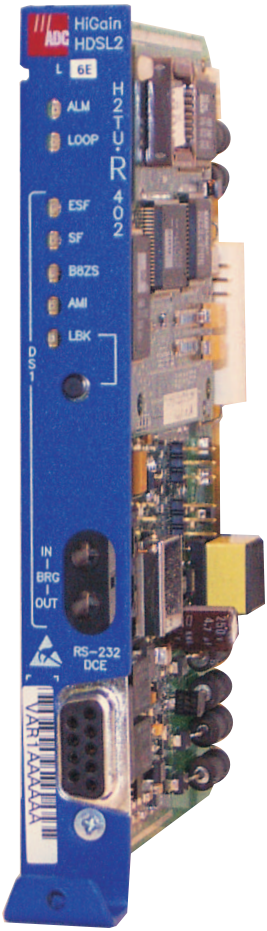
HiGain

QUICK INSTALLATION



H2TU-R-402 LIST 6E
REMOTE UNIT

THE H2TU-R-402 LIST 6E

The H2TU-R-402 List 6E (H2TU-R) functions as the remote end of a repeaterless T1 transmission system when connected to a HiGain® HDSL2 line unit (H2TU-C). Setting new standards for interoperability and efficiency, HiGain HDSL2 modules transmit 1.544 Mbps T1 payload on one unconditioned copper pair over the full Carrier Service Area (CSA) range.

FEATURES

Front panel: status LEDs, craft port for maintenance screen access, and LBK pushbutton for activating loopback commands

Maintenance screens for inventory, provisioning, performance monitoring, troubleshooting, including:

- Remote provisioning and PM data retrieval through TL1 FDL or 11-bit inband commands
- Loop attenuation and insertion loss reporting
- Test signal generator
- Power Back Off (PBON and PBOC) for configuring HDSL2 transmit power to reduce crosstalk
- Payload retrieval of margin and pulse attenuation parameters (DBDB)
- Performance Report Messaging (SPRM, NPRM, and AUTO)

Power: local or line

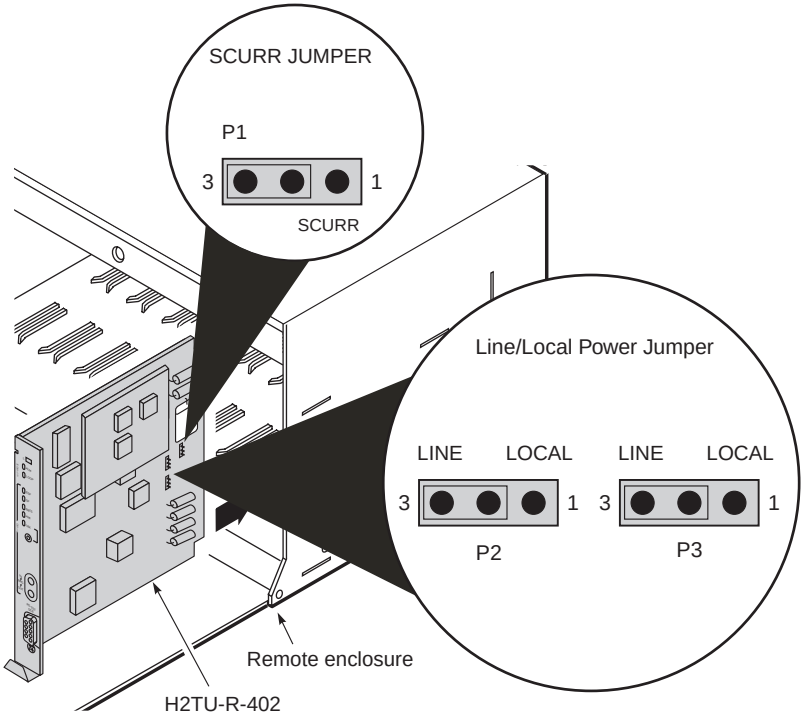
Sealing current option

Metallic loopback self-tests

SPECIFICATIONS

Operating Temperature	-40°F to +149°F (-40°C to + 65°C)
Operating Humidity	5% to 95% non-condensing
Line or Local Power Consumption	5 Watts
Electrical Protection	Secondary surge and power cross-protection on all DS1 and HDSL2 ports
Mounting	Any 400 or 200 mechanics shelf
HDSL2 Line Rate	1.552 Mbps Overlapped Pulse Amplitude Modulated Transmission with Interlocking Spectra (OPTIS)
HDSL2 Output	+16.5 dBm ±0.5 dBm, 135Ω
DS1 Pulse Output	0 dB, -7.5 dB, -15 dB
Maximum Provisioning Loss	35 dB at 196 KHz, 135Ω
DS1 Line Rate	1.544 Mbps ±200 bps
DS1 Line Format	Alternate Mark Inversion (AMI) or Bipolar with 8-zero Substitution (B8ZS)
DS1 Frame Format	Extended SuperFrame (ESF), SuperFrame (SF), or Unframed (UNFR)

1 INSTALLATION



Wear an antistatic wrist strap when installing the H2TU-R. Avoid touching components on the circuit board.

1 Configure the H2TU-R for line or local power, as follows:

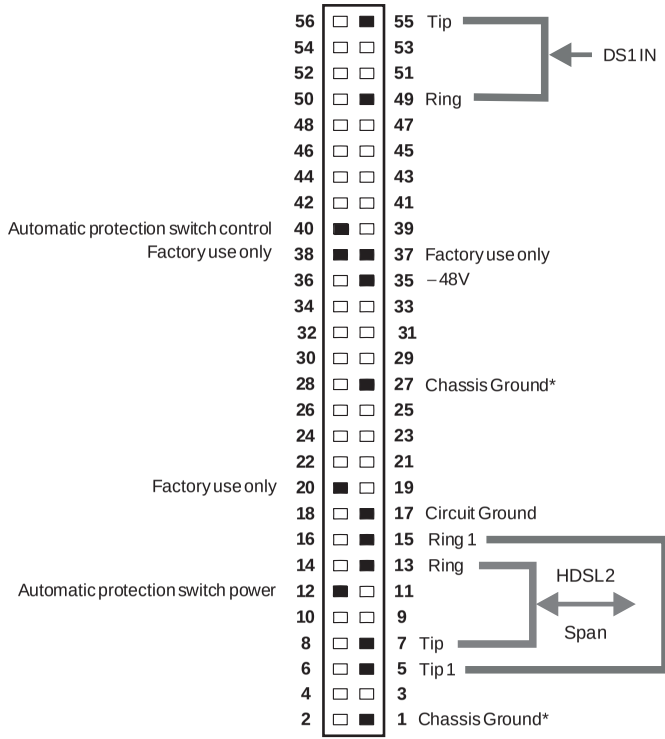
- For line power, place a jumper on pins 2 and 3 of P2 and P3.
- For local power, place a jumper on pins 1and 2 of P2 and P3.

2 Check the setting of the SCURR jumper (P1). The default setting is disabled (jumper on pins 2 and 3). If the H2TU-R is locally powered and your application requires sealing current, place a jumper on pins 1 and 2.

3 Align the H2TU-R with the enclosure slot guides and slide the unit in. Push the unit back until it touches the backplane card-edge connector.

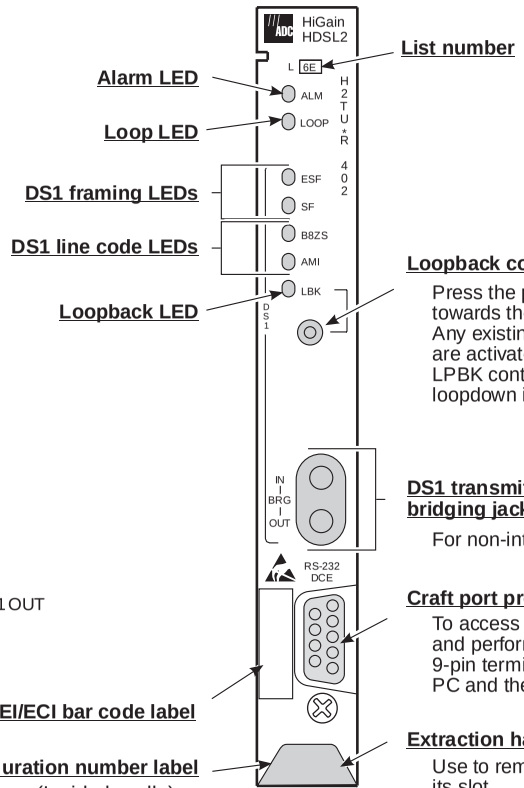
4 Place your thumbs on the front panel and push the H2TU-R into the card-edge connector.

Continued



Active pins are highlighted in black.

* Chassis Ground must be tied to Earth Ground or network ground according to local practice.



List number

Alarm LED

Loop LED

DS1 framing LEDs

DS1 line code LEDs

Loopback LED

Loopback control pushbutton

Press the pushbutton for 5 seconds to activate a loopback towards the network and the customer (NREM and CLOC). Any existing loopback is terminated before these loopbacks are activated. The unit can be looped down by pressing the LPBK control pushbutton again for 5 seconds, by the standard loopdown inband messages, or by the maintenance terminal.

DS1 transmit (IN) and receive (OUT) bridging jacks

For non-intrusive test access.

Craft port provisioning

To access all system maintenance, provisioning and performance screens, connect a standard 9-pin terminal cable between the serial port on a PC and the H2TU-R craft port.

CLEI/ECI bar code label

Configuration number label
(Inside handle)

Extraction handle

Use to remove the H2TU-R-402 from its slot.

Maintenance Terminal Modem Settings

- 9600 baud
- 8 data bits
- No parity
- 1 stop bit
- Hardware flow control: OFF
- Terminal emulation: VT100

2 VERIFICATION

Once the H2TU-R is installed, verify that it is operating properly by monitoring the Status LEDs on the front panel.

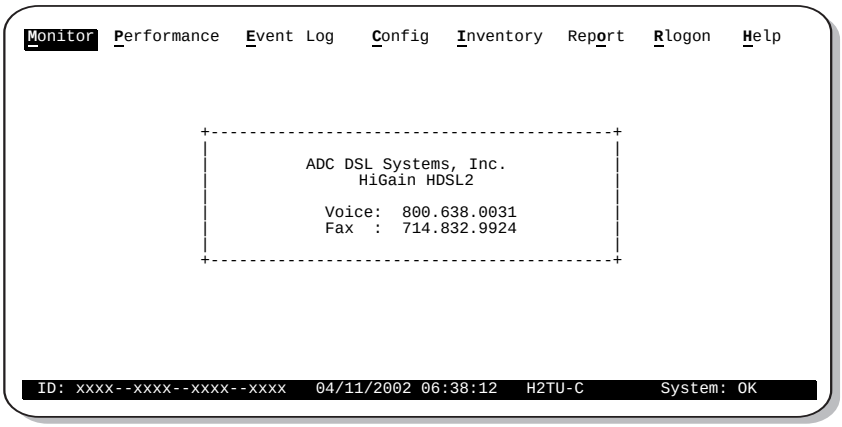
Status LED Descriptions

LED/Status	Function
ALM	
OFF	Normal operation: the DSX-1 signal present at both H2TU-R and H2TU-C.
Solid red	RLOS present at the H2TU-C.
Flashing red once per second	LLOS present at the H2TU-C.
Loop	
OFF	No activity on the HDSL2 loop.
Solid green	Normal operation: all HDSL2 spans are synchronized.
Flashing green once per second	HDSL2 loop synchronization attempt.
Flashing green 4 times per second	HBER, MARG, or PWR alarm present at the H2TU-C.
Flashing green 10 times per seconds	CRC error present on the HDSL2 loop.
ESF/SF	
OFF	Unframed DS1 present at the H2TU-R, unit set as unframed, or no DS1 detected at the H2TU-R.
Solid yellow	ESF formatting present at the H2TU-R.
Flashing yellow once per second	ESF formatting and frame present at the H2TU-R.
Solid green	SF formatting present at the H2TU-R.
Flashing green once per second	SF formatting and frame present at the H2TU-R.
B8ZS/AMI	
OFF	HDSL2 span is not synchronized.
Solid yellow	B8ZS is present at the H2TU-C.
Flashing yellow once per second	B8ZS and excess zeros string present at the H2TU-C.
Solid green	AMI and BPV present at the H2TU-C.
Flashing green once per second	AMI and excess zeros string present at the H2TU-C.
LBK	
OFF	H2TU-C is not ARMed or in loopback.
Solid yellow	H2TU-C is in either NREM, SMJK, or TLOS.
Flashing yellow once per second	H2TU-C is in CLOC.
Flashing yellow 4 times per second	System is ARMed.

3 LOGGING ON TO THE MAIN MENU

The H2TU-R supports local and remote logon through a maintenance terminal (ASCII terminal or a PC running terminal emulation software) connected to the craft port on the H2TU-R front panel.

Logging on creates menus and screens for the H2TU-R that are replications of those viewed at the H2TU-C. Once logged on, you can view system settings and inventory, initiate loopbacks, monitor performance, and configure the circuit.



To log on using a maintenance terminal:

1 Press CTRL + R to refresh the Logon screen, if necessary.

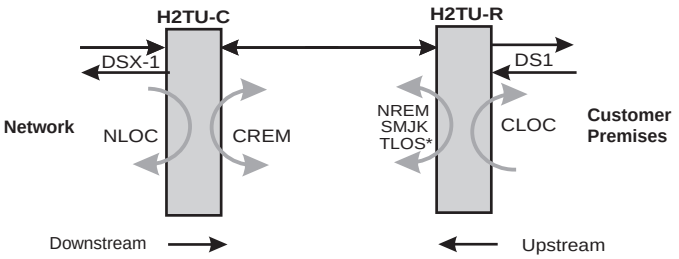
2 Press the first letter of the desired menu. Use the SPACEBAR to cycle through menu selections, and press ENTER to change a setting or display a menu.

Type the first letter	To view:
Monitor	A graphical representation of circuit activity and devices.
Performance	Performance history statistics (current, 25-hour, 48-hour, 31-day, and blockage indicator) at DS1 and HDSL interfaces. Also, displays alarm status and count.
Event log	Sectionalized Event History for alarms and errors at all four legs of the DS1 signal at the H2TU-R.
Config	Configuration options (standard, ADC, signal generation, date and time, master clear, factory defaults).
Inventory	Product information, circuit and unit identifications.
Rlogon	Maintenance terminal screens at the H2TU-C.
Help	Glossary, screen navigation keys, ADC contact information.
Report	Downloading status and performance monitoring data to file.

For more information about the HiGain HDSL2 maintenance screens, refer to the user manual of the H2TU-C line unit. Copies of user manuals can be downloaded from the ADC website at www.adc.com. To order a hard copy, please contact your sales representative.

4 LOOPBACK TESTING

Initiate loopbacks with the H2TU-R LBK pushbutton, the H2TU-C front-panel display, the maintenance terminal monitor screen, or with inband codes. The inband codes shown below can be sent by a test set. For more information, refer to the user manual for the H2TU-C line unit.



* When enabled, TLOS is an automatic loopback that occurs with an LOS at the remote DS1 input.

GNLB Loopback Commands

Loopback	Inband Code	Description
NLOC	1111000	DSX-1 signal is looped back to the network at the H2TU-C.
NREM	1110000	DSX-1 signal is looped back to the network at the H2TU-R.
SMJK	11000	DSX-1 signal is looped back to the network at the H2TU-R SmartJack module.
CREM	1111110	Signal from customer is looped back to the customer at the H2TU-C.
CLOC	1111100	Signal from customer is looped back to the customer at the H2TU-R.
Loopdown	11100	Deactivates any of the above loopbacks.

FCC Class A Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Limited Warranty

Product warranty is determined by your service agreement. Contact your sales representative or Customer Service for details.

Modifications

Any changes or modifications made to this device that are not expressly approved by ADC DSL Systems, Inc. voids the user's warranty.

All wiring external to the products should follow the provisions of the current edition of the National Electrical Code.

Standards Compliance

This equipment has been tested and verified to comply with the applicable sections of the following safety standards:

- GR 63-CORE - Network Equipment-Building System (NEBS) Requirements
- GR 1089-CORE - Electromagnetic Compatibility and Electrical Safety
- Binational standard, UL-60950/CSA C22.2 No. 60950-00: Safety of Information Technology Equipment.

Trademark Information

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