Datasheet

InnoAGE™

2.5” SATA SSD 3TI7

- The World’s 1st Hybrid SSD with Azure Sphere inside
- End to end security from edge computing to the cloud
- Hardware level to easy and simple development
- Support out-of-Band network management and heterogeneous platform
- Support Wireless 2.4/5GHz dual-band 802.11 a/b/g/n WiFi
- Support Ethernet

Introduction

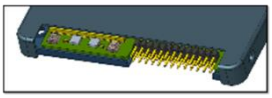
InnoAGE™ is with Microsoft Azure Sphere inside, plus integration with customized Innodisk firmware, software and hardware technology. This new solution enables multifunctional management: smart data analysis and updates, data security, and remote control through the cloud, while benefitting from the power of Azure Sphere to help ensure secured communications between the SSD and cloud.

InnoAGE™ SSD ensures an easy-to-use interface with customized cloud management platform. Technically, innodisk designed firmware receives commands from Azure Sphere via a second connection to Azure. Therefore, it is allowed to execute SSD debugging messages, monitor read/write behavior patterns increasing the storage lifespan. Most importantly, quickly revert to default setting from the cloud-based dashboard in the case of a device or system crash.

In other words, InnoAGE™ SSD is designed for both in band and out-of-band management network management, providing full recovery even when the operation system is down or severely degrade while in-band management could be little help.

Contact us for more information about the InnoAGE 2.5" SATA SSD 3TI7.

Innodisk is a service-driven provider of industrial embedded flash and DRAM storage products and technologies, with a focus on the industrial/embedded, aerospace and defense, and cloud computing industries.



Specifications

Interface	SATA III
Flash Type	3D TLC
Capacity	64GB~1TB
Flash Endurance	3,000 P/E cycles
Max. Channels	4
Sequential R/W (MB/sec, max.)*	560 / 330 MB/s
4KB Random (QD32) R/W (IOPS)**	85,000/70,000
Max. Power Consumption	3.6W
Thermal Sensor	√
ATA Security	√
S.M.A.R.T.	√
Dimension (WxLxH)	69.85 X 100.00 X 7.00 mm
Environment	Vibration: 20G @7~2000Hz Shock: 1500G @ 0.5ms Storage Temperature:-55°C to +95°C MTBF: 3 million hours
* Performance based on CystalDiskMark 5.01 with file size 1000MB	

Quick Erase	Security Erase	Destroy	Recovery	iAnalyzer	S.M.A.R.T
V	V	V	V	V	V
iData Guard	**iPower Guard**	**ATA Security**	**TRIM**	**AES 256bits**	
V	V	V	V	V	

Ordering Information

Standard Temperature (0°C~70°C)	Industrial Temperature (-40°C~85°C)
DTS25-64GDK1EC1DF	DTS25-64GDK1EW1DF
DTS25-A28DK1EC1QF	DTS25-A28DK1EW1QF
DTS25-B56DK1EC1QF	DTS25-B56DK1EW1QF
DTS25-C12DK1EC1QF	DTS25-C12DK1EW1QF
DTS25-01TDK1EC1QF	DTS25-01TDK1EW1QF

Headquarters (Taiwan)
5F., No.237, Sec. 1, Datong Rd., Xizhi Dist., New Taipei City, Taiwan (R.O.C.)
Tel: +886-2-77033000
Email: sales@innodisk.com

Branch Offices:
USA
usasales@innodisk.com
+1-510-770-9421
Europe
eusales@innodisk.com
+31-40-3045-400
Japan
jpsales@innodisk.com
+81-3-6667-0161
China
sales_cn@innodisk.com
+86-755-21673689
www.innodisk.com

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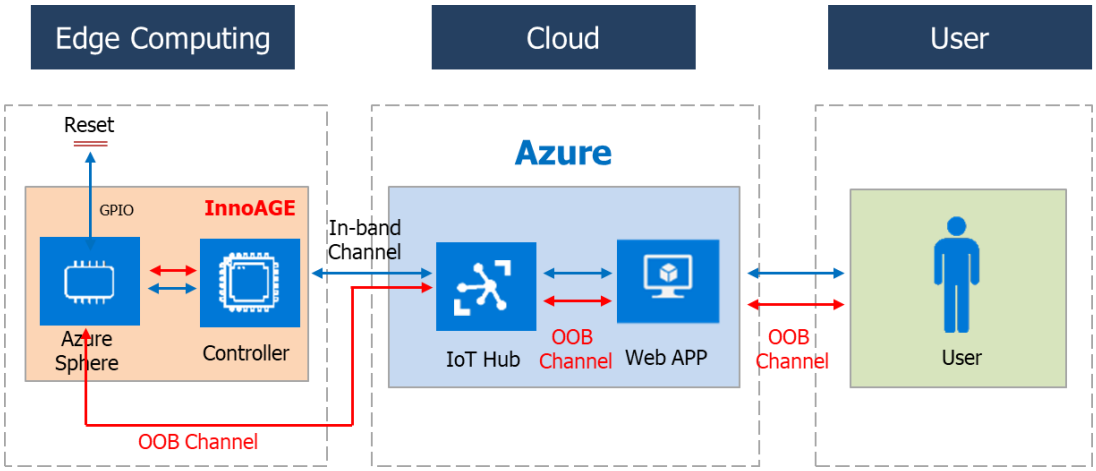
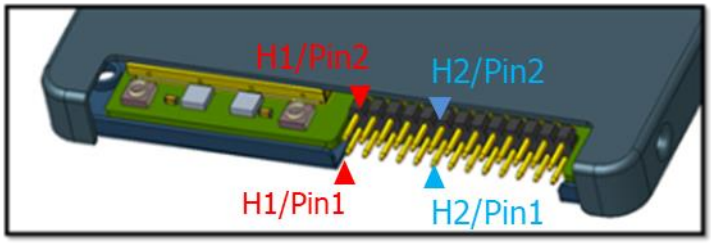
Edge to cloud System Architecture



InnoAGE 2.5" SATA SSD External Pin definition



Pin Header 1 Recovery, Reset and External reserved GPIO

PC_RST	Recovery	GPIO 66	GPIO 68	GPIO 0
H1/Pin 1	H1/Pin 3	H1/Pin 5	H1/Pin 7	H1/Pin 9
H1/Pin 2	H1/Pin 4	H1/Pin 6	H1/Pin 8	H1/Pin 10
GND	GND	GND	GND	GND

Pin	Function	Direction	Notification
1	RC_RST*	O	Active low
	GPIO	I/O	Bi-direction, function programmable
3	Recovery*	I	Active low
	GPIO	I/O	Interrupt-capable and bi-direction, function programmable
5	GPIO	I/O	Bi-direction, function programmable
	TX	O	TX of UART, pair with pin 7
7	GPIO	I/O	Bi-direction, function programmable
	RX	I	RX of UART, pair with pin 5
9	GPIO	I/O	Interrupt-capable and bi-direction, function programmable
	PWM	O	PWM control, frequency/duty TBD
2/4/6/8/10	GND		System GND
* Default setting function V_O range: -0.28<V_{OL}<0.4; 2.4<V_{OH}<3.63 (V) V_I range: -0.28<V_{IL}<0.28; 2.0<V_{IH}<3.63 (V)			

Pin Header 2

SPI to Ethernet

INT	MISO	CLK	RST	GND
H2/Pin 1	H2/Pin 3	H2/Pin 5	H2/Pin 7	H2/Pin 9
H2/Pin 2	H2/Pin 4	H2/Pin 6	H2/Pin 8	H2/Pin 10
NC	NC	MOSI	CS	3.3V

Pin	Function	Direction	Notification
1	INT*	I	Interrupt-capable GPIO
	PWM	O	PWM control, frequency/duty TBD
	GPIO	I/O	Bi-direction, function programmable
3	MISO*	I	MISO of SPI interface, pair with pin 5/6/8
	DATA	I/O	CLK of I2C interface, pair with pin5
	RX	I	RX of UART, pair with pin 5/6/8
	GPIO	I/O	Bi-direction, function programmable
5	CLK*	O	CLK of SPI interface, pair with pin 3/6/8
	TX	O	TX of UART, pair with pin 3/6/8
	GPIO	I/O	Bi-direction, function programmable
6	MOSI*	O	MOSI of SPI interface, pair with pin 3/5/8
	CLK	I/O	CLK of I2C interface, pair with pin 3
	RTS	O	RTS of UART, pair with pin 3/5/8
	GPIO	I/O	Bi-direction, function programmable
7	RST	I	SSD module reset pin, active low
8	CS*	O	CS of SPI interface, pair with pin 3/5/6
	CTS	I	CST of UART, pair with pin 3/5/6
	GPIO	I/O	Bi-direction, function programmable
10	3V3		System power 3.3V
9	GND		System GND
2/4	NC		No internal connection

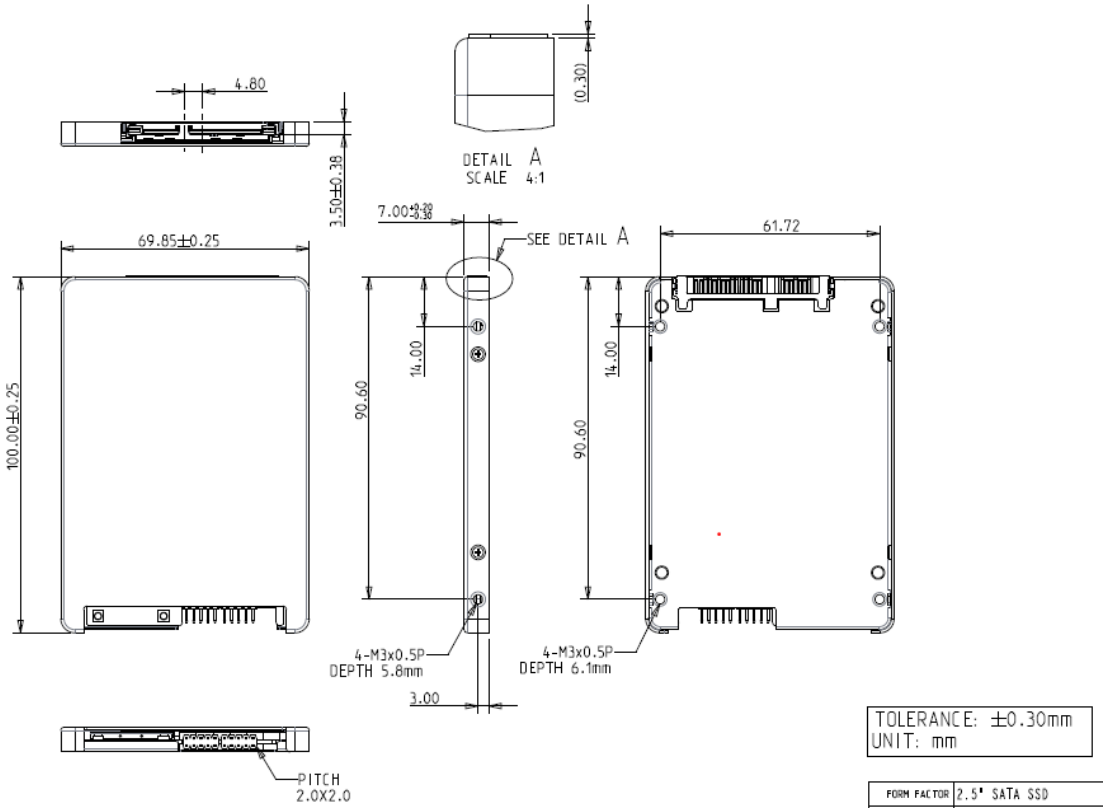
* Default setting function

V_O range: $-0.28<V_{OL}<0.4$; $2.4<V_{OH}<3.63$ (V)

V_I range: $-0.28<V_{IL}<0.28$; $2.0<V_{IH}<3.63$ (V)

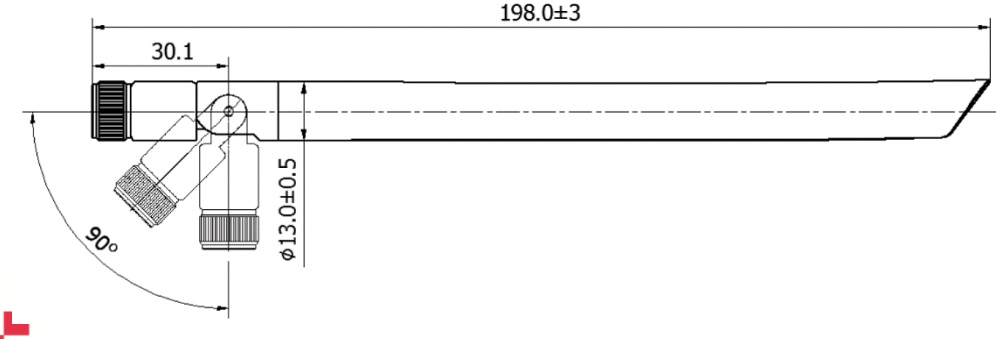
Mechanism Design

1. InnoAGE 2.5” SATA SSD



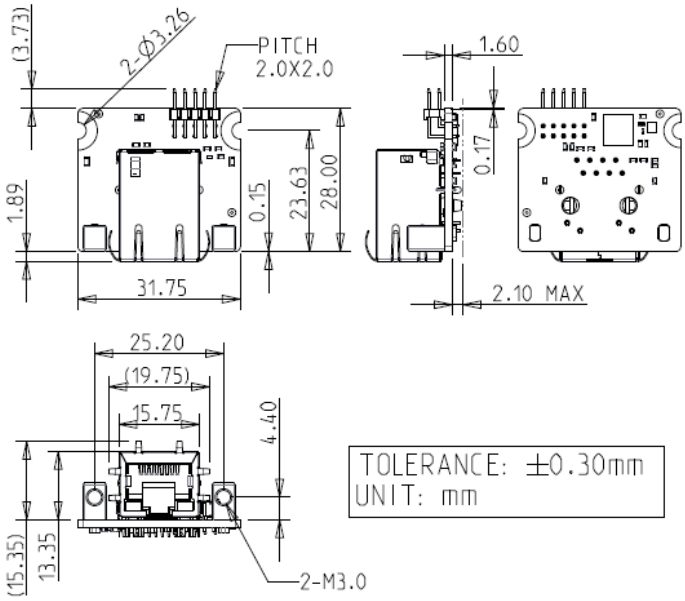
2. WiFi Antenna

Standard	IEEE 802.11 a/b/g/n and 802.11 ac
Frequency	2.4 to 2.49 GHz, 4.9 to 5.8GHz
Peak gain	3.5 dBi @2.44 GHz, 5.8 dBi @5.5 GHz
CSWR	<2.1
Feed impedance	50 ohms
Power handling	30 dBm
Interface	RPSMA
Antenna dimensions	Φ13.0mmx198.0mm
Weight	27.8g
Temperature range	-30’C to 75’C
Cover material (color)	Plastic (black)
Humidity range	5% to 95%

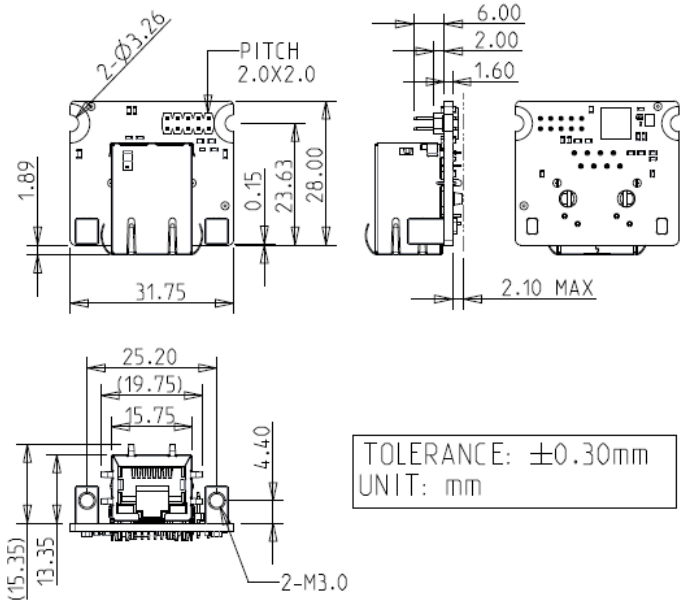


3. Ethernet Daughter Board

(1) Horizontal type



(2) Vertical type



4. Cable connect to Ethernet daughter board