

BR1/10 19" SINGLE CHASSIS INSTALLATION/MAINTENANCE

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Features

The BR1/10 19" Single Chassis, part number 1150.119L1, features include:

- Compact modular platform for extending ISDN Basic Rate Service over a T1 carrier system.
- BR1/10 common equipment and BR1/10 ISDN U-BR1TE cards accepted.
- Single BR1/10 system on a 19" chassis.
- Single T1, clock, and power interface on the BR1/10 system.
- Enhanced reliability from fewer common equipment cards.

Description

The ADTRAN BR1/10 19" Single Chassis is designed for ISDN applications in telephone Central Offices or in Remote Terminals. The chassis provides mounting for (1) BR1/10 system consisting of (1) DSX-1 connection, (1) set of BR1/10 common equipment, and up to 10 ISDN channel units.

The BR1/10 19" Single Chassis is fabricated from sheet steel and measures 2.875" high, 17.4" wide, and 11.5" deep. It can be flush-mounted on a 19" wide, unequal flange, duct-type bay.

1. GENERAL

This practice provides installation and maintenance procedures for the ADTRAN BR1/10 19" Single Chassis. Figure 1 shows the BR1/10 19" Single Chassis.

The BR1/10 19" Single Chassis backplane provides (1)50-pin male amphenol connector, (13)36-pin card edge connectors, (1)three-terminal barrier strip, (1)two-terminal barrier strip, and (1) female DB-9 connector. The 50-pin male amphenol connector interfaces with the T/R and T1/R1 connections for each of the 10 channel slots. The (13)36-pin card edge connectors are used for



Figure 1. BR1/10 19" Single Chassis

BR1/10 common equipment and channel units. The three-position terminal strip, labeled JP16, supplies power connections. The two-terminal barrier strip, labeled JP18, is for future enhancements. The female DB-9 connector, labeled P1, allows for a terminal interface with the ADTRAN BR1/10 BCU L2, part number 1150.080L2. External timing, alarms, RS-485 connection and T1 interface terminations are provided through wire-wrapped connectors, JP15 and JP17.

NOTE The ADTRAN BR1/10 BCU L2, part number 1150.080L2, is a future release.

2. INSTALLATION

After unpacking the unit, immediately inspect it for possible shipping damage. If damage is discovered, immediately file a claim with the carrier and then contact ADTRAN Customer Service (see Warranty and Customer Service).

Before installing the BR1/10 19" Single Chassis in a communications bay, remove all plug-in cards that may have shipped with the chassis. To remove the common equipment and channel units, grasp the latch at the bottom left of each faceplate and pull the latch downward. This forces the unit to separate from its connector. Temporarily place these units in an ESD-protected area.

NOTE When selecting a location, make sure that the T1, power, clock source, and channel unit wiring are easily accessible, and can be routed to the rear of the chassis.

Mounting

The two slotted holes on the faceplate flange allow mounting on racks with 1" to 1^{5/8}" spacing. The BR1/10 19" Single Chassis is designed to be mounted either flush, four inches, or five inches from the front of the chassis.

If changing the position of the mounting flanges is required, first unscrew the #8-32 Phillips head screws and then relocate the flange and reinsert all four of the Phillips head screws.

The following steps provide instructions for mounting the BR1/10 19" Single Chassis directly into a 19" wide bay.

1. Determine the chassis's location in the bay.
2. Identify where the flange mounting holes on each side of the chassis will fit over the bay mounting holes.
3. Align the flange mounting holes on each side of the chassis with the bay mounting holes, and secure with proper screws and/or washers (see Figure 2).

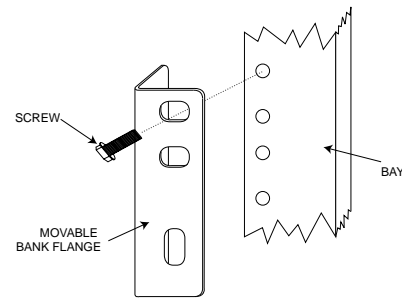


Figure 2. BR1/10 19" Single Chassis Mounting

Connections

All permanent connections to the BR1/10 19" Single Chassis are made on the backplane. Table A describes the pin designations for JP15, JP16, JP17, and JP18. Figure 3 shows the chassis backplane and connectors.

NOTE JP15, JP16, JP17, and JP18 read from left to right with Pin 1 being the first pin on the left.

Table A. JP15, JP16, JP17, and JP18 Descriptions

	Pin	Label	Description
JP15			
	1	R1-I	DSX-1 Ring input from the network
	2	T1-I	DSX-1 Tip input from the network
	3	R-O	DSX-1 Ring output to the network
	4	T-O	DSX-1 Tip output to the network
	5	SG	Shield Ground, Cable shield for DSX-1
	6	-48ALM	-48VDC Alarm, output -48VDC when PAU fuse tripped
	7	MJ	Major Alarm Audible, normally open contacts. ACO provides override during bank alarm
	8	MJR	Major Alarm Audible, common
	9	MJV	Major Alarm Visual, normally open contacts
	10	MJVR	Major Alarm Visual, common
	11	LX(IN)	Input BITS compatible composite clock
	12	LY(IN)	Input BITS compatible composite clock
	13	EU1	Cable shield for output clock
	14	LX(OUT)	Output BITS compatible composite clock
	15	LY(OUT)	Output BITS compatible composite clock
	16	EU2	Cable shield for input clock
JP16			
	1	FG	Frame Ground
	2	-48R	-48VDC Return
	3	-48I	-48VDC Input
JP17			
	1	GND	Ground
	2	B	Future Applications
	3	A	Future Applications
	4	+	Local Clock (+)
	5	-	Local Clock (-)
JP18			
	1	R	Future Applications
	2	R-RTN	Future Applications

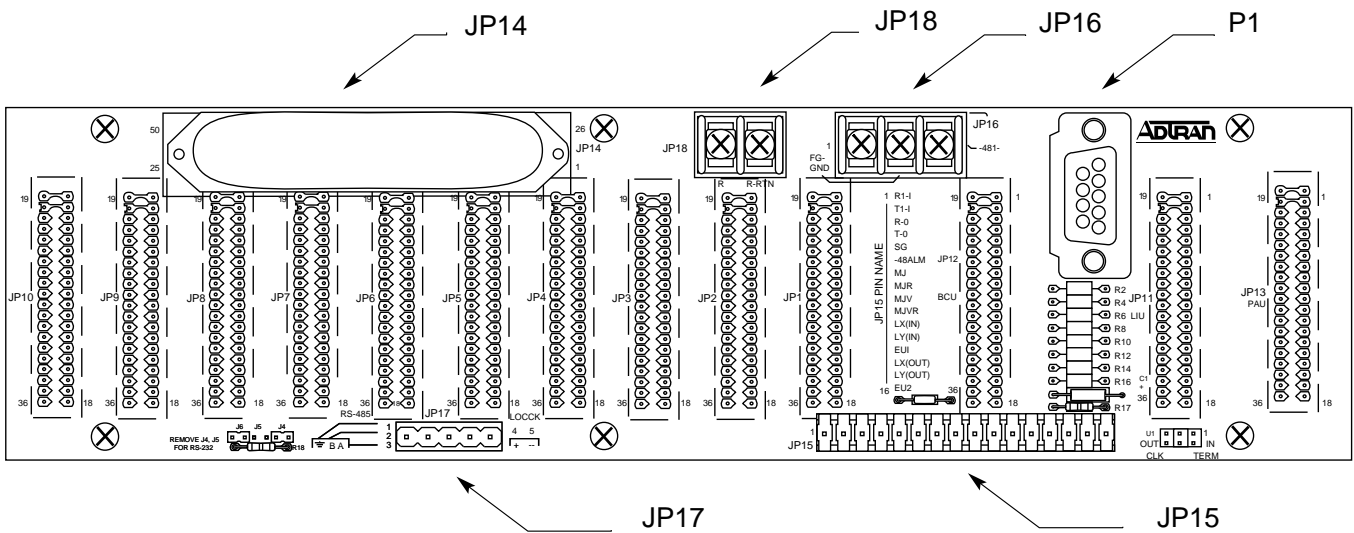


Figure 3. BR1/10 19" Single Chassis Backplane

Telco Connector

One 50-pin male amphenol connector, JP14, is provided for the interconnect wiring of the ten channel positions on the BR1/10 backplane. This connector is usually terminated with a punch-down block for premises wiring, or connected directly to a cross-connect or main distribution frame. Figure 4 details the pinout of the connector.

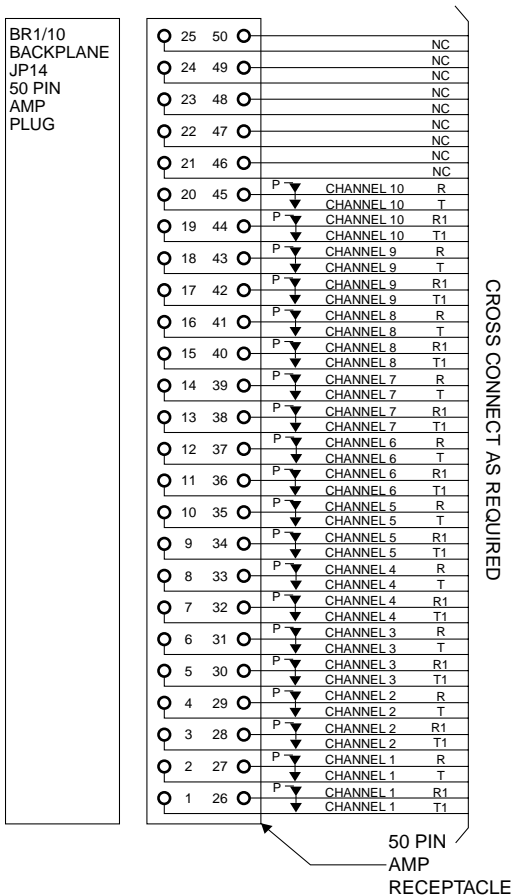


Figure 4. Telco Connector (JP14) Pinout



Leads T1 and R1 are not used in applications requiring the BR1/10 U-BR1TE. The T1 and R1 leads will be used in future applications.

DSX-1 Termination, Office Timing, Office Alarms, and the Shelf Alarm are connected via JP15. Figure 5 gives a detailed look at each of the connections of JP15.

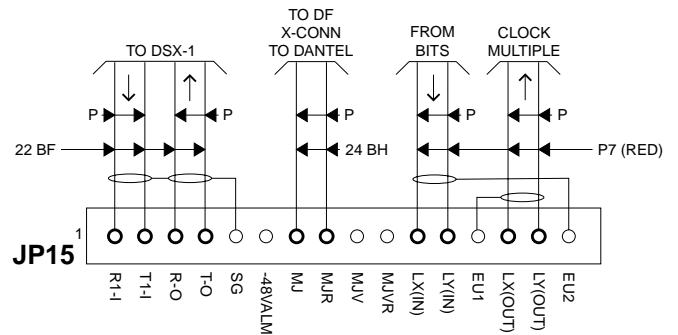


Figure 5. JP15 Connections

DSX-1

DSX-1 connections are made via JP15, pins 1 thru 5 (see Figure 6). The DSX-1 pins connect to the Line Interface Unit (LIU) slot of the chassis. the LIU terminates the DSX-1 signal.

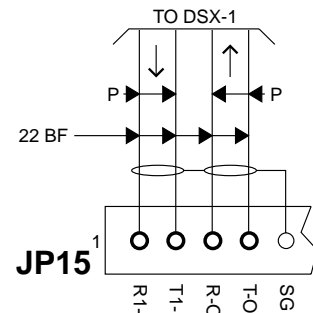


Figure 6. DSX-1 Connections on JP15

Office Timing Supply

The Office Timing input/output pins are located on JP15, pins 11 thru 16 (see Figure 7). The incoming Building Integrated Timing Supply (BITS) connects to pins LX (in) and LY (in); EU2 is used to shield the two inputs. Figure 8 shows timing connections for a BR1/10 19 " Single Chassis.

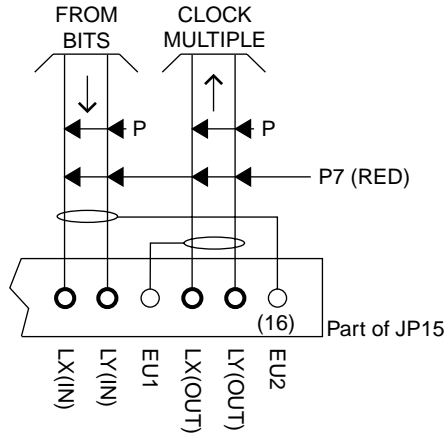
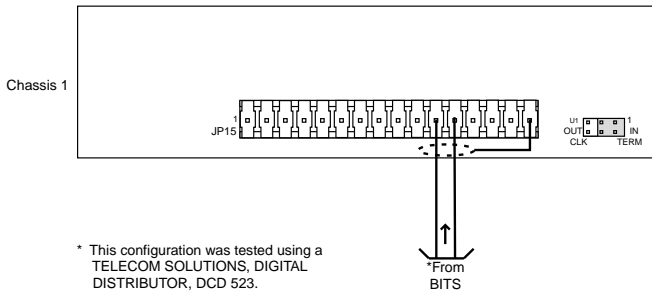


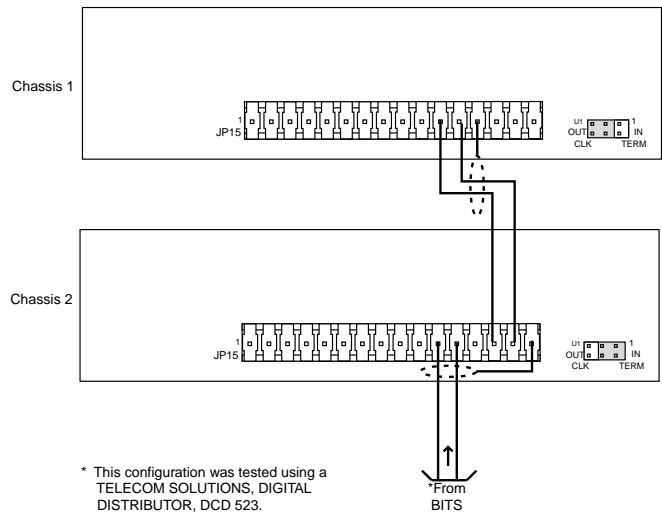
Figure 7. Office Timing Connections on JP15



Note 1: Chassis 1, Side A is terminated **In** (U1 is strapped for **In**).
 Note 2: The ground pin (pin 13 and 16 of JP15) is an optional connection for shielded cables; it is not required.

Figure 8. Local Composite Clock Wiring For a Single Chassis

In installations where one BR1/10 19" Single Chassis provides BITS to another BR1/10 19" Single Chassis or other chassis in the same bay, pins LX (out) and LY (out) provide the output signal and EU1 is used for the shield between the chassis (see Figure 7). Figure 9 shows one BR1/10 19" Single Chassis providing timing to another BR1/10 19" Single Chassis.



Note 1: Chassis 1 is terminated **In** (U1 is strapped for **In**). Chassis 2 is terminated **Out** (U1 is strapped for **Out**).
 Note 2: The ground pin (pin 13 and 16 of JP15) is an optional connection for shielded cables; it is not required.

Figure 9. Local Composite Clock Wiring From a Single Chassis to Another in the Same Bay

In a bay configuration, multiple BR1/10 19" Single Chassis can be daisy-chained together off of one clock source input (see Figure 10, page 5).

NOTE The maximum number of BR1/10 19 " Single Chassis that can be supported by a single clock source is 8, which is the equivalent of 8 T1s.

The BR1/10 19" Single Chassis backplane provides jumper options to properly terminate and ground the Office Timing Supply. Jumper U1, designated CLK TRM, is used when the office timing source is not terminated externally. When U1 is set to **IN** a 133 ohm resistor provides the proper clock termination and a 2.2 pico farrad capacitor provides a capacitive path to ground via EU2, pin 16 of JP15.

Office Alarms

The backplane connections for the alarm relays are found on JP15, pins 7 thru 10, and are labeled MJ, MJR, MJV, and MJVR (see Figure 11).

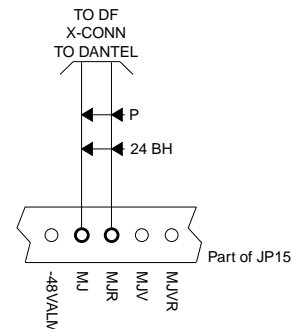
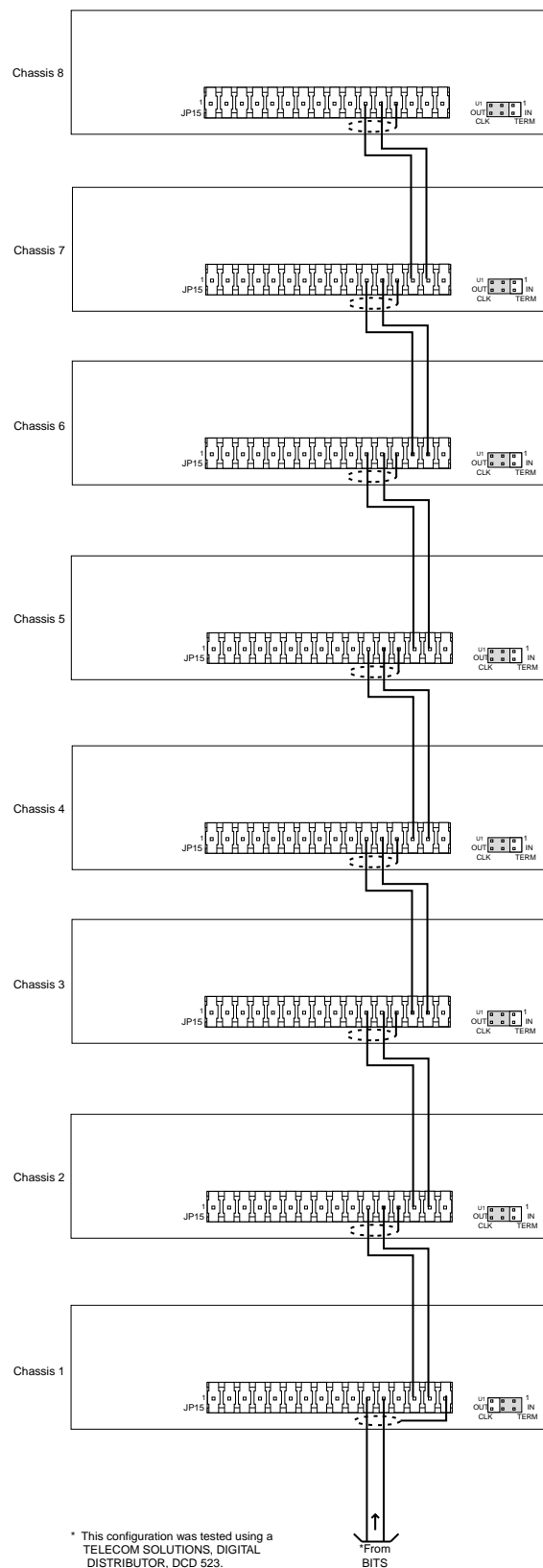


Figure 11. Office Alarm Connections on JP15



* This configuration was tested using a TELECOM SOLUTIONS, DIGITAL DISTRIBUTOR, DCD 523.

Note 1: Chassis 1 is terminated In (U1 is strapped for In). The remaining chassis are terminated Out (U1 is strapped for Out).

Note 2: The ground pin (pin 13 and 16 of JP15) is an optional connection for shielded cables; it is not required.

Figure 10. Local Composite Clock Wiring in a Bay With up to Eight Single Chassis

The alarm relay contacts are normally open when the BR1/10 is functioning properly, and no alarms are received from the T1 carrier. The alarm relay contacts will close in the event of a local alarm condition or the receipt of an alarm from a T1 carrier. In a carrier alarm condition such as red, yellow, or blue (Unframed All 1's), several alarm relay contacts located in the BR1/10 close. Carrier alarm conditions cause the BR1/10 to go into trunk processing and the following events will occur:

1. MJ will be directly shorted to MJR
2. MJV will be directly shorted to MJVR

Contacts MJ/MJR can be manually overridden during an Alarm Condition. The ACO push-button on the BR1/10 PAU faceplate will open the contacts during a bank alarm condition providing a means to control an external Audible Alarm. No other alarm contacts are affected by the ACO push-button.

The BR1/10 PAU List 2, P/N 1150.078L2, provides alarm relay contact closure in the event the -48V PAU faceplate fuse is tripped. In this alarm condition, the relay contacts will close in the same manner as if the BR1/10 was in a Carrier alarm condition, but depressing the ACO push-button will not cancel the audible alarm.

Relay contact closures are a function of the PAU common unit only, not the chassis. A summarization of alarm notification is found in Table B.

Table B. Alarm Notification

Condition	Relays Activated		Other Notification
	MJR	MJVR	-48 ALM
Red Alarm	X	X	
Yellow Alarm	X	X	
AIS Alarm	X	X	
PAU fuse blown	X ¹	X ¹	X
ACO Deactivates	X ²	X	

¹PAU List 2, P/N 1150.078L2, only.

²ACO does not deactivate MJR during a blown fuse condition

Shelf Alarm

The -48V alarm (-48ALM) located on JP15, pin 6, provides a -48VDC signal when the PAU fuse is tripped.

Power Connections

The BR1/10 19" Single Chassis provides a three-position terminal strip, JP16, on the backplane for power connections (see Figure 12). Ring lug terminations are recommended for connecting to JP16. Insert the -48V office battery supply lead into terminal 3 (-48I) of JP16. Insert the battery return into terminal 2 (-48R). Insert the frame ground, or chassis ground, into terminal 1 (FG).



Since the frame ground and the -48v return are isolated in the bank, these grounds should be connected externally to a central ground.

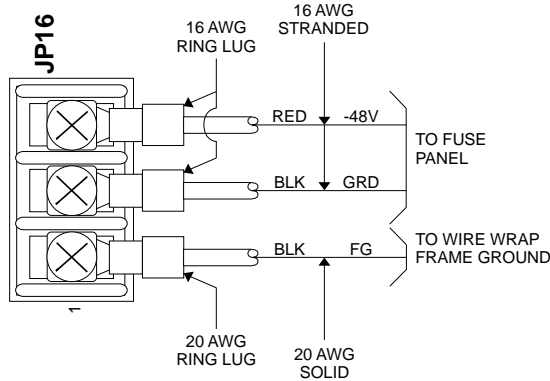


Figure 12. Power Connections on JP16

OPTIONS

RS-485 Connection

The RS-485 link connection is made on JP17, pins 1 thru 3, located on the bottom of the backplane. This connection is provided for future applications.

LOC CK

When BITS is not available, JP17, pins 4 and 5, provide a phase-locked-loop local composite clock output. While not intended to provide multiple outputs, this output can be used to provide a clock source for a single channel bank when an external output is required. This option can be used in a tandem configuration that does not have a centralized composite clock source. Figure 9 displays an illustration of this application.

When necessary wiring and connections are completed, replace the clear plastic cover on the backplane. The common equipment and channel units may then be configured and installed. Refer to the appropriate ADTRAN Practices for information specific to each plug-in card.

3. MAINTENANCE

The BR1/10 19" Chassis requires no routine maintenance to operate properly. 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's Customer Service.

4. SPECIFICATIONS

Refer to Table B for unit specifications.

Table C. BR1/10 19" Single Chassis Specifications

System Power Requirements	
Input DC Voltage:	-42VDC to -56VDC -48VDC nominal
Max Current:	1.0A fused
Fully Loaded w/U-BR1TE:	0.2A @ nominal
Commons Only:	.06A
Environmental	
Operating Temperature:	-40° C to +70° C (-40° F to +158° F)
Storage Temperature:	-40° C to +85° C (-40° F to +185° F)
Relative Humidity:	95% max, non-condensing
Physical	
Dimension:	10.5" long, 2.8" high, 17.4" wide
Weight:	9.6 lbs fully loaded

5. WARRANTY AND CUSTOMER SERVICE

ADTRAN will replace or repair this product within ten years from the date of shipment if it does not meet its published specifications or fails while in service (see ADTRAN Equipment Warranty, Repair, and Return Policy and Procedure).

Return Material Authorization (RMA) is required prior to returning equipment to ADTRAN.

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

ADTRAN Technical Support..... (800) 726-8663
Standard support hours, Monday-Friday, 7am-7pm CST
Emergency Support: 7 days/week, 24 hours/day

ADTRAN Sales..... (800) 827-0807

ADTRAN Repair/RMA..... (205) 963-8722

Repair and Return Address

ADTRAN, Inc.
Customer Service Department
901 Explorer Boulevard
Huntsville, Alabama 35806-2807