

LA-104

High Speed ATM IAD



Link
Access

- 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).
- End-to-End QoS is measured using F5 OAM cells, including AIS, RDI, LB, CC and activation cells.
- LA-104 is a compact, 1U-high unit.

FEATURES

- Integrated Access Device (IAD) with 10/100BaseT LAN user interface, providing Ethernet and IP services over ATM networks
- Supports IMA (Inverse Multiplexing over ATM) over 4 × SHDSL, 4 × E1 or 4 × T1 links, providing rates up to 9.2 Mbps and extended distances (see *Table 1*)
- Supports the following routing types:
 - Static, RIP I, RIP II
 - PPPoE, PPPoA
- Provides traffic shaping for service reliability and optimal utilization of the ATM uplink
- Comprehensive diagnostics and statistics on all ports
- Manageable via RADview-EMS, RAD's client-server, CORBA-based Element Management System

DESCRIPTION

- LA-104 is an ATM IAD (Integrated Access Device) that enables service providers to offer LAN services over up to four access lines to small and medium size businesses.
- Using IMA over SHDSL, E1 or T1, LA-104 offers an up to 9.2 Mbps uplink connection and enables backup between links for higher reliability.
- With adjustable bandwidth, LA-104 supports distances of up to 8 km (4.9 miles), see *Table 1*.
- LA-104 supports IP routing and MAC bridging.
- Different service types over ATM are supported: Ethernet and IP, in accordance with RFC-2684.
- Various management interfaces are available, including inband and out-of-band (SNMP) management, and local management via ASCII terminal.

SPECIFICATIONS

NETWORK INTERFACE

- **ATM Adaptation Layer**
AAL5
- **VPI/VCI Range**
0–31/0–255
- **Number of VCs**
Up to 8
- **ATM QoS**
 - ATM services: UBR
 - F5 OAM cells as per I.610
- **IMA Layer**
 - Single group with up to four links
 - Clock modes: Independent, Common
- **SHDSL Interface**
 - Type: SHDSL per ITU-T G.991.2, 2-wire
 - Line code: TC-PAM
 - Line impedance: 135Ω
 - Jitter performance: G.823
 - Connector: RJ-45
 - Data rates (see *Table 1*):
N × 64 kbps (n≥3), up to 2312 kbps per link (2-wire)
 - Handshake protocol: G994.1

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- **E1 Interface**
 - Line code: HDB3
 - Line rate: 2048 kbps
 - Line impedance: 120Ω balanced or 75Ω unbalanced (via adapter cable)
 - ATM cell mapping: as per I.432.3 and G.804
 - Jitter: as per G.823
 - Connector: RJ-45
- **T1 Interface**
 - Line code: B8ZS
 - Line rate: 1544 kbps
 - Line impedance: 100Ω balanced
 - ATM cell mapping: as per I.432.3 and G.804
 - Jitter: as per G.824
 - Connector: RJ-45
- **Standards**
 - ITU-T: I.361, I.362, I.363, I.364, I.413, I.610
 - G 991.2
 - RFC: RFC-2684, RFC-1490
 - ATM Forum – IMA Version 1.0 and 1.1
- **Power**

External power supply (supplied with unit)
100 to 230 VAC (±10%), 50/60 Hz, 13W max,
- **Indicators**

PWR (green) – Power status
LAN (green) – LAN operation status
WAN (red/green) – Uplink operation status (per link)
- **Physical**

Height: 43.7 mm / 1.7 in
Width: 240 mm / 9.4 in
Depth: 170 mm / 6.7 in
Weight: 0.58 kg / 1.4 lb
- **Environment**

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

USER INTERFACE

- **LAN Interface**
 - Type: 10/100BaseT
 - Routing: static, RIP I, II (in compliance with IEEE 802.3), PPPoE or PPPoA
 - NAT, DHCP server, DHCP relay

GENERAL

- **Management**
 - Inband (SNMP, Telnet)
 - Out-of-band (ASCII terminal)
- **Supervisory Terminal Port**
 - Type: RS-232/V.24, async, DCE
 - Baud rate: up to 115.2 kbps
 - Connectors: RJ-45

ORDERING

LA-104/\$

High speed ATM IAD

- \$ Specify WAN interface type:
 - SHDSL** for SHDSL interface
 - E1/BAL** for balanced E1 interface
 - E1/UNBAL** for unbalanced E1 interface (via RJ-45 to BNC adapter cable)
 - T1** for T1 interface

SUPPLIED ACCESSORIES

- P/S-AC/5/3.3/-48
External power supply unit
- CBL-RJ45/D9/F/STR
Control port cable
- CBL-RJ45/2BNC/E1
Interface adapter for converting a balanced E1 RJ-45 connector into a pair of BNC unbalanced coaxial connectors (if an unbalanced E1 interface is ordered)
- Technical documentation CD

OPTIONAL ACCESSORIES

- RM-33
Hardware kit for mounting one LA-104 unit into a 19-inch rack

Table 1. Typical SHDSL Ranges

Data Rate [kbps]	Distance	
	[km]	[miles]
9248	4.0	2.4
8224	4.5	2.7
7456	5.0	3.1
6176	5.25	3.2
4640	5.5	3.4
2336	6.0	3.7
800	8.0	4.9

APPLICATIONS

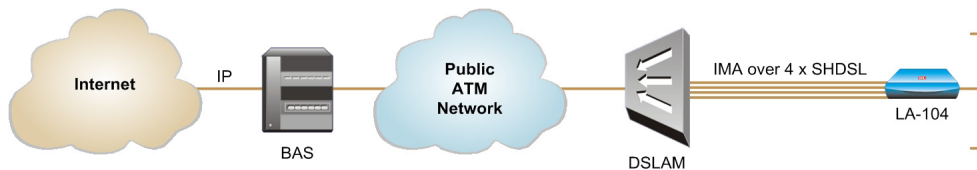


Figure 1. Providing Internet Access over SHDSL Links

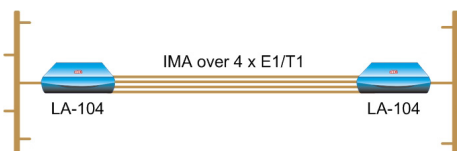


Figure 2. Point-to-Point Connection over E1 or T1 Links



data communications

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