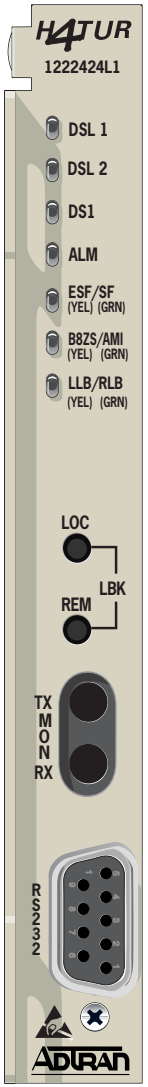
HDSL4 T200 H4TU-R

JOBAID
61222424L1-22B
0304

HDSL4 T200 H4TU-R

CLEI: T1L5HHUC_ _



CAUTION!
SUBJECT TO ELECTROSTATIC DAMAGE OR DECREASE IN RELIABILITY.
HANDLING PRECAUTIONS REQUIRED.

LED STATUS

DSL 1	●	Green	DSL Loop 1 sync, no errors currently detected, and signal margin ≥ 3 dB
	●	Red	No DSL Loop 1 sync, errors being detected, or signal margin < 3 dB
DSL 2	●	Green	DSL Loop 2 sync, no errors currently detected, and signal margin ≥ 3 dB
	●	Red	No DSL Loop 2 sync, errors being detected, or signal margin < 3 dB
DS1	●	Green	DSX-1 signal is present and no errors currently being detected
	●	Red	No DSX-1 signal or signal is present with errors
ALM	○	Off	No active alarm present
	●	Yellow	Loss of DS1 signal to the remote
	●	Red	Loss of DSX-1 signal to the unit
ESF / SF	○	Off	Unit has detected UNFRAMED data
	●	Green	Unit has detected SF data
	●	Yellow	Unit has detected ESF data
B8ZS / AMI	●	Green	Unit has detected AMI data
	●	Yellow	Unit has detected B8ZS coded data
LLB / RLB	○	Off	Unit is NOT in loopback
	●	Yellow	Unit is in loopback (network and/or customer)

OPTIONS

Front Panel Buttons

LOC Initiates a bidirectional loopback of the H4TU-R toward the network and customer
REM Initiates a loopback at the H4TU-C toward the customer

POWER

This specific unit is intended for **Local Power Only**. If a Span Powered unit is needed, refer to P/N 122x426L1.

DS1 MONITOR JACKS

TX DS1 signal from CPE toward Network (nonintrusive)
RX DS1 signal from Network toward CPE (nonintrusive)

COMPLIANCE

Warning: *Up to –200 VDC may be present on telecommunications wiring. Ensure chassis ground is properly connected.*

This product is intended for installation in restricted access locations only and in equipment with a Type "B" or "E" enclosure.

This product meets all requirements of Bellcore GR-1089-CORE (Class A2), ANSI T1.418-2002 and is NRTL listed to the applicable UL standards.

Code	Input	Output
Power Code (PC)	C	C
Telecommunication Code (TC)	X	X
Installation Code (IC)	A	–

CARD EDGE PIN ASSIGNMENTS

1	Chassis Ground
2	
3	
4	
5	DS1 TX Tip
6	
7	HDSL4 Tip (Loop 1)
8	
9	
10	
11	Chassis Ground
12	GND Protection Switching
13	HDSL4 Ring (Loop 1)
14	
15	DS1 TX Ring
16	
17	-48 VDC Return
18	
19	
20	VCC
21	
22	
23	
24	
25	
26	
27	Chassis Ground
28	
29	
30	
31	
32	
33	
34	
35	-48 VDC
36	
37	
38	
39	
40	Protection Switching
41	HDSL4 Tip (Loop 2)
42	
43	
44	
45	
46	
47	HDSL4 Ring (Loop2)
48	
49	DS1 RX Ring
50	
51	
52	
53	
54	
55	DS1 RX Tip

■ For a complete Installation and Maintenance Practice (P/N 61222424L1-5): 877-457-5007, Faxback Document 917. Please have your fax number ready. ■

HDSL4 TROUBLESHOOTING GUIDE

PRICING AND AVAILABILITY 800.827.0807
TECHNICAL SUPPORT 800.726.8663
RETURN FOR REPAIR 256.963.8722
www.adtran.com
61222424L1-22B

ADTRAN HDSL4 equipment is designed with troubleshooting-at-a-glance features. The following information provides suggestions for troubleshooting as a result of LED indications which are indicative of loop trouble.

***Note:** Pressing "ESC" while on any screen will go back to the previous screen.*

INDICATIONS AND POSSIBLE CAUSES

DSL LED Red

Connect a terminal or PC to the RS-232 (DB-9) craft interface on front panel. The terminal must be VT100 or compatible and set for 1.2 to 19.2 kbps, 8 data bits, no parity, 1 stop bit, No Flow control. Select "3" from the ADTRAN HDSL4 Main Menu Screen and "1" from the Span Status Screen. Verify the following conditions on the Detailed HDSL4 and T1 Status Screen:

- Margin ≥ 3 dB
- Loop Attenuation ≤ 35 dB (1st segment)
  Loop Attenuation ≤ 31 dB (2nd segment)
- No ES, SES, or UAS (Performance History Screen, Main Menu Selection 5)

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Circuit ID:                                                  01/07/00 18:18:32
                         Press ESC to return to previous menu

                               Detailed Status Screen

                          LOOP 1                                  LOOP 2
              MARGIN       ATTEN   ESTIMATED      MARGIN       ATTEN   ESTIMATED
Interface  (CUR/MIN/MAX) (CUR/MAX) INS. LOSS   (CUR/MIN/MAX) (CUR/MAX) INS. LOSS
---------  ------------- --------- ---------   ------------- --------- ---------
H4TUC        17/00/17      00/00      00         17/00/17      00/00      00
H4R1 NETW    17/00/17      00/00      00         17/00/17      00/00      00
H4R1 CUST    17/00/17      00/00      00         17/00/17      00/00      00
H4R2 NETW    17/00/17      00/00      00         17/00/17      00/00      00
H4R2 CUST    17/00/17      00/00      00         17/00/17      00/00      00
H4TUR        17/00/17      00/00      00         17/00/17      00/00      00




                               1. Reset Min/Max
                               2. View Performance History
```

If the above conditions do exist, the circuit should provide quality service; however, if any of the above conditions do not exist, a cable problem or excessive loss situation is probable, and more detailed cable testing should be done to verify all HDSL4 Loop Specifications are met. These conditions may also reflect intermittent cable faults or excessive noise impairments. If intermittent faults or noise impairments are suspected, review the Performance History Screen.

HDSL4 DEPLOYMENT GUIDELINES

The first segment of the circuit is defined as the section of the HDSL4 loop between the H4TU-C and the first H4R, the second segment is between the first H4R and the second H4R (dual repeater designs) or between the H4R and the H4TU-R (single repeater designs), and the third segment is between the second H4R and the H4TU-R.

*NOTE: If dual repeaters are used in the circuit, please refer to the "**HDSL4 Deployment Guidelines**" section of the Installation and Maintenance Practice for DC resistance guidelines for span powering.*

- Margin ≥ 3 dB
- Loop Attenuation ≤ 35 dB (1st segment)
  Loop Attenuation ≤ 31 dB (2nd/3rd segment)
- All loops are nonloaded
- Any single bridge tap is limited to 2 kft
- Total bridge tap length is limited to 2.5 kft
- Loop length up to 16 kft (24 AWG) on circuit containing no H4Rs
- Loop length up to 16 kft first segment and 15 kft second segment (24 AWG) on circuit containing one H4R
- For circuits containing two H4Rs, see previous NOTE above.
- First segment (or a circuit containing no H4Rs) Insertion Loss ≤ 46 dB
- Second and third segment Insertion Loss ≤ 42 dB
- Maximum loop resistance is 1150 Ohms for circuits without an H4R.
- Impulse Noise ≤ –38 dBrn as measured using an F-filter
- Wideband Noise ≤ –54 dBrn as measured using an F-filter
- Foreign Voltage DC (t-r, t-g, r-g) < 3 VDC
- Insulation Resistance (t-r, r-g, t-g) > 3.5 M
- Longitudinal Noise (Power Influence) < 80 dBrnC

LOOPBACK AND CONTROL CODES

Pattern	Description	Requires Arming?
1in3	Loop down all units and disarm	No
2in5	Arming Pattern, HTU-R will loop up if Smartjack LB is enabled	No
3in5	Disarm and loop down all units. Restores LB TMO after D5D6	No
1in6	Network Arming Pattern. If Smartjack LB is Enabled, HTU-R will loop toward Network.	No
2in6	H4R LB to Network	No
3in6	H4R LB to Network	No
4in6	H4R LB to Customer	No
5in6	H4R LB to Customer	No
3in7	H4TU-R LB to Network	No
4in7	H4TU-C LB to Network	No
5in7	H4TU-R LB to Customer	No
6in7	H4TU-C LB to Customer	No
3F1E	H4TU-C LB to Customer	No
3F02	H4TU-R LB to Customer	No
3F04	H4R LB to Customer	No
3F06	H4R LB to Customer	No
6767	Disable span powering while present	Yes
9393	Loop down HTU-C, Repeaters - all loopbacks. Loop down H4TU-R - Cust LB always. Will only loop down HTU-R Net LB if NIU is disabled. Does not Disarm units if they are armed.	No
C741	H4R #1 loop up pattern. 10 bit error injection.	Yes
C742	H4TU-R loop up pattern. 20 bit error injection.	Yes
C754	H4R #2 loop up pattern. 200 bit error injection.	Yes
D3D3	H4TU-C loop up pattern. 231 bit error injection.	Yes
D5D5	Query Loopback Pattern (error injection) H4TU-C: 231 Errors, H4R #1: 10 Errors, H4R #2: 200 Errors, H4TU-R: 20 Errors	No
D5D6	Loopback Time Out Override: Disables LB time out. Restores original LB timeout when unit is disarmed.	Yes
FF48	FDL Arming Pattern (ESF only). Arms all units, H4TU-R will LB to Network if NIU Enabled (if pattern sources at network).	No
FF24	FDL Disarm Pattern (ESF only). Loop down and disarm all units	No
FF1E	H4TU-C LB to Network. Will not loop up H4TU-C if H4TU-C already in LB to Customer.	No
FF02	H4TU-R LB to Network. Will not loop up H4TU-R if any unit already in LB to Customer.	No
FF04	H4R LB to Network	No
FF06	H4R LB to Network	No

WARRANTY

ADTRAN will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found at www.adtran.com/warranty. U.S. and Canada customer Faxback: 877-457-5007, Document 414.