

**DSP2022-A
ATA/IDE Disk Drive
Installation Guide**

EK-2022A-IG-001

Digital Equipment Corporation

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Contents

Scope of Information	1
Before You Begin	1
Locate the ATA Connector	2
Note Pin Status of the Vendor-Specific Field	3
Note the Use of the ATA Signal Pins	3
Locate Jumper Connector J1	5
Learn the Jumper Functions	6
Select Single or Dual Drive Operation	7
Remove Jumper 7	7
Obtain a mounting kit	7
Locate the Drive Mounting Holes	8
Use the Drive Mounting Guidelines	10
Follow Connection Guidelines	10
Follow ATA Interface Instructions	10
Run the Setup Utility	11
Drive Specifications	12

Figures

1	ATA Connector	2
2	Location of Jumper Connector J1	5
3	Side Mounting Holes	8
4	Bottom Mounting Holes	9

Tables

1	Vendor-Specific Pin Options	3
2	Single-Ended ATA Signal Pins	4
3	Jumper Descriptions	6
4	Default Setup Values	11
5	Drive Specification Summary	12

Scope of Information

This guide supplies the information you need to configure and install your Model DSP2022-A 2.5-inch disk drive on your PC AT Attachment (ATA) interface. 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.

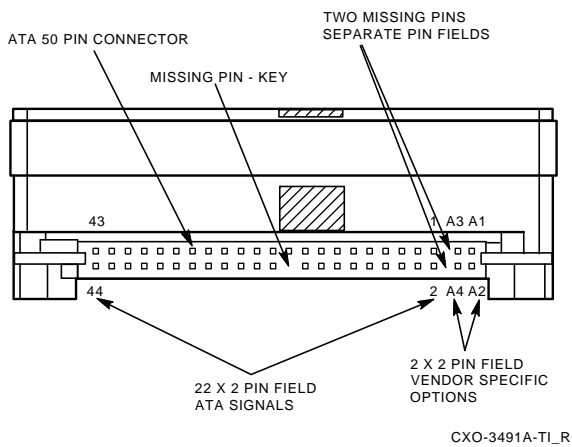
HANDLING CAUTION

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

Locate the ATA Connector

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

Figure 1 ATA Connector



Note Pin Status of the Vendor-Specific Field

The vendor-specific pin field consists of pins A1–A4 and is used for manufacturing testing purposes. As indicated in Table 1, these vendor-specific pins should always be left open.

Table 1 Vendor-Specific Pin Options

Pin	Function	Status
A1	Ground MFG test strap	Leave open
A2	Test UART receive data	Leave open
A3	+12 V for controller ROM	Leave open
A4	Test UART transmit data	Leave open

Note the Use of the ATA Signal Pins

The 44 ATA signals pins carry the ATA signals, power, and grounds paths for the drive circuitry. Table 2 provides a list of the signal names. For a full explanation of all the ATA signal functions, refer to the ANSI ATA Specification.

4 DSP2022-A ATA/IDE Disk Drive Installation Guide

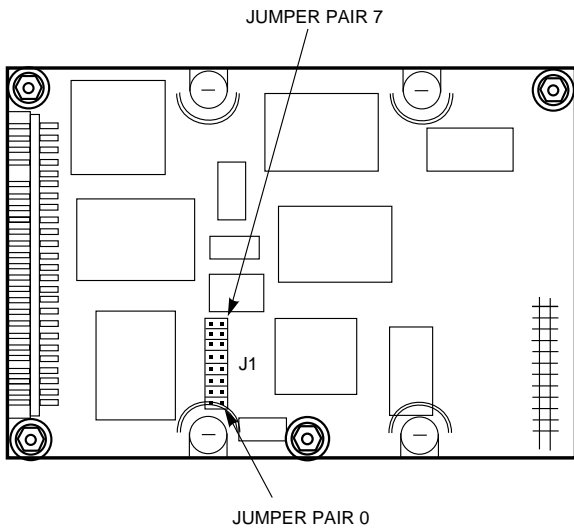
Table 2 Single-Ended ATA Signal Pins

Pin	Signal	Pin	Signal
01	-RESET	02	SIGNAL GND
03	+DD7	04	+DD8
05	+DD6	06	+DD9
07	+DD5	08	+DD10
09	+DD4	10	+DD11
11	+DD3	12	+DD12
13	+DD2	14	+DD13
15	+DD1	16	+DD14
17	+DD0	18	+DD15
19	GND	20	KEY, (no pin)
21	RESERVED	22	SIGNAL GND
23	-DIOW	24	SIGNAL GND
25	-DIOR	26	SIGNAL GND
27	IORDY	28	CSEL
29	DMACK	30	SIGNAL GND
31	+INTRQ	32	-IOCS16
33	+DA1	34	-PDIAG
35	+DA0	36	+DA2
37	-CS1FX	38	-CS3FX
39	-DASP	40	SIGNAL GND
41	+5V CIRCUITS	42	+5V MOTOR ACTUATOR
43	GND MOTOR ACTUATOR	44	RESERVED

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



Learn the Jumper Functions

The jumper functions on the ATA drive are described in Table 3. Note that jumper 0 is used for selecting single or dual drive operation and that jumper 7 is used to prevent the drive from entering manufacturing test mode if pin A1 is momentarily grounded. Jumpers 1 through 6 are reserved for future use and should always be left in place.

Table 3 Jumper Descriptions

Jumper	Function	Jumper Status
0	Single drive operation	IN
	Master drive in dual operation	IN
	Slave drive in dual operation	OUT
1	Reserved	IN
2	Reserved	IN
3	Reserved	IN
4	Reserved	IN
5	Reserved	IN
6	Reserved	IN
7	Prevents the manufacturing test from being initiated if ATA connector pin A1 is grounded	OUT

Select Single or Dual Drive Operation

With jumper 0 in place, your drive is set for single drive operation, or as the master drive in dual drive operation. If you wish to use this drive as the slave drive (drive D) in dual drive operation, then remove jumper 0.

Remove Jumper 7

Remove jumper 7 to prevent the drive from entering manufacturing test mode if pin A1 is grounded.

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 as shown in Figure 3. Four mounting holes are provided on the bottom surface for bottom mounting as shown in Figure 4.

Figure 3 Side Mounting Holes

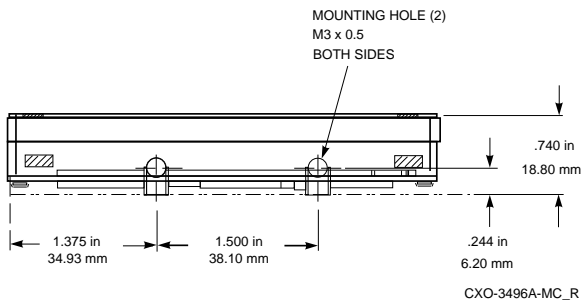
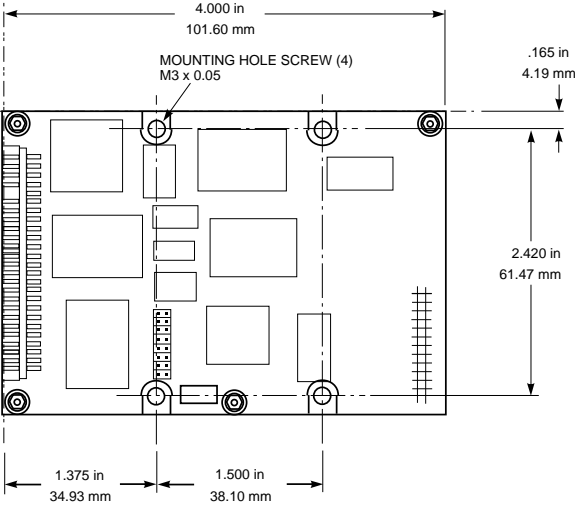


Figure 4 Bottom Mounting Holes



CXO-3495A-MC_R

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 X0.5 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).

Follow Connection Guidelines

Use these guidelines to connect to the DSP2022-A ATA connector:

- Use a connector with pins on 2mm centers.
- Use a Molex 87259-5016 connector or its equivalent.
- Don't exceed the recommended 2 foot cable length maximum.

Follow ATA Interface Instructions

If the ATA interface is built into the computer, refer to the computer's installation guide for disk drive connection instructions. If a separate interface adapter has been installed, refer to the adapter installation guide for disk drive connection instructions.

Run the Setup Utility

When you are finished mounting the drive and attaching the cables, you are ready to run the setup utility. You need to run a setup utility to tell the system what type of hardware is installed. To run the setup utility, follow the setup instructions in your operating system manual or BIOS manual.

This drive's characteristics are not described by the 46 predefined BIOS drive types. Use BIOS type 47 (User Defined Drive Type) to describe this drive. The default values that describe this drive are provided in Table 4.

If your setup utility does not include the capability for a user defined drive type, you can also use one of the pre-defined drive types as long as the total capacity does not exceed 220.459 megabytes.

Table 4 Default Setup Values

Drive Characteristics	Default Values
Number of cylinders	699
Number of heads	11
Write precomp	0 (not used)
Landing zone	699 (not used)
Sectors per track	56
Size (megabytes)	220.459
Bytes per sector	512

Drive Specifications

The performance and environmental specifications for your disk drive are listed in Table 5.

Table 5 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
