900 Series

Market Leading IP Business Gateways

VoIP

VQM

Benefits

- **Seamless Voice and Data Integration Over VoIP-Based Network Architectures**
- **Designed for Ethernet or Single T1 Applications**
- **Up to 24 Analog POTS Interfaces**
- **Compatible With Industry-Leading Softswitches and Call Agents**
- **Dynamic Bandwidth Allocation Affords More Efficient Utilization**
- **Integral Full-Featured Business-Class IP Router**
- **Stateful Inspection Firewall for Network Security**
- **Quality of Service (QoS) for Delay- and Jitter-Sensitive Traffic Like VoIP**
- **Supports 802.1q Virtual LAN (VLAN)Trunking**
- **Voice Quality Monitoring (VQM)**
- **Network Address Translation (NAT) for IP Address Concealment**
- **Feature-Rich Adtran Operating System (AOS)**
- **Optional Battery Backup**
- **Industry-Leading Five-Year Warranty**
- **Supports Transcoding and DTMF Interworking (30 Calls)**

Overview

Adtran offers a wide variety of solutions for converged voice/data services. The Third Generation Total Access® 900 Series of T1 IP Business Gateways is 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 functionality 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. 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 Gigabit Ethernet interface for WAN/LAN. The Total Access 900 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 (APs).

VoIP Gateway

The Total Access 900 Series uses SIP or MGCP for VoIP applications, providing interoperability with industry-leading softswitches, feature servers, and gateways. Acting as a gateway, the Total Access 900 converts IP signaling from the carrier into traditional TDM analog and digital voice services. The Total Access 900 Series delivers 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 Series is ideal for providing customers the additional analog ports necessary to support their remaining analog phones, fax machines, or modems. The Total Access 900 Series supports many popular calling features such as caller ID, call hold, forward, transfer, and call waiting. In addition, Voice Activity Detection (VAD) and silence suppression are supported to ensure reliable VoIP call quality.

Remote Survivability

The Total Access 900 Series can also 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 WAN or if the carrier's call agent were to become unavailable, calls may continue locally at the customer premises between IP-based or analog phones.

900 SERIES

QoS, Security, Routing, and VQM

The Total Access 900 Series uses AOS to provide a stateful inspection firewall; NAT; DHCP server/client; and feature-rich, standards-based, Layer 3 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 Queueing, Class Based Weighted Fair Queueing, support for Differentiated Services (DiffServ) protocol, Frame Relay Fragmentation (FRF.12), and Frame Relay traffic shaping.

Voice Quality Monitoring (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 Series can be remotely managed by ADTRAN's n-Command® MSP platform. It offers the ability to discover devices, make mass configuration changes or firmware upgrades, backup/restore configuration, and generate inventory reports for asset management. Adtran's n-Command MSP also offers VoIP VQM and reporting, SIP ladder diagram, as well as an industry leading, easy-to-use, Graphical User Interface (GUI). Total Access 900 products are housed in a rugged metal enclosure and are available with wall, rack, and desktop mounting options. They also offer a battery backup system for up to eight hours of uninterrupted service upon a customer-site power outage. All Total Access 900 products are backed by an industry-leading five-year warranty.

Product Specifications

Physical Interfaces

T1
- One T1/FT1 Interface
- RJ-48C

Ethernet
- One 10/100/1000-BaseT Ethernet Interface
- WAN/LAN Support
- Full Duplex
- RJ-45
- Supports 802.1q VLAN Trunking

Digital Voice
- One DSX-1 Interface
- PRI & T1 CAS Support
- RJ-48C
- Feature Group D
- Signaling Methods:
  - E&M Wink
  - E&M Immediate

Analog Voice
- 8, 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:
  - 600ΩΩ
  - 600Ω +2.16μF
  - 900Ω
  - 900Ω +2.16μF

- FXO 2-Wire Impedances: (924 Only)
  - 600ΩΩ+2.16μF
  - 900ΩΩ+2.16μF
  - Rs 220 ohms, Rp 820 ohms, Cp 115nF
  - Rs 270 ohms, Rp 750 ohms, Cp 150nF
  - Rs 270 ohms, Rp 750 ohms, Cp 150nF, Zin 600r
  - Rs 320 ohms, Rp 1,050 ohms, Cp 230nF
  - Rs 350 ohms, Rp 1,000 ohms, Cp 210nF, Zin 600r
  - Rs 370 ohms, Rp 620 ohms, Cp 310nF
  - Rs 800 ohms, Rp 100 ohms, Cp 50nF
- Signaling Methods:
  - Loop Start
  - DPT
  - Ground Start

Craft
- DB-9

Memory
- RAM: 512 MB RAM
- Flash: 256 MB Flash

VoIP
- 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 DSP
- Supports 30 T.38 Sessions
- Supports 30 Transcoding Calls

Media Stream

- RTP/UDP/IP (RFC 3550)
- RTP Payload for DTMF Digits (RFC 2833)
- Supports Port-to-Port Hairpin Call
- SDP (RFC 2327)
- Supports 30 DTMF Interworking Calls

NAT Traversal and Remote Survivability

- B2BUA
- SIP Registrar for IP Phones
- SIP Proxy With Survivability
- Transparent/Stateful/Outbound

Tone Services

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

Calling Feature Support

(Varies With Feature Server/Gateway)

- Caller ID:
  - Name and Number (MDMF, SDMF)
  - Call Waiting Caller ID
- Voice Mail:
  - Stutter dialtone
  - Visual Message Waiting Indicator (VMWI)
- Call Hold
- Call Forward:
  - Busy Line
  - No Answer
- Call Transfer:
  - Blind, Attended
- Call Waiting
- Call Return
- Distinctive Ring
- Speed Dial
- Do Not Disturb
- Three-Way Conferencing
- Three-Way Calling

Security

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

NAT

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

QoS

- Low Latency and WFQ
- Hierarchical QoS
- DiffServ Packet Marking and Recognition
- Frame Relay Fragmentation
- Traffic Monitoring (NetFlow 9)

VQM

- Packet Capture (PCAP)
- MOS Prediction
- Jitter, Delay and Packet Loss
- Past and Active Calls

VPN

- IPSec Tunnel Mode: 100 Tunnels
- Encryption: DES, 3DES, and AES
- Authentication Mechanisms: XAUTH, Digital Certifications, Pre-Shared Keys, and Secure ID

Protocols

- BGP
- GRE
- Multilink Frame Relay
- HDLC
- OSPF
- IGMP V2
- PPP
- PAP and CHAP
- RIP (V1 and V2)
- Frame Relay
- Multilink PPP
- Multi-VRF

Routed Protocols

- IP

DHCP

- Client
- Server
- Relay

Mangagement and Utilities

- Familiar CLI
- SNMP V2 and V3
- Web-Based GUI
- TCL Scripting
- n-Command Support
- SYSLOG Logging
- Telnet, Craft/Console Port, SSH, Ping, Trace Route, NTP

900 SERIES

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
- Maximum Altitude: 10,000 Feet

Physical and Power

Chassis
- Wallmount
- 1U Rackmount
- Desktop Metal Enclosure

Dimensions
- Total Access 908: 1.75 in. x 17 in. x 8 in. (H x W x D) (4.45 cm x 43 cm x 20 cm)
- Total Access 916/924: 1.75 in. x 17 in. x 10 in. (H x Wx D) (4.45 cm x 43 cm x 25 cm)

Power
- Total Access 908: 120 VAC, 60 Hz, 75W
- Total Access 916 and 924: 120 VAC, 60 Hz, 110W
- Battery Backup: Optional Eight-Hour System

Weight
- Total Access 908: 2.5 kg (5.5 lbs)
- Total Access 916/924: 3.2 kg (7 lbs)

LEDs
- Power
- Voice
- Net
- Link
- Status
- Data
- DSX-1
- TD/RD

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

Battery Backup Options
- Rackmount or Wallmount

Ordering Information

Equipment	Part No.
Total Access 908	4213908F1
Total Access 916	4213916F12
Total Access 924	4213924F1
Total Access 924, 16 FXS, 8 FXO	4213924F2
Battery Backup Systems	
Total Access 908, Eight-hour, Wallmount	1200641L1
Total Access 916/924, Eight-hour, Wallmount/Rackmount	1175044L1
Total Access 916/924, Eight-hour, Wallmount	1175044L2