USER GUIDE

INDUSTRIAL DATA COMMUNICATIONS

FDM7000
Multi-Mode Fiber Optic Modem

Accompany Program
GE Fanuc

OMRON

ROCKWELL AUTOMATION
ENCOMPASS™
AMERICAS · ASIA-PACIFIC PARTNER

Schneider Electric
Building a New Electric World

Siemens
PRODUCT PARTNER

It is essential that all instructions contained in the User Guide are followed precisely to ensure proper operation of equipment.

FCC Information

Table of Contents

Page

Description

The Data-Linc Group FDM7000 Fiber Optic modem communicates RS232 data transparently at rates up to 115.2 K baud on a pair of fiber optic cables over distances of a few feet to 2 miles. The data transmission is electrically isolated for complete immunity to EMI and total elimination of ground loop and shifting ground plane problems. The transmission cable can be plastic for distances of up to 100 feet but glass is recommended for greater data integrity and longer range. The FDM7000 can be configured to operate point-to-point full-duplex, daisy-chained/multi-dropped half-duplex or as an optical signal booster/repeater.

The operating supply voltage for the FDM7000 is 8 to 18 VDC (Max.). An isolated or ungrounded supply can be used, such as the 120 VAC to unregulated 12 VDC, 800 mA wall transformer (which delivers about 15 Volts) accompanying the units.

Connections

A DB9 Female connector is provided for the RS232 interface. The pin assignments for the connector are:

2	Data Out RS232 Port
3	Data In RS232 Port
5	Signal Ground

No other lines are connected.

A barrel jack is provided for the +12 VDC power supply (center positive).
A 3.81 mm 2 PIN Terminal Block is provided for the +24 VDC power supply option (left-, right+).

Two ST type fiber optic cable connectors are mounted on the front of the FDM7000, one marked Tx, and the other marked Rx. Type 50/125 glass cable is recommended for operation. Each of the fiber cables should be connected to Transmit on one unit and Receive on the other unit.

Indicator Lights

There are four LED's on the FDM7000, they operate as followes:

P	Power	Red	Illuminates when power is properly connected
C	Carrier	Amber	Not used on this model
I	Data In	Yellow	Illuminates when RS232 data is flowing in to the unit
O	Data Out	Green	Illuminates when RS232 data is flowing out of the unit

Operation

The units will begin functioning as soon as they are plugged into power, the fiber cables are connected and data is present between them. Proper operation is indicated when an RS232 data stream is sent in to pin 3 on one FDM7000 and the yellow data in LED lights up, and the same RS232 data stream is received out on pin 2 while the green data out LED lights up on the other FDM7000.

If power, data or the fiber optic cables are disconnected, the units will automatically restart and communicate as soon as the connections are restored.

Quick Test

The operation of the units can be demonstrated on a desktop as follows:

1. Connect the wall transformers provided to the two FDM7000s. The power LED (red, Power) on each unit should light.

2. Remove the protective covers from the fiber optic connectors. Connect 2 test length (i.e. a few feet) fiber cables Tx to RX and Rx to Tx on the two FDM7000s.

3. Connect the serial cable from a PC running a full duplex communication program such as HyperTerminal in Windows or ProComm or any other Terminal to the RS232 connector of one of the units. Place a jumper wire (a bent paper clip will do nicely) between pins 2 and 3 of the RS232 connector on the other unit. When a key is held down, the character should appear on the screen, this should work at any baud rate up to 115.2 kbaud. When the jumper is removed, the character display should stop.

This same loop back test is recommended to be conducted after the FDM7000s are installed in the field.

Technical Specifications

Fiber Cable	Industrial Grade Glass, Multi-Mode 50/125
Range	1.4 miles (2.25km) Maximium
Data Range	Transparent from 0 to 115 Kbaud. Simplex on one cable or half duplex/full duplex on two cables.
Data Format	Asynchronous data stream
Data Interface	RS- 232 (Optional RS-422 or RS485 available)
Receiver Sensitivity	-34.4 dBm
Mating Connectors	ST type fiber optic connectors
Operation	Point-to-Point
Optical Power	-15.2 dBm
Power Requirements	9-15 VDC 60mA (optional 24 VDC available) 120 VAC to 12 VDC, external wall-mount power supply provided
Temperature Tolerance	32^0 to 140^0 F (0^0 to 60^0 C)
Humidity Tolerance	0-95% non-condensing

Technical Support

Data-Linc Group maintains a fully trained staff of service personnel who are capable of providing complete product assistance. They can provide you with technical, application and troubleshooting, spare parts and warranty assistance. Our technical staff is based in Bellevue, Washington USA and may be reached at (425) 882-2206 or e-mail support@data-linc.com

Product Warranty

Data-Linc Group warrants equipment of its own manufacture to be free from defects in material and workmanship for one year from date of shipment to original user. Data-Linc Group will replace or repair, at our option, any part found to be defective. Buyer must return any part claimed defective to Data-Linc Group, transportation prepaid.

Return Material Authorization

If a part needs to be sent to the factory for repair, contact Data-Linc Group's corporate office and request a Return Material Authorization (RMA) number. The RMA number identifies the part and the owner and must be included with the part when shipped to the factory.

Contact Information

Corporate Office	**Data-Linc Group**
	3535 Factoria Blvd. SE
	Suite 100
	Bellevue, Washington 98006 USA
	Telephone: (425) 882-2206
	Fax: (425) 867-0865
	E-mail: info@data-linc.com
	Web site: www.data-linc.com

Appendix A
Enclosure Dimensions

7.75 in
19.69 cm

1.54 in
3.94 cm

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0.06 in
.15 cm

9.00 in
22.86 cm

0.35 in
.89 cm
4 Places

1.08 in
2.74 cm
4 Places

1.00 in
2.54 cm
4 Places

2.45 in
6.22 cm
Reference

2.75 in
6.99 cm
Slot Center
Reference

4.90 in
12.45 cm

Ø 0.25 in
64 cm
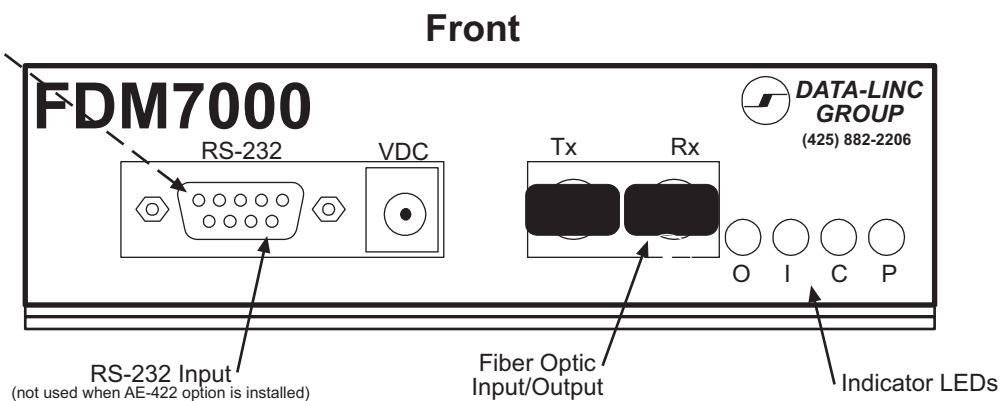Two Places

8.30 in
21.08 cm
Center Reference
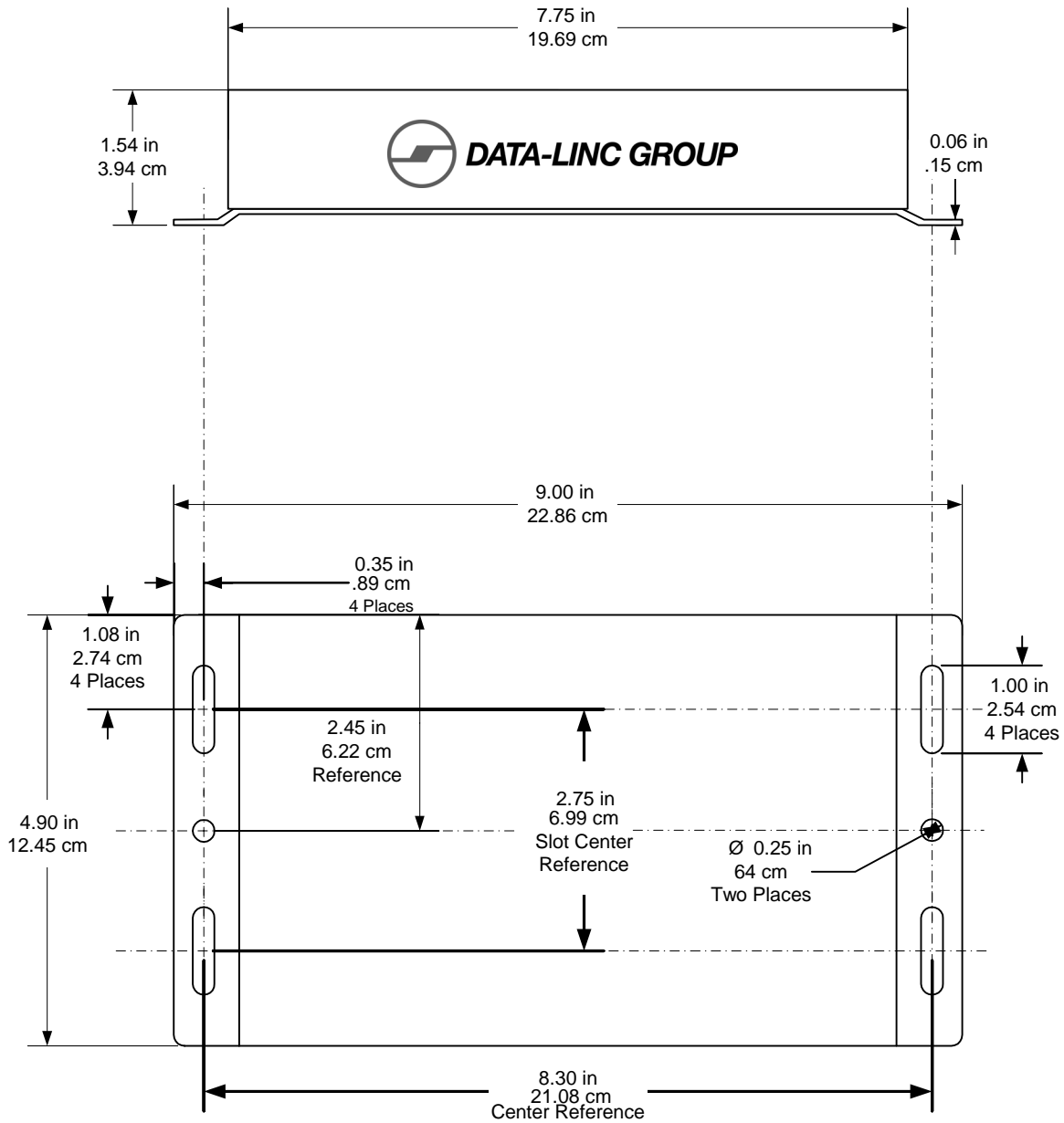
Appendix B

Connections for the AE422 Option

A four position terminal block is provided for the AE422 interface. The pin assignments for the connector are:

Left	AE422 Data Out -
Center Left	AE422 Data Out +
Center Right	AE422 Data In -
Right	AE422 Data In +

If AE422 full duplex is no longer desired, this modem can easily be set to RS232 full-duplex. To do so, remove the AE422 Module and harness from connector J6 insie unit, and the remove the cover form the DB9 female connector on the front of the unit. The RS232 full-duplex interface is now ready to operate.

Capped for shipping

Front

FDM7000

DATA-LINC GROUP
(425) 882-2206

RS-232   VDC

Tx   Rx

O I C P

RS-232 Input
(not used when AE-422 option is installed)

Fiber Optic
Input/Output

Indicator LEDs

Back

AE-422

- DO +   - RI +

AE-422 Data Connection Terminal

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Appendix C

Connections for the AE485 Option

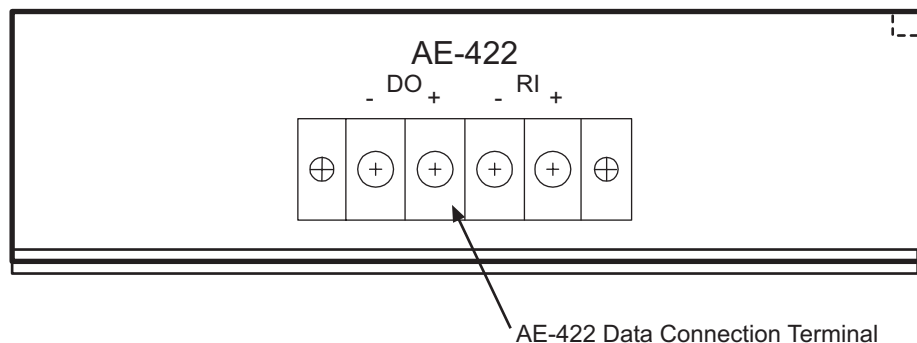A four position terminal block is provided for the AE485 interface. The pin assignments for the connector are:

Left	AE485 Not Connected
Center Left	AE485 Data -
Center Right	AE485 Data +
Right	AE485 Not Connected

If AE485 half-duplex is no longer desired, this modem can easily be set to RS232 full-duplex. To do so, remove the AE485 Module and harness from connector J6 insie unit, and the remove the cover form the DB9 female connector on the front of the unit. The RS232 full-duplex interface is now ready to operate.

Capped for shipping

FDM7000

RS-232   VDC   Tx   Rx

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O I C P

RS-232 Input
(not used when AE-485 option is installed)

Fiber Optic
Input/Output

Indicator LEDs

AE-485

N/C   -   +   N/C

AE-485 Data Connection Terminal