

# LDM70

## 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  $\pm$ 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

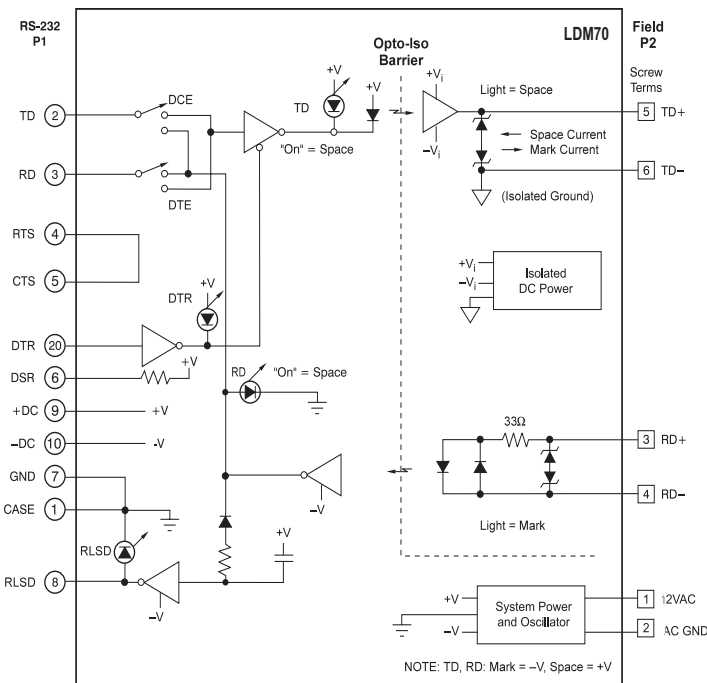
- DC to 57,600bps
- Complete Isolation with Optical Couplers and Power DC-to-DC Converter
- Data Terminal Ready, Carrier Detect Handshake without Extra Wires
- Four LED Diagnostic Indicators
- Four-wire Full-duplex, Two-wire Simplex
- Self-powered or Host-powered
- Wide Operating Temperature Range, 0 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



RS-232 P1 Pin Descriptions	Field P2 Pin Description
Pin 1 CASE Ground	Screw Terms
Pin 2 TD [3] Transmit Data	Pin 1 12VAC
Pin 3 RD [2] Receive Data	Pin 2 AC GND
Pin 4 RTS [7] Req. To Send	Pin 3 RD+
Pin 5 CTS [8] Clear To Send	Pin 4 RD-
Pin 6 DSR [6] Data Set Ready	Pin 5 TD+
Pin 7 GND [5] Signal Ground	Pin 6 TD-
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 [ ].

LDM70 Block Diagram

**Specifications** Typical\* at T<sub>A</sub> = +25°C

Model	LDM70
Bit Rate (bps)	0-57.6k
bps vs Distance	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: 1500Vp, 1 Minute Continuous: 1000Vrms ANSI/IEEE C37.90.1
Differential-Mode Surge Protection (3 devices)	
Modes	Asynchronous 4-wire Duplex, 2-wire Simplex
Channel Lines <sup>(1)</sup> Control Lines <sup>(1)</sup>	TD, RD DTR, RLS D
Power AC operation <sup>(2)</sup> DC operation	12VAC at 120mA ±9VDC to ±15VDC, 45mA
Environmental: Operating Temperature Range Storage Temperature Range Relative Humidity	0°C to +70°C -40°C to +85°C 0 to 95% Noncondensing
Dimensions (h)x(w)x(d)	5.7" x 2.1" x 1" (144.8mm x 53.3mm x 25.4mm)
Weight PT3	5.5 oz (156g) (max) 11.0 oz (312g) (max)
MTTF <sup>(3)</sup>	>100,000 Hrs

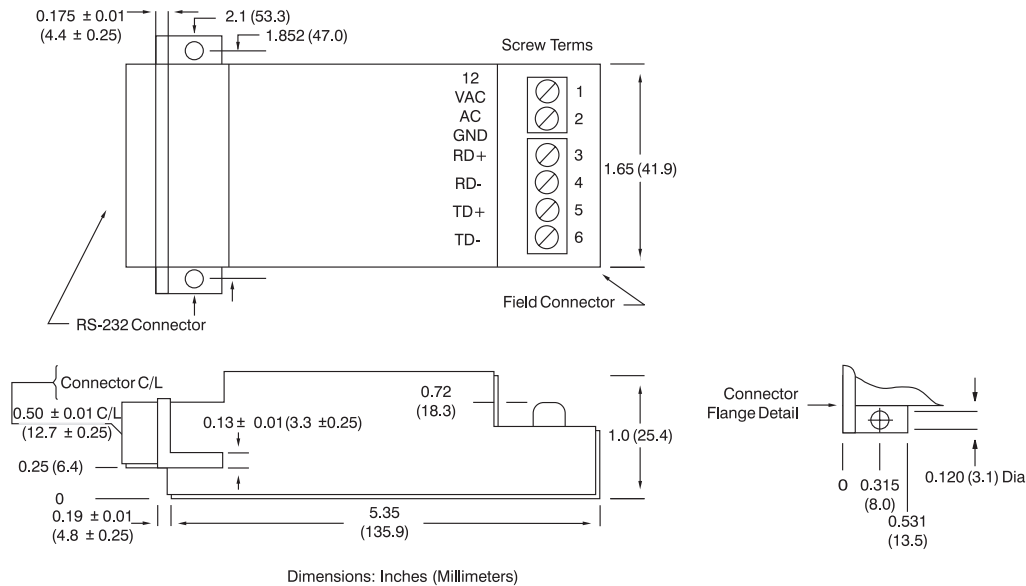
**Ordering Information**

Model	Type	Power	Termination
LDM70-S	Female	Host-powered	Screw Termination
LDM70-ST	Female	U.S. Transformer	Screw Termination

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

NOTES:  
 \*Contact factory or your local Dataforth sales office for maximum values.  
 (1) TD = Transmit Data, RD = Receive Data, DTR = Data Terminal Ready, RLS D = Received Line Signal Detect.  
 (2) 120VAC and 220VAC power transformers are available.  
 (3) Ground-benign environmental conditions (no salt atmosphere, <50°C ambient temperature).



**LDM70 Dimensions**