◆ **Black Box Corporation**
The World's Source for Cabling and Network Connectivity™

Microdriver/RJ-11
Microdriver/Terminal Post

◆® **Black Box Corporation**
The Source for Connectivity™
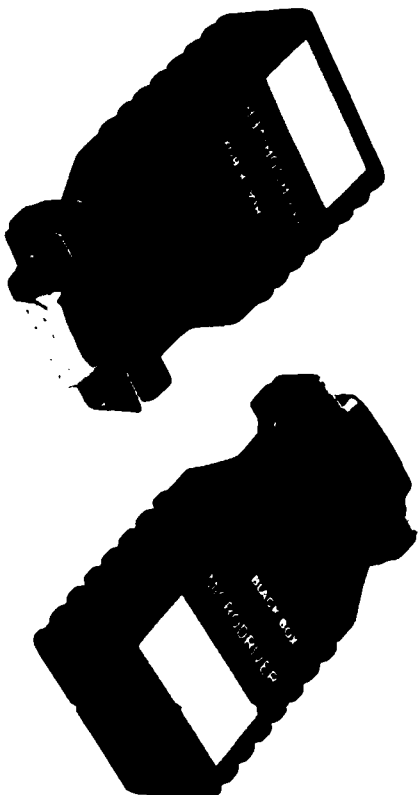
1.0 SPECIFICATIONS

Protocol - Asynchronous

Speed - Up to 19.2 Kbps

Operation - Full duplex, point-to-point

Transmit Level - 0 dBm

Transmit Line - 4-wire, unloaded/unconditioned line (2 twisted pairs)

Transmission Range -

DATA RATE	DISTANCE IN MILES		
BPS	19 AWG	24 AWG	26 AWG
19,200	6.2	3.7	1.2
9,600	7.5	4.9	2.5
4,800	8.7	5.6	3.7
2,400	11.8	8.0	4.9
1,200	17.0	11.8	8.0

Control Signal - CTS (Pin 8) turns ON immediately after the terminal raises RTS (Pin 7). DSR (Pin 6) and DCD (Pin 1) turn ON immediately after the terminal raises DTR (Pin 4).

Interface - RS-232C/CCITT V.24

Connectors -

Microdriver/RJ-11 - (1) DB9S female or (1) DB9P male
(1) female RJ-11

Microdriver/Terminal Post - (1) DB9S female or (1) DB9P male
(1) 5-screw terminal block

Power - No external power supply required; derives power from the RS-232 interface (+6 VDC minimum on Pin 4 or 7 of the DB9 connector; current draw is 3 to 5 mAmps with 10 volts.)

Size - 1.2" H x .75" W x 2.5" D (3.05 cm x 1.91 cm x 6.35 cm)

Weight - 0.9 oz. (25.5 g)

2.0 DESCRIPTION

The Microdriver is a small, short-range, asynchronous, point-to-point, full-duplex line driver that plugs directly into your computer or terminal port. The Microdriver is designed to be used on the IBM® AT® and compatibles, NCR Tower®, Unisys™ 700 series, and other devices with DB9 connectors. You must have one Microdriver at each end of your cabling.

It operates asynchronously up to 17 miles at 1200 bps and up to 6 miles at 19,200 bps over 4-wire twisted pair cabling.

The Microdrivers are very small in size due to the use of surface mount technology.

Four models are available:

- The Microdriver/RJ-11 (ME790A-F) has a female RJ-11 connector to connect to the twisted pair-lines and a female DB9 connector to connect to your computer port.

- The Microdriver/RJ-11 (ME790A-M) has a female RJ-11 connector to connect to the twisted-pair lines and a male DB9 connector to connect to your computer port.

- The Microdriver/Terminal Post (ME791A-F) has a 5-screw terminal block to connect to the twisted-pair lines and a female DB9 connector to connect to your computer port.

- The Microdriver/Terminal Post (ME791A-M) has a 5-screw terminal block to connect to the twisted-pair lines and a male DB9 connector to connect to your computer port.

3.0 INSTALLATION

If you have a Microdriver/RJ-11 (ME790A-F or ME790A-M), follow the installation procedure in section 3.1. If you have a Microdriver/Terminal Post (ME791A-F or ME791A-M), follow the installation procedure in section 3.2.

3.1 Microdriver/RJ-11 Installation

The RJ-11 jack on the Microdrivers is prewired for a standard Telco wiring environment. To be sure you have the right wiring, use Table 1 as a guide.

Table 1. RJ-11 Connector Pinning

RJ-11 PIN #	SIGNAL
1	GND
2	RCV-
3	XMT+
4	XMT-
5	RCV+
6	GND (connection to Ground is Optional

· Proper crossing of pairs between the two modems is shown in Table 2.

Table 2. Pairing Between Microdrivers

LOCAL MICRODRIVER			REMOTE MICRODRIVER		
SIGNAL	PIN#	COLOR*	COLOR*	PIN#	SIGNAL
GND**	1	Blue	White	6	GND**
RCV-	2	Yellow	Red	4	XMT-
XMT+	3	Green	Black	5	RCV+
XMT-	4	Red	Yellow	2	RCV-
RCV+	5	Black	Green	3	XMT+
GND**	6	White	Blue	1	GND**

* Standard Color Codes - some installations may be different

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

Follow these steps to install a Microdriver at each end of your line:

1. Plug the RJ-11 plug on the twisted pair cable into the RJ-11 socket on the Microdriver.

2. Plug the unit directly into a mating RS-232C connector on your terminal or computer and tighten the two connector screws.

3. Repeat steps 1 and 2 for the Microdriver at the other end of the twisted-pair cable.

4. Installation is now complete. The Microdriver requires no power supply or batteries and will work automatically at any data rate from 0 to 19,200 bps as long as there is a data or control voltage being applied (+ 6 VDC minimum on Pin 4 or 7 of the DB9 connector).

3.2 Microdriver/Terminal Post Installation Procedure

Proceed as follows to install the Microdriver/Terminal Post at each end of your line:

1. Use a small, flat-blade screwdriver to pry the top half of the Microdriver case from the bottom half.

2. Strip the outer insulation from the twisted pairs about one inch from the end.

3. Strip back the insulation on each of the 4 wires about one quarter-inch.

4. Insert each wire into the proper terminal post and tighten the screw. Be careful to observe the polarity (see Figure 1). Connect the wires as follows:

LOCAL UNIT		REMOTE UNIT
XMT+	connects to	RCV+
XMT-	connects to	RCV-
RCV+	connects to	XMT+
RCV-	connects to	XMT-

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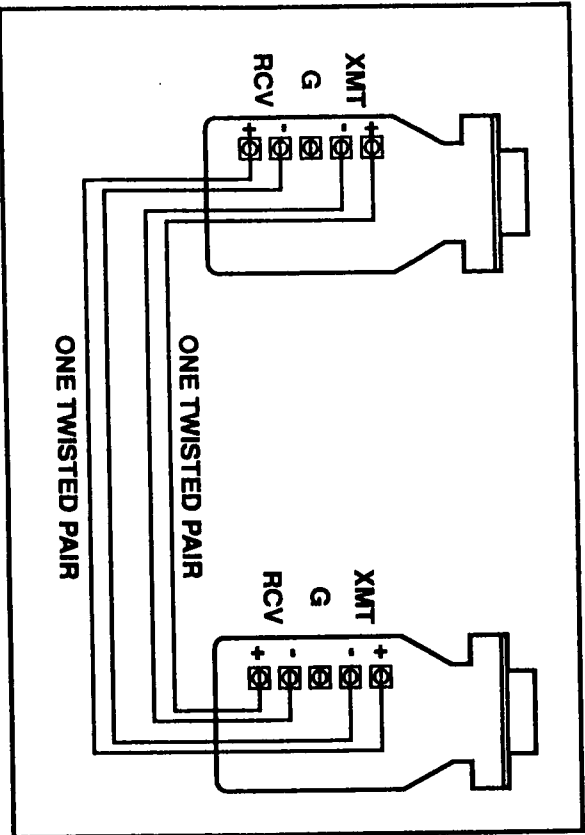

Figure 1. Microdriver Connection

6. Place the two halves of the strain-relief assembly on either side of the telephone wire and press together very lightly. Slide the assembly so that it is about two inches from the terminal posts and press together firmly.

7. Insert the strain-relief assembly (with the wire going through it) into the slot in the bottom half of the Microdriver case and set it into the recess in the case. If the telephone wire is too thin to be held by the strain relief assembly, use tape to increase its diameter. If the wire is too large, it may be necessary to drill out the strain relief slightly. The completed assembly should appear as shown in Figure 2.

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8. Bend the top half of the case as necessary to place it over the strain relief assembly. Do not snap the case together.

9. Insert each screw through a saddle washer and then insert each screw with the washer on it, through the holes in the DB9 end of the case. Snap the case closed.

10. Plug the unit directly into a mating RS-232C connector on your terminal or computer and tighten the two connector screws.
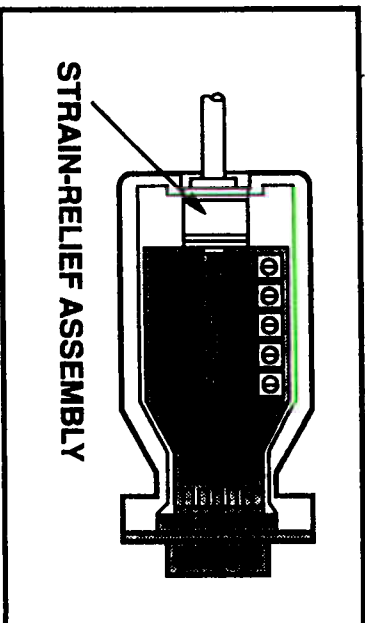

Figure 2. Microdriver And Strain-Relief Assembly

11. Repeat steps 1-10 for the Microdriver at the other end of the twisted-pair cable.

12. Installation is now complete. The Microdriver requires no external power supply or batteries and will work automatically at any data rate from 0 to 19,200 bps as long as there is a data or control voltage being applied (+ 6 VDC minimum on Pin 4 or 7 of the DB9 connector).