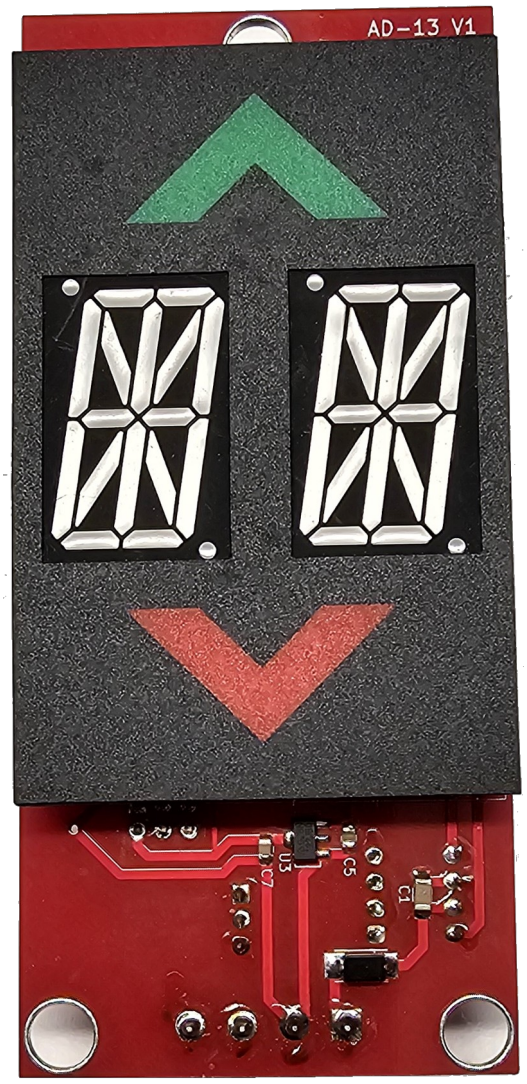


AD-13 16-Segment Hall PI

CAUTION: Always make SURE unit is fully connected BEFORE applying power, and remove power BEFORE removing any connectors. Failure to do so can potentially result in damage to the unit which is a non-warranty repair.

Table of Contents

Introduction

The AD-13 is a dual, 16-segment HALL PI with direction arrows. This unit is designed to be mounted vertically in the hall. The unit is controlled through a dedicated RS-422/RS-485 port from the Elevator Controller board. If the Elevator Controller does NOT have the capability of driving the AD-13 directly, then an AD-15 “Single Line Per Floor” module can be used to interface between the inputs and the AD-13. A four wire cable must be run from the controller, up the hoist way, daisy chained to each AD-13 unit. All AD-13 units are connected in parallel and up to 32 AD-13 Units can be connected together. A separate Power Wire, 18 AWG wire pair, +24VDC and Ground, **MUST** be Home Run from the machine room for each group of 7 AD-13 units.

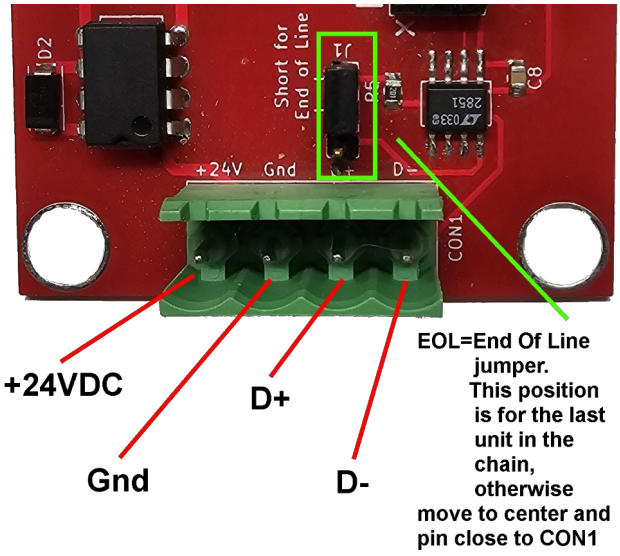
Features

- Supports up to 50 Landings - for applications with over 32, you MUST use an RS-422 REPEATER every 32 landings
- Dual, 1 inch, 16-segment digits with direction arrows
- Horizontal Mounting
- Displays “Fire Service”, “Out of Service”, “Hospital Service”, and “Independent Service” signals
- Units can be daisy chained using a 4 wire, 18 AWG cable from the machine room
- Units are powered via 24V DC sourced from the machine room
- Units use an RS-422/485 communication cable
- A Maximum of 32 AD-13 units may be used in a single run
- The Elevator Controller MUST be compatible with the AD-13, or you can use an AD-15 to interface the inputs to the unit

Installation

The AD-13 has a 4 position, removable screw terminal connector allowing easy unit swap out if needed.
The following are the terminations:

- +24: +24 VDC Power
- GND: Power Ground
- D+: Positive connection of RS-422 cable
- D-: Negative connection of RS-422 cable

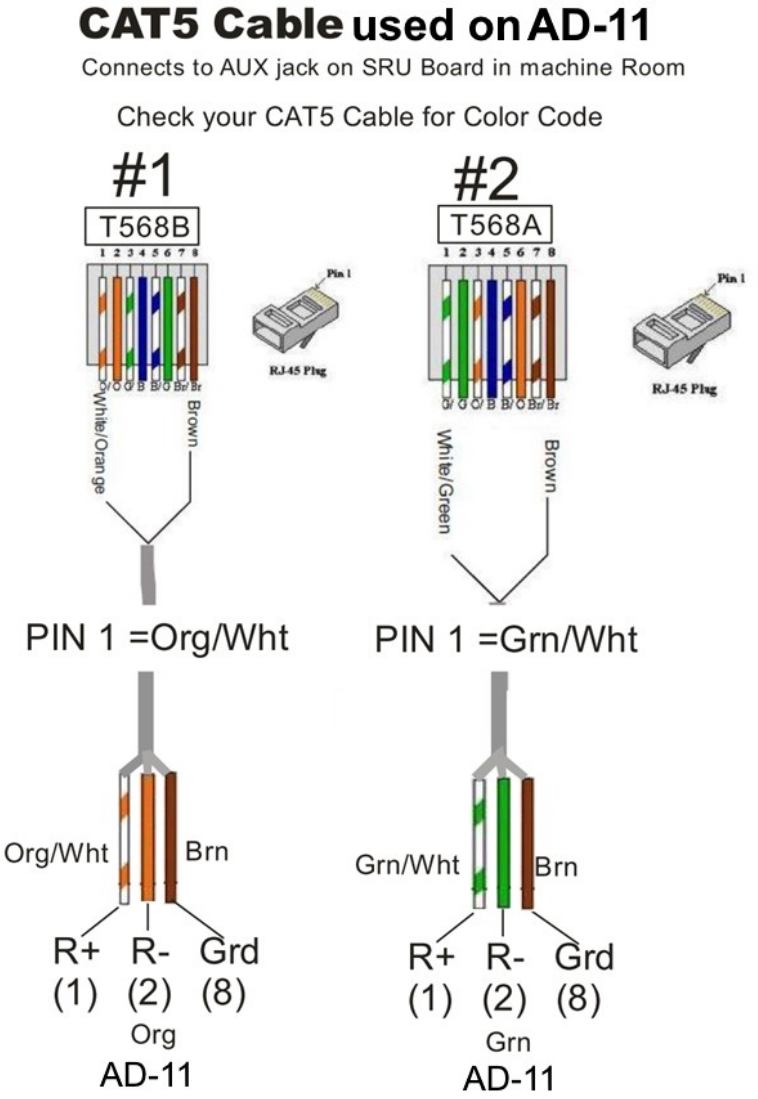


EOL Jumper

The default EOL jumper position us used at the final unit in the connection chain. All other units along the line should have the shorting block on the Center pin and the pin closest to the main connector, CON1.

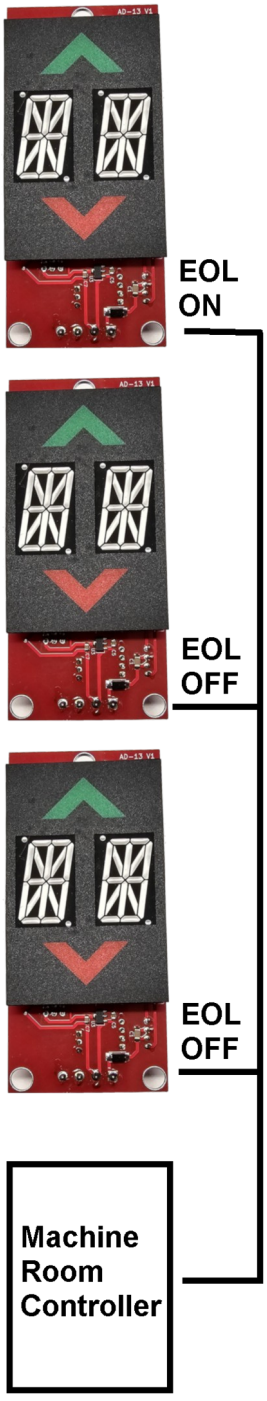
RS-422 Controller Interface

There are two types of CAT5/5e/6 cable wiring (T568A and T568B). Each has different color codes for the connector wiring. The first step is to determine which type you have. The color of the wire at PIN 1, determines which wires you will use. See the diagram below:



Installation of Multiple AD-13s

Each AD-13 connects to the Elevator Controller Board in the Machine Room. A four wire, 18 AWG cable is used to daisy chain all the units together. A maximum of 14 floors can be daisy chained with a single cable run. If you need more than 14 floors, you run a separate cable for each additional group of AD-13s. Multiple runs must be wired in parallel from the machine room. If CAT5/5e/6 (**24 AWG**) wire is used, a maximum of **8** floors may be daisy chained per RUN.



END Jumper

The **EOL** Jumper on the **LAST** AD-13 in the daisy chain GROUP, **MUST** be set to **ON**. All other units **MUST**
have the **EOL** jumper set to **OFF**.

Traveling Arrows

The Traveling Arrows at the top and bottom of the AD-13 show the current direction the car is travelling. This information is received from StatusA (Byte 3) bits 0 or 1; Up Travel Direction and Down Travel Direction.

Position Indicator

The “Position Indicator” displays the floor Identifier (as either 1 or 2 characters) for the current landing where the car is located. CurFlr (Byte 2) controls the graphic that is displayed in the PI of the AD-13. If this value is 0, no floor position information will be displayed.

Fire Service Modes

The AD-13 will display **FS** when any fire service mode is active, StatusB (Byte 4) bits 2 and 6.

Out of Service

The AD-13 will display **OS** when the car is out of service, StatusB (Byte 4) bit 3.

Hospital Service

The AD-13 will display **HS** when the car is responding to an EMS event, StatusB (Byte 4) bit 4 .

Independent Service

The AD-13 will display **IS** when the car is in Independent Service mode, StatusB (Byte 4) bit 5.

AD-13 Controller Communication Protocol (v4.11)

Specifications:

1. Port Type: Standard RS-422 Port using separate Transmit and Receive pairs (**NOT an RS-485 port**).
2. Serial Format: 1 Start Bit, 8 data bits, 1 stop Bit, No Parity
3. Baud Rate: 19.2K
4. Received Data from Controller: a 10 byte string, no more than 1.04ms between bytes, **ONLY the Header and Checksum can be over a value of 127**, followed by a silence gap within **75ms to 410ms**, the Checksum is a sum of ALL the Data Bytes (02-09) and just use the last 8 bits (Byte) of the result (i.e. a value of 3048 would be 3048 [0xBE8] AND 255 = 232 [0xE8]).

Received Data from Controller

Byte 01	Byte 02	Byte 03	Byte 04	Byte 05	Byte 06	Byte 07	Byte 08	Byte 09	Byte 10
Header	CurFlr	StatusA	StatusB	ClockD	ClockH	ClockM	ArrFlr	Future	ChkSum
0xAA	0-99	0-127	0-127	1-7	0-23	0-59	0-99	0	0-255

Byte Number — Byte Variable — Acceptable Value Range

Received Data from Controller - Detailed

Description	Byte Number	Value/Range
Header	01	170
CurFlr	02	0-99, Current floor to display, 0=Lost PI
StatusA	03	Bits: 0. 1=UP Travel Direction 1. 1=DOWN Travel Direction 2. 1=UP Arrival Direction 3. 1=DOWN Arrival Direction 4. 1=Gong Enabled 5. 1=Future_B1 6. 1=Future_B2 7. Bit 7 – Always 0
StatusB	04	Bits: 0. 1=Front Door is OPEN 1. 1=Rear Door is OPEN 2. 1=Fire Service Icon Active 3. 1=Out of Service Icon Active 4. 1=Hospital Icon Active 5. Independent Service Icon Active 6. Fire Service Icon Flashing 7. Bit 7 – Always 0
ClockD	05	1-7, Day of the week, 1=Monday, 2=Tuesday, 3=Wednesday, 4=Thursday, 5=Friday, 6=Saturday, 7=Sunday
ClockH	06	0-23, 24 hour format; 0=12am, 1=1am, 12=12pm, 23=11pm, etc.
ClockM	07	0-59
ArvFlr	08	0-99, 0=Off, 1-99=Floor Arriving At, (Not Displayed), Controls Arrival Lantern/Gong
Reserved 1	09	0, N/A
ChkSum	10	Add all the data bytes, 02-09, and just use the last 8 bits of the result, i.e. for 0xBE8 it is 0xE8

Repair and Support

1. If trouble is experienced with the AD-13, for repairs or warranty information, please contact E.C.C. at:
   16521 SATICOY ST
   Van Nuys, CA 91406
   (818) 753-5669 in the U.S.A.
2. No repairs to the AD-13 should be made by the customer (user). All repairs MUST be made by the manufacturer or authorized repair facility.

Limited One Year Parts & Labor Warranty

This E.C.C. PRODUCT is warranted against defects for a period of one (1) year from the date of the original invoice. Within this period, we will repair it without charge for parts and labor. To obtain warranty service the product must be returned, at the customer's expense, to E.C.C. with a copy of the original invoice. After the unit has been repaired, E.C.C. will ship the PRODUCT back via UPS GROUND service at our expense. If any other form of return shipment is requested, the customer will pay for 100% of the shipping cost.

This Warranty does not apply if in the sole opinion of E.C.C., the PRODUCT has been damaged by lightning, or any other Acts of God, or by accident, misuse, neglect, improper location (high dust or tobacco smoke prone areas), improper packing, shipping, modification, or servicing by other than an authorized E.C.C. Service Center.

Except as specifically provided in this agreement, there are no other warranties, expressed or implied, including, but not limited to, any implied warranties or merchantabilities or fitness for a particular purpose and in no event shall E.C.C be liable for loss of profits or benefits, indirect, special, consequential, or other similar damages arising out of any breach of this warranty or otherwise.