

MINDSET

RS-232-C Module With Power Option Operation Guide

Personal
Computer
System

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Section 1

Introduction

The Mindset™ RS-232-C Module With Power Option enables you to link your Mindset Personal Computer to any RS-232-C serial-communications device for a variety of applications.

The RS-232-C Module With Power Option is a single-width input/output (I/O) module that you insert into the System Unit or Expansion Unit. It contains the necessary timing, control, and interface logic to link your Mindset Personal Computer to standard RS-232-C serial-communications devices such as printers, plotters, and other computers. With its power option, the module can also support peripheral devices designed to be powered directly from your Mindset Personal Computer. A switch on the module allows you to turn the power option on and off.

This Operation Guide instructs you on the applications and use of the Mindset RS-232-C Module With Power Option. For convenience, place this guide under the OPTIONS tab of your Mindset Personal Computer System Operation Guide.

What Is Serial Communications?

Devices that can send or receive information are classified as either serial or parallel depending on how they exchange coded information with your computer.

In serial communications, the computer sends and receives characters one bit at a time. A character is usually 9 or 10 bits long in the serial format. Serial communication is ideal for use over a telephone system because it requires only one wire.

In parallel communications, the computer sends and receives all the bits of a character simultaneously. Parallel communications can be faster than serial communications, but requires more wires and therefore cannot be used with a telephone system. Another Mindset module, the Printer Interface Module, is designed for parallel communications.

How to Use this Guide

Including this introduction, this Operation Guide consists of four sections and an appendix.

Section 2, "Applications," lists the ways you can use the RS-232-C Module With Power Option to expand your system.

Section 3, "Installation," refers you to the proper procedures for installing and removing the RS-232-C Module With Power Option. This section also includes instructions for attaching a serial device cable.

Section 4, "Solving Problems," gives you information to help you diagnose problems which may occur during operation.

The appendix includes physical, electrical, and data communications specifications as well as the serial I/O connector table.

Other Mindset Guides

Your Mindset Personal Computer comes with an operation guide to acquaint you with your system and its operation. For your reference, the guide includes a glossary of useful computer terminology.

Your Mindset Personal Computer can be linked to more than one external device at a time. In addition to the RS-232-C Module With Power Option, Mindset offers a number of options for expanding your system. Each option comes with its own operation guide to show you how to use that option with your Mindset Personal Computer.

Section 2

Applications

The RS-232-C Module With Power Option links your Mindset Personal Computer to devices that use the RS-232-C serial interface standard.

Linking to Printers

Printers receive coded information from your computer and express the information as characters on paper. You then have a “hard copy” of information contained in your computer.

Printers can have either a serial or parallel interface. The Mindset RS-232-C Module With Power Option provides a serial interface that meets the Electronics Industry of America (EIA) RS-232-C interface specifications. (To link your system to a parallel printer, see the operation guide included with the Mindset Printer Interface Module.)

A serial device cable connects the RS-232-C Module With Power Option to a printer with an RS-232-C serial interface. Your dealer can help you choose the correct printer and device cable for your needs.

Linking to Plotters

A plotter is a device that uses one or more pens to draw graphic images on paper. Sometimes called an X-Y plotter, this unit can draw continuous lines as well as alphanumeric characters.

Some programs that produce graphic displays can use a plotter to create hard-copy graphic output. You can use the Mindset RS-232-C Module With Power Option to attach a plotter with a serial interface to your system.

Plotters that use an RS-232-C interface receive information in character form just like a printer, but they interpret the characters as commands for drawing lines. The program you select to operate a plotter must be designed for your plotter. Also, you need a serial device cable to connect the RS-232-C Module With Power Option to the plotter.

Consult your dealer for the right plotter, software, and device cable for your needs.

Linking to Other Computers

The RS-232-C Module With Power Option enables you to link your Mindset Personal Computer to other computers. You can then transfer and receive information from other sources.

If two computers are in the same room, you can connect them directly together using the RS-232-C Module With Power Option and an RS-232-C device cable. If the computers are more than 25 feet apart, you need a separate device called a modem. You can also use a Mindset Modem Module.

A modem takes the signals from your computer and converts them into tones that can be transferred over telephone lines. A modem at the other end of the phone line converts these tones back to signals understood by the receiving computer.

The Mindset Modem Modules combine the functions of the RS-232-C interface and an external modem. In addition, Mindset offers telecommunications software that provides many convenient features.

Linking to Computer-Powered Peripherals

The RS-232-C Module With Power Option supports peripheral devices, such as the Mindset Graphics Tablet, designed to be powered directly from your computer system. The Mindset Graphics Tablet simulates a drawing pad and pencil when used in conjunction with specific software. The images created on the pad appear on your display device.

Section 3

Installation

Modules are easy to insert and remove. Refer to Section 6, "Enhancing Your System," in the Mindset Personal Computer System Operation Guide for these simple installation instructions.

Power Switch Position

Before you install the RS-232-C Module, you must set the power switch to the appropriate position. Once the module is installed, the power switch is inaccessible. The power switch should be in the ON position only when the module is to be used with a peripheral device designed to be powered directly from your computer. Otherwise, the switch should be set to OFF. If the power switch is ON when it shouldn't be, your computer may turn itself off immediately upon power-up, indicating a short-circuit condition. If this occurs, turn off your computer and remove the module from the I/O port. Then place the power switch in the OFF position, reinstall the module, and proceed.

Attaching the Serial Device Cable

To attach a cable from a serial device, follow these three steps:

1. Attach the D-shaped connector of the device cable to the connector on the rear of the RS-232-C Module With Power Option (see Figure 3-1).

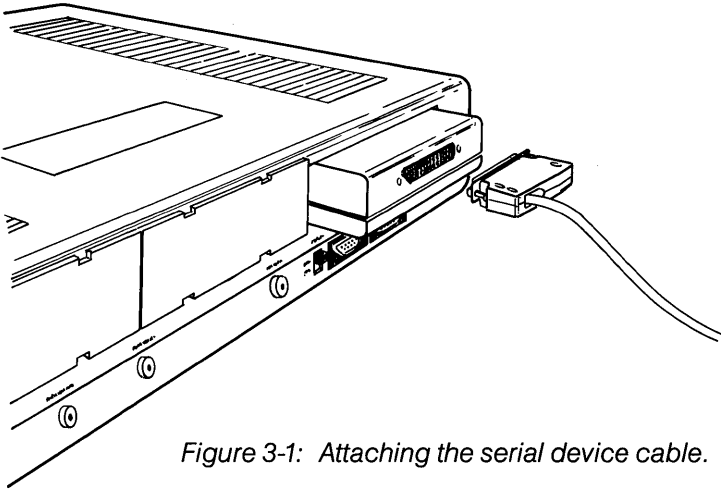


Figure 3-1: Attaching the serial device cable.

2. Attach the other end of the device cable to the printer, plotter, modem, or other serial-interface device.
3. Turn on the system.

Note: Your dealer can supply you with the proper cable for the serial device that you choose.

Attaching Both a Serial and a Parallel Printer

When you insert the Mindset Printer Interface Module to connect a parallel printer, place it in a module port with a lower number than the port you use for the RS-232-C Module With Power Option. The ports are numbered from left to right on the back of the System Unit and Expansion Unit. (See the operation guide included with your Printer Interface Module for a description of the module).

Note: The PRT SCN key normally sends the screen information to the Printer Interface Module in the lowest-numbered port. However, if you have an Expansion Unit and MS™-DOS as part of your system, you can use the MS-DOS MODE command to reassign the output to the port for the RS-232-C Module With Power Option. Then you can use the PRT SCN key to print the contents of the screen on the serial printer.

Section 4

Solving Problems

You can perform the following troubleshooting procedures when information won't transmit through the RS-232-C Module With Power Option. The operation guide supplied with your printer, plotter, modem, or other peripheral device should also include troubleshooting techniques. If you still have problems after trying all these procedures, contact your dealer for assistance.

1. Make sure that the module power switch is in the appropriate position.
2. Check that the RS-232-C Module With Power Option is pushed all the way into the module port.
3. Ensure that the cable connecting the RS-232-C Module With Power Option to the printer or plotter is a serial device cable.
4. Make sure that the serial device cable connections are secure.
5. Check that the system is on and that the System Unit is plugged into a working power outlet.
6. Make sure that the printer or plotter is turned on and plugged into a working power outlet.

Note: Do not plug the printer or plotter into a switched outlet. A switched outlet could be inadvertently turned off.

7. Ensure that you have set the correct communications parameters, if necessary, for the peripheral device and software that you're using.
8. If you have both a serial and a parallel printer connected to your

system (the first through an RS-232-C Module With Power Option and the second through a Printer Interface Module), check that the RS-232-C Module With Power Option is in an I/O port with a higher number than the Printer Interface Module (the ports are numbered from left to right on the back of the System Unit and Expansion Unit).

Appendix

Specifications

Physical Characteristics

Width	4.1 inches
Length	3.1 inches
Height	1.1 inches
Weight	Approximately 4.0 ounces

Electrical Specifications

Output signal levels	± 12 volts DC
Power to peripherals	± 12 volts DC, 0.1 amps + 5 volts DC, 0.4 amps

Data Communications

Data format	Asynchronous serial communications
Modem-control operation	Full duplex, double-buffered transmitter, automatic break detection and handling
Error detection	Parity, overrun, and framing
Data transmission speed	50 to 9600 bits per second

Connector Table

The following table identifies the pin assignments on the serial I/O connector.

Pin	Signal
1	Protective ground
2	Transmitted data (data output)
3	Received data (data input)
4	Request to send (RTS) (output)
5	Clear to send (CTS) (input)
6	Data set ready (DSR) (input)
7	Signal ground (tied to chassis at printer)
8	Carrier detect (CDET) (input)
9	Optional power to peripheral (+ 12 volts DC) (output)
10	Optional power to peripheral (+ 5 volts DC) (output)
18	Optional power to peripheral (- 12 volts DC) (output)
20	Data terminal ready (DTR) (output)
22	Ring indicator (RI) (input)