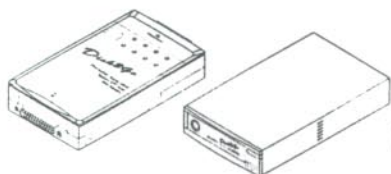


PORTABLE STORAGE



USER'S MANUAL

EH-100E+
EH-132E+

Unpacking

Read this User Guide thoroughly and follow the installation and operation procedures carefully to prevent any damage to the drive unit and/or any of the devices it connects to.

Depending on which unit you purchased, the external parallel port drive package consists of the following components:

- 1 Drive Unit
- 1 Data Cable (DB-25 female-to-male cable)
- Power Adapters:
 - EH-100E+: 2 Keyboard Power Adapters: one mini-DIN PS/2 style; one regular AT style
 - EH-132E+: 1 AC 13.8V Power Adapter
- 1 Distribution Diskette
- 1 User Manual
- 1 Carrying Case

Check to make sure that all the components are there, and that nothing was damaged in shipping. If you encounter a problem, contact your dealer.

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Overview and Features

These external parallel port drive units are reliable, lightweight, easy-to-use, and can be easily mounted to any computer's LPT (parallel) port. They are ideal for backup, storage, expansion, file sharing, software installation, and data management.

- Connects to all PC printer ports (also known as LPT, Parallel and Centronics ports)
- Supports normal, bidirectional, and EPP (Enhanced Parallel Port) printer modes*
- Concurrent printing and disk access
- Hot pluggable (Windows 95/98)
- Driver support for DOS, Windows (3.1, 95, 98, NT) and OS/2
- EH-100E+ powered by a keyboard power adapter or by an external (optional) DC5V power adapter
- EH-132E+ powered by an external 13.8V AC Power adapter

* To maximize system performance the computer CMOS setup program should have the parallel port set to EPP mode.

SYSTEM REQUIREMENTS

The drive units require that the following be installed on your computer :

- IBM Centronics or IEEE 1284 compatible parallel (printer) port
- 386 (or equivalent) or higher CPU
- 640KB RAM or more
- One of the following Operating Systems:
 - DOS version 3.0 or higher
 - MS Windows: 3.1, 95, 98, NT
 - OS/2 Warp 3.0 or higher

Hardware Installation

Before You Begin

The PC's parallel port is a 25 pin female connector located on the back panel of the system case. Check your PC User Manual if you are unsure as to its location. For notebook computer users, it may be necessary to open a compartment cover on the back panel to access the parallel port.

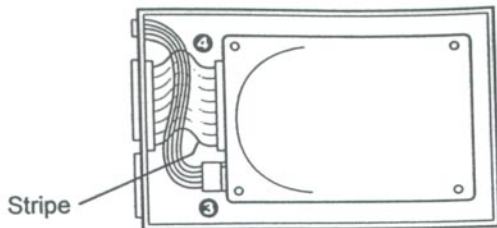
Note: For some notebook models, the parallel port connector is shared between an external floppy disk drive and the parallel port, with the function usually being set with a switch or from the notebook's CMOS settings. If your notebook is of this type, check your User Manual for setting details.

Install the HD

Hard disk drives are not part of the drive unit package. They must be purchased separately and installed in the empty drive units. The installation procedure is the same for both units. To install a drive, do the following:

1. Remove the four screws from the bottom of the unit cover and slide the cover off.
2. Place the drive in the drive compartment so that the connectors face the rear.
3. Plug the drive unit's power cable into the drive's power socket. Note that because of the shape of the cable head, it can only plug into the socket if it is aligned correctly. If it seems like the cable won't plug in, check to be sure that the head is aligned correctly.

4. Make sure that the red stripe on the drive unit's data cable is facing the drive's power socket, then plug the cable into the drive's data connector.
5. Slide the cover back on and reinsert the screws that you removed in Step 1.



Connect the Drive Unit

To connect the drive unit to the computer, do the following:

1. Install a 2.5" (EH-100E+), or 3.5" (EH-132E+), hard drive in the housing according to the instructions given in the *Install the Drive* section.
2. Plug the female end of the Data Cable that came with the drive unit into the TO PC (EH-100E+) or TO COMPUTER (EH-132E+) port on the unit's back panel.
3. Plug the male end of the Data Cable into the computer's parallel port.

Note: If a printer cable is plugged into the computer's parallel port, remove it. To print while the drive unit is attached, plug the printer cable into the TO PRINTER port on the drive unit's back panel.

4. Make sure that the drive unit's power switch is in the Off position. (When the switch is in the On position, the side of the switch is red.)
 - If you are installing an EH-100E+ drive, go to step 5.
 - If you are installing an EH-132E+ drive, skip step 5 and go directly to step 6.
5. Insert the Keyboard Power Adapter (EH-100E+):
 - a) Unplug the keyboard cable from your computer's keyboard port.
 - b) Plug the male end of the Keyboard Power Adapter into the computer's keyboard port.
 - c) Plug the keyboard cable into the female end of the Keyboard Power Adapter.
 - d) Plug the power lead from the Keyboard Power Adapter into the Power Jack on the drive unit's back panel.

Note: An optional 5V DC Power Adapter (purchased separately), can be used in place of the Keyboard Power Adapter. To do so, omit all of Step 5 and simply plug the 5V DC Power Adapter into an AC source; plug the adapter lead into the Power Jack on the drive unit's back panel

6. Connect the External AC Power Adapter (EH-132E+):
 - a) Plug the 13.8V AC Power Adapter into an AC source.
 - b) Plug the adapter lead into the Power Jack on the drive unit's back panel.

Driver Installation

Windows 95/98 Drivers:

To install the drivers for systems running Windows 95 or Windows 98, do the following:

1. Put the distribution diskette into the diskette drive (drive A:).
2. Click on the following path: Start (on the Task Bar) → Run.
3. In the dialog box that comes up, key in:

```
a:setup
```

4. Then click OK.
5. Follow the onscreen instructions to complete the installation. Note that it may take a few minutes before the driver is installed. Following the install, be sure to read the Readme.w95 file to get the latest information and instructions for using the drive.
6. After the installation has completed, open the *My Computer* icon (on the desktop) and check to see that the drive has been recognized by Windows. There should be a new hard disk icon for the drive with a new drive letter assigned to it. If the drive has not shown up, shut down the system and reboot.

Plug'n'Play Operation:

The drive units are fully capable Plug'n'Play devices. The system automatically identifies the I/O address, and loads/unloads the driver without rebooting, depending on whether or not it detects the device's presence. There are a few things to keep in mind in order to take advantage of this feature:

- Always turn the power to the device **On** before plugging in the data cable. If not, since the device has no power, driver loading will fail. If this occurs, unplug the cable, turn on power to the device, and try again.
- Always unplug the data cable before turning the device off. Failure to do so may cause the system to freeze.
- A Low-Hi tone is emitted when you plug in the cable. After a few seconds, the device icon appears. A Hi-Low tone is emitted when you unplug the cable; after which the device icon disappears.

Note: A device icon will not appear if the hard disk drive has not been formatted. Use the CDISK.EXE utility to partition/format the disk if necessary.

Driver Removal:

There is actually no need to remove the driver. Even if you remove the external drive from the system, you can still leave the driver on the system because if the external drive unit isn't found at bootup, the driver simply won't load. If, for some reason, you wish to remove the driver from the system, however, do the following :

1. Follow this path: My Computer → Control Panel → System Device Manager
2. Click on the plus (+) sign next to *System Devices* to display the item list.
3. Select *EPP Parallel Port to ATA/ATAPI Adapter Windows 95/98*
4. Click on **Remove**

Command Line Options:

Under normal operation, the driver program automatically selects the optimized transfer rate for your computer. Unless you are experiencing data reliability problems, have a specific reason, or want to use the switches for debugging purposes, there is no need to set any of them. If, for some reason, you wish to specify a command line option, do the following:

1. Follow this path: My Computer → Control Panel → System Device Manager

2. Click on the plus (+) sign next to *SCSI Controller* to display the item list.
3. Double click on: *EPP Parallel Port to ATA/ATAPI Adapter Windows 95/98*
4. Click on **Settings**
5. Key in the command you want exactly as it is worded in the table, below:

Command	Meaning
ForceUniDir=1	Forces unidirectional 4 bit mode read
ForceBiDir=1	Forces bidirectional 8 bit mode read
DelayCount=X	Specifies the EPP delay count, where X=0-7)
ForceEPP=1	Forces EPP mode (if port supports it)

Windows NT Driver Installation

To install the drivers for systems running Windows NT, do the following:

1. Put the distribution diskette into the diskette drive (drive A:).
2. Follow this path: Control Panel → SCSI Adapter → Drivers.
3. Select **Add; Have Disk**; then click **OK** to retrieve the driver installation file.
4. Select **NT**

5. Select *EPP Parallel Port to ATA/ATAPI Adapter Windows NT*

If the dialog box prompts you to specify the full path to the OEM SCSI Adapter files, make sure the path is **A:\NT** then click **OK**.

A dialog box appears informing you that files are being transferred. Once the driver installation is complete, the computer will prompt you to restart the system. When the computer, comes back up, a drive letter for the external drive will be assigned.

The computer will prompt you to restart the system after the driver installation is complete. After you restart the computer, a drive letter for the external drive will be assigned.

Windows 3.1 Driver Installation

To install the drivers for systems running Windows 3.1, do the following:

1. Put the distribution diskette into the diskette drive (drive A:)
2. Open File Manager; Select Drive A.; Double click on Install.bat
3. Follow the on screen instructions to complete the installation

Dos Driver Installation and Operation

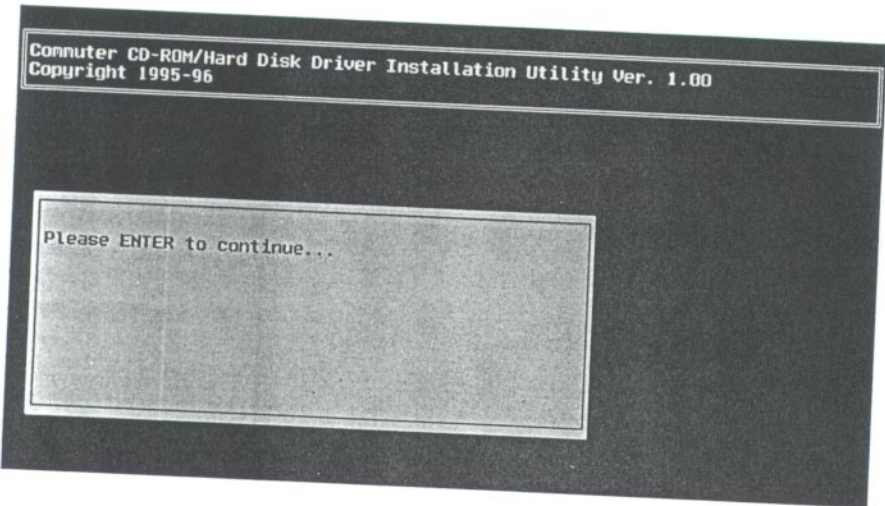
Installation:

The DOS driver installation program is menu driven and very user friendly. To install the drivers, do the following:

1. Put the distribution diskette into the diskette drive (drive A.)
2. From a DOS prompt, key in the following command:

```
a:install [Enter]
```

The installation program's Main Menu appears:



Computer CD-ROM/Hard Disk Driver Installation Utility Ver. 1.00
Copyright 1995-96

Please ENTER to continue...

3. Follow the on screen menus to complete the installation.

To perform a function, either use the Arrow Keys to navigate to a menu choice, then press [Enter], or simply press the highlighted letter that corresponds to the function you want. Pressing [Esc] backs you out of the current menu. A description of the Main Menu functions is given in the table below:

Function	Description
Install	Copies all necessary files to the default (C:\Commuter), or user specified directory, and automatically adds an entry for the driver to the CONFIG.SYS file.
Format	Formatting is optional. Note, however that a new hard disk must be properly partitioned and formatted prior to its use. If the drive has not yet been partitioned and formatted, you can use this function to do so. If the drive is already partitioned and formatted (and you don't wish to reformat or repartition the drive), you can ignore this function. You can also use this function to reformat/repartition an already formatted hard disk. Be aware, however, that partitioning and formatting will erase all the data that exists on the hard disk. If you have any important data, be sure to make backups before performing either of these operations. Note: Do not low level format the disk. Low level formatting may damage it.

Function	Description
Read Me	Displays the README file which contains the latest release notes for the product, and documents any changes that occurred after the manual was printed.
Exit	Quits the installation and takes you back to the DOS prompt.

4. After the installation, reboot the system to have DOS recognize the drive and assign it a drive letter.

Operation:

Make sure that the drive is connected up and turned on before booting up. Other considerations to keep in mind are the following:

- Disk Caching Software

If the disk caching program is loaded by a device driver, make sure that the drive's driver entry in the CONFIG.SYS file:

```
DEVICE=\COMMUTER\CDISK.SYS
```

comes before the entry that loads the disk caching program.

Note: Nothing needs to be changed for TSR disk caching programs (like SMARTDRV.EXE).



- **Data Compression Software**

The external disk drive works with most major data compression programs, such as Stacker and DOS 6's DBLSPACE. The only consideration is to be sure that the external drive's driver entry in the CONFIG.SYS file:

```
DEVICE=\COMMUTER\CDISK.SYS
```

comes before the entry that loads the disk compression driver. For example:

```
DEVICE=\COMMUTER\CDISK.SYS  
DEVICEHIGH=C:\DOS6\DBLSPACE.SYS /MOVE
```



On a Novell Network

When the external disk is connected to a network station running under Novell Netware, it will work the same way as an internal hard drive. Because DOS will assign the next available drive letter to the external drive, however, the network drive may shift one or more letters higher (F: to G:, usually). This means that batch files, login scripts, and/or the environmental setup may have to be changed when the external drive is connected up.

Note: The external hard disk cannot be used as a server drive.

Under MS Windows

The external disk drive is recognized by Windows and all Windows application programs. Concurrent printing and background printing can take place without interfering with disk access.

Command Line Options

Under normal operation, the driver program automatically selects the optimized operating mode for your system during device driver initialization. Unless you experience conditions where the device is

operating improperly or is inoperable, there is no need to set any of them. The switches and their meanings are given in the table, below:

Switch	Meaning
/E	Force drive to run in EPP mode. (Requires EPP port).
/B	Force parallel port to read data in bidirectional 8 bit mode.
/U	Force parallel port to read data 4 bits (a nibble) at a time - for ports that don't support bidirectional communication.
/S	Forces a slowdown in the data transfer rate (used if you are experiencing error conditions).
/D	Force a CD-ROM device name (the default name is DST_CD01).
/R	Reset chip during driver initialization.
/DX	Force an EPP delay count, where X represents the number of delays (0-7). For example, /D5 specifies 5 delay counts, (default mode is automatic detection).
/X	Force the driver to load even if the drive is not formatted. With this option, you can use the DOS FDISK.EXE utility to create a partition and format it.

OS/2 Driver Installation

OS/2 comes with a utility program that installs device drivers automatically. It copies all the necessary files to a specified directory and updates the CONFIG.SYS file without user intervention. To install the drivers for systems running OS/2, do the following:

1. Put the distribution diskette into the diskette drive (drive A:)
2. Click on the following: OS/System → System Setup → Install/Remove → Device Driver Install
3. For the Source Directory specify A:\OS2
4. Leave the Destination Directory exactly as it appears. Do not change the default destination directory
5. Click Install; select Commuter Hard Disk Driver; then click OK
6. After the driver is installed, Exit the installation program and perform a system Shut Down. When the system comes back up, there should be a hard disk icon with the new drive letter assigned to it.

Note: If you are an experienced user, you can install the driver manually, by copying CDISK.ADD from the A:\OS2 directory on the distribution diskette to the C:\OS2\BOOT directory and adding the following line to the end of your CONFIG.SYS file:

```
BASEDEV=CDISK.ADD
```

APPENDIX

Troubleshooting

Problem	Action
Drive not spinning	<ol style="list-style-type: none">1. Check power cable.2. Bad drive unit. Check with your local dealer for repair information.
Frequent Read/Write Errors	<ol style="list-style-type: none">1. Parallel port may be ill-behaved. Try using the /s driver command line option.2. Hard disk may have some bad sectors; use a utility program to scan the disk and map out the bad sectors.

Specifications

Function	EH-100E+	EH-132E+
Average Seek Time	10ms (depending on drive performance)	
Interface	Standard or Enhanced Parallel Port (EPP)	
Data Transfer Rate	Up to 1.25MB in EPP mode; up to 250KB in standard mode (depending on the host computer)	
Start/Stop Cycle	20,000 minimum	
Interleave Factor	1 : 1	
Power Requirements	5W	
Power Supply	DC 5V (optional) AC 13.8V	
MTBF	100,000 hours	
MTTR	20 minutes	
Non-operating Shock	75G	
Operating Temperature	5 to 55° C	
Storage Temperature	-40 to 60° C	
Drive Size	2.5"	3.5"
Dimensions	137 x 76 x 32 (mm)	230 x 130 x 43 (mm)
Weight (w/o HD)	150g	750g