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October 2001

DSXpert™ 2005R
DS3/E3 Remote Test Access System
Installation Instructions

1173791 Rev A

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REVISION HISTORY

ISSUE	DATE	REASON FOR CHANGE
1	10/2001	Original publication

LIST OF CHANGES

The technical changes incorporated into this issue are listed below.

PAGE	IDENTIFIER	DESCRIPTION OF CHANGE
All		New publication

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TABLE OF CONTENTS

ABOUT THIS MANUAL

This manual provides procedures for installing the DSXpert 2005R, DS3/E3 Remote Test Access System modular chassis and corresponding chassis components. The manual is intended for use at communications network facilities and users who monitor and maintain the network.

RELATED PUBLICATIONS

Listed below are related manuals and their publication numbers. Copies of these publications can be ordered by contacting the ADC Technical Assistance Center at 1-800-366-3891 (in U.S.A. or Canada) or 952-917-3000, extension 73475 (outside U.S.A. and Canada).

Title/Description	ADCP Number
DSXpert 2005R, DS3/E3 Remote Test Access System User Manual	**ADCP-80-422**

ADMONISHMENTS

Important safety admonishments are used throughout this manual to warn of possible hazards to persons or equipment. An admonishment identifies a possible hazard and then explains what may happen if the hazard is not avoided. The admonishments — in the form of Dangers, Warnings, and Cautions — must be followed at all times. These warnings are flagged by use of the triangular alert icon (seen below), and are listed in descending order of severity of injury or damage and likelihood of occurrence.

⚠ **Danger:** *Danger is used to indicate the presence of a hazard that **will** cause severe personal injury, death, or substantial property damage if the hazard is not avoided.*

⚠ **Warning:** *Warning is used to indicate the presence of a hazard that **can** cause severe personal injury, death, or substantial property damage if the hazard is not avoided.*

⚠ **Caution:** *Caution is used to indicate the presence of a hazard that **will** or **can** cause minor personal injury or property damage if the hazard is not avoided.*

GENERAL SAFETY PRECAUTIONS

⚠ **Danger:** *To prevent electrical shock, never install equipment in a wet location or during a lightning storm.*

⚠ **Warning:** *The chassis must be properly grounded to ensure equipment and human safety.*

⚠ **Caution:** *Electronic modules can be damaged by electrostatic discharge (ESD). Before handling modules, wear an anti-static discharge wrist strap to prevent damage to electronic components. Place modules in anti-static packing material when transporting or storing. When working on modules, always place them on an approved anti-static mat that is electrically grounded.*

COMPLIANCE STATEMENT

This product has been tested and certified to comply with the following requirements:
UL 1950 3rd Edition
FCC Pt-15 Class-A
NEBS Level-3 (GR-1089 CORE and GR-63 CORE)
CSA 22.2 No.950-95
CSA C108.8-M1983 (R1989) (R1994)
EN 60 950 (1992)
EN 300 386-2 V1.1.3
IEC 950
CISPR-22 Class-A (IEC 1000-4-2, IEC 1000-4-3, IEC 1000-4-4, IEC 1000-4-5 and IEC 1000-4-6)

⚠ **Warning:** *This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with limits for a Class A digital device pursuant to Subpart A of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference to TV and radio reception in which case the user, at their own expense, will be required to take whatever measures may be required to correct the interference.*

This equipment does not exceed Class A limits for radio emission for digital apparatus, set out in the radio interference regulation of the authorization methods of Industry Canada. Operation in a residential area may cause unacceptable interference to TV and radio reception requiring the owner or operator to take whatever steps are necessary to correct the interference.

LIST OF ACRONYMS AND ABBREVIATIONS

The acronyms and abbreviations used in this manual are detailed in the following list:

10bT	10 Base T
ASCII	American Standard Code for Information Interchange
AUX	Auxiliary
AWG	American Wire Gauge
COMM	Communication
CTS	Clear to Send
DCE	Data Communications Equipment
DIP	Dual In-line Package
DS3	Digital Signal, Level 3
DSR	Data Set Ready
DTE	Data Terminal Equipment
DTR	Data Terminal Ready
ESD	Electrostatic Discharge
FB	Fallback
FCC	Federal Communications Commission
GND	Ground
RTS	Request to Send
RXD	Receive Data
TL1	Transaction Language 1
TXD	Transmit Data

1 GENERAL

1.1 Chassis Diagrams

A front view of the chassis is shown in Figure 1. A rear view of the chassis is shown in Figure 2.

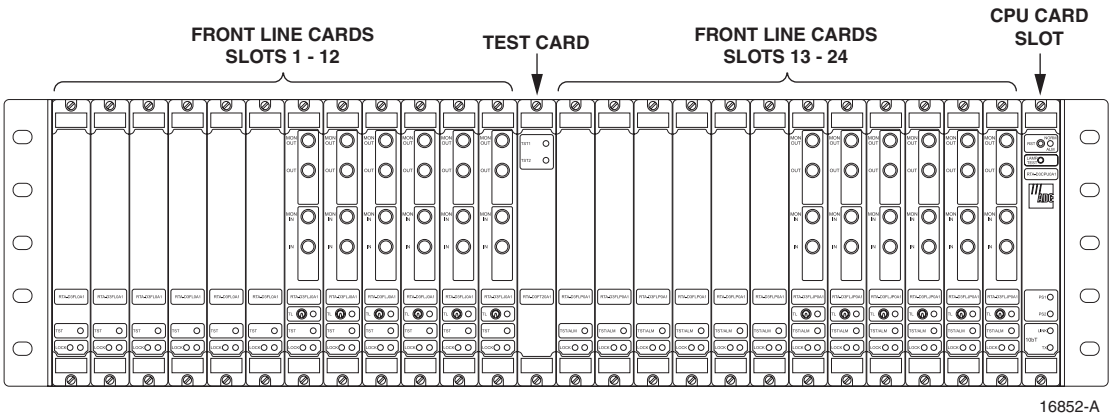

Figure 1. DSXpert 2005R Modular Chassis with Modules Inserted (modules may vary), Front View

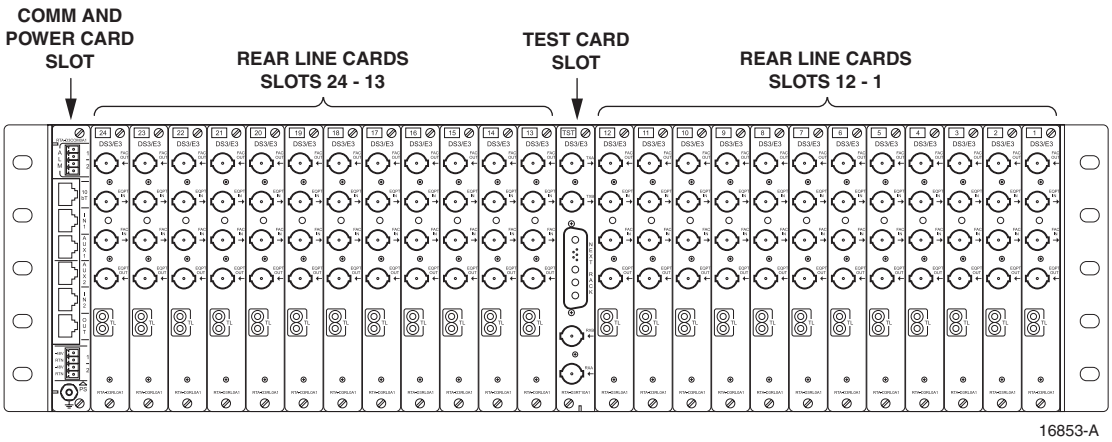

Figure 2. DSXpert 2005R Modular Chassis with Modules Inserted (modules may vary), Rear View

1.2 Description

The DSXpert 2005R DS3/E3 Remote Test Access System provides access for testing and monitoring of unbalanced 75 ohm digital transmission lines, operating at DS3 (44.736 Mbps) and E3 (34.368 Mbps) transmission rates.

The DSXpert 2005R product family consists of a chassis, up to 24 Front Line Cards, one Front Test Card, up to 24 Rear Line Cards, one Rear Test Card, one CPU Card, and one Communication and Power Supply Card. The cards are interconnected via a mid-plane (Mother Board), which is part of the chassis.

The CPU card is a microprocessor-based card that contains the system firmware and provides control for the entire chassis. It coordinates all unit functions and communicates with other units, control consoles and other management devices. The front and rear pair of test equipment cards coordinate functions for test devices connected to the chassis. The test cards provide BNC ports to support one test device. The line access cards coordinate functions for the DS3/E3 lines. There is a pair of one front and rear card for each DS3/E3 circuit; each rear card provides BNC ports to support one DS3/E3 circuit. The communication and power supply card provides redundant power at –48 V DC to the chassis and modules. The communication and power supply card is located in left slot on the rear of the chassis.

The DSXpert equipment is normally shipped with the modules installed in the chassis. If the modules are not contained in the chassis location slots when the equipment is received, perform the necessary module installation procedures.

2 INSTALLATION

It is recommended that the DSXpert 2005R installation procedures be followed in the order that they are presented in the manual, as listed in the Table of Contents.

⚠ **Danger:** *To prevent electrical shock, never install equipment in a wet location or during a lightning storm.*

⚠ **Caution:** *Electronic modules can be damaged by electrostatic discharge (ESD). Before handling modules, wear an anti-static discharge wrist strap to prevent damage to electronic components. Place modules in anti-static packing material when transporting or storing. When working on modules, always place them on an approved anti-static mat that is electrically grounded.*

Some chassis may be fully configured prior to shipment and can therefore be installed directly into a rack when received. Otherwise, the chassis should be configured according to the installation sections of the manual.

2.1 Chassis

The DSXpert 2005R chassis is designed for 23 inch WECO or EIA mounting. The chassis is 5.97 inch high by 23 inch wide by 11.97 inch deep and can be mounted flush, 2 or 6 inch recess. Install the chassis into rack as shown in Figure 3.

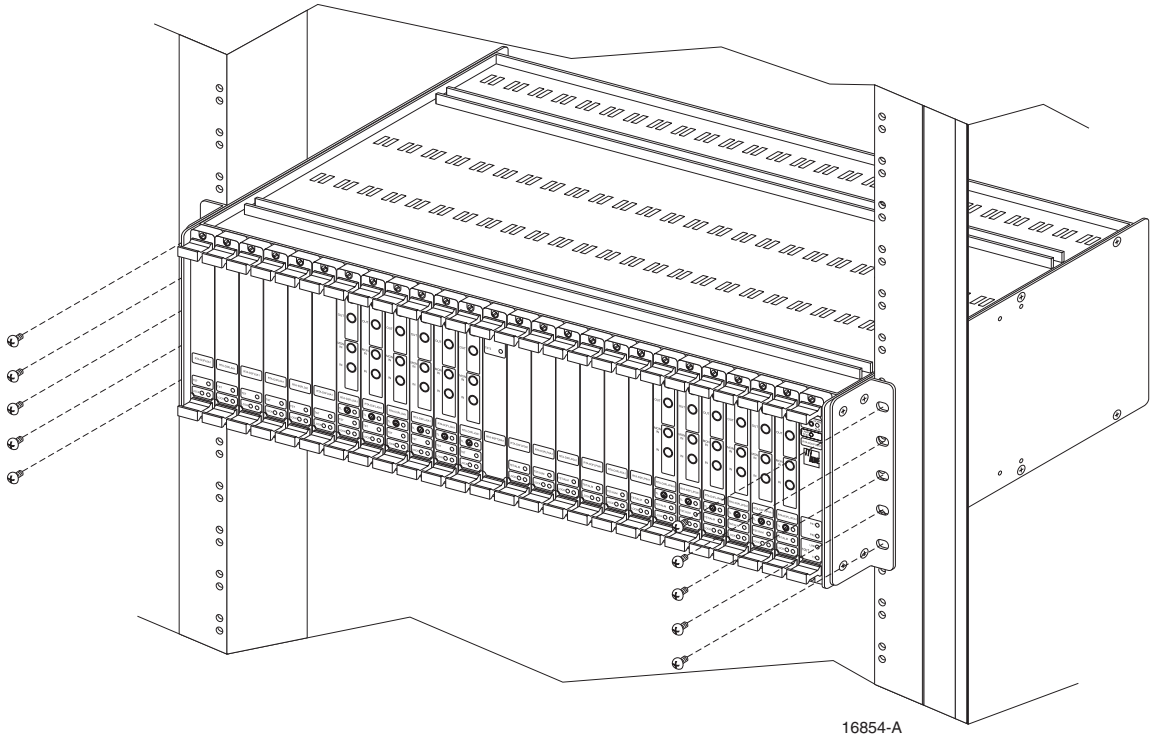

Figure 3. Chassis Installation into the Rack

This procedure provides instructions for installing the chassis in an EIA or WECO 23-inch equipment rack. The mounting brackets are adjustable to permit the chassis to be mounted flush, 2, or 6 inch recess. Check the work order to determine the chassis location in the rack.

1. Obtain the following tools and equipment:

- Flat blade or Phillips screwdriver (type to match mounting screws)
- #12-24 - 0.5-inch binder head machine screws. (Four required.)

2. Check the work order to determine if the chassis should be installed with a flush, 2-inch, or 6-inch recess. If a 2-inch recess is specified, proceed to Step 5. If a 6-inch recess is specified, remove the screws that secure the mounting brackets to the sides of the chassis and remove each bracket from the chassis.
3. Align each bracket with the appropriate set of bracket mounting holes on the side of the chassis.
4. Secure the mounting brackets to the sides of the chassis using the screws removed in Step 2.
5. Locate the equipment rack mounting space that is specified for the chassis.
6. Place the chassis in the assigned mounting space and align the holes in the mounting brackets with the holes in the equipment rack.
7. Secure the mounting brackets to the equipment rack using the 12-24 - 0.5-inch binder head machine screws provided.
8. Tighten the four mounting screws securely.

2.1.1 Communication and Power Supply Card

Caution: *Electronic modules can be damaged by electrostatic discharge (ESD). Before handling modules, wear an anti-static discharge wrist strap to prevent damage to electronic components. Place modules in anti-static packing material when transporting or storing. When working on modules, always place them on an approved anti-static mat that is electrically grounded.*

The Communication and Power Supply Card shown in Figure 4 provides the physical connections for all communication interfaces and –48Vdc power.

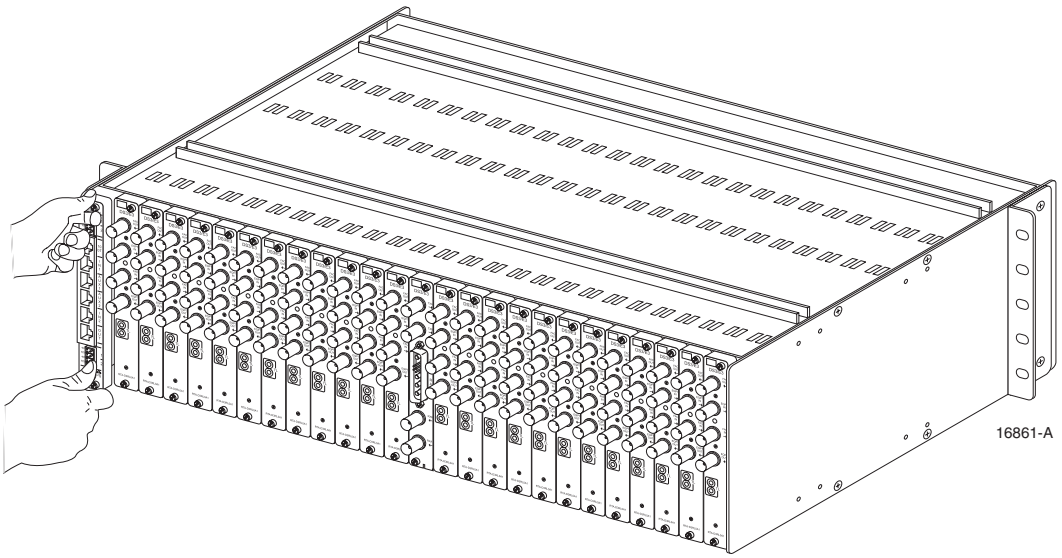

Figure 4. Installing Communication and Power Supply Card

If necessary remove blank panel see Section 2.1.5.

Secure module in the chassis by tightening the screws at the top and bottom of the module.

2.1.2 –48 VDC Power Connection Preparations

This procedure describes how to connect the –48 Vdc "1" and "2" office battery to the chassis. Two –48 Vdc power sources (1 and 2) are required to provide redundant power to the chassis.

There is a pair of male-to-female Input Power connectors (–48 Vdc, 2.5 A max) located on the Communication and Power Supply card. This card is installed on the rear of the chassis. Figure 5 shows a pair of male and female connectors.

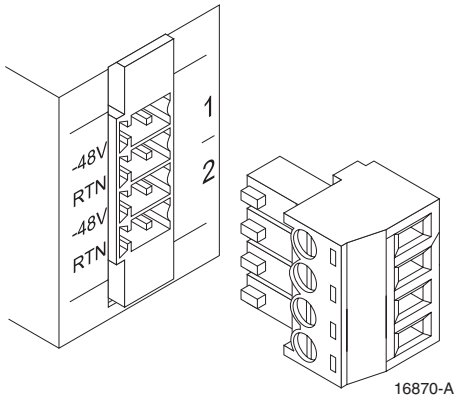

Figure 5. –48Vdc Input Power Connector, Male-to-Female

Warning: *Before making any connections to the chassis, verify that the power is off (fuse removed at the fuse and alarm panel) and that all plug-in modules are removed from the chassis. Do not install plug-in modules until after the chassis wiring is completed.*

1. Obtain the items listed below:

- Flat Blade screw driver
- Wire, 18-22 awg (color code per local practice). Recommended wire size for the power leads, when fused in the same bay.

2. Route a pair of power supply wires from two separate power sources to the power supply card slot at the rear of the chassis. Separately fuse each –48 Vdc power source but do not install fuses at this time.
3. Connect the wires to the designated terminals on the fuse panel.
4. Dress and secure the wires to the rack following local practice.
5. Route the wires to the power supply card slot at the rear of the chassis and cut them to length, allowing sufficient length for termination.
6. Label the ends of the two power supply wiring pairs with the following designations:

- Pair 1: –48A, RTN 1
- Pair 2: –48B, RTN 2

7. For wire connection, insert wire into wire slots on the male connector as shown in Figure 6. Wire should be stripped to approximately 3/16-inch. Secure wire by tightening the top small screws on the male connector.
8. Update office records as required.

Warning: *To fully power down the unit equipped with –48Vdc connectors, shut off power at the connecting power source. Do not disconnect dc connectors at terminal blocks on rear of chassis while power is being supplied to the unit.*

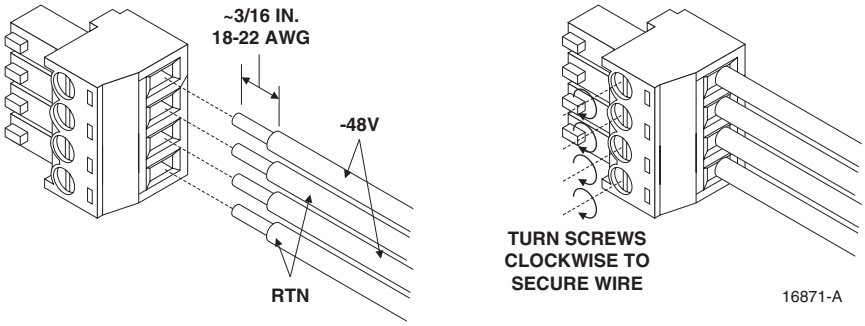

Figure 6. –48Vdc Input Power Connector, Wiring

2.1.3 Connect Office Ground

This procedure establishes a ground connection between the chassis and the office ground connection. A frame ground termination screw is provided on the chassis, for frame ground connection. This connection must be made in accordance with all local and national electrical codes.

1. Obtain the following:
   - Ground braid
2. Connect one end of the ground braid to the ground stud on the chassis and tighten the nut securely.
3. Connect the other end of the ground braid to the office ground conductor. Ensure this connection is made using methods and hardware that meets all applicable local and national electrical codes.

After installing Power Supply Card connect male connector to female connector on chassis rear as shown in Figure 7.

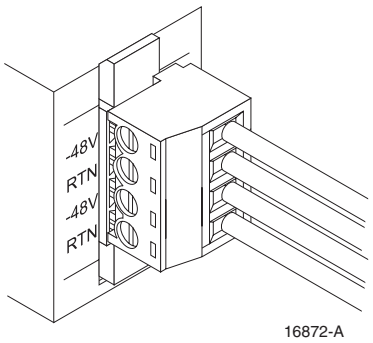

Figure 7. –48Vdc Input Power Connector, Male-to-Female Connection

Install fuses in fuse and alarm panel for the DSXpert Chassis.

Warning: *To fully power down the unit equipped with –48Vdc connectors, shut off power at the connecting power source. Do not disconnect dc connectors at terminal blocks on rear of chassis while power is being supplied to the unit.*

2.1.4 Alarm Contacts (Optional)

There is a pair of male-to-female power alarm connectors located on the Communication and Power Supply card on the rear of the chassis. These can be connected to an alarm unit (optional). Alarm contact one indicates a major system failure (loss of power or CPU failure). Alarm contact two is used to indicate a specific failure associated with self-diagnostic, performance monitoring, or other user defined alarm conditions. Both contacts are normally open. Figure 8 shows a pair of male and female connectors.

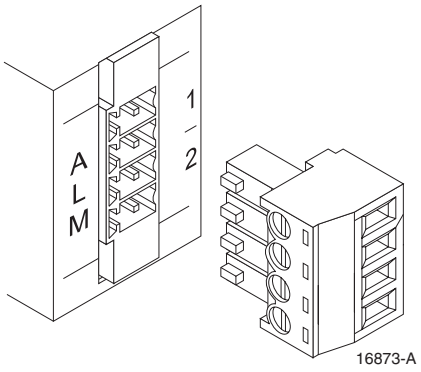

Figure 8. Alarm Contacts Connectors, Male-to-Female

For wire connection, insert wire (18-22 awg) into wire slots on the male connector as shown in Figure 9. Wire should be stripped to approximately 3/16-inch. Secure wire by tightening the top small screws on the male connector.

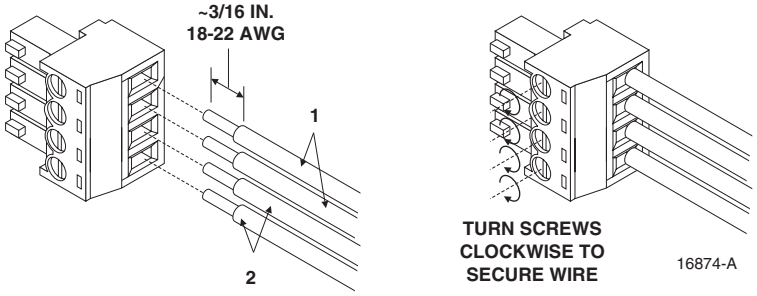

Figure 9. Alarm Connector, Wiring

Connect the opposite ends of the wires to the input connectors of the alarm unit. Refer to the installation manual of the alarm unit for wiring connections.

After installing Power Supply Card connect alarm male connector to female connector on chassis rear as shown in Figure 10.

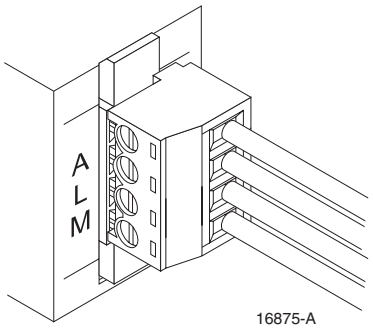

Figure 10. Alarm Connector, Male-to-Female Connection

2.1.5 Blank Panels

If applicable, remove blank panels by loosening fastener screws and pulling out from chassis as shown in Figure 11 and Figure 12.

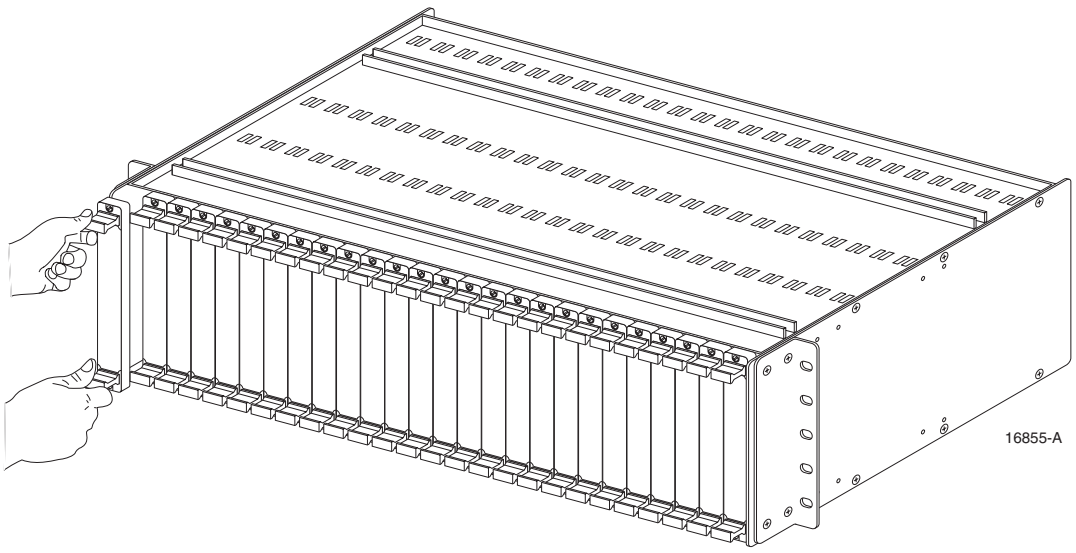

Figure 11. Removing Blank Front Panels

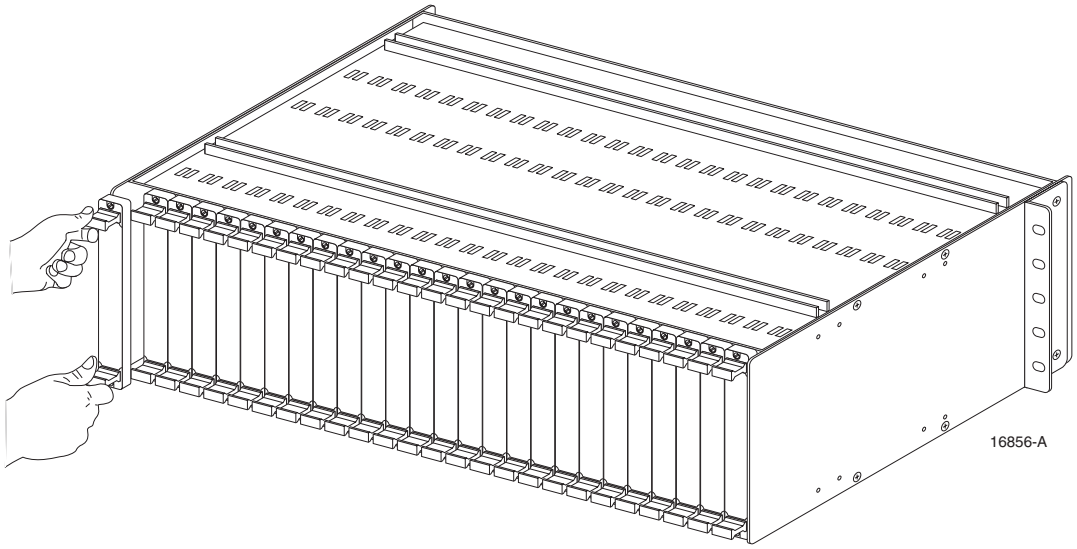

Figure 12. Removing Blank Rear Panels

2.2 Card/Module Installation

⚠ **Caution:** *Electronic modules can be damaged by electrostatic discharge (ESD). Before handling modules, wear an anti-static discharge wrist strap to prevent damage to electronic components. Place modules in anti-static packing material when transporting or storing. When working on modules, always place them on an approved anti-static mat that is electrically grounded.*

The DSXpert 2005R chassis accommodates 24 Front Line Cards (FLC), 24 Rear Line Cards (RLC), one Front Test Card (FTC), one Rear Test Card (RTC), one CPU Card (front), and one Communication and Power Supply card (rear).

The line cards are inserted into slots sequentially numbered from 1 to 24. Slots 1-12 and 13-24 are intended for line cards (front and rear). Slot TST is dedicated for the test card (front and rear). Right most slot is dedicated for the CPU Card (front). Left most slot is dedicated for the Communication and Power Supply card (rear). All cards plug into a mid-plane (Mother Board), which is permanently assembled in the chassis.

2.2.1 CPU Card

Before installing the CPU card, the onboard DIP switches must be properly configured to ensure proper operation of the DSXpert unit.

The DSXpert 2005R unit has one bank of DIP switches, located on the CPU card, as shown in Figure 13.

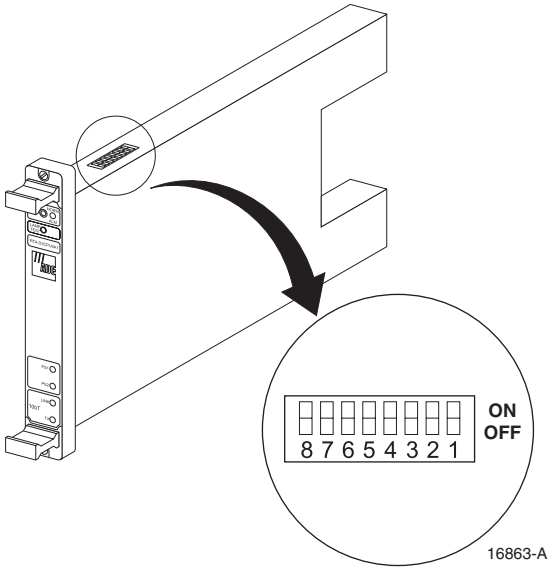

Figure 13. CPU Card DIP Switches

CPU DIP switch settings are shown in Table 1.

Table 1. CPU DIP Switch Positions

DIP SWITCH PACKAGE					
1	**2**	**3**	**4**	**Function**	**Notes**
on				COMM IN baud rate=9600 bps	
off				COMM IN baud rate=19200 bps **(Default)**	
	off			Not used	Set to “off”
		off		Not used	Set to “off”
			off	Bypass security=off **(Default)**	When set to ON, the unit clears telnet and menu passwords, and sets TL1 ACT-USER level back to zero. Disables telnet menu and TL1 passwords.
			on	Bypass security=on	
5	**6**	**7**	**8**	**Function**	**Notes**
off				Not used, **(Default)**	Set to “off”
	off			Not used, **(Default)**	Set to “off”
		off		Not used, **(Default)**	Set to “off”
			off	Not used, **(Default)**	Set to “off”

The CPU card as shown in Figure 14. The CPU card for the DSXpert modular chassis is hot-swappable and can be inserted and removed without powering down the chassis. Install the CPU card in the right most slot when viewed from the front. Secure module in the chassis by tightening the screws at the top and bottom of the module.

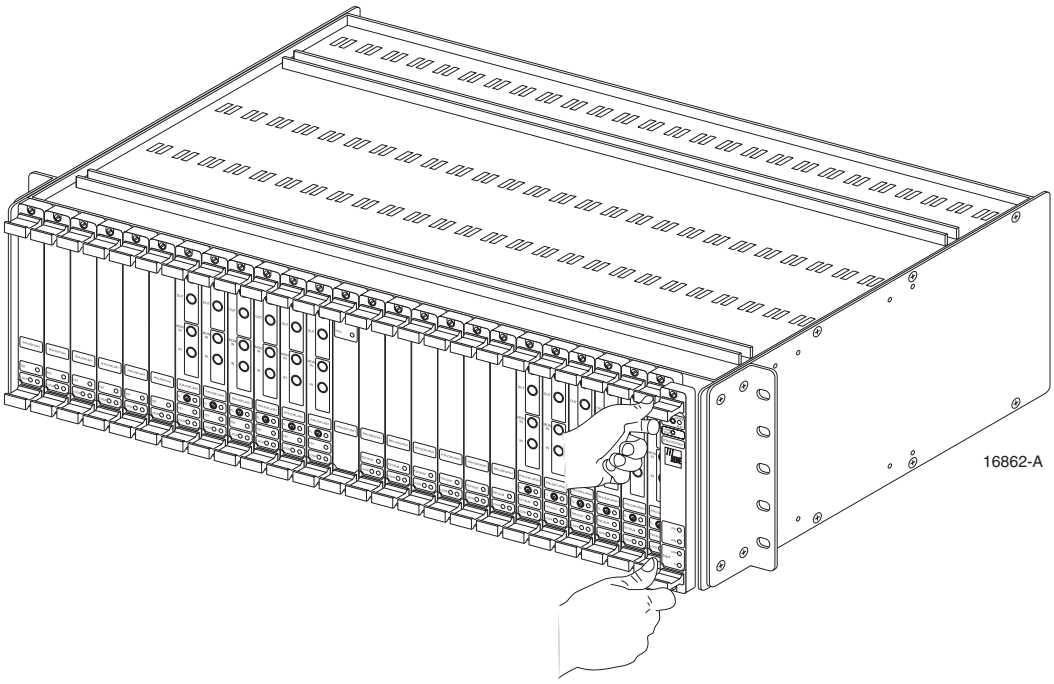

Figure 14. Installing CPU Card

The NORM/ALM LED should blink green after the power-up sequence is complete and no alarm condition is present. The PS1 and PS2 LEDs should be a steady green.

2.2.2 Test Equipment Cards

The slot marked TST located in the middle of the chassis both front and rear is dedicated to the Test Card.

Refer to work order to determine if Test Cards are being used. Install Test Cards as shown in Figure 15 and Figure 16.

Secure module in the chassis by tightening the screws at the top and bottom of the module.

The Test Equipment Card has one green LED (labeled TST1). When operting properly the LED is illuminated green.

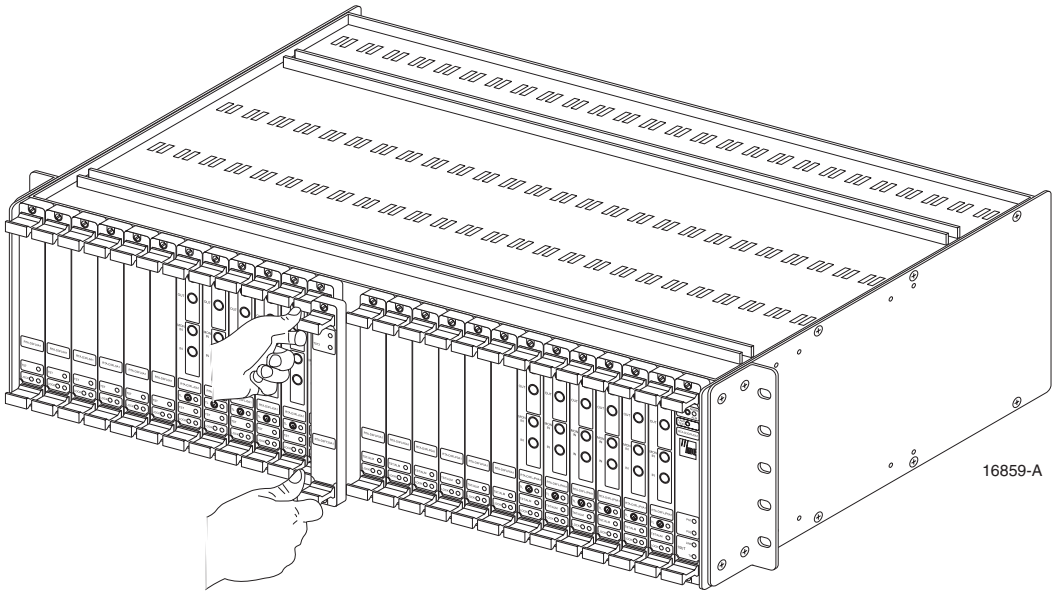

Figure 15. Installing Front Test Equipment Card

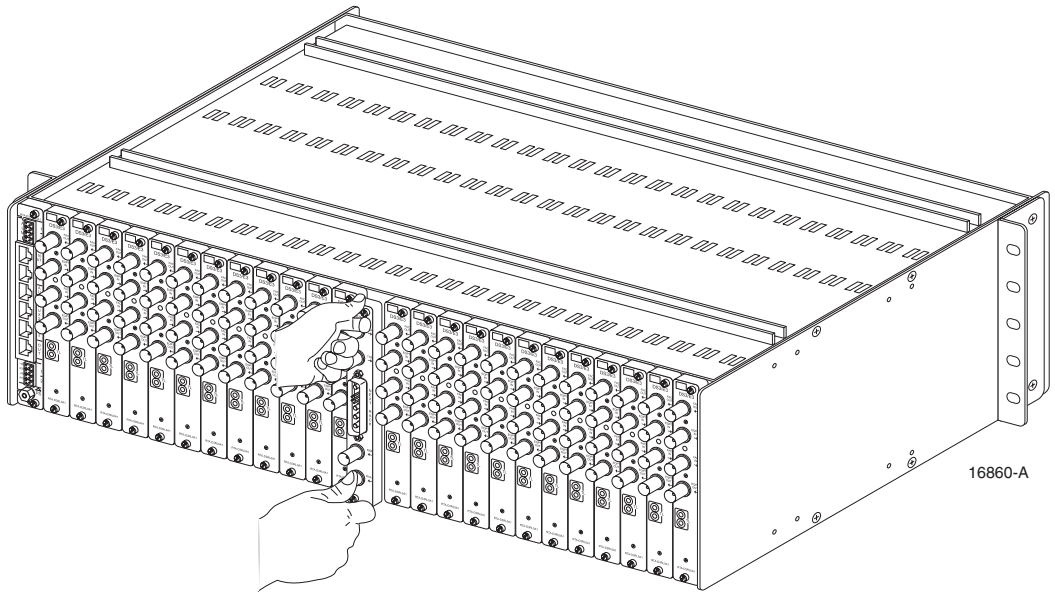

Figure 16. Installing Rear Test Equipment Card

2.2.3 Line Access Cards

The line cards are inserted into slots sequentially numbered from 1 to 24. Slots 1-12 and 13-24 are intended for line cards (front and rear). Refer to work order to determine which slots are to be used. Install Line Access Cards as required. Secure cards in the chassis by tightening the screws at the top and bottom of the card. Card installation is shown in Figure 17 and Figure 18.

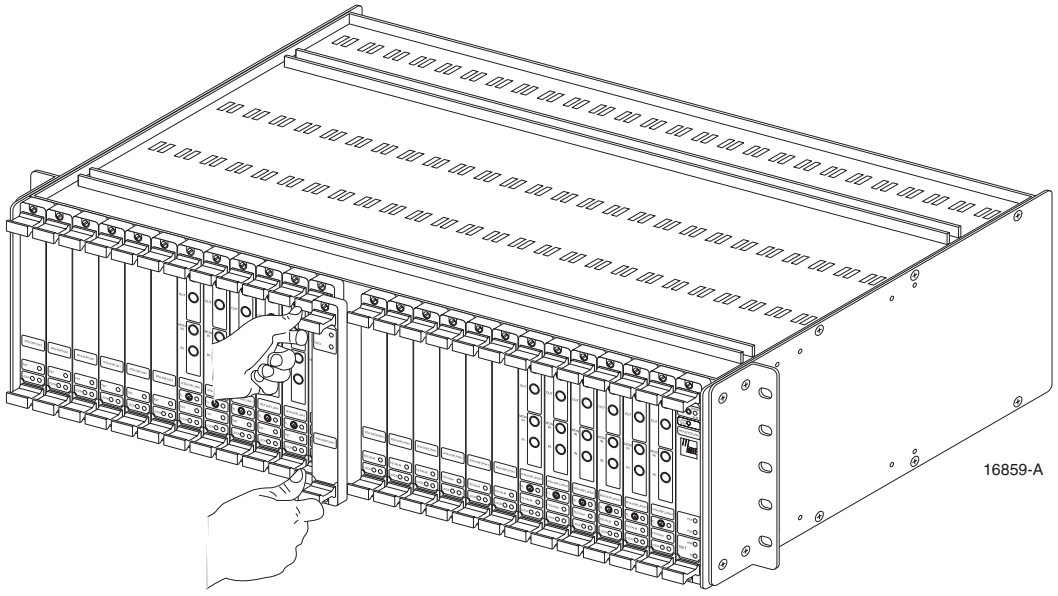

Figure 17. Installing Front Line Access Card

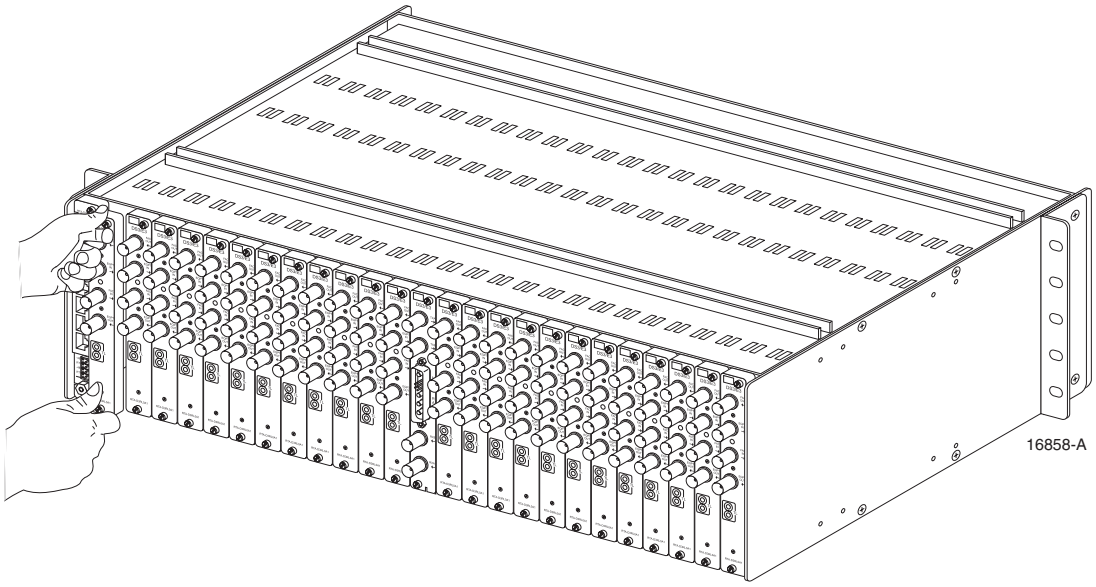

Figure 18. Installing Rear Line Access Card

One feature of the DSXpert 2005R Remote Test Access System is the capability to disable the local jack access to individual DS3/E3 circuits. This feature, called “locking”, allows the remote operator to secure uninterrupted traffic on certain high priority DS3/E3 lines. The locking mechanism is implemented at the DS3/E3 circuit level and is achieved by creating an alternative pass-through path for the DS3/E3 signal bypassing the local jack, making local jack access impossible.

In addition to preventing unauthorized test access, the locking mechanism allows easy “hitless” replacement and reconfiguration of the Front Line Cards without disconnecting and interrupting the DS3/E3 lines. One momentary push-button, located on the front panel, is used to activate/ deactivate the lock function. Enable lock feature by pushing the lock button for 2 seconds. The lock LED will illuminate solid yellow on FLC and RLC when locked.

Line Access Card (front): One test activity LED, labeled TST or TST/ALM. One lock LED, labeled LOCK. One tracer LED (optional), labeled TL (tracer lamp)

Two LED's provide visual indication as follows:

- One green LED labeled “TST” is used to indicate the remote test access condition. OFF indicates that the DS3/E3 circuit is not being tested. Blinking green indicates that the DS3/E3 circuit is in a remote test access mode;
- One yellow LED labeled “LOCK” is used to indicate the lock condition. OFF indicates that the DS3/E3 circuit is unlocked. Steady yellow indicates that the DS3/E3 circuit is locked.

2.3 Cable Routing

2.3.1 DS3/E3 Line Ports

For each DS3/E3 circuit, connect the line ports as shown in Figure 19, Figure 20 and Figure 21, which show the DS3/E3 line ports and typical connection configurations, respectively. The DS3/E3 line ports are located on the rear of the DSXpert chassis. Up to 24 DS3/E3 circuits per chassis are supported. Use BNC cables, 75 ohm shielded coax for DS3/E3 circuit connections.

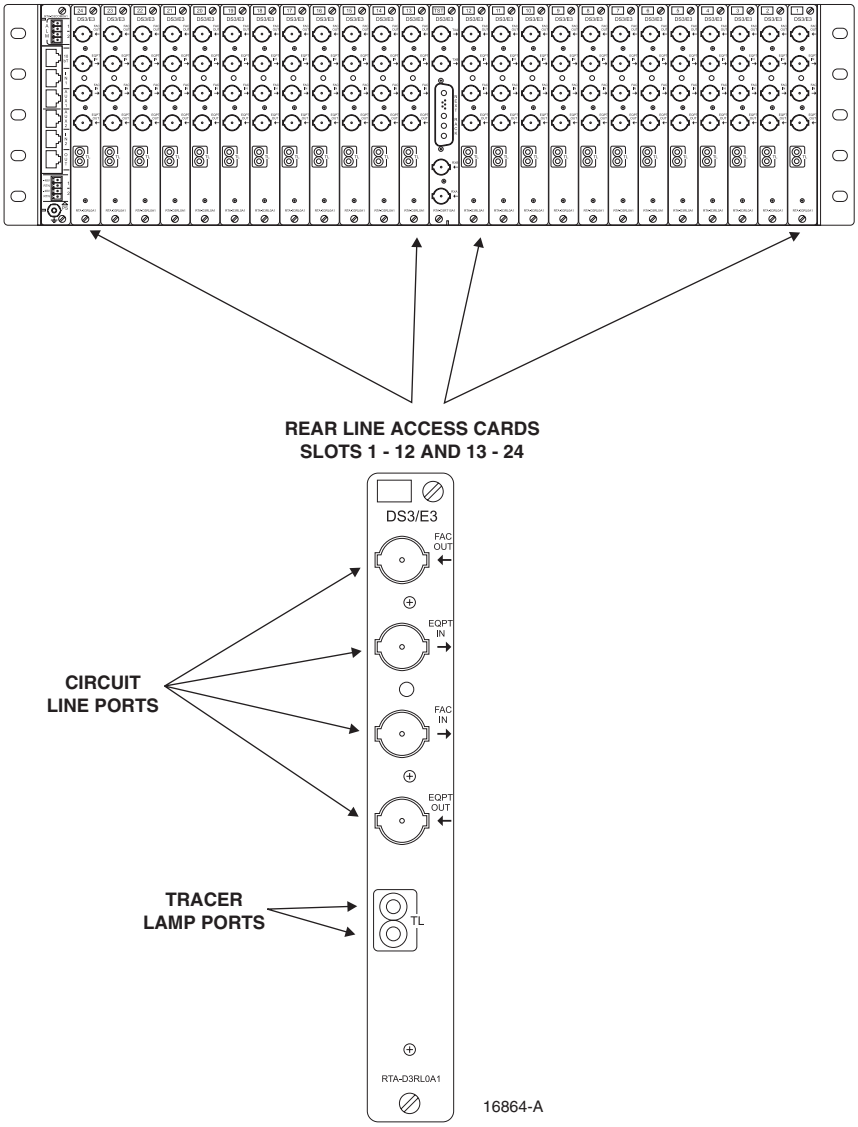

Figure 19. DS3/E3 Port Connections

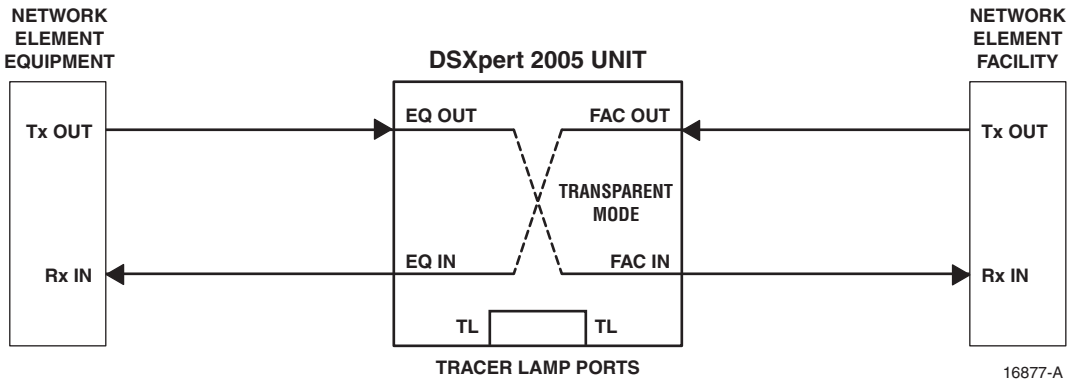

Figure 20. DS3/E3 Line Port Connections to Equipment and Facility Network Elements

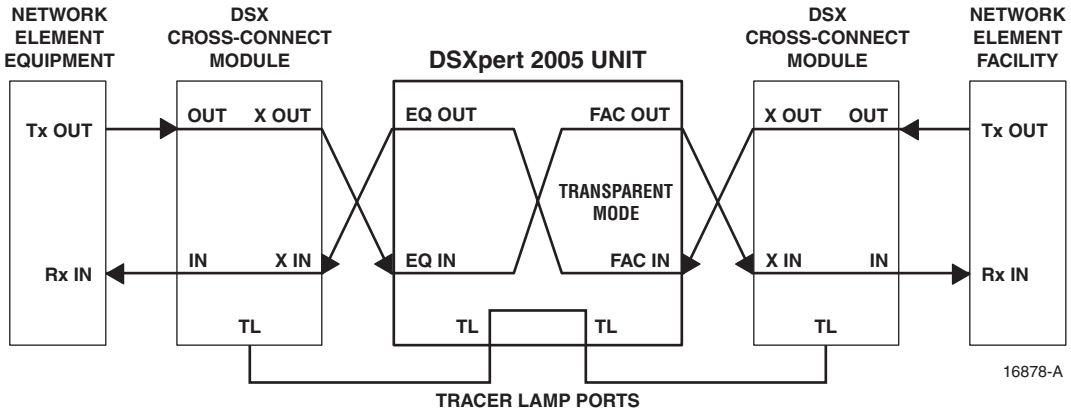

Figure 21. DS3/E3 Line Port Connections to DSX Cross-Connect Modules

2.3.2 DS3/E3 Test Ports

For each test set, connect the DS3/E3 test equipment ports as shown in Figure 22. The DS3/E3 test equipment ports are located on the rear of the DSXpert chassis. They are used to connect test equipment to the DSXpert units for monitoring and line testing. Use BNC cables, 75 ohm shielded coax for DS3/E3 test port connections.

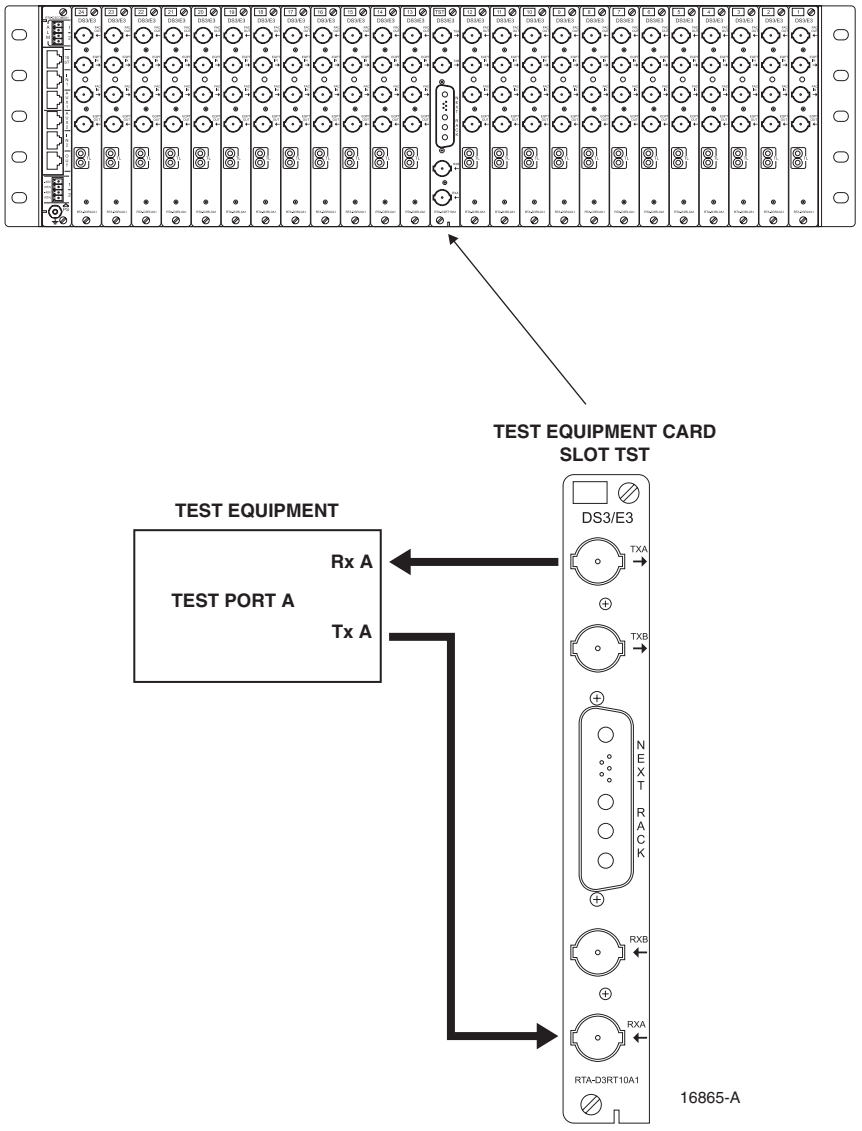

Figure 22. DS3/E3 Test Port Connections

2.3.3 Daisy-Chaining Test Ports (Optional)

Optionally, test equipment ports may be daisy-chained across several 2005R DSXpert units to allow sharing of test sets among the chassis. It is not related to daisy-chaining of the COMM IN/COMM OUT serial control ports.

To daisy-chain the test equipment ports, connect the ports as shown in Figure 23. Up to 4 DSXpert 2005R units can be daisy-chained together via their NEXT RACK ports.

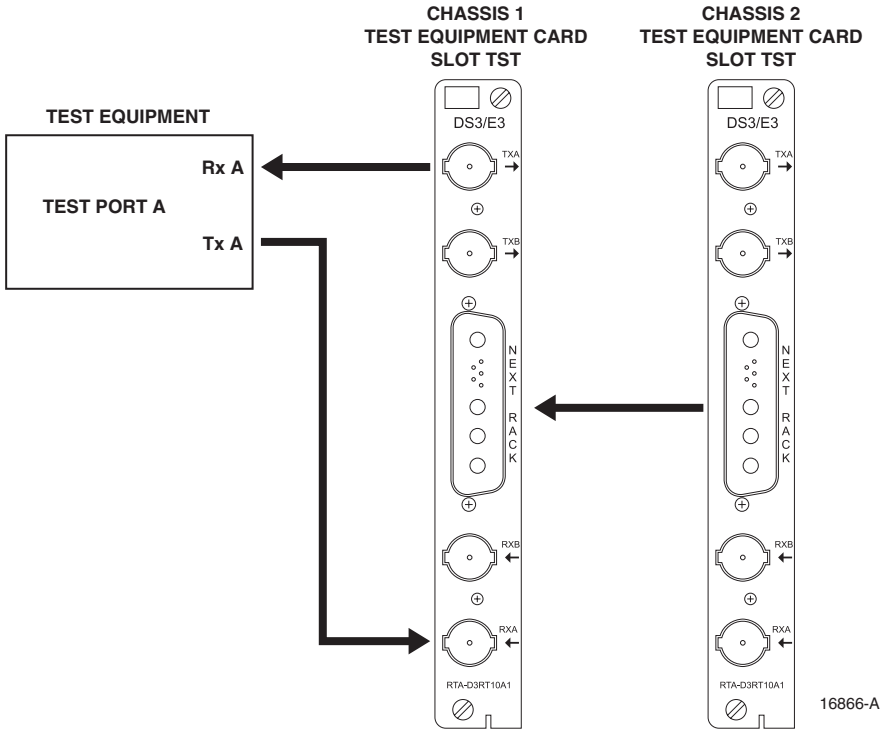

Figure 23. Daisy-Chaining of Test Ports Across Multiple DSXpert Chassis (Optional)

2.3.4 COMM Ports

Six RJ-45 connectors (ports) located on the front of the Communication and Power Supply Card provide all communication interfaces to the DSXpert Chassis. Each port supports baud rates of 9600bps and 19,200bps. The function of each communication interface port is defined in Table 2.

Table 2. Communication Ports

NAME	DESCRIPTION	REMARKS
10bT	10Base-T Ethernet port.	LAN connection.
IN1	RS-232 Serial port configured as DCE.	Used to communicate with a control terminal or PC.
AUX1 and AUX2	RS-232 Serial port configured as DCE.	Used to control two DS3 test devices.
IN2	RS-232 Serial port configured as DCE.	Connects to the OUT RJ-45 connector on the next chassis in a daisy-chain configuration.
OUT	RS-232 Serial port configured as DTE.	Connects to the IN2 RJ-45 connector on the previous chassis in a daisy-chain configuration.

The IN1 and IN2 communication ports provide a serial connection from the DSXpert unit to a DTE (for example, a VT100 terminal or PC), DCE (for example, a modem), or other DSXpert units. Primarily, the serial connection allows the DSXpert unit to be configured locally for network communication. The network setup is continued in the Network Configuration chapter.

To prepare the DSXpert unit for network communication, connect the IN1 port on the rear of the DSXpert Chassis to a control terminal or PC as shown in Figure 24.

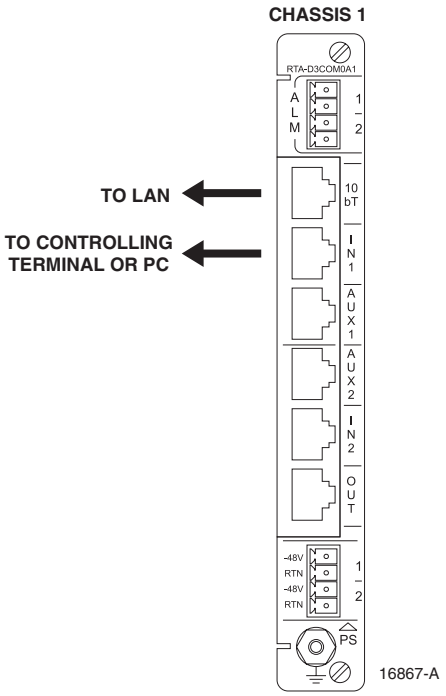

Figure 24. IN1 Port Connections

Table 3, Table 4, Table 5, Table 6, and Table 7 detail the pin-out configurations of the RJ-45 ports on the Communication and Power Supply card.

Table 3. 10Base-T Interface

RJ-45	SIGNAL
1	TX+
2	TX-
3	RX+
6	RX-

Table 4. Pin-Out Configuration of the COMM IN (IN1) Port

RJ-45	DESCRIPTION	DIRECTION
1	Not Used	– –
2	Not Used	– –
3	Not Used	– –
4	Signal Ground	– –
5	Receive Data (TRXD)	OUT
6	Transmit Data (TTXD)	IN
7	Clear to Send (TCTS)	OUT
8	Request to Send (TRTS)	IN

Table 5. Pin-Out Configuration for the Chain In (IN2) Port

RJ-45	DESCRIPTION	DIRECTION
1	Chain In First (TFIRST)	IN
2	Fall-back Bit 0 (FB0)	IN/OUT
3	Fall-back Bit 1 (FB1)	IN/OUT
4	Signal Ground	– –
5	Receive Data (TRXD)	OUT
6	Transmit Data (TTXD)	IN
7	Clear to Send (TCTS)	OUT
8	Request to Send (TRTS)	IN

Table 6. Pin-Out Configuration for the Chain Out)Out) Port

RJ-45	DESCRIPTION	DIRECTION
1	Chain In First (SFIRST)	IN
2	Fall-back Bit 0 (FB0)	IN/OUT
3	Fall-back Bit 1 (FB1)	IN/OUT
4	Signal Ground	– –
5	Receive Data (SRXD)	IN
6	Transmit Data (STXD)	OUT
7	Clear to Send (TCTS)	IN
8	Request to Send (TRTS)	OUT

Table 7. Pin-Out Configuration of AUX1 and AUX2 Ports

RJ-45	DESCRIPTION	DIRECTION
1	Not Used	– –
2	Not Used	– –
3	Not Used	– –
4	Signal Ground	– –
5	Receive Data (EQRXD)	OUT
6	Transmit Data (EQTXD)	IN
7	Clear to Send (EQCTS)	OUT
8	Request to Send (EQRTS)	IN

2.3.5 Daisy-Chaining Chassis (Optional)

Optionally, up to four DSXpert chassis may be daisy-chained together using the communication ports. This allows up to four units to share a single communication link, such as a common IP address. To daisy-chain DSXpert chassis together, connect the ports as shown in Figure 25.

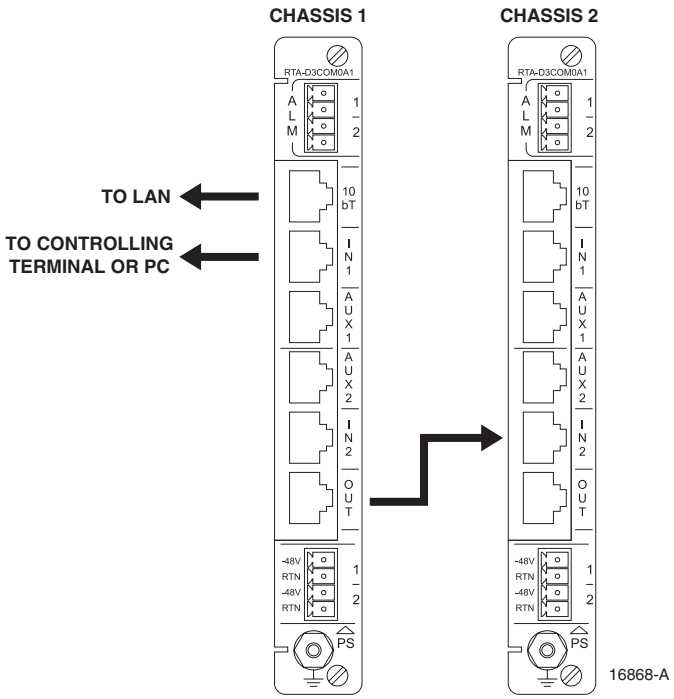

Figure 25. Daisy-Chaining Communication Ports

2.3.6 AUX Ports

The AUX1 port on the Communication and Power Supply card is used to connect the communication port of a test device, as shown in Figure 26.

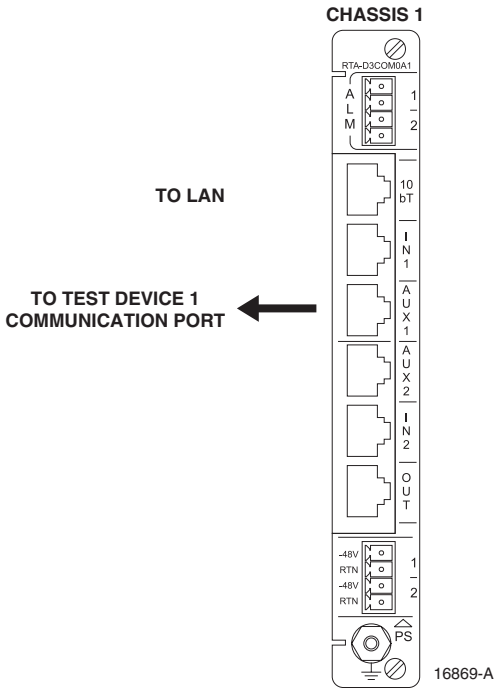

Figure 26. Connecting AUX/LOCAL Port

3 SYSTEM VERIFICATION

3.1 LED Test

LEDs may be tested by depressing the LAMP TEST button on the front of the CPU card. See Figure 27. All LEDs on the front card modules should illuminate.

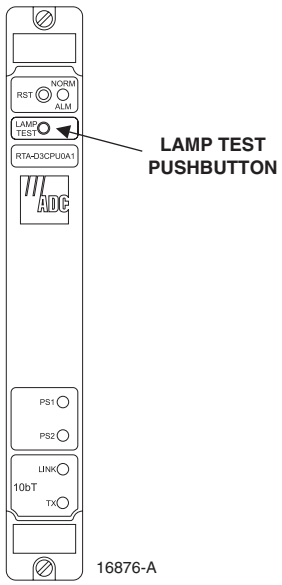

Figure 27. LAMP Test Button

4 SPECIFICATIONS

This chapter provides technical specifications for the DSXpert 2005R DS3/E3 Remote Test Access System. System specifications are shown in Table 8.

Table 8. DSXpert 2005R System Specifications

PARAMETER	SPECIFICATION	REMARKS
Dimensions	23 x 12 x 6 inches (58.42 x 30.48 x 15.24 cm)	Per MIL-STD 189 for 23 inch cabinet mounting
Connectors	Coaxial BNC	75ohm
Interfaces	DS3, E3	
Protocols	Transparent to all protocols and speeds, including Frame Relay, and ATM.	
Control Options	ASCII character strings, TL1, SNMP, TELNET, and MENU screens	
Control Communications	8 data bits, no parity, 9600 with 1 stop bit, 19200 with 2 stop bits	10Base-T, RS-232
System Capacity	Up to 4 daisy-chained units via test port connection. Up to 8 daisy-chained units per networked or direct connection.	Units per control connection
	Up to 24 DS3/E3 lines. One test device per chassis.	Lines and devices per chassis
Operating Conditions	32°F to +104°F (0°C to +40°C) 0-95% humidity	noncondensing
Power Input Voltage	–48 Vdc, A and B Feed (Redundant power source)	18-22 awg, shielded wire
Power Input Current	6.3 Amps	Fuse: 250 V / T6.3 A slow blow
Shield Ground Stud	20 AWG	

5 ACTIVITY LEDS

Line Access Card (front): One test activity LED, labeled TST or TST/ALM. One lock LED, labeled LOCK. One tracer LED (optional), labeled TL (tracer lamp)

Test Equipment Card: One test activity LED for each test device, labeled TST1 and TST2.

Control Card: Two status activity LEDs for each power supply, labeled PS1 and PS2. One status activity LED for the control communication link, labeled NORM/ALM. Two 10BaseT LEDs, one connection LED, labeled LINK and one status activity LED for Ethernet data transmission, labeled TX.

6 CUSTOMER INFORMATION AND ASSISTANCE

For customers wanting information on ADC products or help in using them, ADC offers the services listed below. To obtain any of these services by telephone, first dial the central ADC telephone number, then dial the extension provided below.

The central number for calls originating in the U.S.A. or Canada is **1-800-366-3891**. For calls originating outside the U.S.A. or Canada, dial country code "1" then dial **952-917-3000.**

Sales Assistance **Extension 73000**	• Quotation Proposals • Ordering and Delivery • General Product Information
Systems Integration **Extension 73000**	• Complete Solutions (from Concept to Installation) • Network Design and Integration Testing • System Turn-Up and Testing • Network Monitoring (Upstream or Downstream) • Power Monitoring and Remote Surveillance • Service/Maintenance Agreements • Systems Operation
BCG Technical Assistance Center **Extension 73475** **E-Mail: bcg_tac@adc.com**	• Technical Information • System/Network Configuration • Product Specification and Application • Training (Product-Specific) • Installation and Operation Assistance • Troubleshooting and Repair
Product Return Department **Extension 73748** **E-Mail: repair&return@adc.com**	• ADC Return Authorization number and instructions must be obtained before returning products.

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