

# DEMETER Series

## Industrial micro USB Module (MUM)



### Product features

- ❖ SLC - NAND type flash technology
- ❖ 2x5 header, x86 internal USB standard
- ❖ Vertical : 2x5 2.54 mm pitch pin connector
- ❖ Horizontal : 2 solutions of 2x5 2.54 mm & 2.00 mm pitch pin connector
- ❖ Complies with Microsoft Vista Ready-Boost® requirements
- ❖ Fixed disk mode configuration (not a removable disk)
- ❖ Advanced error detection and error correction algorithms
- ❖ High-speed USB 2.0 interface; backward compatible with USB 1.1
- ❖ Vertical : Capacities from 128MB up to 4GB
- ❖ Horizontal : Capacities from 128MB up to 8GB
- ❖ Performance up to 32.0 MB/sec

### Product specifications

<b>Compatibility</b>	❖ USB 2.0 and USB 1.1 backwards compatible	<b>Power consumption</b>	❖ 5V±10% via on board USB port
<b>Flash technology</b>	❖ SLC-NAND flash type technology	<b>Power requirement</b>	❖ 5V±10% via on board USB port
<b>Form-factor</b>	❖ Standard & Low profile Horizontal Type with fixed hole	<b>Reading mode</b>	❖ 110.0 mA (Max.)
<b>Host Interface</b>	❖ Standard 10 pins 2.54 mm pin pitch USB female connector ❖ Low-profile 10 pins 2.00 mm pin pitch USB female connector	<b>Writing mode</b>	❖ 92.0 mA (Max.)
<b>Performance</b>		<b>Standby mode</b>	❖ 43.0 mA (Max.)
<b>Data transfer rate</b>	❖ USB 2.0 and USB 1.1 backwards compatible	<b>Reliability</b>	
<b>Sequential read</b>	❖ 32.0 MB/sec (Dual Channel)	<b>Wear-leveling</b>	❖ Dynamic wear-leveling algorithms
<b>Sequential write</b>	❖ 16.9 MB/sec (Dual Channel)	<b>MTBF</b>	❖ > 3,000,000 hours
<b>Average access time</b>	❖ 0.6 ms (estimated)	<b>ECC</b>	❖ 8 bits per 512 bytes block
<b>Environmental specification</b>		<b>Endurance</b>	❖ > 2,000,000 cycles
<b>Operating temp.</b>	❖ STD. 0°C ~ 70°C / IND. -40°C ~ +85°C	<b>Physical specification</b>	
<b>Non-operating temp.</b>	❖ STD. -20°C ~ +80°C / IND. -50°C ~ +95°C	<b>Weight (max.)</b>	❖ Vertical type : 15 g ± 1 g / 0.53 oz. ❖ Horizontal type : 10 g ± 1 g / 0.35 oz.
<b>Humidity</b>	❖ 10% ~ 95% non-condensing	<b>Dimension(W x L x H)</b>	
<b>Vibration</b>	❖ 15G compliance to MIL-STD-810F	Vert. 2.54mm pitch pin	❖ 34.20 x 15.40 x 6.30 (mm)
<b>Shock</b>	❖ 1,500G compliance to MIL-STD-810F	Hori. STD. 2.54mm pitch pin	❖ 37.85 x 26.75 x 9.00 (mm)
<b>Altitude</b>	❖ 70,000 feet	Hori. Low pro. 2.0mm pitch pin	❖ 37.85 x 26.75 x 5.90 (mm)
<b>Acoustic noise</b>	❖ 0dB	<b>Conformal coating</b>	❖ Option for special request
<b>OS supported</b>	❖ Microsoft Windows Vista, Microsoft Win CE, Microsoft Windows XP Pro, Microsoft Windows XP Embedded, Microsoft Windows for Point of Service, Microsoft Windows Server 2003, Linux and DOS	<b>Warranty</b>	
		<b>Standard grade</b>	❖ 3 years
		<b>Industrial grade</b>	❖ 5 years



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Advanced Performance & Rugged Orientation

Operating temperature supports Standard grade 0°C ~ 70°C and Industrial grade -40°C ~ +85°C

### Part number list - Vertical type standard form factor

Product picture	Capacity	0°C ~ 70°C	-40°C ~ +85°C
	128MB	SPMUM128M-UBCSC-VS	WPMUM128M-UBISI-VS
	256MB	SPMUM256M-UBCSC-VS	WPMUM256M-UBISI-VS
	512MB	SPMUM512M-UBCSC-VS	WPMUM512M-UBISI-VS
	1GB	SPMUM001G-UBCSC-VS	WPMUM001G-UBISI-VS
	2GB	SPMUM002G-UBCSC-VS	WPMUM002G-UBISI-VS
	4GB	SPMUM004G-UBCSC-VS	WPMUM004G-UBISI-VS

### Part number list - Horizontal type standard form factor

Product picture	Capacity	0°C ~ 70°C	-40°C ~ +85°C
	128MB	SBMUM128M-UBCSC-HS	WBMUM128M-UBISI-HS
	256MB	SBMUM256M-UBCSC-HS	WBMUM256M-UBISI-HS
	512MB	SBMUM512M-UBCSC-HS	WBMUM512M-UBISI-HS
	1GB	SBMUM001G-UBCSC-HS	WBMUM001G-UBISI-HS
	2GB	SBMUM002G-UBCSC-HS	WBMUM002G-UBISI-HS
	4GB	SBMUM004G-UBCSC-HS	WBMUM004G-UBISI-HS
8GB	SBMUM008G-UBCSC-HS	WBMUM008G-UBISI-HS	

### Part number list - Horizontal type low profile form factor

Product Picture	Capacity	0°C ~ 70°C	-40°C ~ +85°C
	128MB	SBMUM128M-UBCSC-HL	WBMUM128M-UBISI-HL
	256MB	SBMUM256M-UBCSC-HL	WBMUM256M-UBISI-HL
	512MB	SBMUM512M-UBCSC-HL	WBMUM512M-UBISI-HL
	1GB	SBMUM001G-UBCSC-HL	WBMUM001G-UBISI-HL
	2GB	SBMUM002G-UBCSC-HL	WBMUM002G-UBISI-HL
	4GB	SBMUM004G-UBCSC-HL	WBMUM004G-UBISI-HL
8GB	SBMUM008G-UBCSC-HL	WBMUM008G-UBISI-HL	

**CF**  
Industrial CompactFlash Card

**CFast**  
Industrial CFast Card

**ATA**  
Industrial PCMCIA/ATA Card

**MIF**  
Industrial micro IDE Flash Module

**MSE**  
Industrial micro SATA Flash Module

**MUM**  
Industrial micro USB Module

**MPM**  
Industrial mini PCI-e Module

**SSD**  
Industrial Solid State Disk

**UED**  
Industrial Rugged Metal USB Flash Disk

**SD**  
Industrial SD & SDHC Memory Card

**AD**  
Industrial Adapter Card-Drive

**Part number decoder**

**X1 X2 X3 X4 X5 X6 X7 X8 X9 — X11 X12 X13 X14 X15 — Y1 Y2 / C**

**Example**

**S P M U M 5 1 2 M — U B C S C — V S / C**

**X1** ➤ **Grade**

**S** : Standard grade operating temp. 0° C ~ +70 ° C

**W** : Industrial grade operating temp. -40° C ~ +85 ° C

**X2** ➤ **The material of casing**

**B** : Bare (without casing)

**P** : Plastic casing

**X3 X4 X5** ➤ **Product category**

**MUM** : micro USB module

**X6 X7 X8 X9** ➤ **Capacity**

**128M** : 128MB    **001G** : 1GB

**256M** : 256MB    **002G** : 2GB

**512M** : 512MB    **004G** : 4GB

**008G** : 8GB

**X11** ➤ **Controller**

**U** : USBest (DEMETER Series)

**X12** ➤ **Controller version**

**A,B,C,.....**

**X13** ➤ **Controller grade**

**C** : Commercial grade

**I** : Industrial grade

**X14** ➤ **Flash IC**

**S** : Samsung SLC-NAND flash IC

**X15** ➤ **Flash IC grade**

**C** : Commercial grade

**I** : Industrial grade

**Y1 Y2** ➤ **MUM orient only**

**VS** : Vertical type standard form factor

**HS** : Horizontal type standard form factor

**HL** : Horizontal type low profile form factor

**C** ➤ **Reserved for specific requirement**

**C** : Conformal-coating