



Industrial USB DRIVE

Specification

(FxReg Series, MLC)

Version 1.0

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1.1. Introduction

FLEXXON's Industrial USB DRIVE (FxReg series) is a super speed USB 3.0 removable disk flash drive which is fully compatible with USB specification (USB 1.1 / USB 2.0 / USB 3.0). It offers good performance, wide compatibility and high reliability, suitable for different type of applications and built-in systems under rigorous environment.

1.2. Product Overview

- ❖ **Flash**
 - MLC
- ❖ **Capacity**
 - 8GB up to 64GB
- ❖ **Compatible with USB specification revision 1.1, 2.0 & 3.1 Gen 1.**
- ❖ **Support Windows 2000 SP4 and Windows XP without device driver.**
- ❖ **Support Windows Vista and Windows 7 without device driver.**
- ❖ **Support MAC OS X and later without device driver (USB 1.1 speed).**
- ❖ **Support MAC OS 10.2.8 and later without device driver (USB 2.0 speed).**
- ❖ **Support MAC OS 10.8 and later without device driver. (USB 3.1 GEN 1 speed).**
- ❖ **Support Linux Kernel ver2.4.0 or above without device driver (USB 1.1 speed).**
- ❖ **Support Linux Kernel ver2.4.10 or above without device driver (USB 2.0 speed).**
- ❖ **Support Linux Kernel ver2.6.31 or above without device driver (USB 3.0 speed).**
- ❖ **ECC Scheme**
 - Up to 72 bits error in 1K Byte Data
- ❖ **Transfer rate for USB interface:**
 - Super speed up to 5Gbit/sec for USB 3.1 GEN 1
 - High speed up to 480Mbits/sec for USB 2.0
 - Full speed up to 12Mbits/sec for USB 1.1

- ❖ **Low Power Consumption**
- ❖ **Wear Leveling Algorithm**
- ❖ **Temperature Range**
 - Operation (Silver): 0°C ~ 70°C
 - Operation (Diamond): -40°C ~ 85°C
 - Storage: -40°C ~ 85°C
- ❖ **RoHS Compliant**

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2. PRODUCT SPECIFICATIONS

2.1. Performance

Table 2-1 Performance of FxReg USB

Capacity	Sequential	
	Read (MB/s)	Write (MB/s)
8GB	35	29
16GB	35	29
32GB	37	35
64GB	128	51

NOTES:

1. The performance was measured using CrystalDiskMark.
2. Performance may differ according to flash configuration and platform.

2.2. Power

Table 2-2 Power Consumption of FxReg USB

Capacity	Item	Power Consumption (mA)
8GB ~ 64GB	Active	<158
	Idle	<52

Unit: mA

NOTES:

1. Power Consumption may differ according to flash configuration and platform.

2.3. MTBF

MTBF, an acronym for Mean Time Between Failures, is a measure of a device's reliability. Its value represents the average time between a repair and the next failure. The predicted result of FLEXON's FxReg industrial USB drive is more than 2 million hours.

2.4. Data Retention

- 10 years if > 90% life remaining (@25C)
- 1 year if < 10% life remaining (@25C)

3. ENVIRONMENTAL SPECIFICATIONS



Test Items	Test Conditions
Storage Temperature	-40°C ~ 85°C
Operating Temperature	Silver Grade: 0°C ~ 70°C Diamond Grade: -40°C ~ 85°C
Storage Humidity	Silver Grade: 40°C, 95% RH Diamond Grade: 55°C, 95% RH
Operating Humidity	Silver Grade: 40°C, 93% RH Diamond Grade: 55°C, 95% RH
Shock	1500G, Half Sin Pulse Duration 0.5ms
Vibration	80Hz ~ 2000Hz/20G, 20Hz ~ 80Hz/1.52mm, 3 axis/60min
Drop	110cm free fall, 6 face of each unit
Bending	≥ 50N, Hold 1 min/5 times
Torque	0.5N-m or +/- 5 deg, Hold 30s/5times
Durability	5,000 times with force between extraction 10N (min) and insertion 35N (max)
ESD	24.0°C, 49% RH, +/-4KV

4. ELECTRICAL SPECIFICATIONS



4.1. DC Characteristic

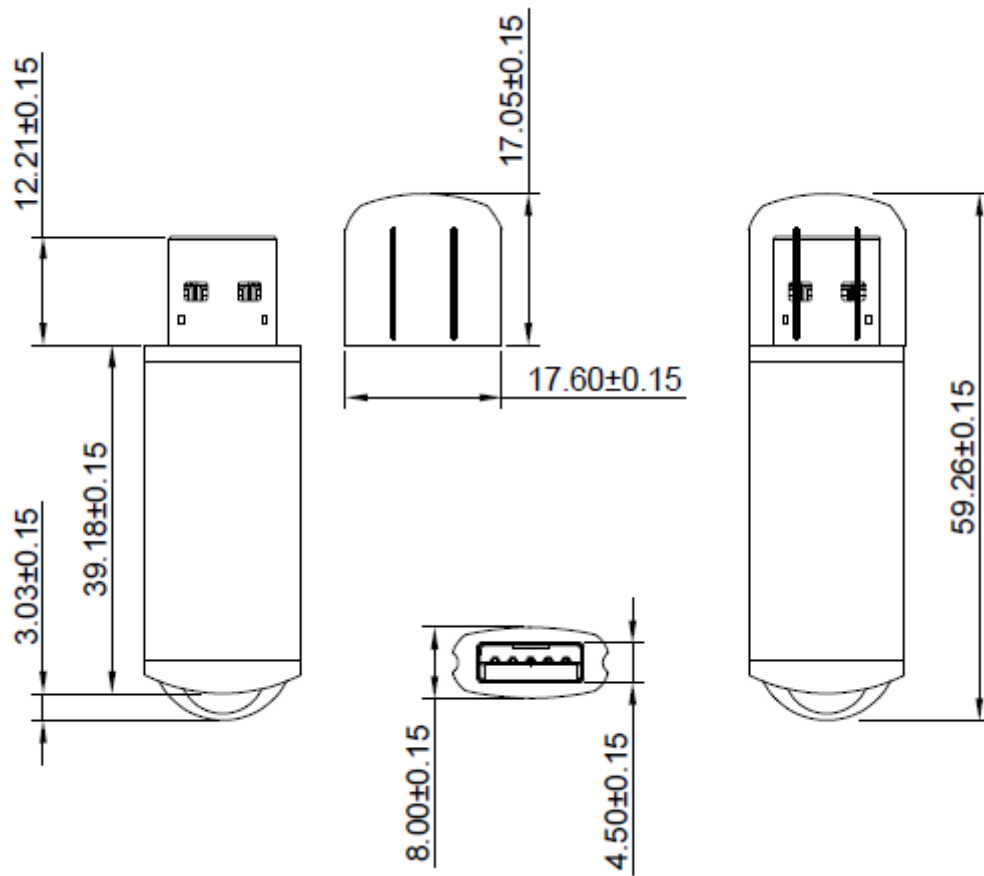
Table 4-1 FxReg USB DC characteristics

Symbol	Parameter	MIN	TYP	MAX	Unit
VCCA5	Regulator Power Voltage	4.5	5.0	5.5	V
V33_PAD	Regulator Power Output		3.3		V
VOH	Output High Voltage	2.4			V
VOL	Output Low Voltage			0.4	V
VIN	Input High Voltage	2.0			V
VIL	Input Low Voltage			0.8	V
	Peak Voltage on All Lines	-0.5		3.6	V
	All Input Leakage Current	-10		10	μA
	All Output Leakage Current	-10		10	μA
CL	Bus Line Capacitance			20	pF

5. PHYSICAL DIMENSION



Dimension: 59.26 (L) x 17.60 (W) x 8 (H) mm



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6. ORDERING INFORMATION



Capacity	MPN (Diamond Grade)	MPN (Silver Grade)
8GB	FUUP008GME-U200	FUUP008GMS-U200
16GB	FUUP016GME-U200	FUUP016GMS-U200
32GB	FUUP032GME-U200	FUUP032GMS-U200
64GB	FUUP064GME-U200	FUUP064GMS-U200

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Revision History

Revision	Release Date	History
1.0	2020/10	Preliminary release

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