

Titans series

INDUSTRIAL

micro SATA Flash Disk



apro
APRO Co., Ltd.

A PRO of Industrial Flash Memory Storage

www.apro-tw.com

Preliminary spec. sheet (081210-V2.1)



INDUSTRIAL
CompactFlash Card

INDUSTRIAL
PCMCIA ATA Card

INDUSTRIAL
micro IDE Flash Disk

INDUSTRIAL
Solid State Disk

INDUSTRIAL
micro SATA Flash Disk

INDUSTRIAL
Rugged USB Disk

Compatibility :



Supported O.S. :



Certification :



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

Features:

- Serial ATA 1.0a Specification compliance
- Form-factor support leftward and rightward
- Disk capacity from 32MB to 2GB
- LED Indicators by blue for power on and red for operation
- Performance up to 14.7MB/sec



INDUSTRIAL
CompactFlash Card

INDUSTRIAL
PCMCIA ATA Card

Specifications:

◆ Compatibility	Serial ATA standard rev. 1.0a
◆ Flash Technology	SLC-NAND type flash based
◆ Form-factor	Compact-designing in leftward and rightward type
◆ Host Interface	Standard 7-pin SATA female connector
◆ LED Indicators	Blue: Power on / Red: Operation
◆ Performance	
● Data transfer rate	Serial ATA standard Gen1(1.5Gbps)
● Sequential read	14.7 MB/sec (64MB file test / 2GB mSATA)
● Sequential write	8.3 MB/sec (64MB file test / 2GB mSATA)
● Average access time	0.7ms (estimated / 2GB mSATA)
◆ Environmental specification	
● Operating temperature	Standard grade 0 °C ~ 70 °C / Industrial grade -40 °C ~ 85 °C
● Non-operating temperature	Standard grade -20 °C ~ 80 °C / Industrial grade -50 °C ~ 95 °C
● Humidity	10% ~ 95% non-condensing
● Acoustic noise	0dB
● Vibration	15G compliance to MIL-STD-810F
● Shock	1,500G compliance to MIL-STD-810F
● Altitude	70,000 feet

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◆ Power consumption

- Power requirement 5V±10%
- Reading mode 200 mA (Max.)
- Writing mode 210 mA (Max.)
- Sleeping mode 180 mA (Max.)

◆ Reliability

- Wear-leveling Dynamic wear-leveling algorithms
- MTBF > 1,000,000 hours
- ECC Enhanced management 8-bits per 512bytes block
- Endurance > 2,000,000 cycles logically contributed by dynamic wear-leveling and advanced bad sector management algorithms
- Data reliability < 1 non-recoverable error in 10^{14} bits read
- Data retention 10 years

◆ Physical specification

- Weight (max.) 20 g / 0.71 oz
- Dimension(W x L x H)
Length: 45.10 + 0.1 mm / 1.78 + 0.004 inch
Width: 11.10 + 0.1 mm / 0.44 + 0.004 inch
Height: 47.49 + 0.1 mm / 1.88 + 0.004 inch

◆ Conformal coating

Option for special request

◆ Warranty

- Standard grade 3 years
- Industrial grade 5 years

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Part number list

Form-factor		micro SATA flash disk			
Grade		Operating temperature supports			
Rightward / Leftward	Capacity	Mode	0° C ~ 70° C	-40° C ~ 85° C	
	32MB	R / L	SPMSF032M-SECSC-SR(SL)	WPMSF032M-SEISI-SR(SL)	
	64MB	R / L	SPMSF064M-SECSC-SR(SL)	WPMSF064M-SEISI-SR(SL)	
	128MB	R / L	SPMSF128M-SECSC-SR(SL)	WPMSF128M-SEISI-SR(SL)	
	256MB	R / L	SPMSF256M-SECSC-SR(SL)	WPMSF256M-SEISI-SR(SL)	
	512MB	R / L	SPMSF512M-SECSC-SR(SL)	WPMSF512M-SEISI-SR(SL)	
	1GB	R / L	SPMSF001G-SECSC-SR(SL)	WPMSF001G-SEISI-SR(SL)	
	2GB	R / L	SPMSF002G-SECSC-SR(SL)	WPMSF002G-SEISI-SR(SL)	

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Part number decoder :

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

X1 : Grade

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

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

X2 : The material of case

P : Plastic case

X3 X4 X5 : Product category

MSF : micro SATA flash disk (module)

X6 X7 X8 X9 : Capacity

032M: 32MB

064M: 64MB

128M: 128MB

256M: 256MB

512M: 512MB

001G: 1GB

002G: 2GB

X11 : Controller

S : 3S 88x3 A5 (Titans 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 / Type

C : Commercial grade

I : Industrial grade

Y1 Y2 : MSF orient only

SR : micro SATA flash disk rightward type

SL : micro SATA flash disk leftward type

C : Reserved for specific requirement

C : Conformal-coating

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