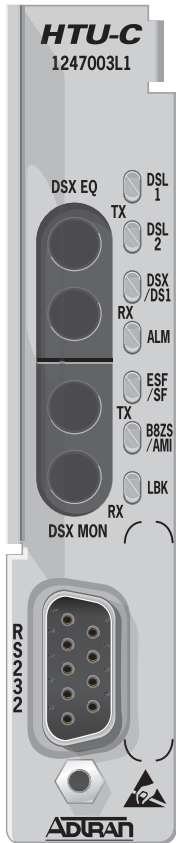


## HDSL DDM+ HTU-C

P/N: 1247003L1  
CLEI: T113AALA\_ \_



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

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### LED STATUS

Label	Status	Description
DSL 1/ DSL 2	<input type="radio"/> Off	No sync between the HTU-C and HTU-R on Loop 1/Loop 2
	<input checked="" type="radio"/> Green	Signal quality is good (4 to 9)
	<input checked="" type="radio"/> Yellow	Signal quality is marginal (1 to 3)
	<input checked="" type="radio"/> Red	Signal quality is poor (0)
	<input checked="" type="radio"/> Flashing	Error at HTU-C or HTU-R; Loop signal quality indicated by color of flashing LED
DSX/ DS1	<input type="radio"/> Off	DSX signal is not detected or is of a format that does not match the provisioning of the HDSL circuit
	<input checked="" type="radio"/> Green	DSX signal is present and synchronized with the HTU-C's interface
	<input checked="" type="radio"/> Flashing	Bipolar violation (BPV), frame bit error (SF mode) or CRC error (ESF mode) detected on received DSX signal
ALM	<input type="radio"/> Off	No alarm conditions exist
	<input checked="" type="radio"/> Yellow	Remote alarm condition (HTU-R) detected
	<input checked="" type="radio"/> Red	Alarm condition detected either locally (HTU-C) or locally and remotely (HTU-C and HTU-R)
ESF/ SF	<input type="radio"/> Off	Unit is receiving unframed
	<input checked="" type="radio"/> Green	Unit is currently receiving SF data
	<input checked="" type="radio"/> Yellow	Unit is currently receiving ESF data
B8ZS/ AMI	<input checked="" type="radio"/> Green	Unit is receiving AMI line code
	<input checked="" type="radio"/> Yellow	Unit is receiving B8ZS line code
LBK	<input type="radio"/> Off	Unit is not armed or in loopback
	<input checked="" type="radio"/> Yellow	Unit is in loopback toward the network.
	<input checked="" type="radio"/> * 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 quite termination
- ◆ Wideband noise ≤ 31 dBm as measured using a 50 kHz filter and quite 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 files 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

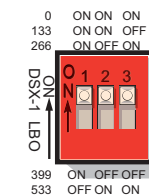
**DSX MON** Monitoring Jacks provide a *nonintrusive* test access point to the data stream.

**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 below.



### COMPLIANCE

Refer to the *HDSL DDM+ Transceiver Unit for Central Office Compliance Notice* (P/N 61247003L1-17) 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. Refer to Warranty.



# HDSL DDM+ Transceiver Unit for Central Office

PRICING AND AVAILABILITY 800.827.0807  
TECH SUPPORT 800.726.8663  
RETURN FOR REPAIR 256.963.8722  
www.adtran.com  
61247003L1-22A

## TROUBLESHOOTING HDSL

This ADTRAN HDSL unit is equipped with troubleshooting-at-a-glance LEDs (identified on the reverse side of this document) 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 will be highlighted and a message describing the failure will appear.

## PROVISIONING OPTIONS

Setting	Options	Default
DSX-1 Line Buildout	0-133 feet ABAM; 133-266; 266-399; 399-533; 533-655	0-133;
DSX-1/DS1 Line Code	B8ZS; AMI	B8ZS
DSX-1/DS1 Framing	Auto; ESF; SF; Unframed; Forced Conversion	Auto
NIU Loopback	Enabled; Disabled	Enabled
New England 1:6 LPBK	Disabled; Enabled	Disabled
Loopback Timeout	None; 60 Min.; 120 Min.	120 Min.
Customer Loss Response	AIS; CDI; Loopback	AIS
Latching Loopback Mode	T1; FTI	T1
PRM Mode	None; NPRM; SPRM	None
DS1 TX Level	0 db; -15 db	0 db
HTUC Shelf Alarm	Enabled; Disabled	Disabled
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 Source: Network	100000 (1 in 6)	Signal sent in-band. HDSL elements in disarmed state transition to armed state. Detection of the code results in an HTUR network loopback if New England Loopback (NELB) is enabled.
Disarm Source: Network or Customer	100 (1in3)	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 (4in7)	Signal sent in-band. HTU-C loops back the T1 data to the network equipment.
Activation (HTU-C) Source: Customer	1111110 (6in7)	Signal sent in-band. HTU-C loops back the T1 data to the customer equipment.
Activation (HTU-C) Source: Customer	0111 1111 0001 1110/ 3F1E	Signal sent in-band. HTU-C loops back the T1 data to the customer 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 (3in7)	Signal sent in-band. HTU-R loops back the T1 data to the network equipment.
Activation (HTU-R) Source: Customer	1111100 (5in7)	Signal sent in-band. HTU-R loops back the T1 data to the customer equipment.
Activation (HTU-R) Source: Customer	0111 1111 0000 0010/ 3F02	Signal sent in-band. HTU-R loops back the T1 data to the customer equipment.
Activation (HTU-R) Source: Network or Customer	1100 0111 0100 0011/ C742	Signal sent in-band. HTU-R loops back the T1 data to the source direction. Sends 20 bit errors every 10 seconds.
Activation (HRE-1) Source: Network or Customer	1100 0111 0100 0001/ C741	Signal sent in-band. HRE-1 loops back the T1 data to the source direction. Sends 10 bit errors every 20 seconds.
Activation (HRE-2) Source: Network or Customer	1100 0111 0101 0100/ C754	Signal sent in-band. HRE-2 loops back the T1 data to the source direction. Sends 200 bit errors every 20 seconds.
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"> <li>HTU-C that is in a network loopback injects 231 bit errors every 20 seconds.</li> <li>HTU-R that is in a network loopback injects 20 bit errors every 10 seconds.</li> <li>HRE-1 that is in a network loopback injects 10 bit errors every 20 seconds.</li> <li>HRE-2 that is in a network loopback injects 200 bit errors every 20 seconds.</li> </ul>
Disable Loopback Timeout Source: Network	11010110 11010101/ D5D6	Signal sent in-band. Loopback Timeout is disabled as long as any element is in loopback or armed.
Disable Span Power Source: Network	01101111 01101111/ 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](http://www.adtran.com/warranty).