

HDSL HTU-C

P/N: 1247001L1
CLEI: T113AAHA_



LED STATUS

Label	Status	Description
DSL 1/ DSL 2	○ Off	No sync between the HTU-C and HTU-R on Loop 1/Loop 2
	● Green	Good signal quality on Loop 1/Loop 2. Signal quality is 4 or greater
	● Yellow	Marginal signal quality on Loop 1/Loop 2. Signal quality is between 1 and 3
	● Red	Poor signal quality on Loop 1/Loop 2. Signal quality is 0.
	⊗ Flashing	Error detected on either end of Loop 1/Loop 2; LED color when flashing, matches the color representing the loop's signal quality
	○ Off	DSX signal is absent or is of a format that does not match the provisioning of the HDSL circuit
DSX/ DS1	● Green	DSX signal is present and synchronized with the interface of the HTU-C.
	⊗ Flashing	Bipolar violation (BPV), frame bit error (SF mode) or CRC error (ESF mode) detected on received DSX signal
	○ Off	No alarm conditions exist
ALM	● Yellow	Remote alarm condition detected
	● Red	Alarm condition detected either locally (HTU-C) or locally and remotely (HTU-C and HTU-R)
	○ Off	Unit is receiving unframed
ESF/ SF	● Green	Unit is receiving SF data
	● Yellow	Unit is receiving ESF data
	○ Off	Unit is receiving AMI line code
B8ZS/ AMI	● Yellow	Unit is receiving B8ZS line code
	○ Off	Unit is not armed or in loopback
LBK	● Yellow	Unit is in loopback toward the network
	★ Yellow Flashing	Loopback arming sequence detected and the unit is armed (ready for loopback) but not in loopback

HDSL DEPLOYMENT GUIDELINES

- ◆ Cable pairs must be non-loaded
- ◆ Total bridged tap < 2.5 kft
- ◆ No single bridged tap > 2 kft
- ◆ 196 kHz insertion loss < 35 dB
- ◆ Pulse attenuation (loss on HDSL current system status screen) 30 dB
- ◆ Maximum loop resistance is 800 Ω
- ◆ Impulse noises < 50 dBm as measured using a 50 kHz filter and quiet termination
- ◆ Wideband noise ≤ 31 dBm as measured using a 50 kHz filter and quiet termination

OPTIONS

RS-232 DB-9 Connector

Used to access performance monitoring data, perform loopbacks, and provision units via VT 100 emulation applications, such as HyperTerminal-Private Edition. There are two terminal emulation modes: Manual Update and Real-Time Update. CTRL+T toggles between modes.

Manual Update Mode: Press the spacebar three times to manually update the screen. Print screen and log file commands are available in this mode.

Real-Time Mode: The default mode. Print screen and log file commands not available. Cursor placement and screen highlighting are enabled.

Terminal Port

Provision the terminal port for VT100 as follows:

- ◆ Data Rate = 9.6 kbps, 19.2 kbps
- ◆ Asynchronous Data Format = eight data bits; no parity (none); one stop bit.

When using a PC with terminal emulation software, be sure to disable any power saving programs.

Bantam Jack Access

DSX EQ Splitting jacks provide an *intrusive* test access point to the data stream.

TX T1 transmit toward the local loop

RX T1 receive from the local loop

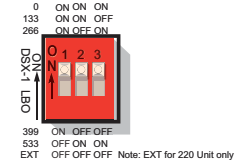
DSX MON Monitoring jacks provide a *nonintrusive* test access point to the data stream.

TX Monitors the data stream being received from the network

RX Monitors the data stream being transmitted to the network

Line Build Out (LBO) Switch

The Line Build Out Switch is located on the Printed Circuit Board and is shown to the right.



COMPLIANCE

Refer to the *HDSL 220 HTU-C Compliance Notice* (P/N 61247001L1-17) for detailed compliance information.

INSTALLATION

After unpacking the unit, inspect it for damage. If damage is noted, file a claim with the carrier and then contact ADTRAN. For more information, refer to the warranty.

TROUBLESHOOTING HDSL

This ADTRAN HDSL unit is equipped with troubleshooting-at-a-glance LEDs that provide customers with a simple means of identifying the location of certain faults.

Additionally, screens available via the craft interface simplify the trouble isolation process. These screens and their associated benefits are described below.

NOTE: Upon connecting, it may be necessary to press the spacebar three times for the screen to display properly.

Current System Status Screen

The Current System Status screen is accessed from the Main Menu and provides quick access to status information for both the HTU-C and the HTU-R. Type H once to view current system status for HRE-1. Type H a second time to view the current system status of HRE-2.

Performance History Screen

The Performance History screen is accessed from the Main Menu and provides Performance information in 15 minute and 24 hour intervals. Type H once to view the Performance History screen for HRE-1. Type H a second time to view the Performance History screen for HRE-2.

Troubleshooting Screen

The Troubleshooting screen is accessed from the Main Menu and graphically depicts a HDSL circuit. The unit reviews red, yellow, and blue alarm conditions in the circuit to automatically predict where a fault is located. Once a fault location is suspected, the corresponding portion of the circuit on the screen is highlighted and a message describing the failure appears.



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



HDSL 220 HTU-C

PRICING AND AVAILABILITY 800.827.0807
TECH SUPPORT 800.726.8663
RETURN FOR REPAIR 256.963.8722
www.adtran.com
61247001L1-22A

PROVISIONING OPTIONS

Setting	Options	Default
DSX-1 Transmit Level	0, 133, 266, 399, 533, EXT	0-133
DSX-1/DS1 Line Code	B8ZS, AMI	B8ZS
DSX-1/DS1 Framing	Auto, UNF, ESF, SF, Forced Conversion	AUTO
NIU Loopback	Enabled, Disabled	Enabled
New England 1:6 LPBK	Enabled, Disabled	Disabled
Loopback Timeout	None, 60 minutes, 120 minutes	120 minutes
Customer Loss Response	AIS, CDI, LPBK	AIS
Latching Loopback Mode	T1, FT1	T1
Performance Reporting Message	NPRM, SPRM, None	None
DS1 Transmit Level	0 dB, -15 dB	0 dB
Span Power	Enabled, Disabled	Enabled
DS0 Blocking	None blocked, Any of 01-24 blocked or unblocked	None blocked

HDSL LOOPBACK CONTROL CODES

Function	Code (Binary/Hex)	Response
Arm (in-band) Source: Network	1100 (2 in 5)	Signal sent in-band. HDSL elements in disarmed state make transition to armed state. Detection of code results in an HTU-R network loopback if New England Loopback (NELB).
Arm (ESF) Source: Network	1111 1111 0010 1000/ FF48	Signal sent over ESF data link. HDSL elements in disarmed state make transition to armed state. Detection of code results in Smartjack loop-up, if NIU loopback is enabled.
Activation (HTU-C) Source: Network	1101 0011 1101 0011/ D3D3	Signal sent in-band. HDSL elements in armed state make transition to loop-up state. The unit injects 231 bit errors every 20 seconds in the data looped to the network equipment. Loop-up state timeout is programmable from the HTU-C.
Activation (HRE #1) Source: Network	1100 0111 0100 0001/ C741	Signal sent in-band. HDSL elements in armed state make transition to loop-up state. HRE-1 injects 10 bit errors every 20 seconds in the data looped to the network equipment. Loop-up state timeout is programmable from the HTU-C.
Activation (HRE #2) Source: Network	1100 0111 0101 0100/ C754	Signal sent in-band. HDSL elements in armed state make transition to loop-up state. HRE-2 injects 200 bit errors every 20 seconds in the data looped to the network equipment. Loop-up state timeout is programmable from the HTU-C.
Activation (HTU-R) Source: Network	1100 0111 0100 0010/ C742	Signal sent in-band. HDSL elements in armed state make transition to loop-up state. Loop-up state timeout is programmable from the HTU-C.
Deactivation (all HDSL elements) Source: Network	1001 0011 1001 0011/ 9393	Signal sent in-band. HDSL elements in loop-up state make transition to armed state.
Disarming (In-band) Source: Network or Customer	1110 (3 in 5)	Signal sent in-band. HDSL elements in any state make transition to disarmed state.

Function	Code (Binary/Hex)	Response
Disarming (ESF)	1111 1111 0010 0100/ FF24	HDSL elements in any state make transition to disarmed state.
Arming Timeout	N/A	Armed units disarm after 2 hours.
Loop-up Timeout	N/A	HDSL elements in loop-up make transition to armed state. Programmable from HTU-C: None, 20, 60, or 120 minutes
Arm Source: Network	100000 (1 in 6)	Signal sent in-band. HDSL elements in disarmed state make transition to armed state. Detection of code results in an HTU-R network loopback if New England Loopback (NELB).
Disarm Source: Network or Customer	100 (1 in 3)	Signal sent in-band. HDSL elements loopdown and transition to disarmed state.
Activation (HTU-C) Source: Network	1111 1111 0001 1110/ FF1E	Signal sent in-band. HTU-C loops back the T1 data to the network equipment.
Activation (HTU-C) Source: Network	1111000 (4 in 7)	Signal sent in-band. HTU-C loops back the T1 data to the network equipment.
Activation (HTU-C) Source: Customer	1111110 (6 in 7)	Signal sent in-band. HTU-C loops back the T1 data to the network equipment.
Activation (HTU-C) Source: Network	0111 1111 0001 1110/ 3F1E	Signal sent in-band. HTU-C loops back the T1 data to the network equipment.
Activation (HTU-R) Source: Network	1111 1111 0000 0010/ FF02	Signal sent in-band. HTU-R loops back the T1 data to the network equipment.
Activation (HTU-R) Source: Network	1110000 (3 in 7)	Signal sent in-band. HTU-R loops back the T1 data to the network equipment.
Activation (HTU-R) Source: Network	1111100 (5 in 7)	Signal sent in-band. HTU-R loops back the T1 data to the network equipment.
Activation (HTU-R) Source: Network	0111 1111 0000 0010/ 3F02	Signal sent in-band. HTU-R loops back the T1 data to the network equipment.
Query (All Elements) Source: Network	1101 0101 1101 0101/ D5D5	Signal sent in-band. Any unit that is in network loopback injects bit errors into the data looped to the network equipment. The element closest to the network that is in loopback injects the errors. <ul style="list-style-type: none"> HTU-C that is in a network loopback injects 231 bit errors every 20 seconds. HTU-R that is in a network loopback injects 20 bit errors every 10 seconds. HRE-1 that is in a network loopback injects 10 bit errors every 20 seconds. HRE-2 that is in a network loopback injects 200 bit errors every 20 seconds.
Disable Loopback Timeout Source: Network	1101 0110 1101 0101/ D5D6	Signal sent in-band. Loopback Timeout is disabled as long as any element is in loopback or armed.
Disable Span Power Source: Network	0110 0111 0110 0111 6767	Signal sent in-band. Span power is disabled until this pattern is removed.

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 online at www.adtran.com/warranty.