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PI360A	PI360AE	PI370A	PI370AE
PI361A	PI361AE	PI371A	PI371AE
PI362A	PI362AE	PI372A	PI372AE
PI363A	PI363AE	PI373A	PI373AE

Micro Minibuffer II

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1. Specifications

Compliance — FCC Part 15 Class A, DOC Class/MDC classe A

Interfaces — PI360 and PI370 models: EIA RS-232 serial (input is DTE and output is DCE);
PI361 and PI371 models: EIA RS-232 serial input (DTE) and IBM PC (Centronics compatible) parallel output;
PI362 and PI372 models: IBM PC (Centronics compatible) parallel input and output;
PI363 and PI373 models: IBM PC (Centronics compatible) parallel input and EIA RS-232 serial output (DCE)

Protocol — Serial: Asynchronous

Data Format — Serial: Either 8 data bits, 1 stop bit, and no parity or 7 data bits, 1 stop bit, and even, odd, or no parity (user-selectable)

Flow Control — Serial: Hardware (DTR/CTS) or software (X-ON/X-OFF), user-selectable

Data Rate — Serial: 300, 1200, 2400, 9600, 19,200, 38,400, 57,600, or 115,200 bps (user-selectable)

Maximum Distances — 50 ft. (15.2 m) from serial ports to serial devices;
20 feet (6.1 m) from parallel ports to parallel devices

Internal Memory — PI360 through PI363 models: 256 KB of buffer RAM;
PI370 through PI373 m odels: 1 MB of buffer RAM

User Controls — All models: (2) Front-mounted pushbuttons: Reset and Copy/Pause;
PI360 and PI370 models: (2) Rear-mounted 8-position DIP switches for serial-port configuration;
PI361 and PI371 models: (1) Rear mounted 8-position DIP switch for serial-input-port configuration;
PI363 and PI373 models: (1) Rear-mounted 8-position DIP switch for serial-output-port configuration;

Diagnostic — Self-test mode in which test message is continuously transmitted out of output port

Indicators — (1) Front-mounted unlabeled Status LED

Connectors — (2) Rear-mounted DB25 female (1 input, 1 output)

Leads Supported — Serial input ports: 1 through 5, 7, and 20;
Serial output ports: 1 through 3, 5 through 8, and 20;
Parallel ports: 1 through 13, 15, 16, and 19 through 25

Power — For 120-VAC operation:
From wallmount power supply PS112:
Input: 115 VAC, 60 Hz, rated at 100 mA;
Output: 5 VDC at 600 mA;
Consumption: Up to 3 VA
For 230-VAC operation:
From desktop power supply PS112E:
Input: 230 VAC, 50 Hz, rated at 100 mA;
Output: 5 VDC at 1 A;
Consumption: Up to 5 VA

MTBF — 100,000 hours

Altitude Tolerance — 15,000 ft. (4572 m)

Temperature Tolerance — Operating: 32 to 77° F (0 to 25° C);
Storage: 32 to 104° F (0 to 40° C)

Humidity Tolerance — Up to 95% noncondensing

Size — 2.4"H x 8.1"W x 6.3"D (6.1 x 20.6 x 16 cm)

Weight — 3 lb. (1.4 kg)

2. Introduction

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

- **Micro Minibuffer II-256K S/S (PI360 models)**— serial-to-serial version with 256 KB of memory.
- **Micro Minibuffer II-256K S/P (PI361 models)** — serial-to-parallel version with 256 KB of memory.
- **Micro Minibuffer II-256K P/P (PI362 models)** — parallel-to-parallel version with 256 KB of memory.
- **Micro Minibuffer II-256K P/S (PI363 models)** — parallel-to-serial version with 256 KB of memory.
- **Micro Minibuffer II-1MEG S/S (PI370 models)** — serial-to-serial version with 1 MB of memory.
- **Micro Minibuffer II-1MEG S/P (PI371 models)** — serial-to-parallel version with 1 MB of memory.
- **Micro Minibuffer II-1MEG P/P (PI372 models)** — parallel-to-parallel version with 1 MB of memory.
- **Micro Minibuffer II-1MEG P/S (PI373 models)** — parallel-to-serial version with 1 MB of memory.

Table 3-1. Settings of Switches S1 and S2

Switch Position	1	2	3	4	5	6	7	8
Data rate (bps)								
115,200	OFF	OFF	OFF					
57,600	ON	OFF	OFF					
38,400	OFF	ON	OFF					
19,200	ON	ON	OFF					
9600	OFF	OFF	ON					
2400	ON	OFF	ON					
1200	OFF	ON	ON					
300	ON	ON	ON					
Data bits								
8				OFF				
7				ON				
Parity								
Even					OFF			
Odd					ON			
Parity								
None						OFF		
Enable*						ON		
Flow Control								
Hardware							OFF	
Software							ON	
Port Type								
Serial								OFF
[N/A†]								[ON]

*In the "Enable" (ON) setting, parity is even or odd depending on the setting of position 4

†Position 8 must be set OFF for the Switch to function properly

4. Installation

To install your Micro Minibuffer II, first place it in a dry, well-ventilated, temperature-controlled location close to an electrical outlet. You must place it within 50 ft. (15.2 m) of any serial devices that are sending or receiving the data you want to buffer. You must place it within 20 ft. (6.1 m) of any sending or receiving parallel devices.

After placing the Minibuffer, cable your devices to it:

- For serial PC/XT™ input to the Minibuffer, run PC XT to HP® LaserJet® cable (our product code EVMBXL).
- For serial AT® input to the Minibuffer, run AT serial-printer cable (our product code EVMBPC).
- For modem input to the Minibuffer, parallel PC/XT or AT input to the Minibuffer, or Minibuffer output to a serial printer or plotter, run RS-232 cable (our product code ECM25C-MM).
- For Minibuffer output to a modem, run RS-232 tail-circuit cable (our product code EYN255C).
- For Minibuffer output to a PC/XT, run IBM PC serial-modem cable (our product code EVMBSM).
- For Minibuffer output to an AT, run IBM AT serial-modem cable (our product code EVMBMC).
- For Minibuffer output to a parallel printer, run IBM PC parallel-printer cable (our product code EYN600).

When you finish cabling, plug the power supply's output cord into the appropriate connector on the rear panel of the unit, then plug the power supply into an outlet. The Minibuffer will power up automatically, because it has no ON/OFF switch.

This concludes your Minibuffer installation. Your Micro Minibuffer II should be ready for continuous operation.

5.2 The Self-Test

The Micro MiniBuffer II also has a self-test feature. To begin the self-test, press and hold the Reset button while you press and hold the Copy/Pause button. Release Reset, then release Copy/Pause. The unit transmits the test message out of the output port only. The Minibuffer continues to transmit the test message until you press the Reset button again.

5.3 Flow Control (Models with Serial Ports Only)

The Micro Minibuffer II's serial ports usually accept data much faster than the output devices (printers, plotters, modems, etc.) attached to them can. For this reason, these Minibuffers use one of two types of "flow control" (also called "handshaking"—the types are described below) to keep from overflowing the attached devices with more data than they can take. We highly recommend that the input and output devices you attach to your Minibuffer support one of these types of flow control. Set DIP switches S1 and S2 for the type of flow control used by your input and output devices (see **Chapter 3**), then press the Reset button (see **Section 5.1.1**).

5.3.1 Hardware (DTR) Flow Control

When the Minibuffer's buffer is nearly full of input data, the Minibuffer changes the voltage on the input port's Pin 20 (the DTR signal) from high to low. This tells the input device to stop sending data. When the output device has drawn enough data out of the buffer to leave room for more, the Minibuffer raises the voltage on Pin 20 to tell the input device to start sending again.

Similarly, the Minibuffer monitors Pin 20 of the output port while it sends data to the output device. If the Minibuffer detects that the output device has lowered the signal on Pin 20, it stops sending data until the output device raises the signal on Pin 20 again.

5.3.2 Software (X-ON/X-OFF) Flow Control

When the Minibuffer's buffer is nearly full of input data, the Minibuffer sends a special X-OFF character to the input device on the input port's Pin 2. This character tells the input device to stop sending data. When the output device has drawn enough data out of the buffer to leave room for more, the Switch sends an X-ON character on Pin 2 to tell the input device to start sending again.

Similarly, the Minibuffer monitors Pin 2 of the output port while it sends data to the output device. If the Minibuffer detects that the output device has sent it an X-OFF character, it stops sending data until the output device sends it an X-ON character.

6. Troubleshooting

6.1 Calling Your Supplier

If you determine that your Micro Minibuffer II is malfunctioning, *do not attempt to alter or repair it.* Contact your supplier. The problem might be solvable over the phone.

Before you do, make a record of the history of the problem. Your supplier 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.

6.2 Shipping and Packaging

If you need to transport or ship your Micro Minibuffer II:

- Package it carefully. We recommend that you use the original container.
- Before you ship a unit for repair or return, contact your supplier to get a Return Materials Authorization (RMA) number, and make sure you include everything you received with the unit when you ship it.

Appendix: Port Pinouts

This appendix lists the pinouts of the types of ports found on different models of the Micro Minibuffer II. **Section A.1** shows the pinout of the serial input ports, **Section A.2** shows the pinout of the serial output ports, and **Section A.3** shows the pinout of the parallel ports.

A.1 Serial Input Ports (DTE)

Pin	Signal	Name	Direction/Notes
1	PGND	Protective Ground	
2	TD	Transmit Data	Output from unit
3	RD	Receive Data	Input to unit
4	RTS	Ready to Send	Held high
5	CTS	Clear to Send	Input to unit
7	SGND	Signal Ground	
20	DTR	Data Terminal Ready	Output from unit

A.2 Serial Output Ports (DCE)

Pin	Signal	Name	Direction/Notes
1	PGND	Protective Ground	
2	TD	Transmit Data	Input to unit
3	RD	Receive Data	Output from unit
5	CTS	Clear to Send	Held high
6	DSR	Data Set Ready	Held high
7	SGND	Signal Ground	
8	CD	Carrier Detect	Held high, tied to Pin 6
20	DTR	Data Terminal Ready	Output from unit

A.3 Parallel Ports

Pin	Signal	Name	Notes
1	STB	Strobe	
2	DATA0	Data 0	
3	DATA1	Data 1	
4	DATA2	Data 2	
5	DATA3	Data 3	
6	DATA4	Data 4	
7	DATA5	Data 5	
8	DATA6	Data 6	
9	DATA7	Data 7	
10	ACK	Acknowledge	
11	BUSY	Busy	Tied to ground (held low)
12	PE	Paper End	Held high
13	SELECT	Select	No connection]
[14	AUTO LF	Automatic Line Feed	Held high
15	ERROR	Error	Held high
16	INIT	Initialize Printer	No connection]
[17	SELIN	Select Input	No connection]
[18	GND0	Ground 0	
19	GND1	Ground 1	
20	GND2	Ground 2	
21	GND3	Ground 3	
22	GND4	Ground 4	
23	GND5	Ground 5	
24	GND6	Ground 6	
25	GND7	Ground 7	