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## Acknowledgments

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**CompactFlash** is a registered trademark of SanDisk Corporation



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<http://www.compactflash.org>*





**PCMCIA/CompactFlash™ ATA to IDE Drives and Modules**

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## Introduction

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Thank you for buying one of our PCMCIA or CompactFlash™ ATA to IDE drives or modules.

### ATA PCMCIA drives

ATA PCMCIA cards have long been used in notebook computers for data storage and information sharing. PCMCIA drives are compact and durable and provide an inexpensive way to add hard drive capacity to a notebook computer. Our ATA to IDE drives allow a desktop computer system to use PCMCIA ATA cards to facilitate information sharing between notebook and desktop computer systems. In addition, our ATA to IDE drives give system integrators the option of using PCMCIA drives as an alternative to conventional floppy, hard disk and CD-ROM disc drives. PCMCIA drives are particularly well-suited for use in harsh industrial computing environments where heat, dust and vibration prevents the use of other types of drives.

### ATA CompactFlash drives

CompactFlash™ is the world's smallest removable mass storage device. The technology was first introduced by SanDisk Corporation in 1994. CompactFlash cards weigh only 14 grams and are approximately the size of a book of matches.

CompactFlash cards connect to readers and other devices through a 50-pin connector, compared to the 68-pin connector that is used by PCMCIA cards. However, CompactFlash cards fully comply to ATA specifications.



## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

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CompactFlash cards use nonvolatile flash technology and, like mechanical disk drives, can retain data without a battery or other electrical source. However, CompactFlash cards are much more durable than mechanical disk drives and can withstand environments of substantial vibration. CompactFlash devices provide reliable operation in a temperature range of  $-25^{\circ}\text{C}$  to  $+75^{\circ}\text{C}$  compared with a range of  $+5^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$  for rotating drives.

CompactFlash technology is supported by all computing platforms and operating systems that support the PCMCIA-ATA standard, including DOS, Windows, OS/2, Apple System 7, most versions of UNIX, and others.

The relatively low cost and low power consumption of CompactFlash cards makes them particularly well-suited as a durable source of storage for a wide range of industrial and consumer devices, including portable computers, digital cameras, handheld data collection scanners, cellular phones, PCS phones, PDAs, handy terminals, personal communicators, advanced two-way pagers, audio recorders, monitoring devices and set-top boxes.

CompactFlash cards are available in 2, 4, 8, 10, 15, 20 and 32 MB capacities. At current market prices (mid-1998), CompactFlash cards provide the most economical source of flash disk storage for capacities greater than 4 MB.



## Product Overview

There are five models in our product series. Three are ATA to IDE drives, one is a CompactFlash to IDE drive and one is a combination PC/104 PCMCIA/CompactFlash (ATA) to IDE Module.

### ATA to IDE Drives

The ATA to IDE drives allow Type I/II/III ATA Flash and ATA HDD PCMCIA cards to be accessed by a standard desktop computer. The PCM-3116PC/F PCMCIA (ATA) to IDE drive and the PCM-3116PC/R PCMCIA (ATA) to IDE card are very similar, with the former being able to be mounted in a 3.5" disk drive bay while the latter occupies an ISA slot for card access via the rear of the computer.

#### Common Specifications

- Complies with PCMCIA v. 2.1 / JEIDA 4.1 standards
- ATA to IDE interface
- 40-pin IDE connector
- 4-pin standard power connector
- Supports Type I/II/III ATA Flash, ATA HDD and CompactFlash cards
- 5 V, 70 mA power consumption (typical)
- 0° C to 70° C operating temperature range



## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

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### PCM-3116PC/F PCMCIA (ATA) to IDE Drive (front-mounted)

The **PCM-3116PC/F PCMCIA (ATA) to IDE drive** is a PCMCIA card drive that enables any PC compatible computer with an IDE controller to read and write PCMCIA ATA Flash, ATA hard disk drive and CompactFlash cards. It automatically converts the signal from the 68-pin PCMCIA connector to a 40-pin IDE connector thus allowing a computer's BIOS to access a PCMCIA card in the same manner as an IDE drive. Operating system card and socket services are not needed and the drive does not require the installation of a device driver.

The PCM-3116PC/F PCMCIA (ATA) to IDE drive is the same size as a 3.5" floppy disk drive so it can be mounted in the front of a computer's case. This gives you convenient access to the drive. Installation is easy - simply mount the drive in a free 3.5" drive mount on the front of the computer, connect the IDE cable and then connect the standard power cable from your computer's power supply to the power connector at the rear of the drive.



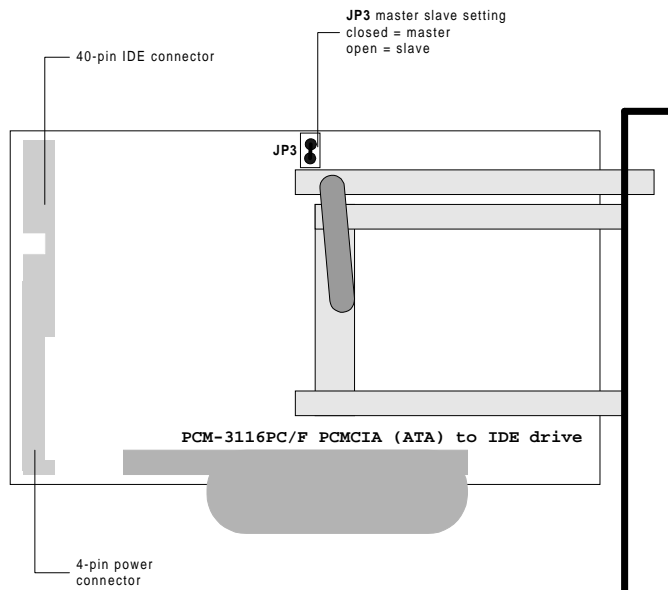
### PCM-3116PC/R PCMCIA (ATA) to IDE Card (rear mounted)



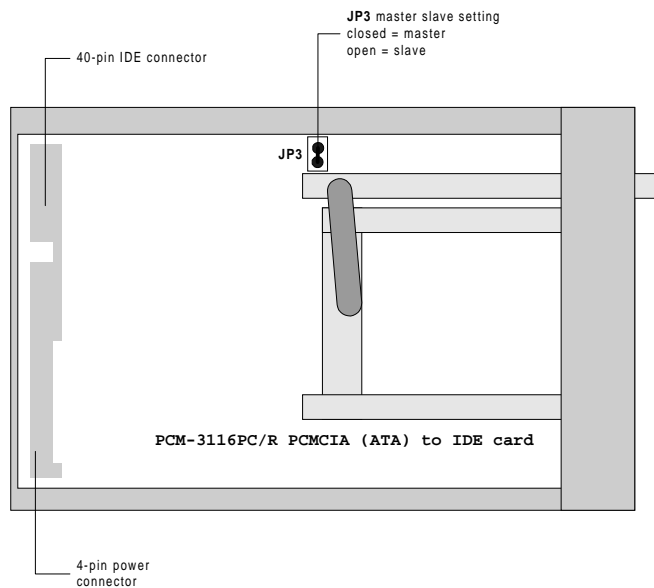
The **PCM-3116PC/R PCMCIA (ATA) to IDE card** is a PCMCIA card drive that enables any PC compatible computer with an IDE controller to read and write PCMCIA ATA Flash, ATA hard disk drive and CompactFlash cards. It automatically converts the signal from the 68-pin PCMCIA connector to a 40-pin IDE connector thus allowing a computer's BIOS to access a PCMCIA card in the same manner as an IDE drive. Operating system card and socket services are not needed and the drive does not require the installation of a device driver.

The PCM-3116PC/R PCMCIA (ATA) to IDE card is the same size as a half-size ISA interface card. It installs into an ISA expansion slot of your computer though the signal connections pass through an IDE connector on the card. The PCM-3116PC/R is an excellent choice for computer users who do not have a free 3.5" FDD bay on the front of their computer chassis or for those who do not have to frequently access the card. Installation is easy - simply mount the drive in a free ISA slot on the rear of the computer, connect the IDE cable and then connect the standard power cable from your computer's power supply to the power connector at the rear of the drive.





PCM-3116PC/F PCMCIA (ATA) to IDE drive



PCM-3116PC/R PCMCIA (ATA) to IDE card



## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

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### PCM-3116 PC/104 PCMCIA and/or CompactFlash (ATA) to IDE Modules

The PCM-3116 family of drives bring the convenience of PCMCIA and CompactFlash cards to industrial computer systems. PC/104 is a version of the standard PC bus designed specifically for the particular challenges of using PC technology in industrial and embedded computer systems. All PCM-3116 models conform to the standard PC/104 form factor.

Connections can be made in two ways - either through the PC/104 connector or through the IDE and power connectors.

#### Common Specifications

- Complies with PCMCIA v. 2.1 / JEIDA 4.1 and CompactFlash standards
- ATA/CompactFlash to IDE interface
- 40-pin IDE connector
- 4-pin standard power connector
- Supports Type I/II/III ATA Flash, ATA HDD and CompactFlash cards through 68-pin PCMCIA connector or 50-pin CompactFlash connector
- 5 V, 70 mA power consumption (typical)
- 0° C to 70° C operating temperature range
- Standard PC/104 form factor





## **PCM-3116 PC/104 PCMCIA/CompactFlash (ATA) to IDE Module**

The PCM-3116 is a PC/104 form-factor drive that allows computers with an IDE controller to read and write both PCMCIA ATA Flash/ATA hard disk cards and CompactFlash cards. The module converts the 68-pin PCMCIA signal and the 50-pin CompactFlash signal to a 40-pin IDE signal. Your computer's system BIOS will access the PCMCIA and CompactFlash cards in the same manner as any other IDE drive. Power is provided through a 4-pin compact power connector. The PCM-3116 does not require the installation of a device driver and does not need to use the operating system's card or socket services.

In order to provide additional flexibility to industrial computer system integrators, the PCM-3116 also provides a PC/104 connector. This allows it to be connected to other PC/104 modules or connected to single board computers that feature a PC/104 connector. If the PCM-3116 is connected using the PC/104 connector, there is no need to connect cables to the IDE or power connectors because power and communication is transmitted through the PC/104 connector.



## **PCM-3116PC PC/104 PCMCIA (ATA) to IDE Module**

The PCM-3116PC is a PC/104 form-factor drive that allows computers with an IDE controller to read and write PCMCIA ATA Flash and ATA hard disk cards. The module converts the 68-pin PCMCIA signal to a 40-pin IDE signal. Your computer's system BIOS will access the PCMCIA drive in the same manner as any other IDE drive. Power is provided through a 4-pin compact power connector. The PCM-3116PC does not require the installation of a device driver and does not need to use the operating system's card or socket services.

In order to provide additional flexibility to industrial computer system integrators, the PCM-3116PC also provides a PC/104 connector. This allows it to be connected to other PC/104 modules or connected to single board computers that feature a PC/104 connector. If the PCM-3116PC is connected using the PC/104 connector, there is no need to connect cables to the IDE or power connectors because power and communication is transmitted through the PC/104 connector.





## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

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### PCM-3116CF PC/104 CompactFlash (ATA) to IDE Module

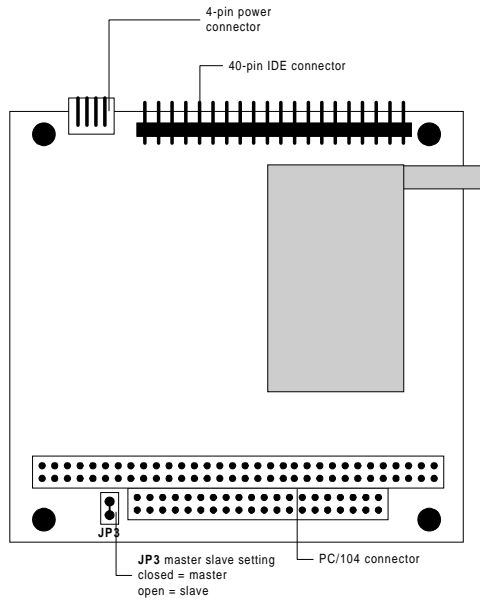
The PCM-3116CF is a PC/104 form factor drive that allows computers with an IDE controller to read and write CompactFlash cards. The module converts the 50-pin CompactFlash signal to a 40-pin IDE signal. Your computer's system BIOS will access the CompactFlash card in the same manner as any other IDE drive. Power is provided through a 4-pin compact power connector. The PCM-3116CF does not require the installation of a device driver and does not need to use the operating system's card or socket services.

In order to provide additional flexibility to industrial computer system integrators, the PCM-3116CF also provides a PC/104 connector. This allows it to be connected to other PC/104 modules or connected to single board computers that feature a PC/104 connector. If the PCM-3116CF is connected using the PC/104 connector, there is no need to connect cables to the IDE or power connectors because power and data communication is transmitted through the PC/104 connector.

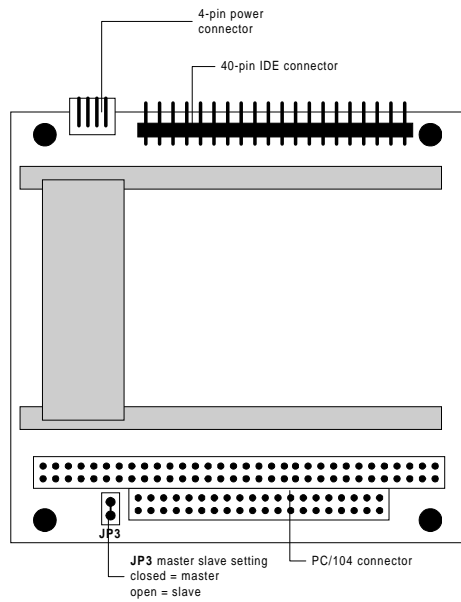




**User's Manual**



**PCM-3116CF PC/104 CompactFlash (ATA) to IDE Module**



**PCM-3116PC PC/104 PCMCIA (ATA) to IDE Module**





## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

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### Hardware Installation

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All of the PCMCIA/CompactFlash ATA to IDE drives and modules can be installed into a computer within five minutes. The general procedure is to mount the drive within your computer and connect cables to enable power and data transfer to and from your device.

### Jumper Settings

Before attempting to install your drive you may have to set jumpers on the drive unit. Refer to the diagram on pages 7 and 11 for the location of the jumper (JP3).

Most computer mainboards (and single-board computers) have two IDE connectors. These two connectors are denoted the primary and secondary IDE connectors. Each IDE connector can accommodate two IDE devices provided that one is set as the master and one as the slave. A single IDE connector cannot have two masters or two slaves.

If you are connecting your ATA to IDE drive to a IDE connector that already has an IDE device (i.e., hard disk drive or CD-ROM disc drive) connected to it, you must make sure that the jumper settings on your ATA to IDE drive do not conflict with the existing device. For example:

- If you are connecting your ATA to IDE drive to the same IDE connector as the hard disk drive that your computer boots from, you must set the hard disk drive as the master and the ATA to IDE drive as the slave.
- If you are connecting your ATA to IDE drive to the same IDE connector as your CD-ROM disc drive, set the ATA to IDE drive as the opposite to your existing CD-ROM.
- If your ATA to IDE drive will contain the boot files for your system, you must set it as the master.



Jumpers for hard disk drives and CD-ROM disc drives are normally found on the end of the drive between the power and IDE connector. Jumper settings for these devices can be found in the documentation that came with the device or sometimes on labels on the device.

### **PCM-3116PC/F PCMCIA (ATA) to IDE Drive (front-mounted)**



- 1 Turn off your computer.
- 2 Remove the case from your computer. Some computer cases have a one piece design that requires the removal of screws on the rear of your computer. ATX cases can be opened by first removing the front plate and then unscrewing screws to remove the side panels. If you require further information about your computer, please consult your computer's documentation.
- 3 Remove the protective faceplate that covers a free 3.5" disk drive bay in your computer. The faceplate is held in place by two plastic clips. Simply snap the faceplate out of its bracket.
- 4 Insert the PCM-3116PC/F PCMCIA (ATA) to IDE drive into the computer's 3.5" disk drive bay. Secure the drive by affixing four screws to the bay's rails.
- 5 Connect a 40-pin IDE cable from the ATA to IDE drive's IDE connector and then to the IDE connector on the mainboard. Make sure that the cable's red edge is connected to pin 1 on each of the connectors.
- 6 Connect a power cable from your computer's power supply to the power connector on the ATA to IDE drive. Owing to the shape of the cable and connector, it is impossible to plug in this cable incorrectly.
- 7 Replace the case on your computer.



## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

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### PCM-3116PC/R PCMCIA (ATA) to IDE card (rear- mounted)

- 1 Turn off your computer.
  - 2 Remove the case from your computer. Some computer cases have a one piece design that requires the removal of screws on the rear of your computer. ATX cases can be opened by first removing the front plate and then unscrewing screws to remove the side panels. If you require further information about your computer, please consult your computer's documentation.
  - 3 Insert the PCM-3116PC/R PCMCIA (ATA) to IDE card into a free ISA slot on your computer's mainboard. Screw in a single screw on the card's backplate to secure the card firmly in the ISA slot.
  - 4 Connect a 40-pin IDE cable from the ATA to IDE drive's IDE connector and then to the IDE connector on the mainboard. Make sure that the cable's red edge is connected to pin 1 on each of the connectors.
  - 5 Connect a power cable from your computer's power supply to the power connector on the ATA to IDE drive. Owing to the shape of the cable and connector, it is impossible to plug in this cable incorrectly.
  - 6 Replace the case on your computer.
- 
- 

## PCM-3116 Series PC/104 PCMCIA and/or CompactFlash (ATA) to IDE Modules

There are two ways to connect the PCM-3116 series modules to your computer - either through the PC/104 connector or through the power and IDE connector.

### Using the PC/104 Connector

If your computer has an on-board PC/104 connector, you can install the PCM-3116 series module with one simple connection. Simply insert the PC/104 connector pins on the bottom of the drive into a standard PC/104 connector on your single board computer. This kind of installation provides much flexibility for integrators of industrial computer systems since additional PC/104 connectors can then be installed on top of the PCM-3116 series module. Power and data transfer is handled through the PC/104 connection. The connection of several PC/104 connector to a single board computer enables the integration of a multifunction, powerful computer that takes up very little space. In addition, the PC/104 bus was designed specifically to adapt the PC bus to the rigors of a harsh industrial environment that includes vibration and dust.

### Using the IDE and Power Connector

The PCM-3116 series modules can also be connected to a computer using the conventional 40-pin IDE and 4-pin power connectors. Connect an IDE cable from the drive's IDE connector to the IDE connector on your computer's mainboard. This provides data transfer between your computer and the drive. You must also connect a power cable from your computer's power supply to the drive.



## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

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### BIOS Setup

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You must make changes to your system BIOS before you can use the PCMCIA/CompactFlash (ATA) to IDE drive or module. This procedure is to enable your computer to work with the new drive. You will be able to use the drive in the same manner as any other floppy disk, hard drive or CD-ROM drive that is connected to your system after making changes to your system's BIOS.

The following procedure configures your new PCMCIA/CompactFlash (ATA) to IDE drive or module. An example shows the installation of the drive containing a 20 MB ATA Flash HDD PCMCIA card on a computer that has an Award BIOS, ASUS mainboard and existing 4.3 GB HDD. Your own configuration will likely be different so the screens will not be the same. However, the installation process is the same for all ATA Flash, ATA HDD and CompactFlash cards. In addition, BIOSes from other manufacturers may appear different. Consult the documentation that came with your BIOS (likely included in your mainboard manual) for specific information about your own computer system.

- 1 Turn off your computer.
- 2 Connect the PCMCIA/CompactFlash (ATA) to IDE drive or module to your computer as explained in the previous section.
- 3 Insert the PCMCIA or CompactFlash card into your drive unit.
- 4 Turn on your computer. You will immediately be given the option to enter BIOS Setup before your operating system loads. BIOSes manufactured by Award Software can be configured by typing the Delete key. BIOSes from other manufacturers can be entered by simultaneously typing Ctrl-Alt-S, Ctrl-Esc or Ctrl-F1. Look at the on-screen message on your own computer for the specific command.
- 5 The main BIOS Setup screen opens.







## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

Date <mm:dd:yy> : Fri, Sep 18 1998																																																											
Time <hh:mm:ss> : 16 : 52 : 38																																																											
<table border="1"><thead><tr><th>HARD DISKS</th><th>TYPE</th><th>SIZE</th><th>CYLS</th><th>HEAD</th><th>PRECOMP</th><th>LANDZ</th><th>SECTOR</th><th>MODE</th><th></th></tr></thead><tbody><tr><td>Primary Master</td><td>:Auto</td><td>4310</td><td>14848</td><td>9</td><td>65535</td><td>14847</td><td>63</td><td>Normal</td><td></td></tr><tr><td>Primary Slave</td><td>:None</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>-----</td><td></td></tr><tr><td>Secondary Master</td><td>:Auto</td><td>20</td><td>640</td><td>2</td><td>65535</td><td>639</td><td>32</td><td>Normal</td><td></td></tr><tr><td>Secondary Slave</td><td>:None</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>-----</td><td></td></tr></tbody></table>										HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE		Primary Master	:Auto	4310	14848	9	65535	14847	63	Normal		Primary Slave	:None	0	0	0	0	0	0	-----		Secondary Master	:Auto	20	640	2	65535	639	32	Normal		Secondary Slave	:None	0	0	0	0	0	0	-----	
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE																																																			
Primary Master	:Auto	4310	14848	9	65535	14847	63	Normal																																																			
Primary Slave	:None	0	0	0	0	0	0	-----																																																			
Secondary Master	:Auto	20	640	2	65535	639	32	Normal																																																			
Secondary Slave	:None	0	0	0	0	0	0	-----																																																			
Drive A: 1.44M. 3.5 in.					Base Memory: 640K																																																						
Drive B: None					Extended Memory: 15360K																																																						
Video: EGA/VGA					Other Memory: 384K																																																						
Halt On: All But Keyboard					Total Memory: 16384K																																																						
ESC: Quit			- - @ - : Select Item			PU/PD/+/-: Modify																																																					
F1: Help			<Shift> F2: Change Color																																																								

- 9 When finished, save your setting and exit the BIOS Setup. Your computer will automatically re-boot. Allow your computer's operating system to load normally.

Open your File Manager or Windows Explorer to verify that your operating system has identified the new drive correctly. The figure on the following page shows that the new drive has been assigned a drive letter according to the standard naming conventions of the operating system.

**Note:** If your computer's BIOS fails to identify the new drive correctly, the problem is most likely due to one of two reasons. First, check your drive's jumper setting that controls whether the drive is configured as either the master or the slave. If changing the jumper setting does not correct the problem, it is possible that the PCMCIA or CompactFlash card that you are using is defective. Repeat BIOS configuration procedure with a new card.

**Warning:**



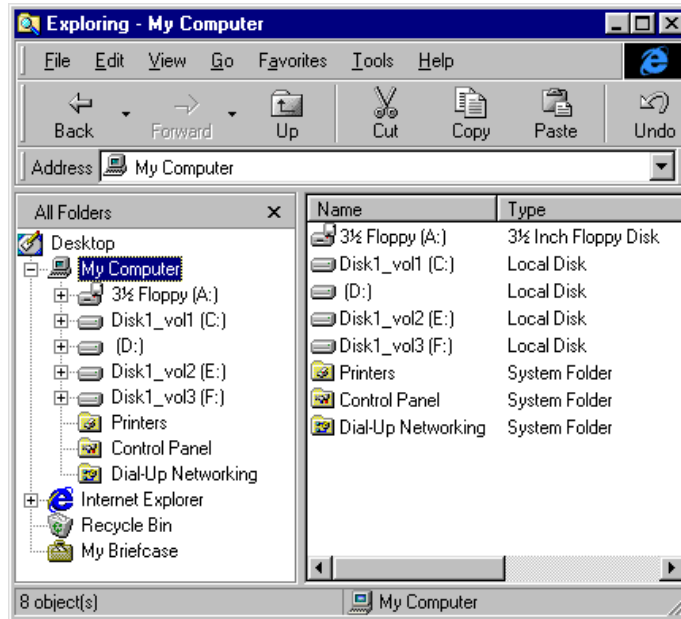
PCMCIA and CompactFlash cards in the PCMCIA/CompactFlash (ATA) to IDE drive or module are NOT hot-swappable. You must turn off your computer before attempting to eject or insert a card. Attempting to change cards while the computer is running will not be successful and may damage your card and/or your computer.

## Drive Letter Assignments

When you have finished installing your PCMCIA/CompactFlash (ATA) to IDE drive or module in your computer and configured it within the BIOS Setup, the drive can be used like any other drive on your computer.

The following figure shows our computer after successful installation of the drive. The computer originally had one hard drive with three partitions. Before installation the drive partitions were assigned the letters C, D and E. The drive letter assignments are now the following:

- C: HDD (first partition)
- **D: PCMCIA/CompactFlash (ATA) to IDE drive or module**
- E: HDD (second partition)
- F: HDD (third partition)



## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

### Pin Assignments

#### Power Connector

Pin	Signal
1	+5 V
2	GND
3	GND
4	+12V

#### IDE Connector

Pin	Signal	Pin	Signal
1	IDE RESET*	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	SIGNAL GND	20	N/C
21	N/C	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO CHANNEL READY	28	N/C
29	HACKO*	30	GND
31	IRQ14	32	IOCS16
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HARD DISK SELECT 0*	38	HARD DISK SELECT 1*
39	IDE ACTIVE*	40	GND

**PC/104 Connector**

Pin Number	Connector J1		Connector J2	
	Row A	Row B	Row C	Row D
0	—	—	GND	GND
1	IOCK#	GND	SBHE#	MEM16
2	SD7	RESETDRV	LA23	IO16#
3	SD6	+5V	LA22	IRQ10
4	SD5	IRQ9	LA21	IRQ11
5	SD4	-5V	LA20	IRQ12
6	SD3	DRQ2	LA19	IRQ15
7	SD2	-12V	LA18	IRQ14
8	SD1	OWS#	LA17	DACK0#
9	SD0	+12V	MEMR#	DRQ0
10	IOCHRDY	GND	MEMW#	DACK5#
11	AEN	SMEMW#	SD8	DRQ5
12	SA19	SMEMR#	SD9	DACK6#
13	SA18	IOW#	SD10	DRQ6
14	SA17	IOR#	SD11	DACK7#
15	SA16	DACK3#	SD12	DRQ7
16	SA15	DRQ3	SD13	+5V
17	SA14	DACK1#	SD14	MASTER#
18	SA13	DRQ1	SD15	GND
19	SA12	REFRESH#	—	GND
20	SA11	ATCLK#	—	—
21	SA10	IRQ7	—	—
22	SA9	IRQ6	—	—
23	SA8	IRQ5	—	—
24	SA7	IRQ4	—	—
25	SA6	IRQ3	—	—
26	SA5	DACK2#	—	—
27	SA4	T/C	—	—
28	SA3	BALE	—	—
29	SA2	+5V	—	—
30	SA1	OSC	—	—
31	SA0	GND	—	—
32	GND	GND	—	—

## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

### CompactFlash Connector

CompactFlash Pin Assignments: PC Card Memory Mode							
Pin Num	Signal Name	Pin Type	In Out Type	Pin Num	Signal Name	Pin Type	In Out Type
1	GND		Ground	26	-CD1	O	Ground
2	D03	I/O	I1Z,OZ3	27	D11 <sup>1</sup>	I/O	I1Z,OZ3
3	D04	I/O	I1Z,OZ3	28	D12 <sup>1</sup>	I/O	I1Z,OZ3
4	D05	I/O	I1Z,OZ3	29	D13 <sup>1</sup>	I/O	I1Z,OZ3
5	D06	I/O	I1Z,OZ3	30	D14 <sup>1</sup>	I/O	I1Z,OZ3
6	D07	I/O	I1Z,OZ3	31	D15 <sup>1</sup>	I/O	I1Z,OZ3
7	0	I	I3U	32	-CE2 <sup>1</sup>	I	I3U
8	A10	I	I1Z	33	-VS1	O	Ground
9	-OE	I	I3U	34	-IORD	I	I3U
10	A09	I	I1Z	35	-IOWR	I	I3U
11	A08	I	I1Z	36	-WE	I	I3U
12	A07	I	I1Z	37	RDY/BSY	O	OT1
13	VCC		Power	38	VCC		Power
14	A06	I	I1Z	39	-CSEL	I	I2Z
15	A05	I	I1Z	40	-VS2	O	OPEN
16	A04	I	I1Z	41	RESET	I	I2Z
17	A03	I	I1Z	42	-WAIT	O	OT1
18	A02	I	I1Z	43	-INPACK	O	OT1
19	A01	I	I1Z	44	-REG	I	I3U
20	A00	I	I1Z	45	BVD2	I/O	I1U,OT1
21	D00	I/O	I1Z,OZ3	46	BVD1	I/O	I1U,OT1
22	D01	I/O	I1Z,OZ3	47	D08	I/O	I1Z,OZ3
23	D02	I/O	I1Z,OZ3	48	D09	I/O	I1Z,OZ3
24	WP	O	OT3	49	D10	I/O	I1Z,OZ3
25	-CD2	O	Ground	50	GND		Ground

- 1 These signals are required only for 16-bit access and not required when installed in 8-bit systems. Devices should allow for 3-state signals not to consume current.
- 2 Devices should be grounded by the host.
- 3 Should be tied to VCC by the host.

CompactFlash Pin Assignments: PC Card I/O Mode								
Pin Num	Signal Name	Pin Type	In, Out Type		Pin Num	Signal Name	Pin Type	In Out Type
1	GND		Ground		26	-CD1	O	Ground
2	D03	I/O	I1Z,OZ3		27	D11 <sup>1</sup>	I/O	I1Z,OZ3
3	D04	I/O	I1Z,OZ3		28	D12 <sup>1</sup>	I/O	I1Z,OZ3
4	D05	I/O	I1Z,OZ3		29	D13 <sup>1</sup>	I/O	I1Z,OZ3
5	D06	I/O	I1Z,OZ3		30	D14 <sup>1</sup>	I/O	I1Z,OZ3
6	D07	I/O	I1Z,OZ3		31	D15 <sup>1</sup>	I/O	I1Z,OZ3
7	-CE1	I	I3U		32	-CE2 <sup>1</sup>	I	I3U
8	A10	I	I1Z		33	-VS1	O	Ground
9	-OE	I	I3U		34	-IORD	I	I3U
10	A09	I	I1Z		35	-IOWR	I	I3U
11	A08	I	I1Z		36	-WE	I	I3U
12	A07	I	I1Z		37	IREQ	O	OT1
13	VCC		Power		38	VCC		Power
14	A06	I	I1Z		39	-CSEL	I	I2Z
15	A05	I	I1Z		40	-VS2	O	OPEN
16	A04	I	I1Z		41	RESET	I	I2Z
17	A03	I	I1Z		42	-WAIT	O	OT1
18	A02	I	I1Z		43	-INPACK	O	OT1
19	A01	I	I1Z		44	-REG	I	I3U
20	A00	I	I1Z		45	-SPKR	I/O	I1U,OT1
21	D00	I/O	I1Z,OZ3		46	-STSCHG	I/O	I1U,OT1
22	D01	I/O	I1Z,OZ3		47	D08	I/O	I1Z,OZ3
23	D02	I/O	I1Z,OZ3		48	D09	I/O	I1Z,OZ3
24	-IOIS16	O	OT3		49	D10	I/O	I1Z,OZ3
25	-CD2	O	Ground		50	GND		Ground

- 1 These signals are required only for 16-bit access and not required when installed in 8-bit systems. Devices should allow for 3-state signals not to consume current.
- 2 Devices should be grounded by the host.
- 3 Should be tied to VCC by the host.

## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

CompactFlash Pin Assignments: True IDE Mode								
Pin Num	Signal Name	Pin Type	In, Out Type		Pin Num	Signal Name	Pin Type	In Out Type
1	GND		Ground		26	-CD1	O	Ground
2	D03	I/O	I1Z,OZ3		27	D11 <sup>1</sup>	I/O	I1Z,OZ3
3	D04	I/O	I1Z,OZ3		28	D12 <sup>1</sup>	I/O	I1Z,OZ3
4	D05	I/O	I1Z,OZ3		29	D13 <sup>1</sup>	I/O	I1Z,OZ3
5	D06	I/O	I1Z,OZ3		30	D14 <sup>1</sup>	I/O	I1Z,OZ3
6	D07	I/O	I1Z,OZ3		31	D15 <sup>1</sup>	I/O	I1Z,OZ3
7	-CS0	I	I3Z		32	-CS1 <sup>1</sup>	I	I1Z,OZ3
8	A10 <sup>2</sup>	I	I1Z		33	-VS1	O	Ground
9	-ATA SEL	I	I3U		34	-IORD	I	I3Z
10	A09 <sup>2</sup>	I	I1Z		35	-IOWR	I	I3Z
11	A08 <sup>2</sup>	I	I1Z		36	-WE <sup>3</sup>	I	I3U
12	A07 <sup>2</sup>	I	I1Z		37	INTRQ	O	OZ1
13	VCC		Power		38	VCC		Power
14	A06 <sup>2</sup>	I	I1Z		39	-CSEL	I	I2U
15	A05 <sup>2</sup>	I	I1Z		40	-VS2	O	OPEN
16	A04 <sup>2</sup>	I	I1Z		41	-RESET	I	I2Z
17	A03 <sup>2</sup>	I	I1Z		42	IORDY	O	ON1
18	A02	I	I1Z		43	-INPACK	O	OZ1
19	A01	I	I1Z		44	-REG <sup>3</sup>	I	I3U
20	A00	I	I1Z		45	-DASP	I/O	I1U,ON1
21	D00	I/O	I1Z,OZ3		46	-PDIAG	I/O	I1U,ON1
22	D01	I/O	I1Z,OZ3		47	D08 <sup>1</sup>	I/O	I1Z,OZ3
23	D02	I/O	I1Z,OZ3		48	D09 <sup>1</sup>	I/O	I1Z,OZ3
24	-IOCS16	O	ON3		49	D10 <sup>1</sup>	I/O	I1Z,OZ3
25	-CD2	O	Ground		50	GND		Ground

- 1 These signals are required only for 16-bit access and not required when installed in 8-bit systems. Devices should allow for 3-state signals not to consume current.
- 2 Devices should be grounded by the host.
- 3 Should be tied to VCC by the host.



**PCMCIA Connector**

PCMCIA Pin Assignments and Type: PC Card Memory Mode								
Pin Num	Signal Name	Pin Type	In, Out Type		Pin Num	Signal Name	Pin Type	In Out Type
1	GND		Ground		35	GND		Ground
2	DO3	I/O	I1Z,OZ3		36	-CD1	O	Ground
3	D04	I/O	I1Z,OZ3		37	D11 <sup>1</sup>	I/O	I1Z,OZ3
4	D05	I/O	I1Z,OZ3		38	D12 <sup>1</sup>	I/O	I1Z,OZ3
5	D06	I/O	I1Z,OZ3		39	D13 <sup>1</sup>	I/O	I1Z,OZ3
6	D07	I/O	I1Z,OZ3		40	D14 <sup>1</sup>	I/O	I1Z,OZ3
7	-CE1	I	I3U		41	D15 <sup>1</sup>	I/O	I1Z,OZ3
8	A10	I	I1Z		42	-CE2 <sup>1</sup>	I	I3U
9	-OE	I	I3U		43	-VS1	O	Ground
10					44	-ORD	I	I3U
11	AO9	I	I1Z		45	-IOWR	I	I3U
12	AO8	I	I1Z		46			
13					47			
14					48			
15	-WE	I	I3U		49			
16	RDY/BSY	O	OT1		50			
17	VCC		Power		51	VCC		Power
18	VPP		(not used)		52	VPP		(not used)
19					53			
20					54			
21					55			
22	AO7	I	I1Z		56	-CSEL	I	I2Z
23	AO6	I	I1Z		57	-VS2	O	OPEN
24	AO5	I	I1Z		58	RESET	I	I2Z
25	AO4	I	I1Z		59	-WAIT	O	OT1
26	AO3	I	I1Z		60	-INPACK	O	OT1
27	AO2	I	I1Z		61	-REG	I	I3U
28	AO1	I	I1Z		62	BVD2	I/O	I1U,OT1
29	AO0	I	I1Z		63	BVD1	I/O	I1U,OT1
30	DO0	I/O	I1Z,OZ3		64	DO8 <sup>1</sup>	I/O	I1Z,OZ3
31	DO1	I/O	I1Z,OZ3		65	DO9 <sup>1</sup>	I/O	I1Z,OZ3
32	DO2	I/O	I1Z,OZ3		66	D10 <sup>1</sup>	I/O	I1Z,OZ3
33	WP	O	OT3		67	-CD2	O	Ground
34	GND		Ground		68	GND		Ground

- 1 These signals are required only for 16-bit access and are not required when installed in 8-bit systems. Devices should allow for 3-state signals not to consume current.
- 2 Should be grounded by the host.
- 3 Should be tied to VCC by the host.

## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

PCMCIA Pin Assignments and Type: PC Card I/O Mode							
Pin Num	Signal Name	Pin Type	In, Out Type	Pin Num	Signal Name	Pin Type	In Out Type
1	GND		Ground	35	GND		Ground
2	DO3	I/O	I1Z,OZ3	36	-CD1	O	Ground
3	D04	I/O	I1Z,OZ3	37	D11 <sup>1</sup>	I/O	I1Z,OZ3
4	D05	I/O	I1Z,OZ3	38	D12 <sup>1</sup>	I/O	I1Z,OZ3
5	D06	I/O	I1Z,OZ3	39	D13 <sup>1</sup>	I/O	I1Z,OZ3
6	D07	I/O	I1Z,OZ3	40	D14 <sup>1</sup>	I/O	I1Z,OZ3
7	-CE1	I	I3U	41	D15 <sup>1</sup>	I/O	I1Z,OZ3
8	A10	I	I1Z	42	-CE2 <sup>1</sup>	I	I3U
9	-OE	I	I3U	43	-VS1	O	Ground
10				44	-ORD	I	I3U
11	AO9	I	I1Z	45	-IOWR	I	I3U
12	AO6	I	I1Z	46			
13				47			
14				48			
15	-WE	I	I3U	49			
16	IREQ	O	OT1	50			
17	VCC		Power	51	VCC		Power
18	VPP		(not used)	52	VPP		(not used)
19				53			
20				54			
21				55			
22	AO7	I	I1Z	56	-CSEL	I	I2Z
23	AO6	I	I1Z	57	-VS2	O	OPEN
24	AO5	I	I1Z	58	RESET	I	I2Z
25	AO4	I	I1Z	59	-WAIT	O	OT1
26	AO3	I	I1Z	60	-INPACK	O	OT1
27	AO2	I	I1Z	61	-REG	I	I3U
28	AO1	I	I1Z	62	-SPKR	I/O	I1U,OT1
29	AO0	I	I1Z	63	-STSCHG	I/O	I1U,OT1
30	DO0	I/O	I1Z,OZ3	64	DO8 <sup>1</sup>	I/O	I1Z,OZ3
31	DO1	I/O	I1Z,OZ3	65	DO9 <sup>1</sup>	I/O	I1Z,OZ3
32	DO2	I/O	I1Z,OZ3	66	D10 <sup>1</sup>	I/O	I1Z,OZ3
33	-IOIS16	O	OT3	67	-CD2	O	Ground
34	GND		Ground	68	GND		Ground

- 1 These signals are required only for 16-bit access and are not required when installed in 8-bit systems. Devices should allow for 3-state signals not to consume current.
- 2 Should be grounded by the host.
- 3 Should be tied to VCC by the host.

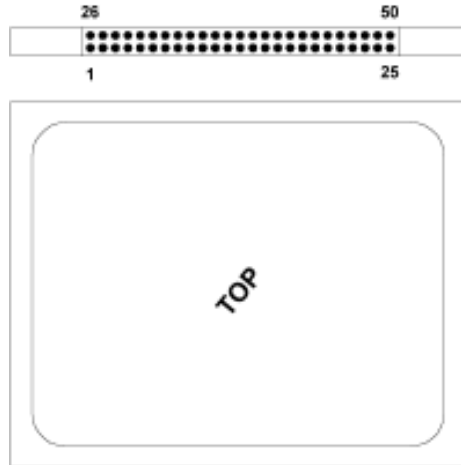
PCMCIA Pin Assignments and Type: True IDE Mode								
Pin Num	Signal Name	Pin Type	In, Out Type		Pin Num	Signal Name	Pin Type	In Out Type
1	GND		Ground		35	GND		Ground
2	DO3	I/O	I1Z,OZ3		36	-CD1	O	Ground
3	D04	I/O	I1Z,OZ3		37	D11 <sup>1</sup>	I/O	I1Z,OZ3
4	D05	I/O	I1Z,OZ3		38	D12 <sup>1</sup>	I/O	I1Z,OZ3
5	D06	I/O	I1Z,OZ3		39	D13 <sup>1</sup>	I/O	I1Z,OZ3
6	D07	I/O	I1Z,OZ3		40	D14 <sup>1</sup>	I/O	I1Z,OZ3
7	-CSO	I	I3Z		41	D15 <sup>1</sup>	I/O	I1Z,OZ3
8	A10 <sup>2</sup>	I	I1Z		42	-CS1 <sup>1</sup>	I	I3Z
9	-ATA SEL	I	I3U		43	-VS1	O	Ground
10					44	-IORD	I	I3Z
11	AO9 <sup>2</sup>	I	I1Z		45	-IOWR	I	I3Z
12	AO8 <sup>2</sup>	I	I1Z		46			
13					47			
14					48			
15	-WE <sup>3</sup>	I	I3U		49			
16	INTRQ	O	OT1		50			
17	VCC		Power		51	VCC		Power
18	VPP		(not used)		52	VPP		(not used)
19					53			
20					54			
21					55			
22	AO7 <sup>2</sup>	I	I1Z		56	-CSEL	I	I2U
23	AO6 <sup>2</sup>	I	I1Z		57	-VS2	O	OPEN
24	AO5 <sup>2</sup>	I	I1Z		58	RESET	I	I2Z
25	AO4 <sup>2</sup>	I	I1Z		59	IORDY	O	ON1
26	AO3 <sup>2</sup>	I	I1Z		60	-INPACK	O	OZ1
27	AO2	I	I1Z		61	-REG <sup>3</sup>	I	I3U
28	AO1	I	I1Z		62	-DASP	I/O	I1U,ON1
29	AO0	I	I1Z		63	-PDIAG	I/O	I1U,ON1
30	DO0	I/O	I1Z,OZ3		64	DO8 <sup>1</sup>	I/O	I1Z,OZ3
31	DO1	I/O	I1Z,OZ3		65	DO9 <sup>1</sup>	I/O	I1Z,OZ3
32	DO2	I/O	I1Z,OZ3		66	D10 <sup>1</sup>	I/O	I1Z,OZ3
33	-IOCS16	O	ON3		67	-CD2	O	Ground
34	GND		Ground		68	GND		Ground

- 1 These signals are required only for 16-bit access and are not required when installed in 8-bit systems. Devices should allow for 3-state signals not to consume current.
- 2 Should be grounded by the host.
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## PCMCIA/CompactFlash™ ATA to IDE Drives and Modules

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CompactFlash card showing pin assignments



PCMCIA card showing pin assignments

