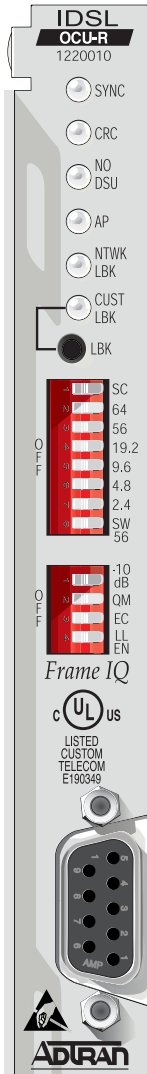


IDSL OCU-R

CLEI: NCT1TX2B_



STATUS LEDs

SYNC	● GREEN	Loop synchronized.
	● RED	Loop not synchronized.
CRC	● ON	Errors on 2-wire loop.
NO DSU	● ON	Customer DSU/CSU not responding/installed.
AP	● ON	Remotely provisioned option set in effect.
	★ FLASHING	Remote control link active.
	○ OFF	DIP switch option set in effect.
NTWK LBK	● ON	OCU loopback toward network exists.
	★ FLASHING	Channel loopback at CSU exists.
CUST LBK	● ON	IDSL OCU-R in loopback toward customer.
	★ FLASHING	Loopback toward the customer at the ADTRAN U-BR1TE.

NOTE: All LEDs OFF indicates loss of power or other malfunction.

FRONT PANEL OPTION FEATURES

FRONT PANEL LBK PUSHBUTTON SW2

Loopback pushbutton SW2 initiates loopback tests without CO or test center coordination. Refer to LBK Pushbutton in *Testing* section. Depressing the LBK pushbutton for five seconds will toggle between hardware and software option settings. The AP LED provides indication.

FRONT PANEL DIP SWITCH SW4

SC	ON	Enables secondary channel when 56k or below data rate is selected.
64	ON	Selects 64 kbps data rate (SC must be set to OFF).
56	ON	Selects 56 kbps data rate.
19.2	ON	Selects 19.2 kbps data rate.
9.6	ON	Selects 9.6 kbps data rate.
4.8	ON	Selects 4.8 kbps data rate.
2.4	ON	Selects 2.4 kbps data rate.
SW56	ON	Selects switched 56 data rate (SC must be set to OFF).

FRONT PANEL DIP SWITCH SW1

-10 dB	ON	Selects -10 dB AMI signal across 4-wire interface to customer. (Typical installation)
	OFF	Selects 0 dB AMI signal across 4-wire interface to customer. (Extended demarcation installation)
QM	ON	Enables Quality Monitoring. Excessive errors will cause automatic blockage of data.
	OFF	Quality Monitoring disabled.
EC	ON	Enables Error Correction, valid only at 19.2 kbps or lower.
	OFF	Error Correction disabled.
LLEN	ON	Enables response to latching loopbacks.
	OFF	Disables response to latching loopbacks.

FRONT PANEL DB-9 CONNECTOR

Provides an RS-232 interface for connection to a VT100 or compatible terminal or test device.

COMPATIBLE HOUSINGS

Any standard T400/T200 housing, or these ADTRAN housings:

Span Power Applications

- Single mount housing, P/N 1212007L1
- Dual mount housing, P/N 1212008L1

CAUTION: On span-powered units, ensure ground continuity exists between the unit, the housing, and a known approved ground source.

Local Power Applications

- Single mount housing, P/N 1212007L2

DEPLOYMENT GUIDELINES

- All loops must be non-loaded.
- Actual Measured Loss not to exceed 40 dB at 40 kHz, 135 Ω termination, the Nyquist frequency of IDSL.
- Recommended bridged tap length should not exceed 2 kft.

INSTALLATION & TURNUP

1. Select desired options with front panel DIP switches SW1 and SW4.
 2. Insert the IDSL OCU-R into its designated slot ensuring the edge connector seats firmly into the backplane.
 3. After insertion the IDSL OCU-R will run a self-test and synchronization phase during which all LEDs undergo an On/Off sequence. Refer to *Status LEDs* section for descriptions.
 4. After synchronization, which may take up to 50 seconds, the following LED indication will show:
 - SYNC LED - Green.
 - All other LEDs will be Off until network occurrences cause them to turn On.
- If LEDs in step 4 are as noted, proceed with loop testing per specifications. If LEDs in step 4 are in any other configuration, refer to *Troubleshooting Guide* section.

CAUTION: This product is intended for installation in a restricted access location in a Type "B" or "E" enclosure only.

Max input current @ max load = 32 mA @ -48 VDC with an output of 6 mA @ 10 VDC.

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

WIRING CONNECTIONS

Pair	Terminal Strip Designations	T400 PIN Number	Customer RJ-48
To/From Network	TT, TR	41, 47	-
To Customer	DRT, DRR	5, 15	7, 8
From Customer	DTR, DTT	49, 55	1, 2
Frame Ground	GND	11, 27	-
Local -48 Vdc	GND	17	-
Local -48 Vdc	PWR	35	-

HARDWARE VERSUS SOFTWARE PROVISIONING

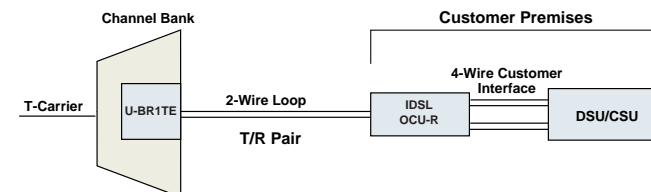
When SW1 and SW4 are used for option selection the options take effect when the card is inserted in the mounting. Subsequent software provisioning will override hardware options. Depressing the LBK pushbutton for five seconds will toggle between the two option sets.

INSERTION LOSS MEASUREMENTS

IDSL Design Limits at Traditional 4-Wire Frequencies.

Customer Rate	4-Wire Qualifying Frequency (kHz)	IDSL Loss Limit (dB)
2.4	1.2	14
2.4/SC	1.6	14.5
4.8	2.4	16
4.8/SC	3.2	17
9.6	4.8	19
9.6/SC	6.4	20.5
19.2	9.6	24
19.2/SC	12.8	27
56	28.0	35
56/SC & 64	36.0	36

TYPICAL APPLICATION



DUAL POWER CAPABILITY

The T200 IDSL OCU-R can be powered from either -48 VDC provided locally, or by -120 VDC from an ADTRAN U-BR1TE-With-Power circuit card.

CONTROL PORT OPERATION

The front panel DB-9 provides an RS-232 interface for a VT100 or compatible controlling terminal. The terminal interface operates at data rates from 1.2 to 19.2 kbps, asynchronous, 8 data bits, no parity, and one stop bit. Terminal sessions provide access to screen menus for the following:

- Provisioning.
- Testing.
- Performance Monitoring.

Upon terminal connection, press space bar three times to access screens. Directions on the screens guide craft personnel through the various menus.

NOTE: When conducting a Terminal Session, always select VT100 mode prior to making the craft connection.

TROUBLESHOOTING GUIDE

No Power at the IDSL OCU-R

- Check local or span power available to the IDSL OCU-R.
 - Span power: Remove IDSL OCU-R. Measure T/R voltage at the T200 mounting (Tip to Ring = -118 VDC to -122 VDC).
 - If power unavailable at OCU-R, check span powering at U-BR1TE.
 - U-BR1TE span power: Tip to GND = -118 to -122 VDC, Tip to Ring = -118 to -122 VDC, Ring to GND = 0.
 - Local power: Check for -48 VDC across pins 17 and 35 on mounting.
- If local or span power is available a faulty IDSL OCU-R is indicated.
- If span power is required but not available, check POWER option on U-BR1TE.

Sync LED On Red

- No synchronization indicates lack of continuity between IDSL OCU-R and the ADTRAN U-BR1TE. Check continuity of the 2-wire loop (Tip pin 41, Ring pin 47).
- Verify all deployment guidelines are adhered to.
- Relocate the IDSL OCU-R to splice points sequentially closer to the ADTRAN U-BR1TE to isolate suspect cable sections.

Excessive Errors On Loop

- Check cable does not exceed 2 kft bridged tap.
- Ensure loop length is within deployment guidelines.
- Compare resistance of individual conductors. If different, high-resistance or intermittent opens are indicated. A TDR is commonly used to find such faults.

Trouble Codes

The IDSL OCU-R transmits an ASC (9Eh) trouble code toward the network from the customer premises for the following 4-wire loop faults:

- 4-wire customer interface loss of signal.
- Invalid 4-wire interface framing (may be due to mismatched IDSL OCU-R and DSU/CSU data rates).
- Open loop on 4-wire customer interface.
- The ADTRAN U-BR1TE transmits an MOS (9Ah) trouble code toward the network for similar 2-wire loop faults.
- ASC (9Eh) is transmitted to the network in B1 during loopback conditions initiated by the IDSL OCU-R.

Remote Access

The IDSL OCU-R responds to or supports the following:

- ADTRAN Digital System 6 Message Protocol.
- TPI 108/109 and 105 portable test sets.
- Hekimian React 2001 Release 1.900.
- ANSI Standard T1.107-1995 "Digital Hierarchy Format Specifications Annex G."

TESTING

For test purposes the IDSL OCU-R supports the following loopbacks and applications:

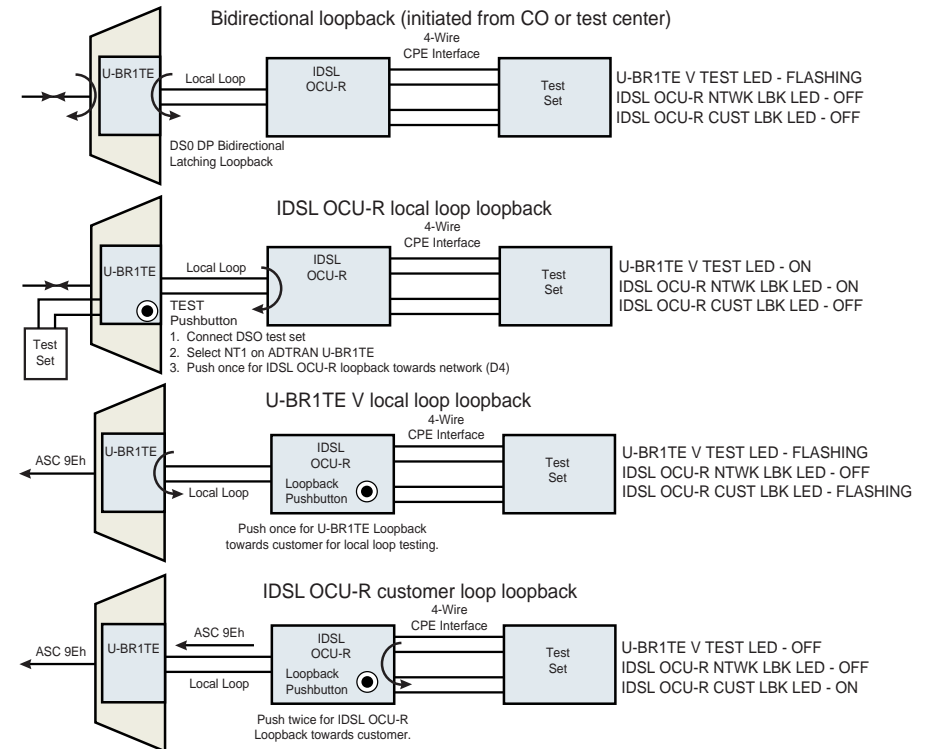
- OCU latching and non-latching loopbacks.
- Bidirectional loopback.
- Remote end initiated loopbacks from ADTRAN U-BR1TE and IDSL OCU-R.
- CSU latching and non-latching loopbacks (the IDSL OCU-R provides sealing current reversal when CSU loopback detected).
- Loopback tests may also be initiated via the craft interface by selecting "Loopbacks" from the main menu.

LBK & Pushbutton Tests (U-BR1TE must be ADTRAN for Loopback Response from OCU-R.)

The following tests are initiated by the IDSL OCU-R LBK pushbutton:

- Press once. This loops the U-BR1TE toward the IDSL OCU-R.
- Press a second time. This loops the IDSL OCU-R toward the 4-wire customer interface.
- Pressing the LBK pushbutton a third time or while a loopback is active, disables all loopbacks.
- Depressing the LBK pushbutton for five seconds will toggle between local and remote provisioning.

Successful loopback tests initiated by the TEST/LBK pushbuttons will show the LED indications listed and will transmit the trouble codes shown. (Applicable to D4 U-BR1TE.)



WARRANTY

Warranty for Carrier Networks products manufactured by ADTRAN and supplied under Buyer's order for use in the U.S. is ten (10) years. For a complete faxback copy of ADTRAN's U.S. and Canada Carrier Networks Equipment Warranty, call (877) 457-5007, Document #414.