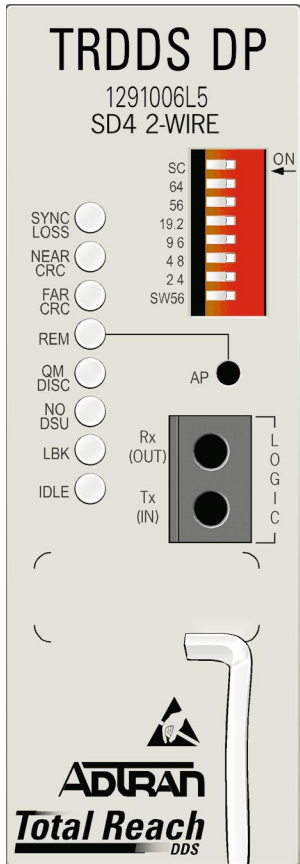


## TRDDS DP

CLEI:D4D3MI0DAA

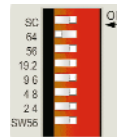


### STATUS LEDs

- SYNC LOSS**
  - OFF Synchronization
  - RED No synchronization
- NEAR CRC**  RED CRC errors on incoming data stream
- FAR CRC**  RED CRC errors towards the TRDDS-R
- REM**
  - GREEN Unit has been remotely provisioned
  - \* FLASHING Unit has been activated to receive remote provisioning
- QM DISC**  RED Customer transmit signal has been disabled due to errors on the loop
- NO DSU**  YELLOW Customer DSU/CSU is absent as determined by the TRDDS-R
- LBK**  YELLOW DS0 or OCU loopback activated
- IDLE**  YELLOW Presence of the control mode idle toward the network

### FACEPLATE SWITCHES

- Toggles between remote configurations and manual switch settings.
- SC (Secondary Channel) may not be selected if circuit is SW56 or 64 kbps.
- Only one data rate can be selected.



### 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, FIREBIRD 6000 or other DS0 level test set*

### CIRCUIT BOARD SWITCH - SW1

#### Error Correction (SW1-1)

- Enables a software algorithm that is used to insure accurate data transmission across the T1. The slot immediately to the right of the unit must be vacant if this switch is enabled on a 56k or 64k circuit. This switch must be disabled for SW56 applications.

#### Bank Type (SW1-2, 3, 4)

- Select only one bank type.

#### Zero Code Suppression (SW1-5)

- Ensures pulse density in the T-carrier data stream. This option should be disabled for 64 kbps circuits and enabled for all others.

#### Latching Loopback (SW1-6)

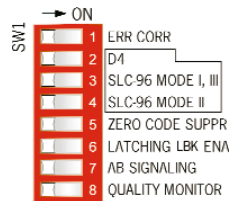
- Unit automatically responds to DS0 and allows TRDDS-R to respond to OCU latching loopback sequences.

#### AB Signaling (SW1-7)

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

#### Quality Monitor (SW1-8)

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



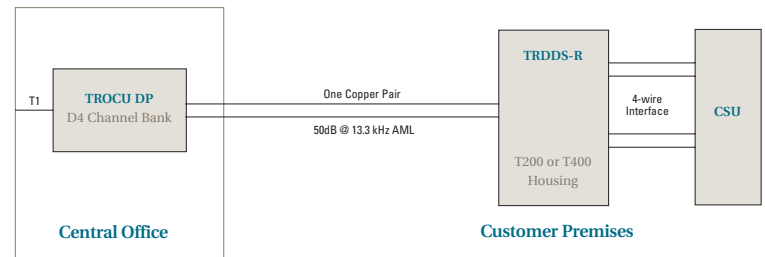
### DEPLOYMENT GUIDELINES

- All loops must be nonloaded.
- Maximum Loop Loss measured at a Nyquist of 13.3 kHz is 50dB AML or 47dB EML.
- Maximum Loop Loss measured at a Nyquist of 28 kHz is 65dB AML or 62dB EML.
- When calculating EML, use 13.3 kHz Nyquist for all data rates (2.4 to 64 Kbps).
- Maximum single bridged tap is 2 kft with the total bridge tap not to exceed 2.5 kft.

### WIRING CONNECTIONS

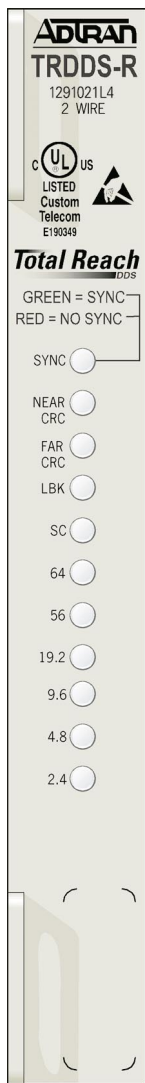
Pair	Terminal Designations	T400 PIN#	Customer RJ-48
To/From Network	TT,TR	41,47	—
To Customer	DRT, DRR	5,15	7,8
From Customer	DTR,DTT	49,55	1,2

### TYPICAL APPLICATION



## TRDDS-R

CLEI:D40IKRU8AA



### STATUS LEDs

<b>SYNC LOSS</b>	<input type="radio"/> OFF	Synchronization
	<input checked="" type="radio"/> RED	No synchronization
<b>NEAR CRC</b>	<input checked="" type="radio"/> RED	CRC errors on incoming data stream
<b>FAR CRC</b>	<input checked="" type="radio"/> RED	CRC errors towards the TROCUC DP
<b>LBK</b>	<input checked="" type="radio"/> YELLOW	Loopback towards network is activated
	<input checked="" type="radio"/> FLASHING	Bi-directional loopback at TROCUC DP
<b>SC</b>	<input checked="" type="radio"/> GREEN	Secondary channel enabled
<b>64</b>	<input checked="" type="radio"/> GREEN	64 kbps data rate enabled
<b>56</b>	<input checked="" type="radio"/> GREEN	56 kbps data rate enabled
<b>19.2</b>	<input checked="" type="radio"/> GREEN	19.2 kbps data rate enabled
<b>9.6</b>	<input checked="" type="radio"/> GREEN	9.6 kbps data rate enabled
<b>4.8</b>	<input checked="" type="radio"/> GREEN	4.8 kbps data rate enabled
<b>2.4</b>	<input checked="" type="radio"/> GREEN	2.4 kbps data rate enabled

### CIRCUIT BOARD SWITCH - SW1

#### LBO (SW1-1)

- When OFF, unit will transmit a 0dB AMI signal across the 4-wire customer interface toward the DSU/CSU. When ON, unit will transmit a -10dB AMI signal towards the DSU/CSU.



### SIGNAL LOSS INDICATION

This figure is a display of the data rate LEDs on the faceplate, which act as a signal meter during turn-up. The signal meter is activated automatically upon power up of unit and remains active until synchronization occurs (usually 30-90 seconds after power up). During this period, the meter may be read as follows (please see figure at right).

#### 2.4 LED Illuminated Only

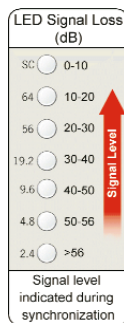
- Loop loss is greater than 56dB. Total Reach system will not synchronize.

#### 2.4 & 4.8 LEDs Illuminated Only

- Loop loss is between 50 and 56dB indicating marginal deployment.

#### Three or More LEDs Illuminated

- Circuit is considered within deployment guidelines with range of dB loss corresponding to topmost illuminated LED.



### Turn-up Guide

- Set switches on both units according to circuit design and local practices.
- Install TRDDS DP and TRDDS-R.
  - TRDDS DP fits in D4 or SLC96 RT channel bank.
  - TRDDS-R fits in standard non-powered T200 or T400 NCTE mounting.
- See reverse side of this job aid to ensure all LEDs are correct and synchronization has occurred.
  - TRDDS DP DSU LED will be illuminated yellow if customer DSU is not connected. No other LEDs should be illuminated.
  - TRDDS-R SYNC LED (green) and appropriate data rate LED will be illuminated. No other LEDs should be illuminated.
- If LEDs in step 3 are as noted, proceed with loopback and BERT testing per DDS specifications.
- If LEDs in step 3 are in any other configuration, see troubleshooting portion of this job aid.
- If problem cannot be solved via the job aid, please call technical support for assistance (see number in page header).
- The TRDDS system will be qualified at the 13.3 kHz frequency for all customer data rates.

### Troubleshooting Guide

#### No Power at the TRDDS-R

- Ensure TRDDS DP is supplying necessary voltage to power the TRDDS-R. Measure t-r voltage at the frame (tip to ground and tip to ring = -125 to -130 VDC, ring to ground = 0). The TRDDS system is not polarity sensitive.
- Measure t-r voltage at the TRDDS-R.
- If voltage is not present at the TRDDS-R, check continuity of cable pair.
- If voltage is measured at the TRDDS-R, replace the unit.
- The TRDDS-R does not place a measurable short between tip and ring. Cable resistance must be taken towards a manually applied short.

#### Power, but no Synchronization

- Check cable for load coils.
- Note signal meter reading on TRDDS-R during power up and synchronization process. Refer to "Signal Loss Indication" portion of this job aid for definitions. Loop loss may be too great for synchronization to occur. Ensure loop length is within allowable deployment guidelines.
- Check for excessive bridged taps.

#### Excessive Errors on Loop

- Ensure background noise does not exceed 34 dBm.
- Ensure impulse noise is not greater than -40 dBm (+50 dBm). *Note: measure noise with 50 Kbit filter.*
- Compare resistances of individual conductors. If these are different, high-resistance or intermittent opens may be indicated. A TDR is commonly required to find such faults.

### Testing Guide

- Connect the DS0 digital test set TPI 108/109 or equivalent to the logic level bantam test jacks of the TRDDS DP and configure the set for NEAR or FAR Logic (NEAR test towards the customer loop, FAR test towards the T-Carrier) and select the desired data rate. Please note, remote testing is also acceptable.
- Initialize the desired loopback DS0 or OCU. If FAR direction is selected, send appropriate latching loopback sequence which will loop the unit directly across the T-carrier system. If the NEAR direction is selected, the DS0 latching loop back sequence will loop the unit directly connected to the portable test set. The TRDDS DP will always invoke a bi-directional loopback.
- The LBK LED will illuminate if the DS0 or OCU loopback is successful. It will not illuminate if the loopback failed.
- Send and receive test pattern 2047 to the established loopback and observe the DS0 digital test set for bit error count.
- Drop DS0 latching loopback and send an OCU loopback sequence to loopback the TRDDS-R. Run test pattern and observe bit error count as in step 4 to test integrity of local loop.
- Testing from the TRDDS-R may be accomplished by connecting the DDS digital test set to the customer-side jack of the TRDDS-R housing and running to a bi-directional TRDDS DP loopback. Unseat and reseal the Total Reach DDS Remote unit before testing to gain access to the data stream.
- Follow US West deployment guidelines (see US West publication PB 99128).