)
In-Line Power (sometimes called Power Over Ethernet) is a LAN technology that allows standard 10 Base-T/100 Base-TX data cables to pass electrical current from a power source to a requesting end device.

4.3 Connecting the IP Multiline Terminal to the Network and PC

These instructions for connecting an IP Multiline Terminal to the Network and PC apply to DT700 Multiline Terminals. Refer to [Figure 7-18 IP Terminal Connector Locations](#).

1. Connect the LAN Network 10Base-T/100Base-TX cable to the LAN (=) connector.
2. The IP terminal has a switching HUB to connect a PC to the LAN Network. Connect the 10 Base-T/100 Base-TX straight cable used for this connection to the PC(x) connector and to the PC.

Refer to [Figure 7-19 Typical Network IP Connection on page 7-24](#).

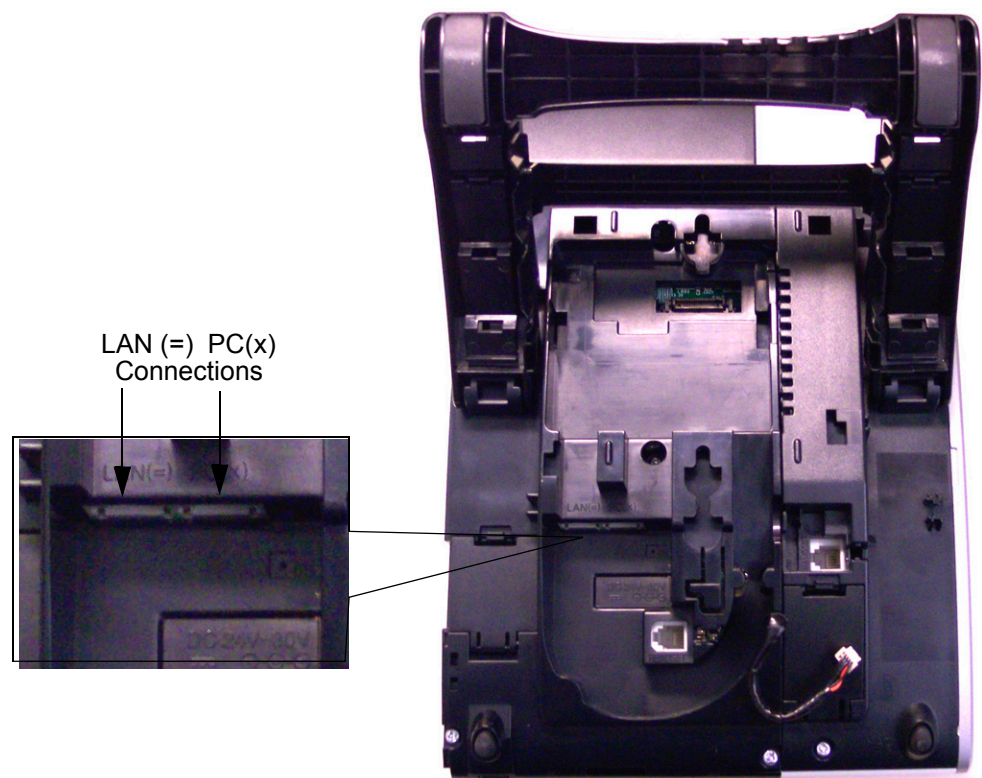


Figure 7-18 IP Terminal Connector Locations

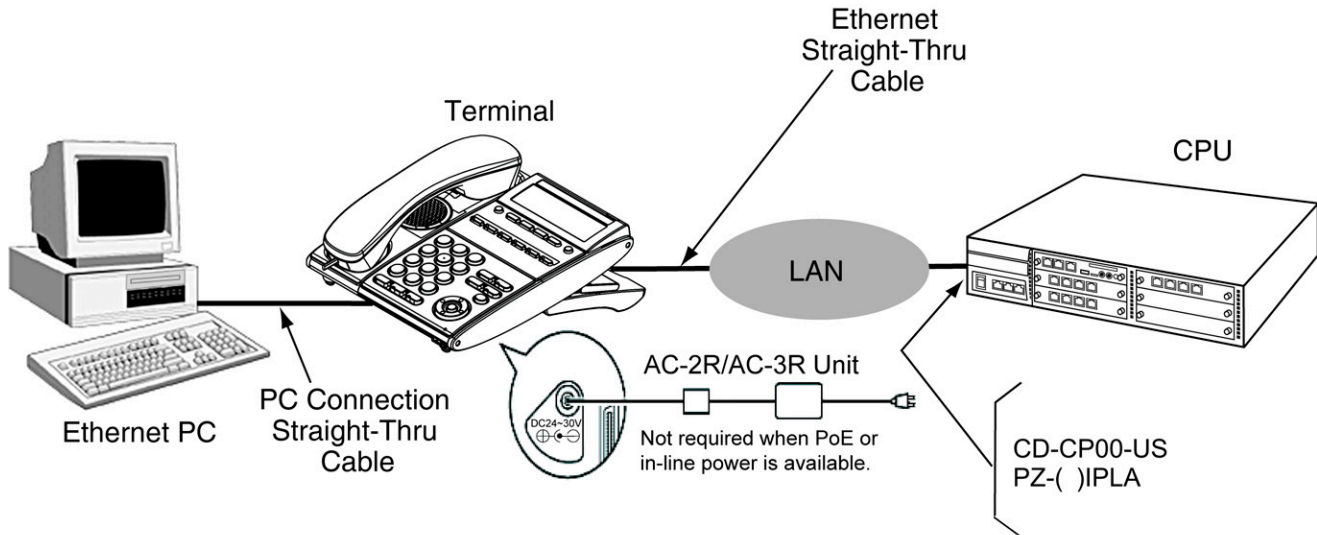


Figure 7-19 Typical Network IP Connection

4.4 Adjusting the LCD on the Multiline Terminal

DT300/DT700 Series display Multiline Terminals have an adjustable Liquid Crystal Display (LCD). The LCD can be adjusted by pulling up or pushing down as desired.



Figure 7-20 Adjusting the LCD on a Multiline Terminal

4.5 Installing Line Key Kit (12LK-L KIT)

The 12LK-L KIT Provides twelve additional buttons to ITL or DTL multiline terminals. The 12LK-L KIT kit:

- Mounts directly to top side of terminal
- Supports Red and Green LED colors



Figure 7-21 12LK-L Kit

4.5.1 Installing the 12LK-L KIT



To prevent possible damage to the 12LK-L KIT or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.

1. Turn multiline terminal upside down.
 - ✎ *Only one 12LK-L KIT can be attached to the DTL/ITL multiline terminal.*
2. Pry the right-side panel from the multiline terminal.
3. From the lower left or right corner, pry the Line Key Panel from the multiline terminal (refer to [Figure 7-22 Removing the Line Key Panel on page 7-26](#)).



Figure 7-22 Removing the Line Key Panel

4. Lift and remove the DESI sheet.



Figure 7-23 Removing the DESI Sheet

5. Press the right end of the Line Key placeholder and lift to remove (refer to [Figure 7-24 Removing the Line Key Placeholder on page 7-27](#)).



Figure 7-24 Removing the Line Key Placeholder

6. Install the 12LK-L KIT and press down until click is heard.



Figure 7-25 Installing the 12LK-L KIT

7. If desired, print and install the new DESI sheet.



Figure 7-26 Installing the DESI Sheet

8. Install the supplied Line Key Panel (refer to [Figure 7-27 Installing the Line Key Panel](#)).



Figure 7-27 Installing the Line Key Panel

9. Install the side panel.
10. Connect the line cord/LAN cable and the AC/DC adapter to the DTL/ITL multiline terminal.

4.5.2 Configuring the Digital Telephone for the Correct Number of Line Keys

1. With the telephone not plugged in and the handset on-hook, press the **4** and **6** buttons on the numbered keypad and connect the telephone cable.

 This places the telephone into Service Class R/W mode. The MW LED should be lit.

2. Press **1** to enter the Line Key Type mode.

 The MW LED should flash.

3. Follow the directions below for the type of line key module installed:

Table 7-6 Numbered Keypad Type

Numbered Keypad Type	Push
2-Button	1
6-Button	2
8-Button	3
12-Button	4
24-Button	5

4. Save to memory by pressing line key 2, 8, 14 or 20. The display changes back to the Service Class R/W mode and the MW LED will be lit Red.
5. Press **Exit** to return the telephone to the idle condition.

4.5.3 Configuring the IP Telephone for the Correct Number of Line Keys

1. Enter the terminal's program mode by pressing HOLD CONF * #.
2. At the Login screen, enter the user name (default = ADMIN) and password (default = 6633222) and press the **OK** Soft Key.
3. Press Soft Key **3** for Maintenance Setting.
4. Press Soft Key **4** for Adjust.

5. Press Soft Key **2** for Key Kit Type.
6. Select the type of keypad kit being used by pressing the Up/Down key.

Table 7-7 Keypad Kit Type

Keypad Kit Entry	Description
Kit1	Type A – Japan with cursor key
Kit2	Type A – US with cursor key
Kit3	Type B – US with cursor key
Kit4	
Kit8	32 Line Key without cursor key
Kit9	Type A – Japan without cursor key
Kit10	Type A – US without cursor key
Kit11	Type B – US without cursor key
Kit12	

7. Press Soft Key **4** for Next.
8. Select the type of line key kit being used by pressing the Up/Down key.


 By default, the correct line key kit for the keypad kit selected above will be highlighted.

Table 7-8 Line Key Kit Type

Line Key Kit Entry	Description
Kit12	Enhanced 12-Button
Kit24	Enhanced 24-Button
Kit32	Enhanced 32-Button
Kit8	DESI-Less
Kit6	Value 6-Button
Kit2	Value 2-Button
Kit0	IP-CTS

9. Press Soft Key **4** for OK to complete.

10. Continue pressing Soft Key **4** to exit (Exit-Exit-Save). The terminal will reset automatically.

4.6 Installing the Directory Card on the Multiline Terminal

A directory card can be attached to DT300/DT700 Series Multiline Terminals. The directory card can be used to record often dialed numbers or other important information.

1. After recording the information on the lined insert, reinsert it between the plastic panels of the directory card. Attach the directory card to the directory card holder as illustrated in [Figure 7-28 Attaching Directory Card to Directory Card Holder](#). Note that the open end slides into the directory card holder.

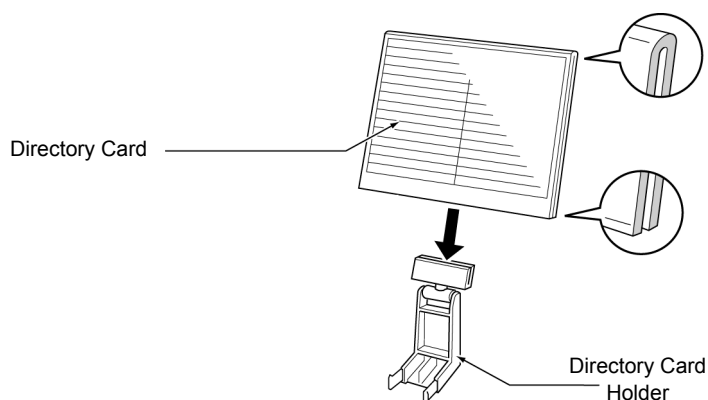



Figure 7-28 Attaching Directory Card to Directory Card Holder

2. Locate the two grooves on the top of the telephone as illustrated in [Figure 7-29 Attaching Directory Card Holder to the Multiline Terminal](#). Push the directory card holder into the grooves on the Multiline Terminal until they snap into place.

 *To remove the directory card, press the two sides of the directory card holder inward until the tabs release and pull the holder out of the grooves.*

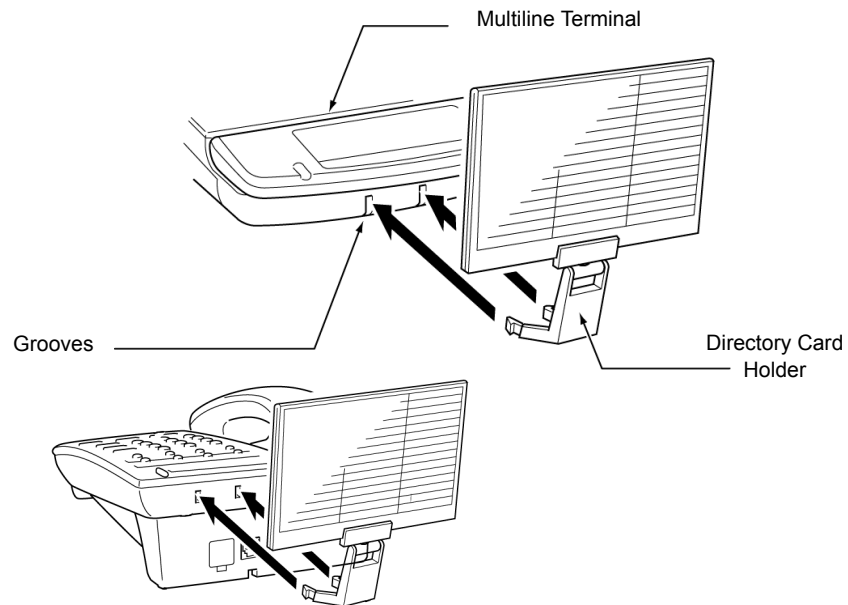


Figure 7-29 Attaching Directory Card Holder to the Multiline Terminal

4.7 Installing a Numbered Keypad on the Multiline Terminal

The BS()-L Kits are keypad sets, which can be installed on a multiline terminal replacing the Standard Numbered Keypad. The *D^{term}* Series i Retro is an optional keypad available to be used with the IPK II and IPS terminals.

- **Standard Numbered Keypad**

The standard keypad (in black or white), is commonly delivered with the UNIVERGE SV8100/SV8300 terminal (refer to [Figure 7-30 Standard Numbered Keypad on page 7-33](#)).

Business Layout (Standard)



Figure 7-30 Standard Numbered Keypad

- BS (Retro)-L KIT

The optional Retro keypad (in black or white), is compatible with the *D^{term}* Series i telephone, allowing the terminal to be used with the IPK II and IPS multiline terminals.

Retro Keypad



Figure 7-31 BS (Retro)-L KIT

4.7.1 Installing the Numbered Keypad on a Multiline Terminal



To prevent possible damage to the Numbered Keypad or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/ LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.

1. Remove the plastic panels. (Refer to paragraph [Figure 7-32 Remove Plastic Panels.](#))

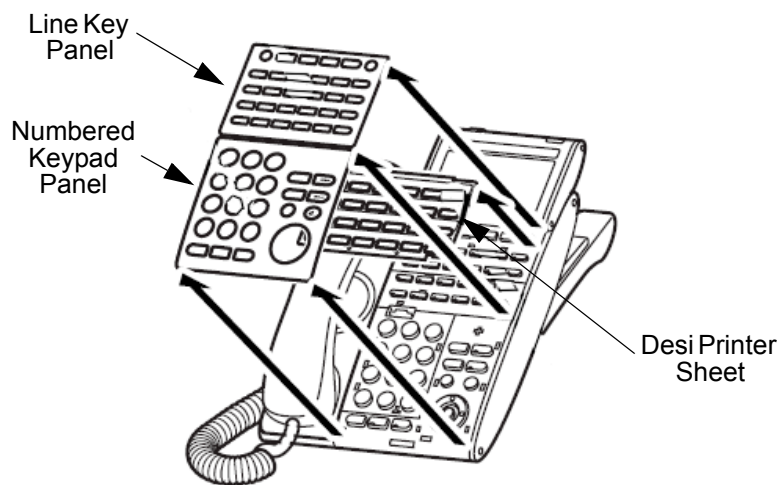


Figure 7-32 Remove Plastic Panels

2. Pull down on the tab and lift the Numbered Keypad away from the telephone to remove the existing button. See [Figure 7-33 Removing Numbered Keypad from DT300/DT700 Series Terminal.](#)

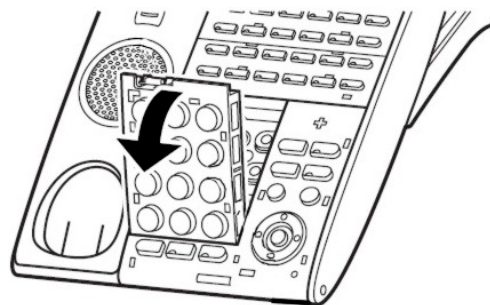


Figure 7-33 Removing Numbered Keypad from DT300/DT700 Series Terminal

3. Slide the replacement numbered keypad into the grooves located on the inside of the telephone, then press down on the keypad to snap it into place. See [Figure 7-34 Install New Numbered Keypad into DT300/DT700 Series Terminal](#).

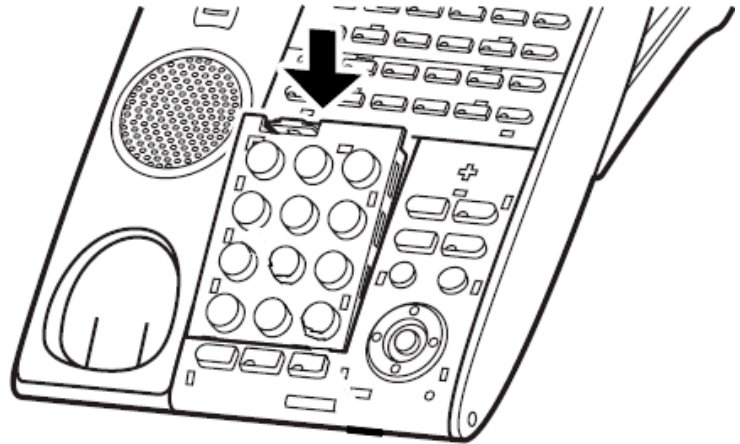


Figure 7-34 Install New Numbered Keypad into DT300/DT700 Series Terminal

4. Insert the DESI printer sheet and plastic panels on the multiline terminal. Refer to [Figure 7-35 Install Plastic Panels](#).

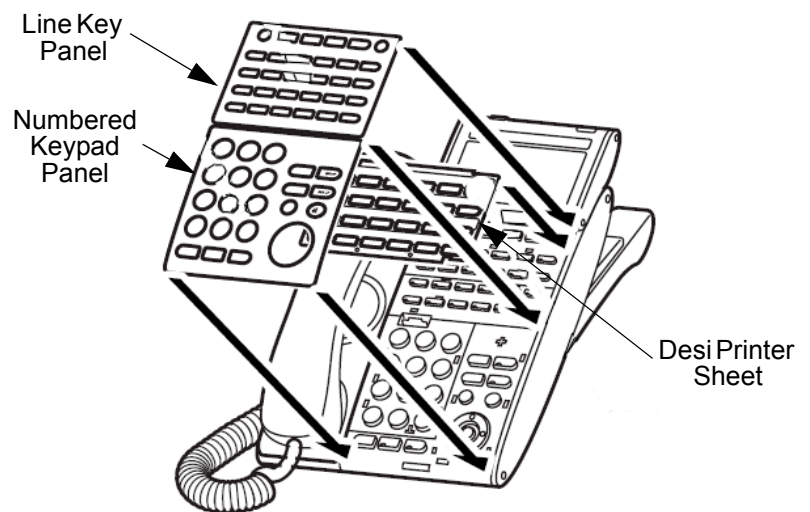



Figure 7-35 Install Plastic Panels

4.7.2 Configuring the Digital Telephone for the Numbered Keypad

1. With the telephone not plugged in and the handset on-hook, press the **4** and **6** buttons on the numbered keypad and connect the telephone cable.

 This places the telephone into Service Class R/W mode. The MW LED should be lit.

2. Press **2** on the numbered keypad to enter the Button Kit mode.

 The MW LED should flash.

3. Follow the directions below for the type of keypad installed:

Table 7-9 Numbered Keypad Type

Numbered Keypad Type	Push	LED Indication
Japanese	01	Line 1 LED on Red
Model A Telephone	02	Line 2 LED on Red
Model B UX5000 Telephone	03	Line 1 and 2 LED on Red
Call Center	04	Line 1 LED on Green
Hotel-1	05	Line 2 LED on Green
Hotel-2	06	Line 1 and 2 LED on Green
Retirement Home	07	Line 1 LED flashing Red
Japan 32-Button	08	Line 2 LED flashing Red
Japan Value	09	Line 1 and 2 LED flashing Red
Model A Value	10	Line 1 LED flashing Green
Model B Value	11	Line 2 LED flashing Green
Reserve	12	Line 1 and 2 LED flashing Green

4. Save to memory by pressing line key 2, 8, 14 or 20. The display changes back to the Service Class R/W mode and the MW LED will be lit Red.

5. Press **Exit** to return the telephone to the idle condition.

4.7.3 Configuring the IP Telephone for the Numbered Keypad

1. Enter the terminal's program mode by pressing HOLD CONF *
#.

2. At the Login screen, enter the user name (default = ADMIN) and password (default = 6633222) and press the **OK** Soft Key.
3. Press Soft Key **3** for Maintenance Setting.
4. Press Soft Key **4** for Adjust.
5. Press Soft Key **2** for Key Kit Type.
6. Select the type of keypad kit being used by pressing the Up/Down key.

Table 7-10 Keypad Kit Type

Keypad Kit Entry	Description
Kit1	Type A – Japan with cursor key
Kit2	Type A – US with cursor key
Kit3	Type B – US with cursor key
Kit4	
Kit8	32 Line Key without cursor key
Kit9	Type A – Japan without cursor key
Kit10	Type A – US without cursor key
Kit11	Type B – US without cursor key
Kit12	

7. Press Soft Key **4** for Next.
8. Select the type of line key kit being used by pressing the Up/Down key.



By default, the correct line key kit for the keypad kit selected above will be highlighted.

Table 7-11 Line Key Kit Type

Line Key Kit Entry	Description
Kit12	Enhanced 12-Button
Kit24	Enhanced 24-Button
Kit32	Enhanced 32-Button
Kit8	DESI-Less

Table 7-11 Line Key Kit Type (Continued)

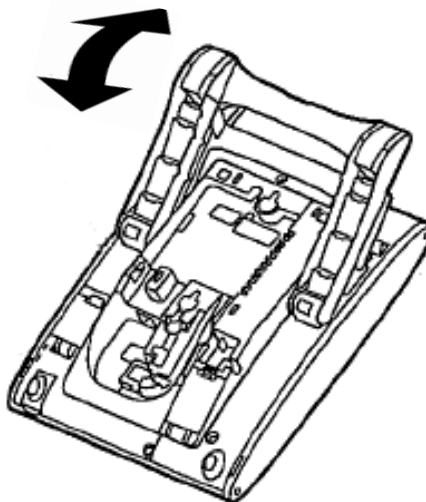
Line Key Kit Entry	Description
Kit6	Value 6-Button
Kit2	Value 2-Button
Kit0	IP-CTS

9. Press Soft Key **4** for OK to complete.
10. Continue pressing Soft Key **4** to exit (Exit-Exit-Save). The terminal will reset automatically.

4.8 Adjusting the Height on the Multiline Terminal

The height of the DT300/DT700 Series Multiline terminals can be adjusted by moving the legs attached to the bottom of the terminal.

1. Turn telephone over (button side down).
2. Adjust legs to desired height (refer to [Figure 7-36 Adjust Height of DT300/DT700 Series Terminal on page 7-38](#)).

**Figure 7-36 Adjust Height of DT300/DT700 Series Terminal**

3. Turn telephone over (button side up).

4.9 Removing or Installing the Tilt Legs on the Multiline Terminal

The Tilt Legs can be removed or installed on the DT300/DT700 Series multiline terminal.

4.9.1 Remove Tilt Legs

1. Place the telephone on a flat surface (button side down).
2. Separate the Tilt Legs and place them flat against the telephone. See [Figure 7-37 Separating the Tilt Legs](#).

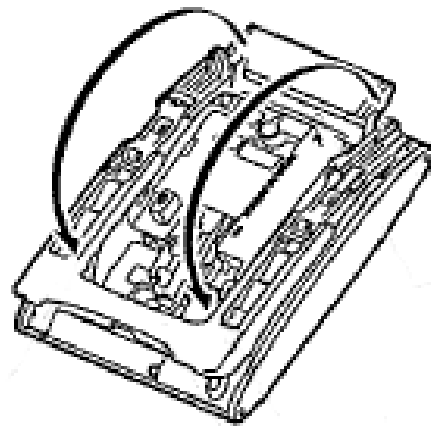


Figure 7-37 Separating the Tilt Legs

3. Push downward (two arrows) and slide downward (refer to [Figure 7-38 Attach Tilt Legs to DT300/DT700 Series Terminal](#)).

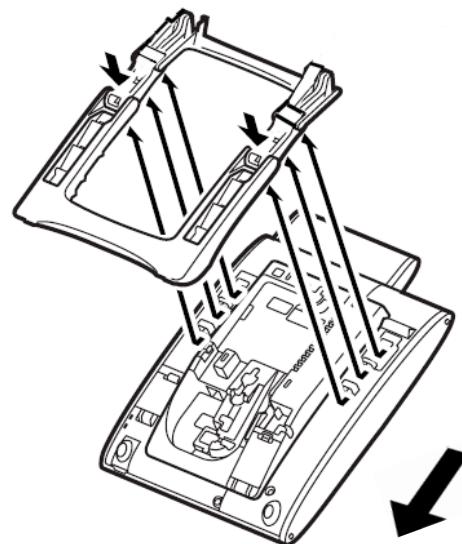


Figure 7-38 Attach Tilt Legs to DT300/DT700 Series Terminal

4. Lift and remove the Tilt Legs.

4.9.2 Install Tilt Legs

1. Place the telephone on a flat surface (button side down).
2. Lay the adjustable Tilt legs on top of the telephone. See [Figure 7-39 Attach Tilt Legs to DT300/DT700 Series Terminal](#).

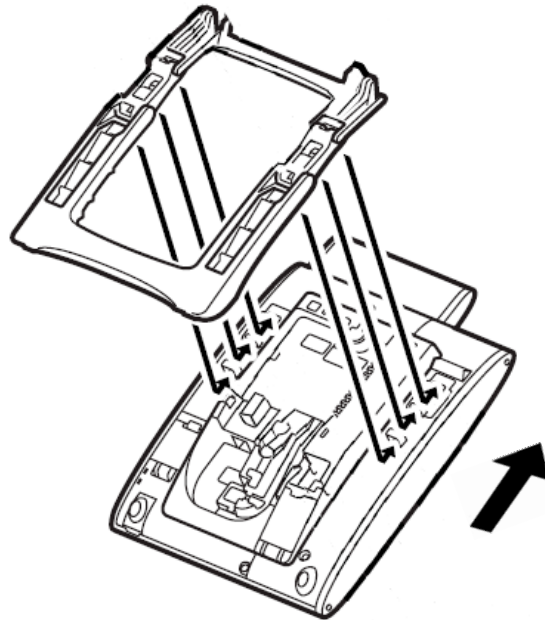


Figure 7-39 Attach Tilt Legs to DT300/DT700 Series Terminal

3. Push the Tilt Legs upward until they snap into place.
4. Lift both ends of Tilt Legs until they come together (refer to [Figure 7-40 Connecting the Tilt Legs on page 7-41](#)).

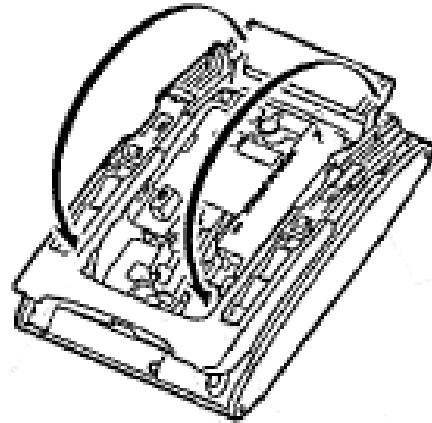


Figure 7-40 Connecting the Tilt Legs

5. Snap legs together and adjust to desired height. See [Figure 7-41 Adjust Height of DT300/DT700 Series Terminal](#)).

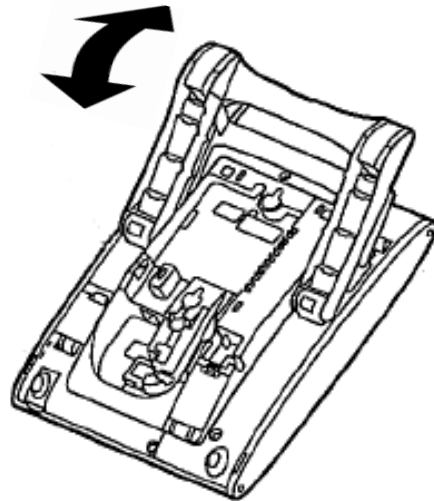


Figure 7-41 Adjust Height of DT300/DT700 Series Terminal

4.10 Wall Mounting the Multiline Terminal

You can wall mount a DT300/DT700 Series connection Multiline Terminal using the base cover or an optional wall mount unit. A wall mount unit must be used if adapters are installed on the Multiline Terminal.

4.10.1 Wall Mounting a Multiline Terminal using the Base Plate

4.10.1.1 Adjusting the Hanger Hook

1. Remove the hook from the unit.

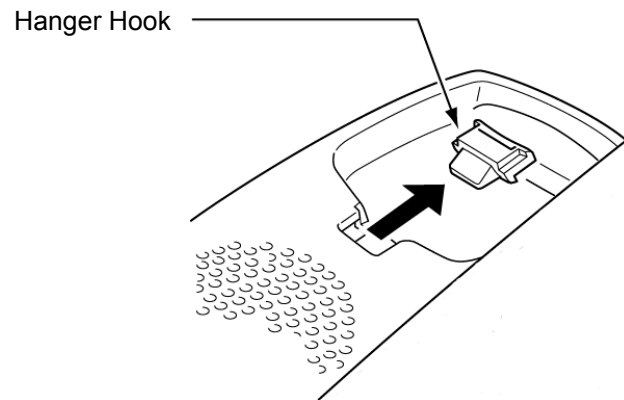


Figure 7-42 Removing the Hanger Hook on a DT300/DT700 Series Terminal

2. Turn the hook with the tab toward the top.
3. Slide the hook until it glides into position forming the hanger hook for the handset.

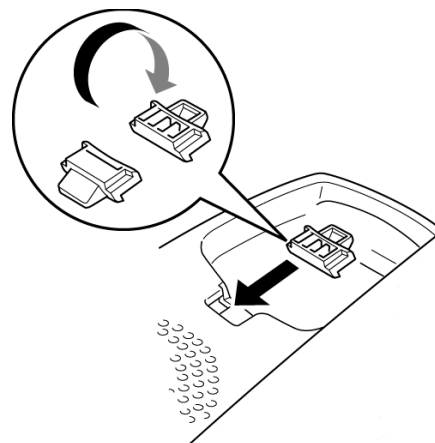


Figure 7-43 Sliding the Hanger Hook into Position

4.10.1.2 Wall Mounting the Multiline Terminal

1. Plug line cord in the wall receptacle. Leave about eight inches of cord and bundle the rest as shown in [Figure 7-44 Bundling the Line Cord](#).

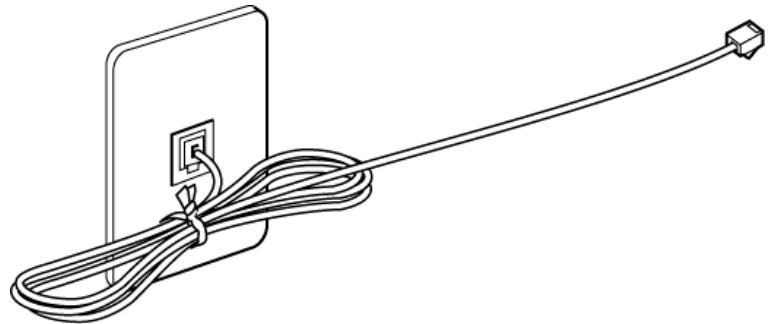


Figure 7-44 Bundling the Line Cord

2. Ensure the Tilt Legs are in the flat (unused position).
3. Plug the line cord into the Multiline Terminal as illustrated in [Figure 7-45 Plugging in Line Cord](#).

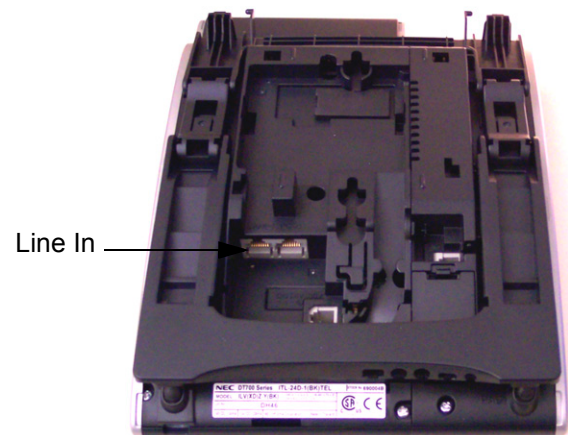


Figure 7-45 Plugging in Line Cord

4. Align the two holes on the back of the multiline terminal with the two screws on the wall plate and slide downward (refer to [Figure 7-46 Mount Multiline Terminal Wall on Wall Plate on page 7-44](#)).

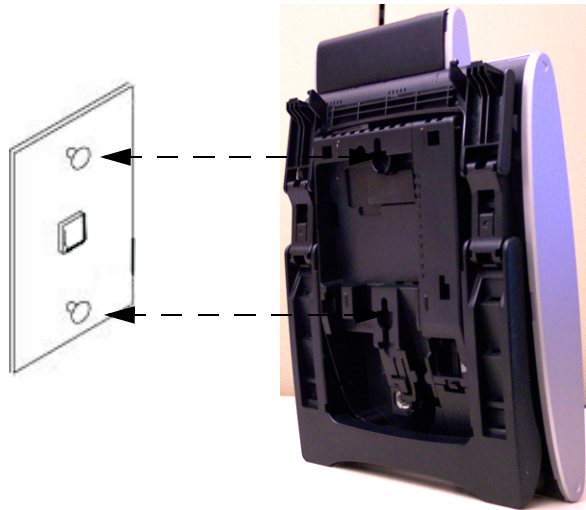


Figure 7-46 Mount Multiline Terminal Wall on Wall Plate

5. Push spare line cord behind the Multiline Terminal.

4.10.1.3 Removing the Multiline Terminal from the Wall Mounted Base Plate.

To remove the Multiline Terminal, push up on the telephone until it comes loose.



Figure 7-47 Removing the Multiline Terminal

4.10.1.4 Wall Mounting the Base on a Switch Box

1. Locate the screw holes on the base and hang the cover over the screws on the switch box as illustrated in [Figure 7-48 Wall Mounting Base on Switch Box](#).



Figure 7-48 Wall Mounting Base on Switch Box

2. Hang the Multiline Terminal on the base.

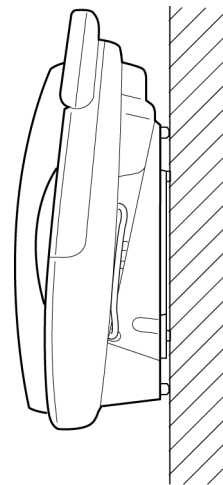


Figure 7-49 Wall Mounted Multiline Terminal



Because of strength variation in switch boxes, this method is not recommended.

SECTION 5 MULTILINE TERMINALS OPTIONAL EQUIPMENT

5.1 DT300/DT700 Series Terminal Options

The following chart provides a quick overview of the options available with the DT300/DT700 Series telephones.

Table 7-12 Connectivity of Options

Terminal Options		IP Terminals			Digital Terminals	
		Sophisticated ITL-320C-1	Value ITL-8LD-1 ITL-12D-1 ITL-24D-1 ITL-32D-1	Economy ITL-2E-1 ITL-6DE-1	Value DTL-8LD-1 DTL-12D-1 DTL-24D-1 DTL-32D-1	Economy DTL-2E-1 DTL-6DE-1
Key Kit	Ten Key Kit	✓	✓	✓	✓	✓
	12LK Kit	N/A (Built in)	✓	N/A	✓	N/A
	8LK Unit	✓	✓	N/A	✓	N/A
Common	ADA: Analog Recording Adapter	✓	✓	N/A	✓	N/A
	PSA: PSTN Adapter for analog	✓	✓	N/A	✓	N/A
	DSS: 60-Button DSS Console	✓	✓	N/A	Connect to Digital Port on KTS	
Digital	APR: Analog Port adapter with Ringer				N/A	N/A
	DESI-less LK/LCD Unit				N/A	N/A
	Backlit LCD				N/A	N/A
IP	DESI-less LK/LCD Unit	N/A (Built in)	✓	N/A		

5.2 DT300/DT700 Series Optional Terminal Equipment

5.2.1 8LK-L (BK) UNIT/8LK-L (WH) UNIT

Provides eight additional line keys to ITL or DTL terminals (except Economy). The unit features:

- ☐ Mounts directly to right side of terminal
- ☐ Supports Red and Green LED colors

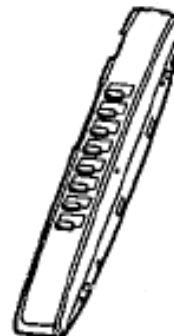


Figure 7-50 8LK-L UNIT

5.2.1.1 Installing the 8LK-L UNIT



To prevent possible damage to the 8LK-L UNIT or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.

1. Remove both plastic panels from the front of the multiline terminal.
2. Turn multiline terminal upside down.



Only one 8LK-L UNIT can be attached to the DTL/ITL multiline terminal.

3. Pry the side panel from the multiline terminal.

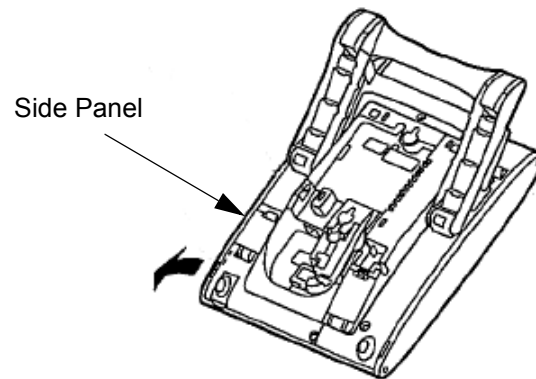


Figure 7-51 Remove Side Panel from Multiline Terminal

4. Return the multiline terminal to the buttons side up position.
5. Fit the projections on the side of the 8LK-L UNIT into the guide holes on the side of the multiline terminal.
6. Secure the 8LK-L UNIT with the two screws provided.

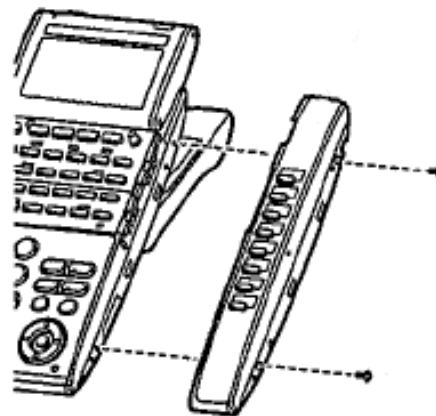


Figure 7-52 Securing the 8LK-L UNIT with Screws

7. Turn the multiline terminal upside down.

8. Open the small door covering the side option connectors by pulling the cover handle to the front.

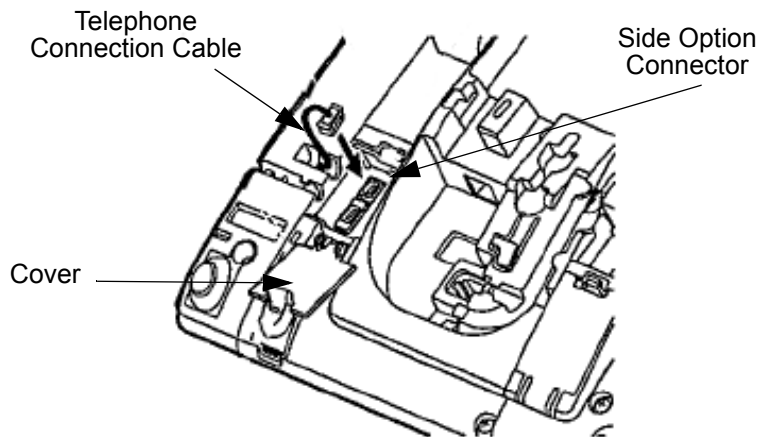


Figure 7-53 Install the 8LK-L UNIT Cable

9. Connect the cable from the 8LK-L UNIT to the side option connector (see [Figure 7-53 Install the 8LK-L UNIT Cable](#)) on the multiline terminal and close the cover.
10. Attach the side panel to the side of the 8LK-L UNIT.
11. Return the multiline terminal to the buttons side up position.
12. Complete the installation by reattaching both plastic panels to the front of the multiline terminal.

5.2.2 8LKD (LD)-L (BK) UNIT/8LKD (LD)-L (WH) UNIT

Provides eight additional line keys to DT300 Series (DTL) terminals.
The unit features:

- ☐ Mounts directly to top side of terminal
- ☐ Supports Desi-less 2 LCD panels
- ☐ Eight line keys by four pages




Figure 7-54 8LKD (LD)-L UNIT

5.2.2.1 Installing the 8LKD (LD)-L UNIT



To prevent possible damage to the 8LKD (LD)-L UNIT or the DTL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL multiline terminal.

1. Turn multiline terminal upside down.
 -  Only one 8LKD (LD)-L UNIT can be attached to the DTL multiline terminal.
2. Pry the side panel from the multiline terminal.

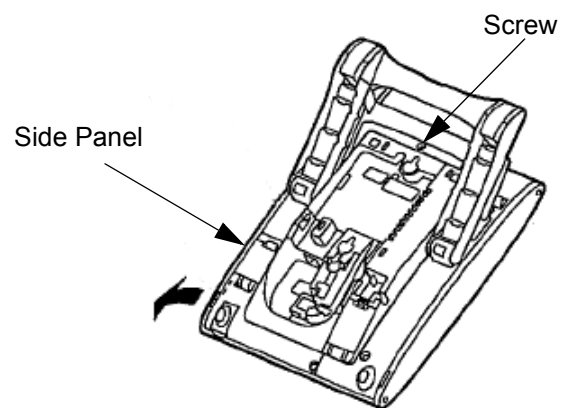


Figure 7-55 Remove Side Panel from Multiline Terminal

3. Remove the screw (refer to [Figure 7-55 Remove Side Panel from Multiline Terminal on page 7-50](#)).
4. Carefully, return the multiline terminal to the buttons side up position.
5. Remove the soft keys and line key kit from the telephone.
6. Gently lift the small black bar on the ribbon cable connector (refer to [Figure 7-56 Ribbon Cable Connector](#)).

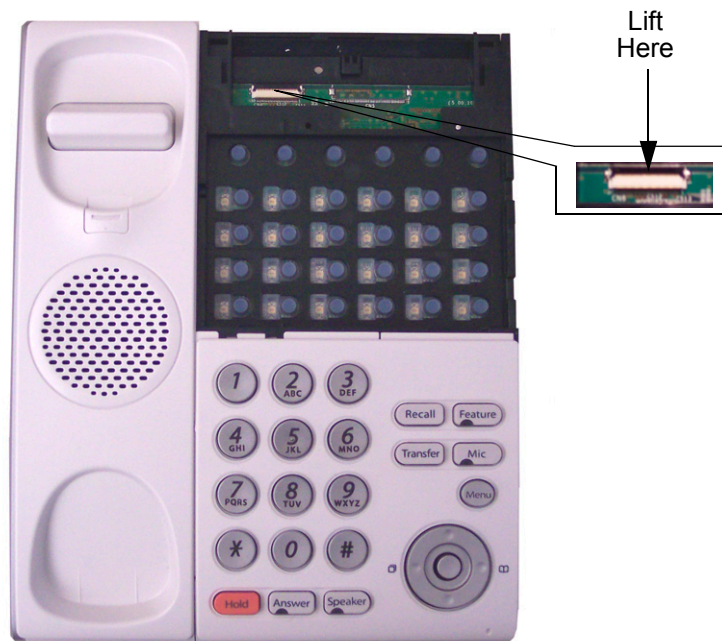


Figure 7-56 Ribbon Cable Connector

7. Plug ribbon cable on back of 8LKD (LD)-L UNIT into connector until pressure is felt.
8. Press down on the black bar to lock the cable into place (refer to [Figure 7-57 Ribbon Cable Installed on page 7-52](#)).

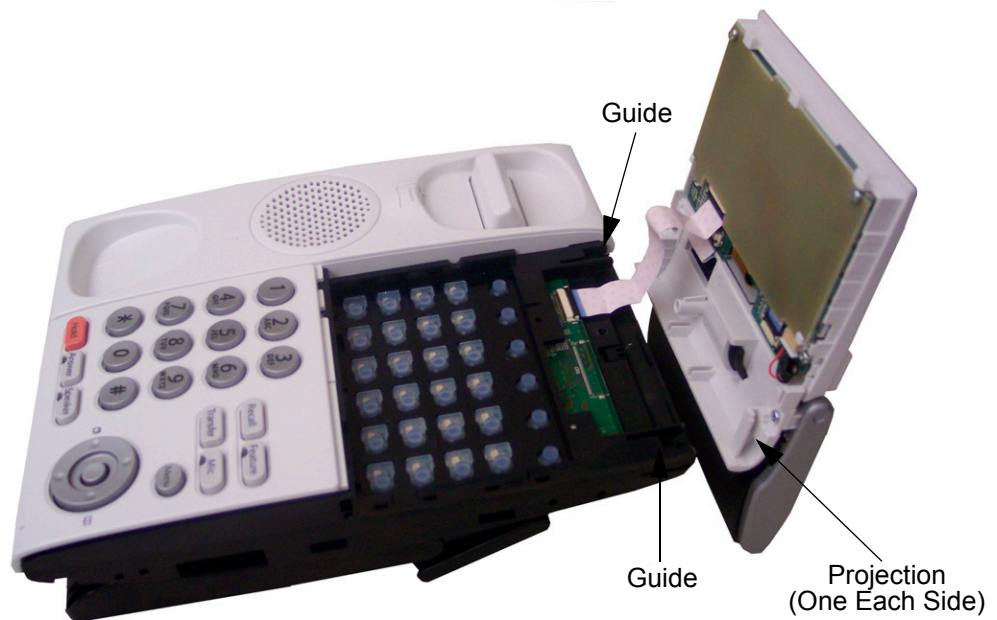


Figure 7-57 Ribbon Cable Installed

9. Align the projections on the bottom of the 8LKD (LD)-L UNIT into the guide holes on top of the multiline terminal.
10. Slide the 8LKD (LD)-L UNIT toward the keypad buttons until snug (refer to [Figure 7-58 8LKD \(LD\)-L UNIT Installed](#)).



Figure 7-58 8LKD (LD)-L UNIT Installed

11. Holding the LCD in place, turn the multiline terminal button side down.
12. Install the screw (refer to [Figure 7-59 Install Screw](#)).

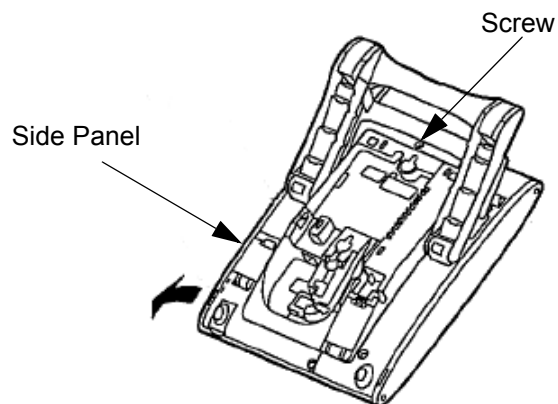


Figure 7-59 Install Screw

13. Attach the side panel to the side of the 8LKD (LD)-L UNIT (refer to [Figure 7-65 Install Screw on page 7-57](#)).
14. Return the multiline terminal to the buttons side up position.
15. Connect the line cord/LAN cable and the AC/DC adapter to the DTL multiline terminal.

5.2.3 8LKI (LD)-L (BK) UNIT/8LKI (LD)-L (WH) UNIT

Provides eight additional line keys to DT700 Series (ITL) DESI-less terminals. The unit features:

- ☐ Mounts directly to top side of terminal
- ☐ Supports Desi-less 2 LCD panels
- ☐ Eight line keys by four pages



Figure 7-60 8LKI (LD)-L UNIT

5.2.3.1 Installing the 8LKI (LD)-L UNIT



To prevent possible damage to the 8LKI (LD)-L UNIT or the ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the ITL multiline terminal.

1. Turn multiline terminal upside down.
 - ✎ *Only one 8LKI (LD)-L UNIT can be attached to the ITL multiline terminal.*
2. Pry the side panel from the multiline terminal.

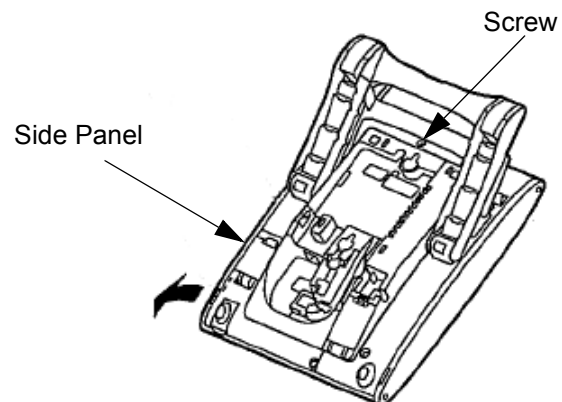


Figure 7-61 Remove Side Panel from Multiline Terminal

3. Remove the screw (refer to [Figure 7-61 Remove Side Panel from Multiline Terminal on page 7-54](#)).
4. Carefully, return the multiline terminal to the buttons side up position.
5. Remove the soft keys and line key kit from the telephone.
6. Gently lift the small black bar to open the ribbon cable connector.

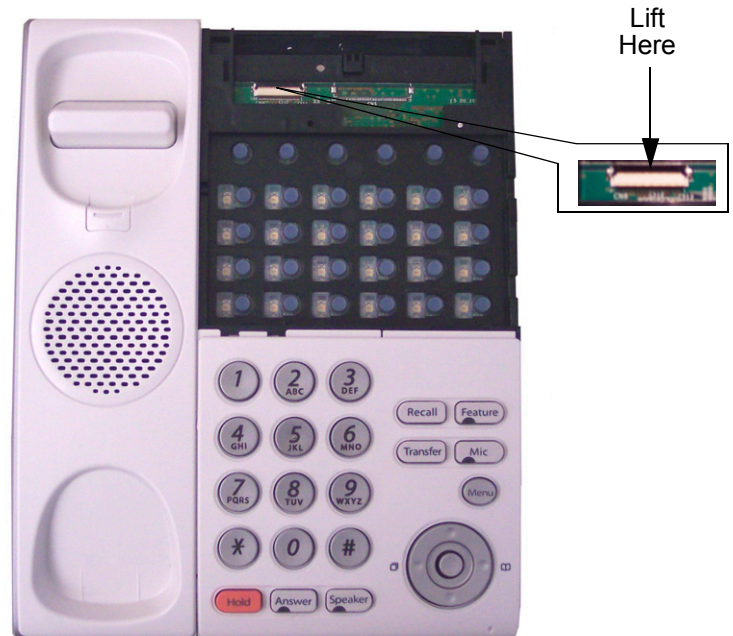


Figure 7-62 Ribbon Cable Connector

7. Plug ribbon cable on back of 8LKI (LD)-L UNIT into connector (metal side down) until pressure is felt.
8. Press down on the black bar to lock the cable into place (refer to [Figure 7-63 Ribbon Cable Installed on page 7-56](#)).

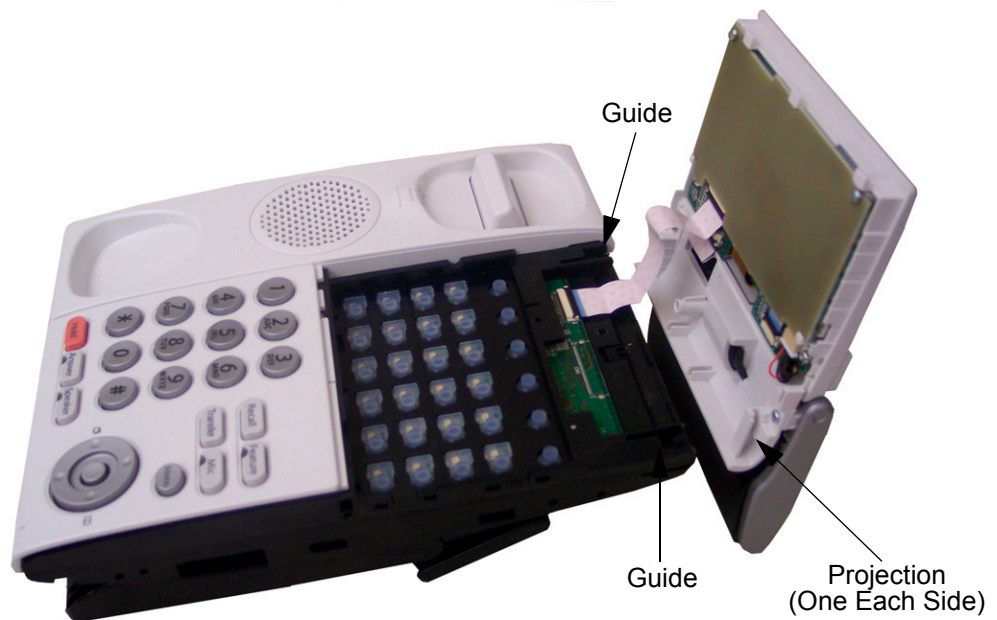


Figure 7-63 Ribbon Cable Installed

9. Align the projections on the bottom of the 8LKI (LD)-L UNIT into the guide holes on top of the multiline terminal (refer to [Figure 7-63 Ribbon Cable Installed](#)).
10. Slide the 8LKI (LD)-L UNIT toward the keypad buttons until snug (refer to [Figure 7-64 8LKI \(LD\)-L UNIT Installed](#)).



Figure 7-64 8LKI (LD)-L UNIT Installed

11. Holding the LCD in place, turn the multiline terminal button side down.
12. Install screw (refer to [Figure 7-65 Install Screw](#)).

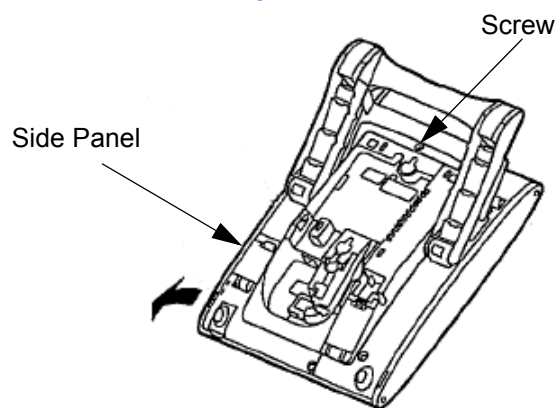


Figure 7-65 Install Screw

13. Attach the side panel to the side of the 8LKI (LD)-L UNIT (refer to [Figure 7-65 Install Screw](#)).
14. Return the multiline terminal to the buttons side up position.
15. Connect the line cord/LAN cable and the AC/DC adapter to the ITL multiline terminal.

5.2.4 DCL-60-1 (BK) CONSOLE/DCL-60-1 (WH) CONSOLE

The Attendant Console has 60 programmable line keys and is available in black or white. The unit features:

- ☐ 60 programmable Direct Station Selection (DSS) keys (Refer to system user guides).
- ☐ Supported on ITL or DTL modular terminals
- ☐ Green and Red LEDs

The DSS Console gives a keyset user a Busy Lamp Field (BLF) and one-button access to extensions, trunks and system features. The 60-Button DSS Console provides an additional 60 programmable keys. There are also two keys that allow “shifting” between the first and second set of 100 extensions.

Keep the following in mind when installing DSS Consoles:

- ❑ A 60-Button DSS Console requires a separate digital station port when pairing with a digital keyset. For IP terminals, the console is connected to the side option slot using a special cable.

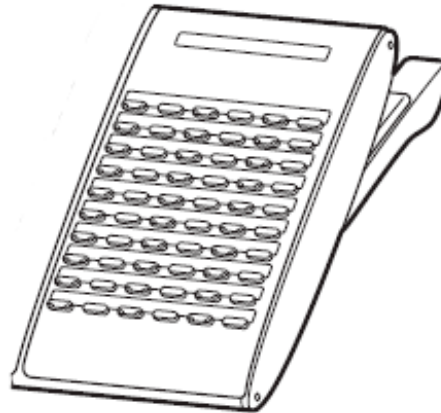


Figure 7-66 DCL-60-1 CONSOLE

5.2.4.1 Installing the DCL-60-1 CONSOLE



To prevent possible damage to the DCL-60-1 CONSOLE or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.

1. Remove both plastic panels from the front of the multiline terminal.
2. Turn multiline terminal upside down.

 *Only one DCL-60-1 CONSOLE can be attached to the DTL/ITL multiline terminal at a time.*

3. Pry the side panel from the multiline terminal.

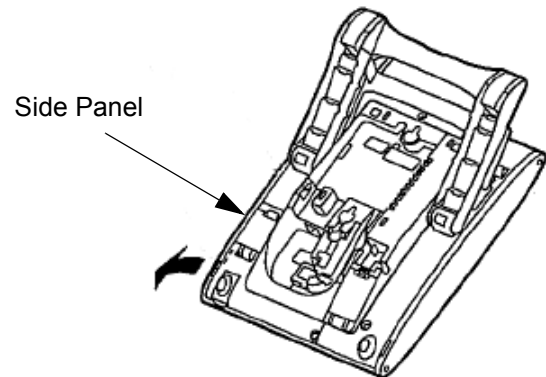


Figure 7-67 Remove Side Panel from Multiline Terminal

4. Turn the multiline terminal button side up.
5. Fit the projections of the supplied bracket into the side of the multiline terminal.
6. Attach the bracket with three supplied screws.

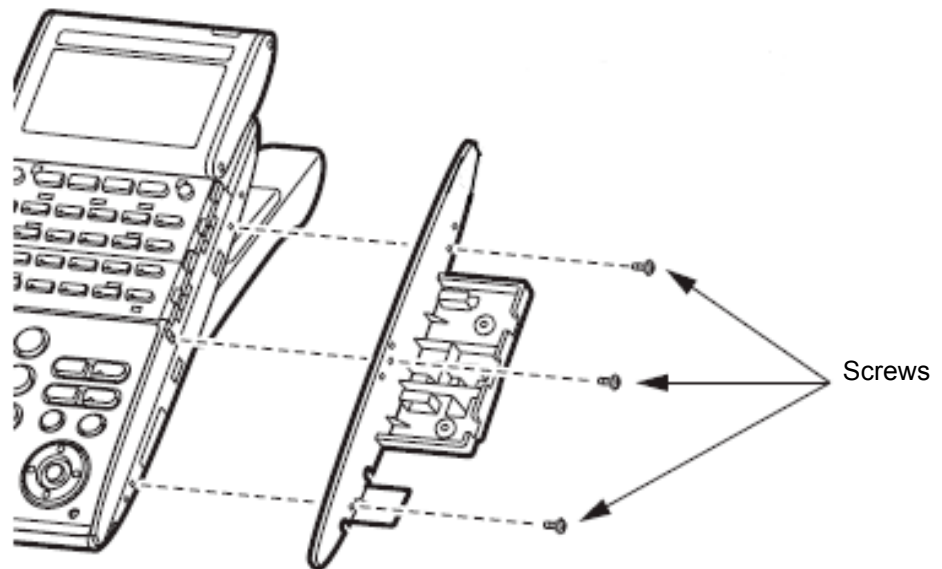


Figure 7-68 Secure Bracket to Multiline Terminal with Screws

7. Carefully push the Serial cable into the Serial Cable Groove (ITL, DT700 only).

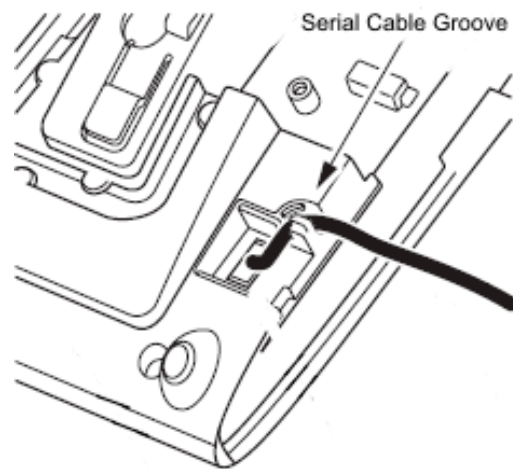


Figure 7-69 Press Serial Cable into Groove

8. Using the guides, slide the DCL-60-1 onto the installed bracket (refer to [Figure 7-69 Press Serial Cable into Groove](#)).
9. Secure the DCL-60-1 CONSOLE to the bracket with the two screws provided.

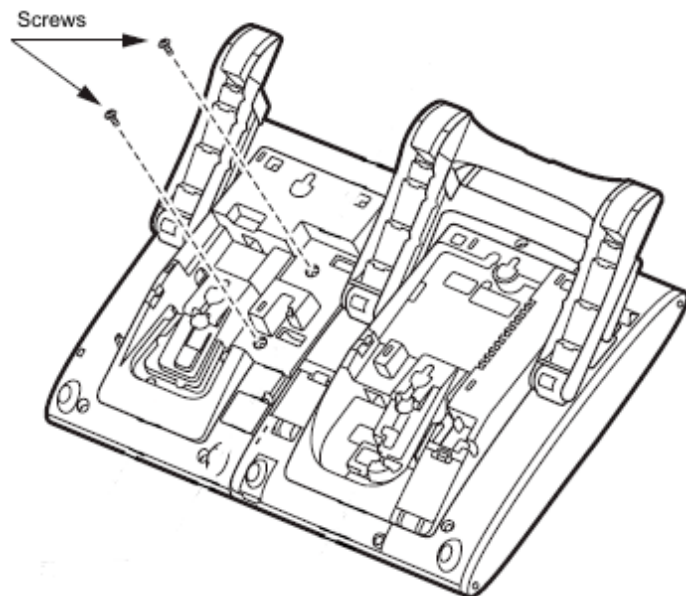


Figure 7-70 Securing the DCL-60-1 CONSOLE with Screws

10. Open the small door covering the side option connectors by pulling the cover latch toward you (refer to [Figure 7-71 Serial Cable Installed](#), ITL, DT700 only).
11. Connect the cable from the DCL-60-1 CONSOLE to the Side Option Connector on the multiline terminal and close the cover (ITL, DT700 only).

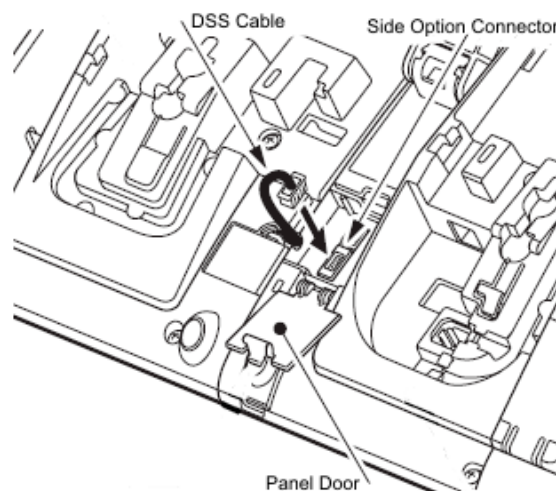


Figure 7-71 Serial Cable Installed

12. Set the height of the tilt leg on the multiline terminal to the desired height.
13. Set the height of the tilt leg on the DCL-60-1 CONSOLE to match the tilt leg on the multiline terminal.
14. Attach the side panel to the side of the DCL-60-1 CONSOLE.
15. Return the multiline terminal and DCL-60-1 CONSOLE to the buttons side up position.
16. Connect the digital cable to the LINE jack (DT300 Series).
17. Connect the AC Adapter cable (DT300/DT700 Series) See [Figure 7-72 Connect AC Adapter Cable on page 7-62](#).

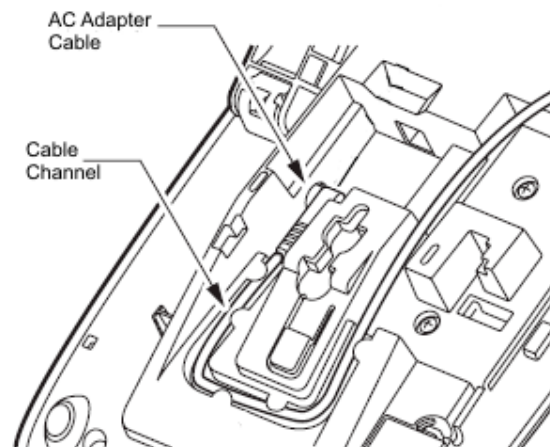


Figure 7-72 Connect AC Adapter Cable

18. Complete the installation by reattaching both plastic panels to the front of the multiline terminal.



Figure 7-73 DCL-60-1 CONSOLE Installed

5.2.5 LCD (BL)-L (BK) UNIT/LCD (BL)-L (WH) UNIT

The LCD (BL)-L UNIT is an optional LCD unit for modular terminals and supports the backlit LCD feature (DT300 Series only).

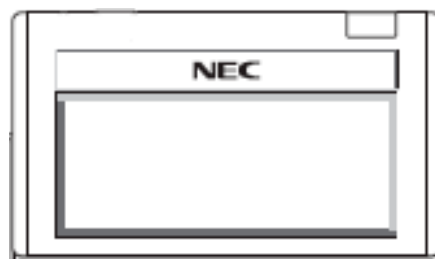


Figure 7-74 LCD (BL)-L UNIT

5.2.6 PANEL()-L UNIT

Optional plastic color side panels that allow users to customize the ITL/DTL terminals. The following colors are available for the Base (all), VLCD (Value LCD) and SLCD (Sophi LCD) terminals:

- ☐ Silver (original)
- ☐ Red
- ☐ Blue
- ☐ Clear
- ☐ Wood Grain
- ☐ Environmental


 *Right and Left side panels are not interchangeable.*



Figure 7-75 PANEL()-L UNIT

5.2.7 WM-L UNIT Attached to Wall

The WM-L UNIT (Wall Mount Unit) is used to attach any DT300/DT700 Series multiline terminal to the wall. This unit connects to the back side of the telephone.

When optional adapters are used, the multiline terminal must be installed on the wall using the WM-L UNIT.

1. Plug line cord in the wall receptacle. Leave about eight inches of cord and bundle the rest.
2. Feed the line cord through the opening in the WM-L UNIT.

3. Attach the WM-L UNIT to the wall using four screws (refer to [Figure 7-76 Attach the WM-L UNIT to Wall](#)).

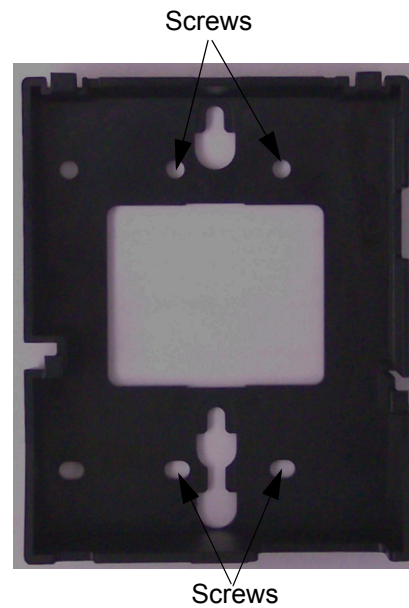


Figure 7-76 Attach the WM-L UNIT to Wall

4. Align the four cutouts with the four tabs on the WM-L UNIT (refer to [Figure 7-77 Cutouts for WM-L UNIT](#)).

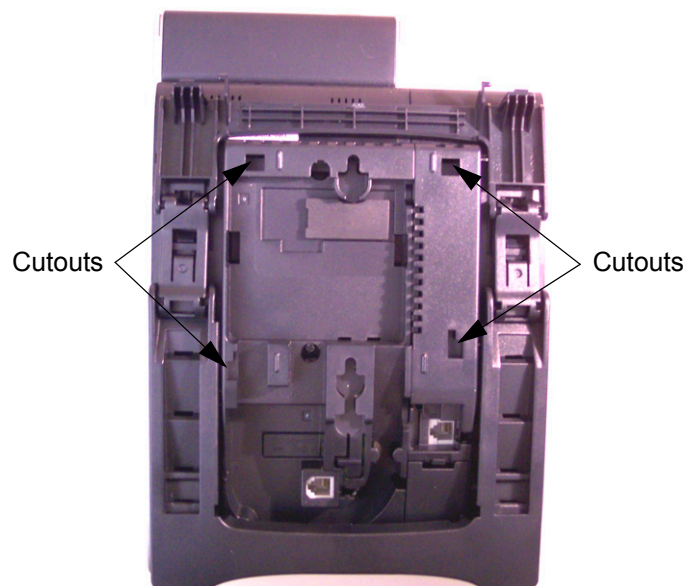


Figure 7-77 Cutouts for WM-L UNIT

5. Push down on telephone until the WM-L UNIT snaps into place (refer to [Figure 7-78 WM-L UNIT Installed](#)).

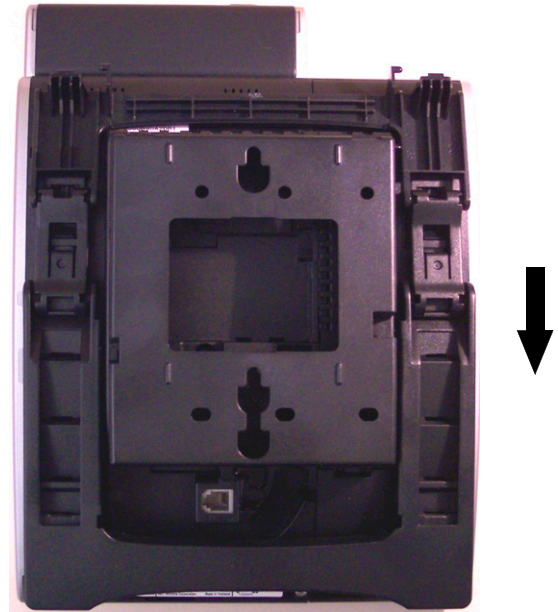
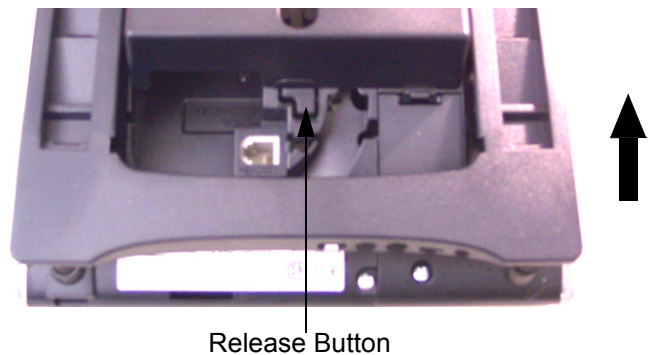


Figure 7-78 WM-L UNIT Installed

5.2.8 Release the WM-L UNIT

1. To release the telephone from the WM-L UNIT, press the release button and push the telephone up (refer to [Figure 7-79 WM-L UNIT Release Button](#)).



Release Button

Figure 7-79 WM-L UNIT Release Button

5.2.9 WM-L UNIT Attached to Wall Plate

The WM-L UNIT (Wall Mount Unit) is used to attach any DT300/DT700 Series multiline terminal to the wall plate. This unit connects to the back side of the telephone.

When optional adapters are used, the multiline terminal must be installed on the wall plate using the WM-L UNIT.

1. Plug line cord in the wall plate receptacle. Leave about eight inches of cord and bundle the rest.
2. Feed the line cord through the opening in the WM-L UNIT.
3. Plug the line cord into the Multiline Terminal as illustrated in [Figure 7-80 Plugging in Line Cord](#).

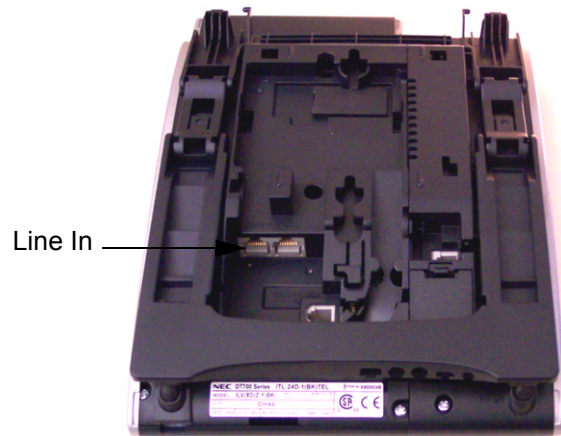


Figure 7-80 Plugging in Line Cord

4. Align the four cutouts with the four tabs on the WM-L UNIT (refer to [Figure 7-81 Cutouts for WM-L UNIT on page 7-67](#)).

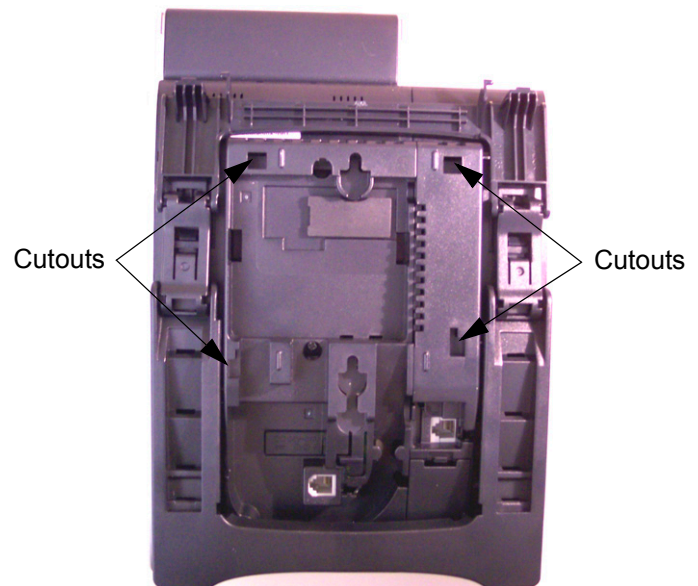


Figure 7-81 Cutouts for WM-L UNIT

5. Push up on the WM-L UNIT until it snaps into place (refer to [Figure 7-82 WM-L UNIT Installed](#)).

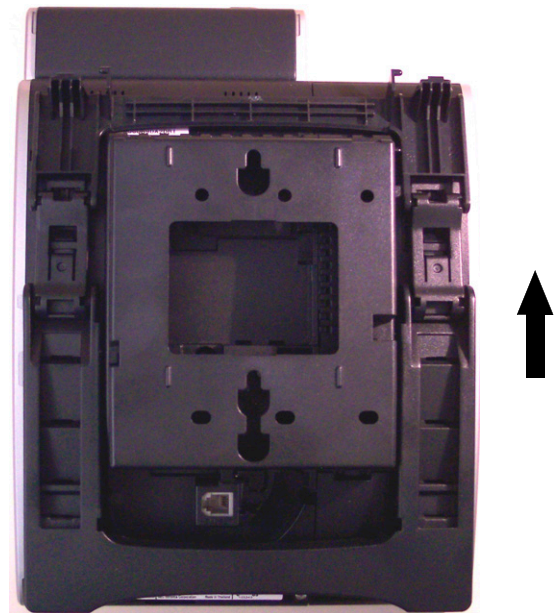


Figure 7-82 WM-L UNIT Installed

6. Align the two holes on the back of the WM-L UNIT with the two screws on the wall plate and slide downward (refer to [Figure 7-83 Mount Multiline Terminal Wall on Wall Plate](#)).

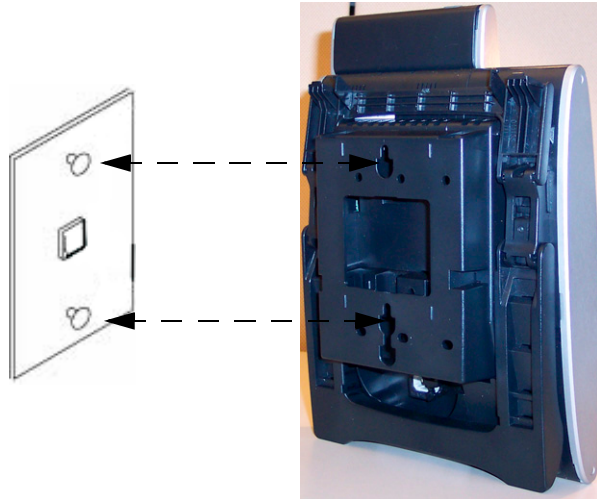



Figure 7-83 Mount Multiline Terminal Wall on Wall Plate

 *Because of strength variation in switch boxes, this method is not recommended.*

7. Push excess line cord behind the Multiline Terminal.

5.2.10 Removing the Multiline Terminal from the Wall Mounted Plate.

To remove the Multiline Terminal, push up on the telephone until it comes loose.



Figure 7-84 Removing the Multiline Terminal

SECTION 6 OPTIONAL HANDSETS

6.1 ITL / DTL PTM Handset

The Push to Mute (PTM) handset has a single-pole, single throw switch that must be continuously held down to provide local mute.

These replacement handsets for ITL/DTL terminals help to ensure a secure telephony environment by keeping unwanted audio from being transmitted over the corporate telephone network.

Using the PTM handset on an NEC digital or IP terminal prevents eavesdropping and eliminates the worry that privileged information could be transmitted without user authority. These handsets are also an ideal solution to filter unwanted audio transmissions from environments with ambient background noise.



Figure 7-85 ITL / DTL PTM Handset

6.2 ITL / DTL PTT Handset

The Push to Talk (PTT) handset has a single-pole, single throw switch that must be continuously held down to transmit local audio.

These replacement handsets for ITL/DTL terminals help to ensure a secure telephony environment by keeping unwanted audio from being transmitted over the corporate telephone network.

Using the PTT handset on an NEC digital or IP terminal prevents eavesdropping and eliminates the worry that privileged information could be transmitted without user authority. These handsets are also an ideal solution to filter unwanted audio transmissions from environments with ambient background noise.



Figure 7-86 ITL / DTL PTT Handset

6.3 UTR-1-1 USB Handset

The NEC USB telephone can be plugged directly into a PC USB port, enabling the high quality voice input and output capabilities of a standard desktop telephone. By connecting it to the USB port of a computer, calls can immediately be made and received using a SoftPhone without installation of additional software drivers.

The physical design eliminates stress associated with holding the handset between the ear and and shoulder. The user immediately hears a dial tone upon taking the handset off-hook, eliminating the need to click on/off hook icons in a PC application when making a call.

6.3.1 Handset Connection

Plug the handset cable (RJ-11 connector) into the bottom of the cradle. Route the handset cable in the handset groove.

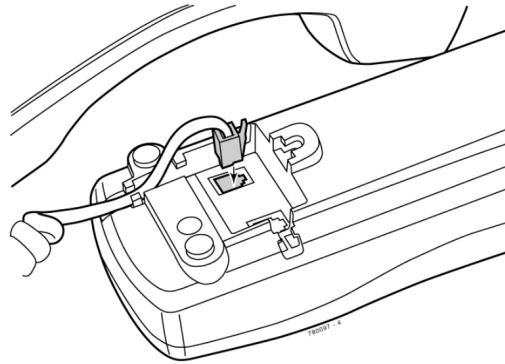


Figure 7-87 Installing the UTR-1-1 USB Handset Cable

6.3.2 USB Connection

Plug a USB cable (type A connector) into the back of the cradle. Plug the USB cable (type B connector) into the USB port of a PC.

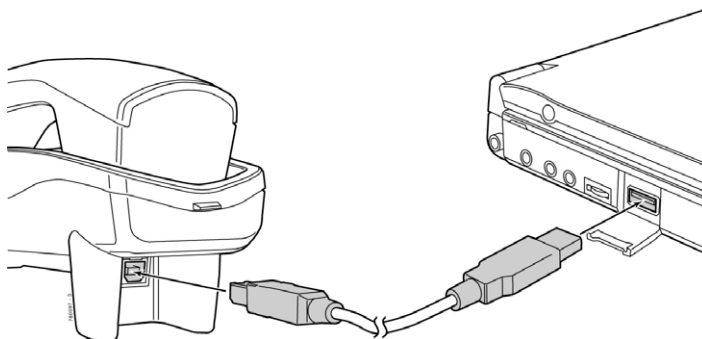


Figure 7-88 Installing the UTR-1-1 USB Handset to a PC

6.3.3 Wall Mounting

The UTR-1-1 USB handset can be mounted on the wall using a wall plate or two screws. Align the two holes on the back of the UTR-1-1 and slide down onto the wall plate or screws.

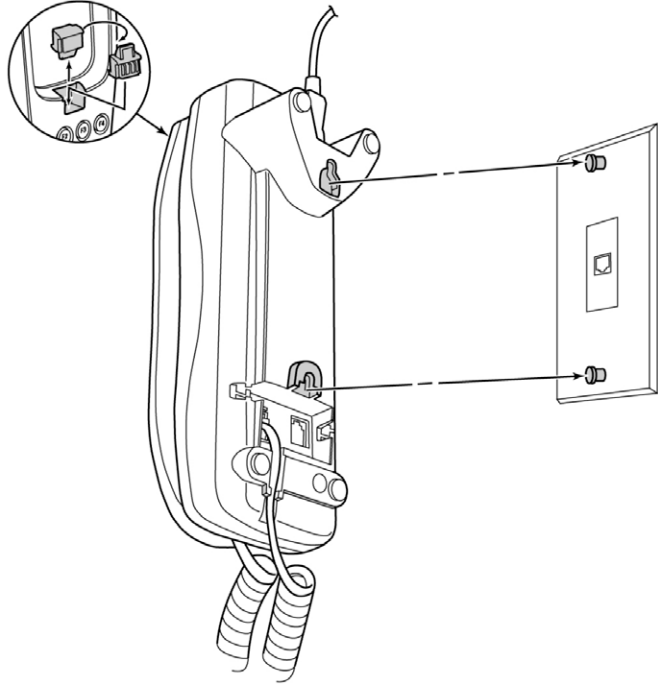


Figure 7-89 Wall Mounting the UTR-1-1 USB Handset

 *Because of strength variation in switch boxes, this method is not recommended.*

SECTION 7 SINGLE LINE TELEPHONE

7.1 Installing the SLT Adapter

The Single Line Telephone adapter provides an interface for Single Line Telephones and other similar devices from an ESI channel.

This adapter can be connected to any ESI port.

1. Connect one end of the RJ-11 to the ESI port on the chassis and one end to the **ESI** jack on the SLT Adapter.
2. Connect one end of a second RJ-11 to the TEL jack on the SLT Adapter and the other end to the Single Line Telephone.

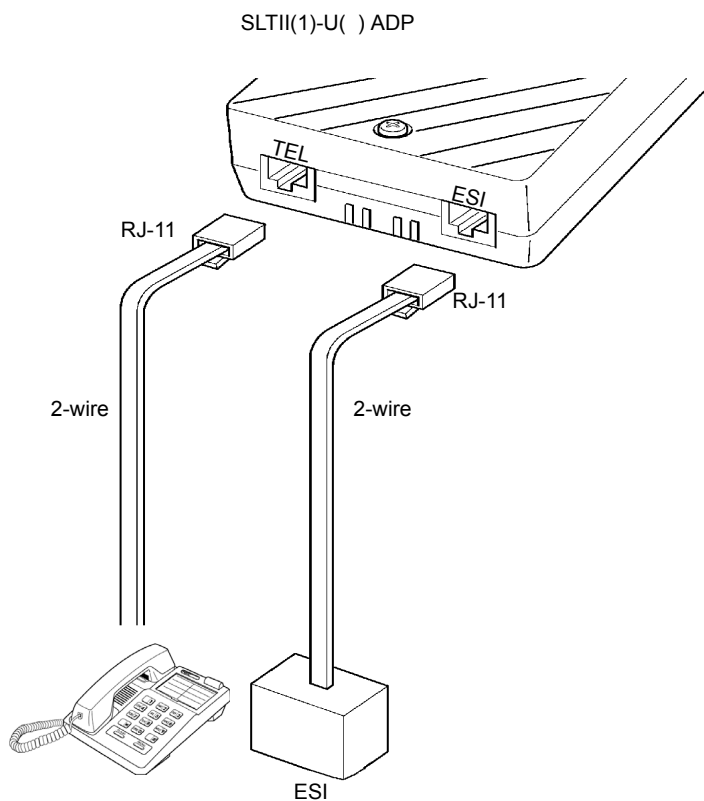
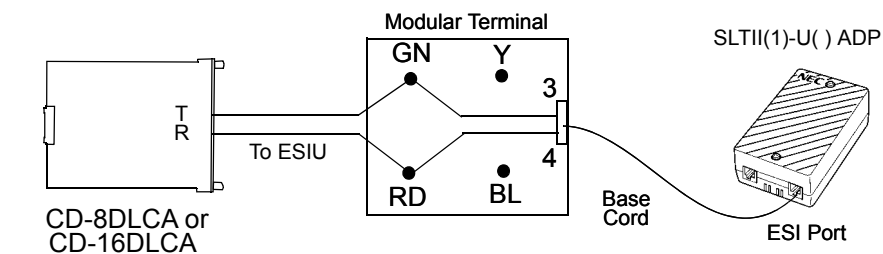
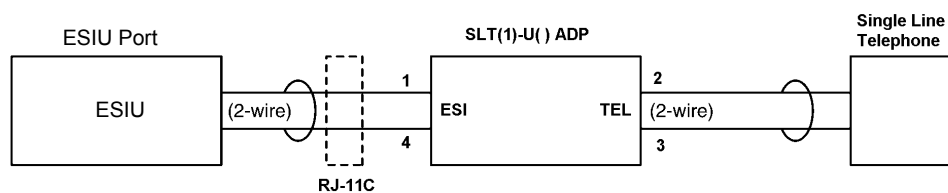


Figure 7-90 Installing SLT Adapter



Modular Terminal Connections



Single Line Telephone Connections

Figure 7-91 Connecting the SLT Adapter

7.2 Wall-Mounting the SLT Adapter

1. Unplug the two line cords from the SLT Adapter.
2. Remove the two screws from the front of the SLT Adapter.
3. Lift the cover off the adapter.

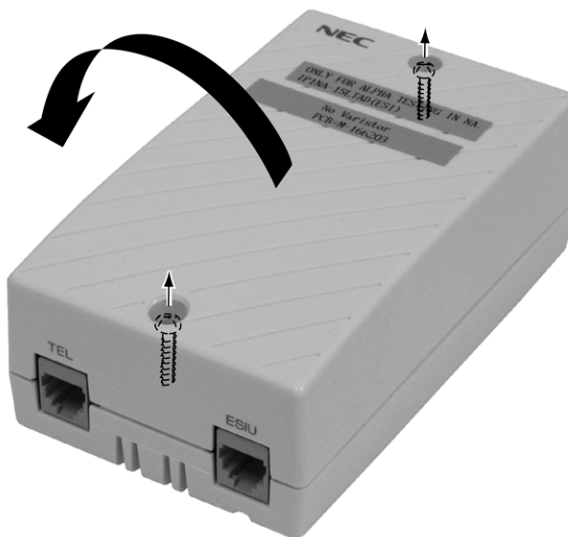


Figure 7-92 Removing the Cover

4. Using the two screws provided with the SLT Adapter, attach the back cover to the desired location.

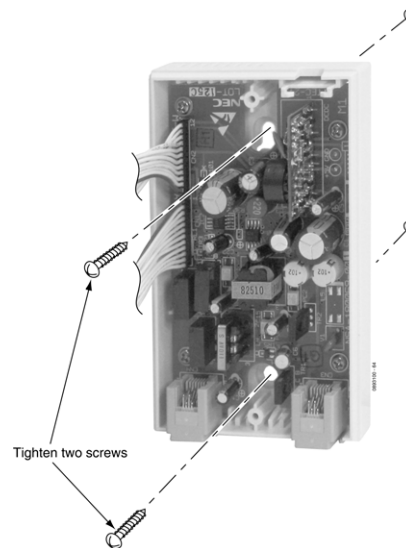


Figure 7-93 Attaching the Unit

5. Replace the front cover and the two screws removed in Step 2.
6. Plug the two modular line cords back into the SLT Adapter which were removed in Step 1.

Installing SV8100/SV8300 Cordless Telephones

SECTION 1 GENERAL DESCRIPTION

This chapter provides information regarding cordless telephones that can be used with the UNIVERGE SV8100/SV8300 system.

SECTION 2 CT-12 HEADSET CORDLESS TELEPHONE

The CT-12 is a 2.4GHz cordless headset which connects to an analog port or an analog telephone line as a stand-alone unit or to an analog port adapter (APR, P/N 0890056). When the APR is set up as the same extension of the telephone, you can use the headset to answer and make calls using the cordless headset. The CT-12 offers Caller ID, but only if it is connected to an analog port on an analog station card. The CT-12 cannot receive Caller ID if it is connected to an APR adapter (these adapters do not output Caller ID).



Figure 8-1 Cordless Single Line Headset CT-12

The number of units which can be used on the system is greatly affected by the environment. The closer or smaller the area, the smaller the number of units which can be used. It is recommended to start with three or less. If there are no conflicts between the telephones, you can try adding additional units (up to five is the recommended maximum).

When using wireless LAN, keep in mind that although there should not be a problem with interference from the WLAN, 802.11b and 802.11g both share the same frequency as the CT-12 telephone. In theory, the CT-12 is a narrow band high power device but the 802.11b and 802.11g are both wide band low power technologies. Therefore, the higher power CT-12 could disrupt the low power device and slow the data network. There are, however, many exceptions to this (for example, if the WLAN uses a highly directional antenna, higher power relays between buildings, etc.). The CT-12 cannot lock down channels, unlike the 802.11b and 802.11g.

The CT-12 features include:

- ☐ 2.4 GHz Cordless Headset Phone
- ☐ Range of Up to 150'
- ☐ Six Hours of Talk Time, 80 Hours Standby Time
- ☐ Audible Low Battery Indicator
- ☐ Single Line Operation
- ☐ Ultra-Compact Remote Unit with Belt Clip
- ☐ Variable Range Volume Control
- ☐ 10 Speed Dial Numbers
- ☐ Page/Find Feature
- ☐ Redial/Flash
- ☐ Mute with Audible Reminder
- ☐ Talk/Charge/Power Indicator Lights
- ☐ Built-in Headset Stand

2.1 Selecting an Installation Location

Before choosing a location for your new telephone, consider these important guidelines:

- The location should be close to both a telephone jack and continuous power outlet. A continuous power outlet is an AC outlet which does not have a switch to interrupt power.
- Keep the base and handset away from sources of electrical noise such as motors or fluorescent lighting.

- Be sure that the base antenna can be fully extended.
- The base can be placed on a desk or tabletop or mounted on a standard telephone wall plate.

Charge your new telephone for 15~20 hours before completing the installation or using the handset.

2.2 Connecting the Base Unit

1. Connect the AC adapter to the *DC IN 9 V* jack and to a standard 120V AC wall outlet.

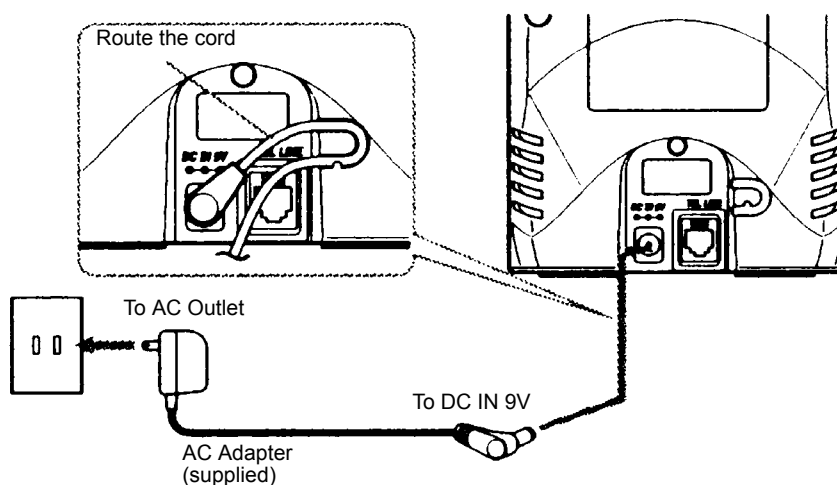


Figure 8-2 Connecting the *D^{term}* Headset Cordless Base Unit to the Adapter

2. Set the base on a desk or tabletop, and place the handset in the base unit as shown.
3. Raise the antenna to a vertical position.
 - ☐ Make sure the status LED is On. When the LED is Off, check to see that the AC adapter is plugged in and that the handset makes good contact with the base charging contacts.
 - ☐ Use only the supplied AC adapter (730627).
 - ☐ Connect the AC adapter to a continuous power supply.
 - ☐ Place the base unit close to the AC outlet so you can unplug the AC adapter easily.

- ☐ After installing the battery pack in the handset, charge the handset at least three to five hours before plugging it into the telephone line.
- 4. Connect the telephone line cord to the *TEL LINE* jack and the other end to the AP(R)-L Unit. Refer to paragraph [12.4 APR-L UNIT on page 11-75](#) for detailed instructions for installing the AP(R)-R Unit. This unit can also be connected using an SLI(4)/(8)-U() ETU.

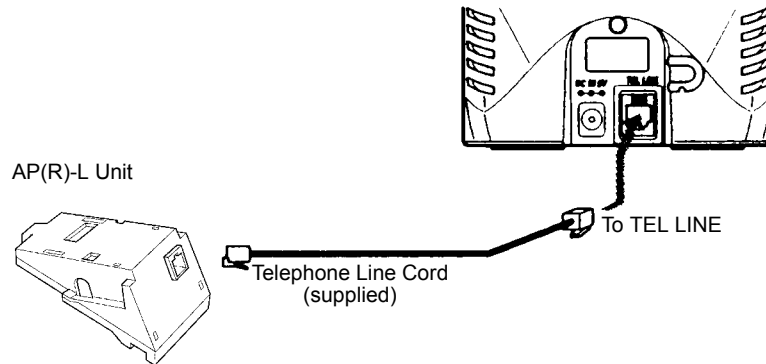


Figure 8-3 Connecting the *D^{term}* Headset Cordless Telephone Cord to the AP(R)-L Unit

- 5. Place the power cord so that it does not create a trip hazard or where it could become chafed and create a fire or electrical hazard.



Observe the following warnings during installation:

- ☐ Never install telephone wiring during a lightning storm.
- ☐ Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- ☐ Use caution when installing or modifying telephone lines.

SECTION 3 *D^{term}*® CORDLESS II TERMINAL

The *D^{term}* Cordless II terminal uses 900 MHz Digital Spread Spectrum (DSS) Technology and is connected in tandem to a Multiline Terminal. The terminal has a 16-digit, 2-line LCD, dial pad, talk key, chan key, hold key, transfer key, conf key, mute key, vol key, a msg icon, vibrator, and four function keys with red LEDs.

In an ideal state, this terminal can be switched between cordless and the Multiline Terminal connected to it using Cordless or Desk key on the base unit.

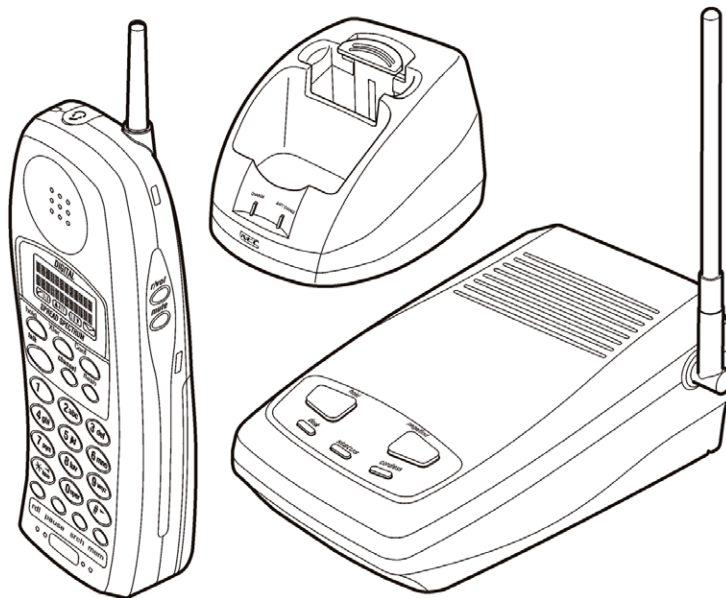


Figure 8-4 *D^{term}* Cordless II

3.1 Selecting an Installation Location

Select a location to avoid excessive heat or humidity. The base unit should be placed on a desk or tabletop near a standard 120 Vac outlet and within reach of the telephone line connection on the UNIVERGE SV8100/SV8300 Multiline Terminal. Keep the base unit and the handset away from sources of electrical noise (e.g. fluorescent lighting).

3.2 Connecting the Telephone Cords

The *D^{term}* Cordless II terminal is connected to the telephone line and to the host telephone using two telephone line jacks on the back of the Base Unit: LINE IN and LINE OUT.



Observe the following warnings during installation:

- Never install telephone wiring during a lightning storm.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.

- Use caution when installing or modifying telephone lines.

To connect the D^{term} Cordless Terminal to the host telephone:

1. Unplug the telephone line cord from the host telephone, and connect it to the LINE IN jack.
2. Using the telephone line cord supplied with the D^{term} Cordless Terminal, connect the LINE OUT jack to the host telephone jack.

3.3 Applying Power to the Base Unit

1. Plug the AC Adapter cord into the AC Adapter input jack on the Base Unit.
 - ✎ Use only the AC Adapter supplied with the D^{term} Handset Cordless Terminal.
2. Plug the AC Adapter into a standard 120 Vac wall outlet.
3. Route the power cord where it does not create a trip hazard or where it could become chafed and create a fire or other electrical hazards.

✎ The AC Adapter furnished with this telephone can be equipped with a polarized line plug (a plug having one blade wider than the other). This plug fits into the power outlet only one way. When you cannot insert the plug fully into the outlet, reverse the plug. When the plug still does not fit, contact your facilities coordinator about replacing the obsolete plug. Do not alter the shape of the blades of the polarized plug.

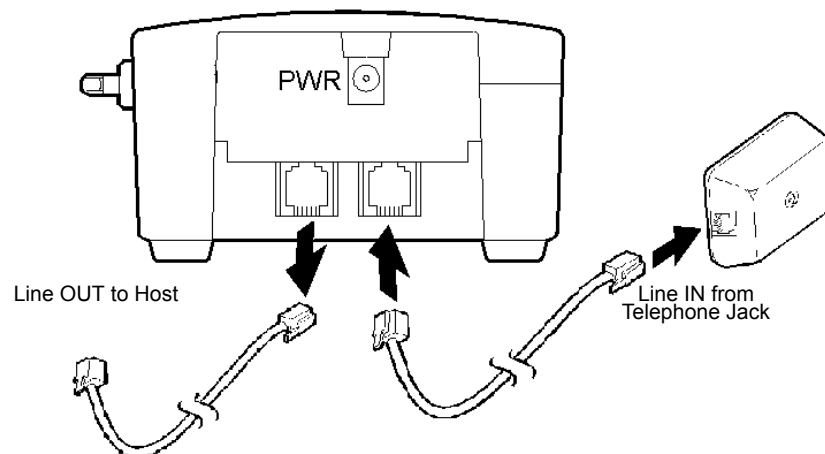


Figure 8-5 Connecting the Base Unit

SECTION 4 ***D^{term}*® CORDLESS LITE II TERMINAL (DTH-4R-1)**

This cordless terminal achieves a maximum range of 50~150 feet for transmitting and receiving in accordance with the highest specifications set by the FCC and IC Part 15. Range is limited by environment, and too many variables preclude a standard determination. The range quoted is for reference as a means to compare with other range claims.

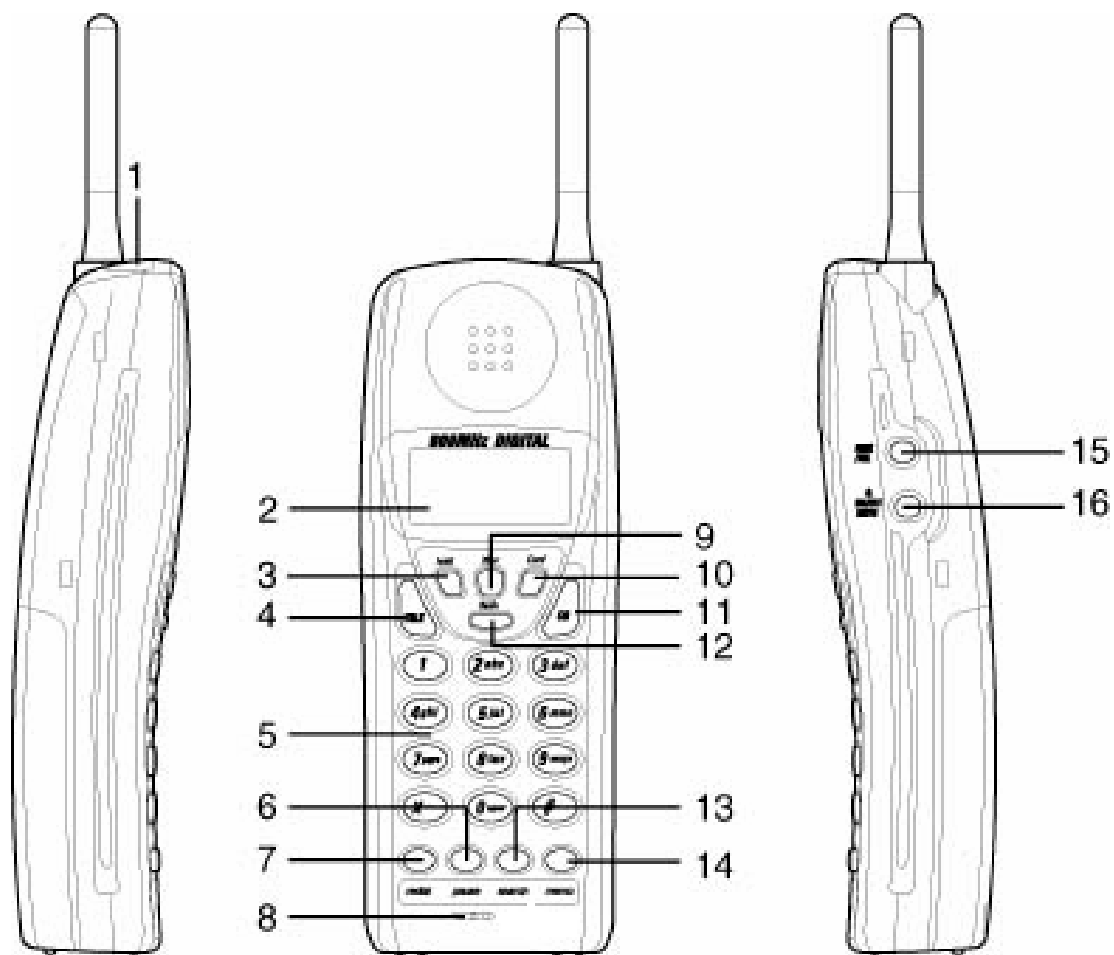
Radio interference can be caused by external sources such as TV, fluorescent lighting, electrical storms, or other wireless devices. The base unit should not be plugged into a circuit with a connection to a major appliance, and the antenna should always be fully extended.

4.1 **Selecting a Location**

Select a location for the *D^{term}* CORDLESS LITE II terminal to avoid excessive heat or humidity. The base unit of the terminal can be placed on a desk or tabletop near a standard 120 Vac outlet and telephone line jack. The base unit can also be mounted on a standard wall plate using the wall mount adapter. Keep the base unit and handset away from sources of electrical noise (motors, fluorescent lighting, computers, PC monitor).

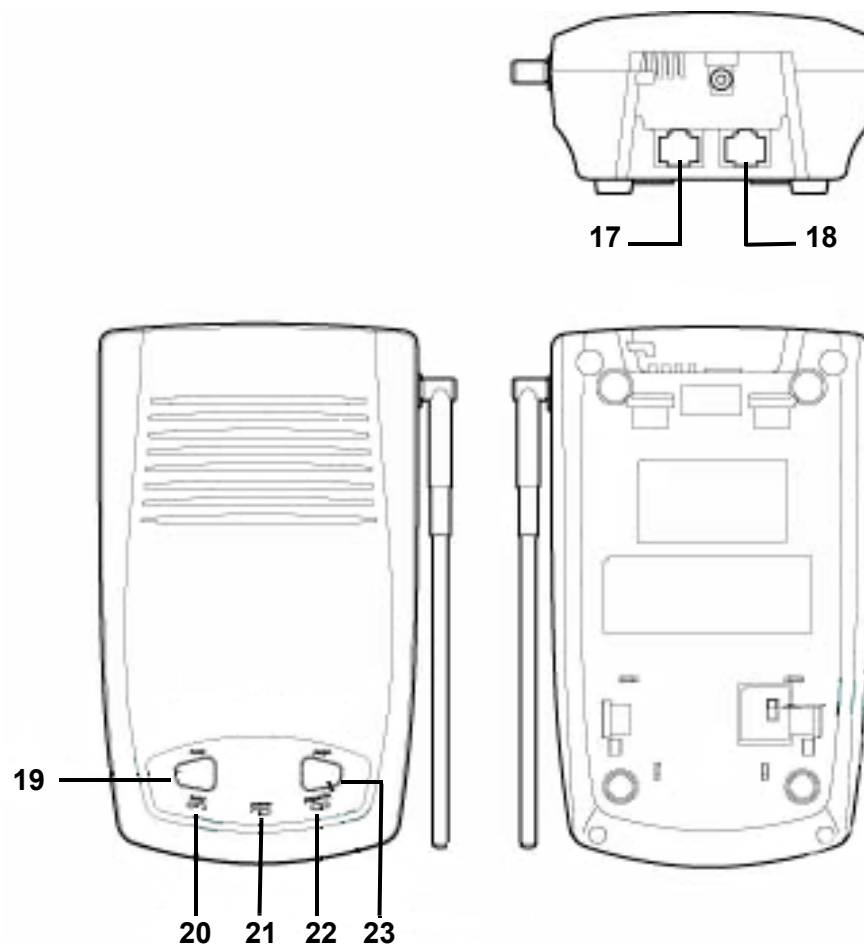
4.2 **Controls and Indicators**

Controls and Indicators are shown in [Figure 8-6 *D^{term}* Cordless Lite II Controls and Indicators](#).



- | | |
|-----------------------------|--|
| 1. Headset Jack | 9. Conference (CONF) Key |
| 2. LCD Message Display | 10. Transfer (TRANSFER) Key |
| 3. Hold (HOLD) Key | 11. Channel (CH) Key |
| 4. Talk (TALK) Key | 12. Redial (REDIAL) or Desk/Cordless Softkey Switch Key |
| 5. Numeric Keypad | 13. F3 |
| 6. F2 | 14. F4 |
| 7. F1 | 15. Ringer/Volume (Ring/Vol) Key |
| 8. Microphone | 16. Mute (MUTE) Key |

Figure 8-6 *D^{term}* Cordless Lite II Controls and Indicators



- | | |
|------------------|--------------|
| 17. Line Out | 21. Power |
| 18. Line In | 22. Desk LED |
| 19. Cordless | 23. Desk |
| 20. Cordless LED | |

Figure 6-62 *D^{term}* Cordless Lite II Controls and Indicators (Continued)

4.3 Installation Precautions

To ensure optimum performance follow these guidelines:

- Each base unit must be placed at least 15 feet apart.
- The base antenna should be raised to the vertical position.
- Always place the base unit on top of a desk or on higher shelves. Avoid locations surrounded by metal surfaces.
- Place the base away from any electrical component such as a PC, monitor, or other telephone.

4.4 Connecting the Telephone Cords

When connecting the telephone cords, observe the following precautions:

- Never install telephone wiring during a lightning storm.
- Never touch bare telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

To connect the telephone cords:

1. Connect the cord from the telephone jack to the Base Unit LINE IN jack.

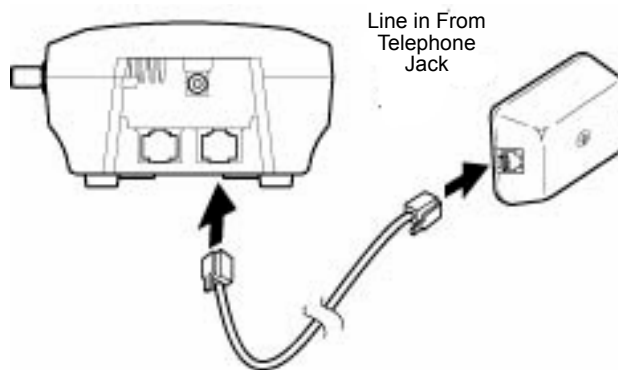


Figure 8-7 Connecting Base Unit to the Telephone Jack

2. Connect a qualified NEC digital Multiline Terminal to the LINE OUT jack.

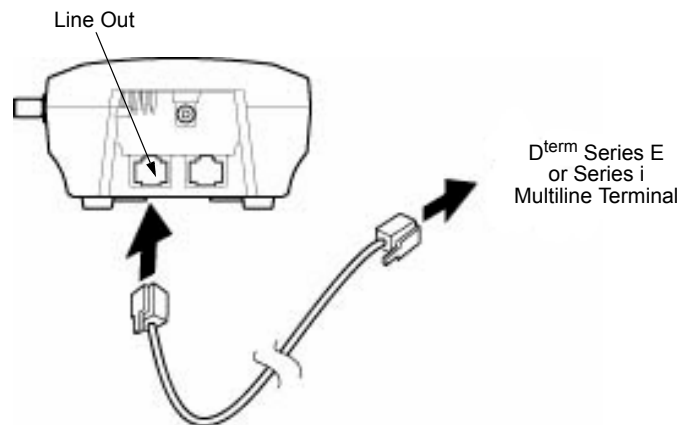


Figure 8-8 Connecting the Base Unit to the Multiline Terminal

4.5 Applying Power to the Charging Unit

The unique design of the telephone allows the user to place the handset in the charging unit with or without the belt clip attached. The battery pack is recharged automatically in the handset unit.

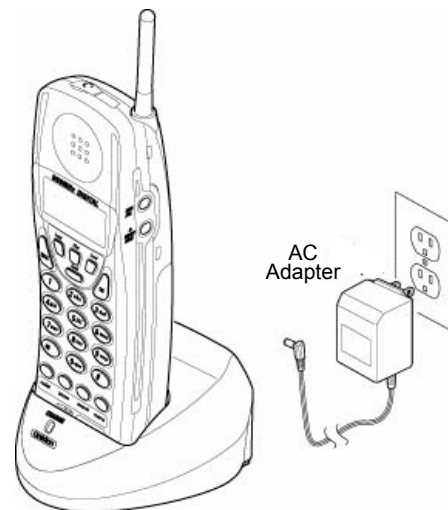


Figure 8-9 Applying Power to the Charging Unit



Use only the supplied AC adapter for the charging unit.

The AC adapter furnished with this telephone may be equipped with a polarized line plug (one blade is wider than the other). This plug fits in the power outlet only one way. Refer to [Figure 8-10 Polarized Plug](#).

When you cannot plug the AC adapter in the outlet, you may need to replace it.

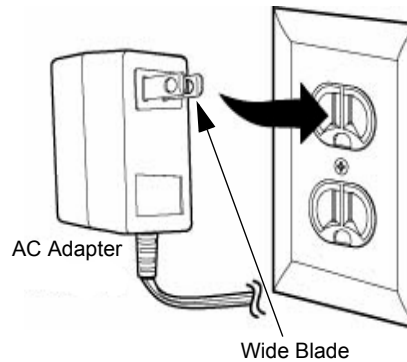


Figure 8-10 Polarized Plug



Route the power cord where it cannot create a trip hazard, or where it could become chafed and create a fire or other electrical hazards.

4.6 Standard Wall Plate Mounting

The base unit can be mounted on standard wall plate. To attach the wall mount stand to the base unit:

1. Slide the wall mount stand in the notches at the top of the base unit. Rotate the wall mount stand down and snap it into place.

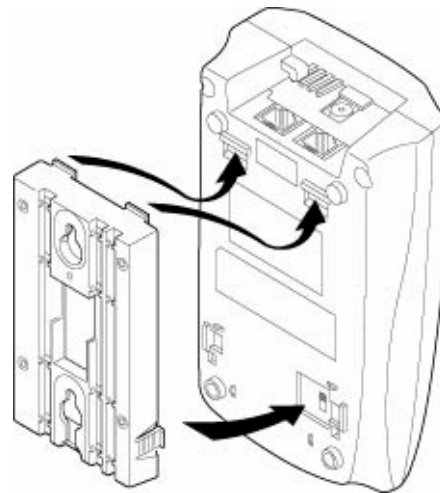


Figure 8-11 Attaching the Wall Mount Stand to the Base Unit

2. Plug the AC adapter in the base unit.
3. Place the AC adapter cord inside the molded channel of the wall mount stand.

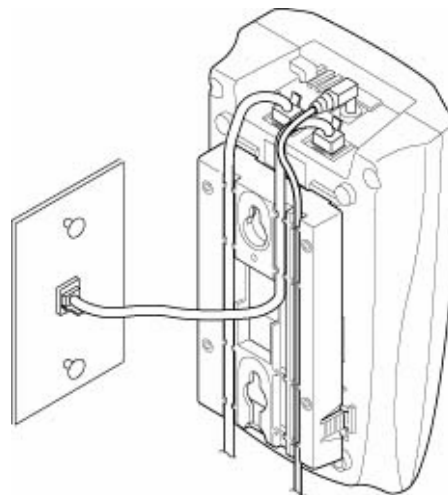


Figure 8-12 Placing the AC Adapter Cord In the Wall Mount Stand

4. Plug one end of the short telephone cord (locally supplied) in the **LINE IN** jack on the base unit. Plug one end of the NEC digital multiline telephone in the **LINE OUT** jack. Place the telephone cords inside the molded channels on the bottom of the wall mount stand.

5. Plug the other end of the short telephone cord in the modular wall jack in the center of the wall plate.
6. Place the base unit on the posts of the wall plate and push down until it is firmly seated.

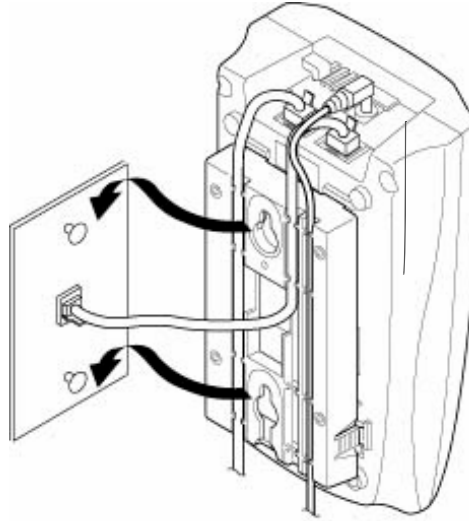



Figure 8-13 Placing the Base Unit on the Posts of the Wall Plate

7. Plug the AC adapter into a standard 120 Vac wall outlet.
 *Do not use an outlet controlled by a wall switch.*

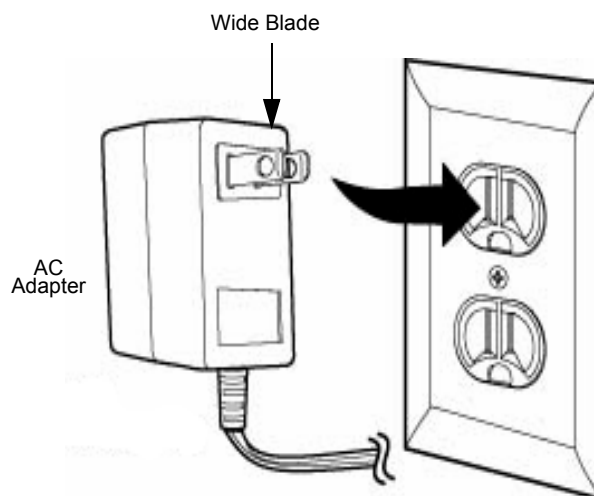


Figure 8-14 Plugging the AC Adapter into the Wall Outlet

4.7 Direct Wall Mounting

When a standard wall plate is not available, mount the telephone directly on the wall. Before mounting the telephone, consider the following:

- Select a location away from electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Make sure the wall material can support the weight of the base unit.
- Use #10 screws with anchoring devices suitable for the wall material.

To mount the telephone:

1. Insert two mounting screws 3-15/16 inches apart. Allow about 3/16 of an inch between the wall and screw heads for mounting the telephone.

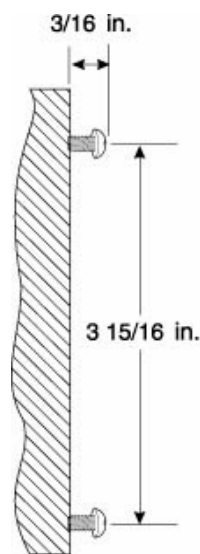


Figure 8-15 Inserting Screws into the Wall for Wall Mounting the Telephone

2. Plug in and secure the AC adapter.
3. Plug the AC adapter into the base unit.
4. Plug one end of the short telephone cord in the **LINE In** JACK on the base unit. Then plug a multiline terminal line in the **LINE OUT** jack. Place the telephone cords inside the molded channels on the bottom of the wall mount stand.

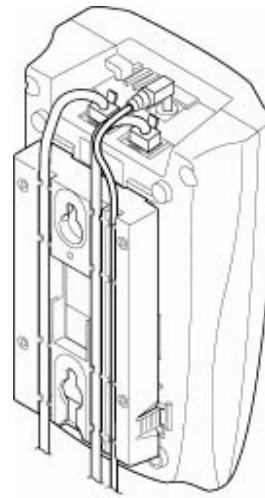


Figure 8-16 Placing the Telephone Cords in the Wall Mount Stand

5. Place the base unit on the posts of the wall screws and push down until it is firmly seated.

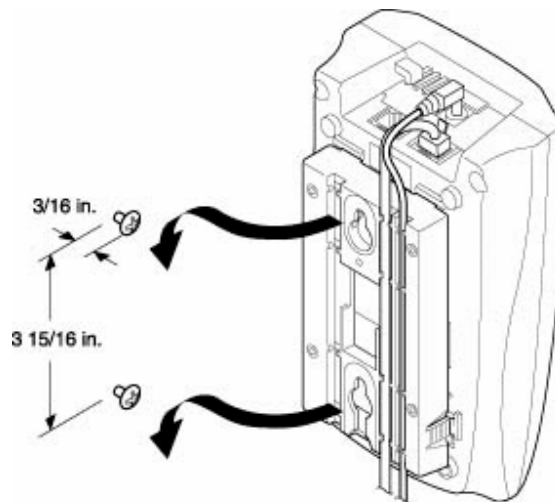



Figure 8-17 Attaching the Wall Mount Unit to the Wall

6. Plug the other end of the short telephone cord in a telephone wall jack.
7. Plug the AC adapter in a standard 120 Vac wall outlet. Refer to [Figure 8-14 Plugging the AC Adapter into the Wall Outlet](#) on page 8-14.

 Do not use an outlet controlled by a wall switch.

4.8 Charging Unit Wall Mounting

The charging unit can be wall mounted. Before installing, consider the following:

- Select a location away from electrical cables, pipes, or items behind the mounting location that could cause a hazard when inserting screws.
- Make sure the wall material can support the weight of the charging unit.
- Use #10 screws with anchoring devices suitable for the wall material.

To mount the charging unit:

1. Insert two mounting screws one inch apart. Allow about 3/16 of an inch between the wall and screw heads for mounting the telephone.

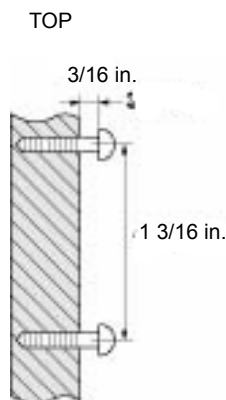


Figure 8-18 Inserting Screws for Wall Mounting

2. Plug the AC adapter in the charging unit. Wrap the AC adapter cord around the strain relief.

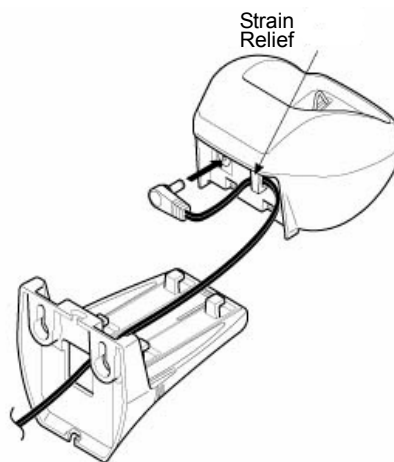


Figure 8-19 Wrapping AC Adapter Cord Around the Strain Relief Clip

3. Plug the AC adapter in a standard 120 Vac wall outlet.

4.9 Attaching and Removing the Belt Clip

A belt clip can be used to attach the handset to a belt or pocket for convenient portability.

1. Slide the clip in the tab slots. Press firmly until it snaps into place. The belt clip fits snugly on the handset.

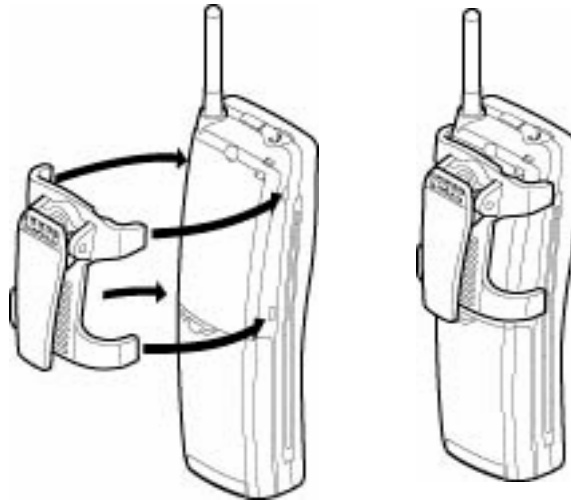


Figure 8-20 Attaching the Belt Clip to the Handset

2. To remove the clip, press the retaining clip in toward the belt clip blade and slide the clip up at the same time.



Figure 8-21 Removing the Belt Clip

4.10 Installing the Handset Battery Pack

Before installing batteries, refer to [Regulatory on page R-1](#). Follow safety regulations when handling batteries.

1. To remove the battery cover, press the latch and slide the cover down and off the handset.

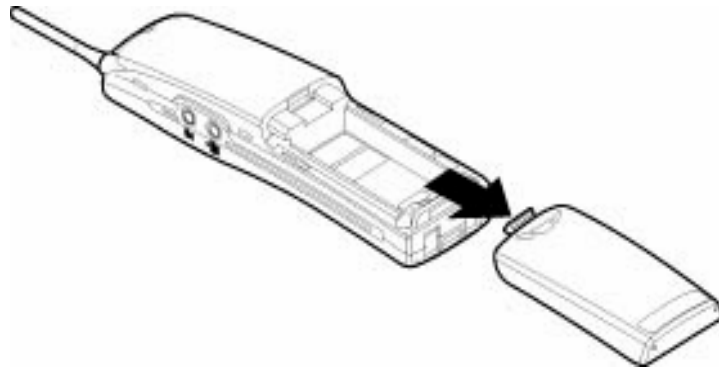



Figure 8-22 Removing the Battery Cover

2. Slide the battery pack down into the handset.

 *It may be necessary to remove the old battery at this time.*

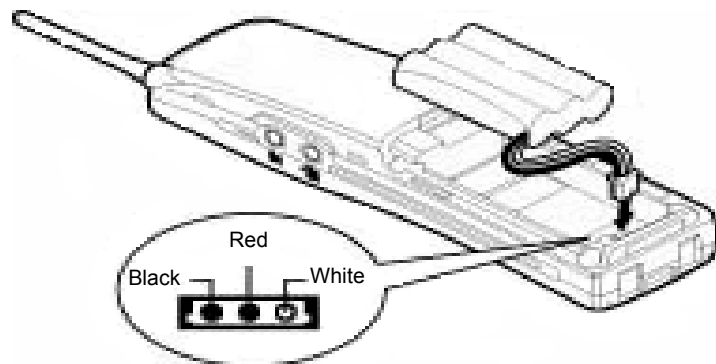


Figure 8-23 Replacing the Battery Pack

3. Replace the cover and slide it forward until it latches.

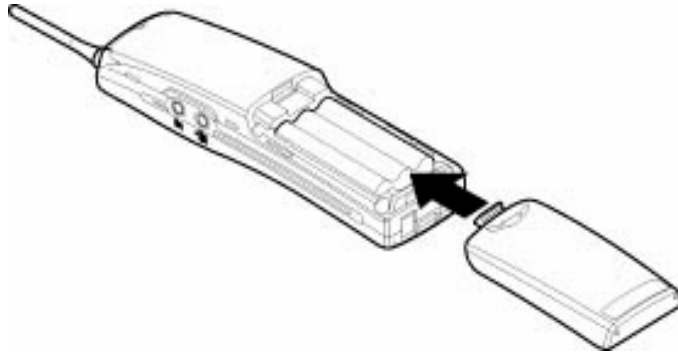



Figure 8-24 Replacing the Battery Cover

4.11 Charging the Handset Battery Pack

The rechargeable battery pack must be fully charged before using the D^{term} Cordless Lite II handset for the first time.

 *Charge the battery pack without interruption for five to eight hours.*

1. Place the handset in the slot of the charging unit.
2. Make sure the **CHARGE** indicator lights. If the **CHARGE** LED does not come on, check to see if the AC adapter is plugged in and that the handset is making good contact with the charging contacts on the charging unit.
3. The **CHARGE** LED lights red during and after charging the handset with the battery.

4.12 Battery Hot Swap

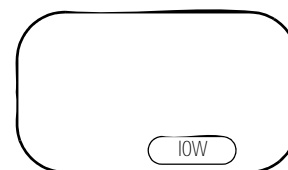
The battery can be hot swapped while a conversation is taking place. The battery must be changed within 20 seconds or connection is lost.

4.13 Low Battery Indications

The handset has visual and audible indicators to warn of a low battery condition. The indicators are different for standby mode and talk mode.

4.14 Standby Mode

The handset display turns on the battery low icon. All LEDs are turned off and LCD messages are cleared. A battery low alert tone is emitted every 15 seconds and lasts for three minutes.



4.15 Talk Mode

The handset display turns on the battery low icon. All keys and functions are available. The battery low alert tone is emitted every three seconds as long as conversation continues. After conversation is completed, the handset returns to the battery low condition in standby mode.



When you receive the low battery indication, return the handset to the base unit for charging or replace the handset battery pack with another charged battery pack.

The following table indicates what occurs and the action to be taken during a call or in standby mode when low battery indication is displayed.

Table 8-1 Low Battery

On a Call	In Standby Mode
When batt low is displayed:	
Only the TALK key operates.	None of the keys operate.
Handset beeps once every three seconds.	Handset beeps every 15 seconds for 15 minutes.
Action:	
Complete the call as quickly as possible.	Cannot make a call.
Replace the battery pack within 20 seconds to continue a call.	Replace the battery pack before making another call.

4.16 Cleaning the Battery Charge Contacts

To maintain a good charge, clean all charging contacts on the handset and charging unit about once a month. Use a pencil eraser or other contact cleaner. *Do not use liquids or solvents.*

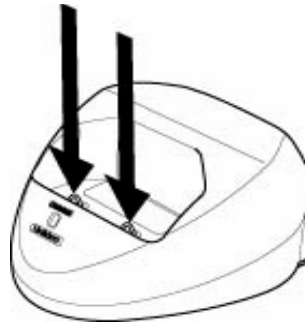


Figure 8-25 Cleaning Battery Charge Contacts

4.17 Antenna

Before using the Cordless II telephone raise the antenna to the vertical position as illustrated in [Figure 8-26 Raising the Base Unit Antenna](#).

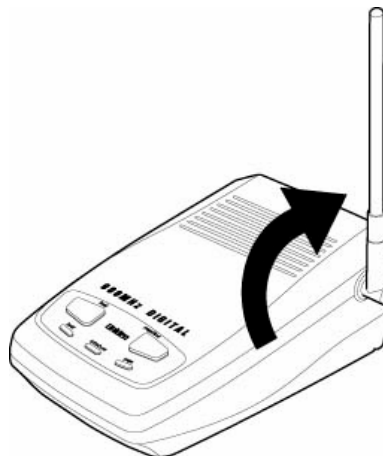


Figure 8-26 Raising the Base Unit Antenna

SECTION 5 **D^{term}® ANALOG CORDLESS II (DTR-1R-2)**

The UNIVERGE SV8100/SV8300 supports the *D^{term}* Analog Cordless II telephone. The DTR-1R-2 is a 5.8Ghz digitally expandable cordless telephone that places a fully featured cordless handset anywhere in your home or office where AC power is available to connect the handset chargers. The cordless telephone features:

- ☐ Handsfree duplex speakerphone in the handset
- ☐ Caller ID
- ☐ 100 programmable memory locations
- ☐ Trilingual Display Options (English, French and Spanish)
- ☐ Intercom/Call transfer between handsets
- ☐ 20 distinctive ring options (10 ringer tones, 10 melody ringers)
- ☐ Mute and Hold features
- ☐ Battery level indicator
- ☐ Clock display
- ☐ Animation displays

5.1 Selecting an Installation location

Select a location for the *D^{term}* Analog Cordless II telephone avoiding excessive heat or humidity. The base can be placed on a desk or tabletop or mounted on a standard telephone wall plate near a telephone jack and continuous AC power supply. The base unit can also be mounted on a standard wall plate using the wall mount adapter. Be sure there is sufficient space for the antenna to be extended. Keep the base unit and handset away from sources of electrical noise (motors, fluorescent lighting, computers, PC monitor). A new phone should be charged 15 - 20 hours prior to use.

For maximum range:



- *Keep the antenna free of obstruction.*
- *When not in use, place the handset in an upright position.*
- *Do not hold the handset where you would block the signal.*
- *Metal and reinforced concrete may affect cordless telephone performance.*

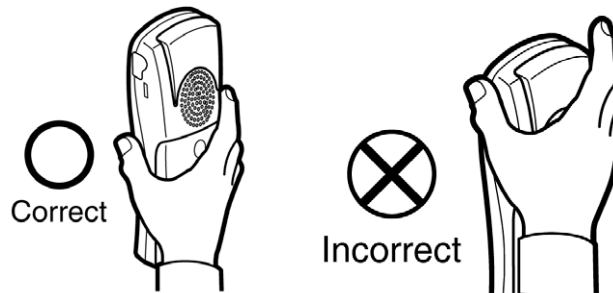


Figure 8-27 Opening the DTR-1R-2 Battery Cover

5.2 Installing the Rechargeable Battery Pack into the Handset

The handset is powered by a rechargeable battery pack. The battery recharges automatically when the handset is placed in the base unit. To maximize the charge capacity of your battery pack, **DO NOT** plug the telephone cord into the base unit and wall jack until the battery is fully charged.

1. Press down on the handset battery case cover (use the finger indentation for a better grip) and slide the cover downward to remove.

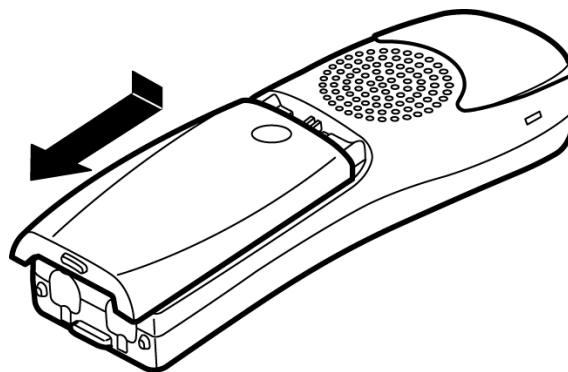


Figure 8-28 Remove the Battery Case Cover

2. Turn the battery pack so that the connector with the red and black wires is near the jack inside the battery compartment. Match the connector's wire colors to the polarity label in the battery compartment (the connector notches fit into the grooves of the jack only one way). Push the battery pack connector into the jack until it clicks into place.

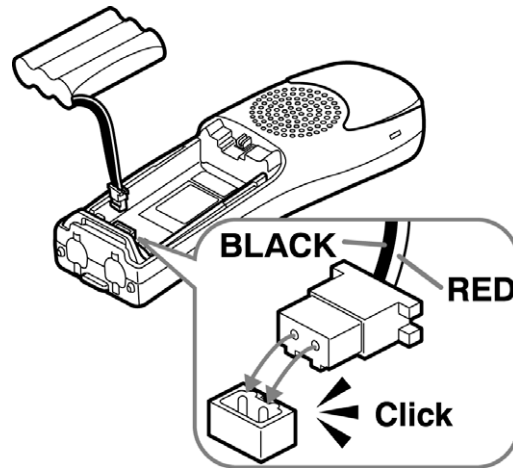


Figure 8-29 Install the Battery

3. Make sure you have a good connection by gently pulling on the battery wires. If the connection is secure, the battery jack will remain in place.
4. Place the battery case cover back on the handset and slide it upwards until it clicks into place.

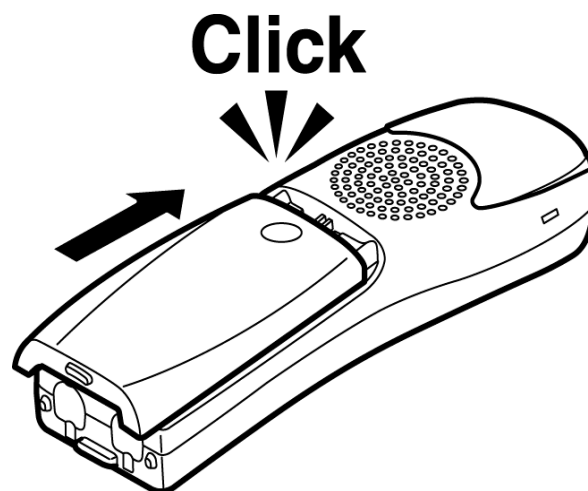


Figure 8-30 Install the Battery Case Cover



- *Use only the NEC rechargeable battery pack supplied with your cordless telephone.*
- *Replacement battery packs are also available. Contact your NEC Representative.*

5.3 Connecting the Base Unit

1. Connect the AC adapter to the **DC IN 9V** jack and to a standard 120V AC wall outlet.

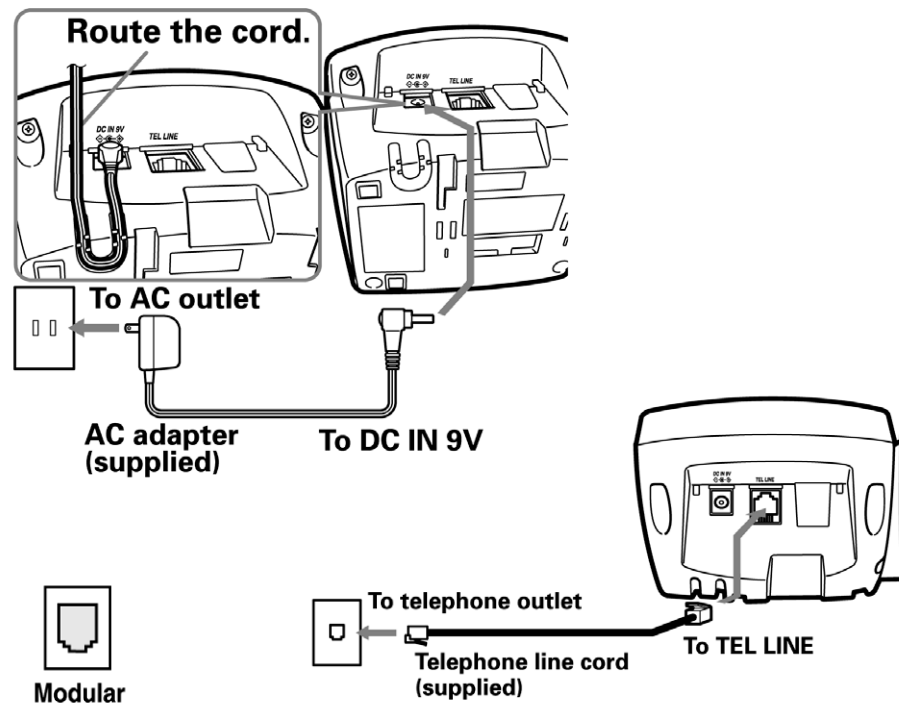




Figure 8-31 Connect the Base Unit

2. Connect the AC adapter to a continuous power supply (i.e., an outlet that is not controlled by a switch).
3. Set the base on a desk or tabletop, and place the handset in the base unit. Refer to [Figure 8-31 Connect the Base Unit](#).
4. Place the base unit close to the AC outlet so that you can unplug the AC adapter easily.

5. Make sure that the **charge** LED illuminates.

 If the LED does not illuminate, check to see that the AC adapter is plugged in and the handset makes good contact with the base charging contacts. Refer to [Figure 8-31 Connect the Base Unit on page 8-26](#).

6. After install the battery pack in the handset, charge your handset for at least 15~20 hours before plugging into the phone line.
7. Once the handset battery pack is fully charged, connect the telephone line cord to the **TEL LINE** jack and to a telephone outlet. Refer to [Figure 8-31 Connect the Base Unit on page 8-26](#).

 If your telephone outlet is not modular, contact your NEC Representative for assistance.

5.4 Mount the Base Unit on a Standard Wall Plate

This telephone can be mounted on any standard wall plate.

1. Make the AC adapter and the telephone line cord through the hole on the wall mount adapter.

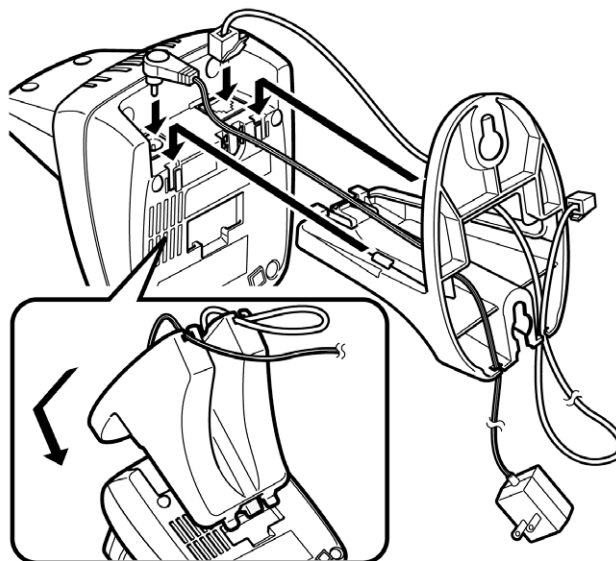


Figure 8-32 Install the Wall Mount Adapter

2. Plug the AC adapter into the **DC IN 9V** jack. Refer to [Figure 8-32 Install the Wall Mount Adapter](#).
3. Plug the telephone line cord into the **TEL LINE** jack. Refer to [Figure 8-32 Install the Wall Mount Adapter](#).
4. Slide the wall mount adapter into the notches on the base. Refer to

[Figure 8-32 Install the Wall Mount Adapter on page 8-27.](#)

5. Plug the AC adapter into a standard 120V AC wall outlet. Hook the cord on the notch of the wall mount adapter. Refer to [Figure 8-32 Install the Wall Mount Adapter on page 8-27.](#)
6. Plug the telephone line cord into the telephone outlet. Hook the cord on the notch of the wall mount adapter.

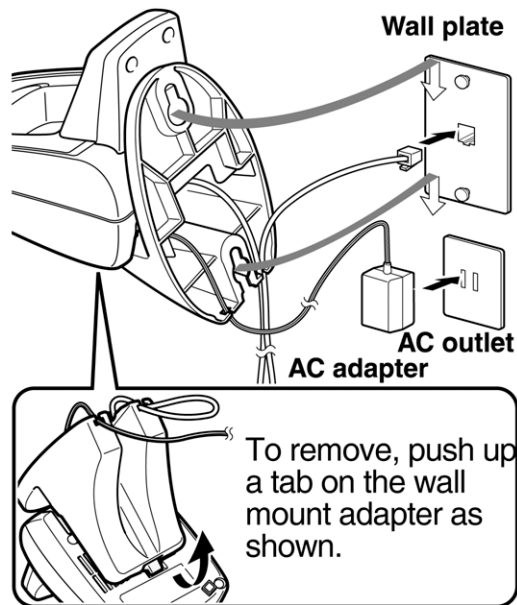


Figure 8-33 Standard Wall Plate Mounting

7. Align the mounting slots on the base with the mounting posts on the wall. Then push in and down until the telephone is firmly seated. Refer to [Figure 8-33 Standard Wall Plate Mounting.](#)



DO NOT use an AC outlet controlled by a wall switch.

5.5 Mount the Base Unit on a Direct Wall Mounting

If you do not have a standard wall plate, you can mount your phone directly to the wall. Before doing this, consider the following:

- Avoid electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Try to mount your telephone within 5 feet of a working phone jack to avoid excessive lengths.

- Make sure the wall material is capable of supporting the weight of the base and handset.
 - Use #10 screws (minimum length of 1 & 3/8 inches) with anchoring devices suitable for the wall material where the base unit will be placed.
1. Insert two mounting screws into the wall (with their appropriate anchoring device), 3 & 15/16 inches apart. Allow about 1/8 of an inch between the wall and screw heads for mounting the telephone.

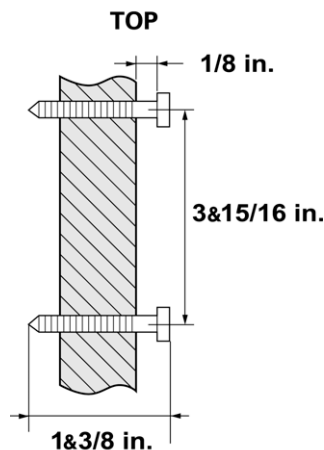


Figure 8-34 Install the Mounting Screws

2. Refer to [5.4 Mount the Base Unit on a Standard Wall Plate](#) steps 1 through 7 above for mounting the telephone.

5.6 Connecting the Charger

1. Connect the AC adapter to the **DC IN 9V** jack and to a standard 120V AC wall outlet.

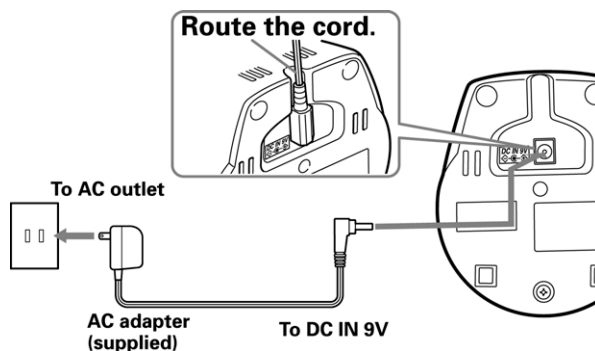



Figure 8-35 Connecting the Charger

2. Set the charger on a desk or tabletop, and place the handset in the charger with the keypad facing forward. Refer to [5.2 Installing the Rechargeable Battery Pack into the Handset on page 8-24](#)

 *Charge the handset battery pack for at least 15~20 hours before using your new cordless telephone for the first time.*

SECTION 6 **D^{term}® CORDLESS DECT (DTL-8R-1)**

DTL-8R-1 is a cordless telephone that is adapted for digital NEC PBX (Private Branch Exchange). It is designed for use in the office environment.



Figure 8-36 **D^{term}® Cordless DECT (DTL-8R-1)**



- *A Handset and wired phone cannot be used at the same time.*
- *The Handset and Base Station must have the original ID that is written on each unit at the factory.*

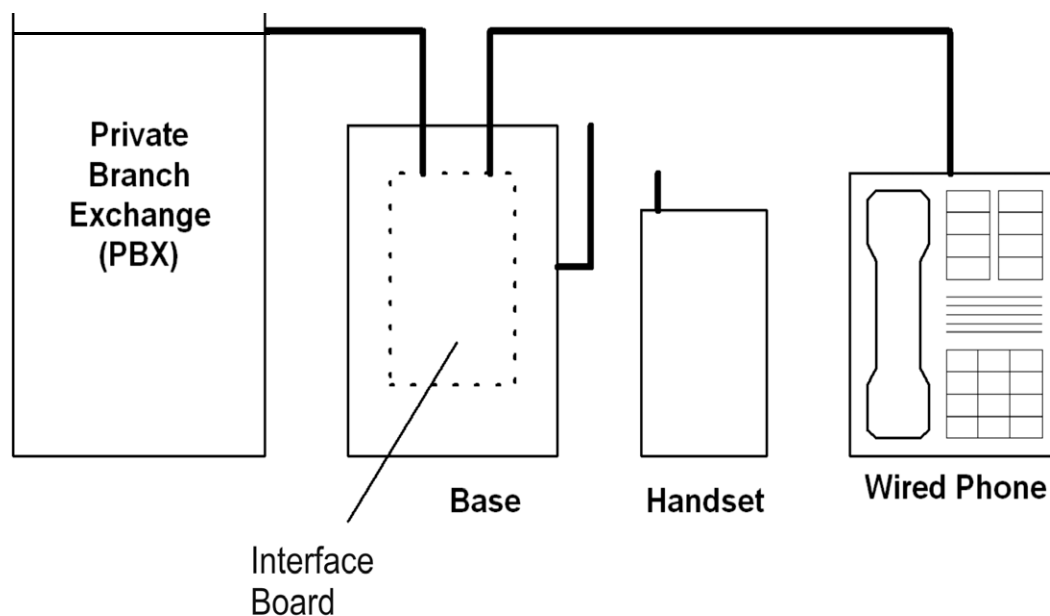


Figure 8-37 System Overview

6.1 Selecting a Location

Select a location for the D^{term} Cordless DECT to avoid excessive heat or humidity. The base unit of the D^{term} Cordless DECT can be placed on a desk or tabletop near a standard 120 Vac outlet and telephone line jack. The base unit can also be mounted on a standard wall plate using the wall mount adapter. Keep the base unit and handset away from sources of electrical noise (motors, fluorescent lighting, computers, PC monitor).

6.2 Installation Precautions

To ensure optimum performance follow these guidelines.

- Each base unit must be placed at least 20 feet apart.
- Always place the base unit on top of a desk or on higher shelves. Avoid locations surrounded by metal surfaces.
- Place the base away from any electrical component such as a PC, monitor and other telephone.

6.3 Connecting the Telephone Cords

When connecting the telephone cords, observe the following precautions.



- *Never install telephone wiring during a lightning storm.*
- *Never touch bare telephone wires or terminals unless the telephone line has been disconnected at the network interface.*
- *Use caution when installing or modifying telephone lines.*

To connect the telephone cords:

1. Connect the cord from the telephone jack to the Line In on the D^{term} Cordless DECT.

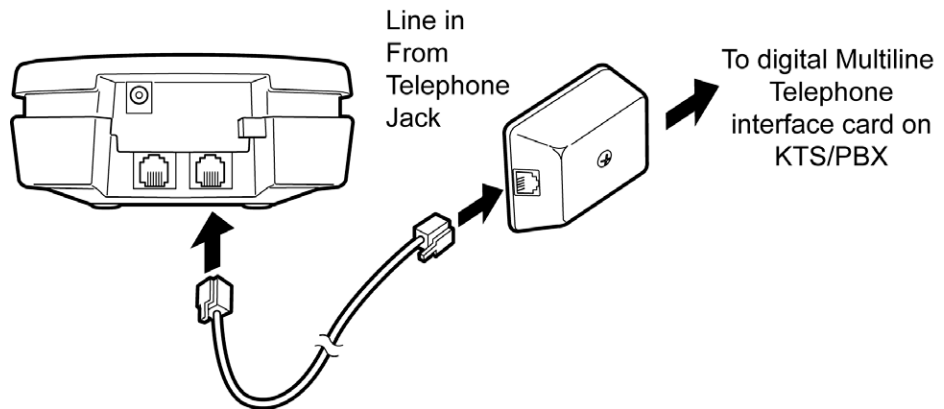


Figure 8-38 Connecting Telephone Cords to the Telephone Jack

2. Connect a qualified NEC digital Multiline Terminal to the D^{term} Cordless DECT.

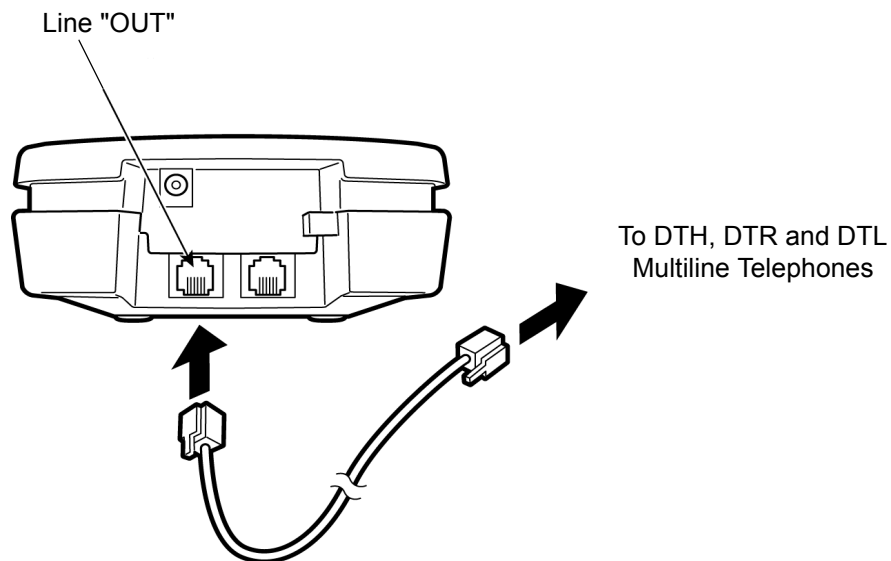


Figure 8-39 Connecting the D^{term} Cordless DECT to the Multiline Terminal

6.4 Applying Power to the Charging Unit

The unique design of the telephone allows the user to place the handset in the charging unit with or without the belt clip attached. The charging unit can charge a second battery with or without the handset being charged. The battery packs can automatically be recharged either in or out of the handset.

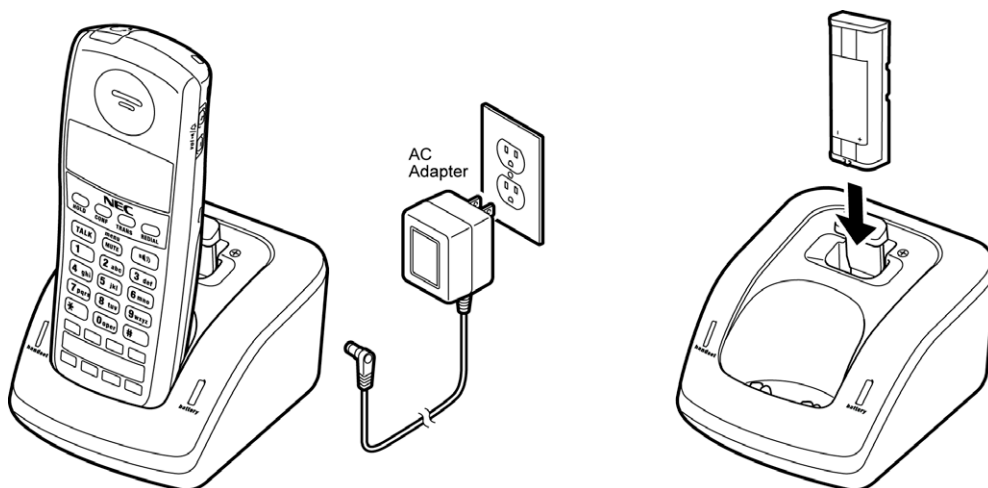


Figure 8-40 Applying Power to the Charging Unit



Use only the supplied AC adapter for the charging unit.

The AC adapter furnished with this telephone may be equipped with a polarized line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, try reversing the plug. Refer to [Figure 8-41 Polarized Plug](#).

If you cannot plug the AC adapter into the outlet, the outlet may need to be replaced.



Route the power cord where it will not create a trip hazard, or where it could become chafed and create a fire or other electrical hazards.

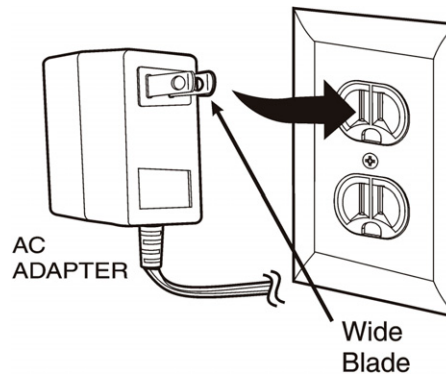


Figure 8-41 Polarized Plug

6.5 Mounting the Base to a Standard Wall Plate

The base unit is designed to be mounted on standard wall plate. To attach the wall mount stand to the base unit:

1. Slide the wall mount stand into the notches at the top of the base unit. Rotate the wall mount stand down and snap it into place.

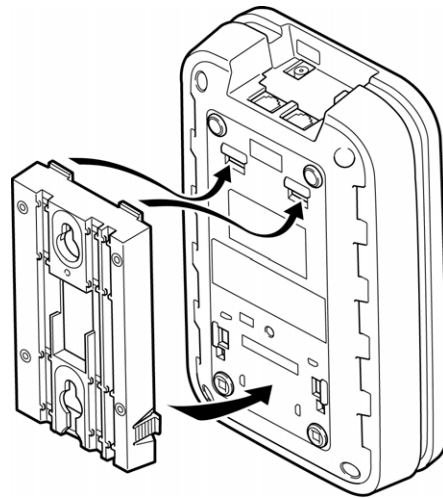


Figure 8-42 Attaching the Wall Mount Stand to the Base Unit

2. Plug the AC adapter into the base unit.
3. Place the AC adapter cord inside the molded channel of the wall mount stand.

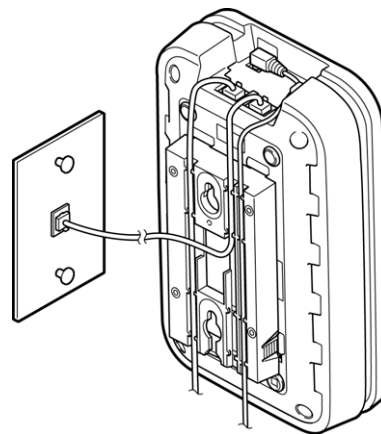


Figure 8-43 Placing the AC Adapter Cord Inside the Wall Mount Stand

4. Plug one end of the short telephone cord (locally supplied) in the **LINE** jack on the base unit. Plug one end of the NEC digital multiline telephone into the **PHONE** jack. Place the telephone cords inside the molded channels on the bottom of the wall mount stand.

5. Plug the other end of the short telephone cord into the modular wall jack in the center of the wall plate.
6. Place the base unit on the posts of the wall plate and push down until it is firmly seated.

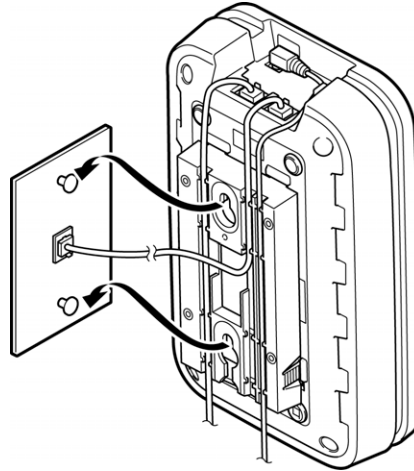




Figure 8-44 Placing the Base Unit on the Posts of the Wall Plate

-  *Because of strength variation in switch boxes, this method is not recommended.*
7. Plug the AC adapter into a standard 120 Vac wall outlet.
-  *Do not use an outlet controlled by a wall switch.*

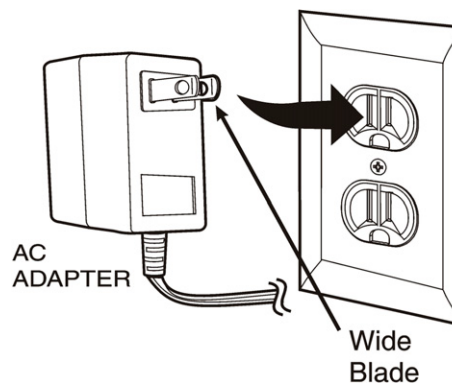


Figure 8-45 Plugging the AC Adapter into the AC Wall Outlet

6.6 Mounting the Base Directly to the Wall

If a standard wall plate is not available, mount the telephone directly on the wall. Before mounting the telephone, consider the following:

- Select a location away from electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Make sure the wall material is capable of supporting the weight of the base unit.
- Use #10 screws with anchoring devices suitable for the wall material where the base unit will be placed.

To mount the telephone:

1. Insert two mounting screws 3-15/16 inches apart. Allow about 3/16 of an inch between the wall and screw heads for mounting the telephone.

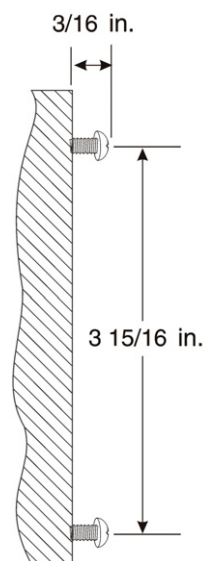


Figure 8-46 Inserting Screws into the Wall for Wall Mounting the Telephone

2. Plug in and secure the AC adapter.
3. Plug the AC adapter into the base unit.
4. Plug one end of the short telephone cord into the **LINE** jack on the base unit. Then plug one end of an NEC multiline telephone into the **PHONE** jack. Place the telephone cords inside the molded channels on the bottom of the wall mount stand.

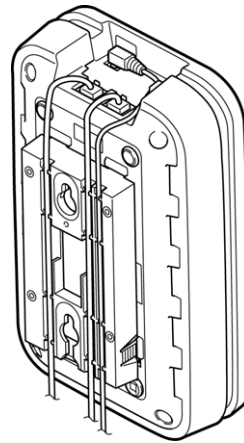


Figure 8-47 Placing the Telephone Cords Inside the Wall Mount Stand

5. Place the base unit on the posts of the wall screws and push down until it is firmly seated.

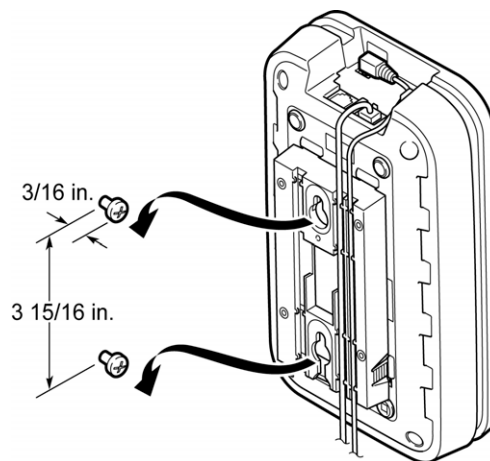



Figure 8-48 Attaching the Wall Mount Unit to the Wall

6. Plug the other end of the short telephone cord into a telephone wall jack.
7. Plug the AC adapter into a standard 120 Vac wall outlet. Refer to [Figure 8-45 Plugging the AC Adapter into the AC Wall Outlet](#) on page 8-36.

 Do not use an outlet controlled by a wall switch.

6.7 Wall Mounting the Charging Unit

The charging unit is also designed to be wall mounted. Before mounting the charging unit, consider the following:

- Select a location away from electrical cables, pipes, or other items behind the mounting location that could cause a hazard when inserting screws into the wall.
- Make sure the wall material is capable of supporting the weight of the charging unit.
- Use #10 screws with anchoring devices suitable for the wall material where the charging unit will be placed.

To mount the charging unit:

1. Insert two mounting screws one inch apart. Allow about $\frac{3}{16}$ of an inch between the wall and screw heads for mounting the telephone.

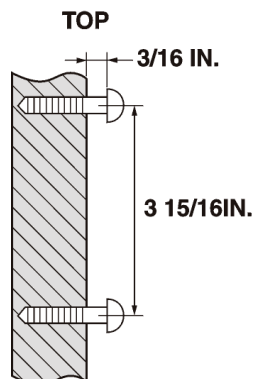


Figure 8-49 Inserting Screws for Wall Mounting

2. Plug the AC adapter into the charging unit. Wrap the AC adapter cord around the strain relief.

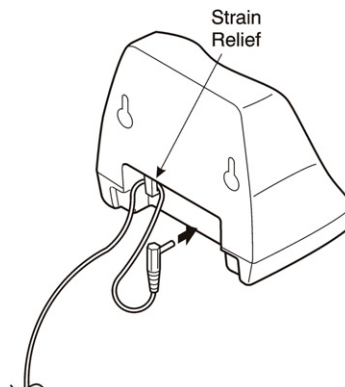


Figure 8-50 Wrapping the AC Adapter Cord Around the Strain Relief

3. Place the charging unit on the posts of the wall screws and push down until it is firmly seated.

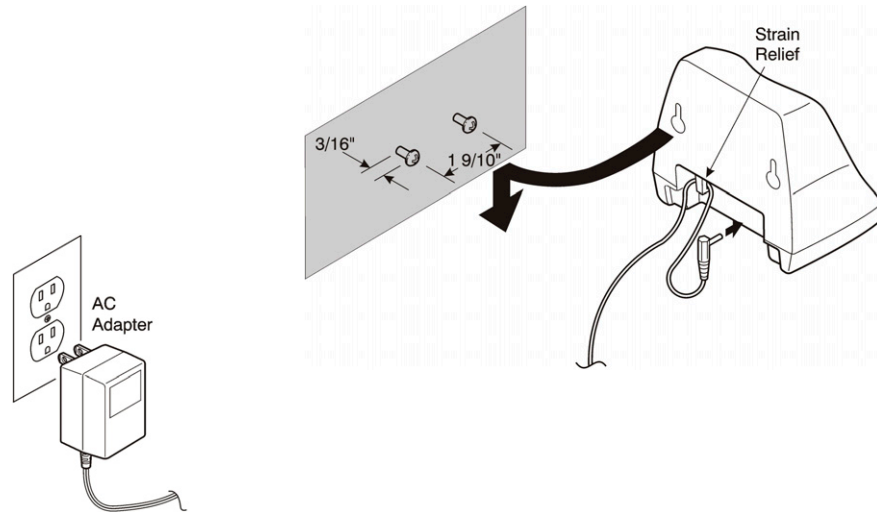


Figure 8-51 Placing the Charging Unit on the Wall

4. Plug the AC adapter into a standard 120 Vac wall outlet. Refer to [Figure 8-51 Placing the Charging Unit on the Wall](#).

6.8 Attaching and Removing the Belt Clip

A belt clip can be used to attach the handset to a belt or pocket for convenient portability.

1. Slide the clip into the tab slots. Press firmly until it snaps into place. The belt clip is designed to fit snugly onto the handset.

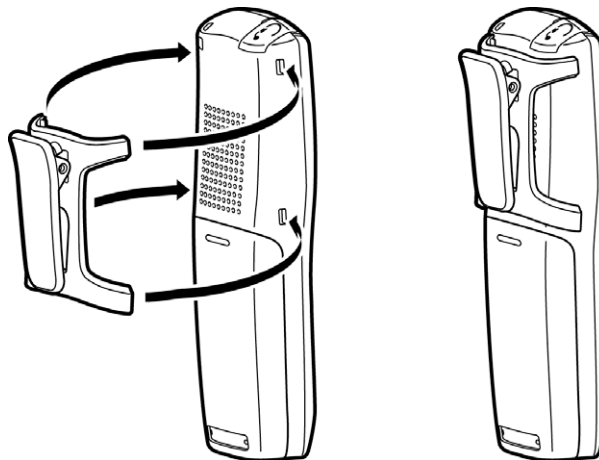


Figure 8-52 Attaching the Belt Clip to the Handset

2. To remove the clip, press the retaining clip in toward the belt clip blade and slide the clip up at the same time.

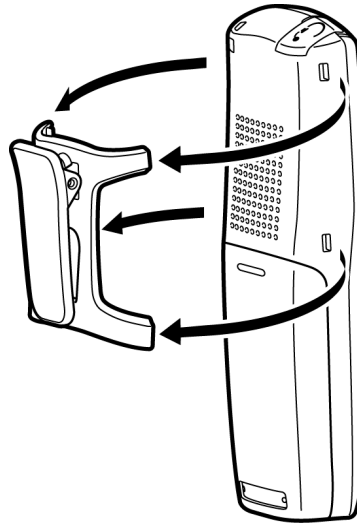


Figure 8-53 Removing the Belt Clip

6.9 Installing the Handset Battery Pack

Before installing batteries, refer to *D^{term}*® Cordless DECT Owner's Manual Specifications and Battery Safety. It is important to follow safety regulations when handling batteries.

1. Remove the battery cover by pressing the latch and sliding the cover down and off of the handset.

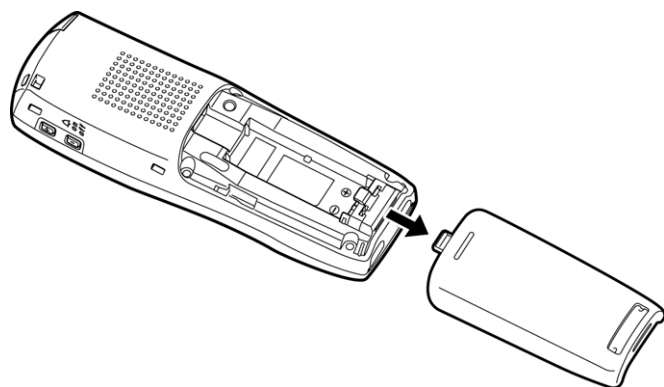



Figure 8-54 Removing the Battery Cover

2. Slide the battery pack down into the handset.

 *It may be necessary to remove the old battery at this time.*

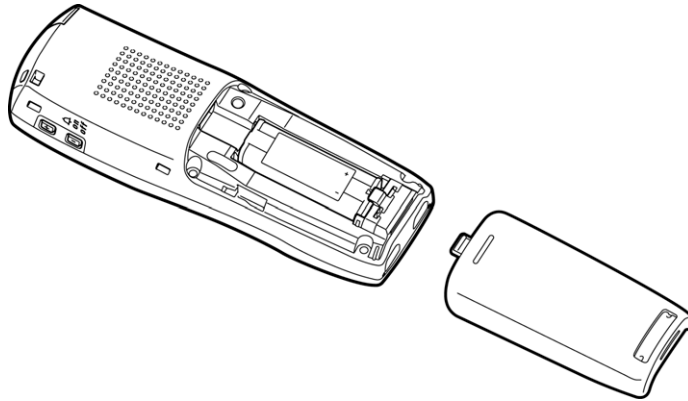


Figure 8-55 Replacing the Battery Pack

3. Replace the cover and slide it up until it latches onto the handset.

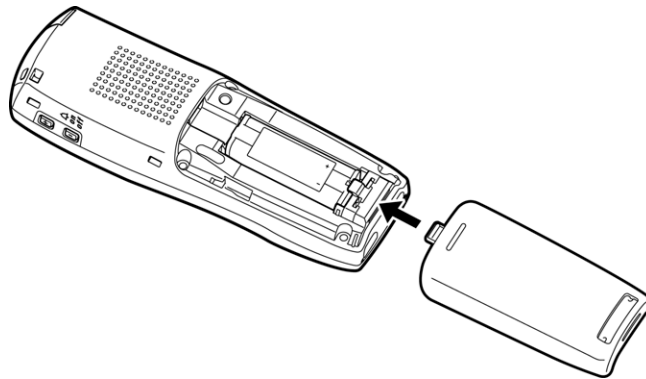



Figure 8-56 Replacing the Battery Cover

6.10 Charging Batteries

The rechargeable battery pack must be fully charged before using the D^{term} Cordless DECT for the first time.

 *Charge the battery pack without interruption for five to eight hours.*

6.11 Charging Spare Battery Packs

The D^{term} Cordless DECT is equipped with a battery charger for charging the spare battery pack.

SECTION 7 ***D*^{term}® CORDLESS REPEATER DTL-RPT-1**

The UDR100 repeater lets you extend the coverage area of your cordless DECT telephone system in all directions.



Figure 8-57 *D*^{term}® Cordless Repeater DTL-RPT-1

If the repeaters are installed so their coverage area overlaps the coverage area of the base, the base can hand-off calls to the repeaters as the user moves from one coverage area to another. When it's connected to the repeater, the mobile handset operates the exact same way as it does when connected to the base, and the hand-off from the base to the repeater can be completely invisible to the end user, even during an active call.

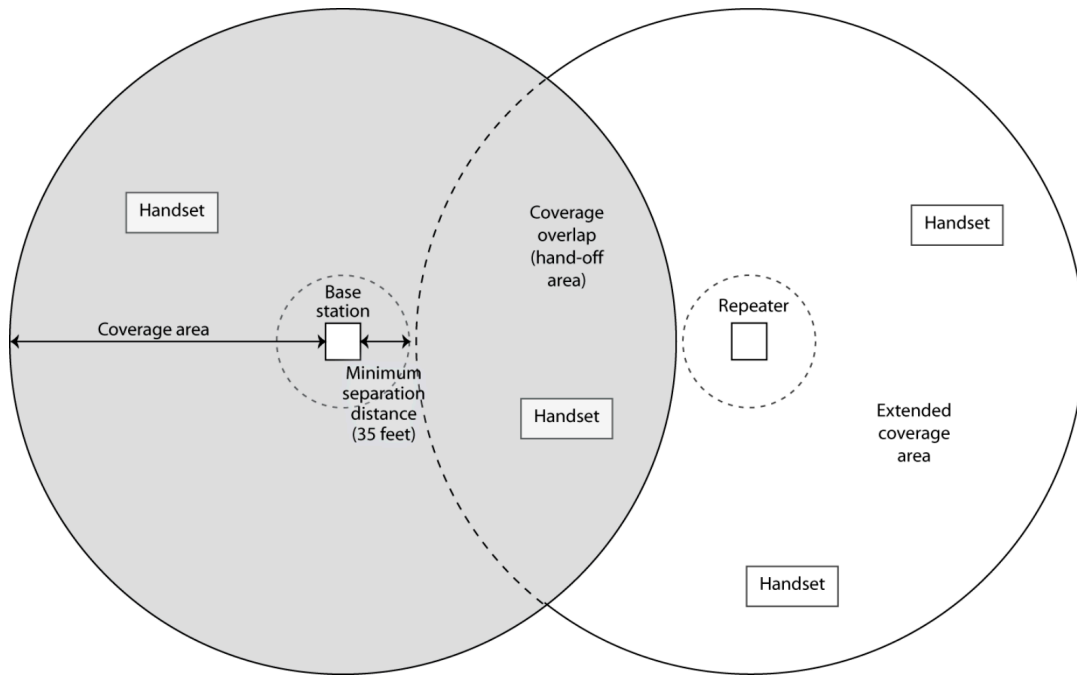


Figure 8-58 Single Repeater Attached to Base

Each base supports up to six repeaters, so you can extend coverage in all directions, including through floors and ceilings:

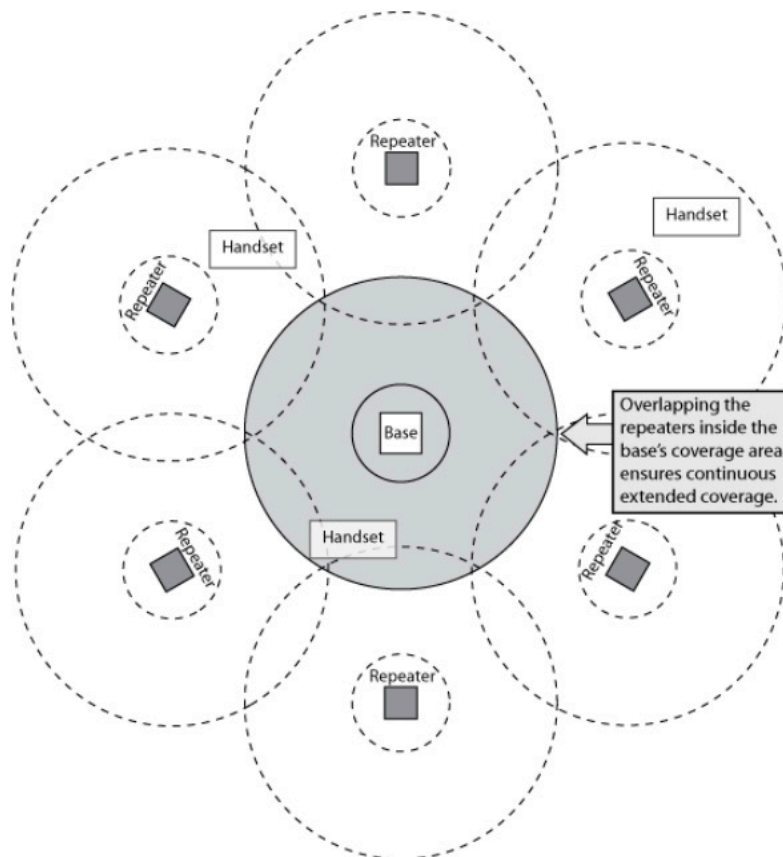


Figure 8-59 Six Repeaters Attached to Base

In addition, the UDR100 supports a sequential or "daisy chain" layout to extend coverage in a single direction. Up to three repeaters can be installed in sequence:

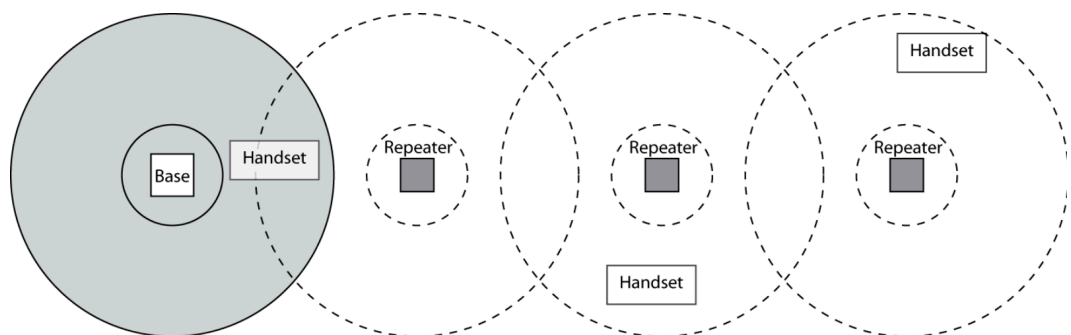




Figure 8-60 Daisy-Chain Layout

 For detailed information on daisy-chain layout and configuration, contact your installer or refer to the UDR100 Administrator's Guide.

7.1 Setting Up Your Repeater

Before installing the repeater, you need to activate the repeater mode on your base and then register the repeater to the base and any handsets. Before you start the registration process, be sure you have:

- A working base
- A working handset registered to that base
- Any repeaters you want to register to this base (you must complete the registration process separately for each repeater)
- At least one of the AC adapters supplied with the repeaters

 *Use ONLY the power adapter that came with your repeater. A different power adapter may cause an electrical hazard or damage the repeater.*


7.1.1 Changing the Telephone System PIN

Before you start the registration process, you must reset the system PIN of your telephone to **0000** (consult the manual that came with your base for more information). After you reset the PIN, make sure to re-register the handset you used back to the base station.

7.1.2 Automatic Registration

The repeater seeks out the base with strongest DECT/GAP signal and automatically registers to that base.

1. Make sure the repeater is powered off (i.e., the AC power adapter is not connected).
2. Set the base into registration mode. (Consult the owner's manual that came with your base station for more information).
3. Use the AC adapter to connect the repeater to a standard 120 V AC outlet. (Do not use a power outlet controlled by a wall switch.) The LED on the repeater flashes briefly, then remains on and steady.



 *If the LED continues to flash, try registering the repeater again.*

The repeater is now registered to this base and is ready to use.


You can safely disconnect the power and move the repeater to the selected location; the repeater will stay registered to the base.

7.1.3 Manual Registration

If you are registering more than one repeater to the same base, you must use the manual registration procedure.

1. Connect the repeater to power for 1~5 seconds and then disconnect it.
2. Reconnect the power to the repeater. The LED on the repeater flashes slowly, indicating the repeater is in registration mode.
 *The repeater stays in registration mode for a maximum of five minutes. If you can not complete the registration in five minutes, repeat the procedure starting with step 1.*
3. Set the base into registration mode. (Consult the owner's manual that came with your base station for more information.)
4. The LED on the front of the repeater flashes quickly, with no interruptions.
 *If the LED has brief interruptions in the flash, you need to reset your telephone system PIN to 0000. (Refer to [7.1.1 Changing the Telephone System PIN on page 8-46](#).)*
5. With the handset, go off-hook by pressing the {TALK?} key. The LED stops flashing.
6. Use the number pad on the handset to assign a repeater number. Press a number between 2 and 7. Each repeater number can only be used once per base. (These numbers are independent of any handset extension numbers.)
7. When the repeater accepts the assignment, the LED flashes a corresponding number of times.
8. To confirm the registration, press the {STAR?} key and then the {END?} key. The LED goes off for two seconds, flashes for a brief moment, and then remains on and steady.

The repeater is now registered to this base station. You can repeat the procedure with each repeater that you want to register to this base, or you can disconnect the power and move the repeater to the selected location.

-  *The repeater remains registered even if you disconnect the AC adapter or there is a power failure. If you want to clear the registration (for example, so you can register to a different base), you must reset the repeater.*

7.1.4 Registration for a Daisy-Chain Layout

Registering the repeaters to operate in a daisy-chain or sequential layout requires network administrator access and configuration software. Contact your installer or refer to the DTL-RPT-1 Administrator's Guide (provided with the configuration software) for more information.

7.1.5 Registering to a Different Base

Once the repeater is registered, you need to reset it before you can change the registration to a different base. If you want to reset the repeater and clear its registration, follow the steps below:

1. Disconnect the power.
2. Reconnect the power for one to five seconds, and disconnect it again.
3. Reconnect the power for 25 to 35 seconds.
4. Disconnect the power, and perform the registration procedure with the new base.

7.2 Installing the Repeater

7.2.1 Finding the Right Location

To get the best operating conditions for the repeater, it is important to place it correctly. Here are a few tips for placing repeaters:

- ☐ Place the repeater as high as possible, but **at least six feet off** the ground.
- ☐ Make sure you have good reception from the base.
- ☐ Make sure the location is close to a standard 120 V AC power outlet. Never install electrical cords across a traffic area: they can create a trip hazard or become damaged and create a fire or electrical hazard.
- ☐ Allow **at least 30 feet** between repeaters (if you are installing repeaters across multiple floors, remember to allow 30 feet **vertically**, also).
- ☐ Avoid sources of electrical interference, such as hi-fi systems, office equipment or microwave ovens.
- ☐ Avoid heat sources and direct sunlight.
- ☐ Avoid things that can interfere with radio signals, such as metal doors, thick walls, niches and cupboards.

7.2.2 Map the Base Coverage Area

To find the best location for the repeater, you need to determine the base coverage area. Stand near the base and make a call. Walk away from the base with the handset, and make a note where the signal becomes weaker. The optimum location for the repeater is as far from the base as possible while still maintaining a "good" signal, or just inside the location where the signal became weaker.

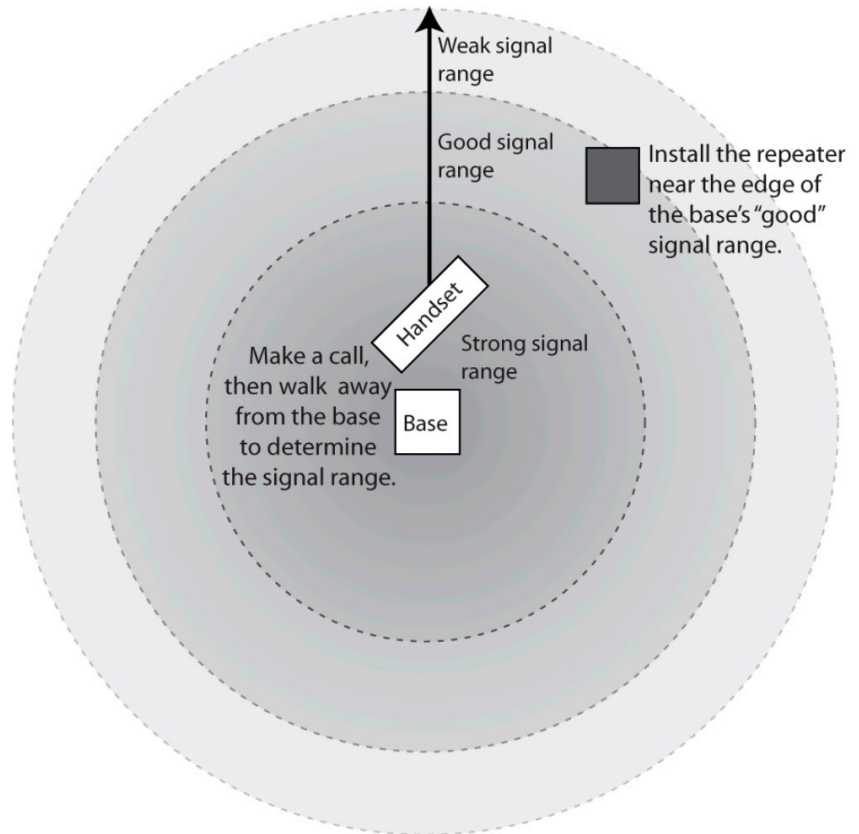


Figure 8-61 Base Coverage Area

7.2.3 Test the Location

To test the location, plug the AC adapter into the repeater, then hold the repeater in the place where you plan to mount it. The LED should remain on and steady, indicating that the repeater has a good signal from the base.

If the LED flashes, the repeater is not getting a good signal. The repeater may be too far away from the base, there may be interference from electronic devices, or the signal might be blocked by thick walls or metal objects. Try moving the repeater to another location.

7.2.4 Installing the Repeater



Be sure the wall material can hold the weight of the repeater. Never install a repeater in damaged or decaying wall material.

1. Hold the repeater in its final location, and mark the center of the top edge.
2. From the edge mark, measure down approximately 1-1/2 inches, and mark the screw location.
3. At the screw location, use a 3/16ths drill bit to make a pilot hole approximately one inch deep.
4. Place the wall anchor into the pilot hole and tap it gently with a hammer until the anchor is flush with the wall.
5. Insert the mounting screw into the anchor, leaving approximately 1/4 inch space between the screw head and the wall.
6. Put the repeater over the screw head and slide it down into place.
7. Connect the repeater to the 120 V AC power outlet.

7.2.5 Multiple Repeater Systems

You can register up to six repeaters to one base as long as the repeaters are a minimum of 30 feet apart. **Remember** that the signal can cross through walls and floors.

7.2.5.1 Incorrect Installation

[Figure 8-62 Incorrect Installation on page 8-51](#) illustrates repeaters that have been incorrectly installed.

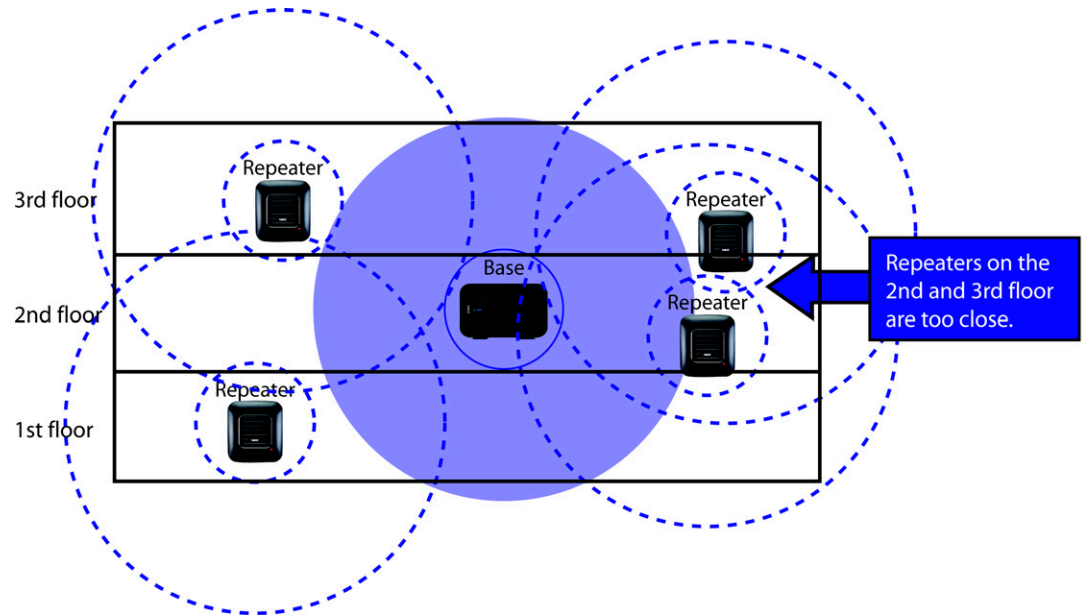


Figure 8-62 Incorrect Installation

7.2.5.2 Correct Installation

Figure 8-63 Base Coverage Area illustrates repeaters that have been correctly installed.

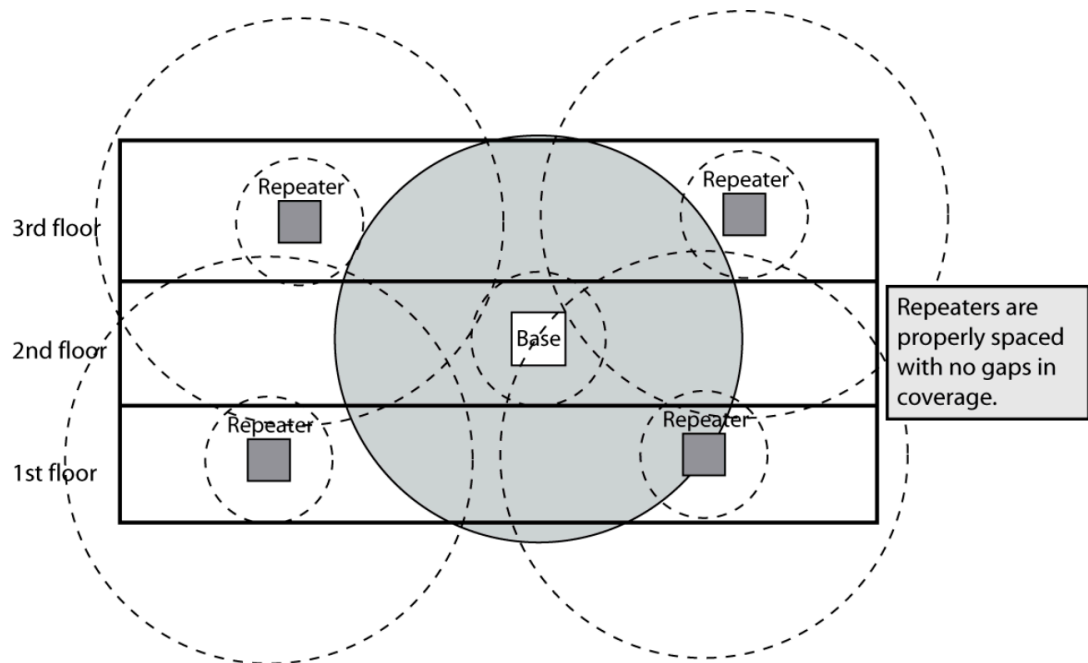


Figure 8-63 Base Coverage Area

7.2.5.3 Daisy-Chain Installation

You can combine "normal" and "daisy-chain" connections to create a wide variety of coverage configurations, as long as you have no more than six repeaters per base unit.

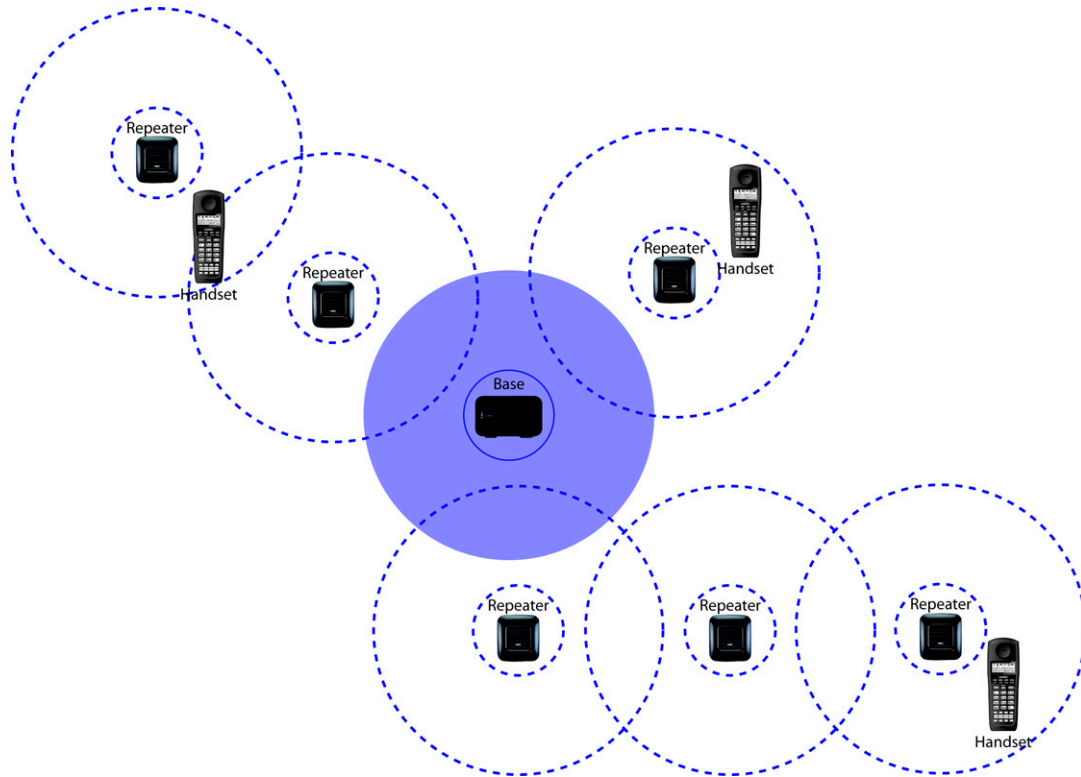


Figure 8-64 Daisy-Chain Layout

7.3 Troubleshooting Chart

To review common problems and possible solutions, refer to the *D^{term}*® Cordless DECT Repeater Guide DTL-RPT-1.

7.4 Turning on the Verification Tone

To activate the verification tone to aid in troubleshooting installation problems, refer to the *D^{term}*® Cordless DECT Repeater Guide DTL-RPT-1.

7.5 Maintenance

For user maintenance of the Repeater, refer to the *D^{term}*® Cordless DECT Repeater Guide DTL-RPT-1.

SECTION 8 OPTIONAL HEADSETS

8.1 *D^{term}*® USB Wireless Headset

This headset supports WebDial 2.1.4.0 or higher, Softphone 310 and SP30 Softphone version 9 or higher with digital encryption, TIA810a compliance, and a noise-canceling microphone for secure, clear, and quiet conversations. It has a 200-foot range and includes nine hours talk time.

The headset can be converted to accommodate over-the-head or over-the-ear styles.

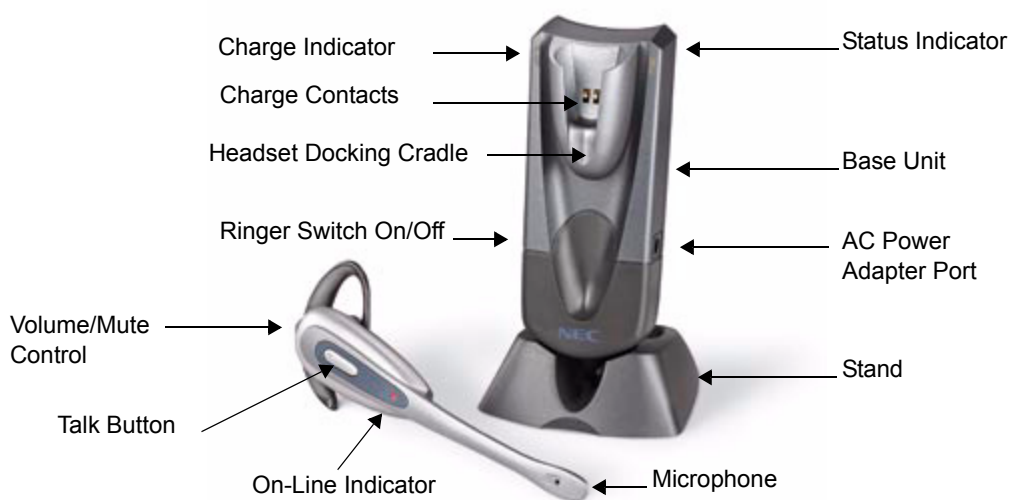


Figure 8-65 *D^{term}* USB Wireless Headset (CS50-USB)

8.1.1 Installing the Base Unit

Attach the Base Unit to the stand pegs, and connect the USB connector to a free USB port on your computer. A USB hub can be used, if you are certain that it can supply the required 250 mA to charge the headset. An optional AC power adapter can be installed in the AC Power Adapter Port.

8.1.2 Installing the PerSonoCall Software

To install the software, insert the CD supplied with the unit. If the CD does not autoplay, use Windows Explorer to find the file called `install.bat`, double click on it, and follow the instructions on the screen.

8.1.3 Charging the Headset Battery

To charge the headset battery, place it in the docking cradle. During charging, the charge indicator is On. When charging is complete the indicator goes Off. The headset must be charged for a minimum of one hour before use – three hours to fully charge.

8.1.4 Initial Setup

The Unit includes a ringer in the base to provide notification of an incoming call when not wearing your headset. This feature is enabled when the Ringer switch is down and is disabled when the switch is up.

When the headset is installed, it sets itself as the default device in your computer. You can set your preferences manually in Windows through the Sounds and Audio Devices option in the control panel. A softphone may require choosing the audio device and carries out a short test to match this device to the softphone. It may also enable you to choose which device indicates an incoming call. Refer to the softphone documentation for more information.

8.1.5 Using the Headset

Refer to the User Guide for operating procedures.

8.2 *D^{term}*® Headset Cordless II Terminal

The DTR-1C-2 (CS50 Wireless Office Headset System) combines ultimate mobility with excellent sound quality for hands-free conversation. Refer to [Figure 8-66 *D^{term}* Headset Cordless II](#).

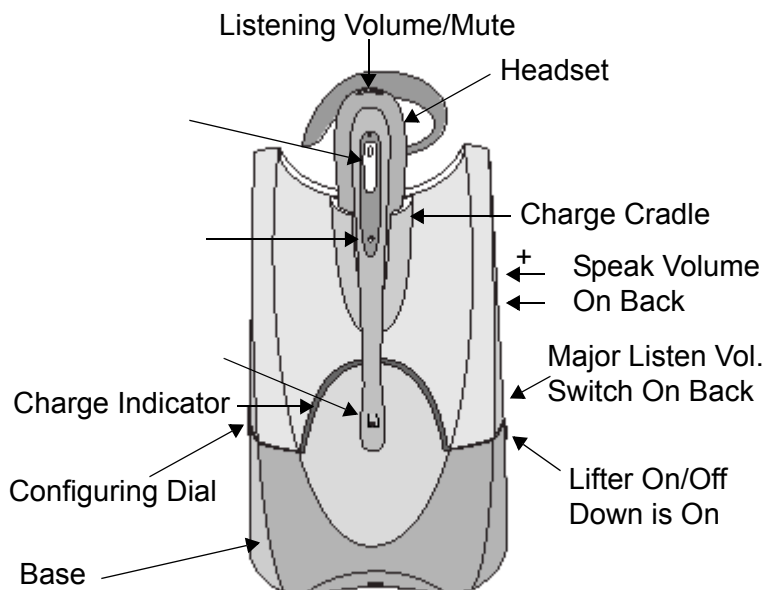


Figure 8-66 *D^{term}* Headset Cordless II

This headset gives you up to eight hours talk time with the convenience of roaming up to 300 feet with secure conversations. It continually charges in the cradle, and when in use, taking or ending a call requires pressing the talk button.

An included automatic handset lifter fits on the associated telephone to lift the handset or return it to the cradle to let you answer calls remotely with the touch of a button by automatically taking your handset off-hook.

An amplifier boosts the signal to the wireless headset and connects to the existing telephone using 64-bit digitally encrypted signals to provide secure communication.

The headset is powered by a LITHIUM ION Polymer (Li-ion) Battery.

8.2.1 Connecting the Switch

Connection requires installing an AP(R)-L analog adapter (not supplied with this unit) on the multiline terminal.

1. Connect the AC power adapter to the AC Power Adapter Jack (indicated by a 9V icon) on the bottom of the Base, and plug the adapter into a power source.
2. The DTR-1C-2 switch is a small rectangular unit with a line cable on one end and a line cable and fixed cable on the other. Connect the fixed cable to the Lifter jack (located left of the AC Power adapter jack) on the bottom of the Base.
3. Connect the Line cord next to the fixed cable on the switch to the Base connector on the bottom of the Base unit indicated by a telephone icon.
4. Connect the single line on the other end of the DTR-1C-2 switch to the AP(R)-L analog adapter and connect the AP(R)-L adapter to the telephone.

8.2.2 Charging the Headset

Slide the Headset into the charging cradle on the Base. The Amber charging indicator blinks. When the Headset is charged, the indicator remains on continuously. A complete charge takes three hours.

8.2.3 Configuring the Headset to Your Telephone

When any of the following situations occurs, the Headset must be configured to be compatible with your telephone:

- ☐ Dial tone is not present.
- ☐ The caller is not heard.
- ☐ The caller does not hear you.
- ☐ Hissing or buzzing is heard in the Headset.

To configure the Headset:

1. Lift the telephone handset.
2. Press the Talk Button.


3. Locate the configuration Dial, and rotate it to another of the four positions until a dial tone is heard.

 *Align the number with the seam line on the right side.*

8.2.4 Adjusting the Volume

Listening Volume

1. Adjust listening volume using Listening Volume/Mute control on the headset speaker end.

 *Rock the control up or down for volume changes.*


2. When the volume is still too loud or too soft, locate the Listening Volume Major Switch on back of the Base, and move it to another of the four positions.

Speaking Volume

1. Adjust speaking volume using the plus or minus button on back of the Base.
2. When the volume is still too loud or too soft, locate the 4-position switch on the bottom of the Base, and move it to another of the four positions.

Using the Mute Feature

1. Push in the Listening Volume/Mute Control to mute the headset.

 *A light beep indicates mute is being used.*

2. Push the control again to turn off the mute feature.

8.2.5 Operation Using the *D^{term}*® Headset Cordless II

Switch from Headset to Handset

When you are using the headset during a call and want to switch to the handset:

1. Remove the handset from the Base.
2. Press the headset Talk Button, and the handset can be used.

Switch from Handset to Headset

When you are using the handset during a call and want to switch to the headset:

1. Press the headset Talk Button, and the headset can be used.
2. Place the telephone handset on the Multiline Terminal.
3. When finished, press the Headset Talk Button to end the call.

8.2.6 System Reset

To recover from some faults, system reset may be necessary. To perform system reset:

1. Press both the Talk Button and Mute Control Button on the headset for five seconds.
2. When the Talk Indicator blinks release both buttons.
3. Press the Talk Button again.
4. Disconnect the AC Power Adapter from the jack for five seconds and then plug it back in.

8.3 Headsets Used with *D^{term}*® Telephones

A keyset user can utilize a customer-provided headset in place of the handset. Like using Handsfree, using the headset frees up the user's hands for other work. However, Headset Operation provides privacy not available from handsfree.

The headset plugs into a separate jack on the bottom of the phone. This allows the use of the handset or headset – whichever is convenient at the time.

Simply connect the headset into the headset jack located on the bottom of the keyset. (This jack is located right next to the handset jack, so make sure to connect to the proper jack.)

8.3.1 NEC *D^{term}*® Headset (MX250)

The M Series Pin Jack Style headset MX250 allows maximum versatility for wireless or cordless phones. The MX250 is easy to put on and can be worn in either ear. This headset includes an

EarBudeez™ stabilizer for best possible fit to prevent the headset from becoming dislodged during important conversations. Over-the-ear styling provides a comfortable fit.



Figure 8-67 Cordless Headset (MX250)

8.3.2 NEC *D^{term}*® Cordless Phone Headset (M175)

The NEC M175 mobile headset offers hands-free convenience anywhere you go. Its convertible design can be worn with a headband or earloop on either ear, depending on whether you want greater stability or convenient small size. The pivoting noise-canceling microphone keeps your voice crystal clear, even in noisy environments. Comfortable, durable, and lightweight, it also works with headset-ready cordless phones and features a one-touch volume and mute control so you can be heard clearly.



Figure 8-68 Cordless Headset (M175)

8.3.3 NEC *D^{term}*® NEC Polaris SupraPlus™

Supra Series Monaural or Binaural headsets are super stable and perfect for phone-intensive jobs. They have an adjustable headband so they can be worn all day. The Binaural model allows you to hear conversations in extra noisy environments.



Figure 8-69 NEC Polaris Supraplus

8.3.4 NEC *D^{term}*® NEC POLARIS MIRAGE®

With no headband, no eartip, no hands, no hassle, these headsets are lightweight and have concert hall acoustics. With its over-the-ear fit and receiver that rests gently against the ear it is easy to forget that it is being worn.



Figure 8-70 NEC Polaris Mirage

8.3.5 NEC *D^{term}*® NEC POLARIS TriSTAR®

For business professionals who require comfort and stability in an over-the-ear design that does not mess up their hair, the TriStar headset is the best solution. It's three point design ensures that it is comfortable and stable on the ear. It is very lightweight and can also fit most eyeglass wearers.





Figure 8-71 NEC Polaris TriStar

8.3.6 NEC *D^{term}*® NEC Polaris Encore®

Monaural or Binaural Encore headsets are comfortable and practical for almost everyone. Human factors engineering for near universal fit, light weight all day comfort, and the SES® (Sound Enhancement System) tone control switch that allows bass and treble settings brings a new generation of headset technology.



Figure 8-72 NEC Polaris Encore

-  *Headsets that have open style receivers (i.e., Mirage, DuoSet and DuoPro) can cause echo problems on DT700 Series telephones. The echo suppression and receiver gain of the telephone determines the severity of the echo when using any headset.*
-  *Due to the environment where the telephones or headsets are located, ambient noise may affect performance. Please contact NEC for the recommended headset to use with VoIP applications.*

Installing SV8100/SV8300 Wireless Telephones

SECTION 1 GENERAL DESCRIPTION

The wireless telephones provide wireless freedom that also allows access to features provided by the UNIVERGE SV8100/SV8300 system.

SECTION 2 NEC SIP DECT SOLUTIONS

The implementation of SIP Digital Enhanced Cordless Telecommunication (DECT) in a NEC Telephone System is a stand-alone DECT system that is connected to the NEC Telephone System via a TCP/IP connection using Session Initiation Protocol (SIP). This means that in the NEC Telephone System, the DECT extensions must be assigned as SIP extensions. From the NEC Telephone System perspective, there is no difference between an SIP extension and an SIP DECT extension.

Figure 9-1 SIP DECT System Configuration shows the SIP DECT System Configuration. All connections are IP connections over Ethernet.

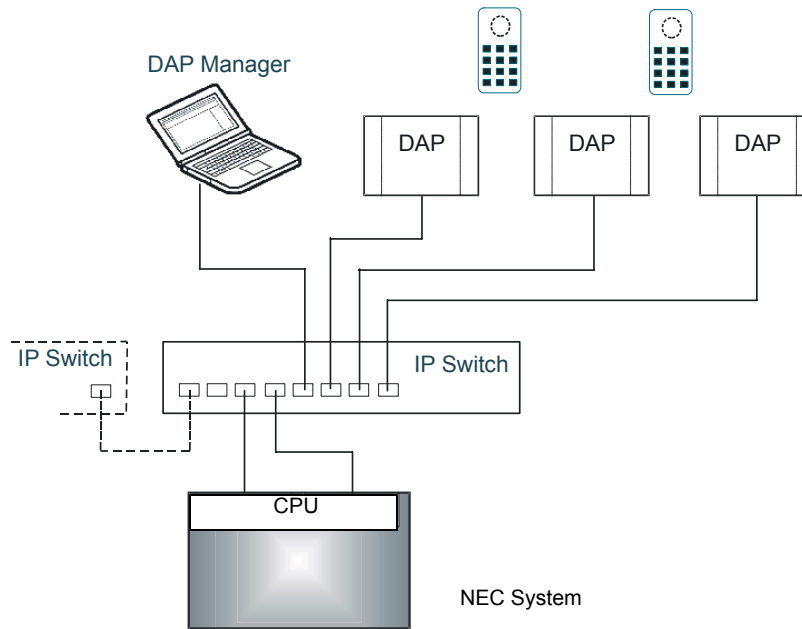



Figure 9-1 SIP DECT System Configuration

2.1 Installation

The hardware installation consists of the following steps:

1. Determine the number of DAPs that need to be installed and where they should be located. Refer to NEC SIP DECT Solutions Technician's Guide, DAP Planning as a guideline.
2. Read the sections DAP Cabling and DAP Power Provision in the NEC SIP DECT Solutions Technician Guide carefully to determine how the DAPs should be powered and how the cable must be run.
3. Make sure that you have an IP Switch available to which you are going to connect the IP DECT equipment. Power up the IP Switch.
4. Setup and connect the power provision for the DAPs. The LEDs on the DAPs should show some activity.
5. Connect the DAP cables to the IP Switch.

 **Do not** connect the Ethernet cables or the IP Switch to the local IP network. The DECT configuration should be installed in a closed network.

6. Make sure that you have a computer available that can be used for management. Connect this PC to the IP Switch using an ethernet cable. Check that the lamp on the IP Switch indicates that the connection is established.
7. (For UNIVERGE SV8100 only) Connect a network cable between the CD-(X)ILPA and the IP Switch.
8. The next step is setting up your IP Addressing structure. Refer to the NEC SIP DECT Solutions Technician's Guide, IP Addressing.

- - NOTES - -

Installing SV8100/SV8300 Conference Solutions

SECTION 1 GENERAL DESCRIPTION

Conferencing solutions provide premium, full-duplex audio to small conference rooms as a single unit or to larger rooms when expanded by up to three units that also expand microphone access and loudspeaker coverage.

SECTION 2 NEC CONFERENCE MAX™

2.1 Description

This expandable conferencing telephone provides premium, full-duplex audio to small conference rooms as a single unit or to larger rooms when expanded by up to three units that also expand microphone access and loudspeaker coverage with even distribution of sound.

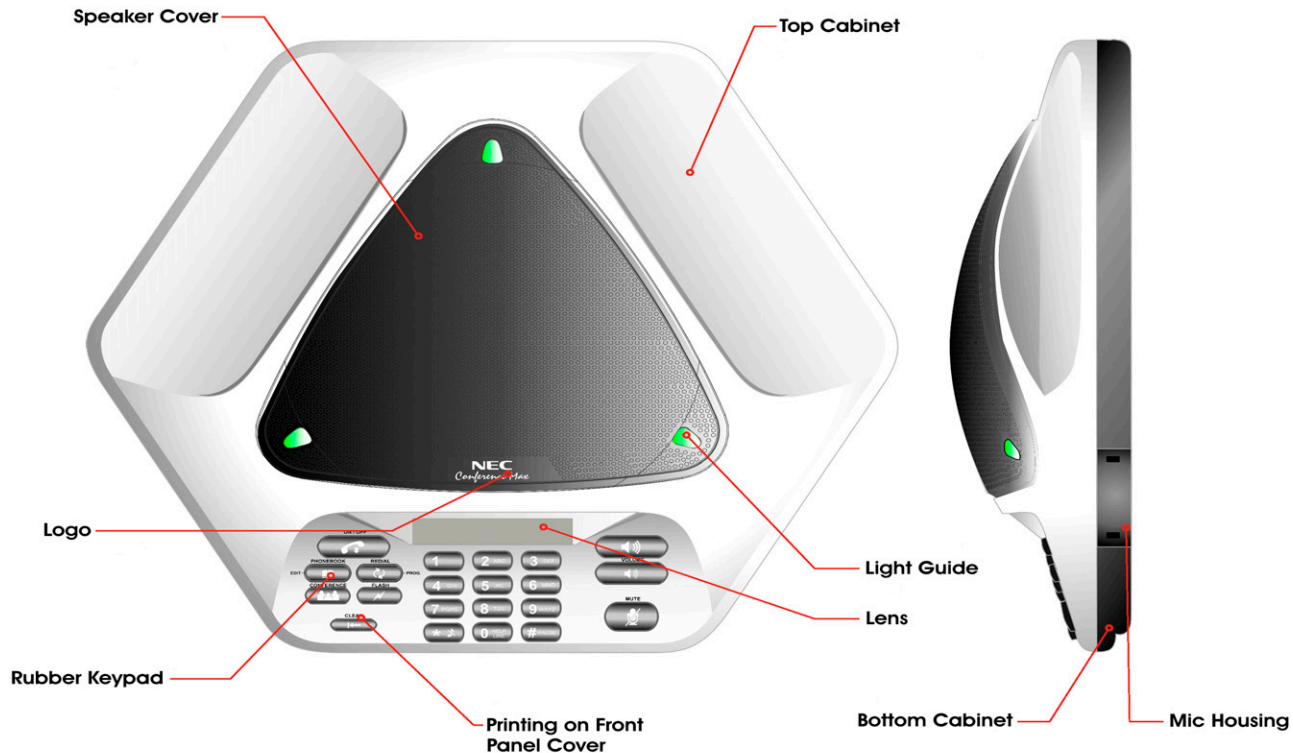


Figure 10-1 NEC Conference Max™

2.2 Installation

1. Connect the provided 25 foot Cat. 5 cable between the LINK OUT jack of the base unit and the LINK IN jack of the conferencing pod.
2. Connect the provided RJ-11 cable between the base unit and the telephone jack.
3. Connect the power cord to the base unit and plug it in an electrical outlet.
4. To connect additional units, connect a 12 foot Cat. 5 cable between the LINK OUT jack of the unit connected to the base unit and the LINK IN jack of the second unit and repeat the connection of another 12 foot Cat. 5 cable between the LINK OUT jack of each unit to the LINK IN of the next unit in sequence.

2.3 Keypad Functions

Refer to [Table 10-1 Keypad Functions](#).

Table 10-1 Keypad Functions

Key	Function
ON/OFF key (telephone icon)	Press to activate the telephone and access dial tone. Press again to hang up and return to standby mode.
PHONEBOOK (book icon)	Press to dial stored numbers. Press and hold two seconds to enter Phonebook Edit mode.
REDIAL (circular arrow icon)	Press once to dial the last number called. Press and hold two seconds to enter Program mode.
CONFERENCE (three person icon)	Press to dial the conferencing service provider. This feature must be programmed.
FLASH (lightning flash icon)	Press to enable call forwarding, call waiting, or three-way calling when supported by telephone service.
CLEAR (vertical line and left arrow icon)	Press to clear the last digit entered or press and hold to clear all numbers. Press to exit programming mode.
VOLUME (loud and dim speaker icons)	Press during call to adjust call volume or press while telephone is ringing or in standby mode to adjust ringer volume.
MUTE (mic with diagonal line icon)	Press to mute volume.

2.4 Programming Options


To enter Programming mode, press and hold REDIAL until a diamond arrow is displayed on the LCD. Then press the applicable key and follow the instruction in [Table 10-2 Programming Options](#).

Table 10-2 Programming Options

Menu Option	Key	Programming
Ringer Melody	1	Press REDIAL. The current melody selection flashes. Press 1~5 to change melody. Press REDIAL to save the selection.
Dialing Mode	2	Press REDIAL. The current dialing selection flashes. Press 1 for tone or 2 for pulse. Press REDIAL to save the selection.

Table 10-2 Programming Options (Continued)

Menu Option	Key	Programming
Flash Duration	3	Press REDIAL. The current duration flashes. Press 1~5 to select duration as follows: 1 = 600 ms 2 = 300 ms 3 = 150 ms 4 = 100 ms 5 = 80 ms Press REDIAL to save the selection.
Local Number *	4	Press REDIAL. Enter the telephone number that you want displayed on the LCD in standby mode. Press REDIAL to save the number.
Conference *	5	Press REDIAL. Enter the telephone number you want the conference key to dial. Press REDIAL to save the number.
Service *	6	Press REDIAL. Enter the telephone number you want the O key to dial. Press REDIAL to save the number.
Country	7	Press REDIAL. Press number key for country as follows: 1 US/Canada/China/Japan/Mexico/Singapore 2 Europe CTR 21 3 Australia 4 S. Africa 5 Brazil 6 New Zealand 7 South Korea Press REDIAL to save the country setting.

 Press **CLEAR** to return the previous menu. Press and hold to exit programming without saving changes.

* Press and hold 1 to enter hyphen or * to enter a space in the number. Press **CLEAR** before entering a new number.

2.5 Compliance

This product is in compliance with the following regulations and requirements:

- FCC Part 15/ICES-003
This product has been tested and complies with the limits for a Class A digital device.
- FCC Part 68
US:FBIMT01B910158015 Ringer Equivalence Number (REN):0.1B(ac)
- Industry of Canada (IC)
IC: 1970A-158015: REN:0.1B(ac)

- European
Council Directive 1999/5/EC

SECTION 3 NEC CONFERENCE MAX PLUS

This wireless conferencing system is ideal for small conference rooms with up to eight participants. Max Plus provides wireless One-Touch Conferencing convenience without compromising audio quality or call security.

Each pod contains a rechargeable battery pack with nickel metal hydride batteries (7.2 Volts, 2200 mAh) that allows 12 hours of continuous talk time. A Base Unit that is connected to a power source and analog telephone service is required for operation of the conferencing pods.

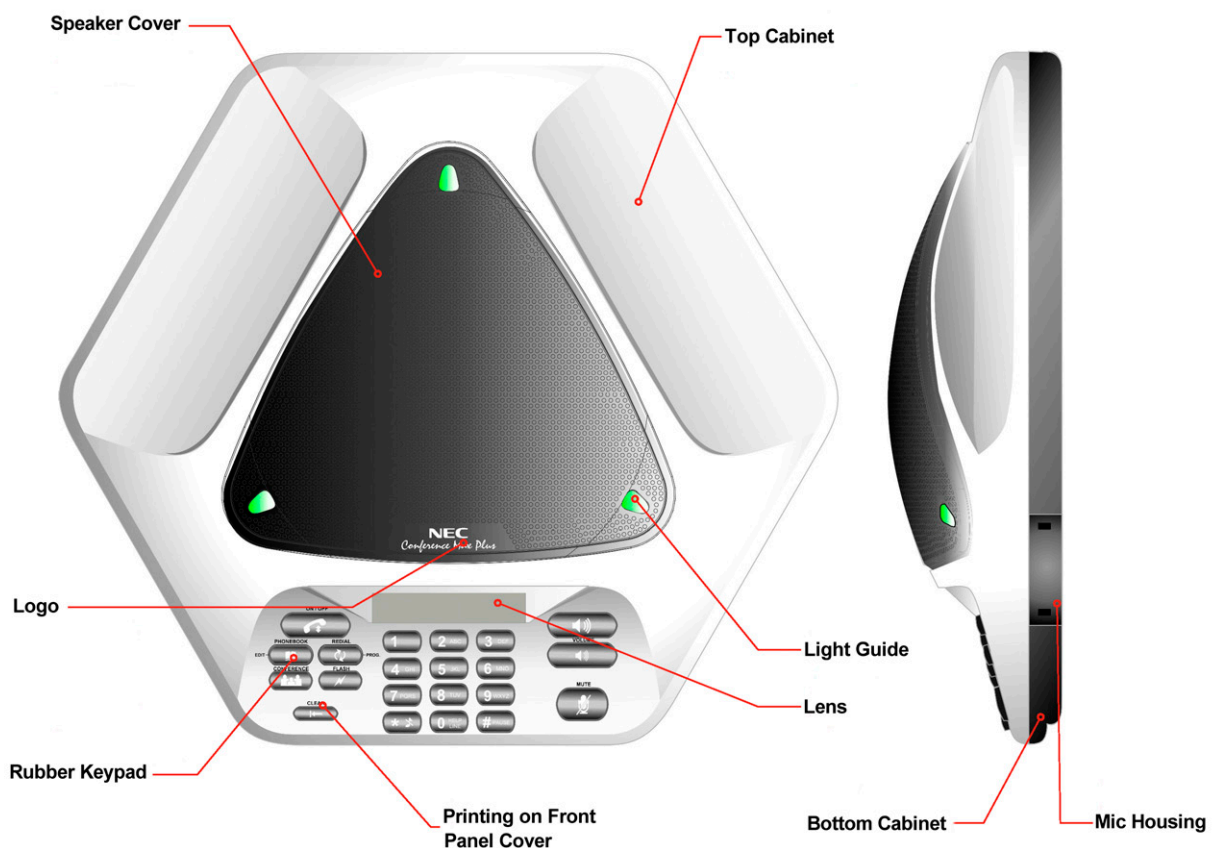


Figure 10-2 NEC Conference Max Plus

3.1 Installing the Base Unit


To install the base unit:

1. Connect the provided RJ-11 cable between the Base Unit and the telephone jack.
2. Connect the power cord to the Base Unit and plug it in an electrical outlet.
3. If desired, connect a recording device to the 2.5mm audio jack.

3.2 Connecting and Charging the Batteries

To connect and charge the batteries:

1. Slide the cover off the battery compartment on the bottom of one pod.
2. Connect the battery pack plug in the port in the compartment and install the battery pack.
3. Slide the cover back in place.
4. Connect the power supply/charger to the conferencing pod and plug it in an electrical outlet.

 Charge batteries for 15 hours prior to first use.

5. Repeat steps 1~4 for the other pod.

3.3 Keypad Functions

Refer to [Table 10-3 Keypad Functions](#).

Table 10-3 Keypad Functions

Key	Function
ON/OFF key (telephone icon)	Press to activate the telephone and access dial tone. Press again to hang up and return to standby mode.
PHONEBOOK (book icon)	Press to dial stored numbers. Press and hold two seconds to enter Phonebook Edit mode.
REDIAL (circular arrow icon)	Press once to dial the last number called. Press and hold two seconds to enter Program mode.
CONFERENCE (three person icon)	Press to dial the conferencing service provider. This feature must be programmed.
FLASH (lightning flash icon)	Press to enable call forwarding, call waiting, or three-way calling when supported by telephone service.

Table 10-3 Keypad Functions (Continued)

Key	Function
CLEAR (vertical line and left arrow icon)	Press to clear the last digit entered or press and hold to clear all numbers. Press to exit programming mode.
VOLUME (loud and dim speaker icons)	Press during call to adjust call volume or press while telephone is ringing or in standby mode to adjust ringer volume.
MUTE (mic with diagonal line icon)	Press to mute sound.

3.4 Programming Options


To enter Programming mode, press and hold REDIAL until a diamond arrow is displayed on the LCD. Then press the applicable key and follow the instruction in [Table 10-4 Programming Options](#).

Table 10-4 Programming Options

Menu Option	Key	Programming
Ringer Melody	1	Press REDIAL. The current melody selection flashes. Press 1~5 to change melody. Press REDIAL to save the selection.
Dialing Mode	2	Press REDIAL. The current dialing selection flashes. Press 1 for tone or 2 for pulse. Press REDIAL to save the selection.
Flash Duration	3	Press REDIAL. The current duration flashes. Press 1~5 to select duration as follows: 1 = 600 ms 2 = 300 ms 3 = 150 ms 4 = 100 ms 5 = 80 ms Press REDIAL to save the selection.
Local Number *	4	Press REDIAL. Enter the telephone number that you want displayed on the LCD in standby mode. Press REDIAL to save the number.
Conference *	5	Press REDIAL. Enter the telephone number you want the conference key to dial. Press REDIAL to save the number.

Table 10-4 Programming Options (Continued)

Menu Option	Key	Programming
Service*	6	Press REDIAL. Enter the telephone number you want the O key to dial. Press REDIAL to save the number.

 Press **CLEAR** to return the previous menu. Press and hold to exit programming without saving changes.

* Press and hold 1 to enter hyphen or * to enter a space in the number. Press **CLEAR** before entering a new number.

3.5 Compliance

This product is in compliance with the following regulations and requirements:

- FCC Part 15/ICES-003
This product has been tested and complies with the limits for a Class A digital device.
- FCC Part 68
US:FBIMT01B910158015 Ringer Equivalence Number (REN):0.1B(ac)
- Industry of Canada (IC)
IC: 1970A-158015: REN:0.1B(ac)
- European
Council Directive 1999/5/EC

SECTION 4 NEC SIP CONFERENCE MAX

The NEC SIP Conference Max expandable conferencing telephone provides premium, full-duplex audio to small conference rooms as a single unit and to larger rooms as an expanded system. Up to four SIP Conference Max units can be linked, expanding not only microphone coverage but loudspeaker coverage and control access as well. This creates even distribution of sound for a more natural communications experience.

4.1 Installation

1. Connect the cable from the Link Out on the base unit to the Link In jack on the conferencing pod.



Do Not plug a laptop or PC into the Link Out jack on the base unit or conferencing pod, severe electrical damage could occur.

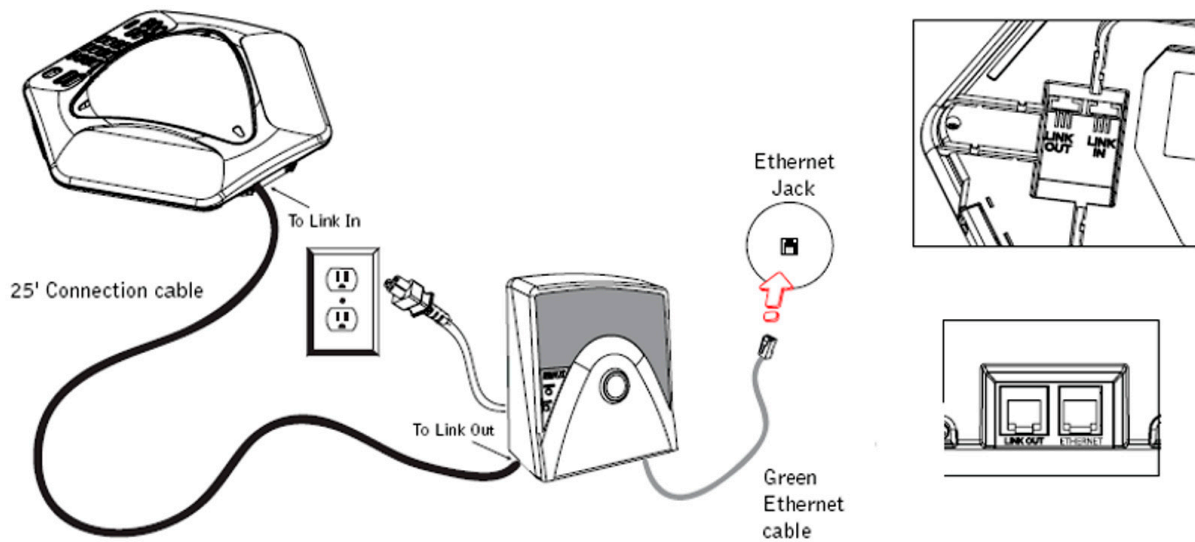


Figure 10-3 NEC SIP Conference Installation

2. Connect the base unit to the Ethernet jack using the Ethernet cable.
3. Connect the power cord to the base unit and plug it directly into an electrical outlet.
4. To connect additional units, connect the 12 foot Connection cable to the Link Out jack on the first phone and to the Link In jack on the second phone.

Up to three additional SIP Conference Max phones for a total of four may be connected.

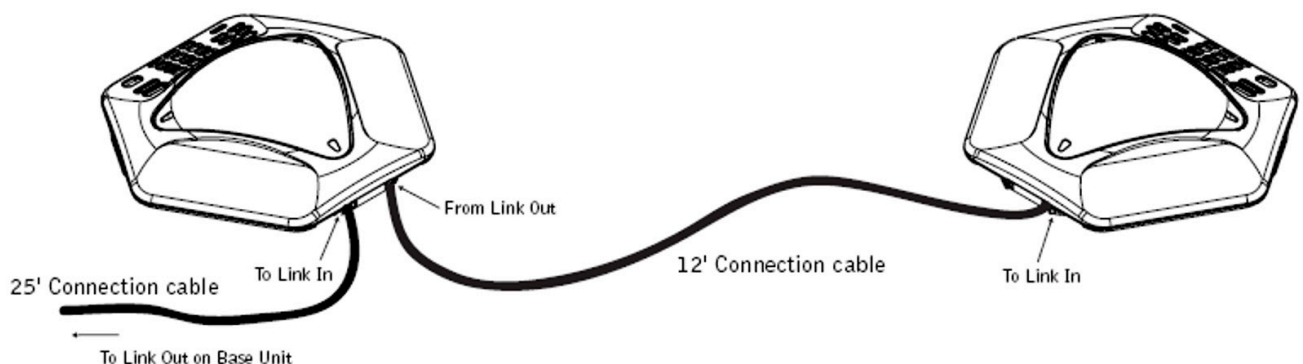



Figure 10-4 Install Additional NEC SIP Conference Units

4.2 Connecting and Charging the Batteries

To connect and charge the batteries:

1. Slide the cover off the battery compartment on the bottom of one pod.
2. Connect the battery pack plug in the port in the compartment and install the battery pack.
3. Slide the cover back in place.
4. Connect the power supply/charger to the conferencing pod and plug it in an electrical outlet.

 Charge batteries for 15 hours prior to first use.

5. Repeat steps 1~4 for the other pod.

4.3 Keypad Functions

Refer to [Table 10-3 Keypad Functions](#).

Table 10-5 Keypad Functions


Key	Function
ON/OFF key (telephone icon)	Press to activate the telephone and access dial tone. Press again to hang up and return to standby mode.
PHONEBOOK (book icon)	Press to dial stored numbers. Press and hold two seconds to enter Phonebook Edit mode.
REDIAL (circular arrow icon)	Press once to dial the last number called. Press and hold two seconds to enter Program mode.
CONFERENCE (three person icon)	Press to dial the conferencing service provider. This feature must be programmed.
FLASH (lightning flash icon)	Press to enable call forwarding, call waiting, or three-way calling when supported by telephone service.
CLEAR (vertical line and left arrow icon)	Press to clear the last digit entered or press and hold to clear all numbers. Press to exit programming mode.
VOLUME (loud and dim speaker icons)	Press during call to adjust call volume or press while telephone is ringing or in standby mode to adjust ringer volume.
MUTE (mic with diagonal line icon)	Press to mute sound.

4.4 Programming Options

To enter Programming mode, press and hold REDIAL until a diamond arrow is displayed on the LCD. Then press the applicable key and follow the instruction in [Table 10-4 Programming Options](#).

Table 10-6 Programming Options

Menu Option	Key	Programming
Ringer Melody	1	Press REDIAL. The current melody selection flashes. Press 1~5 to change melody. Press REDIAL to save the selection.
Dialing Mode	2	Press REDIAL. The current dialing selection flashes. Press 1 for tone or 2 for pulse. Press REDIAL to save the selection.
Flash Duration	3	Press REDIAL. The current duration flashes. Press 1~5 to select duration as follows: 1 = 600 ms 2 = 300 ms 3 = 150 ms 4 = 100 ms 5 = 80 ms Press REDIAL to save the selection.
Local Number *	4	Press REDIAL. Enter the telephone number that you want displayed on the LCD in standby mode. Press REDIAL to save the number.
Conference*	5	Press REDIAL. Enter the telephone number you want the conference key to dial. Press REDIAL to save the number.
Service*	6	Press REDIAL. Enter the telephone number you want the O key to dial. Press REDIAL to save the number.

 Press **CLEAR** to return the previous menu. Press and hold to exit programming without saving changes.

*Press and hold 1 to enter hyphen or * to enter a space in the number. Press **CLEAR** before entering a new number.

4.5 Compliance

This product is in compliance with the following regulations and requirements:

- FCC Part 15/ICES-003
This product has been tested and complies with the limits for a Class A digital device.
- FCC Part 68
US:FBIMT01B910158015 Ringer Equivalence Number (REN):0.1B(ac)
- Industry of Canada (IC)
IC: 1970A-158015: REN:0.1B(ac)
- European
Council Directive 1999/5/EC

Installing SV8100/SV8300 Optional Equipment

SECTION 1 GENERAL INFORMATION

This chapter provides information for installing optional equipment, such as PGD(2)-U10 ADPs, background music, door boxes, DSS consoles, D^{term} VSR, external paging as well as other handsets, recording devices and adapters on the SV8100/SV8300 digital and IP telephones.

SECTION 2 PGD(2)-U10 ADP

2.1 Using a PGD(2)-U10 ADP

The PGD(2)-U10 ADP provides two circuits which allow connection to external terminals such as:

- Door Box (eight maximum per system)
- External Speaker (eight maximum with PGD(2)-U10 ADPs [with amplifier], one on the CD-CP00-US [no amplifier])
- External Music Source (external MOH) (96 maximum per system)
- External Recording System (96 maximum per system)
- External Ringing

The system allows a maximum of 56 PGD(2)-U10 ADPs to be installed (48 for ACI ports [external MOH or external recording system], four for Door Boxes, and four for Paging). The PGD(2)-U10 ADPs also provides multi-purpose controls. These control relays can be used for controlling the external amplifier, external music source and door lock control with the use of a Door Box. The system allows for up eight general purpose relays with the PGD(2)-U10 ADPs (four relays on each PGD(2)-U10 ADP) and one on the CD-CP00-US for a maximum of nine.

The PGD(2)-U10 ADP connects to any available digital extension port. The terminal connections made within the PGD(2)-U10 ADP and the jumper settings determine what features are used for each circuit.



Figure 11-1 PGD(2)-U10 ADP

2.2 LED Indications

Table 11-1 PGD(2)-U10 ADP LED Indications

LED	Indication	Note
LED 1	Green LED when CH1 in use.	Flashing green LED indicates dipswitch setting and programming for CH1 is conflicting.
LED 2	Green LED when CH2 in use.	Flashing green LED indicates dipswitch setting and programming for CH2 is conflicting.

2.3 Setting up PGD(2)-U10 ADP Connections

- If the PGD(2)-U10 ADP is to be wall mounted, all the cable connections should be made first.
- For the module to ID correctly after setting the jumpers, set the circuit type to 0 for the module port in Program 10-03-01 prior to connecting the line cord to the PGD(2)-U10 ADP.

1. Remove the screw from the front of the PGD(2)-U10 ADP.



Figure 11-2 Remove Cover from PGD(2)-U10 ADP

2. Using a screwdriver, break out the plastic piece covering the cable hole.

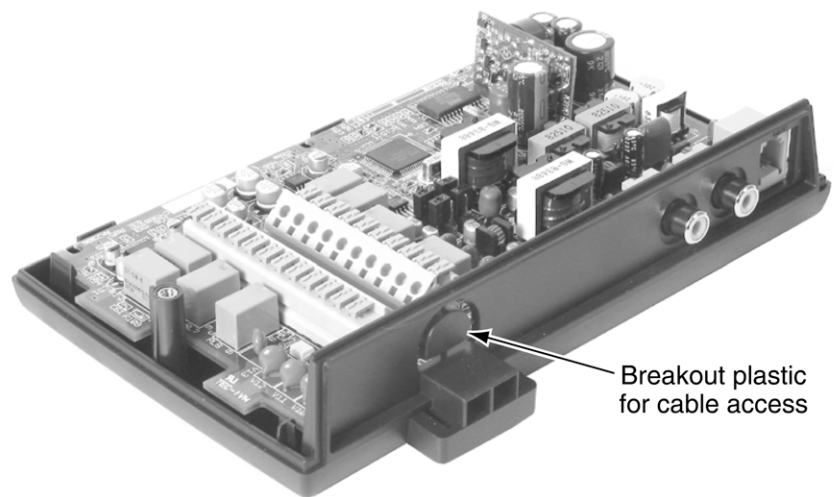
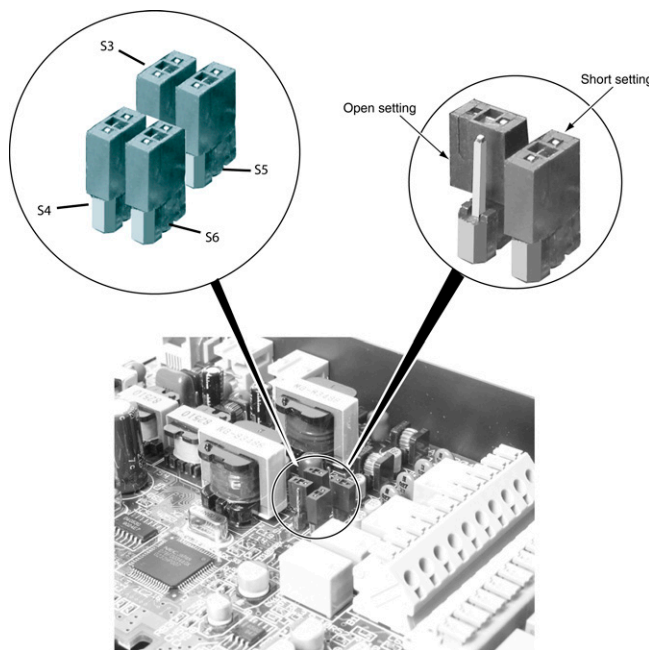


Figure 11-3 Remove Plastic Cover from Cable Hole

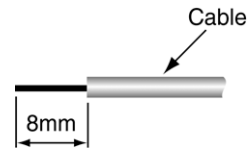
3. Set the S3 – S6 jumpers to the proper settings for the function to be used (refer to [Table 11-2 PGD\(2\)-U10 ADP S3 – S6 Jumper Settings on page 11-4](#)).

Table 11-2 PGD(2)-U10 ADP S3 – S6 Jumper Settings


	S3	S4	Function	LED Indication
Channel 1	Open	Open	Door Box	On when in use.
	Open	Short	External Paging Speaker	On when in use.
	Short	Open	External Ringer	On when in use.
	Short	Short	External Music on Hold / Recording System	On steady.
	S5	S6	Function	LED Indication
Channel 2	Open	Open	Door Box	On when in use.
	Open	Short	External Paging Speaker	On when in use.
	Short	Open	External Ringer	On when in use.
	Short	Short	External Music on Hold / Recording System	On steady.

**Figure 11-4 PGD(2)-U10 ADP Jumper Settings**

4. Strip one end of the cable to be connected to the control relay or door box so that approximately 1/4" (8 mm) of bare wire is exposed.



5. Insert the cable into the proper CN4 or CN5 location while holding down the lock button (holding down this lock button is easiest with a flat-head screwdriver). Once the cable is in place, release the lock button.

 *Refer to the specific function being connected for more detail on PGD(2)-U10 ADP connections.*

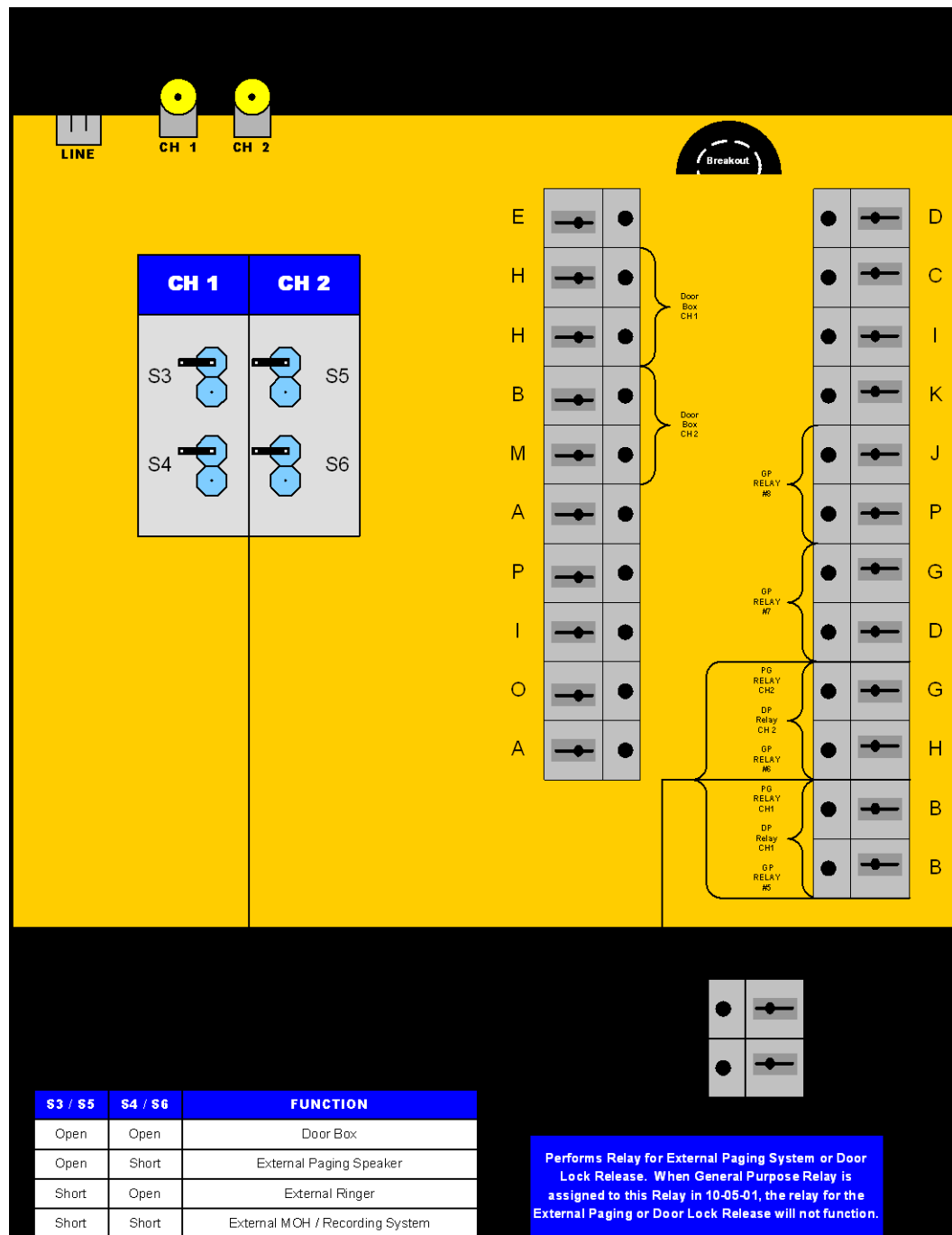


Figure 11-5 PGD(2)-U10 ADP Connection Diagram

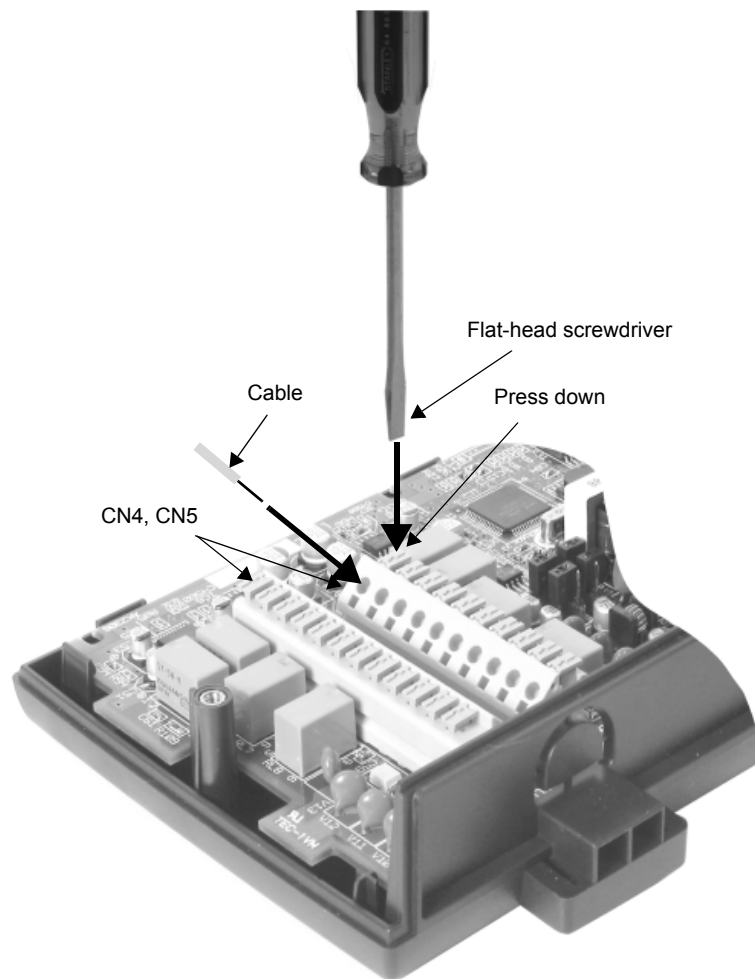


Figure 11-6 Connecting Cable to the PGD(2)-U10 ADP

6. Repeat Steps 4 and 5 for any additional connections required.
7. Replace the cover and tighten the screw to hold the cover in place.
8. If required for the function being used, insert the RCA connectors into the CN2 (Channel 1) and CN3 (Channel 2) connectors on the back of the PGD(2)-U10 ADP.

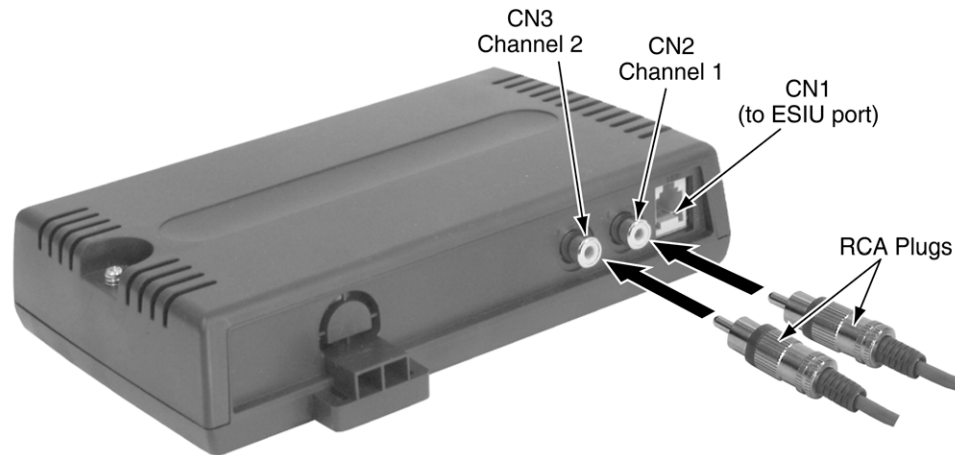



Figure 11-7 PGD(2)-U10 ADP Connections

9. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
10. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
11. Install bridging clips as required.
 -  *For the module to ID correctly, set the circuit type to 0 for the port in Program 10-03-01 prior to connecting the line cord.*
12. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.

In some cases, when testing the operation of an extension port when connecting to a Cordless II, Cordless Lite II, or PGD(2)-U10 ADP, a technician may connect a line cord directly from an extension port on the CD-8DLCA/CD-16DLCA Blade. Though this is not the recommended connection, it can be used to test these devices.



Should a direct connection of this type be made to the base station of the Cordless II or Cordless Lite II, or to a PGD(2)-U10 ADP, the line cord must be 2-wire (1-pair). If a 2-pair wire is used, the system will provide power to the unused pair. This can prevent the cordless telephone from acquiring a link with the base station or it can damage the PGD(2)-U10 ADP or the SV8100 station card.

The recommended connection is to punch down 2 wires to the cross-connect block, then connect the extension block to the RJ-61 connector on the Blade.

13. Optional:

To wall mount the PGD(2)-U10 ADP, insert two wood screws 100mm apart (3 15/16"). Leave 3mm (1/8") of the screw exposed. The screws can be installed either vertical or horizontal, depending on which position fits best for your location.

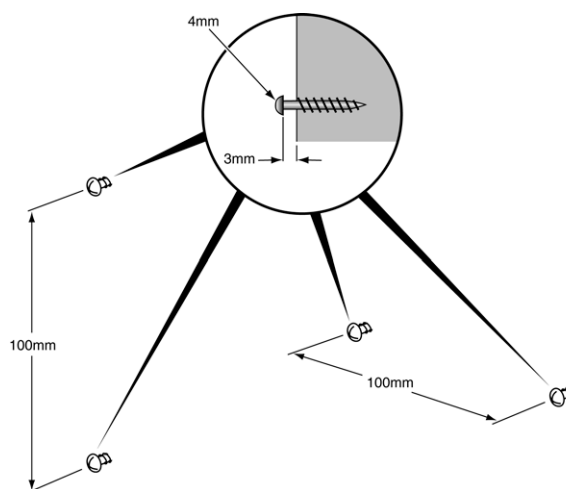


Figure 11-8 Installing the Screws

14. The back of the PGD(2)-U10 ADP has two key-hole type openings. Place the PGD(2)-U10 ADP over the two screws and slide it down or over (depending on the positioning) to lock it in place.

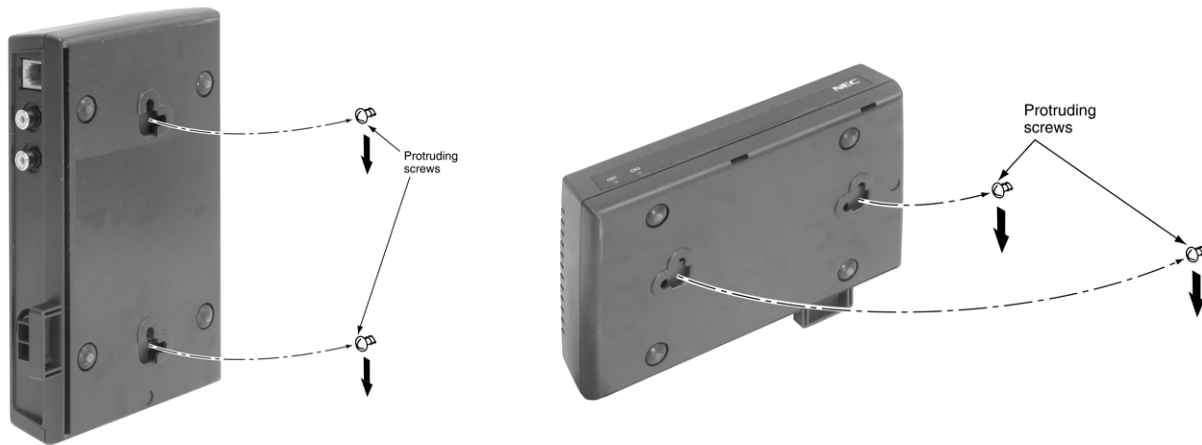


Figure 11-9 Wall Mounting the PGD(2)-U10 ADP

SECTION 3 BACKGROUND MUSIC

3.1 Installing Background Music

Background Music (BGM) sends music from a customer-provided music source to speakers in keysets. If an extension user activates it, BGM plays whenever the user's extension is idle.

1. Connecting to the CD-CP00-US:
Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external music source.

3. Install bridging clips as required.

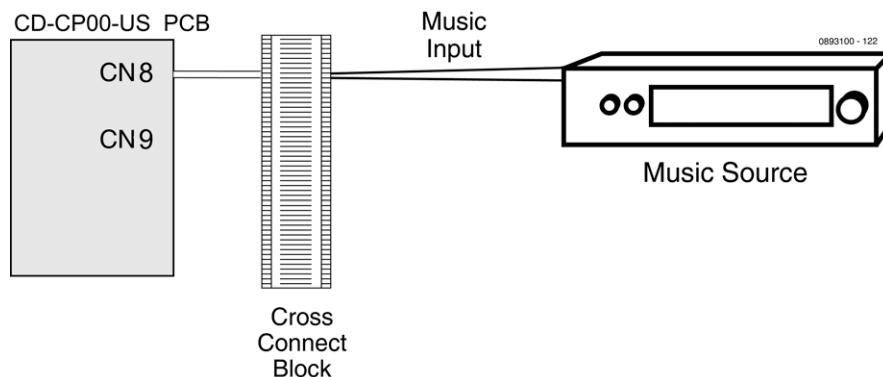


Figure 11-10 CPRU Connections

SECTION 4 DOOR BOX

4.1 Installing a Door Box

A PGD(2)-U10 ADP is required for this option.

The Door Box is a self-contained, water-resistant, Intercom unit typically used to monitor an entrance door. A visitor at the door can press the Door Box call button (like a door bell). The Door Box then sends chime tones to all extensions programmed to receive chimes. The system can have up to eight Door Boxes.

Each PGD(2)-U10 ADP audio output can optionally support two analog Door Boxes. In addition, you can connect each circuit control relay to an electric door strike. This allows an extension user to remotely activate the door strike while talking to a visitor at the Door Box. The control relays are normally open. The CD-CP00-US also provides one relay. This relay is defined as a general purpose relay in programming (Program 10-21-01 = 3). The CD-CP00-US relay 0 is assigned to the door box extension port in Program 10-05-01. When the relay on the PGD(2)-U10 ADP is used, there is no need to assign the relay to the Door Box – simply connect the relay as detailed in the steps below for the Door Box used. The relays on the PGD(2)-U10 ADPs are numbered 5-8.





The relay closes when the Door Box/external page zone is called. The maximum applied voltage is 24vDC at .5A for each contact.



A PGD(2)-U10 ADP circuit used for an analog Door Box cannot also be used for External Paging.

1. Make sure the jumper in the PGD(2)-U10 ADP for the associated Door Box is set correctly. (Refer to Figure 11-4 **PGD(2)-U10 ADP Jumper Settings** on page 11-4).
2. If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. If wall mounting the Door Box, remove the screw on the front of the Door Box.
8. Remove the back half of the Door Box and attach this mounting bracket to the wall with the two screws provided.
9. Connect the two-conductor station cable from the CN4 connectors within the PGD(2)-U10 ADP to the Door Box terminals. These wires must be routed through the opening in the bottom of the Door Box mounting bracket.

 *Be sure to maintain the proper polarity.*
10. Replace the front half of the Door Box and reattach the screw to secure it in place.
11. To connect a Door Box to an external relay for an unlock device, for example, connect one-pair 24 AWG station cable from the Relay 5 (for Door Box 1) or Relay 6 (for Door Box 2) connectors (CN5) in the PGD(2)-U10 ADP. Connect the opposite end to the unlock device.

 *Refer to External Page and Door Box/Page Relays on page 11-18 for additional information when using the CD-CP00-US relay.*

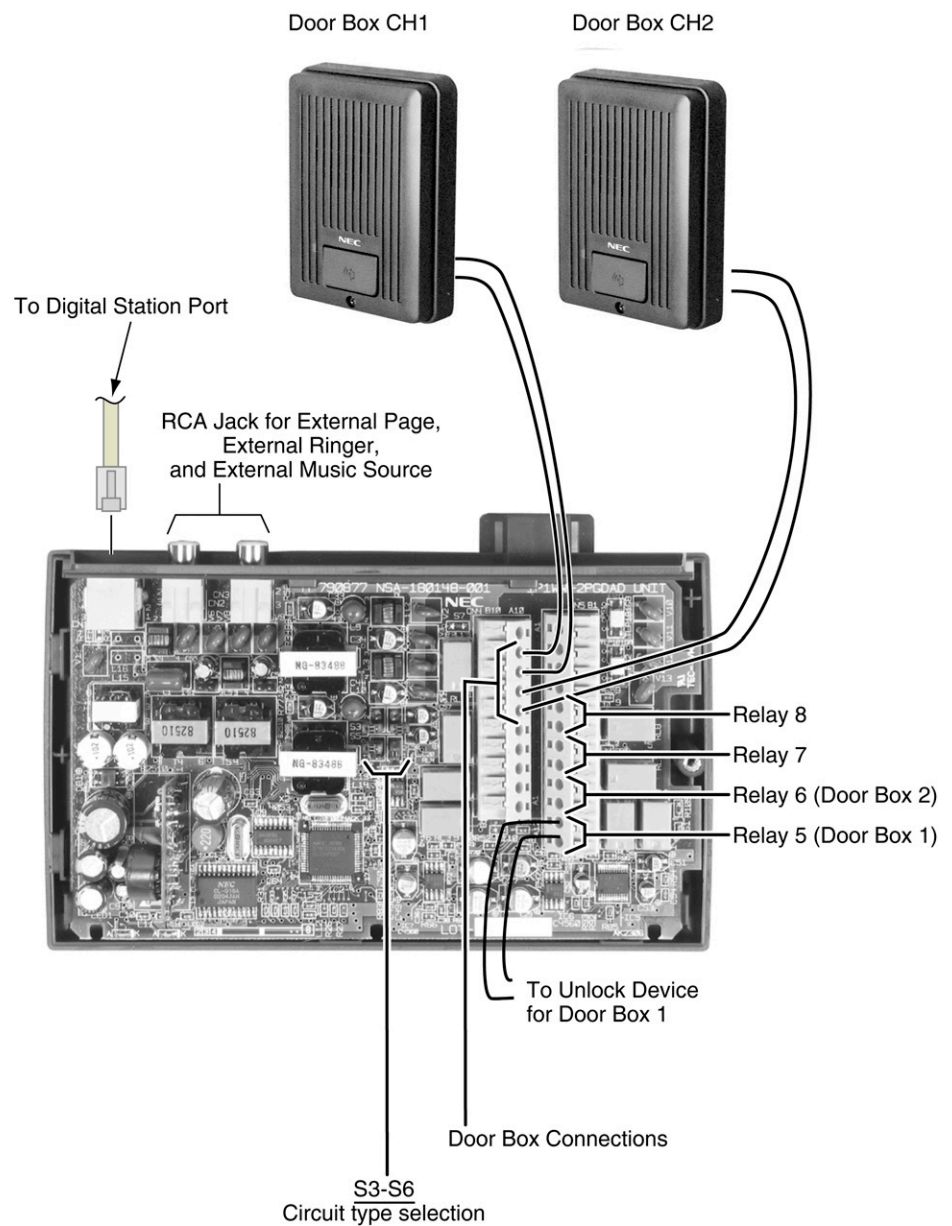


Figure 11-11 Setting the PGD(2)-U10 ADP for a Door Box

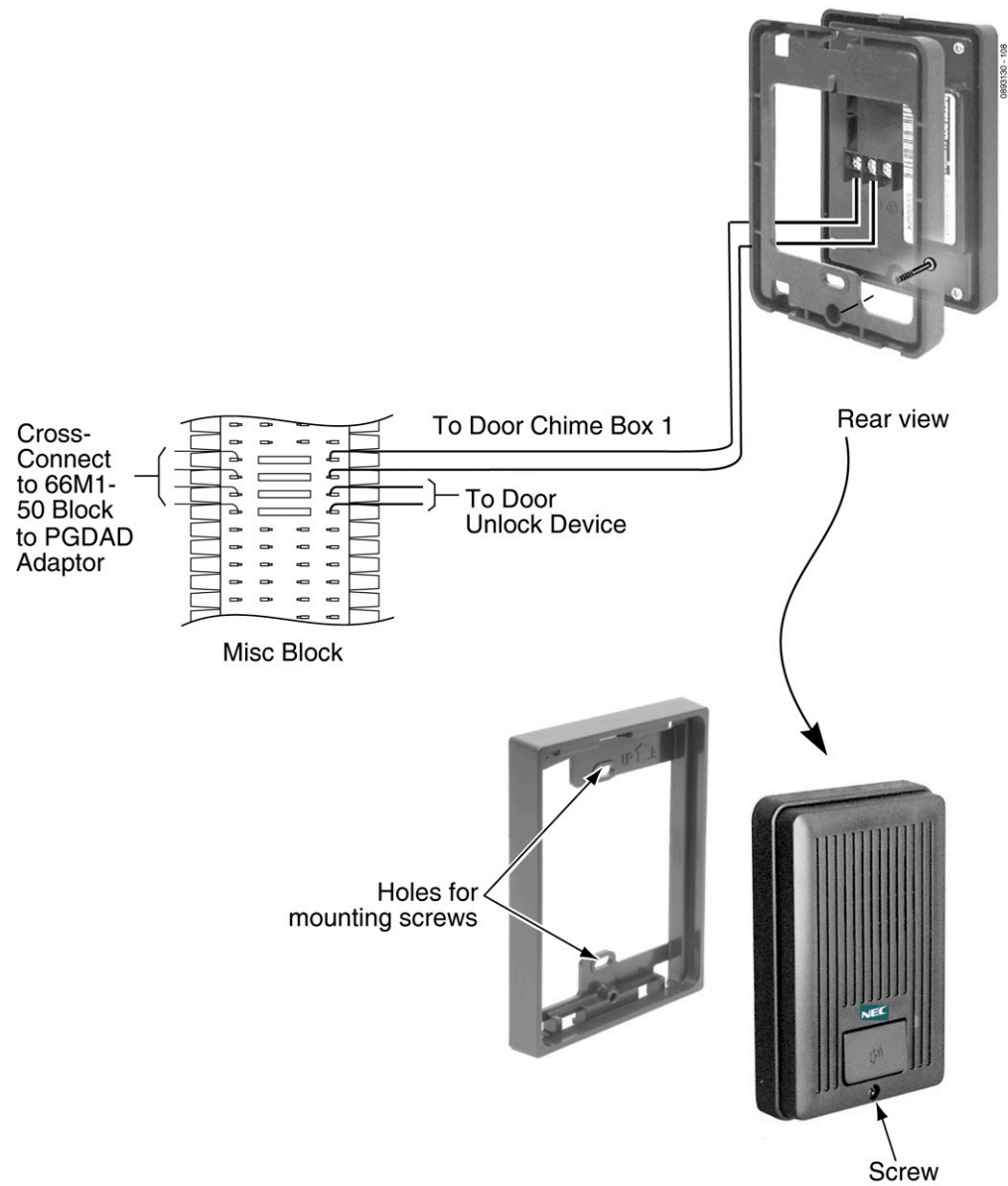


Figure 11-12 Installing a Door Box

SECTION 5 **EXTERNAL PAGING**

5.1 **External Page**

Two external page zone/door box circuits are provided by each PGD(2)-U10 ADP installed. Each Door Box/external page circuit provides a dry relay contact. The CD-CP00-US also provides a connection for external paging and a relay. The external page on the CD-CP00-US is speaker number 9 - the relay is number 0. The external page speakers provided by the PGD(2)-U10 ADPs are 1-8 – the relays on the PGD(2)-U10 ADPs are numbered 1-8.

The PGD(2)-U10 ADP can be used for talkback with External Page, as can a CO trunk port with the proper external page equipment (ex: Valcom) – set Program 31-06-03 to “0” for talkback. However, the external page circuit on the CD-CP00-US cannot be used for talkback.



A PGD(2)-U10 ADP circuit used for External Paging cannot also be used for an analog Door Box.

5.2 **Installing an External Page System**

1. Connecting to the CD-CP00-US:
Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external relay/external page.
3. Install bridging clips as required.

OR

1. Connecting to the PGD(2)-U10 ADP:
Make sure the jumper in the PGD(2)-U10 ADP for the channel is set correctly. (Refer to Figure 11-4 **PGD(2)-U10 ADP Jumper Settings** on page 11-4).
2. If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.

4. Terminate the extension leads to GRN/RED of the modular jack.
Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. Connect the two-conductor station cable from the CN5 connectors within the PGD(2)-U10 ADP to the external relay/external page.

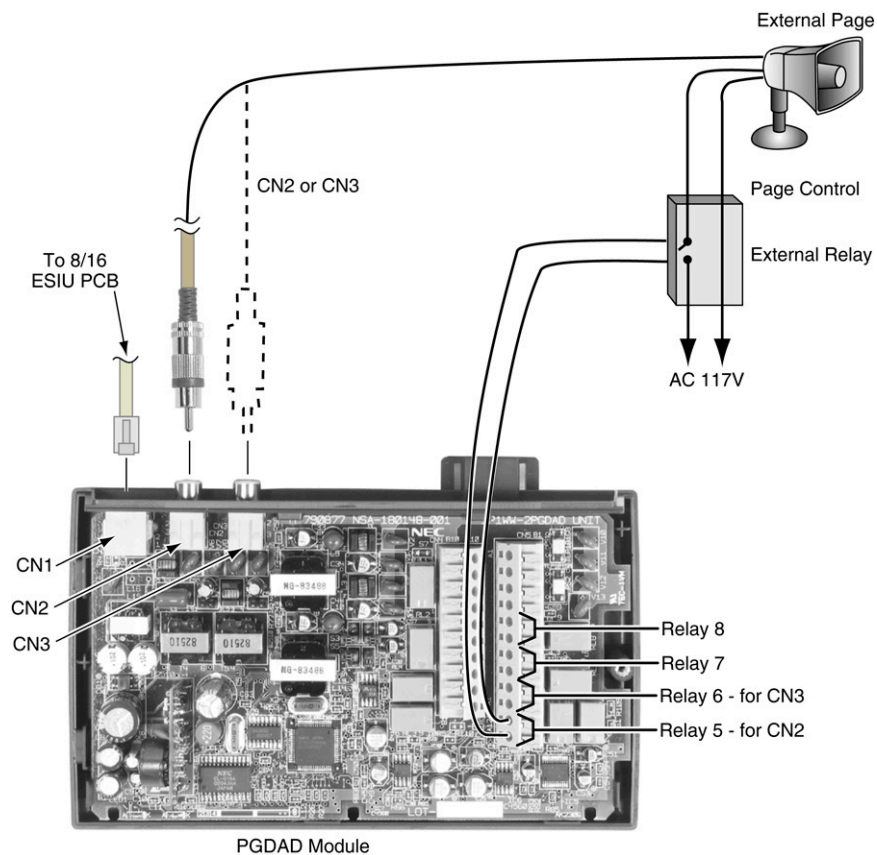


Figure 11-13 PGD(2)-U10 ADP Cable Connection

The PGD(2)-U10 ADP provides amplifiers for each page output port (for a maximum of +8 dBm, 600 ohms at 1KHz). No additional page amplification is provided by the PGD(2)-U10 ADP but, if required, an external page amplifier can be used for additional amplification.



The page output of the CD-CP00-US does not provide amplification (for a maximum output of -3 dBm, 600 ohms at 1KHz). If the paging volume is not satisfactory using the CN8 or CN9 connector on the CD-CP00-US, the PGD(2)-U10 ADP should be used instead.

SECTION 6 EXTERNAL PAGING AND DOOR BOX/PAGE RELAYS

6.1 External Page Relays

Two external dry contact relays are available when a PGD(2)-U10 ADP is installed which can be used to activate ancillary devices (i.e. door unlock devices). The CD-CP00-US also provides one relay. The CD-CP00-US relay is defined as a general purpose relay in programming (Program 10-21-01 = 3). The CD-CP00-US relay 0 is assigned to the door box extension port in Program 10-05-01. When the relay on the PGD(2)-U10 ADP is used, there is no need to assign the relay to the Door Box – simply connect the relay as detailed in the steps below for the Door Box used. The relays on the PGD(2)-U10 ADPs are numbered 5-8. Each Door Box/external page circuit provides a dry relay contact.

Program Note: Program 10-21-01 sets the relay switch on the CD-CP00-US. If set to 2 (External Speaker), service code 703+1 pages and the relay closes. The relay reopens upon hang up. If set to 3 (General Purpose Relay), service code 780+0 toggles the relay open or closed.

- The service codes indicated are the default codes. Refer to Program 11-12-20 and 11-12-50 to redefine these codes as needed.

6.2 Door Box /External Page Relay Contacts

6.2.1 Connecting a Contact Relay Device to a Door Box/External Page Relay

To connect a dry contact relay device to a Door Box/External Page Relay:

To connect to the CD-CP00-US:

1. Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external relay.
3. Install bridging clips as required.

OR

1. To connect to the PGD(2)-U10 ADP:
Make sure the jumper in the PGD(2)-U10 ADP for the channel is set correctly. (Refer to Figure 11-4 **PGD(2)-U10 ADP Jumper Settings** on page 11-4).
2. If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. Connect the two-conductor station cable from the CN5 connectors in the PGD(2)-U10 ADP to the external relay.



The relay closes when the Door Box/external page zone is called. The maximum applied voltage is 24vDC at .5A for each contact.

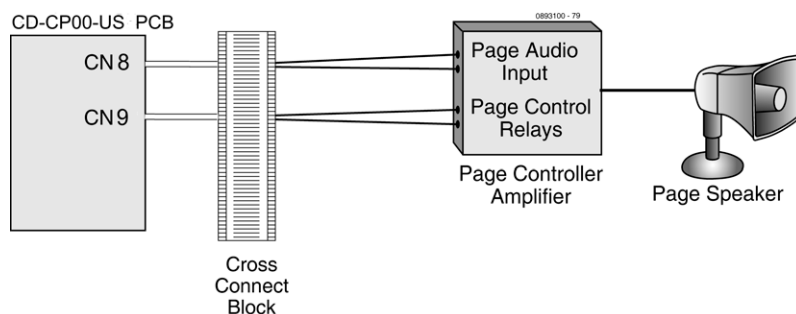


Figure 11-14 CD-CP00-US Page Connections

SECTION 7 EXTERNAL RECORDING SYSTEM/EXTERNAL RINGER

7.1 External Recording System or External Ringer

The PGD(2)-U10 ADP allows the connection of an external recording system or external ringer. With a customer-provided tape recorder, when an extension user dials the ACI analog port extension number, they can automatically start the recorder and activate the record function. When the user hangs up, the recording stops and the tape recorder turns off. For tape recording, connect the tape recorder AUX input jack to the PGD(2)-U10 ADP jack. Connect the recorder control leads (if available) to the CTL (control relay) jack. By using Department Calling, you can arrange multiple tape recorders into a pool. When an extension user dials the Department Group pilot number, they reach the first available tape recorder in the pool.

The relays in the PGD(2)-U10 ADP can optionally control customer-provided external ringers (loud bells) and buzzers. When an extension user dials the ACI analog port extension number, the associated PGD(2)-U10 ADP relay closes and activates the ringer. You could use this capability to control an emergency buzzer for a noisy machine shop floor, for example. In addition, if programmed for ringing, an incoming trunk call can activate the ringer/buzzer.

7.2 Installing an External Recording System or External Ringer

To connect to the PGD(2)-U10 ADP:

1. Make sure the jumper in the PGD(2)-U10 ADP for the channel is set correctly. (Refer to Figure 11-4 **PGD(2)-U10 ADP Jumper Settings** on page 11-4).
2. If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3-6. Otherwise, skip to Step 7.
3. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. Connect an RCA jack to the audio output(s) on the back of the .
8. The opposite end of this cable is connected to the external recording system or external ringer either directly or by connecting to the cross-connect block where the item is connected. Refer to [Figure 11-15 PGD\(2\)-U10 ADP Cable Connection on page 11-21](#).

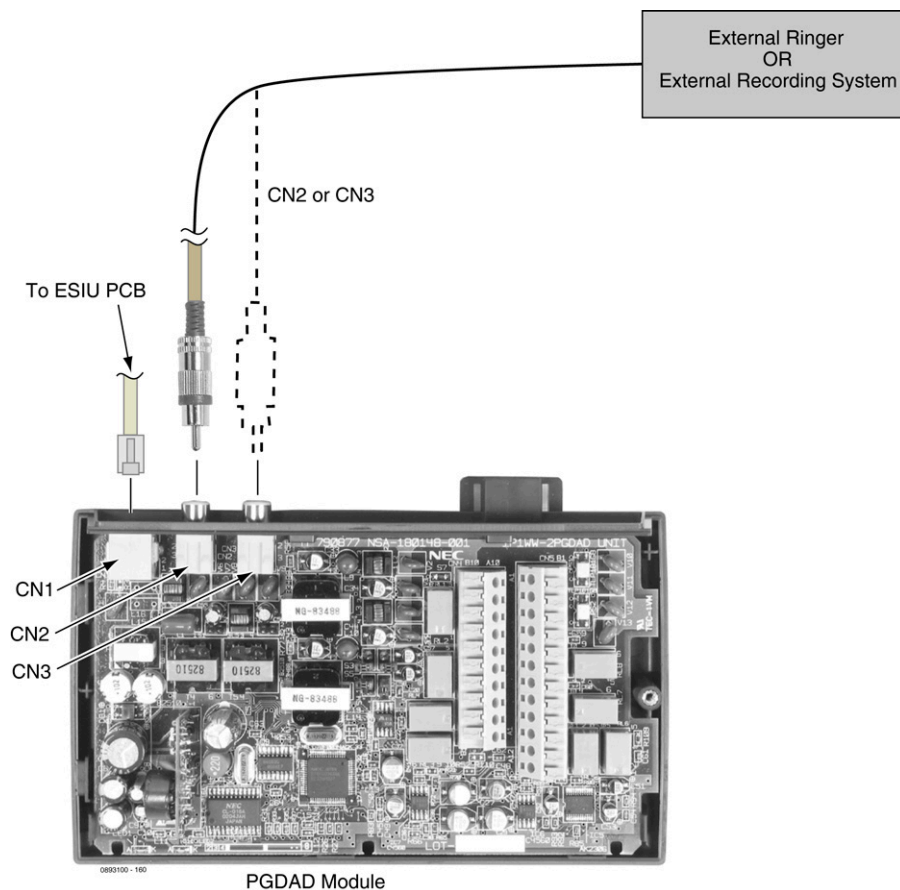


Figure 11-15 PGD(2)-U10 ADP Cable Connection

7.3 Programming

- **10-03-01 : ETU Setup – Terminal Type (Circuit 1)**
10-03-06 : ETU Setup – Terminal Type (Circuit 2)
 Confirm that the PGD(2)-U10 ADP has defined the circuit type as either type 7 for External Ringer or 9 for ACIs. (If the PGD(2)-U10 ADP circuit had previously been defined for another type of circuit, unplug the PGD(2)-U10 ADP and plug it back in to reset the circuit type.)
- **10-05-01 : General Purpose Relay Setup**
 Define which relay circuits (5-8) on the PGD(2)-U10 ADP are used for General Purpose Relays.
- **11-06-01 : ACI Extension Numbering**
 Assign extension numbers to ACI software ports. Select a number outside of the normal extension number range.
 Aspire S: ACI Ports 1-8
 Aspire: ACI Ports 1-96

- **11-08-01 : ACI Group Pilot Number**
Assign pilot numbers to ACI groups. When a user dials the pilot number, they reach an available ACI software port within the group.
Aspire S: ACI Groups 1-4
Aspire: ACI Groups 1-16
- **11-12-50 : Service Code Setup (For Service Access)**
Specify the service code to be used for toggling the relay open and closed (Default: 880).
- **33-01-01 : ACI Port Type Setup**
Set each ACI software port for input (1) or input/output (2). Use input ports for Music on Hold sources. Use output ports for External Paging/ringer control.
Aspire S: ACI Ports 1-8
Aspire: ACI Ports 1-96
- **33-02-01 : ACI Department Calling Group**
Assign ACI software ports to ACI Department Groups. This lets ACI callers connect to ACI software ports by dialing the group's pilot number (set in Program 11-08).
Aspire S: ACI Ports 1-8, ACI Groups 1-4
Aspire: ACI Ports 1-8, ACI Groups 1-16

ACI Recording

- **10-07-01 : Conversation Record Circuits**
Assign the number of conversation record circuits.
- **14-09-01 : ACI Conversation Recording Destination for Trunks – ACI Recording Destination Extension Number**
Use this option to assign the ACI Call Recording destination on a per trunk basis. The destination can be an ACI port's extension number (assigned in Program 11-06-01) or an ACI Department Group pilot number (assigned in Program 11-08-01). If destinations are assigned in Programs 14-09 and 15-12, the destination in Program 15-12 will be followed.
- **14-09-02 : ACI Conversation Recording Destination for Trunks – ACI Automatic Recording for Incoming Call**
Determine whether a trunk should be automatically recorded when an incoming call is received (0=off, 1=on).
- **14-09-04 : ACI Conversation Recording Destination for Trunks – ACI Automatic Recording for Outgoing Call**
Determine whether a trunk should be automatically recorded when an outgoing call is initiated (0=off, 1=on).
- **15-07-01 : Programmable Function Keys**
If required, program an ACI Conversation Record Key (code 69 + 0). This key allows an extension user to press the key to manually record a call to the ACI.

- **15-12-01 : Conversation Recording Destination for Extensions - ACI Recording Destination Extension Number**

Use this option to assign the ACI Call Recording destination on a per extension basis. The destination can be an ACI port's extension number (assigned in Program 11-06) or an ACI Department Group pilot number (assigned in Program 11-08). If destinations are assigned in Programs 14-09 and 15-12, the destination in Program 15-12 will be followed.

- **15-12-02 : Conversation Recording Destination for Extensions - ACI Automatic Recording for Incoming Call**

Determine whether an extension should be automatically recorded when an incoming call is received (0=off, 1=on).

- **15-12-04 : Conversation Recording Destination for Extensions - ACI Automatic Recording for Outgoing Call**

Determine whether an extension should be automatically recorded when an outgoing call is received (0=off, 1=on).

External Ringer

- **31-05-01 : Universal Night Answer/Ring Over Paging**

For each trunk port which should ring the external ringer, enter "1".

SECTION 8 MUSIC SOURCES

8.1 Music on Hold

The system can provide Music on Hold from either an internally synthesized source on the CD-CP00-US or from an external source. The external MOH can be a tuner, tape deck, CD player, etc. The settings in Program 10-04-01 and 14-08-01 determine whether the source for MOH is internal or external.

In addition to a connector on the CD-CP00-US, the PGD(2)-U10 ADPs also provide connections for external MOH sources. When using external music sources for external MOH, programming determines the MOH source for each trunk.

The CD-CP00-US provides a dry relay that activates when a call is placed on Hold. When an external MOH source is connected to the MOH relay and a call is placed on Hold, the MOH relay is activated. This allows an external relay sensor/power supply to turn on the MOH source.

This arrangement allows the MOH source (e.g., a tape deck) to run only when a call is placed on Hold. The *maximum* applied voltage for the relay is 24vDC at .5A (the relays are normally open and close when a call is put on hold).

8.2 Installing External Music on Hold

To connect to the CD-CP00-US

1. Connect an RCA line from the CN8 or CN9 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the external music source.
3. Install bridging clips as required.

OR

Connecting to the PGD(2)-U10 ADP:

1. Make sure the jumper in the PGD(2)-U10 ADP for the channel is set correctly. (Refer to Figure 11-4 **PGD(2)-U10 ADP Jumper Settings** on page 11-4).
2. If a line cord was not previously connected to the PGD(2)-U10 ADP, complete Steps 3-6. Otherwise, skip to Step 7.

3. Install a modular jack for each PGD(2)-U10 ADP. For each module, run one-pair 24 AWG station cable from the cross-connect block to a modular jack. Ground the unused pair.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack.
5. Install bridging clips as required.
6. Plug a modular line cord from the mod jack to the CN1 connector on the PGD(2)-U10 ADP.
7. Connect an RCA jack to the audio output(s) on the back of the PGD(2)-U10 ADP.
8. The opposite end of this cable is connected to the external music source either directly or by connecting to the cross-connect block where the music source is connected.

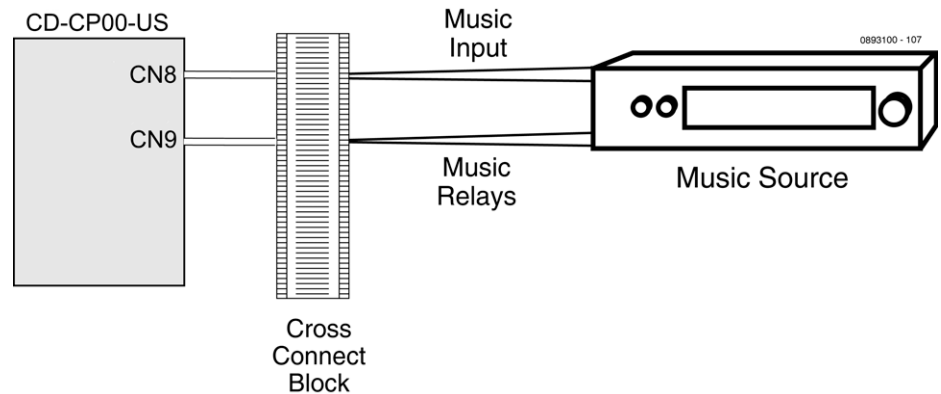


Figure 11-16 CPRU Connections

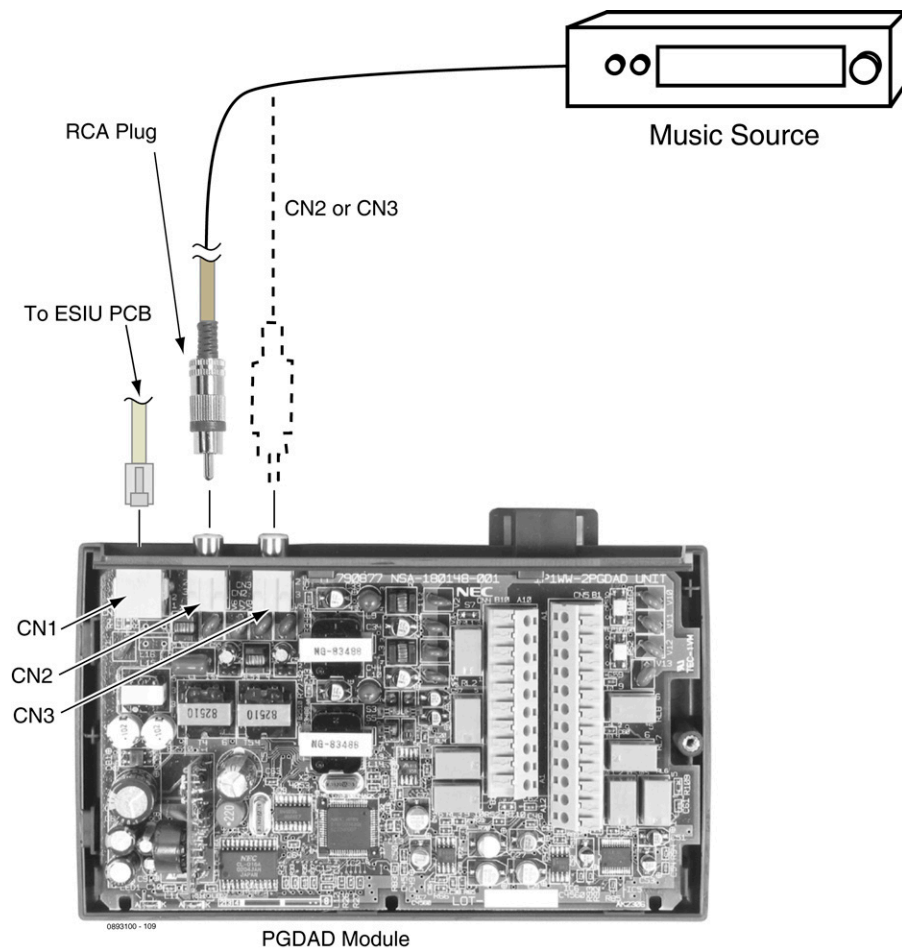


Figure 11-17 PGD(2)-U10 ADP Connections

SECTION 9 NIGHT MODE SELECTION

9.1 Night Mode Selector Switch

The Night Mode Switch relay closes when the system detects either an open or closure on the MISC block NIGHT SW terminals. Maximum 48v DC is output to the switch when open, and 7mA DC when shorted.

9.2 Connecting a Night Mode Selector Switch

1. Connect an RJ-61 modular line cord from the CN17 connector on the CD-CP00-US to the appropriate location on the extension cross-connect block.
2. Connect the two-conductor station cable from the cross-connect block to the night switch mechanism output leads.
3. Install bridging clips as required.

SECTION 10 TELEPHONE LABELING

10.1 DESI Printer Sheets

Telephones can be easily labeled by removing the plastic faceplate. These labels can be printed by hand, typewriter, or printing DESI labels. Labels for this are on 8 1/2 x 11" paper, which allows for easy printing by any printer – dot matrix, laser, etc.

DESI Printer Sheets are available for the following:

- Economy 2E – DESI ITL/DTL-2E (25 PKG)
- Economy 6DE – DESI ITL/DTL-6DE (25 PKG)
- All Value Telephones – DESI ITL/DTL-12D/24D (25 PKG)
- 8LK – DESI ITL/DTL 8LK (25 PKG)
- 60 DSS – DESI DCL-60 (25 PKG)
- Clear Side Panel – DESI ITL/DTL-SIDE (25 PKG)
- LCD Value, Clear Side – DESI ITL/DTL-SIDE-LCDV (25 PKG)

10.1.1 Removing the Faceplate

1. Use the small notch at the lower right corner of the telephone, to lift the faceplate up.
 - Each corner has a plastic locking pin which releases as the faceplate is lifted up.

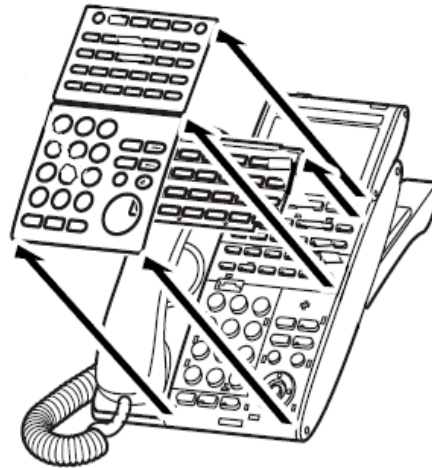


Figure 11-18 Removing the Faceplate

10.1.2 Replacing the Faceplate

1. Place the faceplate back on the telephone.
2. At each corner, press the locking pin back into place.

SECTION 11 **D^{term}® VOICE SECURITY RECORDER (VSR)**

11.1 **D^{term} Voice Security Recorder (VSR)**

The *D^{term}* Voice Security Recorder is a USB device that taps across the digital extension pair of the NEC telephone system allowing digital recording of the telephone user's conversation. The file created is saved either to the local PC or to a network location, depending on the application blade. This adapter is for use with digital multiline terminals. It cannot be used with analog or VoIP.

This device meets all applicable FCC and UL requirements for this type of communication device.



Figure 11-19 *D^{term}* Voice Security Recorder

11.2 **PC Compatibility**

The *D^{term}* Voice Security Recorder application supports Microsoft operating systems which support USB devices such as Windows 98SE, Windows® ME, Windows 2000, and Windows XP. Note that Windows 95 and below, Windows NT and Macintosh operating systems are not supported.

11.2.1 Connection Configuration

The configuration connection is shown in [Figure 11-20 VSR Connection Configuration](#).

11.2.2 Connectors

- ☐ One PC USB connector that provides power and streams all speech and control channel information to the host PC and desktop software.
- ☐ Two digital telephone line connections that passively tap across the D^{term} digital connection and listen in high impedance mode to the signaling on the line.

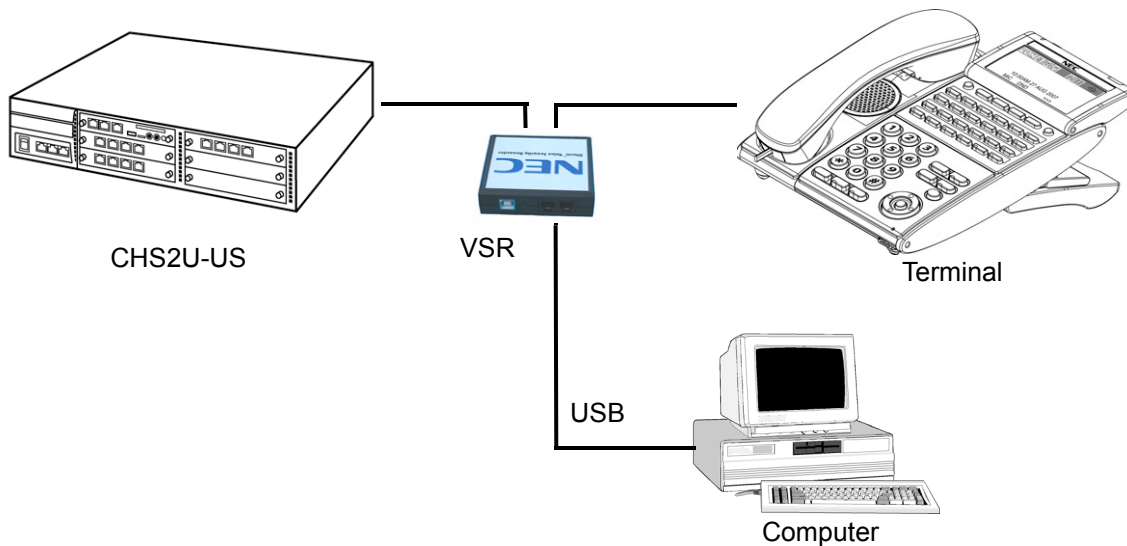


Figure 11-20 VSR Connection Configuration

11.3 Installation

The VSR is packaged with everything necessary for installation including:

- ☐ Software CD
- ☐ USB Cable
- ☐ Telephone connection lead
- ☐ Quick-start installation manual

For Windows 98 or ME

1. Run the Setup.exe program file from the NEC installation CD BEFORE connecting the telephone interface unit to the PC.
2. Using the USB cable provided, connect the USB interface of the NEC VSR unit to an available USB port on the PC.

**CAUTION**

The use of monitoring, recording, or listening devices to eavesdrop, monitor, retrieve, or record telephone conversation or other sound activities, whether or not contemporaneous with transmission, may be illegal in certain circumstances under federal or state laws. Legal advice should be sought prior to implementing any practice that monitors or records any telephone conversation. Some federal and state laws require some form of notification to all parties to a telephone conversation, such as using a beep tone or other notification methods or requiring the consent of all parties to the telephone conversation, prior to monitoring or recording the telephone conversation. Some of these laws incorporate strict penalties.

3. Unplug the line cord from your telephone and connect it to either port on the D^{term} VSR unit.
4. Connect the NEC telephone system to the remaining port on the D^{term} VSR unit. You are now ready to record.

For Windows 2000 or XP

1. Using the USB cable provided, connect the USB interface on the D^{term} VSR unit to your PC. Windows will automatically detect the new hardware and start the New Hardware Wizard. This displays a dialog box similar to the one shown below. Select the second option, **Install from a list or specific location**, and press **Next>**.



Figure 11-21 Voice Security Recorder Installation-1

2. Insert the NEC Installation CD in your CD drive and press **Next>**.

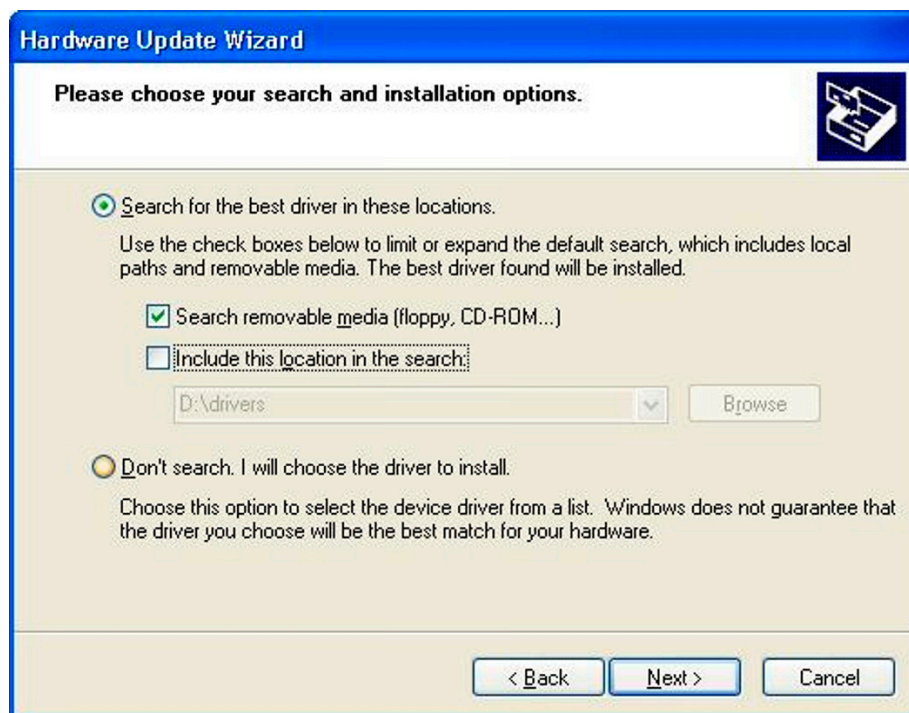


Figure 11-22 Voice Security Recorder Installation-2

3. If you downloaded the files from the internet, uncheck the "**Search removable media box**", select the "**Include this location...**" box and enter the location where you stored the downloaded files (e.g. C:\My Documents). Press **Next>** (refer to [Figure 11-23 Voice Security Recorder Installation-3 on page 11-34](#)).



Figure 11-23 Voice Security Recorder Installation-3

4. The software has been fully tested, but has not yet been submitted to Microsoft for approval. Press **Continue Anyway**.
5. Press **Finish** to close the dialog box.
6. Run **SBladep.exe** on your NEC Installation CD to install the D^{term} ® Voice Security Recorder application software on your PC.
7. Using the USB cable provided, connect the USB interface of the NEC VSR unit to an available USB port on your PC.
8. Unplug the line cord from your telephone and connect the phone to either port on the D^{term} VSR unit.
9. Connect the NEC telephone system to the remaining port on the D^{term} VSR unit (refer to [Figure 11-34 Voice Security Recorder Connection on page 11-45](#)).

11.3.1 VSR Application Software

The VSR software is delivered on a Compact Disk using a self-starting install shield. The CD contains all applicable files and installation procedures to operate to this specification, including USB device drivers, software application, and Help files.

A quick-start instruction sheet and a prerecorded user guide that steps the user through the various options are provided.

The VSR application supports Microsoft Operating Systems that support USB devices. The following systems meet this requirement:

- ☐ WIN 98SE
- ☐ WIN Millennium Edition (ME)
- ☐ WIN 2000
- ☐ WIN XP (all variants)

 *VSR does not support WIN 95 and below, or WIN NT.*

11.3.2 VSR User Interface Tab Options

VSR has the following tabs to allow the user to select features and options:

- ☐ Playback allows various playback features of recorded conversations.
- ☐ Record allows control of recording.
- ☐ About provides software version information.
- ☐ Options to set-up controls such as recording format.
- ☐ File Management allows the user to manage disk space used by the VSR.

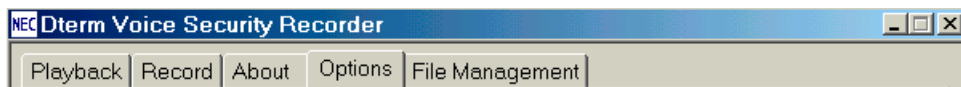


Figure 11-24 VSR User Interface Tab Options

11.3.3 VSR Playback Tab

This tab allows the user to list and play recorded conversations. A graphical presentation of the volume level of the call with a cursor to indicate the current playback position is displayed. The cursor can be dragged forward or backward to allow rapid selection of the applicable section.

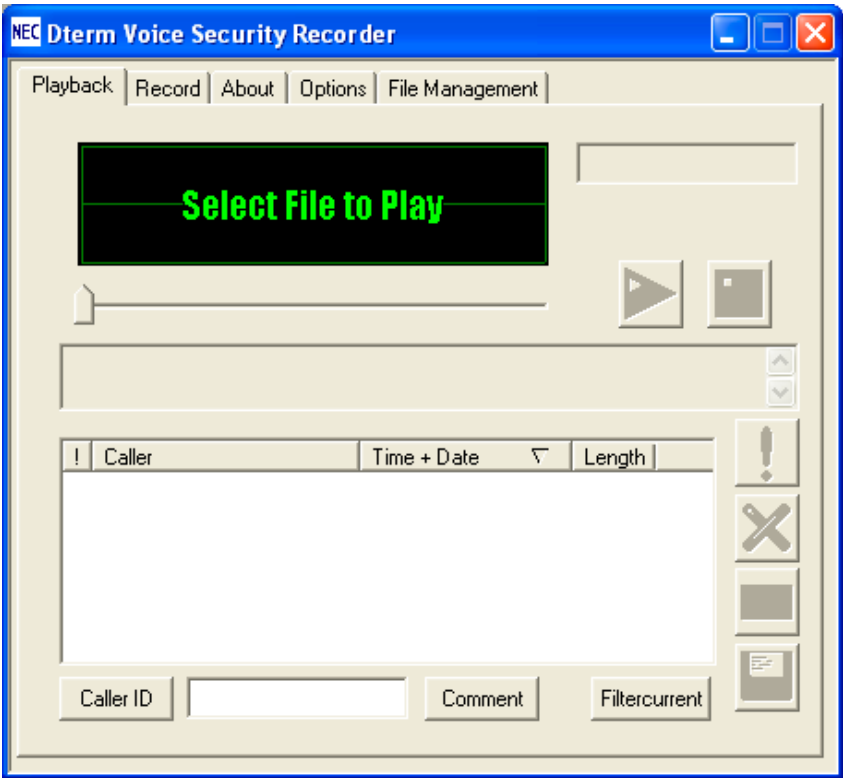


Figure 11-25 VSR Playback Tab

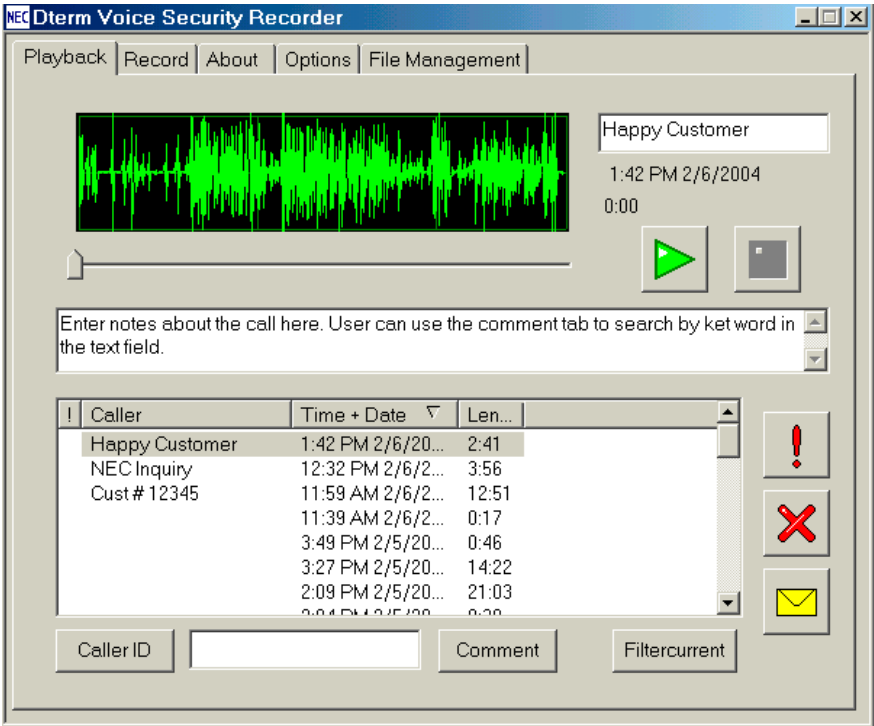



Figure 11-26 Caller ID or Comment Editor

The user can edit the Caller ID or the Comments field when viewing an existing recording.

 *Caller ID and number dialed are not available on the first release. Check with NEC for release date.*

The user can list recordings in order of importance (using exclamation mark) with Caller ID, Time + Date, or duration.

The Caller ID and Comment buttons allow the user to filter out all recordings with the required Caller ID or text in the Comments field.

Playback, pause and stop buttons allow the user to control the Playback.

The Red exclamation mark allows recording to be identified as important for future listing or ensures that the recording cannot be overwritten.

The Red X allows recordings to be manually deleted.

The envelope button generates an e-mail with the recording inserted for mailing to a colleague.

11.3.4 VSR Record Tab

This tab allows the user to view recording levels and control the recording.

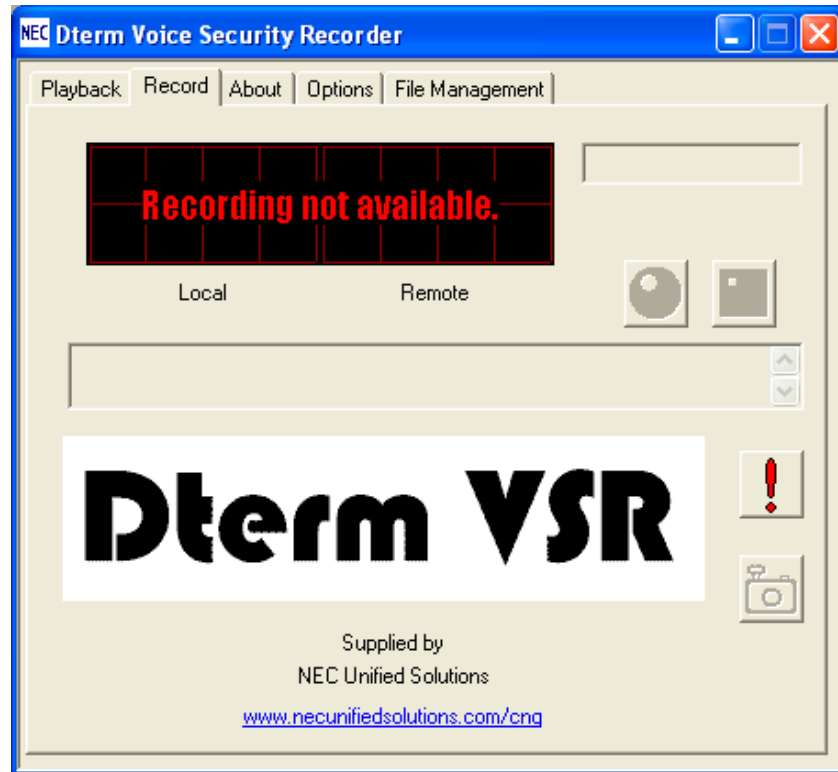


Figure 11-27 View Levels and Control Recording

The Oscilloscope shows the local and remote levels on the line separately (Microphone is the user level, and speaker is the distant party level).

The Caller ID field is for future versions, but information can be entered or overwritten by the user.

Manual Start, Stop, and Pause buttons control the recording status.

The user can add notes and mark important recordings with an exclamation point to avoid deleting the conversation.

The camera button allows a user to snapshot record conversation to the current point while continuing to record the entire conversation. This feature is important for emergency centers to allow an operator to quickly reply to an important part while continuing to record.

11.3.5 About Tab

This tab provides version and manufacturer information.

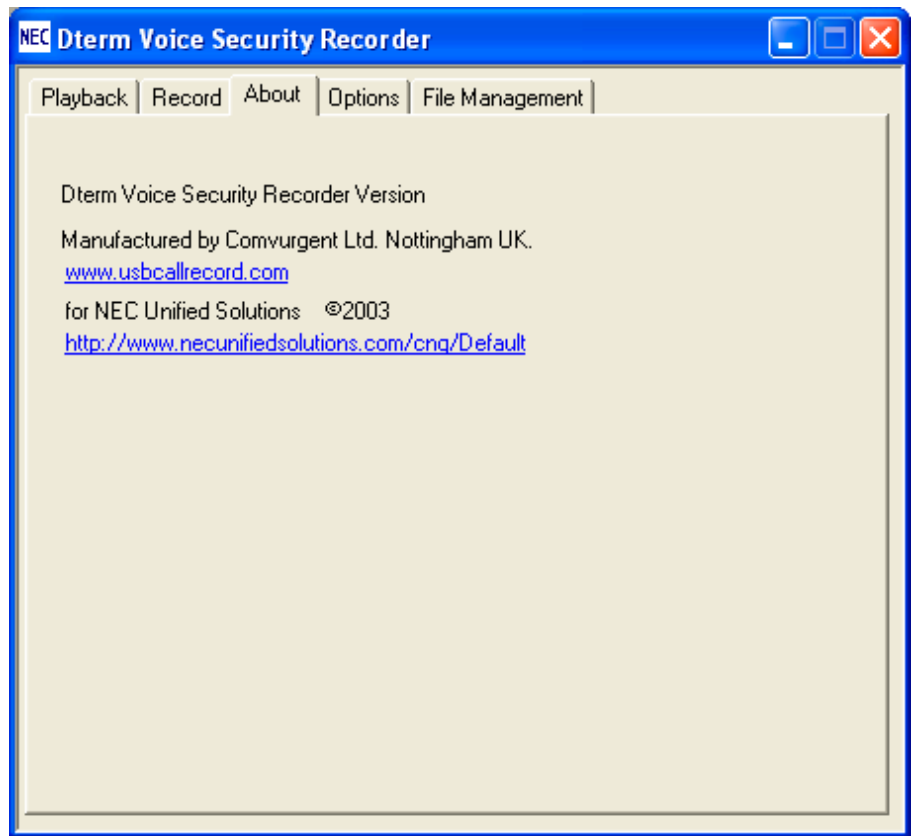


Figure 11-28 VSR About Tab

11.3.6 Options Tab

This tab allows the user to select various setup options of the VSR.

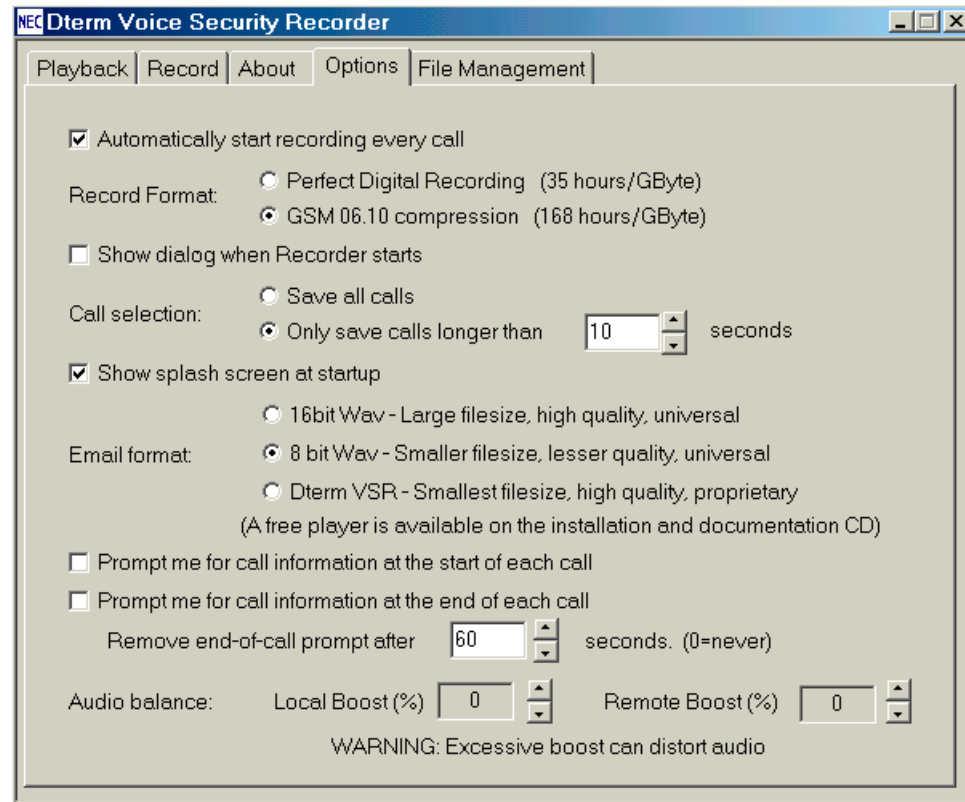


Figure 11-29 Select VSR Setup Options

- ☐ **Automatically start recording every call**
Starts the recording when a call, including an internal extension call, is made.
- ☐ **Recorded format**
Perfect Digital Recording stores the recording in PCM format taken directly from the digital line. But the highest quality requires significant space (35 hours per Gbyte) on the PC disk.
GSM 06.10 uses a compression technique to store 168 Hours per Gbyte. The quality difference is negligible so this becomes the default selection.
- ☐ **Show dialog when recorder starts**
Selecting this default option brings the Record tab to the front of the user screen when record is activated.

☐ Call Selection

Saves all calls or only those that exceed an established limit.

☐ Show splash screen at startup

When selected, the VSR logo is shown for five seconds when the application is started.

☐ Email format

Allows the user to select the type of file inserted in an e-mail when the user selects the e-mail button on the Playback Tab to send the VSR format to other users that have this application or to convert it to a .wav format for replay by any PC.

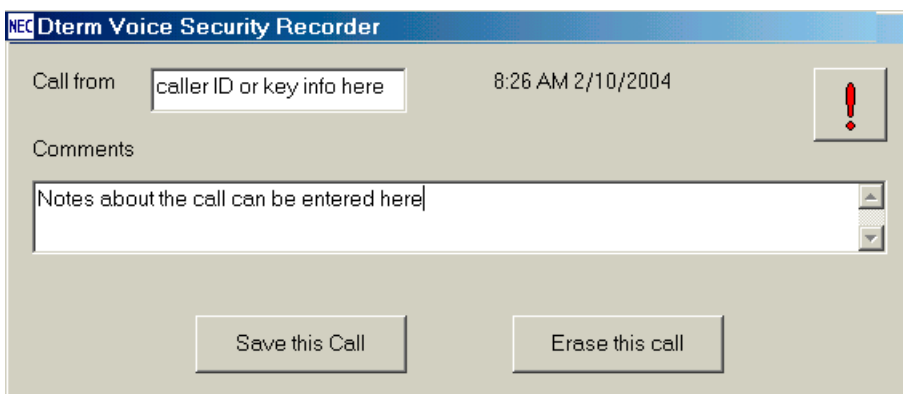
D^{term} VSR selection automatically adds the Caller ID, time, date and comments fields to any e-mail.

☐ Prompt for call information at the start of each call

When selected, the Record screen is displayed when a call is made to allow the user to enter information.

☐ Prompt for call information at the end of each call

When selected, the screen shown below is displayed to allow the user to manage calls at the point of completion. The user can save or erase the call, add notes, or mark important calls using the red key shown below.



The screenshot shows a window titled "Dterm Voice Security Recorder". It contains a "Call from" field with the placeholder text "caller ID or key info here" and a timestamp "8:26 AM 2/10/2004". Below this is a "Comments" section with a text area containing the placeholder text "Notes about the call can be entered here". At the bottom, there are two buttons: "Save this Call" and "Erase this call". A red square button with a white exclamation mark icon is located in the top right corner of the window.

Figure 11-30 Manage Calls at Completion

11.3.7 File Management Tab

File management is necessary when the user makes many telephone calls and stores each conversation. The selections are self-explanatory.

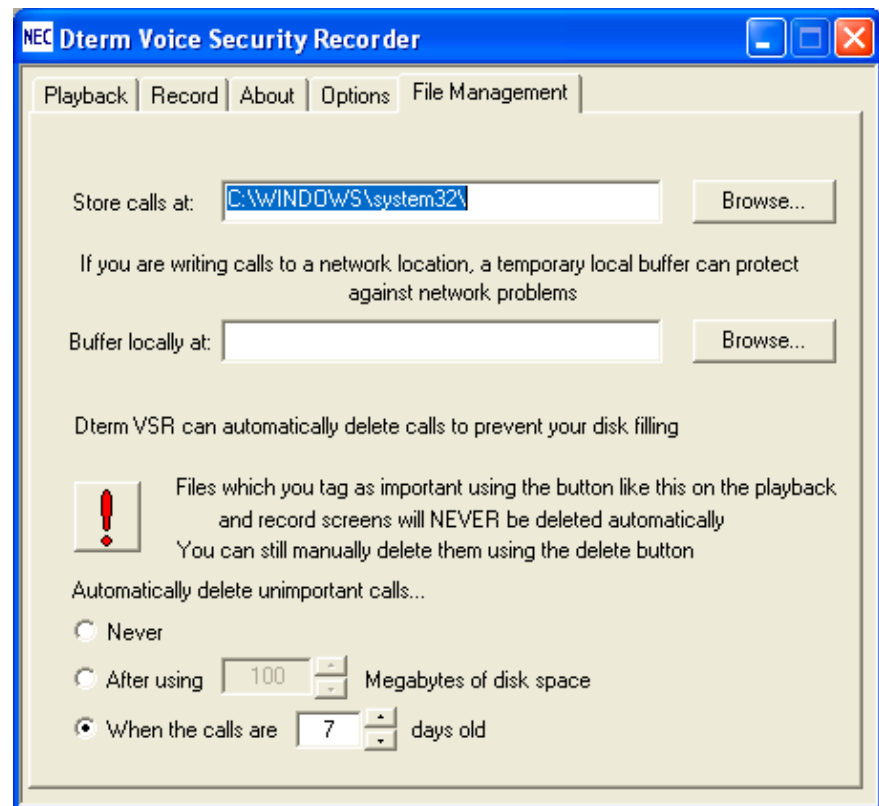


Figure 11-31 File Management Tab

11.3.8 Custom Program Settings

Comvurgent provides the dealer or user the option of making additional adjustments.

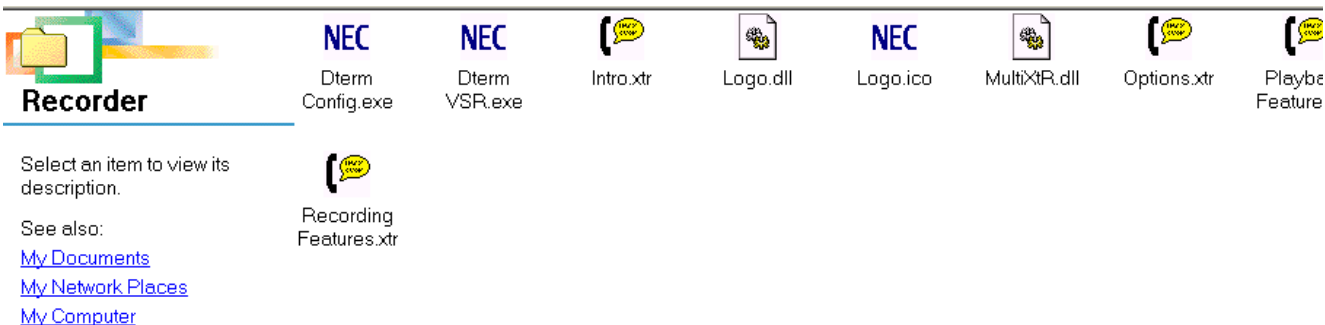


Figure 11-32 Comvurgent Options for Additional Adjustments

This special configuration program can only be accessed by browsing to the installation location (default C:\Program Files\Comvurgent\XtRecorder), and then click on the NEC D^{term} Config.exe.

The customer takes all responsibility to ensure they meet legal requirements. Comvurgent provides the user option settings to meet customer demands and cannot be responsible for misapplication of the product.

Several settings can be customized to meet requirements of the application as shown in [Figure 11-33 Customizing Application to Meet Requirements](#).

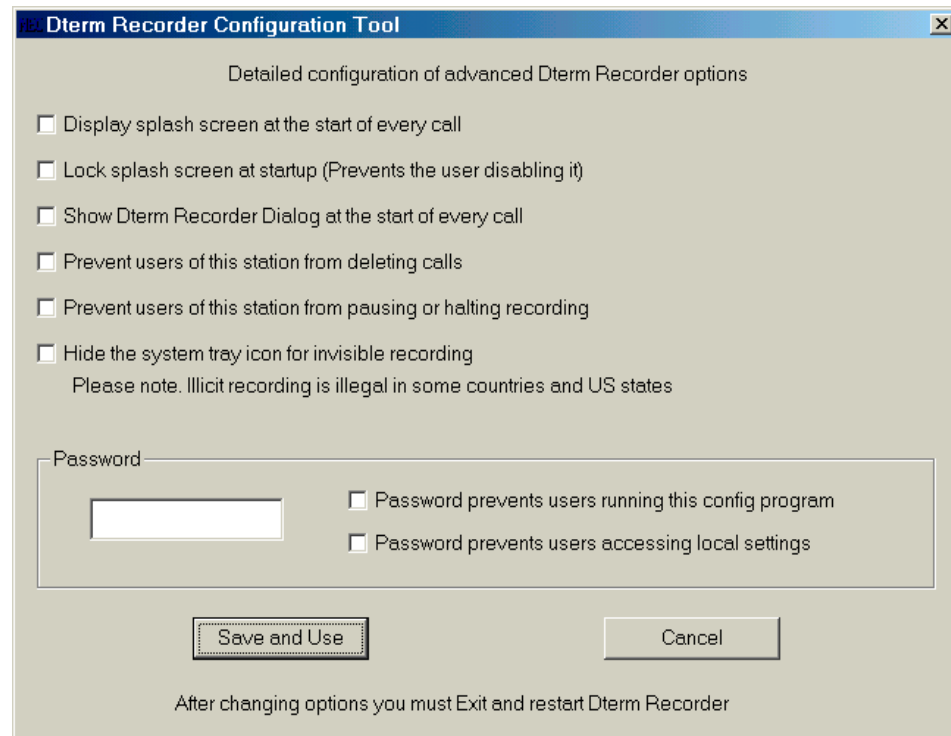


Figure 11-33 Customizing Application to Meet Requirements

- ☐ Display splash screen at the start of every call
Reminds user that recording is taking place by splashing a screen with every call.
- ☐ Show *D^{term}* Recorder dialog at the start of every call
Displays application record screen anytime a call is being recorded.
- ☐ Prevent users of this station from deleting calls
Disables the delete key.
- ☐ Prevent users of this station from pausing or halting recording
Disables pause and stop controls.
- ☐ Hide the system tray icon for invisible recording
Hides the small icon that appears in the system tray and flashes red when recording.

☐ Password

Locks access to these settings and those at the user level.

 *When making changes, the application must be closed and started again to become effective.*

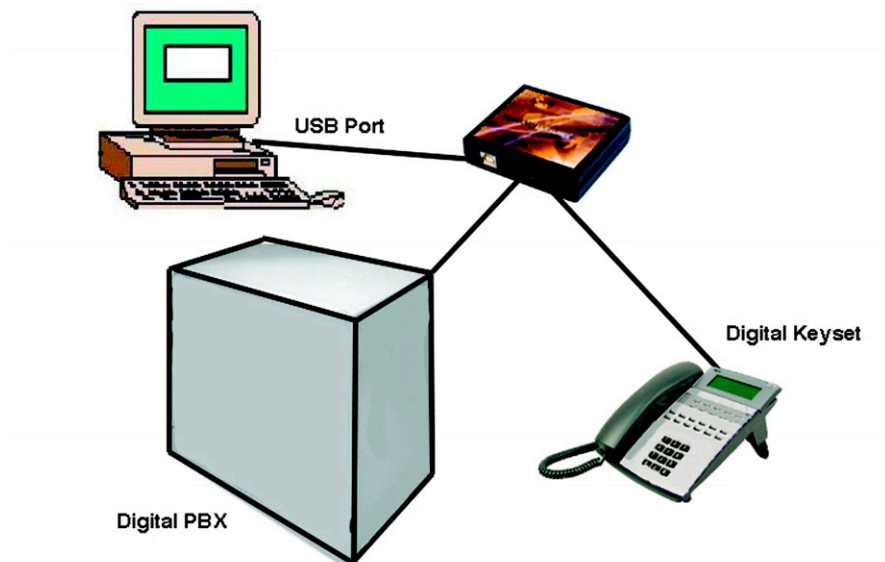



Figure 11-34 Voice Security Recorder Connection

11.4 Operation Note

Use the Options and File Management tabs within the *D^{term}*® Voice Security Recorder application to adjust the program settings as required (directory for storing messages, message deletion, file format, etc.).

It is recommended that after the initial installation of the *D^{term}* Voice Security Recorder application, that the audio balance of the remote side be changed to approximately 100%.

1. Open the *D^{term}* Voice Security Recorder application.
2. Click the **Options** tab.
3. Using the up arrow button, change the **Remote Boost (%)** setting to 100%.

 *Excessive boost can distort audio.*

11.5 4-Port Digital Call Logging Unit

11.5.1 Description

The 4-Port Digital Call Logging Unit is a Universal Serial Bus (USB) device designed to be installed in the “BackOffice” next to the telephone system. These devices can be stacked on one PC (up to 12 per PC or 48 ports) or, if larger installations are required, multiple PCs can be used with calls being stored on one central drive. Connectivity is accomplished via parallel wiring tapped across the same pair that feeds the D^{term} telephone. BackOffice Recorder software allows naming and mapping of each port independently.

The device does not interfere with communications between the PBX and the digital telephone. It does not require USB power or a connection to the PC to maintain the functionality of the telephone in its normal manner.

The device meets the appropriate FCC and UL requirements required for this type of communications device.

The device is soft up-loadable: the firmware and FPGA low-level protocol decryption is uploaded from the PC driver and the 4-Port Digital Call Logging Unit application at runtime. This allows easy upgrade and enhancement of the product in the field as required.

11.5.2 Connection Configuration

The configuration connection is shown in [Figure 11-35 4-Port Digital Call Logging Unit Connection Configuration](#).

11.5.3 Connectors

The NEC 4-Port Digital Call Logging Unit USB recording device has five connectors and four LED indicators:

- ❑ One PC USB connector, from which the device derives its power and streams all speech and control channel information up to the host PC and NEC BackOffice application.
- ❑ Four Digital Phone line connectors that passively tap across the NEC D^{term} digital port and listen in high impedance mode to the signaling on the line. The NEC 4-Port Digital Call Logging Unit does not affect in any way the telephone operation with or without connection of the host PC.

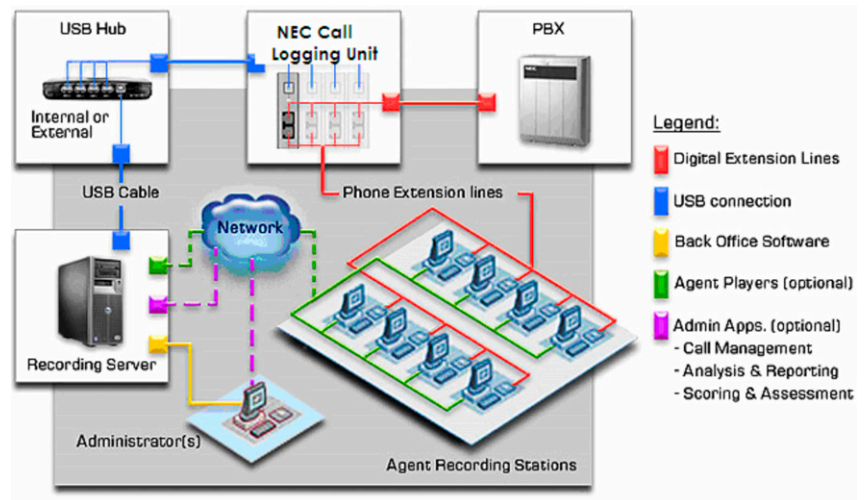




Figure 11-35 4-Port Digital Call Logging Unit Connection Configuration

11.5.4 Package Contents

The 4-Port Digital Call Logging Unit is packaged with everything necessary for installation including:

- ☐ Software CD
- ☐ USB Cable
- ☐ Quick-start installation manual

11.5.5 Hardware and Software Requirements

- ❑ A Pentium® 4 equipped with:
 - 512 Mb RAM.
 - Windows XP, Windows 2000 Professional SP4, or 2003.
 - One USB Controller Card for each four devices – powered USB hubs can be used however, no more than four devices should be connected to a USB Controller Card.
 - An available PCI slot for each USB Controller Card.
 - ❑ LAN connection for remote access to stored calls.
 - ❑ NEC BackOffice Recorder software.
-  *Calls should be stored on the same host PC.*
-  *Using the GSM 6.10 Compression option, each 1Gb of Hard Disk storage allows recording of about 168 hours of calls.*

11.5.6 Installation



DO NOT install the NEC BackOffice Software until instructed! It is critical that you follow the steps in the installation procedure in the order listed below. Failure to do so will result in an unsuccessful installation.

11.5.6.1 Location Preparation


The wiring for the extensions should be within six feet of the PC location. For this reason, the PC for the NEC BackOffice Recorder should be located near the MDF for extension wiring.

The installer will need to prepare the wiring to tap off the digital pair with a T-Connect type setup.

It may be desirable to fasten the devices to a PC or rack. Since the devices are light in weight, this can be done quite easily with Velcro tape.

11.5.6.2 Set Up PC

1. Set up the PC with the appropriate number of USB Controller Cards and/or USB hubs for the number of 4-Port Digital Call Logging Unit devices (do not connect more than four devices to each USB Controller Card). Follow the installation instructions for the Controller Card carefully. The PC should be connected to the LAN for supervisor access as well as to facilitate Windows and software updates as needed. Additionally, it may be desirable to load PC Anywhere on the PC for remote administration of the application.
2. Once USB cards are installed, go to www.windowsupdate.com. Download and install any updated device drivers that may be available for WIN2000 or XP and your USB Controller Cards. This is very important, as WIN2000 does not always have the required device drivers loaded in default for USB 2.0 devices. If your card came with a driver CD this step may have been taken care of during installation of the card(s).


3. Update Windows 2000 to Service Pack 4; this is available as a free upgrade from the Windows update web site.
4. When all USB Controller Cards are installed and the PC updated, restart the PC.
5. Connect any USB hubs if applicable.
 -  *The brand or type of USB hub must match that of the USB Controller Card.*
6. Once USB hubs are installed, restart the PC again.

11.5.6.3 Install the 4-Port Digital Call Logging Unit

1. Connect the 4-Port Digital Call Logging Unit device to the USB cable and plug the USB cable into the PC. Windows will respond with the Found New Hardware wizard.
2. Insert the provided NEC BackOffice CD into the CD drive of the PC.

Direct the installation of the driver to **Specific Location** and specify the **Driver** folder on the CD. Windows should find and load the device driver.
3. **Before inserting the next USB cable**, restart the PC. If Windows responds with Found New Hardware again, direct to the CD a second time and restart the PC. Once you get a clean restart and Windows recognizes the device on restart, install the next device.
4. Leave the CD in the CD drive and connect the next device, you may need to direct windows to the CD with each device you connect. Also, you will need to restart the PC with each device connection (this may require two restarts per device).
5. Once all devices are connected, restart the PC and view the devices in Device Manager to ensure proper installation.

6. Connect the telephone wiring to the 4-Port Digital Call Logging Unit. Be sure to note which extension is connected to which port of the devices (each device has a unique serial number). In the Recorder window you will see the serial number followed by a trailing digit (1 ~ 4), this identifies the port on the device.

 Before the telephone wiring is connected, the devices may temporarily show “Failed” and then reinitialize. This is normal operation.

Label each Digital Station Port with the extension it will be recording. Refer to [Figure 11-36 Digital Station Ports](#).

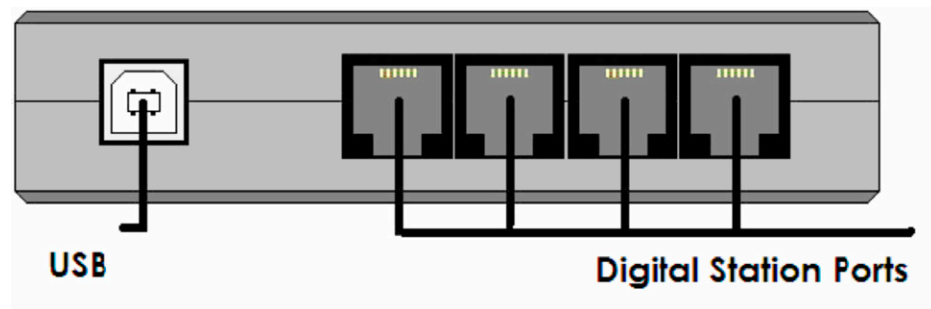



Figure 11-36 Digital Station Ports

- 11.5.6.4 Install the 4-Port Digital Call Logging Unit BackOffice Software
 1. Insert the **NEC BackOffice** CD into the CD drive of the PC.
 2. Locate the **Recorder** folder.
 3. Click on the **Setup.exe** file in the Recorder folder.
 4. Select Telephone System-Type.

 Choose **European** if in a territory that uses A-Law or **US** for the US and territories that use Mu-Law.
 5. Select **Install Location** or **Next** to choose default (recommended) location.
 6. Select **Finish**.

7. A NEC BackOffice Recorder shortcut will now be displayed on the desktop.
8. Click on the NEC BackOffice Recorder shortcut.
9. The Recorder screen is displayed. See [Figure 11-37 Recorder Screen](#).

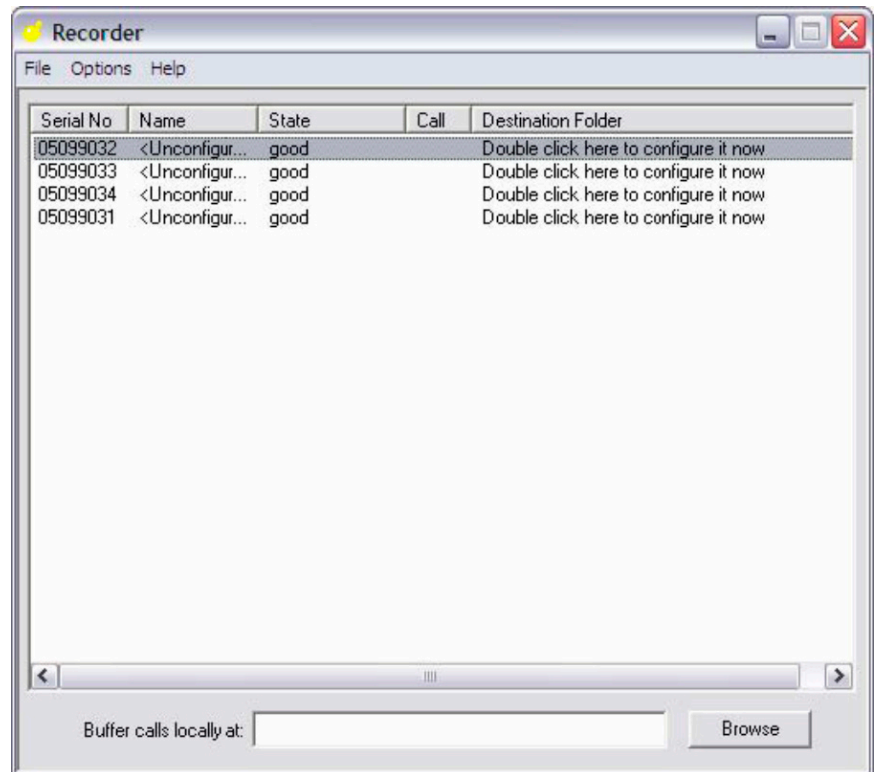
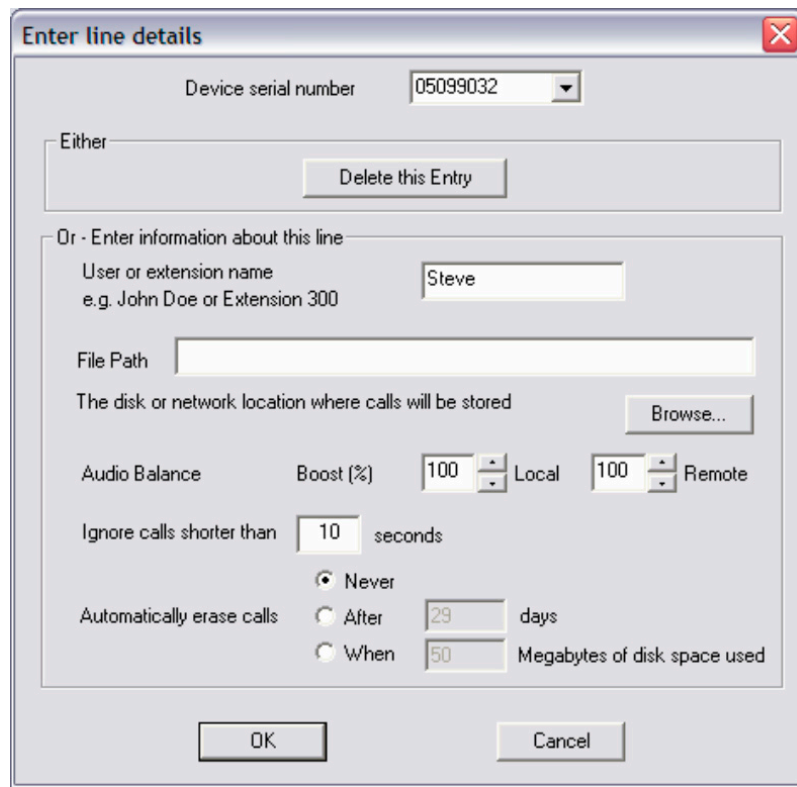


Figure 11-37 Recorder Screen

10. Double click on the first line in the sequence to configure. The Enter Line Details dialog box is displayed (each device is identified with a unique serial number – followed by a 1, 2, 3 or 4 which identifies the port from left to right on the device).





The dialog box is titled "Enter line details" and has a close button (X) in the top right corner. It contains the following fields and controls:


- Device serial number:** A dropdown menu showing "05099032".
- Either:** A section with a "Delete this Entry" button.
- Or - Enter information about this line:** A section with the following fields:
 - User or extension name:** A text box containing "Steve". Below it is a hint: "e.g. John Doe or Extension 300".
 - File Path:** An empty text box.
 - The disk or network location where calls will be stored:** A label with a "Browse..." button.
 - Audio Balance:** A section with two sliders:
 - Boost (%):** A slider set to "100".
 - Local:** A slider set to "100".
 - Remote:** A slider set to "100".
 - Ignore calls shorter than:** A text box containing "10" followed by the word "seconds".
 - Automatically erase calls:** A section with three radio buttons:
 - Never:** Selected.
 - After:** A text box containing "29" followed by the word "days".
 - When:** A text box containing "50" followed by the text "Megabytes of disk space used".
- Buttons:** "OK" and "Cancel" buttons at the bottom.

Figure 11-38 Enter Line Details Dialog Box

11. Name the device (user or extension name).
12. Click on the **Browse** button to identify the storage location for the device.
13. It is recommended that you create a "Master Calls" folder with a subfolder for each device. This will make it easier to search for archived calls. It is also recommended that you boost the remote signal and check for quality with a test call.
14. **Audio Balance** – allows you to increase or decrease the audio balance of the recording. Leaving Local and Remote at 100% leaves the recording as-is. It is suggested to perhaps boost the remote side on most installs to 150%, but to test prior to leaving this setting as-is.

15. **Ignore Calls** – although the Recorder **Starts** recording automatically, this setting tells the system only to **Save** calls longer than this preset threshold.
16. **Automatically Erase Calls** – this can be set to delete calls after 'x' number of days or after a defined amount of disk space has been used.
 -  *Calls marked **Important** during playback will not be automatically deleted.*
17. Press **OK** to save the settings.
18. Repeat this procedure for each listed device, entering a name and identifying the folder for storing recorded calls.
 -  *Calls should be stored on the same PC. However, if a network drive is used, you should choose a folder location on the local PC to buffer calls. This will allow the application to run and store calls even if the network is temporarily down.*
19. **When all the devices** are named and mapped to a storage folder location, select **File** then **Exit** from the Recorder screen menu to save your configuration.

The NEC Recorder will now record every call to and from the telephones. It is important to use proper procedure to shut down the application and PC when necessary.

-  *The Recorder PC should be left on at all times (with battery backup) and the application always running.*

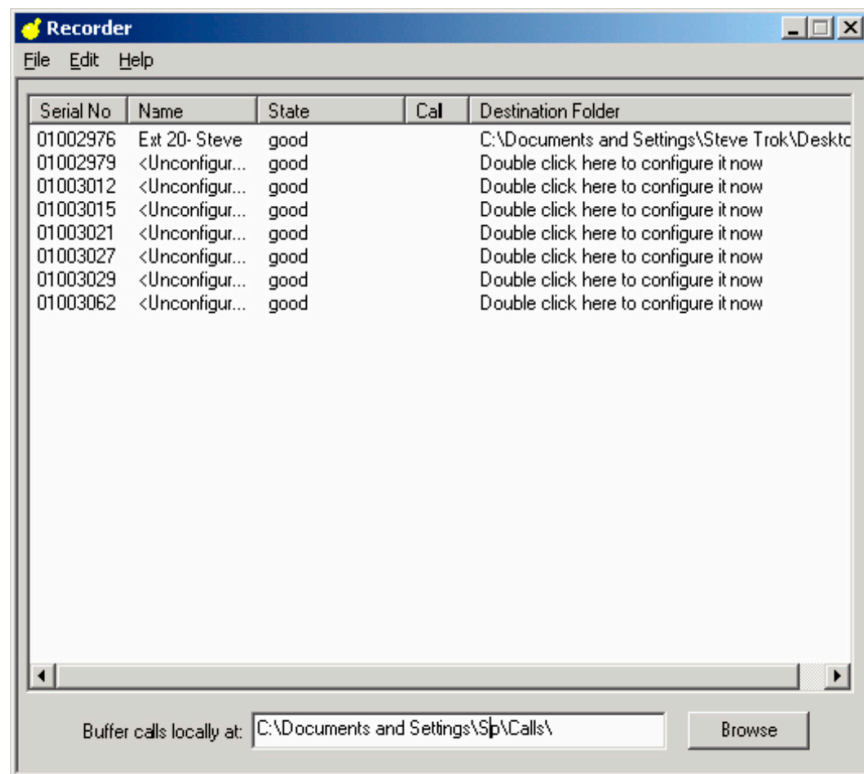


Figure 11-39 Recorder Screen

11.5.6.5 Choose and Install Player Options

There are several player options available with the NEC BackOffice Recording solution.

- ☐ **Desktop Player** – can be loaded on an individual user's PC, giving the user complete access (although restrictions can be applied) to call management; deleting calls, e-mailing conversations, exporting to wav file, etc. This software can be downloaded from www.usbcallrecord.com for free.
- ☐ **VSR Manager 2.0** – enables a supervisor(s) to search for calls, playback calls, associate notes about calls and mark them as important, as well as delete or e-mail conversations. Refer to the VSR Manager Installation Manual for instructions.

- ❑ **VSR Reporter Pro** – same advanced functionality as VSR Reporter with the addition of the Agent Evaluation module Call Scoring. It provides customized scoring forms and criteria along with detailed support to quickly identify strengths and weaknesses within your Call Center.

These packages can be applied in any number of configurations within the organization providing control and management where needed and simple playback in other locations.

11.6 VSR Manager Version 2.0 Installation

There are two options for playing back calls recorded by your VSR(s). The first is the Desktop Player which is designed to be used by an individual user to play back their own archive of calls or to play back NEC *D^{term}* VSR calls stored on their PC or network. It is designed to easily manage calls from one storage location. It does not offer many of the advanced functions of the VSR Manager, such as establishing preset shortcuts to any number of storage folders for quick and easy access.

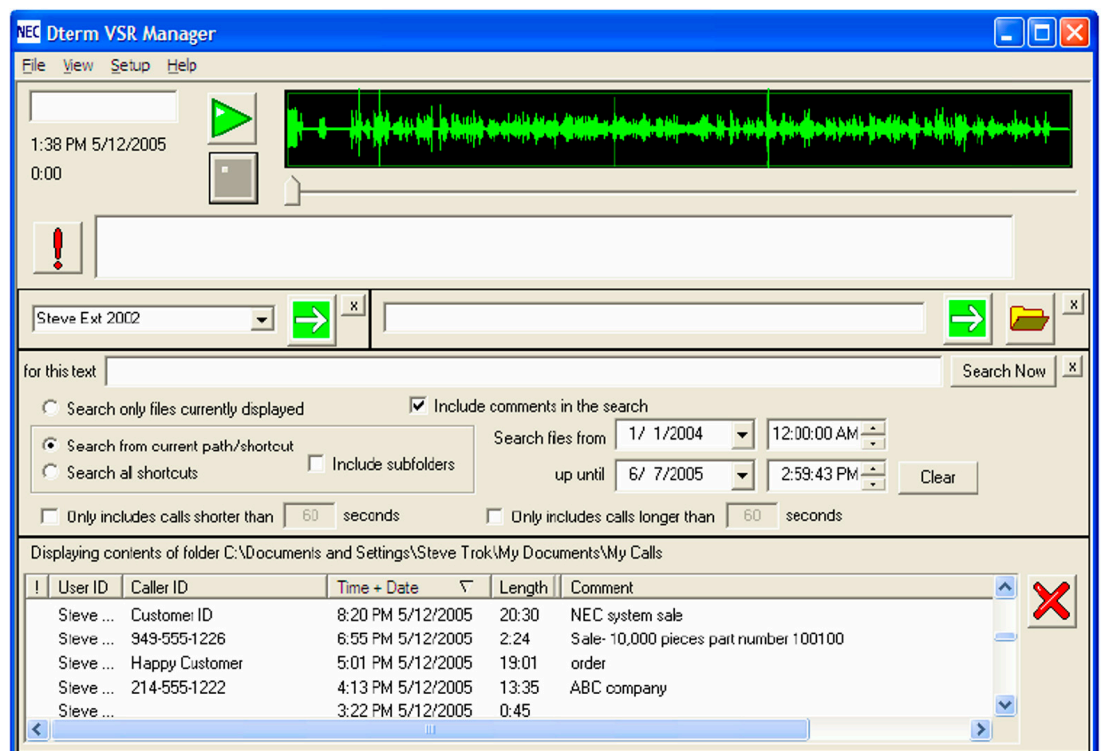


Figure 11-40 *D^{term}* VSR Manager Screen

The second player option is the **VSR Manager**. Take your call recording environment to the next level with NEC's VSR application software. **VSR Manager** provides advanced visibility, access, retrieval, and playback tools for the VSR Recorder administrators. It provides an intuitive interface for establishing shortcuts to any number of storage folders and allows the supervisor to search across all storage folders for specific call information such as User, Time/Date, Length of Call, etc. The application can be used to access and manage VSR recordings whether created by the single port VSR or the 4-Port Digital Call Logging Unit. **VSR Manager** is built on the robust Microsoft .net frame-work and designed to manipulate large volumes of recordings. It's a workhorse that delivers truly feature rich productivity tools in a familiar, ergonomic and easy to use MS Office style interface.

VSR Manager is designed to provide the manager or supervisor the ability to quickly and easily gain access to important calls.

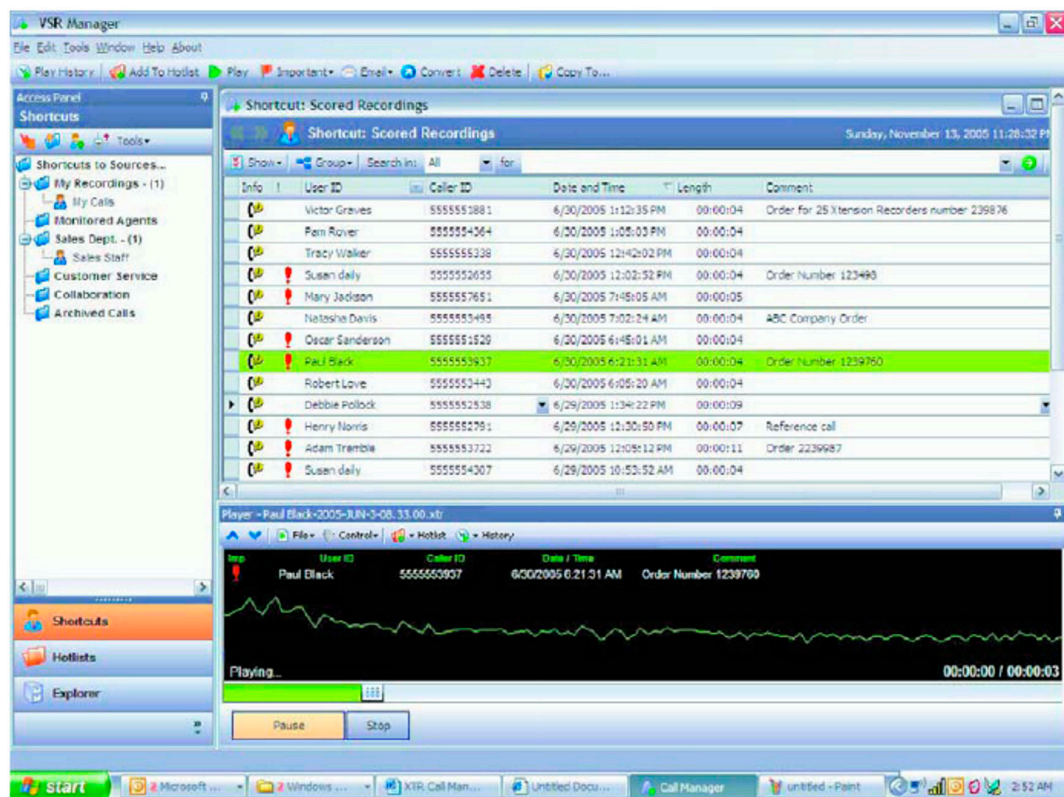


Figure 11-41 VSR Manager Screen

These two players can be combined in any number of configurations within the company, providing control and management where needed and simple playback in other locations.

Refer to the documentation included with the *D^{term}* VSR (P/N 780275) for details on setting up and using the Desktop Player.

This section is designed to assist you with the installation of the software and to help you to start using the VSR Manager. For detailed assistance with the software, please refer to the Help Files located in the VSR Manager program.

11.6.1 Hardware and Software Check for VSR Manager 2.0

11.6.1.1 Minimum Hardware Requirements

- ☐ Processor: Pentium III-class (K7) 1.0GHz or equivalent (recommend Pentium 4 or equivalent)
- ☐ Memory: 128MB (recommend 256MB+)
- ☐ Disk Space: 30MB (recommend 60MB+)

11.6.1.2 Minimum Software Requirements

- ☐ Operating Systems:
 - Windows XP (recommended latest service pack)
 - Windows 2000 (recommended latest service pack)
 - Windows 2003
- ☐ Microsoft .Net Framework 1.1+



If your PC does not meet the above requirements, please contact NEC. VSR Manager 2.0 can be provided if upgrading to the minimum requirements is not possible or desirable

11.6.1.3 Screen Resolution


VSR Manager is a visual application environment featuring dynamic graphical elements which may function at lower resolutions. However, for best performance and to view these items correctly, it's recommended that you set the screen resolution to a minimum of 1024x768. You can do this from the **Control Panel > Display Settings > Advanced Settings** tab.

11.6.1.4 Is the Microsoft .Net Framework 1.1 Installed?

VSR Manager 2.0 requires the Microsoft .Net Framework, which should be installed on your PC prior to installing VSR Manager. If your Windows operating system has been kept up to date with Windows Service Packs, it's likely the Microsoft .Net Framework 1.1 has already been installed.

To check if you have the Microsoft .Net Framework installed:

1. Navigate to **Control Panel > Add and Remove Programs**.
2. Look for an entry referencing the Microsoft .Net Framework 1.1 or later.
3. If the Microsoft .Net Framework 1.1 is not installed, you can download it from the Microsoft web site.

 *The link to Microsoft .Net Framework download at time of this writing: <http://www.microsoft.com/downloads/details.aspx?FamilyID=262d25e3-f589-4842-8157-034d1e7cf3a3&displaylang=en>*

Not sure if .Net is installed:

If you have any doubts, try to install VSR Manager 2.0. The installation will halt and inform you if the Microsoft .Net Framework 1.1 is not found. If this occurs, you can download the Microsoft .Net Framework 1.1, install it, restart your computer and then proceed to install VSR Manager.

11.6.2 Install Your Application Security Key

VSR Manager requires an Application Security Key (a USB dongle which is shipped with the application) to be inserted when the VSR Manager is running. This will unlock the application and prevent unauthorized use. The VSR Manager will display messages and halt its processes if the Application Security Key is not found or if the wrong key is inserted.



- *The Application Security Key is associated with your Software license.*
- *The Application Security Key is non-transferable and will not be replaced if lost.*
- *If the key becomes damaged within the warranty period, you will need to return your key to support for verification and replacement if the nature of the damage qualifies.*

1. Insert USB key into an available USB port on PC.
2. Windows should respond with **Found New Hardware** and identify the device as a Matrix USB Key.
3. If Windows does not find the needed driver, browse to the CD. The driver is loaded on the CD in the **Drivers** folder.

11.6.3 Install and Register VSR Manager 2.0

In a multi-user operating systems, such as Windows 2000 or Windows XP, applications are generally installed in a folder from which it can be run by all users, such as C:\Program Files. You can only install or uninstall applications if you have administrative privileges on your computer. If you encounter any installation problems, check to make sure you have administrative privileges or ask your administrator to install VSR Manager for you.

11.6.3.1 Install VSR Manager

1. Insert the VSR Manager CD into the computer's CD-ROM drive or navigate to the location where you have saved your application download.
2. Double-click the VSR Manager Set-up icon.
3. Follow the on-screen instructions.
4. If prompted, restart your computer.

11.6.3.2 Register VSR Manager

To get additional support, it's a good idea to register your copy of VSR Manager. When you register, you can sign up for timely EMail notices about product updates so you can keep VSR Manager running at peak performance and benefit from any new features and enhancements. You can also sign up to receive up-to-the-minute notices about upgrades and new VSR products.

1. Select **Help > Online registration** (your internet connection needs to be active to connect to the web site).
2. Fill out the online electronic form.
3. You will automatically receive a confirmation EMail and information as soon as it's available based on your notification preferences.

11.7 VSR Reporter Pro 2.0 Installation

There are two options for playing back calls recorded by your VSR(s). The first is the Desktop Player which is designed to be used by an individual user to play back their own archive of calls or to play back NEC *D^{term}* VSR calls stored on their PC or network. It is designed to easily manage calls from one storage location. It does not offer many of the advanced functions of the VSR Reporter Pro, such as establishing preset shortcuts to any number of storage folders for quick and easy access.

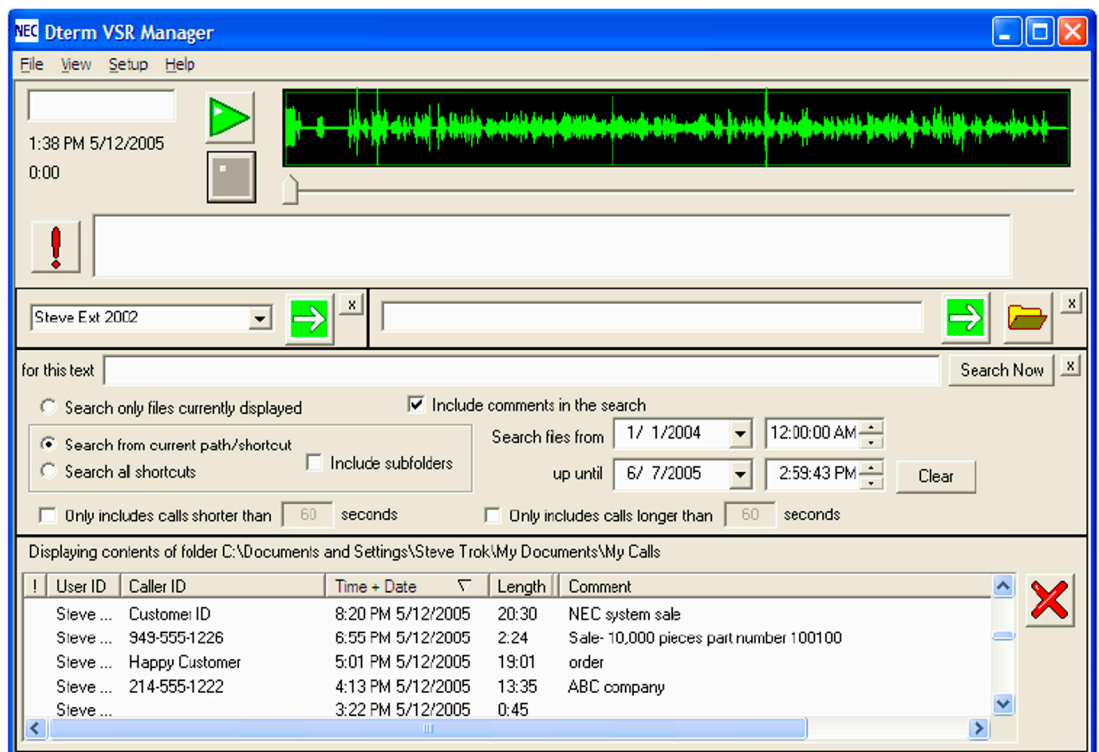


Figure 11-42 *D^{term}* VSR Reporter Pro Screen

The second player option is the **VSR Reporter Pro**. Take your call recording environment to the next level with NEC's VSR application software. **VSR Reporter Pro** provides advanced visibility, access, retrieval, and playback tools for the VSR Recorder administrators. It provides an intuitive interface for establishing shortcuts to any number of storage folders and allows the supervisor to search across all storage folders for specific call information such as User, Time/Date, Length of Call, etc. The application can be used to access and manage VSR recordings whether created by the single port VSR or the 4-Port Digital Call Logging Unit. **VSR Reporter Pro** is built on the robust Microsoft .net frame-work and designed to manipulate large volumes of recordings. It's a workhorse that delivers truly feature rich productivity tools in a familiar, ergonomic and easy to use MS Office style interface.

VSR Reporter Pro is designed to provide the manager or supervisor the ability to quickly and easily gain access to important calls.

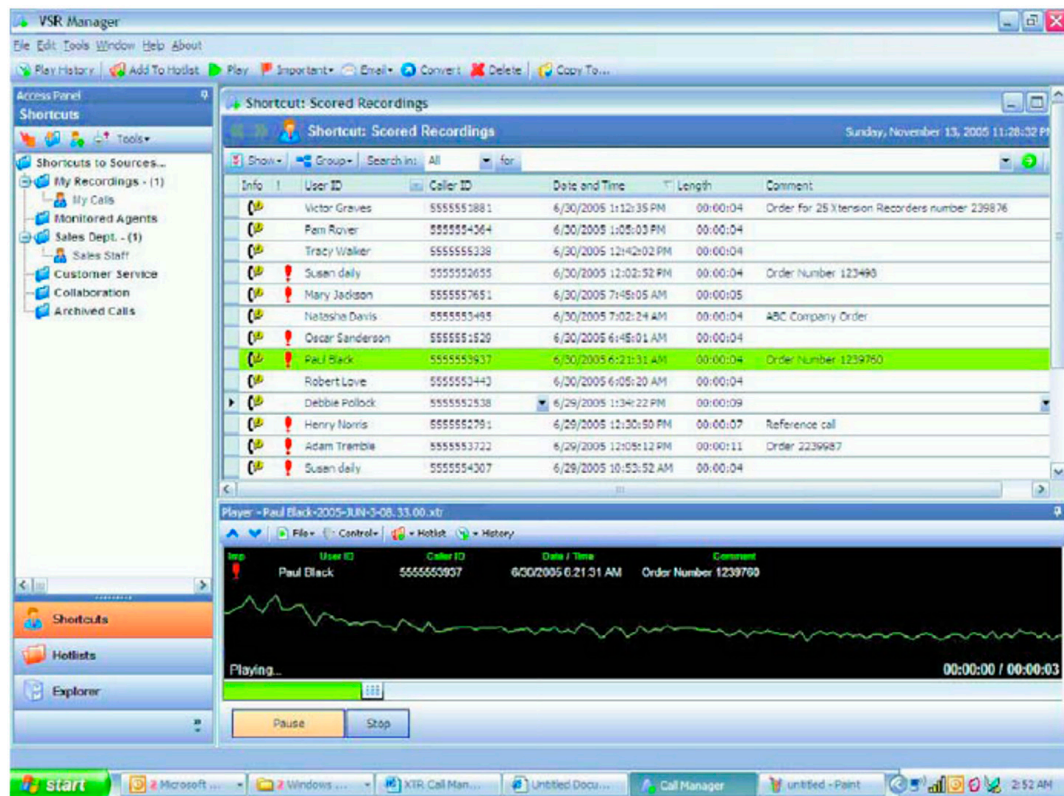


Figure 11-43 VSR Reporter Pro Screen

These two players can be combined in any number of configurations within the company, providing control and management where needed and simple playback in other locations.

Refer to the documentation included with the *D^{term}* VSR (P/N 780275) for details on setting up and using the Desktop Player.

This section is designed to assist you with the installation of the software and to help you to start using the VSR Reporter Pro. For detailed assistance with the software, please refer to the Help Files located in the VSR Reporter Pro program.

11.7.1 Hardware and Software Check for VSR Reporter Pro 2.0

11.7.1.1 Minimum Hardware Requirements

- ☐ Processor: Pentium III-class (K7) 1.0GHz or equivalent (recommend Pentium 4 or equivalent)
- ☐ Memory: 128MB (recommend 256MB+)

- ☐ Disk Space: 30MB (recommend 60MB+)

11.7.1.2 Minimum Software Requirements

- ☐ Operating Systems:
 - Windows XP (recommended latest service pack)
 - Windows 2000 (recommended latest service pack)
 - Windows 2003
- ☐ Microsoft .Net Framework 1.1+



If your PC does not meet the above requirements, please contact NEC. VSR Reporter Pro 2.0 can be provided if upgrading to the minimum requirements is not possible or desirable

11.7.1.3 Screen Resolution

VSR Reporter Pro is a visual application environment featuring dynamic graphical elements which may function at lower resolutions. However, for best performance and to view these items correctly, it's recommended that you set the screen resolution to a minimum of 1024x768. You can do this from the **Control Panel > Display Settings > Advanced Settings** tab.


11.7.1.4 Is the Microsoft .Net Framework 1.1 Installed?

VSR Reporter Pro 2.0 requires the Microsoft .Net Framework, which should be installed on your PC prior to installing VSR Reporter Pro. If your Windows operating system has been kept up to date with Windows Service Packs, it's likely the Microsoft .Net Framework 1.1 has already been installed.

To check if you have the Microsoft .Net Framework installed:

1. Navigate to **Control Panel > Add and Remove Programs**.
2. Look for an entry referencing the Microsoft .Net Framework 1.1 or later.

3. If the Microsoft .Net Framework 1.1 is not installed, you can download it from the Microsoft web site.

 *The link to Microsoft .Net Framework download at time of this writing: <http://www.microsoft.com/downloads/details.aspx?FamilyID=262d25e3-f589-4842-8157-034d1e7cf3a3&displaylang=en>*

Not sure if .Net is installed:

If you have any doubts, try to install VSR Reporter Pro 2.0. The installation will halt and inform you if the Microsoft .Net Framework 1.1 is not found. If this occurs, you can download the Microsoft .Net Framework 1.1, install it, restart your computer and then proceed to install VSR Reporter Pro.

11.7.2 Install Your Application Security Key

VSR Reporter Pro requires an Application Security Key (a USB dongle which is shipped with the application) to be inserted when the VSR Reporter Pro is running. This will unlock the application and prevent unauthorized use. The VSR Reporter Pro will display messages and halt its processes if the Application Security Key is not found or if the wrong key is inserted.



- *The Application Security Key is associated with your Software license.*
- *The Application Security Key is non-transferable and will not be replaced if lost.*
- *If the key becomes damaged within the warranty period, you will need to return your key to support for verification and replacement if the nature of the damage qualifies.*

1. Insert USB key into an available USB port on PC.
2. Windows should respond with **Found New Hardware** and identify the device as a Matrix USB Key.
3. If Windows does not find the needed driver, browse to the CD. The driver is loaded on the CD in the **Drivers** folder.

11.7.3 Install and Register VSR Reporter Pro 2.0

In a multi-user operating systems, such as Windows 2000 or Windows XP, applications are generally installed in a folder from which it can be run by all users, such as C:\Program Files. You can install or uninstall applications only if you have administrative privileges on your computer. If you encounter any installation problems, check to make sure you have administrative privileges or ask your administrator to install VSR Reporter Pro for you.

11.7.3.1 Install VSR Reporter Pro

1. Insert the VSR Reporter Pro CD into the computer CD-ROM drive or navigate to the location where you have saved your application download.
2. Double-click the VSR Reporter Pro Set-up icon.
3. Follow the on-screen instructions.
4. If prompted, restart your computer.

11.7.3.2 Register VSR Reporter Pro

To get additional support, it's a good idea to register your copy of VSR Reporter Pro. When you register, you can sign up for timely EMail notices about product updates so you can keep VSR Reporter Pro running at peak performance and benefit from any new features and enhancements. You can also sign up to receive up-to-the-minute notices about upgrades and new VSR products.

1. Select **Help > Online registration** (your internet connection needs to be active to connect to the web site).
2. Fill out the online electronic form.
3. You automatically receive a confirmation EMail and information as soon as it is available based on your notification preferences.

SECTION 12 TELEPHONE ADAPTERS

12.1 Using Adapters

The modular terminals can support the installation of one additional adapter underneath the terminal. These adapters provide the keyset different capabilities, depending on the adapter installed.

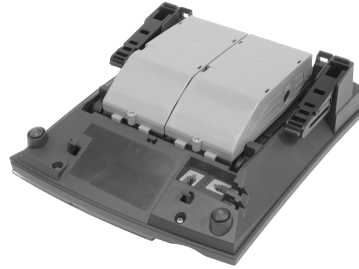


Figure 11-44 Installing Adapters

- These optional adapters are not installed on non-modular telephones.
- Only the ILPA, ADA and PSA Adapters can be used on the IP phones.
- ADA – Conversation Recording
- APR – Analog Port Adapter with Ringer
- PSA – Keyset/IP Phone Power Failure

When installing or removing the adapter, *the keyset should first be unplugged from the system*. External power is not required for the adapter.

Telephones with any adapters installed require an optional wall mount unit (WM-L) to be wall mounted. The bracket does not accommodate the adapter(s).

12.2 In-line Power Adapter (ILPA-R)

The In-Line Power Adapter (ILPA-R), which is IEEE 802.3af compliant, detects power from a PoE-compatible ethernet switch and passes it to the IP terminal. The ILPA does the negotiation and detection with the switch and then relays the power to the IP terminal device. This provides an additional way to power the NEC IP terminals. With this adapter, the IP terminals on the UNIVERGE SV8100/SV8300 system can be powered using:

- Local power connecting the IP terminal to a local AC wall outlet using the AC-R Adapter

- NEC power supply PoE-managed switch (BlueFire 200/24) (in-line and spare pair detection)
- Router Blade (spare pair detection)
- Cisco Data Switch – CDP supported (in-line and spare pair detection)
- In-Line Power Adapter



Figure 11-45 In-Line Power Adapter

12.2.1 Conditions

- ☐ Only IP telephones supported by center feed can be used.
- ☐ This adapter cannot be used with the H.323 telephones.
- ☐ When center feed is used, unplug the adapter from the ethernet switch before changing the SW1 setting on the back of the adapter.
- ☐ The ILPA-R adapter is intended for use with IP phones and IP Adapters. Installing any other device into the telephone port of the ILPA-R may result in damage to the device.
- ☐ When powering an IP phone using an ILPA-R adapter, the phone should **not** get connected to a port on the Router Blade.

When using center feed, set the SW1 switch located on the back of the adapter as follows:



Figure 11-46 In-Line Power Adapter Switch Settings

Center Feed Hub System	SW1 Setting
IEEE802.3af STD System	1
Cisco Discovery Protocol System	1
NEC BlueFire 200/24 Switch	2

12.2.2 Installation

1. Set the SW1 switch on the ILPA-R adapter to the correct setting for the ethernet switch to which it is to be connected.

Center Feed Hub System	SW1 Setting
IEEE802.3af STD System	1
Cisco Discovery Protocol System	1
NEC BlueFire 200/24 Switch	2

2. Set the switch setting on the NEC iPhone or IP adapter to the correct position.

iPhone (SW2) or IP Adapter (SW1)	SW Setting
NEC Power Patch Panel (12 port NEC SN1604 PWRMS, 24 port NEC BlueFire 200/24) 8SHUBU Blade	1
Cisco Catalyst Power Patch Panel Cisco Catalyst PRW Series	2

3. Connect the NEC VoIP telephone to the TEL connector on the ILPA-R adapter with the LAN cable provided with the adapter.
 - If a customer-provided cable is used, the total length from the switch to the telephone should be less than 328 feet.
 - The adapter can be positioned either closer to the keyset or switch – it does not matter.
4. Connect a cross-over LAN cable to the LAN connector on the ILPA-R adapter. Plug the opposite end into the switch which is to provide power to the telephone. Refer to [Figure 11-47 NEC Terminal Connection to an IEEE 802.3af PoE Switch](#).
 - If a straight-through cable is used, NIC Auto Detection must be enabled in Programs 10-12-05 (CD-CP00-US), 84-05-02 (VOIPU) or 85-01-03 (SHUBU).

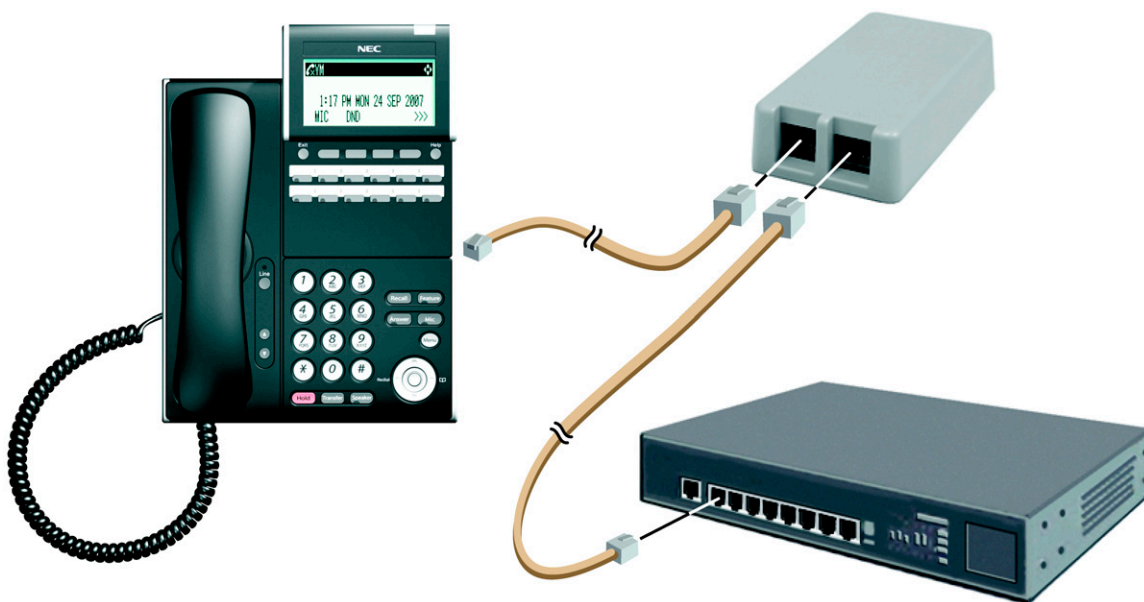


Figure 11-47 NEC Terminal Connection to an IEEE 802.3af PoE Switch

12.3 ADA-L UNIT

Using the ADA-L UNIT (Ancillary Device Adapter) provides a recording jack connection from a telephone to an external tape recorder, speaker or PC. Both sides of the conversation are recorded. The adapter output is a 1/8" audio (mono) jack which you can connect directly to an AUX level input on a recorder or page amplifier.

Recording a conversation (Handset/Headset/Hands-free), or sending recorded calls to a telephone are possible by connecting a cassette recorder to the ADA-L UNIT (voice recording and the playback of a recorded sound from a cassette recorder cannot occur at the same time).

When installing or removing the adapters, ***the keyset should be unplugged from the system.***



Be sure the connected audio device provides a standard AUX level input.

The use of monitoring, recording, or listening devices to eavesdrop, monitor, retrieve, or record telephone conversation or other sound activities, whether or not contemporaneous with transmission, may be illegal in certain circumstances under federal or state laws. Legal advice should be sought prior to implementing any practice that monitors or records any telephone conversation. Some federal and state laws require some form of notification to all parties to a telephone conversation, such as using a beep tone or other notification methods or requiring the consent of all parties to the telephone conversation, prior to monitoring or recording the telephone conversation. Some of these laws incorporate strict penalties.

The handset records only when a call is placed or answered.

12.3.1 ADA-L UNIT Switch Settings

Figure 11-48 ADA-L UNIT shows the location of the switches. The dip switches (DSW) allow a technician to configure the unit for specific settings.



Due to location, set switches prior to installation of ADA-L on DTL/ITL multiline terminal.

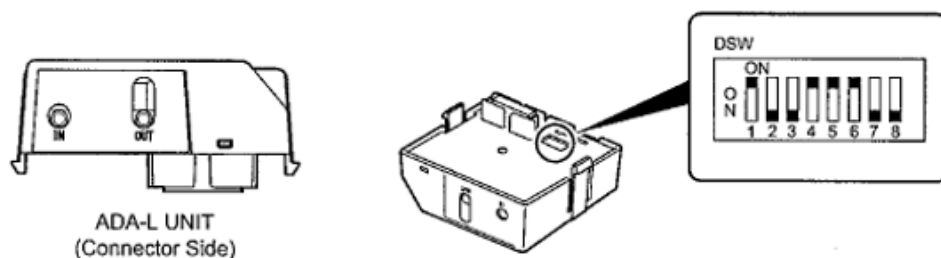


Figure 11-48 ADA-L UNIT

To provide control to the recorder or to enable/disable the record start warning tones, refer to [Table 11-3 ADA-L Unit Switch Settings](#).

Table 11-3 ADA-L Unit Switch Settings

Switch		Description/Settings
SW1	SW1-1	Connects to Multiline Terminal Connect = Default
	SW1-2	Not Used
SW2	SW2-1	Sets External Equipment Impedance to 600 Ω
	SW2-2	Used for Complex Impedance Devices (< 30 Ω Input Impedance)

Table 11-3 ADA-L Unit Switch Settings (Continued)

Switch		Description/Settings
Dip Switches (DSW)	DSW 1	Output Hook Signal to External Device On = Output Off = No Output (Default)
	DSW 2	Record Confirmation Tone On = Tone On Off = Tone Off (Default)
	DSW 3 and DSW 4	Use T1/T2 On = Disable (Default) Off = Enable

 Do not connect T1 and T2 when DSW switches 3 and 4 are On.

12.3.2 Installing the ADA-L UNIT

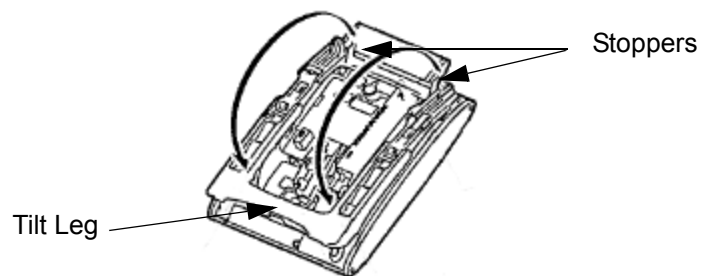
Perform the following steps to connect the ADA-L UNIT to the Bottom Option Interface located underneath the DTL/ITL multiline terminal.

 Only one ADA-L UNIT can be installed at a time.



To prevent possible damage to the ADA-L UNIT or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.

1. Unplug the line cord from the keyset.
2. Turn the DTL/ITL multiline terminal upside down.
3. Lower the tilt leg to the first position (refer to [Figure 11-49 Separate Tilt Leg from Leg Support](#)).

**Figure 11-49 Separate Tilt Leg from Leg Support**

4. Push the two stopper tabs through the slots to separate the tilt leg from the leg support.
5. Lay the tilt leg and the leg support flat to expose ADA-L UNIT compartment.
6. Carefully pry loose the knockout covering the bottom option interface (refer to [Figure 11-50 Bottom Option Interface Knockout](#)).

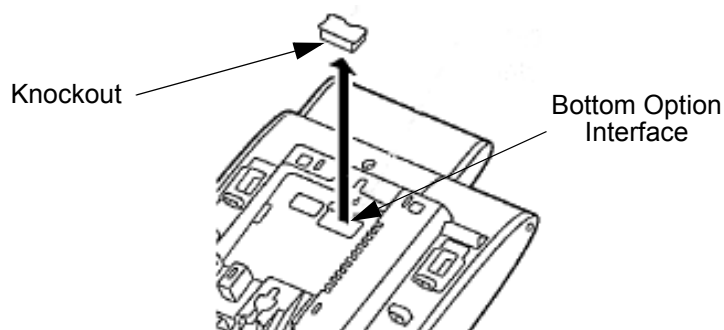


Figure 11-50 Bottom Option Interface Knockout

7. Using the exposed Bottom Option Interface as a guide, install the ADA-L UNIT in the bottom of the DTL/ITL multiline terminal. Push down until left and right tabs are seated (Refer to [Figure 11-51 Install ADA-L UNIT](#)).

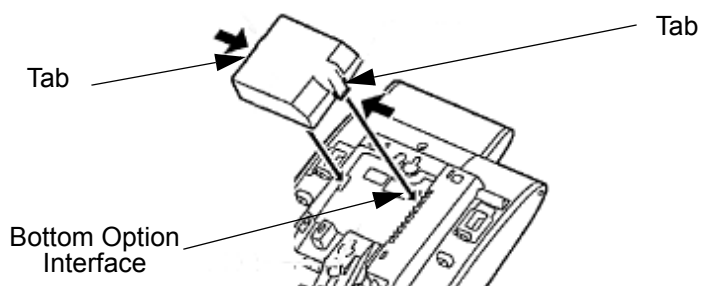


Figure 11-51 Install ADA-L UNIT

8. Return tilt leg to original position.
9. Reconnect all cables previously disconnected.

12.3.3 ADA-L UNIT Connection



The mini-plug connection cord should not use an attenuator and have a monaural (single ring) mini-plug connection for normal recording.

12.3.3.1 ADA-L UNIT Connection for Recording Only

1. Set the ADA-L UNIT DSW switches (Refer to [Figure 11-48 ADA-L UNIT](#) on page 11-71).



- *Set DSW 6 to ON.*
- *When using the LINE IN jack on a cassette recorder for recording, set DSW switch 5 to OFF.*
- *When using the MIC jack on a cassette recorder, set DSW switch 5 to ON.*

2. Using the mini-plug connection cord, connect the the ADA-L Unit Out jack to the cassette recorder MIC jack (Refer to [Figure 11-52 ADA-L OUT Jack Connection](#)).



Figure 11-52 ADA-L OUT Jack Connection

12.3.3.2 ADA-L UNIT Connection for Sending Recorded Calls to the Telephone

1. Set the ADA-L UNIT DSW switches (see [Figure 11-48 ADA-L UNIT on page 11-71](#)).



- *Set DSW 6 to ON.*
- *When sending recorded calls to the telephone, set DSW switch 1 to ON.*

2. Using the mini-plug connection cord, connect the the ADA-L Unit IN jack to the cassette recorder EAR PHONE jack (Refer to [Figure 11-53 ADA-L IN Jack Connection](#)).



Figure 11-53 ADA-L IN Jack Connection

12.4 APR-L UNIT

The APR-L UNIT (Analog Port Ringer) provides an analog interface for the terminal. The APR-L UNIT adapter provides ringing which allows the connected device to be used for incoming and outgoing calls. This adapter also provides a separate extension number for the analog device, which allows both devices to be used at the same time (this can be removed in system programming if you wish). One terminal can have an APR-L UNIT adapter.

The maximum distance between the APR-L UNIT and the analog terminal is 49 feet.

With the APR-L UNIT adapter installed, and the analog device attached to the adapter is in use, the telephone cannot be used as there is only one physical port number assigned to the telephone. If both the analog device and telephone are picked up at the same time, the analog device takes priority. If the terminal user is on a call and the single line telephone is picked up, the single line telephone takes the call from the terminal user.

When installing or removing the adapters, ***the telephone should be unplugged from the system.***

The APR-L UNIT supports reverse-polarity, message waiting lamping, or Caller ID.

12.4.1 APR-L UNIT Switch Settings

Figure 11-54 APR-L UNIT shows the location of the switches. The dip switches (DSW) allow a technician to configure the unit for specific settings.



Due to location, set the switches prior to installation of APR-L on DTL/ITL multiline terminal.

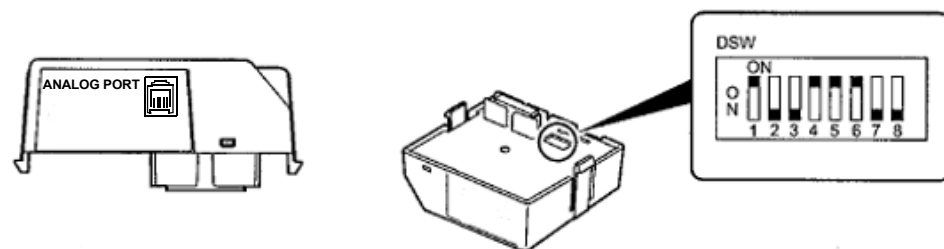


Figure 11-54 APR-L UNIT

Set the dip switches on the APR adapter to the required position.

1. Leave the SW1 switch at its factory setting of 1. This also applies to the dip switch settings (1 and 5 = on; 2-4, 6-8 = off).
2. Use the SW3 switch to set the terminating impedance. Position 1 is for a pure resistance of 600 ohms; position 2 is for complex impedance (factory setting is 1).

12.4.2 Installing the APR-L UNIT

Perform the following to connect the APR-L UNIT to the Bottom Option Interface located underneath the DTL/ITL multiline terminal.

 *Only one APR-L UNIT can be installed.*



To prevent possible damage to the APR-L UNIT or the DTL/ITL multiline terminal during installation or removal, disconnect the line cord/LAN cable and the AC/DC adapter from the DTL/ITL multiline terminal.

1. Unplug the line cord from the keyset.
2. Turn the DTL/ITL multiline terminal upside down.
3. Lower the tilt leg to the first position (refer to [Figure 11-55 Separate Tilt Leg from Leg Support](#)).

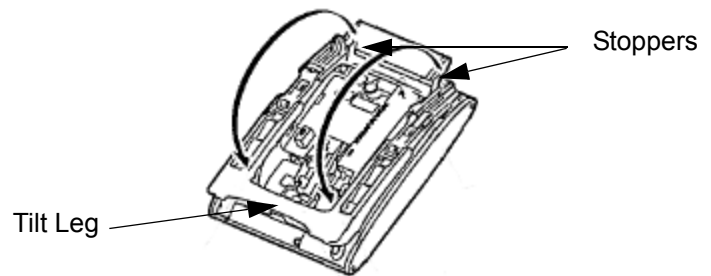


Figure 11-55 Separate Tilt Leg from Leg Support

4. Push the two stopper tabs through the slots to separate the tilt leg from the leg support.
5. Lay the tilt leg and the leg support flat to expose APR-L UNIT compartment.
6. Carefully pry loose the knockout covering the bottom option interface (refer to [Figure 11-56 Bottom Option Interface Knockout on page 11-78](#)).

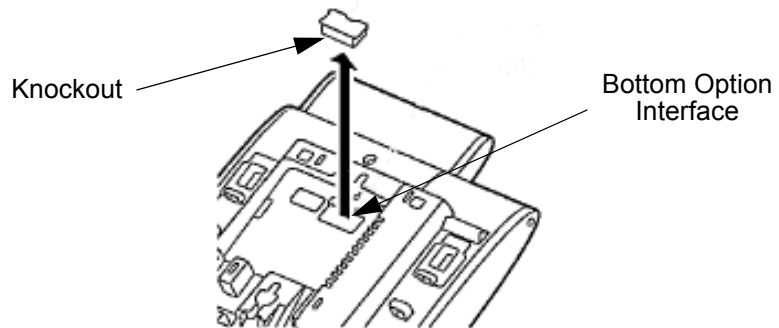


Figure 11-56 Bottom Option Interface Knockout

7. Using the exposed Bottom Option Interface as a guide, install the APR-L UNIT in the bottom of the DTL/ITL multiline terminal. Push down until left and right tabs are seated (Refer to [Figure 11-57 Install APR-L UNIT](#)).

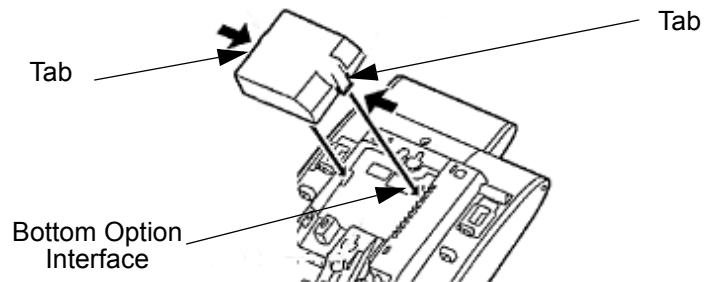


Figure 11-57 Install APR-L UNIT

8. Return tilt leg to original position.
9. For the APR adapter to be recognized correctly, before plugging in the keyset, make sure the extension number to be used for the adapter is undefined in Program 10-03-01.
10. Plug the line cord back into the keyset.
11. Using the ferrite bead that was included with the APR Adapter, wrap the line cord once through the ferrite bead and snap it shut (refer to [Figure 11-58 Ferrite Bead with APR Adapter on page 11-79](#)).

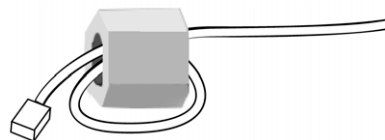


Figure 11-58 Ferrite Bead with APR Adapter

12. Plug the end of the line cord for the analog device which has the ferrite bead closest to it into the jack on the adapter. Connect the opposite end to the analog device.



Before removing the adapter, to avoid any hardware problems, unplug the line cord, then any other adapter cables.

13. **To determine the APR analog extension number. . .**

10-03-04 : Optional Installed Unit 1

Displays the type of terminal installed. This can be used to verify that the system recognizes the adapter.

10-03-06 : Blade Setup

Assign the terminal type (12) for the telephone channel, which has the APR Adapter installed.

When you want the APR to use the same extension number as the telephone to which it is attached, remove the terminal type in this option. With this setup, when the analog device is in use, it busies out the terminal as there is no separate port number assigned for the adapter. To reverse this, and allow the APR to have its own extension number, reassign the terminal type (12) in this option.

10-03-07 : Blade Setup

The port number of the APR Adapter is displayed for the extension (APR ports = 193-256 with all software through 3.07). The ports are assigned from the highest available port down.

Refer to **Section 5: Data and SMDR** for additional details.

12.5 PSA-L (BK) UNIT / PSA-L (WH) UNIT

The PSA-L UNIT (Power Save Adapter), an optional adapter for the ITL/DTL Terminals, is used with IP telephones to make or receive a call using the Public Switched Telephone Network (PSTN) when a call cannot be made or received using the Local Area Network (LAN). When a power failure occurs, the IP telephone is automatically switched to the PSTN. When power is restored, the IP telephone restarts and connects to the network unless a conversation is in progress on PSTN. The PSTN call must be completed by going on-hook before the connection to the LAN is restored. The unit features:

- Survivability in case of power failure or network congestion
- Support on modular terminals (ITL/DTL)
- PSTN Type = analog PSTN
- Dial method – MF/DF (10pps)

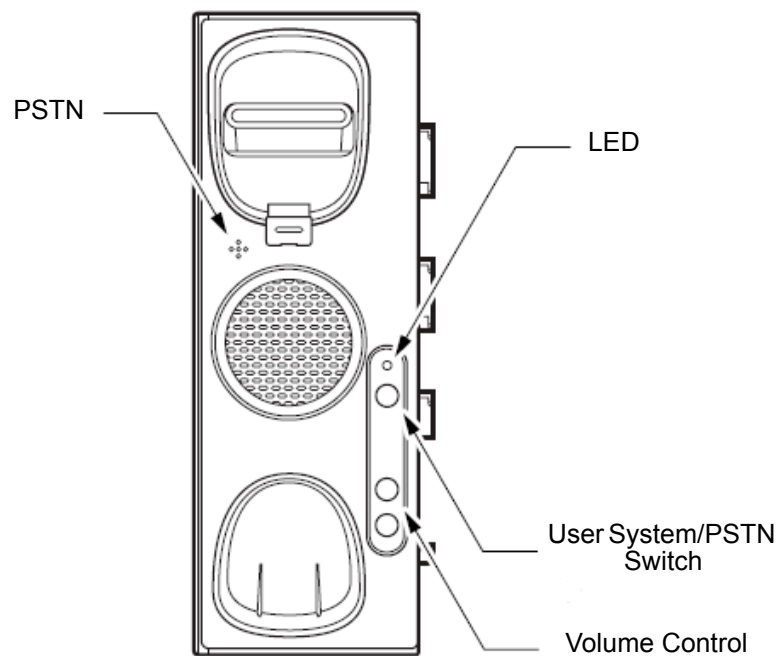


Figure 11-59 PSA-L UNIT

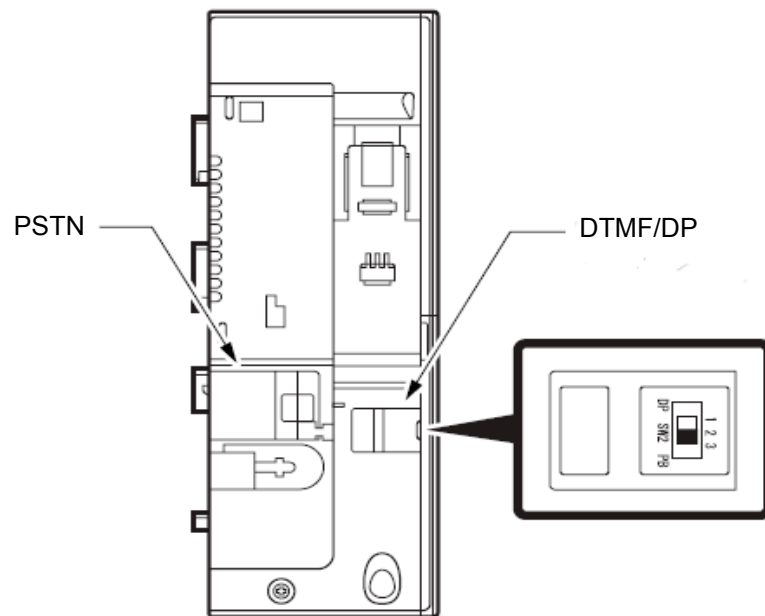



Figure 11-60 PSA-L UNIT Connections

12.5.1 Installing the PSA-L Adapter



Before installing or removing the PSA-L adapter, remove the line cord, LAN cable, and then AC adapter from the outlet.

1. Turn multiline terminal upside down.
2. Unplug the line cord and handset cord from the keyset.
 *Only one PSA-L UNIT can be attached to the DTL/ITL multiline terminal.*
3. Lower the tilt leg to the first position (refer to [Figure 11-61 Separate Tilt Leg from Leg Support on page 11-82](#)).

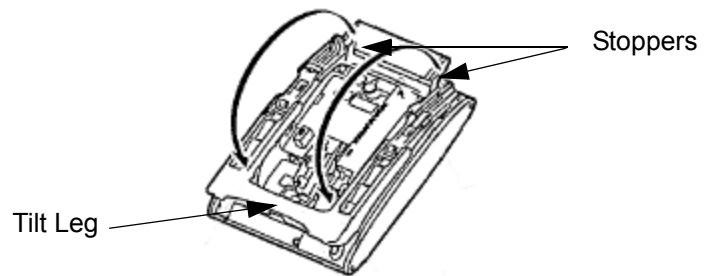


Figure 11-61 Separate Tilt Leg from Leg Support

4. Push the two stopper tabs through the slots to separate the tilt leg from the leg support.
5. Lay the tilt leg and the leg support flat.
6. Press the two tabs locking the legs to the multiline terminal and pull the legs toward you, lifting to remove.

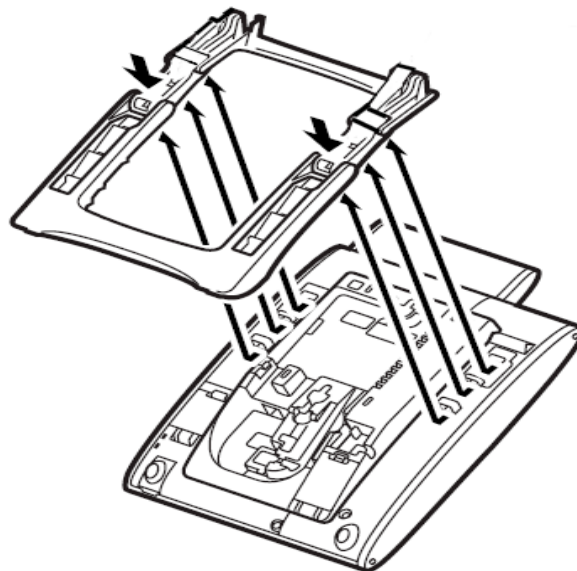


Figure 11-62 Remove Legs From Multiline Terminal

7. Disconnect serial connection cord from terminal body. Leave cord connected to the cradle unit.

8. Push latch to right to unlock the cradle unit. Then push the cradle unit forward to separate from the terminal body.

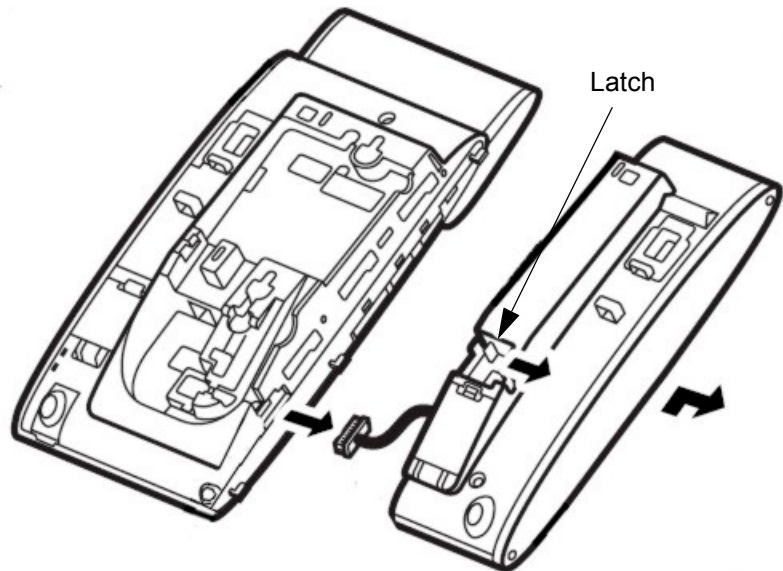


Figure 11-63 Bottom of Multiline Terminal (Legs Removed)

9. Fit the projections on the side of the PSA-L UNIT into the guide holes on the side of the terminal and pull toward you until the PSA-L UNIT snaps into place.

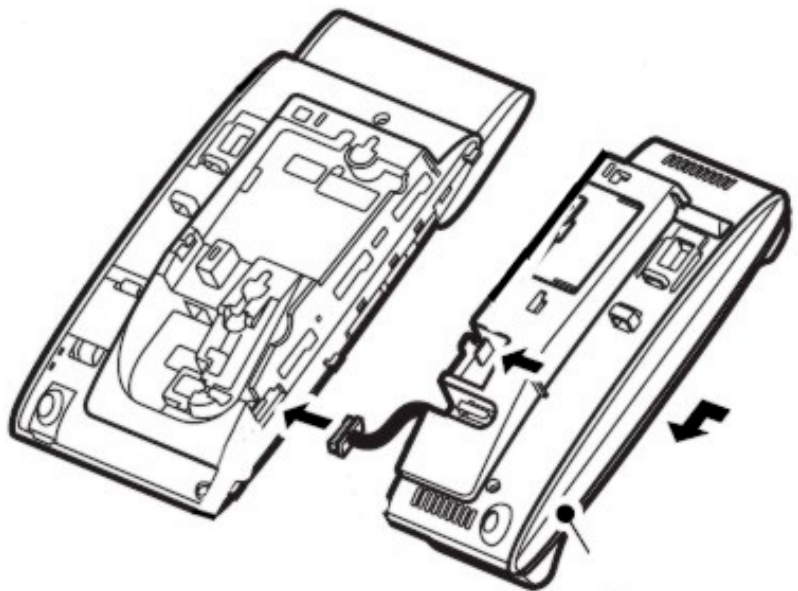


Figure 11-64 Attach PSA-L Unit to the Multiline Terminal

10. Gently press the serial cable into the grooved cutout for the cable.

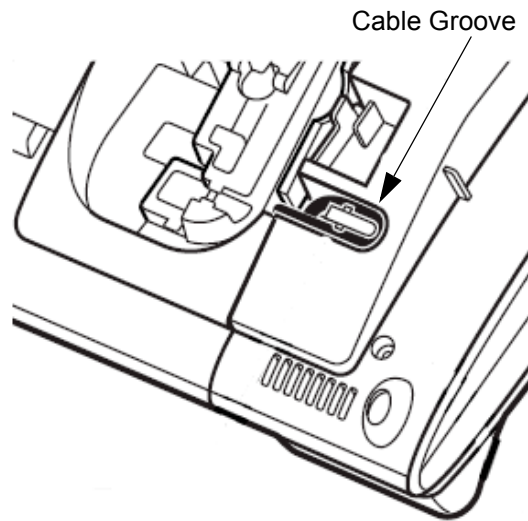


Figure 11-65 Grooved Cutout for Serial Cable

11. Connect the serial connection cord (refer to [Figure 11-64 Attach PSA-L Unit to the Multiline Terminal on page 11-83](#)) from the PSA-L UNIT to the terminal body.
12. Open the Dip Switch Cover (refer to [Figure 11-60 PSA-L UNIT Connections on page 11-81](#)). Set the dip switch on the PSA-L adapter to the required position. Close the cover.
13. If using the handset, place the stopper in the tilt leg.

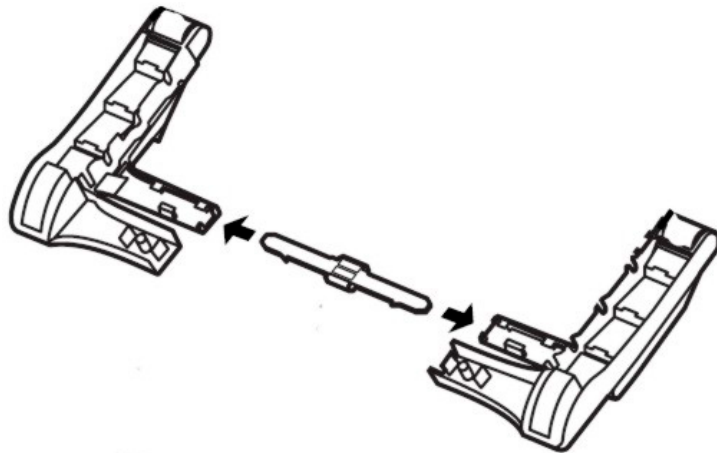


Figure 11-66 Insert Stopper for Handset Use

14. For the Handset, set the connector in place.

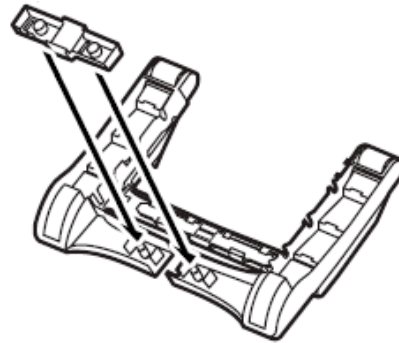


Figure 11-67 Insert Connector for Handset Use

15. Attach the analog trunk cable and the handset cable. Refer to [Figure 11-60 PSA-L UNIT Connections on page 11-81](#).
16. Reinstall the legs, pushing upwards until both locks snap into place.
17. Return tilt leg to desired position.
18. Return the multiline terminal to the numbered keypad in the up position.
19. Connect the Line cord, the PSTN cable and the Handset cord (if used).
20. Remove both plastic panels from the front of the multiline terminal.



Figure 11-68 Remove Plastic Panels

21. Pull tab down and lift out the numbered keypad panel.

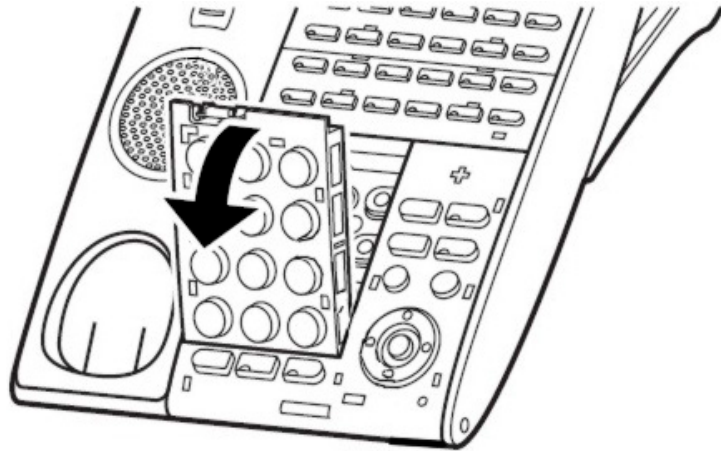


Figure 11-69 Remove Numbered Keypad

22. Install the new keypad panel supplied with the PSA-L UNIT.



Figure 11-70 Install Numbered Keypad

23. Reinstall both plastic panels to the front of the multiline terminal (refer to [Figure 11-71 Install Plastic Panels on page 11-87](#)).

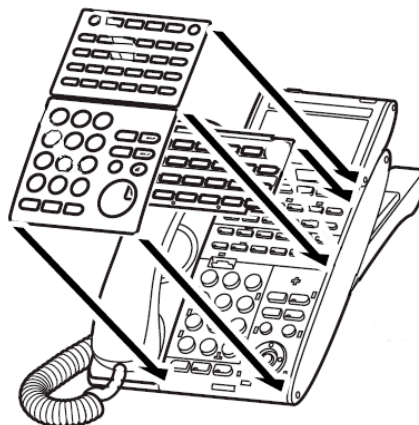


Figure 11-71 Install Plastic Panels

24. Connect the line cord to the adapter.
25. Connect the user system (KTS or PBX) cable.
26. If required, remove the side panel from the original cradle unit.

12.5.2 Using the PSA-L Adapter



CAUTION: Before installing or removing the PSA-L adapter, remove the line cord, LAN cable, and then AC adapter from the outlet.

1. **Placing Calls:**
When the PSTN line is activated either manually by the switch or due to a power failure, use the dial pad buttons (0-9, *, #) to place an outside call. Use the Vol ↑ or ↓ to increase or decrease audio levels.
 - Other than receiving calls, no other keyset functions are available.

2. **Answering Calls:**

- If you receive a call via PSTN during a conversation via LAN, answer the call by completing the LAN call and placing the handset back into the cradle. Change the LAN/PSTN Change Switch to PSTN and then lift the handset to answer the call. If you change the LAN/PSTN Change Switch to the PSTN position while talking via LAN, the LAN call is disconnected.
- Other than receiving calls, no other terminal functions are available.

3. **Adjusting the Ring Volume**

Use the Volume Control Switch located on the PSA-L adapter to adjust through the three available volume levels.

- Other than receiving calls, no other terminal functions are available.

4. **When Power is Restored**

The IP keyset restarts and reconnects to the network LAN. However, if you are on a PSTN call when the power is restored, your conversation continues until the handset is placed in the cradle. Once this occurs, the IP terminal restarts and reconnects to the LAN.

- Other than receiving calls, no other terminal functions are available.

SECTION 13 **POWER FAILURE TELEPHONES**

13.1 **Power Failure**

The system allows connection for basic telephone service during a power failure. The power failure operation occurs during a commercial power failure, and is not affected by blade failure. Power Failure Transfer is provided by connecting to the CD-4COTB blade.

The CD-4COTB Blade provides 2 Power Failure Transfer circuits.

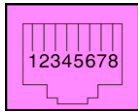
The CN3 and CN5 connectors each provide connection to four analog trunk ports, **which are polarity sensitive (tip to tip, ring to ring)**. The power failure circuits, however, are not polarity sensitive. A maximum of 15 CD-4COTB blades per system is allowed.



When connecting the RJ-61 cables to the COIU Blade, note the position of the Power Failure connector. Do not confuse connector CN3 as the CN2 trunk connector.

13.2 Connector Pin-Outs on COIU Blade for Power Failure Circuits

Table 11-4 RJ-61 Cable Connector

RJ-61 Cable Connector - CN13, SLT Interface for Power Failure		
	Pin No.	Connection
	1	—
	2	—
	3	Circuit 2 - Tip
	4	Circuit 1 - Ring
	5	Circuit 1 - Tip
	6	Circuit 2 - Ring
	7	—
	8	—

13.3 Installing the Power Failure Telephones

1. Connect an RJ-61 connector to the COIU Blade installed in the system.
2. Install a modular jack for each single line telephone supporting PF operation. The modular jack should be within six feet of the phone.
3. For each extension, run one-pair 24 AWG station cable from the cross-connect block to a modular jack.
4. Terminate the extension leads to GRN/RED of the modular jack. Terminate the unused leads to the jack. Refer to [Figure 11-72 Power Failure Connector \(CN3\) Shown on CD-4COTB Blade on page 11-90](#).

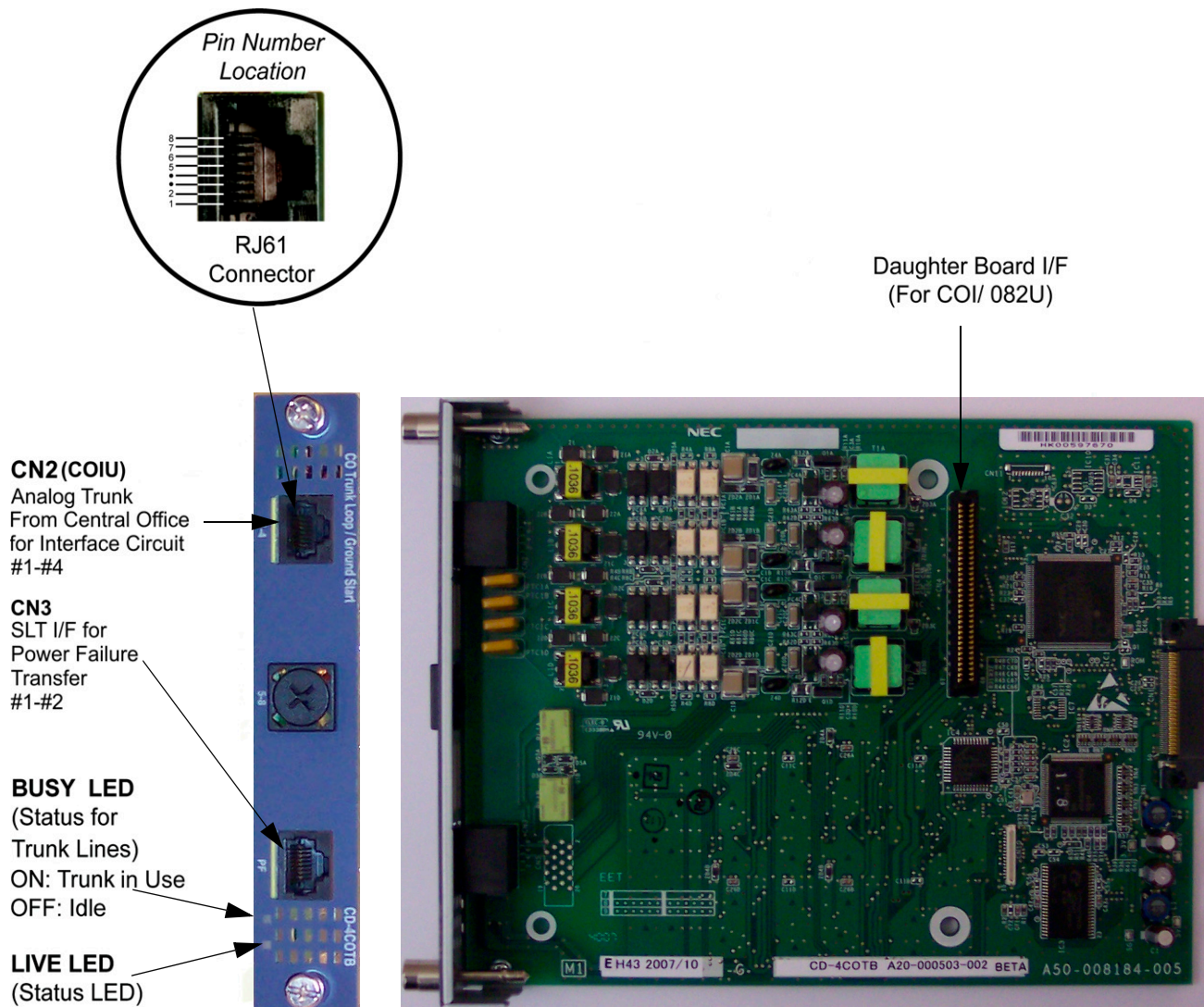


Figure 11-72 Power Failure Connector (CN3) Shown on CD-4COTB Blade

Installing D^{term} Series i Telephones

SECTION 1 GENERAL INFORMATION

The SV8100/SV8300 system supports several different Electra Elite IPK II D^{term} Series i Multiline Terminals and an Attendant Console. This chapter describes each terminal and the console and provides instructions for attaching the terminals to the system and for wall mounting.

The new compact 19" chassis provides 104 total ports (80 digital terminals) and can be expanded, using three additional 19" chassis, for a maximum of 416 ports (320 digital terminals).

SECTION 2 MULTILINE TERMINALS

2.1 DTR-2DT-1 TEL

This digital nondisplay Multiline Terminal has two programmable line keys (each with a 2-color LED), nine function keys, a built-in speakerphone, and a large LED to indicate incoming calls and messages. This terminal is available in black or white.

This terminal has a built-in data port that is available for analog devices. Each terminal requires a digital port.

 *The DTR-2DT-1 TEL does not support adapters.*



Figure 12-1 DTR-2DT-1 TEL

2.2 DTR-4D-1 TEL

This digital display Multiline Terminal has four multifunction keys, four programmable line keys (each with a 2-color LED), nine function keys, two volume keys, four softkeys, a built-in speakerphone, and a large LED to indicate incoming calls and messages. This terminal is available in black only.

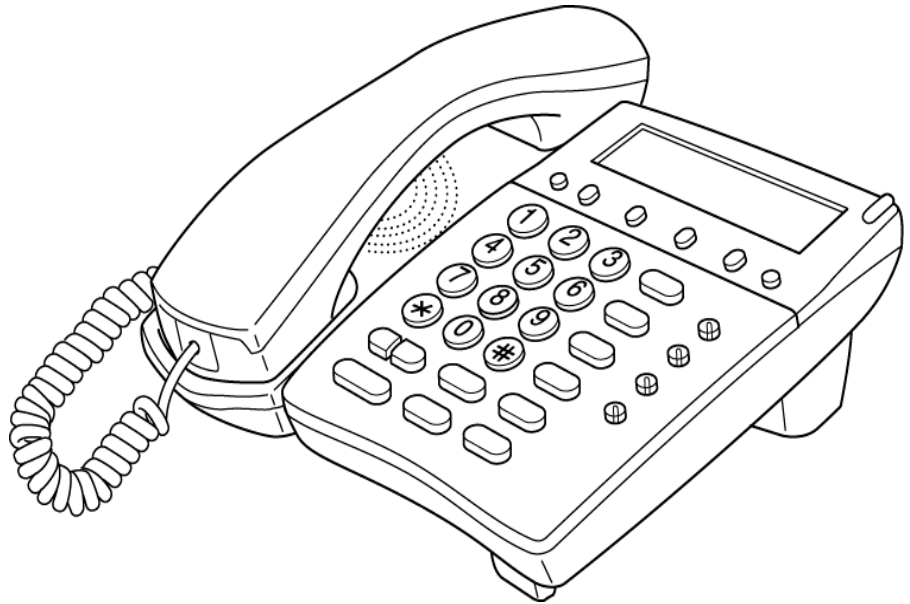


Figure 12-2 DTR-4D-1 TEL

2.3 DTH-8-1/2 TEL

This digital nondisplay Multiline Terminal has eight programmable line keys (each with a 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, or HF-R, Unit. This terminal is available in black or white.

The DTR-8-1/2 TEL is similar to the DTH-8-1/2 TEL and can also be used with the SV8100/SV8300 system.



Figure 12-3 DTH-8-1 TEL Multiline Terminal

2.4 DTH-8D-1/2 TEL

This digital Multiline Terminal has eight programmable line keys (each with the 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R, or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Liquid Crystal Display (LCD) and four softkeys.

The DTR-8D-1/2 TEL is similar to the DTH-8D-1/2 TEL and can also be used with the SV8100/SV8300 system.

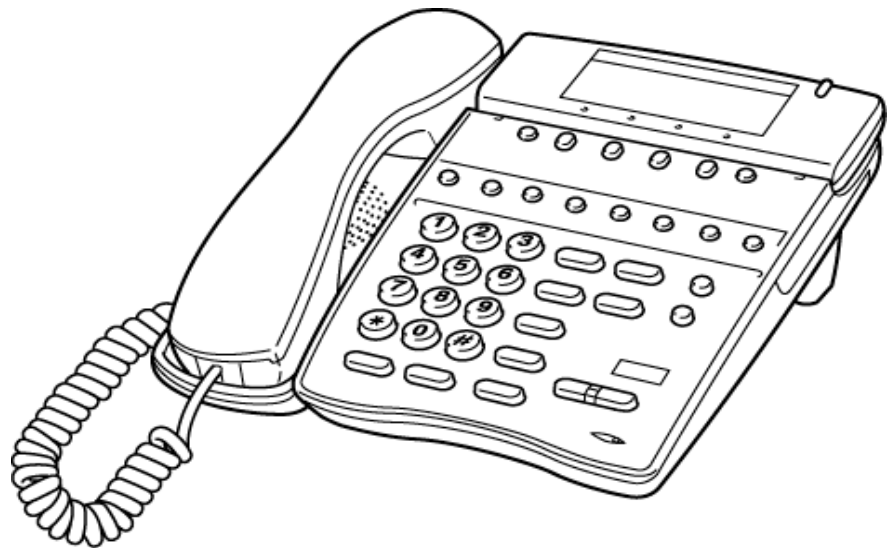


Figure 12-4 DTH-8D-1 TEL Multiline Terminal

2.5 DTH-16-1/2 TEL

This digital nondisplay Multiline Terminal has 16 programmable line keys (each with a 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, or HF-R, Unit. This terminal is available in black or white.

The DTR-16-1/2 TEL is similar to the DTH-16-1/2 TEL and can also be used with the SV8100/SV8300 system.



Figure 12-5 DTH-16-1 TEL Multiline Terminal

2.6 DTH-16D-1/2 TEL

This digital Multiline Terminal has 16 programmable line keys (each with a 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R, or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Liquid Crystal Display (LCD) and four softkeys.

The DTR-16D-1/2 TEL is similar to the DTH-16D-1/2 TEL and can also be used with the SV8100/SV8300 system.



Figure 12-6 DTH-16D-1 TEL Multiline Terminal

2.7 DTH-16(BL)-1/2 TEL

This digital Multiline Terminal has 16 programmable line keys (each with a 2-color LED), a built-in half-duplex speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R, or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Back-Lighted (BL) Liquid Crystal Display (LCD) and four softkeys.

The DTR-16(BL)-1/2 TEL is similar to the DTH-16(BL)-1/2 TEL and can also be used with the SV8100/SV8300 system.

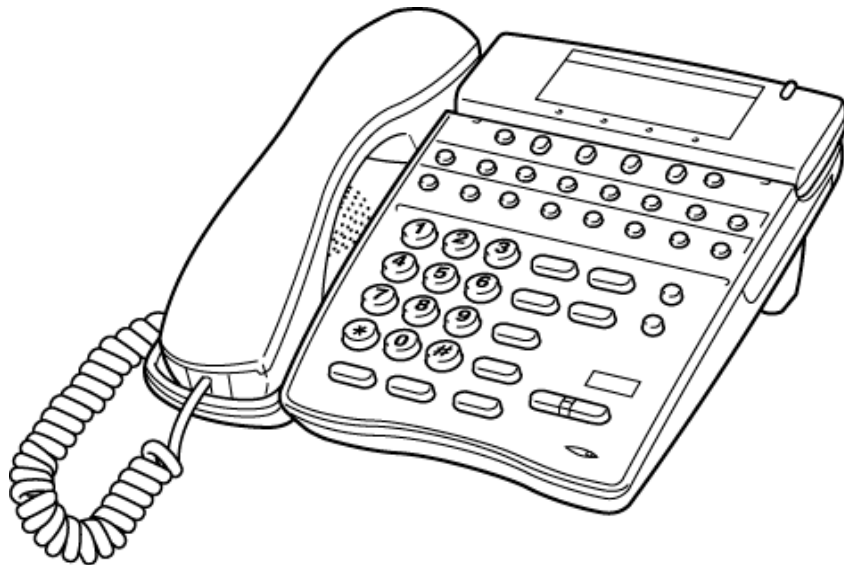


Figure 12-7 DTH-16(BL)-1 TEL Multiline Terminal

2.8 DTH-16LD-1/2 TEL

This digital Multiline Terminal has 16 programmable line keys, a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Liquid Crystal Display (LCD) and four softkeys.

This terminal is equipped with two additional 8-character LCDs. These can be programmed to identify the line key designations.

The DTR-16LD-1/2 TEL is similar to the DTH-16LD-1/2 TEL and can also be used with the SV8100/SV8300 system.



Figure 12-8 DTH-16LD-1 TEL Multiline Terminal

2.9 DTH-32D-1 TEL

This digital Multiline Terminal has 32 programmable line keys (each with a 2-color LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with AD(A)-R, AP(A)-R, AP(R)-R, CT(A)-R, CT(U)-R, HF-R, or IP-R Unit. This terminal is available in black or white.

This terminal also has a 3-line, 24-character, adjustable Liquid Crystal Display (LCD) and four softkeys.

The DTR-32D-1 TEL is similar to the DTH-32D-1 TEL and can also be used with the SV8100/SV8300 system.

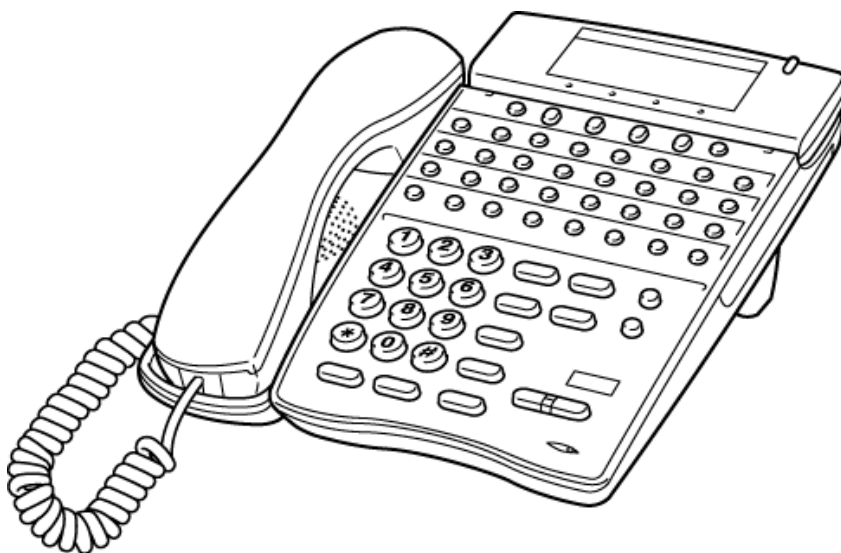


Figure 12-9 DTH-32D-1 TEL Multiline Terminal

2.10 DCR-60-1() Console

The Attendant Console has 115 programmable line keys (each with a 2-color LED). An AC adapter is required and provided with the Attendant Console.

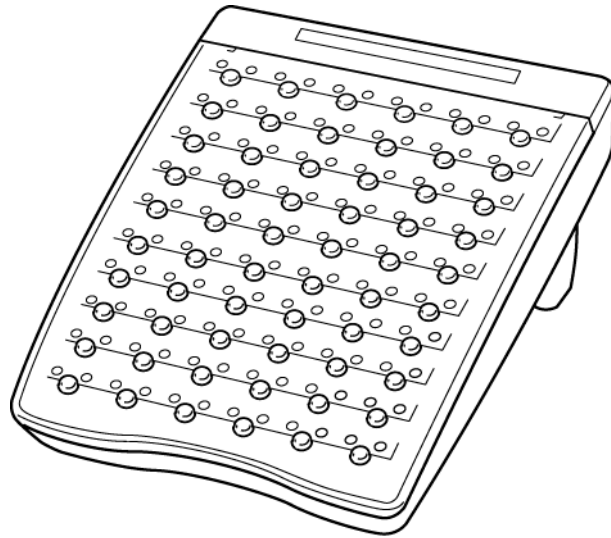


Figure 12-10 DCR-60-1() Console

SECTION 3 CONNECTING A MULTILINE TERMINAL TO THE SYSTEM

This instruction applies to all DTH/DTR/IP Electra Elite IPK Multiline Terminals except DTR-2DT-1 TEL.

1. Plug the telephone cord into the modular jack on the bottom side of the Multiline Terminal. The handset is also attached to the bottom side of the Multiline Terminal.

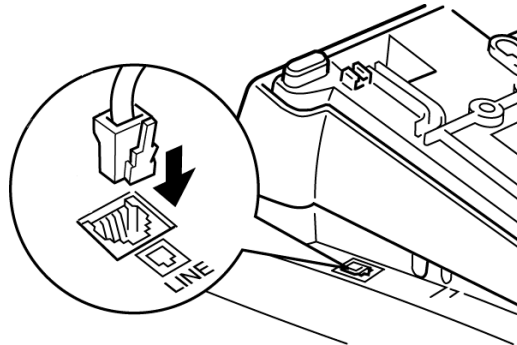


Figure 12-11 Connecting a Multiline Terminal to the System

2. Lead the telephone and handset cords through the applicable grooves.

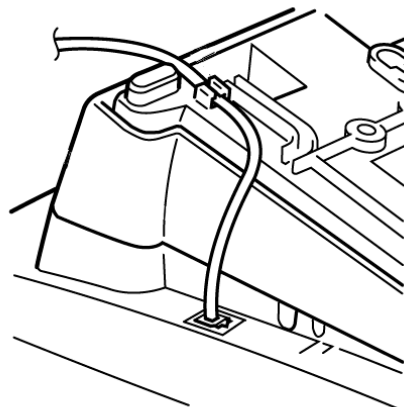


Figure 12-12 Leading Line Cords on a Multiline Terminal

SECTION 4 CONNECTING THE ATTENDANT CONSOLE TO A MULTILINE TERMINAL

An Attendant DCR-60-1 Console can be attached to a Multiline Terminal using the following procedure.

1. Place the Multiline Terminal and the Attendant Console face down.
2. Using the joining plate provided with the Attendant Console, attach the plate to the Multiline Terminal and the Attendant Console.

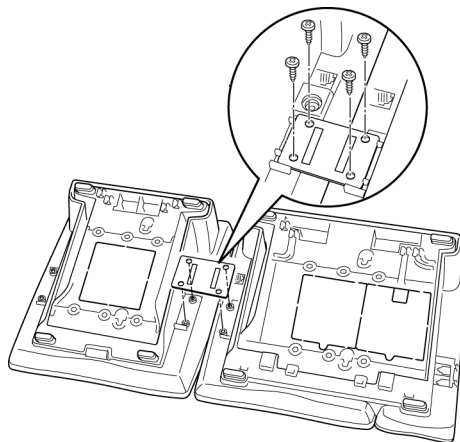


Figure 12-13 Connecting the DCR Console to a Multiline Terminal

3. Connect the line cord and the AC adapter to the indicated locations on the bottom of the Attendant Console.

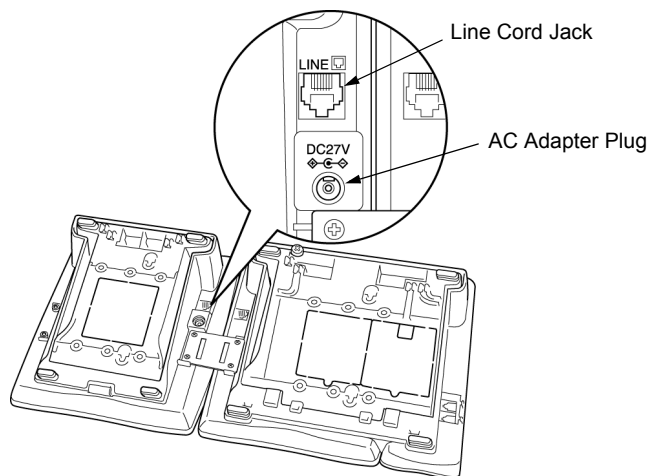



Figure 12-14 Connecting the Line Cord and AC Adapter when Installing a DCR Attendant Console

4. When the Attendant Console and the Multiline Terminal are properly connected, they sit side-by-side as shown in [Figure 12-15 Attendant Console and Multiline Terminal](#).

 Use only the AC adapter, provided with the Attendant Console. Using a different AC adapter may cause problems. Check that the supplied voltage matches that specified for the adapter and plug it in an outlet.

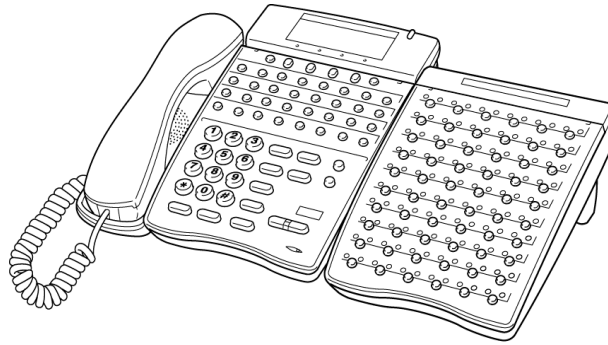


Figure 12-15 Attendant Console and Multiline Terminal

SECTION 5 ADJUSTING THE LCD ON A MULTILINE TERMINAL

The SV8100/SV8300 display Multiline Terminals have an adjustable Liquid Crystal Display (LCD). The LCD can be adjusted by pulling up or pushing down as desired.

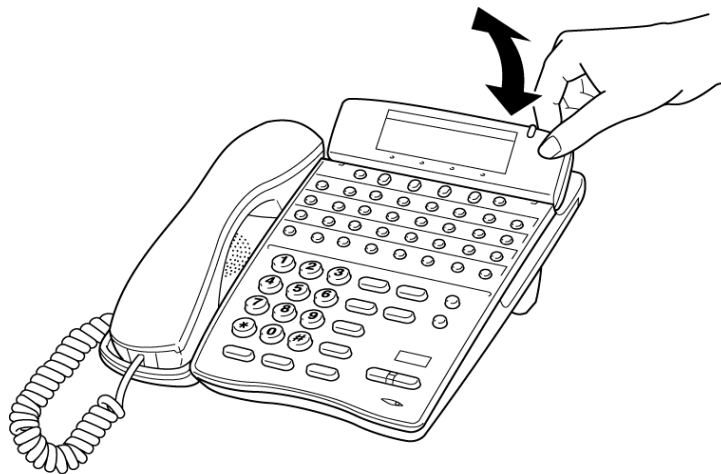



Figure 12-16 Adjusting the LCD on a Multiline Terminal

SECTION 6 INSTALLING LINE CARDS AND PLASTIC PANELS

6.1 Installing the Line Card and Plastic Panel

Line key designations are entered on the line card that is then placed on the telephone to provide a quick reference of key designations. The line cards can be changed as necessary. The plastic panel is placed on top of the line card to hold it in place.

1. Place the line card over the keys on the Multiline Terminal.

 *When replacing an existing plastic panel or line card refer to paragraph [6.2 Removing the Plastic Panel](#).*

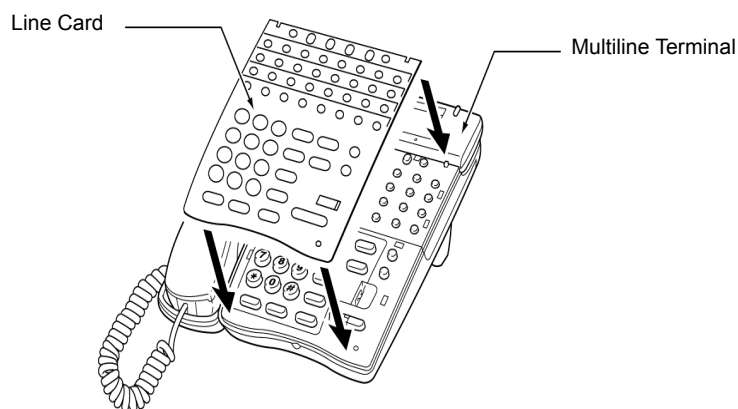


Figure 12-17 Installing Line Card and Plastic Panel on a Multiline Terminal

2. Place the plastic panel over the line card and push the corners of the plastic panel until they click into place.

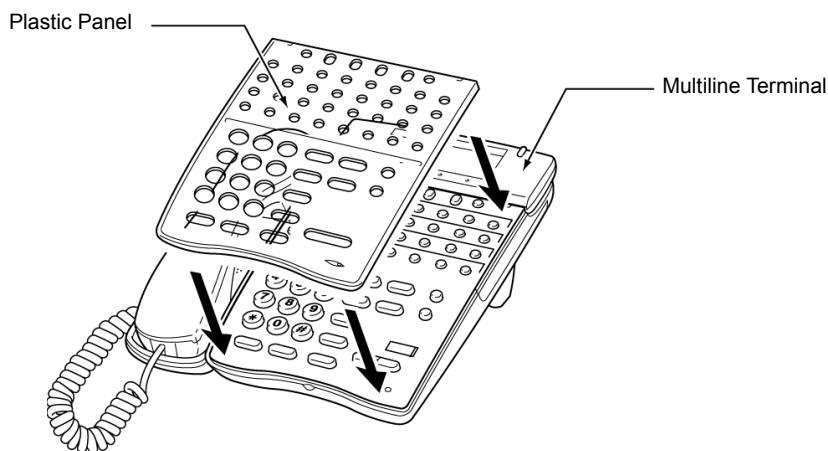


Figure 12-18 Installing Plastic Panel on a DTH/DTR Multiline Terminal

6.2 Removing the Plastic Panel

Lift up on the plastic panel as illustrated in [Figure 12-19 Removing the Plastic Panel from the Multiline Terminal](#) and remove it from the telephone.

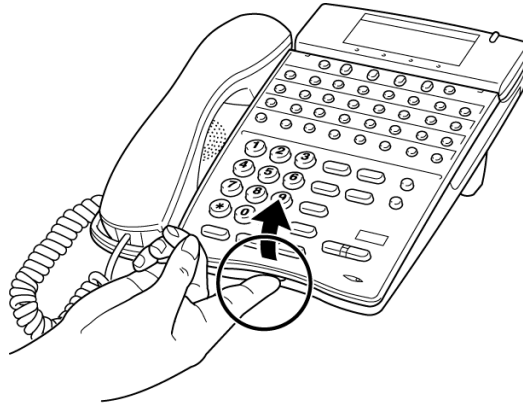


Figure 12-19 Removing the Plastic Panel from the Multiline Terminal

SECTION 7 INSTALLING A DIRECTORY CARD ON A MULTILINE TERMINAL

A directory card can be attached to DTH/DTR/ITH Multiline Terminals. The directory card can be used to record often dialed numbers or other important information.

1. After recording the information on the lined insert, reinsert it between the plastic panels of the directory card. Attach the directory card to the directory card holder as illustrated in [Figure 12-20 Attaching Directory Card to Directory Card Holder](#). Note that the open end slides into the directory card holder.

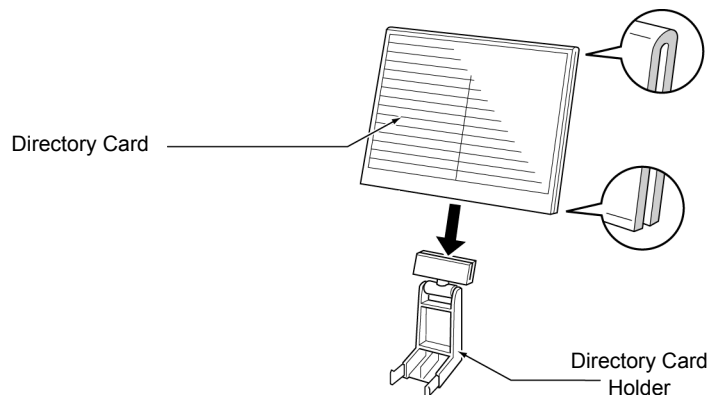



Figure 12-20 Attaching Directory Card to Directory Card Holder

2. Locate the two grooves on the top of the telephone as illustrated in [Figure 12-21 Attaching Directory Card Holder to the Multiline Terminal](#). Push the directory card holder into the grooves on the Multiline Terminal until they snap into place.

 *To remove the directory card, press the two sides of the directory card holder inward until the tabs release and pull the holder out of the grooves.*

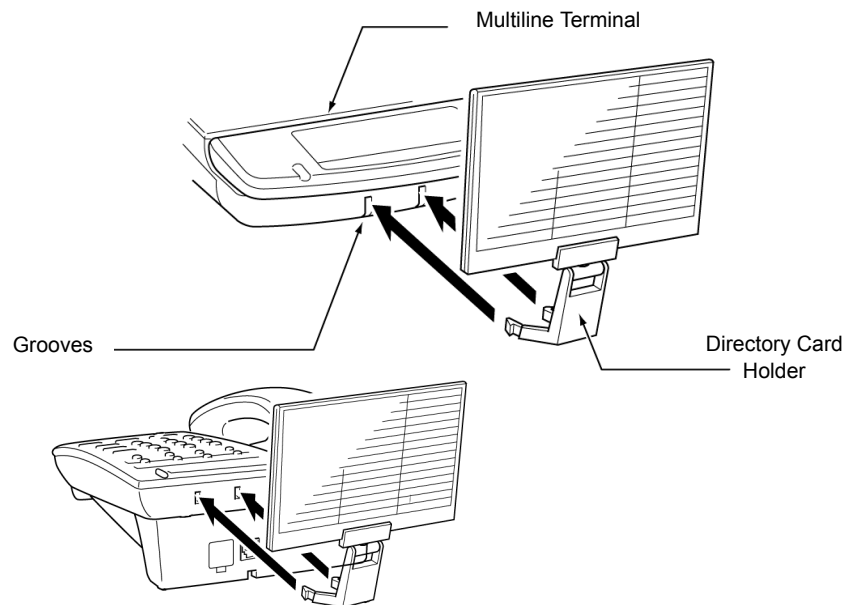


Figure 12-21 Attaching Directory Card Holder to the Multiline Terminal

SECTION 8 INSTALLING A BUTTON SET ON A MULTILINE TERMINAL

The BS()-R Unit button set can be installed on a Multiline Terminal to accommodate French and Spanish languages. The keypad provides the appropriate language designations.

1. Remove the plastic cover. (Refer to paragraph [6.2 Removing the Plastic Panel on page 12-16.](#))
2. Pull up on the tab and lift the button pad away from the telephone to remove the existing button.

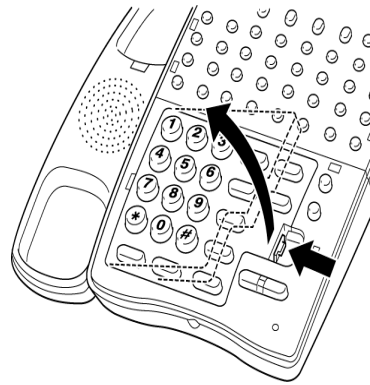


Figure 12-22 Removing the Button Set from a Multiline Terminal

3. Slide the new button set into the grooves located on the inside of the telephone, then press down on the button set to snap it into place.

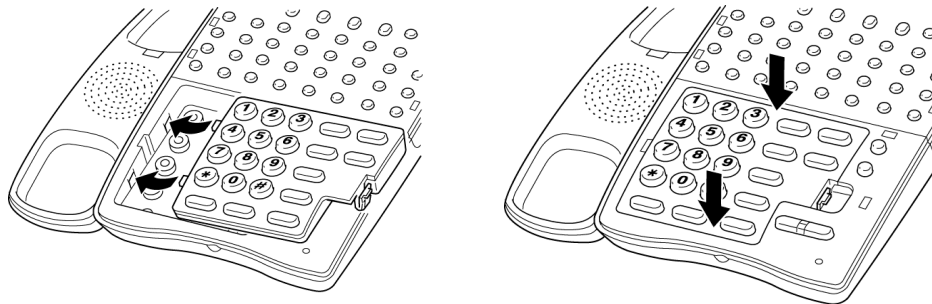


Figure 12-23 Inserting a New Button Set into a Multiline Terminal

4. Insert the line card and plastic panel on the Multiline Terminal.

SECTION 9 ADJUSTING THE HEIGHT ON A MULTILINE TERMINAL

The base plate on the Multiline Terminal is hinged to allow the height of the terminal to be raised or lowered.

1. Grasp in the middle of the hollow spaces at the top and pull up until the retaining tabs click to raise the base plate. Refer to [Figure 12-24 Raising the Height on the DTH/DTR Multiline Terminal](#).

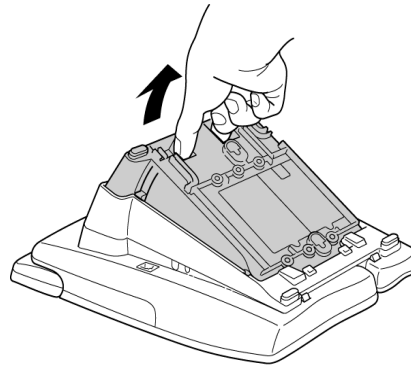


Figure 12-24 Raising the Height on the DTH/DTR Multiline Terminal

2. After the height is adjusted, pull the line cord through the groove in the bottom of the Multiline Terminal and adjust it.
3. Push on the adjustment tabs on the side of the stand and push down to lower the base plate. Refer to [Figure 12-25 Lowering the Base Plate on the Multiline Terminal](#).

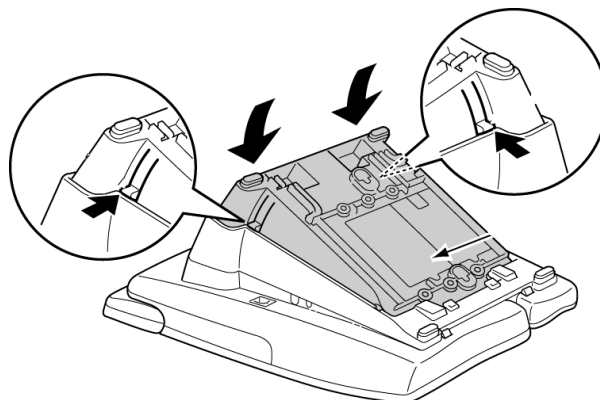


Figure 12-25 Lowering the Base Plate on the Multiline Terminal

SECTION 10 REMOVING OR INSTALLING THE BASE PLATE ON A MULTILINE TERMINAL

DTH/DTR Multiline Terminals come equipped with a base cover.

10.1 Removing the Base Plate

1. Extend the base plate to maximum height.
2. Press the tabs as illustrated in [Figure 12-26 Removing Base Plate](#), and slide the base cover in the direction of the arrows until it clicks.

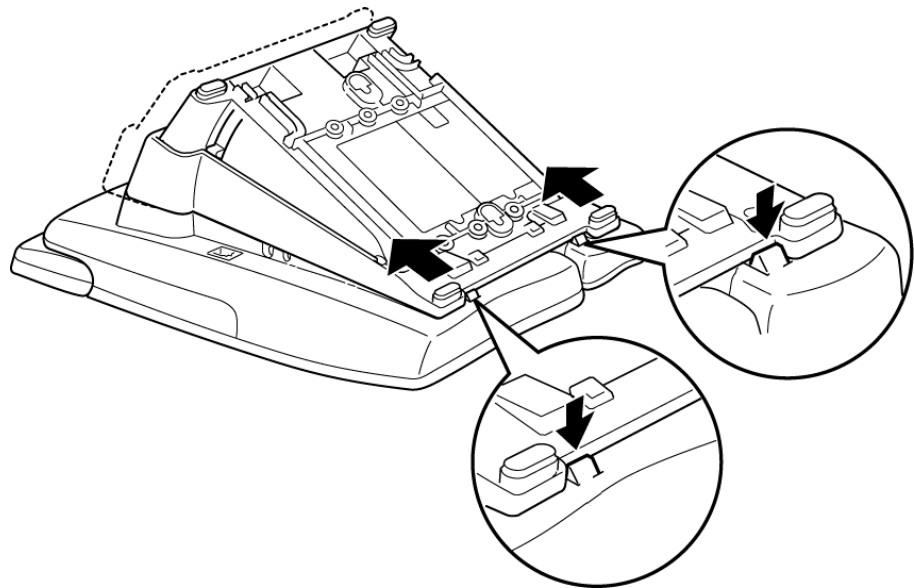


Figure 12-26 Removing Base Plate

10.2 Installing the Base Plate

1. Line up the four tabs on the extended base cover with corresponding slots on the Multiline Terminal as illustrated in [Figure 12-27 Installing Base Plate](#).
2. Slide the cover in the direction of the arrows until it clicks in place.

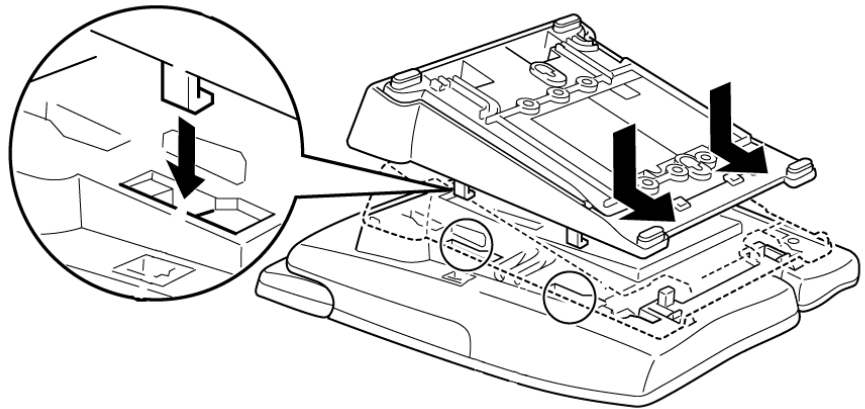


Figure 12-27 Installing Base Plate

SECTION 11 WALL MOUNTING MULTILINE TERMINALS

You can wall mount a DTH/DTR connection Multiline Terminal (except for DTR-2D-1 TEL) using the base cover or an optional wall mount unit. A wall mount unit must be used if adapters are installed on the Multiline Terminal.

11.1 Wall Mounting a Multiline Terminal using the Base Plate

11.1.1 Adjusting the Hanger Hook

1. Remove the hook from the unit.

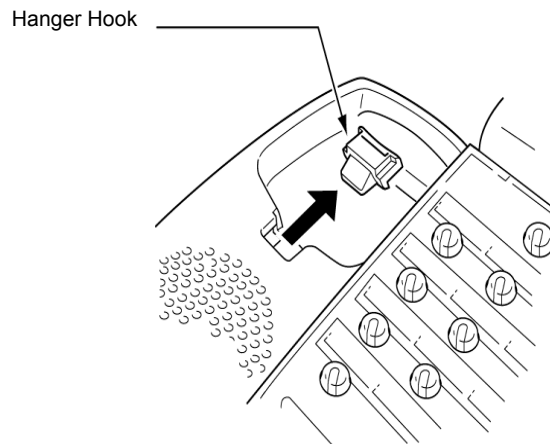


Figure 12-28 Removing the Hanger Hook on a Multiline Terminal

2. Turn the hook with the tab toward the top.
3. Slide the hook until it glides into position forming the hanger hook for the handset.

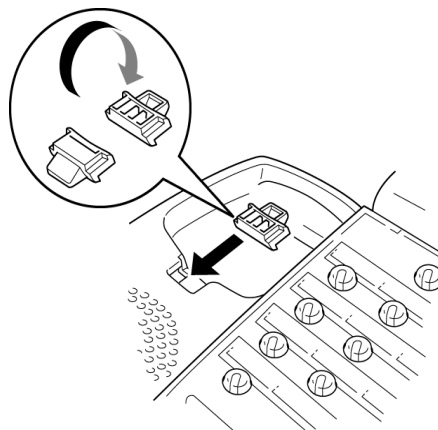


Figure 12-29 Sliding the Hanger Hook into Position

11.1.2 Wall Mounting the Telephone

1. Extend and remove the base cover from the telephone. Refer to [Section 10 Removing or Installing the Base Plate on a Multiline Terminal](#).
2. Remove cutout shown in [Figure 12-30 Removing the Cutout](#).

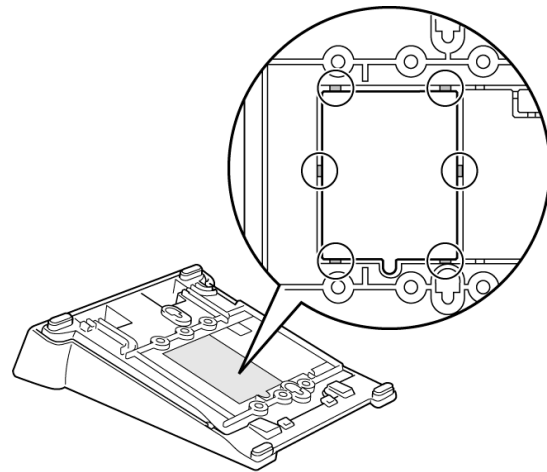


Figure 12-30 Removing the Cutout

3. Plug line cord in the wall receptacle. Leave about eight inches of cord and bundle the rest as shown in [Figure 12-31 Bundling the Line Cord](#).

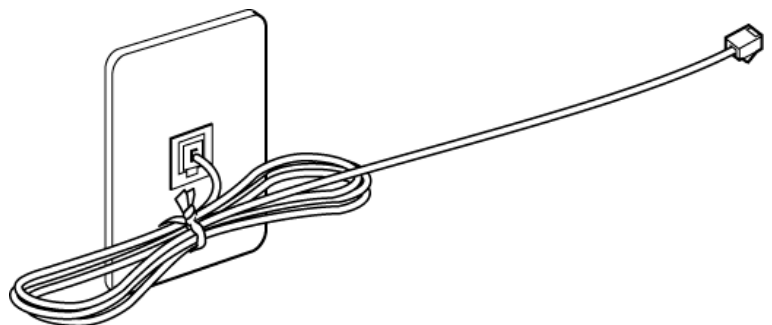


Figure 12-31 Bundling the Line Cord

4. Turn the base cover upside down, feed the line cord through the cutout and attach the cover to the wall using six screws as shown in [Figure 12-32 Wall Mounting the Base Plate](#).

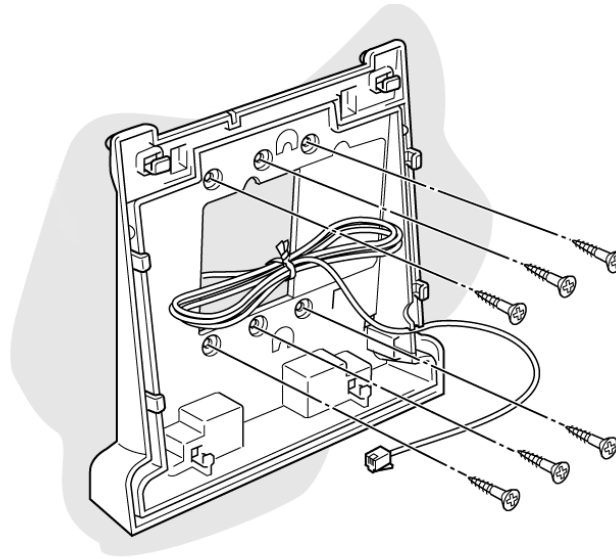


Figure 12-32 Wall Mounting the Base Plate

5. Install the Multiline Terminal over the four tabs on the base cover, and push down until it clicks in place.

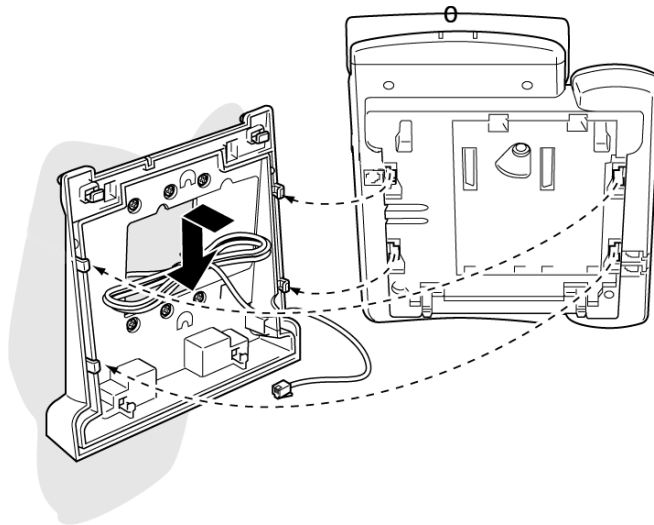


Figure 12-33 Installing the Multiline Terminal

6. Plug the line cord into the Multiline Terminal as illustrated in [Figure 12-34 Plugging in Line Cord](#).

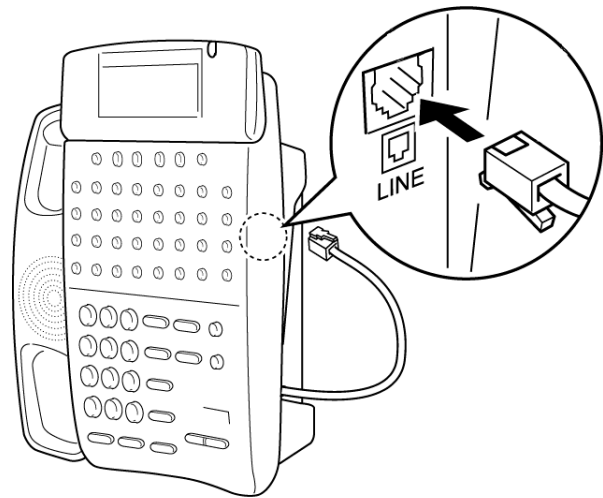


Figure 12-34 Plugging in Line Cord

7. Push spare line cord behind the Multiline Terminal as shown in [Figure 12-35 Hiding Excess Cord](#).

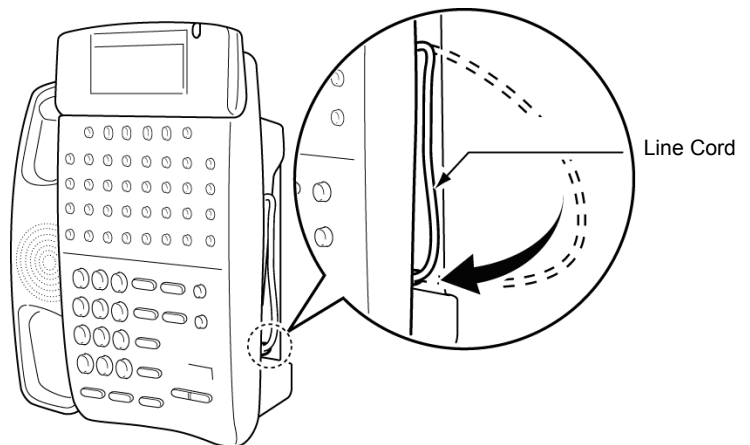


Figure 12-35 Hiding Excess Cord

11.1.3 Removing the Wall Mounted Multiline Terminal from the Base Plate

To remove the Multiline Terminal, press the tabs at the bottom as shown in [Figure 12-36 Removing the Multiline Terminal](#), and push up on the Telephone until it comes loose.

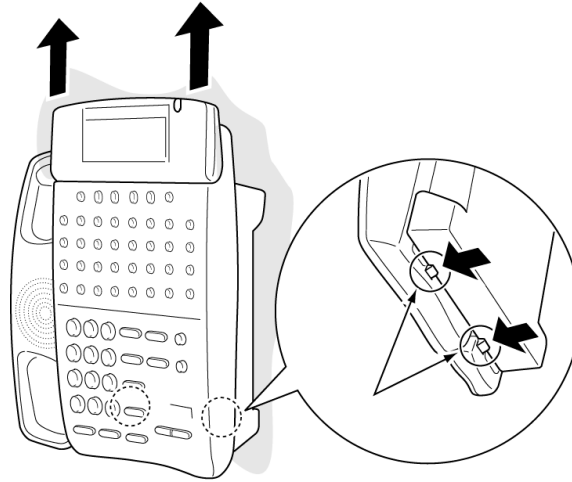


Figure 12-36 Removing the Multiline Terminal

11.1.4 Wall Mounting the Base Plate on a Switch Box

1. Locate the screw holes on the base cover and hang the cover over the screws on the switch box as illustrated in [Figure 12-37 Wall Mounting Base Plate on Switch Box](#).

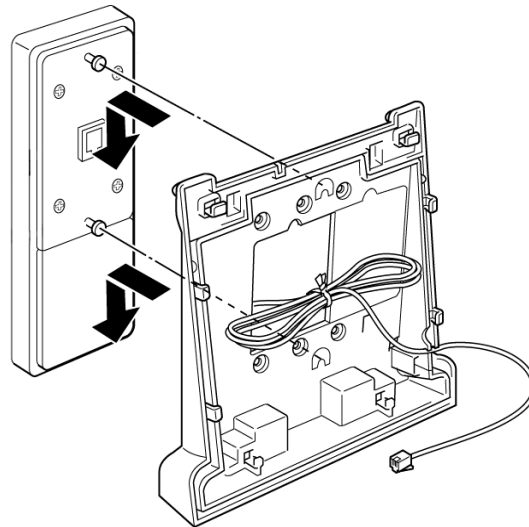


Figure 12-37 Wall Mounting Base Plate on Switch Box

2. Hang the Multiline Terminal on the base cover.

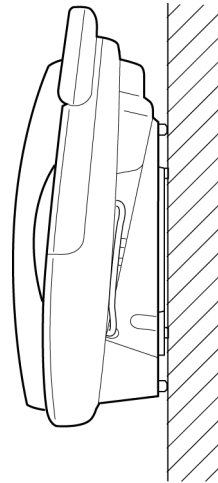


Figure 12-38 Wall Mounted Multiline Terminal



Because of strength variation in switch boxes, this method is not recommended.

SECTION 12 WALL MOUNTING A MULTILINE TERMINAL USING THE WALL MOUNT UNIT (WM-R UNIT)

The Wall Mount Unit is used to attach any DTH/DTR connection Multiline Terminal (except the DTR-2DT-1 TEL) to the wall. This unit connects to the back side of the telephone.

When adapters are used, the Multiline Terminal must be installed on the wall using the WM-R Unit.

1. Plug line cord in the wall receptacle. Leave about eight inches of cord and bundle the rest.
2. Feed the line cord through the opening in the wall mount unit as illustrated in [Figure 12-39 Attaching the Wall Mount Unit to the Wall](#).
3. Attach the WM-R Unit using six screws.

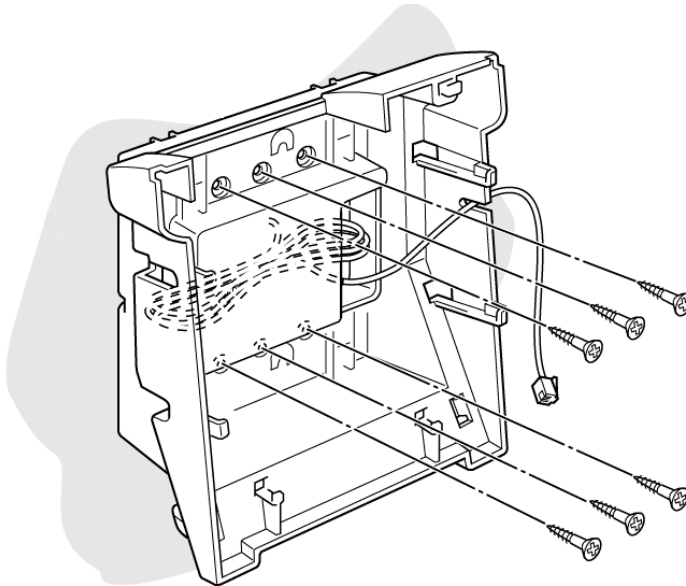


Figure 12-39 Attaching the Wall Mount Unit to the Wall

4. Install the Multiline Terminal over the four tabs on the base cover, and push down until it clicks in place as illustrated in [Figure 12-40 Attaching the Multiline Terminal to the Wall Mount Unit](#).

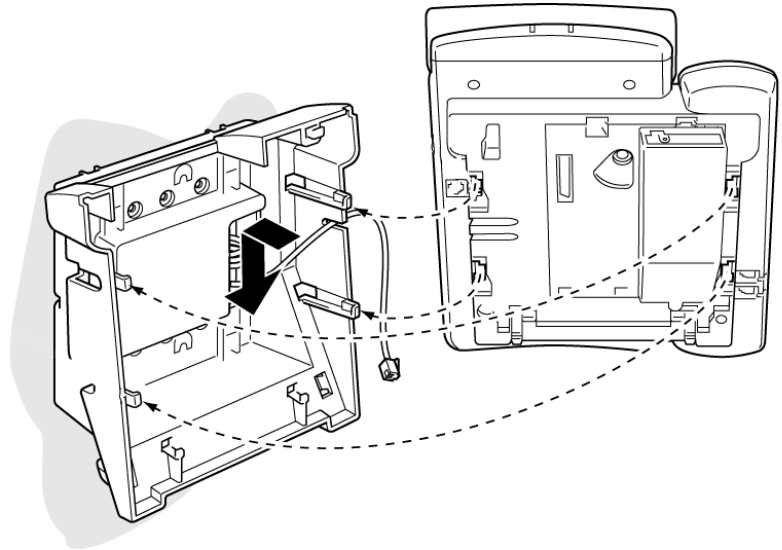


Figure 12-40 Attaching the Multiline Terminal to the Wall Mount Unit

5. Plug the line cord into the Multiline Terminal as illustrated in [Figure 12-41 Plugging in Line Cord](#).

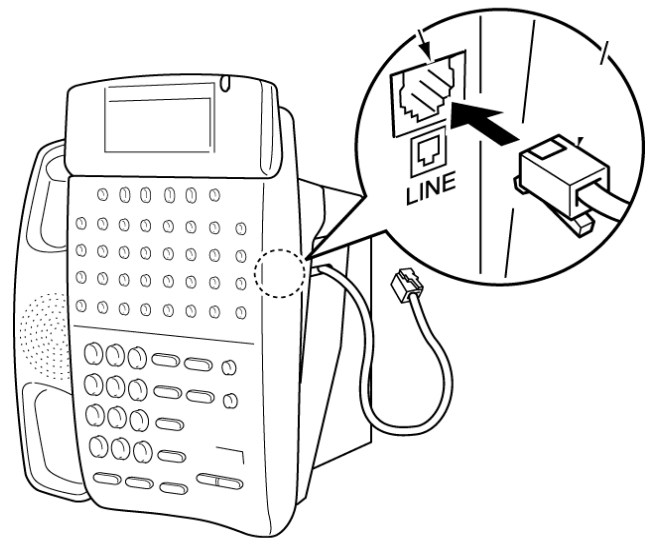


Figure 12-41 Plugging in Line Cord

6. Push spare line cord behind the Multiline Terminal as shown in [Figure 12-42 Hiding Excess Cord Behind the Wall Mount Unit](#).

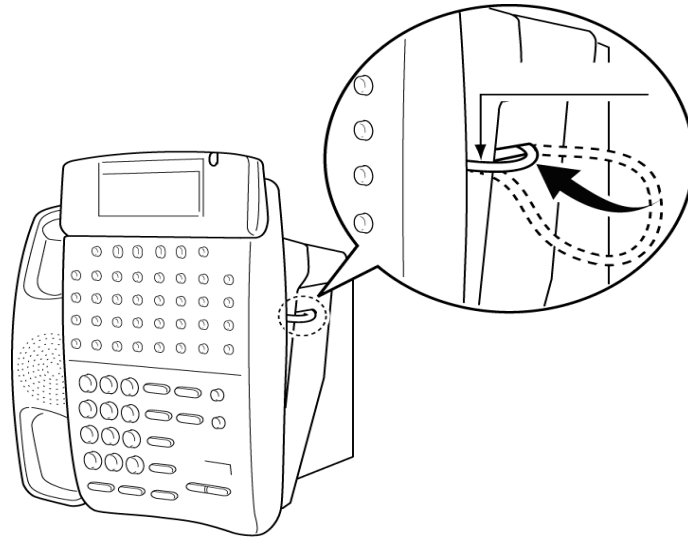


Figure 12-42 Hiding Excess Cord Behind the Wall Mount Unit

12.1 Removing the Wall Mounted Multiline Terminal from the Wall Mount Unit

To remove the Multiline Terminal, press the tabs at the bottom as shown in [Figure 12-43 Removing Multiline Terminal from the Wall Mount Unit](#), and push up on the Multiline Terminal until it comes loose.

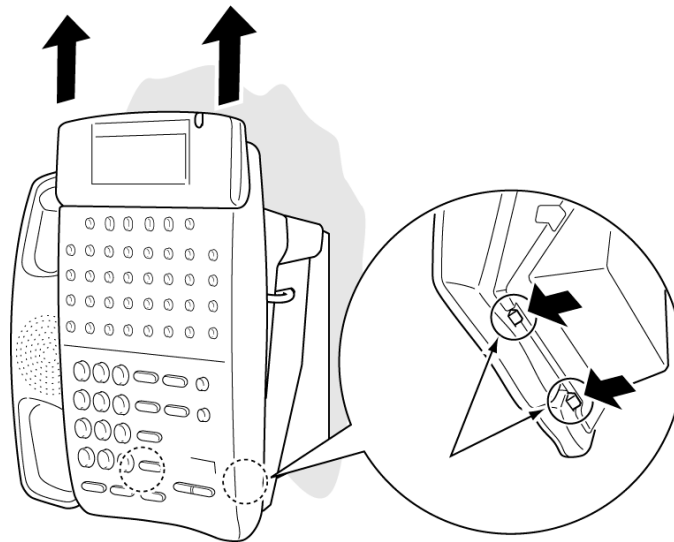



Figure 12-43 Removing Multiline Terminal from the Wall Mount Unit

12.2 Mounting the Wall Mount Unit on a Switch Box

1. Locate the screw holes on the wall mount unit and hang the cover over the screws on the switch box as illustrated in [Figure 12-44 Mounting Wall Mount Unit on the Switch Box](#).

 *This method is not recommended because of varied strength of switch boxes.*

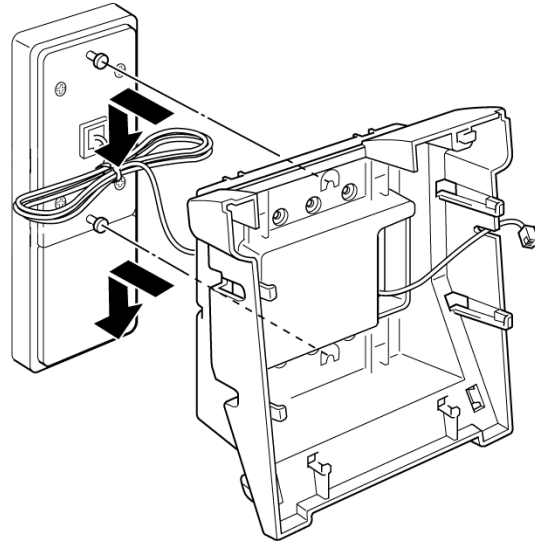


Figure 12-44 Mounting Wall Mount Unit on the Switch Box

2. Hang the Multiline Terminal on the base cover.

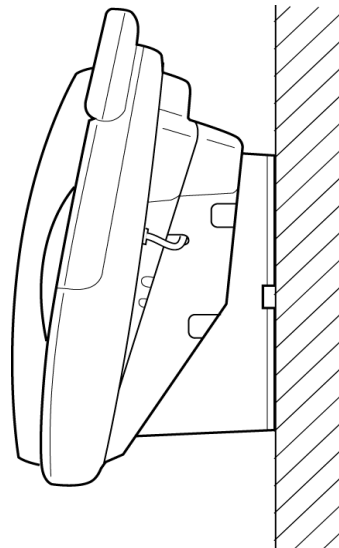


Figure 12-45 Wall Mounted Multiline Terminal

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Installing D^{term} Series i Optional Equipment

SECTION 1 GENERAL INFORMATION

The SV8100/SV8300 system provides several adapters that allow peripheral equipment to be attached to the IPK II D^{term} Series i Multiline Terminals. This optional equipment enhances the SV8100/SV8300 system and can be purchased separately as a customer business grows. Each Multiline Terminal (except DTR-2DT-1) can have up to two adapters installed at the same time. This chapter describes each adapter and provides applicable installation instructions.

SECTION 2 PREPARING MULTILINE TERMINAL FOR ADAPTER INSTALLATION

To prepare the Multiline Terminal for adapter installation:

1. Unplug the telephone line from the terminal.
2. Grasp in the middle of the hollow spaces at the top and pull up until the retaining tabs click to raise the base plate. Refer to [Figure 13-1 Raising the Base Plate](#).

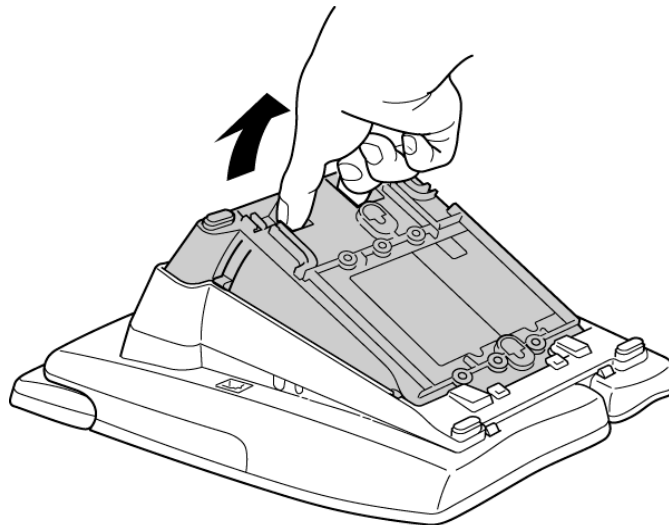


Figure 13-1 Raising the Base Plate

3. Press down on the tabs indicated in [Figure 13-2 Removing the Multiline Terminal Base Plate](#), and push forward on the base plate to remove it.

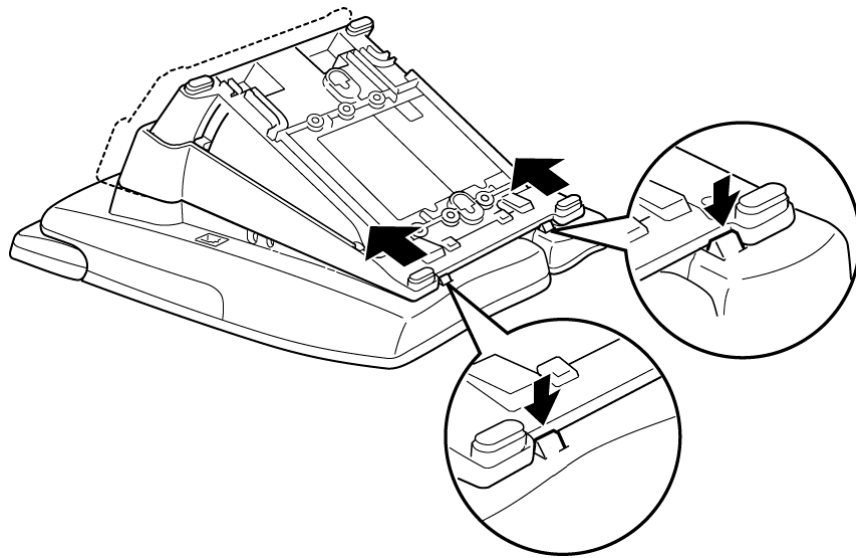


Figure 13-2 Removing the Multiline Terminal Base Plate

4. When an adapter is installed for the first time, the base cover on the Multiline Terminal must be modified. Two adapters can be installed in the Multiline Terminal, and two separate cutouts are provided. Remove the applicable cutout/cutouts on the bottom of the base plate. When only one adapter is being installed and it needs an AC-2R/AC-3R Unit for power, remove only the right cutout as shown in [Figure 13-3 Modifying Base Plate for Adapter Installation](#).

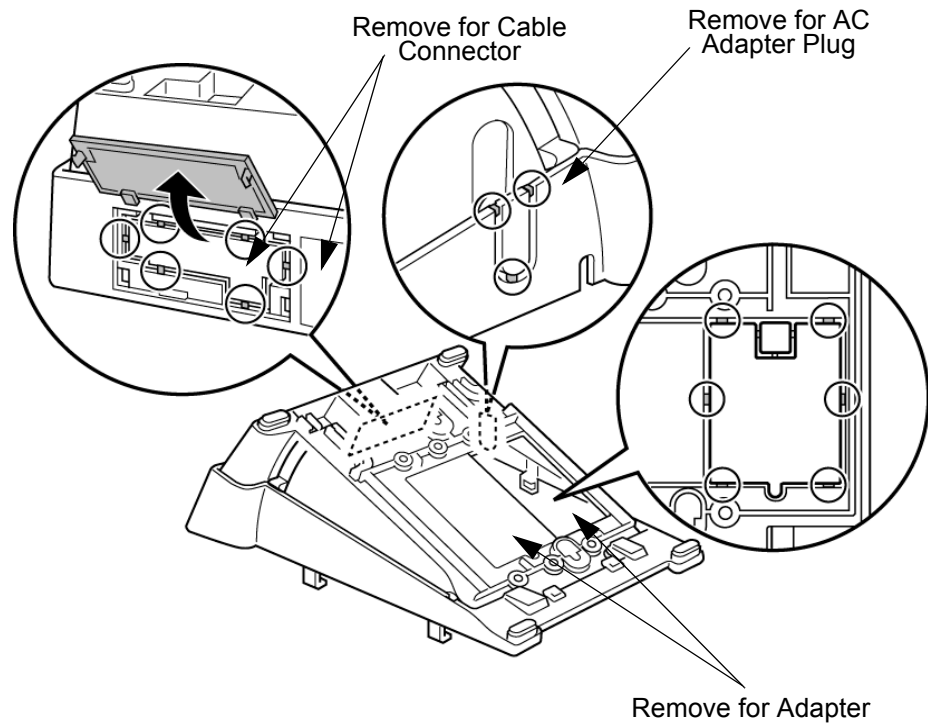


Figure 13-3 Modifying Base Plate for Adapter Installation

SECTION 3 INSTALLING ADAPTERS

3.1 AC-2R/AC-3R Unit (AC Adapter)

This unit shown in [Figure 13-4 AC-2R/AC-3R Unit \(AC Adapter\)](#) provides power to ancillary devices or to an Attendant Console. The AC-2R/AC-3R Unit must be connected to some adapters that are installed on a Multiline Terminal. When more than one adapter is installed on a Multiline Terminal, only **one** AC-2R/AC-3R Unit is necessary.

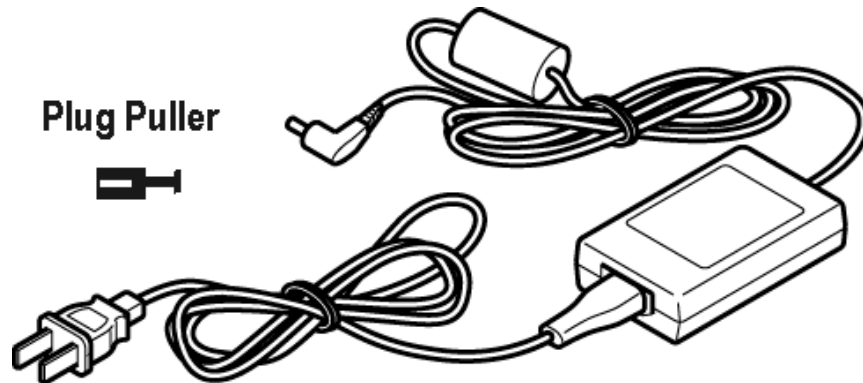


Figure 13-4 AC-2R/AC-3R Unit (AC Adapter)

The power requirements for the AC-2R/AC-3R Unit are:

- ☐ Input: 110~240 Vac, 50/60 Hz, 45 VA
- ☐ Output: 27 Vdc, 750 mA
- ☐ Polarity: \ominus ————— \bullet ————— \oplus

3.1.1 Connecting the AC-2R/AC-3R Unit

1. Unplug the AC-2R/AC-3R Unit from the AC outlet.



Failing to do this can damage the unit and/or the Multiline Terminal.

2. Prepare Multiline Terminal for adapter installation. Refer to [Section 2 Preparing Multiline Terminal for Adapter Installation](#) on page 13-1.

3. The Plug Puller shown in [Figure 13-4 AC-2R/AC-3R Unit \(AC Adapter\)](#) is a hollow cylindrical sleeve with a post and a circular rim on the base. The plug of the adapter is inserted in this hole, and the sleeve is pulled over the back of the plug to seat the post that can then be used to unplug the adapter.
4. Locate the plug on the ancillary device that is connected to the bottom of the Multiline Terminal and plug in the AC Adapter.

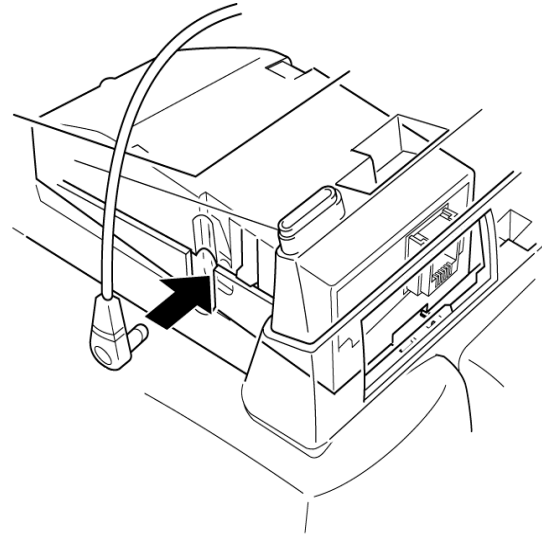


Figure 13-5 Connecting the AC Adapter to an Installed Adapter

3.2 AD(A)-R Unit (Ancillary Device Adapter)

This Ancillary Device Adapter, shown on [Figure 13-6 AD\(A\)-R Unit](#), allows connection of a tape recorder to all Multiline Terminals except the DTR-2DT-1.

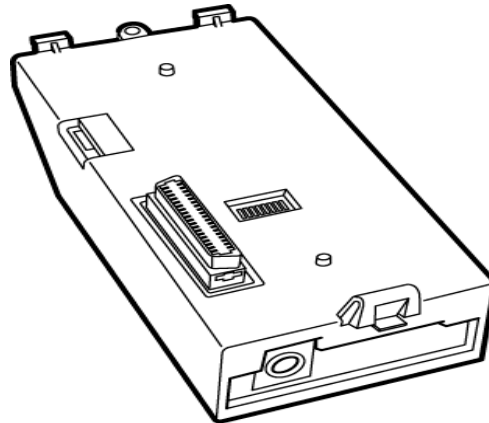


Figure 13-6 AD(A)-R Unit

[Figure 13-7 Connecting a Multiline Terminal to a Recording Device using an AD\(A\)-R Unit \(Example\)](#) illustrates how the AD(A)-R Unit is connected to the ESI(8)-U() ETU and to the recording device.

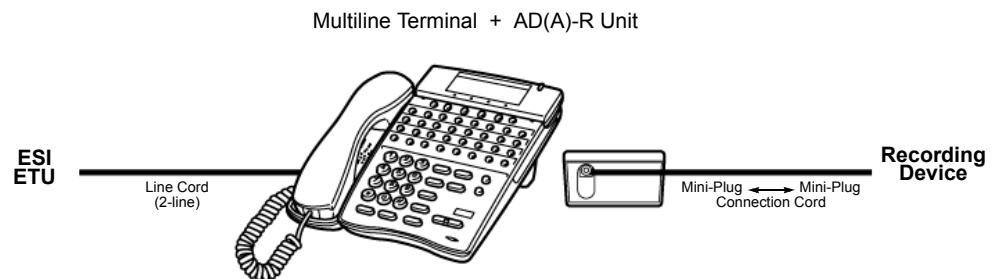


Figure 13-7 Connecting a Multiline Terminal to a Recording Device using an AD(A)-R Unit (Example)

When installing the AD(A)-R Unit, connect the cables to the AD(A)-R Unit, set the dip switches, and then install the AD(A)-R Unit on the Multiline Terminal.

3.2.1 Connecting Cables to the AD(A)-R Unit

The first step in installing the AD(A)-R Unit is to connect the cables between the recording device and the AD(A)-R Unit.

Cable terminal connectors are located on the side of the AD(A)-R Unit. Cables should be connected on this unit **before** installing the unit on the Multiline Terminal.

Cables can be connected to determine whether or not pause control is provided for the recording.

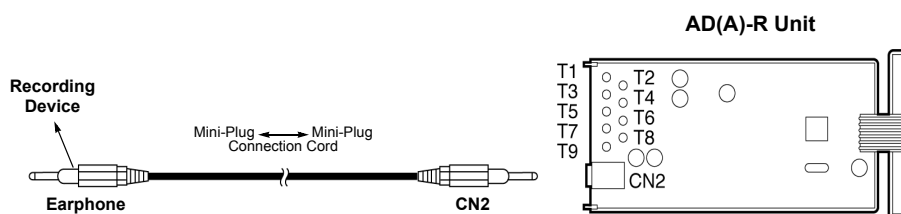


Figure 13-8 AD(A)-R Unit Connection without Pause Control

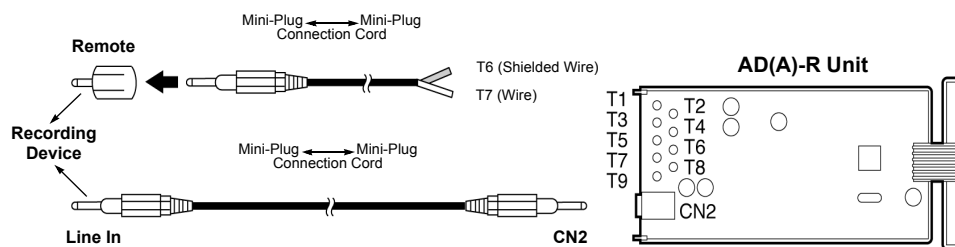


Figure 13-9 AD(A)-R Unit Connection with Pause Control

To connect the cables:

1. Cut off the plug on one end of the cable.
2. Remove the screw as illustrated in [Figure 13-10 Removing AD\(A\)-R Unit Cover on page 13-8](#) and open the unit cover.

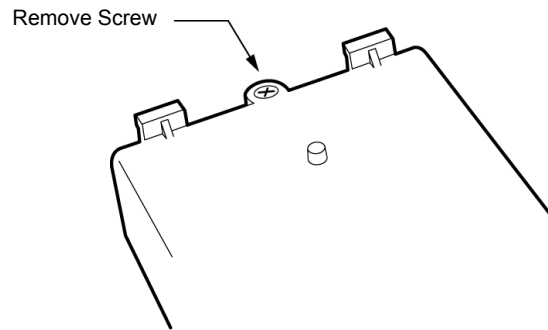


Figure 13-10 Removing AD(A)-R Unit Cover

3. Locate the adapter terminals on the unit.
4. Remove the cap on the adapter terminal to expose the metal receptacle. Push the cable in the applicable receptacle, and replace the cap. Line up the slot on the cap with the slot on the metal receptacle to ensure proper contact. Refer to [Figure 13-11 Attaching Cables to the AD\(A\)-R Unit](#).

Attach the cables to the AD(A)-R Unit according to [Table 13-1 AD\(A\)-R Unit Cable Connections](#) on page 13-9.

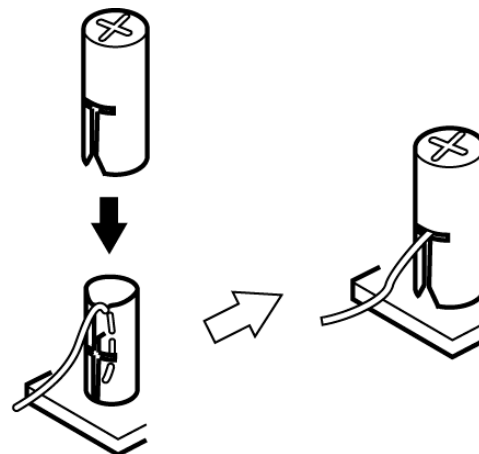


Figure 13-11 Attaching Cables to the AD(A)-R Unit








Table 13-1 AD(A)-R Unit Cable Connections

Terminal Number	Cables to Connect	Terminal Specifications
T1	When warning tone is not being sent from the recorder, connect wire pair input from tone generator to T1:T2. The warning tones from the generator are sent to T1:T2 on a dedicated wire pair while the speech path is sent from the AD(A)-R on T3:T4 over a separate wire pair to the recorder.	Input Terminal: T1 and T2 are enabled for tone generating device when switches SW1-3 and SW1-4 are OFF. When switches SW1- 3 and SW1-4 are ON, a humming sound may be recorded due to impedance mismatch. Input Impedance on T1 and T2: 100K Ω Input Level on T1 and T2: -15 dB ~ 40 dB
T2		
T3:T4	Connect recorder device wire pair speech input to T3:T4. When the recorder used supplies a warning tone, this tone may also be sent over the T3:T4 wire pair back to the terminal.	Input/Output Terminal: Refer to dip switch settings in Table 13-2 AD(A)-R Unit Switch Settings .
T5	Connect the bare end of the control cable.	When a Multiline Terminal is idle, this contact is closed. When the Multiline Terminal goes off-hook (using the handset, headset, or speakerphone), this contact is open. When recording device owner's manual specifies start on open circuit, connect T5 and T6.
T6	Connect the shielded end of the control cable.	Provides common connection for control cable.
T7	Connect the bare end of the control cable.	When the Multiline Terminal is idle, this contact is open. When the Multiline Terminal is busy (using the handset, headset, or speakerphone), this contact is closed. When recording device owner's manual specifies start on closed circuit, connect T6 and T7.
T8	Unused	
T9		

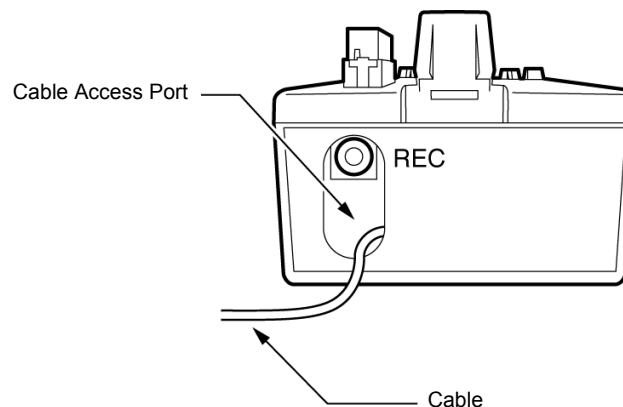
Table 13-1 AD(A)-R Unit Cable Connections (Continued)

Terminal Number	Cables to Connect	Terminal Specifications
-----------------	-------------------	-------------------------

Notes:

-  When recording in handsfree (half-duplex) mode using the built-in speakerphone, the record warning tone may not be audible to the far-end party.
-  The transmit recording level is lower than the receiving voice level for intercom calls; the transmit recording level for CO calls is normal.
-  Depending on the recording device(s), separate cables may be required for the warning tone and speech path. Then connect the warning tone cables to input terminals T1 and T2 on the AD(A)-R Unit (T3 and T4 are used as the recording device input).
-  When remote control of the recorder is necessary, the record start/stop control is provided by connecting to T5 (or T7) and T6 on the AD(A)-R Unit. (Connecting to T5 or T7 is determined by the specifications of the recording device.)
-  When a warning tone is provided from the recording equipment, it should be input via T3 and T4 on AD(A)-R Unit. Do not use T1 and T2 to input beep tone.
-  Conversations cannot be recorded from terminals connected to an AP(R)/AP(A)-R Unit.
-  Speakerphone calls through the HF-R Unit cannot be recorded.

5. Insulate the end of the cable that needs to be shielded with insulating tape.
6. Feed the installed cable through the cable access port, located on the back of the unit, as illustrated in [Figure 13-12 AD\(A\)-R Unit Cable Access Port](#).

**Figure 13-12 AD(A)-R Unit Cable Access Port**

3.2.2 Switch Settings

The AD(A)-R Unit has two switch locations SW1/SW2. The location of the switches on the AD(A)-R Unit is illustrated in [Figure 13-13 AD\(A\)-R Switch Default Settings](#). The dip switches (DSW) allow a technician to configure the unit for specific settings.

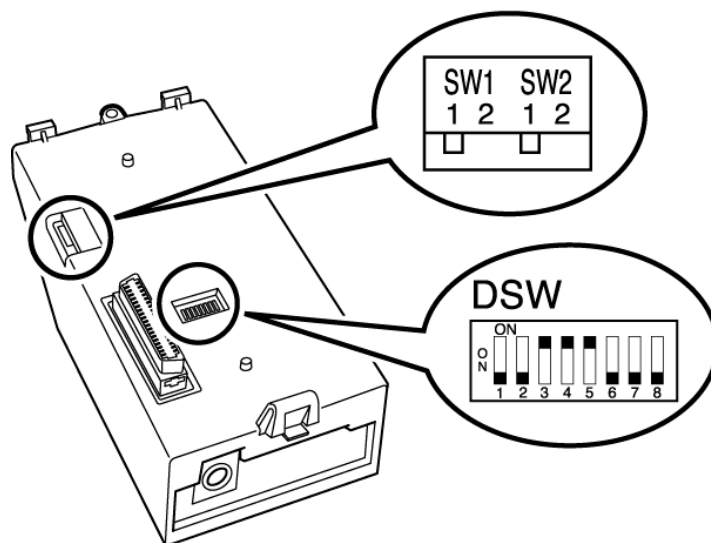


Figure 13-13 AD(A)-R Switch Default Settings


To provide control to the recorder or to enable/disable the record start warning tones, refer to [Table 13-2 AD\(A\)-R Unit Switch Settings](#).

Table 13-2 AD(A)-R Unit Switch Settings

Switch		Description/Settings
SW1	SW1-1	Connects to Multiline Terminal Connect = Default
	SW1-2	Not Used
SW2	SW2-1	Sets External Equipment Impedance to 600 Ω
	SW2-2	Used for Complex Impedance Devices ($< 30 \Omega$ Input Impedance)

Table 13-2 AD(A)-R Unit Switch Settings (Continued)

Switch		Description/Settings
Dip Switches (DSW)	DSW 1	Output Hook Signal to External Device On = Output Off = No Output (Default)
	DSW 2	Record Confirmation Tone On = Tone On Off = Tone Off (Default)
	DSW 3 and DSW 4	Use T1/T2 On = Disable (Default) Off = Enable
	DSW 5	Reset Signal Upgrade On = Normal (Default) Off = Debugging
	DSW 6~8	Firmware Upgrade On = Firmware Upgrade Off = Disable (Default)

 Do not connect T1 and T2 when DSW switches 3 and 4 are On.

3.2.3 Installing the AD(A)-R Unit on a Multiline Terminal

The AD(A)-R Unit should be installed **after** the cables are connected and the switches are set.

 If wall mounting the Multiline Terminal, a WM-R Unit must be used. Refer to [Section 11 Wall Mounting Multiline Terminals on page 12-22](#).

1. Unplug the telephone cord (and the AC-2R/AC-3R Unit cord if installed) from the multiline terminal.
2. Plug the tabs marked **A** and **B** into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked **C**. Refer to [Figure 13-14 Attaching the AD\(A\)-R Unit to the Multiline Terminal on page 13-13](#).

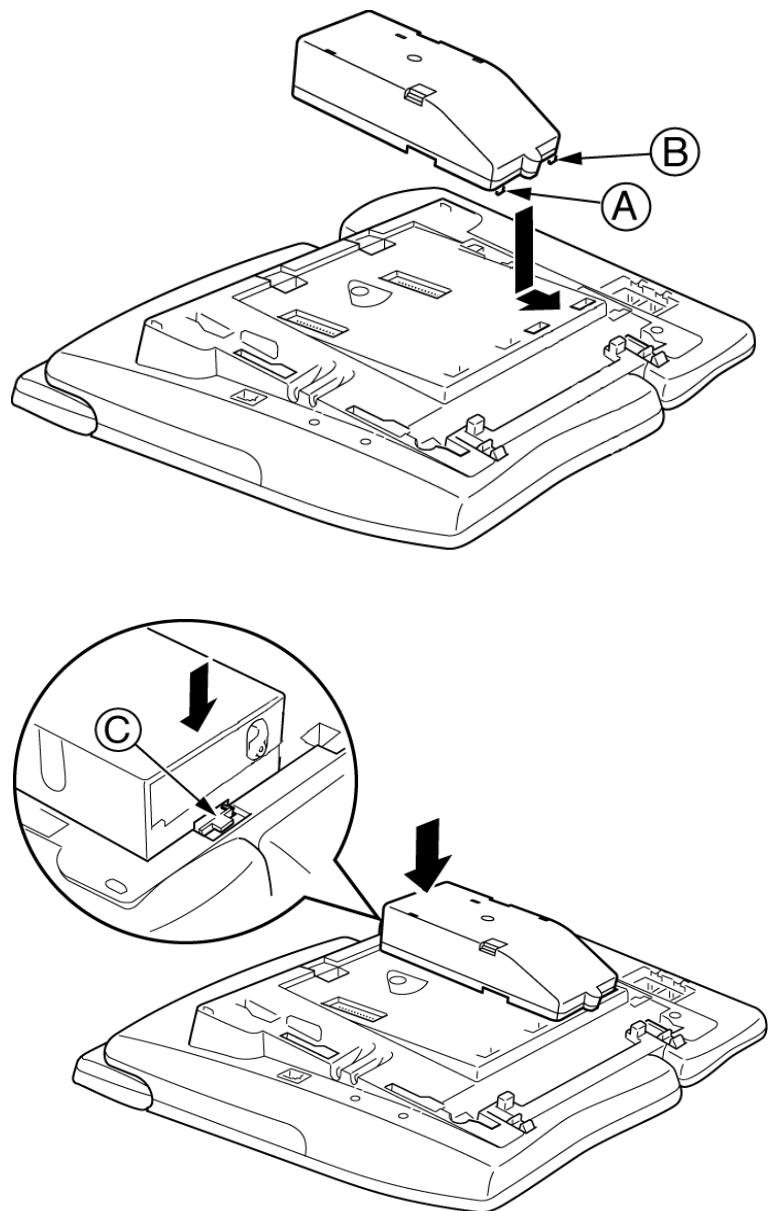


Figure 13-14 Attaching the AD(A)-R Unit to the Multiline Terminal

3. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System on page 12-12](#).

3.3 AP(A)-R Unit/AP(R)-R Unit (Port Adapter)

The AP(A)-R Unit Analog Port Adapter without Ringer or the AP(R)-R Unit Analog Port Adapter with Ringer is used to install a Single Line Terminal, Modem, Credit Card Reader, Wireless Headset, or other compatible analog device.

The AP(R)-R Unit generates ringing signals and requires an AC-2R/AC-3R Unit.

The AP(A)-R Unit or the AP(R)-R Unit can be installed on all multiline terminals except the DTR-2DT-1.

Figure 13-15 Connecting a Multiline Terminal to an Analog Telephone using an AP(A)-R Unit/AP(R)-R Unit (Example) illustrates how the AP(A)-R Unit/AP(R)-R Unit is connected to the ESI(8)-U() ETU and to an analog telephone.

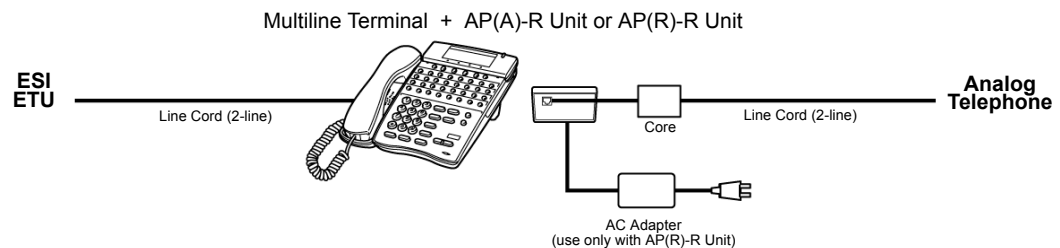


Figure 13-15 Connecting a Multiline Terminal to an Analog Telephone using an AP(A)-R Unit/AP(R)-R Unit (Example)

3.3.1 Switch Settings

The AP(A)-R Unit and AP(R)-R Unit have three switch locations. Refer to [Table 13-3 AP\(A\)-R/AP\(R\)-R Unit Switch Settings](#) for a description of each switch and an explanation of the settings.

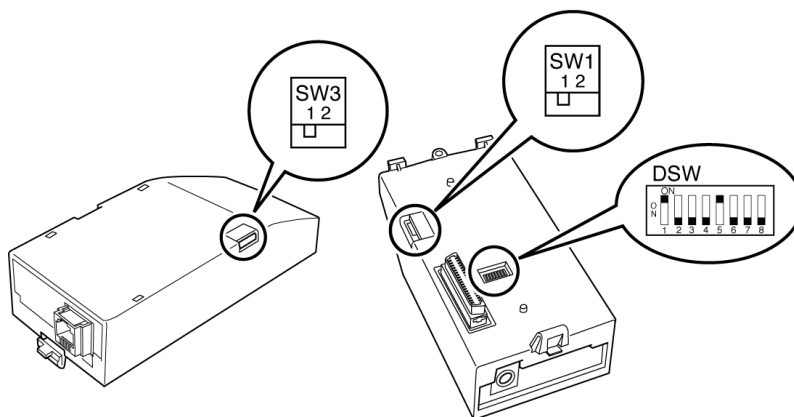


Figure 13-16 AP(A)-R Unit/AP(R)-R Unit Switches

Table 13-3 AP(A)-R/AP(R)-R Unit Switch Settings

Switch		Description/Settings
SW1	SW1-1	Connects to Multiline Terminal (default).
	SW1-2	Not Used
SW3	SW3-1	Sets impedance to 600 Ω for devices such as modems or facsimile machines.
	SW3-2	Used for complex impedance devices such as Single Line Telephones.
Dip Switches (DSW)	DSW 1~8	Leave switches at default.

3.3.2 Installing AP(A)-R or AP(R)-R Unit on a Multiline Terminal

The AP(A)-R or AP(R)-R Unit should be installed *after* the switches are set.

 *When wall mounting the Multiline Terminal, a WM-R Unit must be used. Refer to [Section 11 Wall Mounting Multiline Terminals on page 12-22](#).*

1. Prepare Multiline Terminal for adapter installation. Refer to [Section 2 Preparing Multiline Terminal for Adapter Installation on page 13-1](#).
2. Plug the tabs marked *A* and *B* into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked *C*. Refer to [Figure 13-17 Attaching the AP\(A\)-R/AP\(R\)-R Unit to the Multiline Terminal on page 13-17](#).

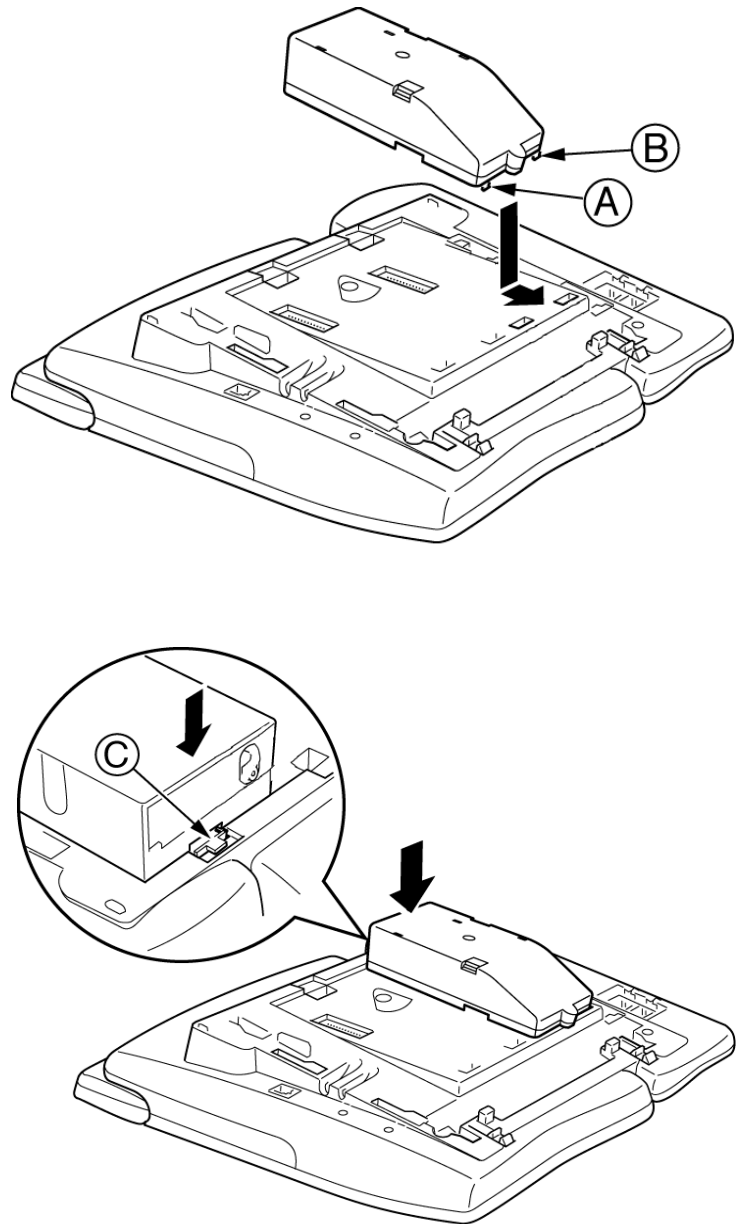


Figure 13-17 Attaching the AP(A)-R/AP(R)-R Unit to the Multiline Terminal

3. Install the ferrite core (provided with the unit) about two inches from the line cord plug.

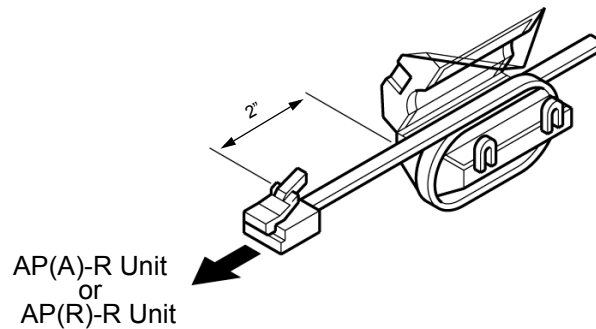



Figure 13-18 Installing the Ferrite Core on the AP(A)-R/AP(R)-R Unit

4. Connect the line cord to the unit, limiting the cable length from the AP(A)/AP(R)-R Unit to the Single Line Telephone to a maximum of 50 feet.

 *When only installing the AP(R)-R Unit, plug the AC Adapter (AC-2R/AC-3R Unit) power cord into the indicated AP(R)-R Unit receptacle and connect it to a power source. Refer to [Figure 13-5 Connecting the AC Adapter to an Installed Adapter on page 13-5](#).*

5. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System on page 12-12](#).

3.4 CT(A)-R Unit (Computer Telephony Adapter)

The Computer Telephony Adapter, CT(A)-R Unit allows a Multiline Terminal to be connected to a PC. The PC can perform all Multiline Terminal functions using a TAPI-compatible application software (Microsoft Telephony Application Programming Interface).

The Multiline Terminal must be located within five feet (1.5 m) of the PC. An AC-2R/AC-3R Unit is necessary.

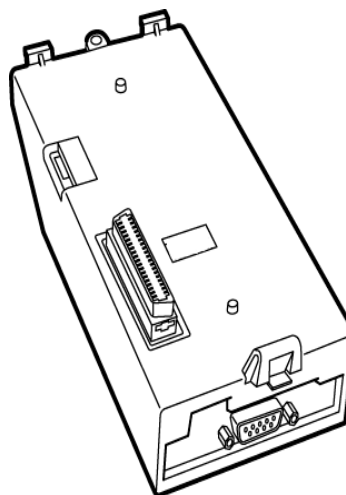


Figure 13-19 CT(A)-R Unit

Figure 13-20 Connecting a Multiline Terminal to a PC using a CT(A)-R Unit (Example) shows how the CT(A)-R Unit is connected to the ESI(8)-U() ETU and to the PC. The required AC-2R/AC-3R Unit adapter is not shown.

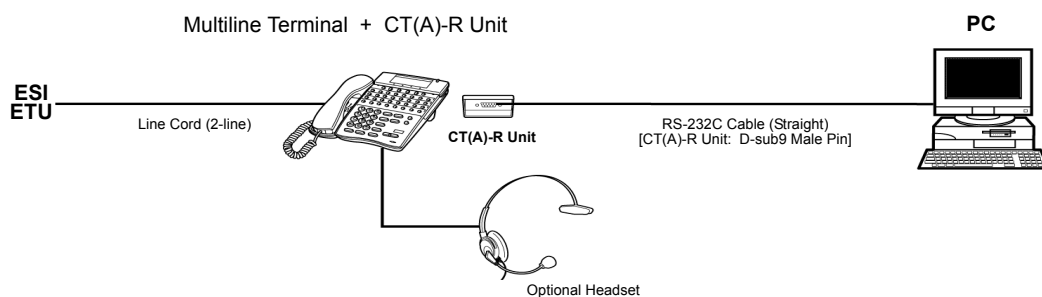



Figure 13-20 Connecting a Multiline Terminal to a PC using a CT(A)-R Unit (Example)

3.4.1 Installing the CT(A)-R Unit

The CT(A)-R Unit should be installed *before* connecting the PC and *before* connecting the ESI port to the Multiline Terminal.

 *When wall mounting the Multiline Terminal, a WM-R Unit must be used. Refer to [Section 11 Wall Mounting Multiline Terminals on page 12-22](#).*

1. Prepare Multiline Terminal for adapter installation. Refer to [Section 2 Preparing Multiline Terminal for Adapter Installation on page 13-1](#).
2. Plug the tabs marked *A* and *B* into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked *C*. Refer to [Figure 13-21 Attaching the CT\(A\)-R Unit to the Terminal on page 13-21](#).

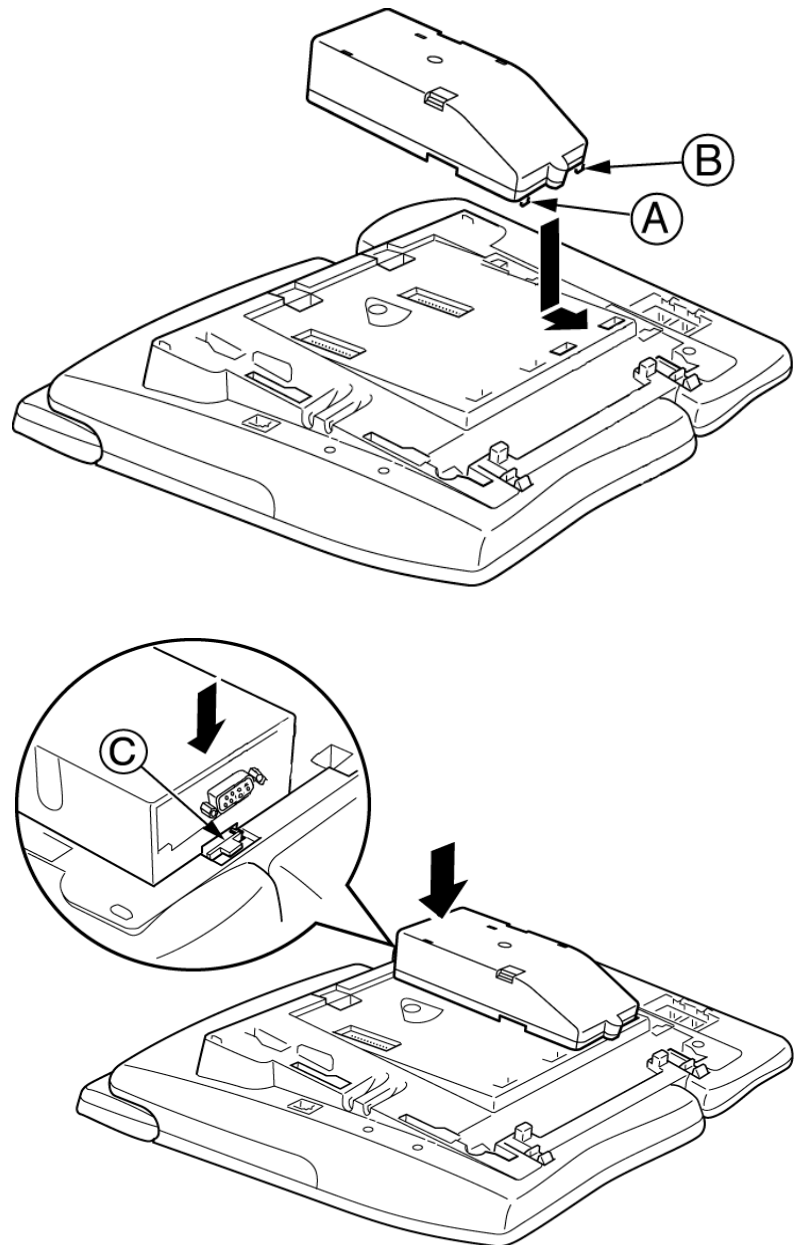


Figure 13-21 Attaching the CT(A)-R Unit to the Terminal

3. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System on page 12-12](#).

3.4.2 Connecting the CT(A)-R Unit to the PC

Connect RS-232C cable from the PC to the CT(A)-R Unit as shown in [Figure 13-22 Connecting the RS-232C Cable to the CT\(A\)-R Unit](#).

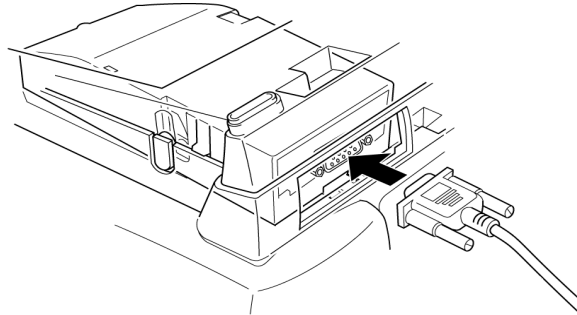


Figure 13-22 Connecting the RS-232C Cable to the CT(A)-R Unit

3.4.3 Installing the Optional Headset

Install the headset and anchor it in the cord slot on the Multiline Terminal as shown in [Figure 13-23 Attaching the Headset to the Multiline Terminal](#).

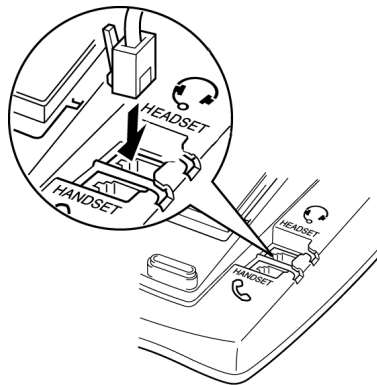


Figure 13-23 Attaching the Headset to the Multiline Terminal

3.4.4 Installing the Driver on the PC

Using the download from Web provided with the CT(A)-R Unit install the driver onto your PC. Refer to the CT(A)-R Unit installation instructions for installing the driver.

3.5 CT(U)-R Unit (Computer Telephony Adapter)

The CT(U)-R Unit Computer Telephony Adapter allows a Multiline Terminal to be connected to a PC using the PC USB port.

Connecting using the USB port provides telephony and sound device control. The general functions of the CT(U)-R Unit include:

- ☐ Telephony Control

The application is based on the Microsoft Telephony Application Programming Interface (TAPI) and provides call handling on the PC (e.g., call, answer, hold, transfer, conference, or caller ID).

- ☐ User Interface to Support D^{term} Emulation

This interface provides the functions of the D^{term} such as normal telephone indications, LCD, line keys or hookswitch.

- ☐ Sound Support

Allows voice recording or recording playing on an audio device assigned to a PC. Voice Mail and Live Record are supported on the PC.

- ☐ Plug and Play

An AC-2R/AC-3R Unit is necessary when using this unit.

This adapter can be installed on any Multiline Terminal except the DTR-2DT-1 TEL.

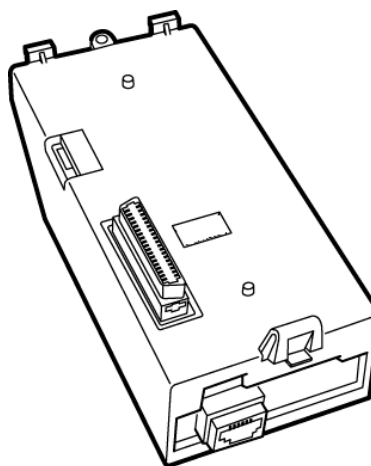


Figure 13-24 CT(U)-R Unit

Figure 13-25 Connecting a Multiline Terminal to a PC using a CT(U)-R Unit (Example) shows how the CT(U)-R Unit is connected to the ESI(8)-U() ETU and to the PC. The required AC-2R/AC-3R Unit is not shown.

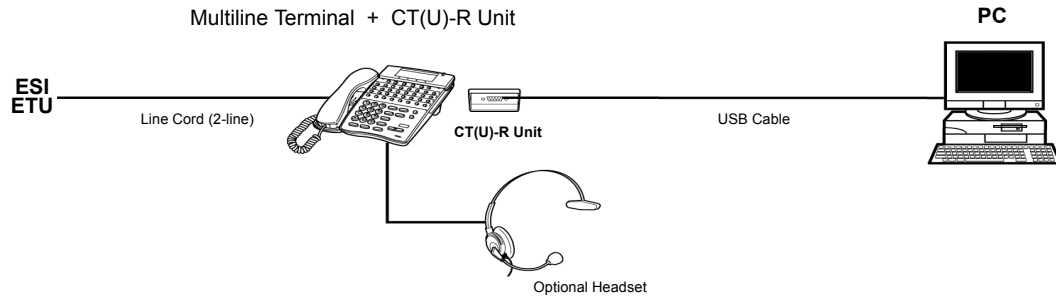



Figure 13-25 Connecting a Multiline Terminal to a PC using a CT(U)-R Unit (Example)

3.5.1 Installing the CT(U)-R Unit

The CT(U)-R Unit should be installed *after* the switches are set.

 When wall mounting the Multiline Terminal, a WM-R Unit must be used. Refer to [Section 11 Wall Mounting Multiline Terminals on page 12-22](#).

1. Prepare Multiline Terminal for adapter installation. Refer to [Section 2 Preparing Multiline Terminal for Adapter Installation on page 13-1](#).
2. Plug the tabs marked *A* and *B* into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked *C*. Refer to [Figure 13-26 Attaching the CT\(U\)-R Unit to the Multiline Terminal on page 13-25](#).

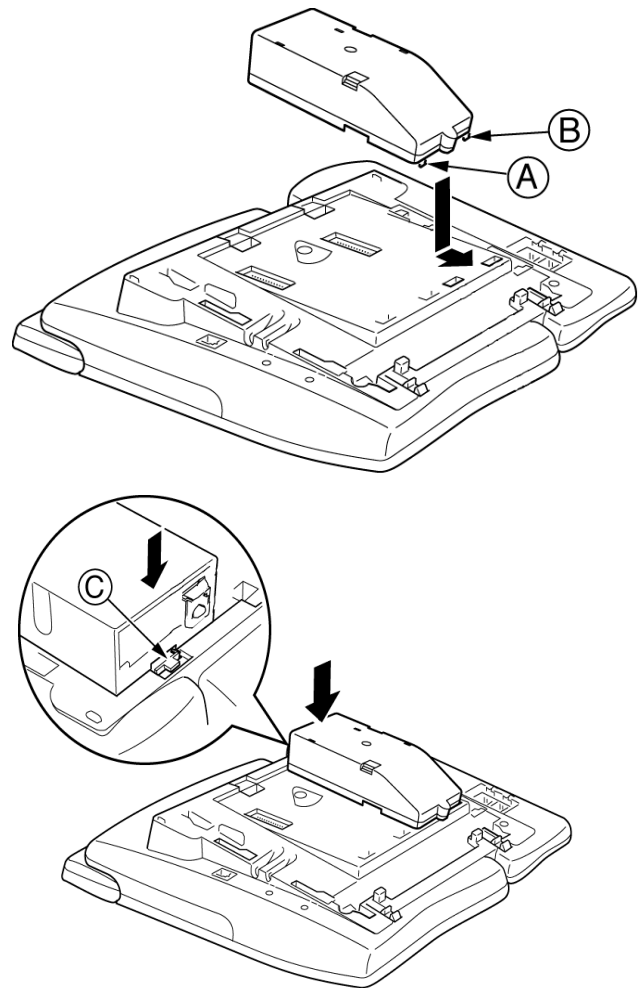


Figure 13-26 Attaching the CT(U)-R Unit to the Multiline Terminal

3. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System on page 12-12](#).
4. Attach the AC-2R/AC-3R to the CT(U)-R Unit. Refer to [Figure 13-5 Connecting the AC Adapter to an Installed Adapter on page 13-5](#).

3.5.2 Connecting the CT(U)-R Unit to the PC

Connect USB cable from the PC to the CT(U)-R Unit as shown in [Figure 13-27 Connecting the USB Cable to the CT\(U\)-R Unit](#).

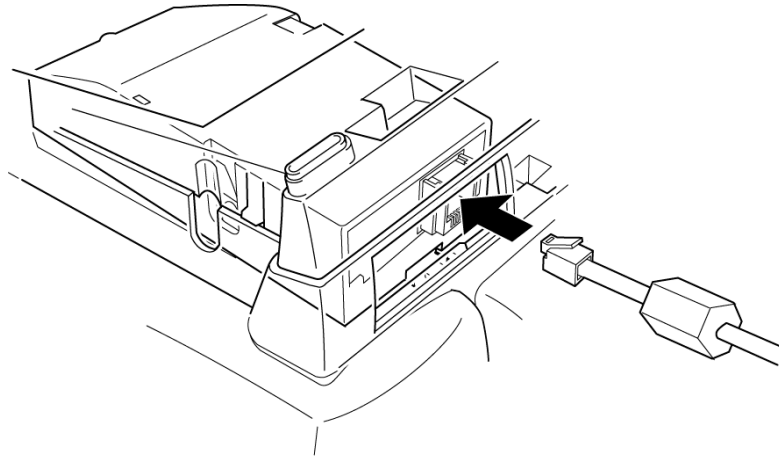


Figure 13-27 Connecting the USB Cable to the CT(U)-R Unit

3.5.3 Installing the Optional Headset

Install the headset and anchor it in the cord slot on the Multiline Terminal as shown in [Figure 13-23 Attaching the Headset to the Multiline Terminal on page 13-22](#).

3.5.4 Installing the Driver on the PC

Using the download from Web with the CT(U)-R Unit install the driver on your PC. Refer to the CT(U)-R Unit installation instructions for installing the driver.

SECTION 4 INSTALLING UNITS AND OTHER DEVICES

4.1 HF-R Unit (Handsfree Unit)

The Handsfree Unit provides full-duplex handsfree communication for a desktop user. Large or enclosed areas may cause poor full-duplex operation. This unit comes with the handsfree adapter and an external microphone unit.

This adapter can be installed on any DTR/DTH Multiline Terminal except DTR-2DT-1.

4.1.1 Installing an HF-R Unit on any DTR/DTH Multiline Terminal (except DTR-2DT-1)

1. With terminal upside down, facing from the bottom of the open cover, install this unit in terminal adapter Slot 1.

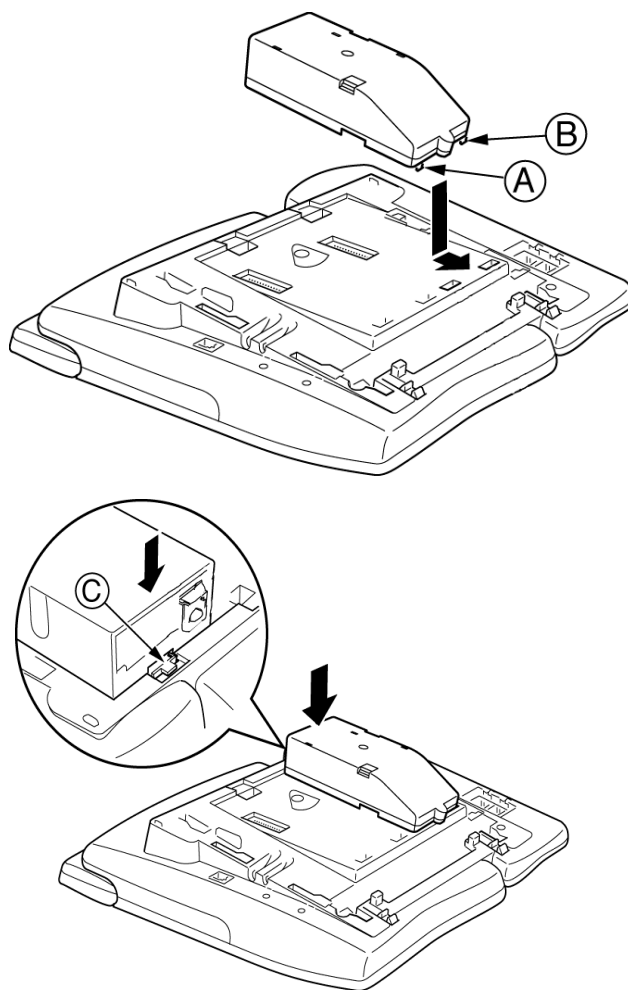


Figure 13-28 Attaching the HF-R Unit to the Multiline Terminal

2. Plug the tabs marked *A* and *B* into adapter slots, then snap the tab on the other end of the adapter into the receptacle marked *C*. Refer to [Figure 13-28 Attaching the HF-R Unit to the Multiline Terminal](#).
3. Replace the base plate (or wall mount unit) and attach the line cord. Refer to [Section 3 Connecting a Multiline Terminal to the System](#) on page 12-12.

4.1.2 Installing the External Microphone

An external microphone can be installed on the HFU-U Unit. These instructions apply to the external microphone obtained from NEC. The microphone is equipped with a locking mute button and a red LED indicator that is off when the microphone is in mute.

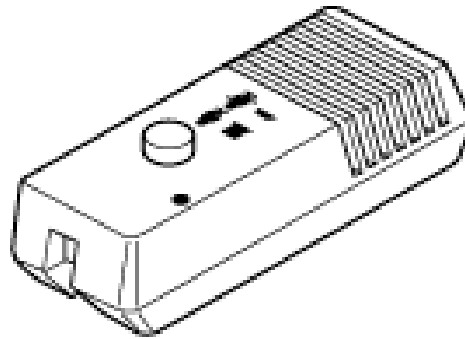



Figure 13-29 Microphone with Mute

1. Plug the microphone cord into the jack on the HF-R Unit.

 *The microphone should be one to three feet away from the multiline terminal with the Mic grate facing the user.*

4.2 Add on Module (ADM)

The D16(LD)-R ADM creates a 16 button Phonebook directory. The interface for this unit shown in [Figure 13-30 ADM Interface Unit](#) is connected in the right adapter connector for the applicable multiline terminal. When another adapter needs to be added, this interface must be moved to the left adapter connector to preserve the cable integrity.

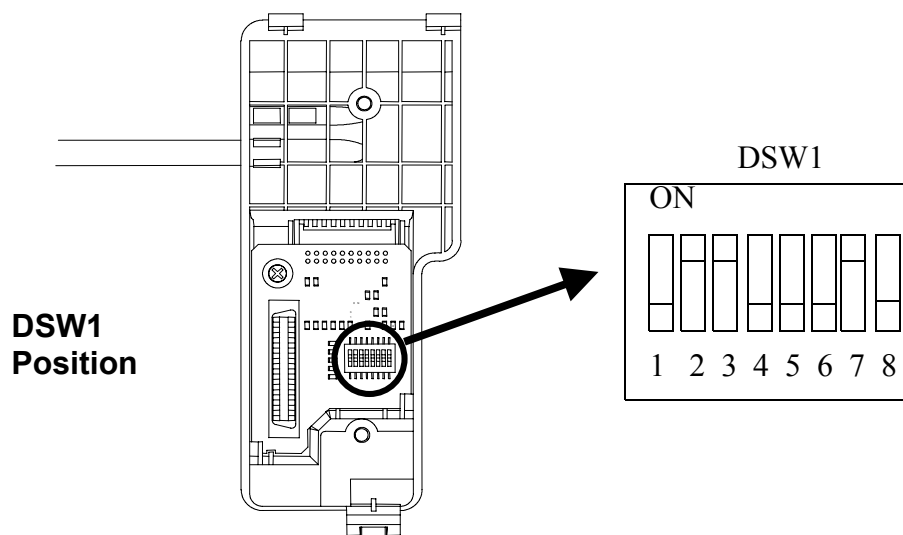
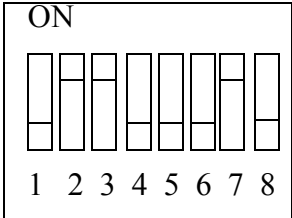


Figure 13-30 ADM Interface Unit

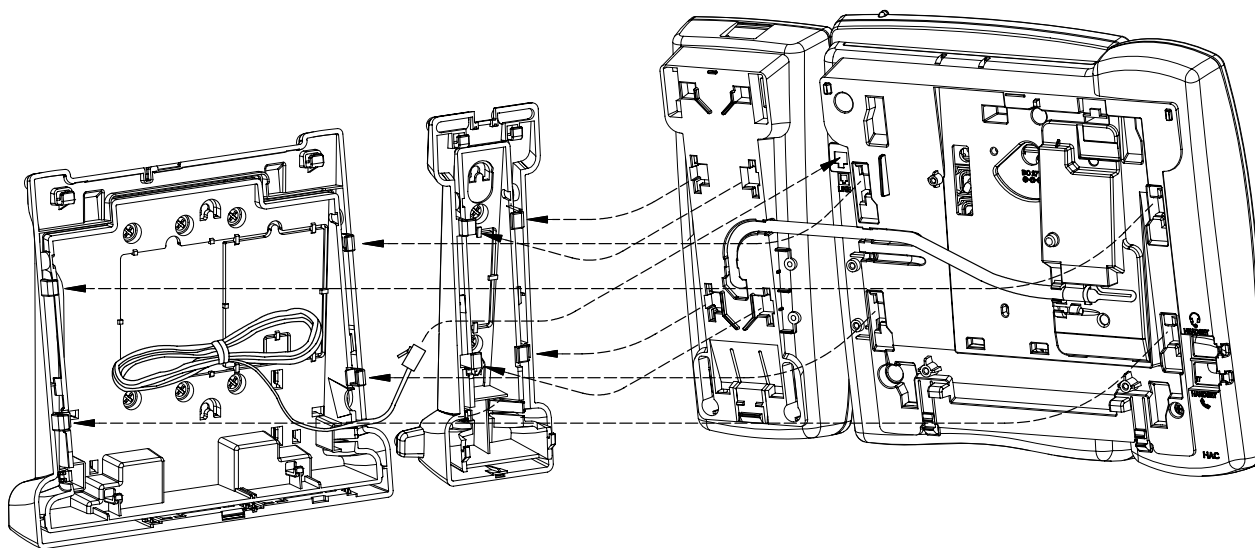
4.2.1 Connecting the Interface Unit

1. Set DSW1 to the pattern for the applicable multiline terminal as shown in [Table 13-4 DSW1 Switch Positions](#) on the next page.
2. Place the ADM and multiline terminal upside down and remove the Base Units.

Table 13-4 DSW1 Switch Positions


Series	Keyset Name	DSW1 Switch Positions
<i>D^{term}</i> Series i	DTR/H-(8)/(16)D-2() TEL DTR/H -16LD-2() TEL DTR/H-16D(BL)-2() TEL	<div style="border: 1px solid black; padding: 5px; text-align: center;"> ON  1 2 3 4 5 6 7 8 </div>

3. Plug the interface unit into the right adapter connection as shown on [Figure 13-31 ADM and Multiline Terminal with Base Covers Removed](#) on the next page.

**Figure 13-31 ADM and Multiline Terminal with Base Covers Removed**

4. Place the interface unit cable in the cable channels on the ADM and multiline terminal.

5. Install the connector plate provided with the ADM as shown in [Figure 13-32 Installing the Connector Plate](#) on the next page.

 *The connector plate cannot be used with InMail terminals.*

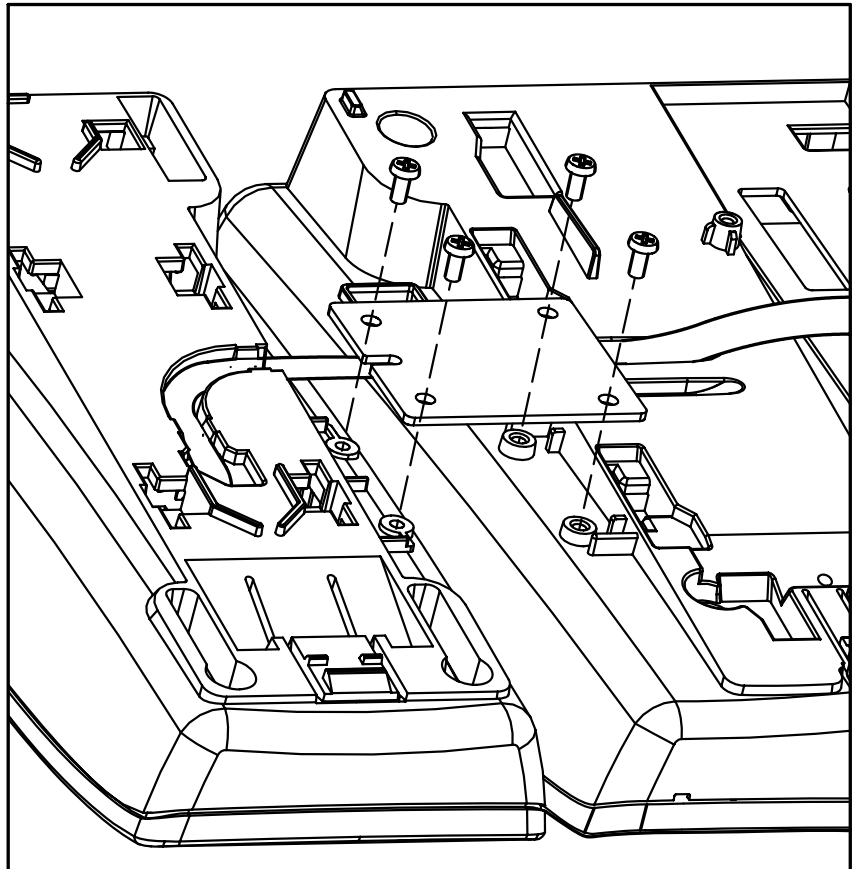


Figure 13-32 Installing the Connector Plate

6. Replace the base units as shown in [Figure 13-31 ADM and Multiline Terminal with Base Covers Removed](#).

4.2.2 Wall Mounting ADM and Multiline Terminal

1. Remove both base units.
2. Remove the multiline terminal base Unit cutout shown in [Figure 13-33 Installing Base Units on the Wall on page 13-32](#).
3. Install the base units on the wall using the eight screws.

4. Install the ADM and Multiline Terminal as shown on [Figure 13-31 ADM and Multiline Terminal with Base Covers Removed](#) on page 13-30.

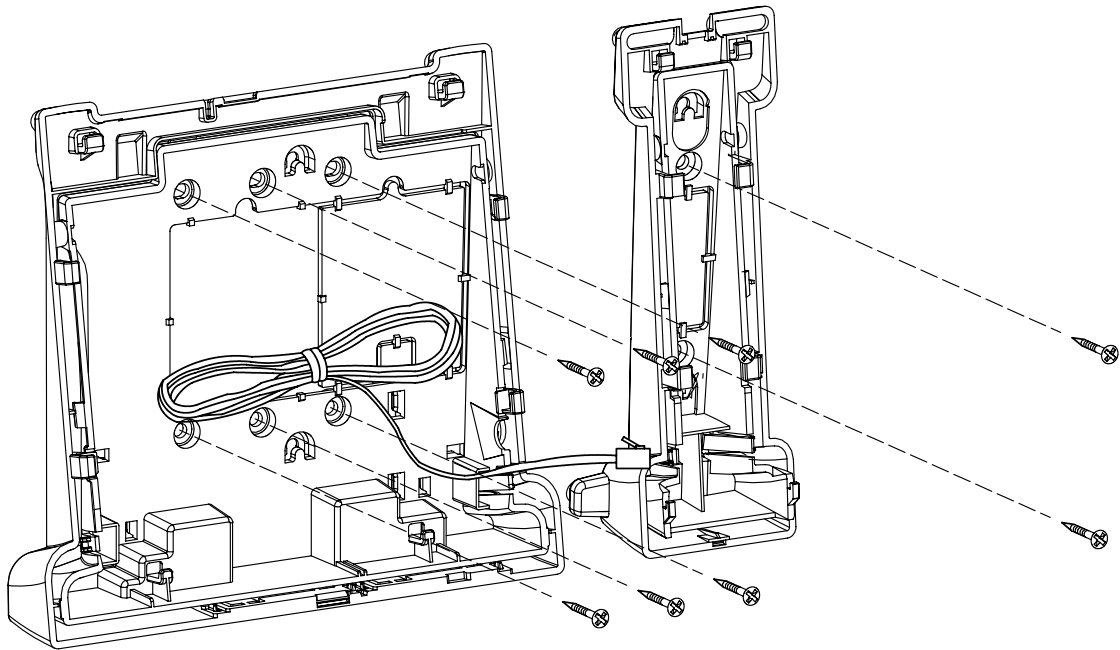


Figure 13-33 Installing Base Units on the Wall

4.3 NEC Push-to-Mute (PTM) or Push-to-Talk (PTT) Handset

4.3.1 Description

The PTM (780503) or PTT (780504) handset has a single-pole, single throw switch that must be continuously held down to provide the feature.



Figure 13-34 NEC PTM or PTT Handset

These replacement handsets for DTH terminals help to ensure a secure telephony environment by keeping unwanted audio from being transmitted over the corporate telephone network.

Using the PTM or PTT handset on an NEC digital terminal prevents eavesdropping and eliminates the worry that privileged information could be transmitted without user authority. These handsets are also an ideal solution to filter unwanted audio transmissions from environments with ambient background noise.

- - NOTES - -

UNIVERGE SV8100/SV8300

System Hardware Manual

NEC Unified Solutions, Inc.

Issue 1.0