G-930 RS-232/485/422 to wireless Zigbee

I.Overview：

G-930-ZIGBEE wireless communication module is strengthen ZIGBEE module, integrated according with ZIGBEE protocol RF transceiver and CPU，which has the far communication distance with the strong anti-interference ability、making internet flexible etc., advantage and feature；to reach the data transparent transmit between the 1 point to multi-point and multi-point to multi-point；which can make the star and MESH type net network structure。

G-930-ZIGBEE communication module realizing serial port RS232/485/422 data transparent transmit，which can realize multipoints network communication except the common point to point data communication function。

G-930-ZIGBEE communication module divide into the core coordinator、router and terminal nodes，which have the different network function，core coordinator is the core nodes of the network which is responsible for the network launch and organization、network maintenance and managing functions；the router is in charge of the data transmit，and the terminal node is only in charge of this node data sending and receiving。The core coordinator、router and terminal node 3 types equipments are the same in the hardware structure except the equipment parameters different。

II、Product Features

☆ data interface：RS232/422/485 SMA female antenna interface.

☆ carrier frequency：2.4GHz ISM worldwide free frequency segment，frequency zone between 2400M-2485M

☆ modulation type：DSSS

☆ wireless channel：16

☆ channel check：CSMA/CA

☆ network：star type、tree type、link type、net type

☆ single net capacity：65535 nodes

☆ sending type：the broadcast sending or the object address sending

☆ transmit speed：1200-115.2Kbps adjustable

☆ working power：DC9V-30V　　150mA（max）

☆ transmit distance：wireless 2.4GHz carrier　　1000m（empty distance）

RS-232　5m（1200bps-115200bps）

RS-485/422　1200m（1200bps-115200bps）.

☆ reception sensitivity：-105dbm.

☆ emitting rate：25dbm.

☆ antenna connecting：5dbm SMA male rubber antenna.

☆ protection grade：power supply interface、RS232/422/485 interface with 2KA lightning protection.

dimension：1 97mm×65mm×26mm（without antenna）

weight：　120 g

working environment：-40～85℃,relatively humidity 5% to 95%）

III、Dimension and electrical appliance interface

G-930 with 2 sides female serial ports cables，RS-485/422 is cable terminals output
RS-232C pin assignment

DB9 Male/hole(PIN）	RS-232C interface signal
2	Receiving data SIN（RXD）
3	Sending data SOUT（TXD）
5	GND
1，4，6，7，8，9	none

RS-485/RS-422 output signal and wire terminals pin assignment

Wire post	Output signal	RS-422 full duplex wire	RS-485 half duplex wire
1	T/R+	sending(A+)	RS-485 (A+)
2	T/R-	Sending (B-)	RS-485 (B-)
3	RXD+	receiving(A+)	none
4	RXD-	receiving(B-)	none

IV、 Device assignment instruction

4.1 connect the equipment and the computer

Connect the power supply to the power input to make sure its correct and stable, then switch the G-930 equipment interface to RS232 port and connect the computer to confirm the wires correct。

4.2 open the serial port to adjust the software

1、open the computer disc to find a serial port adjust assistant，then select the right serial port，set its belonging：Baud rate 38400、data bit 8、check NONE、the stop position 1、flow control：none；

2、equipment on；press CFG assignment button3 seconds。

3、alarm light and running light blink at the same time；the system enter assignment status。

4.3 allocation parameters

1、equipment address allocation:

option	ID range	Allocation instruction	remarks
MAC_ADDR	0000—FFFE	The same network can not have the same address node	Core node address Fix 0000

Each Z-Bee equipment has the sole address identification，the same network system can not have the same address node，the equipment address adopts 2 bytes address.

2、node type set：

option	Device type	Allocation instruction	remarks
PAN_Coord	Core node		Data center
ROUTER	Relay router	Also with terminal device function	
END_DEVICE	Terminal device		

3、network type set：

option	Network instruction	Allocation instruction	remarks
MESH	Net network	Masterslave network must have the sole core node	The network type must set the same in the same network
STAR	Star network		
LINE	Link network		
PEER	Equal network	Non mastersalve network,no core	

4、network ID：

option	ID range	Allocation instruction	remarks
NET_ID	0000—FFFF	ID must be same in the same network	

remarks：all devices ID must be same in the same communication network

5、frequency point allocation：

option	range	remarks
0-F	0：2.405GHz	Introduce using 4.9.E.F to avoid WIFI interference
	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	

remarks：all devices working frequency point must be same in the same communication network, and ：don't set it to be automatic

6、address code：

option	Data type	Allocation instruction
ASCII	ASCII code	Both address type optional
HEX	16 bytearray	

7、sending type assign：

option	Sending mode	Allocation instruction	remarks
BROADCAST	broadcast	No need object address	
MASTER—SLAVE	masterslave	Send data to the fixed object address device	
POINT—POINT	Point to point	Core node needs the object address；no core node no needs object address，default sending to core node	Object address is 2 bytes MAC address，adding it before the data wrap.

8、baud rate set：

	Baud rate range	Allocation instruction	remarks
1200—115200	1200—115200	Select matching baud rate	Default 9600

remarks：factory default 9600，this Baud rate is communication baud rate，which should be seperated from the above content mentioned entering allocation Baud rate。

9、data check test：

option	Check type	Allocation instruction
NONE	Non check	
EVEN	Even check	Selecting matching check type
ODD	Odd check	

10、data bit set：

option	Data type	Allocation instruction
7+1+1	7 bit data+1 bit check+1 bit stop	
8+0+1	8 bit data+no check+1 bit stop	Select according to the data check set combination
8+1+1	8 bit data+1 bit check+1bit stop	
8+0+2	8 bit data+no check+2 bit stop	

11、data source address：

option	Data source address	Allocation instruction
NOT OUTPUT	No output source address	
HEX 16	Bytearray output	Default to be no output
ASCII	ASCII output	

V、 common allocation cases

5.1 allocation parameters attention

    Central main station address is fixed 0000，following station address 0001-FFFE can be set at random，but 2 relays address can not be the same,otherwise it can not communicate。

    All devices frequency points and network ID must be the same at the same network；Baud rate、check、data bit must match with the terminal device。

5.2 some common allocation projects

（1）transparent transmit

Master station allocation：node type is core node,sending mode is broadcast。

Slave allocation：node type is relay router or terminal node, sending mode is master-slave。

（2）transmit as per the object address

①master-slave mode

Master station allocation：node type is core node,sending mode is master-salve。

Slave allocation：node type is relay router or terminal node,sending mode is master-salve。

Under this mode，if master station sends data to the slave station，the object address before the data is needed；the address is not needed if sending data from salve station to the master station，which will send regularly。

②point to point mode

Only 2 devices communication under this mode with no core node，both object address are needed before the 2 devices sending data。

（remarks：separate his mode from the point to point communication）

VI、 running instruction

6.1 indication light instruction

    G-930-ZBEE wireless communication device supply 4 working status LED indication interface，which are running 、network、alarm and power supply，4 indication lights status and meaning：

Indicator light	Indicating status	Indicating meaning
Running	Blink every 1 second	System running normally
	off	System no running，power off or system fault
Network	on	Core node fault Normally on；entering to the network from the node
	off	No link to network
Alarm	off	Work normally
	Normally on	System abnormally or entering special status
Power supply	Normally on	Power on
	Off	Power off

6.2 device connect instruction

（1） G-930 as the core main station to connect the PC

（2） G-930 as the relay router function（power on is ok），can set network to transmit

（3） G-930 as the terminal node to terminally connect with the user。（this node can be set to relay router with terminal function）

6.3 fault instruction

Fault	methods
LED off	Check the device power on or not
4 LED lights normally on	Device main chipset damanged，contact the supplier to check
Device smoking	Power supply too high，damage probably，power off to check
Device not setting network	Read the product operating instruction carefully，check and change the relative parameter
Device no allocation	To check if entering the allocation status（power light normally on，running light and alarm light blink）；confirm super terminal belonging allocation correct and connect successfully；to confirm if the cable correct or not，no reverse connect；confirm the serial port no. selection correct。

VII、 attentions

（1） is the power supply under the required voltage range，otherwise its module will be damaged easily

（2） this module without water protection，to do the water protection work well。

（3） no reverse connection of the power supply +/- polarity，otherwise the module damange。

（4） the module mounting environment should try to avoid ESD，no contact between the antenna and the metal objects.

VIII、 attached list

name	quantity（unit）
G-930	1PC
4Pin wire terminals	1PC
Rubber antenna	1PC
DB9 Female serial port wire	1PC
Color box	1PC
Pearl wool	1PC
Small DC	1PC
Certificate	1PC
Maintenance cared	1PC