# LDM85

## Fiber Optic Converters

RoHS III COMPLIANT 2015/863 CE

## 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 5Mbps. 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.

## FEATURES

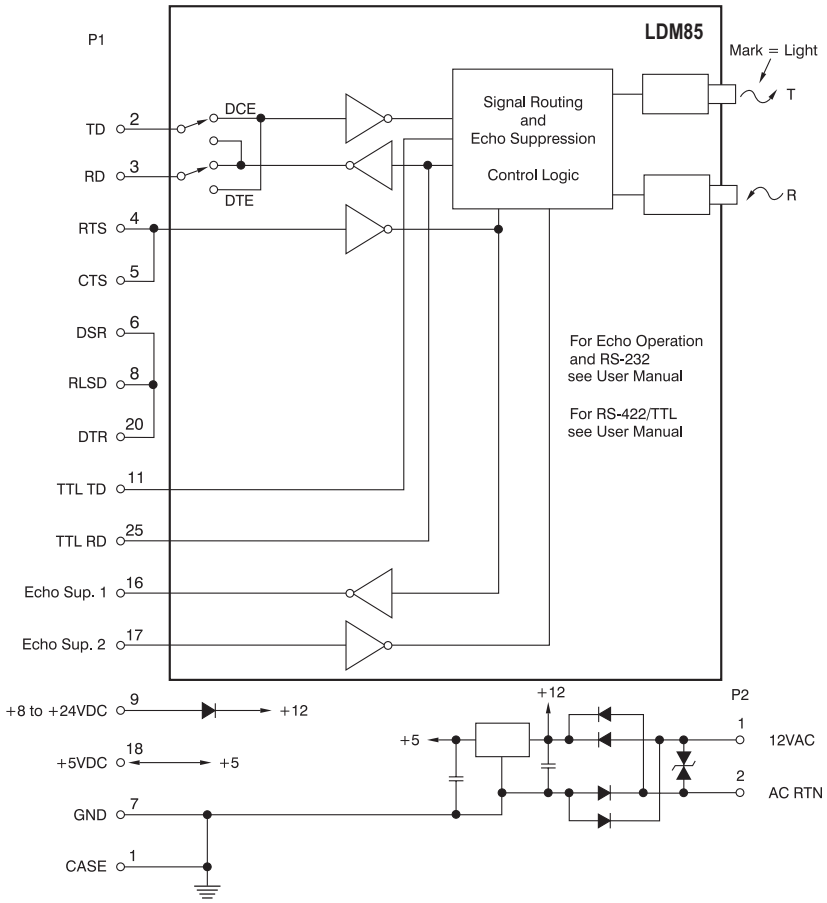
- Data Rates to 5Mbps
- RS-232, RS-422, TTL System Interfaces
- Multipoint Capability
- LED Indicators
- DCE/DTE Switch
- Small Size
- Low Cost
- SMA- or ST-compatible Optic Connectors
- 120/220VAC, +5VDC or 8 to 20VAC/DC Power
- CE Compliant
- Manufactured per RoHS III Directive 2015/863

## BENEFITS

- Extends Communication Distances
- Protects Sensitive Communication Ports
- Wide Power Supply Range

## APPLICATIONS

- High-speed Data Communications
- Industrial Data Communication




**LDM85 Block Diagram**

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## Specifications

Typical* at $T_A$ = +25°C

| Model | LDM85 |
|---|---|
| Bit Rate Range TTL<br>Bit Rate Range RS-232/422/423<br>Distance (miles)<br>Distance (km) | 0 – 5M, 0 – 2.5M NRZ<br>0 – 100k<br>Up to 1.05 Depending on Cable<br>Up to 1.75 Depending on Cable |
| Modes | Asynchronous 2-fiber Full-duplex, 1-fiber Simplex |
| Channel Lines(1)<br>Control Lines(1) | TD, RD, TTL TD, TTL RD<br>RTS, CTS, DTR, DSR, RLSD |
| Optical Transmitter<br>Numerical Aperture<br>Optical Port Diameter<br>Optical Receiver<br>Equivalent Numerical Aperture<br>Optical Port Diameter<br>Optical Connectors | 820nm Wavelength –11.5dBm Typical Output from 1m Cable, –16dBm Minimum Output (–40°C to +85°C)<br>0.49<br>290mm<br>–25dBm to –12dBm Dynamic Range for Logic 1, –24dBm Minimum Input Logic 1 (–40°C to +85°C), –40dBm Maximum Input Logic 0<br>0.50<br>400µm<br>ST, SMA (905) |
| Power Budget | 7dB (–40°C to +85°C), 9dB (–20°C to +55°C) |
| DCE/DTE Switch | 1 |
| Diagnostic LEDs | 3 |
| Power<br>AC Operation(2)<br>DC Operation | <br>120VAC or 220VAC (3W Wall Transformer) or 10VAC to 20VAC (3W Transformer Rating)<br>+8VDC to +24VDC at 130mA or +5VDC ±0.25VDC at 130mA |
| Environmental:<br>Operating Temperature Range<br>Storage Temperature Range<br>Relative Humidity | <br>–40°C to +85°C<br>–40°C to +85°C<br>0 to 95% Noncondensing |
| Dimensions (h)x(w)x(d) | 3.75" x 2.1" x 1" (95.3mm x 53.3mm x 25.4mm) |
| Weight<br>PT3 | 3.7 oz (105g) (max)<br>11.0 oz (312g) |
| MTTF(3) | >120,000 Hrs |

NOTES:
*Contact factory or your local Dataforth sales office for maximum values.
(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 fiber optic connector, order part numbers: LDM-P-025, LDM85-PT-025, or LDM85-ST-025.

## Ordering Information

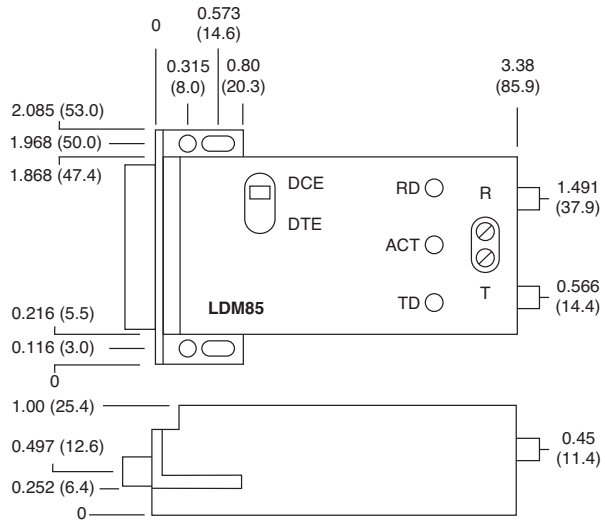
| Model | Description |
|---|---|
| LDM85-PT* | Pinned RS-232 Connector, U.S. Wall Transformer, 120VAC |
| LDM85-P-025(4) | Fiber Optic Converter |
| LDM85-PT-025(4) | Fiber Optic Converter |
| LDM85-SE | Socketed RS-232 Connector, European Wall Transformer, 220VAC |
| LDM85-ST-025(4) | Socketed ST Fiber Optic Connector, U.S Wall Transformer, 120VAC |

*Last Time Buy

| Model | Description |
|---|---|
| PT3 | U.S. Style Wall Mount Transformer, 120VAC |

| P1 Pin Descriptions | | | | P2 Pin Descriptions |
|---|---|---|---|---|
| Pin 1 | CASE | | Ground | Pin 1 12VAC |
| Pin 2 | TD | [3] | Transmit Data | Pin 2 AC RTN (GND) |
| Pin 3 | RD | [2] | Receive Data | |
| Pin 4 | RTS | [7] | Request To Send | |
| Pin 5 | CTS | [8] | Clear To Send | |
| Pin 6 | DSR | [6] | Data Set Ready | |
| Pin 7 | GND | [5] | Signal Ground | |
| Pin 8 | RLSD | [1] | Receive Line Signal Detect | |
| Pin 9 | +VDC | | +8 to +24 VDC Power In | |
| Pin 11 | TTL TD | | TTL TD Inverse of TD | **Fiber Optic** |
| Pin 16 | Echo Sup 1 | | Echo Suppress Control Out | |
| Pin 17 | Echo Sup 2 | | Echo Suppress Control In | T |
| Pin 18 | +5VDC | | +5VDC Power In, Pull Up Power Out | |
| Pin 20 | DTR | [4] | Data Terminal Ready | R |
| Pin 25 | TTL RD | | TTL RD Inverse of RD | |

Pin Numbers Given are for the 25-pin Connector with the 9-pin Equivalent in [ ].




Dimensions: Inches (Millimeters)

**LDM85 Dimensions**

SECTION 8 - Data Comm

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