



# Total Access 900/900e Series

## VoIP Multiservice Access Gateways

### Product Features

- Seamless voice and data integration over VoIP-based network architectures
- Single and quad T1 IADs
- Up to 24 analog POTS interfaces
- DSX-1 for PBX connectivity
- Compatible with industry-leading soft switches and call agents
- Dynamic bandwidth allocation affords more efficient utilization
- Standardized G.729a voice compression requires less bandwidth per voice call
- Integral full-featured IP router for data support and Internet access
- Stateful inspection firewall for network security
- Quality of Service (QoS) for delay sensitive traffic like VoIP
- Command Line Interface (CLI) mimics industry *de facto* standard
- Network Address Translation (NAT) for IP Address Concealment
- Feature-rich ADTRAN Operating System (AOS)
- Rugged metal case
- Optional battery backup
- Industry-leading 10-year North American warranty

ADTRAN® offers a wide variety of solutions for converged voice/data services. Our new Total Access® 900 Series of SIP-based multiservice access gateways and the Total Access 900e Series of Multi-T1 SIP-based multiservice access gateways are the next generation of ADTRAN's industry-leading Integrated Access Devices. These new products are designed for carrier VoIP networks and feature all of the same robust routing and voice features of the widely deployed Total Access IADs, along with a host of new features and functions that enable cost-effective, reliable IP service delivery. These devices use the ADTRAN Operating System (AOS) to simplify management and administration. Multiple models offer flexibility for varied applications from PRI delivery and trunking services to hosted IP PBX offerings.

The Total Access 900 Series offers a single T1 network interface, while the Total Access 900e Series offers up to 4 T1s. User interfaces include up to 24 FXS ports for analog voice delivery, an integrated DSX-1 port for PBX connectivity, and a 10/100Base-T Ethernet interface for access to the 900/900e's router. The Total Access 900/900e Series can be coupled with a NetVanta® 1224ST Power over Ethernet (PoE) switch to provide connectivity to a variety of network devices and personal computers, as well as to power IP phones and wireless access points.

### SIP Gateway

The Total Access 900/900e Series utilizes SIP for VoIP applications, providing interoperability with industry-leading softswitches, feature servers, and gateways. Acting as a SIP gateway, these devices convert SIP signaling from the carrier into traditional TDM analog and digital voice services. This functionality allows the Total Access 900/900e Series to deliver voice services to both IP phones and traditional telephony equipment simultaneously. For customers implementing a hosted PBX or IP Centrex service, the Total Access 900/900e Series is ideal for providing customers additional analog ports necessary to support their remaining analog phones, fax machines, or modems. The Total Access 900/900e Series supports many popular calling features such as caller ID, call hold, forward, transfer, and call waiting.

### Remote Survivability

In addition, the Total Access 900/900e Series can act as a registrar and Back-to-Back User Agent (B2BUA) to facilitate remote survivability and Network Address Translation (NAT) traversal. In the event of a service interruption on the WAN or if the carrier's call agent were to become unavailable, calls may continue locally at the customer premise between IP-based or analog phones. Voice Activity Detection (VAD) and silence suppression are supported and the flexible design allows the Total Access 900/900e Series to support additional CODECs as the market requires.

### QoS, Security, Routing

The Total Access 900/900e Series uses the AOS to provide a stateful inspection firewall, Network Address Translation (NAT), DHCP server/client, and feature-rich, standards-based, IP routing functionality supporting BGP, OSPF, and RIP routing protocols. Inherent Quality of Service (QoS) methods ensure appropriate classification and prioritization of VoIP traffic. These methods include Low Latency Weighted Fair Queuing, class based weighted fair queuing, support for Differentiated Services (DiffServ) protocol, Frame Relay Fragmentation (FRR.12), and Frame Relay traffic shaping.

### Configuration

The Total Access 900/900e Series can be managed via a standard Command Line Interface (CLI), a web-based Graphical User Interface (GUI), or ADTRAN's



n-Command® network management platform. The web-based GUI provides an intuitive step-by-step configuration wizard and the ability to upload firmware updates.

n-Command offers the ability to discover devices, make mass configuration changes or firmware upgrades, backup/restore configuration, globally modify Access Control Lists (ACLs), and generate inventory reports for asset management. These devices can be managed locally and remotely via SNMP, HTTP/HTTPS, Telnet, or SSH.

Total Access 900/900e products are housed in a rugged metal enclosure, are available in wallmount, rackmount, and desktop mountings, and offer battery backup system for up to eight hours of uninterrupted service upon a customer site power outage. Total Access 900/900e products are backed by an industry-leading 10-year warranty, free firmware updates, and ADTRAN's world-class technical support.



# Total Access<sup>®</sup> 900/900e Series

## VoIP Multiservice Access Gateway



## Product Specifications

### Physical Interfaces

#### WAN

- Single T1/FT1 (900 Series)
- Quad T1/FT1 (900e Series)
- RJ-48C

#### LAN

- Single auto-sensing 10/100Base-T (900 Series)
- Dual auto-sensing 10/100Base-T (900e Series)
- Full duplex
- RJ-45
- May also be used as the WAN interface

#### Digital Voice

- RJ-48C
- T1 CAS support (E&M Wink)
- PRI

#### Analog Voice

- 4, 8, 12, 16, and 24 FXS POTS via 50-pin amphenol
- 68.5 Vrms with 20VDC offset maximum ring voltage
- Sinusoidal ringer waveform
- 48 V, nominal on-hook battery voltage
- 24 mA, nominal loop current
- FXS 2-wire impedances
  - 600 Ω      □ 900 Ω
  - 600 Ω+2.16μF      □ 900 Ω+2.16μF
- FXO 2-wire impedances
  - 600 Ω+2.16μF
  - 900 Ω+2.16μF
- Integral FXO (900e IADs)

#### Craft

- DB-9

#### Processor and Memory

- RAM: 64 Mb RAM
- Flash: 16 Mb Flash

#### VoIP Protocol

- SIP

#### Packet-based Voice Resources

- CODECs
  - G.711-64k PCM
  - G.729a-8k CS-ACELP
- G.168 Echo Cancellation

- 16ms Echo-tail length
- Supports up to 24 channels (900 Series), 48 channels (900e Series)

#### Media Stream

- RTP/UDP/IP (RFC 3550)
- RTP payload for DTMF digits (RFC 2833)
- Supports port-to-port hairpin call
- SDP (RFC 2327)

#### NAT Traversal and Remote Survivability

- B2BUA
- SIP Registrar for IP phones

#### Tone Services

- Local DTMF Detection
- Local Tone Generation
  - Dialtone
  - Busy
  - Call Waiting
  - Alternate Call Waiting
  - Receiver Off Hook
- Ringing
  - Distinctive Ring

#### Calling Feature Support (varies with feature server/gateway)

- Caller ID
  - Name and Number
  - Name
  - Number
  - Call Waiting IAD
- Voicemail
  - Stutter dialtone
  - Visual Message Waiting Indicator (VMWI)
- Call Hold
- Call Forward
  - Busy Line
  - No Answer
- Call Transfer
  - Blind, Attended
- Call Waiting
- Distinctive Ring
- Do Not Disturb
- Three-way Calling
- Call Return
- Speed Dial



Total Access 908 (rear panel)



Total Access 916e (rear panel)

## Security

### Firewall

- Stateful Inspection Firewall
- Denial of Service (DOS) Protection
- Access Control Lists
- Application Level Gateways
- Packet Filtering

### Network Address Translation

- Basic NAT (1:1) and NATP (Many:1)

### Quality of Service (QoS)

- Low Latency and Weighted Fair Queuing (WFQ)
- DiffServ packet marking and recognition
- Frame Relay Fragmentation

### Protocols

- BGP
- OSPF
- RIP (v1 and v2)
- GRE
- IGMP V2
- Frame Relay
- Multilink Frame Relay
- PPP
- Multilink PPP
- HDLC
- PAP and CHAP

### Routed Protocols

- IP

### DHCP

- Client
- Relay
- Server

### Management and Utilities

- Familiar Command Line Interface (CLI)
- Web-based GUI
- n-Command™ support
- SNMP v2
- SYSLOG logging
- Telnet, Craft/Console Port, SSH, Ping, Trace route, NTP

## Firmware Upgrade

- FTP
- X-Modem
- TFTP
- HTTP

## Environment

- **Operating Temperature:** 0° to 50 °C (32° to 122 °F)
- **Storage Temperature:** -20° to 70 °C (-4° to 158 °F)
- **Relative Humidity:** Up to 95%, non-condensing

## Physical and Power

- **Chassis**
  - Wallmount
  - 1U Rackmount
  - Desktop metal enclosure
- **Dimensions:** 1.72 " H x 17.2 " W x 8.5 " D
- **Weight:** 5.5 lbs.
- **Power:** 120 VAC, 60 Hz AC Power Supply
- **Battery Backup:** Optional 8-hour system
- **LEDs**
  - Status
  - Power
  - Voice
  - Data
  - Net
  - DSX-1
  - Link
  - TD/RD

## Agency Approvals

- FCC Part 68
- Industry Canada CS03
- ETL and Canadian ETL (C-ETL)
- FCC Part 15, class A

## Warranty

- 10 years (North American)



Total Access Rackmount or Wallmount 1175044L1



Total Access Wallmount 1175044L2



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# Total Access<sup>®</sup> 900/900e Series

## Carrier-Class VoIP Integrated Access Devices

### Ordering Information

Equipment	Part #
<b>Total Access 900/900e Series</b>	
Total Access 904	4210904L1
Total Access 908	4210908L1
Total Access 908e	4240908L1
Total Access 912	4210912L1
Total Access 916	4210916L1
Total Access 916e	4240916L1
Total Access 924	4210924L1
Total Access 924e	4240924L1
Total Access 924, 16 FXS + 8 FXO	4210924L2
Total Access 924e, 16 FXS + 8 FXO	4240924L2
Total Access 912/916/924 19" Rackmount Bracket	1200927L19
Total Access 912/916/924 23" Rackmount Bracket	1200927L23
<b>Battery Backup Systems</b>	
8-hour, Wallmount/Rackmount Total Access 912/916/924	1175044L1
8-hour, Wallmount Total Access 912/916/924	1175044L2
Total Access IAD to Battery Backup (L1) Mounting Bracket	1200927L1
Total Access IAD to Wallmount Battery Backup (L2) Mounting Bracket	1200927L2
Total Access IAD to Battery Backup (L1) Mounting Bracket	1200927L1



ADTRAN is an ISO 9001, ISO 14001, and a TL 9000 certified supplier.

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