

USER MANUAL

MODEL 1000P Non-Powered Short Haul Modem



PATTON
Electronics Co.



An ISO-9001
Certified Company

Part #07M1000PA
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SALES OFFICE
(301) 975-1000
TECHNICAL SUPPORT
(301) 975-1007
<http://www.patton.com>

RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment generates, uses and can radiate radio frequency energy and if not used in accordance with this manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when 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 be required to correct the interference.

If this unit is used on a DTE/DCE which requires use of shielded cables for compliance with FCC Part 15, then use of a filtered-pin connector may be required to maintain FCC compliance.

1.0 SPECIFICATIONS

Operating

Environment: 32 to 112 F (0 to 45 C), 0 to 95% relative humidity

Dimensions: 2.20" x 1.75" x .75"

Weight:

Power: Powered from RS-232C Connector (+12V DTR/DSR), 6.3 mA)

These units derive power from a terminal or computer. The following signals must be available at the RS-232 connector:

DCE Configuration of the 1000P when connected to a DTE:

- The - and + voltage is taken from pins 2, 4, 9, and 20.

DTE Configuration of the 1000P when connected to a DCE:

- The - and + voltage is taken from pins 3, 5, 6, 8, or 9.

NOTE:

When power is removed from the DCE or DTE to which the Model 1000P is connected, the 1000P can no longer send a signal to the remote receiver. Under this condition, the idled cable is susceptible to noise reception. The remote receiver may output erroneous data bits as a result of noise.

Date Rates:	19,200 bps (according to the RS-232 interface)
Transmission Format:	Asynchronous
Transmission Mode:	Full duplex
Connectors - RS-232:	1000PM - DB-25 male 1000PMRJ11 - DB-25 male 1000PMRJ45 - DB-25 male 1000PF - DB-25 female 1000PFRJ11 - DB-25 female 1000PFRJ45 - DB-25 female
Connectors - Line:	1000PM - strain relief 1000PMRJ11 - RJ11 (6 wire) 1000PMRJ45 - RJ45 (8 wire) 1000PF - strain relief 1000PFRJ11 - RJ11 (6 wire) 1000PFRJ45 - RJ45 (8 wire)
Surge Protection:	Compliant with IEC 801.5 level 2, 1kV (Model 222NS Only)
Factory Switch Setting:	DCE; data is received from the remote short range modem via RX+ and RX-, and is sent to the DTE from the Model 222N via pin 3 of the RS-232 interface; (the RS-232 interface is the DB-25 connector closest to the DTE/DCE switch).
Cable Type:	4-wire, unloaded, customer-owned twisted pair cable with DC continuity

RS-232 Signals:

PIN	CIRCUIT	DESCRIPTION	SIGNAL TYPE	DIRECTION
1	AA	Protective Ground	Ground	
2	BA	Transmitted Data	Data	To DCE
3	BB	Receive Data	Data	From DCE
4	CA	Request to Send	Control	To DCE
5	CB	Clear to Send	Control	From DCE
6	CC	Data Set Ready	Control	From DCE
7	AB	Signal Ground	Ground	
8	CF	Data Carrier Detect	Control	From DCE
9		DC Voltage		
20	CD	Data Terminal Ready	Control	To DCE

Pins 1 and 7 are tied together
Pins 4 and 5 are tied together
Pins 6, 8 and 20 are tied together

2.0 DESCRIPTION

The Model 1000P Asynchronous Short Range Modem uses the latest surface mount technology to attain high quality short range modem performance in a low profile package. The unit operates full duplex at data rates to 19.2 Kbps over 2 twisted pair. Requiring no AC power or batteries, the Model 1000 supports distances to 17 miles (27.2km).

With an externally accessible DCE/DTE switch, the Model 1000P allows easy connection to any device without opening the unit. Three enclosure options allow terminations to be via RJ-11, RJ-45 or terminal blocks. A unique strain relief prevents thin twisted pairs from breaking or pulling loose.

The Model 1000P uses the latest in bi-directional, clamping, transient suppressors to protect itself and connected equipment against harmful transient discharges. For surge handling capability, the Model 1000P is compliant with IEC 801.5 level 2, 1kV.

Table 1. Model 1000P Transmission Distances

DATA RATE (BPS)	Wire Gauge		
	19 AWG (0.9 mm)	24 AWG (0.5 mm)	26 AWG (0.4 mm)
19,200	6.2(9.9)	3.7(5.9)	1.2(1.9)
9,600	7.5(12.0)	4.9(7.8)	2.5(4.0)
4,800	8.7(13.9)	5.6(9.0)	3.7(5.9)
2,400	11.8(18.9)	8.0(12.8)	4.9(7.8)
1,200	17.0(27.2)	11.8(18.9)	8.0(12.8)

These distances are for a noiseless environment with 20% or less of peak-to-peak gross distortion. Distances and rates listed are 1000P to 1000P

The Model 1000P has the option of being configured as either DCE or DTE devices. Set the switch located on the top of the printed circuit board to the DCE or DTE position

NOTE: You do not have to open the plastic case to change the switch setting.

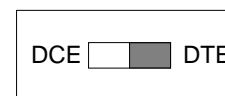


Figure 1. Model 1000P DCE/DTE Switch

The Model 1000P meets the requirements for FCC Part 15 (RFI limits for Class A peripheral devices).

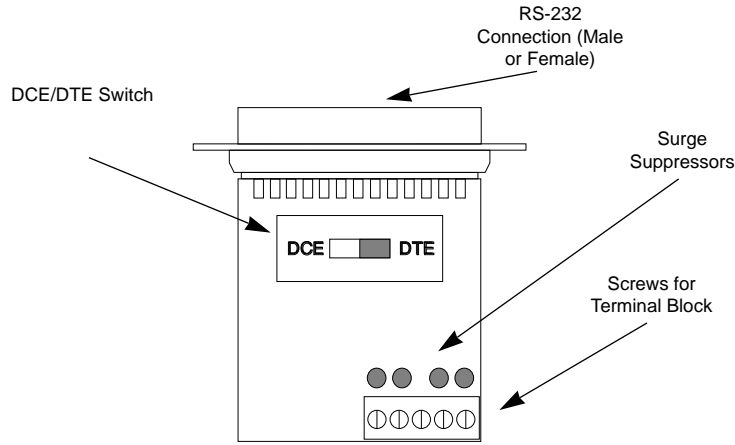


Figure 2. Components of Model 1000P

3.0 INSTALLATION

All versions of the Model 1000P plug directly into the back of a terminal or computer. This eliminates the need for an RS-232C data cable. No power is required from an external source because the unit is powered entirely by the terminal or computer's control and data signals.

The Model 1000P has an interface connection at each end: one for Data Terminal Equipment (DTE) or Data Communications Equipment (DCE), and one for the telephone line (twisted pairs). To install the unit, perform the following steps.

1. Connect the twisted pair cable (customer-supplied) to the 4-screw terminal block (Model 1000PM or 1000PF), RJ11 jack (Model 1000PMRJ11 or 1000PFRJ11), or RJ45 jack (Model 1000PMRJ45 or 1000PFRJ45). Refer to Figure 3 for the associated pin assignments. End-to-End connections should be matched as shown in Figure 6.
2. When the 1000P has been cabled connect the telephone interface cable to the telephone outlet.

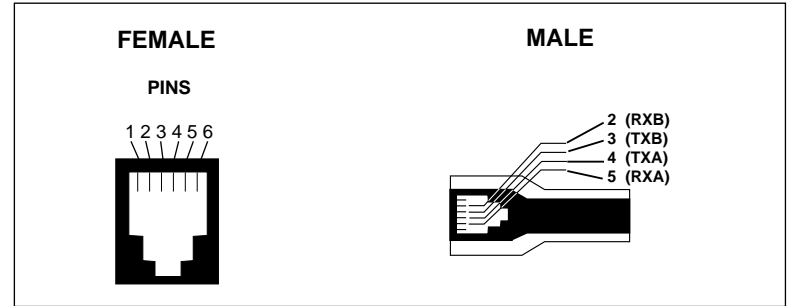


Figure 3. Pin Assignments for RJ11 Connectors

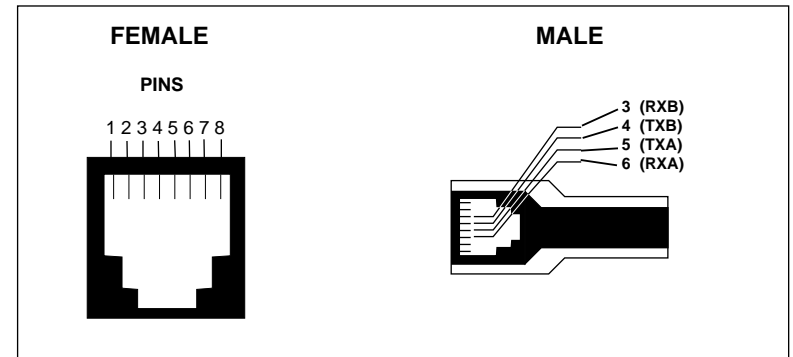


Figure 4. Pin Assignments for RJ45 Connectors

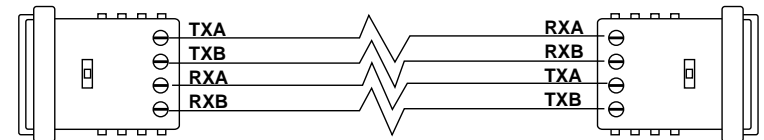


Figure 5. Four-Wire, Full-Duplex, Point-to-Point Link

3. If the unit is to be used as a DTE, set the externally accessible DCE/DTE switch to the DTE position. If the unit is to be used as a DCE, set the externally accessible switch to the DCE position. (If you are uncertain as to how your equipment operates, try each of the settings to see which one works in your application.)
4. Plug the unit's interface connector end into the RS-232C connector on the DTE or DCE, and tighten the connector mounting screws.

For examples of typical applications of the Model 1000P with DTE or DCE devices, refer to Figure 6, below.

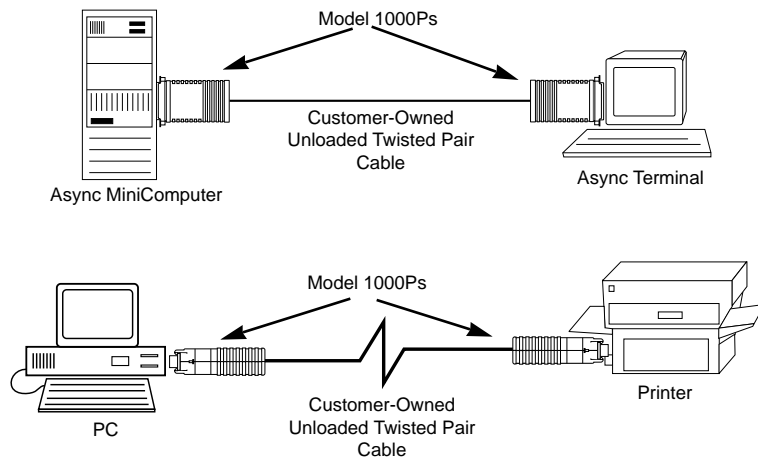


Figure 6. Typical Short Range Modem Applications