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User's Guide

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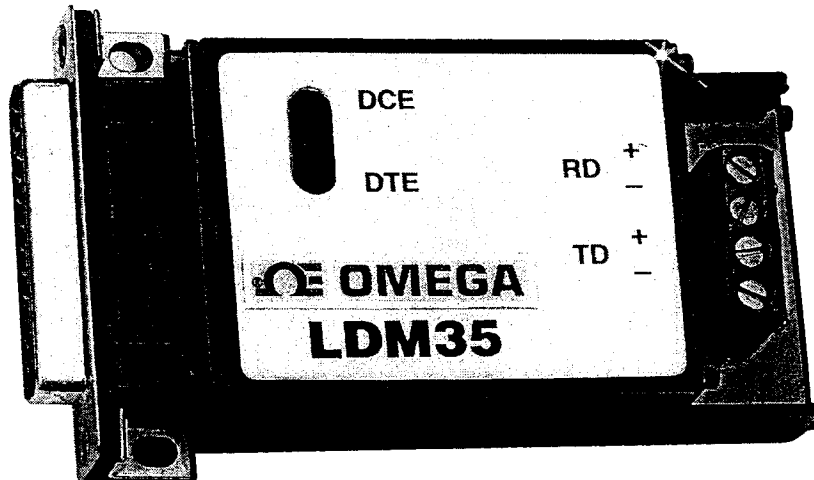
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LDM35

**Signal-Powered,
Limited-Distance Modem**



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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.

LDM35



Signal Powered Limited Distance Modem

Description

The LDM35 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 enclosure small enough to mount on the back panel of VDT units, saving valuable desk and floor space.

The LDM35 series does not require a power supply for operation. The use of low power circuits and a sensitive optical receiver allows the devices to derive all necessary power from the RS-232 data and control signal. They are designed for full-duplex, asynchronous operation over two, DC-continuity, non-loaded, twisted-wire pairs. Two-wire simplex operation may be accomplished over two wires. 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.

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
- Signal-powered: No Power Source Required
 - Optical Isolation: Breaks Ground Loops
 - Heavy Duty Surge Protectors: Prevents Lightning Damage
 - LED Diagnostic Indicators: Simplifies Installation and System Troubleshooting
 - Operation to Two Miles (3.3km) at 9600 Baud, One-Half Mile (0.8km) at 19,200 Baud, Seven Miles (11.7km) at 1200 Baud
 - Four-Wire Full Duplex, Two-Wire Simplex
 - Selection of Connectors
 - Wide Operating Temperature Range, 0°C to +70°C
 - Null Modem Switch
 - CE Compliant

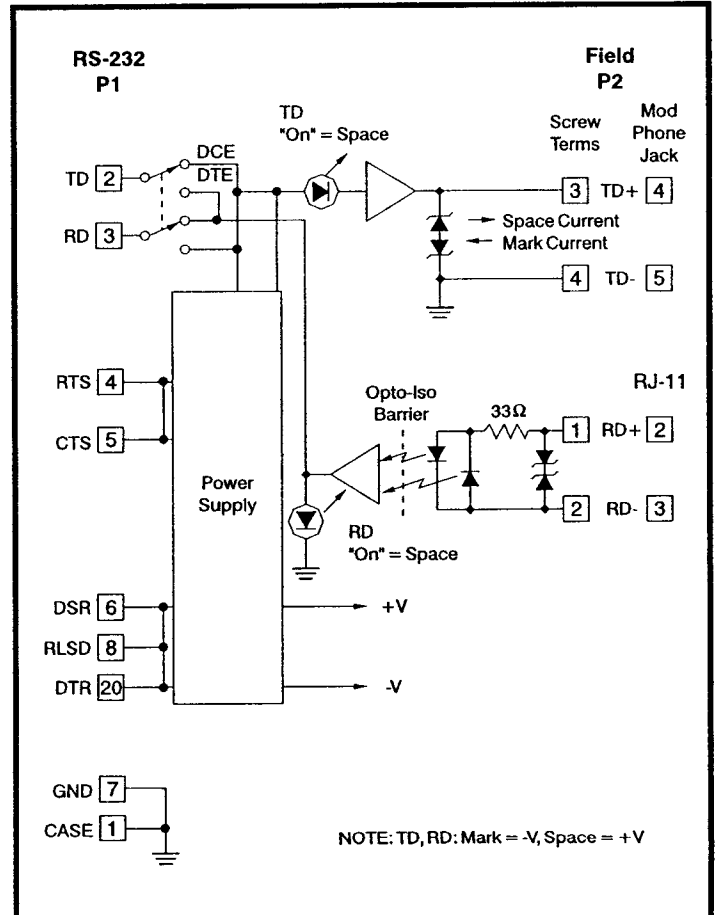


Figure 1: LDM35 Block Diagram

Specifications

| Model | LDM35 |
|---|---|
| Baud Rate Range | 0-19.2K |
| Baud Rate | 19.2K 9.6K 4.8K 2.4K 1.2K-0 |
| Distance(miles) | 0.5 2.0 3.0 5.0 7.0 |
| Distance(km) | 0.8 3.2 4.8 8.1 11.3 |
| Common Mode Isolation | Surge: 500V Continuous: 300V |
| Differential Mode Surge Protection (3 devices) | ANSI/IEEE C37.90.1 |
| Modes | Asynchronous 4-wire full-duplex, 2-wire simplex |
| Channel Lines ⁽¹⁾ | TD, RD |
| Control Lines ⁽¹⁾ | RTS, CTS, DTR, DSR, RLSD |
| Power | RS-232 data and control signals |
| RS-232 Data | ±5V to ±15V, 3.0mA to 10.0mA |
| RS-232 Control Signals | ±6V to ±15V, 3.0mA to 10.0mA |
| Environmental | |
| Operating Temperature Range | 0°C to +70°C |
| Storage Temperature Range | -10°C to +85°C |
| Relative Humidity | 0-95% non-condensing |
| Dimensions | 3.6" x 2.1" x 1" (91.4mm x 53.3mm x 25.4mm) |
| Weight | 3.2 oz (91g) max |
| MTTF ⁽²⁾ | >150,000 hrs |

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.

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

Ordering Information

| Model | 25-Pin Connector | Termination |
|----------|------------------|------------------|
| LDM35-P | Male | Screw terminals |
| LDM35-S | Female | Screw terminals |
| LDM35-PJ | Male | RJ-11 phone jack |
| LDM35-SJ | Female | RJ-11 phone jack |

RS-232 P1 Pin Descriptions Field P2 Pin Descriptions

| RS-232 P1 Pin | Field P2 Pin | Pin Description | Phone Jack |
|---------------|--------------|----------------------------|-----------------------|
| Pin 1 | CASE | Case Ground | Pin 1 RD+ |
| Pin 2 | TD [3] | Transmit Data | Pin 2 RD- |
| Pin 3 | RD [2] | Receive Data | Pin 3 TD+ |
| Pin 4 | RTS [7] | Req. To Send | Pin 4 TD- |
| Pin 5 | CTS [8] | Clear To Send | |
| Pin 6 | DSR [6] | Data Set Ready | RD+ = Receive Data + |
| Pin 7 | GND [5] | Signal Ground | RD- = Receive Data - |
| Pin 8 | RLSD [1] | Receive Line Signal Detect | TD+ = Transmit Data + |
| Pin 20 | DTR [4] | Data Terminal Ready | TD- = Transmit Data - |

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

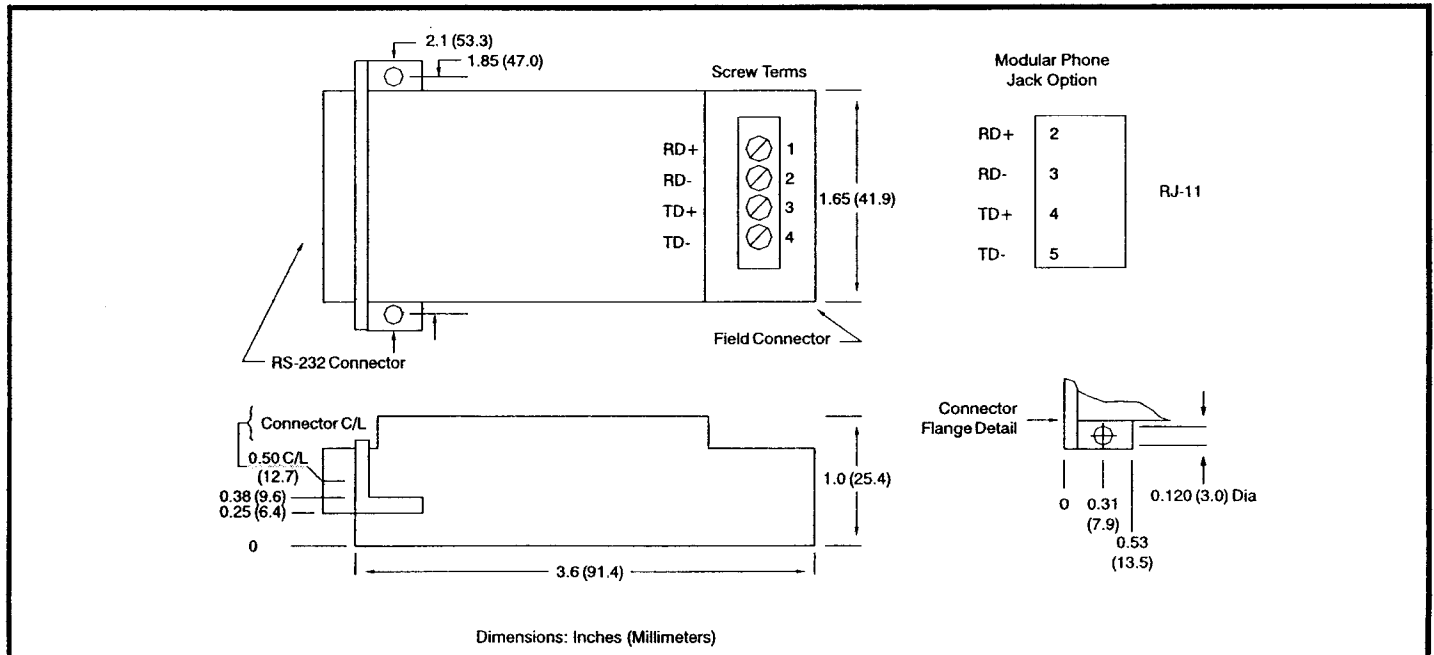


Figure 2: LDM35 Dimensions



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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