

Total Access 900/900e Series

IP Business Gateways

Product Features

- Seamless voice and data integration over VoIP-based network architectures
- Single, quad T1, Ethernet, and ADSL IADs
- Up to 24 analog POTS interfaces
- DSX-1 for PBX connectivity
- Compatible with industry-leading softswitches 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
- Supports 802.1q Virtual LAN (VLAN) Trunking
- Voice Quality Monitoring (VQM)
- 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 warranty (North America)

ADTRAN® offers a wide variety of solutions for converged voice/data services. The Total Access® 900/900e Series of T1 and Multi-T1 IP Business Gateways are designed for carrier Ethernet and SIP/MGCP Voice over IP (VoIP) networks. These products feature all of the same robust routing and voice features of the widely deployed Total Access Integrated Access Devices (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 four T1s. User interfaces include up to 24 FXS ports for analog voice delivery, an integrated DSX-1 port for PBX connectivity (T1 CAS or PRI), and one (two for 900e) 10/100Base-T Ethernet interface(s) for access to the Total Access 900/900e's router or WAN access. The Total Access 900/900e Series can be coupled with a NetVanta® 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 (WAPs).

VoIP Gateway

The Total Access 900/900e Series utilizes SIP or MGCP for VoIP applications, providing interoperability with industry-leading softswitches, feature servers, and gateways. Acting as a gateway, these devices convert IP 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. 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.

Remote Survivability

In addition, the Total Access 900/900e Series can act as a registrar and Back-to-Back User Agent (B2BUA) or as a SIP-transparent proxy to facilitate remote survivability and NAT traversal. In the event of a service interruption on the wide area network 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.

QoS, Security, Routing, and Voice Quality Monitoring

The Total Access 900/900e Series uses the AOS to provide a stateful inspection firewall; NAT; DHCP server/client; and feature-rich, standards-based, IP routing functionality supporting BGP, OSPF, and RIP routing protocols. Inherent QoS methods ensure appropriate classification and prioritization of VoIP traffic. These methods include Low Latency Weighted Fair Queuing, class based weighted fair queing, support for Differentiated Services (DiffServ) protocol, Frame Relay Fragmentation (FRF.12), and Frame Relay traffic shaping. VQM captures Mean Opinion Score (MOS), jitter, delay, and packet loss statistics necessary to troubleshoot VoIP calls over the WAN to help ensure superior call quality.

Management

The Total Access 900/900e Series can be remotely-managed by either the ADTRAN n-Command® MSP or n-Command Enterprise Edition management platforms. ADTRAN n-Command platforms offer the ability to discover devices, make mass configuration changes or firmware upgrades, backup/restore configuration, and generate inventory reports for asset management. The ADTRAN n-Command MSP also offers VoIP VQM and reporting, as well as an industry-leading, easy-to-use, Graphical User Interface (GUI).



Total Access 900/900e products are housed in a rugged metal enclosure; available in wallmount, rack-mount, and desktop mountings; and offer a 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.

Smart Solutions for a Connected World.

ADTRAN®

Total Access® 900/900e Series

IP Business Gateways



Product Specifications

Physical Interfaces

WAN

- Single T1/FT1 (900 Series)
- Quad T1/FT1 (900e Series)
- Single Ethernet (900 Series)
- Dual Ethernet (900e Series)
- ADSL/ADLS2+ (Annex A) (904 and 908 only)
- 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
- Supports 802.1q VLAN trunking

Digital Voice

- RJ-48C
- T1 CAS support
- PRI
- Signaling Methods
  - ❑ E&M Wink ❑ E&M Immediate ❑ Feature Group D

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
- 30 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 Series)
- Signaling Methods
  - ❑ Loop Start ❑ Ground Start ❑ DPT

Craft

- DB-9

Processor and Memory

- **RAM:** 64 Mb RAM (TA900)
  128 Mb RAM (TA900e)
- **Flash:** 32 Mb Flash

VoIP Protocol

- SIP
- MGCP (FXS interfaces only)

Packet-based Voice Resources

- **CODECs**
  - ❑ G.711-64k PCM ❑ G.729a-8k CS-ACELP
- G.168 Echo Cancellation
- Up to 64ms Echo-tail length
- Supports up to 30 channels (900 Series), 60 channels (900e Series)
- Supports T.38 sessions

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

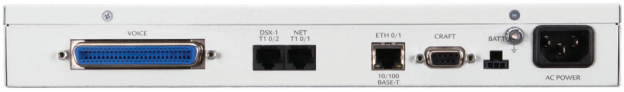
- B2BUA ■ SIP Registrar for IP phones
- SIP transparent proxy with survivability

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 (MDMF, SDMF)
  - ❑ Call Waiting IAD
- **Voice Mail**
  - ❑ 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**
- **3-way Conferencing (3WC)**



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 NAPT (Many:1)

Quality of Service (QoS)

- Low Latency and Weighted Fair Queuing (WFQ)
- DiffServ packet marking and recognition
- Frame Relay Fragmentation
- Traffic Monitoring (NetFlow 9)

Voice Quality Monitoring (VQM)

- Mean Opinion Score (MOS) prediction
- Jitter, Delay and Packet Loss
- Past and Active Calls

Protocols

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

Routed Protocols

- IP

DHCP

- Client
- Relay
- Server

Mangagement and Utilities

- Familiar Command Line Interface (CLI)
- Web-based GUI
- n-Command® support
- SNMP v2 and v3
- SYSLOG logging
- Telnet, Craft/Console Port, SSH, Ping, Trace route, NTP
- TCL Scripting

Firmware Upgrade

- FTP
- X-Modem
- TFTP
- HTTP

Environment

- **Operating Temperature:** 0° to 50 °C (32° to 122 °F)
- **Storage Temperature:** -40° to 70 °C (-40° to 158 °F)
- **Relative Humidity:** Up to 95%, non-condensing
- **Maximum Altitude:** 10,000 feet

Physical and Power

- **Chassis**
  - Wallmount
  - 1U Rackmount
  - Desktop metal enclosure
- **Dimensions:**
  - Total Access 904/908 – 1.72" H x 12.5" W x 7.5" D
  - Total Access 912/916/924 – 1.72" H x 17.2" W x 8.5" D
  - Total Access 900e Series – 1.72" H x 17.2" W x 10.5" D
- **Weight:**
  - Total Access 904/908 – 3.5 lbs.
  - Total Access 912/916/924 – 5.5 lbs.
  - Total Access 900e Series – 6.5 lbs.
- **Power:** 120 VAC, 60 Hz AC Power Supply
- **Battery Backup:** Optional eight-hour system
- **LEDs**

Total Access 900	Total Access 900e
Status	Net
Power	DSX-1
Voice	Link
Data	TD/RD
	Net 1–4
	LAN 1–2
	Ethernet Link
	Ethernet Activity

Agency Approvals

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

Warranty

- 10 years (North America)

Battery Backup Options

- Rackmount or Wallmount



Total Access Rackmount or Wallmount 1175044L1



Total Access Wallmount 1175044L2

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

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Ordering Information

Equipment	Part #
Total Access® 900 Series	
Total Access 904	4212904L1
Total Access 904 ADSL2+	4212904L4
Total Access 908	4212908L1
Total Access 908 ADSL2+	4212908L4
Total Access 912	4212912L1
Total Access 916	4212916L1
Total Access 924	4212924L1
Total Access 924, 16 FXS + 8 FXO	4212924L2
Total Access 900e Series	
Total Access 908e	4242908L1
Total Access 916e	4242916L1
Total Access 924e	4242924L1
Total Access 924e, 16 FXS + 8 FXO	4242924L2
Total Access 924e, 24 FXS + VPN Module	4242924L3
Rackmount Brackets	
Total Access 912/916/924 19" Rackmount Bracket	1200927L19
Total Access 912/916/924 23" Rackmount Bracket	1200927L23
Total Access 908e/916e/924e 19" Rackmount Bracket	1200927L19
Battery Backup Systems	
Eight-hour, Wallmount Total Access 904/908	1200641L1
Eight-hour, Wallmount/Rackmount Total Access 912/916/924/900e	1175044L1
Eight-hour, Wallmount Total Access 912/916/924/900e	1175044L2
Total Access IAD to Battery Backup (1175044L1) Mounting Bracket	1200927L1
Total Access IAD to Wallmount Battery Backup (1175044L2) Mounting Bracket	1200927L2
Eight-port RJ Breakout Panel	1200927G8

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