

LDM85

Fiber Optic Modem



Description

The LDM85 is a small, inexpensive fiber optic transmitter/receiver. It features a complete RS-232/422/423 port as well as high speed TTL data transmit and receive. It is capable of data rates from DC to 5M baud. A pair of these units allows most RS-232C cable links to be replaced and extended with a duplex fiber optic cable. The normal 50-foot RS-232 limit may be extended to 1.2 miles (2 km). Fiber optic data communications provide complete EMI/RFI rejection, isolation, elimination of ground loops, and reduced error rates. Data security is enhanced by almost nonexistent electromagnetic emissions. A unique multipoint capability allows local area networks to be formed with the isolation and data security of a fiber optic data highway.

The LDM85 is packaged in a rugged aluminum enclosure small enough to mount on the back panel of typical computer equipment, saving valuable desk and floor space. The RS-232 connection is through male or female EIA 25-pin connectors. The fiber optic connection is either through SMA (905) or ST connectors. Additional features include a TD/RD reversing switch for connection to DTE (Data Terminal Equipment) or DCE (Data Communication Equipment) ports, three diagnostic LED indicators, and locally connected handshake lines. The TTL port combined with the RS-232 port may be interfaced to RS-422/423 ports in 4-wire point-to-point mode only. Fiber optic cables may be ordered with connectors factory installed.

► Features

- Data Rates to 5M Baud
- RS-232, RS-422, TTL System Interfaces
- Multipoint Capability
- LED Indicators
- DCE/DTE Switch
- Small Size
- Low Cost
- SMA- or ST-Compatible Optic Connectors
- Connected Cables Available
- 120/220VAC, +5VDC or 8 to 20VAC/DC Power
- CE Compliant

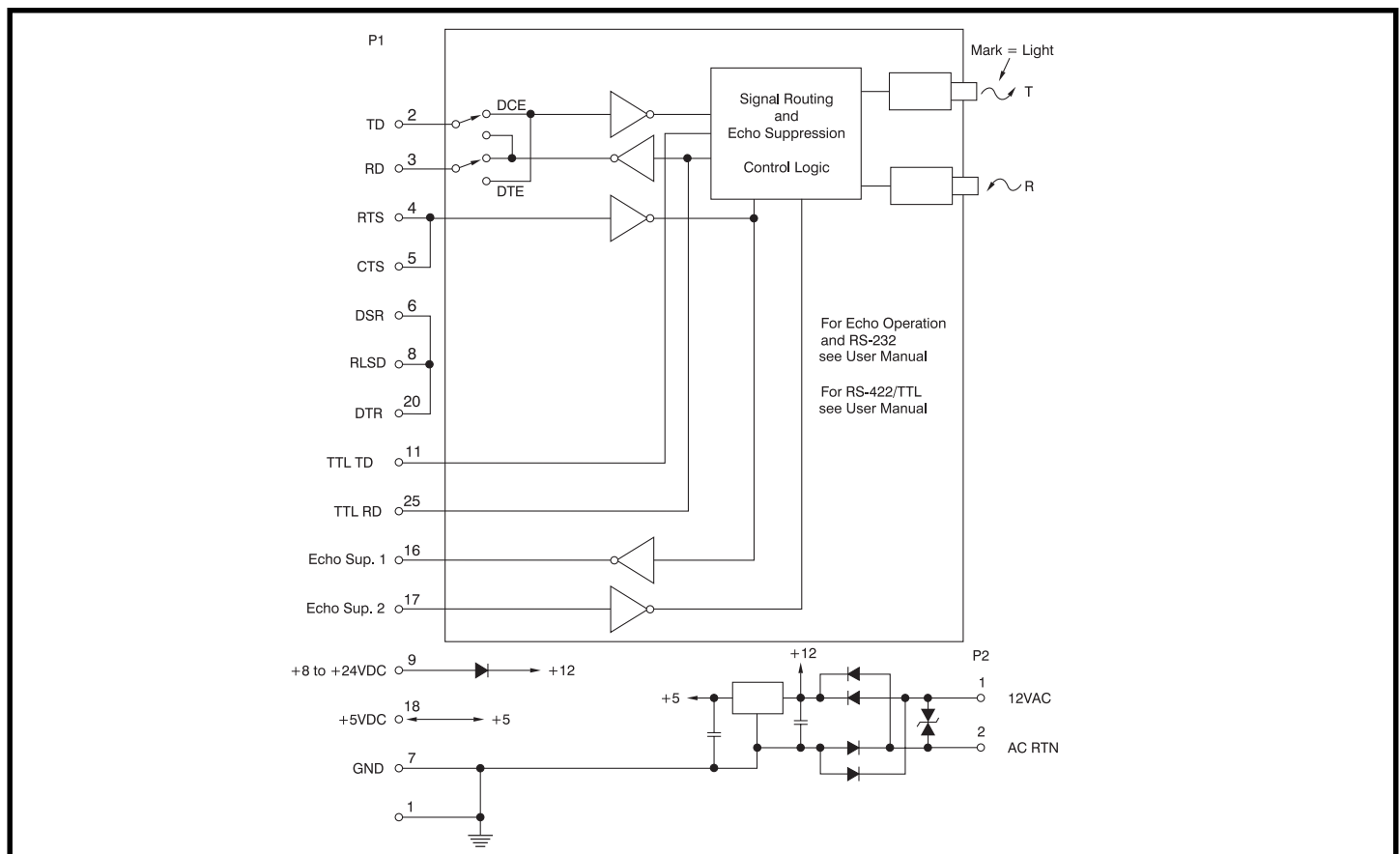


Figure 1: LDM85 Block Diagram

Specifications

Model	LDM85
Baud Rate Range TTL	0 – 5M, 0 – 2.5M NRZ
Baud Rate Range RS-232/422/423	0 – 100K
Distance (miles)	Up to 1.2 depending on cable
Distance (km)	Up to 2 depending on cable
Modes	Asynchronous 2-fiber full duplex, 1-fiber simplex
Channel Lines ⁽¹⁾	TD, RD, TTL TD, TTL RD
Control Lines ⁽¹⁾	RTS, CTS, DSR, DTR, RLSD
Optical Transmitter	820 nm wavelength -11.5dBm typical output from 1 m cable, -16dBm minimum output (-40°C to +85°C)
Numerical Aperture	0.49
Optical Port Diameter	290 mm
Optical Receiver	-25dBm to -12dBm dynamic range for logic 1, -24dBm minimum input logic 1 (-40°C to +85°C), -40dBm maximum input logic 0
Equivalent Numerical Aperture	0.50
Optical Port Diameter	400 µm
Optical Connectors	ST, SMA (905)
Power Budget	8dB (-40°C to +85°C), 10dB (-20°C to +55°C)
DCE/DTE Switch	1
Diagnostic LEDs	3
Power	
AC operation ⁽²⁾	120VAC or 220VAC (3W wall transformer) or 10VAC to 20VAC (3W transformer rating)
DC operation	+8VDC to +24VDC at 130mA or +5VDC ±0.25VDC at 130mA
Environmental:	
Operating Temperature Range	-40°C to +85°C
Storage Temperature Range	-40°C to +85°C
Relative Humidity	0-95% non-condensing
Dimensions	3.75" x 2.1" x 1" (95.3mm x 53.3mm x 25.4mm)
Weight	
PT3, PT3E	3.7 oz (105g) max 11.0 oz (312g)
MTTF ⁽³⁾	>120,000 hrs

Ordering Information

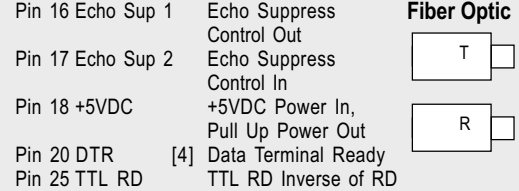
Model	Description
LDM85-P ⁽⁴⁾⁽⁶⁾	Pinned RS-232 connector
LDM85-S ⁽⁴⁾⁽⁶⁾	Socketed RS-232 connector
LDM85-PT ⁽⁴⁾⁽⁶⁾	Pinned RS-232 connector, U.S. wall transformer, 120VAC
LDM85-ST ⁽⁴⁾⁽⁶⁾	Socketed RS-232 connector, U.S. wall transformer, 120VAC
LDM85-PE ⁽⁴⁾⁽⁶⁾	Pinned RS-232 connector, European wall transformer, 220VAC
LDM85-SE ⁽⁴⁾⁽⁶⁾	Socketed RS-232 connector, European wall transformer, 220VAC
LDM85CA1-XXXX ⁽⁵⁾	Single-channel optical cable, SMA
LDM85CA2-XXXX ⁽⁵⁾	Dual-channel optical cable
LDM86CA1-XXXX ⁽⁵⁾	Single-channel optical cable, ST
LDM86CA2-XXXX ⁽⁵⁾	Dual-channel optical cable, ST
PT3	U.S. wall Transformer, 120VAC
PT3E	European wall transformer, 220VAC

P1 Pin Descriptions

Pin 1	SHIELD
Pin 2	TD
Pin 3	RD
Pin 4	RTS
Pin 5	CTS
Pin 6	DSR
Pin 7	GND
Pin 8	RLSD
Pin 9	+VDC
Pin 11	TTL TD
Pin 16	Echo Sup 1
Pin 17	Echo Sup 2
Pin 18	+5VDC
Pin 20	DTR
Pin 25	TTL RD

P2 Pin Descriptions

Pin 1	12VAC
Pin 2	AC RTN (GND)



Pin numbers given are for the 25-pin connector with the 9-pin equivalent in [].

NOTES:

- (1) TD = Transmit Data, RD = Receive Data, TTL TD and TTL RD are DCE referenced TTL signals, RTS = Request To Send, CTS = Clear To Send, DTR = Data Terminal Ready, DSR = Data Set Ready, RLSD = Received Line Signal Detect.
- (2) 120VAC and 220VAC power transformers are available.
- (3) Ground-benign environmental conditions (no salt atmosphere, <50°C ambient temperature).
- (4) For internal echo suppression, add 1 to the part number.
- (5) Specify length to the nearest meter. Example: LDM85CA2-0550 for 550 meters dual cable. Maximum length available is 1000 meters.
- (6) For ST fiber optic connector, add -025 to the part number.

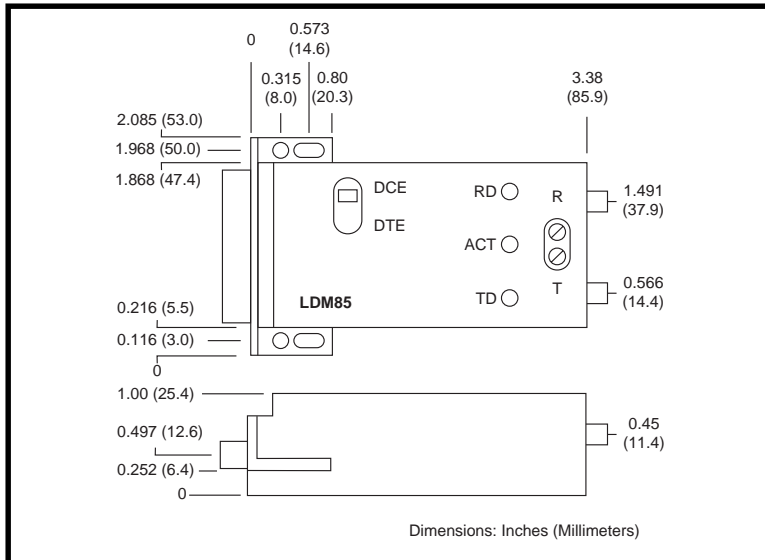


Figure 2: LDM85 Dimensions