



User's Guide

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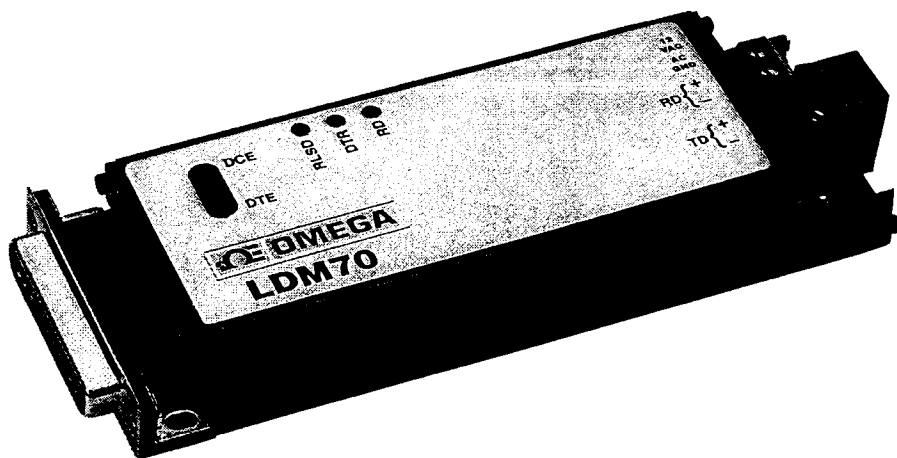
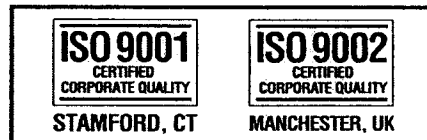


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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, human applications.

LDM70



Fully Isolated Limited Distance Modem

Description

The LDM70 series of products is designed to allow video display terminals (VDTs) and other RS-232 devices to be connected over distances sufficient to cover any industrial or institutional complex of buildings. These modems feature a rugged aluminum enclosure small enough to mount on the back panel of VDT units, saving valuable desk and floor space.

The LDM70 series is designed for full duplex, asynchronous operation over two DC-continuity, non-loaded, twisted-wire pairs. Through special high-speed optically coupled circuits, they may communicate at data rates up to 57,600 baud. A handshake operation is implemented over the same two-wire pairs. A self-powered model and a host-powered model are available. The self-powered unit uses 12VAC from a wall-mounted transformer, while the host-powered unit takes \pm DC power from pins 9 and 10 of the RS-232 connector. The modem circuits—and, consequently, the host device—are protected from electrical transients due to lightning strikes or operation of heavy industrial equipment.

Each device features a convenient Data-Communication Equipment (DCE) to Data-Terminal Equipment (DTE) switch which reverses pins 2 and 3 of the RS-232 connector. For installation and troubleshooting, each unit has diagnostic Light-Emitting Diodes (LEDs) on the transmit and receive lines. In addition, LEDs indicate valid carrier detect and data terminal ready.

The RS-232 connector may be ordered as a male or female 25-pin connector. Field connection is made through a modern, solderless, screw-termination assembly. Alternatively, a convenient four-wire modular phone jack (RJ-11) is available.

Features

- DC to 57,600 Baud
- Complete Isolation with Optical Couplers and Power DC-to-DC Converter
- Data Terminal Ready, Carrier Detect Handshake without Extra Wires
- Surge Protectors
- Four LED Diagnostic Indicators
- Operation to 3 Miles (5km) at 9600 Baud, 1 Mile (1.7km) at 19,200, 0.5 Miles (0.8km) at 57,600
- Four-Wire Full Duplex, Two-Wire Simplex
- Self-Powered or Host-Powered
- Selection of Connectors
- Wide Operating Temperature Range, 0 to +70°C
- CE Compliant

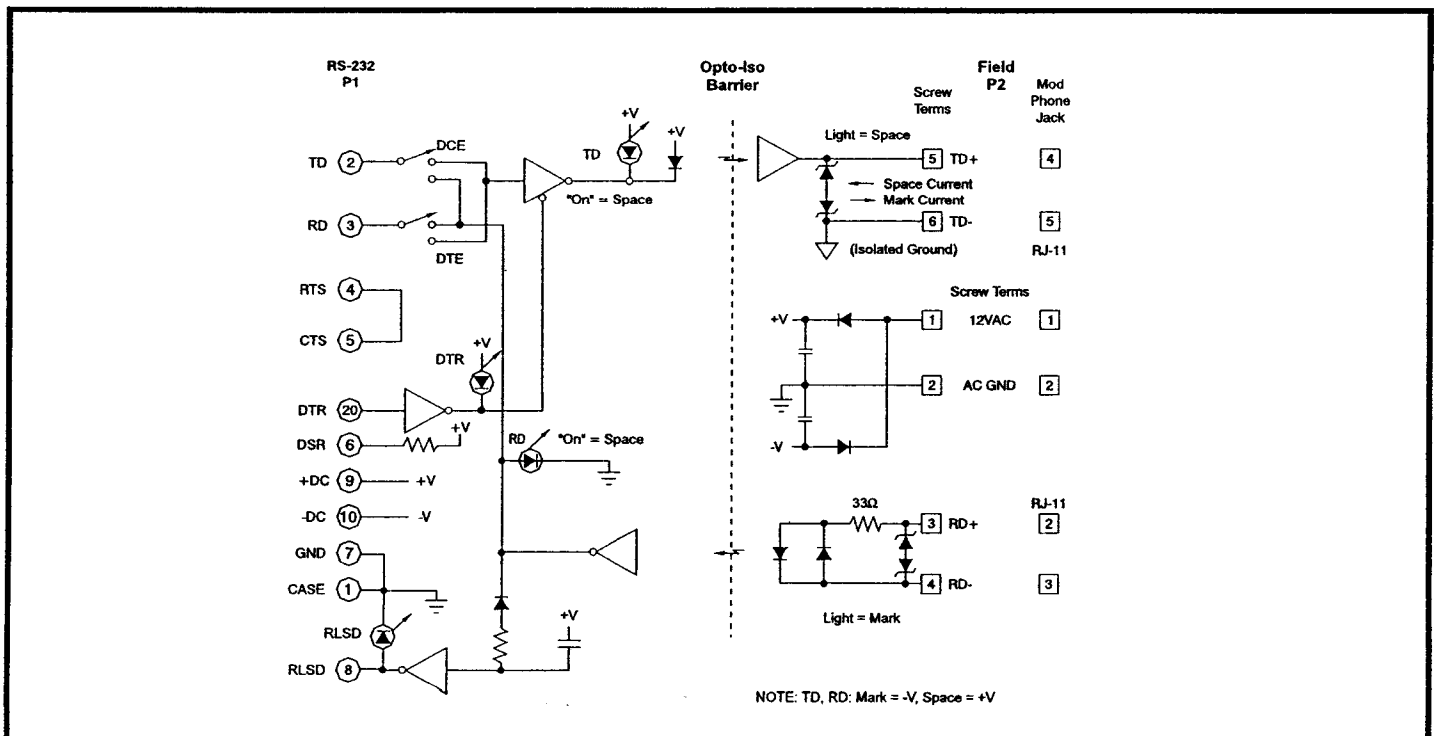


Figure 1: LDM70 Block Diagram

Specifications

Model	LDM70
Baud Rate Range	0-57.6K
Baud Rate	57.6K 38.4K 19.2K 9.6K 4.8K 2.4K 1.2K-0
Distance(miles)	0.5 0.75 1.0 3.0 5.0 7.0 12.0
Distance(km)	0.8 1.21 1.6 4.8 8.1 12.9 19.3
Common Mode Isolation	Surge: 1500V Continuous: 1000V
Differential Mode Surge Protection (3 devices)	ANSI/IEEE C37.90-1
Modes	Asynchronous 4-wire duplex, 2-wire simplex
Channel Lines Control Lines	TD, RD DTR, RLSD
Power AC operation ⁽²⁾ DC operation	12VAC at 120mA ±19VDC to ±15VDC, 45mA
Environmental Operating Temperature Range Storage Temperature Range Relative Humidity	0°C to 70°C -40°C to 85°C 0-95% non-condensing
Dimensions	5.7" x 2.1" x 1" (144.8mm x 53.3mm x 25.4mm)
Weight P and P3E	5.5 oz (156g) max 11.0 oz (312g) max
MTTF ⁽³⁾	>100,000 hrs

NOTES:

(1) TD = Transmit Data, RD = Receive Data, DTR = Data Terminal 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).

Ordering Information

Model	Type	Power	Termination
LDM70-P	Male	Host-powered	Screw termination
LDM70-S	Female	Host-powered	Screw termination
LDM70-PJ	Male	Host-powered	RJ-11 phone jack
LDM70-SJ	Female	Host-powered	RJ-11 phone jack
LDM70-PT	Male	U.S. transformer	Screw termination
LDM70-ST	Female	U.S. transformer	Screw termination
LDM70-PJT	Male	U.S. transformer	RJ-11 phone jack
LDM70-SJT	Female	U.S. transformer	RJ-11 phone jack
LDM70-PE	Male	European transformer	Screw termination
LDM70-SE	Female	European transformer	Screw termination
LDM70-PJE	Male	European transformer	RJ-11 phone jack
LDM70-SJE	Female	European transformer	RJ-11 phone jack

Model	Description
PT3	U.S. style wall mount transformer, 120VAC
PT3E	Euro style wall mount transformer, 220VAC

RS-232 P1 Pin Descriptions		Field P2 Pin Descriptions	
Pin 1	CASE [3] Case Ground	Screw Terms	Phone Jack
Pin 2	TD [3] Transmit Data	Pin 1 12VAC	Pin 1 12VAC
Pin 3	RD [2] Receive Data	Pin 2 AC GND	Pin 2 AC GND
Pin 4	RTS [7] Req. To Send	Pin 3 RD+	Pin 2 RD+
Pin 5	CTS [8] Clear To Send	Pin 4 RD-	Pin 3 RD-
Pin 6	DSR [6] Data Set Ready	Pin 5 TD+	Pin 4 TD+
Pin 7	GND [5] Signal Ground	Pin 6 TD-	Pin 5 TD-
Pin 8	RLSD [1] Receive Line Signal Detect		
Pin 9	+DC Positive DC Supply Input		RD+ = Receive Data +
Pin 10	-DC Negative DC Supply Input		RD- = Receive Data -
Pin 20	DTR [4] Data Terminal Ready		TD+ = Transmit Data +
			TD- = Transmit Data -

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

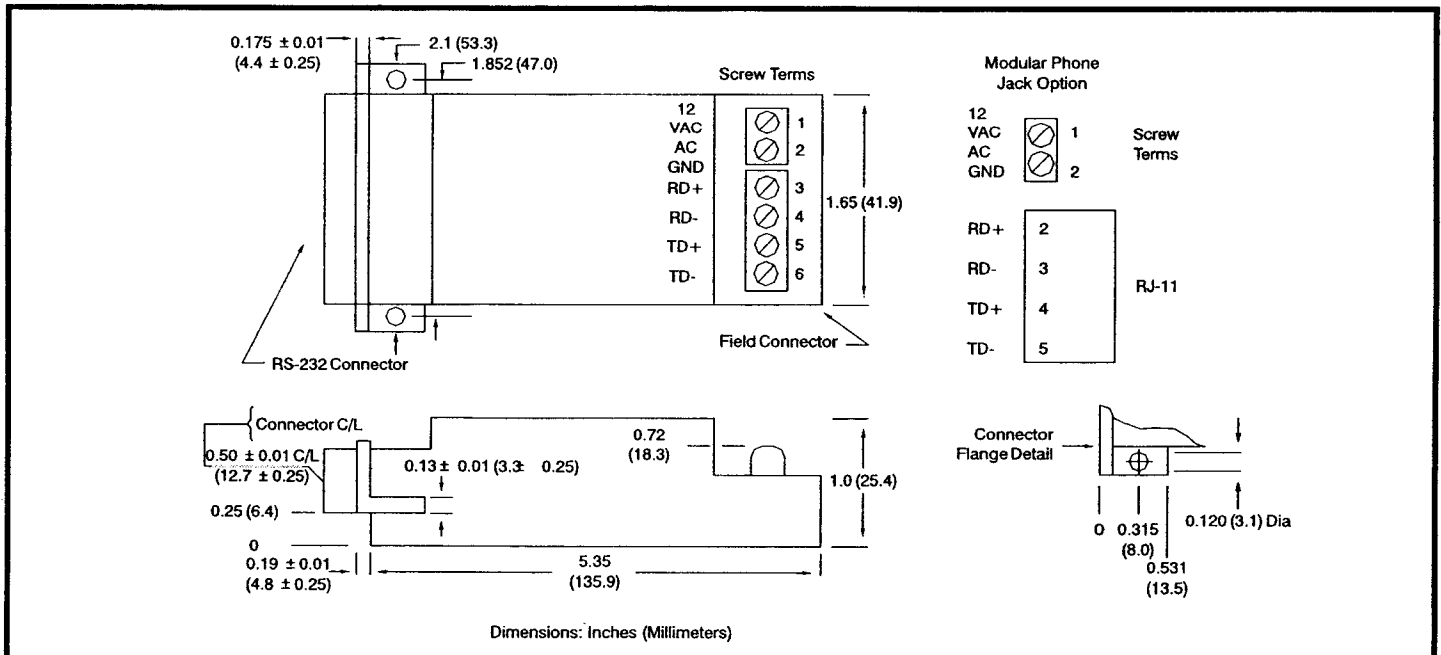


Figure 2: LDM70 Dimensions



WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's 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 malfunctions, 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. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been 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 in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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