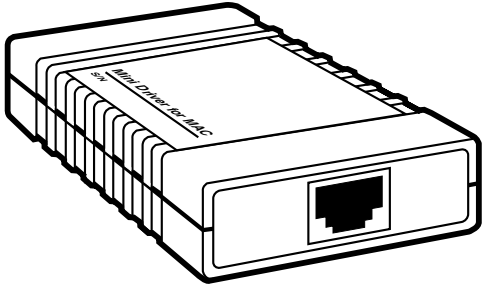
MAY 1994
ME785A

Mini Driver for Mac



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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 B 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 classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

TRADEMARKS USED IN THIS MANUAL

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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 connectado 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 fisica 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 lineas de energia.

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 objectos liquidos 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: Objectos 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

Protocol — Asynchronous

Speed — 300 to 19,200 bps

Distance —

Speed	Wire Gauge		
	19 AWG	24 AWG	26 AWG
19.200	2.5 mi (4.0 km)	1.8 mi (2.9 km)	1.2 mi (1.9 km)
9600	5.5 mi (8.9 km)	3.7 mi (6.0 km)	2.5 mi (4.0 km)
4800	7.5 mi (12.0 km)	5.0 mi (8.0 km)	3.0 mi (4.8 km)
2400	8.5 mi (13.7 km)	5.6 mi (9.0 km)	3.7 mi (6.0 km)
1200	9.0 mi (14.5 km)	6.2 mi (10.0 km)	4.3 mi (6.9 km)

Surge Protection (ME785A-SP) — High-speed surge protection and transformer isolation

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

Operation — 4-wire unconditioned line (2 twisted-pair wires), full duplex

Transmit Level — 0 dBm

Connectors — (1) mini 8-pin DIN; (1) S-screw terminal block

Line Connection — RJ-11, RJ-45

Power — No power required; uses ultra-low power from data and control signals

Size — 2."H x 1.7"W x 0.8"D (5.1 x 4.3 x 2.0 cm)

2. Description

The Mini Driver for Mac® gives you a long-distance link to printers, terminal servers, or any other RS-232 device. It includes a mini 8-pin DIN plug that plugs directly into the phone port of any Apple® Macintosh®.

The Driver boasts a range of up to nine miles (14.5 km) and supports speeds of up to 19.2 kbps over two unconditioned twisted-pair wires.

Requiring no power supply, the Driver features built-in transformer isolation that protects against ground-potential differences and AC/DC over-voltages. That makes it safe to link devices between buildings.

Measuring approximately two inches wide, the Mini Driver for Mac is housed in a sturdy ABS plastic case. It features either a modular RJ-11 or RJ-45 jack for easy connection.

The SP model incorporates Silicon Avalanche Diodes, which provide 600 watts per wire of protection against harmful transient surges.

Note: The Mini Driver for Mac must be used in pairs.

Features

- Connects directly to your Macintosh computer.
- Supports a range of up to nine miles (14.5 km).
- Supports speeds up to 19.2 kbps, full-duplex.
- No AC power or batteries required.
- Small size fits in tight locations.
- Includes RJ-11 and RJ-45 connectors.
- Compatible with Mini Driver 15 (ME770A).
- SP model features Silicon Avalanche Diode surge protection.
- Made in the U.S.A.

3. Installation

The Mini Driver for Mac is easy to install. This section tells you how to properly connect the Driver to the twisted-pair interface and Mac phone port—and how to operate the unit.

3.1 Connection to the Twisted-Pair Interface

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

1. These units work in pairs. You must have on Driver at each end of a 4-wire telephone cable.
2. To function properly, the Driver'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 (higher number gauges may limit distance). Do not use standard dial-up telephone circuits or leased circuits that run through signal-equalization equipment.

For your convenience, the Driver comes with two different twisted-pair interfaces—RJ-11 jack or RJ-45 jack.

3.2 Twisted-Pair Connection—RJ-11 or RJ-45

The Driver's RJ-11 and RJ-45 connectors on the twisted-pair interface are pre-wired for a standard AT&T® wiring environment (see Figure 1). The table that follows describes signal/pin relationships.

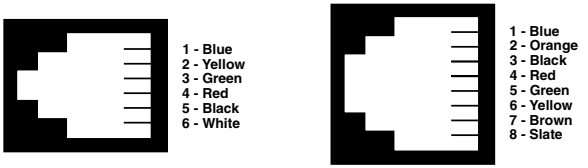

Figure 1. AT&T standard modular color codes.

RJ-11	Signal
1	GND*
2	RCV-
3	XMT+
4	XMT-
5	RCV+
6	GND*

RJ-45	Signal
1	N/C
2	GND*
3	RCV-
4	XMT+
5	XMT-
6	RCV+
7	GND*
8	N/C

When you connect two Mini Drivers for Mac, you must use a crossover cable. The diagram below shows how you should construct a crossover cable for an environment where both Drivers use 4-wire RJ-11 connectors. Use a similar method when you use an RJ-45 connector or a combination of both RJ-11 and RJ-45.

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.**

**** These are standard color codes. Your colors may be different.**

3.3 Connection to the Mac Phone Port

Connect the Driver to your Mac with the 1-foot (30-cm) extension cable that is included with your shipment. Simply plug one end of the cable into the Driver and the other end directly into the phone (serial) port of your Mac.

3.4 Operating the Driver

Once you've installed the Driver, it should operate transparently—as if it were a standard cable connection. Operating power comes from the Macintosh computer's data and control signals. There is no ON/OFF switch.

Appendix

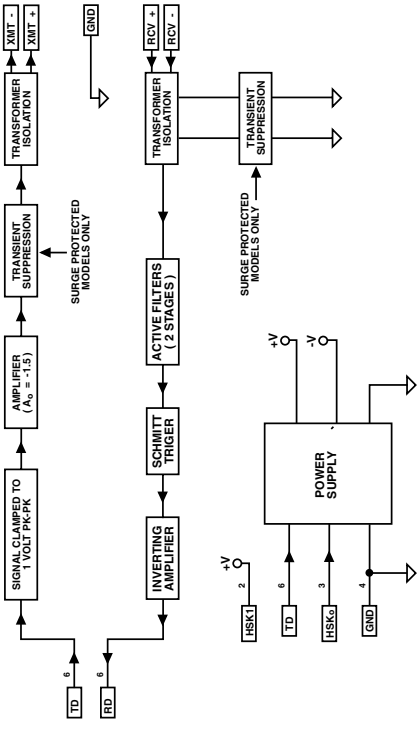

Fig. A-1. This block diagram shows the internal functions of the Mini Driver for Mac.

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