JNC technology
銘祥科技實業股份有限公司

JNC

BT Mesh Server system

Skynet

V1.05

Catalogue

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Precautions

Dear customer, we are glad that you are using our products. In order to maintain the service life of the product and your good experience, please read the following content before operating!

Operational matters:

1. Please turn off the power switch when not using the device to avoid continuous battery consumption and shorten the use time.
2. Description of light display status:
   Blue light : ON : Client Node；OFF : Server Node。
   Red light: ON/OFF flashing, indicating that data is being transmitted.
   Green light: ON, indicating that the RS-485 device is successfully connected.
   Green light: OFF, indicating that the internal temperature and humidity sensor is successfully connected (default).
3. When installing the sensor, please ensure that a shielding plate is installed above the device to prevent water and dew from directly contacting the detection slot of the device during rainy days, causing damage to the device.

PART 1.PRODUCT INTRODUCTION

1-1 Product Specifications

Model	Skynet	
Power supply	Type C 5VDC or 4.2V lithium battery	
Power consumption	62mW	
Signal input	Optional temperature and humidity sensing, CO2 or PM2.5	
Communication method	Bluetooth BT Mesh	
Physical conditions	Product size (mm)	Ø85x116
	Product weight	600 g
Patents	Patent No .M594326	

Sensor	Temp
Principle	Resistive
Measuring range	(-)25~(+)85°C
Reaction time	T90 <120Sec
Operating temperature	(-)25~(+)85°C
Resolution	0.1°C
Accuracy	±0.4°C
Environmental equilibrium time (Change location)	< 40min

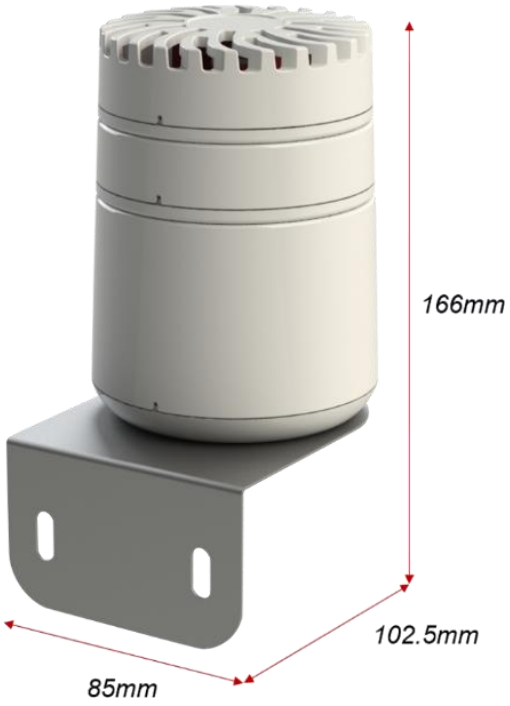
Sensor	RH
Principle	Capacitive
Measuring range	0% ~ 100%
Reaction time	T90 <120Sec
Operating temperature	(-)25~(+)60°C
Resolution	0.1%
Accuracy	±3%
Environmental equilibrium time (Change location)	< 40min

Sensor	CO2
Principle	Infrared
Measuring range	0~10,000ppm
Reaction time	T90 <120 S
Operating temperature	0~50°C
Resolution	1ppm
Accuracy	±30ppm ±3% of Reading
Environmental equilibrium time (Change location)	10sec

Sensor	PM2.5
Principle	Laser
Measuring range	0~1,000 μg/m3
Reaction time	T90 <90 S
Operating temperature	-10°C~65°C
Resolution	0.1 μg/m3
Accuracy	±10μg/m3 ±5% of Reading
Environmental equilibrium time (Change location)	5min

Sensor	TVOC			
Principle	Semiconductor			
Measuring range	0~60ppm			
Reaction time	T90 <90 S			
Operating temperature	0°C~40°C			
Resolution	Range	≦2.008 ppm	Resolution	1 ppb
		≦11.11 ppm		6 ppb
		≦60 ppm		32 ppb
Accuracy	±10%			
Environmental equilibrium time (Change location)	5min			

1-2 Product Size (mm)



▲**The picture on the left shows after installing the bracket.**

▲**The picture on the right shows the bracket not installed.**

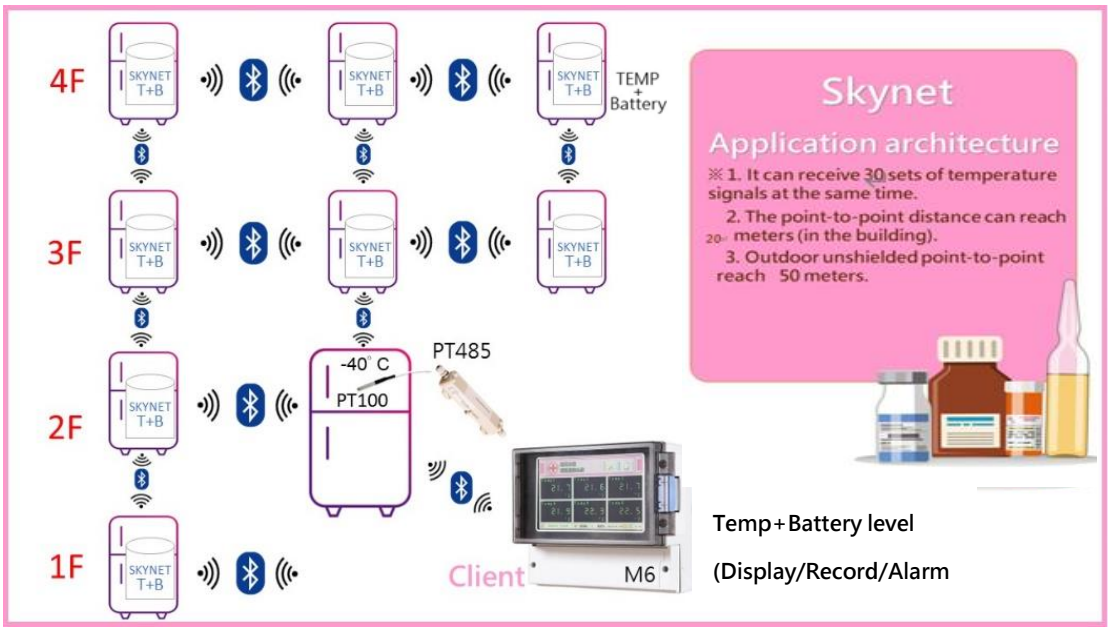
1-3 Product Features

- Can be placed directly in the refrigerator, comes with its own battery, and is quick to install without any engineering work.
- Optional temperature, temperature and humidity, CO2, PM2.5 or TVOC sensors.
- Bluetooth Mesh architecture, not the traditional star topology.
- The device itself acts both as a sensor and as a communication relay simultaneously.
- Built-in battery capacity up to 15000mAh.
- Equipped with an optional temperature and humidity sensor, if the communication is good, the battery can be used for more than two years after one measurement per minute.
- The point-to-point transmission distance is 20 meters indoors and up to 50 meters outdoors.
- Communication signals can span compartment floors or even buildings in indoor spaces.
- Up to 10 steps can be jumped on communication transmission.
- Can transmit numerical value/power/return rate.
- Can read the response status of all sensors and understand the field communication status.
- With TAF certification.

1-4 Product application scenarios

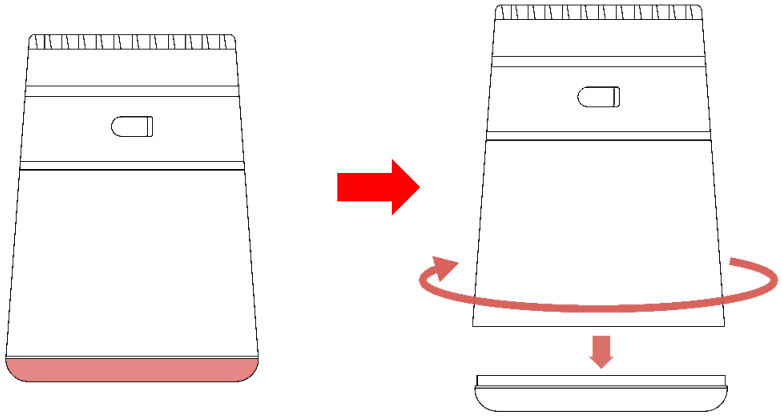
Medical refrigerators, greenhouses, indoor air quality, cold chain.

1-5 Application architecture diagram



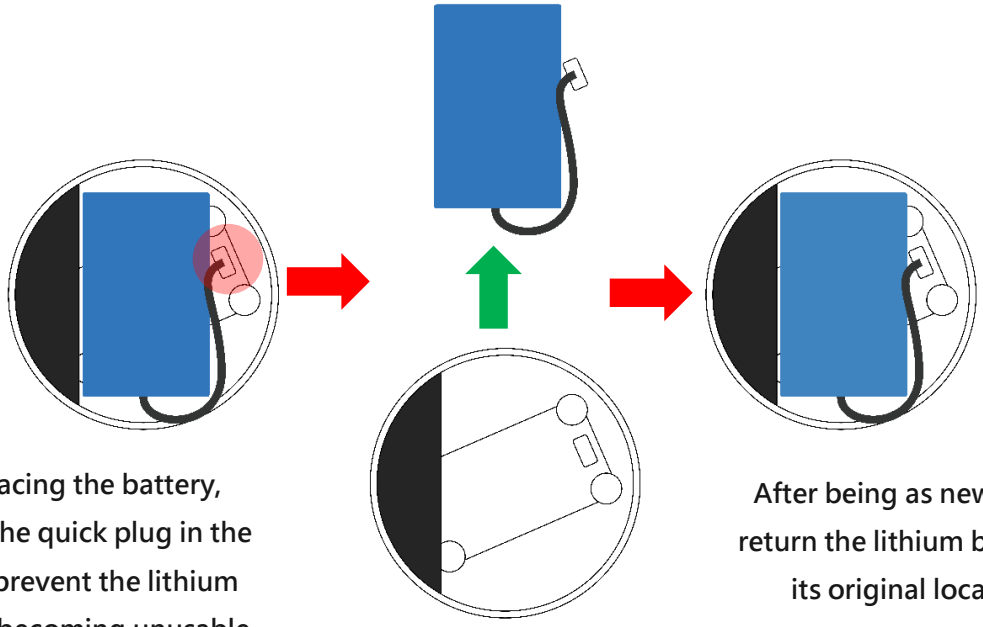
PART 2.Operating Skynet

2-1 Replacement battery



Please rotate the red marked area in the picture above clockwise.

After turning it open, pull it downwards to see the lithium battery.



When replacing the battery, please grab the quick plug in the red area to prevent the lithium battery from becoming unusable.

Please carefully remove the old battery and replace it with the lithium battery of the same specification on hand.。

After being as new,please return the lithium battery to its original location.

PART 3.Modbus table

3-1 Analog output (03、06)

Function 03 to Read/ Function 06 to Write					
Address	Setting Value	Item	Type	R/W	Remarks
0x0003	400004	Firmware version	INT16	R	
0x0004	400005	Client ID	INT16	R	
0x0005	400006	Client Baudrate	INT16	R/W	0 = 2400 1 = 4800 2 = 9600 3 = 19200 4 = 38400 5 = 57600 6 = 115200
0x0006	400007	Sleep time (seconds)	UINT16	R/W	Default 60 seconds
0x0008	400009	Transparent transmission working time (seconds)	UINT16	R/W	Default 10 seconds
0x0009	400010	Transparent transmission temporary storage trigger time (ms)	UINT16	R/W	for Client Default 300ms

3-1-1 INT16 Read Instant Value (Function 03)

Example: Read through-transmission working time, with a value of 10 seconds.

Content	Equipment station number	Function	Starting address		Number of data (Word)		16 CRC code	
Host command	1	03	00	08	00	01	05	C8
Number of bytes	1	1	2		2		2	

Content	Equipment station number	Function	Data bytes	Operating hours		16 CRC code	
Reply from machine	1	03	02	00	0A	38	43
Number of bytes	1	1	1	2		2	

3-1-2 INT16 instant time numerical description (Function 03)

In the response from the slave device, the "working time" is shown as "00 0A". Converting 0X000A (hex) to decimal gives "10", resulting in a through-transmission working time of 10 seconds.

3-1-3 Client Baudrate Modify (Function 6)

Example: Change the Baud rate to "4800".

Content	Equipment station number	Function	Starting address		Baud rate data		16 CRC code	
Host command	1	06	00	05	00	01	58	0B
Number of bytes	1	1	2		2		2	

Content	Equipment station number	Function	Data bytes		Baud rate data		16 CRC code	
Reply from machine	1	06	00	05	00	01	58	0B

3-2 Analog input (04)

Function 04 to Read					
Address	Setting Value	Item	Type	R/W	Remarks
0x0001	300002	BT ID-1 Battery power	INT16	R	Unit : %
0x0002	300003	BT ID-2 Battery power	INT16	R	Unit : %
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
0x00FE	300255	BT ID-254 Battery power	INT16	R	Unit : %
0x0002	300256	BT ID-255 Battery power	INT16	R	Unit : %
0x0101	300258	BT ID-1 Response rate	INT16	R	Unit : %
0x0102	300259	BT ID-2 Response rate	INT16	R	Unit : %
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
0x01FE	300511	BT ID-254 Response rate	INT16	R	Unit : %
0x01FF	300512	BT ID-255 Response rate	INT16	R	Unit : %
0x0200	300513	Client Number of instructions (low byte)	UINT32	R	Unit : time
0x0201	300514	Client Number of instructions (high byte)	UINT32	R	Unit : time

Function 04 to Read					
Address	Setting Value	Item	Type	R/W	Remarks
0x0202	300515	BT ID-1 Server Response times (low byte)	UINT32	R	Unit : time
0x0203	300516	BT ID-1 Server Response times (high byte)	UINT32	R	Unit : time
0x0204	300517	BT ID-2 Server Response times (low byte)	UINT32	R	Unit : time
0x0205	300518	BT ID-2 Server Response times (high byte)	UINT32	R	Unit : time
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
0x03FC	301021	BT ID-254 Server Response times (low byte)	UINT32	R	Unit : time
0x03FD	301022	BT ID-254 Server Response times (high byte)	UINT32	R	Unit : time
0x03FE	301023	BT ID-255 Server Response times (low byte)	UINT32	R	Unit : time
0x03FF	301024	BT ID-255 Server Response times (high byte)	UINT32	R	Unit : time

3-3 Digital output (01、05)

Function 01 to Read/ Function 05 to Write					
Address	Setting Value	Item	Type	R/W	Remarks
0xFF01	065282	Start communication test mode (180 seconds)	INT16	R	FF 00: Start testing 00 00: Stop testing

PART 4.Troubleshooting

Exception Category	Cause of issue	Solution
Communication abnormality	Abnormal power supply	● According to the specifications, confirm whether the power source is DC 5V.
	Lithium battery power is too low	● Please follow the steps 2-1 to replace the battery and replace it with a good lithium battery.

REVISION HISTORY

Version	Revision date	Revision description	Maintenance personnel
V1.05	2024/01/30	Update manual style	bin

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