



SBX IP 320
Installation Guide

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REVISION HISTORY

Release	Date	Documentation Changes	Page No.
1.0	01-08	Initial Release NOTE: that this document contains information on ISDN, DCOB, and SMS. These features are currently not supported. Information pertaining to DID pertains only to SIP Trunking.	--

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Introduction

Important Safety Instructions

Safety Requirements

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and other personal injury, including the following:

- Please read and understand all instructions.
- Follow all warnings and instructions marked on the product.
- Unplug this product from the wall outlet before cleaning. A damp cloth should be used for cleaning; do not use liquid or aerosol cleaners.
- Do not use this product near water, such as in a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
- Do not place this product on an unstable card, stand, or table. The product may fall, causing serious damage to the product or serious injury.
- Slots and openings in the KSU and the back or bottom are provided for ventilation and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, or other similar surface. This product should never be placed near or over a radiator or other heat source. This product should not be placed in a built-in installation without proper ventilation.
- This product should be operated only from the type of power source indicated on the product label. If you are not sure of the type of power supply to your location, consult your dealer or local power company.
- Do not allow anything to rest on the power cord. Do not locate this product where the cord could be abused by people walking on it.
- Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.
- Never push objects of any kind into this product through KSU slots or connectors as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock.

- Never spill liquid of any kind on the product.
- To reduce the risk of electric shock, do not disassemble this product. Instead, take it to a qualified person when service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risk. Incorrect reassemble can cause electric shock when the appliance is subsequently used.
- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - When the power supply cord or plug is damaged or frayed.
 - If liquid has been spilled into the product.
 - If the product has been exposed to rain or water.
 - If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
 - If the product has been dropped or the KSU has been damaged.
 - If the product exhibits a distinct change in performance.
- Avoid using a telephone during an electrical storm. There may be a remote risk of electric shock from lightning.
- In the event of a gas leak, do not use the telephone near the leak.

Precautions

- Keep the system away from heating appliances and electrical noise generating devices such as florescent lamps, motors and televisions. These noise sources can interfere with the performance of the SBX IP 320 System.
- This system should be kept free of dust, moisture, high temperature (more than 40 degrees) and vibration, and should not be exposed to direct sunlight.
- Do not attempt to insert wires, pins, etc. into system. If system does not operate properly, the equipment should be repaired by an authorized service center.
- Do not use benzene, paint thinner, or an abrasive powder to clean the KSU. Wipe it with a soft cloth only.

Cautions

- This system should only be installed and serviced by qualified service personnel.
- When a failure occurs which exposes any internal parts, disconnect the power supply cord immediately and return this system to your dealer.
- To prevent the risk of fire, electric shock or energy hazard, do not expose this product to rain or any type of moisture.
- To protect the PCB from static electricity, discharge body static before touching connectors and/or components by touching ground or wearing a ground strap.

Warning: Danger of explosion if battery is not correctly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Disposal of Old Appliances

When the displayed symbol (crossed-out wheeled bin) is adhered to a product, it designates the product is covered by the European Directive 2002/96/EC.



- All electric and electronic products should be only be disposed of in special collection facilities appointed by government or local/municipal authorities.
- The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
- For more detailed information about disposal of your old appliances, please contact your city office, waste disposal service or the place of product purchase.

Manual Usage

This document provides general information covering the hardware description and installation of the SBX IP 320 System. While every effort has been taken to ensure the accuracy of this information Vertical Communications, Inc makes no warranty of accuracy or interpretations thereof.

Chapter 2. System Overview

Provides general information on the SBX IP 320 System, including the system specifications and capacity.

Chapter 3. KSU Installation

Describes detailed instructions for planning the installation site and procedures to install the SBX IP 320 System.

Chapter 4. Board Installation

Describes detailed instructions for installing components of the SBX IP 320 Board.

Chapter 5. Terminal Connections and Wiring Method

Describes the kinds of terminals, maximum distance, and other device connections for the terminal.

Chapter 6. Starting the SBX IP 320 System

Provides general information for starting the System and basic Admin programming.

Chapter 7. Database Download/Upload

Describes Database Download and Upload procedures.

Chapter 8. Software Upgrade

Describes Software Upgrade procedures.

Chapter 9. Remote Diagnostics

Describes Remote Diagnostics procedures.

Chapter 10. Troubleshooting

Provides information on the SBX IP 320 System and deals with common troubleshooting issues.

System Overview

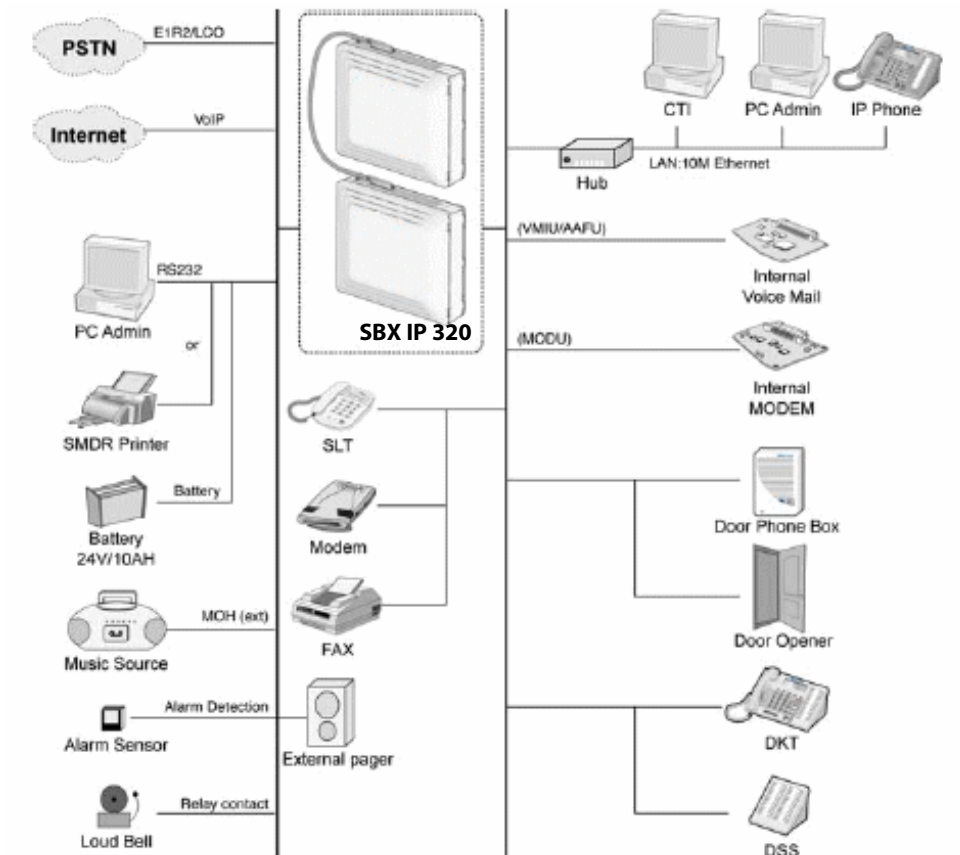
SBX IP 320 System Highlights

Features of the SBX IP 320 System include:

- Flexible architecture
- Simplifying system structure
- Powerful PC application via LAN, Modem, RS-232C
- Stable & Enhanced voice features
- Simple installation & efficient system management
 - Remote admin & software upgrade through LAN connection
 - Remote admin & software upgrade through PSTN modem
- Value-Added features
 - Distinctive voice mail (ADPCM 32 Kbps)
 - Basic CID (CO & SLT) Function
 - 8 Poly internal MOH (13 Music sources)

System Connection Diagram

The following Figure shows the components that make up the SBX IP 320 System:



System Components

BASIC KSU

ITEM		OPTION BOARD	DESCRIPTION
KSU			Key Service Unit
PSU			Power Supply Unit
Main Board	MBU		Main Board Unit (3 CO, 1 DKT, & 7 Hybrid)
		CO & Extension Boards	CO Line and DKT/SLT Interface Boards (CHB308 and VOIB)
		Other Boards	VMIU & MODU can be installed
CO Line & Extension Boards	CHB308		3 CO Lines and 8 Hybrid Interface Board
Other Boards	VMIU		Voice Mail Interface Unit, 4 channels
	MODU		MODEM unit (33 Kbps)

EXPANSION KSU

ITEM		OPTION BOARD	DESCRIPTION
KSU			Key Service Unit
PSU			Power Supply Unit
Main Board	EMBU		Expansion Main Board Unit (3 CO & 8 Hybrid)
		CO & Extension Board	CO Line and DKT/SLT Interface Board (CHB308)
		Other Boards	VMIU, AAFU, MODU, CMU50PR, CMU12PR can be installed
CO Line & Extension Boards	CHB308		3 CO Lines and 8 Hybrid Interface Board

Specifications

ITEM	DESCRIPTION	SPECIFICATION
CPU		ARM7 TDMI core(32bit, 50MHz)
Switching Device		Custom Mixed-Signal ASIC Device
Memory Back-up Duration		10 years
PSU	AC Voltage Input	100-240 +/- 10% Volt AC @47-63Hz
	AC Power Consumption	90W
	AC Input Fuse	2A @250Volt AC
	DC Output Voltage	+5, -5, +27, +30Volt DC
External Back-up Battery	Input Voltage	+24 Volt DC(+12VDC x 2ea)
	Battery Fuse	5.0A @250Volt AC
	Charging Current	Max. 200mA
	Battery Load Current	Max. 3A (only BKSU), Max. 6A (BKSU + EKSU)
Ring Signal		75Vrms, 25Hz
External Relay Contact		1A @ 30Volt DC
Music Source Input		0dBm @ 600ohm
External Paging Port		0dBm @ 600ohm
Ring Detect Sensitivity		30Vrms @ 16-55Hz
DTMF Dialing	Frequency Deviation	Less than +/-1.8%
	Signal Rise Time	5 ms
	Tone Duration, on time	Min. 50 ms, Normally 100 ms
	Inter-digit Time	Min. 30 ms, Normally 100 ms

ITEM	DESCRIPTION	SPECIFICATION
Pulse Dialing	Pulse Rate	10 PPS
	Break/Make Ratio	60/40% or 66/33%
Operating Environment	Temperature	0 (°C) – 40 (°C)
	Humidity	0 - 80% (non-condensing)
Dimension	KSU	339mm(W) x 288mm(H) x 85mm(D)
	Expansion KSU	339mm(W) x 288mm(H) x 85mm(D)
Weight	KSU	1.8 Kg
	Expansion KSU	1.8 Kg
MODU	Analog Modem	Bell, ITU-T, V.34 V.32BIS, V.90
	Speed	300bps up to 33Kbps speed rate
	Connection	Automatic rate negotiation
VOIB	LAN Interface	10 Base-T Ethernet (IEEE 802.3)
	Speed	10 Mbps (Auto-Negotiation)
	Duplex	Half Duplex or Full Duplex (Auto-Negotiation)
	VOIP Protocol	H.323 Revision 2
	Voice Compression	G.711/G.726/G729/G.723.1
	Voice/Fax Switching	T.38
	Echo Cancellation	G.165

DESCRIPTION	CAPACITY/BOARD	TOTAL
Time Slots		128
CO Line Ports	4/CHB308	12
Max Direct Station (DKT, SLT, DSS) Connections	4/CHB308	32
External Relay Contact	2/MBU	2
LAN	MBU, VOIB, E1HB8	3
MODEM Channel	1/MODU	1
Attendant Positions	5/System	
Intercom Links	Non-Blocking	
Paging - All Call - Internal		1 zone 5 zones
Station Speed Dial	100/station, 24 digits each	500
System Speed Dial	24 digits each	500
Last Number Redial	15-50 (by admin programming)	32 digits
CO Line Group	8	8
Station Group	10	10
Conference	3-15 Party	All ports are available
Multi-Conference	3-15 Party	Max. 3 groups
Internal MOH (13 Music Sources)	1/MBU	1
External MOH	1/MBU	1
External Paging Port	1/MBU	1
External Relay Contact	2/MBU, 2/EMBU	4
Alarm Input	1/MBU	1
RS-232C Port	1/MBU	1
DTMF/CPT Receiver Channels	16 chs/MBU	16 chs
FSK Receiver Channels	16 chs/MBU	16 chs
PFT Circuit	1/MBU, 1/EMBU, 1/CHB308	3

KSU Installation

Pre-Installation

Please read the following guidelines concerning installation and connection before installing the SBX IP 320 System. Be sure to comply with applicable local regulations.

Safety Installation Instructions

When installing the telephone wiring, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following:

- Never install the telephone wiring during a lightning storm.
- Never install the telephone jack in wet locations unless the jack is specifically designed for wet locations.
- Never touch un-insulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Anti-static precautions should be taken during installation.

Installation Precautions

The SBX IP 320 System is designed for wall mounting or a free –standing rack. Avoid installing in the following places:

- In direct sunlight and hot, cold, or humid places. Temperature range = 0 to 40°C.
- Places where shocks or vibrations are frequent or strong.
- Dusty places, or places where water or oil may come into contact with the System.
- Near high-frequency generating devices such as sewing machines or electric welders.
- On or near computers, fax machines, or other office equipment, as well as microwave ovens or air conditioners.
- Do not obstruct the openings on the top of the SBX IP 320 System.

- Do not stack up the optional service boards.

Wiring Precautions

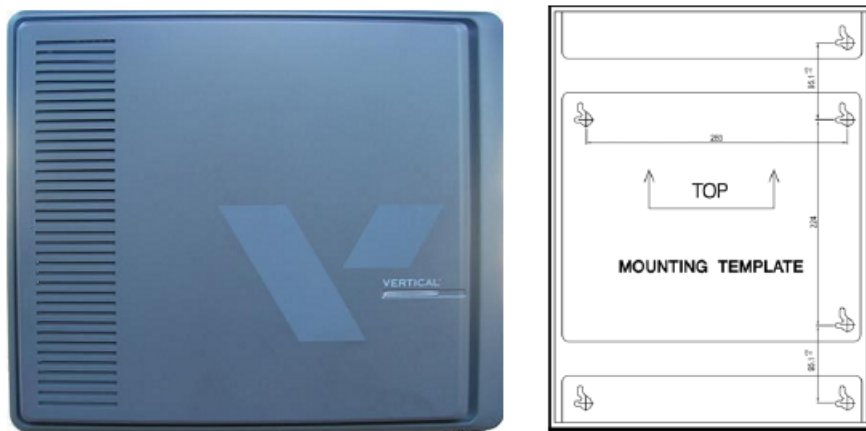
Be sure to follow these precautions when wiring:

- Do not wire the telephone cable in parallel with an AC power source, such as a computer, fax machine, etc. If the cables are run near those devices, shield the cables with metal tubing or use shielded cables and ground the shields.
- If the cables are run on the floor, use protectors to prevent the wires from being stepped on. Avoid wiring under carpets.
- Avoid using the same power supply outlet for computers, fax machine, and other office equipment to avoid induction noise interruption when using the SBX IP 320 near other machines.
- The power and battery switches must be OFF during wiring. After wiring is completed, the power switch may be turned ON.
- Incorrect wiring may cause the SBX IP 320 System to operate improperly. If an extension does not operate properly, disconnect the telephone from the extension line and then re-connect, or turn the System power OFF and then ON again.
- Use twisted pair cable for connecting CO lines.

KSU Installation

Unpacking

Open the box and verify the items shown in the following Figure are included:



Key Service Unit

Mounting template



CD manual



Power cord



Tie cable



Battery cable



Rubber feet



Anchor plug



Screw



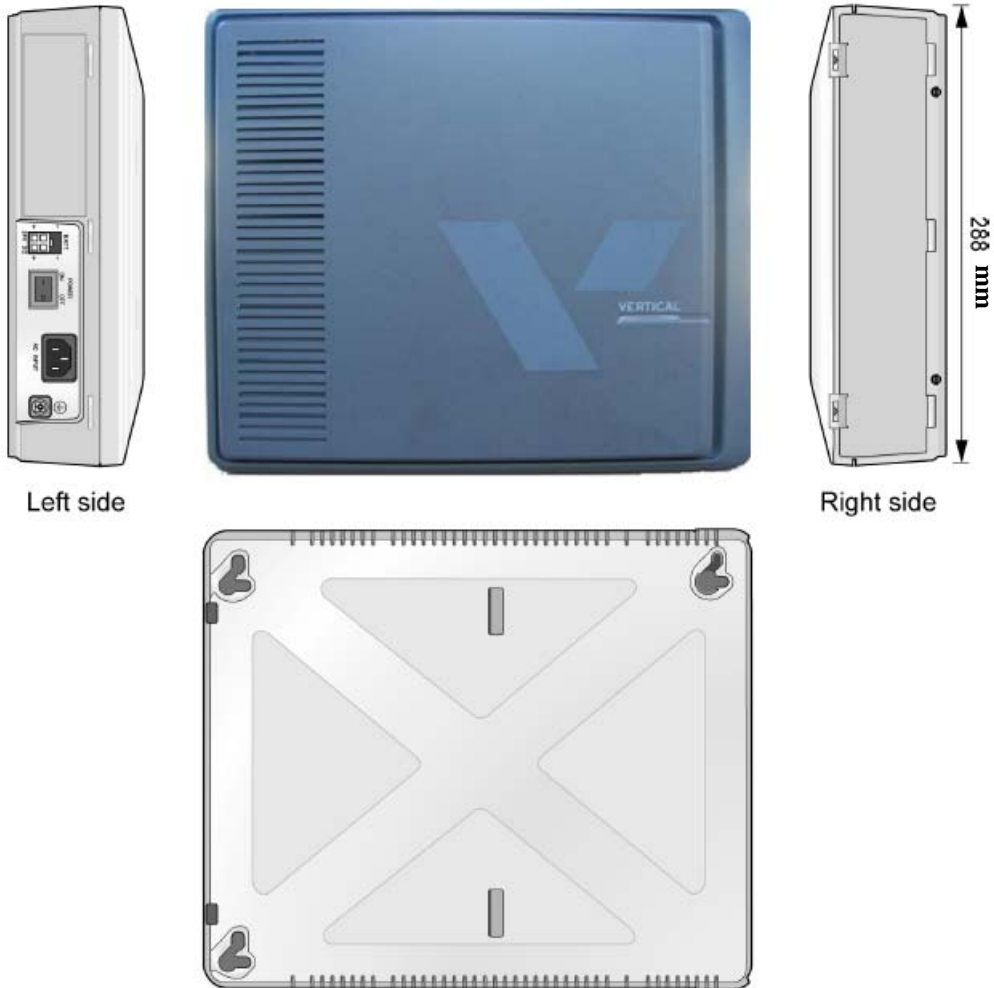
Fuse



Relay connector

KSU Exterior and Dimension

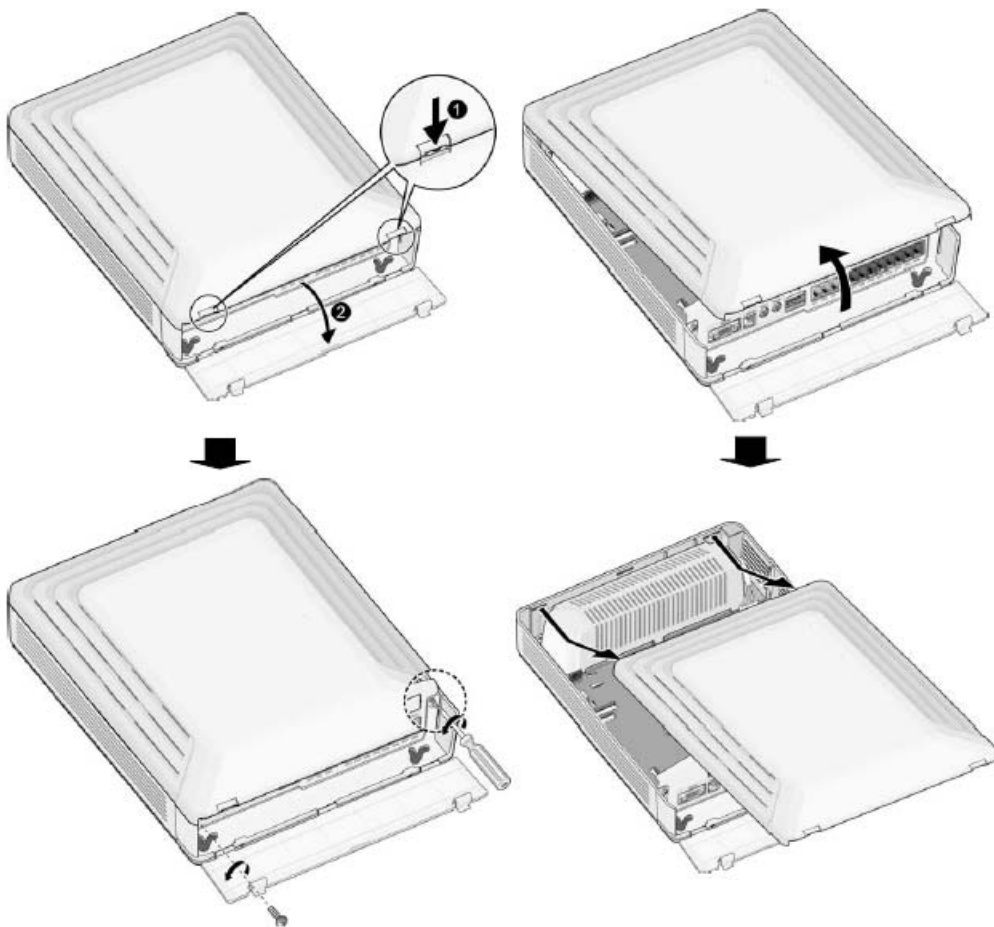
The following diagram shows the exterior and dimensions of the KSU.



Opening and Closing the Front Cover

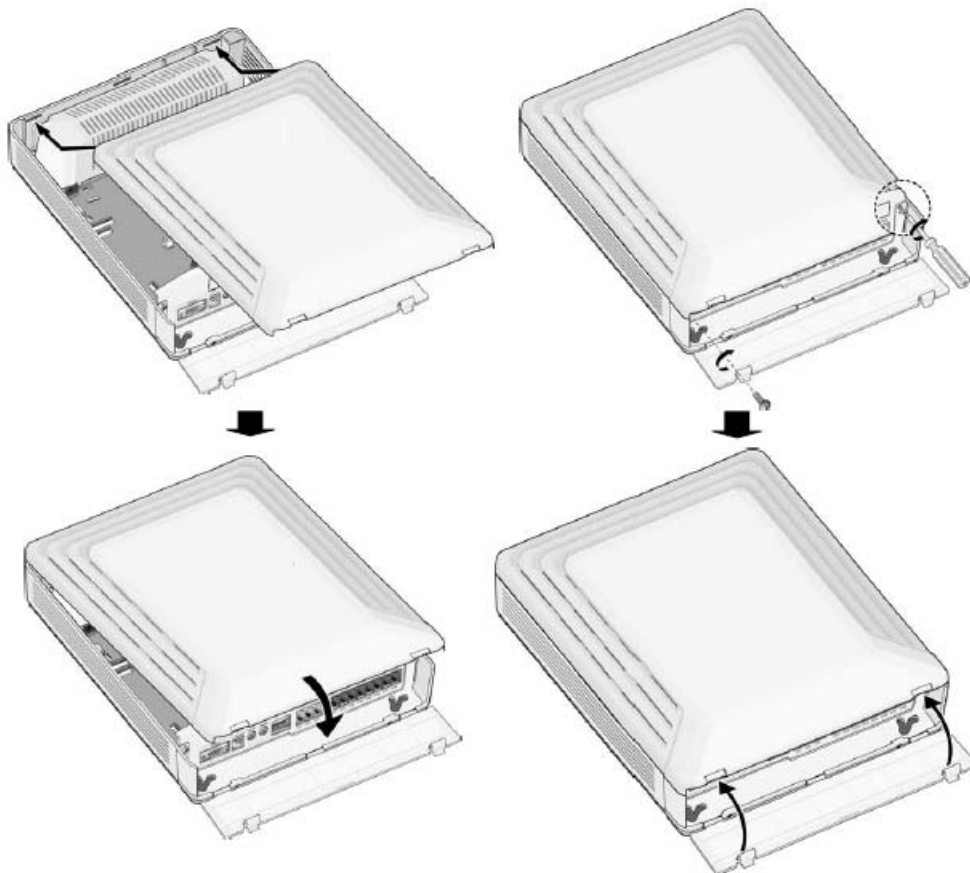
Opening the Front Cover

1. Open the Cord cover and turn the screws counter-clockwise to loosen as shown in the following Figure.
2. Lift the front cover in the direction of the arrow as shown.



Closing the Front Cover

1. Insert the front cover into the slot on the KSU as shown in the following Figure.
2. Then put the front cover down on the KSU in the direction of the arrow, as shown.
3. Turn the screws clockwise to tighten and close the Cord Cover as shown



Note: Prior to operation, the front cover of the SBX IP 320 must be closed and the screws tightened.

Power Supply Unit Installation

Before installation, ensure that the AC plug is not connected to an AC outlet. The Power Supply Unit (PSU) is pre-installed in the SBX IP 320 KSU and it is located on the left side of the KSU. and The PSU provides three DC voltage power sources to the MBU through the 7-pin connector, CN7.

DESCRIPTION	SPECIFICATION
AC Voltage Input	100-240 Vac +/- 10 %
AC Frequency	47-63 Hz
AC Power Consumption	90 W
AC Input Fuse	2A @ 250Volt AC
DC Output Voltage	+5V/3A, -5V/0.2A, +27V/0.2A, +30/1.5A
DC Input Voltage	+24 Volt DC (+12VDC x 2ea)
Battery Fuse	5.0A @250Volt
Battery Charging Current	200mA

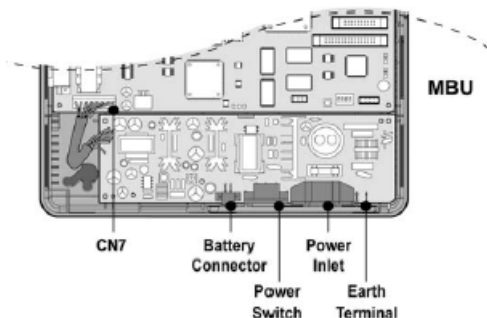


Figure 3-1 PSU Installation (1 of 2)

Place the PSU cover on the PSU as shown in Figure 3-2. Then secure the PSU cover by tightening the screws (clockwise turn).

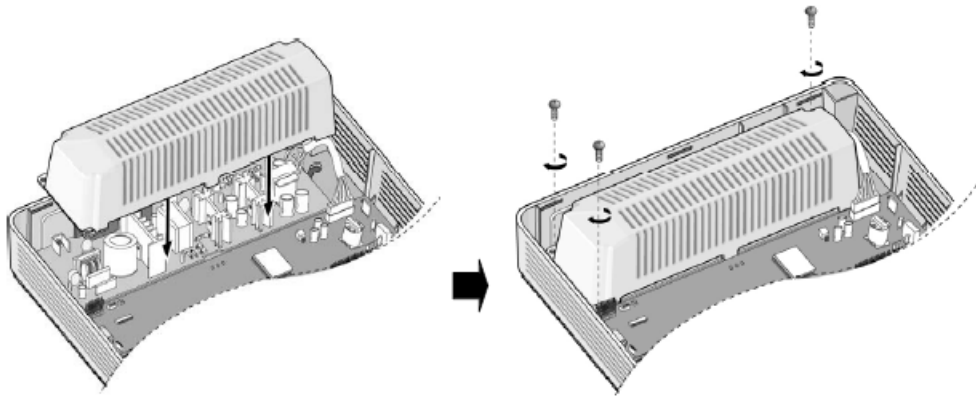


Figure 3-2 PSU Installation (2 of 2)

Frame Ground Connection

It is very important that the frame of the SBX IP 320 System is grounded:

1. Turn the grounding screw counter clockwise to loosen, as shown in Figure 3-3.
2. Insert the grounding wire and tighten the screw.
3. Then connect the grounding wire to an appropriate ground source (refer to Caution).

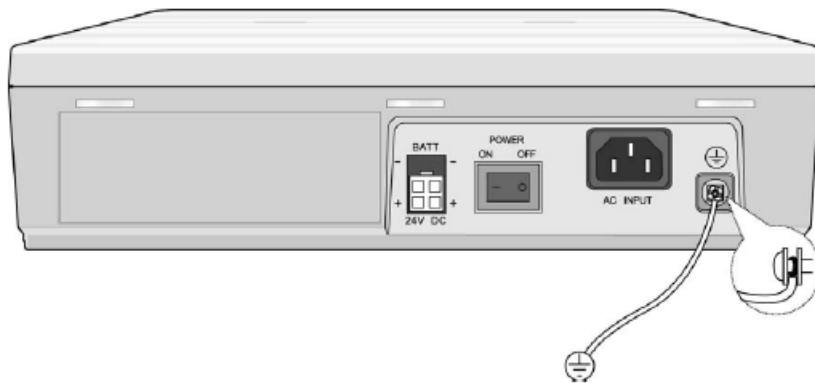


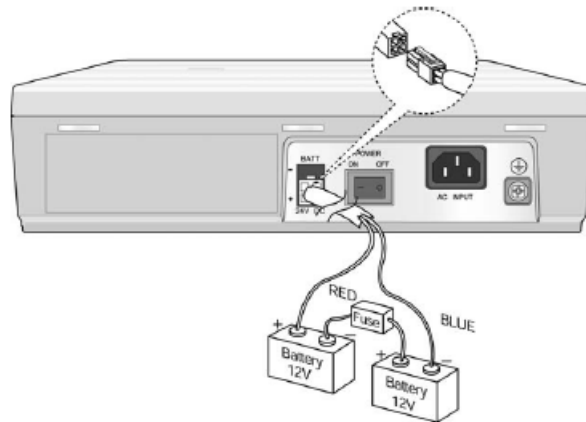
Figure 3-3 Grounding the KSU

Caution:

- The equipment should be connected to a socket-outlet with a protective ground connection.
- For ground wire, green-and-yellow insulation is required and the cross-sectional area of the conductor must be more than UL 1015 AWG#18 (1.0mm). It is recommended that the ground wire is shorter than 1m (3.28ft).
- Proper grounding is very important to protect the SBX IP 320 from external noise or to reduce the risk of electrocution in the event of lightning strike.
- Comply with applicable local regulations.

External Backup Battery Installation

In case of power failure, the external backup batteries automatically maintain uninterrupted power for the SBX IP 320 System. The external batteries must provide 24V DC; this is generally accomplished by connecting two 12V batteries in a series arrangement as shown:



Note: The cable used to connect the battery is supplied with the KSU.

Battery operation is controlled by the PSU. The PSU will provide charging current to the batteries during normal AC power operation at a maximum of about 200mA. PSU battery operation will be halted if the AC power is re-connected or if the battery voltage is too low to maintain full-system operation. The external batteries can maintain System operation as needed depending on several elements such as battery charge status, condition and capacity of the batteries, and System configuration (number of Station ports).

Caution:

- It is recommended that you use an external backup battery fuse (5A @ 250V) between the battery and the System.
- Recommended battery capacity is 24V/20AH MF; the SBX IP 320 System should be able to operate more than 3 hours with batteries that are in good condition.
- Carefully check the battery polarity with cable colors (Red and Blue) when connecting the battery to the System.
- Make sure that you do not short out the external batteries and cables.
- There is a danger of explosion if external batteries are incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

KSU Mounting**Wall Mounting**

1. Install 3 anchor plugs in the wall using the mounting template included for accurate placement Figure 3-4.
2. Attach the mounting template with the 3 included screws to the 3 anchor plugs.
3. Hook the KSU onto the screws, making sure that the System slides down securely Figure 3-5.

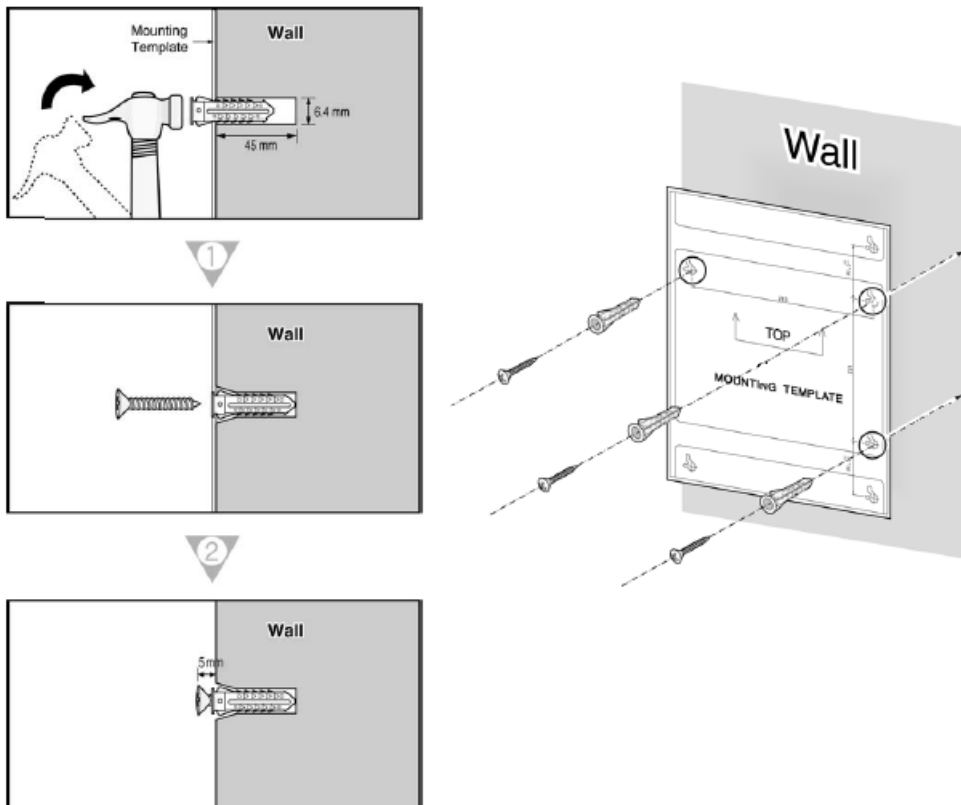


Figure 3-4 Mounting Template

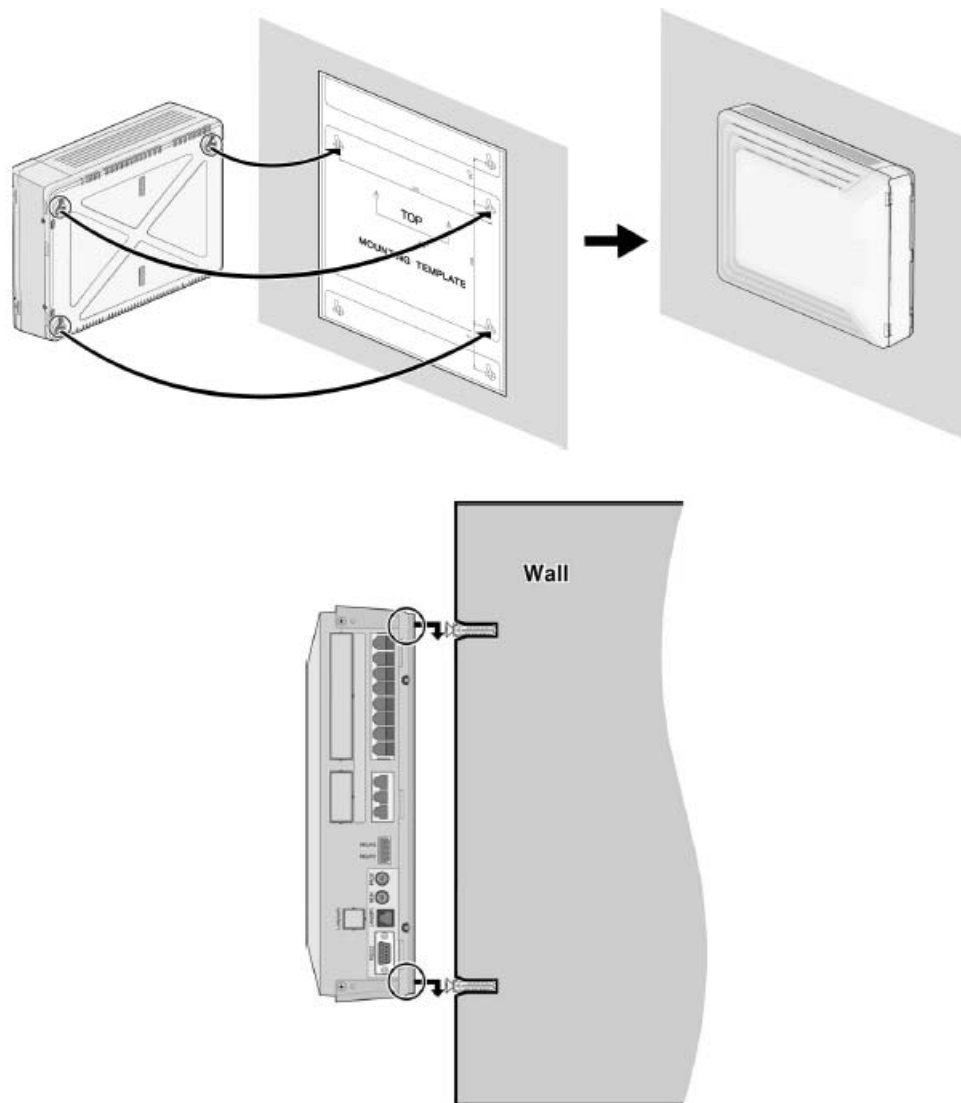


Figure 3-5 Wall Mounting the KSU

Rack Mounting

To attach the SBX IP 320 System to the rack:

1. Attach the rack bracket to the bottom of the SBX IP 320 System as shown in Figure 3-6 and attach it to the System securely by tightening the screws clockwise.
2. Affix the bracket with the 4 screws provided as shown.

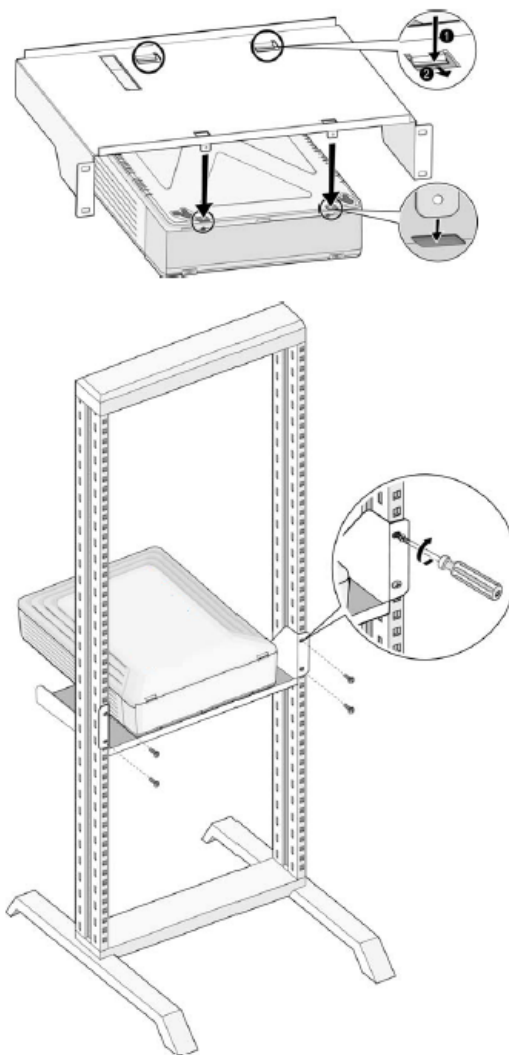


Figure 3-6 Rack Bracket and Rack Mounting

Desktop Mounting

To use the SBX IP 320 System on a desk or other flat surface, use the following procedure:

1. To attach the rubber feet to the bottom of the SBX IP 320 System as shown in Figure 3-7, first remove the sticker from the rubber feet.
2. After attaching the rubber feet to the BKSU and EKSU, firmly mount the EKSU onto the BKSU.

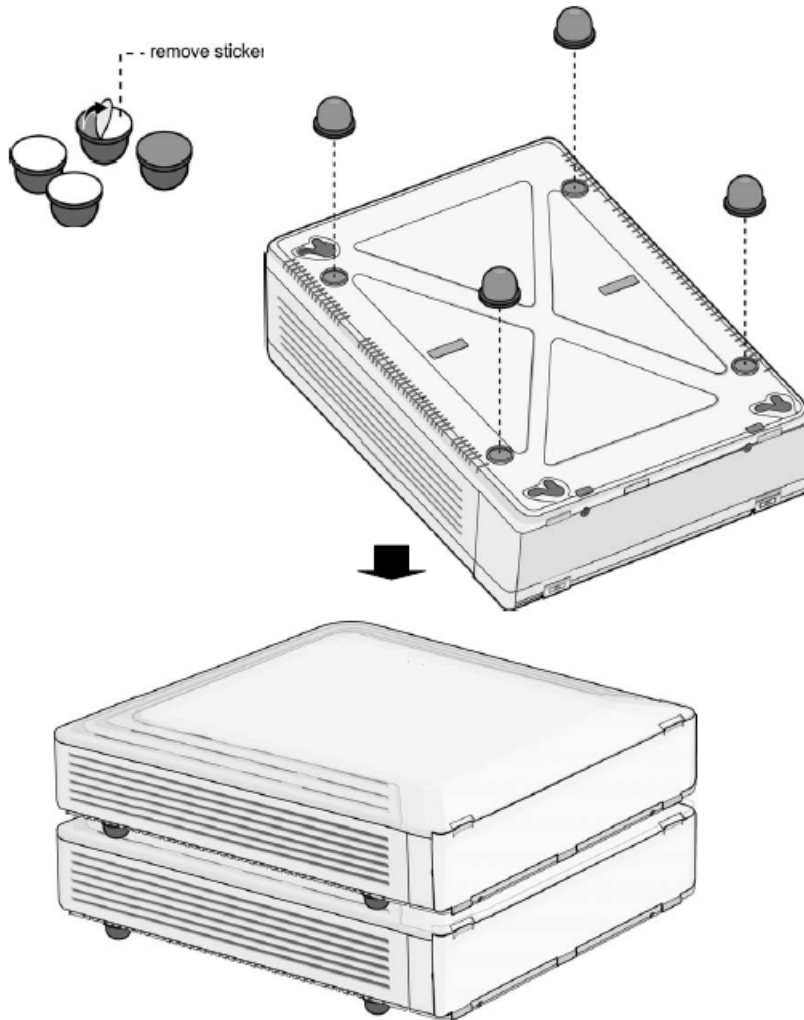


Figure 3-7 Desktop Mounting

Expansion KSU Installation

Unpacking

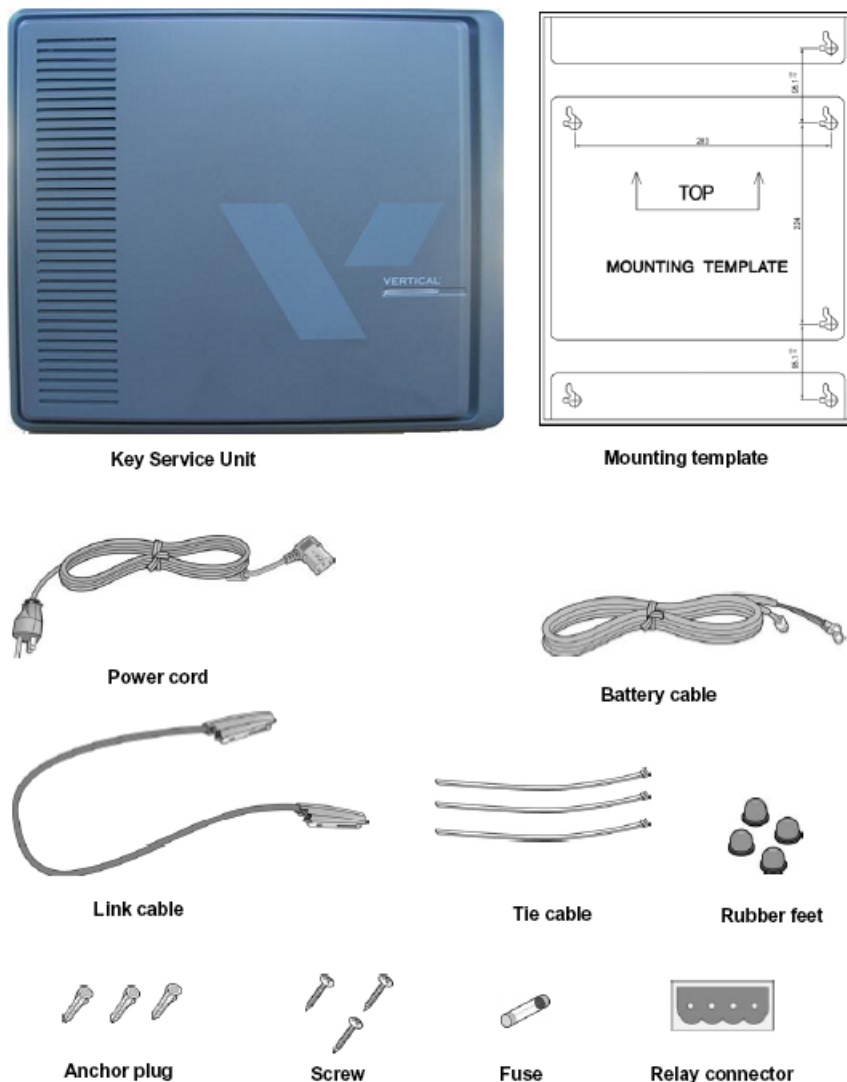


Figure 3-8 EKSU Carton Contents

Connecting Expansion KSU to Basic KSU

To connect, perform the following steps:

1. Remove the dummy of each KSU.
2. Use the link cable to connect the Basic KSU to the Expansion KSU.
3. To secure the link cable, turn the screw clockwise to tighten and then tie the link cable with tie cable.

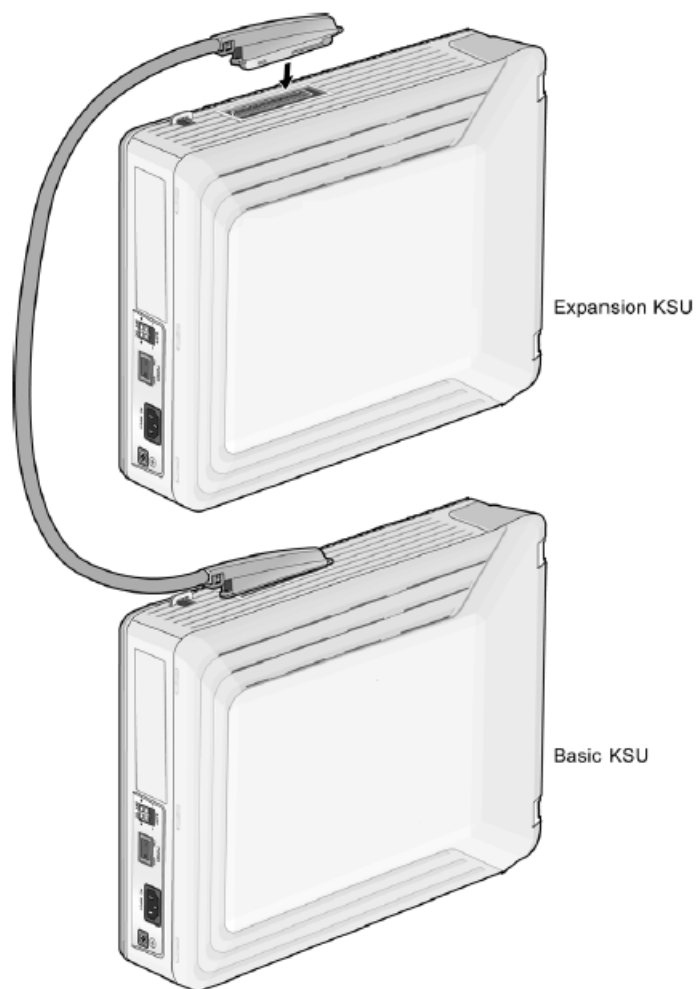


Figure 3-9 Connecting KSUs

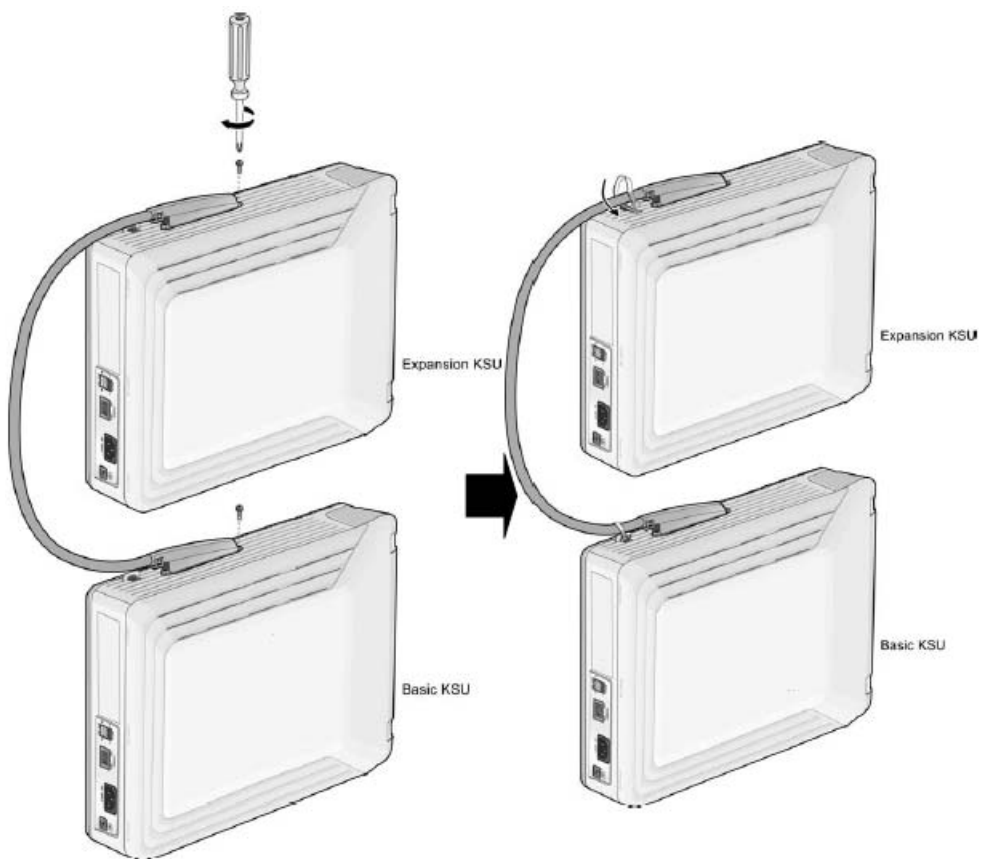


Figure 3-10 EKSU to BKSU Connection

Note:

- If AC power fails, the last SLT port on the EMBU will be connected to CO1 automatically.
- Even though the power of EKSU is turned off while both systems(BKSU and EKSU) are working properly, the BKSU will restart automatically.

Expansion KSU Mounting

Note: Do not make any link cable connections between the BKSU and EKSU until they both are properly Wall Mounted or Rack Mounted.

EKSU Wall Mounting

1. Install the EKSU within 5 centimeters of the Basic System.
2. Install 3 anchor plugs in the wall using the mounting template included for accurate placement (Figure 3.3.3.1A). The KSU can be mounted either vertically or horizontally.
3. Screw the included 3 screws into the 3 anchor plugs.

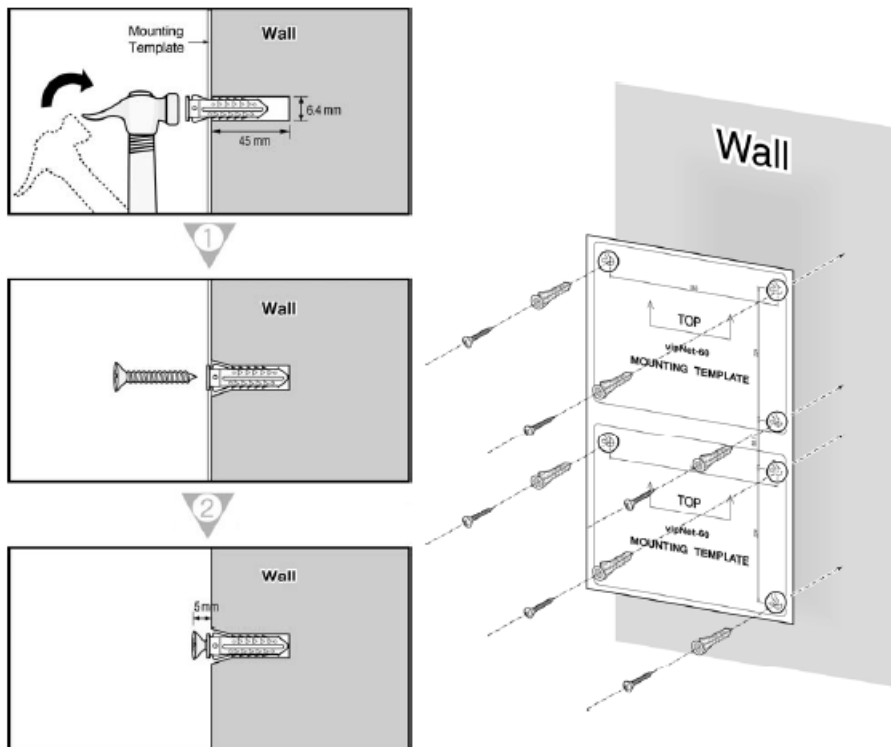


Figure 3-11 EKSU Mounting Template

4. Hook the Expansion KSU onto the installed screws, making sure that the system slides down securely (Figure 3-12.)

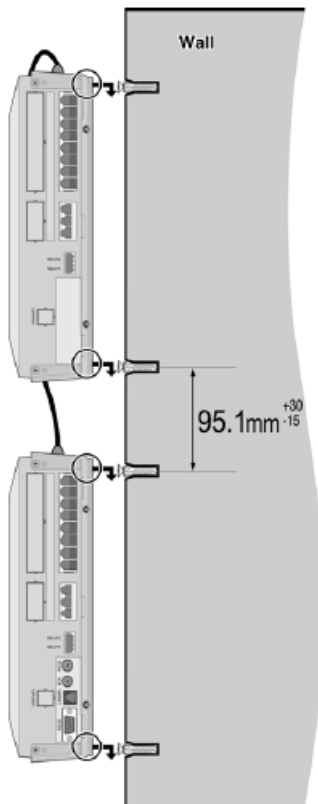


Figure 3-12 EKSU Wall Mounting

EKSU Rack Mounting

1. It is recommended that you install the Expansion system very close to the Basic System.
2. Attach the rack bracket to the bottom of the SBX IP 320 system as shown in Figure 3-13, and securely attach it to the system by tightening the screws clockwise.

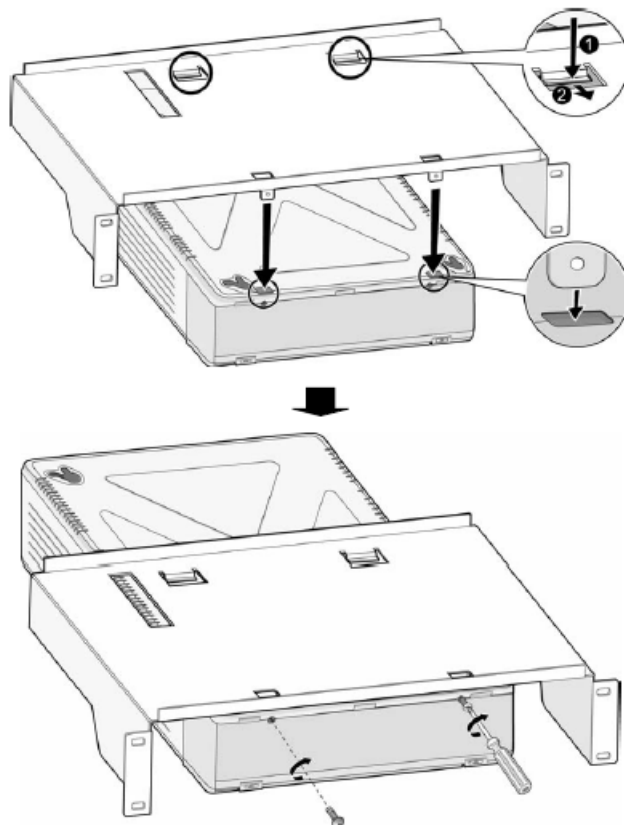


Figure 3-13 EKSU Rack Bracket

3. To attach the SBX IP 320 System to the rack, affix the bracket with the 4 screws provided (Figure 3-14).

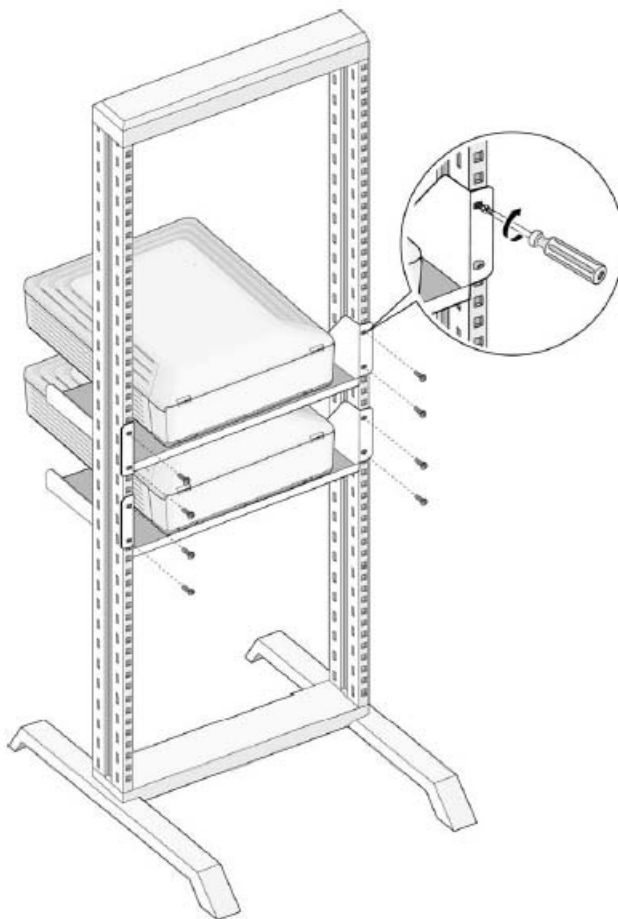


Figure 3-14 EKSU Rack Mounting

Board Installation

Installation of the Boards

Prior to installing Boards, the following should be considered:

Caution:

- Power must be turned OFF.
- To protect the System from static electricity, do not touch the boards. To discharge static, touch a grounded object, or wear a grounding strap.
- Insert boards carefully to avoid bending connector pins (male pins on MBU/EMBU) and board damage from power shortage caused by misaligning.

To install the board, perform the following steps:

- Before inserting the board, remove the dummy slot as shown in #1 of Figure 4-1.
- Hold the board as shown in #2 of the diagram and carefully insert the board in the direction of the arrow so that the board securely engages with the connector (CN2) on the main board (#3).

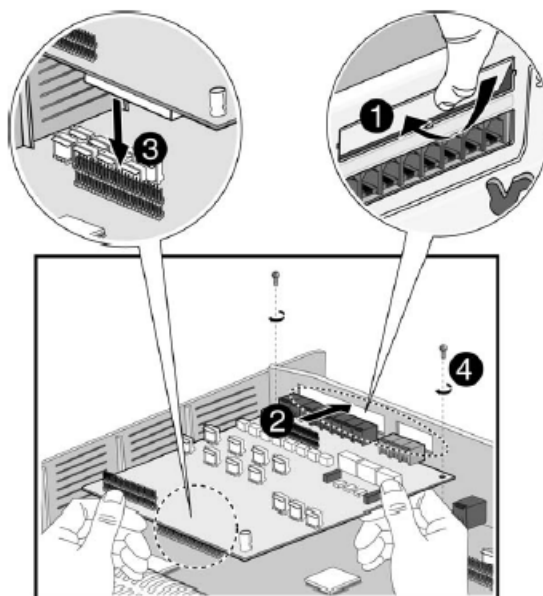


Figure 4-1 Board Installation

Main Board Unit

The Main Board Unit (MBU) controls communication between the peripheral interfaces, supervises all resources in the system, controls the gain adjustment of the PCM signal, generates the System tones, and manages System call processing.

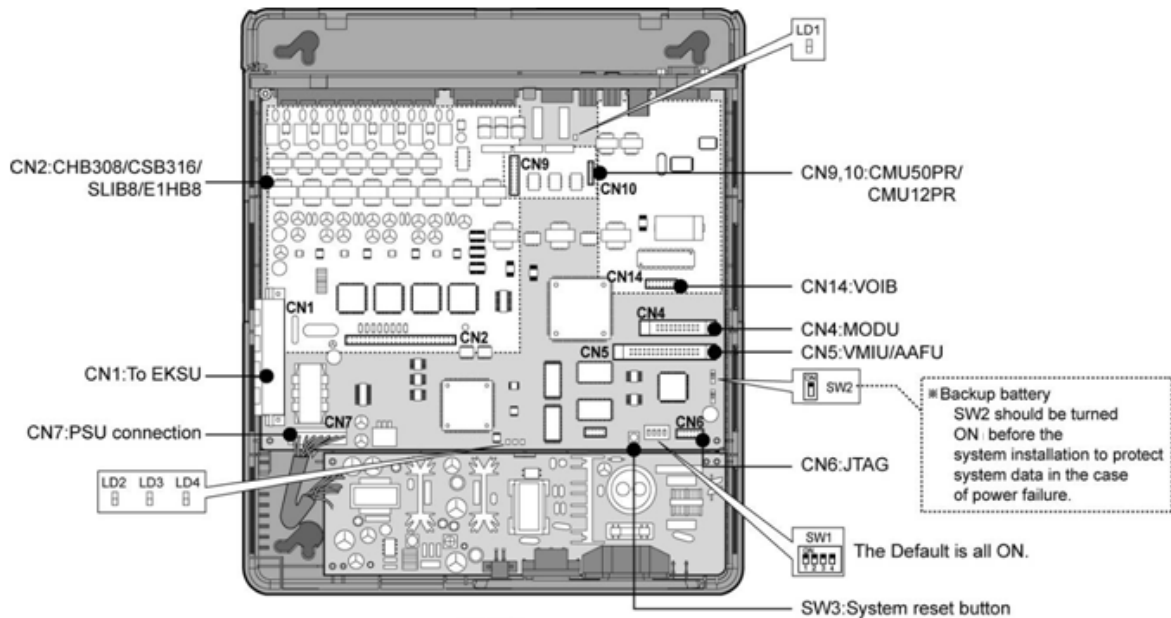


Figure 4-2 MBU

Note: If AC power fails, the last SLT port on the MBU will be connected to CO1 automatically.

The MBU is installed in the KSU and it provides various kinds of connectors and RJ11 modular jacks for the connection of peripheral boards and miscellaneous functions (refer to Figure and Table).

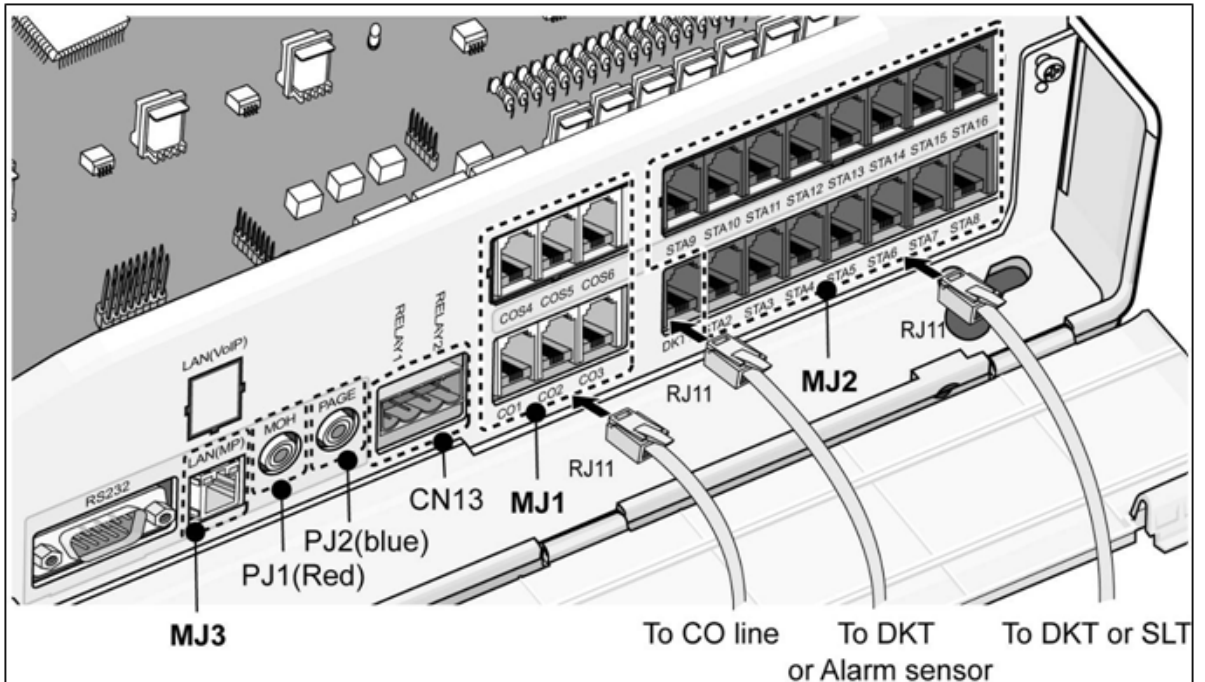


Figure 4-3 MBU Connection Ports



SWITCH/CONNECTOR		FUNCTIONS	REMARK
CN1		KSU Connection to EKSU with Link cable	50 pins
CN2		CO and Extension Board (CHB308) Installation	50 pins
CN4		MODU Installation	20 pins
CN5		VMIU	32 pins
CN14		VOIB Installation	16 pins
CN6		JTAG Port for Emulator	For Test
CN7		PSU Connection (+5V, -5V, +30V)	7 pins
CN8		RS-232C Port Connection	9 pins
MJ1		3 CO Lines Connection	3 arrays
MJ2	MJ2-1	1 DKT or Alarm Sensor	8 arrays
	MJ2-2-8	7 DKTs or 7 SLTs Connection	
CN13		External Relay Contact	4 pins

SWITCH/CONNECTOR	FUNCTIONS	REMARK
MJ3	LAN	1 LAN
PJ1 (Red)	External MOH Connection	
PJ2 (Blue)	External Page Connection	
SW1	4 Poles DIP Switch for Software Usage	Default = All ON
SW2	Lithium Battery ON/OFF Switch for Memory and RTC Backup	Default = OFF
SW3	System Reset Button	
SW4	JTAG Reset Enable/Disable Switch	Not Assembled

Modular Jack (MJ1 - MJ3) Pin Assignment

MBU MJ1 (CO)

Table 4-1 MBU1 - 1, 2, 3

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1, 2	N/A
		3, 4	CO-T, CO-R
		5, 6	N/A

MBU MJ2 (Extension)

Table 4-2 MBU MJ2 - 1 (DKT Only)



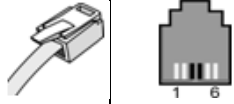

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1	N/A
		2	DKT-T
		3, 4	Alarm_Detection
		5	DKT-R
		6	N/A

Table 4-3 MBU MJ2 - 2, 3, 4, 5, 6, 7, 8

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1	N/A
		2	DKT-T
		3, 4	SLT-T, SLT-R
		5	DKT-R
		6	N/A

Note: When installing DKT or SLT on Hybrid Ports, (MJ2-2,3,4,5,6,7,8), keep the above pin assignment. Otherwise the DKT or SLT will not operate normally.

Table 4-4 Terminal DKT

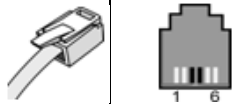

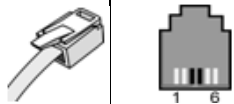

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1	N/A
		2	RING
		3, 4	Reserved
		5	TIP
		6	N/A

Table 4-5 Terminal SLT

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1, 2	N/A
		3, 4	TIP, RING
		5, 6	N/A

CN13 Pin Assignment (Relay Contact)

Table 4-6 CN13

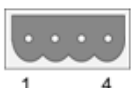


CONNECTOR	NO	SIGNAL NAME
4 PIN 	1	Relay 1 - pin 1
	2	Relay 1 - pin 2
	3	Relay 2 - pin 1
	4	Relay 2 - pin 2

Table 4-7 MJ3 Pin Assignment (LAN)

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME	FUNCTION
RJ45 		4, 5, 7, 8	RESERVED	
		1	TX+	Transmit Data
		2	TX-	Transmit Data
		3	RX-	Receive Data
		6	RX+	Receive Data

Switch, LED, and Connector

Table 4-8 SW1 Functions

SWITCH	FUNCTION	OFF	ON (DEFAULT)
1-1	Administration Programming Access	Disable	Enable
1-2	Command/Event Trace (Software Testing)	Enable	Disable
1-3	Simplified Message Desk Interface control (SMDI - Voice Mail)	SMDI ON	SMDI OFF
1-4	Database Default on Power Up	Disable	Enable

Before programming the System, switch 1-4 should be ON and then power cycle OFF and ON to initialize the default System database. Once the database has been initialized, switch 1-4 should be placed in the OFF position to protect the database.

After putting the SW2 lithium battery switch ON to protect the RAM/RTC data, install the option boards to the MBU.

Note:

- The SW2-DIP switch should be turned ON to protect the System database in case of power failure.
- As needed, replace the batteries with the same or equivalent type recommended by the manufacturer; the System will not function normally if the battery is incorrectly replaced.
- Dispose of used batteries according to manufacturer instructions and/or local government regulations.
- The 4th pole of SW1 should be OFF to protect the features being programmed in Admin programming after the System power up and initialization.

Table 4-9 LED Indications

LED	MEANING
1-1	Periodic Toggle - ON, 300 msec; OFF, 300 msec
1-2	In Use or Idle Status - ON, One or more Ports in use; OFF, Idle
1-3	Timer - Flashes every 100 msec
1-4	LCD Active Updating - Flashes every 300 msec

Expansion Main Board Unit (EMBU/NTB412)

The Expansion Main Board Unit (EMBU), shown in Figure 4-4, provides the following:

- DKT and SLT Interface Circuits
- Ring Generation circuit
- External Relay contacts for LBC or General purpose
- Peripheral Device Decoding circuit
- Master Clock Generation circuit
- PFT circuit [CO1 ↔ the last SLT port (STA8)]
- PCM Voice Processing circuit with ACT2 (ASIC, voice switching including DSP) device for PCM tone generation and PCM gain control.

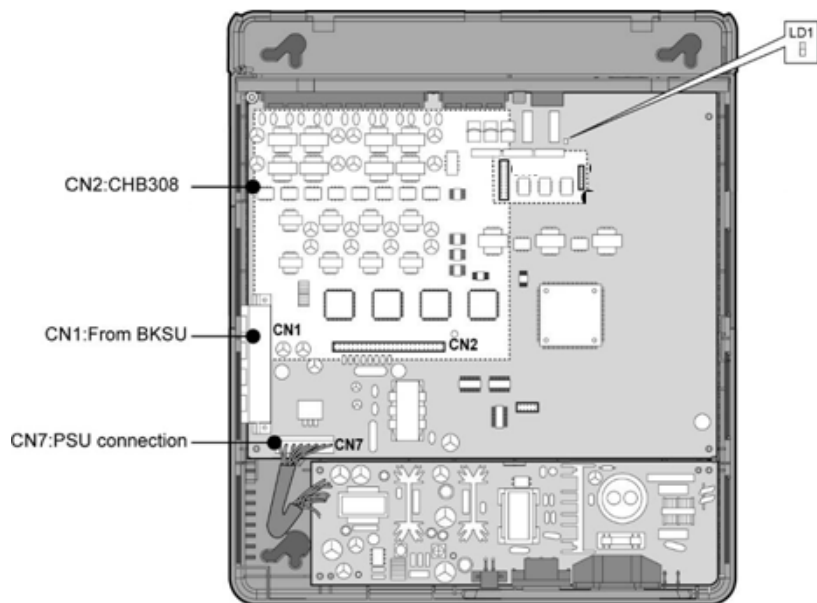


Figure 4-4 EMBU

Note:

- If AC power fails, the last SLT port on the EMBU will be connected to CO1 automatically.
- Even though the EKSU power is turned off while both systems (BKSU and EKSU) are working properly, the BKSU will restart automatically.

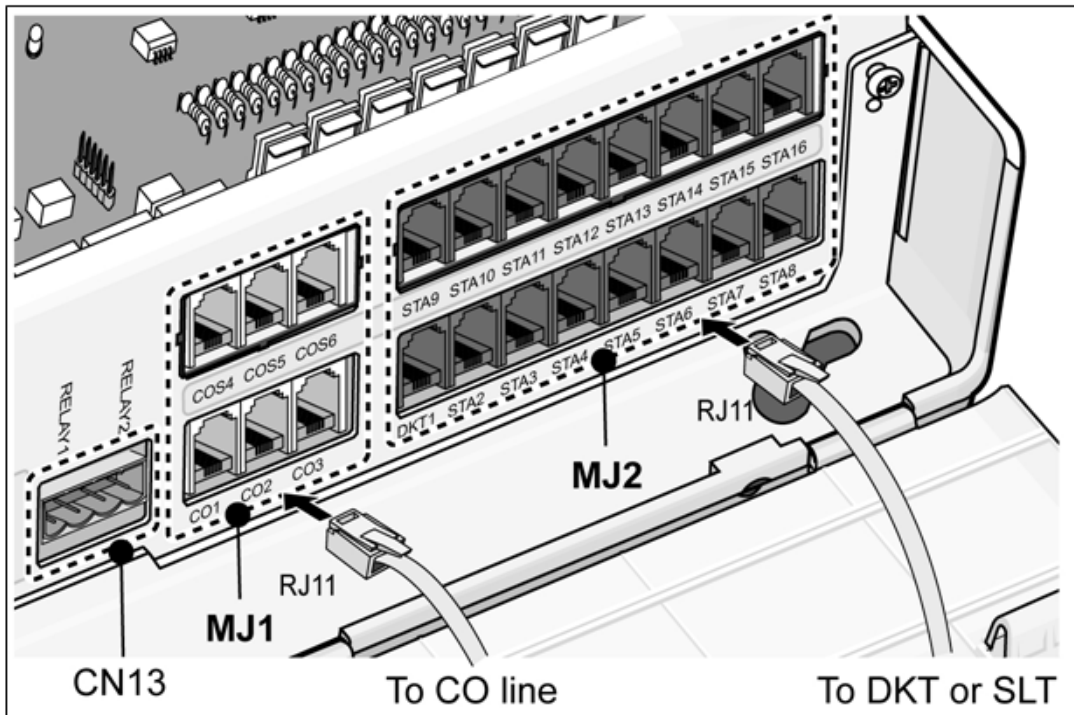


Figure 4-5 EMBU Connection Ports

Table 4-10 Connector/Modular Jack/Switch Functions

SWITCH/CONNECTOR	FUNCTIONS	REMARK
CN1	KSU Connection from BKSU with Link cable	50 Pins
CN2	CO and Extension Board (CHB308) installation	50 Pins
CN13	External Relay contact	4 Pins
CN7	PSU connection	7 Pins
MJ1	3 CO connection	3 Arrays
MJ2	8 DKTs or 8 SLTs connection	8 Arrays

Table 4-11 LED Indications

LED	MEANING
LED1 (Blue)	Periodic Toggle - ON, 300 msec; OFF, 300 msec

Modular Jack (MJ1 - MJ3) Pin Assignment

EMBU MJ1(CO)

Table 4-12 EMBU1 - 1, 2, 3





CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1, 2	N/A
		3, 4	CO-T, CO-R
		5, 6	N/A

Table 4-13 EMBU MJ2 - 1, 2, 3, 4, 5, 6, 7, 8

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1	N/A
		2	DKT-T
		3, 4	SLT-T, SLT-R
		5	DKT-R
		6	N/A

Note: When installing DKT or SLT on Hybrid Ports, (MJ2 -2,3,4,5,6,7,8), keep the above pin assignment. Otherwise the DKT or SLT will not operate normally.

Table 4-14 Terminal DKT



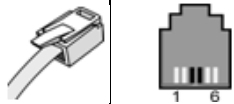


CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1	N/A
		2	RING
		3, 4	Reserved
		5	TIP
		6	N/A

Table 4-15 Terminal SLT

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1, 2	N/A
		3, 4	TIP, RING
		5, 6	N/A

CN13 Pin Assignment (Relay Contact)**Table 4-16** CN13

CONNECTOR	NO	SIGNAL NAME
4 PIN 	1	Relay 1 - pin 1
	2	Relay 1 - pin 2
	3	Relay 2 - pin 1
	4	Relay 2 - pin 2

Installation of the CO Line & Extension Board

BOARD	LINE	CONNECTOR TYPE	DESCRIPTION	CABLE
CHB308	3 CO & 8 SLT or 8 DKT	RJ11	3 CO Line & 8 Hybrid Interface	DKT : 4 wire CO, SLT : 2 wire

CHB308 (3 CO Line and 8 Hybrid Interface Board/NTB417)

The CHB308 can be installed on the CN2 connector of the MBU or EMBU, and provides 3 CO/PBX Loop Start CO Line interfaces that support Pulse/DTMF signaling. Each interface contains ring and loop current circuits, A/D and D/A conversions, and pulse signaling circuitry.

It also provides 8 Hybrid (8 DKTs or 8 SLT interfaces) ports, and can detect FSK signal for incoming Caller ID, DTMF signal for incoming caller ID, call progress tone. It also provides three on-hook connection paths for CID/SMS.

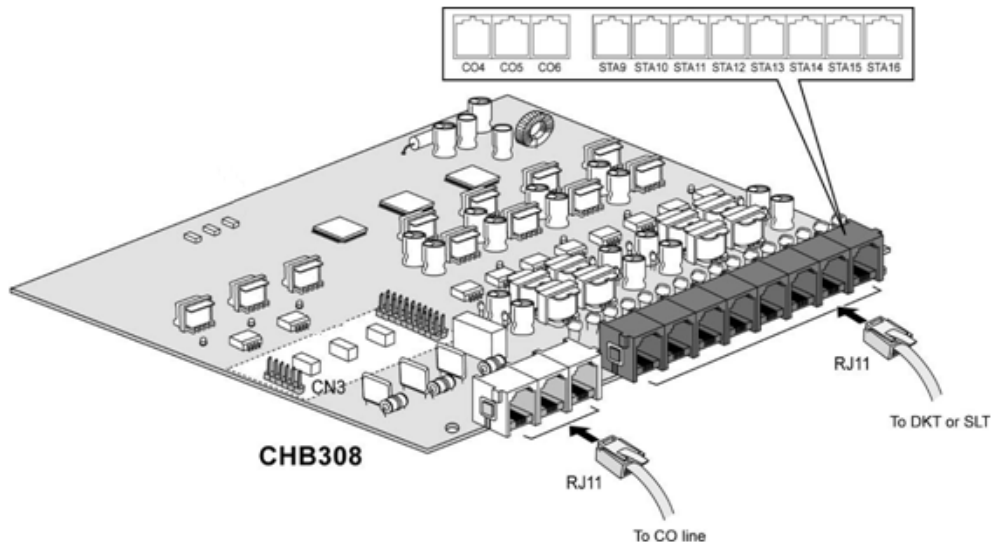


Figure 4-6 CHB308

Modular Jack (MJ1-MJ2) Pin Assignment

Table 4-17 CHB308 MJ1 - 1, 2, 3





CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
		1, 2	N/A
		3, 4	CO-T, CO-R
		5, 6	N/A

Table 4-18 CHB308 MJ2 - 1, 2, 3, 4, 5, 6, 7, 8

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
		1	N/A
		2	DKT-T
		3, 4	SLT-T, SLT-R
		5	DKT-R
		6	N/A

VOIB (Voice over Internet protocol Board (4ch)/NTB422)

The VOIB can be installed on the MBU and it provides four VoIP channels.

The length of the Ethernet cable should be less than 10 meters.

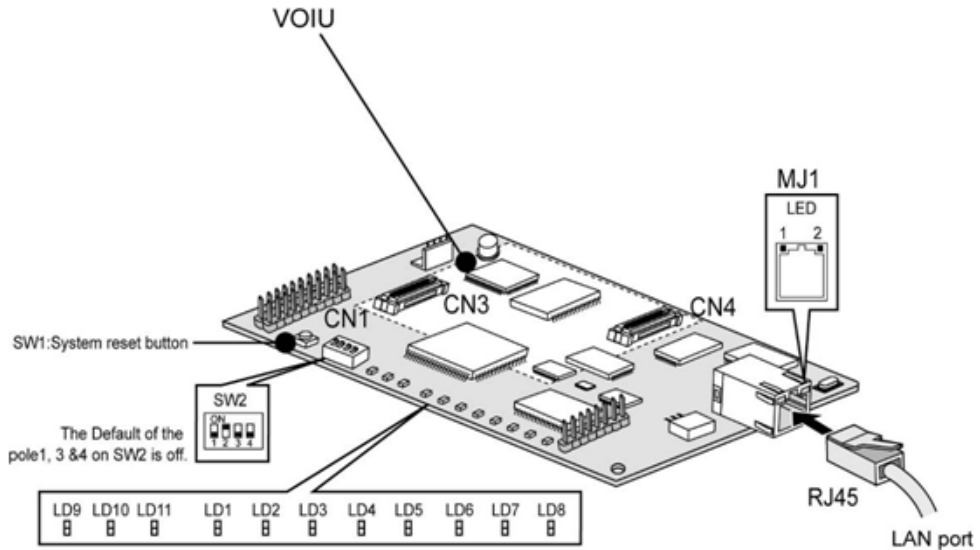


Figure 4-7 VOIB

The VOIB can be installed on the basic MBU and provides the Ethernet interface for S/W applications and VoIP features with optional VoIP daughter board.

The VOIB has the capacity for maximum 4 channels with one(1) VOIB, and VOIU provides additional four(4) VoIP channels.

ITEM	SPECIFICATION
LAN Interface	10 Base-T Ethernet (IEEE 802.3)
Speed	10 Mbps (Auto-Negotiation)
Duplex	Half Duplex or Full Duplex (Auto-Negotiation)
VoIP Protocol	H.323 Revision 2
Voice Compression	G.711/G.726/G.729/ G.723.1
Voice/Fax Switching	T.38
Echo Cancellation	G.165



Various switches and connectors functions

SWITCH/CONNECTOR	FUNCTIONS	REMARK
SW1	VOIB Reset Switch for CPU (S32510A)	
SW2	Pole 2: Boot mode selection, others: reserved	Default : Pole 2 (ON), Others (OFF)
CN1	JTAG (Joint Test Action Group) for debug	
CN2	RS-232C Trace Tool Connection	
CN3 & CN4	VOIU Board Connection	
CN5	MBU Connection	
MJ1	Network (RJ-45) Cable Connection	

LED	SPECIFICATION
LED1	Channel1 seize indication LED (ON:Busy, OFF:Idle)
LED2	Channel2 seize indication LED (ON:Busy, OFF:Idle)
LED3	Channel3 seize indication LED (ON:Busy, OFF:Idle)
LED4	Channel4 seize indication LED (ON:Busy, OFF:Idle)
LED5	Channel5 seize indication LED (ON:Busy, OFF:Idle)
LED6	Channel6 seize indication LED (ON:Busy, OFF:Idle)
LED7	Channel7 seize indication LED (ON:Busy, OFF:Idle)
LED8	Channel8 seize indication LED (ON:Busy, OFF:Idle)
LED9	VOIU DSP operation status LED (ON: Normal, OFF: Fail)
LED10	VOIB DSP operation status LED (ON: Normal, OFF: Fail)
LED11	DSP HINT interrupt LED (ON: Active, OFF: Idle)
MJ1-LD2 (yellow)	Speed Status LED (OFF: 10Mbps)
MJ1-LD1 (green/orange)	Link Status LED (ON: Link, Toggle: Data Transfer)

Pin assignment

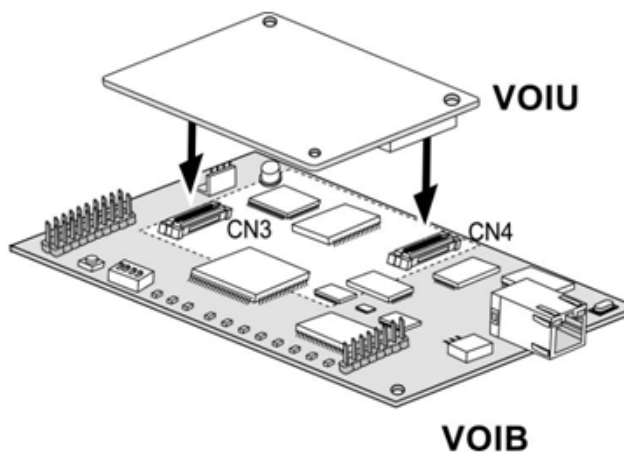
Table 4-19 MJ3 Pin Assignment (LAN)

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME	FUNCTION
		4, 5, 7, 8	RESERVED	
		1	TX+	Transmit Data
		2	TX-	Transmit Data
		3	RX-	Receive Data
		6	RX+	Receive Data

Note: 10BASE-T runs on Category 3 UTP or higher.

VOIU (Internet protocol unit (4ch)/NTB423)

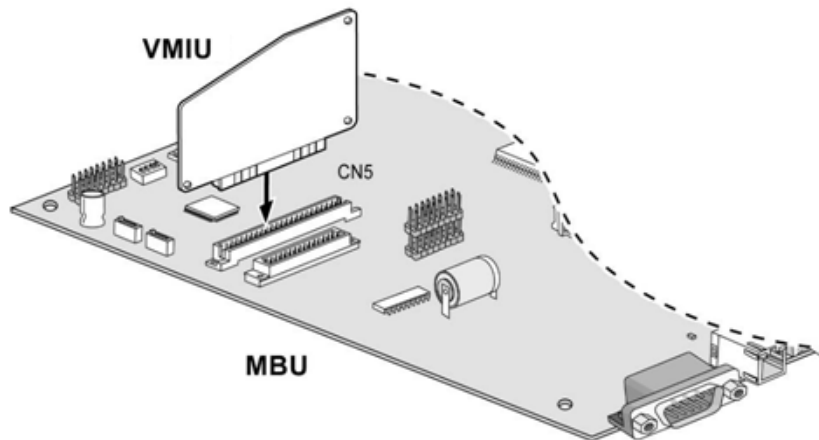
The VOIU can be installed on the VOIB and it provides four VoIP channels.



Other Board Installations

Voice Mail Interface Unit (VMIU/NTB420)

The Voice Mail Interface Unit (VMIU) can be installed on CN5 of the MBU, and it provides the capability for System announcements, ACD/UCD announcements, and User Greetings.

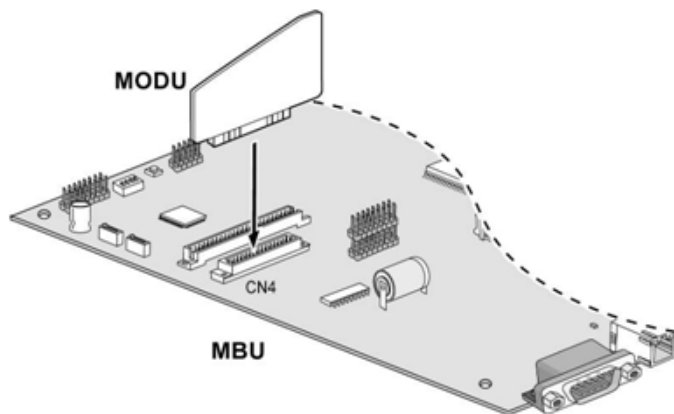


ITEM	DETAIL
Channel	4 Channels
Max Record Time	123 Min.
System Greeting (system announcement)	24 Min.
User Record Time	99 Min.
Max Number of User Voice Messages	800

Note: User greetings are stored in N and Flash memory and will not be lost by System power OFF or reset. MBU SW1-4 and SW2 control the protection of recorded messages.

Modem Function Unit (MODU/NTB413)

MODU should be installed on the MODU connectors (CN4) of the MBU, and provides an analog modem connection. It supports Bell, ITU-T, V.34, V.32BIS, V.90 Protocol at a speed rate of 300bps up to 33Kbps, and automatic rate negotiation.



Terminal Connection And Wiring Method

Terminal and Doorbox Models

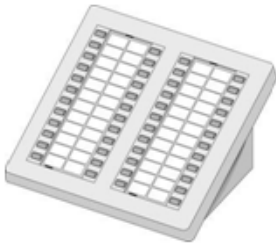
MODEL	DESCRIPTION
7208D	8-button digital telephone
7224D	24-button digital telephone
--	48-button DSS Console
--	2-port digital Doorbox



7208D



7224D

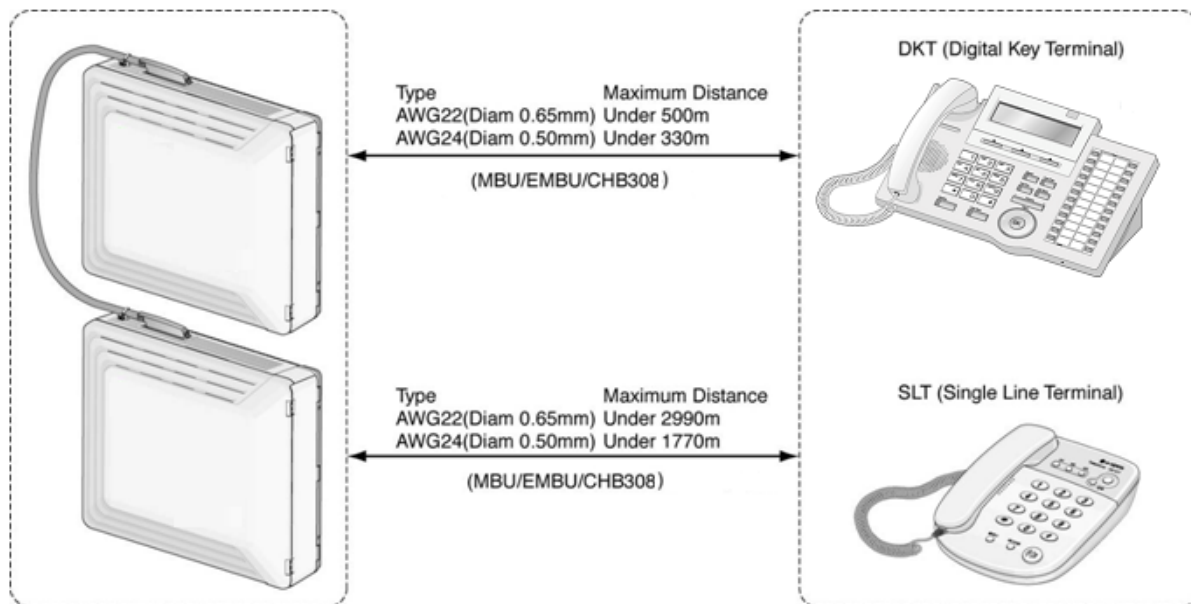


DSS



Doorbox

Terminal Cabling Distance



Basic Terminal Connection

DKT and DSS

The following illustrates how to connect the DKT to your System:

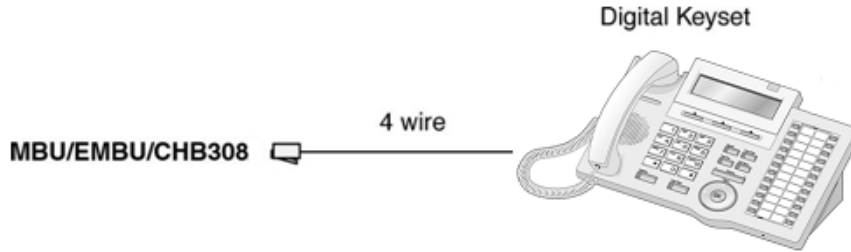




Table 5-1 DKT and DSS Connection Pin Assignment

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1	N/A
		2	DKT-T
		3, 4	Reserved
		5	DKT-R
		6	N/A

SLT

The following illustrates how to connect the SLT to your System:

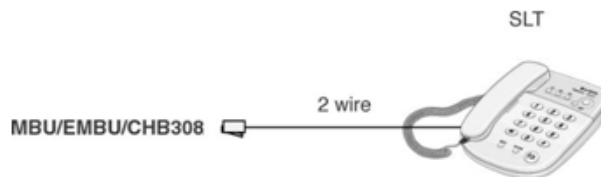




Table 5-2 SLT Connection Pin Assignment

CONNECTOR	PIN NUMBER	NO	SIGNAL NAME
RJ11 		1, 2	N/A
		3, 4	TIP, RING
		5, 6	N/A

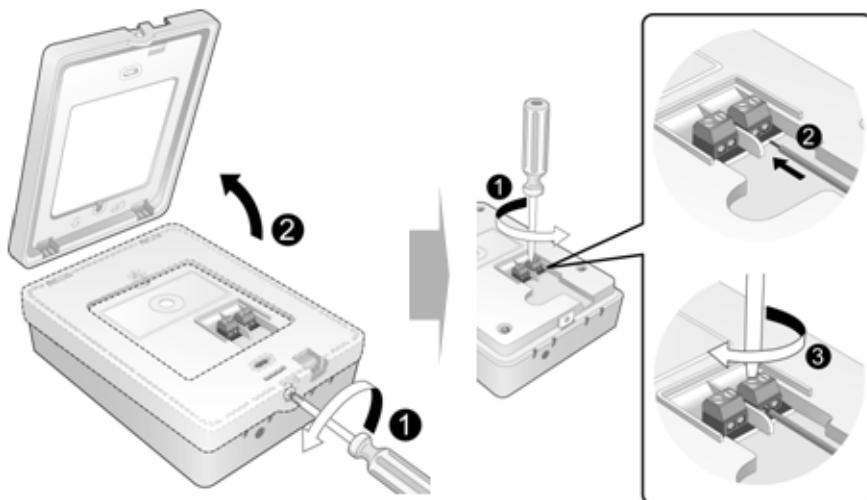
Doorbox

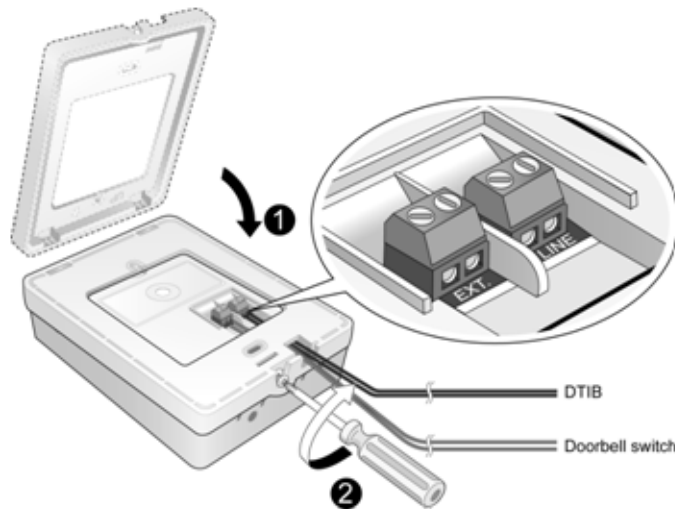
Introduction

The Doorbox is an intercom unit that can be installed at the entrance to a building.

By pressing a CALL button, a visitor will be able to communicate with a person inside the building who has a keyset with a “call coverage” flexible button associated with the Doorbox.

Installation





Operating Instructions

The following examples describe how calls will be handled when sent through the Doorbox.

- **Call FROM the Doorbox**

A visitor can press the CALL button once or the External switch once, depending on the setup.

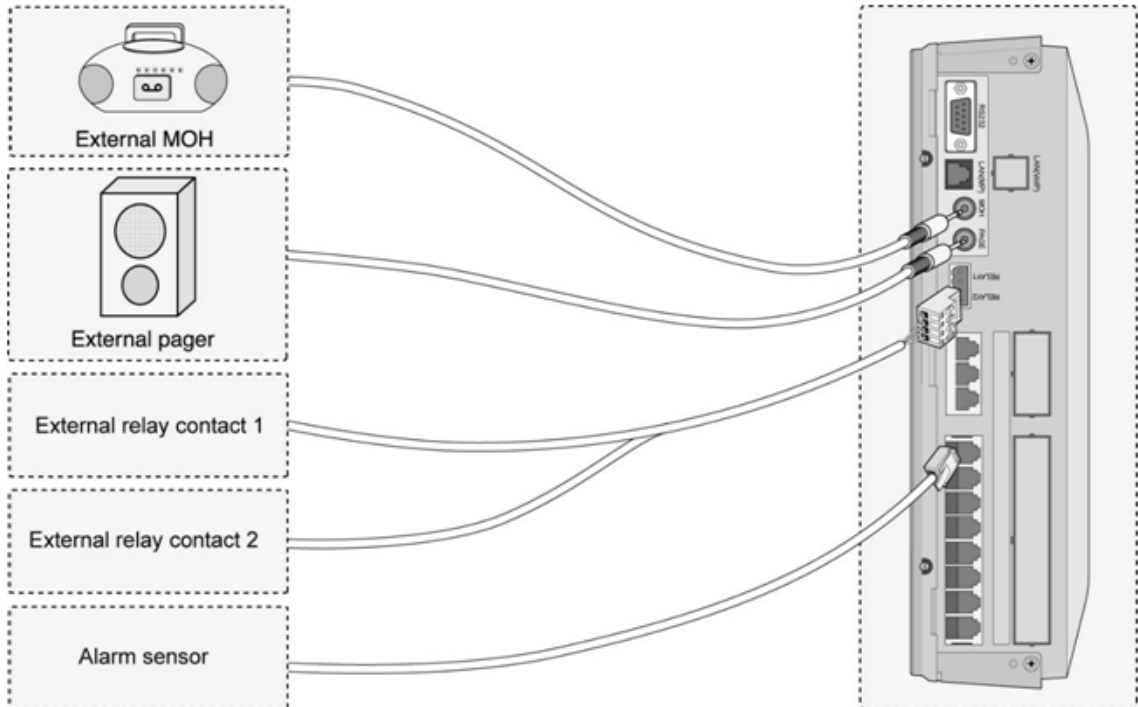
- The visitor will hear music from the Doorbox until the keyset user answers the call.
- The keyset with the call coverage flexible button associated with the Doorbox will also ring, and the call coverage button LED will illuminate. Refer to the Programming Guide ("Intercom Box Signaling" in STATION ATTRIBUTES).
- The keyset user can answer the call by going off-hook using the handset or by pressing the SPEAKER button for speakerphone operation.

- **Call TO the Doorbox**

The keyset user can go off-hook and press a flexible button that is preprogrammed with the Doorbox station number, or dial the number.

Connecting Additional Terminals

The MBU provides connections for one external music source, one external page port, one relay contact, and an alarm detection input monitor through the PJ1 (RED, External MOH) and PJ2 (BLUE, External Page) audio jack and a MJ3 (RJ11 Modular Jack).



External Music Source Wiring

The MBU accommodates one external music port through a PJ1 (RED) audio jack.

Relay Contacts

The MBU/EMBU provides 2 relay contacts that are used for loud bell or general purpose through pin No. 1-4 of CN13.

External Paging Port Wiring

The MBU supports one external paging port through a PJ2 (BLUE) audio jack.

Alarm Detection Wiring

The MBU provides an external alarm detection input, which can be used to transmit notification to extensions when the external switch is closed or opened (programmable through Admin Programming). This alarm detection input is provided through MJ2-1 pin 3-4 of the MBU.

Cable Wiring

Wall Mount Wiring

To install wall mount wiring, perform the following steps:

1. Ensure the BKSU and EKSU have been installed correctly.
2. Connect cables to the CO/STA port and the MOH/RS-232C ports as shown in Figure 5-1.
3. Connect the Power cord and the Battery cable.
4. Remove plastic filter pieces.
5. Tie all the cables and the Power cord (if desired) through the tie slot at the bottom-right side of the KSUs using the tie cable provided.
6. Close the cover of the KSUs and close the cord cover.

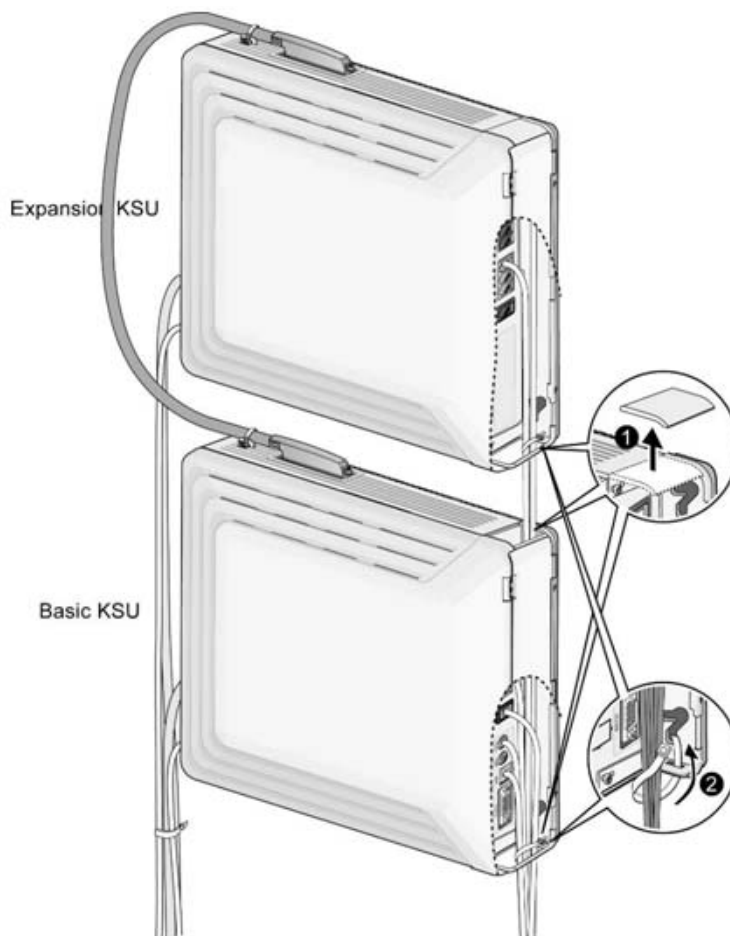


Figure 5-1 Wall Mount Wiring

Rack Mount Wiring

1. Ensure the BKSU and EKSU have been installed correctly.
2. Connect cables to the CO/STA port and the MOH/RS-232C ports as shown in Figure 5-2.
3. Connect the Power cord and the Battery cable.
4. Remove plastic filter pieces.

5. Tie all the cables and the Power cord (if desired) through the tie slot at the bottom-right side of the KSUs using the tie cable provided.
6. Close the cover of the KSUs and close the cord cover.

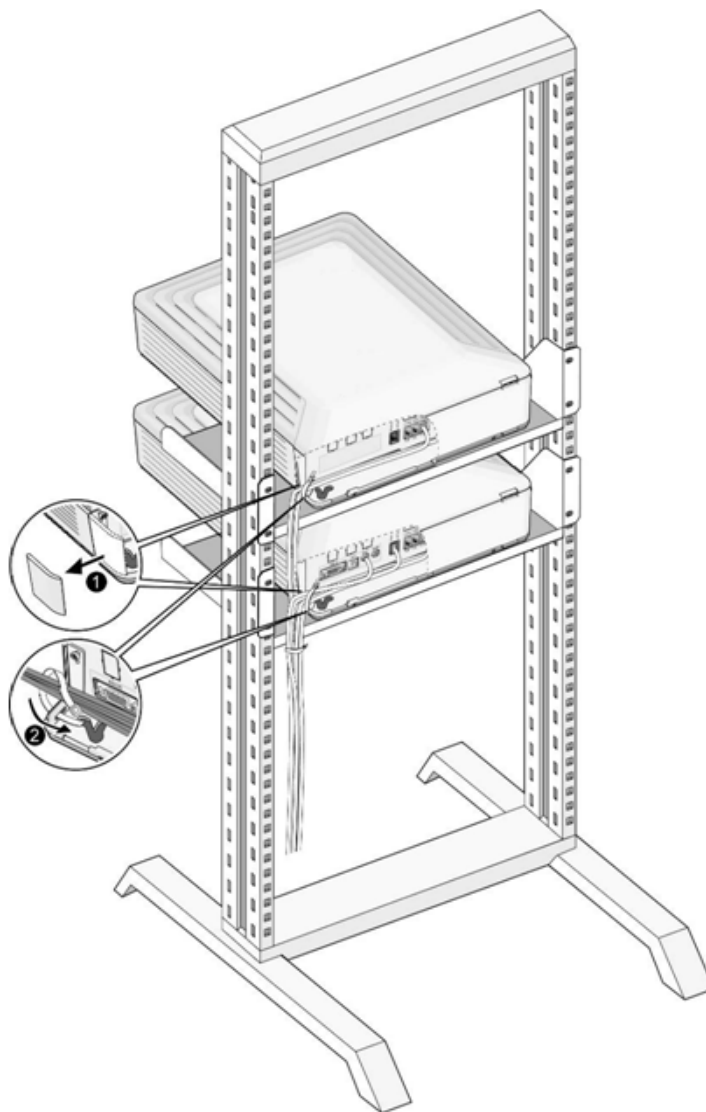


Figure 5-2 Rack Mount Wiring

Starting the SBX IP 320

Before Starting the SBX IP 320

In preparation for programming, perform the following steps:

1. The DIP switch (SW2) should be turned ON prior to installing the MBU to protect the System data in case of power failure.
2. Check the DIP switch (SW1) of the MBU to All ON.
3. Plug the AC power cord into the SBX IP 320 System and AC outlet.
4. Program the Nation Code (PGM100) as applicable.
5. Reset the SBX IP 320 System.
6. Set the 4th pole (SW1) of the MBU to OFF when the System operates normally, to protect programmed features after System power-up and initialization.

Basic Programming

The SBX IP 320 System can be programmed to meet an individual customer's needs. There are two ways to perform Admin Programming:

- PC Admin - Refer to the PC Admin Programming Manual
- DKT - In this manual, DKT (Station 100) Admin Programming is described.

DKT Programming

All programming is done at one station (Station 100, Station Port #00, by default) using the 7224D Digital Key Telephone.

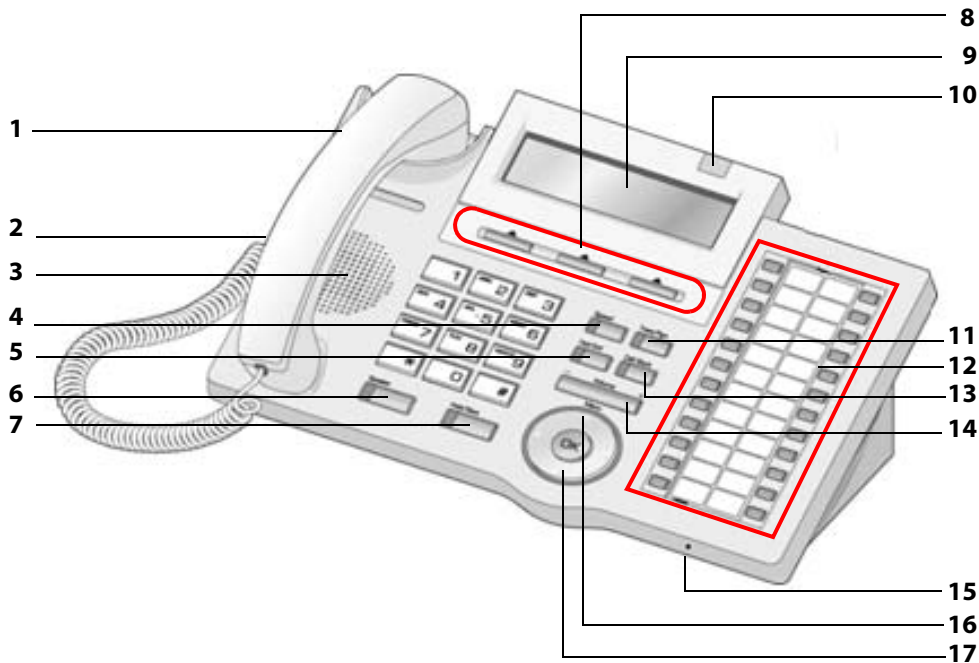
Additional programming stations may be assigned (113 - FLEX 1), but only one DKT can be active in the programming mode at any one time.

When in programming mode, Station 100 does not operate as a normal telephone, but instead works as a programming instrument with all of the buttons redefined. The keys of the dial pad are used to enter the various data fields to enter numerical information:

- Flexible Buttons - The 24 buttons located on the right side of the phone are used to indicate a specific data field and to enter information.
- 3 Soft Buttons (BACK / DELETE / SAVE) - they are used to go back, to delete data, or to save data input.

Button Explanation

The following graphic and its associated table describes the buttons and function keys (refer to the IP7208D/IP7024D User Guide for detailed information and operation instructions).



IP7224D Keypad - Basic Features		
1	Handset	Used for handset call.
2	Headphone	When using a headphone, this button toggles the headphone state.
3	Speaker	Device used to listen to a caller in a handsfree mode when in speaker mode.
4	Speed	Used to access speed dialing, save number redial, and last number redial. Button is also used to access flexible button programming.
5	DND	The Do Not Disturb feature lets you activate a "do not ring this phone" mode. When DND is active, this button is red.
6	Speaker Button	Speaker toggles speakerphone state between speaker mode and handset mode. The button is red when speakerphone is active.
7	Hold/Save	This button puts a call on hold or saves the PGM.
8	3 Soft Buttons	Used to work in conjunction with fixed and flexible features.
9	LCD Display	Displays phone status information, dialing directories, and test message information.
10	Ring LED	Illuminates when the phone is ringing.
11	Trans/PGM	This button is used to set up a conference call or transfer a call.
12	Flexible	The remaining XX Flex buttons can be assigned a feature.
13	Call back	A station can initiate a call back request to another busy station. Once that station becomes idle, the station that left the call back request is signaled.
14	Volume	The volume button adjusts the audio level.
15	MIC	Microphone used to speak to a caller in a handsfree mode when in speaker mode.
16	Menu	Use the menu button to move to the desired option (Dial, MSG, Program) and use for arrows key.
17	Phone Book	Use this button to save a phone number and to make calls with saved information.

Entering the Programming Mode

To enter programming mode, perform the following Steps:

1. Lift the Handset or press the speaker button on the Admin station. ICM dial tone will sound.
2. Press the [TRANS/PGM] button and dial *#. A confirmation tone will sound.
3. Enter the Admin password, if a password has been set; a confirmation tone sounds indicating that the Station is in Admin Programming mode.
4. Each program is accessed by pressing the [TRANS/PGM] button. The following will initially display:

ENTER PGM NUMBER

5. Dial the desired three-digit program number. If an error is made while entering data, the [TRANS/PGM] button will return to the previous status.

Note: To return to the previous state while in Admin Programming, press the [BACK] soft button (clears the temporary data fields).

Permanent Update Procedure

To accept changes while programming, perform the following steps:

1. Press the [HOLD/SAVE] button when all changes have been entered to store the data permanently.
2. A confirmation tone should be heard when pressing the [HOLD/SAVE] button if all data was entered correctly. If there were any errors in the entering of data, an error tone will be presented and data will not be stored in the permanent memory.

Resetting the System

To reset the System, perform the following:

Enter [PGM] + 450 then [FLEX] +15 and press the [HOLD/SAVE] button.

Pre-Programming

Location PGM - Nation Code and Site Name (PGM 100)

Note: The 4th pole of the DIP switch (SW1) on the MBU must be turned ON.

Nation Code

To program the Nation Code, perform the following steps:

1. Press the [TRANS/PGM] button + PGM number (100) then [FLEX1] + 1 [Nation Code for United States].
2. Press the [HOLD/SAVE] button to accept the change.
3. Now Reset the SBX IP 320 to initialize the Database for Nation.
4. Set the 4th pole (SW1) of the MBU OFF when the System operates normally, to protect programmed features.

Site Name

1. Press the [TRANS/PGM] button + Enter Site Name (use the following DKT Map, Max. 23 characters allowed), then press [FLEX 2].
2. Press the [HOLD/SAVE] button to accept the change.

. - 13	A - 21	D - 31
Q - 11	B - 22	E - 32
Z - 12	C - 23	F - 33
1 - 10	2 - 20	3 - 30
G - 41	J - 51	M - 61
H - 42	K - 52	N - 62
I - 43	L - 53	O - 63
4 - 40	5 - 50	6 - 60
P - 71	T - 81	W - 91
Q - 72	U - 82	X - 92
R - 73	V - 83	Y - 93
S - 74	8 - 80	Z - 94
7 - 70		9 - 90
Blank - *1	0 - 00	
: - *2		
, - *3		

NATION CODE TABLE

Nation	Code	Nation	Code	Nation	Code
Argentina	54	Greece	30	Nigeria	234
Australia	61	Guam	671	Norway	47
Bahrain	973	Guatemala	502	Oman	968
Bangladesh	880	Guyana	592	P.N.G.	675
Belgium	32	Haiti	509	Pakistan	92
Bolivia	591	Honduras	504	Panama	507
Brazil	55	Hong Kong	852	Paraguay	595
Brunei	673	India	91	Peru	51
Burma	95	Indonesia	62	Philippines	63
Cameroon	237	Iran	98	Portugal	351
Canada + USA	1	Iraq	964	Qutar	974
Chile	56	Ireland	353	Saudi Arabia	966
China (Taiwan)	886	Israel	972	Senegal	221
CIS	7	Italy	39	Singapore	65
Columbia	57	Japan	81	South Africa	27
Costa Rica	506	Jordan	962	Spain	34
Cyprus	357	Kenya	254	Sri Lanka	94
Czech	42	Korea	82	Swaziland	268
Denmark	45	Kuwait	965	Sweden	46
Ecuador	593	Liberia	231	Switzerland	41
Egypt	20	Libya	218	Thailand	66
El Salvador	503	Luxembourg	352	Tunisia	216
Ethiopia	251	Malaysia	60	Turkey	90
Fiji	679	Malta	356	U.A.E.	971
Finland	358	Mexico	52	United Kingdom	44
France	33	Monaco	377	United States	1
Gabon	241	Morocco	212	Uruguay	598
Germany	49	Netherlands	31	Venezuela	58
Ghana	233	New Zealand	64	Y.A.R.	967

Board Assignment (PGM 101)

To use a CO line, an extension line, and a board, ensure that the code of these boards are registered on the system at PGM101

When registering a board, if the 4th pole (SW1) of the MBU is on, the board is automatically registered. While using the SBX IP 320 System, in case of adding some boards, if passively assigning those, you can use them. When the 4th pole (SW1) of the MBU is on and board is automatically registered, you must place the 4th pole (SW1) of the MBU off and perform a system reset.

While in the Admin programming mode,

1. Press the [TRANS/PGM] button + PGM number (101).
2. Enter slot number (2 digits).
3. Press [FLEX1] button.
4. Enter Board Type code (2 digits).
5. Press the [HOLD/SAVE] button to accept the change.

Table 6-1 Board ID

STA	CODE	COL	CODE	ETC	CODE
HYBRID	17	VOIB	41	VMIU	64

Table 6-2 Slot Definition

SLOT NUMBER	SLOT POSITION	KINDS OF BOARDS
01	Hybrid on BKSU	HYBRID
02	Optional extension board on BKSU	HYBRID
03	Hybrid port on EKSU	HYBRID
04	Optional extension board on EKSU	HYBRID
05	LCOB on BKSU	--
06	Currently not used	N/A
07	LCOB on EKSU	--
08	Optional LCOB on EKSU	--
09	VMIB on BKSU	VMIB
10	VOIB on BKSU	VOIB

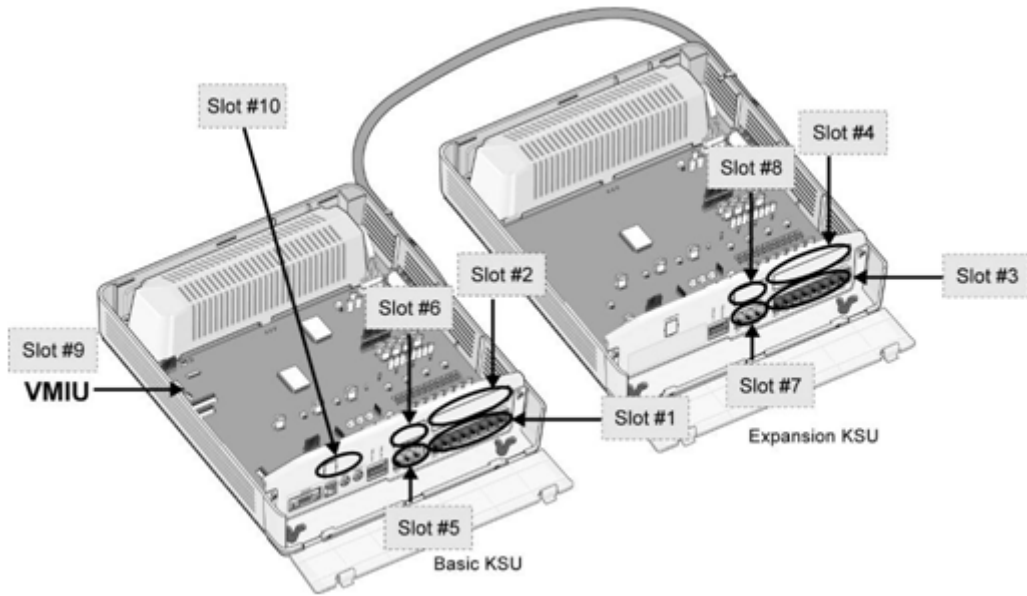


Figure 6-1 Slot Locations

Logical Slot Assignment (PGM 103)

If assignment of each board is end, it is automatically registered by slot number order. You can reassign the slot order of each CO Line or extension line as appropriate to your circumstance.

COL Board

1. Press the [TRANS/PGM] button + PGM number (103)
2. Press [FLEX1] button.
3. Enter logical slot number (CO board slot: 05, 07, 08, 10)
4. Press [HOLD/SAVE] button to accept change.

STA Board

1. Press the [TRANS/PGM] button + PGM number (103).
2. Press the [FLEX 2] button.
3. Enter logical slot number (STA board slot: 01-04).
4. Press the [HOLD/SAVE] button to accept change.

VMIU Board

1. Press the [TRANS/PGM] button + PGM number (103).
2. Press the [FLEX 3] button.
3. Enter logical slot number (VMIU Slot: 09).
4. Press the [HOLD/SAVE] button to accept change.

Numbering Plan Type (PGM 104)

To program the Numbering Plan Type, perform the following:

1. Press the [TRANS/PGM] button + 104.
2. Enter the Numbering Plan Type (1 digit, refer to the following Table).
3. Press the [HOLD/SAVE] button to accept changes.

Table 6-3 Slot Definition

NUMBER SET TYPE/ PRESS #	INTERCOM RANGE	DEFAULT	REMARK
01	100-147	Yes	As the basic type, the 1st digit of the Station number should be 1-4
02	100-147	No	The Station number can be changed up to 799
03	100-147	No	
04	700-747	No	
05	200-247	No	
06	21-68	No	
07	100-147	No	
08	100-147	No	The Station number can be changed up to 999

Flexible Numbering Plan (PGM 105)

To set the Flexible Numbering Plan, perform the following steps:

1. Press the [TRANS/PGM] button + 105.
2. Enter the Station Range (dial the Start and End numbers as described in the Table).
3. Press the [HOLD/SAVE] button to accept changes.

Table 6-4 Numbering Plan Detail

STATION NUMBERS				DESCRIPTION
000	001	002	003	[TRANS/PGM] + 105
100	101	102	103	
000	001	002	003	Station Number Assign-Four station numbers correspond to the 4 port numbers. The Station number length is in the range of 2 digits through 4 digits. There are two methods for changing the station number: Dial two station numbers - Dial the range of the start and end Station numbers. The LCD will show the dialed range value. Press the [HOLD/SAVE] button to accept change. All LEDs of BTNs will be extinguished. Press one of FLEX 1-4 - Each FLEX button (1-4) is assigned to a corresponding Station number (1- 4) on the current LCD. The LED of the pressed Flexible button will show steady light. Dial the new Station number and press the [HOLD/SAVE] button to accept change, or press another Flexible button to assign a Station number to other stations without saving. To change the next 4 station numbers then press [▼] button. If you want to change previous 4 station numbers, then press [▲] button. To delete all Station numbers, press the [SPEED] button and press the [HOLD/SAVE] button; all station numbers will be cleared.
100	101	102	103	
000	001	002	003	Press the [HOLD/SAVE] button to save changes to the database permanently (Ex: Press FLEX 2, dial 400 and press [HOLD/SAVE] button).
100	400	102	103	

Flexible Numbering Plan (PGM 106-107, & 109)

To program Flexible Numbering using PGM 106, perform the following steps:

1. Press the [TRANS/PGM] button + 106.
2. Enter the desired code (refer to the following Table).
3. Press the [HOLD/SAVE] button to accept changes.

Table 6-5 Flexible Numbering Plan (PGM 106)

FLEX	ITEM	DEFAULT VALUE
1	Station Group Pilot Number Range	620-629
2	Internal Page Zone Number Range	501-510
3	Internal All Call Page	543
4	Meet Me Page	544
5	External Page Zone	545
6	All Call Page (Internal/External)	549
7	SMDR Account Code	550
8	Flash Command to CO Line	551
9	Last Number Redial (LNR)	552
10	Do-Not-Disturb	553
11	Call Forward	554
12	Speed Dial Program	555
13	MSG Wait/Call-Back Enable	556
14	MSG Wait/Call Back Answer	557
15	Speed Dial Access	558
16	Cancel DND/CFW/Pre-Selected MSG Features	559
17	SLT Hold	560
18	Reserved	N/A
19	Reserved	N/A
20	SLT Program Mode Select	563
21	ACD Reroute	564

To program Flexible numbering using PGM 107, perform the following Steps:

1. Press the [TRANS/PGM] button + 107.
2. Enter the desired code (refer to the following Table).
3. Press the [HOLD/SAVE] button to accept changes.

Table 6-6 Flexible Numbering Plan (PGM 107)

FLEX	ITEM	DEFAULT VALUE
1	Alarm Reset	565
2	Group Call Pickup	566
3	UCD Group DND	568
4	Night Answer	569
5	Call Park Location Range	601-610
6	Direct Call Pick-Up	7
7	Access CO Line Group	801-824 (8 + CO Group Line Number)
8	Access Individual CO Line	88 (88 + CO Line Number)
9	Reserved	N/A
10	Access Held CO Line Group	8*
11	Access Held Individual CO Line	8# (8# + CO Line Number)
12	Access to CO Line in the 1st Available CO Line Group	9
13	Attendant Call	0
14	Door Open - 1	#*1
15	Door Open - 2	#*2
16	Door Open - 3	#*3
17	Door Open - 4	#*4
18	VM MSG Wait Enable	*8
19	VM MSG Wait Cancel	*9

To program Flexible numbering using PGM 109, perform the following steps:

1. Press the [TRANS/PGM] button + 109.
2. Enter the desired code (refer to Table).
3. Press the [HOLD/SAVE] button to accept changes.

Table 6-7 Flexible Numbering Plan (PGM 109)

FLEX	ITEM	DEFAULT VALUE
1	Reserved	N/A
2	Reserved	N/A
3	Reserved	N/A
4	Conference Room	57
5	SLT Conference Page Join	58
6	Unsupervised Conf Timer Extend	##
7	Reserved	N/A

System IP Setup (PGM 108)

To set up IP functionality, perform the following. Use the # key to skip to the next menu item, as needed:

IP Name

1. Press the [TRANS/PGM] button + 108.
2. Press the FLEX 1 Button.
3. Enter the desired IP Name (up to 15 characters).

1	A-21 B-22 C-23	D-31 E-32 F-33	Other Codes		
G-41 H-42 I-43	J-51 K-52 L-53	M-61 N-62 O-63	1 = 10	6 = 60	Space = *1
P-71 R-72 S-73 Q-7*	T-81 U-82 V-83	W-91 X-92 Y-93 Z-9#	2 = 20	7 = 70	, = *3
*	OPER 0	f	3 = 30	8 = 80	: = *2
			4 = 40	9 = 90	. = 13
			5 = 50	0 = 00	* = 0*

4. Press the [HOLD/SAVE] button to accept changes.

Server IP Address

1. Press the [TRANS/PGM] button + 108.
2. Press the FLEX 2 Button.
3. Enter the server IP Address (12 digits). (ex., 192168131154 for IP : 192.168.131.154)
4. Press the [HOLD/SAVE] button to accept changes.

CLI IP Address

1. Press the [TRANS/PGM] button + 108.
2. Press the FLEX 3 Button.
3. Enter the CLI IP Address (12 digits).
4. Press the [HOLD/SAVE] button to accept changes.

Gateway Address

1. Press the [TRANS/PGM] button + 108.
2. Press the FLEX4 Button.
3. Enter the Gateway Address (12 digits).
4. Press the [HOLD/SAVE] button to accept changes.

Subnet Mask Address

1. Press the [TRANS/PGM] button + 108.
2. Press the FLEX5 Button.
3. Enter the Subnet Mask (12 digits).
4. Press the [HOLD/SAVE] button to accept changes.

Using Database Upload/Download

General Description

DB Up/Down SBX IP 320 is a PC-based Window S/W to upload/download SBX IP 320 MBU Database from/to a PC file. Three connection types are available (TCP, Serial, or Modem). It is up to you which connection method to use. These 3 types differ slightly by configuration, transfer speed, and transferring protocol. *It is strongly recommended that after you upload any type of DB, that you reset the SBX IP 320 system.*

PC Requirement

- PC OS : Windows 2000 or later
- PC Memory : 128 MB at least
- PC Free Disk Space : 10Mbytes or higher (larger than 20 M Bytes recommended)
- PC Monitor Resolution : VGA or higher
- PC Modem : General analog dial-up modem (only for upgrading through an analog phone line)

Connection Method with SBX IP 320

To use the DB Up/Down SBX IP 320 software needed to transfer system data, you will need to select one of the following connection methods:

Serial Connection

SBX IP 320 MBU S/W can be updated through RS-232C interface in a PC.

TCP Connection

SBX IP 320 MBU S/W can be updated through LAN interface at the remote PC.

Modem Connection

SBX IP 320 MBU S/W can be updated through MODEM interface at the remote PC.

SBXIP 320 MPB S/W Version Compatibility

The available SBX IP 320 MPB S/W version is C.7Aa or later.

Installation

DB Up/Down SBX IP 320 is distributed with PC Admin for SBX IP 320. Refer to the installation of PC Admin for SBX IP 320.

Note: In the setup procedure, if your PC is Windows 95 generic or some system DLL Files should be updated , the setup program will request that you restart your PC.

File Component in your Execution Directory

If you use a default installation, the "execution directory" will be located at Program Files\Vertical Communications Inc\SBX PCADMIN\Admin

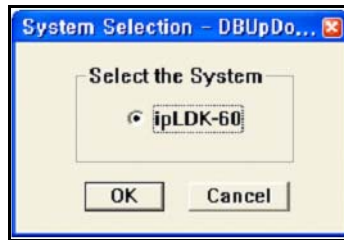
If you install SBX PC Admin successfully and use a default installation, the following files will reside in the "execution" directory:

- PC Admin.exe : Main Execution File
- UpLDK.exe : S/W Upgrade Tool
- DBUDLDK.exe : D/B Upload/Download
- LDKDiag.exe : Remote Diagnostics

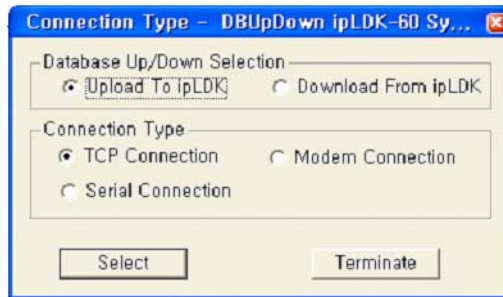
Choosing Up/Download and Connection Type

To upload the database file in your PC to the SBX IP 320 system, you must choose Upload To SBX IP 320. To download the SBX IP 320 MPB's database from the SBX IP 320 to your PC, you must choose Download From SBX IP 320.

You have to select which system you are connecting to.



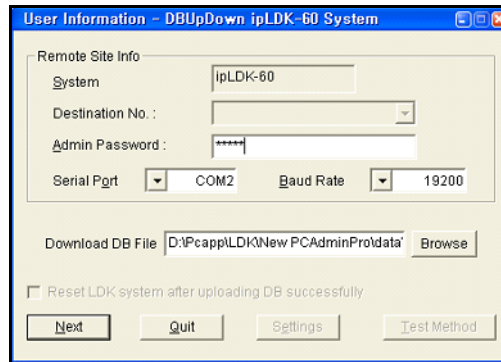
DB Up/Down SBX IP 320 is available through TCP, Modem and Serial connection. Please choose the desired connection type. User will see a short dialog showing the requirements for the selected connection type. Please check this basic requirements before getting started.



User Information Dialog

After selecting the desired connection type you have to decide several configuration requirements including Admin Password, Database File (*.usr), etc. in the "User Information Dialog". It differs slightly according to the selected connection type.

Up/Download by Serial Connection



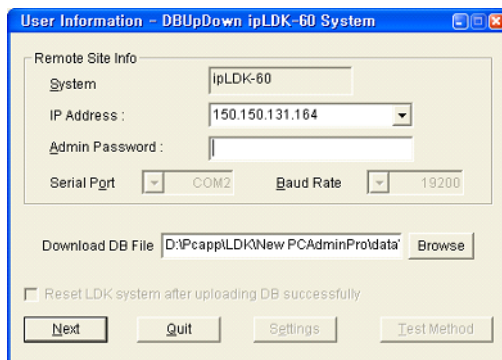
1. Enter the following entries for Serial connection:
 - *Serial Port* -- Serial port No. in PC connected to SBX IP 320 COM port.
 - *Baud Rate* -- Choose the transferring baud rate (see *Note*).
 - *Admin Password* -- If SBX IP 320 requires a password to upload/download MBU S/W DB.
 - *Database File* -- The database file to be uploaded/downloaded.
 - *Check Button* -- Check this button if you want to reset the SBX IP 320 system after uploading DB successfully. It is strongly recommended that after you upload any type of DB, that you reset the SBX IP 320 system.

Note: The transferring baud rate in the PC and the baud rate of COM port in the SBX IP 320 system must be identical. You can program the SBX IP 320 system baud rate in PGM 174.

Note: If you set the PC's and SBX IP 320 system's transferring baud rate to 57600 bps, it might happen that some keysets display incorrect characters in their LCD, or the SBX IP 320 system may be unstable. That rate is the fastest way of upgrading, but 19200bps and 9600bps are also available.

2. Press the [Next] button to go to the next step.

Up/Download by TCP Connection



The screenshot shows a Windows-style dialog box titled "User Information - DBUpDown ipLDK-60 System". It contains the following fields and controls:

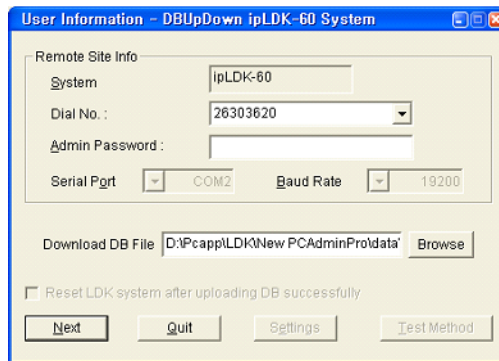
- Remote Site Info:**
 - System:** Text box containing "ipLDK-60".
 - IP Address:** Dropdown menu showing "150.150.131.164".
 - Admin Password:** Empty text box.
 - Serial Port:** Dropdown menu showing "COM2".
 - Baud Rate:** Dropdown menu showing "19200".
- Download DB File:** Text box containing "D:\Pcapp\LDK\New PCAdminPro\data" and a "Browse" button.
- Reset LDK system after uploading DB successfully:** A checkbox that is currently unchecked.
- Buttons:** "Next", "Quit", "Settings", and "Test Method".

1. Enter the following for TCP connection:
 - *IP Address* -- IP address of the destination SBX IP 320 system (see Note).
 - *Admin Password* -- If the SBX IP 320 requires a password to upload/download MBU S/W DB.
 - *Database File* -- The database file to be uploaded/downloaded.
 - *Check Button* -- Check this button if you want to reset the SBX IP 320 system after uploading DB successfully. It is strongly recommended that after you upload any type of DB, that you reset the SBX IP 320 system.

Note: Assign the SBX IP 320 system IP address before you attempt TCP connection. You can program the SBX IP 320 system IP address in PGM 108.

2. Press the [Next] button to go to the next step.

Up/Download by MODEM Connection



1. If you select a MODEM configuration, the next step is to set the following.
 - *Dial No.* -- Analog telephone number of the destination SBX IP 320 system (see *Note*).
 - *Admin Password* -- If the SBX IP 320 requires a password to update MBU S/W.
 - *Range* -- The range of DB, which you want to upload/download (such as All DB, LCR only, SPD only).
 - *Database File* -- The database file to be uploaded/downloaded.
 - *Valid* -- It displays the validity of the range of DB, and pushing the “Check” button can check the validity.
 - *Check Button* -- Check this button if you want to reset the SBX IP 320 system after uploading DB successfully. It is strongly recommended that after you upload any type of DB, that you reset the SBX IP 320 system.

Note: Assign The Analog telephone number of the SBX IP 320 system to Modem-associated device before you attempt MODEM connection. You can program the analog line to modem-associated device in PGM 170.

Note: The transferring baud rate in the PC and the baud rate of the Modem port (COM Port 3) in the SBX IP 320 system must be identical. You can program the SBX IP 320 system baud rate in PGM174. Using 9600 bps is recommended. 2400bps is available but slow. 19200bps is also available but somewhat unstable.

2. Press the [Next] button to go to the next step.

Starting Database File Upload/Download

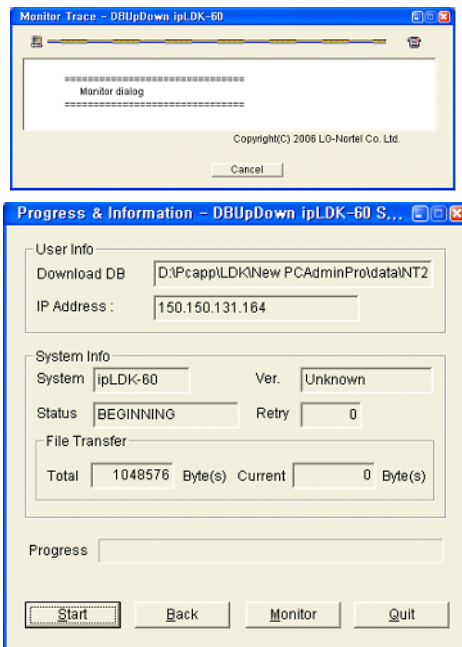
After setting the detailed configuration for the selected connection type, you are ready to start the SBX IP 320 DB Upload/Download. You have the following choices:

Start.: Database transfer process will start.

Back: Go to the previous step.

Monitor: Monitor Trace window.

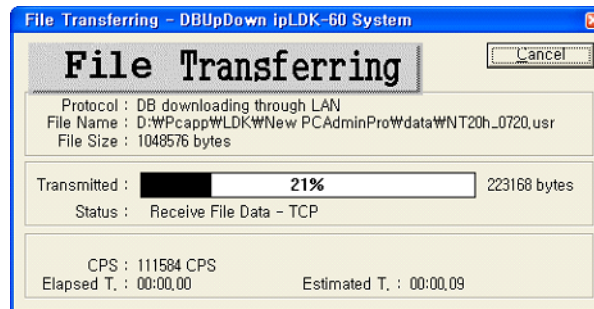
Quit: Program will be terminated.



If you press the Start button at this time, all other buttons except the Monitor button will be deactivated. In the "Monitor Trace" window, the ongoing progress will be displayed.

Note: In a MODEM connection, after pressing the Start button, you have to select the details for the MODEM interface in the PC. Press OK to get started.

Transferring Process



When database file transfer is ongoing, you can monitor the process. Serial, Modem, and TCP connection use Z-Modem transfer protocol and the sending process will be displayed in the Z-Modem window.

Note: In version3, TCP connection isn't using Z-Modem transfer. So, you can finish the process quickly.

Finishing DataBase File Upload/Download

After the S/W transfer process is finished a result dialog will be displayed. If you press the "OK" button, you will reveal the dialog below. You can start another upload/download by selecting the Yes button.



Note: It is strongly recommended that after you upload any type of DB, that you reset the SBX IP 320 system.

Software Upgrade

General Description

SBX IP 320 S/W Upgrade is a PC-based Window S/W to update SBX IP 320 MBU S/W by the transferred ROM file instead of replacing the whole ROM. Three connection types are available (TCP, Serial, or MODEM connection). It is up to the user which connection method to use. These 3 types slightly differ by configuration, transfer speed, and transferring protocol.

PC Requirement

- PC OS : Windows 2000 or later
- PC Memory : 128 MB at least
- PC Free Disk Space : 10Mbytes or higher (larger than 20 M Bytes recommended)
- PC Monitor Resolution : VGA or higher
- PC Modem : General analog dial-up modem (only for upgrading through an analog phone line)

Connection Method with SBX IP 320

SBX IP 320 S/W Upgrade is available by the following connection methods:

Serial Connection

SBX IP 320 MBU S/W can be updated through RS-232C interface in PC.

TCP Connection

SBX IP 320 MBU S/W can be updated through LAN interface at the remote PC.

Modem Connection

SBX IP 320 MBU S/W can be updated through MODEM interface at the remote PC.

SBX IP 320 MPB S/W Version Compatibility

The available SBX IP 320 MPB S/W version is C.7Aa or later.

Installation

Software Upgrade SBX IP 320 is distributed with PC Admin for SBX IP 320. Refer to the installation of PC Admin for SBX IP 320.

File Component in your Execution Directory

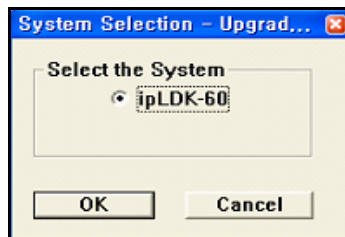
If you use a default installation, the "execution directory" will be located at Program Files\Vertical Communications Inc\SBX PCADMIN\Admin

If you install SBX PC Admin successfully and use a default installation, the following files will reside in the "execution" directory:

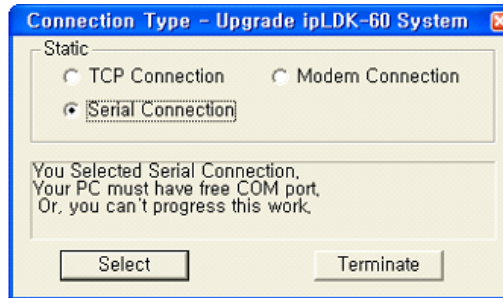
- PC Admin.exe : Main Execution File
- UpLDK.exe : S/W Upgrade Tool
- DBUDLDK.exe : D/B Upload/Download
- LDKDiag.exe : Remote Diagnostics

Choosing Up/Download and Connection Type

You have to select which system you are connecting to.



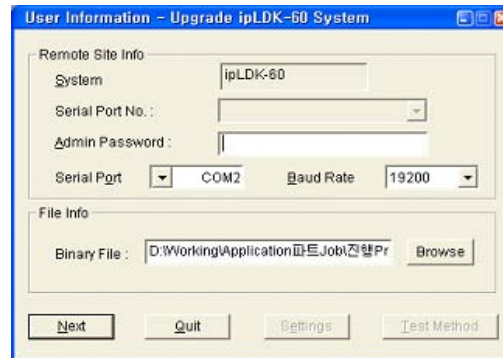
SBX IP 320 Upgrade is available through ISDN, TCP, Modem and Serial connection. Choose the desired connection type. User will see a short dialog showing the requirements for the selected connection type. Check this basic requirements before getting started.



User Information Dialog

After selecting the desired connection type user has to decide several configuration requirements including Admin Password, Binary File etc. in the “User Information Dialog”. It slightly differs according to the selected connection type.

Up/Download by Serial Connection



Enter the following entries for Serial connection:

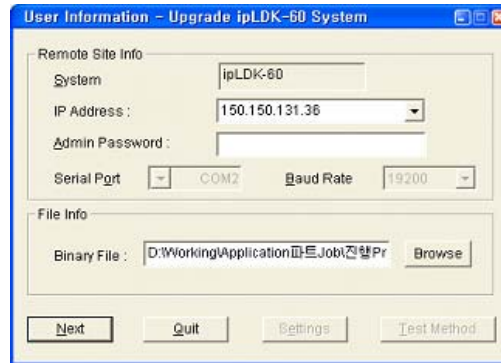
- *Serial Port* -- Serial port No. in PC connected to SBX IP 320 COM port.
- *Admin Password* -- If the SBX IP 320 requires a password to update MBU S/W.
- *Binary File* -- The new S/W file data to be updated.

- *Baud Rate* -- Choose the transferring baud rate. (see *Note*)

Note: The transferring baud rate in PC and the baud rate of COM port in SBX IP 320 system must be identical. You can program the SBX IP 320 system baud rate in PGM 174.

Press [Next] button to go to the next step.

Up/Download by TCP Connection



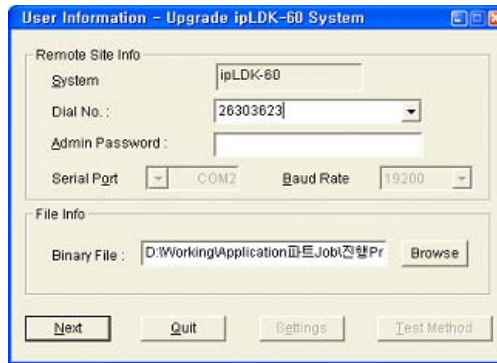
Enter the following entries for TCP connection:

- *IP Address* -- IP address of the destination SBX IP 320 system. (see *Note*)
- *Admin Password* -- If the SBX IP 320 requires a password to update MBU S/W.
- *Binary File* -- The new S/W file data to be updated.

Note: Assign SBX IP 320 system IP address before you attempt to TCP connection. You can program the SBX IP 320 system IP address in PGM 108.

Press [Next] button to go to the next step.

Upgrade by MODEM Connection



If user selects MODEM configuration the next step is to set the following entries.

- *Dial No.* -- Analog telephone number of the destination SBX IP 320 system. (see *Note*)
- *Admin Password* -- If SBX IP 320 requires password to update MBU S/W.
- *Binary File* -- The new S/W file data to be updated.

Note: Assign The Analog telephone number of SBX IP 320 system to Modem associated device before you attempt to MODEM connection. You can program set the analog line to modem associated device by PGM170.

Note: The transferring baud rate in PC and the baud rate of Modem port (COM Port 3) in SBX IP 320 system must be identical. You can program SBX IP 320 system baud rate in PGM 174. Using 9600 bps is recommended (2400bps is available but slow. 19200bps is also available but a little unstable).

Note: It might happen that the MODEM connection will be lost due to the PSTN network situation.

Press [Next] button to go to the next step.

Starting S/W Upgrade

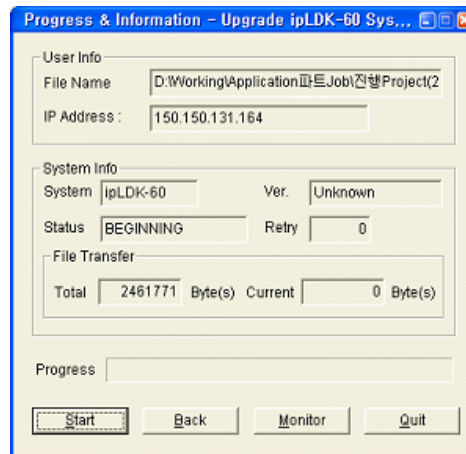
After setting the detailed configuration for the selected connection type, now you are ready to start the **SBX IP 320 S/W Upgrade**. The user has the following choices:

Start.: S/W transfer process will start.

Back: Go to the previous step.

Monitor: Monitor Trace window.

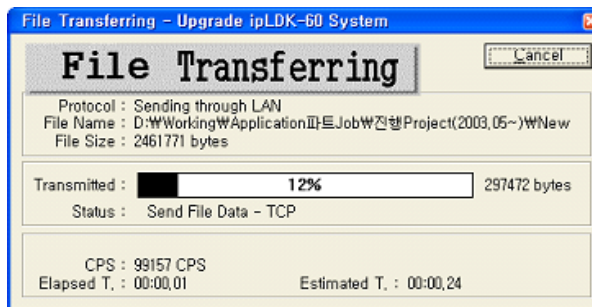
Quit: SBX IP 320 S/W Upgrade program will be terminated.



If you press the Start button at this time all other buttons except the Monitor button will be deactivated. In the "Monitor Trace" window the undergoing progress will be displayed.

Note: In a MODEM connection, after pressing the Start button you have to select the details for the MODEM interface in the PC. Press OK to get started.

Transferring Process

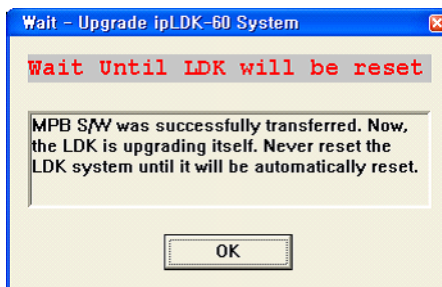


When the S/W file transfer is undergoing you can monitor the process. In an ISDN connection you can see the transferring process in the Monitor Dialog window. And hence Serial, Modem, and TCP connection is using Z-Modem transfer protocol the sending process will be displayed in the Z-Modem window.

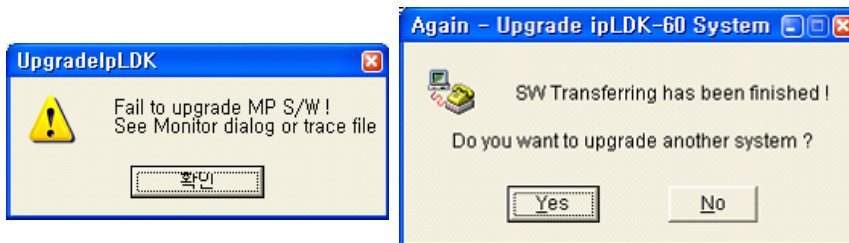
Note: In version3, TCP connection isn't using Z-Modem transfer. So, you can finish the process quickly.

Finishing DataBase File Upload/Download

If the transferring process is finished successfully, "Wait Dialog" will be displayed. That means that the SBX IP 320 system has just started software upgrading internally. Every keyset stops operating. You must not reset the SBX IP 320 system until it will be automatically reset and run again. This will take a few minutes. (You can check whether the upgrading is in proceeding or not in SBX IP 320 system's MPB lamp flashing.)



If the S/W transferring process fails, a "Fail Dialog" will be displayed. Check the reason of failure in the monitor dialog or trace file that was automatically generated in the PC directory where the upgrading software is. You can start another upgrade by selecting the Yes button of "Again Dialog".4



Remote Diagnostics

The SBX IP 320 Remote Diagnostic Tool is a MS-Windows application program that may be used with PC Admin program. This program is for diagnosing problems of the SBX IP 320 system and also maintaining the system from a remote site. This program can send and receive the results of diagnostic commands of the SBX IP 320 system such as GSXD test, Board configuration, S/W reset count, Station status, CO status, Station recovery, CO recovery, Version display, Help message, and Log out.

Introduction

Hardware/Software Requirements

The system requirements for using this program are as follows:

SBX IP 320

- Serial Port that is installed on MPB as a basic option.
- LAN Port should be installed on MPB for LAN connection.
- Unique IP Address should be assigned for LAN connection.
- MODU that is installed on MPB.

PC

- Pentium Celeron 233MHz CPU or higher CPU
- 256 color Super VGA (800 x 600) or higher
- One or more Serial Port
- NIC (Network Interface Card) for LAN Connection.
- 2 button Mouse
- At least 32MB RAM
- MS-Windows 95/98/2000/me/XP/NT
- Enough hard drive space for installation

Cable

- RS-232C Type Cable for connecting the PC and the SBX IP 320 system: Two connectors are needed for this connection. One connector should be a 9-pin female connector that is to be connected to the SBX IP 320, and the other one should fit the serial port of the PC. There are three required lines that must be connected for the communication between the PC and the SBX IP 320 system: Ground-Ground, Transmit-Transmit, and Receive-Receive.
- If external modem is used for PC, serial cable is need for the connection between PC and modem. About the connection between PC and modem, user must refer to the user's manual of the modem and follow the description.
- If NIC is used for LAN connection, UTP cable will be needed with RJ-45 Jack between the PC and the SBX IP 320 system.

Hardware Configuration

To use a serial connection between the PC and the SBX IP 320 system, the PC must be connected to the basic serial port of the SBX IP 320 system.

To use a modem connection between the PC and the SBX IP 320 system, a MODU must be installed in the SBX IP 320 system and a modem must be installed in the PC.

To use a LAN connection between PC and the SBX IP 320 system, the PC and the SBX IP 320 system must be connected to the local network.

Installing Software

Once the hardware is installed, you are ready to install the software.

Microsoft Windows must be installed on your computer before you install [SBX IP 320 Remote Diagnostic Tool] program. For information on installing Windows, refer to appropriate user's manual.

Remote diagnostic software is a part of the PC Admin software package. So, you must install the PC admin software package to use remote diagnostic software.

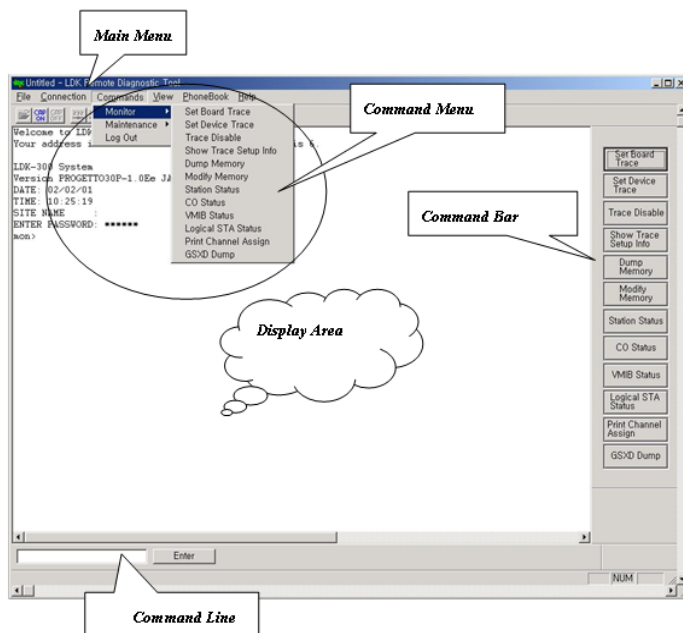
Uninstalling Software

To uninstall the [SBX IP 320 Remote Diagnostic Tool] program, you may use [Control panel' Add/Remove Program] in Windows. If you uninstall the SBX IP 320 PC Admin Package, the SBX IP 320 remote diagnostic software will also be uninstalled.

Important Notes for Users

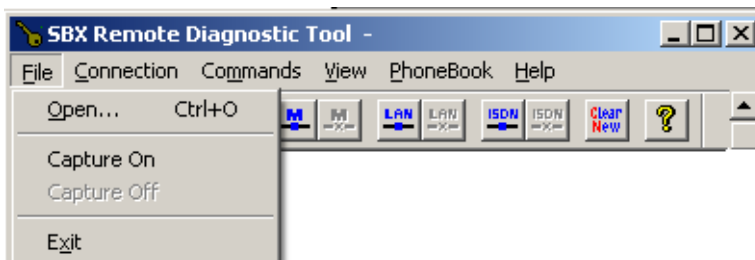
- [SBX IP 320 Remote Diagnostic Tool] is installed with the PC Admin program.
- To use a modem connection with this program, TAPI and TAPI32 Dynamic-Link Library and TAPISRV.EXE must be installed in MS-Windows. These files are installed in most of the PCs in which MS-Windows is installed.
- When you uninstall [SBX IP 320 Remote Diagnostic Tool], some files may not be deleted if the files were create after the installation of this program. Those files can be [PhoneNo.txt] file that is created after the [Save] button is clicked on [Phone Number Dialog], or other saved files or backup files, and so on.
- If [GSXD Test] command is executed on the system that does not use GSXD chipset, the result of [GSXD Test] shows a message that indicates this condition.
- To log-on to the SBX IP 320 system again after log-out from the SBX IP 320, click the [Enter] button in the [Input Box Bar].
- When this program is executed, some components of this program (i.e. buttons in [Command Bar]) may be hidden. In this case, enlarge or maximize the window, then you will see all the components of this program.
- The title of a button in the [Command Bar] may be aligned into two lines if the length of the title is long.

Full Screen Layout




[File] Menu

[File] menu includes [Open], [Save], [Save As], [Print], [Print Preview], [Print Setup], and [Recent Files] that are file related operations.



[Open] Sub-menu

1. Select [Open] sub-menu in [File] menu. => [Open Dialog] appears.
Or you can use the tool button  in the [Toolbar] to execute the same command.
2. Select one of the saved files (file extension is *.dat).
3. Click the [OK] button.
The dialog is closed, and the contents of the file is displayed in the [Data Display Area].

[Capture On] Sub-menu

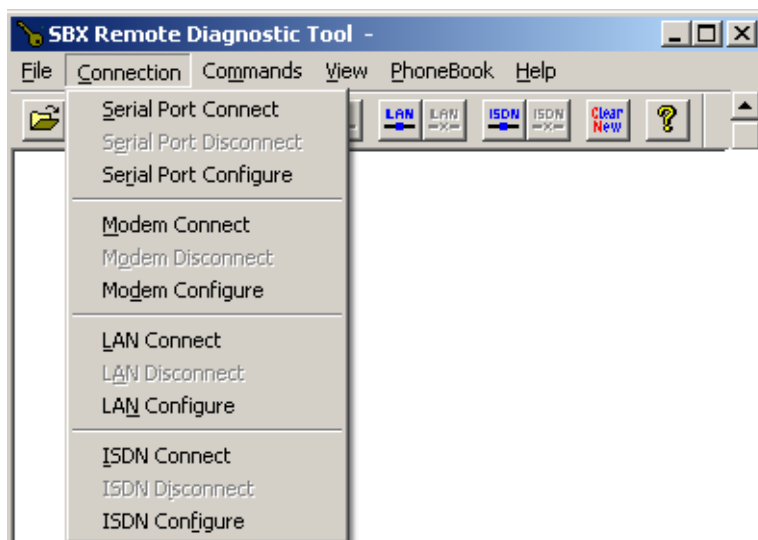
1. Select the [Capture On] sub-menu in the [File] menu. => [Save As Dialog] appears.
2. Enter different file name.
3. Click [OK] button.

[Capture Off] Sub-menu

Select [Capture Off] sub-menu in [File] menu.

[Connection] Menu

The SBX IP 320 system and this program can be connected in three ways, Serial, Modem, or LAN.



Serial Port Connection with SBX IP 320 System

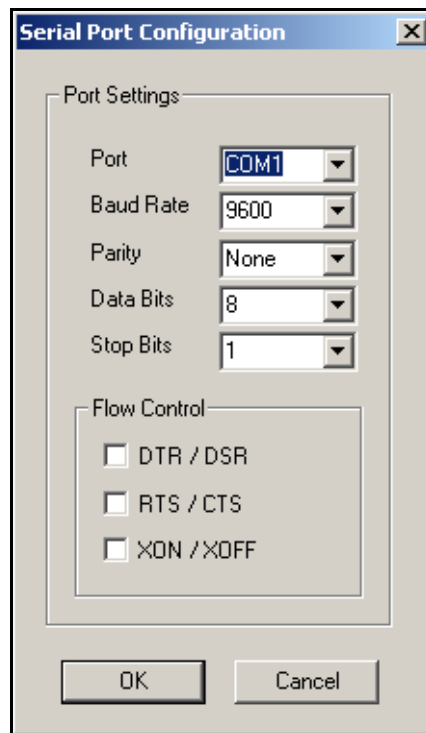
For the serial port connection between the PC and the SBX IP 320 system, there must be a physical connection with RS-232C standard serial cable.

- The pins used in connection cable should be connected as follows;
[Transmit] : [Transmit] of SBX IP 320 and [Transmit] of PC must be connected.
[Receive] : [Receive] of SBX IP 320 and [Receive] of PC must be connected.
[Ground] : [Ground] of SBX IP 320 and [Ground] of PC must be connected.
- The length of connection cable depends on the communication environment of the system. In normal conditions, the cable length is limited to 15 meters. In better conditions, a 30-meter cable can be used.
- If the SBX IP 320 system is connected to the serial port on the MPB, select one of the transmission rates - 2400bps, 4800bps, or 9600bps.

[Serial Port Configure] Sub-menu

[Serial Port Configure] is for configuring the serial port of the PC that is to be connected to the SBX IP 320 system.

- When the serial port connection is established, you cannot select this menu. The menu item is disabled in this case.
- Setting values are stored for the next session, at which time they are automatically restored and used.



Procedure:

1. Select [Serial Port Configure] sub-menu in the [Connection] menu. The [Serial Port Configuration Dialog] appears.
2. Enter setting values.

[Port] : Select connection port to be connected to the SBX IP 320.

[Baud Rate] : Select one of 2400bps, 4800bps, 9600bps. Selected [Baud Rate] must be same as that of the SBX IP 320.

[Parity] : Select [None].

[Data Bits] : Select [8].

[Stop Bits] : Select [1].

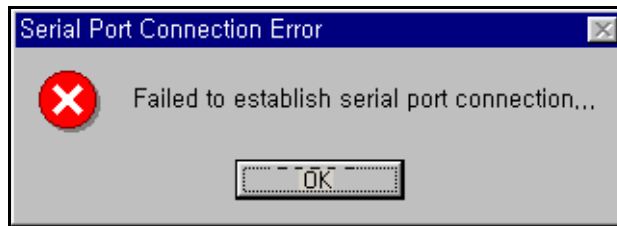
[Flow] : All of [DTR/DSR], [RTS/CTS], [XON/XOFF] are not to be checked.

3. Click the [OK] button.

[Serial Port Connect] Sub-menu

[Serial Port Connect] connects the serial port of the PC and the SBX IP 320 system with the setting values from [Serial Port Configure].

If the connection fails, an error message shows to indicate that another program is using the serial port or the port does not exist.



If the connection is established successfully, a message box appears to notify you of this. The success of connection means that the connection between this program and the serial port of the PC is successfully established. This does not mean the connection between this program and the SBX IP 320 system is successfully established.




If the serial port is already connected, the sub-menu and the tool button for serial port connection cannot be selected.

Procedures:

1. Select [Connection] menu.
2. Select [Serial Port Connect] in [Connection] menu.

-or-

Use the tool button  in the [Toolbar] to execute the same command.

[Serial Port Disconnect] Sub-menu

[Serial Port Disconnect] disconnects the serial port connection between the PC and the SBX IP 320.

Conditions:

- If the two serial ports are already disconnected, the menu and the toolbar for serial port disconnection cannot be selected.

Procedures:

1. Select the [Connection] menu.
2. Select the [Serial Port Disconnect] sub-menu in the [Connection] menu.

-or-

Use the tool button  in the [Toolbar] to execute the same command.

Modem Connection with the SBX IP 320 System

For the modem connection between the PC and the SBX IP 320 system, an internal or external modem is needed for the PC. Before executing this program, a modem should be installed in the PC. Modem installation does not merely mean the physical connection between PC and modem, but it includes all the procedures needed, such as installing a device driver file for MS-Windows.

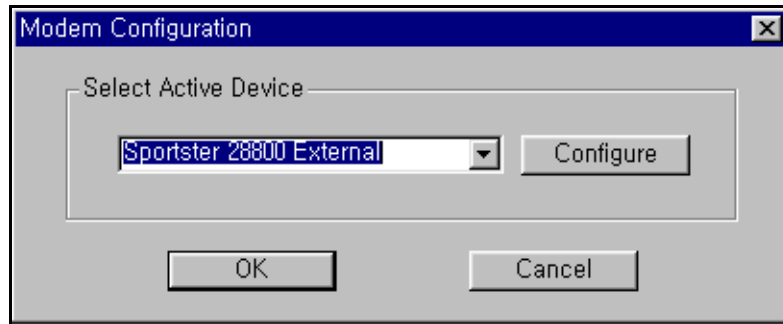
[Modem Configure] Sub-menu

[Modem Configure] is for configuring the PC modem that is to be connected to the SBX IP 320 system.

Conditions:

- When the modem connection is established, you cannot select this menu. The menu item is disabled in this case.
- The MODU must be installed on the MPB of the SBX IP 320 system.

- By clicking the [Configure] button in [Modem Configuration Dialog], you can select or change various settings for the modem configuration. The setting values are effective only during the execution time of this program and are not stored for the next execution. Those values do not affect the modem settings of MS-Windows itself. To change modem configuration, use the [Control Panel] of MS-Windows. The changed settings from the [Control Panel] are applied to all application programs using the modem.



Procedure:

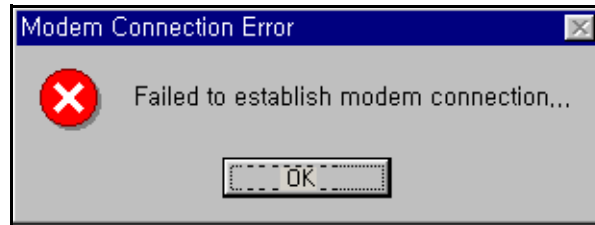
1. If needed, select or change modem settings by using [Control Panel].
2. Select the [Modem Configure] sub-menu in the [Connection] menu. The [Modem Configuration Dialog] appears and the dialog shows the current settings.
 - [Select Active Device]: Select a modem that is to be used for modem connection with the SBX IP 320 system. The setting value is stored, and is restored and used when this program is executed the next time.
 - [Configure] button: This is for setting detailed modem configurations. The setting values are effective only during the execution time of this program and are not stored for next execution. Those values do not affect the modem settings of MS-Windows itself.
3. Click the [OK] button.

[Modem Connect] Sub-menu

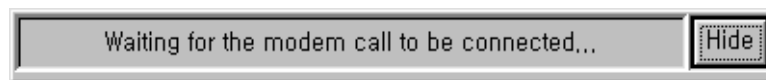
[Modem Connect] establishes modem connection with the setting values from [Modem Configuration].

Conditions:

- If a connection failure occurs, an error message is shown. The reason for the failure may be improper installation of the modem, turning-off state of the modem, busy state of the destination, or various telecommunication problems that may occur during the session.



- If an unavailable phone number is entered or the full phone number is not entered or the destination does not answer, the connection is disconnected after a period of time that was set from [Modem Configure] as a time-out value.
- When making a modem connection, a [Call Status Dialog] window that shows the status of the modem call appears. This program shows call status messages sent from the modem or modem device driver. Therefore, the messages in the [Call Status Dialog] window may differ from modem to modem. The [Call Status Dialog] window can be hidden from the screen by clicking the [Hide] button on the right of the [Call Status Dialog] window.




- When the modem connection is established, you cannot select this menu. The menu item is disabled in that case.

Procedure:

1. Select the [Modem Connect] sub-menu in the [Connection] menu. => [Phone Number Dialog] appears.

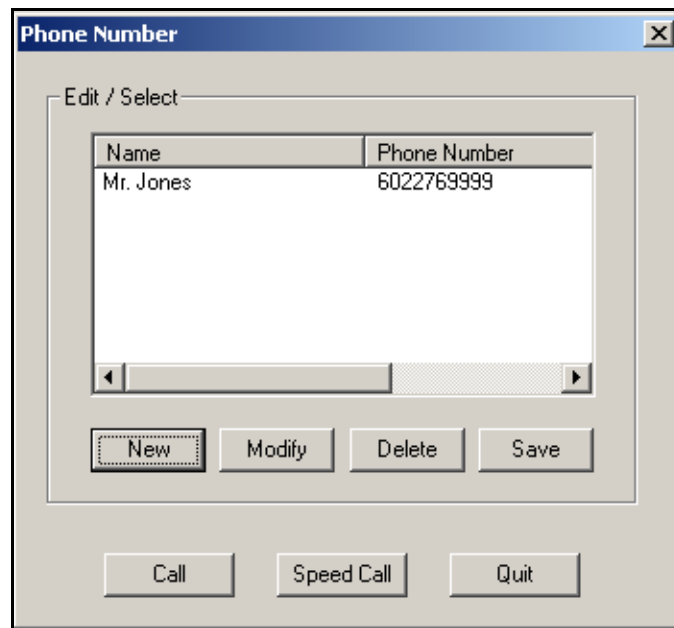
-or-

Use the icon  in the toolbar to execute the same command.

2. Enter a phone number and make a modem call to a destination by using [Phone Number Dialog] (refer to the description below for detailed explanation about how to use [Phone Number Dialog]).
3. If a connection failure occurs, an error message is shown, and if the connection is established, a message box shows up to notify of this.

[Phone Book]

The [Phone Book] is used for entering / storing phone numbers and making a modem call to a destination.

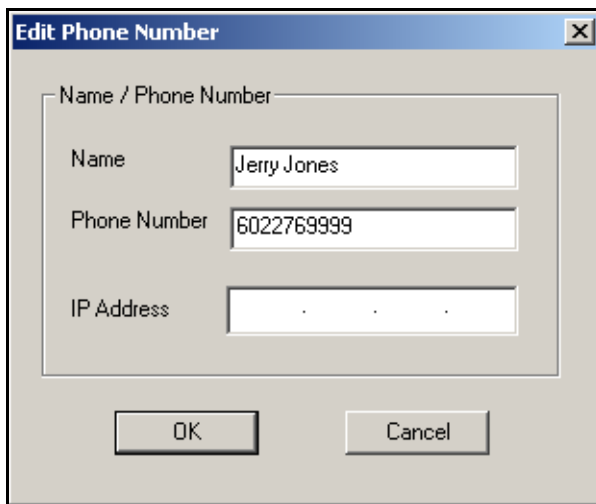


Procedure:

To open the [Phone Book], click the [Modem Connect] sub-menu.

To close the [Phone Book], click the [Quit] button.

To enter a new phone number:



1. Click the [New] button to enter a new phone number => [Edit Phone Number Dialog] appears.
2. Enter the [Name] and [Phone Number]. The [Name] and [Phone Number] can be up to 40 characters, respectively. Five special characters cannot be entered for the [Name]. These characters are the left and right brackets (parens), the left and right braces, and the semicolon. For [Phone Number], only [Dialable Characters] can be input (refer to the description below for detailed explanation about [Dialable Characters]).
3. A newly entered phone number is shown in the [Phone Number Dialog] if the [OK] button is clicked. Click the [Cancel] button to cancel the input.
4. If you want to save the new phone numbers into a [PhoneNo.txt] file for future use, click the [Save] button in the [Phone Number Dialog]. If you close the [Phone Number Dialog] window without clicking the [Save] button, the newly entered phone number will be lost.

To modify an existing phone number:

1. In the [Phone Number List Box], select a phone number item to be modified by clicking the [Name] of the item.
2. After a selection is made, click the [Modify] button. => the [Edit Phone Number Dialog] appears.

3. Modify the [Name] and/or [Phone Number]. The [Name] and [Phone Number] can be up to 40 characters, respectively. Five special characters cannot be entered for the [Name]. These characters are the left and right brackets (parens), the left and right braces, and the semicolon. For the [Phone Number], only [Disabled Characters] can be input (refer to the description below for detailed explanation about [Disabled Characters]).
4. A modified phone number is shown in the [Phone Number Dialog] if the [OK] button is clicked. Click the [Cancel] button to cancel the input.
5. If you want to save the modified phone number into a [PhoneNo.txt] file for future use, click the [Save] button in the [Phone Number Dialog] window. If you close the [Phone Number Dialog] window without clicking the [Save] button, the modification will be lost.

To delete an existing phone number:

1. In the [Phone Number List Box], select a phone number item to be deleted by clicking the [Name] of the item.
2. After a selection is made, click the [Delete] button. => a [Delete Confirmation Message Box] appears.
3. A deleted phone number is eliminated from the [Phone Number Dialog] if the [OK] button is clicked. Click the [Cancel] button to cancel the deletion.
4. If you want to remove the deleted phone number from the [PhoneNo.txt] file, click the [Save] button in the [Phone Number Dialog]. If you close the [Phone Number Dialog] window without clicking the [Save] button, the deletion will not be made in the file.

To store the contents of the [Phone Number List Box] into a file:

1. Click the [Save] button in the [Phone Number Dialog].
2. A message box indicating success or failure of [Save] operation shows up.
 - The contents of the [Phone Number List Box] are saved in a [PhoneNo.txt] file that is located in the directory where this program is installed. You must not edit this file, and if you delete this file by mistake, all the data in the file will be lost.
 - For the stable use of the [Phone Number Dialog], it is recommended to keep less than 1000 phone numbers. However, this program does not check and limit the number of phone numbers.

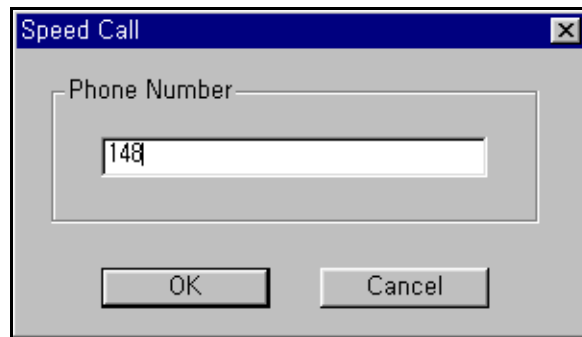
To make a modem call using the [Phone Number List]:

1. In the [Phone Number List Box], select a phone number item to be called by clicking the [Name] of the item.
2. Click the [Call] button in the [Phone Number Dialog] => A [Call Information Message Box] appears.
3. If the [OK] button is clicked, the modem call is started. Click the [Cancel] button to cancel the modem call.

-or-

1. Double-click on an item in the [Phone Number List Box] => A [Call Information Message Box] appears.
2. If the [OK] button is clicked, the modem call is started. Click the [Cancel] button to cancel the modem call.

To make a modem call with the [Speed Call] button:



1. Click the [Speed Call] button in the [Phone Number Dialog] => A [Speed Call Dialog] appears.
2. Enter the phone number in the [Phone Number] field. Only [Disabled Characters] can be input into the [Phone Number] field (refer to the description below for detailed explanation about [Disabled Characters]).
3. Click the [OK] button, then the [Call Information Message Box] appears. If the [OK] button is clicked on [Call Information Message Box], the modem call is started. Click the [Cancel] button to cancel the modem call. If the [Cancel] button is clicked in [Speed Call Dialog], the modem call is canceled.

[Disabled Characters]

[Disabled Characters] are used to form a phone number that can be dialed. This program supports generally used [Disabled Characters]. Part of the [Disabled Characters] may not work properly for some telephone networks or modems.

- 0 - 9 A - D * #
DTMF and/or pulse digits.
- !
Hookflash (one-half second on hook, followed by one-half second off hook before continuing).
- P p
Pulse dialing is to be used for the digits following this.
- T t
Tone (DTMF) dialing is to be used for the digits following this.
- ,
This indicates that dialing is to be paused. The duration of a pause is device specific. Multiple commas can be used to provide longer pauses.
- W w
This indicates that dialing should proceed only after a dial tone has been detected.
- \$
This indicates that dialing the billing information is to wait for a "billing signal" (such as a credit card prompt tone).

[Modem Disconnect] Sub-menu

[Modem Disconnect] disconnects the modem connection.

Conditions:

- When the modem connection is disconnected, you cannot select this menu. The menu item is disabled in that case.

Procedures:

1. Select the [Connection] menu.
2. Select the [Modem Disconnect] sub-menu in the [Connection] menu.

-or-

Use the icon  in the [Toolbar] to execute the same command.

If a disconnection failure occurs, an error message is shown, and if the connection is disconnected, a message box is shown.

Important Note for Users

The success of serial port connection means that the connection between this program and the serial port of the PC succeeded. This does not mean the connection between this program and the SBX IP 320 system succeeded.

Even though a serial port or modem connection is disconnected by accident or some other reason, the program does not detect this. Instead, the program shows a message box if there is no answer after sending a command to the SBX IP 320 system.

If a modem connection is not established after a period of time that was set in [Modem Configure] as a time-out value, the program gives up making a modem connection and shows a message box to notify of this.

LAN Connection with the SBX IP 320 System

For the LAN connection between PC and the SBX IP 320 system, there must be a physical connection with 10BaseT cable to the local network.

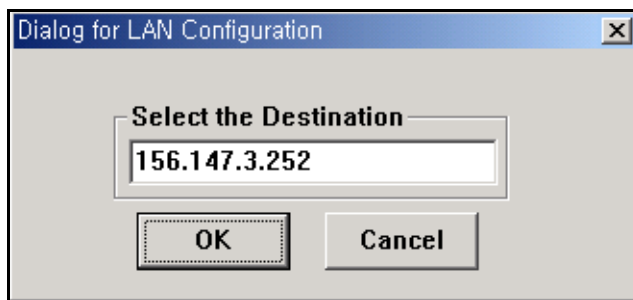
Conditions:

- The SBX IP 320 system and PC must have valid IP addresses.
- If you want to connect directly, you have to use cross UTP cable. That means that the [Transmit] and [Receive] are crossed. But you connect the SBX IP 320 system and PC with a Hub, and you can use normal UTP cable that is used in your local network.
- If you want to connect from a different segment of the LAN or from an external site (via Internet), the SBX IP 320 system must have a correct gateway address (default router). If it does not have a gateway address, remote connection using TCP/IP is not possible.
- If you want to connect the SBX IP 320 system that is used in a remote site, you may need help from the network administrator, because many sites use a firewall/NAT/PAT in their router.
- In a remote connection using Internet, connection speed/stability is dependent on the environment of WAN traffic or routing.

[LAN Configure] Sub-menu

[LAN Configure] is for configuring the destination IP address that is to be connected to the SBX IP 320 system.

- Conditions:
- When the LAN connection is established, user cannot select this menu. The menu item is disabled in that case.
- Setting values are stored for the next session at which they are automatically restored and used. But only one IP address will be saved.



Procedures:

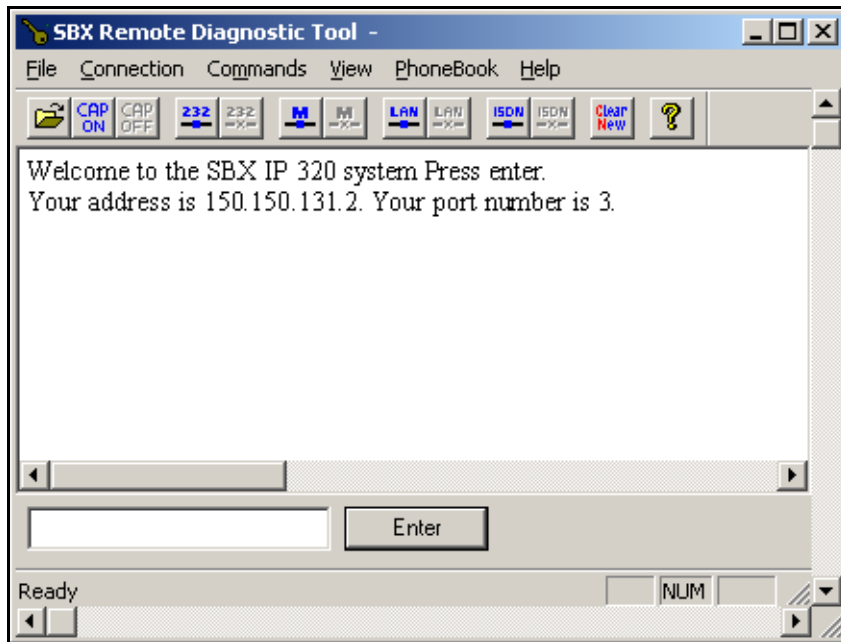
1. Select the [LAN Configure] sub-menu in the [Connection] menu. The [LAN Configuration Dialog] appears.
2. Enter the destination IP address.
3. Click the [OK] button.

[LAN Connect] Sub-menu

[LAN Connect] connects the PC and SBX IP 320 system with the IP address setting from [LAN Configure].

Conditions:

- If the connection fails, an error message appears. It means that the IP address is not valid or the SBX IP 320 system does not have an IP address or there are some errors.
- If the connection is established successfully, a message will display in the [Display Area]. The success of connection means that the connection between this program and the NIC of the PC succeeded. This does not mean the connection between this program and the SBX IP 320 system succeeded.




- If the LAN port is already connected, the sub-menu and the tool button for LAN connection cannot be selected.

Procedures:

1. Select the [Connection] menu.
2. Select [LAN Connect] in the [Connection] menu.

-or-

Use the icon  in the toolbar to execute the same command.

LAN Disconnect] Sub-menu

[LAN Disconnect] disconnects the LAN connection between PC and SBX IP 320.


Conditions:

- If the LAN connection is already disconnected, the menu and the toolbar for LAN disconnection cannot be selected.

Procedure:

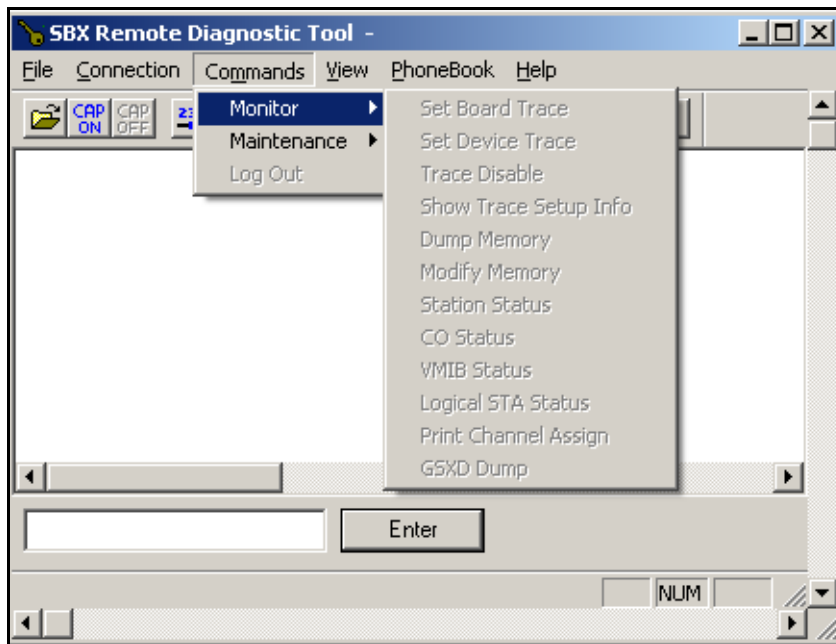
1. Select the [Connection] menu.
2. Select the [LAN Disconnect] sub-menu in the [Connection] menu.

-or-

Use the icon  in the toolbar to execute the same command.

[Commands] Menu

This program can send commands to the SBX IP 320 system to get diagnostic results while a connection is established. This program reads command configuration from the [CmdConf.txt] file that is installed with the executable file, and uses the data for [Menu], [Command Bar], and [Input Box Bar]. The [CmdConf.txt] file is a command configuration file, and the contents of the file follow special rules for command configuration.



Executing Commands

The following is a description of how to execute commands.

* This program does not check the validity of the command argument that is needed for some commands, and error handling is done in the SBX IP 320 system.

Using [Commands] Menu

The [Commands] menu includes all the commands from the [CmdConf.txt] file.



Procedures:

1. Select the [Commands] menu => Sub-menu of [Commands] menu is shown.
2. Click on the sub-menu of the command to be executed.
3. If the command needs an argument, [Enter Command Argument Dialog] shows up. Enter a proper argument in it. The length of the argument is limited to 6 characters. The command is executed.

Using [Command Bar]

Procedures for Executing [Commands]:

1. Click the button of the command to be executed in the [Command Bar].
2. If the command needs an argument, [Enter Command Argument Dialog] shows up, and you can enter the proper argument in it. The length of an argument is limited to 6 characters. The command is executed.

Using [Input Box Bar]

The [Input Box Bar] can be used to execute almost all the monitoring and diagnostic commands supported by the SBX IP 320 system. Command usages and limitations follow the SBX IP 320 system specification. The length of input in [SBX IP 320 Command Edit Box] is limited to 40 characters

The [Input Box Bar] can be docked on the top or bottom side of the window.

Procedures for Using [SBX IP 320 Command Edit Box] and [Enter] Button



1. Click on [SBX IP 320 Command Edit Box] so that the input cursor is blinking inside the box. If the input cursor already exists in [SBX IP 320 Command Edit Box], this procedure is not needed.
2. Input the SBX IP 320 command in the [SBX IP 320 Command Edit Box]. The length of the input is limited to 40 characters.
3. Click the [Enter] button to send the command input in [SBX IP 320 Command Edit Box] to the SBX IP 320 system. Or, you can press the [Enter Key] on the keyboard to send the command.
 - If the [Enter] button is clicked when [SBX IP 320 Command Edit Box] is empty, a character that corresponds to the [Enter Key] is sent to the SBX IP 320 system. The same operation can be done by pressing the [Enter Key] when the input cursor exists in [SBX IP 320 Command Edit Box].
 - If you want to log-in again to the SBX IP 320 system after log-out from maintenance or monitor mode, you can click the [Enter] button to get a chance to input password and log-in again.
 - When you try to execute a remote command (r-type command) that needs an argument by typing the command in [SBX IP 320 Command Edit Box], you should also type the argument with the command. For [SBX IP 320 Command Edit Box], [Enter Command Argument Dialog] is not provided.

Functions of Commands

Commands provided by the SBX IP 320 system are:

[Monitor Commands] are available when you log on with "jennie" as the password.

?	- Help menu
t b xx	- Set Board Trace
t [c e h t] ([s c d t v #]xxx) [a r]	- Set Device Trace
t d	- Delete Trace Info
t p	- Show Trace Setup Info
d [addr1] [addr2]	- Dump Memory
m addr xx	- Modify Memory
s ###	- STA Status
c ###	- COL Status
v ###	- VMIB Status
l ###	- Logical STA Status
p [v][s]	- Print Port Assign
gsxd dump [all]	- GSXD dump
x	- Exit monitor

[Remote Commands] are available when you log on with "brandy" as the password.

?	- Help Menu
bc	- Display Board Configuration Table
bl	- B-channel Listening
bs ##	- View Board Status
db[de][dr]	- Display Diagnostic Result
hd	- Display HDLC Status
log [view clear]	- Log view or clear
reboot	- Remote System Reset
setsw [oos nor] ##	- Set Service Switch
ta [all][period][atd][callsum].....	- Traffic Analysis
ts	- Display Time-slot Assigment
up	- S/W Upgrade
vc [s][u][a]...	- VMIB Annc/Usr Greeting Clear
ws ?	- WTIB Statistics
x	- Exit Command

The [db] command's detail information is displayed below.

db cc	- Configuration Constraint
db pf	- Pre-Programmed Fault
db ts	- Time-Slot Conflict
db ht	- Hiway TestPre-Programmed Fault
db dt	- DTRU Test
db ct	- CPTU Test
db mt	- Memory Test
db rt	- RTC Test
db pc	- Power Capacity
db rc	- RGU Capacity
de hs	- HDLC Status
dr [is/ic]	- ISDN Line Status
dr [ri/rc]	- Reset Information
dr li [d/c/v/a]	- Resource Assignment

Monitor - Set Board Trace

Sets trace for board in slot xx.

For setting trace for board in slot 7:

```
mon>t b 07
```

Monitor - Delete Trace Info

Deletes all current trace commands and revert to idle condition.

Monitor - Set Device Trace

Sets trace for device.

Command options are as follows:

- c : device COMMAND tracing. (MP PP)
- e : EVENT tracing. (PP, Internal, Timer Event)
- h : HIGHWAY tracing.
- t : CTI device command / event tracing.

Device options are as following:

- S : Tracing related to station
- C : Tracing related to CO
- D : Tracing related to DTMF
- T : Tracing related to CPTU
- V : Tracing related to VMIB channel

If you want to trace the Station 102 about Cmd, Evt and Hiway information, you should enter the command option with physical station number as following;

```
mon>t ceh s002
```

At the Sxxx, xxx should be physical station number, i.e., port number of station. So, even if the station number was changed from 102 to 702, the physical station number is not changed;

```
mon>t ceh s002
```

Monitor - Dump Memory

This command dumps memory between the two addresses, which are in hexa decimal format. If you omit one of the two address ranges, memories are dumped beginning at the address specified until pressing Ctrl+C.

Monitor - Modify Memory

This command modifies memory beginning at the address until pressing Ctrl+C.

Monitor - COL Status

This command is used to show the status of a CO line connected to the SBX IP 320 system.

Conditions:

- This command can be executed when this program is connected to the SBX IP 320 system.
- If the [OK] button is clicked without entering a value in the [Enter Command Argument Dialog], a message box displays to indicate "Empty field is not allowed".
- You can cancel the command by clicking the [X] button on the top right side of the [Enter Command Argument Dialog].
- The length of the argument is limited to 6 characters.
- The argument is a physical port number that starts from 1.
- If a non-numeric value is entered, the SBX IP 320 system assumes it as the starting port number.
- If an invalid value (or big value) is entered, the SBX IP 320 system handles the error.

Procedure:

Select [CO Status] sub-menu in [Commands] menu, or click [CO Status] [Command Bar] button.

-or-

Input "c #" (# : Port Number) in the [SBX IP 320 Command Edit Box] and then click the [Enter] button, or select [CO Status] in [Remote Command Combo Box] and then click the [Execute] button.

To show the status of CO number 07:

```
mon> c 07
```

This is an example of CO line status:

```
Slot0, Chan0, State0, AscD255T255

Slot = 00, Dev No = 00, Hiway = 00, Timeslot = 2341cc
RX_Sum Loc = ffff, TX_Sum Loc ffff
Ucd0, Store0, Sent0

22739c 00 00 00 ff 00 00 00 ff ff ff 05 ff ff ff 01 00
2273ac 00 ff ff ff ff 00 ff 00 00 00 00 00 00 00 00
2273bc 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
2273cc 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
2273dc 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
2273ec 80 00 00 10 ff ff 00 00 00 00 00 00 00 00 00
2273fc 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
22740c 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
22741c 00 00 00 00 00 07 00 00 00 00 00 00 00 00 00
22742c 00 00 ff 00 00 ff 00 ff 00 ff 64 ff 00 00 00 ff
22743c ff 00 00 00 00 ff ff 00 00 00 00 00 00 00 00
22744c 00 00 00 00 00 00 ff ff ff 00 ff 00 ff ff 00 ff
22745c 00 00 00 ff ff 00 ff ff ff ff ff 00 00 00
```

Monitor - STA Status

This command is used to show the status of a station connected to the SBX IP 320 system.

Conditions:

- This command can be executed when this program is connected to the SBX IP 320 system.
- If the [OK] button is clicked without entering a value in the [Enter Command Argument Dialog], a message box displays to indicate "Empty field is not allowed".
- You can cancel the command by clicking the [X] button on the top right side of the [Enter Command Argument Dialog].
- The length of the argument is limited to 6 characters.
- The argument is a physical port number that starts from 0.

- If a non-numeric value is entered, the SBX IP 320 system assumes it as the starting port number.
- If an invalid value (or big value) is entered, the SBX IP 320 system handles the error.

Procedure:

Select [Station Status] sub-menu in [Commands] menu, or click [Station Status] [Command Bar] button.

-or-

Input "s #" (# : Port Number) in the [SBX IP 320 Command Edit Box] and then click the [Enter] button, or select [Station Status] in the [Remote Command Combo Box] and then click the [Execute] button.

To show the status of station 107:

```
mon> s 008
```

This is an example of STA status:

```
Slot1, Chan97, State1, AscD255T255
Ucd0, Store0, Sent0
Xfer0, Hold0, Held255

22175c 00 01 01 04 00 61 01 ff ff ff ff ff ff 00 ff ff
22176c ff ff ff 40 00 00 80 00 60 18 00 00 00 ff ff 00
22177c 00 00 00 00 00 ff ff ff ff 00 0a 08 00 ff 00 00
22178c ff ff 00 00 ff 00 00 00 00 00 00 00 ff ff ff ff
22179c ff ff ff 00 ff 00 00 00 00 00 00 00 00 00 00 00
2217ac 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
2217bc 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
2217cc 00 00 00 00 00 00 00 ff ff ff ff ff ff ff ff ff
2217dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
2217ec ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
2217fc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
22180c ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
22181c ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
22182c ff ff ff ff ff ff ff ff ff ff ff ff 00 00 13 39 2e
22183c 00 2a 05 00 ff 00 00 00 00 00 00 14 00 01 00 00
22184c 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00
22185c 00 00 00 ff 00 18 00 00 00 00 ff ff ff ff 01 b8
22186c 00 00 ff ff 00 00 00 00 00 22 18 74 00 22 18 74
22187c 00 22 18 7c 00 22 18 7c 00 00 00 00 00 ff 00 ff ff
22188c 00 00 00 ff 84 ff ff ff ff 02 84 ff ff ff ff 02
22189c ff ff 00 00 00 ff ff 00
```

Monitor - Print Channel Assign

This command sets the print port. You can select one of several print ports. By default, serial interface unit 1 is used.

Monitor - x

This command is used to log-out from the SBX IP 320 system.

Conditions:

- This command can be executed when this program is connected to the SBX IP 320 system.

Procedure:

Select the [Log Out] sub-menu in the [Commands] menu, or click the [Log Out] [Command Bar] button.

-or-

Input "x" in the [SBX IP 320 Command Edit Box] and then click the [Enter] button, or select [Log Out] in the [Remote Command Combo Box] and then click the [Execute] button.

Monitor - ?

This command is used to show the help messages of [Remote Commands].

Conditions:

This command can be executed when this program is connected to the SBX IP 320 system.

Procedure:

Select the [Help Message] sub-menu in the [Commands] menu, or click the [Help Message] [Command Bar] button.

-or-

Input "?" in the [SBX IP 320 Command Edit Box] and then click the [Enter] button, or select the [Help Message] in the [Remote Command Combo Box] and then click the [Execute] button.

Maintenance - Display Board Configuration Table(bc)

This command is used to show the board configuration of the SBX IP 320 system.

Conditions:

This command can be executed when this program is connected to the SBX IP 320 system.

Procedure:

Select the [Board Configuration] sub-menu in the [Commands] menu, or click [Board Configuration] [Command Bar] button.

-or-

Input "bc" in the [SBX IP 320 Command Edit Box] and then click the [Enter] button, or select [Board Configuration] in the [Remote Command Combo Box] and then click the [Execute] button.

Maintenance - B-channel Listening(bl)

Listens B-channel of specified time slot.

Maintenance - View Board Status(bs ##)

This command shows board status. ## is slot number.

Maintenance - Display HDLC Status(hd)

This command shows HDLC status.

Maintenance - Log View or Clear(log [view|clear])

Log information can be viewed and cleared by this command.

Maintenance - Remote System Reset(reboot)

This command resets the system. You must enter the admin password twice to reset the system. If an admin password does not exist, 147* is used temporarily for the admin password.

**Maintenance - Traffic Analysis(ta [all][period][period_abort][atd][callsum]
[callhour] [hw] [cosum] [cohour])**

Shows traffic analysis data.

Command options are:

ta all	<timetype>	- Print All Traffic Report
ta period	<hhmm> <timetype>	- Print Traffic Report Periodically
ta period_abort		- Cancel Periodic Print
ta atd	<timetype>	- Print Attendant Traffic Report
ta callsum		- Print Call Summary Report
ta callhour		- Print Call Hourly Report
ta hw	<timetype>	- Print H/W Usage Summary Report
ta cosum	<timetype>	- Print CO Traffic Summary Report
ta cohour	<cogrp#>	- Print CO Traffic Hourly Report
	timetype	- [tt yt lh yp tp]
		- tt : Today Total
		- yt : Yesterday Total
		- lh : Last Hour
		- yp : Yesterday Peak
		- tp : Today Peak

Maintenance - Display Time-slot Assignment(s)

Displays time-slot assignment.

Maintenance - S/W Upgrade(up)

Upgrades software.

Maintenance - WTIB Statistics(ws ## [command])

Shows WTIB statistic data.

Command options are:

- [?] : Help
- [upload] : Upload Data statistics data
- [call] : Total number of call & direction of the call
- subs] : Information per subscribed device
- [eoc] : End of call
- [cell] : Usage of frequency and slot
- [traf] : Show holding time
- [acce] : Access info.(basic/hand-over)
- [clea] : Clear statistics data

Maintenance - Exit(x)

This command is used to log-out of the SBX IP 320 system.

Conditions:

- This command can be executed when this program is connected to the SBX IP 320 system.

Procedure:

Select the [Log Out] sub-menu in the [Commands] menu, or click the [Log Out] [Command Bar] button.

-or-

Input "x" in the [LDK Command Edit Box] and then click the [Enter] button, or select [Log Out] in the [Remote Command Combo Box] and then click the [Execute] button.

Maintenance - Help(?)

This command is used to show the help messages of [Remote Commands].

Conditions:

- This command can be executed when this program is connected to the SBX IP 320 system.

Procedure:

Select the [Help Message] sub-menu in the [Commands] menu, or click the [Help Message] [Command Bar] button.

-or-

Input "?" in the [SBX IP 320 Command Edit Box] and then click the [Enter] button, or select [Help Message] in the [Remote Command Combo Box] and then click the [Execute] button.

Diagnostic - Configuration Constraint(db cc)

Shows if the current configuration meets the configuration constraints.

Diagnostic - Preprogrammed Fault(db pf)

Shows preprogrammed faults. Checks if the admin programmed data are different from the boards that are installed in the system. Prints a warning message if there is any difference.

Diagnostic - Time-slot Conflict(db ts [sl][cf])

Shows time-slot assignment table and time-slot assignment conflict status. In case of PRIB, channel 31, 32 should be assigned the same time slot with that of channel 1. Command options are:

[sl] - time-slot assignment table

[cf] - time-slot conflict

Diagnostic - Hiway Test(db ht ## ## #)

Tests PCM hiways using one DKT and one DTMF receiver. If you assign slot number, dtmf receiver duration time, and hiway number, this program tests 48 time-slots in the specified hiway. Note that the first DKT of the assigned slot is used for the test. The DKT is connected to time-slot successively and DTMF tone is connected to that time-slot too. If the DKT receives the specified DTMF tone, we consider the time-slot is operating correctly.

Usage: db ht xx yy # (xx: slot number (DTIB), yy: dtmf duration time, #: hiway number(0-7))

Diagnostic - DTRU Test(db dt)

Tests DTMF receiver. This feature tests all DTMF receivers in the system. Currently a max of 32 dtmf receivers can be tested

Diagnostic - CPTU Test(db ct)

Tests CPTU.

Diagnostic - Memory Test(db mt)

Tests DRAM modules. Writes specified value (e.g. 0x5a) to the DRAM and reads again, to check if valid data are read.

Diagnostic - RTC Test(db rt)

Tests RTC. You can see the current time and modify it. The time does not elapse when you test RTC, so you have to correct the time before you finish.

Diagnostic - Power Capacity(db pc)

Shows power capacity of the PSU and current power usage status of the system. If the total power usage per rack exceeds the limit, you should change the configuration.

Diagnostic - RGU Capacity(db rc)

Shows RGU capacity. This feature shows RGU capacity, CO incoming ring cadence, and ICM call ring cadence. You don't have to uninstall the station even if the number of stations exceeds the RGU capacity.

Diagnostic - HDLC Status(de hs)

Shows HDLC status.

Diagnostic - Reset Information(dr ri)

Shows reset information.

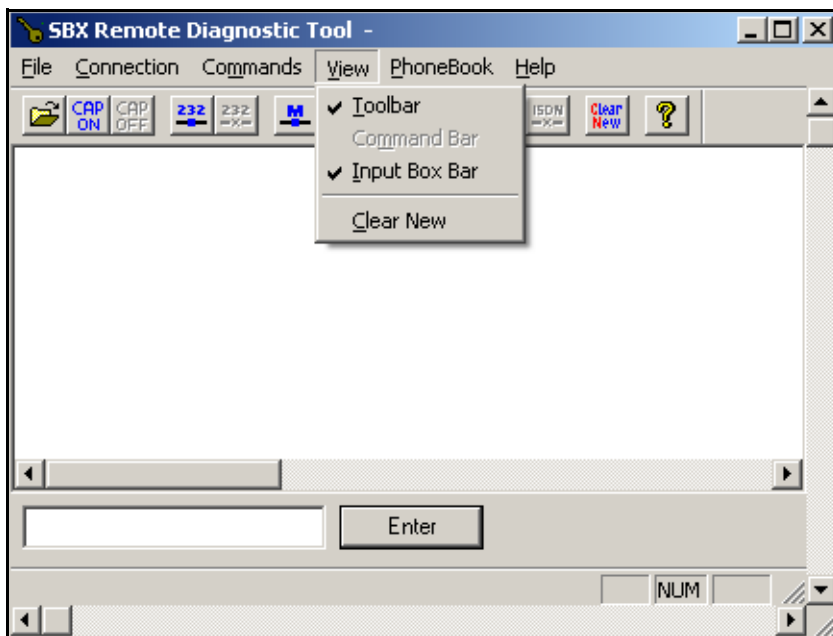
Diagnostic - Resource Assignment(dr li [d|c|v|a])

Shows current resource assignment

- d - DTMF receiver assignment
- c - CPTU assignment
- v - VMIB channel assignment
- a - DTMF, CPTU, VMIB channel assignment

[View] Menu

The [View] menu is used for showing / hiding the [Toolbar], [Status Bar], [Command Bar], [Input Box Bar], and for clearing [Data Display Area] and starting a new document.

**[Toolbar] Sub-menu**

The [Toolbar] sub-menu operates as a toggle. A check mark is shown when the toolbar is shown on the screen.

Procedure:

Select the [Toolbar] sub-menu in the [View] Menu. If the [Toolbar] is shown on the screen, it becomes hidden. If it is hidden already, it becomes shown.

[Command Bar] Sub-menu

The [Command Bar] sub-menu operates as a toggle. A check mark is shown when the [Command Bar] is shown on the screen.

Procedure:

Select the [Command Bar] sub-menu in the [View] Menu. If the [Command Bar] is shown on the screen, it becomes hidden. If it is hidden already, it becomes shown.

** The Command Bar is enabled only after you have entered Monitor or Maintenance Mode.

[Input Box Bar] Sub-menu

The [Input Box Bar] sub-menu operates as a toggle. A check mark is shown when the [Input Box Bar] is shown on the screen.

Procedure:

Select [the Input Box Bar] sub-menu in the [View] Menu. If the [Input Box Bar] is shown on the screen, it becomes hidden. If it is hidden already, it becomes shown.


[Clear New] Sub-Menu

The [Clear New] sub-menu is used for clearing the [Data Display Area] and starting a new document. Because a new document has no name (or title) yet, "Untitled" is shown on the [Title Bar] of the window as a document name.

Procedure:

Select [Clear New] sub-menu in [View] Menu.

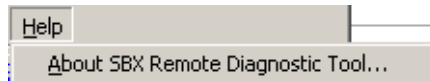
-or-

Use the icon  in the toolbar to execute the same command.

All the data displayed in [Data Display Area] are erased and a new document is started.

[Help] Menu

In the [Help] menu, only [About SBX Remote Diagnostic Tool] sub-menu exists.



[About SBX Remote Diagnostic Tool] Sub-menu


When the [About SBX Remote Diagnostic Tool] sub-menu is clicked, the [About SBX Remote Diagnostic Tool Dialog] displays, and the name of this program and copyright information is displayed on the dialog.



Procedure:

1. Select the [About SBX Remote Diagnostic Tool] sub-menu in the [Help] menu.

-or-

Use the icon  in the toolbar to execute the same command. The [About SBX Remote Diagnostic Tool Dialog] displays.

2. Click the [OK] button and the [About SBX Remote Diagnostic Tool Dialog] disappears.

[Data Display Area]

The [Data Display Area] displays the data from serial port, modem, or data file. When displaying data, this area follows certain rules and executes functions according to them.

Data Display Functions

If the data to be displayed exceeds the size of the [Data Display Area], a vertical scroll bar appears to enable scrolling in the [Data Display Area]. A horizontal scroll bar is always displayed even though the width of the displayed data does not exceed the size of the [Data Display Area].

- When data are coming from the serial port or modem, the [Data Display Area] is automatically scrolled to the last line if the data to be displayed exceeds the size of the [Data Display Area].
- If the data are from the data file, the [Data Display Area] is not scrolled to the last line, but displays the data from the first line.
- If a data file is opened while data are coming from the serial port or modem and being displayed in the [Data Display Area], previously displayed data are erased and new data from the data file are displayed in the [Data Display Area]. If more data are still coming from the serial port or modem, the data are appended after the last line of the file data and the file name remains the same. This is to prevent loss of real time data from the serial port or modem.
- If you execute an SBX command after opening a data file, the file is closed and a new file (or document) is started with the name "Untitled".
- Once a file name is assigned for the data in the [Data Display Area] by using the [Save] sub-menu or the [Save As] sub-menu, the file name remains the same even though more data are coming from the serial port or modem and being displayed. Therefore, the appended data can be stored in the same file.
- If the [Clear New] sub-menu is selected or the [Clear New] tool button is clicked, the [Data Display Area] is cleared and a new document (or file) named "Untitled" is started.

Automatic Data Storing Functions

The [Data Display Area] does not scroll indefinitely. If the number of lines of displayed data exceeds 2,000 lines (approximately), this program stores the displayed data into a data file and clears the [Data Display Area]. Then, this program keeps displaying incoming data in the [Data Display Area]. The maximum number of lines of data is system-dependant. If the PC is using smaller fonts, more lines will be displayed.

- Generally, if more than 2,000 lines of data are displayed in the [Data Display Area], the data are automatically stored in a data file. The name of the file has the format of "Thhmmss.dat" (hh : current hour , mm : current minute , ss : current second), and this file is saved in the directory where this program is installed. You can open this file by using the [Open] sub-menu or the [Open] tool button to see the contents of the file.
- While the automatic data storing function is being executed, several bytes of data may be lost. This happens especially when the data transfer rate is high and performance of the PC is low or the PC is busy working other jobs. The first line of data displayed after automatic data storing function is executed may have a broken format.

Important Note for Users

If the performance of the PC is not good enough, some scrolled data may not have complete forms. If this happens, scroll in the [Data Display Area] by using the scroll bar to refresh the area.

Troubleshooting

PROBLEM	CAUSE/SYMPATOM	SOLUTION
SYSTEM POWER FAILURE	Power short circuit in some board(s)	Exchange the malfunctioning board for one in good working condition. Dust each board with a dry cloth. Check the PSU fuse. Replace the PSU with an identical one.
	LD1-4 LEDs on the MBU are All ON or All OFF	
SYSTEM DOES NOT OPERATE	Power short circuit in some board(s)	Check the connection of each board with the MBU. Check the PSU. Check for a short circuit on the MBU or other boards. Press the Reset button when the DIP switch (SW1 for database protection) is in the default position.
	Bad board connection	
	System database not working	
DKTU DOES NOT OPERATE	Bad extension circuit	Exchange the malfunctioning board for one in good working condition.
	Bad connection between the MBU/EMBU/CHB308 and DKT	Check the connection between the SLT line and DKT on MDF, and fix any mismatching. Repair any broken connection between the System and DKT.
	Proximity of DKT and System	Check the distance between the MBU/EMBU/CHB308 and the DKT
	Bad DKT	Plug the DKT into another extension port that has been verified as working. If the DKT still does not work properly, replace the DKT.
SLT DOES NOT OPERATE	Bad MBU/EMBU/CHB308 board	Exchange the board for one in good working condition.
	Bad connection between the MBU/EMBU/CHB308 and SLT	Check that the board connection between the lines of the SLT and DKT on the MDF, and fix any mismatching.
CO LINE OPERATION FAILURE	ANCR fail	Check the U8 (Voice processing and Tone detection device).
	Bad connection	Check all connections.
EXPANSION KSU DOES NOT OPERATE	Power ON sequence	Turn on the Basic KSU after turning on the Expansion KSU. Then press the Reset button.
	Link cable connection	Check the link cable to verify the connection and its working condition.

PROBLEM	CAUSE/SYMPTOM	SOLUTION
NOISE ON EXTERNAL MOH AND PAGING PORT	Induced noise on the wire between the System and the amplifier	Make sure a shielded cable is in use as the connection wire between the system and the amplifier.
	Excessive input level from the external music source	Decrease the output level of the external music source by using the volume control on the music source.

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