

# GM-1000

## G.shdsl Modem, NTU

### Description

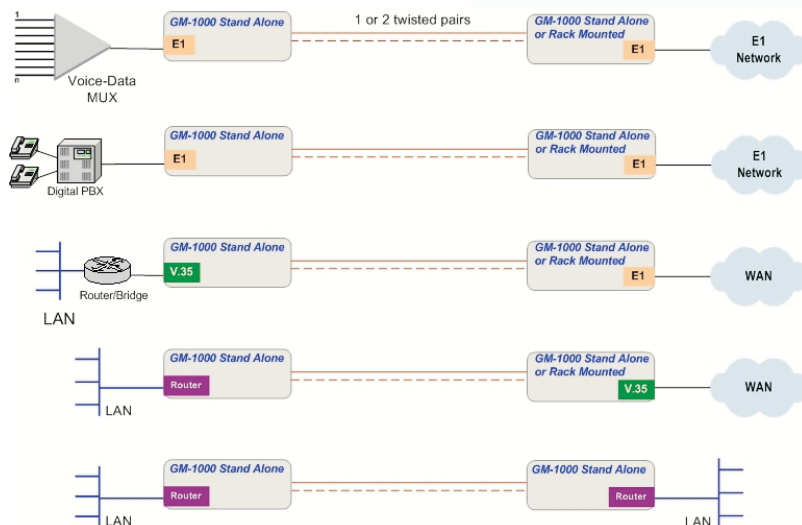
The GM-1000 provides high speed digital transport over twisted copper pairs using 16PAM technology. Versatility of this series comes from a choice of digital interfaces and a choice of data rates, with the lower data rates applicable to longer reaches. Repeaters are available for extending the reach beyond a single span. This stand-alone version is intended for customer premises installation while the rack version is for central office use. Either version, installed in pairs, can provide:

- (a) an E1/T1 link, with E1/T1 interfaces,
- (b) a high speed data link with DTE interfaces, or
- (c) a data access to E1/ T1 with DTE interface at one end and E1/ T1 at the other, as shown in the application illustrations.

The GM-1000 also supports an integral router. This router can be connected directly to a LAN for transport of information out to the network, avoiding the cost and space of an external router.

The GM-1000 supports configuration and diagnostics using keypads and LCD display on the front panel, or from a local or remote terminal. This execution of in-service diagnostics and fault isolation.

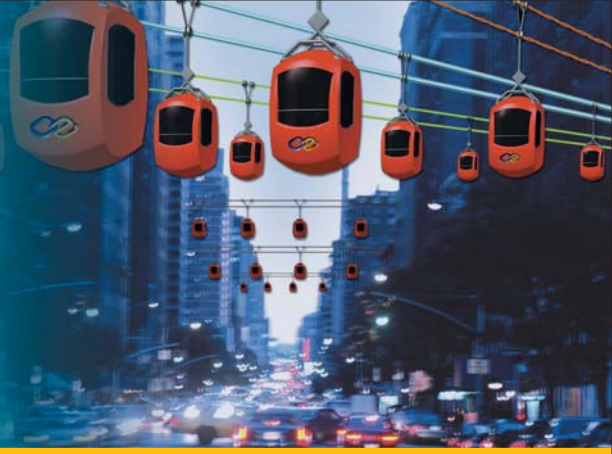
### Applications



### Features

- ✓ E1/ DTE speed of  $n \times 64$  Kbps,  $n=1$  to max  $n$ , where max  $n= 3, 4, 6, 8, 12, 16, 18, 24, 32$  for 1 line, and  $n=3, 4, 6, 8, 12, 16$  for 2 lines.
- ✓ T1 speed of  $n \times 64$  Kbps,  $n=1$  to max  $n$ , where max  $n= 3, 4, 6, 8, 12, 16, 18, 24$  for 1 line, and  $n= 3, 4, 6, 8, 12$  for 2 lines.
- ✓ Distances vary by line speeds, wire thickness and environmental factors, depending on max  $n$ .
- ✓ V.35, X.21, Router DTE interfaces, E1 interface or T1 interface.
- ✓ Uses industry standard 16PAM line format.
- ✓ A pair of GM-1000 can be configured as DTE at one end and E1/T1 at the other in a bridge application.
- ✓ 12 LEDs for status, console port for terminal operation.
- ✓ Optional front panel keys and 2-line by 16-character display.
- ✓ Each unit can be set to be either master or slave.
- ✓ Standard compliance:
  - For E1-HSDL, ETSI RTR/TM-03036 and ETSI TS 101 135 (formerly ETR 152).
  - For G.SHDSL, G.991-2, G.994-1





# GM-1000

## G.shdsl Modem, NTU

### Product Specifications

#### E1 Interface

Line Rate	2.048 Mbps + 50 PPM
Line Code	HDB3
Input Signal	ITU G.703
Framing	ITU G.704
Connector	BNC/RJ48C
Output Signal	ITU G.703
Electrical	75 Ohm Coax/120 Ohm twisted pair

#### T1 Interface

Line Rate	1.544 Mbps + 50 bps
Line Code	AMI / B8ZS
Input Signal	DS1 ABAM cable length up to 655 feet
Framing	D4 / ESF (selectable)
Connector	RJ48C
Output Signal	DSX1

#### DTE Interface

Data Port	Single DTE
Data Rate	n x 64 Kbps
Connector	V.35

#### Router Interface

Number of Ports	1
Physical Interface	10/100 Base-T
Connector	RJ45
Supported Routing Protocol	RIP-I, RIP-II
Data Rate	N x 64 Kbps up to E1 capacity, 15,000 frames per second
Supported Protocols	TCP/IP, PPP

#### Performance Monitor (E1/ T1)

Performance Store	The last 24 hours performance in 1 5-minute intervals and last 7 days in 24-hour summary
Monitor Registers	Network, E1/ T1/ DTE, and remote site
Performance Reports	Error Second, Unavailable Second, Severe Error Second
Alarm History	Alarm Type, Loop1, Loop2, E1/T1 (LOS, ES, SES), and DTE Clock Loss
Alarm Queue	Contains 40 alarm records which record the latest alarm type, and date & time

#### xDSL Line Interface

Type	Full duplex with adaptive echo cancellation 16PAM line coding
Line Type	Unconditioned 19-26 AWG twisted pair
Line Rate available	200, 264, 392, 520, 776, 1032, 1160, 1544, or 2056

#### Clock

xDSL looped, Internal, or E1/T1/ DTE

#### Console Port

Connector	DB9S at front panel
Electrical	RS232 interface (DCE)
Protocol	Menu driven VT-100 terminal

#### System Configuration Parameters (All in non-volatile memory)

Active Configuration	Current working configuration
Default Configuration	Manufacture default configuration

#### Diagnostics Test

xDSL Loopback	To-DTE, To-LINE
DTE Loopback	To-DTE, To-LINE
E1 Loopback	To-E1, To-LINE
T1 Loopback	To-T1, To-LINE
Slave Loopback	DTE-Side, Line-Side (through EOC and V.54)

#### Front Panel

Keypad 4 keys:	left arrow, right arrow, ESC, and ENTER
LCD	2-line by 16-character
LED	

#### Physical/Electrical

Dimensions	29 x 6 x 22 cm (WxHxD)
Power	7 Watts max without line power or 22 Watts max with line power
Temperature range	0 - 50 °C
Humidity	0 - 95% RH (non-condensing)
Mounting	Desk-top stackable Rack Mount tray available

#### Compliance

EMI/EMC	EN55022, EN50081-1, EN50082-1
Safety	EN60950
G.SHDSL	G.991-2, G.994-1

