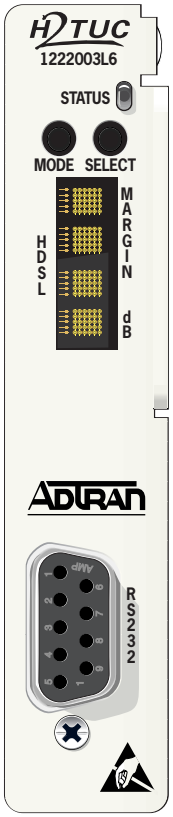
DDM+ H2TU-C

CLEI: T1L3Y1BA_ _



LED STATUS

STATUS	● Green	Synchronization
	✷ Blinking	ES, SES, or BPV occured
	● Amber	Loopbacks active
	✷ Blinking	In-band loopbacks armed
	● Red	Alarm on the HDSL2 loop, DSX, or DS1 interface
	✷ Blinking	Signal Quality of 0 or No Sync on the HDSL2 loop

FOUR-CHARACTER DISPLAY (FCD) OPERATION

MODE Pushbutton
Depress this pushbutton to toggle between the modes listed in the table below.

SELECT Pushbutton
Depress this pushbutton to select an option.

FCD Modes

Mode	Display	Function
Status	STAT	HDSL2 loop margin displays "MARG=xx," where xx=loop margin (0-20); 0-2 marginal signal quality, 3-20 acceptable signal quality
Display Off	Blank	Result after 5 minutes of no activity
View	VIEW	View current parameters without changing
Provisioning	PROV	Set configuration options
Default	DFLT	Sets all factory defaults
Loopback	LPBK	Select and execute HDSL2 circuit loopbacks

Status/Alarm Display ("STAT")

Message	Condition
DSL ERR	CRC error detected on HDSL2 loop
LOC ERR	Frame bit error (SF Mode), Bipolar Violation (BPV), or CRC error (ESF Mode) detected locally at DSX-1 of the H2TU-C
REM ERR	Frame bit error (SF Mode), Bipolar Violation (BPV), or CRC error (ESF Mode) detected remotely at DS-1 of the H2TU-C
DSL LOS	No synchronization of H2TU-C and H2TU-R on the loop
LOC LOS	DSX signal is absent from the network interface
REM LOS	DS1 signal is absent from the network interface
LOC LOF	DSX signal is of a format which does not match the provisioning of the HDSL2 circuit
REM LOF	DS1 signal is of a format which does not match the provisioning of the HDSL2 circuit
ARM	The loopback arming sequence has been detected

Parameter Settings Display ("PROV")

Message	Description	Settings	Default
LBO	Line Buildout	0, 133, 266, 399, 533	0
CODE	Line Code	AMI, B8ZS	B8ZS
FRMG	DSX-1 Framing	AUTO, ESF, SF, UNF, FFFC	AUTO
NELB	New England 1:6 loopback	EN, DIS	DIS
NLBK	NIU Loopback	EN, DIS	EN
LBTO	Loopback Timeout	NONE, 20, 60, 120	120
CLOS	Customer Loss Response	AIS, AISC, LPBK	AISC
LTCH	Latching Loopback	T1, FT1	T1
PRM	Performance Reporting Message	NONE, SPRM, NPRM	NONE
TXLV	DS1 Transmit Level	0 dB, -7.5 dB, -15 dB	-7.5 dB
SPWR	Span Power	EN, DIS	EN

Loopback Options Display ("LPBK")

Select	Loopback State	Loopback Description
HTUC	Net	Network loopback at H2TU-C
	CST	Customer loopback at H2TU-C
	NONE	No active loopback
HTUR	BLB	Bilateral loopback at H2TU-R
	NET	Network loopback at H2TU-R
	CST	Customer loopback at H2TU-R
	NONE	No active loopback

RS-232 DB-9 CONNECTOR

- Used to access performance monitoring data, perform loopbacks and provision units via VT100 emulation software such as Hyper Terminal – Private Edition and ProComm Plus.
- There are two types of terminal emulation modes, Manual and Real-Time. Use "CTRL-T" to toggle between the two modes.

  Manual Emulation Mode: Press the space bar 3 times to manually update the screen. Print screen and log file commands are available in this mode.

  Real-Time Emulation Mode: The default mode. Print screen and log file commands are not available in this mode. Cursor placement and screen highlighting are enabled.
- Provision terminal port as follows:
  Data Rate — 1.2 to 19.2 kbps
  Asynchronous Data Format — eight data bits, no parity (none), one stop bit
- When using a PC with terminal software, be sure to disable any power saving programs.

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

HDSL2 TROUBLESHOOTING GUIDE

PRICING AND AVAILABILITY 800.827.0807
TECHNICAL SUPPORT 800.923.8726
RETURN FOR REPAIR 256.963.8722
www.adtran.com
61222003L1-22B

INDICATIONS AND PROBABLE CAUSES

Front panel or circuit parameters indicate abnormal operation

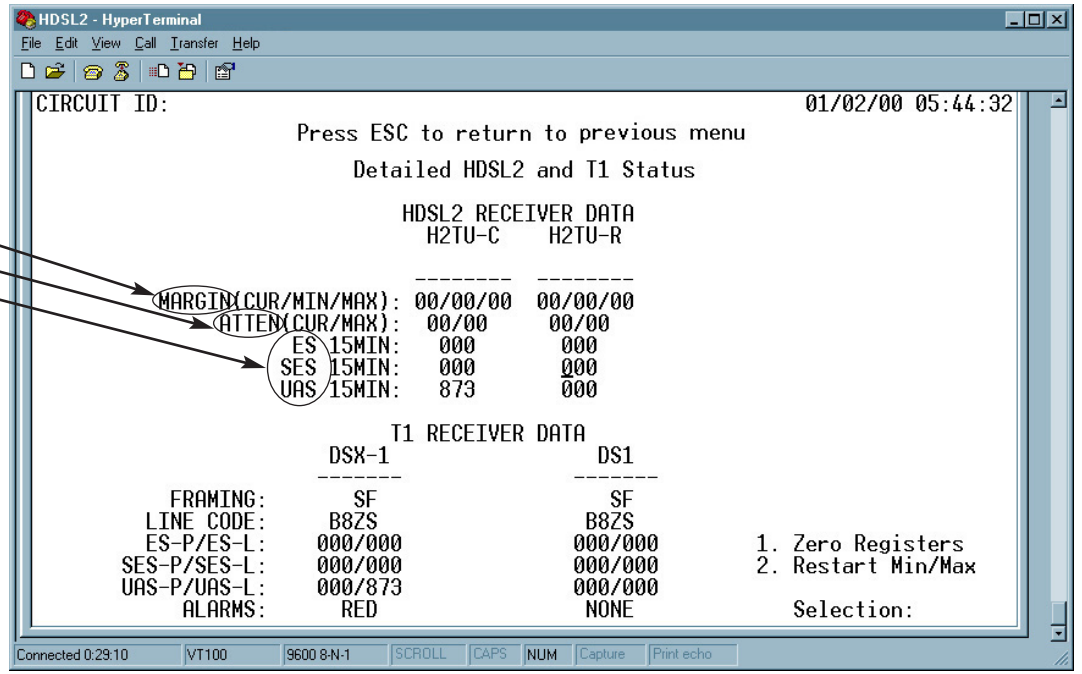
Connect a terminal or PC to the RS-232 (DB-9) craft interface, located on the faceplate. The terminal must be VT100 or compatible and set for 1.2 to 19.2 kbps, 8 data bits, no parity, 1 stop bit, and no flow control. Select "3" from the ADTRAN HDSL2 Main Menu Screen and "2" from the Span Status Screen:

- Is signal margin fluctuating, this would occur when real time mode is active?
- Is ATTEN (pulse attenuation) > 30 dB?
- Are there any errors counting on the ES, SES, or UAS registers?

If the above conditions do not exist, the circuit should provide quality service. However, if any of the above conditions exist, a cable problem or excessive loss situation is probable and more detailed cable testing should be done to verify all HDSL2 Loop Specifications are met. These conditions may also reflect intermittent cable faults or excessive noise impairments. If intermittent faults or noise impairments are suspected, select "5" from the HDSL2 Main Menu to review Performance History Screen.

Front Panel Indications Under Normal Operation

- STATUS LED will be *Green* (solid)
- The four-character display will flash the current loop margin for the HDSL2 loop. After 5 minutes of no activity, the display will turn completely *Off*. It will remain *Off* until MODE or SELECT is activated or a message other than loop margin is to be displayed.



TROUBLESHOOTING GUIDELINES

Troubleshooting Guide

Condition	Solution
All front panel indicators are Off.	1. Verify that -48 VDC power is properly connected to the shelf. 2. Inspect the fuse and verify that it is not blown. 3. Insert the H2TU-C into a slot known to be in good working condition, and check the STATUS indicator. 4. If Steps 1 and 2 pass, but Step 3 fails, replace the H2TU-C.
Status LED is Flashing Red.	Loop has poor signal quality or loss of sync. Basic troubleshooting procedures should identify a problem with the cable pair.
Status LED is Solid Red.	If customer equipment is not installed, initiate an H2TU-R to Network Loopback and perform BERT test. If this test fails, or the craft interface indicates a loss of sync, then there is a potential problem with the cable pair that should be identified through basic troubleshooting procedures.
Status LED is Flashing Green.	Errors are being taken on the DSX, DS1 or HDSL2 loop. The craft interface will identify the source. BERT tests to the appropriate loopbacks should also reveal the source of the problem.

CARD EDGE PINOUT

Pin	Description
101	HDSL2 Tip
102	HDSL2 Ring
109	DSX-1 Rx Tip (Input to H2TU-C)
110	DSX-1 Rx Ring (Input to H2TU-C)
114	DSX-1 Tx Tip (Output from H2TU-C)
115	DSX-1 Tx Ring (Output from H2TU-C)
117	Alarm (to Alarm Module)
118	-48 VDC Return
119	Frame Ground
217	-48 VDC
218, 219	-48 VDC Return

HDSL2 DEPLOYMENT GUIDELINES

- Cable pairs must be non-loaded
- Total bridged tap length < 2.5 kft
- No single bridged tap >2 kft
- 196 kHz insertion loss ≤ 35 dB
- Pulse attenuation (ATTEN on HDSL2 Span Status Screen) ≤ 30 dB
- Maximum loop resistance is 900 Ω
- Impulse noises ≤ 50 dBrn as measured using a 50 kb filter
- Wideband noise ≤ 31 dBrn as measured using a 50 kb filter

For further information regarding deployment guidelines and applications, reference ADTRAN's *Supplemental Deployment Information for HDSL/HDSL2* document, P/N 61221HDSLL1-10.

WARRANTY

Warranty for Carrier Networks products manufactured by ADTRAN and supplied under Buyer's order for use in the U.S. is ten (10) years. For a complete faxback copy of ADTRAN's *U.S. and Canada Carrier Networks Equipment Warranty*: (877) 457-5007, Document #414.

COMPLIANCE CODES

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

Up to -200 VDC may be present on telecommunications wiring. The DSX-1 interface is intended for connection to intra-building wiring only.

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