

Moving E1 Through the City Has Never Been Easier!

# TM-4

## 4 x E1/T1 over Operable Telephone Pair

### Description

TM-4 Multiplexer - is a revolutionary solution for the transmission of 4xE1/T1 on a single copper pair of telephone lines simultaneously with regular telephone service over the same line.

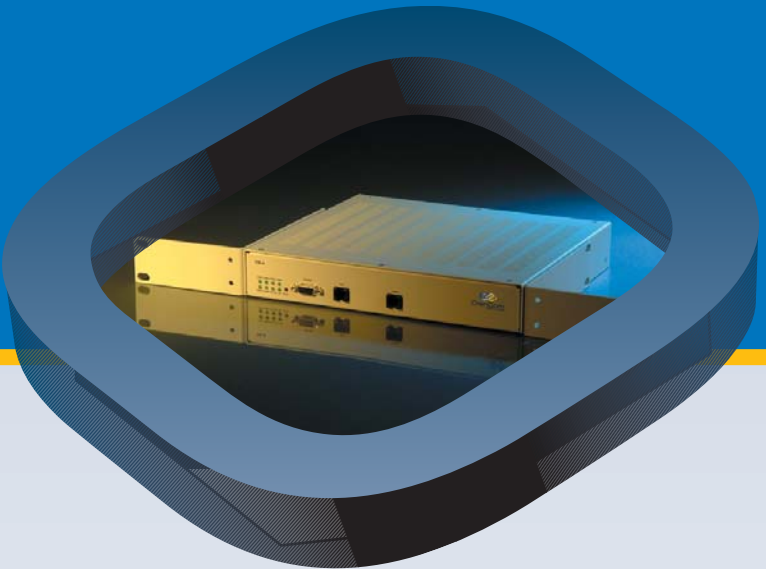
The TM-4 multiplexes 4xE1/T1 lines and transmits them over a single pair of copper wires up to a distance of 1.8 km. Its built in splitter allows simultaneous voice access over the same copper pair allowing operators to transport 4 E1/T1 lines over any existing telephone line even if it is currently being used.

### Applications

Fast and Inexpensive E1 Provisioning - The TM-4 is the perfect solution for quick and inexpensive provisioning of E1/T1 leased line services in Metro Area Networks (MAN).

Without allocating additional infrastructure or searching for unused copper lines, operators and service providers can rapidly provide E1/T1 service to any intra-city area where existing telephone lines run.

Trouble Spots in Network - The TM-4 can utilize existing telephone lines to transport E1/T1 short distances where



no other link exists and fiber or wireless solutions are too costly, time consuming, and difficult to implement. As long as telephone service is present, TM-4 will allow operators to piggyback on existing lines to bridge gaps in their network.

### Benefits

- ✓ Faster provisioning
- ✓ Cuts costs
- ✓ 75% hardware reduction
- ✓ 90% reduction in wire requirements
- ✓ Deployed over live analog lines
- ✓ Simultaneous voice access
- ✓ Easy to manage

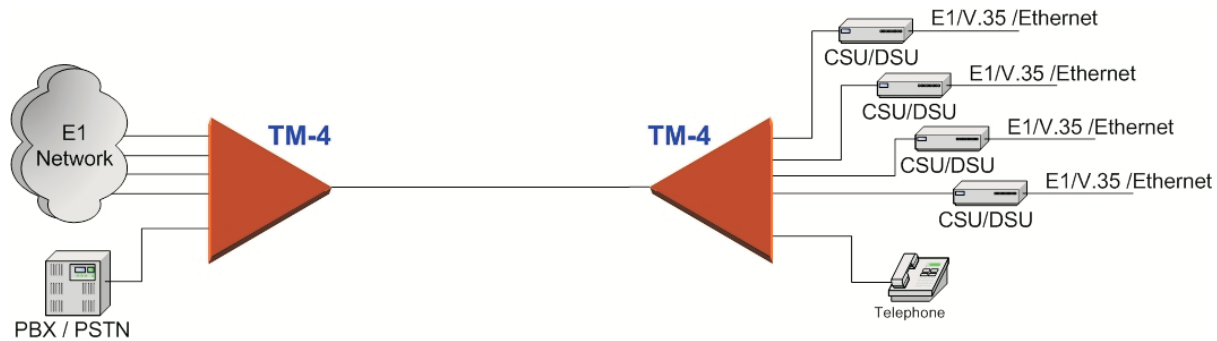
### Method of Operation



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## Application Diagram



## Product Specification

### Line Interface

Protocol	VDSL (10BaseS)
Data rate	12.5 Mbps
Connector	RJ-11

### Telephone Interface

Built-in POTS/ISDN splitter

Connector	RJ-11
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### E1 Interface

Bit rate	2.048 Mbps +50 ppm
Line Code	HDB3
Pulse Shape	Conforms to ITU-T G.703
Impedance	120 Ohm Balanced
Jitter	Conforms to ITU-T G.823
E1 Connector (120 Ohms, balanced)	DB 9 Female connector

### T1 Interface

Bit Rate	1.544 Mbps + 50 ppm
Line Code	AMI/B8ZS
Jitter Performance	Conforms to ITU-T G.824
Impedance	100 Ohm

### Management Interface

Electrical	RS232
Connector	DB-9

### LEDs:

LINK1, LINK2, LINK3, LINK4, SYNC, READY, OK, ERROR

### Power Supply

DC	36 - -72 V
AC	90 - 260 V@ 47-63 Hz
Power Consumption	30W maximum
MTBF	47,000 hours minimum

### Mechanical

Dimension	44 (H) X 260 (W) X 230 (D) mm
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The TM-4 is provided in 19", 21" and 23" RACK-MOUNT enclosure and has three fastening options in the RACK-MOUNT.

### EMI/EMC certification

FCC Class Apart 15B EN55082-1, EN55022

### Environment

Operation Temperature	0 to 60 C
Relative Humidity	5 to 90%, non-condensing

