# LDM70

RoHS III COMPLIANT 2015/863 CE

## Fully-isolated RS-232 Line Drivers

## 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 line drivers 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 bits per second. 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 ±DC power from pins 9 and 10 of the RS-232 connector. The line driver 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 solderless screw-termination assembly.

## FEATURES

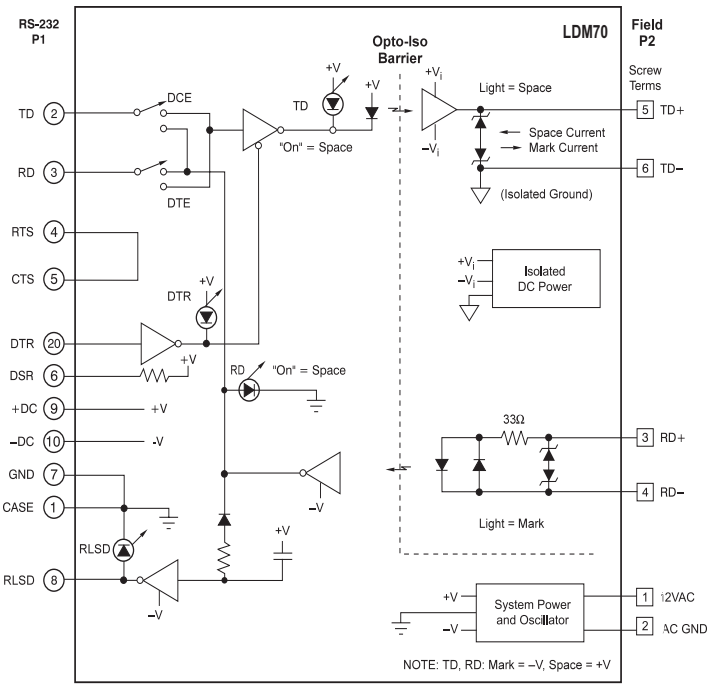
- DC to 57,600bps
- Complete Isolation with Optical Couplers and Power DC-to-DC Converter
- Data Terminal Ready, Carrier Detect Handshake without Extra Wires
- Four LED Diagnostic Indicators
- Four-wire Full-duplex, Two-wire Simplex
- Self-powered or Host-powered
- Wide Operating Temperature Range, 0 to +70°C
- Surge Protectors
- Operation to 3 Miles (5km) at 9600bps, 1 Mile (1.7km) at 19,200bps, 0.5 Miles (0.8km) at 57,600bps
- Selection of Connectors
- CE Compliant
- Manufactured per RoHS III Directive 2015/863

## BENEFITS

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

## APPLICATIONS

- Industrial Building Complex Communications
- Wired Networking
- Data Centers




**LDM70 Block Diagram**

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

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## Specifications

Typical* at $T_A$ = +25°C

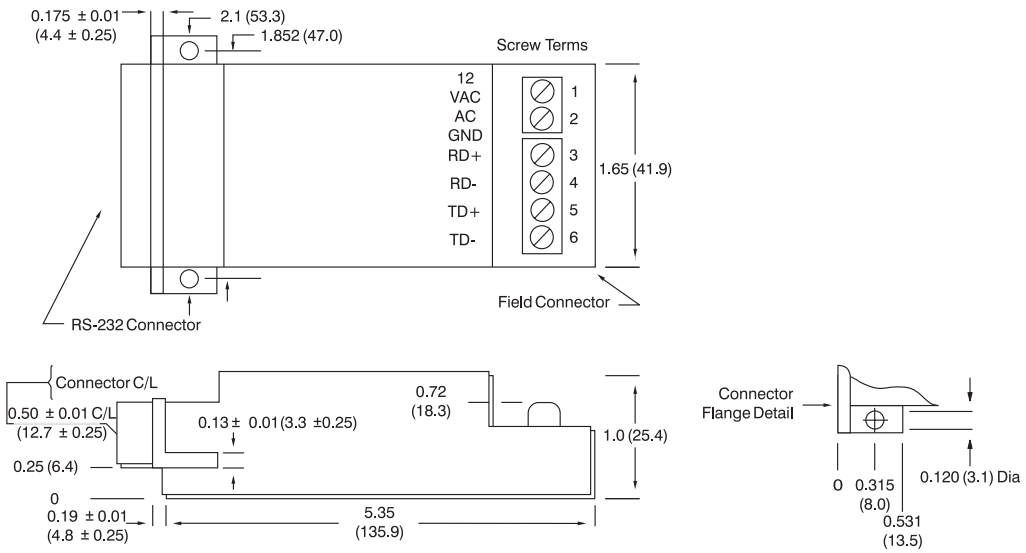
| Model | LDM70 |
|---|---|
| Bit Rate (bps)<br>bps vs Distance<br>Distance(miles)<br>Distance(km) | 0-57.6k<br>57.6k 38.4k 19.2k 9.6k 4.8k 2.4k 1.2k-0<br>0.5 0.75 1.0 3.0 5.0 7.0 12.0<br>0.8 1.21 1.6 4.8 8.1 12.9 19.3 |
| Common-Mode Isolation<br><br>Differential-Mode Surge Protection (3 devices) | Surge: 1500Vp, 1 Minute<br>Continuous: 1000Vrms<br>ANSI/IEEE C37.90.1 |
| Modes | Asynchronous 4-wire Duplex,<br>2-wire Simplex |
| Channel Lines(1)<br>Control Lines(1) | TD, RD<br>DTR, RLSD |
| Power<br>AC operation(2)<br>DC operation | <br>12VAC at 120mA<br>±9VDC to ±15VDC, 45mA |
| Environmental:<br>Operating Temperature Range<br>Storage Temperature Range<br>Relative Humidity | <br>0°C to +70°C<br>–40°C to +85°C<br>0 to 95% Noncondensing |
| Dimensions<br>(h)x(w)x(d) | 5.7" x 2.1" x 1"<br>(144.8mm x 53.3mm x 25.4mm) |
| Weight<br>PT3 | 5.5 oz (156g) (max)<br>11.0 oz (312g) (max) |
| MTTF(3) | >100,000 Hrs |

NOTES :
*Contact factory or your local Dataforth sales office for maximum values.
(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-S<br>LDM70-ST | Female<br>Female | Host-powered<br>U.S. Transformer | Screw Termination<br>Screw Termination |

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




Dimensions: Inches (Millimeters)

**LDM70 Dimensions**



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