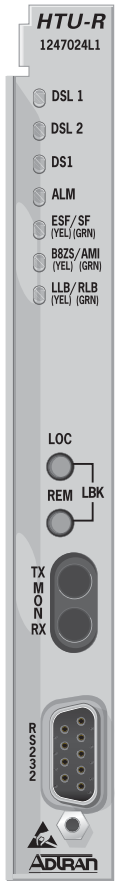
HDSL

T200 HTU-R, Local Powered, 60 mA

JOBAID
61247024L1-22B
0807

HDSL
T200 HTU-R LP
P/N: 1247024L1
CLEI: T1I3AAUA _ _



61247024L1-22B

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

FRONT PANEL LEDS

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 (4 to 9)
	●	Yellow	Marginal signal quality on (1 to 3)
	●	Red	Poor signal quality on (0)
	☼	Flashing	Error detected on either end of loop 1/loop 2, LED color represents loop signal quality, as shown above
DS1	○	Off	DS1 signal is absent or is of a format that does not match the provisioning of the HDSL circuit
	●	Green	DS1 signal is present and synchronized with the HTU-C interface
	☼	Flashing	Bipolar violation (BPV), frame bit error (SF mode) or CRC error (ESF mode) detected
ALM	○	Off	No alarm conditions exist
	●	Yellow	Remote alarm condition detected (HTU-C)
	●	Red	Local alarm condition (HTU-R) detected
ESF/ SF	○	Off	Unframed mode
	●	Green	Unit is receiving SF data
	●	Yellow	Unit is receiving ESF data
B8ZS/ AMI	●	Green	T200 HTU-R LP is provisioned for AMI line coding
	●	Yellow	T200 HTU-R LP is provisioned for B8ZS line coding
LLB/ RLB	○	Off	Not in loopback or armed state
	●	Green	Active remote bidirectional loopback from the HTU-C toward the customer and the network
	●	Yellow	Active local bidirectional loopback from the HTU-R toward the customer and the network
	✷	Yellow Flashing	Unit armed but not in a active 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
- Wideband noise ≤ 31 dBm as Measured using a 50 kHz filter

FRONT PANEL PUSHBUTTONS

LOC LBK: Press the **LOC LBK** pushbutton to initiate a bi-directional loopback of the HTU-R towards the network and customer.

REM LBK: Press the **REM LBK** pushbutton to initiate a loopback to the HTU-C from the HTU-R.

BANTAM JACK ACCESS

MON: Monitoring Jacks provide a *nonintrusive* test access point to the data stream as follows:

TX: Monitors the data stream being received from the network.

RX: Monitors the data stream being transmitted to the network.

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 Updates 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 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.

OPTION JUMPER

P3 sets the DS1 NIU 60 mA Current Setting as follows:

- Off disables the 60 mA constant current source for the DS1 NIU.
- On enables the 60 mA constant current source for the DS1 NIU.

POWER REQUIREMENTS

The T200 HTU-R LP is locally powered via –48 V.

COMPLIANCE

Refer to the *HDSL T200 HTU-R, Local Powered, 60 mA Compliance Notice* (P/N 61247024L1-17) for detailed compliance information.

For more information, refer to the Installation and Maintenance Practice (P/N 61247024L1-5) available online at www.adtran.com.

T200 HTU-R, Local Powered, 60 mA

PRICING AND AVAILABILITY 800.827.0807
TECH SUPPORT 800.726.8663
RETURN FOR REPAIR 256.963.8722
www.adtran.com
61247024L1-22B

INSTALLATION AND TURN UP

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.

NOTE: This unit can be provisioned via the RS-232 port or remotely via inband codes.

1. Set the option jumper according to the specific circuit design.
2. Install the HTU-C and HTU-R.
3. The **DSL1/DSL2** LED should be green on the HTU-C and HTU-R. The **DSX** LED should be green on the HTU-C and the **DS1** LED should be green on the HTU-R. The **ALM** LED on both units should be dark.
   - HTU-C displays **LLOS** if not connected to network (no DSX present; LED red).
   - HTU-R has red **ALM** LED if customer not connected. LP1, LP2, line coding (B8ZS or AMI) and framing (ESF or SF) (if not UNFR) LEDs should light.
4. If the **Status** LED is green, do the following:
   - Verify that the signal quality is the same on each loop. Ensure signal quality indicators do not fluctuate.
   - Verify that the loop loss is within design limits. If there is a difference of more than 1 dB between the two loops, a problem exists with the cable pairs.
   - If errors occur, use the Current System Status and Performance History screens to determine where they are occurring. For more information, refer to the "Troubleshooting" section below.
5. If everything checks out, proceed with BERT testing.

TROUBLESHOOTING

The HTU-C ALM LED is yellow, but no errors are indicated by the HTU-R:

- A BPV, Frame error (SF) or CRC error (ESF) was detected at the DSX-1 interface. This indicates a possible network or wiring problem between the HTU-C and the DSX. This does not indicate problems on the HDSL loops.

The HTU-R DS1 LED is flashing, but the HTU-C indicates no errors:

- A BPV, Frame Error (SF) or CRC Error (ESF) was detected at the DS1 interface. This indicates a wiring problem, or a B8ZS/AMI mismatch between the HTU-R and the customer equipment. This does not indicate problems on the HDSL loops.

The HTU-R has power, but the DSL 1/DSL 2 LEDs are dark. The unit cannot sync with HTU-C:

- Simplex power for powering the HTU-R can be passed over cable pairs that contain load coils or that are too long for HDSL synchronization. Using a TIMS, verify the circuit is within design limits.
- The HTU-R will power up if there is at least one good conductor on each loop. To test, remove the protector plug at the MDF and measure t-r resistance to the HTU-R on both loops. The HTU-R places a 3-ohm short between t-r on both loops. An extremely high impedance indicates an open conductor. An extremely low reading on one loop may indicate a t-r short in the field. In the field, measure t-t and t-r voltage with the HTU-C installed and compare to the t-t voltage chart. The absence of these voltages indicates open pairs or mis-wiring. As with other circuits, use standard resistance measurements between each conductor and ground to test for a grounded conductor.
- A high resistance open that degrades to where it causes the circuit to lose sync can be "resealed" by reseating the HTU-C. Test the cable pairs before reseating the HTU-C.

Running excessive errors on the loop:

- Measure t-r resistance (refer to above). If the pairs are unbalanced by more than 4 ohms, or a measurement varies significantly, this could indicate a high resistance open or an intermittent fault on the loop with the higher measurement. A TDR is typically required to locate this splice for repair.
- Excessively long bridged taps can also cause errors. Check the records and/or use a TDR to verify the location and length of bridged taps.
- Using the Performance History screen, it is often possible to see that many more errors are being received on a particular loop or at a particular unit. The fault will typically be very close to the unit receiving the most errors.

No power at the HTU-R:

- This could be caused by a loop with two open conductors. Measure t-r resistance from the MDF to the HTU-R or use the voltage chart to see which pair is open.

CIRCUIT PARAMETERS UNDER NORMAL OPERATION

- LOSS ≤ 30 dB
- Signal quality ≥ 4 (**DSL1/DSL2** LEDs green), with no fluctuation and equal on both loops
- All HDSL Deployment Guidelines are met

PROVISIONING OPTIONS

Setting	Options	Default
DSX 1 LBO	0–133 feet ABAM; 133–266; 266–399; 399–533; 533–655; EXT (1)	0-133 feet ABAM
DSX-1/DS1 Line Code	B8ZS; AMI	B8ZS
DSX-1/DS1 Framing	AUTO; UNF: Forced Conversion ESF; SF	AUTO
NIU Loopback	Enabled; Disabled	Enabled
New England 1:6 LPBK	Enabled; Disabled	Disabled
Loopback Timeout	NONE; 60 MIN; 120 MIN	120 MIN
Customer Loss Response	AIS; CDI; LPBK	AIS
Latching Loopback Mode	T1; FT1	T1
Performance Reporting Message	NPRM; SPRM; NONE; AUTO	AUTO
DS1 TX LVL	0 dB; –7.5 dB; –15 dB	0 dB
Shelf Alarm (2)	Enabled; Disabled	Disabled
Span Power (3)	Enabled; Disabled	Enabled

1. External option only available when using 220 HTU-C (P/N 1247001Lx). It is the default setting when used with this form factor.
2. Shelf Alarm only available when using DDM+ or 3192 HTU-C (P/N 124x003Lx or 124x004Lx).
3. Span Power is an option that is only valid for the HTU-C and will not display on the HTU-R user interface.