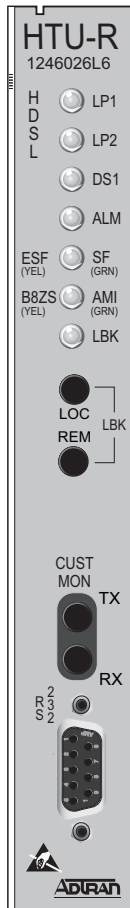


HDSL T200 HTU-R

P/N: 1246026L6
CLEI: T1L4EJ9C__



FRONT PANEL LEDES

- LP1/LP2** Off..... No synchronization
 Red..... Poor signal quality
 Yellow..... Marginal signal quality
 Green..... Good signal quality
 * Flashing Error detected at HTU-C or HTU-R
- DS1** Off..... DS1 signal not detected from customer or is of a format not matching the HDSL circuit provisioning
 Green..... DS1 signal is present and synchronized
 * Flashing BPV / frame error (SF) / CRC error (ESF) detected
- ALM** Off..... No alarm condition detected
 Red..... Local alarm condition (HTU-R) detected
 Yellow..... remote alarm condition (HTU-C) detected
- ESF/SF** Off..... Unframed mode
 Yellow..... ESF framing
 Green..... SF framing
- B8ZS/SF** Yellow..... DS1 optioned for B8ZS
 Green..... DS1 optioned for AMI
- LBK** Off..... Not in loopback or armed state
 * Flashing Armed only (ready for loopback)
 Yellow..... Active local loopback at the HTU-R

COMPLIANCE CODES

The T200 HDSL Remote Unit (HTU-R) complies with the requirements covered under UL 1459, third edition. It is intended to be installed in a type “B” or “E” enclosure in restricted access locations only.

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

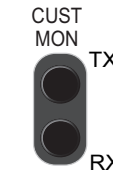
LOOPBACK FUNCTIONS

- REM** Toggles HTU-C loopback toward customer
LOC Toggles bidirectional loopback at the HTU-R

CIRCUIT BOARD JUMPER - P1

This jumper, labeled P1 on the printed circuit board, is used to set the DS1 TX Level toward the customer. Options are 0 dB or -15 dB.

MONITOR BANTAM JACKS



The jacks labeled **CUST MON** provide non-intrusive access points for monitoring the transmit and receive signals at the DS1 interface.

- TX** Monitors signal being received from customer equipment
RX Monitors signal being transmitted to customer equipment

RS-232 DB-9 CONNECTOR



The DB-9 connector labeled **RS 232** provides access to the HDSL utilities menu tree from a dumb terminal or a PC utilizing VT100 emulation software such as Hyperterminal or ProComm Plus.

Set the emulation software as follows:

- ◆ Date Rate should be 1.2 kbps to 19.2 kbps
- ◆ Asynchronous data format should be as follows:
 - ◆ 8 data bits
 - ◆ no parity (none)
 - ◆ 1 stop bit
 - ◆ no flow control
- ◆ Power saving applications on the PC should be disabled.

FRONT PANEL INDICATIONS UNDER NORMAL OPERATION

- LP1/LP2** Green
DS1 Green
ALM Off
LBK Off

CIRCUIT PARAMETERS UNDER NORMAL OPERATION

- ◆ LOSS < 30dB
- ◆ Signal quality of 6 or higher, with no fluctuation and equal on both loops
- ◆ All HDSL Deployment Guidelines are met (refer to next section)



INDICATIONS AND PROBABLE CAUSES

Follow this procedure when front panel LED indicators or circuit parameters indicate abnormal operation:

1. Connect a terminal emulator via the **RS-232** (DB9) craft interface on the HTU-R front panel.
2. Press the spacebar three times to establish communication with the unit.
3. Select "M" from the ADTRAN Screen.
4. Select "1" from the HDSL main menu.

Verify the following conditions on the Current System Status Screen:

- ◆ Is signal quality fluctuating (graphical meter indicators bouncing up and down)?
- ◆ Is LOSS (pulse attenuation) > 30dB?
- ◆ Are there any errors counting on the ES, SES or UAS registers?
- ◆ If signal quality is NOT fluctuating, is it equal on both loops?
- ◆ Is the current signal quality indication (uppermost "x" on the meter) more than 1dB below the MAX?
- ◆ Is the current LOSS reading more than 1dB below the MAX?

If any of these conditions exist, a cable trouble is probable and cable testing should be done to verify all HDSL Deployment Guidelines are met. These conditions may also reflect intermittent cable faults or excessive noise impairments.

If intermittent faults or noise impairments are suspected, select "2" from the HDSL main menu and review the Performance History Screen.

If all of the above conditions are met, including the HDSL Deployment Guidelines, the circuit should provide quality service and can be released.

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) ≤30dB
- ◆ Maximum loop resistance is 800 Ω
- ◆ Impulse noise ≤50 dBrn as measured using a 50 kb filter
- ◆ Wideband noise ≤31 dBrn as measured using a 50 kb filter

```

CIRCUIT ID: xxxx                                02/03/99 00:07:57
LOOP #1 <NETWORK> LOOP #2                       CURRENT SYSTEM STATUS LOOP #1 <CUSTOMER> LOOP #2
----- HTU-C -----                               ----- HTU-R -----
28(28) dB      28(28) dB <- LOSS CUR(MAX) ->      28(28) dB      28(28) dB
YES            YES      <- SYNC ->                YES            YES
001/00001     001/00001 <- ES 15M/24H ->         001/00001     000/00000
000/00000     000/00000 <- SES 15M/24H ->        000/00000     000/00000
000/00000     000/00000 <- UAS 15M/24H ->        000/00000     000/00000
LOOPBACKS INACTIVE                               LOOPBACKS INACTIVE

HTU-C SIGNAL QUALITY      DSX-1      DS1      HTU-R SIGNAL QUALITY
MIN[X]  9  [X]MIN ----- MIN[X]  9  [X]MIN
[X]L  8  L[X]      ESF <- FRAME ->      ESF      [X]L  8  L[X]
[X]O  7  O[X]      B8ZS <- CODE ->      B8ZS      [X]O  7  O[X]
[X]O  6  O[X]      0-133 <- LBO ->      0 DB      [X]O  6  O[X]
[X]P  5  P[X]      N/A <- NIU ->      YES      [X]P  5  P[X]
[X]  4  [X]      00000 <- BPV ->      00001      [X]  4  [X]
[X]1  3  2[X]      00000 <- ES ->      00001      [X]1  3  2[X]
[X]  2  [X]      00000 <- SES ->      00000      [X]  2  [X]
[X]  1  [X]      00000 <- UAS ->      00000      [X]  1  [X]
[X]  0  [X]      NONE <- ALARMS ->      NONE      [X]  0  [X]

SEALING CURRENT PRESENT
Press "Z" to zero registers, "X" to restart MIN/MAX, "M" for Main Menu
"H" for HDSL Range Extender #1 (HRE) View.
    
```