

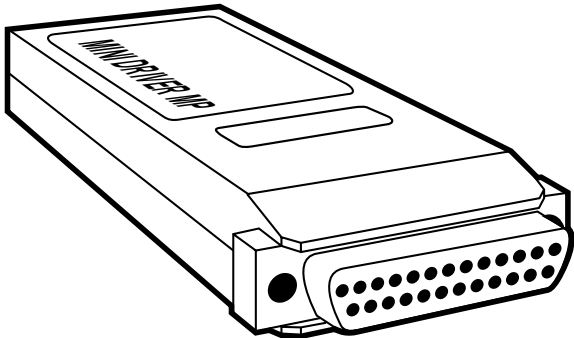


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Mini Driver V (Mini Driver MP with 5-Screw Terminal Block)



CUSTOMER SUPPORT INFORMATION

Order **toll-free** in the U.S. 24 hours, 7 A.M. Monday to midnight Friday: **877-877-BBOX**
FREE technical support, 24 hours a day, 7 days a week: Call **724-746-5500** or fax **724-746-0746**
Mail order: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018
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1. Specifications

Interface — EIA RS-232/ITU V.24, DCE

Protocol — Asynchronous

Data Format — Transparent to data format

Operation — 2-wire half-duplex or 4-wire full- or half-duplex

Data Rate — Up to 38,400 bps

Maximum Distance (Transmission Range) — See chart on next page

Transmission Line — 2- or 4-wire unconditioned telco-type line

Transmission Level — 0 dBm

Transmission Controls — DSR turns on immediately after DTE raises DTR;
DCD turns on after recognizing the receive signal from the line;
CTS turns on 8 milliseconds after DTE raises RTS

Carrier Control — Carrier can be continuously held high or controlled by RTS (user-selectable)

Receive Impedance — High (100 k Ω) or low (120 ohms), user-selectable

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User Controls — (4) Internal straps (jumpers)

Connectors — DTE side: Side-mounted DB25 male (ME745A-M-R2) or female (ME745A-F-R2);
Line side: Internal 5-screw terminal block (for one ground wire and up to four data wires) with cable-strain relief

Temperature Tolerance — 32°F to 122°F (0°C to 50 C)

Humidity Tolerance — Up to 95% noncondensing

Enclosure — High-impact plastic

Power — +6 VDC, 25 milliwatts from Pin 2, 4, or 20 of the RS-232 interface

Size — 4.3" L x 2.1" W x .9" H (11 x 5.3 x 2.2 cm)

Weight — 0.2 lb. (0.1 kg)

Approximate Transmission Range

DATA RATE	WIRE GAUGE					
	19		22		24	
	KM	MILES	KM	MILES	KM	MILES
0 to 19,200 bps	15.0	9.4	9.0	5.6	7.0	4.4
38,400 bps	9.0	5.6	5.0	3.1	4.0	2.5

2. Introduction

The Mini Driver V (Mini Driver MP with 5-Screw Terminal Block) is intended to be used for local data distribution: Two or more of them carry asynchronous communication between computers and terminals. The Driver operates full- or half-duplex over 4-wire, and half-duplex only over 2-wire, telco-type lines. Figure 2-1 below shows a typical two-line configuration.

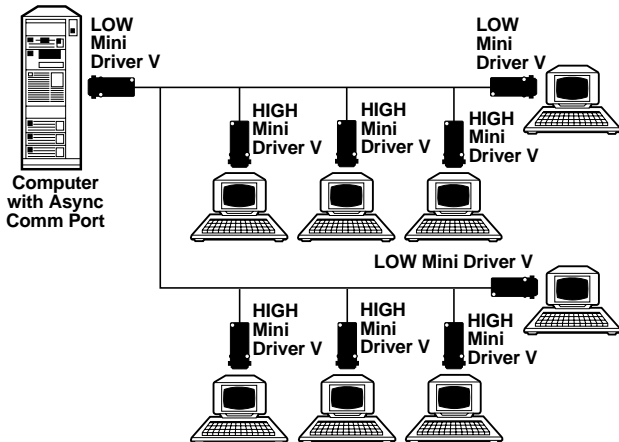


Figure 2-1. Two-line configuration
("LOW" and "HIGH" are receive-impedance settings).

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The Mini Driver V meets the RS-485 pinning standards for a multipoint environment. However, the Driver does not meet the electrical standards for the RS-485 interface and should not be used as an RS-485 to RS-232 converter.

You can strap the Mini Driver V's carrier to be constantly ON or to follow (be controlled by) the RTS signal. Operating with controlled carrier allows you to connect Drivers in multipoint configurations over 2 or 4 wires. (Special circuitry isolates inactive transmit pairs of wires.) You can set a separate jumper for high or low impedance on the receive circuit. This enables the Driver to work properly in multipoint configurations of up to 50 polled modems without degrading distance. You can also use controlled carrier in applications that require passing of a control signal end to end (RTS on one Driver is passed to DCD on the other Driver). A circuit enables a user working in half-duplex to receive an echo from the Driver if the terminals or computer programs used do not have an echo option.

The Mini Driver V operates without a power-supply transformer. It receives its power from the RS-232 signals Receive Data (RD, Pin 2), Request to Send (RTS, Pin 4), and Data Terminal Ready (DTR, Pin 20).

3. Installation

To install the Mini Driver V, take these steps:

1. Separate the two halves of the Driver's plastic cover by pressing the marked areas on the sides of the cover. (Start at the cable end.)
2. *For a 2-wire connection:*
Connect the 2-wire telco-type line to the XMT pair of terminals on the Driver's screw-terminal block. Note the correct polarities:

+XMT on the local Mini Driver V must be connected to +XMT on the remote Mini Driver V.

-XMT on the local Mini Driver V must be connected to -XMT on the remote Mini Driver V.

For a 4-wire connection:

Connect the 4-wire telco-type line to the XMT and RCV pairs of terminals on the Driver's screw-terminal block. Note the correct polarities:

+XMT on the local Mini Driver V must be connected to +RCV on the remote Mini Driver V.

–XMT on the local Mini Driver MP must be connected to –RCV on the remote Mini Driver MP.

+RCV on the local Mini Driver MP must be connected to +XMT on the remote Mini Driver MP.

–RCV on the local Mini Driver MP must be connected to –XMT on the remote Mini Driver MP.

3. If you are using a shielded cable, connect the cable's shield to the GND terminal on the Driver's terminal block.
4. Referring to **Figure 3-1** on the next page and **Table 3-1** on **page 8**, set the Driver's straps (jumpers) to suit your application.
5. Press the two halves of the cover back together.
6. Plug the Driver directly into the DTE's RS-232 serial port.

The Mini Driver V should now be ready for operation.

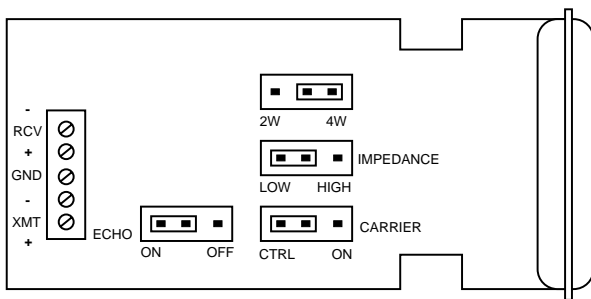


Figure 3-1. Strap (jumper) locations.

Table 3-1. Strap Settings

	POINT - TO-POINT			MULTIPOINT	
	4-WIRE CONTINUOUS CARRIER	4-WIRE HALF-DUPLEX OR CARRIER CONTROLLED	2-WIRE	4-WIRE	2-WIRE
STRAP					
CARRIER	ON	CTRL	CTRL	Master: ON or CTRL; Slaves: CTRL	CTRL
4W/2W	4W	4W	2W	4W	2W
ECHO	ON	ON	OFF or ON	ON	OFF or ON*
IMPED-ANCE	LOW	LOW	LOW	Master: LOW; Slaves: The last in line: LOW; Others: HIGH	Master: LOW; Slaves: The last in line: LOW; Others: HIGH

***NOTE:** If the DTEs used have an echo option in half duplex, the strap should be set to off. If the DTEs used do not have an echo option, set the strap to ON or OFF as required.

4. Troubleshooting

4.1 Calling Black Box

If your Mini Driver V seems to be malfunctioning, *do not attempt to alter or repair the unit*. Call Black Box Technical Support at 724-746-5500. The problem might be solvable over the phone.

Before you call, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.
- when the problem occurs.
- the components involved in the problem.
- any particular application that, when used, appears to create the problem or make it worse.

4.2 Shipping and Packaging Information

If you need to transport or ship your Mini Driver V:

- Carefully package it. We recommend that you use the original container.
- If you are shipping the Driver for return or repair, contact Black Box to get a Return Materials Authorization (RMA) number.

NOTES