

Preliminary spec. sheet (090413-V2.0)

# INDUSTRIAL Secure Digital (SD) Memory Card



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 :





## Operating temperature supports Industrial grade -40°C ~ 85°C

### Features:

- NAND type SLC flash technology
- Fully compatible with the SD Card Specification Version 2.0
- 9 exposed contacts on one side
- Supports industrial grade operating temperature -40°C ~ 85°C
- Capacity from 128MB up to 2GB
- SD Card protocol compatible
- Supports SD mode and SPI mode
- Write Protect feature using mechanical switch
- Performance up to 19MB/sec



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### Specifications:

|                                      |   |
|--------------------------------------|---|
| ◆ <b>Compatibility</b>               | SD Memory Card Specifications, Part 1, Physical Layer Specification, version 2.0<br>SD Memory Card Specifications, Part 2, File System Specification, Version 2.00<br>SD Memory Card Specifications, Part 3, Security Specification, Version 2.00<br>Compatible with Multimedia Card, System Specification, Version 4.2 |
| ◆ <b>Flash technology</b>            | SLC-NAND type flash based   |
| ◆ <b>Form-factor</b>                 | Standard Size SD Memory Card  |
| ◆ <b>Host Interface</b>              | 9-pin connector   |
| ◆ <b>Write Protection</b>            | Write protect feature using mechanical switch   |
| ◆ <b>Performance</b>                 |   |
| • <b>Sequential read</b>             | 19 MB/sec (Max.)  |
| • <b>Sequential write</b>            | 9.3 MB/sec (Max.)   |
| • <b>Average access time</b>         | 1.0ms (estimated)   |
| ◆ <b>Environmental specification</b> |   |
| • <b>Operating temperature</b>       | Industrial grade -40°C ~ +85°C  |
| • <b>Non-operating temperature</b>   | Industrial grade -65°C ~ +100°C   |
| • <b>Humidity</b>                    | 25% ~ 95% non-condensing  |
| • <b>ESD Protection</b>              |   |
| ➤ <b>Contact Pads:</b>               | ±4kV, Human body model according to ANSI EOS/ESD-S5.1-1998  |
| ➤ <b>Non Contact Pads Area:</b>      | ±8kV (coupling plane discharge)<br>±15kV (air charge), Human body model per IEC61000-4-2  |



|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• <b>Vibration</b></li> <li>• <b>Shock</b></li> <li>• <b>Altitude</b></li> </ul>  | <p>15G peak-to-peak</p> <p>1,000G Max.</p> <p>80,000 feet</p>  |
| <p>◆ <b>Power consumption</b></p> <ul style="list-style-type: none"> <li>• <b>Power requirement</b></li> <li>• <b>Reading mode</b></li> <li>• <b>Writing mode</b></li> <li>• <b>Standby mode</b></li> </ul>  | <p>2.7V ~ 3.6V</p> <p>68mA(Max.)</p> <p>80mA(Max.)</p> <p>450μA (Type.)</p>  |
| <p>◆ <b>Reliability &amp; Durability</b></p> <ul style="list-style-type: none"> <li>• <b>Durability</b></li> <li>• <b>Bending</b></li> <li>• <b>Torque</b></li> <li>• <b>Drop Test</b></li> <li>• <b>WP Switch Cycle</b></li> <li>• <b>Wear-leveling</b></li> <li>• <b>MTBF</b></li> <li>• <b>ECC</b></li> <li>• <b>Endurance</b></li> <li>• <b>Data reliability</b></li> <li>• <b>Data retention</b></li> </ul> | <p>10,000 inserting cycles</p> <p>10N</p> <p>0.15N, ± 2.5 deg.</p> <p>1.5M free fall</p> <p>1,000 cycles @ slide force 0.4N to 5N</p> <p>Dynamic wear-leveling algorithms</p> <p>&gt; 2,000,000 hours</p> <p>Correcting up to 8 bits data errors per 528 bytes data or 15 bits data errors per 539 bytes data automatically</p> <p>&gt; 2,000,000 cycles logically contributed by dynamic wear-leveling and advanced bad sector management algorithms</p> <p>&lt; 1 non-recoverable error in 10<sup>14</sup> bits read</p> <p>10 years</p> |
| <p>◆ <b>Physical specification</b></p> <ul style="list-style-type: none"> <li>• <b>Weight (max.)</b></li> <li>• <b>Dimension(W x L x H)</b></li> </ul>   | <p>2.0g/ 0.07oz</p> <p>32.0 x 24.0 x 2.1 (mm) / 1.26 x 0.95 x 0.08 (inch)</p>  |
| <p>◆ <b>Warranty</b></p> <ul style="list-style-type: none"> <li>• <b>Industrial grade</b></li> </ul>   | <p>5 years</p>   |

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## Industrial Secure Digital (SD) Memory Card

Operating temperature supports Industrial grade -40°C ~ 85°C

### Part number list :

| Product Picture | Capacity | -40° C~ 85° C   |
|-----------------|----------|-----------------|
|                 | 128MB    | WPSDC128M-IAISI |
|                 | 256MB    | WPSDC256M-IAISI |
|                 | 512MB    | WPSDC512M-IAISI |
|                 | 1GB      | WPSDC001G-IAISI |
|                 | 2GB      | WPSDC002G-IAISI |

### Part number decoder :

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

**X1** : Grade

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

**X11** : Controller

I : InCOMM

**X2** : The material of case

P : Plastic casing

**X12** : Controller version

A,B,C,....

**X3 X4 X5** : Product category

SDC : Secure Digital (SD) memory card

**X13** : Controller grade

I : Industrial grade

**X6 X7 X8 X9** : Capacity

128M: 128MB

001G: 1GB

256M: 256MB

002G: 2GB

512M: 512MB

**X14** : Flash IC

S : Samsung SLC-NAND Flash IC

**X15** : Flash IC grade / Type

I : Industrial grade

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