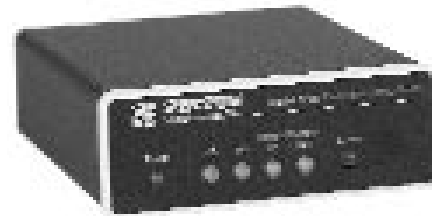


# USER MANUAL

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## MODEL 1226 Parallel Short Range Modem



**PA PATTON**  
**Electronics Co.**

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Part# 07M1226-B  
Doc# 104031UB  
Revised 08/13/99

SALES OFFICE  
(301) 975-1000  
TECHNICAL SUPPORT  
(301) 975-1007  
<http://www.patton.com>

## 1.0 WARRANTY INFORMATION

**Patton Electronics** warrants all Model 1226 components to be free from defects, and will—at our option—repair or replace the product should it fail within one year from the first date of shipment.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall **Patton Electronics** be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. **Patton Electronics** specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

### 1.1 RADIO AND TV INTERFERENCE

The Model 1226 generates and uses 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 and television reception. The Model 1226 is designed to provide reasonable protection from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the Model 1226 does cause interference to radio or television reception, which can be determined by disconnecting the parallel interface, the user is encouraged to try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

### 1.2 SERVICE

All warranty and non-warranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Service at **(301) 975-1007**. *Packages received without an RMA number will not be accepted.*

Patton Electronics' technical staff is also available to answer any questions that might arise concerning the installation or use of your Model 1226. Technical Service hours: **8AM to 5PM EST, Monday through Friday.**

## 2.0 GENERAL INFORMATION

Thank you for your purchase of this Patton Electronics product. This product has been thoroughly inspected and tested and is warranted for One Year parts and labor. If any questions or problems arise during installation or use of this product, please do not hesitate to contact Patton Electronics Technical Support at (301) 975-1007.

### 2.1 FEATURES

- Extends parallel communication to 14 miles
- Data rates to 57.6 Kbps
- Operates over two shielded or unshielded twisted pair
- Allows devices to communicate in "real time"
- Acts as either a transmitter or a receiver
- Compatible with most printer sharing devices
- Compensates for low power parallel printer interfaces
- DB-25 parallel connections
- RJ-11, RJ-45 or terminal block line connections
- Surge protection and optical isolation

### 2.2 DESCRIPTION

**The Patton Electronics Model 1226** parallel short range modem allows a PC and a parallel output device (printer, sharing switch, etc.) to communicate at distances to 14 miles over two shielded or unshielded twisted pair. Externally powered, the Model 1226 supports serial data rates to 57.6 Kbps, which is fast enough to allow "real time" parallel communication. The Model 1226 features high speed Silicon Avalanche Diode surge protection, which intercepts transient surges and shunts them safely to chassis ground. Optical isolation gives the Model 1226 immunity to ground loops that would otherwise hamper between-building communications.

The Model 1226 always works in pairs: One unit is plugged into the PC's parallel port and a second unit is plugged into the output device's parallel port. Since the Model 1226 can act as either a transmitter or a receiver unit, you do not have to purchase a special "transmit" or "receive" unit. The Model 1226 can also be teamed up with a Model 1060 for bi-directional parallel to serial transmission.

The Model 1226 receiver comes equipped with DB-25 parallel interface. Line connection options are RJ-11, RJ-45 or terminal block.

### 3.0 CONFIGURATION

The Model 1226 is simple to install, and is designed for excellent reliability: just set it and forget it. The following instructions will help you set up and install the Model 1226 properly. If you have any questions, please call Patton Technical Support at (301) 975-1007.

#### 3.1 CONNECTING TWO MODEL 1226s (Parallel to Parallel)

The Model 1226 uses a set of eight DIP switches (see Figure 1) that allow configuration to a wide range of applications. Because all eight switches are in one externally accessible DIP switch package, there is no need to open the Model 1226's case for configuration. The configuration switches allow you to select data rates, parity, word length and flow control selection. The following section describes all switch locations, positions and functions.

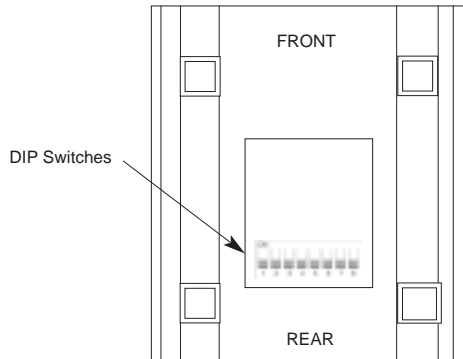


Figure 1. Underside of the Model 1226, showing location of DIP switches

The Model 1226 uses a DIP switch package (see Figure 2). To configure your unit, use a small screwdriver and gently push each switch to its proper setting. The ON and OFF positions are shown in Figures 1 and 2.



Figure 2. Close-up of the Model 1226 configuration switch package

#### 3.1.1 DETAILED SWITCH SETTINGS

This section provides detailed information about the function of each DIP switch and lists all possible settings.

##### Switches 1 through 3: Frequency and Data Rate

Switches 1 through 3 determine the data rate for the Model 1226. Use the following chart to configure your equipment:

Data Rate	SW1	SW2	SW3
1200	ON	OFF	OFF
2400	ON	OFF	ON
4800	OFF	ON	ON
9600	<b>ON</b>	<b>ON</b>	<b>OFF</b>
19200	ON	ON	ON
38400	OFF	OFF	OFF
57600	OFF	OFF	ON

**NOTE:** Factory defaults are in **bold italics**.

##### Switch 4 through 6: Data, Parity and Stop Bit

Switches 4 through 6 are used to specify the data, parity and stop bits. The following table shows the settings that may be used:

Data	Parity	Stop Bit	SW4	SW5	SW6
7B	EP	1S	ON	ON	ON
7B	OP	1S	ON	ON	OFF
7B	NP	2S	ON	OFF	ON
7B	EP	2S	ON	OFF	OFF
7B	OP	2S	OFF	ON	ON
8B	EP	1S	OFF	ON	OFF
8B	OP	1S	OFF	OFF	ON
8B	NP	1S	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>

**NOTE:** Factory defaults are in **bold italics**.

### Switch 7: Reserved for Future Use

### Switch 8: Hardware/Software Control

The setting for Switch 8 determines whether the Model 1226 uses either hardware or software flow control.

Flow Control	SW8
Hardware	<b>OFF</b>
Software	<b>ON</b>

**NOTE:** Factory defaults are in ***bold italics***.

### 3.2 CONNECTING A MODEL 1226 TO A MODEL 1060 (Parallel to Serial/ Serial to Parallel)

When connecting a Model 1226 to a Model 1060, you need to configure both units. First, set the DIP switches on the Model 1226 as indicated in Section 3.1.1. Then configure the Model 1060 by following the instructions below.

#### 3.2.1 USING THE MODEL 1060 AS A TRANSMITTER

If you are using your Model 1060 as a transmitter, you must configure the Model 1060 according to the chart below. Do **not** change the settings on your Model 1226.

Mode (DCE/DTE)	Control Input (C <sub>in</sub> )	Control Output (C <sub>out</sub> )	Carrier Controlled by (C <sub>in</sub> )	Switch Settings						
				1	2	3	4	5	6	7
DCE	4, 11, 20	8	Enabled	OFF	ON	ON	ON	OFF	OFF	ON
DCE	4, 11, 20	6	Enabled	OFF	OFF	OFF	ON	ON	ON	ON

Next, you will need to configure your computer's settings. If you are using DOS, type the following command at the C prompt:

MODE COM2: 9600,n,8,1,p

If you are not using DOS, call Patton Technical Support at (301) 975-1007 for further assistance.

#### 3.2.2 USING THE MODEL 1060 AS A RECEIVER

If you are using your Model 1060 as a receiver, you must configure the Model 1060 according to the chart below. Do **not** change the settings on your Model 1226.

Mode (DCE/DTE)	Control Input (C <sub>in</sub> )	Control Output (C <sub>out</sub> )	Carrier Controlled by (C <sub>in</sub> )	Switch Settings						
				1	2	3	4	5	6	7
DTE	5, 6, 8	4	Enabled	OFF	ON	ON	ON	OFF	OFF	ON
DTE	5, 6, 8	11, 20	Enabled	OFF	OFF	OFF	ON	ON	ON	ON

## 4.0 INSTALLATION

The Model 1226 is designed to be easy to use. After configuring the DIP switches, connect the two twisted pairs using one of three methods: RJ-11 jack, RJ-45 jack or terminal blocks. Figure 3 shows the location of the RJ-11 jack, RJ-45 jack or terminal blocks, as well as the female DB-25 connector, on the rear of the Model 1226.

The Model 1226 operates over 4-wire twisted pair. The two pair must be 26 AWG or larger “dry”, unconditioned, metallic wire. Dial-up analog circuits, such as those used with a standard Hayes type modem, are **not acceptable**. The twisted pair may be shielded or unshielded. Both types yield favorable results. You will need a pair of Model 1226s for each circuit—one at each end of the circuit.

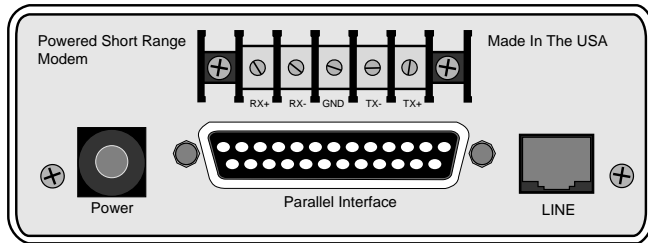


Figure 3. Rear view of the Model 1226

### 4.1 TWISTED PAIR CONNECTION USING RJ-11 OR RJ-45

The RJ-11 and RJ-45 connectors on the Model 1226's twisted pair interface are pre-wired for a standard TELCO wiring environment. The signal/pin relationships are shown on the following table:

RJ-11	SIGNAL	RJ-45	SIGNAL
1	-----GND	1	-----NC
2	-----RCV-	2	-----GND
3	-----XMT+	3	-----RCV-
4	-----XMT-	4	-----XMT+
5	-----RCV+	5	-----XMT-
6	-----GND	6	-----RCV+
		7	-----GND
		8	-----NC

When connecting two Model 1226s, it is necessary to use a “crossover” cable. The diagram below shows how a crossover cable should be constructed for an environment where both Model 1226s use a 4-wire RJ-11 or RJ-45 connector (RJ-45 is shown below). Similar logic should be followed when using RJ-11 connectors or a combination of the two.

SIGNAL	PIN#	PIN#	SIGNAL
GND <sup>†</sup>	2	7	-----GND <sup>†</sup>
RCV-	3	5	-----XMT-
XMT+	4	6	-----RCV+
XMT-	5	3	-----RCV-
RCV+	6	4	-----XMT+
GND <sup>†</sup>	7	2	-----GND <sup>†</sup>

<sup>†</sup>Standard color codes—yours may be different

<sup>‡</sup>Connection to ground is optional

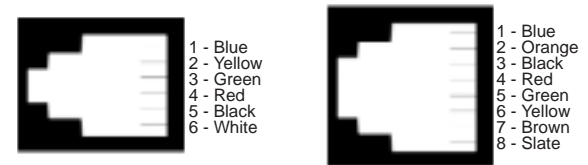
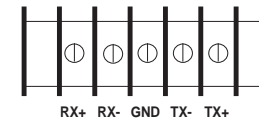


Figure 4. AT&T Standard Pin Assignments

### 4.2 FOUR-WIRE CABLE CONNECTION VIA TERMINAL BLOCKS

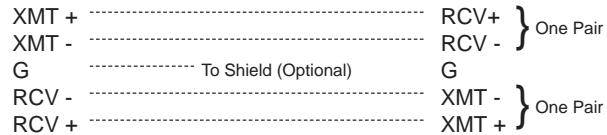
If you are not going to use the modular jacks, then follow the instructions below.

- A. Locate the terminal block on the back of the unit. It should look like the following diagram:



- B. Connect one pair of wires to XMT+ and XMT- (transmit positive and transmit negative) on the terminal block, making careful note of which color is positive and which color is negative.

- C. Connect one pair of wires to RCV+ and RCT- (receive positive and receive negative) on the terminal block, making careful note of which color is positive and which color is negative.
- D. If there is a shield around the telephone cable, it may be connected to "G" on the terminal block. To avoid ground loops, we recommend connecting the shield at the computer end only. A ground wire is not necessary for proper operation of these units.
- E. When you have finished connecting the telephone line to units at both ends, it should look similar to the following diagram:



## 5.0 OPERATION

Once both Model 1226s have been connected to each other and to their corresponding parallel input and output devices, you are ready to operate the units. The units should function transparently, just like a cable. There is no ON / OFF switch.

### 5.1 LED STATUS MONITORS

The Model 1226 features six front panel status LEDs that indicate the condition of the modem and communication link. Figure 5 shows the front panel location of each LED. Following Figure 5 is a description of each LED's function.

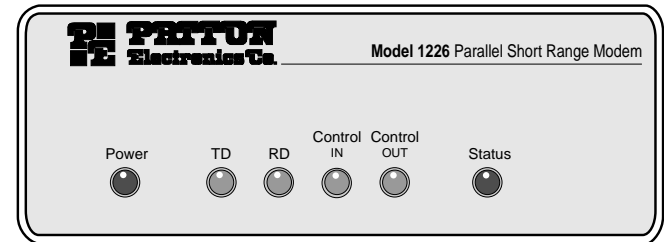


Figure 5. The Model 1226's front panel LEDs

- The "Power" LED glows solid green when power is applied to the Model 1226.
- The "TD" indicator blinks red and green with data activity. Red indicates that the Model 1226 is not currently transmitting data.
- The "RD" indicator blinks red and green with data activity. Red indicates that the Model 1226 is not currently receiving data.
- The "Control In" indicator usually glows green. However, it glows solid red when flow control comes from the remote Model 1226.
- The "Control Out" indicator usually glows green. However, it glows solid red when flow control comes from the local Model 1226.
- The "Status" indicator shows data activity by blinking green in a variety of codes. The chart on the following page describes these codes:

## APPENDIX A SPECIFICATIONS

LED Codes	
● ● — ● — ● ● — ● —	Computer is sending data
● — ● — ● —	Unit is powered up and initialized; computer is not sending data
● ● — ● ● —	Parallel device is connected; computer is not sending data
● — ● — ● — ● —	Printer not ready, data held in buffer
● ● ● ● — ● ● ● ●	Computer ignoring flow control, data lost

Key:	
●	Blink
—	Short pause
—	Long pause

### 5.2 POWER-UP

Apply AC power to the Model 1226 by plugging the separate AC power adapter into the rear panel outlet of the Model 1226, and then into an acceptable AC power outlet. Make sure you connect the parallel side first, then the line side. There is no power switch on the Model 1226; when the "Power" LED is lit, the Model 1226 is powered up. When the local and remote Model 1226s are both powered up and passing data normally, the following LED conditions will exist:

- PWR = Green
- TD & RD = Red or blinking red/green
- CTL IN & CTL OUT = Green
- Status = Blinking green

<b>Parallel Interface:</b>	DB-25 female
<b>Data Rate:</b>	Up to 57.6 Kbps
<b>Range:</b>	Up to 14 miles
<b>Transmission:</b>	Full duplex over 4-wire shielded or unshielded twisted pair
<b>Line Interface:</b>	RJ-11, RJ-45 or terminal block
<b>Surge Protection:</b>	600W power dissipation at 1mS and response time less than 1.0pS
<b>LED Indicators:</b>	Power, TD, RD, Ctl-In, Ctl-Out, Status
<b>Optical Isolation:</b>	2500 V RMS
<b>Power:</b>	10 V AC transformer (110 or 220)
<b>Dimensions:</b>	5.90"l x 4.17"w x 1.61"h
<b>Weight:</b>	Approximately 16 oz.

## APPENDIX B PARALLEL PIN CONFIGURATIONS

SOURCE	TRANSMITTER / RECEIVER (DB-25)	SOURCE
Common	Return / Ground -25	
Common	Return / Ground -24	
Common	Return / Ground -23	11- Busy (Active HIGH)
Common	Return / Ground -22	10- Acknowledge (Active LOW)
Common	Return / Ground -21	9- Data Bit 8 (MSB)
Common	Return / Ground -20	8- Data Bit 7
Common	Return / Ground -19	7- Data Bit 6
Common	Return / Ground -18	6- Data Bit 5
		5- Data Bit 4
		4- Data Bit 3
		3- Data Bit 2
		2- Data Bit 1 (LSB)
		1- Data Strobe (Active LOW)
		Printer
		Printer
		Computer
		Computer
		Computer
		Computer
		Computer
		Computer
		Computer

## APPENDIX C BLOCK DIAGRAM

