innodisk

2017 Edition

Optimized Surveillance Solutions

High Performance Flash Storage, DRAM and Expansion Cards for Surveillance Applications.

Introduction

Modern day surveillance has come long way since the days of analog surveillance systems. Digitalization and technologies such as Power over Ethernet (PoE) means ever increasing demands for higher surveillance data throughput, retention, and retrieval. But the main concern still remains the same, namely data recording stability.

With the advancement of digital video formats, the requirements for data storage has followed suit. Up until now this has largely been handled by traditional HDD solutions; however system integrators are quickly facing an impasse. HDD which utilizes moving mechanical parts for storage is nearing its limits for size and capacity, while also struggling to deliver the speed and stability that is necessary. In addition, simultaneous read/write operations might exceed the HDDs specification and ultimately lead to data loss.

Using SSDs for surveillance applications have previously been dismissed due to a fear of a low mean time between failure (MTBF) and high costs. These were relevant concerns in the earlier days of SSD technology, but with the right optimization these problems can be efficiently mitigated. When looking at the total cost of ownership (TCO), SSD solutions can in many situations prove to be the more cost efficient alternative.

The Innodisk Solution

Innodisk brings storage solutions with high capacities and fast speeds. With our InnoREC™ feature set, firmware is optimized to ensure lasting and stable writing performance – ensuring zero loss of data quality.

With restricted space and simultaneous read/write operations, high speed and compact memory solutions are an imperative. Our Very Low Profile (VLP) and Mini DRAM modules combine small form factors with high performance to make sure data recording goes off without a hitch.

With both the data signal and power supply running through the same wire, PoE is a staple for the modern surveillance system. With PoE it is easy to link up cameras and other equipment to the main system, while at the same time keeping cabling to a minimum. Innodisk's PoE extension cards also provide galvanic isolation and can withstand rugged conditions.

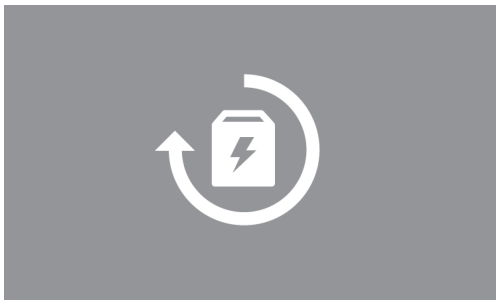

We Deliver Reliable
Recording - No Matter
Where You Need It

InnoREC™

InnoREC™ is Innodisk's proprietary flash feature set designed specifically for surveillance applications. Through the smart integration of firmware and hardware, the speed and steady performance required by modern surveillance solutions is fully met.

RECLine™

RECLine™ is the exclusive firmware algorithm for video recording that ensures steady performance without any frame-loss

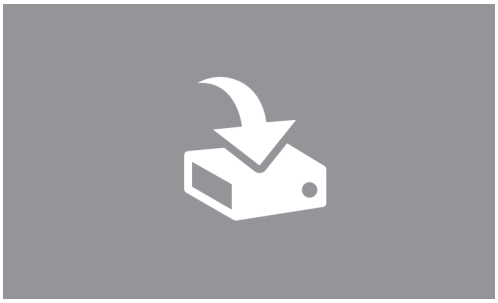


iData Guard

iData Guard is our patented power cycling data management system, which helps to ensure surveillance data integrity during and after unexpected power outages

iCell

Ensures data is flushed from volatile storage to prevent the loss of valuable surveillance data during sudden power failures



Quick Erase

Quick Erase can delete all data within a few seconds – preventing leakage of potentially sensitive data

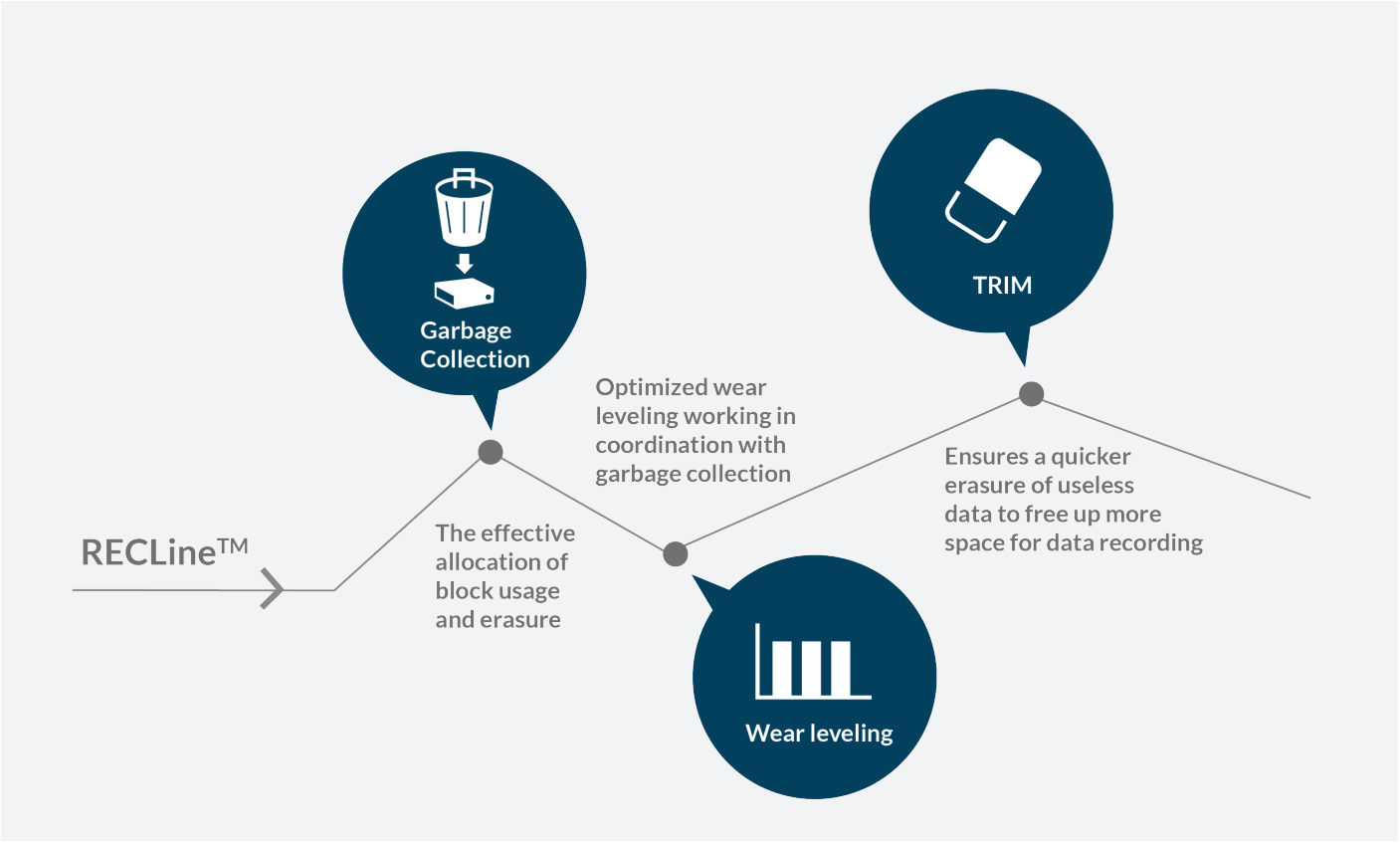
Thermal Sensor

When the surveillance system threatens to overheat, an immediate warning is issued. The SSD will automatically adjust the transmission frequency to ensure continued performance and reliability

Passive Cooling

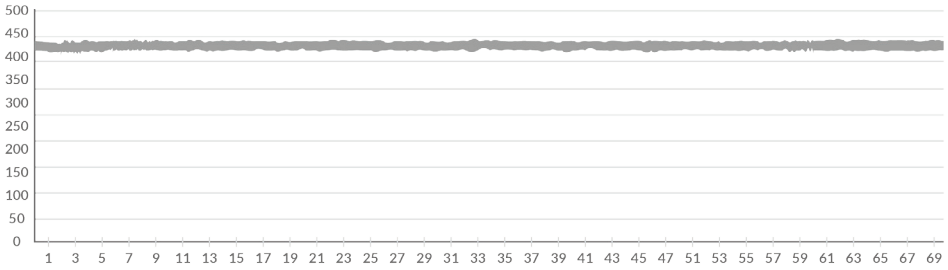
The SSD layout is design for maximum heat dissipation – ensuring performance and enhanced data retention

The composition of RECLine™



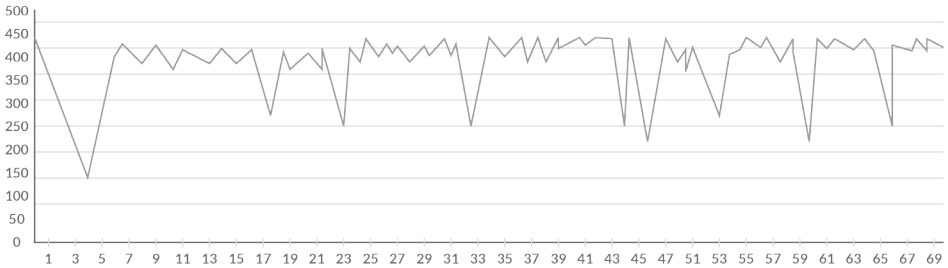
RECLine™ is our comprehensive solution to surpass the inherent issues of data writing and erasure for solid state storage. The optimization of these firmware features avoids any interruption to data recording and ensures a smooth performance.

w/RECLine™



Steady sustained write performance @ 430MB/s

w/o RECLine™



Unstable sustained write performance

Steady sustained write performance @430MB/s with 2.5" SATA SSD 3MV2-P 1TB


Unwavering Data
Recording Performance

Flash

Featured here are 5 of Innodisk's advanced Flash products for surveillance applications.

Model Name	2.5" SATA SSD 3MV2-P	SATA Slim 3MV2-P
Key Features	1. High Sequential/IOPS performance 2. iData Guard Protection 3. Exclusive REC Line architecture 4. Supports iCell protection	1. High Sequential/IOPS performance 2. iData Guard Protection 3. Exclusive REC Line architecture 4. Compatible with JEDEC MO-297
Interface	SATA III 6.0Gb/s	SATA III 6.0Gb/s
Flash Type	MLC	MLC
Capacity	8GB~2TB	8GB~256GB
Max. Channel	4	4
Sequential R/W (MB/sec, max.)	520/480	520/460
Max. Power Consumption	6W (5V x 1.2A)	2.6W (5V x 520mA)
Thermal Sensor	Y	Y
External DRAM Buffer	Y	Y
iData Guard	Y	Y
iCell	Optional	N
TRIM	Y	Y
ATA Security	Y	Y
S.M.A.R.T	Y	Y
Dimension (WxLxH/mm)	69.8 x 100.1 x 6.9 (8GB-1TB) 69.8 x 100.1 x 9.5 (2TB)	54.0 x 39.0 x 4.0
Environment	Vibration: 20G@7~2000Hz Shock: 1500G@0.5ms Storage Temperature: -55°C ~ +95°C MTBF: >3 million hours	
Standard Temp. OP (0°C~+70°C)	DVS25-XXXD81%C***(P)	DVSLM-XXXD81%C***
Wide Temp. OP (-40°C~+85°C)	DVS25-XXXD81%W***(P)	DVSLM-XXXD81%W***
Note	XXX = density (02GB=02G, 04GB=04G, 08GB=08G, 16GB=16G, 32GB=32G, 64GB=64G, 128GB=A28, 256GB=B56, 512GB=C12) ***= flash configuration (internal control code) %=Flash Type	

Model Name	CFast 3MV2-P	M.2 (S80) 3MV2-P	mSATA 3MV2-P
Key Features	1. Exclusive REC Line architecture 2. High Sequential/IOPS performance 3. iData Guard Protection	1. Type 2280-D2-B-M 2. High Sequential/IOPS performance 3. iData Guard Protection 4. Exclusive REC Line architecture	1. High IOPS by on-board DRAM design 2. Featuring L^2 architecture, the life span of the MLC SSD is 、maximized 3. Exclusive REC Line architecture 4. iData Guard Protection 5. Compatible with JEDEC MO-300
Interface	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s
Flash Type	MLC	MLC	MLC
Capacity	32GB~256GB	32GB~1TB	8GB~512GB
Max. Channel	4	4	4
Sequential R/W (MB/sec, max.)	560/450	560/450	520/450
Max. Power Consumption	2.5W (3.3V x 760mA)	3.63W (3.3V x 1.1A)	2.8 W (3.3 V x 0.86 A)
Thermal Sensor	Y		
External DRAM Buffer	Y	Y	Y
iData Guard	Y	Y	Y
iCell	N	N	N
TRIM	Y	Y	Y
ATA Security	Y	Y	Y
S.M.A.R.T	Y	Y	Y
Dimension (WxLxH/mm)	42.8 x 36.4 x 3.6	22.0 x 80.0 x 3.5	29.85 x 50.8 x 3.6
Environment	Shock: 1500G@0.5ms Storage Temperature: -55°C ~ +95°C MTBF: >3 million hours		
Standard Temp. OP (0°C~+70°C)	DVCFA-XXXD81%C***	DVM28-XXXD81%C***	DVMSR-XXXD81%C***
Wide Temp. OP (-40°C~+85°C)	DVCFA-XXXD81%W***	DVM28-XXXD81%W***	DVMSR-XXXD81%W***
Note	XXX = density (02GB=02G, 04GB=04G, 08GB=08G, 16GB=16G, 32GB=32G, 64GB=64G, 128GB=A28, 256GB=B56, 512GB=C12) ***= flash configuration (internal control code) %=Flash Type		

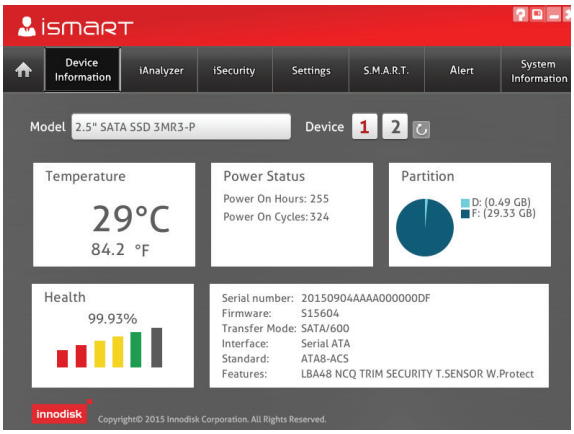
iSMART

iSMART allows system integrators to track important disk information. This exclusive software provides SSD parameters such as temperature, storage capacity, block status, and remaining lifespan – all essential to track the health status of any individual SSD.

Features:

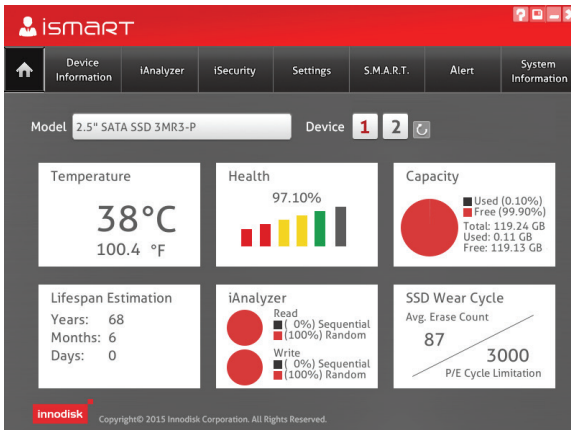
- Device maintenance and lifespan prediction
- Data preservation: iSMART SSD can be set to read-only function
- Intelligent FW provides detailed information about device read / write behavior
- Multi-Platform support:
  1. Support for both ARM and x86 architecture processors
  2. Support for Linux and Windows XP / 7 / 8.1 / 10

Device Information



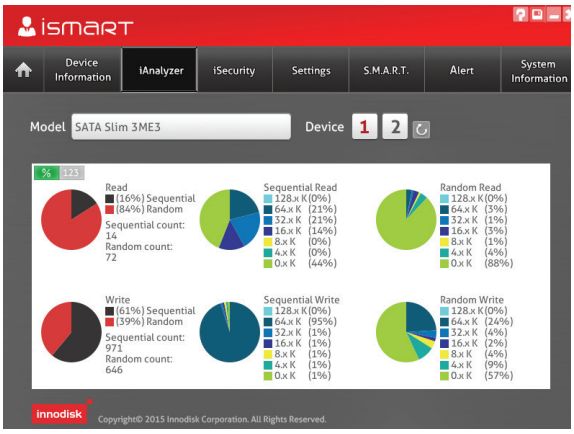
Access detailed information on your SSD such as power status, partitions, product- and serial numbers.

Lifespan Prediction



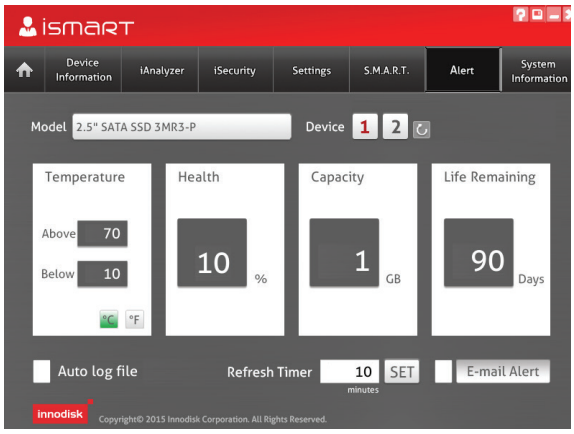
iSMART calculates device lifespan by user behavior. The user can predict the days remaining for the SSD, ultimately preventing an unexpected SSD failure.

iAnalyzer



Displays the read/ write behavior of the devices. Allows the user to better understand and analyze SSD status.

Alert



By setting the SSD's lifespan threshold, temperature and capacity, iSMART can warn the user when the SSD is reaching its limits, thus preventing abnormal failure from occurring.

DRAM

Unbuffered LONG DIMM/ SODIMM

Unbuffered Long DIMM and SODIMM DRAM modules are the optimal fit for surveillance applications. Low-Profile DIMM also improves air flow inside the system and reduces thermal impact.




Series	Standard Solution		Very Low-Profile (VLP) Solution	
Module Type	DDR4 LONG DIMM	DDR4 SODIMM	DDR4 LONG DIMM	DDR4 SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s			
Capacity	4GB/8GB/16GB	2GB/4GB/8GB/16GB	4GB/8GB/16GB	4GB/8GB
Function	Non-ECC Unbuffered Memory			
Pin Number	288pin	260pin	288pin	260pin
Width	64Bits	64Bits	64Bits	64Bits
Voltage	1.2V	1.2V	1.2V	1.2V
PCB Height	1.23 Inches	1.18 Inches	0.738 Inches	0.7 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Value-Added Service (*Optional)	Conformal Coating / Side fill			

Registered DIMM

Registered DIMM modules are designed to ensure data integrity at both the device and system level of the server. Registered DIMM are the perfect solution for applications like surveillance storage systems.


Series	Server Solution	
Module Type	DDR4 LONG DIMM	DDR4 LONG DIMM
Data Rate	2133MT/s, 2400 MT/s, 2666MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s
Capacity	4GB/8GB/16GB/32GB/64GB/128GB	4GB/8GB/16GB/ 32GB
Function	Registered DIMM with ECC	Registered Memory with ECC
Pin Number	288pin	288pin
Width	72Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	1.23 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	√	-
Value-Added Service (*Optional)	-	Conformal Coating / Side fill

Wide Temperature

Innodisk's Wide Temperature DRAM modules are the best choice for applications operating in harsh conditions and long time. Our wide temperature modules use industrial-grade SDRAM components with 30μm Gold fingers to ensure that the memory maintains its high-quality signal, even at temperatures from -40°C to as high as 85°C.


Series	Wide Temperature Solution	
Module Type	DDR4 LONG DIMM	DDR4 SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666MT/s	2133 MT/s, 2400 MT/s, 2666MT/s
Capacity	4GB/8GB	4GB/8GB
Function	Non-ECC Unbuffered Memory	
Pin Number	288pin	260pin
Width	64Bits	64Bits
Voltage	1.2V	1.2V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C
Golden finger 30μ"	√	√
Value-Added Service (Optional)	Conformal Coating / Side fill	Conformal Coating / Side fill

MINI DIMM

All Mini DIMMs are targeted for high speed, high density, high performance surveillance applications. With the ECC function, the Mini DIMMs also ensure that data is corrected when corrupted data bits are found during data retrieval. They can be useful for onboard controllers, PoE computing boxes, managed switches, PoE switches.


Series	MINI DIMM Solution	
Module Type	DDR4 MINI DIMM VLP	DDR4 MINI DIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	
Capacity	4GB/8GB/16GB	4GB/8GB
Function	Unbuffered Memory with ECC	Registered Memory with ECC
Pin Number	288pin	
Width	72Bits	
Voltage	1.2V	1.2V
PCB Height	0.738 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Value-Added Service (Optional)	Conformal Coating / Side fill	Conformal Coating / Side fill

Special/ Customized

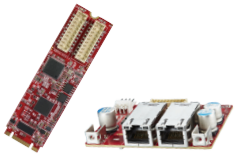
Rugged DIMM & XR-DIMM come equipped with several advantages for extreme conditions. The customized design enables modules to be highly resistant to shock and vibration, providing a more reliable performance. They are suitable for applications like fanless IPC systems.


Series	XR-DIMM Solutions	Rugged DIMM Solutions
Module Type	DDR4 SODIMM	DDR4 SODIMM
Data Rate	2133MT/s, 2400MT/s, 2666MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s
Capacity	4GB/8GB/16GB	4GB/8GB/16GB
Function	Unbuffered Memory with ECC	Non-ECC Unbuffered Memory
Pin Number	300pin	260pin
Width	72Bits	64Bits
Voltage	1.2V	1.2V
PCB Height	1.18 Inches	1.18 Inches
Operating Temperature	-	-40 ~ 85°C
Golden finger 30μ"	-	√
Value-Added Service (Optional)	Conformal Coating / Side fill	Conformal Coating / Side fill

Embedded Peripherals

PoE Communication Card

Innodisk's Power over Ethernet communication card provides a reliable and robust system expansion. Complying with industry thermal and isolation standards, performance is ensured in even the harshest conditions.



Model Name	EGPL-G2P1	EMPL-G2P1
Module Type	M.2 to dual Isolated PoE Module	mPCIe to dual Isolated PoE module
Key Features	1. Supports dual isolated GbE LAN ports 2. Two independent PSE channels 3. Supports 12V~24V power input via 4pin header or DC Jack 4. Complies with IEEE 802.3af, up to 15.4W at 48V per PoE port. 5. Complies with IEC 60950-1:2005 + A1: 2009 + A2:2013 1.7KV HiPOT protection 6. Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV 7. Industrial temperature -40 ºC to 85 ºC	1. Supports dual isolated GbE LAN ports 2. Two independent PSE channels 3. Supports 12V~24V power input via 4pin header or DC Jack 4. Complies with IEEE 802.3af, up to 15.4W at 48V per PoE port. 5. Complies with IEC 60950-1:2005 + A1: 2009 + A2:2013 1.7KV HiPOT protection 6. Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV 7. Industrial temperature -40 ºC to 85 ºC
Form-Factor	M.2 2280	mPCIe
Input I/F	PCI Express 2.1	PCI Express 2.1
Input Connector	M.2 B-M	mPCIe
Output I/F	PoE x 2	PoE x 2
Output Connector	RJ45 x 2	RJ45 x 2
Dimension (WxLxH/mm)	22 x 80 x 7.1	30 x 50.9 x 7.6
Operating Temperature	STD temp : 0°~70°C Wide temp : -40°~85°C	STD temp : 0°~70°C Wide temp : -40°~85°C
Order Infomation	EGPL-G2P1-C1 (Terminal mounting, 4pin header) EGPL-G2P1-W1 (Terminal mounting, 4pin header) EGPL-G2P1-C2 (Bracket, 4pin header) EGPL-G2P1-W2(Bracket, 4pin header) EGPL-G2P1-C3 (Terminal mounting, DC Jack) EGPL-G2P1-W3 (Terminal mounting, DC Jack) EGPL-G2P1-C4 (Bracket, DC Jack) EGPL-G2P1-W4(Bracket, DC Jack)	EMPL-G2P1-C1 (Terminal mounting, 4pin header)/ EMPL-G2P1-W1 (Terminal mounting, 4pin header) EMPL-G2P1-C2 (Bracket, 4pin header)/ EMPL-G2P1-W2(Bracket, 4pin header) EMPL-G2P1-C3 (Terminal mounting, DC Jack)/ EMPL-G2P1-W3 (Terminal mounting, DC Jack) EMPL-G2P1-C4 (Bracket, DC Jack)/ EMPL-G2P1-W4(Bracket, DC Jack)

RAID Modules

RAID is a cost-efficient, well-proven method of providing data integrity. By utilizing hardware RAID the process is handled by the module controller, which ensures that CPU operations remain unaffected.

Model Name	EMSS-32R1	EMPS-32R1
Module Type	mSATA to dual SATA III RAID Module	mPCIe to dual SATA III RAID module
Key Features	1. Supports SATA to dual SATA III Port Multiplier. 2. Supports H/W RAID 0/1 over SATA. 3. optional USB 2.0 to dual SATA III	1. PCIe to dual SATA III ports. 2. Supports AHCI, Port-Multiplier. 3. Supports Hardware RAID 0, RAID1
Form-Factor	mSATA	mPCIe
Input I/F	SATA III	PCI Express 2.0
Input Connector	mPCIe	mPCIe
Output I/F	SATA III	SATA III
Output Connector	SATA 7 Pin x 2	SATA 7 Pin x 2
Dimension (WxLxH/mm)	29.8 x 50.8 x 11.5	30 x 50.9 x 10.7
Operating Temperature	STD temp : 0°~70°C Wide temp : -40°~85°C	STD temp : 0°~70°C Wide temp : -40°~85°C
Order Infomation	EMSS-32R1-C1 EMSS-32R1-W1	EMPS-32R1-C1 EMPS-32R1-W1

ABOUT US

Innodisk is a service-driven provider of flash memory, DRAM modules and embedded peripherals for industrial and enterprise applications. With satisfied customers across the embedded, aerospace and defense, cloud storage markets and more, we have set ourselves apart with a commitment to dependable products and unparalleled service. This has resulted in products, including embedded peripherals, designed to supplement existing industrial solutions and high IOPS flash arrays for industrial and enterprise applications. The expanded business lines are leading our next steps in being a comprehensive solution and service provider in the industrial storage industry.

Founded in 2005 and headquartered in Taipei, Taiwan, Innodisk services clients globally with engineering experts and sales teams in China, Europe, Japan, and the United States. With abundant experience and an unrivaled knowledge of the memory industry, Innodisk develops products with excellent quality, remarkable performance and the highest reliability.

For more information about Innodisk, please visit http://www.innodisk.com.

Our Advantages

Firmware Team

Our in-house firmware team has years of customization experience. This dedicated team responds quickly and accurately to customer requests and delivers highly reliable tailor-made solutions.

Intellectual Property

With over 62 product design patents, we develop innovative technology that enhances and benefits industrial applications.

Purpose-Built Factory

All Innodisk products are manufactured in our own industrial-grade factory. We utilize advanced production technology in both pre- and post-production stages to improve the protection of components.

Service is not just what we do. It's who we are.

Absolute Service

Absolute Service is our pledge and our guide. It infuses everything we do at Innodisk.

Absolute Service is our promise to deliver the most comprehensive service in every situation. It's the philosophy that guides us in all interactions with our customers and business partners. It's the spirit of friendliness and enthusiasm that fills each member of the Innodisk team.

Absolute Service is our absolute commitment to our customers.

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