

**DSP2022-S
SCSI Disk Drive
Installation Guide**

EK-2022S-IG-001

Digital Equipment Corporation

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Scope of Information

This guide supplies information needed to configure and install your Model DSP2022-S 2.5-inch Small Computer System Interface (SCSI) disk drive. The tasks you need to perform are listed in order in the table of contents. The specifications for the disk drive are found on the last page.

Before You Begin

Before removing the drive from its antistatic bag or attempting installation, please read the following cautions:

ANTISTATIC CAUTION

As with any integrated circuit device, we highly recommend that you use a properly grounded wrist strap and antistatic pad when removing the disk drive from its antistatic bag and handling it outside the bag.

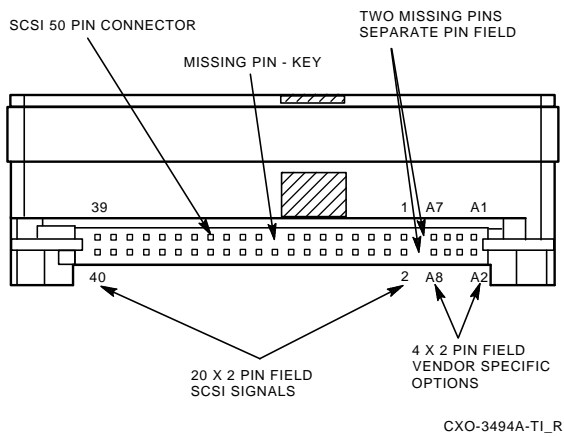
HANDLING CAUTION

As with any delicate instrument, prevent shocks by always placing it down gently. Avoid quick motions or bumping.

Locate the SCSI Connector

Locate the SCSI 50-pin connector shown at the rear of the drive in Figure 1 . This connector is used for cable installation later. Note that the pins of the SCSI connector are divided into two pin fields: one for the SCSI interface signals and the other for the vendor-specific options. Learn the use of these two pin fields in the following sections.

Figure 1 SCSI Connector



Note Pin Status of the Vendor-Specific Field

The vendor-specific pin field consists of pins A1–A8. These pins are used for testing at the factory, setting the SCSI ID address remotely, and supply power to an external drive activity light emitting diode (LED). The recommended pin status is given in Table 1.

Table 1 Vendor-Specific Pin Options

Pin	Function	Status
A1	Reserved for manufacturing	Leave open
A2	Test UART transmit data	Leave open
A3	+12 V for controller ROM	Leave open
A4	Test UART receive data	Leave open
A5	SCSI ID bit 0	See Table 5
A6	SCSI ID bit 1	See Table 5
A7	SCSI ID bit 2	See Table 5
A8	Drives external activity LED. LED on indicates the drive is processing commands from the host.	Active low, 24 mA

Note the Use of the SCSI Pin Functions

The 40 SCSI pins carry the SCSI signals, power, and ground paths for the drive circuitry. Table 2 provides a list of the pin functions. For a full explanation of the SCSI pin functions, refer to the ANSI SCSI-2 Specification.

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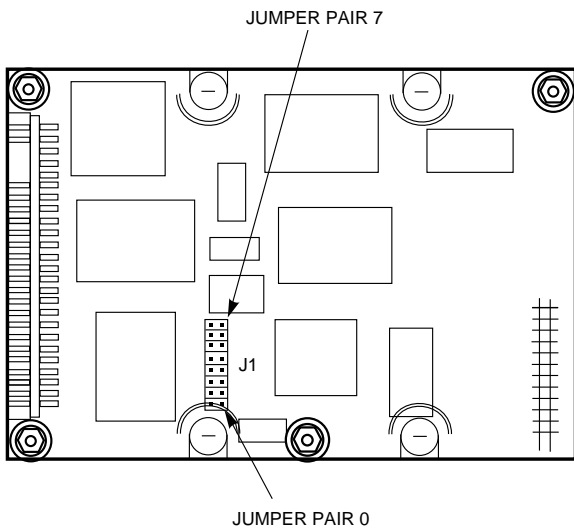
Table 2 SCSI Pin Functions

Pin	Function	Pin	Function
01	+5V	02	+5V
03	Ground	04	Ground
05	Ground	06	DB0
07	Ground	08	DB1
09	Ground	10	DB2
11	Ground	12	DB3
13	Ground	14	DB4
15	Ground	16	DB5
17	Key (no pin)	18	DB6
19	Ground	20	DB7
21	Ground	22	DBP
23	Ground	24	TERMPWR
25	-ATTN	26	-BSY
27	Ground	28	-ACK
29	-RST	30	-MSG
31	Ground	32	-SEL
33	-I/O	34	-C/D
35	Ground	36	-REQ
37	GND Motor	38	GND Motor
39	+5V Motor	40	+5V Motor

Locate Jumper Connector J1

Locate jumper connector J1 on the electronic component side of the drive, shown in Figure 2. Note that connector J1 contains eight jumper pairs numbered 0 through 7. Your drive comes with all jumpers in place.

Figure 2 Location of Jumper Connector J1



CXO-3500A-MC_R

Learn the Jumper Functions

The jumper functions on the SCSI drive are described in Table 3. These jumpers allow you to set the device address, disable automatic spin-up, change the delay time before spin-up, and enable drive power for an external SCSI terminating resistor. The drive is shipped with all jumpers installed.

Table 3 Jumper Descriptions

Jumper	Function	Jumper Status
0	Device Address bit 0	See Table 4
1	Device Address bit 1	See Table 4
2	Device Address bit 2	See Table 4
3	Enables automatic spin up when power is applied	IN
	Disables automatic spin up when power is applied	OUT
4	Disables spin-up delay timer.	IN
	Enables spin-up delay timer of 10 seconds times the SCSI ID. The delay is valid only when automatic spin up is enabled.	OUT
5	Reserved	IN
6	Prevents the manufacturing test from being initiated if pin A1 is grounded.	OUT
7	Enables drive power to an external SCSI bus terminator	IN
	Disables drive power to an external SCSI bus terminator	OUT

Set the SCSI Device Address

Jumpers 0, 1, and 2 are used to set the SCSI device address. Table 4 shows the jumper IN or OUT status for setting the SCSI device address. IN means jumpers are in place and OUT means jumper are removed. Save unused jumpers.

Table 4 Set SCSI Device Address

Jumper 2	Jumper 1	Jumper 0	Device Address
IN	IN	IN	0 (see Table 5)
IN	IN	OUT	1
IN	OUT	IN	2
IN	OUT	OUT	3
OUT	IN	IN	4
OUT	IN	OUT	5
OUT	OUT	IN	6
OUT	OUT	OUT	7

Set the SCSI Address Remotely

When jumpers 0, 1, and 2 are left in place for a device address of 0, the drive will use the remote active encoded SCSI device address (ID) number on the vendor-specific connector at the rear of the drive. If there is not an active ID address on pins A5–A7, the drive will assume the ID is 0. Refer to Table 5 for the pin electrical states.

Table 5 Remote SCSI Address Determination

Pin A7	Pin A6	Pin A5	Device Address
1	1	1	0
1	1	0	1
1	0	1	2
1	0	0	3
0	1	1	4
0	1	0	5
0	0	1	6
0	0	0	7

NOTE

Table 5 refers to Transistor-Transistor Logic (TTL) voltage levels. TTL high = 1, and TTL low = 0.

Provide SCSI Bus Termination

The SCSI bus only needs termination resistors at the beginning and end of the bus. Since this drive does not have a SCSI bus terminating resistor on it, bus terminating resistors must be located external to the drive. The drive does provide power for an external terminating resistor over SCSI connector pin 24. Leave jumper 7 in place to enable the drive terminator power supply. Remove jumper 7 if you don't need SCSI bus termination.

Obtain a Mounting Kit

Due to the large number of possible installation cabinets and slot sizes, your drive does **not** come with an installation kit of brackets, screws, and cables. You must obtain the parts needed for your particular installation from your distributor or purchasing source.

Locate the Drive Mounting Holes

Two holes are provided on each side of the drive for side mounting. Four mounting holes are provided on the bottom surface for bottom mounting. These mounting holes are shown in Figures 3 and 4.

Figure 3 Side Mounting Holes

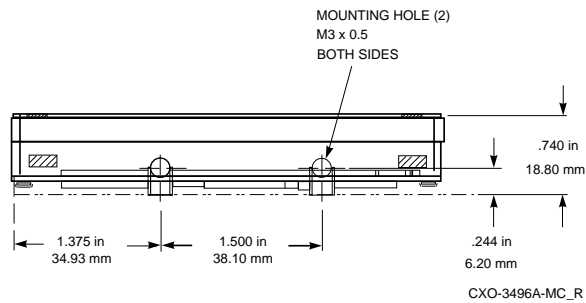
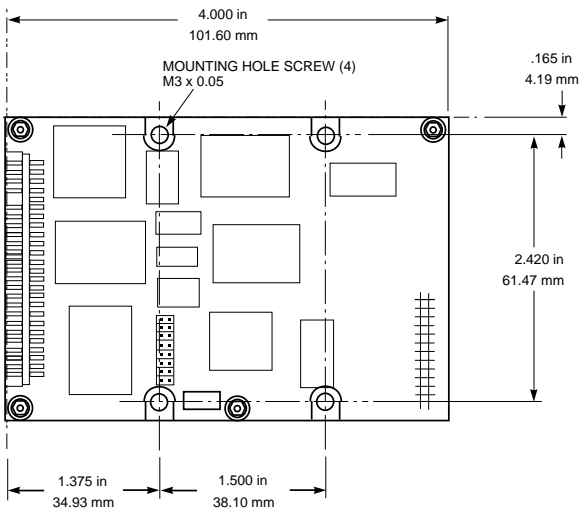


Figure 4 Bottom Mounting Holes



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Use the Drive Mounting Guidelines

Use this list of drive mounting guidelines to prevent mounting problems.

- The drive may be mounted in any orientation.
- Mounting screws should not penetrate the mounting holes beyond the depths given in this list.
- Mounting screws are M3 X 0.5 metric screws (3mm diameter and 0.5 thread pitch).
- The recommended screw depth penetration of the bottom mounting holes is 0.381 centimeters (0.15 inches).
- The recommended screw depth penetration of the side mounting holes is 0.254 centimeters (0.1 inches).

Drive Specifications

The performance and environmental specifications for your disk drive are listed in Table 6.

Table 6 Drive Specification Summary

Formatted Storage	220,000,000 bytes
Average Seek Time	Less than 10 milliseconds
Typical spin up time	Less than 12.5 seconds
Disk rotation speed	5400 RPM
Bytes per block	512
Height	0.75 in. (19.0 mm)
Length	4.0 in. (101.6 mm)
Width	2.75 in. (69.8 mm)
Weight	7.3 oz. (.20 kg.)
Voltage & regulation	+5VDC +/- 5%
Active mode power	Less than 5 watts
Operating Altitude	-200 to + 10,000 feet -61 to + 3,048 meters
Operating Temperature	+40 to +131 degrees F +5 to +55 degrees C
