

### SPECIFICATIONS:

**Protocol:** Asynchronous

**Range:** Up to 15 miles

**Speed:** Up to 115,200 bps

**Operation:** 2- or 4-wire, Full- or Half-Duplex, point-to-point or multi-point (Up to 50 drops)

**RTS/CTS Delay:** 8 msec. or No Delay

**Carrier:** Constantly ON or Controlled by RTS

**Surge Protection:** 600W power dissipation at 1 msec.

**Control Signals:** DSR turns "ON" immediately after the terminal raises DTR; DCE turns "ON" after recognizing the receive signal from the line; CTS turns "ON" after the terminal raises RTS.

**Interface:** RS-232C/CCITT V.24 (Wired as a DCE)

**Connectors:** (1) DB9 male/female (depending on model);  
(1) RJ-11 female connector.

**Power:** Draws operating power from the EIA/TIA-574 data and control signals; no AC power or batteries required. If necessary, 6 to 12 VDC can be applied to pin 9 of the interface.

DATA RATE (BPS)	DISTANCE IN MILES (km)			
	19 AWG	22 AWG	24 AWG	26 AWG
115,200	3.5 (5.6)	2.6 (4.2)	1.4 (2.3)	0.9 (1.4)
38,400	5 (8.1)	2.9 (4.7)	2.2 (3.5)	1.5 (2.4)
9,600	7.1 (11.4)	4.6 (7.4)	3.5 (5.6)	2.8 (4.5)
1,200	9 (14.5)	6.5 (10.5)	5 (8.1)	3.9 (6.3)

### INTRODUCTION:

The Mini Driver MP9 is an asynchronous short-range modem that connects to DB9 RS-232 interfaces. The Driver supports EIA-TIA-574 data rates up to 115,200 bps over one or two unconditioned twisted pairs. Distances up to 15 miles are attainable at lower data rates (1.2 Kbps, 19 AWG twisted pair). Since the Driver is powered from the interface, it requires no AC power or batteries for operation.

The Mini Driver MP9 can handle up to 50 terminal drops in a multi-point polling environment. For RS-485 and serial-printer applications requiring hardware handshaking, the Mini Driver passes one control signal in each direction. The Mini Driver may be configured for high or low impedance, the carrier may be set to "constantly ON" or "controlled by RTS", and the unit can operate with or without "echo". RTS/CTS delay may be set for "no delay" or "8 msec."

The twisted-pair connection includes a RJ-11 female connector. Silicon Avalanche Diodes provide 600 watts per wire of protection against harmful data-line transient surges.

### CONFIGURATION:

#### Accessing the DIP Switches:

The Mini Driver MP9 is configured using two 4-position DIP switches mounted on the printed circuit boards. There are two of these boards: a main PC board and a daughterboard. DIP-switch S1 is located on the underside of the main PC board. DIP-switch S2 is located on the top of the daughterboard. To access the Mini Driver MP9's main PC board and daughterboard, insert a small flat-blade screwdriver between the connector and the lip of the case and gently pry open the case.

Both DIP-switch S1 and S2 are marked with individual switch numbers 1 through 4. Use these numbers, as well as the "ON" designation to set the switch properly.

### INSTALLATION:

Once the Mini-Driver MP9 is properly configured, it is ready to connect to your system. The Mini Driver MP9 supports 2- or 4-wire communication between two or more EIA/TIA-574 devices at data rates up to 115,200 bps. There are two essential requirements for installing the Mini Driver MP9.

1. These units work in pairs. Therefore, you must have one Mini Driver MP9 at each end of a two twisted-pair interface. In multi-point environments, there must be one Mini Driver MP9 at the EIA/TIA-574 host and one at each EIA/TIA-574 terminal.
2. To function properly, the Mini Driver MP9 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). Standard dial-up telephone circuits, or leased circuits that run through signal equalization equipment, are *not acceptable*.

If your application requires you to connect one or two pairs of bare wires to the Mini Driver MP9, you will need to open the case to access the terminal blocks. In a **two-pair circuit**, connect *one pair* of wires to XMT + and XMT - (transmit positive and negative) on the RJ-11 connector, making careful note of which color is positive and which color is negative. Connect the *other pair* of wires to RCV + and RCV - (receive positive and negative) on the RJ-11 connector, 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 the two Mini Driver MP9's as shown below.

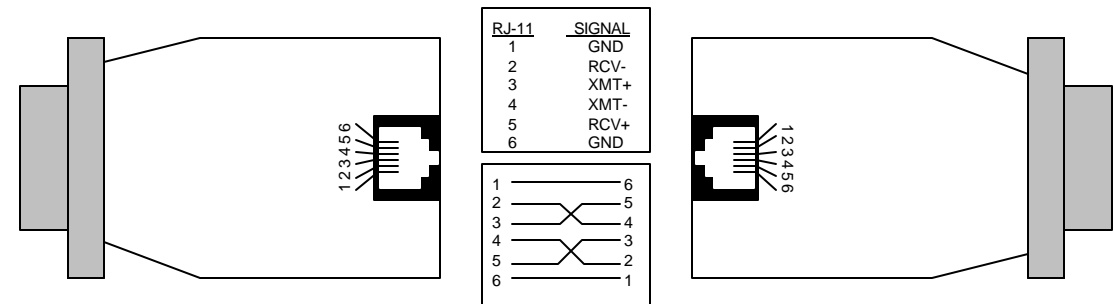
In a single-pair circuit, use only the transmit (XMT) pair as shown below.

XMT + ----- XMT +  
XMT - ----- XMT -

## ME776A-M/FSP with Surge Protection

SWITCH S1 SETTINGS: <b>FACTORY DEFAULTS ARE IN BOLD</b>			
POSITION	FUNCTION	ON Position	OFF Position
S1-1	RCV Impedance	<b>120 ohms</b>	16K ohms typical
S1-2	2-/4-wire	2-wire	<b>4-wire</b>
S1-3	2-/4-wire	2-wire	<b>4-wire</b>
S1-4	Echo Mode	Echo ON	<b>Echo OFF</b>

SWITCH S2 SETTINGS: <b>FACTORY DEFAULTS ARE IN BOLD</b>			
POSITION	FUNCTION	ON Position	OFF Position
S2-1	Carrier Control	RTS	<b>Constantly ON</b>
S2-2	RTS/CTS Delay	<b>8-msec.</b>	No Delay
S2-3	"XMT OFF"	Intermediate	<b>HIGH</b>
S2-4	Impedance	Intermediate	<b>HIGH</b>



If there is a shield around the telephone cable, it may be connected to "G" (GND) on the RJ-11 connector. To avoid ground loops, we recommend connecting the shield at the computer end only. A ground wire is not necessary for proper operation of the Mini Driver MP9.