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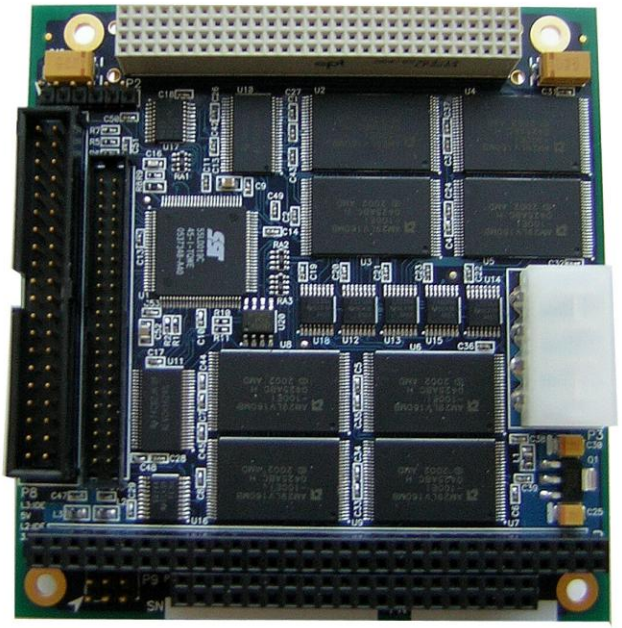
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Connect Tech Inc.
Industrial Strength Communications

FlashDrive/104

User's Manual



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Customer Support Overview

If you experience difficulties after reading the manual and/or using the product, contact the Connect Tech reseller from which you purchased the product. In most cases the reseller can help you with product installation and difficulties.

In the event that the reseller is unable to resolve your problem, our highly qualified support staff can assist you. Our support section is available 24 hours a day, seven days a week on our website at:

www.connecttech.com/support/support.asp. See the contact information section below for more information on how to contact us directly. Our technical support is always free.

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Contact Information

We offer three ways for you to contact us:

Telephone/Facsimile
Technical Support representatives are ready to answer your call Monday through Friday, from 8:30 a.m. to 5:00 p.m. Eastern Standard Time. Our numbers for calls are:

Telephone:	800-426-8979 (North America only)
Telephone:	519-836-1291 (Live assistance available 8:30 a.m. to 5:00 p.m. EST, Monday to Friday)
Facsimile:	519-836-4878 (on-line 24 hours)

Email/Internet
You may contact us through the Internet. Our email and URL addresses are:

sales@connecttech.com
support@connecttech.com
www.connecttech.com

Mail/Courier
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Introduction

Connect Tech's FlashDrive/104 is a flash based, solid state storage module designed using the latest NAND technology. It may be used as stand alone or in PC/104 or PC/104-*Plus* stacks. Designed as a robust, drop-in replacement for magnetic hard drives that can be prone to mechanical failures, FlashDrive/104 is immune to corruption caused by dirt, shock, vibration and extreme temperatures.

Features

- Platform:
  - PC/104 form factor for any platform
  - Suitable for any operating system with built-in ATA/IDE support

- Hard Disk Interface:
  - Industry standard ATA/IDE interface
  - Read/write performance up to 10 MB per second
  - Supports up to Mode-4 PIO (programmed input/output)
  - Supports up to Mode-2 multi-word DMA
  - Standard master/slave selection

- Flash Storage:
  - NAND Flash – 4, 8, 16 or 32GB models
  - Global write protection for prevention of inadvertent erase or write commands
  - On-board flash controller featuring:
    - Embedded Flash file system
    - Wear leveling algorithms to increase the longevity of Flash
    - Bad block management and error code correction

- Supports all operating systems – no drivers required
- Resistant to dirt, shock, vibration and extreme temperatures
- Commercial temperature range of 0°C to 70°C
- Industrial temperature range of -40°C to 85°C

Hardware Description, Installation and Configuration

The following sections describe the configuration jumpers and connectors for FlashDrive/104. Before installing the FlashDrive/104 hardware perform the following steps:

1. Turn off your computer.
2. Make sure that you are properly grounded.
3. Set the master/slave jumper (J1). See section 1.
4. Connect the IDE cable, power cable (if required) and mount drive. See section 2.
6. Install the operating system. See section 3.

Board Overview

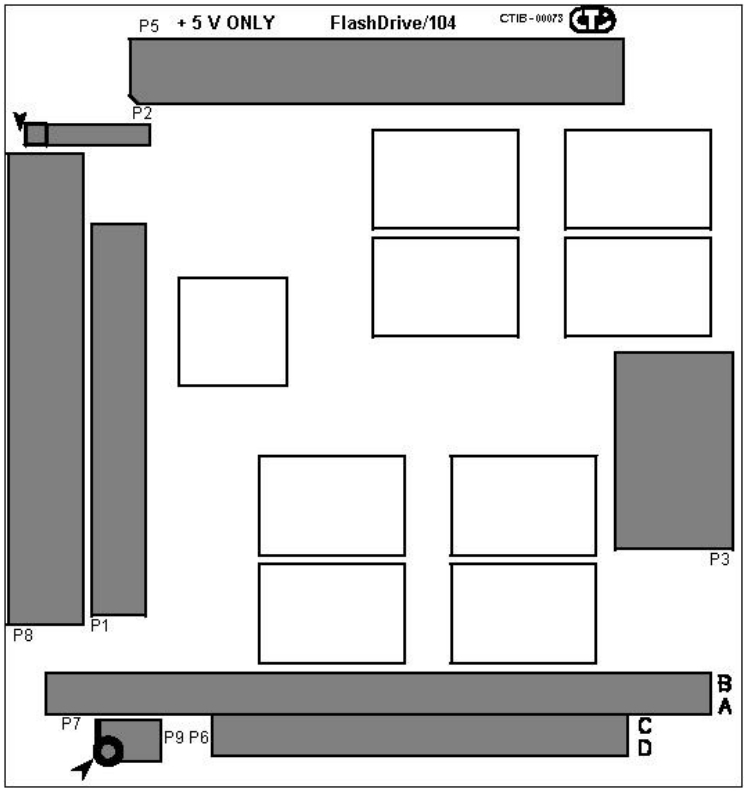


Figure 1: FlashDrive/104 Layout

Table 1: FlashDrive/104 Components

Location	Description/Function	
P9	Master / Slave Selection and Write Protect	
P8	ATA/IDE 0.100" Connector	
P1	ATA/IDE 2mm Connector – contact CTI if cable pins 41 & 42 do not supply 5V	
P2	Diagnostic Header (Connect Tech use only)	
P6, P7	PC/104 Connector – specifications available from the PC/104 Consortium	
P5	PCI-104 Connector -specifications available from the PC/104 Consortium	
P3	Power Connector:	
	Pin	Signal
	1	N/C (+12 V on cable)
	2	N/C (GND on cable)
	3	GND
	4	+5V

NOTE: P5, P6 and P7 are used with mechanical stack throughs only.
P3 provides power over standard PC disk drive power connectors (5V only).

Setting the Master/Slave Jumper

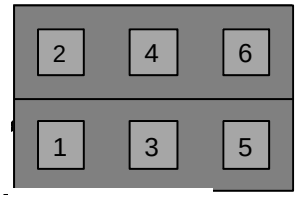
J1 provides two independent functions:

1) Standard hard drive master/slave selection
2) Global write protect, for read only access

Jumper Block Diagram (P9)

Read/Write (Pins 4 and 6)
No Connect (Pin 2)

Master/Slave (Pins 1, 3, 5)

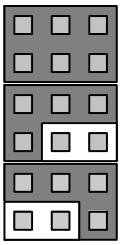


Master/Slave Selection

No jumpers on pins 1, 3 and 5 indicate that drive is a slave

Jumpers installed on pins 3 and 5 indicate that drive is a master

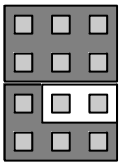
Jumpers installed on pins 1 and 3 indicate that selection is controlled by a CSEL (cable select) signal



Write Protection

No jumpers on pins 4 and 6 indicates Flash read/write access

Jumpers installed on pins 4 and 6 indicate that Flash is read only



Installing the FlashDrive/104

Warning! Connecting both the 44-pin connector and 40-pin connector at the same time will lead to mis-identification by the computer's BIOS and operating system. Ensure that only one IDE cable is connected at a time.

Installing into a PC/104 stack with a 40-pin connector:

1) Connect the FlashDrive/104 to the main board, using the 40-pin connector (P8, 0.100").
2) Insert the FlashDrive/104 into the PC/104 stack.

Warning! Power is provided through the PC/104 and PCI-104 connectors. Do not supply power through the external power connector (P5).

Installing into a PC/104 stack with a 44-pin connector:

1) Connect the FlashDrive/104 to the main board, using the 44-pin connector (P1, 2mm).
2) Insert the FlashDrive/104 into the PC/104 stack.

NOTE: Power can be provided through pins 41 & 42 of the 44-pin connector (P1), however, the voltage must be 5V.

Warning! Power is provided through the PC/104 and PCI-104 connectors. Do not supply power through the external power connector (P5).

Installing into other systems using a 40-pin connector:

1) Mount the FlashDrive/104 as required.
2) Connect the FlashDrive/104 to the main board, using the 40-pin connector (P8, 0.100").
3) Connect the standard disk drive power cable to the external power connector (P5).

Installing into other systems using a 44-pin connector:

4) Mount the FlashDrive/104 as required.
5) Connect the FlashDrive/104 to the main board, using the 44-pin connector (P1, 0.100").

NOTE: Power can be provided through pins 41 & 42 of the 44-pin connector (P1), however, the voltage must be 5V.

Installing an Operating System

FlashDrive/104 is provided without formatted partitions. It may be formatted as the primary bootable disk drive or as a secondary disk drive, similar to any other hard disk drive. Any standard disk partitioning and formatting utility may be used.

All operating systems that are compatible with ATA/IDE devices will recognize the FlashDrive/104 and may be installed into boot partitions. Because installation methods may vary between specific operating systems, it may be necessary to consult your operating system or the main board's ATA/IDE controller documentation for instructions.

Specifications

Available Capacities	DDG001 / DEG001	4GB
	DDG002 / DEG002	8GB
	DDG003 / DEG003	16GB
	DDG004 / DEG004	32GB
Host Interface	ATA/IDE Supports up to PIO Mode-4 Supports up to Multi-word DMA Mode-2	
Data Transfer Rate	Read/write up to 10MB per second	
Data Retention	10 years	
Endurance	Dynamic wear leveling with built-in ECC	
Operating System Support	All operating systems – no drivers required	
Operating Environment	Operating Temperature, Commercial version	0°C to 70°C (32°F to 158°F)
	Operating Temperature, Industrial version	-40°C to 85°C (-40°F to 185°F)
	Humidity	95% non-condensing
Power Requirements	Input voltage	+5V DC +/-5%
	Current, idle	5 mA (max)
	Current, continuous reads or writes	150 mA (max) 100 mA (avg)
MTBF	3,369,749 hours (DDG001, 4GB model, others will be similar)	
Dimensions	PC/104 compliant	
	Length	9.5885cm/3.775”
	Width	9.017cm/3.55”
Weight	0.090 kg	

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