Total Access 900 Series
Hardware Installation Guide

Total Access 912

Total Access 916

Total Access 924

61210916L1-34A
May 2005

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Huntsville, AL 35814-4000
Phone: (256) 963-8000

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Conventions

Notes provide additional useful information.

Cautions signify information that could prevent service interruption or damage to equipment.

WARNING *Warnings provide information that could prevent endangerment to human life.*

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Safety Instructions

When using your telephone equipment, please follow these basic safety precautions to reduce the risk of fire, electrical shock, or personal injury:

1. Do not use this product near water, such as a bathtub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.
2. Avoid using a telephone (other than a cordless-type) during an electrical storm. There is a remote risk of shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord, power supply, and/or batteries indicated in the manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for special disposal instructions.
5. The socket-outlet shall be installed near the equipment and shall be easily accessible.

Save These Important Safety Instructions

WARNING *Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

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FCC-Required Information

FCC regulations require that the following information be provided in this manual:

1. This equipment complies with Part 68 of FCC rules and requirements adopted by ACTA. Each registered interface has a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, provide this information to the telephone company.
2. If this equipment causes harm to the telephone network, the telephone company may temporarily discontinue service. If possible, advance notification is given; otherwise, notification is given as soon as possible. The telephone company will advise the customer of the right to file a complaint with the FCC.
3. The telephone company may make changes in its facilities, equipment, operations, or procedures that could effect the proper operation of this equipment. Advance notification and the opportunity to maintain uninterrupted service are given.
4. If experiencing difficulty with this equipment, please contact ADTRAN for repair and warranty information. The telephone company may require this equipment to be disconnected from the network until the problem is corrected or it is certain the equipment is not malfunctioning.
5. This unit contains no user-serviceable parts.
6. This equipment is designed to connect to the telephone network or premises wiring using an FCC-compatible modular jack, which is compliant with Part 68 and requirements adopted by ACTA.
7. The following information may be required when applying to the local telephone company for leased line facilities:

Part Number	Registration Number	Service Type	REN/SOC	FIC	USOC
4210912L1	US: HDCDENAN4213616L1	1.544 Mbps - SF 1.544 Mbps - SF and B8ZS 1.544 Mbps - ESF 1.544 Mbps - ESF and B8ZS	6.0N	04DU9-BN 04DU9-DN 04DU9-1KN 04DU9-1SN	RJ-21X
4210916L1					
4210924L1					

8. The REN is useful in determining the quantity of devices you may connect to your telephone line and still have all of those devices ring when your number is called. In most areas, the sum of the RENs of all devices should not exceed five. To be certain of the number of devices you may connect to your line as determined by the REN, call your telephone company to determine the maximum REN for your calling area.
9. This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.

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FCC Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio frequencies. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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Industry Canada Compliance Information

Notice: The Industry Canada label applied to the product (identified by the Industry Canada logo or the "IC:" in front of the certification/registration number) signifies that the Industry Canada technical specifications were met.

Notice: The Ringer Equivalence Number (REN) for this terminal equipment is supplied in the documentation or on the product labeling/markings. The REN assigned to each terminal device indicates the maximum number of terminals that can be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices should not exceed five (5).

Canadian Emissions Requirements

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioelectriques applicables aux appareils numériques de Class A prescrites dans la norme sur le materiel brouilleur: "Appareils Numériques," NMB-003 edictee par le ministre des Communications

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Affidavits

Affidavit Requirements for Connection to Digital Services

- An affidavit is required to be given to the telephone company whenever digital terminal equipment without encoded analog content and billing protection is used to transmit digital signals containing encoded analog content which are intended for eventual conversion into voiceband analog signals and transmitted on the network.
- The affidavit shall affirm that either no encoded analog content or billing information is being transmitted or that the output of the device meets Part 68 encoded analog content or billing protection specifications.
- End user/customer will be responsible for filing an affidavit with the local exchange carrier when connecting unprotected customer premise equipment (CPE) to 1.544 Mbps or subrate digital services.
- Until such time as subrate digital terminal equipment is registered for voice applications, the affidavit requirement for subrate services is waived.

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Affidavit for Connection Of Customer Premises Equipment to 1.544 Mbps And/or Subrate Digital Services

For the work to be performed in the certified territory of _____(telco name)

State of _____

County of _____

I, _____ (name), _____(business address),

_____ (telephone number) being duly sworn, state:

I have responsibility for the operation and maintenance of the terminal equipment to be connected to 1.544 Mbps and/or _____ subrate digital services. The terminal equipment to be connected complies with Part 68 of the FCC rules except for the encoded analog content and billing protection specifications. With respect to encoded analog content and billing protection:

( ) I attest that all operations associated with the establishment, maintenance, and adjustment of the digital CPE with respect to analog content and encoded billing protection information continuously complies with Part 68 of the FCC Rules and Regulations.

( ) The digital CPE does not transmit digital signals containing encoded analog content or billing information which is intended to be decoded within the telecommunications network.

( ) The encoded analog content and billing protection is factory set and is not under the control of the customer.

I attest that the operator(s)/maintainer(s) of the digital CPE responsible for the establishment, maintenance, and adjustment of the encoded analog content and billing information has (have) been trained to perform these functions by successfully having completed one of the following (check appropriate blocks):

( ) A training course provided by the manufacturer/grantee of the equipment used to encode analog signals; or

( ) A training course provided by the customer or authorized representative, using training materials and instructions provided by the manufacturer/grantee of the equipment used to encode analog signals; or

( ) An independent training course (e.g., trade school or technical institution) recognized by the manufacturer/grantee of the equipment used to encode analog signals; or

( ) In lieu of the preceding training requirements, the operator(s)/maintainer(s) is (are) under the control of a supervisor trained in accordance with _____ (circle one) above.

I agree to provide _____ (telco's name) with proper documentation to demonstrate compliance with the information as provided in the preceding paragraph, if so requested.

_____Signature

_____Title

_____ Date

Transcribed and sworn to before me

This _____ day of _____, _____

_____
Notary Public

My commission expires:

_____

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Warranty and Customer Service

ADTRAN will repair and return this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found at: http://support.adtran.com (Click on *Warranty and Repair Information*, under *Support*.)

Product Registration

Registering your product helps ensure complete customer satisfaction. Please take time to register your products on line at http://support.adtran.com. Click on *Service/Support* and then on *Product Registration* under *Support.*

Product Support Information

A return material authorization (RMA) is required prior to returning equipment to ADTRAN. For service, RMA requests, training, or more information, use the following contact information:.

Repair and Return

If you determine that a repair is needed, please contact our Customer and Product Service (CaPS) department to have an RMA number issued. CaPS should also be contacted to obtain information regarding equipment currently in house or possible fees associated with repair.

CaPS Department (256) 963-8722

Identify the RMA number clearly on the package (below address), and return to the following address:

ADTRAN Customer and Product Service
901 Explorer Blvd. (East Tower)
Huntsville, Alabama 35806

RMA # _____

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Pre-Sales Inquiries and Applications Support

Your reseller should serve as the first point of contact for support. If additional pre-sales support is needed, the ADTRAN Support website provides a variety of support services such as a searchable knowledge base, latest product documentation, application briefs, case studies, and a link to submit a question to an Applications Engineer. All of this, and more, is available at:

http://support.adtran.com

When needed, further pre-sales assistance is available by calling our Applications Engineering Department.

Applications Engineering (800) 615-1176

Post-Sale Support

Your reseller should serve as the first point of contact for support. If additional support is needed, the ADTRAN Support website provides a variety of support services such as a searchable knowledge base, updated firmware releases, latest product documentation, service request ticket generation and trouble-shooting tools. All of this, and more, is available at:

http://support.adtran.com

When needed, further post-sales assistance is available by calling our Technical Support Center. Please have your unit serial number available when you call.

Technical Support	(888) 4ADTRAN
International Technical Support	1-256-963-8716

Installation and Maintenance Support

The ADTRAN Custom Extended Services (ACES) program offers multiple types and levels of installation and maintenance services which allow you to choose the kind of assistance you need. This support is available at:

http://support.adtran.com

For questions, call the ACES Help Desk.

ACES Help Desk	(888) 874-ACES (2237)

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Training

The Enterprise Networks (EN) Technical Training Department offers training on our most popular products. These courses include overviews on product features and functions while covering applications of ADTRAN's product lines. ADTRAN provides a variety of training options, including customized training and courses taught at our facilities or at your site. For more information about training, please contact your Territory Manager or the Enterprise Training Coordinator.

Training Phone	(800) 615-1176, ext. 7500
Training Fax	(256) 963-6700
Training Email	training@adtran.com

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1. INTRODUCTION TO THE TOTAL ACCESS 900 SERIES

The Total Access 900 Series products are Integrated Access Devices (IAD) designed for cost-effective deployment of up to 1.536 Mbps of Session Initiation Protocol (SIP), PPP, or Frame Relay voice and data services. The Total Access 900 Series combines voice and data services into a single platform creating the 4th generation of ADTRAN IADs for IP Telephony service providers (such as CLECs, ILECs, and ISPs).

Total Access 900 Series products are built on the ADTRAN Operating System (AOS) platform and include the AOS built-in IP router and firewall features. The units include a network interface (**NET T1 0/1**), a DSX-1 interface (**T1 0/2**), a **VOICE** interface (up to 24 FXS ports), a 10/100BaseT interface, and a **CRAFT** port (management interface). An optional battery backup is also available for the Total Access 900 Series. The last two digits of the product name indicate the number of on-board FXS ports. The Total Access 912 contains twelve FXS ports, the Total Access 916 contains sixteen FXS ports, and the Total Access 924 contains twenty-four FXS ports. The units can provision, test, and provide status for any of the voice and data interfaces. All connections are made via the rear panel.

In common packet-based applications, the WAN (**NET T1 0/1**) connects to the ISP or Carrier's network and transmits packetized voice and data over a SIP trunk. The customer's voice is presented as TDM to the FXS ports or DSX-1 interface, and the data is routed out the LAN (**ETH 0/1**).

Features and Specifications

The Total Access 900 Series products have the following features:

- Support for up to 24 FXS ports with octal FXS daughter board
- Support for a single DS-1 interface and a single DSX-1 interface
- Support for a single auto MDI/MDX 10/100 Ethernet port (RJ-48C)
- Full-featured AOS IP router/firewall
- QOS/NAT/DHCP client, server, and relay
- Support for SIP trunks
- Support for up to 1.536 Mbps of Frame Relay or PPP
- Support for Caller ID, Message Waiting, and stutter dial tone
- Fax and analog modem compatible (V.90)
- Support for local station to station calls
- Up to 26 channels of G.711 (μ-law)
- Up to 26 channels on G.729
- Up to 26 channels of DTMF detection/generation
- Support for 8 ms Echo Cancellation
- Support for up to 26 channels of Caller ID
- 100 ms jitter buffer per channel
- User-friendly web GUI and a familiar CLI interface
- LEDs for system status information
- Chassis dimensions: 1.75 inches H x 17.0 inches W x 8.5 inches D
- AC power information: 90-120 VAC 60 Hz

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This hardware installation guide describes the Total Access 900 Series units, details basic functionality, gives installation instructions, and lists unit specifications. For more information on a specific application, refer to the quick start documents provided on your *ADTRAN OS Documentation* CD.

WARNING *The Total Access 900 SeriesSystem is intended to be installed, maintained, and serviced by qualified personnel only.*

Unpack and Inspect the System

Each Total Access 900 Series unit is shipped in its own cardboard shipping carton. Open the carton carefully and avoid deep penetration into the carton with sharp objects.

After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer and Product Service (see *Customer Service, Product Support Information, and Training*, on page 10).

Contents of ADTRAN Shipments

Total Access 912

Shipments of the Total Access 912 include the following items:

- Total Access 912
- Documentation CD or Reference sheet
- IEC 3-prong power cord
- Two brackets and six screws for wallmounting

Total Access 916

Shipments of the Total Access 916 include the following items:

- Total Access 916
- Documentation CD or Reference sheet
- IEC 3-prong power cord
- Two brackets and six screws for wallmounting

Total Access 924

Shipments of the Total Access 924 include the following items:

- Total Access 924
- Documentation CD or Reference sheet
- IEC 3-prong power cord
- Two brackets and six screws for wallmounting

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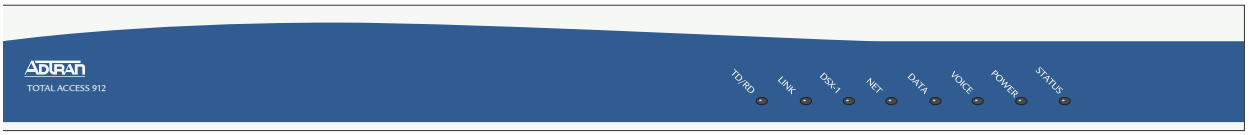
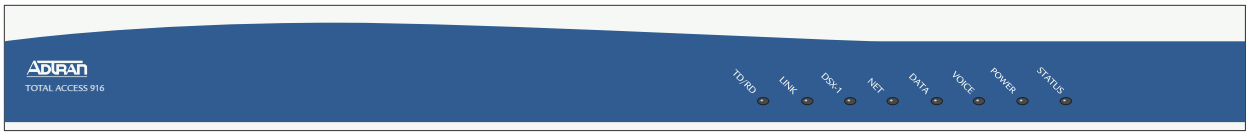
2. PHYSICAL DESCRIPTION

Reviewing the Front Panel Design

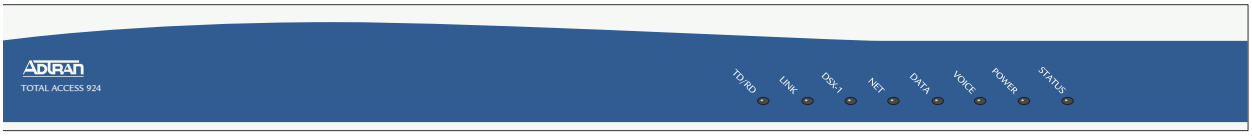
Figure 1 shows the Total Access 900 Series products front panels (the Total Access 912 contains twelve FXS ports, the Total Access 916 contains sixteen FXS ports, and the Total Access 924 contains twenty-four FXS ports).



Total Access 912



Total Access 916



Total Access 924

Figure 1. Total Access 900 Series Front Panel Layouts

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Front Panel LEDs

Table 1 describes the front panel LEDs.

Table 1. Total Access 900 Series LEDs

For these LEDs…	This activity…	Indicates that…
STATUS	Off	Bootstrap mode - The boot code cannot be booted. During Bootstrap mode, **VOICE**, **DATA**, **NET**, and **DSX-1** LEDs will be red.
	Green (flashing)	Unit is powering up. On power-up the **STATUS** LED flashes rapidly for 5 seconds, during which time the user may escape to Bootstrap mode from the **CRAFT** port.
	Green (solid)	Power is on and the unit is functioning normally.
POWER	Off	No power.
	Green	AC power is operational.
	Amber	AC power has failed. Battery backup is active.
VOICE	Off	All ports are inactive.
	Green (solid)	At least one port is off-hook.
	Green (flashing)	At least one port is ringing.
	Amber	At least one port is in test.
	Red	Fault condition.
DATA	Off	Administratively shut down.
	Green	Layer 2 is up on the NET interface.
	Red	Layer 2 is down on the NET interface.
NET / DSX-1	Off	Port is administratively shut down.
	Green	Link is up and in normal operation.
	Amber	Port is in test.
	Red	An alarm condition is present.
LINK	Off	Link is down or port is administratively shut down.
	Green	10BaseT link is up.
	Amber	100BaseT link is up.
TD / RD	Off	No traffic or port is administratively shut down.
	Green (flashing)	Data traffic is flowing.
ETH 0/1 **(Rear Panel)**	Green (off)	Link is down or port is administratively shut down.
	Green (solid)	Link is up.
	Amber (off)	No traffic or port is administratively shut down.
	Amber (flashing)	Data traffic is flowing.

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Reviewing the Rear Panel Design

Figure 2 shows the Total Access 900 Series products' rear panel, which contain identical interfaces regardless of the model (Total Access 912/916/924).

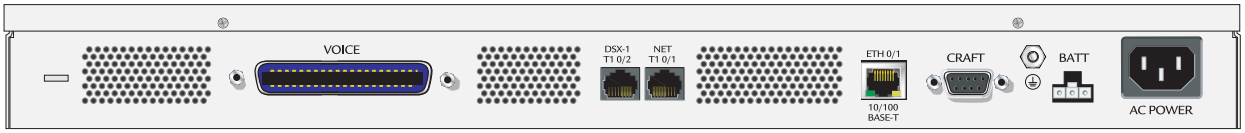

Figure 2. Total Access 900 Series Rear Panel Layout

Rear Panel Interfaces and LEDs

Power Supply

The Total Access 900 Series products have a 90-120 VAC power supply with an IEC connector. The appropriate three-prong cable is included in the shipment. Please refer to *10/100BaseT Ethernet Interface and Activity LEDs* for connection details.

Battery Backup Connection

An optional battery backup system (P/N 1175044L1, 2, or 4) is available for the Total Access 900 Series products. Refer to the documentation available for your specific battery backup unit for more information on this connection, or see *Battery Backup Unit* on page 29 for a more details.

CRAFT Interface

The **CRAFT** interface is an EIA-232 serial port (DCE) which provides for local management and configuration (via a DB-9 female connector). Table A-5 on page 35 shows the **CRAFT** port pinouts.

> NOTE *Connection directly to an external modem requires a cross-over cable.*

10/100BaseT Ethernet Interface and Activity LEDs

The Ethernet port (**ETH 0/1**) is an RJ-48C connector with LEDs. The amber activity LED flashes when data traffic is being sent or received on the Ethernet port. The green link LED is on when the unit has a good connection to the LAN. See Table A-4 on page 34 for the Ethernet port pinout.

Network Interface

The **NET T1 0/1** interface is a DS-1 RJ-48C pin connection. See Table A-3 on page 34 for the network interface pinout.

DSX-1 Interface

The **DSX-1 T1 0/2** interface is a DSX-1 RJ-48C pin connection. See Table A-2 on page 34 for the network interface pinout.

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VOICE Connection

A single 50-pin female amphenol connector provides the interconnect wiring for the analog circuits (FXS). Figure 3 shows the **VOICE** connector pinout.

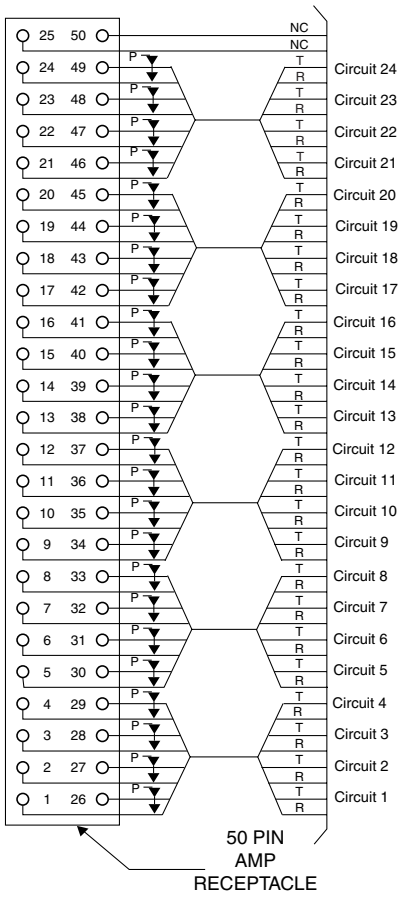

Figure 3. Voice Connector Pin Assignments

The Total Access 912 only uses circuits 1-12. The Total Access 916 only uses circuits 1-16. The Total Access 924 uses all circuits (1-24).

3. UNIT INSTALLATION

The instructions and guidelines provided in this section cover hardware installation topics such as wallmounting/rackmounting the unit and installing the unit. See *Unpack and Inspect the System* on page 20 before getting started. These instructions are presented as follows:

- *Tools Required* on page 25
- *Mounting Options* on page 26
- *Grounding Instructions* on page 27
- *Supplying Power to the Unit* on page 28

For information on configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

WARNING *To prevent electrical shock, do not install equipment in a wet location or during an electrical storm.*

Tools Required

The following customer-provided tools are required for the hardware installation of the Total Access 900 Series:

- Two wood screws, 3/32-inch to 1/8-inch (1 1/2-inches length)
- Drill and drill bit set
- Screwdriver (medium)
- 25-pair male amphenol cable (customer connection)
- Selected punch-down block and tool

To access the command line interface (CLI) of the Total Access 900 Series, you must have a VT100 terminal or PC with terminal emulation software and a **CRAFT** *port cable. Instructions on how to access the CLI are given in the AOS Command Reference Guide (provided on the ADTRAN OS Documentation CD).*

To access the Web-Based GUI of the Total Access 900 Series, you must have a PC connected to an IP network. Instructions on how to access the Web-Based GUI are given in the Web GUI Configuration Guide, document number 61210916L1-42.1 (provided on the ADTRAN OS Documentation CD).

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Mounting Options

The Total Access 900 Series may be installed in a wallmount, rackmount, or tabletop configuration. The following sections provide step-by-step instructions for rackmounting and wallmounting.

Wallmounting Total Access 900 Series

Instructions for Wallmounting Total Access 900 Series	
Step	**Action**
1	Attach the wallmount brackets to the unit using the supplied screws.
2	Decide on a location for the Total Access 900 Series. Keep in mind that the unit needs to be mounted at or below eye level so that the LEDs are visible. ***Warning! Do not mount the chassis with the LEDs facing up (see Figure 4).***
3	Prepare the mounting surface by attaching a board (typically plywood, 3/4-inch to 1-inch thick) to a wall stud. ***Important!*** *Mounting to a stud ensures stability. Using sheetrock anchors may not provide sufficient long-term stability.*
4	Have an assistant hold the unit in position as you install two 3/32-inch up to 1/8-inch (1 1/ 2-inch or greater length) wood screws through the unit's brackets and into the mounted board.
5	Proceed to the steps given in *Grounding Instructions* on page 27.

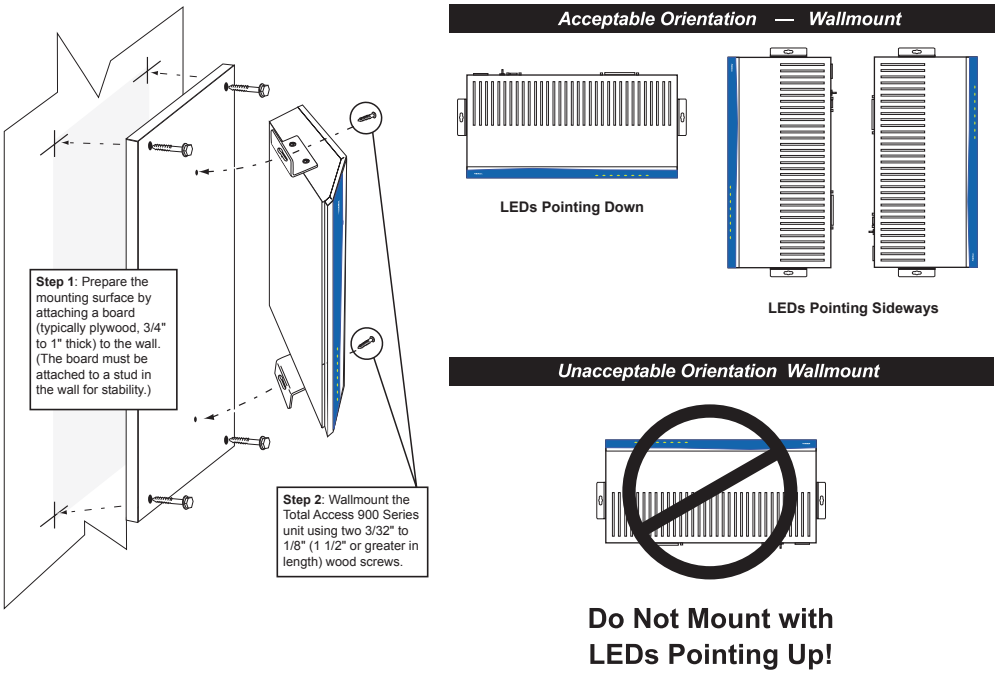

Figure 4. Wallmounting the Unit

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Rackmounting Total Access 900 Series

The Total Access 900 Series products are housed in a 1U-high, rackmountable chassis which can be installed into 19-inch or 23-inch equipment racks. For a rackmount installation, optional rackmount brackets must be purchased (19" – P/N 1200927L19, 23" – P/N 1200927L23).
The Total Access 912/916/924 mount and connect with standard fasteners and hand tools.

Follow these steps to rackmount the Total Access 912/916/924:

Instructions for Rackmounting Total Access 900 Series	
Step	**Action**
1	Position the Total Access 900 Series in a stationary equipment rack. This unit takes up 1U of space. To allow proper grounding, scrape the paint from the rack around the mounting holes where the Total Access 900 Series will be positioned.
2	Have an assistant hold the unit in position as you install two mounting bolts through the unit's brackets and into the equipment rack.
3	Proceed to the steps given in *Grounding Instructions* on page 27.

Be careful not to compromise the stability of the equipment mounting rack when installing this product.

Grounding Instructions

The following provides grounding instructions for the Underwriters' Laboratory UL 60950 Standard for Safety of Information Technology Equipment Including Electrical Business Equipment, with revisions dated March 15, 2002.

A supplementary equipment grounding conductor shall be installed between the product or system and ground that is in addition to the equipment grounding conductor in the power supply cord. The supplementary equipment grounding conductor shall not be smaller in size than the ungrounded branch-circuit supply conductors. The supplementary equipment grounding conductor shall be connected to the product at the terminal provided, and shall be connected to ground in a manner that will retain the ground connection when the product is unplugged from the receptacle. The connection to ground of the supplementary equipment grounding conductor shall be in compliance with the rules for terminating bonding jumpers at Part K or Article 250 of the National Electrical Code, ANSI/NFPA 70. Termination of the supplementary equipment grounding conductor is permitted to be made to building steel, to a metal electrical raceway system, or to any grounded item that is permanently and reliably connected to the electrical service equipment ground.

The supplemental grounding conductor shall be connected to the equipment using a number 8 ring terminal and should be fastened to the grounding lug provided on the rear panel of the equipment. The ring terminal should be installed using the appropriate crimping tool (AMP P/N 59250 T-EAD Crimping Tool or equivalent).

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Grounding for AC Power

The attachment-plug receptacles in the vicinity of the product or system are all to be of a grounding type, and the equipment grounding conductors serving these receptacles are to be connected to earth ground at the service equipment.

Supplying Power to the Unit

As shipped, each Total Access 900 Series product is set to factory default conditions. After installing the unit, the Total Access 900 Series product is ready for power-up. To power the unit, ensure that the unit is properly connected to an appropriate power source (as outlined in the sections below).

Total Access 900 Series

The Total Access 900 Series comes equipped with a 90 -120 VAC, 60 Hz power supply. The maximum power consumption is 50 W. A grounded, three-plug detachable cable is included with the shipment.

- *Use only copper conductors when making power connections.*
- *Install unit in accordance with Article 400 and 364.8 of the NEC NFPA 70.*
- *A readily accessible disconnect device, that is suitably approved and rated, shall be incorporated in the field wiring.*
- *Maximum recommended ambient operating temperature is 50°C.*

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4. BATTERY BACKUP UNIT

The ADTRAN Battery Backup Unit is an optional device designed as a backup DC power supply for the Total Access 900 Series. The Battery Pack connects to the Total Access 900 Seriesthrough a 6-foot charge/discharge, 2-conductor wire with a keyed modular plug (included with the Battery Backup Unit). The 1175044L1 Battery Backup Unit is a low profile wallmount configuration. It can be rackmounted with the appropriate 19-inch or 23-inch rackmount adapter brackets. The 1175044L2 is an equivalent Battery Backup Unit with a hinged front access door.

Features

Features of the Battery Pack, P/N 1175044L1/L2, include the following:

- No-spill battery design
- Compact wallmount or rackmount box
- Double Battery Pack rackmounting available
- 7 A/hr batteries (up to 8 hours of backup, depending on load)
- Modular plug (provides quick and easy installation)
- All mounting hardware included

Unpack and Inspect the Battery Pack

Removing the Battery Pack covers could allow batteries to fall out.

After unpacking the Battery Pack unit, inspect it for damage. If damage is noted, file a claim with the carrier; then contact ADTRAN Customer Service (see page 10).

WARNING *The Battery Pack weighs in excess of 30 pounds. Arrange for assistance when handling the Battery Pack for mounting.*

Batteries are retained and pre-wired in the Battery Pack in a specific pattern. Battery position is maintained by foam spacers press-fitted against the housing walls. Removing batteries or disconnecting wires compromises correct reassembly and should not be attempted.

Battery Pack Safety Notices

The Battery Pack should only be used in specified ADTRAN applications.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

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- This device may not cause harmful interference
- This device must accept any interference received, including that which may cause undesired operation

Wallmounting the Battery Pack

Figure 5 shows the Battery Pack mounting dimensions.

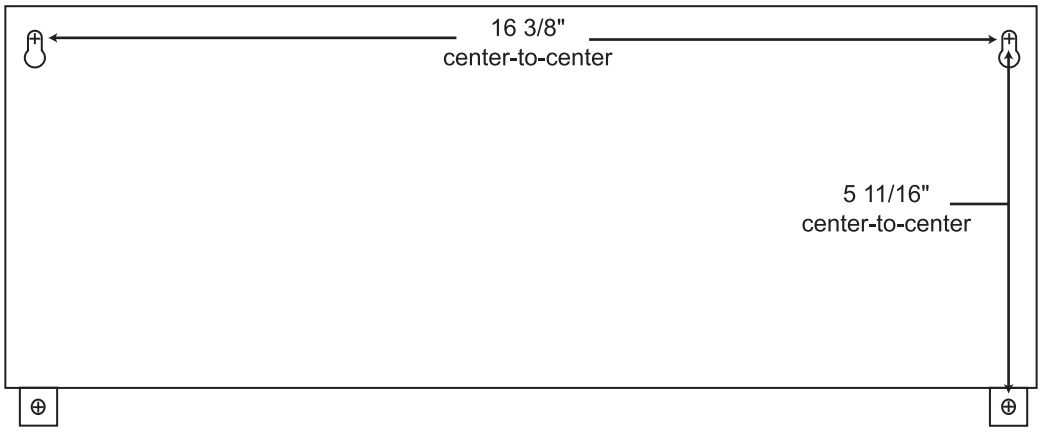

Figure 5. Battery Pack Mounting Dimensions

For a wallmount installation, the Battery Pack installs on heavy plywood (3/4-inch minimum) using four #10 x 3/4-inch pan-head wood screws. Install the Battery Pack as follows:

Wallmount Installation	
Step	**Action**
1.	Determine the preferred unit layout to ensure cable plugs reach their designated sockets.
2.	Ensuring a plumb measurement, mark where the pilot holes are to be drilled according to the dimensions given in the documentation included with your shipment.
3.	Drill all four pilot holes using a size 1/16-inch drill bit.
4.	Screw in the top two pan-head screws that fit the keyhole openings. Let the head of each screw protrude 1/16 inch from the plywood to engage the keyhole slot.

WARNING *Do not let the weight of the Battery Pack rest on the two keyhole screws. Maintain support until the lower two screws are fully inserted.*

5.	With an assistant, lift the Battery Pack and position to engage the screw heads. Allow the pack to slide down until the slot end rests against the screws.
6.	Insert the two lower screws through the tabs and tighten securely.
7.	Use cable tie-downs as appropriate. The Total Access 900 Series battery connection from the Battery Pack should be directly connected to the **BATT** port on the rear of the chassis.

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Maintenance

- The Battery Pack does not require routine maintenance for normal operation. The life expectancy of the Battery Pack is 3 to 5 years on standby use when used at room temperature.
- Excessive heat decreases battery power and life. Ideal ambient temperature for battery life and capacity is 20°C. Extreme low temperature also decreases battery capacity.
- Battery shelf life is extended in cooler temperatures.
- To order replacement batteries, reference the following part number: 1975044L1 (12 V replacement batteries).

ADTRAN is an environmentally-friendly company. Therefore, we encourage the proper recycling and handling of the batteries. Federal and state laws prohibit the improper disposal of all lead acid batteries. The customer is responsible for the handling of their batteries from the day of purchase through their ultimate disposal. For more information on battery replacement and recycling, reference ADTRAN document number 60000120-36 online at www.adtran.com. (Enter the document number in the search field to display a link to the document.)

Specifications

Table 2 provides Battery Pack specifications.

Table 2. Battery Pack Specifications

Battery	
Part Number: Suppliers: Batteries: Voltage: Backup Time: Wire Gauge:	311212V02 YUASA and Panasonic 7 A/hr per battery -12 VDC per battery Up to 8 hours 18 AWG
Environmental	
Operating Temperatures: Preferred:	Charge:-15°C to 50°C Discharge: -20°C to 60°C 20°C
Physical	
Dimensions: Weight:	17 inches W x 6.5 inches H x 3.5 inches D 30 lb.

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Appendix A.

PIN ASSIGNMENTS

Table A-1. VOICE Connector

Pins	50-pin Amphenol Connector	Description
1, 26	Circuit 1	FXS 0/1 Ring, Tip
2, 27	Circuit 2	FXS 0/2 Ring, Tip
3, 28	Circuit 3	FXS 0/3 Ring, Tip
4, 29	Circuit 4	FXS 0/4 Ring, Tip
5, 30	Circuit 5	FXS 0/5 Ring, Tip
6, 31	Circuit 6	FXS 0/6 Ring, Tip
7,32	Circuit 7	FXS 0/7 Ring, Tip
8,33	Circuit 8	FXS 0/8 Ring, Tip
9, 34	Circuit 9	FXS 0/9 Ring, Tip
10, 35	Circuit 10	FXS 0/10 Ring, Tip
11, 36	Circuit 11	FXS 0/11 Ring, Tip
12, 37	Circuit 12	FXS 0/12 Ring, Tip
13, 38	Circuit 13	FXS 0/13 Ring, Tip
14, 39	Circuit 14	FXS 0/14 Ring, Tip
15, 40	Circuit 15	FXS 0/15 Ring, Tip
16, 41	Circuit 16	FXS 0/16 Ring, Tip
17, 42	Circuit 17	FXS 0/17 Ring, Tip
18, 43	Circuit 18	FXS 0/18 Ring, Tip
19, 44	Circuit 19	FXS 0/19 Ring, Tip
20, 45	Circuit 20	FXS 0/20 Ring, Tip
21, 46	Circuit 21	FXS 0/21 Ring, Tip
22, 47	Circuit 22	FXS 0/22 Ring, Tip
23, 48	Circuit 23	FXS 0/23 Ring, Tip
24, 49	Circuit 24	FXS 0/24 Ring, Tip
25, 50	--	NC

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Table A-2. DSX-1 (T1 0/2)

Pin	Name	Description
1	R	Transmit data toward the DTE (Ring)
2	T	Transmit data toward the DTE (Tip)
3	Unused	—
4	R1	Receive data from the DTE (Ring)
5	T1	Receive data from the DTE (Tip)
6-8	Unused	—

Table A-3. NET (T1 0/1)

Pin	Name	Description
1	R1	Receive data from the network (Ring)
2	T1	Receive data from the network (Tip)
3	Unused	—
4	R	Transmit data toward the network (Ring)
5	T	Transmit data toward the network (Tip)
6-8	Unused	—

Table A-4. ETH 0/1 (10/100BaseT)

Pin	Name	Description
1	TX1	Transmit Positive
2	TX2	Transmit Negative
3	RX1	Receive Positive
4,5	—	Unused
6	RX2	Receive Negative
7, 8	—	Unused

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Table A-5. CRAFT Port

Pin	Name	Description
1	DCD	Data Carrier Detect (output)
2	RD	Receive Data (output)
3	TD	Transmitted Data (input)
4	DTR	Data Terminal Ready (input)
5	GND	Ground - connected to unit chassis
6	DSR	Data Set Ready (output)
7	RTS	Request To Send - flow control (input)
8	CTS	Clear To Send - flow control (output)
9	RI	Ring Indicate (output)

Connection directly to an external modem requires a cross-over cable.

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APPENDIX A.

ADTRAN OS SUPPORTED MIBS

ADTRAN AOS platforms support the MIBs listed in Table B-1. For the most up-to-date MIB list, please visit our website at www.adtran.com.

Table B-1. MIBs Supported in the AOS

Name	RFC	Description	Notes
DS1-MIB	2495	Describes DS1, E1, DS2, and E2 interface objects.	1
Ether-like-MIB	2665	Describes generic objects for Ethernet-like network interfaces.	2
FRAME-RELAY-DTE-MIB	2115	Describes the use of a Frame Relay interface by a DTE.	3
IF-MIB	2863	Describes generic objects for network interface sub-layers.	4
MAU-MIB	2668	Management information for 802.3 Media Access Units (MAU or transceiver).	5
SNMPv2-MIB	1907	The MIB module for SNMPv2 entities.	6
IP-MIB	2011	Describes IP and ICMP implementations, excluding the management of IP routes.	7
IP-FORWARD-MIB	2096	Describes CIDR multi-path IP Routes.	8
ADTRAN-AOS-VOICE-MIB		ADTRAN enterprise MIB, for general configuration of various voice interface types.	
ADTRAN-AOS-MUX-MIB		ADTRAN enterprise MIB, for the management of AOS products supporting TDM groups and/or cross-connects.	
ADTRAN-AOS-Media-Gate-way-MIB		ADTRAN enterprise MIB, for the statistics pertaining to VoIP and the units Media Gateway.	

Standard MIBs are supported with the following exclusions. These exclusions were agreed upon at the time the MIBs were implemented and represent objects that have been made obsolete or depreciated, or objects we simply do not support at this time.

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Table B-2. Notes Regarding MIB Exclusions

Note 1: DS1 exclusions
dsx1FarEndCurrentTable dsx1FarEndIntervalTable dsx1FarEndTotalTable dsx1FracTable
Note 2: EtherLike exclusions
dot3StatsTable • dot3StatsSQETestErrors • dot3StatsEtherChipSet dot3CollTable dot3ControlTable • dot3ControlInUnknownOpcodes **dot3PauseTable** • dot3InPauseFrames • dot3OutPauseFrames
Note 3: FRAME-RELAY-DTE exclusions
frDlcmiTable • frDlcmiAddress • frDlcmiAddressLen • frDlcmiMulticast frCircuitTable • frCircuitExcessBurst (set not allowed) • frCircuitLogicalIfIndex (set not allowed) • frCircuitRowStatus frErrTable *frTrapState* *frTrapMaxRate*
Note 4: IF exclusions
IfTable • ifInNUcastPkts • ifOutNUcastPkts • ifOutQLen • ifSpecific ifXTable • ifHCInUcastPkts • ifHCInMulticastPkts • ifHCInBroadcastPkts • ifHCOutUcastPkts • ifHCOutMulticastPkts • ifHCOutBroadcastPkts ifStackTable ifTestTable IfRcvAddressTable

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Table B-2. Notes Regarding MIB Exclusions (Continued)

Note 5: MAU exclusions
rpMauTable rpJackTable broadMauBasicTable
Note 6: SNMPv2 exclusions
sysORLastChange
sysORTable
snmpOutPkts
snmpInTooBigs
snmpInNoSuchNames
snmpInBadValues
snmpInReadOnlys
snmpInGenErrs
snmpInTotalReqVars
snmpInTotalSetVars
snmpInGetRequests
snmpInGetNexts
snmpInSetRequests
snmpInGetResponses
snmpInTraps
snmpOutTooBigs
snmpOutNoSuchNames
snmpOutBadValues
snmpOutGenErrs
snmpOutGetRequests
snmpOutGetNexts
snmpOutSetRequests
snmpOutGetResponses
snmpOutTraps
snmpTrapOID
snmpTrapEnterprise

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Table B-2. Notes Regarding MIB Exclusions (Continued)

Note 7: IP exclusions
ipForwarding
ipDefaultTTL
ipInReceives
ipInHdrErrors
ipInAddrErrors
ipForwDatagrams
ipInUnknownProtos
ipInDiscards
Note 7: IP exclusions (Continued)
ipInDelivers
ipOutRequests
ipOutDiscards
ipOutNoRoutes
ipReasmTimeout
ipReasmReqds
ipReasmOKs
ipReasmFails
ipFragOKs
ipFragFails
ipFragCreates
ipNetToMediaTable
Note 8: IP-FORWARD exclusions
ipForwardNumber
ipForwardTable
ipCidrRouteNumber

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Table B-3. Traps Supported in the AOS

Name	OID
Cold Start	1.3.6.1.6.3.1.1.5.1
Warm Start	1.3.6.1.6.3.1.1.5.2
Link Down	1.3.6.1.6.3.1.1.5.3
Link Up	1.3.6.1.6.3.1.1.5.4
Authentication Failure	1.3.6.1.6.3.1.1.5.5

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