

# 8500 Series IAD

Broadband Access Solutions

## HIGHLIGHTS

- Supports emerging VoIP specifications (SIP, MGCP) 's' versions only
- Seamless voice and high-speed data integration over SHDSL
- 4-, 8-, 12-, 16-, or 24-port POTS interface with Loop Start or Ground Start
- Universal Serial Interface (USI) (12-, 16-, 24-Port models only)
- Toll-quality voice
- Dynamic bandwidth capabilities
- Provides remotely managed migration path to VoIP
- Management capabilities including Telnet, SNMP, and bandwidth allocation and prioritization for voice and data traffic
- DHCP and NAT to support IP address management
- Firewall support: IP filtering
- 10/100 Ethernet LAN interface
- Dynamic and Static IP routing and bridging
- Reduces or eliminates truck rolls to end-customer site



8500 Series IADs are Integrated access devices (IADs) ideal for service providers looking to expand their service areas and offer small- to medium-sized businesses a high-quality voice and data service over SHDSL. With models available supporting 4, 8, 12, 16, or 24 POTS ports and a full range of integrated features, the 8500 Series offers customers toll quality voice and high-speed Internet access over a single copper pair. Additionally Verilink's IADs deliver robust features such as routing, bridging, NAT, DHCP, and support for emerging protocols such as MGCP and SIP all in one unit. This allows service providers to provide peak performance at an affordable price.

The 8500 Series delivers high-quality voice and data over a single pair SHDSL line, making it ideal for international markets as well as the North American market. The 8500 Series uses new integrated circuit technology that allows easy internationalization through software control of line impedance and ring frequency. Features such as Emulated Loop Control Protocol (ELCP) and interoperability with a wide range of DSLAMs and voice gateway vendors give service providers the freedom to choose the type of infrastructure they would like to use for delivering voice over broadband.

The 8500 Series consists of access products provided in two versions; a base version supporting VoATM only and an "s" version that supports VoATM

and VoIP in one device. Both the base and "s" versions are available in models equipped with 4, 8, 12, 16, or 24 derived voice lines and a 10/100 BaseT interface for high-speed data connections.

With an integrated router and integrated firewall, Verilink IADs are especially attractive to customers because there is no need to purchase separate routers or firewall boxes. The Dynamic Host Configuration Protocol (DHCP) and Network Address Translation (NAT) features enable the IAD to automatically generate unique addresses for different workstations meaning that customers do not have to purchase additional IP addresses and can still enjoy the heightened security of hidden internal addresses. Remote diagnostics and provisioning are attractive to service providers because these features dramatically ease the deployment process and eliminate the need for costly truck rolls.

Above all, Verilink offers top reliability in a proven product absolutely necessary for today's service providers, who are expected to provide dependable service to subscribers accustomed to uninterrupted telephone service. Verilink's IADs are designed to meet CLASS-5 call completion rates of 99.99 percent and provide voice quality that is virtually indistinguishable from toll quality.



## PART NUMBER AND DESCRIPTION

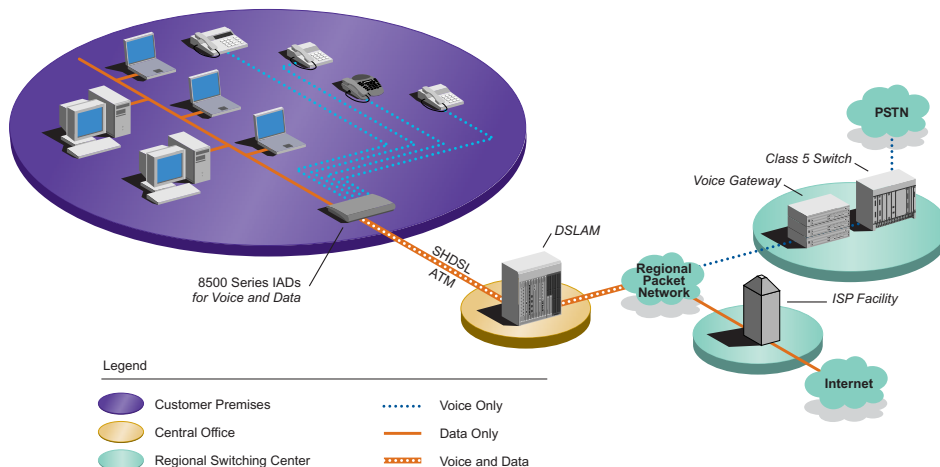
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## VOICE FEATURES

Analog  
Voice Ports: 4 or 8 POTS ports (RJ-11); 12, 16, or 24 POTS ports FXS (RJ-21X)  
Failover: Analog input fail over to Line 1 (RJ-11)  
Signaling: Loop start, ground start  
Dialing: DTMF (tone), Pulse  
Ring Source: Internal  
Impedance: 600, 900, Complex (country-specific)  
REN: 5 REN per port, 16 REN total  
Loop Current: 20, 24 mA typical (country-specific)  
Idle State Voltage: .48 V typical  
Ring Voltage: Balanced 65 V rms  $\pm$ 5% at 5 REN load  
Ring Frequency: 20, 25, 50 Hz (country-specific)  
Gain/System Loss: Programmable, +3 to -9 dB  
Digital  
Compression: G.711 (64 kbps PCM), G.726 (32 kbps ADPCM) G.729a (8 kbps) "s" version only  
Encoding: A-law,  $\mu$ -law  
Echo Cancellation: G.168 compliant (single reflector)  
Fax Support: G3, G4, and analog V.17, V.29  
Modem Support: V.34, V.90  
Calling Features: Caller ID, flash hook, distinctive ringing, stutter dial tone, call forwarding, call waiting

## WAN FEATURES

Interface  
WAN: SHDSL-TCPAM, SDSL (RJ-11)  
Standards: ITU-T G.991.2  
Transport: ATM  
Protocol: Point-to-Point (PPP)  
ATM  
Adaption Layers: AAL2 (voice), AAL5 (data)  
Encapsulation: RFC 1483 multiprotocol encapsulation over ATM;  
RFC 2364 (PPP over ATM); ITU 366.1, ITU 366.2 (AAL2)  
AAL2 Profiles: ATM: 9, 10, 11 and ITU: 1; "s" versions



also support ATM Profiles 7,8, 12 and ITU 2  
Voice: Single AAL2 PVC  
Data: Up to 8 AAL5 PVCs  
Security: Software-configurable payload scrambling  
Voice QoS: CBR; VBR-rt (12-, 16-, 24-Port model only)  
Data QoS: CBR, UBR  
Cell Delay Variation Buffer: Configurable 0-30 ms  
OAM Cell Handling: F4/F5 segment and end-to-end loopbacks

## DATA FEATURES

LAN Interface: 10/100 BaseT (RJ-45)  
Bridging: IEEE 802.1d including spanning tree  
Routing: Default, Static, RIP1 (RFC 1058), RIP2 (RFC 2453),  
ICMP for IP Packet Processing  
DHCP: Server, client (RFC 2131), relay agent (RFC 1542)  
PPP: PPPoA, PPPoE, PAP, CHAP, IPCP (RFC 1332)  
Universal Serial Interface: EIA-530/RS-449, V.35 (DB25) (12-, 16-, 24-Port models only)

## VOICE GATEWAYS SUPPORTED

DSLAMs Supported: ATM: Lucent, Nortel, Nokia, AccessLan, CopperMountain, Paradyne  
Voice Gateways Supported: CopperCom, JetStream, TdSoft, Broadsoft, MetaSwitch, Cirpack, NuERA  
Tollbridge. General Bandwidth, Accelerated AAL2/LES and ELCP and any af-vmoa-0145 compliant gateway  
SoftSwitches: NCS, LCS, MGCP 1.0, (RFC 2705.bis), SIP ("s" versions only)

## CONFIGURATION AND MANAGEMENT

10/100 Ethernet (Management or IP Gateway)  
Connection: 8-pin modular  
Network Protocol: TCP/IP based networks  
Data Rate: 10/100 Mbps  
Compatibility: 10/100Base-T  
Supervisory Port Connection: DB-9 female  
Data Rates: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps (default: 19.2 kbps)

## Upgrades

Trivial File Transfer Protocol (TFTP) server and client for software upgrades and configuration  
Software download via gateway (wherever supported)  
Telnet (local and remote)  
Management: SNMP 1.0, SNMP 3.0, Telnet, Console  
SNMP via IP or EOC, MIB1, MIB2, (RFC 1213), Enterprise MIB, LES MIB

## SECURITY FEATURES

Firewall: IP filtering (in and out)  
NAT: RFC 1631, Port translation, exported services, multi-NAT (up to 16 public IP addresses)  
Security: Multilevel password protection  
Other: Radius client support (RFC 2865)

## ENVIRONMENTAL

Power Supply: 4- or 8-Port: External 90-240 VAC, 50-60 HZ;  
12-, 16-, or 24-Port: Internal 90-240 VAC, 50-60 HZ  
Power: 8-Port: 20 watt nominal, 50 watt max; 4-Port: 15-watt nominal, 30-watt max operating; 12-, 16-, or 24-Port: 40 watt nominal, 65/76/110 watt max  
Operating Temp: 0° C to 40° C  
Storage Temp: -10° C to 70° C  
Operating Humidity: 5%-90% non-condensing  
Safety: UL 1950, CSA C22.2 No. 950-95, EN 60950:2000, IEC 60950:1999  
Emissions: FCC Part 15 Class B, EN55022, EN55024, EN61000-3-2, EN61000-3-3  
Telco: Part 68  
LEDs: POWER, LAN LINK, LAN ACT, WAN LINK, VOICE  
Dimensions: 4- or 8-Port models: 11.8" x 8.3" x 1.8";  
Weight: 1.8 lbs.  
Dimensions: 12-, 16-, or 24-Port Models: 17.5" x 10.25" x 1.75", Weight: 4.75 lbs.  
Mounting: Desktop or wall mount

## WARRANTY AND SUPPORT

Five-year warranty

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