USER MANUAL

MODEL 1007 and 1007S
Mac Short Range Modem

PATTON Electronics Co.

Part# 07M1007-A
Doc# 082012UA
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1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 1007 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 1007 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 1007 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 from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the Model 1007 does cause interference to radio or television reception, which can be determined by disconnecting the modem, 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 1007. 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

- Connects directly to the Mac
- Distances up to 17 miles
- Data rates to 19,200 bps
- No AC power or batteries required
- RJ-11 and RJ-45 twisted pair connection
- Miniature size fits in tight locations
- Compatible with Patton Models 1000, 1009 and 1015
- Silicon Avalanche Diode surge protection (1007S only)
- Made in USA

2.2 DESCRIPTION

The Patton Model 1007 MacXtend I Short Range Modem allows a Macintosh to communicate with any serial printer, terminal server or PC clone at distances up to 17 miles over two unconditioned twisted pair. Supporting asynchronous data rates to 19.2 Kbps, the Model 1007 requires no AC power or batteries.

Measuring only 2.0" x 1.7" x .8", the Model 1007 is housed in an ABS plastic case. Connection to the Mac serial (phone) port is achieved using an 8-pin mini Din connector at the end of an integral 1 foot cable. Connection to the twisted pair interface is made through either a modular RJ-11 or an RJ-45 jack. The serial device at the other end of the twisted pair cable can be connected to the Model 1007 using a Patton Model 1000 (DB-25), 1009 (DB-9), 1015 (DB-15) or another Model 1007. The surge protected Model 1007S incorporates Silicon Avalanche Diodes, which provide 600 watts per wire of protection against harmful transient surges.

3.0 INSTALLATION

The Model 1007 is easy to install. This section tells you how to properly connect the Model 1007 to the twisted pair interface and Mac phone port, and how to operate the Model 1007.

3.1 CONNECTION TO THE TWISTED PAIR INTERFACE

The Model 1007 supports data-only communication between a Mac and another serial device. There are two requirements for installation:

1. These units work in pairs. You must have one Model 1007 (or a compatible model) at each end of the two twisted pair cable.

2. To function properly, the Model 1007's modular jacks must be connected to two twisted pairs of metallic wire. The pairs must be unconditioned, dry metallic wire, between 19 and 26 AWG (the higher number gauges may limit distance). Standard dial-up telephone circuits, or leased circuits that run through signal equalization equipment are not acceptable.

For your convenience, the Model 1007 is available with two different twisted pair interfaces: an RJ-11 jack or an RJ-45 jack.

3.1.1 TWISTED PAIR CONNECTION USING RJ-11 OR RJ-45

The Model 1007's RJ-11 and RJ-45 connectors on the twisted pair interface are pre-wired for a standard TELCO wiring environment (see Figure 1). The table on the following page describes the signal/pin relationships.
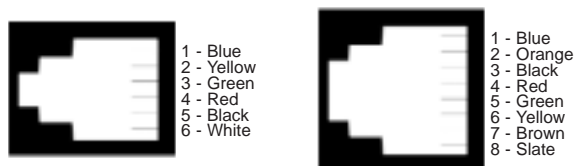

1 - Blue
2 - Yellow
3 - Green
4 - Red
5 - Black
6 - White

1 - Blue
2 - Orange
3 - Black
4 - Red
5 - Green
6 - Yellow
7 - Brown
8 - Slate

Figure 1. AT&T standard modular color codes

RJ-11	SIGNAL	RJ-45	SIGNAL
1	GND[†]	1	N/C
2	RCV-	2	GND[†]
3	XMT+	3	RCV-
4	XMT-	4	XMT+
5	RCV+	5	XMT-
6	GND[†]	6	RCV+
		7	GND[†]
		8	N/C

When connecting two Model 1007s, 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 1007s use a 4-wire RJ-11 connector. Similar logic should be followed when using an RJ-45 connector or a combination of the two.

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[†]

[†]Connection to ground is optional
[‡]Standard color codes—yours may be different

3.2 CONNECTION TO THE MAC PHONE PORT

The Model 1007 should be connected to your Mac through the 1 foot extension cable. Simply plug one end of the cable into the Model 1007 and the other end directly into the phone (serial) port of your Mac. The pin-outs are listed below.

Serial Port Pinout (RJ-45)
1 = N/C
2 = HSKi (Handshake In)
3 = HSKo (Handshake Out)
4 = Ground
5 = RD- (Receive Data -)
6 = TD- (Transmit Data -)
7 = N/C
8 = N/C

Mini Din 8 to RJ-45 Cable

Din 8	RJ-45	Signal
1 --------------3 --------------HSKo (Handshake Out)		
2 --------------2 --------------HSKi (Handshake In)		
3 --------------6 --------------TD (Transmit Data)		
4 --------------4 --------------Gnd (Ground)		
5 --------------5 --------------RD (Receive Data)		
6 --------------4 --------------TD+† (Transmit Data)		
7 ------------N/C-------------GPi		
8 ------------N/C-------------RD+ (Receive Data)		

†TD+ is connected to ground

3.3 OPERATING THE MODEL 1007

Once the Model 1007 is properly installed, it should operate transparently—as if it were a standard cable connection. Operating power is derived from the Mac's data and control signals; there is no "ON/OFF" switch.

SPECIFICATIONS

Transmission Format: Asynchronous

Data Rate: 0 to 19,200 bps

Surge Protection: 600W power dissipation at 1 mS and response time of 1.0 pS (Model 1007S only)

Distance: See below

Control Signal: The single Mac control line, Handshake In, turns on when the modem is connected

Distance: See table below

Transmit Line: 4 wire, unconditioned line (2 twisted pairs)

Transmit Mode: Full duplex, 4-wire

Transmit Level: 0 dBm

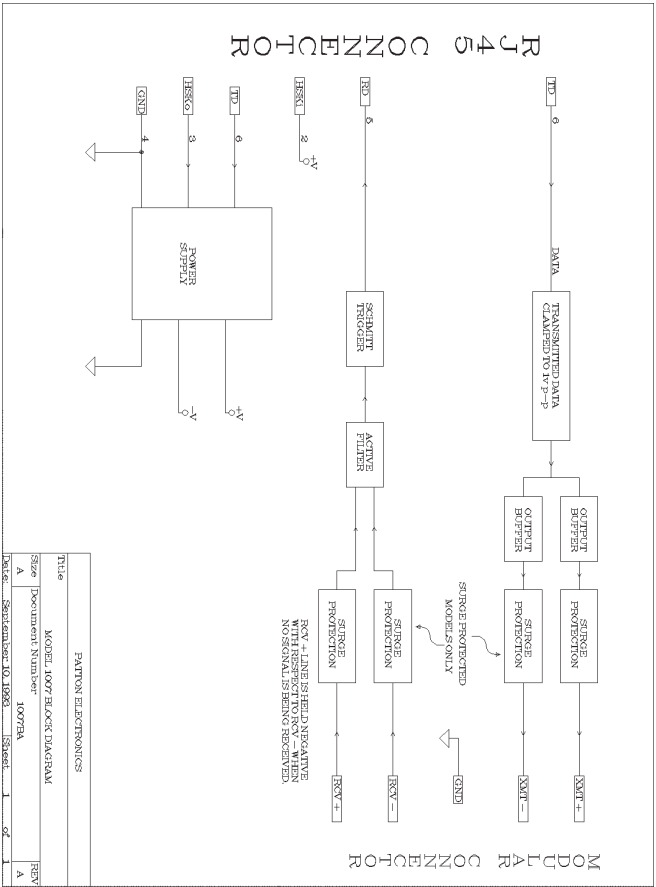**Line Connection:** RJ-11, RJ-45

Power Supply: None required, uses ultra low power from data and control signals

Size: 2.0" x 1.7" x 0.8"

Distance Table (miles)			
Data Rate	Wire Gauge		
	19	24	26
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

APPENDIX B
BLOCK DIAGRAM

RJ45 CONNECTOR

GND 4
HSK0 3
TD 6
HSK1 2 +V
RD 5
TD 6

POWER SUPPLY

SCHMITT TRIGGER

ACTIVE FILTER

TRANSMITTED DATA CLAMPED TO IV P-P

DATA

-V
+V

SURGE PROTECTION
SURGE PROTECTION

OUTPUT BUFFER
OUTPUT BUFFER

SURGE PROTECTION
SURGE PROTECTION

SURGE PROTECTED MODELS ONLY

RCV+ LINE IS HELD NEGATIVE WITH RESPECT TO RCV - WHEN NO SIGNAL IS BEING RECEIVED.

RCV+
RCV-
GND
XMT-
XMT+

MODULAR CONNECTOR

PATTON ELECTRONICS

Title	MODEL 1007 BLOCK DIAGRAM		
Size	Document Number		REV
A	100738A		A
Date:	September 10, 1998	Sheet 1 of 1	

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