GoWide Serial AAL1

SHDSL Serial AAL1 Network Termination Unit

KEY FEATURES
- Circuit Emulation of Nx64K Lease Lines
- Single or Dual Pair SHDSL ATM Network Interface
- Compatible with Major SHDSL DSLAM Vendors
- Transparent Transport of Serial, FrameRelay or X.21 data
- Ethernet Bridging

MAJOR APPLICATIONS
- Leased Line Services
- Nx64 Kbps Services
- Legacy Data Router Transport
- PABX Voice Transport
- Interoffice Trunking
- Private Networking
- LAN Extension

INTRODUCTION
Symmetricom's GoWide™ SHDSL Serial AAL1 is a Circuit Emulation Network Termination Unit (CeNTU) enabling carriers to use SHDSL to provide traditional Nx64K V.35, V.36, RS449 or X.21 termination. GoWide Serial AAL1 offers a cost effective way to transport voice or data traffic from a data router, PABX, TDM Multiplexer, Nx64K leased line or GSM base station across the ATM backbone.

Given the current installed base of DSLAMs and the need to migrate services onto a unified platform and network, it is evident that ATM SHDSL termination in a DSLAM and Customer Located Equipment (CLE) yields the most economical solution to offer Nx64K service.

GOWIDE SERIAL AAL1 TECHNOLOGY
Based on the worldwide G.shdsl (ITU-T G.991.2) Standard, GoWide Serial AAL1 provides advantages such as unrivaled reach, excellent tolerance to noise and efficient spectrum management. All of these advantages will enable carriers to provide reliable legacy services over copper using SHDSL increasing end user satisfaction with lower system cost.

GoWide Serial AAL1 has been designed to interoperate with existing GSM base station equipment, PABX, TDM multiplexers and routers already deployed at business locations. Additionally, GoWide Serial AAL1 has been designed to work with existing DSLAMs and ATM switches to ensure an end-to-end solution for Nx64K transport. Additionally, GoWide Serial AAL1 can be used with GoWide E1 AAL1 to aggregate multiple locations.

GoWide Serial AAL1, with its integrated G.shdsl single pair or dual pair (4-wire) technology, enables Serial termination at higher speeds beyond the coverage area serviced by traditional transmission networks.

Integrated with robust and reliable SHDSL Embedded Operation Channels (EOC) messaging and ATM Operations, Administration, and Maintenance (OAM) management features, GoWide Serial AAL1 reduces maintenance and deployment costs while delivering reliable Nx64K service.

GoWide Serial AAL1 design, manufacturing, and support are performed entirely by Symmetricom, a recognized leader in Network Synchronization and are fully ISO 9001 certified and meet Telcordia GR-2981 CORE requirements. In addition, GoWide Serial AAL1 is backed by Symmetricom's world-class Customer Technical Assistance Center (CTAC) in the United States and the United Kingdom. The CTAC is capable of delivering 24/7/365 technical support coverage in over 80 countries throughout North America, South America, Europe, Asia, and Africa.

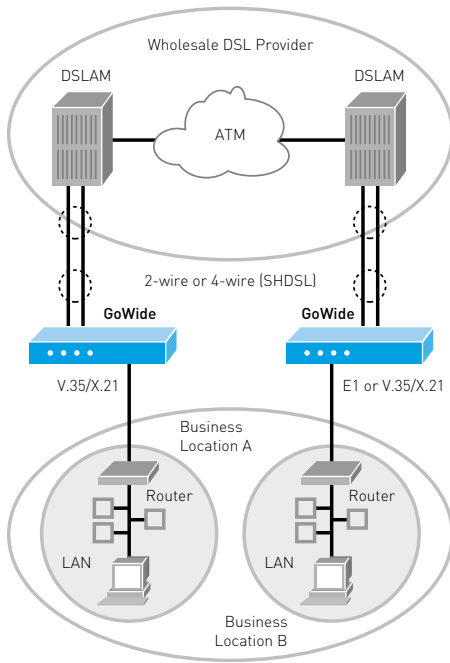**FIG.1** GoWide V.35 AAL1 network termination unit

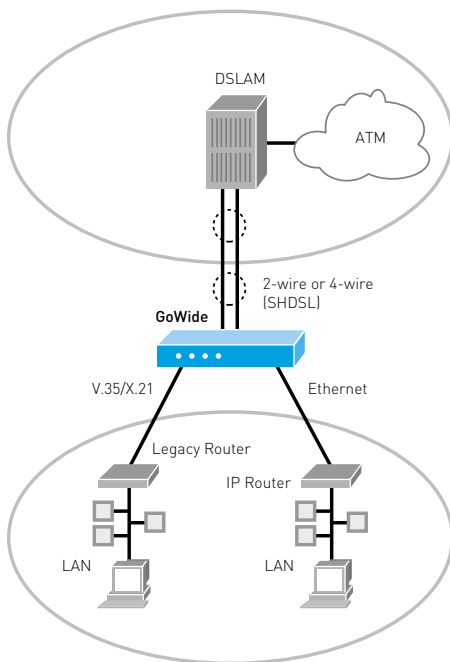**FIG.2** General Nx64K leased line application

FIG.3 Private and public data

GoWide Serial AAL1 Feature Specifications

SHDSL FEATURES

- ITU-T G.shdsl (G.991.2)
- Configurable: 2-wire or 4-wire mode
- Signal format: TC-PAM
- Data rate:
  192Kbps ~ 2.312 Mbps for 2-wire mode
  364KBPS ~ 4.608 Mbps for 4-wire mode
- Connectors: 2xRJ-45
- Impedance: 135 Ohms

SERIAL INTERFACE FEATURES

- Physical Interface: V.35, V.36, TIA/EIA-449, X.21
- Data rate: 64Kbps - 1.984Mbps in 64K steps
- Connectors: DB-25 w/adaptor cable for Physical Interfaces
- Configuration: DCE

CIRCUIT EMULATION FEATURES

- Structured Data Transfer (SDT)
- I.363 Compliant
- Configurable Playout buffer
- Configurable Octet Padding
- Configurable clocking and synchronization

ATM FEATURES

- ITU-T I.610 OAM F4/F5

MANAGEMENT FEATURES

- Local and in-band management
- Console port for local management
- Remote management via additional PVC
- Telnet configuration
- Command line interface
- Firmware upload/download
- Alarm status and power indicators
- Event logging
- Interfaces: DB9 RS-232 (EIA/TIA-232) &
- RJ-45 Ethernet

IP FEATURES

- RFC1483 encapsulation (IP, bridging, and encapsulated routing)
- IPOA

PHYSICAL INTERFACES

- Two G.shdsl ports (RJ-45)
- One Serial port (DB-25 w/adaptor for V.35, X.21, V.36 TIA/EIA-449)
- LED indicators: Power, SHDSL SYNC,
- Serial Status, ATM Active
- DB9 & RJ-45 craft ports

PHYSICAL SPECIFICATIONS

- Height: 28.1 mm (1.5 in.)
- Width: 203.2 mm (8 in.)
- Depth: 167.6 mm (6.6 in.)
- Weight: 0.6 kg (1.2 lbs.)

POWER REQUIREMENTS

- External power supply: 220-240 VAC, 50Hz, 1A
- Device power: 9V DC
- Power consumption: 7W 48V DC optional

OPERATING ENVIRONMENT

- Temperature: -5° to 45° C (23° to 113° F)
- Humidity: 5% to 90% RH non-condensing

REGULATORY APPROVALS

- CE Mark
- ETS 300 019 2.3, class T3.1E (operation)
- ETS 300 019 2.2, class T2.3 (ordinary transport)
- ETS 300 019 2.1, class T1.2 (storage)
- EN/CAN/UL 60950
- EN 300 386-2, EMC directive 89/336/EEC
- EN 55022 class B (1998)
- EN 55024 (1998)
- CEI 38
- ITU K.45 (6.1x, 2.1x, 2.2x, 2.3x)

GOWIDE PRODUCT FAMILY

PRODUCT NAME	PART NUMBER
GoWide 2.3	990-91021-XY
GoWide 4.6	990-91022-XY
GoWide 9.2	990-91023-XY
GoWide 2.3 E1 ATM (2-wire)	990-91051-XY
GoWide 4.6 E1 ATM (2 & 4-wire)	990-91052-XY
GoWide 2.3 E1 AAL1 (2-wire)	990-91061-XY
GoWide 4.6 E1 AAL1 (2 & 4-wire)	990-91062-XY
GoWide 2.3 Serial AAL1 (2-wire)	990-91071-XY
GoWide 4.6 Serial AAL1 (2 & 4-wire)	990-91072-XY

X = 0 for US
X = 1 for Continental Europe
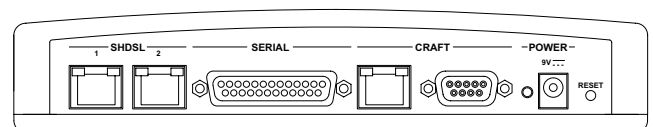X = 2 for United Kingdom
Y = Release Number

FIG.4 GoWide V.35 AAL1 I/O panel