ME773A-M/FSP with (Surge Protection)

DTE · **DCE**

ME773A-M/FSP Mini Driver MP

BLACK BOX

DB25M/F CONNECTOR

DCE | | | | | DTE

DIP Switch is on the bottom side of PC board

ON ↑ 1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

RJ-45

SPECIFICATIONS:

Protocol: Asynchronous.

Speed: Up to 115,200 bps

Range: Up to 15 miles (24.1 km)

Serial Interface: DB25, male or female (DTE/DCE switchable).

Multipoint: Up to 50 Drops.

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

Control Signals: In DCE mode, DSR turns ON immediately after the terminal raises DTR; DCD turns ON after recognizing the receive signals from the line; CTS turns ON after the terminal raises RTS.

Operation: 2- or 4-wire, full- or half-duplex.

Connectors: (1) DB25 male or female; (1) RJ-45 female connector.

Carrier: Switch-selected as either Constantly ON or Controlled by RTS.

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

Power: No power required; uses ultra-low power (at least 5 volts required) from EIA data and control signals: Pins 3,5,6,8 and 9 in DTE mode; Pins 2,4,9 and 20 in DCE mode; 3 to 5 ma @ 10 volts.

DATA RATE (bps)	Distance Table in miles			
	WIRE GAUGE			
	19 AWG	22 AWG	24 AWG	26 AWG
115,200	3.5	2.6	1.4	.9
38,400	5	2.9	2.2	1.5
9,600	7.1	4.6	3.5	2.8
1,200	9	6.5	5	3.9

DESCRIPTION:

The Mini Driver MP requires no AC power or batteries to operate. It supports asynchronous RS-232 speeds of up to 115.2 Kbps over one or two unconditioned twisted-pair wires. It also supports distances of up to 15 miles (24.1 km) at lower data rates (1.2 Kbps, 19 AWG twisted pair).

The Driver can handle up to 50 terminal drops in a multipoint polling environment. For RS-485 and serial printer applications requiring hardware handshaking, the Mini Driver MP passes one control signal in each direction. You may configure the Driver for high- or low-impedance operation. Set the carrier to be Constantly ON or Controlled by RTS. RTS/CTS delay can be set to No Delay or 8 msec. The Driver can also operate with or without echo.

The Mini Driver MP also incorporates Silicon Avalanche Diode technology, which provides 600 watts per wire of protection against harmful data-line transient surges.

CONFIGURATION:

You can configure the Mini Driver MP with an eight-position DIP switch and a DTE/DCE switch. The DIP switch is located on the underside of the PC board.

Setting the DTE/DCE Switch:
For your convenience, the Driver includes a DTE/DCE switch on the outside of the unit. If the device connected to the Driver is a modem or mux (or is wired like one), set the switch to DTE. This setting causes the Driver to act like data terminal equipment and transmit on Pin 2. If the device connected to the Driver is a PC, terminal, or host computer (or is wired like one), set the switch to DCE. This setting causes the Driver to act like data communications equipment and transmit on Pin 3.

Setting the DIP Switches:
The eight switches on switch set S1 configure the Driver for RTS/CTS delay, echo mode, method of carrier control, impedance, and 2-wire/4-wire operation. These switches are located inside the unit on the Driver's PC board. To access switch set S1, use a small flat-blade screwdriver to pop open the Driver's case.

Functions of the Configuration Switch:
The descriptions below detail the functions of the eight configuration switches. Read this information carefully before setting the switches.

S1-1 and S1-2: **"Transmit OFF" Impedance.** Switches S1-1 and S1-2 are set together to determine whether the receiving device "sees" the impedance of the Driver's transmitter as being "high" or "intermediate" when the transmitter is turned off. The "intermediate" setting is useful in half-duplex environments where the receiving device does not respond well to the "high" setting.

S1-1	S1-2	Setting
ON	ON	Intermediate Impedance
OFF	OFF	High Impedance

S1-3: **RTS/CTS Delay:** Determines the amount of delay between the time the Driver "sees" RTS and when it sends CTS. Note: RTS/CTS Delay setting should be based upon transmission timing.

S1-3	Setting
ON	8 ms
OFF	No Delay

S1-4: **Echo Mode:** Determines whether the Driver echoes back to the transmitting device (half-duplex mode only).

S1-4	Setting
ON	Echo ON
OFF	Echo OFF

S1-5: **Carrier Control Method:** Determines whether the carrier is "Constantly ON" or "Controlled by RTS". This setting allows for operation in switched carrier, multipoint, and hardware handshaking applications.

S1-5	Setting
ON	Controlled by RTS
OFF	Constantly On

S1-6: **Receive Impedance:** Selects the impedance of the input receiver. You may select either a "low" impedance or 120 ohms or a "high" impedance of 16K ohms. By selecting the proper impedance for each drop, you can have up to 50 receivers in one application. The Master and the last slave should be set for low impedance. Any drops in between them should be set for high impedance.

S1-6	**Setting**
ON	Low (120 ohm) Terminated
OFF	High (16 K) Unterminated

S1-7 and S1-8: **2-wire/4-wire Modes:** Both switches are set together to determine whether the Driver is in 2- or 4-wire operating modes. Note: 2-wire is half-duplex only.

S1-7	**S1-8**	**Setting**
ON	ON	2-wire mode
OFF	OFF	4-wire mode

Configuration Switch Applications:

The table to the left shows you how to set the Driver's configuration switches to fit several common applications. If you have any questions about the proper settings for you application, call your supplier.

When You're Finished Configuring:

Once you've finished setting the Mini Driver MP's configuration switches, pause before you snap the case halves back together. Make sure you have the 4-wire connected to the terminal blocks set correctly.

INSTALLATION:

Once you've set the configuration switches, you're ready to connect the Driver to your system. This section tells you how to properly connect two or more Drivers to each other and to the RS-232 interface.

Twisted-Pair Connection:

Keep these points in mind as you connect the twisted-pair side of the Driver:
The Driver operates over one or two metallic twisted pairs–two or four wires. The wires must be dry, unconditioned metallic wire between 19 and 26 AWG (lower-number gauges allow the longest distances). *Standard dial-up telephone circuits, or leased circuits that run through signal-equalization equipment, are not acceptable.*

The units must be used in pairs--one at each end of the twisted-pair line. In multipoint environments, there should be one Driver at the RS-232 host and one at each RS-232 terminal.
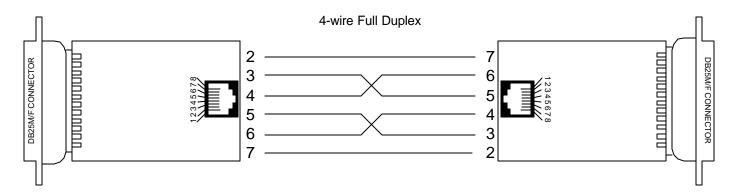
Pin Connections for RJ-45 Twisted-Pair Interface:

The 6-wire RJ-11 jack for the Driver is prewired for a standard AT&T wiring environment. Use the following table as a guide when ordering or constructing twisted-pair cables.

RJ-45	**Signal**
1	N/C
2	GND
3	RCV-
4	XMT+
5	XMT-
6	RCV+
7	GND
8	N/C

Four-Wire Twisted-Pair Connection:				**Two-Wire Twisted-Pair Connection**			
Signal	**Pin#**	**Pin#**	**Signal**	**Signal**	**Pin#**	**Pin#**	**Signal**
GND	2 ——— 7		GND	GND	2	2	GND
RCV-	3 ——— 5		XMT-	N/C	3	3	N/C
XMT+	4 ——— 6		RCV+	XMT+	4 ——— 4		XMT+
XMT-	5 ——— 3		RCV-	XMT-	5 ——— 5		XMT-
RCV+	6 ——— 4		XMT+	N/C	6	6	N/C
GND	7 ——— 2		GND	GND	7	7	GND

POSITION	FUNCTION	FACTORY DEFAULT	
S1-1	"Transmit OFF" Impedance	OFF	High Impedance
S1-2	"Transmit OFF" Impedance	OFF	
S1-3	RTS/CTS Delay	ON	8 msec.
S1-4	Echo Mode	OFF	Echo OFF
S1-5	Carrier Control	OFF	Constantly ON
S1-6	Receive Impedance	ON	120 Ohms
S1-7	2-wire/4-wire	OFF	4-wire
S1-8	2-wire/4-wire	OFF	

4-wire Full Duplex

If there is a shield around the telephone cable, it may be connected to "G" on the terminal block. We recommend connecting the shield at the computer end only to avoid ground loops. A ground wire is not necessary to properly operate the Driver.

2-wire Half Duplex