



E-Disk® IDE/ATA 3.5" Series



Ideal for storage applications in:

- Military Systems
- Aerospace and Avionics
- Energy and Utilities
- Medical, Laboratory and Scientific Research
- Enterprise Systems
- Industrial Automation
- Real-Time Data Acquisition
- Control and Instrumentation
- Transportation Infrastructures

Inject Speed Into Your Network

Today's data explosion has created the need for a faster and higher performance storage solution for high-speed networking, broadband communications, mobile computing, military, aerospace, medical and industrial applications. BitMICRO® Networks has responded with a storage solution designed specifically for these emerging high performance applications — solid state, flash-based E-Disk®. Incorporate this new storage product as a stand-alone solution or as an embedded plug and play component in the system. E-Disk® provides increased performance by eliminating seek time and latency for faster I/O rates, and provides the advantages of exceptional performance, superior reliability, and unprecedented durability.

Reliable & Secure Solid-State, Flash-Based Storage

BitMICRO® Networks utilizes proven solid-state, flash-based E-Disk® technology, a non-volatile storage solution in an industry standard 3.5-inch form factor. Ideal as a direct drop-in replacement for conventional rotating media such as hard disks and tape drives that are not only prone to short production life, but often fail in mobile computing and industrial environments where temperature fluctuations, shock, vibration, dust, moisture, or magnetic fields are present.

Given today's critical national security and defense requirements, the powerful and user-customizable securErase® data security feature guarantees that device sanitization of sensitive data is performed beyond retrieval. Patented PowerGuard® also ensures that up to 6 hours of losing power to the disk, securErase® can still be activated to resume and complete the erase process.

E-Disk® IDE/ATA 3.5-inch Series

BitMICRO® Networks E-Disk® IDE/ATA products deliver a solid solution for data storage and protection while providing the powerful performance and speed today's data-intensive applications demand. They feature patented FlashBus™ storage technology to speed performance, eliminate system bottlenecks, and offer durable storage for easy installation and start-up. E-Disk® requires no device drivers for installation and operation, and boasts of random I/O rates up to 16,000/sec, burst rates of up to 66.6 MB/sec, sustained rates of up to 28 MB/sec, and capacities of up to 77.8 GB.

Product Highlights

Increased High Speed Networking

- Operating System Independent
- 1,500 to 16,000 IOPS
- Up to 0.2 msec Access Time

Facilitate Quick Data Transfers

- 16.7 to 66.6 MB/s Burst Rate
- 14 to 28 MB/sec Sustained Rate

Highest Storage Capacities

- 3.5-inch: 2048 MB to 77.8 GB

Unparalleled Operating Performance

- Pure Solid State/Non-Volatile
- 1,250 Gs Operating Shock
- -60 to +95 °C*
- 2 Million Hours MTBF
- 120,000 feet Altitude

Industry Standard IDE Interface

- No Device Driver Required
- IDE to UDMA 66 Support
- Completely bootable

Data Security Features

- DataSentinel
- PowerGuard®
- securErase®
- Write Protect**

* -40 to 85°C for units with PowerGuard®

** Available Upon Request



SPECIFICATIONS FOR E-DISK® IDE/ATA 3.5" SERIES
Flash Disk and Solid State Disk Storage Solutions

Physical Specifications:

Form Factor	3.5"	
Storage Capacity	2048 MB to 77824 MB	
Dimensions	Width	101.6 mm (4.0 in)
	Length	146.1 mm (5.75 in)
	Height	13.34 mm (0.525 in) to 51.05 mm (2.010 in)
Weight*	278.78 gm (9.834 oz) to 1327.28 gm (46.818 oz)	
Mounting Considerations	HDD Industry Standard, All Orientations	
Connector	40-Pin 0.1 inch IDE/ATA ANSI Standards	

* Weights are approximate

Power Requirements:

Input Voltage	5 VDC (±5%)		
Power Consumption	E-Disk® Capacity	36,864 MB	77,824 MB
	Write	3.3 watts	4.5 watts
	Read	3.1 watts	4.3 watts
	Idle	2.4 watts	3.6 watts

Performance Specifications:

Access Time	Up to 0.2 msec
Burst Rate	16.7, 33.3, 66.6 MB/sec
Sustained Rate	14, 22, 28 MB/sec
I/O Operations per Second	1500, 5000, 16000 IOPS
Read Bit Error Rate	< 10 ⁻²⁰
Fully Associative Cache	Standard: up to 128 MB per drive

Environmental Specifications:

Operating Temperature	Commercial	0 to 70 °C
	Extended	-25 to 75 °C
	Industrial	-40 to 85 °C
	Military	-60 to 95 °C*
Storage Temperature	-55 to 125 °C	
Humidity	5 to 95% (non-condensing)	
Shock (Operating)	1,250 G	
Vibration (Operating)	16.4 G rms**	
Altitude	-1,200 to 120,000 feet	
Airflow	None Required	

* Not available for units with PowerGuard®

** Projected

Reliability:

MTBF	> 1.9 Million Hours @ Bellcore Issue 6, Method I, Case 3	
Undetected Data Errors	< 10 ⁻³⁰	
Data Reliability	Built-in EDC/Interleaved Reed-Solomon ECC Corrects up to Six Random Byte Error per 528-Byte Block; Detects Burst Errors up to 9 Bytes Long	
Data Integrity	10 years	
Write Endurance (Typical)	1 GB E-Disk®	4.6 GB E-Disk®
	27 years @ 100GB/day erase/write cycles	123 years @ 100GB/day erase/write cycles
Read Endurance	Unlimited	
Security Erase Compliance	NISPOM DoD 5220.22-M, NSA 130-2, Air Force AFSSI 5020, Army 380-19, IRIG-106	
Diagnostics	Built-in Power-up Self Test Self-Monitoring Diagnostics Database	



SPECIFICATIONS FOR E-DISK® IDE/ATA 3.5" SERIES
Flash Disk and Solid State Disk Storage Solutions

User Interface:

LEDs (Remote Capability)	Idle, Busy, Cache Busy, Fault
Jumper Settings	Save Settings, Write Protect*
Drivers	None Required
Firmware	Field Upgradeable
ATA Compatibility	ANSI X3T13/1153D ATA-4: E-Disk® 3A16: Supports PIO Modes 0 - 4; DMA Modes 0 - 2 ANSI NCITS 340-2000 (ATA/ATAPI-5) E-Disk® 3A33: Supports PIO Modes 0 - 4; UDMA Mode 0 - 2 E-Disk® 3A66: Supports PIO Modes 0 - 4; UDMA Mode 0 - 4
EMI Compliance	CE, FCC, VCCI and AS/NZS Regulations
Safety Compliance	TÜV and UL

* Available Upon Request

Performance Matrix:

MODEL NAME	FORM FACTOR	ATA MODES	SUSTAINED RATES	BURST R/W RATES	STORAGE CAPACITY
E-Disk® 3A16	3.5"	PIO 0 - 4; DMA 0 - 2	14 MB/sec	16.7 MB/sec	2048 MB – 77824 MB
E-Disk® 3A33	3.5"	PIO 0 - 4; UDMA 0 - 2	22 MB/sec	33.3 MB/sec	2048 MB – 77824 MB
E-Disk® 3A66	3.5"	PIO 0 - 4; UDMA 0 - 4	28 MB/sec	66.6 MB/sec	2048 MB – 77824 MB

Capacity, Height And Weight Matrix:

E-DISK® CAPACITY (MB)	E-DISK® HEIGHT * (in)	E-DISK® HEIGHT* (mm)	E-DISK® WEIGHT** (oz)	E-DISK® WEIGHT** (gm)
2048, 4096	0.525	13.34	9.834	278.78
6144, 12288	0.690	17.53	13.943	395.28
10240, 20480	0.855	21.72	18.053	511.78
14336, 28672	1.020	25.91	22.162	628.28
36864	1.185	30.10	26.271	744.78
45056	1.350	34.29	30.381	861.28
53248	1.515	38.48	34.490	977.78
61440	1.680	42.67	38.600	1094.28
69632	1.845	46.86	42.709	1210.78
77824	2.010	51.05	46.818	1327.28

* PowerGuard height not included

** Weights are approximate

Security Erase:

E-DISK® CAPACITY (MB)	ERASE TIME*	E-DISK® CAPACITY (MB)	ERASE TIME*
2048, 6144, 10240	8 secs	4096, 12288, 20480	16 secs
14336	16 secs	28762, 36864, 45056	33 secs
		53248, 61440, 69632	49 secs
		77824	66 secs

* Estimated full erase times using default pattern of 1111s or FFFFs.

PowerGuard® Height and Weight Matrix:

3.5" PowerGuard®	PG1	PG2	PG3
Height (mm)	7.87	7.87	11.33
Weight (gm)*	230.51	230.51	258.26

*Weights are approximate



SPECIFICATIONS FOR E-DISK® IDE/ATA 3.5" SERIES
Flash Disk and Solid State Disk Storage Solutions

 **Product Part Number:**

Part Number	Model Number + Capacity + Options + Sub-Part Number
	PFISSSC + XXXXXX + TGV + (C)
Example	D3A066C 077824 CNN (A) *Note: (A) Sub-Part Number
Model Number	PFISSSC
P: Product Type	D: E-Disk®
F: Form Factor	3: 3.5-inch
I: Interface	A: ATA/IDE
S: Burst (Sustained) Rate	016: 16.7 MB/sec (14 MB/sec) 033: 33.3 MB/sec (22 MB/sec) 066: 66.6 MB/sec (28 MB/sec)
C: Connector Type/Channel	C: 40-pin 0.100 inch
Capacity	XXXXXX
X: Capacity (MB)	2048, 6144, 10240, 14336 4096, 12288, 20480, 28672, 36864, 45056, 53248, 61440, 69632, 77824
Options	TGV
T: Temperature (Operating)	C: Commercial (0 to +70 °C) E: Extended (-25 to +75 °C) I: Industrial (-40 to +85 °C) M: Military (-60 to +95 °C)**
G: PowerGuard®	N: No PowerGuard® Option 1: Auto-Save Cache to Flash on Power Down 2: Erase Mode on Power Down 3: Standby Erase Mode on Power Down
V: Input Voltage	N: 5V
Sub-Part Number*	(C)
C: PCB Coating	A: Acrylic Conformal Coating S: Silicone Conformal Coating

* [Consult E-Disk® Part Numbering Guide](#)

** Not available for units with PowerGuard®

Note: Please contact sales for further details on any of the E-Disk features.



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