GE MULTILIN F485 INSTRUCTION MANUAL

Quick Links

[Typical Configurations](#)

Table of Contents

F485
COMMUNICATIONS CONVERTER

Instruction Manual

Manual P/N: 1601-0073-A3
Copyright © 2003 GE Multilin
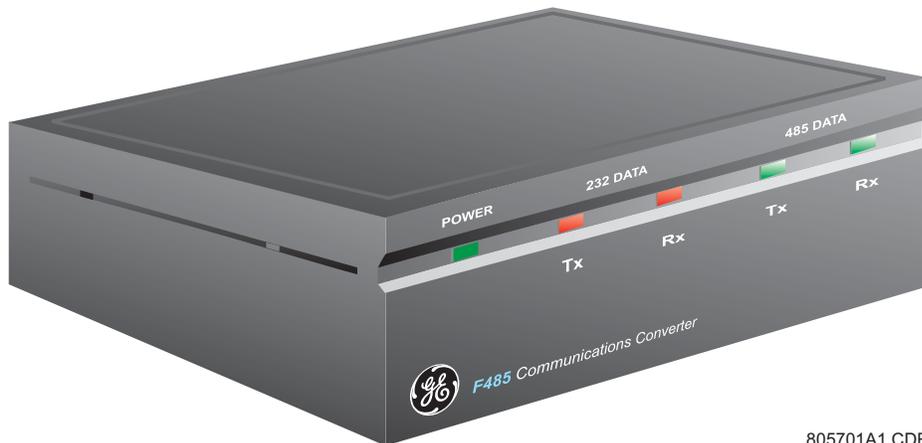
805701A1.CDR

GE Multilin

805701A1.CDR

FEATURES

- Converts between RS232, RS485 or Fiber
- 1200 to 57600 baud rates
- Isolated RS485 interface
- 50/125μm, 62.5/125μm, and 100/140μm fiber sizes
- Front panel LEDs for power, RS232 Rx/Tx, and RS485 Rx/Tx
- Two possible mounting arrangements
- 120 V AC (ANOMA AEC-3590 or other listed direct plug-in Class 2 power supply rated maximum 9 V DC output) or 220 V AC adapter included.
- Additional power supply terminals supplied to accept isolated 9 V AC / 9 V DC
- Two interface cables provided (9pin – 9pin, 9pin – 25pin)
- Suitable for use with direct or modem communications.
- E83849 UL Listed for the USA and Canada

DESCRIPTION

The F485 is a self-contained device for converting between RS232, RS485, and fiber optic signals. The converter uses internal switches to select the conversion type (RS232 to RS485, RS232 to FIBER, or RS485 to FIBER) and the RS485 communications baud rates up to 57600 baud. The F485 converter uses the data on the serial port to determine direction and therefore requires no hardware handshaking signals from the computer. The F485 converter can be powered via the power adapter supplied or by connecting an external isolated 9 V AC/DC source to the power supply terminals located at the back of the case. The F485's versatility and simple design makes it ideal for use with all GE Multilin products in direct and modem communications.
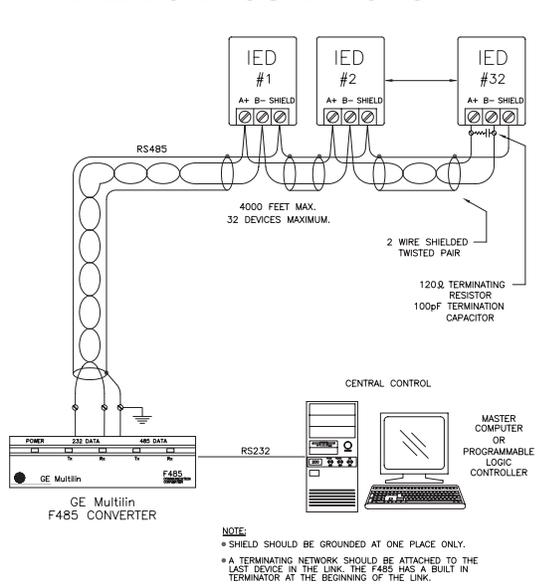
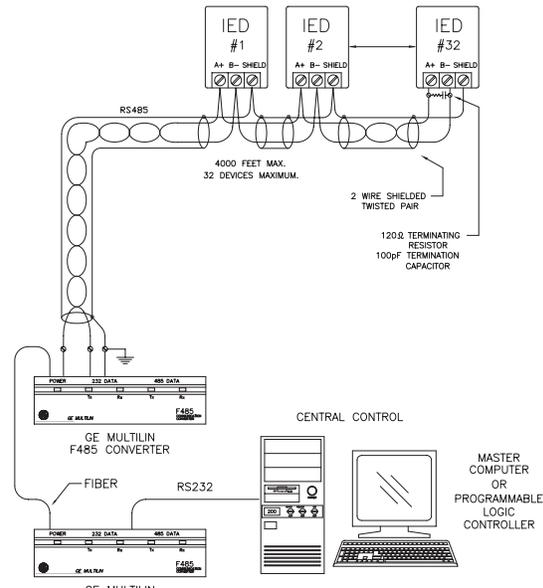## TYPICAL CONFIGURATIONS

Figure 1: RS232 to RS485 connection

Figure 2: RS232 to FIBER and FIBER to RS485

GE Multilin

CONNECTIONS

RS232
The RS232 connector on the F485 converter accepts a standard 9-pin computer cable. See wiring diagram for pin assignments.

RS485
The RS485 terminals accept a standard shielded twisted pair (such as Beldon 9841) and provide connections for a "+", "-" and a shield. The RS485 terminals have a terminating network installed internally and therefore, no external terminating network is required. Observe correct polarity.

POWER JACK
Connect the supplied power adapter to this input if power is not supplied via the terminals. The power adapter steps down 120/220 VAC to 9 VAC.

FIBER
The fiber input/output will accept 50/125, 62.5/125 and 100/140um fiber sizes using ST terminated cables. Care should be taken when removing the protective caps to prevent dust from entering the connectors.

POWER TERMINALS
The power terminals accept either 9 VAC or 9 VDC to power the F485 converter instead of using the power adapter. The GND terminal must be connected to ground to ensure adaquate protection against transients. Pin 4 is the main transient ground for the converter.

805700A1.CDR

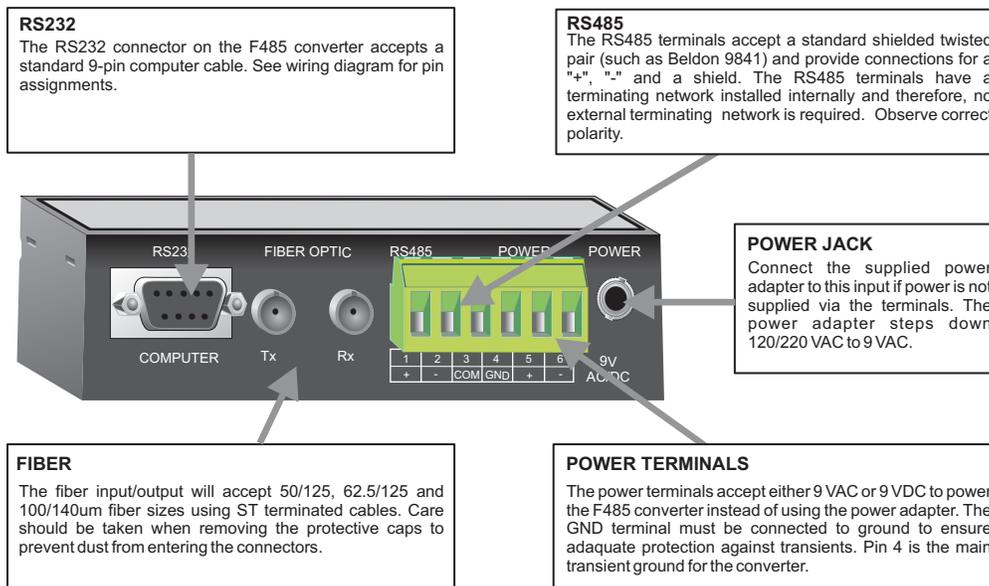*Figure 3: Connections*

CONFIGURATION

The converter box is configured via two internal dip switch banks which are accessible by removing the converter box cover. Switches A1-A8 are used to set the baud rate for RS485 communications and determine whether the converter is DTE (RS232 direct) or DCE (RS232 modem). Switches B1-B6 are used to select the interface type. The designator for each switch is clearly marked on the printed circuit board. The tables shown below provide a description of each switch within the switch banks.
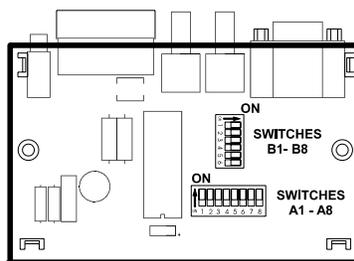
Figure 4: Switch Locator

SWITCH A (BAUD RATES)

BAUD	A1	A2	A3	A4	A5	A6	A7
1200	ON	OFF	OFF	OFF	OFF	OFF	OFF
2400	OFF	ON	OFF	OFF	OFF	OFF	OFF
4800	OFF	OFF	ON	OFF	OFF	OFF	OFF
9600	OFF	OFF	OFF	ON	OFF	OFF	OFF
19200	OFF	OFF	OFF	OFF	ON	OFF	OFF
38400	OFF	OFF	OFF	OFF	OFF	ON	OFF
57600	OFF	OFF	OFF	OFF	OFF	OFF	ON

SWITCH A (DTE/DCE)

MODE	A8
DTE	OFF
DCE	ON

SWITCH B (CONFIGURATION)

CONFIGURATION	B1	B2	B3	B4	B5	B6
RS232 TO RS485	OFF	ON	OFF	ON	OFF	OFF
RS232 TO FIBER	OFF	OFF	OFF	OFF	ON	ON
RS485 TO FIBER	ON	OFF	ON	OFF	OFF	OFF

GE Multilin

BAUD RATES

Two-wire RS485 is half duplex and requires a means for switching between a receive or transmit state. The F485 converter uses the incoming data to control the direction and therefore requires no control signals from the master device (RS232 or fiber) to switch from transmit to receive mode after the last character has been transmitted. The baud rate switches control the length of time that the RS485 transmitter will remain in the transmit direction after the last character has been transmitted. The length of time is fixed at 3.5 character times at the selected baud rate making it suitable for use with Modbus® RTU protocol. When converting RS232 to FIBER, these switches (A1-7) have no effect.

DTE/DCE CONTROL

The DTE/DCE setting reverses the transmit/receive data lines on the RS232 side. For communications between a computer and a slave device, DTE (direct) should be selected. When connecting the F485 converter to a modem or other data communications equipment, DCE should be selected. Another application which requires DCE is when two F485 converters are connected back-to-back i.e. converting RS232 to RS485 or fiber and then converting the RS485 or fiber back to RS232. In this case, the second F485 must be set to DCE control.

NOTE: Selecting switch settings other than those shown above will cause unpredictable results.

FIBER OPTIC TRANSMITTER/RECEIVER (optional)

Fiber optic transmissions provide an ideal solution for areas where RS485 communications via a twisted pair have traditionally caused problems. Fiber is immune to electrical interference and provides total isolation.

The fiber optic transmitter and receiver used in the F485 converter utilize 820nm wavelength technology and are designed to operate with 50/125µm, 62.5/125µm and 100/140µm fiber sizes using ST terminated cables. The ST connections provide repeatable connections within 0.2 dB typically. The transmitter/receiver pair will typically work with fiber lengths up to 1km.

| ⚠	**_WARNING: Ensure the dust covers are installed when the fiber is not in use. Dirty or scratched connectors can lead to high losses on a fiber link._**

⚠	**_WARNING: Observing the transmitter output under magnification may cause injury to the eye._**

INSTALLATION

Two different mounting arrangements are possible. The first is by using the two mounting holes inside the plastic case along with the mounting screws supplied. To remove the plastic top, simply press in the two plastic tabs on either end of the box and then pull off the top. The second and less permanent method is to use the Velcro material supplied for attachment to the side of a computer or desk. Where possible, ensure that the LEDs on the front panel are visible. The LEDs are a very valuable tool when troubleshooting a problem.
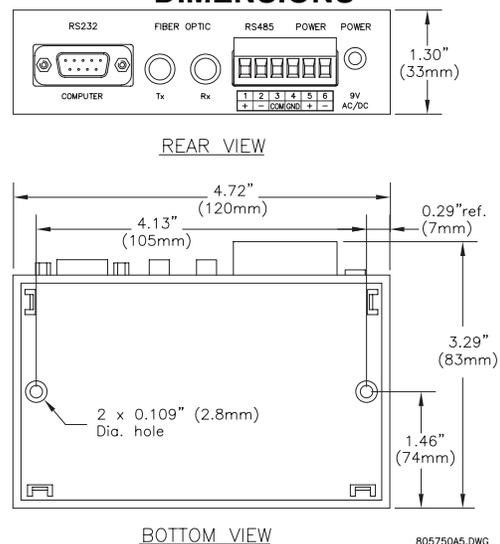
GE Multilin

WIRING DIAGRAM
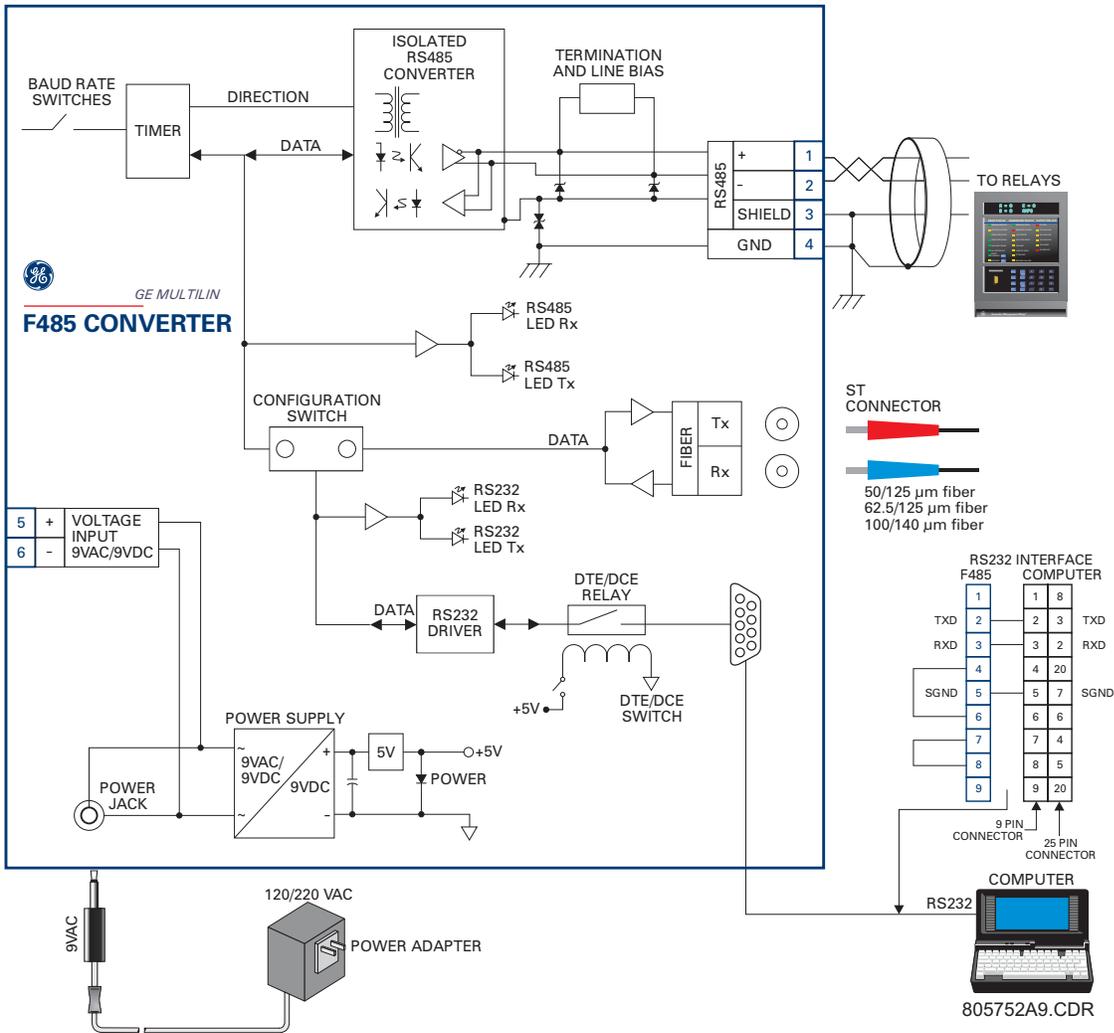
ORDER CODE

F485 - * - *

F485		standard unit (RS232/RS485)
	F	with fiber optic interface
	120	120 V power supply voltage
	220	220 V power supply voltage

DIMENSIONS

REAR VIEW

BOTTOM VIEW

805750A5.DWG

GE Multilin

GE Multilin Relay Warranty

General Electric Multilin Inc. (GE Multilin) warrants each relay it manufactures to be free from defects in material and workmanship under normal use and service for a period of 24 months from date of shipment from factory.

In the event of a failure covered by warranty, GE Multilin will undertake to repair or replace the relay providing the warrantor determined that it is defective and it is returned with all transportation charges prepaid to an authorized service center or the factory. Repairs or replacement under warranty will be made without charge.

Warranty shall not apply to any relay which has been subject to misuse, negligence, accident, incorrect installation or use not in accordance with instructions nor any unit that has been altered outside a GE Multilin authorized factory outlet.

GE Multilin is not liable for special, indirect or consequential damages or for loss of profit or for expenses sustained as a result of a relay malfunction, incorrect application or adjustment.

For complete text of Warranty (including limitations and disclaimers) refer to GE Multilin Standard Conditions of Sale.

GE Multilin

GE Multilin

215 Anderson Avenue
Markham, Ontario
Canada L6E 1B3
Tel: (905) 294-6222
Fax: (905) 201-2098
http://www.GEindustrial.com/pm

Other ManualsLib Projects