#### 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				
Communica-	RS485,				
tion	Zigbee				
Antenna	RPSMA Connector,50Ω				
Transmission	Penetrate a wall inside room;				
Range	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	ISM 2.4 GHz				
Band					
Operating	-40° C to +85° C				
Temperature					
Memory	Standard: N/A				
wieniory	Programmable: 256KB Flash/4 KB RAM				
IDS	PAN ID and addresses,				
	cluster IDs and endpoints				
Channels	16 channels				
Transmit	Standard: 120 mA @ 3.3 VDC				
Current	Programmable: 120 mA @ 3.3 VDC				
Receive	Standard: 31 mA @ 3.3 VDC				
Current	Programmable: 45 mA @ 3.3 VDC				
Power-down	<3 µA at 25° C				
Current					
Maximum car-	10Pcs ZIM-3I				
rying capacity					



**3 Input Module** 

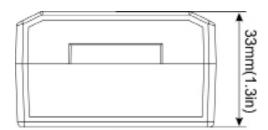
### Highlight

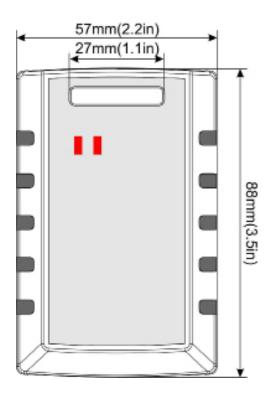




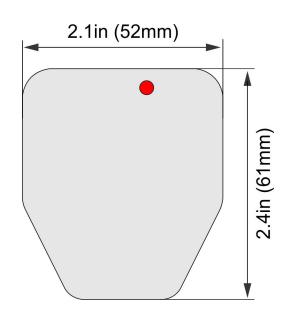
### Dimension







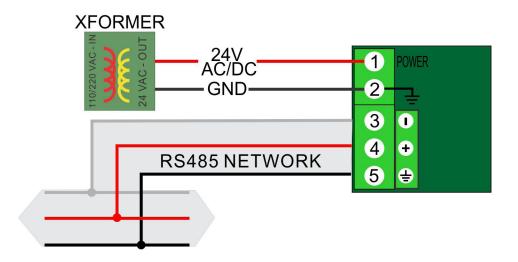
3 Input Module



### Wiring Diagram

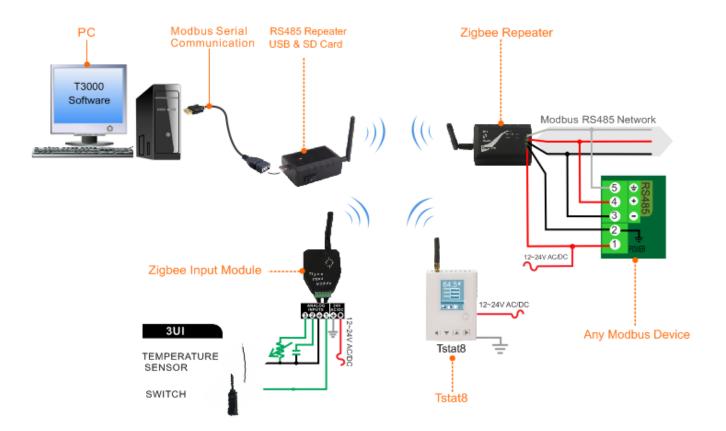
The diagram below will show you how to properly set up a zigbee repeater.

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.



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.

Seria	al Number :	13		Item	Modbus ID	RSSI (dBm)	
		1		1	1	-35	
Mode	bus ID :	23		2	254	-89	
Baud	irate :	115200 -					
Mode	e:	Coordinator 👻					
Char	nnel :	13 Effective	e range (11 ·	- 26)			
PAN	ID :	105					
[							
l	ОК						
Item	OK Modbus I	D Voltage(V)	Status	Temperature 1 (Deg.C)	Temperat	ture 2 (Deg.C)	RSSI (dBm)
		D Voltage(V) 23.8	Status	Temperature 1 (Deg.C) No sensor	Temperat No sensor		RSSI (dBm) -35
1	Modbus I						
Item 1 2 3	Modbus I 149	23.8	OFF	No sensor	No sensor		-35
1	Modbus I 149 245	23.8 24.0	OFF	No sensor 20.7	No sensor No sensor		-35 -35

### Modify the Tstat8-ZigBee PAN ID

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



Step3.Click the configuration button of T3000



	PIR Sensor Setti	ng		
min Override Period 60 min	Enable/Disable	Disable 👻	Zigbee In	format
ature Setting Min 255	Sensitivty	0		
	PIDs Table	Setpoints	Auto	1
ooling Outdoor Reset		1 SP/2 SP:	Dual 👻	Dua
Setting		SetPoint:	67	60
avel Time 104		Heat SP:	66	59
		COOL SP:	87	65
		COOL DB:	20	5
	Extra	Heat DB:	1	1
Display Network ID on Device LCD	Parameter			

#### Step4.Click on the Extra Parameter

### Step5.PAD ID can be changed in the icon position

ra Parameter				
Relay1 Open Minimum Time (s)	0	Zigbee Pan ID :	5	
Relay2 Open	0			

#### The use of ZIM-3I Step1.Set ZigBee channle to 13

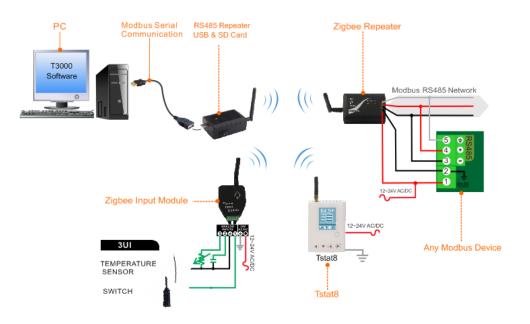
Serial Number :	13
Modbus ID :	23
Baudrate :	115200 -
Mode :	Coordinator -
Channel :	13 Effective range (11 - 26)
PAN ID :	105

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

Item	Modbus II	O Voltage(V)	Status	Temperature 1 (Deg.C)	Temperat	ure 2 (Deg.C)	RSSI (dBm)
(	ОК						
Char		13 Effective	e range (11	- 26)			
Mode	2:	Coordinator 👻	]				
Baud	lrate :	115200 -	1				
Mode	ous ID :	23		2	254	-89	
	l Number :	13		Item	Modbus ID	RSSI (dBm) -35	

Step3.Connect the Zigbee Repeater device-side to the Modbus device to be connected. Step4.Start T3000,Click scan.

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1 🕗 🕒 🕤 🗢 🖬 🐨 🕑 🔜 🖬	94	۲	Q				_	_	_					
utt_Building->Default_Building 🛛 👻 🖗 :	INPU	UT												
	Input	Panel F	Full Label	Auto/Mar	ual Value	Units	Range	Calibration	Sign	Filter	Status	Jumper	Label	
	IN1	3 A	AJO	Auto	-982460.00		Table 1	0.0	+	1	Normal	Themistor Dry	AID	
	IN2	3 A	AJ1	Auto	2.99		Unused				Normal	Themistor Dry		
	IN3	3 A	AI2	Auto	2.99		Unused			11	Normal	Thermistor Dry		
	IN4	3 T	F3000 Scanni	ina	100		County of County				Terration of the local division of the local			-
		3 -			10.000		Concession in co				Concession in which the local division of th	And and a real of the local division of the	-	and the second se
	IN6	3	T2000 in 1	scanning, please	wait									
			1 3000 15 1	scarning, prease	walt.				1					
	INB		Exit							2				
	IN9	3	Exit							-7				
	IN9 IN10	3	Exit							1				
	IN9 IN10 IN11	3 3 3	Exit							7				
	IN9 IN10	3 3 3 3	Exit							->				
	IN9 IN10 IN11 IN12 IN13 IN14	3 3 3 3 3 3	Exit Scanning Moo		ip Status	Reply			Note					
	IN9 IN10 IN11 IN12 IN13 IN14 IN15	3 3 3 3 3 3 3 3 3		de Si	ip Status 6 <b>Running</b>	Reply 12		Ne		15				
	IN9 IN10 IN11 IN12 IN13 IN14 IN15 IN16	3 3 3 3 3 3 3 3 3	Scanning Mod	de Si i Scan P				Ne	Note	is n finished.				
	IN9 IN10 IN11 IN12 IN13 IN14 IN15 IN16 IN17	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Scanning More	de Si I Scan P 9600 P	o Running	12		Ne	Note twork scar Scan fin Scan fin	is in finished, ished				
	IN9 IN10 IN11 IN12 IN13 IN14 IN15 IN16 IN17 IN18	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Scanning Moo Ethernet COM8 COM8 COM8	de Si IScan P 9600 P 19200 P 38400 P	o Running o Finished	12 0		Ne	Note twork scar Scan fin Scan fin Scan fin	is n finished. ished ished ished				
	IN9 IN10 IN11 IN12 IN13 IN14 IN15 IN16 IN17	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Scanning Mox Ethernet COM8 COM8 COM8 COM8	de Si Scan P 9600 P 19200 P 38400 P 57600 P	o Running o Finished o Finished	12 0 0 0 0		Ne	Note twork scar Scan fin Scan fin Scan fin Scan fin	is in finished. ished ished ished ished				
	IN9 IN10 IN11 IN12 IN13 IN14 IN15 IN16 IN17 IN18	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Scanning Mox Ethernet COM8 COM8 COM8 COM8 COM8	de Si Scan P 19200 P 19200 P 38400 P 115200 P	o Running o Finished o Finished o Finished o Finished o Finished	12 0 0 0 0 1		Ne	Note twork scar Scan fin Scan fin Scan fin Scan fin Scan fin	is ished ished ished ished ished ished				
	IN9 IN10 IN11 IN12 IN13 IN14 IN15 IN16 IN17 IN18	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Scanning Moo Ethernet COM8 COM8 COM8 COM8 COM8 COM8	de Si Scan P 9600 P 19200 P 38400 P 57600 P 15200 P 9600 P	Running       o     Finished	12 0 0 0 0 0 1 0		Ne	Note twork scar Scan fin Scan fin Scan fin Scan fin Scan fin	is in finished, ished ished ished ished ished				
	IN9 IN10 IN11 IN12 IN13 IN14 IN15 IN16 IN17 IN18	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Scanning Mod Ethernet COM8 COM8 COM8 COM8 COM8 COM20 COM20	de Si Scan P 19200 P 19200 P 38400 P 57600 P 115200 P 19200 P	Image     Running       Io     Finished       Io     Finished	12 0 0 0 0 0 1 0 0 0		Ne	Note twork scar Scan fin Scan fin Scan fin Scan fin Scan fin Scan fin	is n finished. ished ished ished ished ished ished ished				
	IN9 IN10 IN11 IN12 IN13 IN14 IN15 IN16 IN17 IN18	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Scanning Moo Ethernet COM8 COM8 COM8 COM8 COM8 COM8	de Si Scan P 9600 P 19200 P 19200 P 115200 P 115200 P 115200 P 38400 P	Running       o     Finished	12 0 0 0 0 0 1 0		Ne	Note twork scar Scan fin Scan fin Scan fin Scan fin Scan fin	is in finished. ished ished ished ished ished ished ished				

Step5.Then you can find the Modbus device connected.

File Tools View Database Control Miscellaneous Help	9 ₽ @ ٩		
Default, Building V X Default, Building Default, Building Local Network Serial Port Com8 Virtual Device		Change ID Senal Number 102630 Model <b>(3507A</b> PEC 0 ess I-03-FB Modous Port BIP Port	RS485 Information Braudrate 115200 MAC(MSTP) 3 MSTP,MODBUS Convertor Modbus AES ENCRYPT PASSWORD ABCDEFGH13XLMNOP Z Netword ID 122445 Node ID 10
	255 . 255 . 255 . 0 Gateway Address 192 . 168 . 0 . 4	Apply	Frequence ID 915000000 HZ

# 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 microcon- troller 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 coor- dinator , 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 ad- dress)
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