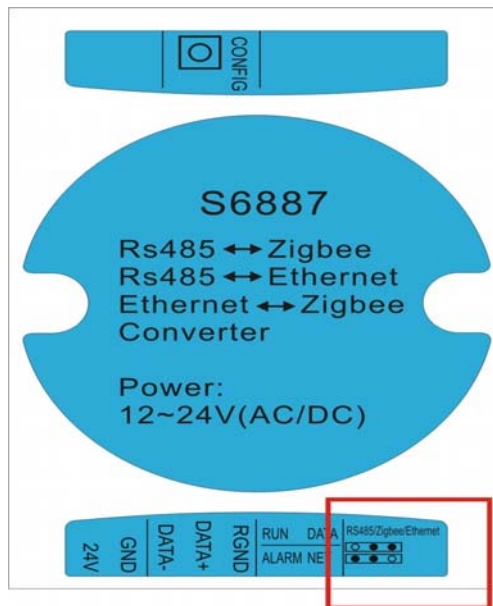


S6887
Ethernet/RS485/Wireless Zigbee Multiple Converter
User's Manual

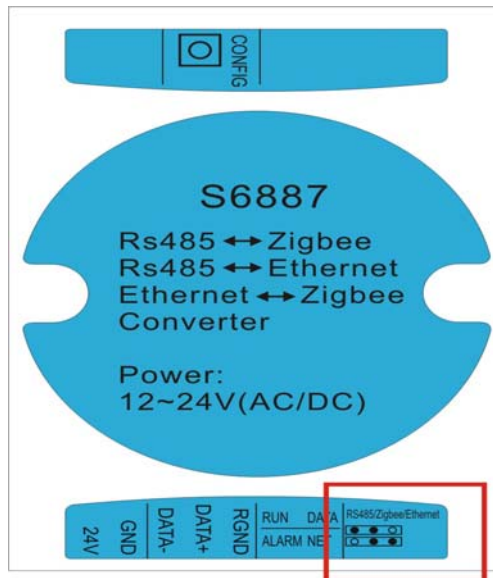


SHJ
Sales: Michael@shjelectronic.com
Support: support@shjelectronic.com

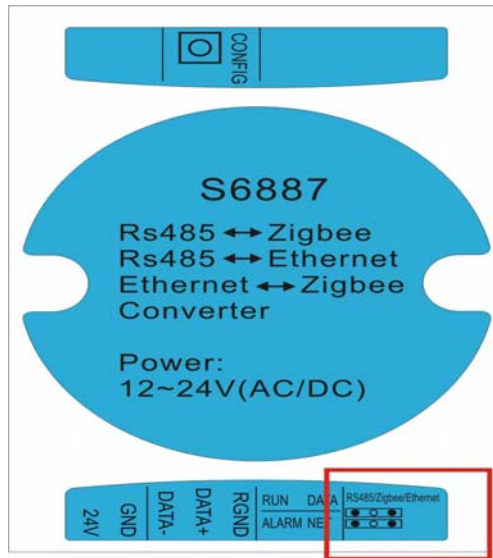
S6887 can do Ethernet to RS485 converter, Ethernet to Zigbee converter and Rs485 to Zigbee converter. There are jumpers select which converter it is. Here is the jumpers for each mode.



RS485 to Zigbee converter



Ethernet to RS485 converter



Ethernet to Zigbee converter

All these converter mode handle data transparent.

Use zigbee or Ethernet, need do some simple configuration, for zigbee parameters detail list in below.

Ethernet configuration please refer to this picture, we will provide software to finish this. More details refer to technical_S6000.pdf file.

1. Technical Parameters

Name	Technical Data
Transmission Distance	100 meters ~ 3,000 meters
Network Topology	Star, tree and chain type, mesh network
Network ID	0~255
Network Node	0~65535
Maximum Packets	256 bytes

Data Interface	Ethernet/Zigbee/Rs485
Serial Rate	1200 ~ 115200 bps
Modulation Mode	DSSS direct sequence spread spectrum
Frequency Range	2.405GHz~ 2.480GHz
A Radio Channel	16
Receiving Sensitivity	-94 dbm
Transmission Power	-27dBm~25dBm
Antenna	External SMA Antenna
Conflict Prevention	GTS, CSMA - CA and CSMA - CA
Input Voltage	9~24V AC/DC
Power consumption	22mA@24VDC
Operation tempearture	-40~85℃
Storage temperature	-40~125℃

2.Connection definition

A. Ethernet Data Interface

Please use SHJ-TCP232-Setup software config Ethernet parameters.

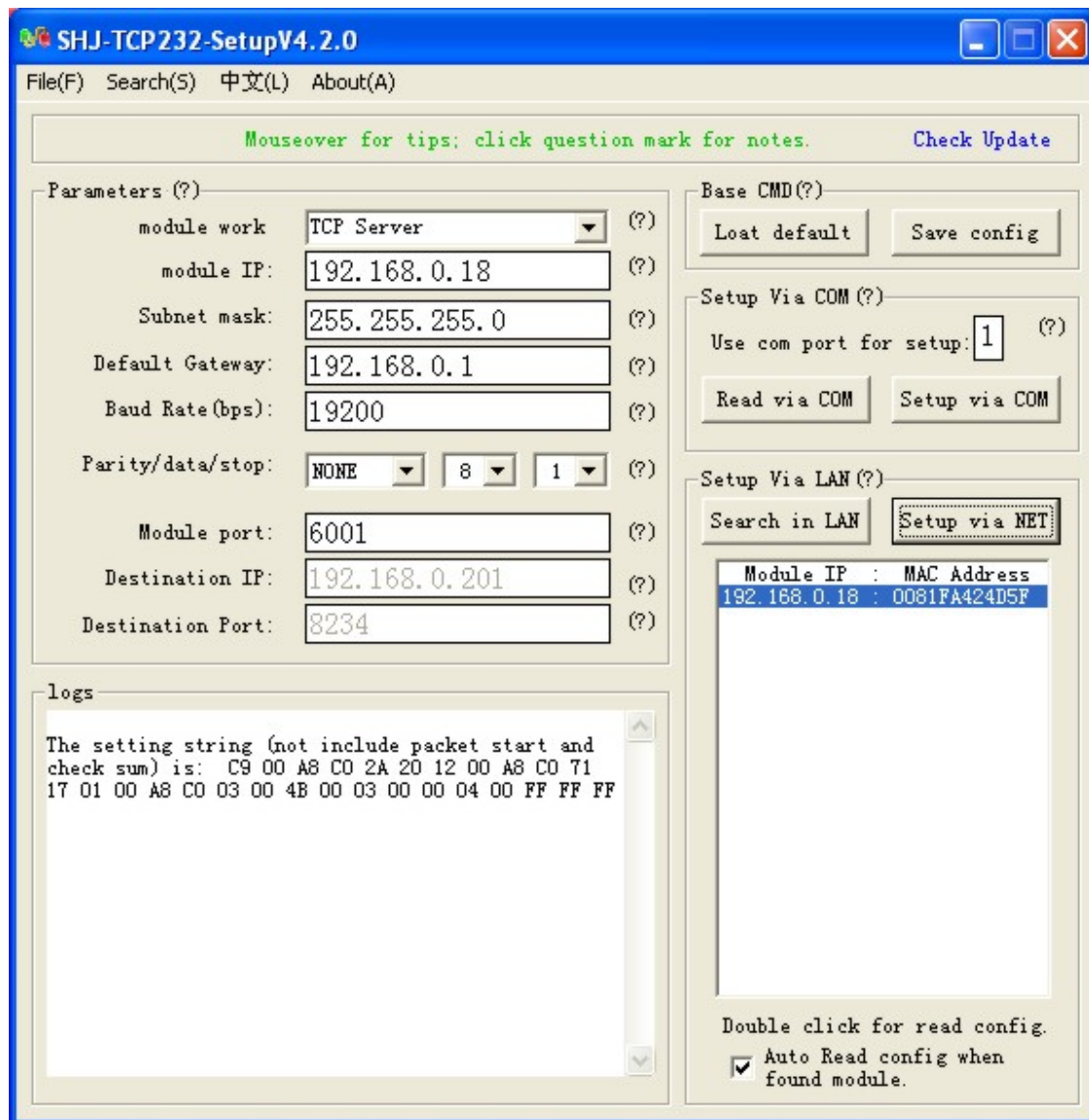
Run the software directly,

then click Search in LAN button,

you will find all S6887 connect to your hub,

change the parameters according to your requirement,

click Setup via NET button to store the parameters you changed.



B. Configuration Interface

If you need config the Zigbee module, please follow these steps to enter configuration mode.

Press the CONFIG button for 3 seconds when power is on, the system will go to configuration mode. The flashing of ALARM and RUN LEDs means that the system is going to configuration mode. The configuration interface is RS485.

Default Setting of Interface:

Serial Port Parameters	Default Settings
Serial Rate	38400
Serial Check	None
Data Bits	8
Stop Bits	1

3. Module MAC_ADDR Address & Module Type

Module MAC_ADDR Address Settings:

MAC_ADR Options	ID range	Configuration	Note
MAC_ADDR	0000—FFFE	Center module address: 0000	Unique address in the same network.

Module Type Settings:

TYPE Options	Network Type	Configuration	Note
PAN Coord	Center Module	Can replace terminal device	There must be only one center node in network
ROUTER	Router Module		
END_DEVICE	Terminal Module		

S7889 Zigbee wireless communication module has three Module types: the central Module, the router Module and terminal Module. Each type can be set by jumpers or user's MCU according to user design.

4. Signal Channel Settings

Channel	Description	Notes
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0-F	0 : 2.405GHz 1 : 2.410GHz 2 : 2.415GHz 3 : 2.420GHz 4 : 2.425GHz 5 : 2.430GHz 6 : 2.435GHz 7 : 2.440GHz 8 : 2.445GHz 9 : 2.450GHz A : 2.455GHz B : 2.460GHz C : 2.465GHz D : 2.470GHz E : 2.475GHz F : 2.480GHz	Channel4, 9, 14, 15 are recommended, which can avoid WIFI interference.
0x10	AUTO mode, choose the best channel.	

5. Network Type & Network ID

Network Type Settings:

NET_TYPE Options	Network Type	Configuration	Notes
MESH	Mesh network	In master-slave network, must have unique center node.	In a network, the network type must be the same
STAR	Star nets		
LINE 1	Chain type nets ID=1		
LINE 2	Chain type nets ID=2		
LINE 3	Chain type nets ID=3		
LINE 4	Chain type nets ID=4		
PEER	Peer-to-peer network	Not master-slave nets, no center module.	

Network ID Settings:

Options	ID Range	Configuration	Notes
NET_ID	00—FF	In one network must have unique network ID.	

6. Tansfer Type Mode & Data Type

TX Type Mode Settings:

TX_TYPE options	Send mode	Configuration	Note
BROADCAST	Broadcast mode	No target address.	Target address is 2 bytes MAC address, the first two bytes in a data package.
MASTER—SLAVE	Master-slave mode	For center Module must be assigned target address before sending it out. For not center Module, then no need to assign target address because target module is center Module, it is default.	
POINT—POINT	peer-to-peer	Target address must assign for both direction.	

Data Type Settings:

DATA_TYPE options	Data types	Configuration
ASCII	ASCII	Only in the target address situations settings, in broadcast cases do not need setting.
HEX	Hex	

7. Serial Port Settings

Data Bit Settings:

DATA_TYPE Options	Data Types	Configuration
7+1+1	7 data bits +1parity check bit + 1 stop bit	Choose them together with Data Parity Setting.
8+0+1	8 data bits +0 parity check bit + 1 stop bit	
8+1+1	8 data bits +1parity check bit + 1 stop bit	

Serial Port Baudrate Settings:

BAUD_RATE Options	Baud rate scope	Configuration
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1200~115200	1200~115200	Choose the right baudrate.
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Data Parity Settings:

DATA_PARITY Options	Module types	Configuration
NONE	None	Choose the right Data Parity.
EVEN	Even check	
ODD	Odd check	

Serial Port Time-out Settings:

TIME-OUT Options	Module types	Notes
TIME_OUT	1-255ms (Hexadecimal display)	Serial overtime time.

8. Data SRC Address Settings

SRC_ADOptions	Source address	Configuration
NO OUTPUT	Don't output source address	To decide if choose to output the source address in data packet according to application..
HEX	Hexadecimal output	
ASCII	ASCII output	

Hexadecimal way output source address formats: 2 bytes of data source address + data package,

ASCII mode output source address formats: 4 bytes of data source address + data package.

9. Data Transmission Instructions**Data Transmission Mode:**

Module type	Send mode	Target Module	Data Format
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Center Module	Broadcast	All Module except center Module	Data transfer directly
	Master-slave or peer-to-peer	Target address Module	Target address + data package
Not center Module	broadcast	All Module except center Module	Data transfer directly
	Master-slave	Center Module	Data transfer directly
	peer-to-peer	Target address Module	Target address + data package

Data Format Mode:

Send mode	Data coding	Data frame format
Data transfer directly		Do not need any changes
Target address + data package	Hexadecimal target address	2 bytes target address + data package
	ASCII target address	4 bytes target address + data package

10. LED Indication

LEDs	Status	Description
Data	ON	Work properly
	OFF	Cut off power
Running	Flashing at 1 second interval	System runs normally
	OFF	Module is not running, no power or burned out
Network	ON	Center node set success, other Module have joined network
	OFF	Not connected to network
Alarm	OFF	Work properly
	ON	Abnormal or enter special system status

11. Configuration command

All Command and parameters are Hexadecimal.

Do the following step to enter configuration mode:

First, put CONFIG pin to low level more than 3 seconds

Second, set serial port as 38400,8,N,1

A、Get module configuration parameters command

23 A0

B、Response data for command 23 A0

A2 +14 bytes data

Format for 14 bytes data:

The first 2 bytes are module address.

The third byte is net ID, range of ID is 00 - FF.

The fourth byte is net type, 01 = mesh network, 02 = star network, 07 = peer to peer network.

The fifth byte is module type, 01 = center module, 03 = router module, 04 = terminal module.

The sixth byte is transfer mode, 01 = broadcast, 02 = master-slave, 03 = peer to peer.

The seventh byte is baudrate. 01 = 1200,

02 = 2400

03 = 4800

04 = 9600

05 = 19200

06 = 38400

The eighth byte is parity check, 01 = none, 02 = EVEN, 03 = odd.

The ninth byte is data bit, 01 = 8-bit, 03 = 9-bit.

The tenth byte is data format, 01 = ASCII, 02 = HEX.

The eleventh byte is serial port timeout. 1-255ms.

The twelfth byte is signal channel, 0 to 15, recommend 4, 9, 14, 15.

The thirteenth is transfer power.

The fourteenth byte is if output source address, 01 = not output, 02 = ASCII format output, 03 = HEX format output.

C、Set module configuration parameters command

23 FE + 14 bytes configuration data

D、Configure remotely

23 CA xx xx (2 byte target address, fill FF FF if change all network)

For example, fix net ID and signal channel:

23 CA FF FF FF FF ID FF FF FF FF FF FF FF FF CHANNEL FF FF

E、Quit configuration

Must put high level for CONFIG pin.

23 23

The module wil restart and enter normal work mode.

F、Steps for configuration:

A、Get module configuration data,23 A0

B、Copy 14 bytes data you get,get rif of the first byte A2.

C、Change the corresponding parameters

D、Add 23 FE at the latest 14 data then send to module.

E、Restart the moduel.

The default configuration parameters command is:

Master: 23 FE xx xx FF 02 04 02 05 01 01 02 0A 0F 00 01

Slave: 23 FE xx xx FF 02 01 01 05 01 01 02 0A 0F 00 01

**Xx xx different according to different modules, it is module address,
range from 0 to 65535**