

LA-110

Dedicated ATM IAD



**Link
Access**

FEATURES

- Integrated Access Device (IAD) that supports fractional E1, data, FXS, ISDN and LAN
- Supports different service types over ATM: Ethernet, IP, FR internetworking and AAL1 transparent
- SHDSL uplink
- Ensures reliable services, and optimal utilization of the ATM uplink using traffic shaping
- Inband or out-of-band (SNMP, Telnet) management, and local management via ASCII terminal
- Comprehensive diagnostics and statistics on all ports
- Supported by RADview EMS, RAD's client-server, CORBA-based, secure and scaleable management solution

DESCRIPTION

- LA-110 is an ATM IAD that enables service providers to offer voice, LAN and data over a single access line to small and medium size businesses.
- LA-110 provides maximum flexibility for service integration, ease of use and scalability.
- Optional user ports:
 - Fixed 10/100BaseT LAN port
 - Optional data port
 - Selectable, optional user port: E1, 4 FXS or 4 ISDN S0.
- Voice and data are statistically multiplexed into an SHDSL WAN link.
- LA-110 performs circuit emulation using AAL1 to support voice interfaces. This facilitates the connection of PBXs or other channeled E1 devices.
- LA-110 supports AAL2 in accordance with the ATMF LES (Loop Emulation Service) standard for transport of different voice channels on the same VC (Virtual Channel).

- Traffic shaping per VC improves QoS and ensures better utilization of the ATM uplink.
- LA-110 supports IP routing and MAC bridging. It also supports Network Address Translation (NAT/PAT) and allows sharing of several IP addresses between various LAN users. LA-110 supports DHCP, and allows sharing of IP address pools between DHCP clients on the LAN.
- For greater flexibility, LA-110 supports different service types over ATM: Ethernet and IP, in accordance with RFC-2684.
- The data ports support translation of IP traffic to Frame Relay over the ATM network, in accordance with FRF.5, FRF.8, RFC 2427 and RFC 2684.
- As an ATM IAD, LA-110 provides QoS and management to ensure reliable services.
- Various management interfaces are available, including inband and out-of-band (SNMP) management, and local management via ASCII terminal.
- Comprehensive diagnostics and statistics on all ports and network layers enable network control and fault localization.

The unit supports:

- Application layer statistics
- ATM layer statistics and control (OAM support)
- Physical layer diagnostics (loopback tests, statistics).

LA-110

Dedicated ATM IAD

- End-to-end QoS is measured using F5 OAM cells, including AIS, RDI, LB, CC and activation cells.
- LA-110 is a compact, 1U-high unit, suitable as a desktop unit, can be wall-mounted, or placed in a 19-inch rack (see *Ordering*).

SPECIFICATIONS

NETWORK INTERFACE

- **ATM**
ATM supports AAL1 (CES and DB-CES), AAL2 and AAL5
- **ATM QoS**
 - Per VC traffic shaping
 - ATM services: CBR, VBR, UBR
 - F5 OAM cells as per I.610

- **SHDSL uplink**
 - SHDSL per ITU-T G.991.2
 - Line code: TC-PAM
 - Connector: RJ-45
 - Data rates:
n x 64 kbps (n≥3), up to 2.312 Mbps (2-wire)
 - Handshake protocol: G994.1

APPLICATIONS

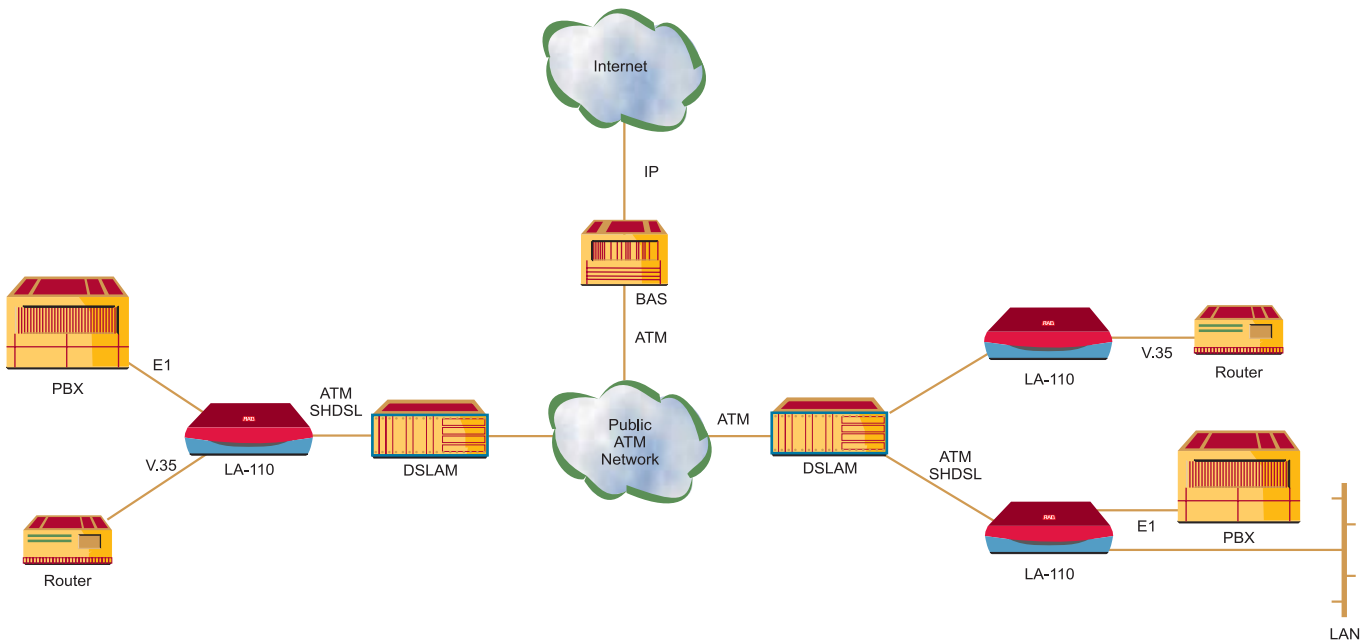


Figure 1. Leased Lines Application

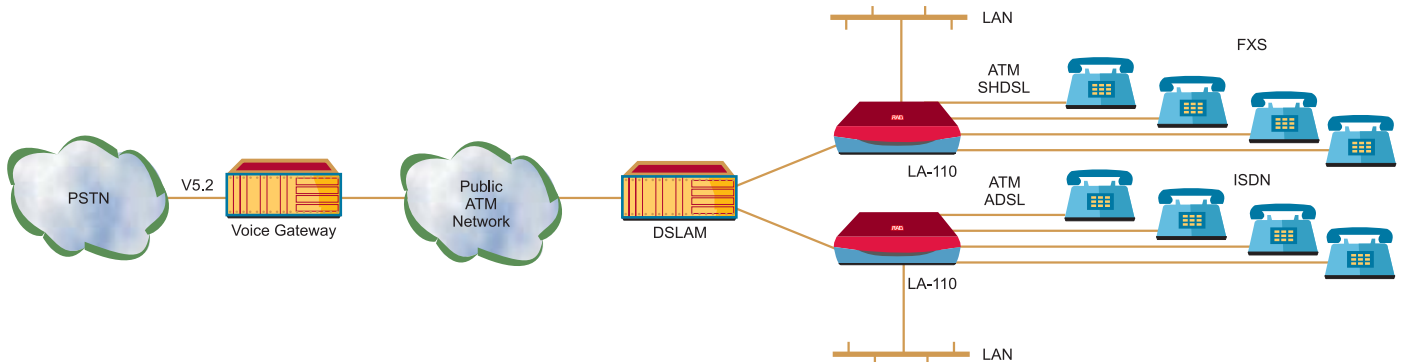


Figure 2. VoDSL Application

USER INTERFACES

- **E1 Port**
 - Compliance: ITU-T Rec. G.703, G.704, G.706, G.732, G.823
 - Framing: 256N (no MF, CCS)
256N (no MF, CCS) with CRC4
256S (TS16 MF, CAS)
256S (TS16 MF, CAS) with CRC4
 - Line rate: 2.048 Mbps
 - Line code: HDB3
 - Line impedance: 120Ω, balanced
75Ω, unbalanced
 - Receive level: 0 to -30 dB
 - Transmit level: Balanced, ±3V ±10%
Unbalanced, ±2.37V ±10%
 - Jitter: ITU-T G.823
 - Connectors: Balanced, RJ-48C, 8-pin
Unbalanced, two BNC
- **Data Ports**

One modular data port supports Frame Relay, or transparent over ATM AAL1 and AAL5.

 - Data rates: 64, 128, 192, 256, 384, 448, 512, 768, 896, 1024, 1344, 1536, 1792, and 2048 kbps
 - Interface and connectors: V.35: 34-pin, female (via adapter cable)
RS-530: 25-pin D-type, female
RS-449/V.36: 37-pin D-type female (via adapter cable)
X.21: 15-pin D-type, female (via adapter cable)
 - Clock mode: DCE

- **FXS Port**
 - 4 FXS ports
 - EIA RS-464 Loop start
 - WINK start (reverse polarity) for direct connection to a 2-wire telephone
- **ISDN Port**
 - 4 ISDN S0 ports
 - Compliance: ETS 300012, I.430, NTT, 5ESS, DMS-100, NI1
 - Bit rate: 192 kbps
 - Line coding: Pseudo-ternary
 - Line termination: 100 ±5%
 - Connector: RJ-45
- **LAN Interface**

Port: 10/100BaseT
Routing:

 - Static, RIP I, II in compliance with IEEE 802.3
 - DHCP Relay/Server
 - NAT/PAT and Single IP
 - PPPoE or PPPoA

GENERAL

- **Timing Modes**

Transmit timing from:

 - Network derived
 - Sub E1
 - Adaptive clock
 - NTR
- **Management**

SNMP, Telnet and ILMI (inband and out-of-band)
- **Supervisory Ports**
 - Interface devices: DCE port: ASCII terminal
 - Interface: V.24/RS-232, async
 - Baud rate: 115.2 kbps auto-baud detection
 - Connectors: RJ-45

- **Standards**
 - ATMF: UNI 3.1, VMOA-0145, CES 2.0 (AF-VTOA-0078), DBCES (AF-VTOA-0085)
 - ITU-T: I.361, I.362, I.363, I.364, I.365.1, I.413, I.555, I.610
 - FRF: FRF.5, FRF.8
 - RFC: RFC 2684, RFC 2427
 - Router RFC: RFC 2364, RFC 2131, RFC 2132, RFC 3022, RFC 1058
- **Indicators**

PWR (green) – Lights up when power is On
LAN (green) – Indicates transmission occurs for the LAN port
WAN – Indicates the operating status of the Network port
Green – Synchronization occurs
Red – No synchronization
Blinking – Synchronization in process
- **Physical**

Height: 43.7 mm / 1.7 in
Width: 23.7 cm / 9.3 in
Depth: 17.0 cm / 6.7 in
Weight: 0.58 kg / 1.4 lb
- **Power**

External Power Supply (included with unit)
100 to 230 VAC (±10%),
10 to 15W
47 to 63 Hz
- **Environment**

Temperature: 0–50°C / 32–122°F
Humidity: up to 90%, non-condensing

Table 1. LA-110 Supported Interface Combinations

	LAN	FXS	ISDN	E1	Data	SHDSL
LAN	N/A	S	S	S	S	S
FXS	S	N/A	N/A	N/A	S	S
ISDN	S	N/A	N/A	N/A	S	S
E1	S	N/A	N/A	N/A	S	S
Data	S	S	S	S	N/A	S
SHDSL	S	S	S	S	S	N/A

S – Supported

N/A – Not Applicable

LA-110

Dedicated ATM IAD

ORDERING

LA-110*/\$/#/@

Dedicated ATM IAD

- * Specify ADPCM Voice compression or Echo Cancellation
 - VC4** ADPCM for FXS
 - VC8** ADPCM for ISDN
 - EC8** Echo Cancellation for ISDN

Note: Echo Cancellation is included by default for FXS ports. ADPCM includes Echo Cancellation.

- \$ Specify WAN interface:
 - SHDSL** for SHDSL

- # Specify voice interface:
 - E1** for Sub E1 interface
 - FXS** for 4-port FXS
 - ISDN** for 4 ISDN S0

- @ Specify serial data interface:
 - V35** for V.35 interface
 - V36** for V.36 interface
 - X21** for X.21 interface
 - RS530** for RS-530 interface

Note: Data ports are SW selectable, and provided with an adapter cable to the specific connector type (V.35, X.21, etc.). For greater flexibility, the various cables can be ordered separately, to convert the LA-110 data port to different connector types:

- CBL-530/V35/F** for Female V.35 connector
- CBL-HS2/X/1/F/J** for Female X.21 connector
- CBL-530/449/F** for Female V.36 connector

RM-33

Hardware for mounting one or two LA-110 units in a 19-inch rack

www.pulsewan.com □
sales@pulsewan.com □
Toll Free: 1-888-785-7393 □
Int'l: 1-561-279-7700