

Jupiter2 AI Kit

-Instruction Manual

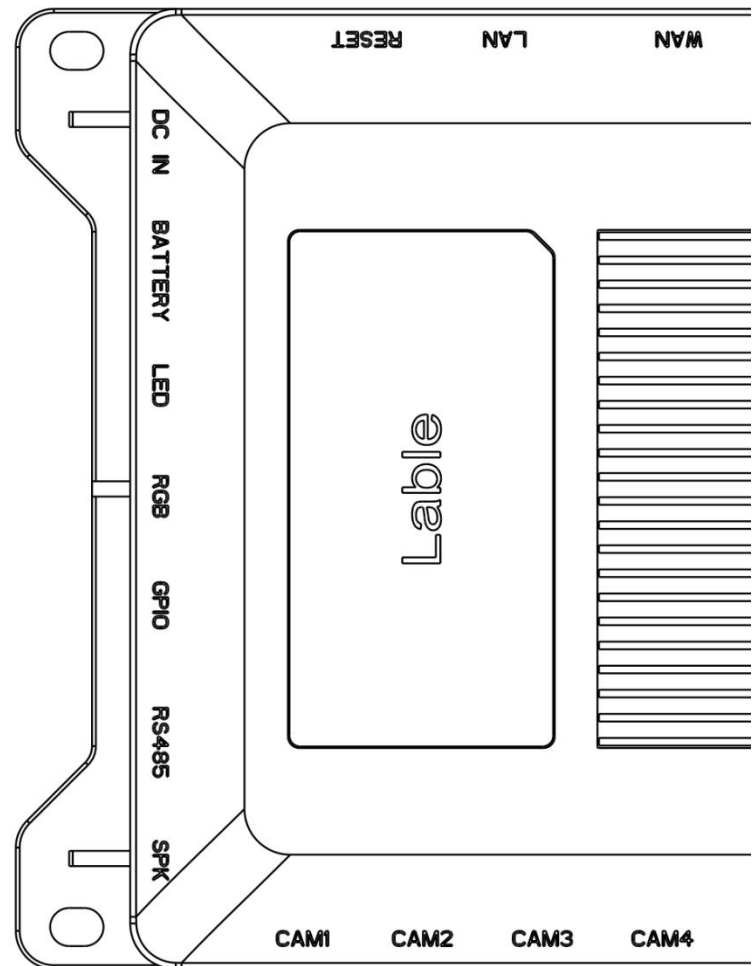
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Yi Tunnel (Beijing)Technology Co., Ltd

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Preface

SandStar Corporation thanks you for choosing our product. We value your user experience and have provided a detailed user manual to ensure you can better use our product. Before using the product, please read this manual carefully to gain a preliminary understanding of our product and follow the necessary operating procedures.

This manual covers the basic introduction of product specifications included in the Jupiter2 AI Kit, listing the main parameters. In addition, the manual also provides an explanation of the packing list and installation to help users check accessories according to the instructions and correctly install the machine.

We hope this user manual will help you better use our product. If you encounter any problems, please feel free to contact us.

◆ Usage specifications for SandStar Jupiter2 AI Kit products

1. When assembling or disassembling equipment peripherals, please first disconnect the equipment power supply before proceeding with the operation, otherwise the equipment functionality may be affected;

Lors de l'assemblage ou du démontage des périphériques de l'équipement, veuillez d'abord déconnecter l'alimentation de l'équipement avant de procéder à l'opération, sinon les fonctionnalités de l'équipement risquent d'être affectées.

2. All peripheral interfaces are designed to prevent mis-connection of the ports, do not forcefully assemble, as this may cause damage to the interface mechanism;

Toutes les interfaces périphériques sont conçues pour prévenir les mauvaises connexions des ports ; ne forcez pas l'assemblage, car cela pourrait endommager le mécanisme de l'interface.

3. When performing a line brush upgrade ROM or OTA upgrade, please ensure that the power supply is stable and reliable. Power failure in the middle may cause the upgrade to fail or even brick the device;

Lors de la mise à niveau du ROM par mise à jour en ligne (méthode par câble) ou de la mise à niveau OTA, veuillez vous assurer que l'alimentation est stable et fiable. Une coupure de courant en cours pourrait entraîner l'échec de la mise à niveau ou même rendre l'équipement inutilisable (brick) ;

4. Do not frequently turn the power on and off to avoid forced power failure shutdown;

N'allumez et n'éteignez pas fréquemment l'équipement pour éviter les arrêts par coupure de courant forcée.

5. Avoid installing the product in environments with severe vibration or impact, and keep the product away from strong electromagnetic interference locations;

Évitez d'installer le produit dans des environnements soumis à des vibrations ou des chocs sévères, et tenez le produit à l'écart des zones soumises à de fortes interférences électromagnétiques.

6. Do not touch the heat dissipation part of the product directly to avoid scalding;

Ne touchez pas directement la partie de dissipation de chaleur du produit pour éviter les brûlures.

7. Do not install indoor products in environments that may be exposed to water or other liquids;

N'installez pas les produits intérieurs dans des environnements susceptibles d'être exposés à l'eau ou à d'autres liquides.

8. The device should be stored in a dry, non-corrosive gas environment, and avoid direct sunlight;

L'équipement doit être stocké dans un environnement sec, exempt de gaz corrosifs, et à l'abri de la lumière solaire directe.

9. Avoid pointing the lens at strong light sources (such as strong lighting, sunlight, or laser beams), otherwise the image sensor may be damaged;

Évitez de diriger l'objectif vers des sources de lumière intense (telles que des éclairages puissants, la lumière du soleil ou des faisceaux laser), sinon le capteur d'image pourrait être endommagé.

10 . Avoid heat accumulation in the product usage environment and keep the ventilation around the product smooth;

Évitez l'accumulation de chaleur dans l'environnement d'utilisation du produit et assurez une ventilation adéquate autour du produit.

11 . Do not directly touch the image sensor. If necessary to clean, use a soft and clean cloth slightly moistened with alcohol to gently wipe away dust and dirt;

Ne touchez pas directement le capteur d'image. Si un nettoyage est nécessaire, utilisez un tissu doux et propre légèrement humidifié d'alcool pour essuyer doucement la poussière et les saletés.

12 . Please protect the label attached to the product properly so that the manufacturer can accurately trace the product-related information through the label content in case of any problems;

Veuillez protéger correctement l'étiquette apposée sur le produit, afin que le fabricant puisse retracer avec précision les informations relatives au produit via le contenu de l'étiquette en cas de problème.

13 . During installation and use, a reliable three-prong power outlet must be used to ensure effective grounding;

Pendant l'installation et l'utilisation, une prise de courant à trois broches fiable doit être utilisée pour assurer une mise à la terre effective.

14 . Stable power voltage is required, and sharing the line or power socket with other frequently started or frequently changing current devices should be avoided. The machine should be managed by a dedicated person, used by a dedicated person, and trained before use.

Une tension d'alimentation stable est requise, et il faut éviter de partager la ligne ou la prise de courant avec d'autres équipements à démarrage fréquent ou à courant variable. La machine doit être gérée et utilisée par du personnel dédié, qui doit être formé avant utilisation.

I. Introduction of Jupiter2 AI Kit

In recent years, the rapid development of the Internet of Things (IoT) and artificial intelligence (AI) has provided innovative impetus for various industries, greatly promoting the rapid development of the economy and society. In the field of smart retail cabinets, the in-depth integration of IoT technology with new technologies such as AI algorithms and image recognition enables users to easily shop at smart retail cabinets and complete quick checkout, opening up new possibilities for the application scenarios of smart retail cabinets.

This product is customized specifically for retail scenarios and is an Android-based edge computing industrial control box built on a high-computing-power smart module and a high-performance 4G module. It not only supports fast data processing and real-time analysis but also features strong expandability.

The new-generation Jupiter 2 has undergone comprehensive upgrades in multiple aspects, preparing for the embrace of a broader market. We have optimized both hardware and software, and innovatively improved the video capture and recognition process, thereby enhancing the overall operational efficiency and processing speed of the device. Meanwhile, the software architecture has also been upgraded to support more complex AI computing tasks and data processing requirements.

In the future, the wide application of Jupiter 2 will not be limited to smart retail cabinets. With its powerful processing capability and flexible expansion interfaces, it can provide edge computing solutions for more industries, thereby driving the innovation of business models and the improvement of efficiency. Through integration with advanced technologies, Jupiter 2 will help enterprises better adapt to market changes and achieve intelligent transformation.

1. Features of Jupiter2 AI Kit

- Cloud-local integrated solution: Integrates cloud and local recognition capabilities to ensure accurate and efficient order settlement.
- Streamlined and secure Android system: Security-trimmed, supports OTA updates to ensure system security.
- In-depth industry customization: High integration, stable and reliable, suitable for various cabinet integration solutions in the industry.
- IP5X dust resistance: Suitable for outdoor and semi-outdoor environments, impervious to dust.
- High-performance processor: The new generation 8-core processor supports ultra-fast data processing and second-level order settlement.
- High-quality network module: 4G module ensures network stability, enabling effective operation even in weak network environments.
- Large-capacity storage: 4GB+64GB combination for quick response and smooth operation.
- Efficient heat dissipation: Stable operation even in 55°C environments.

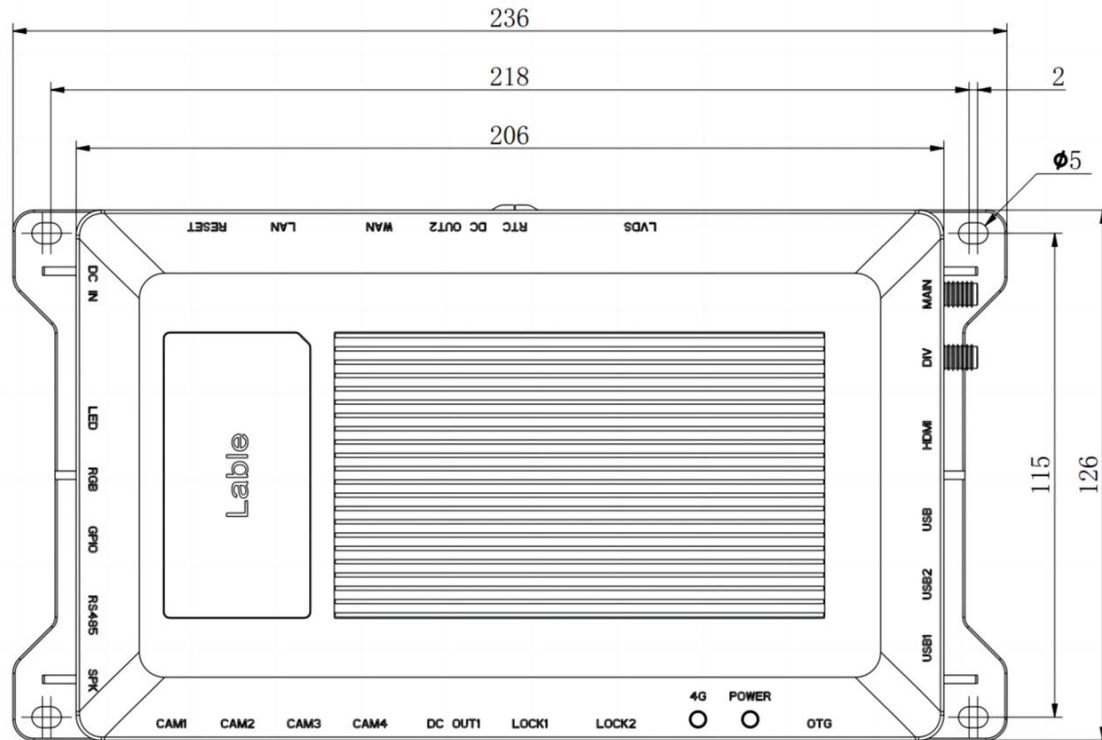
- Intelligent interactive light control system: The internal fill light features 255-level brightness adjustment, and the RGB light provides various color and mode options.
- Durable lock control system: Withstands over 100,000 switch tests, ensuring stable and precise lock control.
- AI network camera: Equipped with a starlight-level AI camera, featuring clear night vision, sharper imaging, more accurate recognition, and stable connection without dropout.
- Rich interfaces and scenario support: A total of 22 peripheral interfaces, supporting advertising screens, thermostats, speakers, etc.

2. Product Appearance



Industrial control box

3. Physical Dimensions (mm)

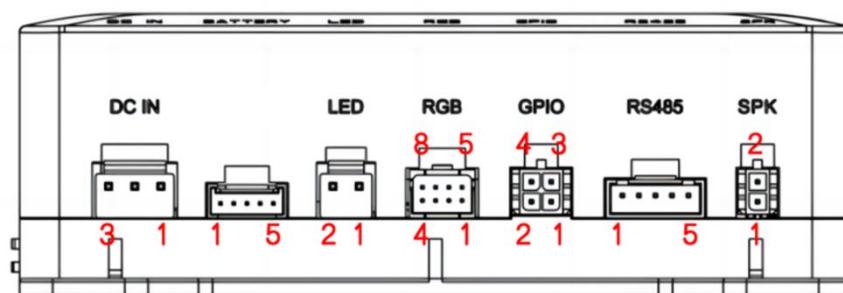


4. Complete Specifications

Item	Name	Specification	
SOC	RK3576	4 Cores Cortex-A72 and 4 Cores Cortex-A53	
Memory	DDR4X	4GB	
	EMMC	64GB	
Key	Reset Key	Reboot OS	
4G Module	EG25-G (Global)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28 LTE-TDD: B38/B39/B40/B41 UMTS: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8	
	SIM Card Slot	MINI SIM Slot (Supports hot swapping)	
	Gain Antenna	SMA-J (LTE Primary Antenna)	
		SMA-J (LTE Secondary Antenna)	
Power	Main Power Input	3PIN Connector	12V/8.5A
Peripheral Interface	CAM1/2/3/4	100M, RJ45	12V P0E
	DC OUT1	Camera Power Backup Interface(Not work simultaneously)	12/1.5A (OCP)
	USB1	USB2.0, Type-A	5V/0.5A

	USB2	US2.0, Type-A	5V/0.5A
	USB	US2.0, 4PIN Connector	5V/1A
	RS485	5PIN Connector include 5V&12V Power Output	12V1.5A & 5V1A
	HDMI	Supports hot swapping, does not support audio	HDMI Ver1.4
	SPK	2PIN	8Ω 5W
	Type-c	OTG	Flash ROM, Debug
	LED	2PIN, 255 level dimming	12V/2A (OCP)
	RGB	8PIN, 2 Channels (Green/Blue/Red)	12V/500mA
	GPIO	Temperature Sensor *2	5V/500mA
	LOCK1	8PIN	12V/1.4A (OCP)
	LOCK2	8PIN(Not work simultaneously with LED 12V Output)	12V/1.4A (OCP)
	WAN	1000M, RJ45	
	LAN	100M, RJ45	
	DC OUT2	12V Power Output (Not work simultaneously with RS485 12V Output)	12V/1.5A
	Indicator Light	Power Indicator Light (Red-Green Dual Color): ● Power not connected: Light off ● Power connected but system not activated: Red light ● Power connected and system activated: Green light 4G Network Indicator Light (Red-Blue-Green Tri-Color): ● 4G not connected: Light off ● Weak signal: Red light ● Medium signal: Blue light ● Good signal: Green light	

5. Complete I/O Panel Specifications



DC IN

No	Name	property	Specification
1	DC_GND	GND	12V 8.5A PTC
2	DC_12V	Input	
3	NC	NC	

LED

No	Name	property	Specification
1	DC_12V_LED+	Output	12V 2A; PTC; 255 level dimming
2	DC_12V_LED-	Output	

RGB

No	Name	property	Specification
1	NC	NC	
2	RGB2_B	Output	
3	RGB2_G	Output	
4	RGB2_R	Output	
5	12V_RGB_Power	Power	OCP 1000mA
6	RGB1_B	Output	
7	RGB1_G	Output	
8	RGB1_R	Output	

GPIO

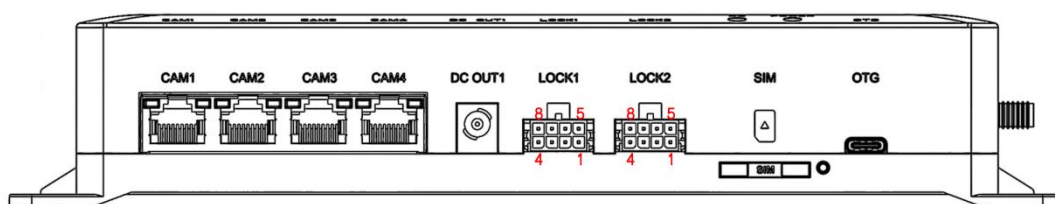
No	Name	property	Specification
1	EINT_SENSOR1_3V3	Input	Temperature Sensor Signal Wire
2	VCC_SENSOR_5V	Power	5V, OCP 500mA
3	EINT_SENSOR2_3V3	Input	
4	GND	GND	

RS485

No	Name	property	Specification
1	RS485_1_12V	Power	OCP 1.5A
2	RS485_1_5V	Power	OCP 1A
3	485_B	Data	RS-485 Data
4	485_A	Data	RS-485 Data
5	GND	GND	GND

SPK

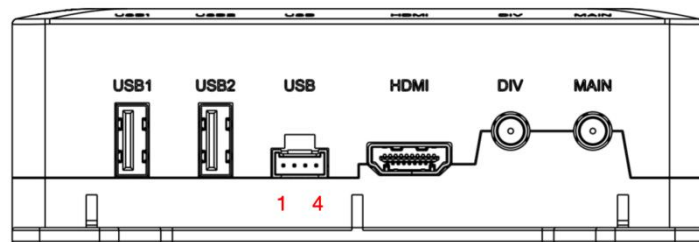
No	Name	property	Specification
1	SPK+_5W	Output	Speaker Signal Output (Right Channel, Positive Pole)
2	SPK-_5W	Output	Speaker Signal Output (Right Channel, Negative Pole)



LOCK1&LOCK2

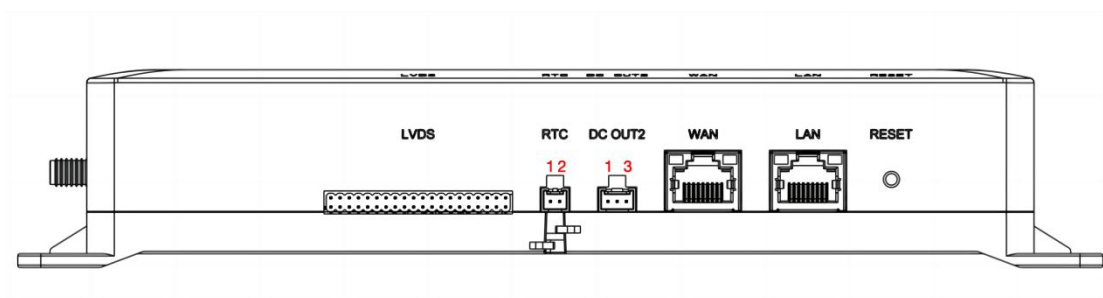
No	Name	property	Specification
1	GND	GND	GND
2	GND	GND	GND
3	LOCK1_OPEN_H_12V	Output	High-Level Lock Trigger Signal
4	GND	GND	GND

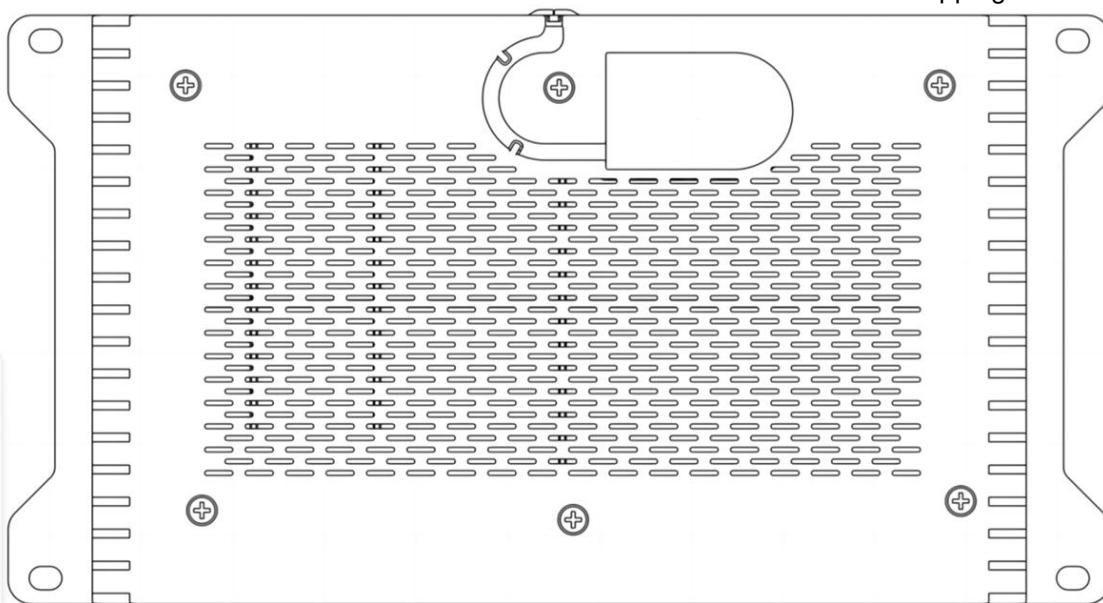
5	EINT_D00R1_3V3	Input	Door Signal Input
6	LOCK1_STATUS_3V3	Input	Lock Input Signal
7	LOCK1_OPEN_L_3V3	Output	Low-Level Lock Trigger Signal
8	LOCK1_12V_OUT	Power	Lock Power



USB (HOST)

No	Name	property	Specification
1	VCC5V0_USB_HOST	Output	5V OCP 1A
2	USD_DM	Data	USD_DM
3	USB_DP	Data	USB_DP
4	GND	GND	GND



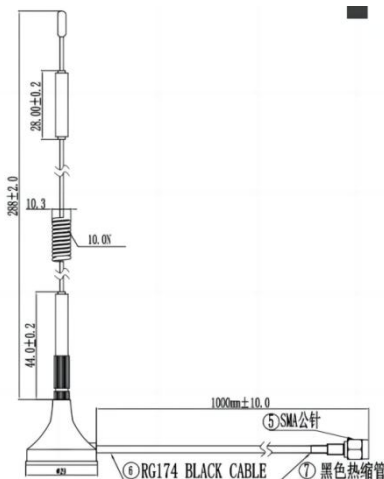


DC OUT2

No	Name	property	Specification
1	12V	Power Output	OCP 1.5A
2	NC	NC	
3	GND	GND	

4G Antenna Performance Parameters

Operating Frequency	698~960MHz;1710~2690MHZ
Input Impedance	50 ohm
VSWR	1.92:1 Max
Maximum Gain	≤ 5.0 dBi
Direction	Omnidirectional
Polarization Mode	Vertical Polarization
Structural Form	Monopole
Product Height	288 mm
Connector	SMA-J
Connector Pull Force	5kg min
Feeder Cable	RG- 174 Coaxial Cable
Feeder Length	1 meter
Mounting Method	Magnetic Adsorption
Operating Temperature	-30℃~65℃
Storage Temperature	-30℃~85℃



Guidelines for using external antennas

- Ensure the firmness of the antenna suction to prevent slipping or sliding caused by gravity or wind force.

Veillez à assurer la solidité de l'adhésion par succion de l'antenne, afin d'éviter tout glissement ou dérapage causé par la gravité ou le vent.
- The suction position should be consistent to ensure the consistency of antenna performance.

La position de succion doit rester constante, garantissant ainsi la cohérence des performances de l'antenne.
- Antennas have two types of polarization: vertical and horizontal. Please ensure that the placement position of the antenna is consistent with the polarization method.

Les antennes disposent de deux types de polarisation : verticale et horizontale. Veuillez vérifier que la position de placement de l'antenne correspond à sa méthode de polarisation.
- The support-mounted antenna should be installed at the required installation angle to ensure the correct installation angle.

L'antenne montée sur support doit être installée selon l'angle d'installation requis, pour garantir un angle d'installation correct.
- When installing multiple antennas, they should be spaced as much as possible to avoid mutual interference between the antennas.

Lors de l'installation de plusieurs antennes, elles doivent être espacées le plus possible pour éviter toute interférence mutuelle entre elles.

Precautions for using antennas

- Avoid direct contact between the human body and the antenna to prevent interference.

Évitez tout contact direct entre le corps humain et l'antenne pour prévenir toute interférence.
- Do not place items with metal shielding or semi-shielding around the antenna.

Ne placez pas d'objets à blindage métallique ou semi-blindage autour de l'antenne.
- Prevent the surrounding magnetic field from interfering with the antenna.

Empêchez le champ magnétique environnant d'interférer avec l'antenne.

- Avoid liquids such as oil and water from penetrating into the inside of the antenna.

Évitez que des liquides tels que l'huile et l'eau ne pénètrent à l'intérieur de l'antenne.

- Do not forcibly remove the antenna housing.

Ne démontez pas par force le boîtier de l'antenne.

- Do not bend or pull the transmission line of the antenna at will to avoid scratching or crushing the line skin, etc.

Ne pliez ni ne tirez pas au hasard la ligne de transmission de l'antenne, afin d'éviter de rayer ou d'écraser la gaine du câble, etc.

II. Environment and reliability

project		Specifications	remarks
work environment	temperature	0°C ~ 40°C	host
	temperature	-25°C ~ 10°C	Camera (demisting)
	temperature	10°C ~ 55°C	Camera (without demisting)
	humidity	15%~90%, no condensation	
Storage environment	temperature	-20°C ~80°C	
	humidity	5%~93% (RH), no condensation	
Protection grade		IP5X	host
		IP67	camera
Environmental certification		ROSH	

For the latest product information, please visit the official website of SandStar or call the SandStar service express line.

FCC STATEMENT

Warning: Changes or modifications to this unit not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radiofrequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

The device has been evaluated to meet general RF exposure requirement.

ISED Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

L'appareil a été évalué pour répondre aux exigences générales d'exposition aux RF. L'appareil peut être utilisé dans des conditions d'exposition portable sans restriction.

Pour une utilisation en intérieur uniquement.

IMPORTANT NOTE:**IC Radiation Exposure Statement:**

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

