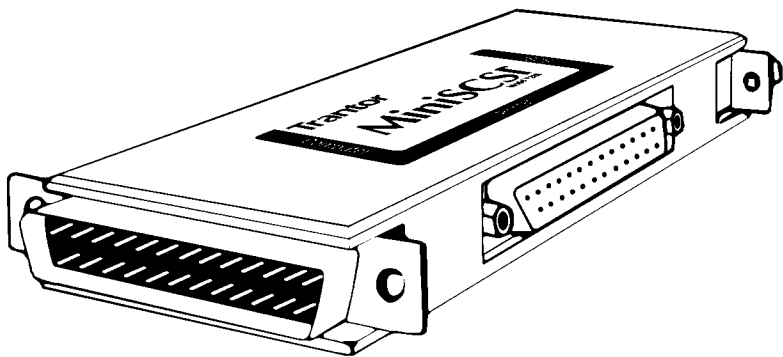


T338 MiniSCSI™ Parallel-to-SCSI Adapter



Hardware Installation Guide

NOTE

If you're like many users, you'll want to get started using your new equipment as soon as possible. But, before you attempt to install and use your **MiniSCSI**, please read this guide. It will save you time in the long run, and make you aware of many options you might otherwise miss. Remember, you can always change your system configuration at a later time.

For technical support of this product, please see your dealer first for assistance, as he/she is most likely to understand your specific needs and equipment setup. To be eligible for any Trantor factory technical support which may be necessary, your Product Registration Card **must** be on file with us.

Please fill out and mail in your Product Registration Card within 10 days of purchase!

1.0 Introduction

This guide describes installation and operation of the Trantor™ T338 **MiniSCSI** adapter (hereafter referred to as **MiniSCSI**) for IBM®-compatible computer systems.

Your **MiniSCSI** has been designed to provide simple, flexible control of most SCSI hard disks, removable-cartridge disks, magneto-optical drives, SCSI-interfaced Bernoulli® and SyQuest® drives, CD-ROMs and HP® scanners. Some of the important features include:

- Simple installation; just plug it into your parallel printer port.
- Both SCSI and parallel port connectors included, for simultaneous operation of both interfaces.
- Standardized SCSI interface connector, compatible with the Apple® Macintosh® SCSI interface, permitting the use of almost any SCSI-compatible device.
- Small size and light weight, for pocket-sized portability.
- No battery or external power supply needed; the **MiniSCSI** is powered by the SCSI device chain.
- Support for virtually any PC/XT/AT®, 80386, 80486, Micro Channel® or notebook computer with a standard parallel printer port.

1.1 Hardware Requirements

The **MiniSCSI** is designed to be as universally usable as possible, but there are three primary hardware compatibility requirements:

- The parallel port must be "standard," i.e. have a fully IBM-compatible hardware design, including all ground lines.
- The SCSI device(s) connected to the **MiniSCSI** must have the standard ANSI SCSI-specification TERMPower implemented, as the **MiniSCSI** draws its power from this line.
- The SCSI device chain must be properly terminated as per ANSI SCSI specifications.

1.2 Checklist

You should have received the following items in your **MiniSCSI** package:

- MiniSCSI** adapter
- 3½-inch, 1.44-MB software distribution diskette
- 3½-inch, 720-KB Tape Mate II distribution diskette
- Hardware Install Guide* (this document)
- Software User Guide*
- Product Registration card
- Microsoft Registration card (for MSCDEX)

If anything is missing, contact your dealer immediately. Be sure to fill out and return your Product Registration card to be eligible for warranty support and technical assistance.

2.0 Hardware Installation

Hardware installation involves plugging the **MiniSCSI** into a parallel printer port and connecting it to the applicable SCSI device(s). Please see *Section 3.0* for troubleshooting assistance.

WARNING

Your **MiniSCSI** is powered via the SCSI device(s) connected to it. For this reason, you should **always** connect and disconnect the **MiniSCSI** with your computer, printer and all SCSI devices turned **off**, to protect against damage to any components.

Be careful to avoid connecting the SCSI cable directly to one of the parallel printer ports on the back of the computer, or to the parallel printer port on the **MiniSCSI**. These use the same type of connector, and are easily confused. Conversely, never plug a parallel printer (or other parallel device) into the SCSI port of your **MiniSCSI**. Incorrect connections may damage your computer or the device(s)!

In addition, if you disconnect your SCSI device(s) from the **MiniSCSI** while in use, this will cause the **MiniSCSI** to lose power, and thus it will not recognize the SCSI device(s) when reconnected. A reboot of your computer will be necessary in this case.

1. Connect the "Computer" connector on the **MiniSCSI** to a parallel printer port on your computer. You may use any of the standard LPT1, LPT2 or LPT3 port types—the software included with the **MiniSCSI** will automatically detect which port is in use. The "Computer," "Printer" and "SCSI" connectors are labeled on both sides of the **MiniSCSI**.

Note: if your current parallel printer port has a copy-protection device (commonly known as a "dongle") or other non-printer product connected to it, you should remove the device from your printer port and connect it to the "Printer" connector on the **MiniSCSI**. If this arrangement causes any problems, either the "dongle" or the **MiniSCSI** will have to be relocated to a different parallel port.

2. Connect one end of your external SCSI interface cable (typically, an Apple-type SCSI cable will work, if your SCSI device has a standard external SCSI connector) to the 25-pin SCSI connector labeled "SCSI" at the rear of the **MiniSCSI**. Connect the other end of the cable to the SCSI connector on the first SCSI device. Up to seven SCSI devices may be daisy-chained to the first device; see your dealer for details if you are not familiar with multiple-device connections.

The SCSI device(s) connected to the **MiniSCSI** provides power to the **MiniSCSI**, and thus must be equipped with the standard TERMPOWER output (which is part of the SCSI connector interface specification). See your SCSI device manual or dealer to confirm that this is the case. Your **MiniSCSI** will **not** operate without a TERMPOWER connection.

The last (or only) SCSI device connected to the **MiniSCSI** must be properly "terminated," per manufacturer's specifications. This is very important—failure to do so will result in incorrect operation of your **MiniSCSI**! See your dealer for termination assistance if necessary.

If you plan to connect more than one SCSI device to your **MiniSCSI** simultaneously, make sure that the each device's "address" (device number) is different (between 0 and 6). This is essential to prevent conflicts when the **MiniSCSI** communicates with the devices.

Also note, on the SCSI connector of each device, which end of the connector is the "pin 1" end. Your SCSI device(s) may have a symmetrical 50-pin inline connector, and it is possible to connect a cable backwards to this type of connector if you don't identify the correct end. Most devices with this type of connector should have a label on the circuit board near the connector, indicating either the pin-1 end or the pin-50 end; consult the device's manual if you can't identify the correct end yourself. Pin 1 on a SCSI ribbon cable is usually marked by a red stripe. See Section 4.

3. Connect one end of a standard parallel printer cable to the "Printer" connector on the **MiniSCSI**. Connect the other end of the printer cable to your printer. Your printer port may be used simultaneously with your SCSI device(s); no special configuration or switching is needed. Note that the printer port on the **MiniSCSI** is operable only while the **MiniSCSI** is powered up; if you disconnect or shut off the SCSI device connected to the **MiniSCSI**, the printer port on the **MiniSCSI** will no longer function.

The **MiniSCSI** requires termination power from the SCSI device(s) to operate, and the SCSI device chain must be properly terminated.

4. Power up the computer system and allow it to boot, then refer to your software documentation for software configuration.

3.0 Common Error Messages and Remedies

Note: even though you may create a bootable partition with your **MiniSCSI** using TFORMAT, you will not be able to boot your computer with this partition through your **MiniSCSI**. Your computer does not expect to boot from a device connected to the parallel port. Therefore, your **MiniSCSI** device drivers must be loaded during the boot process from another disk. However, you can use a bootable partition created by your **MiniSCSI** when the SCSI drive is connected

to any of Trantor's other SCSI Host Adapters which plug into a conventional expansion slot. If you do not plan to use the drive with any other host adapter, a bootable partition is not necessary.

"No SCSI Host Adapter Detected" message appears during bootup

- *Improper or missing SCSI device termination.*

Make sure the SCSI device is terminated. The **MiniSCSI** must have proper SCSI termination.

- *Check for the proper cable.*

The **MiniSCSI** requires a standard, Macintosh-compatible 25-to-50 pin SCSI cable—available worldwide. It will not work with the 25-to-50 pin cable commonly supplied with some Future Domain brand SCSI host adapters.

- *The MiniSCSI is not being powered correctly.*

Check to be sure that there is proper termination power available from your SCSI device. You can do this with a voltmeter by measuring the voltage available at pin 25 on the DB25 SCSI connector which plugs into the **MiniSCSI**. Check this voltage with power to the SCSI device(s) on; it should measure approximately +5 volts. Pin 14 of the DB25 SCSI connector makes a good ground connection for this measurement. Very low or no voltage at pin 25 indicates a problem with termination power; this condition will disable the **MiniSCSI**.

Another way to check for proper termination power is to plug the printer into the **MiniSCSI** printer port. If the printer does not work, you do not have proper termination power.

During bootup, the driver recognizes the MiniSCSI and the SCSI device(s), then stops with a "No SCSI Functions in Use" message.

- *The software driver is looking for a different device.*

For example, you may have the CD-ROM driver loaded, but you are trying to work with a hard disk drive, or vice versa. Each Trantor software driver recognizes the existence of all SCSI devices attached to the SCSI chain, but will only work with the device it is written to communicate with. Install the correct driver, or remove an unwanted driver from your CONFIG.SYS file with a text editor program. See your Trantor software documentation.

4.0 SCSI Connector Pinouts

This section documents both the SCSI interface connector on the **MiniSCSI** as

well as the SCSI connectors found on SCSI devices. Your **MiniSCSI** has been designed with ease of connection in mind, therefore the external connector is completely compatible with that used on Apple's Macintosh line of computers. Any commonly-available Macintosh cable designed to interface to external SCSI devices will work with your **MiniSCSI**.

(Continued on the next page)

Disclaimer of Warranty

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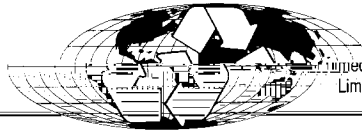
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But, for those who are making their own cable assembly or who need the connector details for other reasons, the following provides the necessary information. Figure 2 illustrates the pin arrangement of the MiniSCSI's external DB-25F connector.

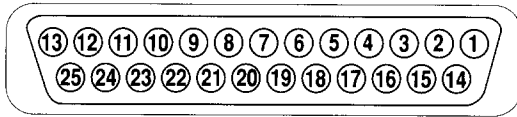


Figure 2 SCSI Connector Pinouts

Internal SCSI devices commonly use a 50-pin header connector (SCSI specification Alternative 1), consisting of two rows of 25 male contacts with adjacent contacts 2.54 mm (0.1 inch) apart, as shown in Figure 3.

A typical single-ended shielded SCSI device 50-pin connector (SCSI specification Alternative 2) is shown in Figure 4; this connector is most often used with an external SCSI device.

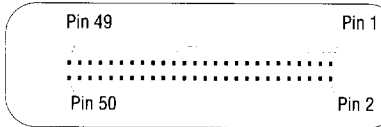


Figure 3 Internal Connector

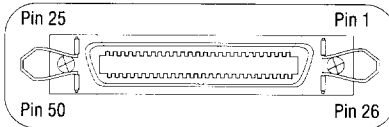


Figure 4 Device Connector

Table 1 lists the pin assignments for each connector type. Definitions of the various signals may be found in any SCSI design reference book. The SCSI interface is fully defined in **ANSI X3.131-1986**; this document is available from Global Engineering Documents, 2805 McGaw Ave, Irvine, CA 92713-9539 USA, telephone (714) 261-1455.

Pin		Function	Function	Pin		
Alt. 1 (Fig. 3)	Alt. 2 (Fig. 4)			MiniSCSI (Fig. 2)	Alt. 1 (Fig. 3)	Alt. 2 (Fig. 4)
1	1	Gnd	-DB0	8	2	26
3	2	Gnd	-DB1	21	4	27
5	3	Gnd	-DB2	22	6	28
7	4	Gnd	-DB3	10	8	29
9	5	Gnd	-DB4	23	10	30
11	6	Gnd	-DB5	11	12	31
13	7	Gnd	-DB6	12	14	32
15	8	Gnd	-DB7	13	16	33
17	9	Gnd	-DBP	20	18	34
19	10	Gnd	Gnd	7	20	35
21	11	Gnd	Gnd	9	22	36
23	12	Gnd	Gnd	14	24	37
25	13	Open	Tempwvr	25	26	38
27	14	Gnd	Gnd	16	28	39
29	15	Gnd	Gnd	18	30	40
31	16	Gnd	-ATN	17	32	41
33	17	Gnd	Gnd	24	34	42
35	18	Gnd	-BSY	6	36	43
37	19	Gnd	-ACK	5	38	44
39	20	Gnd	-RST	4	40	45
41	21	Gnd	-MSG	2	42	46
43	22	Gnd	-SEL	19	44	47
45	23	Gnd	-C/D	15	46	48
47	24	Gnd	-REQ	1	48	49
49	25	Gnd	-I/O	3	50	50

Table 1 SCSI Connector Pin Assignments

WARRANTY, SERVICE, SUPPORT

If you have technical questions not answered by this guide, contact your dealer first. If your dealer is unable to answer your questions, you may contact Trantor directly.

TRANTOR PRODUCTS LIMITED WARRANTY

Trantor Systems Ltd. (hereafter Trantor) warrants this hardware product to be free from defects in material and workmanship under the following terms.

WARRANTY TERM

Labor is warranted for (1) One Year from the date of the first consumer purchase. Parts are warranted for (1) One Year from the date of the first consumer purchase. Magnetic media on which the software is supplied is warranted for (90) Ninety Days from the date of the first consumer purchase. Note that only the media itself is warranted, not the software; please refer to the License Agreement on the software package.

WHO IS PROTECTED

This warranty may be enforced only by the first consumer purchaser.

Except as specified below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Trantor or an Authorized Distributor or which is not purchased from an authorized Trantor dealer. If you are uncertain as to whether a dealer is authorized please contact Trantor.
2. Any product on which the serial number (if applicable) has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
 - a. Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature, commercial or industrial use, unauthorized product modification, or failure to follow instructions supplied with the product.
 - b. Repair or attempted repair by anyone not authorized by Trantor.
 - c. Any shipment of the product (claims must be presented to the carrier).
 - d. Removal or installation of the product.
 - e. Any other cause which does not relate to a product defect.
4. Cans, carrying cases, batteries, external cabinets, or any accessories used in conjunction with the product.

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay all labor and material expenses for covered items, but we will not pay for the following:

1. Removal or installation.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls and software installation and configuration. These costs are the responsibility of the Trantor dealer from whom the product was purchased.
3. Shipping charges to or from Trantor.

HOW YOU CAN GET WARRANTY SERVICE

1. Call Technical Support to verify the product is not functioning properly at (510) 226-SCSI.
2. Call us for a Return Merchandise Authorization (RMA) at (510) 770-1400.
3. Ship product prepaid with RMA number clearly marked on the outside of the package to Trantor Systems Limited 5415 Randall Place Fremont, CA 94538-3151 USA.
4. Whenever warranty service is required, the original dated sales slip (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing, your name, address, and a description of the problem(s).

TECHNICAL SUPPORT BBS

Trantor Systems maintains a Technical Support Bulletin Board System at our Fremont offices for use by our registered customers with modems. You are welcome to contact us via the BBS with questions and suggestions, and share these with other users. Update notifications, new product announcements and technical tips will be available online. The telephone number is 510-656-5159, and the BBS is available 24 hours per day. When you call, set your modem and communications software to 8 data bits, 1 stop bit, no parity and V.32 bis operation.

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2. ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.

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HOW STATE LAW RELATES TO THE WARRANTY

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

TRANTOR SOFTWARE LICENSE AND WARRANTY

Please refer to the separate Trantor Software License and Warranty which came with your Trantor distribution diskette.

FCC NOTICE

Your Trantor SCSI host adapter is covered by FCC rules for a Class B computing device.

The following information is provided for the information and guidance of the user. Use shielded cables to attach only peripherals (computer input/output devices, terminals, printers etc.) certified to comply with the Class B limits to your computer.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. FCC regulations, Part 15 prescribed by the Federal Communications Commission (FCC) specify that we provide the following information:

WARNING

This equipment generates and uses radio frequency energy and, if not installed and used properly, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specification in Subpart J of Part 15 of FCC Rules, which are designed to provide a reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, (which you can determine by turning the equipment OFF and ON), the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.

If necessary, consult the dealer or an experienced radio/television technician for additional suggestions. You may find the booklet **How to Identify and Resolve Radio-TV Interference Problems** helpful. This booklet has been prepared by the FCC and is available from the U.S. Government Printing Office, Washington, D.C. 20402; Stock # 004-000-00345-4.