ME864A-M/FSP with (Surge Protection and Transformer Isolation)

DB25M/F CONNECTOR

DCE ▐▐▐▐ DTE

1 2 3
JP3

JP2 + RCV - G + XMT -
⊗ ⊗ ⊗ ⊗ ⊗
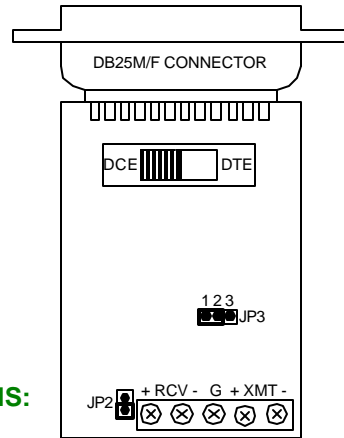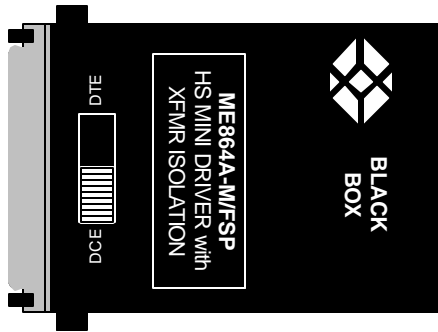
SPECIFICATIONS:

Protocol: Asynchronous, Full Duplex

Speed: Up to 115,200 bps

Interface: EIA RS-232, CCITT V.24

Control Signals: DSR and DCD follow DTR from the terminal (DTE); CTS follows RTS from the terminal (DTE).

Transmission line: 4-wire unconditioned line (2 twisted-pair wires, 19 to 26 AWG.)

Connectors: (1) DB25 male or female (depending on model chosen).

Line Connection: (1) 5-Position Terminal Block.

Isolation: Minimum 1500 V RMS via custom transformers.

Surge Protection: 600 W power dissipation at 1 millisecond and response time of 1 picosecond.

Power: No power required; uses ultra-low power (+5VDC) from EIA data and control signals ---- Pins 3,5,6,8, and 9 in DCE mode; Pins 2,4,9 and 20 in DTE mode.

Distance Table in miles (km)

Speed (bps)	Wire Gauge		
	19 AWG	24 AWG	26 AWG
115,200	1.7 (2.7 km)	.9 (1.4 km)	.6 (1 km)
57,600	.5 (.8 km)	.4 (.6 km)	.2 (.3 km)
38,400	2 (3.2 km)	1.5 (2.4 km)	.75 (1.2 km)
19,200	2.5 (4 km)	1.8 (2.9 km)	1.2 (1.9 km)
9,600	5.5 (8.9 km)	3.7 (6 km)	2.5 (4 km)
4,800	7.5 (12 km)	5 (8 km)	3 (4.8 km)
2,400	8.5 (13.7 km)	5.6 (9 km)	3.7 (6 km)
1,200	9 (14.5 km)	6.2 (10 km)	4.3 (6.9 km)

INTRODUCTION:

The High Speed Mini Driver with Transformer Isolation and Surge Protection is a self-powered, transformer-isolated, short-range modem that lets two asynchronous RS-232 devices communicate between buildings, over two twisted pairs. Supporting asynchronous data rates to 115.2 Kbps, the High Speed Mini Driver derives the necessary power for operation from the data and control voltages on the RS-232 interface. DC transformer isolation on the line side gives the High Speed Mini Driver immunity to ground loops that would otherwise hamper between-building communications.

An external DCE/DTE switch lets you connect to the serial port of either a computer/terminal (DTE) or a modem (DCE) without using a crossover cable. The High Speed Mini Driver is available with a 5-screw terminal block between units.

The High Speed Mini Driver also incorporates high-speed avalanche diodes that intercept data-line transient surges and shunt them safely to chassis ground. With surge-handling capacity of 600 W per wire at 1 ms, the High Speed Mini Driver can protect itself and connected equipment from nearby lightning strikes and other surges of electromagnetic radiation.

CONFIGURATION:

The High Speed Mini Driver is configured using an external DCE/DTE switch and two internal jumpers. This section describes the configuration switch and jumpers and shows factory defaults. The figure to the left shows the location of the switch/jumpers on the internal PC board.

Setting the DCE/DTE Switch:
For your convenience, the High Speed Mini Driver has an externally accessible DCE/DTE switch. If the device connected to the Mini Driver is a modem or multiplexor (or is wired like one), set the switch to "DTE". This setting causes the Mini Driver to behave like Data Terminal Equipment and transmit data on Pin 2. If the device connected to the High Speed Mini Driver is a PC, terminal, or host computer (or is wired like one), set the switch to "DCE". This setting causes the Mini Driver to behave like Data Communications Equipment and transmit on pin 3.

### Setting "High Speed" versus "Low Speed" Operation:
The High Speed Mini Driver can be set for "High Speed" (2,400 bps to 115,200 bps) or "Low Speed" (1,200 bps to 57,600 bps) RS-232 operation. The table on the next page shows data jumper settings, including factory defaults.

1. Jumper JP2 is set in conjunction with jumper JP3 to place the High Speed Mini Driver in either "High or Low Speed" operating mode. For the High Speed setting (factory default), jumper JP2 should be placed on *only one* of the two pins. This is defined as "Jumper OFF". For the Low Speed setting, jumper JP2 should be placed on *both* of the pins. This is defined as "Jumper ON".
2. Jumper JP3 is set in conjunction with Jumper JP2 to place the High Speed Mini Driver in either "High Speed" or "Low Speed" operating mode. For the High Speed setting (the factory default), jumper JP3 should be placed on pins 1 and 2. For the Low Speed setting, jumper JP3 should be placed on pins 2 and 3. "Jumper OFF" is not a valid option.

INSTALLATION:

1. Open the unit by gently inserting a screwdriver between the DB25 connector and the lip of the plasitc case. You don't have to worry about breaking the plastic, but be careful not to bend the D-sub connector.
2. Once the unit has been opened, you will be able to see the terminal blocks located at the rear of the PC board. *Connect one pair of wires* to XMT+ and XMT- (transmit positive and negative) on the terminal block, making careful note of which color is positive, and which color is negative.
3. Connect *the other pair of wires* to RCV+ and RCV- (receive positive and negative) on the terminal block, again making careful note of which color is positive, and which color is negative. Ultimately, you will want to construct a two-pair crossover cable that makes a connection with RS-422 device as shown on the next page.
4. If there is a shield around the telephone cable, it may be connected to "G" on the terminal block. To avoid ground loops, we recommend connecting the shield at the computer end only. *A ground wire is not necessary for proper operation of these units*.
5. When you finish connecting the wires to the terminal block, and configured the jumpers, simply plug the High Speed Mini Driver directly into the DB25 port of the device.

When connecting two High Speed Mini Drivers, it is necessary to use a crossover cable. The diagram below shows how a crossover cable should be constructed for an environment where both High Speed Mini Drivers use a 5-screw terminal block.
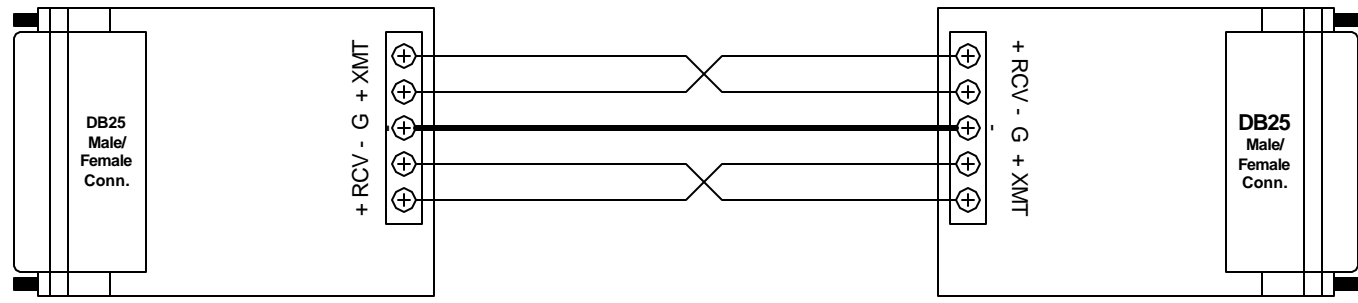
DB25
Male/
Female
Conn.

+ RCV - G + XMT

+ RCV - G + XMT

DB25
Male/
Female
Conn.

If there is a shield around the telephone cable, it may be connected to "G" on the terminal block. To avoid ground loops, we recommend connecting the shield at the computer end only. A ground wire is not necessary for proper operation of these units.

Jumper Settings: Factory Defaults are in BOLD			
JUMPER	FUNCTION	HIGH SPEED	LOW SPEED
JP2	DATA RATE	Jumper OFF	Jumper ON
JP3	DATA RATE	Position 2 & 3	Position 1 & 2