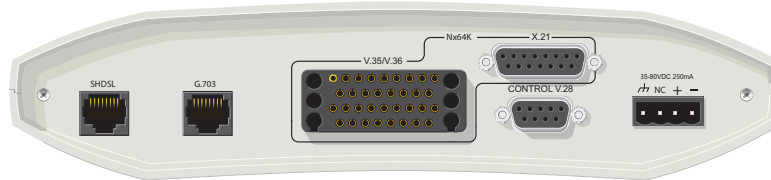


6540 Front Panel



6540 Rear Panel

DESCRIPTION

The DC Powered 6540 SHDSL 2/Wire/4-Wire NTU (P/N 1230002E1) functions as an interface between the SHDSL network and the Data Terminal Equipment (DTE).

The 6540 supports applications such as LAN-to-LAN bridging, Frame Relay circuit, and PABX termination.

The 6540 is designed to be used as either a remote unit to the ADTRAN Total Access® 3000 multiservice platform, or as a pair of units in a point-to-point limited distance campus configuration, with one 6540 configured to "LT" mode.

FEATURES

The 6540 has the following features:

- Housed in a standalone plastic case
- Provides four front panel recessed pushbuttons and eight front panel LED indicators
- Provides rear panel SHDSL, G.703 and/or Nx64K ports, and a local management port
- Provides a rear panel connection for local DC power
- Provides bad splice protection using the ADTRAN proprietary Runtime TScan™ 2.0 splice protection feature (for more information on this feature and how to locally manage TScan, refer to the *SHDSL 2-Wire/4-Wire NTU Product Series Installation and Maintenance Guide*, P/N 61230001E1-5)

LED INDICATORS

Label	Status	Description
SHDSL	○ Off	Unit is powered off
	● Green	Port is trained; no active alarms
	● Yellow	Port is trained with a minor active alarm ⁽¹⁾
	● Red	Port is attempting to or is trained with a major alarm ⁽²⁾

Label	Status	Description
G.703	○ Off	Port is not active
	● Green	Active Port with no active alarm
	● Yellow	Active Port with a minor alarm ⁽³⁾
	● Red	Active Port with a major alarm ⁽⁴⁾
NX64K	○ Off	Port is not active
	● Green	Active Port with no active alarm
	● Red	Active Port with an active alarm condition ⁽⁵⁾
RTS/C	○ Off	Nx64K port is not active or when active, V.35/V.36 "Request To Send" or X.21 "Control" line from the DTE is off
	● Green	V.35/V.36 "Request To Send" or X.21 "Control" line from the DTE is on
RLSD/I	○ Off	Nx64K port is inactive or when active, V.35/V.36 "Receive Line Signal Detector" and X.21 "Indication" control line from the NTU is off.
	● Green	V.35/V.36 "Receive Line Signal Detector" or X.21 "Indication" control line from the NTU (DCE) is on
LLOOP	○ Off	Local Loop is not active
	● Yellow	Active Local Loopback on the selected port
	● Red	Active Local Loop on one or more ports or services (when no port is selected)
RLOOP	○ Off	Remote Loop is not active
	● Yellow	Active Remote Loopback on the selected port (when determined via established EOC)
	● Red	Active Remote Loop on one or more ports or services (when no port is selected)
BERT	○ Off	BERT is not active
	● Green	Active BERT and the test pattern detector is synchronized with no received bit errors
	● Yellow	Active BERT and one or more test pattern bit errors have been received
	● Red	Active BERT but the test pattern detector is not synchronized

1. Minor SHDSL port alarms: CRC errors, Loop Attenuation Threshold Alarm, SNR Margin Threshold Alarm, Segment Anomaly, and any ES, SES, UAS, CVC, and LOSWS 15-Minute Threshold Alarm
2. Major SHDSL port alarms: LOS, LOSW, or Segment Defect
3. Minor G.703 port alarms: Rx RAI, Frame Slip, CRC-4 errors, LBER, and any ES, SES, UAS, and CVC 15-Minute Threshold Alarm
4. Major G.703 port alarms: LOS, LOF, LOMF, Rx AIS, or HBER
5. Nx64K port alarms: Clock Slip, Loss of External Clock, FIFO Underflow/Overflow, and Inactivity Alarm

PUSH BUTTONS

Push Button	Description
PORT SELECT	Press the PORT SELECT button to select the active port. Selection choices cycle through the following order: No Port, Nx64k, G.703, SHDSL.
LOCAL LOOP/ERR INJ	If a port is selected, and a Bit Error Rate Test (BERT) is not in progress, press the LOCAL LOOP/ERR INJ button to initiate or terminate a local loop on the selected port. If a BERT is in progress, press the button to inject a single bit error.
REMOTE LOOP	If the SHDSL port is selected, press the REMOTE LOOP button to place or remove a remote loop on the port by sending a EOC request message to the LTU (or NTU in campus mode). If the Nx64K port or G.703 port (with only one service defined) is selected, press this button to place or remove a remote loop on the selected port's single data service by sending respective inband loop up or loop down patterns to the far end (in the associated data service timeslots).
BERT	If a port is selected and there are no local loops, press the BERT button to start or stop a BERT on the selected port.

MAINTENANCE

The 6540 does not require routine hardware maintenance for normal operation. Do not attempt repairs in the field. Repair services may be obtained by returning the defective unit to ADTRAN. Refer to the warranty for further information. Field support for software is provided through upgrade facilities.

SPECIFICATIONS

Specifications for the 6540 are as follows:

- Electrical
 - ◆ Operating Voltage: -48 VDC
 - ◆ Typical Current and Power Consumption: 120 mA, 5.7 W @ -48 VDC
 - ◆ Maximum Current Draw: 200 mA @ 35 – 80 VDC
 - ◆ Maximum Power Consumption: 6.5 watts @ 35 VDC
- Environmental
 - ◆ Operational Temperature Range: -5°C to +55°C
 - ◆ Storage Temperature Range: -40°C to +85°C
 - ◆ Relative Humidity: up to 95%, noncondensing
- Physical
 - ◆ Height: 2.215 inches (5.63 cm)
 - ◆ Width: 9.25 inches (23.5 cm)
 - ◆ Depth: 6.625 inches (16.8 cm)
 - ◆ Weight: Less than 1 pound (0.45 kg)

INDUSTRY STANDARDS COMPLIANCE

The SHDSL 2-Wire/4-Wire NTU interfaces adhere to these industry standards, either partially or in full:

- SHDSL: ITU-T G.991.2 (12/03 and 2003 amendments) and G.994.1 (05/03)
- G.703: ITU-T G.703 (10/98), G.704 (10/98), G.706 (4/91), G.732 (11/88), G.775 (10/98), G.784 (1/94), G.797 (3/96), G.821 (8/96), G.823 (03/93), and G.826 (2/99)
- Nx64K: ITU-T X.21 (09/92), V.35 (10/84), and V.36 (11/88); and ISO 2593 (1984), 4903 (1991), and 4902 (1980)

SAFETY AND REGULATORY COMPLIANCE

Refer to the Safety and Regulatory Compliance Notice for this product (P/N 61230002E1-17) for detailed safety and regulatory information.

Consultez l'avis sur la sécurité et la conformité à la réglementation pour ce produit (61230002E1-17) pour obtenir des renseignements détaillés sur la sécurité et la réglementation.

Ausführliche Sicherheits- und regulatorische Informationen sind in der Konformitätserklärung zur Sicherheit und Einhaltung von Normen zu diesem Produkt (61230002E1-17) aufgeführt.

MENU TREE

1. Unit Information	1. LTU	1. Unit Mode	1. NT
	2. NTU	2. Cross-Connect Map	2. LT
2. Provisioning	1. Unit Options	3. Clock Source	1. Internal Clock
	2. SHDSL Options	4. Circuit ID	2. Nx64 ETIC(113)X
	1. Interface Mode	5. Date and Time	3. CVC Clock
	2. Payload Rate (Kbps) *	6. Restore Factory Defaults	4. SHDSL RX Clock
	3. SNR Margin Alarm Threshold (dB)	7. Upgrade Firmware	1. Disabled
	4. Loop Attenuation Alarm Threshold (dB)	9. Change Password	2. Enabled
	5. Outage Auto-Retrain	1. Interface Type Auto Detection	1. Disabled
	6. PM Thresholds	2. Interface Type Manual Select	2. Enabled
	1. ES 15-Minute Alarm Threshold	3. Inactivity Alarm Delay (Secs)	1. X.21
	2. SES 15-Minute Alarm Threshold	4. Tx Clock Source	2. V.35
	3. UAS 15-Minute Alarm Threshold	5. Tx Clock Polarity	3. V.36
	4. CVC 15-Minute Alarm Threshold	6. X.21 C Mode	0. Disabled
	5. LOS/V.S. 15-Minute Alarm Threshold	7. X.21 I Mode	1. From DCE, TC (Circuit 114)
	6. OS 15-Minute Alarm Threshold	8. V.35V.36 RTS (Circuit 105)	2. From DTE, ETC (Circuit 113)
3. G.703 Options	1. ISDN-PRA V3	9. V.35V.36 RTS (Circuit 106)	1. Normal
	2. G.704 CRC-4 Multiframe	10. V.35V.36 RTS to CTS Delay (ms)	2. Inverted
	3. Timeslot Idle Pattern	11. V.35V.36 DSR (Circuit 107)	3. Auto
	4. Spare Bits Insertion to Span	12. V.35V.36 DTR (Circuit 108/2)	1. Permanent On
	5. Spare Bits Pattern to Span	13. CVC 15-Minute Alarm Threshold	2. DTE Driven
	6. Spare Bits Insertion	1. Dual Sided	1. Permanent On
	7. Spare Bits Pattern	2. Transparent	2. Permanent Off
	8. RAI Generation	3. Nontransparent	3. Sync Mode
	9. E-bit Generation	1. In-band Loopback Protocol	
	10. ES 15-Minute Alarm Threshold	2. Inband Loopback Options	1. PN127
	11. SES 15-Minute Alarm Threshold	1. Disabled	2. V.54
	12. UAS 15-Minute Alarm Threshold	2. Enabled	1. Disabled
	13. CVC 15-Minute Alarm Threshold	3. Nx64k In-band Pattern Detection	1. Disabled
4. Nx64k Options	1. Loopback Types	0. Disabled	2. Enabled
	2. Transparent	1. ALT	
	3. Nontransparent	2. 2047	
5. Test Options	1. In-band Loopback Protocol	3. 2E15-1	
	2. G.703 Services In-band Pattern Detection	4. ORSS	
	3. Nx64k In-band Pattern Detection	1. Normal	
	0. Disabled	2. Inverted	
	1-199. Time Out in Minutes	3. Pushbuttons (All)	
	1. ALT	1. Disabled	
	2. 2047	2. Enabled	
	3. 2E15-1	1. Permanent Off	
	4. ORSS	2. DTE Driven	
3. Status	5. BERT Pattern Polarity	1. Permanent On	
	1. SHDSL Port	2. Test Driven	
	2. G.703 Port	1. SHDSL Local Loopback	
	3. G.703 Services	2. SHDSL Remote Loopback	
	4. Nx64k Port	3. SHDSL BERT	
	5. Reset All Status	4. G.703 Local Loopback	
		5. G.703 BERT	
		6. G.703 Services	
		1. Local Loopback	
		2. Remote Inband Loopback	
		3. BERT	
4. Test	10. V.35V.36 TI (Circuit 142)	7. Nx64k Local Loopback	
		8. Nx64k Remote Inband Loopback	
		9. Nx64k BERT	
5. Performance History	1. SHDSL Port		
	2. G.703 Port		
	3. Reset All		
6. TSCAN	1. Restart Bad Splice Detector		
	2. 24 Hour Counts		
	Local Management		
	Remote Virtual Terminal Management		
7. Terminal Mode			

* 2-wire mode: 192 kbps to 2.304 Mbps (N x 64 kbps, where N=3 to 36)
 4-wire mode: 384 kbps to 4.608 Mbps (N x 64 kbps, where N=seven numbers, 6 to 72)



For more information, refer to the Installation and Maintenance Guide (P/N 61230001E1-5) available online at www.adtran.com.

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.

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