ADTRAN

C A U T I O N !
SUBJECT TO ELECTROSTATIC DAMAGE
OR DECREASE IN RELIABILITY.
HANDLING PRECAUTIONS REQUIRED.

BR1/10 DS0 DP
Installation and Maintenance

CONTENTS
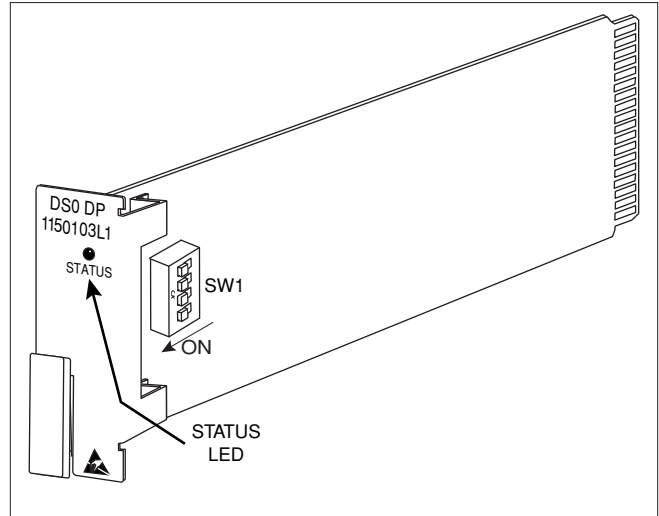
FIGURES

TABLES

Figure 1. BR1/10 DS0 DP

1. GENERAL

This practice provides installation and maintenance information for the ADTRAN All-Rate Digital Signal Zero Dataport (DS0 DP). The DS0 DP provides access to T carrier facilities via the BR1/10 channel bank. **Figure 1** is a stylized rendering of the DS0-DP.

Description

The BR1/10 Channel Bank is used to extend ISDN and DDS service to remote Central Offices via a T carrier. A BR1/10 system includes the shelf and backplane, three common cards: PAU, LIU, and BCU, and can accommodate 10 channel units; ISDN or DDS.

The DS0 DP, part number 1150103L1, inserts into the BR1/10 channel bank and is used in the Dataphone Digital Service (DDS®) to interface the basic DS-0 signal to a T carrier line.

The BR1/10 DS0 DP standard location is either a hub or intermediate office. It is used in conjunction with the ADTRAN All-Rate Office Channel Unit (OCU) located at the end office thus extending the DDS network to an area that previously only had voice channels.

Document Revision History
Issue 2 revised LED table descriptions.

Features
- Sub-rate, 19.2, 56 and 64 kbps Clear Channel operation, Latching Loopbacks, Zero Code Suppression, and Error Correction.
- Options include operation as a DS0 DP or as a Clear Channel Unit.
- Logic level test via the LIU, non-intrusive receive monitoring capability.
- Loopback LED indicator on the BCU.

Functions
- In the receive direction; converts 2.4, 4.8, 9.6, 19.2, and 56 kbps PCM data from the T carrier at the 64 kbps rate, to a DDS formatted signal for transmission.
- In the transmit direction; converts the 64k DDS formatted signal to 2.4, 4.8, 9.6,19.2, and 56 kbps PCM data at the 64 kbps rate for handoff to the T carrier.

CAUTION

The devices described in this document are subject to ESD damage. Follow all static control measures when working with this equipment.

---

2. OPTIONS

Provisioning is with a 4-position DIP switch located on the circuit card and must be set prior to card insertion in the channel bank. Dip switch SW1 options are shown in **Table 1**.

3. INSTALLATION

After unpacking the unit inspect it for damage. If damage is noted, file a claim with the carrier, then contact ADTRAN Customer Service (see Section 6).

The BR1/10 DS0 DP plugs into any of the 10 channel unit positions in the shelf. Upon insertion, status information for the unit is obtained from two sources:

- Faceplate Status LED
- BCU status LEDs

Faceplate Status LED

When first installed in the channel bank the faceplate Status LED will illuminate Red for several seconds before turning Green. The Status LED will also flash Red/Green when first selected by the LIU rotary switch. A summary of the Status LED is as follows:

- OFF - No power
- Red/Green flashing - Unit establishing communication with BCU
- Red steady - No synchronization
- Green steady - Synchronized

BCU Status LEDs

The BR1/10 channel bank selection and status is obtained by using the LIU and BCU common units.

This additional status is displayed by the bottom six BCU LEDs when the subject unit is selected with the LIU's DSL Channel Selection switch. When first selected by the rotary switch, that unit's Status LED will flash Red/Green letting the user know that the unit has been selected. After about 3 seconds the LED turns solid Green.

Following selection, the bottom six BCU LEDs, shown here:

LP-SYNC O O CRC

CR-SYNC O O CRC

DSO-LB O O ACT

provide status information for the selected unit. **Table 2** describes BCU status LEDs.

NOTE

The DS0 DP works in unison with the channel bank's LIU and BCU cards. The I&M Practice Sections for those cards: 61150079L2-5 & 61150080L1-5, should be on hand for reference purposes.

---

4. TESTING

The DS0 DP works in conjunction with the BCU and LIU common cards for test processes.

The LIU DSL rotary switch is set to the desired channel bank access card, then the test switch is placed to the desired test direction; CRTX or LPTX. Test results are monitored with a portable TPI 108/109 (or equivalent) test set.

Table 1. Dip Switch SW1 Options

| Switch	Function	Position	Description
SW1-1	Rate Options	ON	64kbps Clear channel data is passed to customer (disables ZCS)
		OFF	All other rate options: 2.4, 4.8, 9.6, 19.2, and 56k
SW1-2	Error Correction	ON	Enables automatic data integrity functions
		OFF	Disables automatic data integrity functions
SW1-3	Zero Code Suppression	ON	Enables minimum 1s density in T1
		OFF	Disables minimum 1s density in T1
			Note: ZCS is automatically disabled in 64kbps Clear Channel Operation
SW1-4	Latching Loopback	ON	Automatic response to OCU and CSU latching loopback sequences
		OFF	Disables automatic response
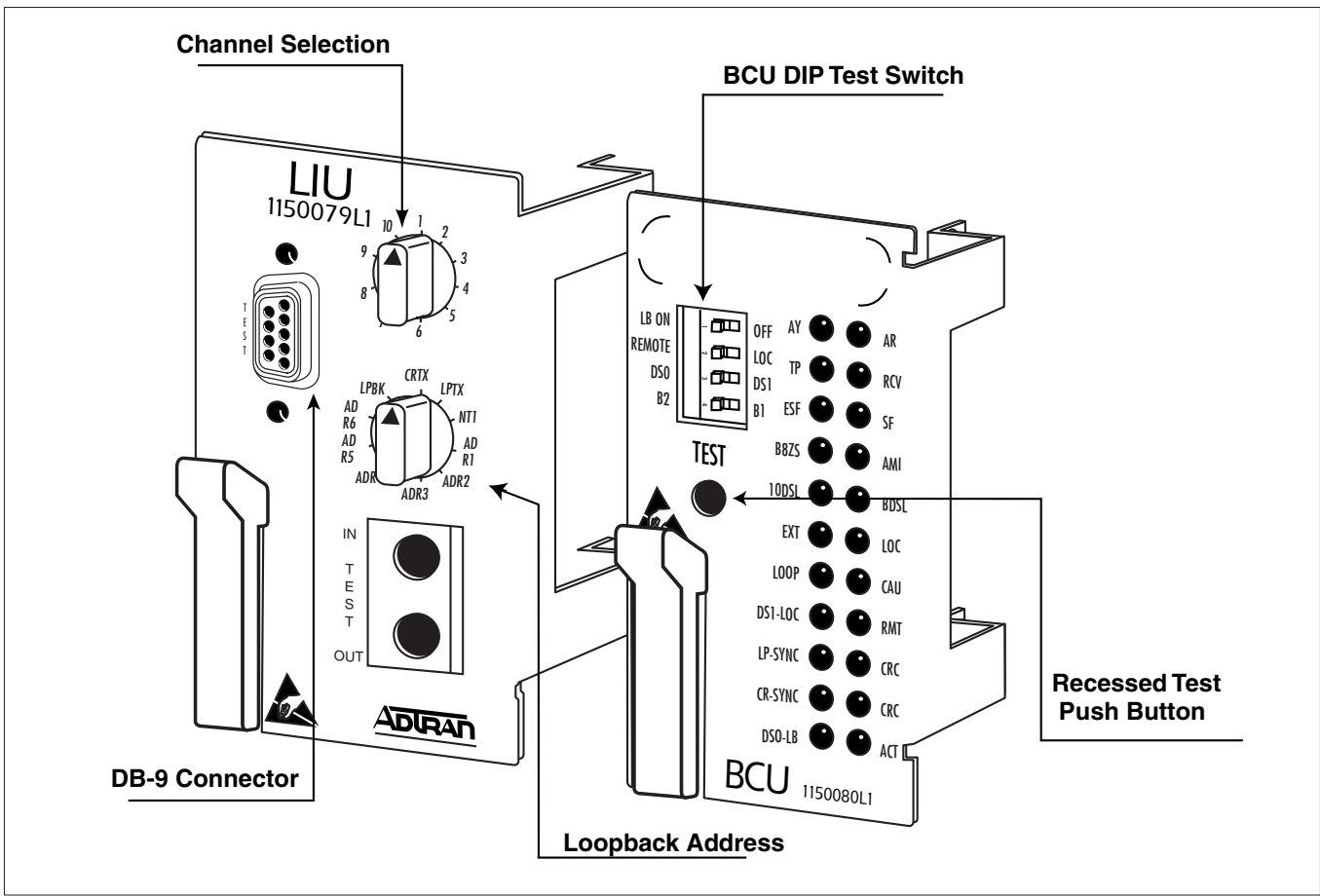
Figure 2. BR1/10 LIU & BCU

Table 2. BCU DS0 DP Indication

LED	Description
LP-SYNC	Not used with DS0 DP
CR-SYNC	Not used with DS0 DP
LP-CRC OFF ON	DS0 interface CRC errors No CRC errors from loop Receiving CRC errors from loop
CR-CRC OFF ON	Carrier interfacr CRC errors No CRC errors from carrier Receiving CRC errors from carrier
DS0-LB Solid Flash 1/sec	Loopback Status Initiating loopback Responding to loopback
ACT	Not used with DS0 DP

NOTE

Loop transmit (LPTX) and carrier transmit (CRTX) are the only test settings supported by the BR1/10 DS0 DP.

Remote latching loopback is activated using either the automated testing capability of the Service Test Center (STC), or the faceplate test connector(s) with a TPI 108/109 test set. When using a portable test set always select NEAR logic.

Loopside Test

To test toward the 4-wire tandem circuit (loop):

1. Insert the bantam jacks in the LIU
2. Select the desired channel with the LIU Channel Selection rotary switch.
3. Select LPTX with the LIU Loopback Address rotary switch.
4. Press the BCU TEST button.

Results: The DS0-LB LED on the BCU will go On indicating the LIU now has a test path between the bantam jack and the customer loop for the selected unit. No loopback has been initiated at this point. With the test path established the test set can now be used to initiate a test.

Carrierside Test
To test toward the carrier system (T1):

1. Insert the bantam jacks
2. Select the desired channel unit with the LIU Channel Selection rotary switch.
3. Select CRTX with the LIU Loopback Address rotary switch
4. Press the BCU TEST button

Results: The DS0-LB LED on the BCU will go On indicating the LIU now has a test path between the bantam jack and the T1 Time slot for the selected unit. No loopback has been initiated at this point. With the test path established the test set can now be used to initiate a test.

Remote Latching Loopback
Latching Loopback for DS-0 loopback or DS-1 loopback is conducted by using the specific latching loopback sequence as follows:

1. TIP (Min. of 35) - Transition in Progress. (*0111010)
2. LSC (Min. of 35) - Loopback Select Code. (*0000101)
3. LBE (Min. of 100) - Loopback Enable. (*1010110)
4. ALL ONEs (Minimum of 35) followed by LBEs (Minimum of 100) for N-1 iterations, where N is the number of channel units of the same type that lie between the test center and the unit on which Loopback is to be operated. (*1111111)
5. FEV (Min of 32) - Far End Voice. (*1011010)

False latching loopback conditions are prevented by the implementation of watchdog timer between successive steps of the latching loopback sequence.

Disable:
1. Minimum of 35 TIP bytes.

5. MAINTENANCE
The BR1/10 DS0 DP does not require maintenance for normal operation. Test and maintenance for the specific plug-ins should be conducted in accordance with the recommendations and procedures prescribed in associated Installation and Maintenance Practices.

ADTRAN does not recommend that repairs be performed in the field. Repair services are obtained by returning the defective unit to ADTRAN Customer Service.

6. WARRANTY AND CUSTOMER SERVICE
ADTRAN will replace or repair this product within ten (10) years from the date of shipment if it does not meet its published specifications or fails while in service. Refer to ADTRAN *U.S. and Canada Carrier Networks Equipment Warranty,* document 60000087-10.

Contact Customer And Product Service (CAPS) prior to returning equipment to ADTRAN.

For service, CAPS requests, or further information, contact one of the following numbers:

ADTRAN Sales
Pricing/Availability
(800) 827-0807

ADTRAN Technical Support
Pre-sales Applications/Post-sales Technical Assistance
(800) 726-8663

Standard hours: Monday-Friday, 7 a.m. - 7 p.m. CST
Emergency hours: 7 days/week, 24 hours/day

ADTRAN Repair/CAPS
Return for Repair/Upgrade
(256) 963-8722

Repair and Return Address
ADTRAN, Inc.
CAPS Department
901 Explorer Boulevard
Huntsville, Alabama 35806-2807