Zigbee to RS485 Repeater, 3 Input Module

Description

Zigbee to RS485 repeater is a kind of lowcost, low consumption, and wireless mesh network targeted at wide development of long life devices in wireless control and monitoring applications. It applies wireless controlling and wireless data transmission. One zigbee to RS485 repeater can work with another or others as one network. As one solution to replace wire connection, it can connect with computer.

The unit can implement the wireless transmission based on RS485,while 3 Input Module connected with equipments such as temperature sensor,power meter,etc.One word,they work together to provide a simple way to integrate mesh technology into application.

Zigbee to RS485 Repeater

Specifications

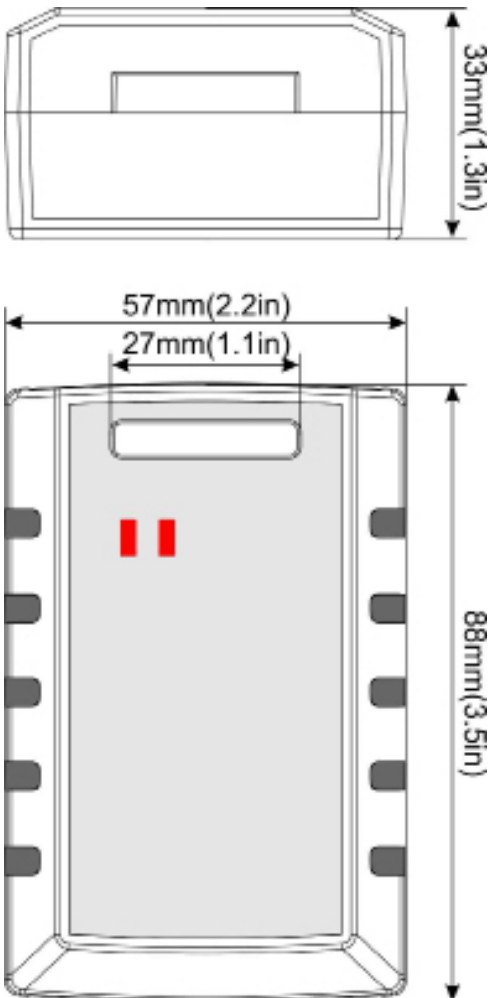|	
Supple Voltage	2.1 to 3.6V
Communication	RS485, Zigbee
Antenna	RPSMA Connector,50Ω
Transmission Range	Penetrate a wall inside room; 200m wide open outside space
Max Current	<20mA @24VAC
Transmit Power	100mW(+20dBm)
Receiver	-101 dBm
Data Rate	RF 250 Kbps,Serial up to 1Mbps
Frequency Band	ISM 2.4 GHz
Operating Temperature	-40º C to +85º C
Memory	Standard: N/A Programmable: 256KB Flash/4 KB RAM
IDS	PAN ID and addresses, cluster IDs and endpoints
Channels	16 channels
Transmit Current	Standard: 120 mA @ 3.3 VDC Programmable: 120 mA @ 3.3 VDC
Receive Current	Standard: 31 mA @ 3.3 VDC Programmable: 45 mA @ 3.3 VDC
Power-down Current	<3 µA at 25º C
Maximum carrying capacity	10Pcs ZIM-3I

3 Input Module

Highlight

Dimension

Zigbee to RS485 Repeater

33mm(1.3in)

57mm(2.2in)
27mm(1.1in)
88mm(3.5in)

3 Input Module

2.1in (52mm)

2.4in (61mm)

Wiring Diagram

The diagram below will show you how to properly set up a zigbee repeater.

ZIGBEE WIRING DIAGRAM

T3000 Operation

This example will show you how the unit will properly work with T3000 software when connecting any Modbus module to a zigbee repeater.
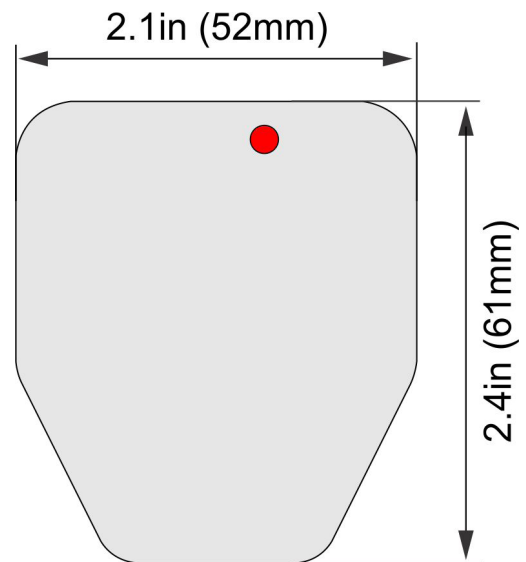
Zigbee to RS485 Repeater, 3 Input Module

Step1. Connect the Zigbee repeater and Zigbee input module 24VAC power.

Step2. Connect the repeater to the computer via RS485, the baud rate defaults to 115200

Step3. Visit https://temcocontrols.com/ftp/software/T3000.zip,download T3000 software.

Step4. The device type with ZigBee repeater is coordinator, the coordinator is the main device,there is only one ina network,and the router can be multiple form the devices.If try to work with ZIM-3I and tstat8-ZigBee set channel to 13.

Serial Number :	13				
Modbus ID :	23				
Baudrate :	115200 ▼				
Mode :	Coordinator ▼				
Channel :	13	Effective range (11 - 26)			
PAN ID :	105				

Item	Modbus ID	RSSI (dBm)	
1	1	-35	
2	254	-89	

OK

Item	Modbus ID	Voltage(V)	Status	Temperature 1 (Deg.C)	Temperature 2 (Deg.C)	RSSI (dBm)	
1	149	23.8	OFF	No sensor	No sensor	-35	
2	245	24.0	OFF	20.7	No sensor	-35	
3	73	23.9	OFF	No sensor	No sensor	-35	

Modify the Tstat8-ZigBee PAN ID

Step1.Connect to PC with serial port RS485.
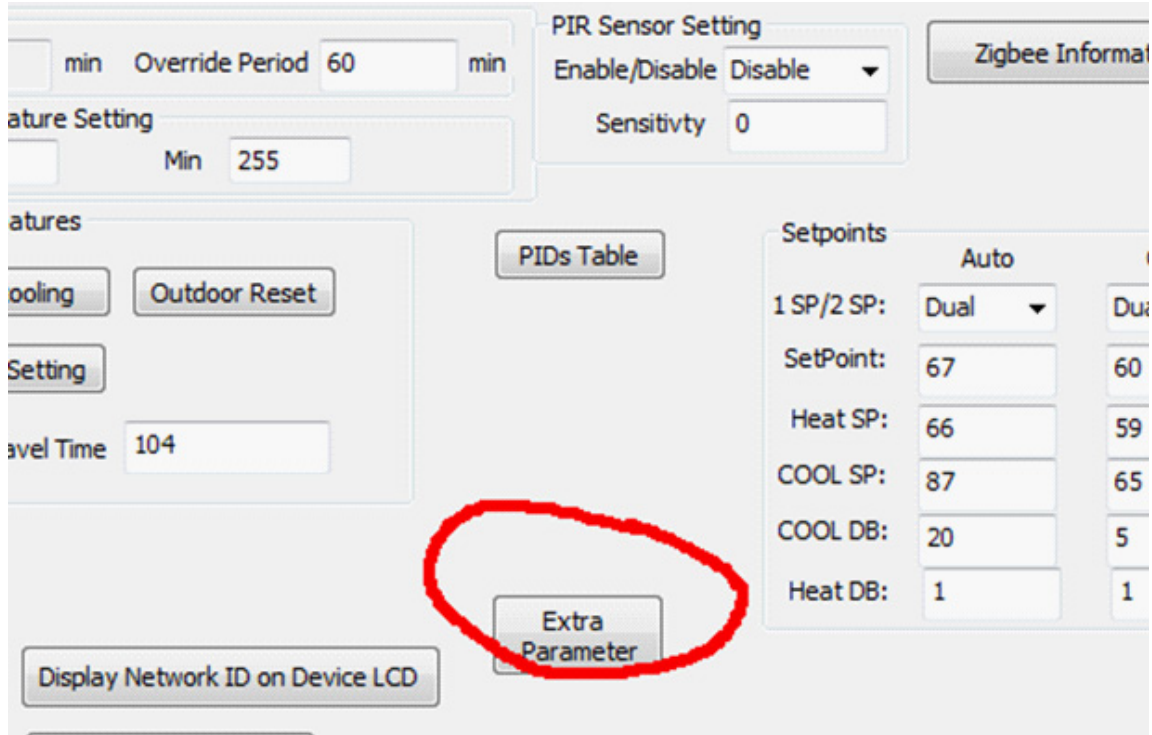
Step2.Click the scan button of T3000

Serial Port

Com6

SANCTUARY_5
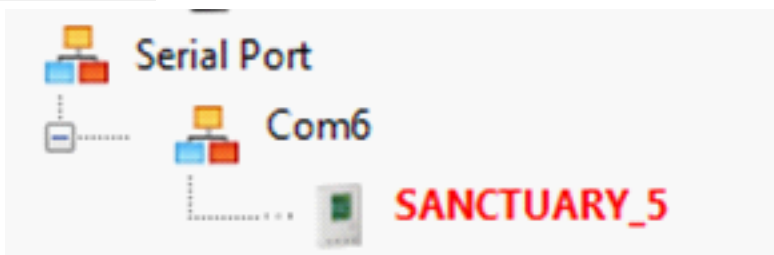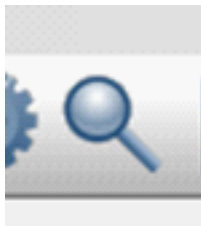
Step3.Click the configuration button of T3000

Step4.Click on the Extra Parameter

PIR Sensor Setting
min   Override Period 60   min   Enable/Disable Disable   ▼   Zigbee Informat

ature Setting   Sensitivty   0

Min   255

atures   Setpoints
                                    PIDs Table   Auto

ooling   Outdoor Reset   1 SP/2 SP: Dual   ▼   Dua

Setting   SetPoint: 67   60

                                                         Heat SP: 66   59
avel Time   104
                                                         COOL SP: 87   65

                                                         COOL DB: 20   5

                                                         Heat DB: 1   1

                                    Extra
                                    Parameter

Display Network ID on Device LCD

Step5.PAD ID can be changed in the icon position

Extra Parameter

Relay1 Open
Minimum Time (s)   0   Zigbee Pan ID :   5

Relay2 Open
Minimum Time (s)   0
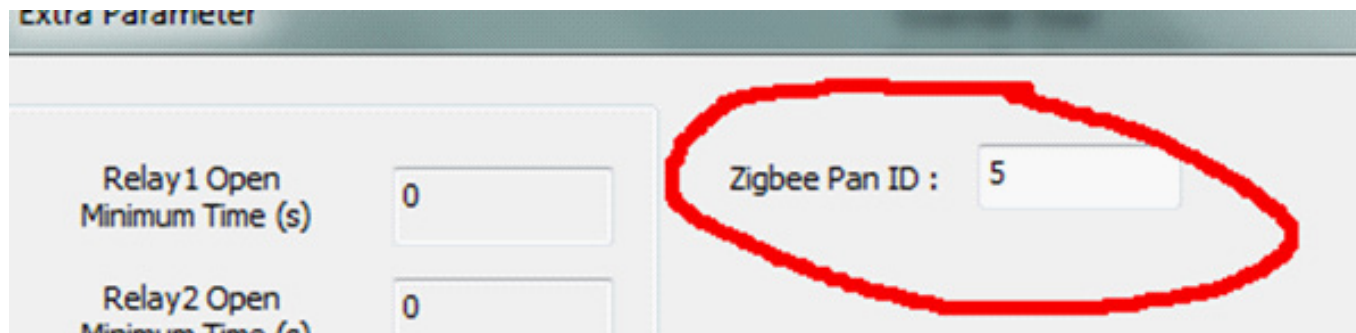
The use of ZIM-3I

Step1.Set ZigBee channle to 13

Serial Number : 13

Modbus ID : 23

Baudrate : 115200

Mode : Coordinator

Channel : 13   Effective range (11 - 26)

PAN ID : 105

Step2.After ZIM-3I is started ,ZIM-3I information is displayed on the ZigBee repeater page.

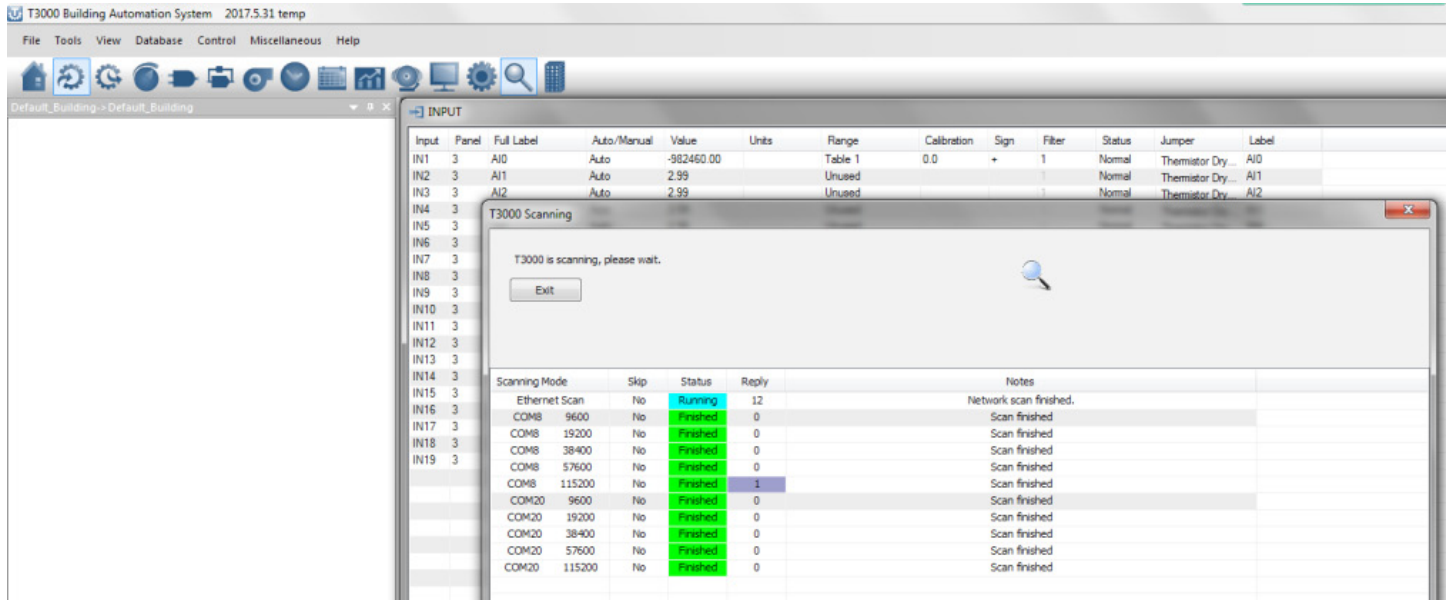| Item	Modbus ID	Voltage(V)	Status	Temperature 1 (Deg.C)	Temperature 2 (Deg.C)	RSSI (dBm)
1	149	23.8	OFF	No sensor	No sensor	-35
2	245	24.0	OFF	20.7	No sensor	-35
3	73	23.9	OFF	No sensor	No sensor	-35

Wireless Modbus RS485 'wire replacement' configuration

The zigbee modules can operate as a transparent wire replacement.

Operation:

Step1.Connect the Zigbee Repeater host-side to PC via RS485.
Step2.The device type with the ZigBee repeater is router,and the baud rate is set as the baud rate of the slave device

Serial Number :	13
Modbus ID :	23
Baudrate :	115200
Mode :	Coordinator
Channel :	13 Effective range (11 - 26)
PAN ID :	105

OK

Item	Modbus ID	RSSI (dBm)
1	1	-35
2	254	-89

Item	Modbus ID	Voltage(V)	Status	Temperature 1 (Deg.C)	Temperature 2 (Deg.C)	RSSI (dBm)
1	149	23.8	OFF	No sensor	No sensor	-35
2	245	24.0	OFF	20.7	No sensor	-35
3	73	23.9	OFF	No sensor	No sensor	-35

Step3.Connect the Zigbee Repeater device-side to the Modbus device to be connected.

Step4.Start T3000,Click 🔍 to scan.

Step5.Then you can find the Modbus device connected.

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Modbus Register List

Address	Bytes	INTs	Multipler	Length info	Operation info	Register and Description
0 to 3	4	int8	1	Low byte	R	Serial Number - 4 byte value. Read-only
4 to 5	2	int8	0.1	Low byte	R	Software Version – 2 byte value. Read-only
6	1	int8	1	Low byte	W/R	ADDRESS. Modbus device address, default:MainBoard-1
7	1	int8	1	Low byte	R	Product Model. This is a read-only register that is used by the microcontroller to determine the product
8	1	int8	1	Low byte	R	UTC time, hour
9	1	int8	1	Low byte	R	UTC time, minute
10	1	int8	1	Low byte	R	UTC time, second
11	1	int8	1	Low byte	R	UTC time, month
12	1	int8	1	Low byte	R	UTC time, day
13	1	int8	1	Low byte	R	UTC time, year
18 to 20						Blank, for future use
21	1	int8	1	Low byte	R	BaudRate, default 0-9600,1-19200,2-38400,3-57600,4-115200
22	2	int16	1	Full	W/R	PANID for zigbee devices
23	1	int8	1	Full	W/R	Device type of zigbee. 0 means coordinator , 1 means router
24	1	uint8	1	Full	W/R	Channel of Zigbee, default channel is channel 13, range11-26
26	1	int8	1	Low byte	R	Zigbee module software revision
27-34	8	int8	1	Low byte	R	Zigbee extented address(MAC address)
35	1	int8	1	Low byte	W/R	Set 1 to reboot zigbee module
36-51	16	int8	1	Low byte	W/R	Seurity key
52	1	int8	1	Low byte	R	Amount of nodes connected (NUM)
53 to (52+NUM)	1	int8	1	Low byte	R	ZIM-3I modbus ID
53+NUM*2	1	int16	1	Full	R	voltage value (176 means 17.6V)
53+NUM*3	1	int8	1	Low byte	R	Switch status
53+NUM*4	1	int16	1	Full	R	Temperature value (227 means 22.7C)
53+NUM*5	1	int16	1	Full	R	Temperature value (227 means 22.7C)
53+NUM*6	1	int8	1	Low byte	R	ZIM-3I signal strength(RSSI)
300	2	uint16	1	Full	R	Tstat8-ZIG quantity