

ME862A-M/FSP with (Surge Protection and Transformer Isolation)

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) RJ-11 Female connector.

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.

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 an RJ-11 connector 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.

- 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".
- 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:

Once you have properly configured the DCE/DTE switch, you are ready to connect the High Speed Mini Driver to your system. The High Speed Mini Driver supports data-only communication between two RS-232 devices. There are two essential requirements for installing the High Speed Mini Driver:

- These units work in pairs.* Therefore, you must have one High Speed Mini Driver at each end of a two-twisted-pair interface.
- To function properly, the High Speed Mini Driver needs two twisted pairs of metallic wire. These pairs must be *unconditioned*, dry metallic wire, between 19 and 26 AWG (the higher-number gauges may limit distance somewhat). Standard dial-up telephone circuits, or leased circuits that run through signal-equalization equipment, *are not acceptable.*

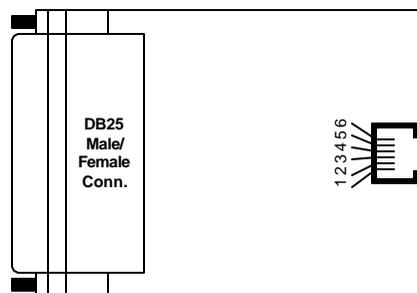
The RJ-11 connector on the unit's twisted-pair interface are prewired for a standard telco wiring environment. The signal/pin relationship are shown on the next page.

Distance Table in miles (km)

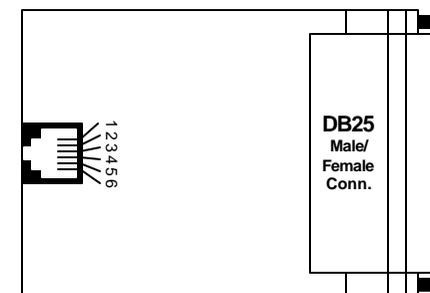
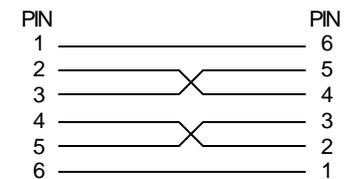
Speed (bps)	Wire Gauge		
	19 AWG	24 AWG	26 AWG
115,200	1.7 (2.7 km)	.9 (1.4 km)	.6 (1 km)
57,600	.5 (.8 km)	.4 (.6 km)	.2 (.3 km)
38,400	2 (3.2 km)	1.5 (2.4 km)	.75 (1.2 km)
19,200	2.5 (4 km)	1.8 (2.9 km)	1.2 (1.9 km)
9,600	5.5 (8.9 km)	3.7 (6 km)	2.5 (4 km)
4,800	7.5 (12 km)	5 (8 km)	3 (4.8 km)
2,400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

<u>RJ-11</u>	<u>Signal</u>
1	GND
2	RCV-
3	XMT+
4	XMT-
5	RCV+
6	GND

When connecting two High Speed Mini Drivers, it is necessary to use a crossover cable. The diagram to the right shows how a crossover cable should be constructed for an environment where both High Speed Mini Drivers use a 6-wire RJ-11 connector.



RJ-11 CROSSOVER CABLE:



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