

Microdriver 9 • Short-Haul Modem-B • High-Speed Short-Haul Modem-B • Multipoint Line Driver

Send your async data up to
several miles from your computer
equipment—without the expense
of a modem.



FEATURES

- » Send async data across short and medium-range distances.
- » Use existing in-house twisted-pair wiring to transmit data.
- » Choose from a variety of data rates—as high as 115.2 kbps with the high-speed SHM-B.
- » Some models also available as cards for rackmounting.
- » Microdriver 9 can be ordered with surge protection.
- » Choose the nonpowered Microdriver 9 for simple installation.
- » Models for multipoint applications available.

OVERVIEW

If you want to transmit data from your computing equipment further than the 50-foot (15.2-m) RS-232 limit but don't need a modem (which can transmit data worldwide), then order a [Microdriver 9](#), [Short-Haul Modem-B](#), [High-Speed Short-Haul Modem-B](#), or [RS-232/RS-485 Multipoint Line Driver](#).

These compact, easy-to-install data communication devices can exchange data within a building or across town. Or send data at higher data rates for shorter distances. For details and distance/speed specifications for specific models, see the following pages.

What should you consider when choosing the model that's right for your application? First, determine whether you need a nonpowered or powered device.

The nonpowered models plug into the connector at the communications port of your DTE and derive their power from the port's interface (RS-232/ITU V.24) via one or more of the connector's pins. All [Microdriver 9](#) models are powered this way.

Before choosing a specific nonpowered device, you need to confirm that your computing equipment has the pins needed to run the device. Then determine the gender of your computer's comm port connector and select a model with the proper connector gender.

Choose a powered device if your computer can't support nonpowered units and/or if you prefer to rackmount equipment. Our [Short-Haul Modem-B](#), [High-Speed Short-Haul Modem-B](#), and [RS-232/RS-485 Multipoint Line Drivers](#) are all powered, requiring standard AC current to operate. They're available in standalone models, and some are also available as rackmount cards. When choosing your model, consider your available installation space, the total units needed, and your existing equipment.

Next, determine if your system or software support is sending data in a point-to-point or multipoint installation. Except for the [RS-232/RS-485 Multipoint Line Driver](#), all models featured here are designed to work point-to-point.

If you have a point-to-point network, you'll need a device that matches the type of wiring in your installation, whether it's in-house wiring for on-site applications or a 4-wire twisted-pair Local Area Data Circuit (LADC) leased from your phone company to send data off-site. In-house wiring will be either 2- or 4-wire twisted-pair cable that exists in your building or that you will install.

Lastly, determine the speed you want your data to travel, reviewing your computer's limitations to see if it supports high speeds, and the distance it must travel. You'll also need to consider how much room for error you can tolerate in data exchanges, what wire gauge(s) will be used, and how many splices will exist in the wire.

Microdriver 9

- Nonpowered, point-to-point, 4-wire or 5-screw terminal block.
- Saves space—plugs into your PC's DB9 serial port.
- Sends data up to 17 miles (27.4 km) at 1200 bps using 24 AWG wire.
- Models are available with RJ-11, RJ-45, or 5-screw terminal block connectors.

This compact short-range, asynchronous, point-to-point, full-duplex line driver plugs directly into your computer or terminal port, and all power is drawn from the RS-232 interface.

It's perfect for installations where there's no room to spare. Surface-mount technology makes the [Microdriver 9](#)'s small size possible.

Used in pairs, the [Microdriver 9](#) enables two asynchronous RS-232 devices with DB9 connectors to communicate at distances up to 17 miles (27.4 km) at 1200 bps over 24 AWG wiring.

Models available include:

- The [Microdriver 9 RJ-11](#) (ME790A-M, ME790A-F, ME792A-MSP, ME792A-FSP) has a female RJ-11 connector to connect to the twisted-pair lines and a male or female DB9 connector to connect to your computer port. Surge-protected (SP) versions feature 600-watt power dissipation at 1 ms and a response time of 1.0 picoseconds.
- The [Microdriver 9 RJ-45](#) (ME794A-M, ME1794A-F) has a female RJ-45 to connect to the twisted-pair lines and a male or female DB9 connector to connect to your computer port.
- The [Microdriver 9 5-Screw Terminal Block](#) (ME775A-FSP) has a 5-screw terminal to connect to the twisted-pair lines and a female DB9 connector to connect to your computer port.

Short-Haul Modem-B 2W-A (SHM-B 2W-A)

- Powered, point-to-point, 2-wire.
- A pair of these line drivers enables two RS-232 devices to communicate at distances up to 2.3 miles (3.7 km) at 2400 bps over 24 or 26 AWG.
- Fully supports hardware handshaking, so you get reliable performance during every data exchange.
- Two status LEDs monitor transmit and receive lines.
- Loopback circuitry helps you detect line faults via a front-panel button.

The SHM-B 2W-A is an asynchronous, full-duplex line driver and receiver that requires only two wires to transmit data.

A pair of of these SHMs enables two RS-232 devices to communicate at distances of up to 2.3 miles (3.7 km) and at bit rates of up to 19.2 kbps, while fully supporting hardware handshaking.

A typical application using the High-Speed SHM-B Async, a powered driver that's ideal for sending async data point-to-point at speeds up to 115.2 kbps.



The SHM-B 2W-A operates over a two-wire metallic circuit. Optimum performance is obtained with 22 to 26 AWG twisted-pair telephone cable, but you can use nearly any twisted-pair cable with little or no performance degradation.

In addition to the transmitter and receiver circuits, the modem includes RS-232 control-line interfaces, status monitor LEDs, and a loopback switch.

A powered device, the SHM-B 2W-A is available in standalone 115-VAC (ME755A) or 230-VAC (ME755AE) versions and as a card version (ME755-C) for mounting in our 8- or 16-Card Short-Haul Modem-B Racks (RM007, ME810).

Short-Haul Modem-B (SHM-B) Async

- Ideal for most any point-to-point, 4-wire, full-duplex application.
- Equipped with a balanced loop interface and optical isolation circuitry, providing protection from differences in ground potential between areas.
- Local analog loopback circuitry enables you to check the operation of both your local and remote units.
- Distances up to 4 miles (6.4 km) at 2400 bps over 24 AWG wire.
- Speeds up to 19.2 kbps.
- Standalone and card versions.

The SHM-B Async is an asynchronous, full-duplex, 4-wire line driver/receiver that, when paired with another SHM-B Async, enables two EIA-232 devices to communicate at distances of up to 4 miles (at 2400 bps) over 24 AWG wire and at data speeds of up to 19.2 kbps.

In addition to the transmitter and receiver circuits, the SHM-B Async includes EIA-232 control line interfaces, status monitor LEDs, and a loopback switch.

The SHM-B Async is available in three versions:

- As a standalone 115-VAC model with cables included (ME800A-R3).
- As a standalone 230-VAC model with cables included (ME800AE-CABPAK).
- As a rackmount card version with cables included (ME805C-R3).

The SHM-B is designed to operate over a 4-wire metallic circuit. You can use twisted-pair cable, often with little or no performance degradation.

It's also designed for maximum operator safety—there are no voltages greater than 12 VDC or 16 VAC present on the circuit board of the unit. Receive lines are protected from potential ground differences through optical isolators rated at 1500 volts.

High-Speed Short-Haul Modem-B (SHM-B) Async

- Powered, point-to-point, 4-wire.
- Speeds up to 115.2 kbps.
- Ideal for applications where data speed is crucial.
- Uses two unshielded twisted pairs.
- Includes optical isolation to protect against surge damage.
- Switch-selectable for DTE or DCE equipment.
- Available in both standalone and rackmount card versions.

With a pair of High-Speed SHM-B Async units, two RS-232 devices can communicate at speeds of up to 115.2 kbps!

Data travels at this rate when the SHMs are configured for 1.5-mile (2.4-km) distances. To get the greatest distance—up to 4 miles (6.4 km) over 24 AWG wiring—set them to operate at 2400-bps speeds.

Along with transmitter and receiver circuits, the High-Speed SHM-B Async includes EIA-232 control-line interfaces, status monitor LEDs, and a loopback switch. The High-Speed SHM-B Async is available in both standalone versions (ME802A or ME802A-R3) and a rackmount card version (ME802C).

Use these SHMs with 4-wire metallic circuits, with twisted-pair cable offering the best performance. And although you can use most types of twisted-pair cable, to achieve maximum performance, we recommend that you use CAT5 or higher UTP cable.

Because there are no voltages greater than ± 9 VDC or 17 VAC present on the circuit board of the High-Speed SHM-B Async, it offers maximum operator safety. Receive lines are protected from potential ground differences through optical isolators rated at 2500 volts.

Plus, the SHM offers easy installation. Because it's switch-selectable for either DTE or DCE equipment, you don't need any special cross-pinned cables; it works with the modular RJ cable that's already installed in your building.

RS-232/RS-485 Multipoint Line Driver (LD485A-MP)

- Powered, point-to-point or multipoint, 2- or 4-wire.
- Provides high-speed service (64 kbps) for large multipoint installations (up to 64 drops).
- Works with any DTE that can be polled, regardless of the DTE's RTS support.
- User-selectable port-timeout feature automatically disables a port once it finishes transmission.
- Operates in 2-wire half-duplex or 4-wire full-duplex mode.
- Maximum distances of 4 miles (6.4 km) at 1200 bps over 24 AWG wire.

Here's the ideal line driver for multipoint installations where you want to link many terminals—each with its own line driver—to a computer via one master line driver. Use it, for instance, in high-speed and polling applications. Depending on the operating environment, as many as 64 devices can be linked together using twisted-pair cable.

You can also use the RS-232/RS-485 [Multipoint Line Driver](#) in point-to-point installations until you upgrade to a multipoint environment.

And it operates as an RS-232 to RS-485 interface converter, enabling an RS-232 device to transmit data over much longer distances than is normally possible (up to 4 miles at 1200 bps). Although it's designed specifically to connect to other RS-232/RS-485 [Multipoint Line Drivers](#), you can connect the RS-485 port to any device with an RS-422 or RS-485 interface. For instance, you can connect RS-485 and RS-422 devices to the same LD485A-MP in an industrial application.

The line driver also features a manual loopback test, so you can check the system wiring for both the RS-232 and RS-485 interfaces. In addition, transient protection on the RS-485 interface helps prevent damage from voltage transients on the data line.

Special circuitry within the driver enables it to work with any DTE that can be polled, regardless of the DTE's RTS support, so you get total compatibility with your DTE hardware.

The RS-232/RS-485 [Multipoint Line Driver](#) can be jumpered for a user-selectable port timeout. After the last character is sent from one of the ports and a specified period of time passes, the line driver disables any transmission from that port. This way, a single port won't monopolize your network.

The RS-232/RS-485 [Multipoint Line Driver](#) is available in a standalone 115-VAC version (ME836A-R5) only.

All Models:
Protocol: Asynchronous

Microdriver 9

(ME790A-M, ME790A-F, ME792A-MSP, ME792A-FSP,
ME794A-M, ME1794A-F, ME775A-FSP)

Distance (Maximum) — 24 AWG: 17 mi. (27.4 km) at 1200 bps

Operation — 4-wire full-duplex, point-to-point

Speed (Maximum) — 19.2 kbps

Interface — RS-232

Connectors —

ME790A-M, ME792A-MSP: (1) DB9 M, (1) RJ-11 F;

ME790A-F, ME792A-FSP: (1) DB9 F, (1) RJ-11 F;

ME794A-M: (1) DB9 M, (1) RJ-45 F;

ME1794A-F: (1) DB9 F, (1) RJ-45 F;

ME775A-FSP: (1) DB9 F, (1) 5-screw terminal block

Power — From the RS-232 interface

Size — 1.2"H x 0.75"W x 2.5"D (3 x 1.9 x 6.4 cm)

Weight — 0.6 lb. (0.3 kg)

SHM-B 2W-A

(ME755A, ME755AE, ME755-C)

Distance (Maximum) — 24 AWG: 2.3 mi. (3.7 km) at 2400 bps

Operation — 2-wire full-duplex, point-to-point

Speed (Maximum) — 19.2 kbps

Interface — RS-232

Connectors — (1) DB25 F, (1) 2-screw terminal block

Power —

ME755A: External 115 VAC, 60 Hz;

ME755AE: External 230 VAC, 50 Hz;

ME755-C: From the ME810 or RM007 rack

Size — Standalone: 1.5"H x 4.3"W x 4.5"D (3.8 x 10.9 x 11.4 cm)

Weight — Standalone: 1.3 lb. (0.6 kg)

TECH SPECS

SHM-B Async

(ME800A-R3, ME800AE-CABPAK, ME805C-R3)

Distance (Maximum) — 24 AWG: 4 mi. (6.4 km) at 2400 bps

Operation — 4-wire full-duplex, point-to-point

Speed (Maximum) — 19.2 kbps

Interface — RS-232

Connectors — (1) DB25 F, (1) 4-screw terminal block

Power — ME800A-R3: External 115 VAC, 60 Hz \pm 10%, 5 watts;

ME800AE-CABPAK: Primary: 230 VAC \pm 10%, 50–60 Hz;

Secondary: 17 VAC, 700 mA;

ME805C-R3: From the ME810 or RM007 rack

Size — Standalone: 1.5"H x 4.3"W x 4.5"D (3.8 x 10.9 x 11.4 cm)

Weight — Standalone: 1.3 lb. (0.6 kg)

High-Speed SHM-B Async (ME802A, ME802A-R3, ME802C)

Distance (Maximum) — 24 AWG: 4 mi. (6.4 km) at 2400 bps

Operation — 4-wire full-duplex, point-to-point

Speed (Maximum) — 115.2 kbps

Interface — RS-232

Connectors — (1) DB25 F, (1) 4-screw terminal block

Power — ME802A, ME802A-R3: External 115 VAC, 60 Hz;

ME802C: From the ME810 or RM007 rack

Size — Standalone: 1.5"H x 4.4"W x 4.1"D (3.8 x 11.2 x 10.4 cm)

Weight — Standalone: 2 lb. (0.9 kg)

RS-232/RS-485 Multipoint Line Driver (ME836A-R5)

Distance (Maximum) — 24 AWG: 4 mi. (6.4 km) at 1200 bps

Operation — 4-wire full-duplex, 2-wire half-duplex, point-to-point or multipoint

Speed (Maximum) — 64 kbps

Interface — RS-232 or RS-485

Connectors — (1) DB25 F, (1) 4-screw terminal block (RS-485)

Power — ME836A-R5: External 115 VAC, 60 Hz;

ME836AE-R3: External 230 VAC, 50 Hz;

ME836C-R5: From the RM005 rack

Size — Standalone: 1.8"H x 5.5"W x 8.5"D (4.6 x 14 x 21.6 cm)

Weight — Standalone: 1.8 lb. (0.8 kg)



Quick Reference Guide

Item	Powered/ Nonpowered	Multipoint	2-wire	4-wire or 5-wire*	Full duplex	Half- duplex	To 19.2 kbps	To 64 kbps	To 115.2 kbps	Power
ME790A-M, 790A-F	Nonpowered									RS-232 interface, DCE mode: Pins 3, 4, 7
ME792A-MSP, 792A-FSP	Nonpowered									RS-232 interface, DCE mode: Pins 3, 4, 7
ME794A-M, 1794A-F	Nonpowered									RS-232 interface, DCE mode: Pins 3, 4, 7
ME775A-FSP	Nonpowered									RS-232 interface: 5-screw terminal block
ME755A	Powered									115 VAC, 60 Hz
ME755AE	Powered									230 VAC, 50 Hz
ME755-C	Powered									From the ME810 or RM007 rack
ME800A-R3	Powered									115 VAC, 60 Hz
ME800AE-CABPAK	Powered									230 VAC, 50 Hz
ME805C-R3	Powered									From the ME810 or RM007 rack
ME802A, 802A-R3	Powered									115 VAC, 60 Hz
ME802C	Powered									From the ME810 or RM007 rack
ME836A-R5	Powered									115 VAC, 60 Hz
ME836C-R5	Powered									From the RM005 rack

*Models with 5-wire terminal blocks use one wire for ground.

Item	Code	Item	Code
Microdriver 9 RJ-11		High-Speed Short-Haul Modem-B (SHM-B) Async	
Male	ME790A-M	Standalone (115-VAC)	ME802A
Female	ME790A-F	Standalone (115-VAC) with Cables	ME802A-R3
Microdriver 9 RJ-11 with Surge Protection		Rackmount Card	ME802C
Male	ME792A-MSP	◆ ME802A, ME802A-R3, and ME802C include [1] power supply, [1] 6-foot RS-232 DB25 male/DB9 female cable, and [1] DB9 female/DB9 male adapter.	
Female	ME792A-FSP		
Microdriver 9 RJ-45		For all card versions above, you'll need a rack...	
Male	ME794A-M	Short Haul Modem-B Rack (16-Card)	ME810
Female	ME1794A-F	Short Haul Modem-B Desktop Rack (8-Card)	RM007
Microdriver 9 5-Screw Terminal Block		RS-232/RS-485 Multipoint Line Driver (LD485A-MP)	
Female	ME775A-FSP	Standalone (115-VAC) with Cables	ME836A-R5
Short-Haul Modem-B (SHM-B) 2W-A		◆ ME836A-R5 includes [1] 6-foot RS-232 DB25 male to DB25 female cable and [1] DB9 female to DB25 male adapter.	
Standalone (115-VAC)	ME755A		
Standalone (230-VAC)	ME755AE		
Rackmount Card	ME755-C		
Short-Haul Modem-B (SHM-B) Async			
Standalone with Cables			
115-VAC	ME800A-R3		
230-VAC	ME800AE-CABPAK		
Rackmount Card with Cables			
115-VAC	ME805C-R3		
◆ ME809A-R3, ME800AE-CABPAK, and ME805C-R3 include [1] power supply, [1] 6-foot RS-232 DB25 male/DB9 female cable, and [1] DB9 female/DB9 male adapter.			