

## Fiber Optic Multipoint (FOM) Line Drivers

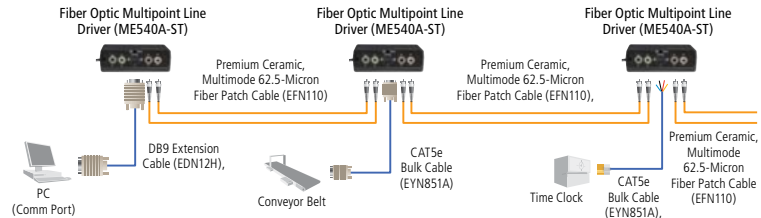
Connect your RS-232, RS-485,  
or 20-mA Current Loop device  
to fiber optic cable.



## FEATURES

- » Configure the line driver in network or master/slave mode.
- » Operate in half- or full duplex mode.
- » Select from RS-232, RS-485, or 20-mA Current Loop.
- » Runs at 128 kbps at distances up to 6000 feet (1828.8 m).
- » ST connectors.

Use the Fiber Optic Multipoint Line Driver in an industrial environment.



## OVERVIEW

With the [Fiber Optic Multipoint Line Driver](#), you can use an RS-232, RS-485, or 20-mA Current Loop device in a multidrop half-duplex environment with fiber optics as the transmission media.

The line driver has a single RS-232 DB9 female connector. TX and RX are parallel with a 20-mA Current Loop and an RS-485 interface sharing a common terminal block with a switch to select the shared interface. This enables you to connect an RS-232, an RS-485, or a Current Loop device to a fiber optic link. In addition, there are two fiber optic receivers and transmitters with ST® connectors supporting standard fiber cable through 200 microns.

The line driver runs at 128 kbps at distances up to 6000 feet (1828.8 m).

You can configure the device in one of two operating modes: network mode or master/slave mode.

In **network mode**, data sent to the transmitter of the RS-232 DB9, 20-mA Current Loop, or RS-485 terminal block is passed out to both optical transmitters. Data received from either optical receiver is passed through to the opposite optical port's transmitter, to the receiver of the RS-232 DB9, 20-mA Current Loop, or RS-485 port.

In **master/slave mode**, one unit is configured as a master, and all others as slaves. When the master sends data to the transmitter of the RS-232 DB9, 20-mA Current Loop, or RS-485 terminal block, it is passed through to the master B optical port. From there, it is daisy-chained to the next slave's A optical RX. As each slave receives the data, it is passed through to the DB9 RX and the receive terminal block.

In addition, the data is retransmitted out that slave's B optical TX to the next slave.

The line driver can also run in full-duplex mode when both units are configured as masters.

## Typical Applications

The line driver is ideal for industrial environments. Configure two units as masters to run them in a point-to-point configuration. Or, link three units in a multipoint configuration (see the diagram above).

## Technically Speaking

The Fiber Optic Multipoint Line Driver is factory-configured as follows. You can change these settings to suit your application.

- **XW2** can be set for RS-232, RS-485, or 20-mA Current Loop operation. The factory default is RS-232.
- **S1 positions 1 and 2** can be set to determine the mode the unit will operate in. Choose from Network mode or Master/Slave mode. Master is the default.
- **S1 positions 3–6** can be set for fail-safe/biased line.
- **S1 positions 7–8** can be set for RS-485 termination or no termination.
- **W2** sets the delay of CTS assertion with the raising of DTR or RTS. The default setting is 0, no delay.



ME540A-ST: top: front view;  
bottom: rear view

### Why Buy From Black Box? Exceptional Value. Exceptional Tech Support. Period.

Recognize any of these situations?

- You wait more than 30 minutes to get through to a vendor's tech support.
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### TECH SPECS

**Cable Requirements** — Use multimode fiber cable up to 200-micron; 62.5-micron fiber is recommended  
**Distance (Maximum)** — 5000 feet (1524 m)  
**Drops Supported** — 64  
**Fiber Launch Power** — -14 dB  
**Link Budget** — 50–125  $\mu$  cable: 2.5 dB;  
62.5–125  $\mu$  cable: 6 dB;  
100–140  $\mu$  cable: 11.5 dB  
**MTBF** — 168,000 hours  
**Operation** — Network mode or Master/Slave mode, multipoint half-duplex; Point-to-point line driver operation, full duplex  
**Protocol** — Asynchronous  
**Receiver Sensitivity** — -25 dB  
**Speed** — Transparent through 20 kbps on 20-mA Current Loop port, 64 kbps on RS-232 port, 128 kbps on RS-485 port;  
(2) jumpers: XW2, W2; (1) 8-position DIP switch: S1  
**User Controls** — (1) Push button: Pressed in enables DLB (Digital Loopback) mode, and fully extended enables NORMAL mode  
**Interface** — RS-232 DCE/DTE, RS-485, 20-mA Current Loop—active or passive transmit and receive, fiber optic transmit and receive  
**Connectors** — (1) DB9 F, (2) pairs of ST, (1) 4-screw terminal block  
**Indicators** — (10) LEDs: 232, 485, 20 mA, NETWORK, MASTER, SLAVE, PORT B TXD, PORT B RXD, PORT A TXD, PORT A RXD  
**Temperature** — Operating: 32 to 114°F (0 to 45°C);  
Storage: -40 to +176°F (-40 to +80°C)  
**Power** — 115 VAC or 230 VAC, 60/50 Hz (external)  
**Size** — 1.8"H x 5.5"W x 8.5"D (4.6 x 14 x 21.6 cm)  
**Weight** — 2 lb. (0.9 kg)

Item	Code
Fiber Optic Multipoint (FOM) Line Drivers	
115-VAC	ME540A-ST
230-VAC	ME540AE-ST