



# Fibre Channel 3.5"

## E3F4FL

**When Size and Performance Matter**  
 Enhanced Productivity and System Performance

**Ideal for Storage Applications in:**

- Military and Aerospace
- Imaging Applications
- Industrial Automation
- Real-Time Data Acquisition
- Control and Instrumentation
- Enterprise Systems
- Database and OLTP Applications
- Business Intelligence/Decision Support
- Video-On-Demand

**E-Disk® Altima™ Fibre Channel 3.5-inch SSD**

The future of storage is solid state, and BitMICRO Networks, Inc. brings you the most advanced solid state disk (SSD) solution with the E-Disk® Altima™ series. Powered by BitMICRO's proprietary "Enhanced Datamover and Storage Accelerator" (EDSA™) flash I/O controller and "Logical Unifier of Extensive Transfer Arrays" (LUNETATM) memory flash interface ASICs, E-Disk® Altima™ SSDs utilize high-density flash memory chips to create massive storage capacities in standard disk drive form factors. What's more, flash memory-based E-Disk® Altima™ SSDs boost system performance by eliminating seek time and latency for faster I/O and sustained transfer rates. With no moving parts, E-Disk® Altima™ SSDs set the bar for storage reliability, durability and endurance in all types of operating environments.

BitMICRO Networks E-Disk® Altima™ Fibre Channel products offer optimum solution to address ever growing storage capacity requirements and performance demands of today's computing applications. It is designed without device driver requisites, making it easy to install and operate. Armed with patented FlashBus™ technology, E-Disk® Altima™ Fibre Channel offers 800 MB/sec full duplex burst rate and storage capacities of up to 1.1 TB.

**Increased High Speed Performance**

- 800 MB/sec Full Duplex Burst Rate

**Highest Storage Capacities**

- 3.5-inch: 20 GB to 1.1 TB\*  
*\*Up to 464 GB at 1-inch height*

**Industry Standard FC Interface**

- No Device Driver Required
- 4 Gbit Dual Port
- Completely Bootable

**Unparalleled Operational Capabilities**

- Pure Solid State/Non-Volatile
- 1,500 Gs Operating Shock
- -40 to +85°C
- 120,000 ft Altitude

**Data Security Features**

- DataSentinel
- PowerGuard®
- securErase®
- Write Protect

**Compliance**

- EMC: FCC, AS/NZS, ICES, VCCI, EN55022, EN55024
- Safety: UL, CSA and EN
- EU RoHS 2002/95/EC

**SPECIFICATIONS FOR  FIBRE CHANNEL 3.5"**

**Flash Disk and Solid State Disk Storage Solutions**

**Performance Specifications:**

<b>Full Duplex Burst Rate</b>	800 MB/sec
<b>Fully Associative Cache</b>	Up to 256 MB

\*Dual ported 4 Gbit Fibre Channel

**Environmental Specifications:**

<b>Operating Temperature</b>	<b>Commercial</b>	0 to 70 °C
	<b>Industrial</b>	-40 to +85 °C
<b>Non Operating Temperature</b>		-45 to +90 °C
<b>Max Temperature Change Rate</b>		3 C°/min
<b>Humidity</b>		5 to 95% (Non-Condensing)
<b>Shock (Operating)</b>		1,500 G
<b>Vibration (Operating)</b>		16.4 G rms
<b>Altitude</b>		-1,200 to 120,000 ft
<b>Airflow</b>		None Required

**Reliability:**

<b>MTBF</b>	324,192 hours @ MIL-HDBK-217-FN2 Method I Case III
<b>Bit Error Rate</b>	<10 <sup>-27</sup>
<b>Data Reliability</b>	Built-in EDC/ECC Based on BCH Algorithm Corrects up to 9 Random Bit Errors per 528-Byte Block; Detects up to 10 Bit Errors
<b>Data Integrity</b>	10 years
<b>Diagnostics</b>	Built-In Power-Up Self Test Self-Monitoring Diagnostics Database

**Compatibility/Compliance:**

<b>Fibre Channel Compatibility</b>	FC-AL-2, FC-PH, FC-PLDA, FC-FCP, FC-FLA, FCA-IP, IETF-IPFC
<b>EMC Compliance</b>	ICES-003 Issue 4, February 7, 2004 Class A VCCI V-3/2008.04 and V-4/2007.04 Class A AS/NZS CISPR 22: 2006 Class A EN 55022: 2006 – Emissions EN 55024:2003 - Immunity
<b>Safety Compliance</b>	UL 60950 -1 CSA C22.2 No. 60950 -1 EN 60950 -1
<b>Supported Security Erase Standards</b>	NISPOM DoD 5220.22-M, NSA 130-2, Air Force AFSSI 5020, Army 380-19, IRIG-106
<b>RoHS Compliance</b>	EU RoHS 2002/95/EC

**Power Requirements:**

<b>Input Voltage</b>	5V (± 5%) or 5V/12V (± 5%), Auto-Detect*	
<b>Power Consumption</b>	<b>Read</b>	13.45 watts
	<b>Write</b>	15.05 watts
	<b>Idle</b>	12.54 watts

\*Auto-detect determines input voltage upon power-up whether it is 5V only or 5V and 12V dual supply. This feature allows the drive to operate at different supply voltages without the need to manually set the drive to the available input voltage.

**Endurance:**

<b>Write Endurance</b>	<b>20 GB</b>
	76.71 years @ 100 GB/day Erase/Write Cycles
<b>Read Endurance</b>	Unlimited

**Physical Specifications:**

<b>Form Factor</b>	3.5"	
<b>Storage Capacity*</b>	20 GB to 1.1 TB	
<b>Dimension</b>	<b>Width</b>	4.0 in (101.6 mm)
	<b>Length</b>	5.75 in (146.1 mm)
	<b>Height**</b>	0.536 in (13.61 mm) to 1.788 in (45.41 mm)
<b>Weight**</b>	9.630 oz (273.00 gm) to 29.394 oz (833.30 gm)	
<b>Mounting Considerations</b>	HDD Industry Standard, All Orientations	
<b>Connector</b>	40-Pin SCA-2 (Level 4 Hot Swap) Fibre Channel ANSI Standards	

\*1 GB = 1,024 MBytes; 1 TB = 1,024 GBytes; Up to 464 GB at 1-inch height

\*\*Heights and weights are approximate. Contact your Sales Representative for the specific configurations and tolerance levels.

**Product Part Number:**

<b>Part Number Options</b>	E3F004F + XXXXY + TGM + AC
XXXX: Capacity	<=1" Height
Last digit denotes single decimal number	GB: 20, 44, 92, 276, 464
(e.g. 0920G = 92.0 GB, 0011T = 1.1 TB)	>1" Height
Y: Capacity Unit*	GB: 648, 832
	TB: 1.0, 1.1
T: Temperature	G: Gigabytes
	T: Terabytes
G: PowerGuard®	C: Commercial (0 to 70 °C)
	I: Industrial (-40 to +85 °C)
M: Media Type	N: No PowerGuard® Option
A: Casing	1: Save Mode on Power Down**
	L: Large Block SLC NAND Flash
C: Coating	R: Rugged Casing
	N: No Conformal Coating (Default)
	A: Acrylic Conformal Coating
	S: Silicone Conformal Coating
<b>Example</b>	<b>E3F004F0920GC1LRN</b>

\*1 GB = 1,024 MBytes; 1 TB = 1,024 GBytes

\*\*Available up to 464 GB

BitMICRO's product specifications and engineering development objectives are subject to change at anytime without prior notice. All information provided herein is provided for design comparison and reference purposes only.

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One gigabyte, or GB, equals 1,073,741,824 bytes when referring to solid state disk capacity. Formatted capacity will vary based on various factors, such as type of operating system, file sizes, file formats, optional features, and application software.

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