QUICK INSTALLATION GUIDE FOR HIGAIN® REMOTE ENCLOSURE - MODEL HRE-427

List #	ADC Part #	CLEI Code
1	150-1113-01	T1MFFW04MA
2	150-1113-02	T1MFFX04MA

Table of Contents

Revision History:
Revision 03–October 25, 1996
a) Updated Figures 5 through 8.
b) Added new Figures 9, 10, and 15.
c) Added new paragraph 6.09.
Revision 04–February 13, 2004
a) Released to rebrand document to comply with ADC standards.
b) Updated Specifications, Figure 5, and various minor edits.
c) Deleted Figures 6, 7, 8 and 9

A. PRODUCT OVERVIEW

1. DESCRIPTION AND FEATURES

1.01 The ADC® HRE-427 Remote Enclosure, List 1 and 2, (see Figure 1) is an indoor enclosure that houses up to four double-width remote units, or up to seven single-width remote units. The enclosure can also accommodate a -48V power supply to power the remote units locally. Seven 1/4A fuses protect the remote units when they are powered from the -48V power supply. A lockable, hinged, “smoked plastic” front panel provides easy access for inserting or removing the remote units and power supply and for viewing indicators. A set of seven RJ-48C (List 1) or RJ-48X (List 2) modular jacks on the left side of the enclosure connects the remote units to the DS1 data streams of the T1 customer interface (CI). A 50-pin connector (P1) inside the enclosure connects the remote units to HDSL loops 1 and 2 via a customer-supplied 25-pair type 57 cable through a cable access hole on the left side of the enclosure. The enclosure has four rubber feet for desktop installations and four mounting holes in the back cover for wall mounting. A shelf mounting kit SMK-427 (Part No. 150-1273-01) is available from ADC to adapt the enclosure for mounting in 19- or 23-inch racks.

1.02 HRE-427, List 1 and 2, features:

- Eight slots accommodate four double-width or seven single-width remote units and a local power supply.
- RJ-48C/RJ-48X modular jacks simplify DS1 customer interface connections.
- Printed circuit backplane eliminates need for wire-wrap connections.
- A and B switches simplify setting of CPE current options for older remote units only.
- Security lock and tamper-proof screw, with plug for lock replacement.

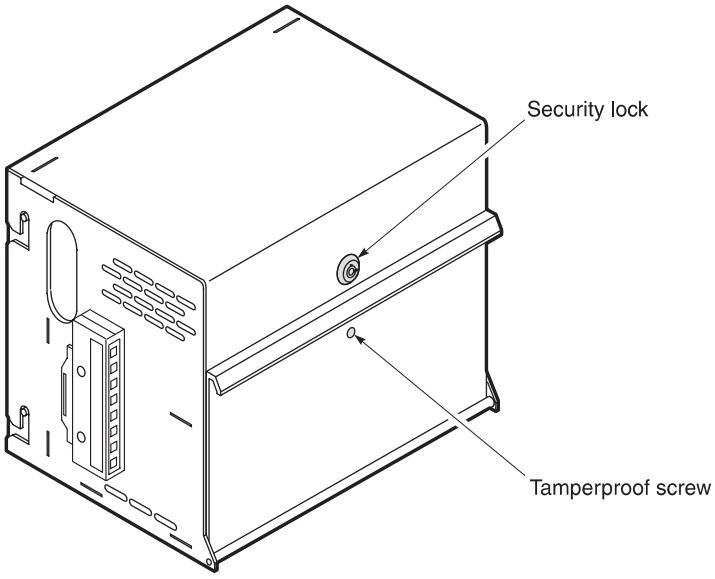


Figure 1. HRE-427 Remote Enclosure, List 1 and 2 front view, houses up to four double-width remote units or up to seven single-width units.

2. SPECIFICATIONS

Mounting

Four double-width remote units
or
Seven single-width remote units

Telco Facility

25-pair type 57 male connector (P1)

CPE

List 1: seven RJ-48C modular jacks
List 2: seven RJ-48X modular jacks
List 1 or 2: one T1 USOC RJ-48H connector (P2)

Local Power Supply (slot 8)

120V ac to 48V dc @ 2A/2.5A 400 Type mechanics (HPS-448-L1)

Fusing

1/4A protection for each remote unit with local power supply option

Operating Temperature and Humidity

-40 to 65° Celsius, 5 to 95% (non-condensing)

Dimensions

Height:	10.5" (26.67 cm)
Width:	12.5" (31.75 cm)
Depth:	8.5" (21.59 cm)

Weight

7.5 lb (3.4 kg)

3. WARRANTY

3.01 ADC Telecommunications, Inc. warrants this product to be free of defects and to be fully functional for a period of 60 months from the date of original shipment, given proper installation and regular maintenance. ADC will repair or replace any unit without cost during this period if the unit is found to be defective for any reason other than abuse or improper use or installation.

3.02 This unit should not be field repaired. If it fails, replace it with another unit and return the faulty unit to ADC for repair. Any modifications of the unit by anyone other than an authorized ADC representative will void the warranty.

3.03 If a unit needs repair, call ADC for a Return Material Authorization (RMA) and instructions must be obtained before returning products:

Product Return Department

800.366.3891 x73748

Email: rma@adc.com

3.04 ADC will continue to repair or replace faulty units beyond the warranty program at a nominal charge. Contact your ADC sales representative for details and pricing.

4. TECHNICAL SUPPORT

4.01 ADC Technical Assistance is available 24 hours a day, 7 days a week by contacting the ADC Customer Service Group at:

Telephone:	800.366.3891 x73223
E-Mail:	wsd_support@adc.com
Knowledge Base:	http://adc.com/Knowledge_Base/index.jsp
Web:	www.adc.com

B. INSTALLATION

5. MOUNTING OPTIONS

☞ ***Note:*** Although wire-wrap access is available to every slot, a customer-supplied 25-pair type cable of appropriate length (with a female Amphenol-type 57 connector) is recommended for the HDSL interface cable pair access. All connectors are either 25-pair type 57 cables or RJ-48 modular jacks.

5.01 Upon receipt of the equipment, visually inspect it for signs of damage. If the equipment has been damaged in transit, immediately report the extent of damage to the transportation company and to ADC. The following items are supplied in the installation kit:

- Two security keys
- One pin-head security wrench
- One lock replacement plug
- Four mounting screws and washers
- Four plastic cable wraps
- Two spare 1/4A fuses
- One slot-head screw

5.02 The HRE-427 is suitable for mounting on a desktop, on a wall, or in an equipment rack (when equipped with optional mounting brackets). Wall mounting is preferable. Before setting up the equipment, select a location that will provide appropriate security.

5.03 **Desktop Mounting.** The enclosure includes four stand-off rubber feet for desktop mounting. When using the unit on a desktop, take care to prevent blocking the passage of air through the bottom slots of the unit.

5.04 Wall Mounting. The backplate of the enclosure has four mounting holes to simplify wall mounting. To mount the enclosure on a wall, you must first remove the backplate and use it or the enclosure hole pattern drawing as a template to locate the mounting holes as follows:

1. Using the security key and socket pin-head key supplied with the enclosure, unlock the security lock and loosen the tamper-proof screw on the front of the enclosure (see Figure 1 on page 2).
2. Drop down the front plastic panel and slide the top cover forward to expose the fuse panel and I/O connector (see Figure 2).
3. Using a slot-head screwdriver or your fingers, remove the rear cover retaining screw (see Figure 4 on page 8).
4. Slide the backplate down until the locking pins are in position to clear the retaining slots, and then remove the backplate from the main assembly.
5. Using the backplate or enclosed drawing as a template, mark the locations for drilling the mounting holes. (See Figure 3 on page 7 for wall-mounting dimensions.)
6. Drill pilot holes and attach the backplate to the backboard with the four No. 10 x 3/4-inch PHS wood screws and washers supplied with the enclosure.
7. Re-attach the main assembly by sliding it over and down on the backplate posts. Secure the assembly to the backplate by tightening the rear cover retaining screw.

5.05 Rack Mounting. A bracket kit (Part No. 150-1273-01) is available from ADC to adapt the enclosure for mounting in a 19- or 23-inch rack. Follow the instructions supplied with the kit to mount the enclosure in a rack.

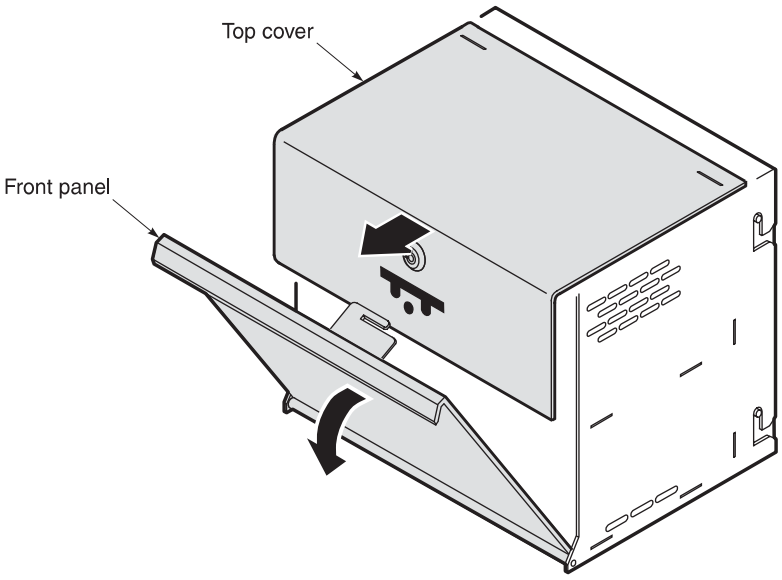


Figure 2. Top Cover Removal. With front door open, top cover slides forward for easy removal.

5.06 Removing the Security Lock. If your application does not require the security lock, you can remove the lock and cover the hole with the plug supplied in the installation kit. Remove the lock as follows:

1. Remove the top cover from the enclosure as described in paragraph 5.04, steps 1 and 2.
2. Using a wrench, loosen and remove the 1/2-inch hex nut holding the locking lever to the lock. Remove the lever.
3. Using a wrench, loosen and remove the 7/8-inch hex nut holding the lock to the top cover.
4. Remove the lock from the top cover and plug the hole with the plastic plug supplied with the enclosure.
5. Replace the cover on the enclosure and secure the front panel by tightening the tamper-proof screw.

5.07 Removing the Tamper-Proof Screw. If your application does not require the tamper-proof screw, replace it with the slot-head screw provided.

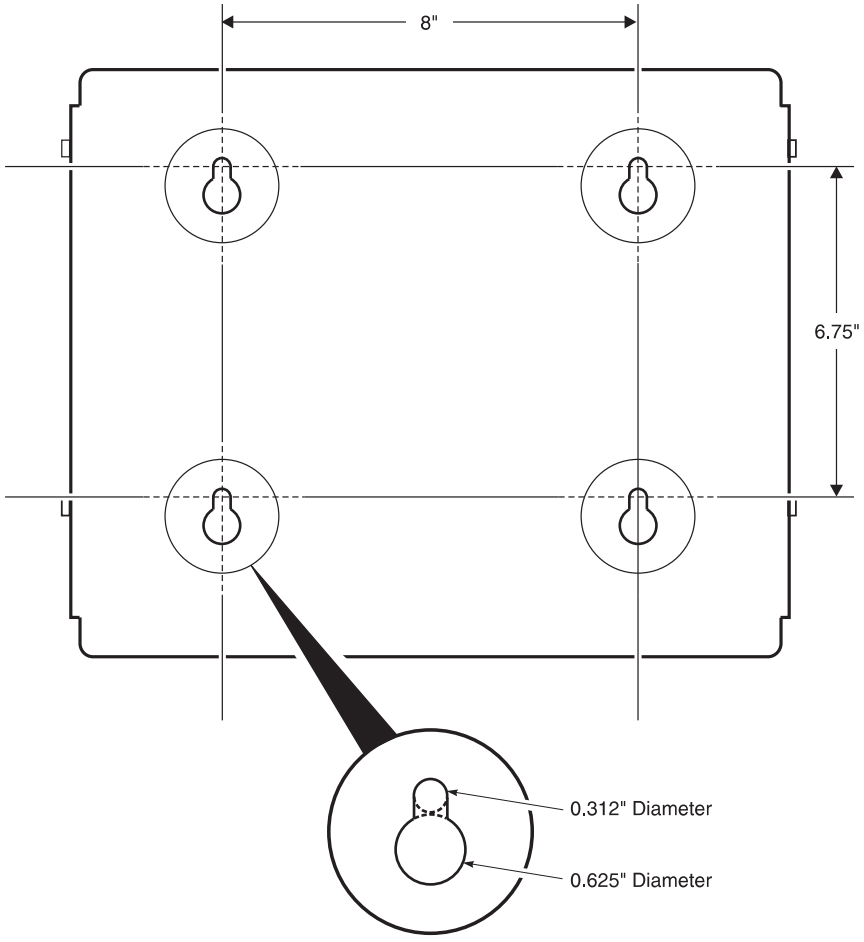


Figure 3. Wall-Mounting Dimensions. Use the backplate of the enclosure or the enclosed hole pattern drawing as a template for marking the locations of mounting holes.

6. WIRING

Caution: Be sure to attach a wrist strap to the anti-static Bantam Jack before handling the plug-in modules (see Figure 4)**.**

6.01 After mounting the enclosure, you can set the CPE current options and connect the HDSL loops and DS1 circuits to the enclosure as described in the following paragraphs. Because jumpering option changes may require future access to the connector pins of the enclosure's remote units, be sure to allow a sufficient service loop in cables to remove the unit from the back plate (wall-mounting plate).

6.02 Grounding. Each remote unit's cover (frame) is pre-wired to the HRE-427's ground lug (using pins 1 & 2 of the card edge connector). If local practice dictates, attach earth ground to the chassis using this ground lug (see Figure 4).

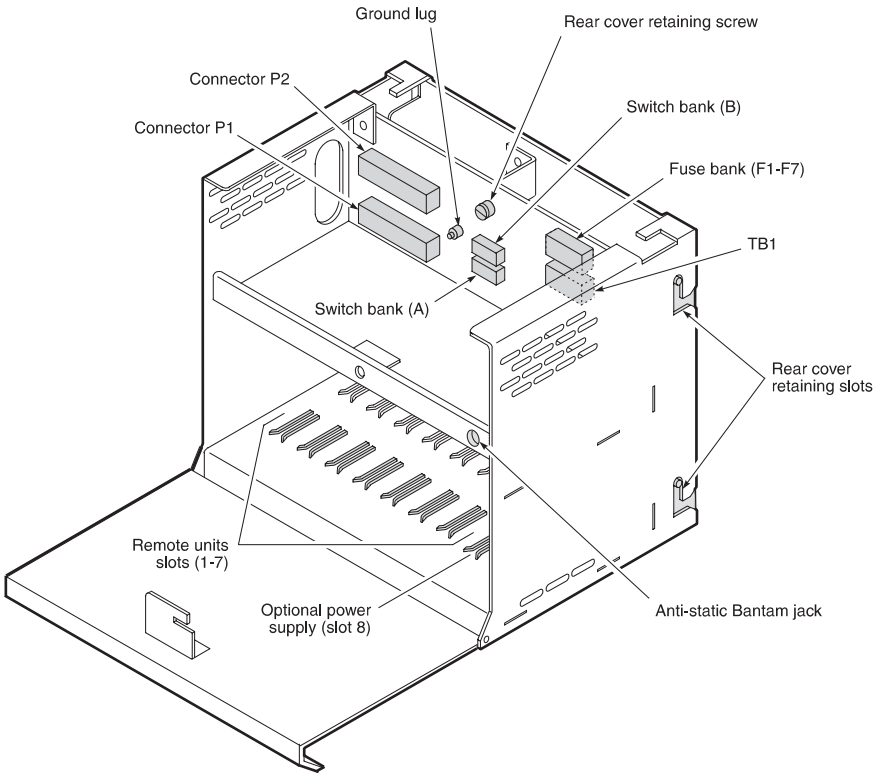
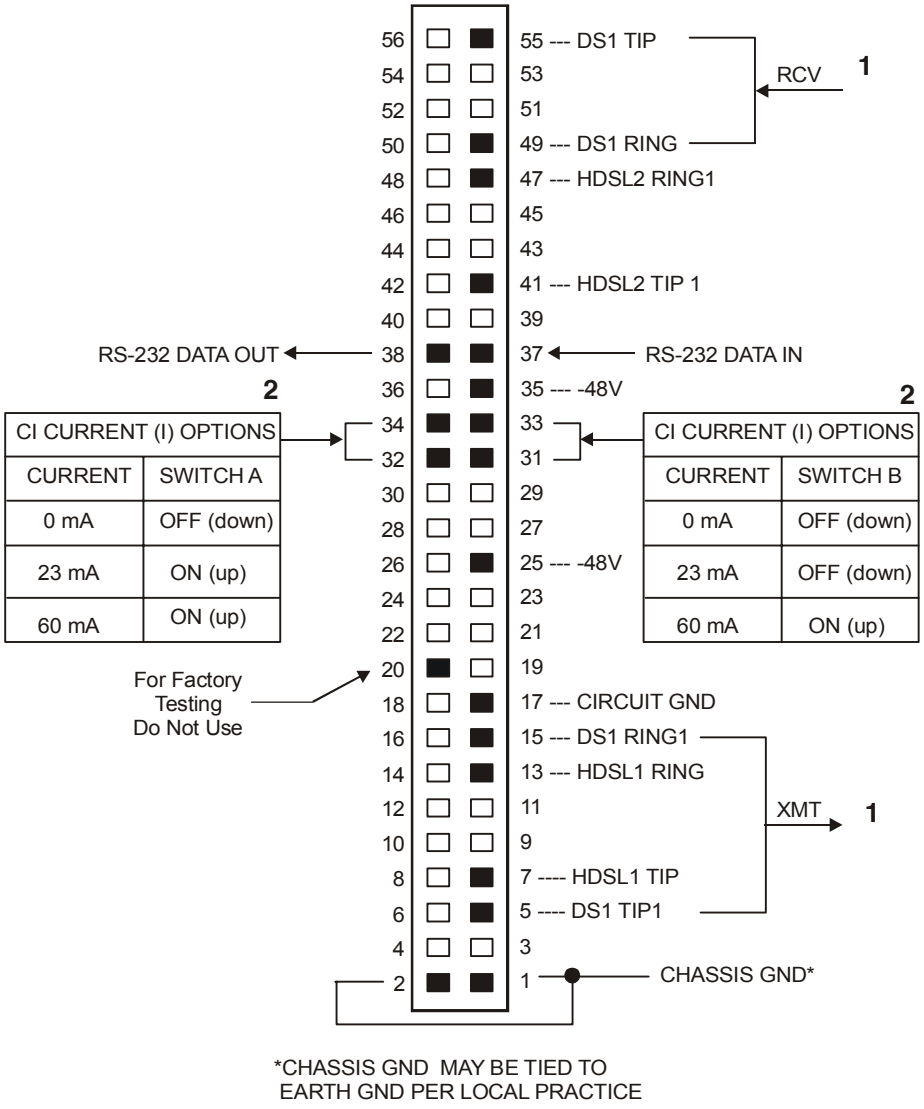


Figure 4. Component Locations. The interior of the enclosure is accessible with the front panel open and the top cover removed.

6.03 CPE Current Options for Older Remotes. Set the switches on switch banks A and B on the unit's backplane (see Figure 4 on page 8) as follows:

- Set the appropriate switches on banks A and B to OFF (down) to turn off the CI current. This is the factory setting. Note that these current sources are limited to a 30-volt maximum output level and as such cannot power some CSUs, which require 60 mA at 60V. However, the 30V output level is more than adequate to power all external “smart-jacks” (NIU).
- Set the appropriate switches on bank A to ON (up) and on bank B to OFF (down) to provide 23 mA simplex current (sealing current) feed to the CI. This connects pin 32 to 34 on the card edge connector.
- Set the appropriate switches on banks A and B to ON (up) to provide 60 mA current to the CI. This connects pins 31 to 33 (in addition to 32 to 34).



1 XMT and RCV port definitions are reversed on some remote modules. Refer to the appropriate user manual for correct port definitions.

2 Not all remote modules require a simplex current switch configuration. Switch banks A & B are shipped with a factory default setting to OFF. Refer to the appropriate user manual for correct simplex current operation.

Figure 5. Generic Pin Assignments. The active pins appear in black in this illustration.

6.06 HDSL Connections. Connect the HDSL Loops 1 and 2 leads to the appropriate contacts of the P1 cable (see Figure 6). The “HDSL 1” designation refers to Loop 1 and ”HDSL 2” to Loop 2. Note that if you reverse these leads, a “CHREV” message is displayed in the ALARMS display field when you view the HRU STATUS screen from either HiGain terminal interface port (HLU or HRU). This condition does not affect system operation, but you should correct it to avoid any confusion regarding the identities of the 2 HDSL loops.

HRU-427 CIRCUIT	HRU-412 CARD-EDGE CONNECTOR	P1 CABLE - MALE
J1	41	26 HDSL 2 TIP 1(w/bl)
	47	01 HDSL 2 RING 1(bl/w)
	07	27 HDSL 1 TIP(w/o)
	13	02 HDSL 1 RING(o/w)
J2	41	28 HDSL 2 TIP 1(w/g)
	47	03 HDSL 2 RING 1(g/w)
	07	29 HDSL 1 TIP(w/br)
	13	04 HDSL 1 RING(br/w)
J3	41	30 HDSL 2 TIP 1(w/s)
	47	05 HDSL 2 RING 1(s/w)
	07	31 HDSL 1 TIP(r/bl)
	13	06 HDSL 1 RING(bl/r)
J4	41	32 HDSL 2 TIP 1(r/o)
	47	07 HDSL 2 RING 1(o/r)
	07	33 HDSL 1 TIP(r/g)
	13	08 HDSL 1 RING(g/r)
J5	41	34 HDSL 2 TIP 1(r/br)
	47	09 HDSL 2 RING 1(br/r)
	07	35 HDSL 1 TIP(r/s)
	13	10 HDSL 1 RING(s/r)
J6	41	36 HDSL 2 TIP 1(bk/bl)
	47	11 HDSL 2 RING 1(bl/bk)
	07	37 HDSL 1 TIP(bk/o)
	13	12 HDSL 1 RING(o/bk)
J7	41	38 HDSL 2 TIP 1(bk/g)
	47	13 HDSL 2 RING 1g/bk)
	07	39 HDSL 1 TIP(bk/br)
	13	14 HDSL 1 RING(br/bk)

Figure 6. HDSL Loop Connections. HDSL loops 1 and 2 connect to the appropriate contacts of the P1 cable.

6.07 DS1 Connections. Connect the customer interface DS1 circuits to the enclosure as follows:

- **RJ-48C:** For List 1 enclosures, connect the DS1 leads to the RJ-48C jacks (see Figure 7) located on the left side of the HRE-427.
- **RJ-48X:** For List 2 enclosures, connect the DS1 leads to the RJ-48X jacks (see Figure 8 on page 13) located on the left side of the HRE-427.
- **RJ-48H:** P2 provides a standard USOC RJ-48H male connector (see Figure 9 on page 14). To use this interface, remove the RJ-48C cable assembly attached to P2 and insert a mating cable with female connector in its place. Or, remove the other end of the P2 cable from the RJ-48C block and insert the mating cable with a female connector into it.

6.08 RS-232 Connections. Provision is made for connecting a local diagnostic and status-monitoring terminal to the front panel of some remote units. Similar access to other units is available by direct wire-wrap access to pins 37 and 38 of each unit's card connector, which provides data in and data out respectively (typical RS-232 pin 2 and 3 functions). Circuit ground is available on pin 17 of the card connector (see Figures 5 on page 10).

6.09 Local Power Application. Local power can be applied to the HRE-427 backplane from an AC to 48 volt DC power supply module located in the slot labeled PSU. The Westel 6060-03 (2 AMP), Wescom 8548-13 or equivalent 400 mechanic power supplies can be used. See HRE-427's power supply bus circuit shown in Figure 10 on page 15. The Wescom 8548-13 power supply has an external alarm (EXT ALM) LED, which connects to the fuse alarm contact of all seven-slot, fuses (see Figure 10 on page 15). This LED lights RED if any of the slots fuses opens.

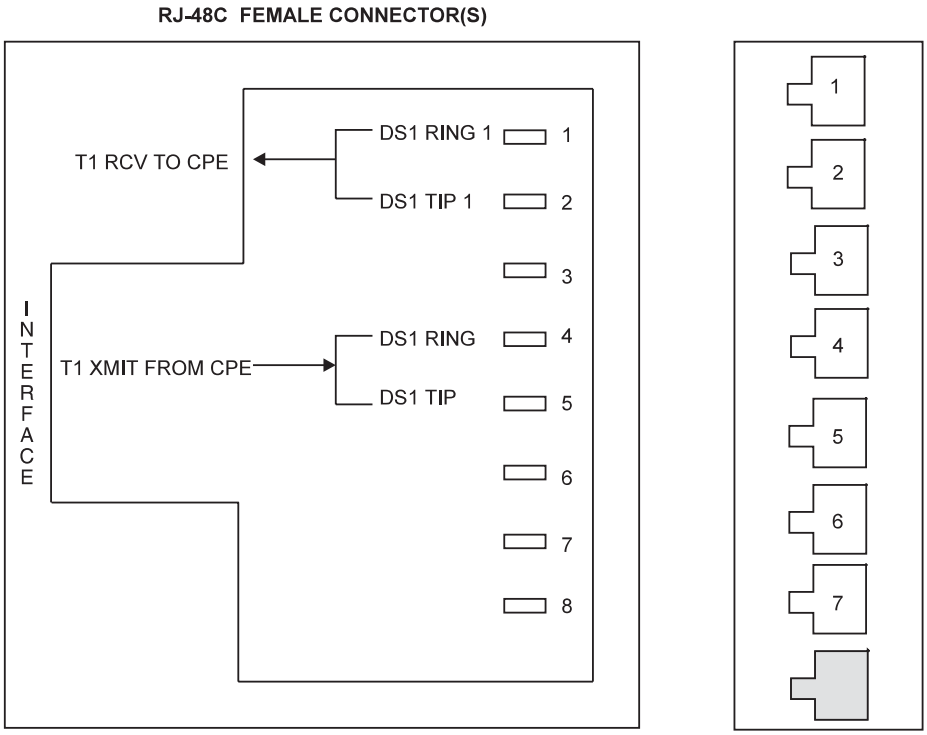


Figure 7. List 1 RJ-48C Pin Assignment. The RJ-48C jacks are located on the left side of List 1 enclosure.

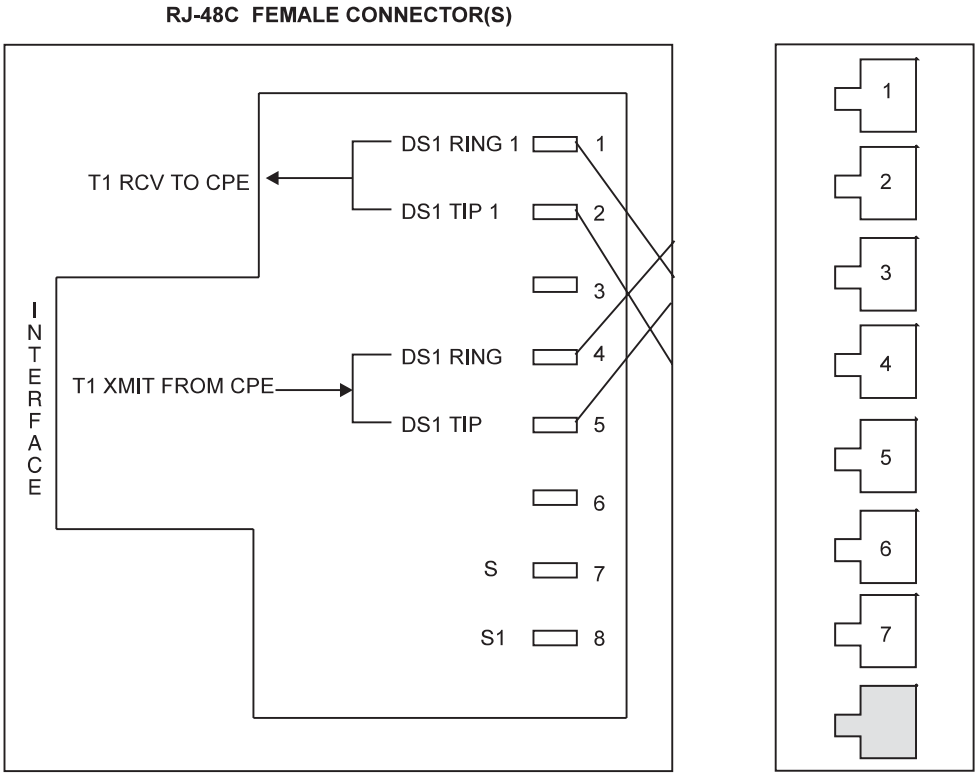


Figure 8. List 2 RJ-48X Pin Assignment. The RJ-48X jacks are located on the left side of the List 2 enclosure.

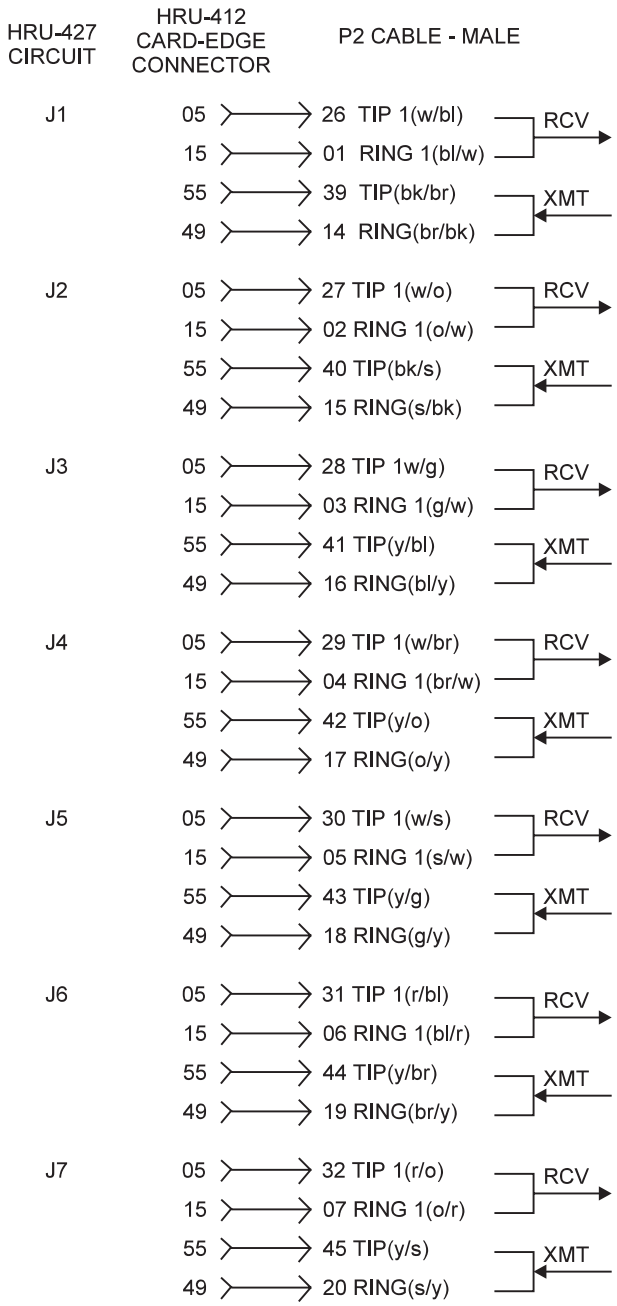


Figure 9. T1 USOC RJ-48H Connector (P2). To use this interface, remove the RJ-48C cable assembly attached to P2 and insert a mating cable with a female connector in its place.

7. TURN UP

7.01 Refer to the appropriate user manual for proper turn-up procedures.

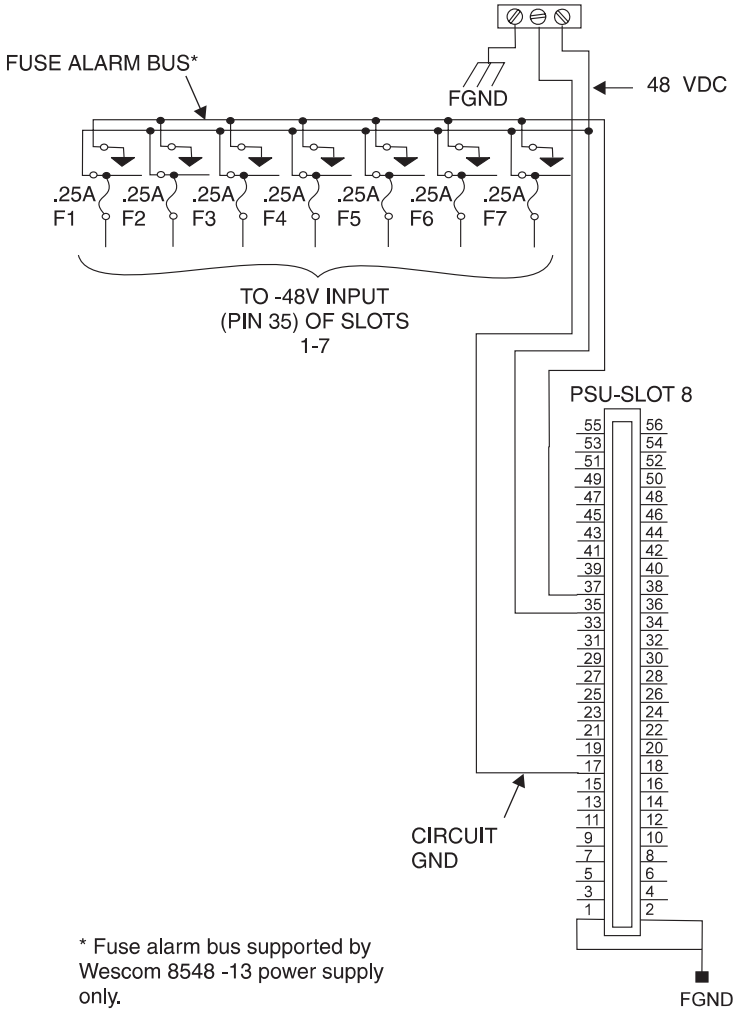


Figure 10. (-48V) Local Power Option Connections