

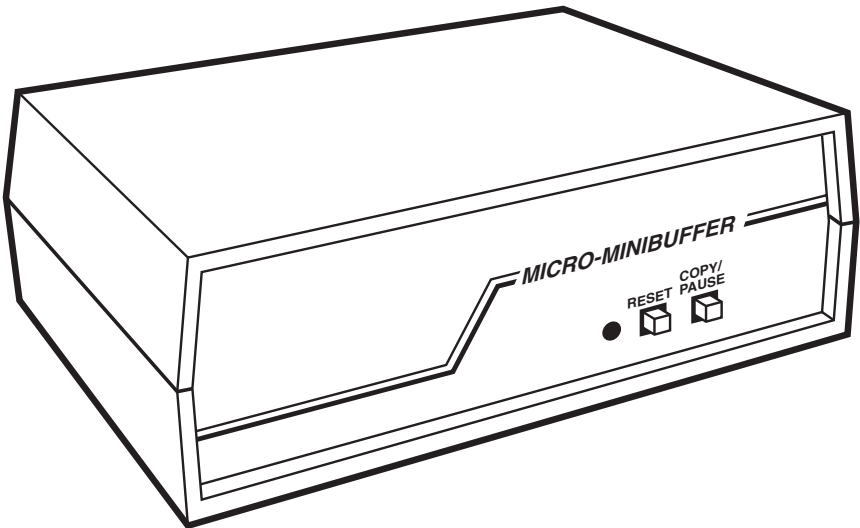


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1000 Park Drive • Lawrence, PA 15055-1018 • 724-746-5500 • Fax 724-746-0746



Micro-MiniBuffer-64K Micro-MiniBuffer-256K



**CUSTOMER
SUPPORT
INFORMATION**

Order toll-free in the U.S.: Call 877-877-BBOX (outside U.S. call 724-746-5500)
FREE technical support 24 hours a day, 7 days a week: Call 724-746-5500 or fax 724-746-0746
Mailing address: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018
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**FEDERAL COMMUNICATIONS COMMISSION
AND
INDUSTRY CANADA
RADIO FREQUENCY INTERFERENCE STATEMENTS**

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

TRADEMARKS USED IN THIS MANUAL

Any trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.

**NORMAS OFICIALES MEXICANAS (NOM)
ELECTRICAL SAFETY STATEMENT****INSTRUCCIONES DE SEGURIDAD**

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

Speed:	Serial: 300 to 38.4 kbps; Parallel: 4,000 characters per second
Flow Control:	Serial: X-ON/X-OFF, hardware; Parallel: Hardware, Busy, ACK
Maximum Distances:	Serial: 50 ft. Standard EIA cable; Parallel: 20 ft. to input port., 20 ft. from output port
Data Format:	8 data bits, no parity; or 7 data bits even or odd parity
Interface:	RS-232 async ASCII (input port is DTE, output port is DCE).
Connectors:	(2) DB25 female
Power:	115 VAC, 60 Hz, 20 watts, 5 VDC, 1 amp
Size:	2.4"H x 8.1"W x 6.3"D (6.1 x 20.6 x 16 cm)
Weight:	2.5 lb. (1.1 kg)

2. Introduction

The Micro-MiniBuffer is a versatile, buffering device which accepts data from your computer and sends it to a printer or plotter. The Micro-MiniBuffer also takes data from or sends data to other devices such as scanners and modems. The Micro-MiniBuffer comes in the following models:

- **Micro-MiniBuffer-64K-S/S** — serial to serial version with 64K of memory.
- **Micro-MiniBuffer-64K-S/P** — serial to parallel version with 64K of memory.
- **Micro-MiniBuffer-64K-P/P** — parallel to parallel version with 64K of memory.
- **Micro-MiniBuffer-64K-P/S** — parallel to serial version with 64K of memory.
- **Micro-MiniBuffer-256K-S/S** — serial to serial version with 256K of memory.
- **Micro-MiniBuffer-256K-S/P** — serial to parallel version with 256K of memory.
- **Micro-MiniBuffer-256K-P/P** — parallel to parallel version with 256K of memory.
- **Micro-MiniBuffer-256K-P/S** — parallel to serial version with 256K of memory.

3. Configuration

The Micro-MiniBuffer has one input port and one output port. Each serial port must be configured individually for speed, parity, number of stop bits, data format, and handshaking method. Table 3-1 lists these settings.

The unit is also equipped with four switches. Copy/Pause and Reset are located on the front panel. The DIP switches, S1, for the input port, and S2 for the output port, are located on the rear panel of the unit. (See Figure 3-1.) The switches are for setting speed, data format, and flow control options on serial ports. Parallel ports do not have DIP switches.

S1 controls the input port and S2 controls the output port. Setting S1 or S2 to the “up” position opens the switch; setting S1 or S2 to the “down” position closes it.

After you reset S1 or S2, either power down the unit or press the Reset switch on the front panel.

3.1 Self Test

The Micro-MiniBuffer also has a self-test feature. To begin the self-test, press and hold the Reset switch while you press and hold the Copy/Pause switch. Release Reset, then release Copy/Pause. The unit transmits the test message to the output port only. The test message continues to print until you press the Reset switch again. You can set all the options with the Reset and Copy/Pause buttons. Different options and settings are described below.

Table 3-1. Switch Settings.

Switch position (S1 input, S2 output)	1	2	3	4	5	6	7	8
Baud Rate								
38400	OFF	OFF	OFF					
19200	ON	OFF	OFF					
9600	OFF	ON	OFF					
4800	ON	ON	OFF					
2400	OFF	OFF	ON					
1200	ON	OFF	ON					
600	OFF	ON	ON					
300	ON	ON	ON					
Data Bits								
8				OFF				
7				ON				
Parity								
Even					OFF			
Odd					ON			
Parity								
Disable						OFF		
Enable						ON		
Flow Control								
Hardware							OFF	
Software							ON	
Port Type								
Serial								OFF

OFF = Switch is UP.

ON = Switch is DOWN.

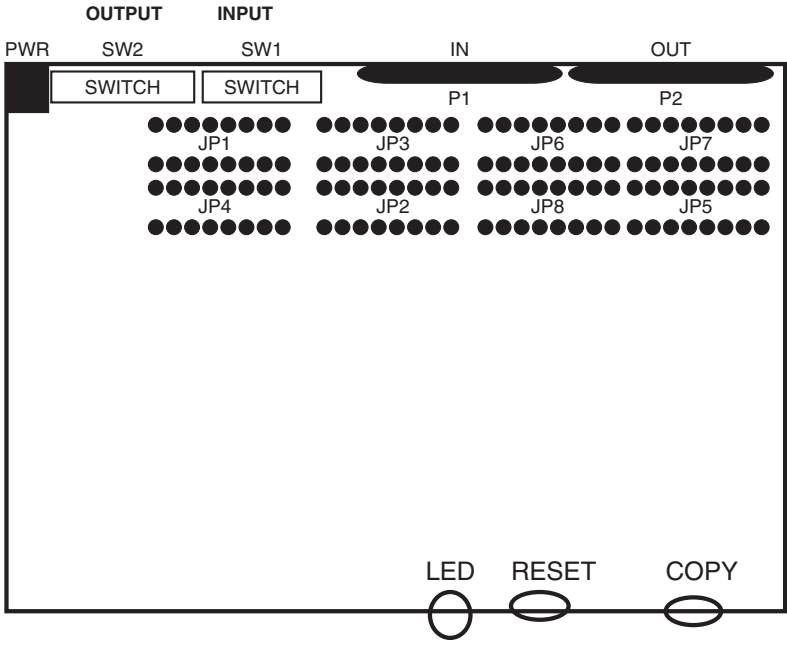


Figure 3-1. Switch Locations.

NOTE

Jumpers labeled JP are installed depending on the model ordered.

JP1, JP2, and JP3 are for P1 (input port).

JP6, JP5, and JP7 are for P2 (output port).

4. Operation

You can set all the options with the Reset and Copy\Pause buttons. Different options and settings are described below.

4.1 Switches And Pushbuttons

4.1.1 RESET BUTTON

When pressed, Reset causes the unit to “read” the settings. If you change any of the DIP switches on the rear of the unit, you must press Reset for the unit to “read” those changes. Reset also clears the copy feature (see Copy\Pause) and clears all data in the buffer.

4.1.2 STATUS LED

The Status LED is steadily lit while the unit is on. It blinks only when you set the amount of copies to be printed.

4.1.3 COPY\PAUSE BUTTON

Presetting multiple copies. First, press the Reset button to clear all previous settings. Before you send the data, depress the Copy\Pause switch once for each copy you want printed. For example, if you want 10 copies of a document, press the Copy\Pause button 10 times before sending the document to the Micro-MiniBuffer. The LED blinks each time you add a copy. You can set the unit to print up to 99 copies.

Printing one additional copy. For one additional copy of the data you just sent, press the Copy\Pause button. One copy of the most recent job sent to the buffer is sent to the printer. If a 7-second time period of inactivity on the input port occurs, the unit considers it the end of a print job.

Stopping data output. Pressing Copy\Pause while data is being sent stops the output of data from the buffer while allowing data input to continue. The buffer remains in the “Pause” mode until you press Copy\Pause again.

4.2 Handshaking

The Micro-MiniBuffer usually accepts data much faster than the output devices (such as printers) to which it is attached. Handshaking is a form of flow control which prevents the unit from overrunning the ability to accept the data.

Data loss can be prevented if equipment connected to the input and output serial ports support X-ON/X-OFF or hardware handshaking.

4.2.1 HARDWARE HANDSHAKING

When the unit's buffer is nearly full on the input end, it changes Pin 20 from a high voltage to a low voltage. When the output device (printer) has emptied the unit's buffer so that more input data can be accepted, the Micro-MiniBuffer raises Pin 20 to a high level signal.

The Micro-Mini Buffer monitors Pin 20 for activity from the output device. When the device on the output port, cannot accept any more data, it drops Pin 20. When the output device is ready to accept more data, it returns Pin 20 to a high level.

4.2.2 SOFTWARE HANDSHAKING

When the unit's buffer is almost full, it sends an X-OFF character to the input device via Pin 2. The unit sends an X-ON character via Pin 2 once the output device has accepted enough data to leave room in the buffer for more input data.

When the output device cannot accept any more data, it sends an X-OFF character to Pin 2 on the Micro-Mini Buffer's output port. When the output device is ready to receive more data, it sends an X-ON character via Pin 2.

4.3 Micro-MiniBuffer Input and Output Port Pinouts**Serial Pin Configurations (Input Port DTE)**

Pin	Name	Source	Function
1	FG		Chassis ground
2	TD	Buffer unit	Output from buffer
3	RD	Input device	Input to buffer
4	RTS	Buffer unit	Request to send (held high)
5	CTS	Input device	Input to buffer
7	GND		Signal Ground
20	DTR	Buffer unit	Output from buffer (hardware handshaking pin)

Serial Pin Configurations (Output Port DCE)

Pin	Name	Source	Function
1	FG		Chassis ground
2	TD	Output device	Input to buffer
3	RD	Buffer unit	Output from buffer
5	CTS	Buffer unit	Clear to send (held high)
6	DSR	Buffer unit	Held high tied to 8
7	GND		Signal ground
8	CD	Output device	Held high tied to 6
20	DTR	Buffer unit	Input to buffer (Hardware handshaking pin)

Centronics® Ports Pin Configurations

Pin	Name	Function
1	Strobe	
2	Data1	
3	Data2	
4	Data3	
5	Data4	
6	Data5	
7	Data6	
8	Data7	
9	Data8	
10	ACK	
11	Busy	
12	PE	GND
13	Select	High
14	Autofeed	Open
15	Fault	High
16	Init	High
17	NC	
18	NC	
19-25	GND	

4.4 Cable Configurations

The following cable configuration are provided for a few popular makes and models of computers and printers to aid you in connecting your Micro-MiniBuffer to your computer and printer.

4.4.1 COMPUTER CABLE CONFIGURATIONS**Micro-MiniBuffer to Northstar/Osborn Cable**

**Micro-MiniBuffer
DB25 male (DTE)**

**Northstar/Osborn
DB25 female (DCE)**

RX	2	←-----	2	RX
TX	3	-----→	3	TX
GND	7	-----→	7	GND
DTR	20	-----→	20	CTS

Micro-MiniBuffer to Apple® III/Apple S/S Dynabyte Cable

**Micro-MiniBuffer
DB25 male**

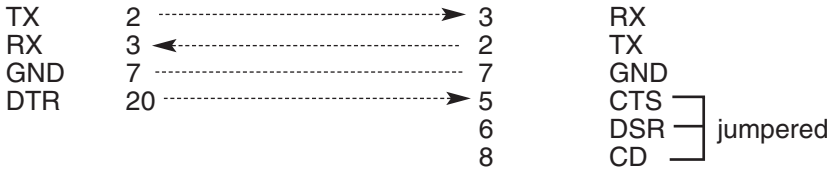
**Apple® III/
Apple S/S Dynabyte
DB25 male**

TX	2	-----→	3	RX
RX	3	←-----	2	TX
GND	7	-----→	7	GND
DTR	20	-----→	20	CTS

Micro-MiniBuffer to IBM® HP® -150 Cable

**Micro-MiniBuffer
DB25 male**

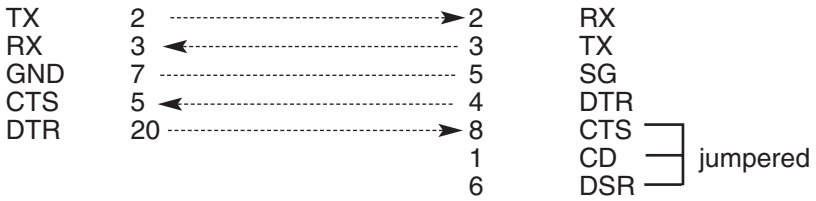
**IBM® HP® -150
DB25 female**



Micro-MiniBuffer to IBM® AT® Cable

**Micro-MiniBuffer
DB25 male**

**IBM® AT®
DB9 female**



4.4.2 PRINTER CABLE CONFIGURATIONS

Micro-MiniBuffer to Typical Serial Printer

**Micro-MiniBuffer
DB25 male**

**Serial Printer
DB25 male**

FGD	1	-----	1	FGD
TX	2	-----	2	TX
RX	3	-----	3	RX
DSR	6	-----	6	DSR
GND	7	-----	7	GND
DTR	20	-----	20	DTR

5. Troubleshooting

Here are some basic steps to follow when troubleshooting the Micro-MiniBuffer.

1. If the Self test won't output to the printer:

For serial output, be sure DTR is high on the output port.

2. If Data garbles to printer after printing a few pages:

Check word structure option on serial port to be sure the Micro-MiniBuffer is setup the same way as the equipment connected to it.

3. If LED does not light:

Be sure the power supply is securely connected. If possible, try another supply. If the LED still doesn't light, call your supplier.