

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

CHAPTER 3

Technical Overview

3.1 Memory Window

The Flash Disk is accessed through a memory window located in the 640K-1M space of the PC memory.

The memory window size is 10 KBytes, 32 KBytes, or 64 KBytes, depending on the window designated location and the Flash Disk type.

The memory window is designed so that it can be relocated. If you want to move the window to another address, simply set the jumper to the new address. The selected memory window must be dedicated solely to the Flash Disk.

Generally, standard PC boards (such as hard disk controller, I/O card, IDE controller or video controller) do not use the Flash Disk address.

Note: *Many installation problems are caused by an incorrect memory window definition, which leads to a memory conflict.*

3.2 12 Volt Source

Flash memory requires a 12VDC ±5% power supply for its write and erase operations. The PCM-3820/C PC/104 cards feature an on-board DC-to-DC converter to convert the system 5V to a 12V regulated power source.

For flash disks with 5V-only operation, the 12V can be taken either from the ISA bus (the computer) or from the DC/DC converter. Flash disks without the 5V-only option derive their power from the ISA bus.

3.3 Write-Protect

The Flash Disk includes write-protect hardware on board. By setting the Flash Disk write-protect jumper, the 12V supply will be disconnected from the flash memory, ensuring that no data can be deleted, written, or modified on the Flash Disk.

3.4 Enabling and Disabling the Flash Disk

The system will hang if the Flash Disk is installed as the first fixed drive, but is missing system files. If this occurs, boot from a floppy diskette, or disable the Flash Disk using a jumper, and boot from the original hard disk.

3.5 Bus Option

Selects between 8- and 16-bit bus width (XT, AT mode). Applicable only for the PCM-3820.

3.6 Interleaving

A disadvantage of flash memory is its write rate. To compensate for this, we have included the interleave feature. In this mode, several devices are accessed consecutively - without waiting for each device to complete its operation. In this manner, the device accessing process is nearly simultaneous.

The interleave feature increases the write and erase rates of the Flash Disk. The valid interleave levels are 1, 2, or 4. With this capability, the Flash Disk can almost quadruple its write rate using the level 4 interleave option.

A higher interleave level (higher speed) increases the amount of disk overhead used by the software, leaving less available memory space for the user. Conversely, a lower interleave level decreases the amount of disk overhead used by the software, leaving more available memory space for the user.

In the PCD-896 and PCM-3820, the interleave levels are determined by setting the relevant jumpers (refer to Chapter 4, Technical Data). The PCM-3820C has no interleave level setting option for the user; the level is set during the manufacturing process. The factory default levels are shown in the following table for the different Flash Disk capacities.

Flash Disk Capacity	Valid Interleave Levels	Default Level Setting
Odd Capacities	1	1
2 MB	1,2	1
4MB	1,2,4	2
8, 16, 32 MB	1,2,4	4

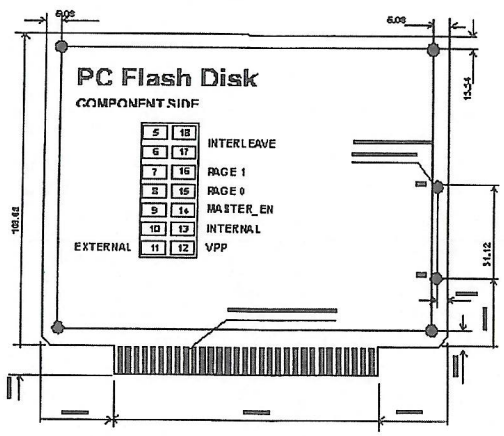
CHAPTER 4

Technical Data

4.1 PCD-896

The PCD-896 utilizes a memory address only; it does not use I/O addresses.

4.1.1 PCD-896 Mechanical Illustration



NOTES:

* All values are in millimeters.
* A PC mounting bracket is attached by two screws to mounting holes A, B.

4.1.2 PCD-896 Jumper Settings

Memory Window Addresses and Sizes

The following table shows the user-selectable memory addresses. The user should select an address and set the two jumpers according to the corresponding line in the table. There is a short form of this table on the P.S. of the board:

Address	P7-P16	P8-P15	Window Size - Notes
0C8000-0CA400	short	short	10 KBytes
0D4000-0D6400	short	n.c.	10 KBytes - factory default
0DC000-0DE400	n.c.	short	10 KBytes
0E0000-0EFFFF	n.c.	n.c	64 KBytes

Vpp Source (12V)

The following table shows the user-selectable 12V source. There is a short form of this table on the C.S. of the board:

Vpp Source	P12-P13	P12-P11
On-board DC/DC (write-enable)	short	n.c.
ISA bus (write-enable)	n.c.	short

Write-Protect

The following table shows the setting of the write-protect status:

	P12-P13	P11-P12
Write Protect	n.c.	n.c.

Flash Disk Boot Enable/Disable

This jumper allows the user to disable the PCD-896. The disabling operation is usually used when the Flash Disk causes the system to hang up during the boot process.

PCD-896 Enable/Disable	P9-P14
Enabled (factory default)	short
Disabled	n.c.

Interleave Level Setting

The following table shows the user-selectable Interleave Level settings.

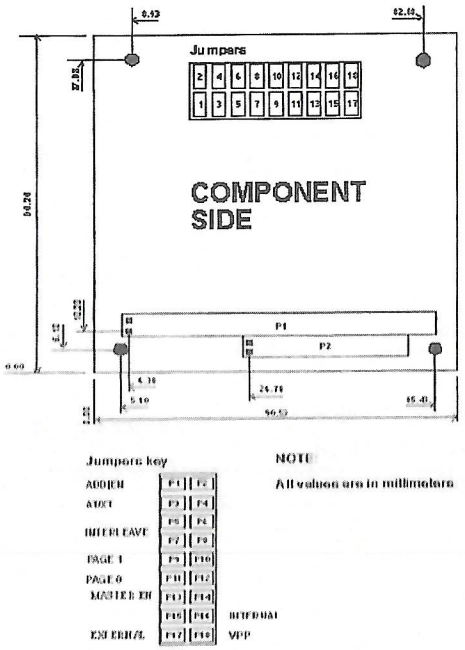
Interleave Level	P5-P18	P6-P17
1	short	short
2	short	n.c.
4	n.c.	n.c.

4.2 PCM-3820

The PCM-3820 utilizes memory address space only; it does not use I/O addresses.

Warning: *The PCM-3820 is symmetrical, so it is possible to connect the Flash Disk in the wrong direction. This may cause damage to your card or your mother-board. Verify that the pin numbers on the PCM-3820 correspond to the pin numbers on the board. Pin number 10 in row B has been removed.*

4.2.1 PCM-3820 Mechanical Illustration



4.2.2 PCM-3820 Jumper Settings

Memory Window Addresses and Sizes

The following table shows the user-selectable memory addresses. Select an address and set the two jumpers according to the corresponding line in the table. A short form of this table appears on the P.S. of the board.

Address	P11-P12	P9-P10	Window Size - Notes
0C8000-0CA400	short	short	10 KBytes
0D4000-0D6400	short	n.c.	10 KBytes- factory default
0DC000-0DE400	n.c.	short	10 KBytes
0E0000-0EFFFF	n.c.	n.c	64 KBytes

Vpp Source (12V)

The following table shows the user-selectable 12V source. A short form of this table appears on the C.S. of the board:

Vpp Source	P15-P16	P17-P18
On-board DC/DC	short	n.c.
ISA bus	n.c.	short

Warning: NEVER short both P15-P16 and P17-P18

Write-Protect

The following table shows the setting of the write-protect status :

	P17-P18	P15-P16
Write-Protect	n.c.	n.c.

Master Enable

This jumper allows the user to disable the PCD-896. This operation is usually used when the Flash Disk causes the system to hang during the boot process.

PCD-896 Enable/Disable	P13-P14
Enabled (factory default)	short
Disabled	n.c.

Bus Options

This jumper allows the user to select between the XT and AT (8/16 bit) bus.

Bus Options	P1-P2	P3-P4
8 bit (XT)	n.c.	n.c.
16 bit (AT)	short	short

Interleave Level Setting

The following table shows the user-selectable Interleave Level settings.

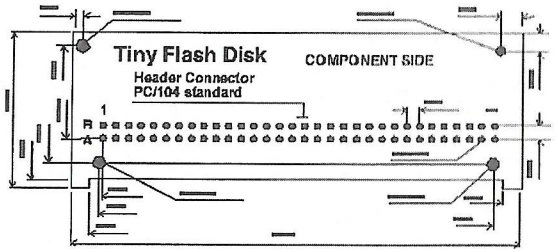
Interleave Level	P7-P8	P5-P6
1	short	short
2	short	n.c.
4	n.c.	n.c.

4.3 PCM-3820C

The PCM-3820C utilizes both I/O and memory addresses.

Warning: *The PCM-3820C is symmetrical, therefore it is possible to connect the Flash Disk in the wrong direction. This may cause damage to your card or your motherboard. Verify that the pin numbers on the PCM-3820C correspond to the pin numbers on the board. Pin number 10 in row B has been removed.*

4.3.1 PCM-3820C Mechanical Illustration



NOTE:
All values are in millimeters.

4.3.2 PCM-3820C Jumper Settings

JP1 I/O Addresses

The following table shows the user-selectable I/O addresses. The desired address is determined by setting a jumper at JP1. A short form of this table appears on the P.S. of the board.

Address	JP1
300-30F	1-5
310-31F	2-6
320-32F	3-7
330-33F (factory default)	4-8

JP2 Memory Window Addresses and Disabling

The following table shows the user-selectable memory addresses. The desired address is determined by setting jumpers at JP2. Select an address and set the three jumpers according to the corresponding line in the table. To disable the PCM-3820C, disconnect all three jumpers.

A short form of this table appears on the P.S. of the board.

Address	1-4	2-5	3-6	Window Size
0C0000-0C7FFF	short	short	short	32 KBytes - only for special types of BIOS
0C8000-0CFFFF	short	short	n.c.	32 KBytes
0D0000-0D7FFF	short	n.c.	short	32 KBytes, factory default.
0D8000-0DFFFF	short	n.c.	n.c.	32 KBytes
0E0000-0EFFFF	n.c.	short	short	64 KBytes
PCM-3820C disabled	n.c.	n.c.	n.c.	0 Bytes

JP3 Vpp Source and Write-Protect

The following table shows the user-selectable 12V source. The latter is determined by setting a jumper at JP3. Disconnecting the jumper results in a write-protected PCM-3820C. A short form of this table appears on the P.S. of the board.

12V Source	JP3
DC/DC	1-2
PC-104 Bus	2-3
Write-protect	n.c.

CHAPTER 6

Flash Disk Specifications

Performance:
Tested on 386/DX-33MHz

The following table presents the performance results. Rate values are KBytes per second.

Interleave level	Read rate	Write rate peak	Write rate sustained
1	1000	50	25
2	1000	100	50
4	1000	200	100

Power Consumption:

Depends on capacity and type of operation.

For PCD-896 and PCM-3820 (values are listed in mW):						
Operation	Interleave = 1		Interleave = 2		Interleave = 4	
	Typical	Max.	Typical	Max.	Typical	Max.
STANDBY	30	85	30	100	30	125
READ	60	270	70	305	90	375
WRITE	115	585	125	640	125	650

For PCM-3820C (values are listed in mW):

Operation	Interleave = 1		Interleave = 2		Interleave = 4	
	Typical	Max.	Typical	Max.	Typical	Max.
STANDBY	250	500	250	500	250	500
READ	270	600	270	600	270	600
WRITE	370	690	490	890	730	1300

Memory Type:

Flash

Data Retention:

10 years minimum without power source

Bus Interface:

8-bit ISA bus
16-bit option for PCM-3820

Formatted Capacity:

Capacity	Interleave	Formatted Capacity
1 MByte	1	868 KByte
2 MByte	1	1867 KByte
4 MByte	2	3725 KByte
8 MByte	4	7711 KByte
16 MByte	4	15758 KByte
32 MByte	4	31315 KByte

Maintenance:

Requires no maintenance

Maximum Read/Write Cycles:

Read: Unlimited
Write: 100,000 cycles minimum; 1,000,000 typical

Operating System Compatibility:

MS-DOS, DR-DOS, PC-DOS (DOS compatibility at file and sector levels), QNX, Venix, iRMX, MS-Windows.

Voltage Requirements:

5V ±10%
12V ±5% (not required if 5V-only option is installed)

Temperature:

Storage	-65° C to +125C
Operating	0C to +70C (Valid for all FDs)
Enhanced	-25C to +75C(Valid for PC-FD and PC104-FD)
Extended	-40C to +85C(Valid for PC-FD and PC104-FD)
	Hardware write-protect jumper

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP