

Data Communications Products

Protecting Valuable Industrial LANS and Data Communications Systems

Industrial LANs and data communications systems stretch over long distances, inside and outside, with signals exposed to electrical transients, noise, ground loops, power surges, and lightning. Commercial communications equipment often is not designed for use in these environments, which can lead to unreliable signal quality, damage to expensive CRTs, computers, and other on-line equipment, and production downtime. Our heavy duty modems "harden" and protect these systems, and can extend communications for many miles without expensive cabling.

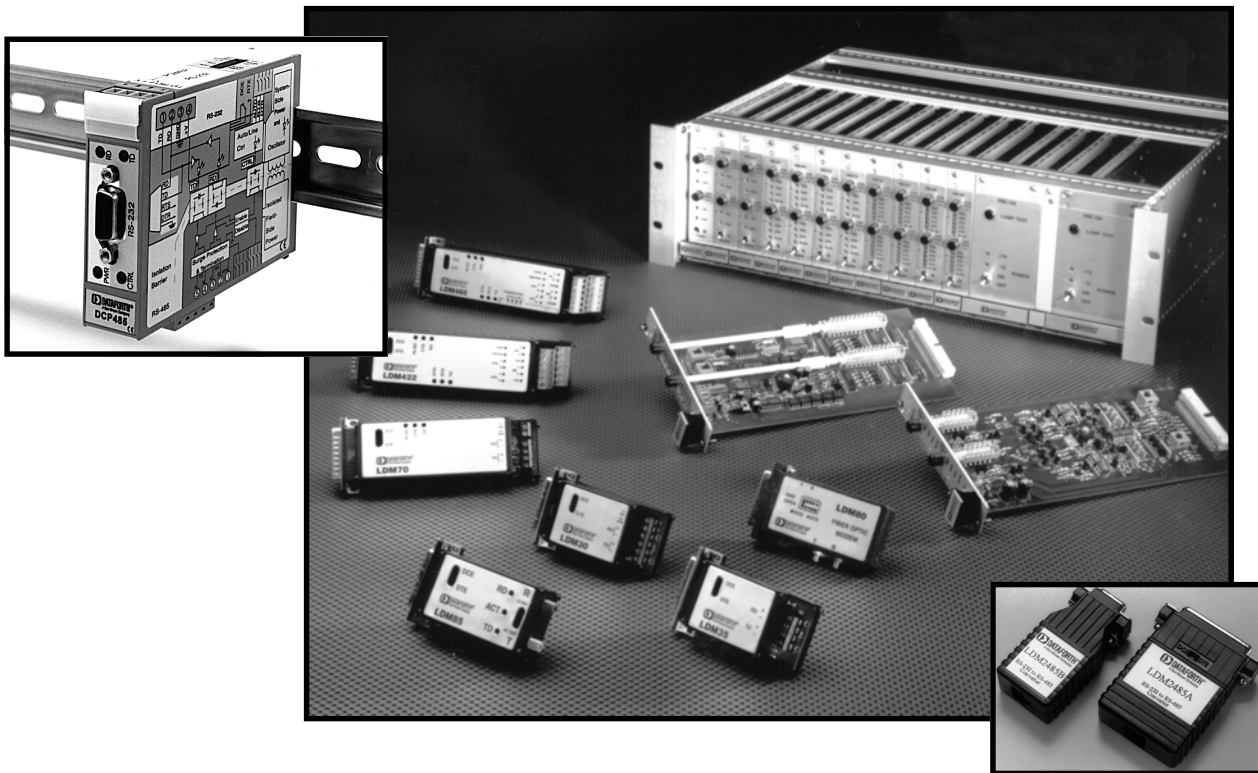
Our LDM Series limited distance modems protect host computers and equipment and extend the distances over which computers, terminals, and other devices can communicate within hazardous industrial and institutional environments – up to 12 miles using wire pairs and current loop protocols, or two miles with fiber optic data links for total electrical isolation.

Our new DCP485 DIN Rail RS-232 to RS-485 converter/line driver provides 1500 Vrms continuous isolation and data transfer up to 115.2 Kbps with automatic RS-485 line control while powered from +10 to +30 VDC.

The LDM2485 high speed RS-232/485 converters can turn any PC, terminal, or other RS-232 device into an RS-485 workstation.

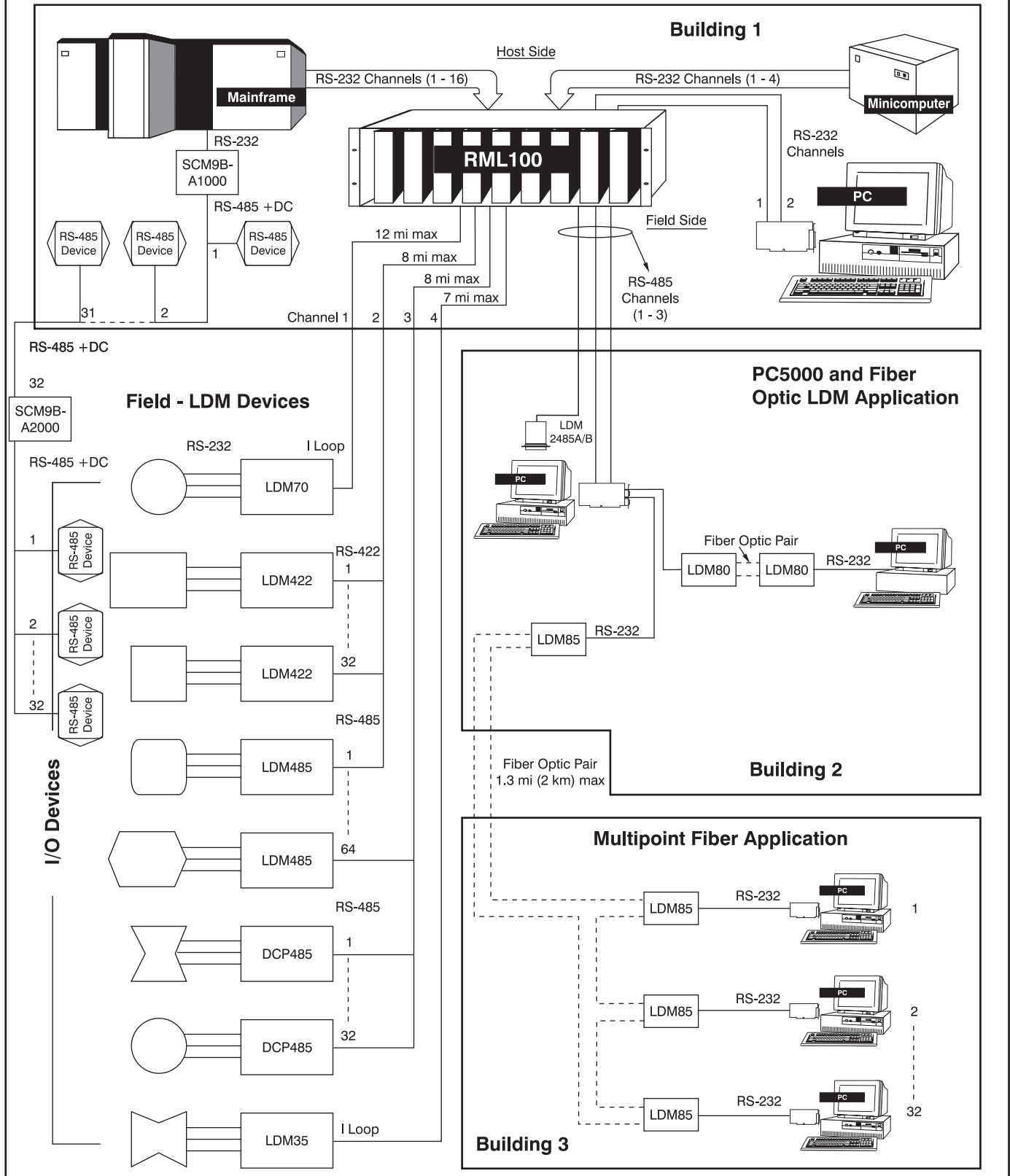
Our RML100 rack-mounted modem system lets users organize up to 28 data channels at a single site while providing 300V optical surge isolation and speeds up to 57.6K bps (baud).

SCM9B-A1000/A2000/D192 RS-232 to RS-485 converters/RS-485 repeaters are optically isolated and have automatic RS-485 line control from 300 to 115.2K bps (baud).



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Examples of local area networks using Dataforth communications products



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Industrial Data Communications Selection Guide

► Applications

- Protects Equipment from Damage due to Power Surges, Transients, Lightning; Breaks Ground Loops
- Extends RS-232 Communications Distances Without Expensive Low-Capacitance Cabling
- Connects RS-232 Devices to RS-422 and RS-485 Devices
- Rack-Mounted Modem System Provides Efficient Organization for Multiple Channel Networks
- Serial I/O Card Adds 2 or 4 RS-232 and/or RS-485 Ports to a Personal Computer
- Ideal Choice for Industrial and Institutional LANs

► Features

- Industrial Isolation and Surge Protection
- Industrial Temperature Range
- DTE/DCE Selection Switches; Diagnostic LEDs
- Rugged, Compact Industrial Packaging; Choice of Host Connectors
- Data Rates to 115.2K Bits per Second (bps) (baud)
- Distances to 12 Miles (20 km)
- Multidrop, Handshake Functions
- 2- or 4-Wire, Simplex/Duplex Connection
- Full Line of Power, Optic Cable, and Connector Accessories
- European EMC Directive Compliant

Limited Distance Modems

Model	Max Speed (dist)	Max Distance (baud)	Field				Isolation	Host		Power	Notes
			Signal	Mode	#Wires	Connectors		Interface	Connector		
DCP35	19.2K (.5 mi) (.8km)	12.0 mi (300) 11.3 km	Electrical Current Loop	Simplex, Full- Duplex	2 4	Screw Terminals	Comm ⁽²⁾	RS-232	Male/ Female DB-9	Port- Signals	Port-Signal Powered
DCP485	115.2K (.8 mi) (1.3 km)	7 mi (1.2K) 11.3 km	Electrical RS-485 Differential Voltage	Simplex Half/ Full- Duplex	2 2 4	Screw Terminals	Comm ^{(2)/} Power ⁽³⁾	RS-232	Fe/Male DB-9/ Screw Terms	Ext. ⁽⁷⁾	DIN Rail mounting Auto RS-485 Line control
LDM30	57.6K (.5 mi) (.8 km)	12 mi (1.2K) 19.3 km	Electrical Current Loop	Simplex Full- Duplex	2 4	Screw Terms Mod Phone Jack	Comm ⁽²⁾	RS-232	Male/ Female DB-25	Ext. ⁽¹⁾	Low Cost
LDM35	19.2K (.5 mi) (.8 km)	12 mi (0.3K) 19.3 km	Electrical Current Loop	Simplex Full- Duplex	2 4	Screw Terms Mod Phone Jack	Comm ⁽²⁾	RS-232	Male/ Female DB-25	Port Signals	Port-Signal Powered
LDM70	57.6K (.5 mi) (.8 km)	12 mi (1.2K) 19.3 km	Electrical Current Loop	Simplex Full- Duplex	2 4	Screw Terms Mod Phone Jack	Comm ^{(2)/} Power ⁽³⁾	RS-232	Male/ Female DB-25	Ext. ⁽¹⁾	Full isolation, DTR/RLSD handshake
LDM422	19.2K (1 mi) (1.6 km)	7 mi (1.2K) 11.3 km	Electrical RS-422 Differential Voltage	Simplex Half/ Full- Duplex	2 2 4	Screw Terminals	Comm ^{(2)/} Power ⁽³⁾	RS-232	Male/ Female DB-25	Ext. ⁽¹⁾	Multidrop capable RTS/CTS handshake or 2nd data channel
LDM485	57.6K (.5 mi) (.8 km)	8 mi (2.4K) 12.9 km	Electrical RS-485 Differential Voltage	Simplex Half/ Full- Duplex	2 2 4	Screw Terminals	Comm ^{(2)/} Power ⁽³⁾	RS-232	Male/ Female DB-25	Ext. ⁽¹⁾	Multidrop capable RTS/CTS handshake or 2nd data channel
LDM2485	115.2K (2.6 mi) (4.2 km)	9.0 mi (1.2K) 14.5 km	Electrical RS-485 Differential Voltage	Simplex Half/ Full- Duplex	2 2 4	Screw Terminals/ Modular Phone Jack	N/A	RS-232	Male/ Female DB-9/ DB-25	Port Signals	Port-Signal Powered Multidrop capable

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Limited Distance Modems (continued)

Model	Max Speed (dist)	Max Distance (baud)	Field				Isolation	Host		Power	Notes
			Signal	Mode	#Wires	Connectors		Interface	Connector		
LDM80	19.2K (2.2 mi) (3.5 km)	2.2 mi (19.2K) 3.5 km	Optical	Simplex Full-Duplex	1 fiber 2 fibers	SMA (905) ST	Total ⁽⁴⁾	RS-232	Male/ Female DB-25	Port Signals	Total electrical isolation, intrinsic safety
LDM85	5M ⁽⁵⁾ (1.2 mi) (2 km)	1.2 mi (5M) 2 km	Optical	Simplex Full-Duplex	1 fiber 2 fibers	SMA (905) ST	Total ⁽⁴⁾	RS-232 RS-422/ RS-423 TTL	Male/ Female DB-25	Ext. ⁽¹⁾	Multipoint optical loop, total electrical isolation
SCM9B A1000/ A2000/	115.2K (0.76mi) (1.2 km)	12 mi (0.3K) 19.3 km	Electrical RS-485 Differential Voltage	Simplex Half-Duplex	2 2	Screw Terminals	Comm ⁽²⁾	RS-232/ RS-485	Female DB-9	Ext. ⁽⁶⁾	Automatic RS-485 Line control
SCM9B- D192	115.2K (0.76mi) (1.2 km)	12 mi (0.3K) 19.3 km	Electrical RS-485 Differential Voltage	Simplex Half-Duplex	2 2	Screw Terminals	Comm ⁽²⁾	RS-485	Female DB-9	Ext. ⁽⁶⁾	Automatic RS-485 Line control DIN Rail Mount

RML100 System

Model	Backplane		Card Cage		Notes
	Field Connector	Host Connector	Slots	Power	
RML100 (w/RML104)	Screw Terms	Female DB-9	14	110/220VAC, ±12VDC System Supply	
RML101 (w/RML104)	Modular Phone Jacks	Female DB-9	14	110/220VAC, ±12VDC System Supply	
RML100-R (w/RML104, 105)	Screw Terms	Female DB-9	11	110/220VAC, ±12VDC System Supply and Redundant Supply	RML100, RML105 ordered together, assembled at factory
RML101-R (w/RML104, 105)	Modular Phone Jacks	Female DB-9	11	110/220VAC, ±12VDC System Supply and Redundant Supply	RML100, RML105 ordered together, assembled at factory
RML105				110/220VAC, ±12VDC Redundant Supply	Ordered separately, may be field installed

RML100 Cards

Model	Max Speed (dist)	Max Distance (baud)	Field			Isolation	Host Interface	Channels Max	Notes
			Signal	Mode	#Wires				
RML035	19.2K (.5 mi) (.8 km)	12 mi (1.2K) 19.3 km	Electrical Current Loop	Simplex Full Duplex	2 4	Comm ⁽²⁾	RS-232	2	Interfaces to LDM35
RML070	57.6K (.5 mi) (.8 km)	12 mi (1.2K) 19.3 km	Electrical Current Loop	Simplex Full Duplex	2 4	Comm ^{(2)/} Power ⁽³⁾	RS-232	2	Interfaces to LDM30, LDM70
RML485	57.6K (.5 mi) (.8 km)	8 mi (2.4K) 12.9 km	Electrical RS-485 Differential Voltage	Simplex Half Duplex Full Duplex	2 2 4	Comm ^{(2)/} Power ⁽³⁾	RS-232	2 to 4	Interfaces to LDM422, LDM485

Accessories

Model	Description
LDM85CA1/2-XXXX	Single/Dual-channel optical cable (xxxx meters),* SMA
LDM86CA1/2-XXXX	Single/Dual-channel optical cable (xxxx meters),* ST
Power Supply	DIN Rail Mount, 85-264 VAC, 47-63 Hz In
PWR-PS5RA	24 VDC, 0.31 A Out
PWR-PS5RB	24 VDC, 0.63 A Out
PWR-PS5RC	24 VDC, 1.25 A Out
PWR-PS5RD	24 VDC, 2.08 A Out
PWR-PS5RE	24 VDC, 4.17 A Out

NOTES:

(1) Externally powered LDMs may be powered with wall transformer (supplied) or through pins 9 and 10 on host interface.

(2) Comm isolation provides an optical barrier on receive circuits and/or transmit circuits plus ANSI/IEEE C37.90.1-1989 surge protection.

(3) Power isolation by DC/DC converter to field circuits.

(4) Fiber optic units provide total electrical isolation.

(5) Max data rate for LDM85 is 2.5M bps NRZ TTL and 100K bps RS-232/422.

(6) Externally powered 115VAC or 230VAC line voltage (A1000) or externally powered +10V to +30VDC (A2000), or +5VDC (D192)

(7) Externally powered +10V to +30VDC.

*Maximum length available is 1000 meters.