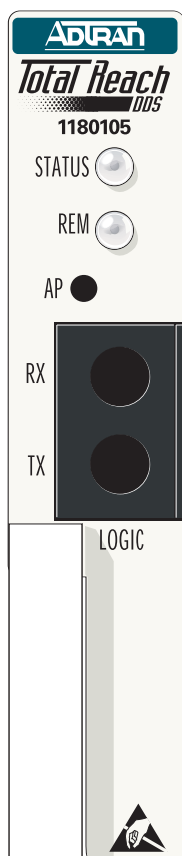


DESCRIPTION



The Total Access 1500 Total Reach DDS-DP delivers data at rates up to 64 kbps using a single copper pair. Used in combination with the Total Reach DDS-R termination unit, the Total Reach DDS-DP can accommodate extended loop lengths, eliminating the need for DDS repeaters. The features supported on the TR DDS-DP are as follows:

Features

- ◆ All standard rates to 56 kbps with or without secondary channel.
- ◆ 64 kbps clear channel
- ◆ 2-wire deployment
- ◆ Repeaterless operation
- ◆ Bridged tap tolerant
- ◆ Span power for remote DDS-R termination unit
- ◆ Utilization in all Total Access 1500 remote terminal applications
- ◆ Logic level test access; nonintrusive receive monitoring capability
- ◆ Loop Quality Monitor and A/B signaling options
- ◆ Embedded Digital System 6 capabilities for remote provisioning, configuration, and performance monitoring
- ◆ Provisioning via DB-9 craft interface on Total Access 1500 System Controller Unit (SCU)
- ◆ Bidirectional loopback during local DS0 latching loopback

- ◆ Protected loopback eliminates false latching loopback occurrences
- ◆ Supports DDS latching loopback standard T1E1.2/99-007R1 Front Panel Pushbutton

The Total Reach DDS-DP span powers the remote DDS-R located at the customer premises. The DDS-R converts the 2-wire signal to the traditional 4-wire Alternate Mark Inversion (AMI) signal for presentation to the customer.

The Total Reach DDS-DP occupies a single channel position in the Total Access 1500 chassis. It provides the interface between a DS0 time slot of the T-carrier data stream, and the 2-wire metallic loop extending to the customer premises. The Total Reach DDS-DP will interoperate over the carrier system with another Total Reach DDS-DP, OCU DP, DS0 DP, 1/0 DCS, or switch and can be located in an end office, hub office, intermediate office, or Digital Loop Typographical Conventions Carrier. The 2-wire loop is connected using the Tip (pin 15) and the Ring (pin 35) on the Total Access 1500 backplane.

INSTALLATION

Before installation, inspect the TR DDS-DP. If damage has occurred during shipping, file a claim with the carrier, and then contact ADTRAN Customer Support. For more information, refer to "Warranty."

Remove the Access Module Blank (1175099L1) from the appropriate slot of the Total Access 1500 chassis, if present.

The Total Reach DDS-DP plugs directly into a Total Access 1500 shelf. No special wiring is required. The 2-wire loop uses the T/R (Tip and Ring) pair, pins 15 and 35, of the Total Access 1500 backplane.

When the TR DDS-DP first powers up it performs self-tests. Once the power up self-tests are complete, the status LEDs will reflect the true state of the hardware.

Front Panel LEDs

LED	Condition	Description
STATUS	○ Off	Power is Off
	● Green	Normal Operating Condition
	● Yellow	Loopback is active at DDS - SP
	● Red	Indicates one of three conditions: <ul style="list-style-type: none"> ◆ Loss of sealing current ◆ Loss of, or no synchronization ◆ Poor signal quality
REM	○ Off	Power is off
	● Green	Remote Provisioning in effect
	★ Green Flashing	D-6 control link established

Bantam Jacks

NEAR and FAR logic level bantam test access jacks. These test points are intrusive into the data stream.

NOTE

These jacks are for TPI 108/109, FIREBERD 6000, or other DS0 level test set.

Remote Unit Span Power

The TR DDS-DP span powers the remote unit by providing -130 VDC measured from Tip to Ring. Voltage measured from Tip to GND should be -130 VDC or less depending on voltmeter impedance. Voltage from Ring to GND should indicate approximately 0 VDC.

TESTING

The Total Reach DDS-DP is equipped with logic level bantam test access jacks that permit testing in both directions using a portable test set. A bidirectional loopback is executed when performing an OCU loopback at the Total Reach DDS-DP, during which the DDS-R enables test data to pass through the 4-wire interface to the customer site. A loopback may also be initiated in response to the loopback pushbutton on the remote unit.

SYNCHRONIZATION

The Total Reach DDS-DP and DDS-R typically require 30 to 90 seconds to achieve synchronization. Once achieved, the Status LED will turn ON green. If synchronization cannot be achieved, check the T/R pair for open-circuit or short-circuit conditions or load coils.

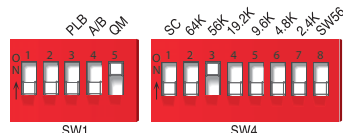
PROVISIONING

Remote access to provisioning and status information is accomplished using either ADTRAN Digital System 6 Message protocol or through the craft interface on the Total Access 1500 SCU.

All configuration options can be remotely viewed or provisioned. The front panel Remote (REM) LED indicator remains ON after remote provisioning is accomplished. If the unit has been remotely provisioned, the operator can alternate between remote configuration and manual switch settings by pressing the momentary Alternate Provisioning (AP) switch located on the front panel.

Circuit Board Switches – SW1 and SW4

Select the appropriate Options and Rate using circuit board switches SW1 and SW4.



Protected Loopback (SW1-3)

- With this switch ON, the unit prevents false latching loopbacks when the loopback sequence is embedded in customer payload data.

A/B Signaling (SW1-4)

- This switch is typically OFF to allow the unit to search for frames containing signaling bits. (Only applicable for SW56 applications.)

Quality Monitor (SW1-5)

- TR DDS-DP monitors incoming 2-wire loop and 4-wire customer interface data for errors. Customer transmit data may be blocked if errors are excessive.

Rate Selection (SW4)

- Select only one rate. More than one, or none, defaults to 56 kbps without secondary channel. If either SW56 or 64 kbps is selected, the secondary channel (SC) switch should not be selected.

Deployment Guidelines

- All loops must be nonloaded.
- Actual Measured Loss (AML) should not exceed 50 dB at 13.3 kHz (135 ohm termination), the Nyquist frequency of Total Reach DDS.
- Loop length should not exceed 50 kft.
- Product is designed to be bridged tap (BT) tolerant. ADTRAN allows for 12 kft of BT, although further testing has shown no degradation up to 18 kft of BT.
- Background noise level should not exceed 34 dBrn.
- Impulse noise should not exceed -40 dBm (+50 dBm).
- Maximum cable lengths (6 dB margin still available) 50 kft of 22 gauge, 36 kft of 24 gauge, 27 kft of 26 gauge.

Cable Type and Temperature Loss Data @ 13.3 kHz

Plastic Cable	dB Loss/kft	Paper Cable	dB Loss/kft
19 Gauge PIC (0°F)	0.5302	19 Gauge PULP (0°F)	0.5616
19 Gauge PIC (70°F)	0.6083	19 Gauge PULP (70°F)	0.6415
19 Gauge PIC (120°F)	0.6610	19 Gauge PULP (120°F)	0.6955
22 Gauge PIC (0°F)	0.912	22 Gauge PULP (0°F)	0.9454
22 Gauge PIC (70°F)	1.0258	22 Gauge PULP (70°F)	1.0606
22 Gauge PIC (120°F)	1.1015	22 Gauge PULP (120°F)	1.1370
24 Gauge PIC (0°F)	1.2571	24 Gauge PULP (0°F)	1.2900
24 Gauge PIC (70°F)	1.3982	24 Gauge PULP (70°F)	1.4324
24 Gauge PIC (120°F)	1.4917	24 Gauge PULP (120°F)	1.5268
26 Gauge PIC (0°F)	1.6751	26 Gauge PULP (0°F)	1.6823
26 Gauge PIC (70°F)	1.8469	26 Gauge PULP (70°F)	1.8568
26 Gauge PIC (120°F)	1.9608	26 Gauge PULP (120°F)	1.9718

WIRING CONNECTIONS

Pair	Terminal Designations	TR PIN#
Tip	T	15
Ring	R	35

MAINTENANCE

The TR DDS-DP does not require routine hardware maintenance for normal operation. ADTRAN does not recommend that repairs be attempted 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 TR DDS-DP are as follows:

- Electrical
 - Maximum Input power: 0.070 Amps maximum @ -48VDC
 - Maximum Heat Dissipation: 2.0 watts
- Physical
 - Height: 3.125 inches
 - Width: 0.62 inches
 - Depth: 10.1 inches
 - Weight : < 1 pound
- Environmental
 - Operational Temperature Range: -40°C to +65°C
 - Storage Temperature Range: -40°C to +70°C
 - Relative Humidity: up to 95%, noncondensing

SAFETY AND REGULATORY COMPLIANCE

This product complies with UL 1950, third edition. It is intended to be installed in a Type B or E enclosure and in Restricted Access Locations only. Input current at maximum load is 1 A and maximum output at overcurrent condition is 160 mA at -188 VDC.

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

For more information, refer to the Installation and Maintenance Practice (P/N 61180105L1-5) 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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