

## Multi-Rate Symmetrical Digital Subscriber Line



The **MSDTU01-A** Family of Symmetrical Digital Subscriber Line (SDSL) products provides a transport infrastructure for Public Network WAN access, Internet Access, LAN-to-LAN connectivity and other high speed, wide-band access applications. They are ideal for end user connection to Network Service Providers wishing to deliver last-mile high speed network data to their customers. Based on reliable 2B1Q transmission technology, this product delivers symmetrical data transmission from 144Kbps up to 2320Kbps or **Multi-Rate Nx64 DSU rates**, full duplex data over a single twisted pair of conventional copper wire telephone line.

With the **MSDTU01-A** simple connection through a single pair of copper wire telephone line, the subscriber's PC on a network can easily gain access to the WAN with performance at optic like quality (BER10<sup>-8</sup>), over a distance up to 25Kft/7.6 Km (@144Kbps DSL rate). The **MSDTU01-A** is available in several model configurations supporting Ethernet Bridging, G.703 E1, G.703 T1, or data interfaces for V.35, X.21, RS-530 or RS-449.

- **MSDTU01-A/ET10**  
Stand-alone SDSL bridge with Ethernet 10Base-T interface
- **MSDTU01-A/449**  
Stand-alone SDSL Transmission Unit with RS-449 DCE interface
- **MSDTU01-A/V35**  
Stand-alone SDSL Transmission Unit with V.35 DCE interface
- **MSDTU01-A/E1**  
Stand-alone SDSL Transmission Unit with G.703 Fractional E1 interface
- **MSDTU01-A/530**  
Stand-alone SDSL Transmission Unit with RS-530 DCE interface
- **MSDTU01-A/T1**  
Stand-alone SDSL Transmission Unit with G.703 Fractional T1 interface
- **MSDTU01-A/X21**  
Stand-alone SDSL Transmission Unit with X.21 DCE interface



**MSDTU01-A/ET10 Transmission Unit**

**Features**

- SDSL multi-rate modem transport: 10BASE-T Ethernet Bridge Interface
- LAN Table: 10,000 MAC Address with 5 second automatic aging
- Filtering and Forwarding: 15,000 frame/sec
- Buffer: 256 frames
- High speed SDSL transport over single twisted pair telephone line
- SDSL WAN multi-rates : 144Kbps to 2320Kbps
- Control port for monitoring, setup and diagnostics.
- Payload rates: Nx64Kbit/s (where N is equal to 1 to 36)

**Specifications**

● **NETWORK INTERFACE**

LAN Interface	10BASE-T
Connector:	RJ-45:UTP(Unshielded Twisted Pair)
Standard:	IEEE 802.3/Ethernet V.2
TP Polarity:	Automatic TP polarity Reversal
Bridge Characteristics	
Address	10,000 address LAN table
Buffer	256 frames
Filtering	15,000 pps
Forwarding	15,000 pps
Learning & Aging	Automatic LAN table

● **SDSL Line I/F**

Line Rate (Data Rate)	144Kbps to 2320Kbps
Line Code	2B1Q
Line Impedance	135 ohm
Test Standard	ANSI T1 E1, 4/94-006; ETSI ETR 152
Connection loop	One Pair (2-wire)
Connector	RJ-11

● **LED Indicators**

POWER	Power ON	TX	LAN is Transmitting
LOS	Loss of SDSL signal	RX	LAN is Receiving
LFA	Loss of SDSL frame alignment	LINK	LAN Link established
ALARM	Alarm occurred	ERR	An error has occurred
LOOP	Loop test is currently active		

● **Power Requirement**

12VDC Via AC power adapter

● **Power Consumption**

<8w

● **Control Port (Interface)**

RS-232 Asynchronous

● **Environment**

Temperature 0°C~55°C  
Humidity 5%~95%

● **Dimensions(HxWxD)**

25mm x 213mm x 155mm

**Ordering Information**

Multi-rate SDSL Modem Ethernet Bridge  
**MSDTU01-A/ET10** Interface: 10BASE-T Ethernet Bridge



**MSDTU01-A/V.35/X.21/RS-530/RS-449 Transmission Unit**

**Features**

- High speed SDSL transport over a single twisted pair telephone wire.
- SDSL WAN transmission multi-rates: 144Kbps to 2320Kbps.
- Range up to 7.6Km over AWG 26 (0.4mm).
- Control port for monitoring, setup and diagnostics.
- V.35, RS-530, X.21 or RS-449 DSU Interface (DCE).
- Payload rates: Nx64K (where N is equal to 1 to 36).

**Specifications**

● **NETWORK INTERFACE**

DSU Interface	RS-530 (V.35, X.21, or RS-449 via adapter)
Connector	25Pin D-type, Female
Bit rate	64K~2304Kbps (Nx64 where n=1 to 36)

● **SDSL Line I/F**

Line Rate (Data Rate)	144kbps to 2320kbps
Line Code	2B1Q
Line Impedance	135 ohm
Test Standard	ANSI T1 E1, 4/94-006; ETSI ETR 152
Connection loop	One Pair (2-wire)
Connector	RJ-11

● **LED Indicators**

POWER	Power ON	TD	DSU is Transmitting
LOS	Loss of SDSL signal	RD	DSU is Receiving Data
LFA	Loss of SDSL frame alignment	RTS	DSU RTS Signal active
ALARM	SDSL Alarm occurred	DCD	DSU DCD Signal active
LOOP	Loop test is active		

● **Power Requirement**

12VDC Via AC power adapter

● **Power Consumption**

<8w

● **Control Port (Interface)**

RS-232 Asynchronous

● **Environment**

Temperature 0°C~55°C  
Humidity 5%~95%

● **Dimensions(HxWxD)**

25mm x 213mm x 155mm

**Ordering Information**

Multi-rate SDSL Modem N x 64K  
**MSDTU01-A/V35** interface: V.35, w/V.35 Cable adapter  
**MSDTU01-A/530** interface: RS-530  
**MSDTU01-A/449** interface: RS-449, w/RS-449 Cable adapter  
**MSDTU01-A/X21** interface: X.21, w/X.21 Cable adapter

## MSDSL FAMILY

### MSDTU01-A/G.703 E1/ G.703 T1 Transmission Unit

#### Features

- High speed SDSL transport over a single twisted pair telephone wire.
- SDSL WAN transmission multi-rates: 144Kbps to 2320Kbps.
- Range up to 7.6Km over AWG 24 gauge wire (0.5mm)
- Control port for monitoring, setup and diagnostics.
- G703 E1 or G703 T1 CSU Interface.
- Payload rates: Nx64K (where N is equal to 1 to 31).



#### Specifications

	MSDTU01-A/E1	MSDTU01-A/T1
● <b>Network Interface</b>		
Line Interface:	G.703 E1	G.703 T1
Line Code	HDB3, AMI	AMI, B8ZS
Frame Format	Framed, Unframed, MF, MFCRC-4	D4, ESF, SLC96 Unframed
Line Impedance	75 ohm/120 ohm	100 ohm, balanced
Line Equalizer	Automatically Adaptive	DSX (STU-C, 0-665 feet)/ DSI (STU-R)
Output Rate	2.048Mb/s±50ppm	1.544Mb/s±32ppm
Input Tolerance	2.048Mb/s±120ppm	1.544Mb/s±100ppm
Jitter	Complies with G.823	Complies with G.824
● <b>SDSL Line I/F</b>		
Line Rate (Data Rate)	144Kbps to 2320Kbps	144Kbps to 2320Kbps
Line Code	2B1Q	2B1Q
Line Impedance	135 ohm	135 ohm
Test Standard	ETSI ETR 152	ANSI T1 E1
Connection loop	one Pair (2-wire)	one Pair (2-wire)
● <b>Timing Source at CO</b>		
Clock	2.048MHz	1.544MHz
Input Timing	Input E1 (recovery)	Input DS1 (recovery)
Free Running	Internal Clock	Internal Clock
● <b>Timing Source at RT</b>		
Loop Timing	From SDSL Loop	From SDSL Loop
Free Running	Internal Clock	Internal Clock
● <b>Power Requirement</b>	12VDC External AC Adapter	12VDC External AC Adapter
● <b>Power Consumption</b>	<8W	<8W
● <b>Setup</b>	DIP sw.&ASCII terminal	DIP sw.&ASCII terminal
● <b>Environment</b>		
Temperature	0°C~55°C	0°C~55°C
Humidity	5%~95%	5%~95%
● <b>Dimensions(HxWxD)</b>	25mmx213mmx155mm	25mmx213mmx155mm

#### Ordering Information

Multi-rate SDSL Modem G.703 N x 64K

**MSDTU01-A/E1** interface: G.703 E1

**MSDTU01-A/T1** interface: G.703 T1