

220/E220 Automatic Protection Switching (APS) Adapter Chassis Installation and Maintenance

Contents

1. GENERAL	1
2. INSTALLATION	2
3. CONNECTIONS	3
4. MAINTENANCE	4
5. PRODUCT SPECIFICATIONS	4
6. WARRANTY AND CUSTOMER SERVICE	4

Figures

Figure 1. ADTRAN APS Adapter Chassis	1
Figure 2. APS Adapter Chassis Edge Connector Wiring	3
Figure 3. APS Adapter Chassis Span Powering Diagram	3

Tables

Table A. APS Adapter Chassis Specifications	4
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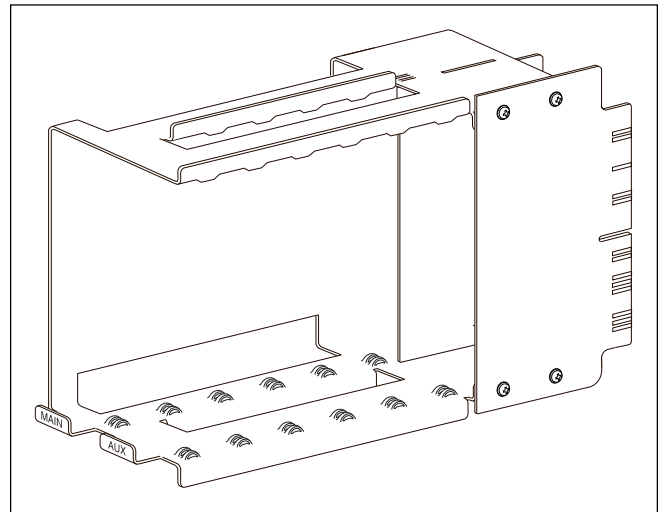


Figure 1. ADTRAN APS Adapter Chassis

1. GENERAL

The ADTRAN 220/E220 Automatic Protection Switching (APS) Adapter Chassis (ADTRAN Part Number 1245063L1) is used to deploy a protected HDSL T1 circuit using 4-wire metallic facilities. The unit occupies two slots in a standard 220 Office Repeater Bay (ORB) or the ADTRAN E220 Shelf.

DSX-1 signals are provided to and received from the network while 2B1Q HDSL signals are provided to the local loop. The ADTRAN APS Adapter Chassis works in conjunction with the ADTRAN E220 APS Circuit Pack (P/N 1245005L1), HTU-R, and HRE to provide a DS1 service up to 36,000 feet on the local loop.

The APS Adapter Chassis provides the system power and alarm bus connections. DSX-1 and HDSL signals are connected through wire-wrap pins or the 50-pin shelf connectors on the 220 ORB or the ADTRAN E220 shelf.

HLSS Overview

ADTRAN's HDSL Loop Support System (HLSS) is designed to provide flexible loop protection for HDSL T1 circuits. The HLSS uses a one-to-one protection scheme to protect HDSL circuits. HLSS can be deployed in any standard 220 mechanics ORB. However, when the HLSS is deployed from ADTRAN's E220 RP Shelf or Total Access platform, not only can you provide one-to-one protection, but you can also offer a fully managed system that can tie into Network Management Systems via TL1.

The HLSS's five modes of operation make the HLSS a flexible protection switch that can be used for the mode of protection desired, from fully automatic to totally manual. The following sections are a brief discussion of the different modes of operation of ADTRAN's HLSS.

Auto Mode -- Auto Mode is a fully automatic protection mode. In this mode, the main circuit can be programmed to automatically switch to the auxiliary circuit upon either an HDSL Loss of Sync or exceeding a programmed BER threshold. Switching back to the main circuit from the auxiliary circuit is also automatic and is triggered by the clearing of the original alarm condition on the main circuit for a period of time. To prevent repetitive switches, the automatic lock-out feature only allows a programmed number of switches before locking the HLSS into the auxiliary circuit operation.

Auto Hold Mode -- Auto Hold Mode is a partially automatic protection mode. In this mode, the main circuit can be programmed to automatically switch to the auxiliary circuit upon either an HDSL Loss of Sync or exceeding a programmed BER threshold. Switching back to the main circuit from the auxiliary circuit to the main circuit is controlled by either a software switch or the APS Control Switch on the front panel of the APS circuit pack.

Manual Main -- Manual Main Mode is a fully manual protection mode. In this mode, the main circuit can only be switched to the auxiliary circuit manually. The manual switch from the main circuit to the auxiliary circuit is controlled by either a software switch or the APS Control Switch on the front panel of the unit. Switching back to the main circuit from the auxiliary circuit is also a manual process. The manual switch from the auxiliary circuit to the main circuit is controlled by either a software switch or the APS Control Switch on the front panel of the APS circuit pack.

Manual Aux -- When in Manual Aux Mode, the data is manually forced to the auxiliary circuit. Data will remain there until the mode is changed via the terminal screen or the APS control switch on the front panel of the AIS circuit pack. All other option settings are ignored while in Manual Aux mode.

Manual Dis -- When in Manual Dis Mode, the Main and Auxiliary HTU-C act as two independent units. Separate data can be run on either circuit while not affecting the operation of the other circuit. In other words, this disables protection and creates two independent HTU-Cs. All other option settings are ignored while in this mode.

Revision History

This is the first issue of this practice. In subsequent issues, changes will be summarized in this paragraph.

2. INSTALLATION



After unpacking the unit, inspect it for possible shipping damage. If damage is discovered, file a claim immediately with the carrier, then contact ADTRAN (see subsection 6 of this practice).

The 220/E220 APS circuit pack (P/N 1245005L1) plugs into the APS Adapter chassis (P/N 1245063L1). No installation wiring is required.

3. CONNECTIONS

The 220/E220 HLSS HTU-C (P/N 1245005L1) requires the use of the 220 APS Adapter (P/N 1245063L1). The APS Adapter occupies two card slots in a 220 ORB. Power and alarm signals are provided to the card through the backplane of the shelf via the APS Adapter chassis. DSX-1 and HDSL loop signals are connected to the wire-wrap pins or mass termination shelf connectors corresponding to the slot the unit occupies. See Figure 2 for edge connection wiring.

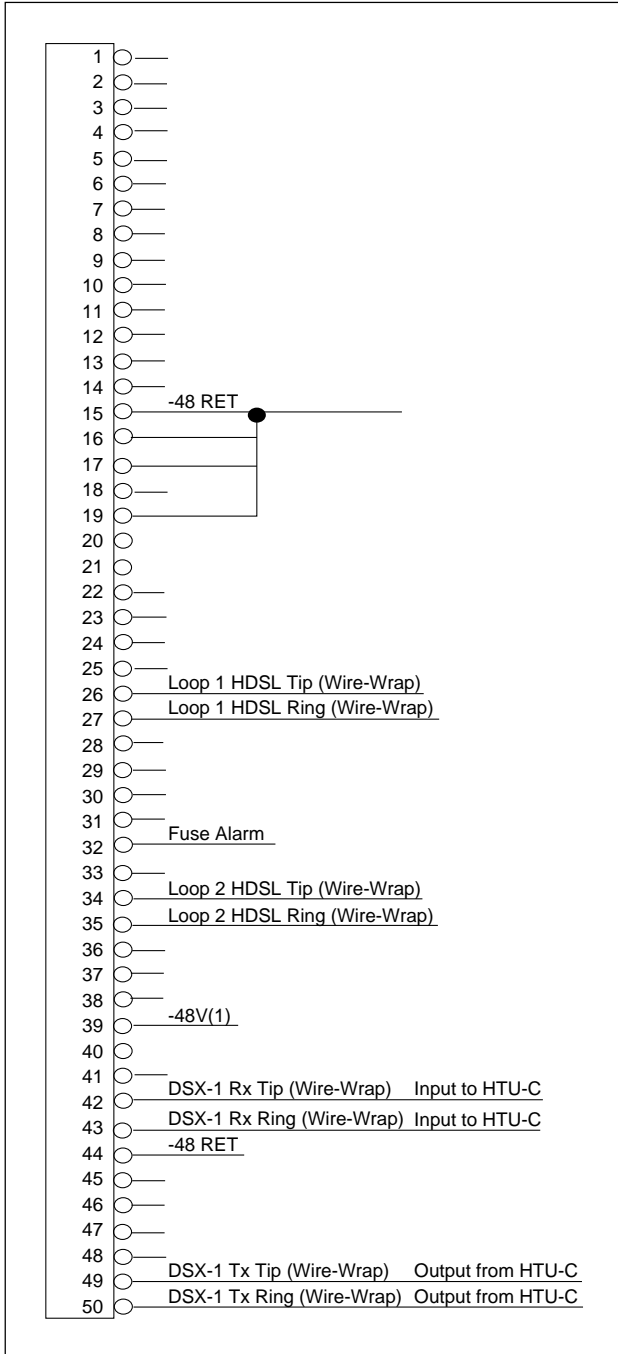


Figure 2. APS Adapter Chassis Edge Connector Wiring

The HLSS is capable of powering the HTU-R by applying simplex current for the local loop. A current of 30 to 155 mA is coupled into the HDSL span to span power the HTU-R and HRE, when deployed. The span powering voltage is less than -190 (or -140) volts with loop 1 providing the negative voltage and loop 2 the return. See Figure 3.

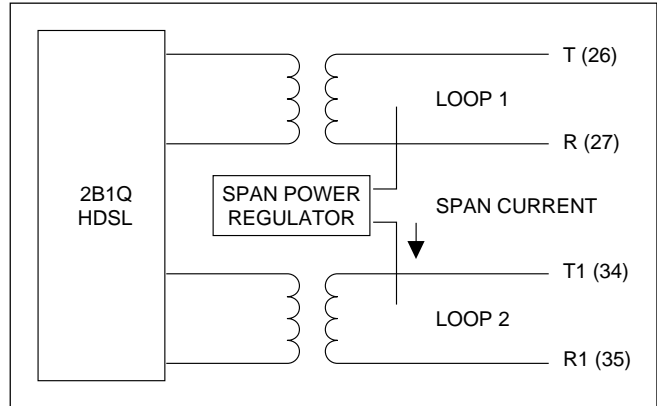


Figure 3. APS Adapter Chassis Span Powering Diagram

HTU-C Alarm Outputs

Pin 32 of the edge connector interface provides a fuse alarm signal that connects -48 VDC to this pin in the presence of a blown fuse. This indicates the card has malfunctioned and should be replaced.

4. MAINTENANCE

ADTRAN does not recommend that repairs be performed in the field. Repair services may be obtained by returning the defective unit to the ADTRAN Customer and Product Support (CAPS) Department.

5. PRODUCT SPECIFICATIONS

Product specifications are detailed in Table A.

Table A. 220/E220 APS Adapter Chassis Specifications

Physical <i>Mounts into standard 220 Office Repeater Shelf or the ADTRAN E220 Repeater.</i> Dimensions 5.6" High x 1.25' Wide x 10.1" Deep Weight Less than 1 lb.
Environment Temperature Operating (Standard) -40° to +70°C Storage -40° to +85°C
Part Number 220/E220 APS Adapter Chassis 1245063L1

6. WARRANTY AND CUSTOMER SERVICE

ADTRAN will replace or repair this product within 10 years from the date of shipment if it does not meet its published specifications or fails while in service (see ADTRAN Telco Network Equipment Warranty, Repair, and Return Policy and Procedure, document 60000087-10A).

Contact CAPS prior to returning equipment to ADTRAN.

For service or further information, contact one of the following numbers:

ADTRAN Technical Support (800) 726-8663

Standard hours Monday-Friday, 7 am-7 pm CST

Emergency hours 7 days/week, 24 hours/day

ADTRAN Sales (800) 827-0807

ADTRAN Repair/CAPS (256) 963-8722

Repair and Return Address

ADTRAN, Inc.
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901 Explorer Boulevard
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