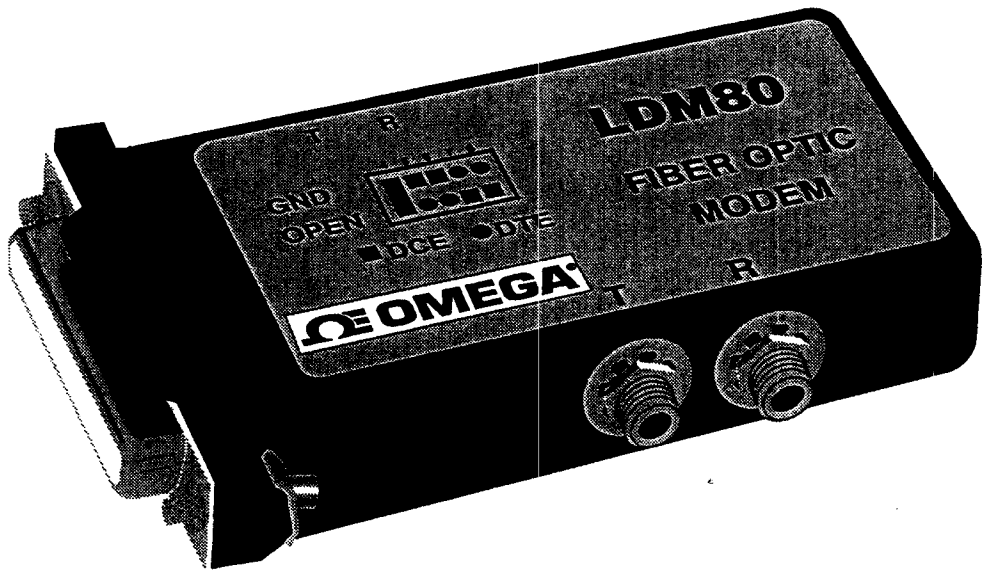
LDM80

Signal-Powered, Fiber-Optic Modem



OMEGA®

An OMEGA Technologies Company

Operator's Manual

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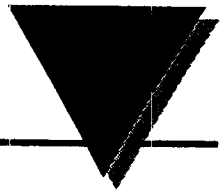


Remove the Packing List and verify that you have received all equipment, including the following (quantities in parentheses):

- LDM80 Modem
- Operator's Manual.

If you have any questions about the shipment, please call the OMEGA Customer Service Department. When you receive the shipment, inspect the container and equipment for signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

NOTE

The carrier will not honor damage claims unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

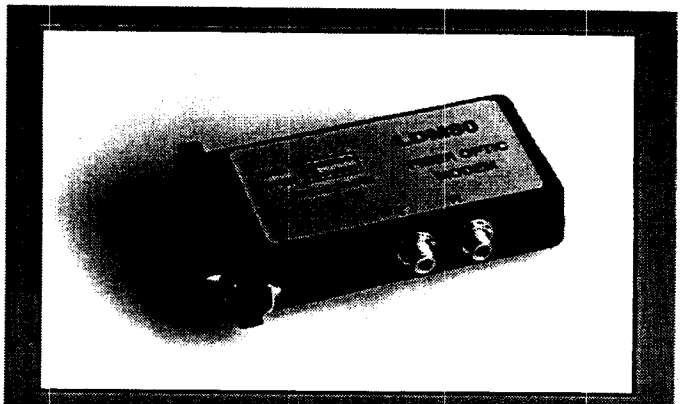
LDM80

Signal-Powered, Fiber-Optic Modem

Description

The LDM80 is a small, inexpensive fiber optic transmitter/receiver completely powered by the host RS-232 port. The enclosure for the LDM80 is a conductive shell that greatly reduces RF radiation and susceptibility. The rugged metal enclosure is small enough to mount on the back panel of typical computer equipment saving valuable desk and floor space. 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 2.2 miles (3.5 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. 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.

The LDM80 is equivalent to a 3-wire, full duplex, RS-232 circuit. Handshake signals are locally connected as in Figure 1. Indicating LEDs come on during a "SPACE" on transmit or receive data. A TD/RD reversing DIP switch is provided for connection to DTE (Data Terminal Equipment) or DCE (Data Communication Equipment) ports.



Features

- DATA RATES TO 19.2K BAUD AT 2.2 MILES (3.5 KM)
- 17 dB OPTICAL LINK POWER BUDGET
- POWERED BY RS-232 HOST PORT SIGNALS
- FULL DUPLEX ASYNCHRONOUS OPERATION
- INDICATING LEDS
- DCE/DTE SWITCH
- DESIGNED FOR FCC CLASS A REQUIREMENTS
- COMPLIES WITH FCC CLASS A REQUIREMENTS
- PINNED OR SOCKETED RS-232 CONNECTORS

Specifications

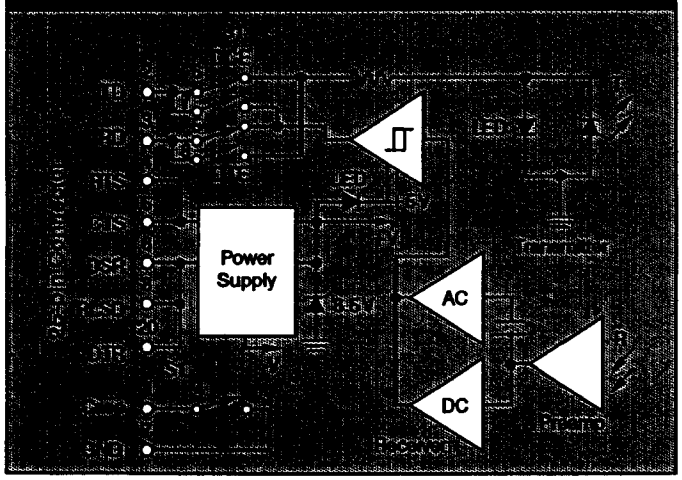
Model	LDM80		
Baud Rate Range	0 – 19.2K		
Distance: Over Baud Rate Range			
Fiber Core Diameter (µm)	Max. Cable Length (km)	Loss Budget (dB)	
100 (glass)	3.5	17	
50 (glass)	2.5	9	
62.5 (glass)	2.0	11	
85 (glass)	3.5	16	
200 (glass)	3.5	23	
1000 (plastic)	30 meters	32	
Channel Lines[1]	TD, RD		
Control Lines[1]	RTS, CTS, DSR, DTR, RLSD		
Modes	Asynchronous 2-fiber full duplex, 1-fiber simplex		
Optical Transmitter	850 nm wavelength		
Output from 1 m cable	-26 dB typ, -27dB min, -18 dB max		
Optical Receiver Power Input for 4µs Pulse Distortion	-44 dB min		
Optical Connectors	ST, SMA (905) Compatible		

Notes: (1) TD = Transmit Data, RD = Receive Data, RTS = Request To Send, CTS = Clear To Send. DTR = Data Terminal Ready, DSR = Data Set Ready, RLSD = Received Line Signal Detect.

Model	LDM80
RS-232 Output Voltage with 3kΩ Load	+5V logic 0, -5V logic 1
DCE/DTE Switch	One
Diagnostic LEDs	Two
Power: Port Power and/or DC operation	 +5.0 to +8.5 VDC, no current limit, 5 mA >+8.5 VDC, 10 mA current limit
Operating Environment non-condensing	-20°C to +70°C, 0 to 95% relative humidity,
Dimensions	3.51 in x 1.88 in x 0.729 in (89.2 mm x 47.8 mm x 18.5 mm)
Weight	8.1 oz (230 g) max
MTBF[2]	>100,000 hrs

(2) Ground-benign environmental conditions (no salt atmosphere, <50°C ambient temperature).

Figure 1. LDM80 Block Diagram

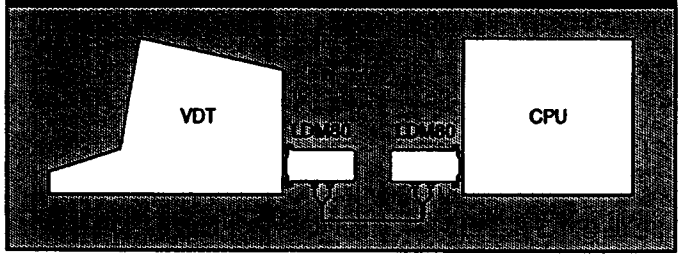


Pin Descriptions			Fiber Optic
Pin 1	Case	Case Ground	T
Pin 2	TD	Transmit Data	
Pin 3	RD	Receive Data	R
Pin 4	RTS	Request To Send	
Pin 5	CTS	Clear To Send	
Pin 6	DSR	Data Set Ready	
Pin 7	SIG GND	Signal Ground	
Pin 8	RLSD	Receive Line Signal Detect	
Pin 20	DTR	Data Terminal Ready	

Recommended Cables

The LDM80 optical transmitter may be used with a wide range of fiber sizes. Specifications are for 100/140 μm. Other fiber sizes may be used with a resulting different cable loss budget.

Figure 2. Typical LDM80 Installation



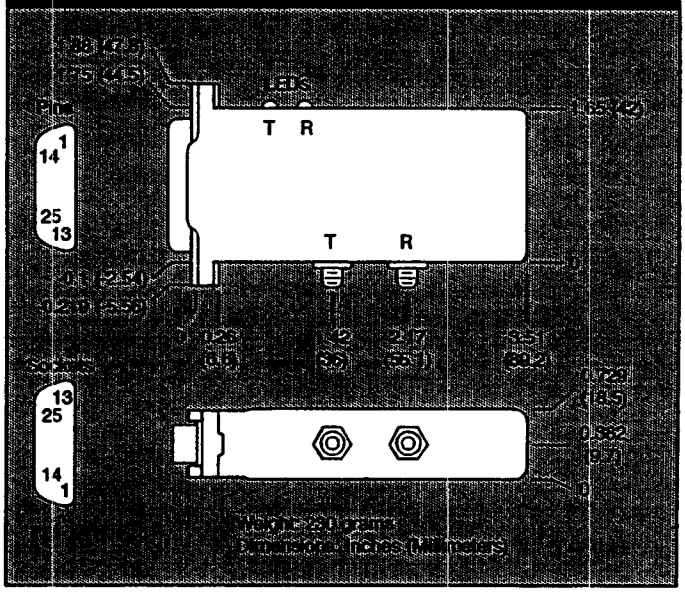
Installation

Power is supplied through a high RS-232 signal, normally current limited, applied to any of pins 4, 5, 6, 8 or 20. If the LDM80 is powered by a voltage source, V > +8.5 VDC, the current must be limited to 10 mA. Voltage sources, V < = +8.5 VDC, will need no current limit. Voltage sources, V < +8.0 VDC, will lower transmission distances. The minimum operating supply voltage for the LDM80 is +5.0 VDC and correct operation below this voltage is not guaranteed.

***WARNING!** Voltage sources greater than +8.5 VDC without current limit will damage the LDM80!*

For installation check-out, it is recommended that a short fiber-optic cable be connected from transmit to receive on a locally connected device. See Figure 2 for a typical installation.

Figure 3. LDM80 Mechanical Drawing



Models	
Model	**Description**
LDM80-P	Pinned RS-232 connector, SMA (905) fiber optic connector
LDM80-S	Socketed RS-232 connector, SMA (905) fiber optic connector
LDM80-P-025	Pinned RS-232 connector, ST fiber optic connector
LDM80-S-025	Socketed RS-232 connector, ST fiber optic connector

Note: (1) Specify length to the nearest meter. Example: LDM85CA2-0550 for 550 meters dual cable.

MADE IN USA

WARRANTY/DISCLAIMER

OMEGA warrants this unit to be free of defects in materials and workmanship and to give satisfactory service for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. However, this WARRANTY is VOID, if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear or which are damaged by misuse are not warranted. These include contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. Nevertheless, OMEGA only warrants that the parts manufactured by it will be as specified and free of defects.

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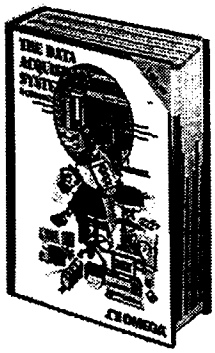

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