

# BW-24GM 工业电台

## 快速启动手册

BEACON GLOBAL TECHNOLOGY



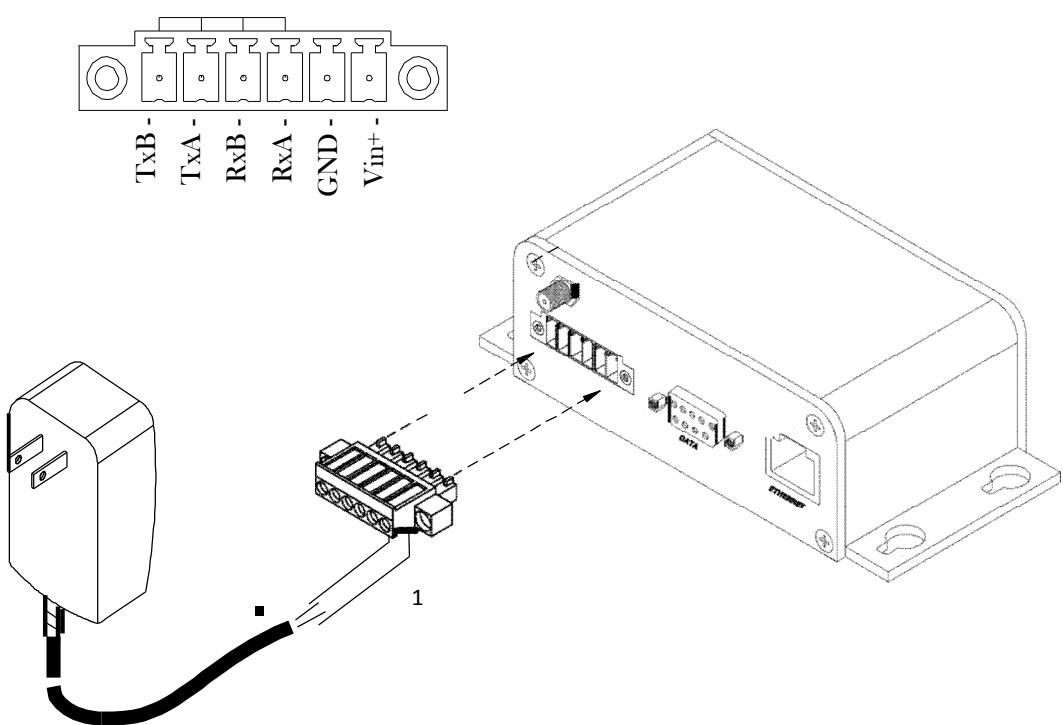
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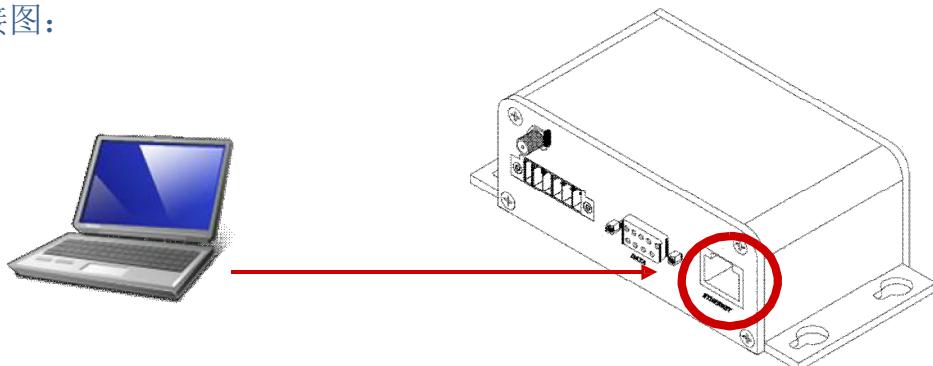
### 一, 硬件接线图:

Vin+ 接24VDC+      GND 接24VDC-

RS485/422



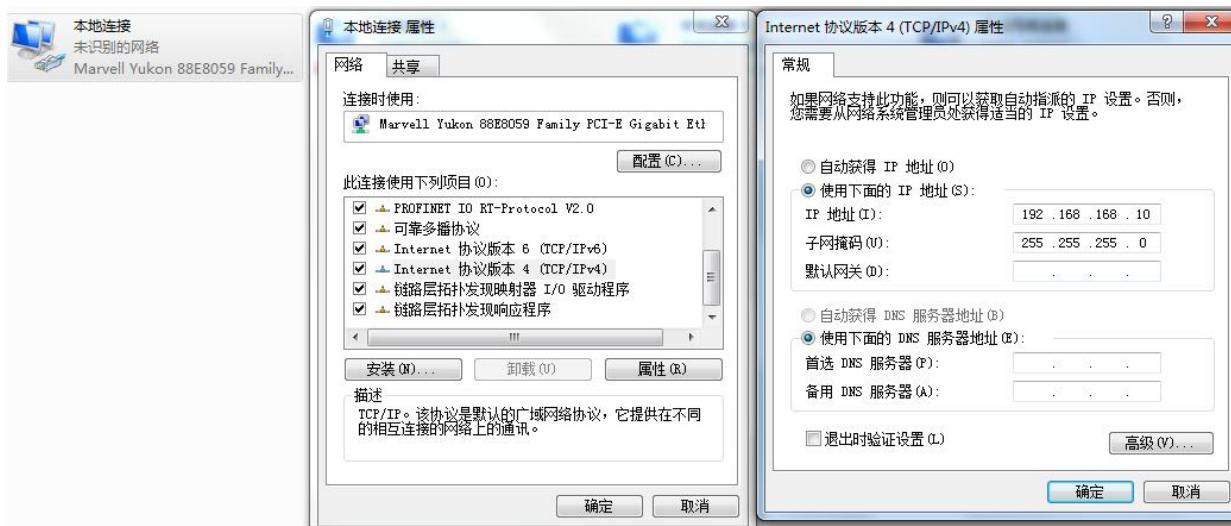
## 二, 网线连接图:



## 三, 设置本地电脑 IP 地址:

设置 IP 地址 192.168.168.10

子网掩码: 255.255.255.0



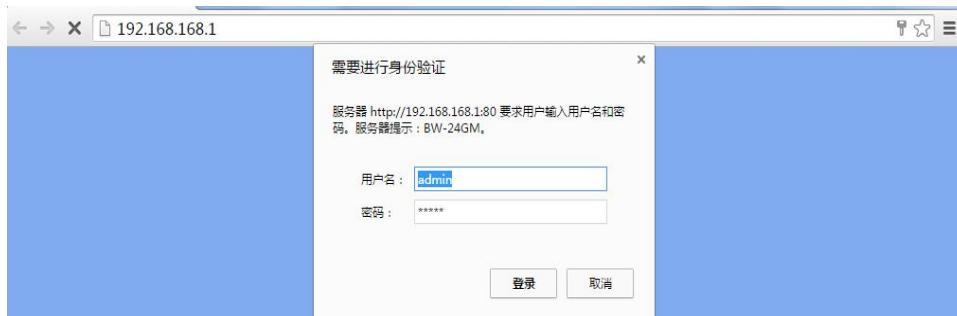
## 四, 配置电台:

### 1) 电台默认地址

IP 地址 192.168.168.1 子网掩码: 255.255.255.0

在浏览器输入 192.168.168.1 提示输入用户名和密码，并点击登录。

用户名: admin 密码: admin



## 2) 电台主页面

The screenshot shows the 'System Information' section of the web interface. It displays various system parameters and their values:

System Information		Version Information	
Host Name	BW-24GM	Product Name	BW-24GM
User Name	admin	Firmware Version	BW-24GM v1.1.10
System date	2015-09-28	Hardware Type	v1.0.0
System time	09:16:16	Build Version	v1.1.10 build 1102
System uptime	6 min	Built date	2015-09-28
LAN IP Address	192.168.168.1	Built time	09:11:14
Ethernet0 MAC Address	00:0F:92:02:95:A5		
Net Mask	255.255.255.0		
DNS Server(s)	None		
Gateway			

## 3) 电台本机 IP 地址修改

The screenshot shows the 'Network Configuration' section under the 'Network' tab. It displays the LAN configuration settings:

Setting	Value
Spanning Tree (STP)	On
Connection Type	Static IP
IP Address	192.168.168.1
Netmask	255.255.255.0
Default Gateway	

Below the LAN configuration, there is a 'LAN DNS Servers' section with an 'Add' button.

## 4) 电台无线网络修改

注意：可按如下配置进行修改，本段落中未提及的选择项即可保留默认值。

- 无线信道选择—大量 2.4GHz 电台同时使用时，建议选择与周围不冲突的信道，默认是 11；
- 工作模式选择—建议主站设为 Access Point,从站设为 Repeater；  
—建议无主站配置时网络里面所有电台均选择 MESH 功能

- 传输带宽选择—建议主站选择稳定自动，其他站均选择自动；
- 加密方式选择—建议选择 WPA2 加密方式；
- 发射功率选择—数值越大，传输距离越远，远距离或者现场遮挡较多，建议选择 30dbm。特别近距离例如 10 米之内，可以适当选择较小发射功率避免多径干扰（如有问题请联系 BEACON 支持工程师 [support@beacongt.com](mailto:support@beacongt.com) 或致电 400-871-0598）。

**System Network Wireless Comport Firewall Multicast Tools**

Status Radio1

**Wireless Configuration**

**Radio1 Phy Configuration**

Radio	<input checked="" type="radio"/> On <input type="radio"/> Off
Mode	802.11BG
Channel-Freq	11 - 2.462 GHz
Wireless Distance	3000 (m)
RTS Thr (256~2346)	<input checked="" type="radio"/> OFF <input type="radio"/> OFF
Fragment Thr (256~2346)	11 dbm
Short Packet Re	12 dbm
Long Packet Re	13 dbm
	14 dbm
Radio1 Virtual I	15 dbm
Network	16 dbm
Mode	17 dbm
TX Rate	18 dbm
Tx Power	19 dbm
WDS	20 dbm
ESSID Broadcast	21 dbm
SSID	22 dbm
Encryption Type	23 dbm
	24 dbm
	25 dbm
	26 dbm
	27 dbm
	28 dbm
	29 dbm
	30 dbm

**发射功率 越大距离越远**

**11 - 2.462 GHz ▼ 无线信道选择**

Auto	自动
01 - 2.412 GHz	1
02 - 2.417 GHz	2
03 - 2.422 GHz	3
04 - 2.427 GHz	4
05 - 2.432 GHz	5
06 - 2.437 GHz	6
07 - 2.442 GHz	7
08 - 2.447 GHz	8
09 - 2.452 GHz	9
10 - 2.457 GHz	10
11 - 2.462 GHz	11

**Access Point ▼**

Access Point	AP 主站
Client	AP 从站
Repeater	AP 中继
Mesh Point	无主站

**Auto** 传输速率自动  
**Robust Auto** 传输速率稳定自动  
**1M** 传输速率 1M  
**2M** 传输速率 2M  
**5.5M** 传输速率 5.5M  
**11M** 传输速率 11M  
**6M** 传输速率 6M  
**9M** 传输速率 9M  
**12M** 传输速率 12M  
**18M** 传输速率 18M  
**24M** 传输速率 24M  
**36M** 传输速率 36M  
**48M** 传输速率 48M  
**54M** 传输速率 54M

**ESSID Broadcast OFF 表示 隐藏无线网络的 SSID 名称—适用于工厂、游乐场等**

**Submit □ Cancel □ 提交 — 取消**

## 5) 电台能互相连接的必备条件

- A—网络中 SSID 要一样
- B—网络中加密的密码要一样
- C—网络中电台所在的网段要一致，子网掩码要一样。

D—主站 Access Point 和从站 Client 要配合使用

E—MESH 无主功能要与 MESH 有主功能配合使用，MESH 功能是指网络里面有超过 3 个或者 3 个电台以上的使用，如果 2 个电台在一个网络里面，请不要使用。

F—网络中电台的名字不要相同

## 6) 主站和中继站图示举例

- 主站 Access Point:

修改电台名字，使得网络中各个电台名字不一样



修改电台 IP 地址，使得网络中各个电台 IP 不一样



**Wireless Configuration**
**Radio1 Phy Configuration**

Radio	<input checked="" type="radio"/> On <input type="radio"/> Off
Mode	802.11BG
Channel-Freq	11 - 2.462 GHz
Wireless Distance	3000 (m)
RTS Thr (256~2346)	<input checked="" type="checkbox"/> OFF
Fragment Thr (256~2346)	<input type="checkbox"/> OFF
Short Packet Retry Limit	7 (1-7)
Long Packet Retry Limit	4 (1-4)

**Radio1 Virtual Interface**

Network	LAN
Mode	Access Point
TX Rate	Robust Auto
Tx Power	30 dbm
WDS	<input checked="" type="radio"/> On <input type="radio"/> Off
ESSID Broadcast	<input checked="" type="radio"/> On <input type="radio"/> Off
SSID	BW-24GM
Encryption Type	WPA2 (PSK)
WPA PSK	12345678
Show password	<input checked="" type="checkbox"/>

- 从站 Client:

修改电台名字，使得网络中各个电台名字不一样

System	Network	Wireless	Comport	Firewall	
Info	Settings	Access Control	Maintenance	Reboot	Log
<b>System Settings</b>					
<b>System Settings</b>					
Host Name	BW-24GM_R				
Default Custom Mode	Bridge				

修改电台 IP 地址，使得网络中各个电台 IP 不一样



## Network Configuration

### LAN Configuration

Spanning Tree (STP)	<input type="button" value="On ▾"/>
Connection Type	<input type="button" value="Static IP ▾"/>
IP Address	<input type="text" value="192.168.168.2"/>
Netmask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text"/>

System Network **Wireless** Comport Firewall Multicast Tools

Status Radio1

### Wireless Configuration

#### Radio1 Phy Configuration

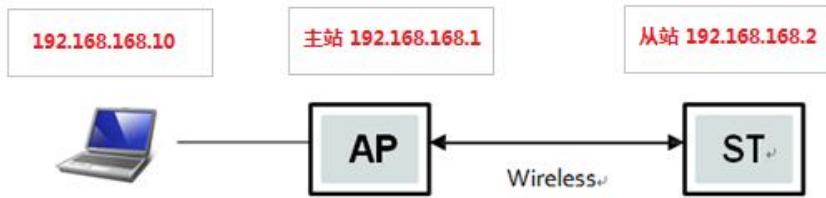
Radio	<input checked="" type="radio"/> On <input type="radio"/> Off
Mode	<input type="button" value="802.11BG ▾"/>
Channel-Freq	<input type="button" value="11 - 2.462 GHz ▾"/>
Wireless Distance	<input type="text" value="3000"/> (m)
RTS Thr (256~2346)	<input type="text" value="2346"/> <input checked="" type="checkbox"/> OFF
Fragment Thr (256~2346)	<input type="text" value="2346"/> <input checked="" type="checkbox"/> OFF
Short Packet Retry Limit	<input type="text" value="7"/> (1-7)
Long Packet Retry Limit	<input type="text" value="4"/> (1-4)

#### Radio1 Virtual Interface

Network	<input type="button" value="LAN ▾"/>
Mode	<input type="button" value="Client ▾"/>
TX Rate	<input type="button" value="Robust Auto ▾"/>
Tx Power	<input type="button" value="30 dbm ▾"/>
WDS	<input checked="" type="radio"/> On <input type="radio"/> Off
ESSID Broadcast	<input checked="" type="radio"/> On <input type="radio"/> Off
SSID	<input type="text" value="BW-24GM"/>
Encryption Type	<input type="button" value="WPA2 (PSK) ▾"/>
WPA PSK	<input type="text" value="*****"/>
Show password	<input checked="" type="checkbox"/>

**测试效果：**将本地电脑与主站连接，然后 ping 从站。若能 ping 通，则表示连接正确。

**注意：**若主站与从站距离很近，例如不超过 20 公分，设备之间可不通过天线即可连接。

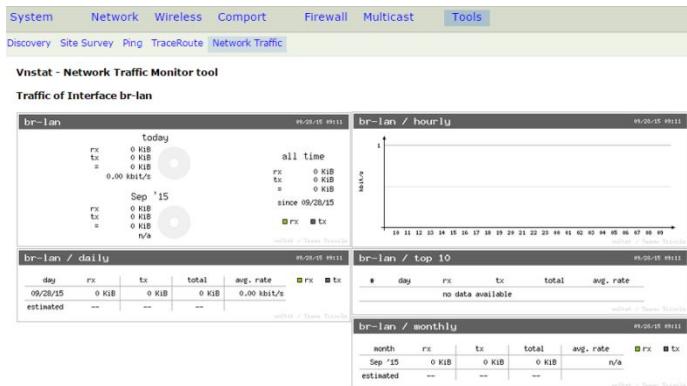


电台自带 ping 功能，可以用来测试 PING 数据包的次数和大小。从站 ping 主站

Ping Host Name: 192.168.168.1  
 Ping Count: 10  
 Ping Size: 10000  
 Ping | Stop | Clear

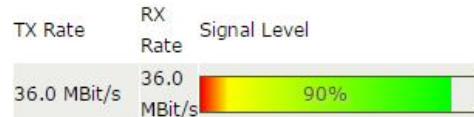
```
Please wait for output of "ping -c 10 -s 10000 192.168.168.1"...
PING 192.168.168.1 (192.168.168.1): 10000 data bytes
10008 bytes from 192.168.168.1: seq=0 ttl=64 time=11.877 ms
10008 bytes from 192.168.168.1: seq=1 ttl=64 time=11.194 ms
10008 bytes from 192.168.168.1: seq=2 ttl=64 time=11.680 ms
10008 bytes from 192.168.168.1: seq=3 ttl=64 time=11.516 ms
10008 bytes from 192.168.168.1: seq=4 ttl=64 time=10.890 ms
10008 bytes from 192.168.168.1: seq=5 ttl=64 time=11.296 ms
10008 bytes from 192.168.168.1: seq=6 ttl=64 time=17.237 ms
10008 bytes from 192.168.168.1: seq=7 ttl=64 time=10.715 ms
10008 bytes from 192.168.168.1: seq=8 ttl=64 time=10.702 ms
10008 bytes from 192.168.168.1: seq=9 ttl=64 time=10.851 ms
--- 192.168.168.1 ping statistics ---
10 packets transmitted, 10 packets received, 0% packet loss
round-trip min/avg/max = 10.702/11.795/17.237 ms
```

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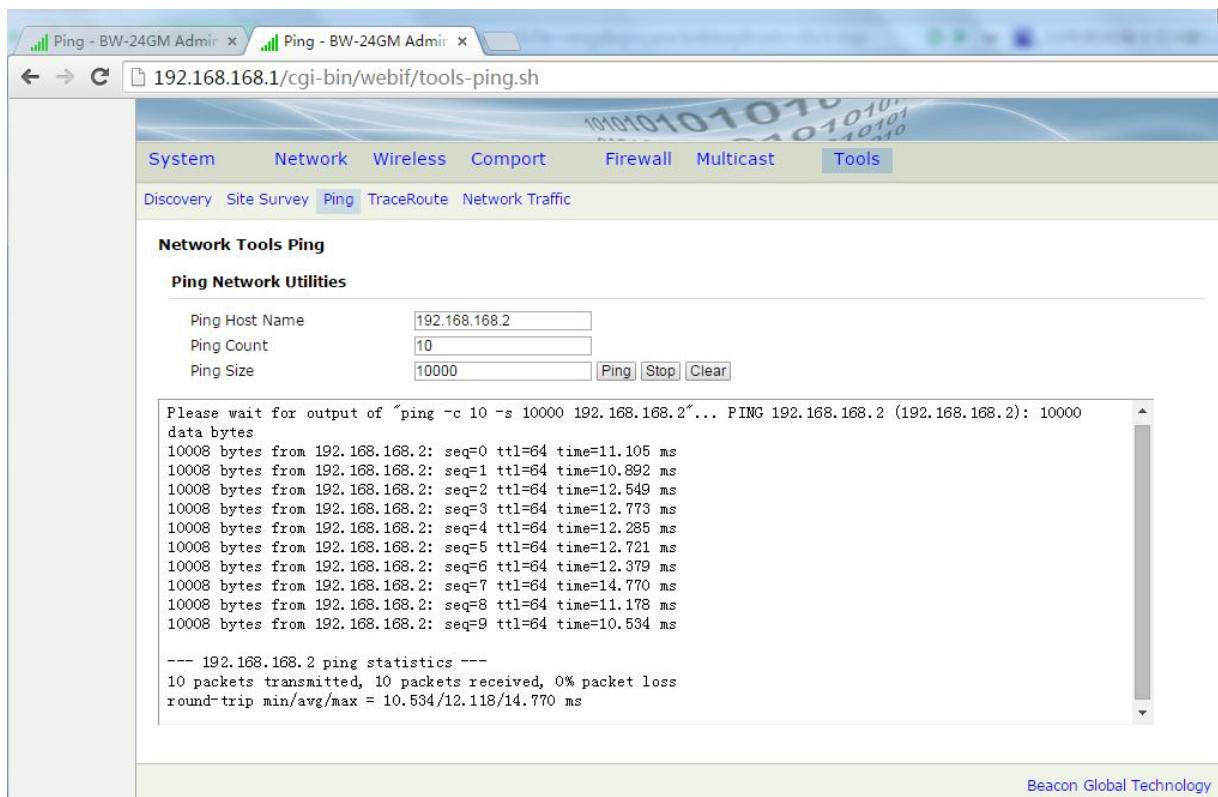


可以分析每天的数据包的状态

可以显示信号强度



电台自带 ping 功能，可以用来测试 PING 数据包的次数和大小。主站 ping 从站



## 7) MESH 无主站功能图示举例-接上图电台和 IP 地址配置

The screenshot shows the 'Wireless Configuration' page for 'Radio1'. It includes two main sections: 'Radio1 Phy Configuration' and 'Radio1 Virtual Interface'.

**Radio1 Phy Configuration:**

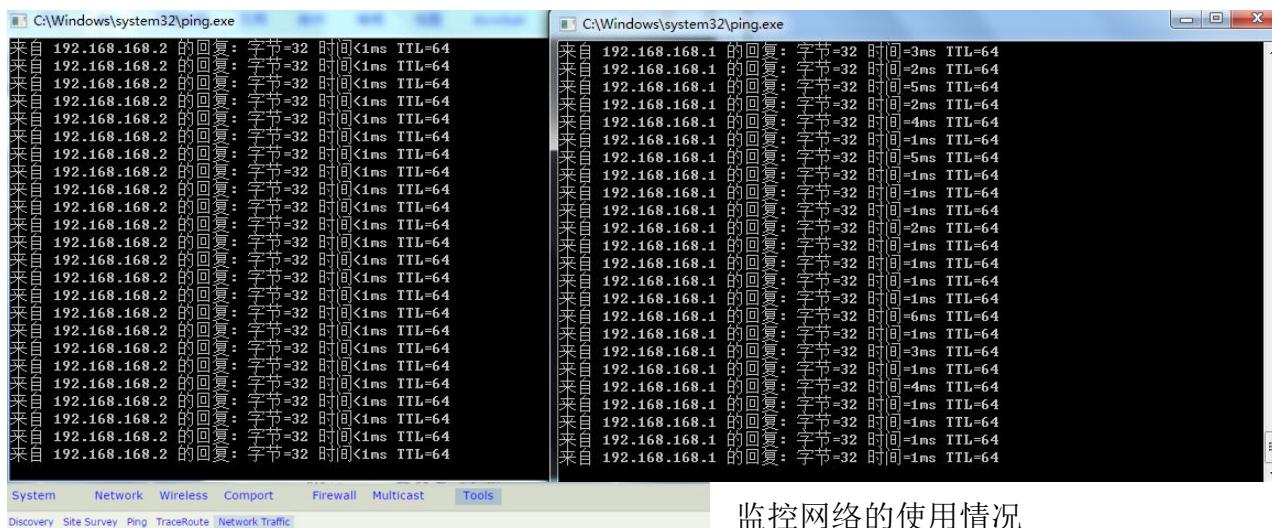
Radio	<input checked="" type="radio"/> On <input type="radio"/> Off
Mode	802.11BG
Channel-Freq	11 - 2.462 GHz
Wireless Distance	3000 (m)
RTS Thr (256~2346)	<input checked="" type="checkbox"/> OFF
Fragment Thr (256~2346)	<input checked="" type="checkbox"/> OFF
Short Packet Retry Limit	7 (1-7)
Long Packet Retry Limit	4 (1-4)

**Radio1 Virtual Interface:**

Network	LAN
Mode	Mesh Point
TX Rate	Auto
Tx Power	30 dbm
ESSID Broadcast	<input checked="" type="radio"/> On <input type="radio"/> Off
Interface Bonding	<input type="radio"/> On <input checked="" type="radio"/> Off
MESH ID	BW
Encryption Type	WPA2 (PSK)
WPA PSK	12345678
Show password	<input checked="" type="checkbox"/>

The screenshot shows the configuration interface for the BW-24GM. It includes sections for Radio1 Phy Configuration and Radio1 Virtual Interface. In the Radio1 Phy Configuration section, the Radio is set to On (radio button), Mode is 802.11BG, Channel-Freq is 11 - 2.462 GHz, Wireless Distance is 3000 (m), RTS Thr is OFF, Fragment Thr is OFF, Short Packet Retry Limit is 7 (1-7), and Long Packet Retry Limit is 4 (1-4). In the Radio1 Virtual Interface section, Network is LAN, Mode is Mesh Point, TX Rate is Auto, Tx Power is 30 dbm, ESSID Broadcast is On, Interface Bonding is Off, MESH ID is BW, Encryption Type is WPA2 (PSK), WPA PSK is 12345678, and Show password is checked.

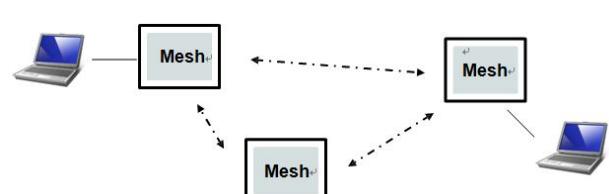
如下是配制成为 MESH 功能的 ping 效果



### 监控网络的使用情况

在调试阶段可以使用，正常运行请不要打开该功能，会影响网络传输质量。

建议 3 个电台以上有遮挡使用 MESH 功能



## 8) 电台其他常用功能-

- 恢复出厂值/备份电台配置/恢复电台配置

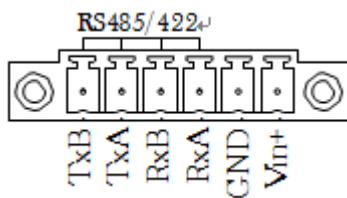
The screenshot shows the 'System Maintenance' section of the BW-24GM web interface. It includes tabs for System, Network, Wireless, Comport, Firewall, Multicast, and Tools, with Maintenance selected. Sub-tabs include Info, Settings, Access Control, Maintenance (selected), Reboot, and Logout. The main area displays version information for Product Name (BW-24GM), Serial No. (1115847), Hardware Type (v1.0.0), Build Version (v1.1.10 build 1102), Build Date (2015-09-28), and Build Time (09:11:14). Below this are sections for Firmware Upgrade (with fields for Erase Current Configuration, Firmware Image selection, and Upgrade), Reset to Default (with a Reset button and a 'Reset to Default' link), and Backup Configuration (with a Name field set to 'BW-24GM' and a 'Backup Configuration' button). A 'Restore Configuration' section is also present with a Restore button and a file selection field.

### ● 串口配置功能

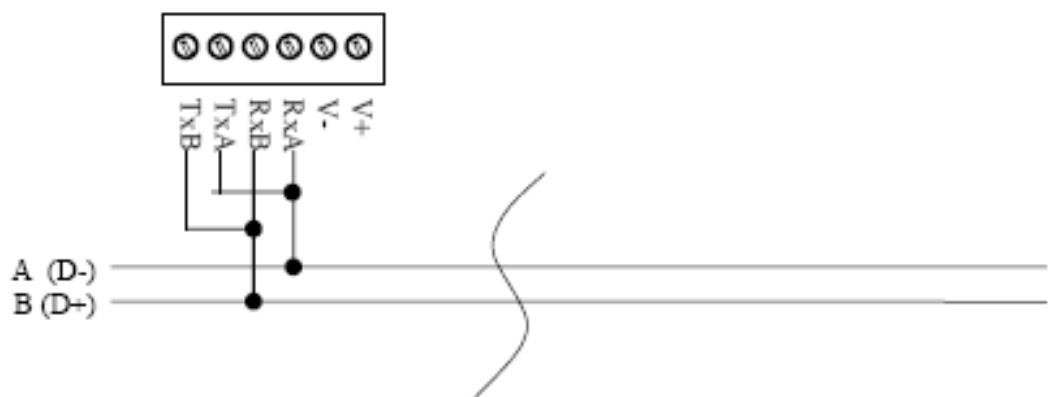
3个电台,485接线方式 1对2举例 MODBUS RUT 通讯。(前提3台电台无线通讯正常)

电台1 192.168.168.1 主站  
 电台2 192.168.168.2 主站  
 电台3 192.168.168.3 主站

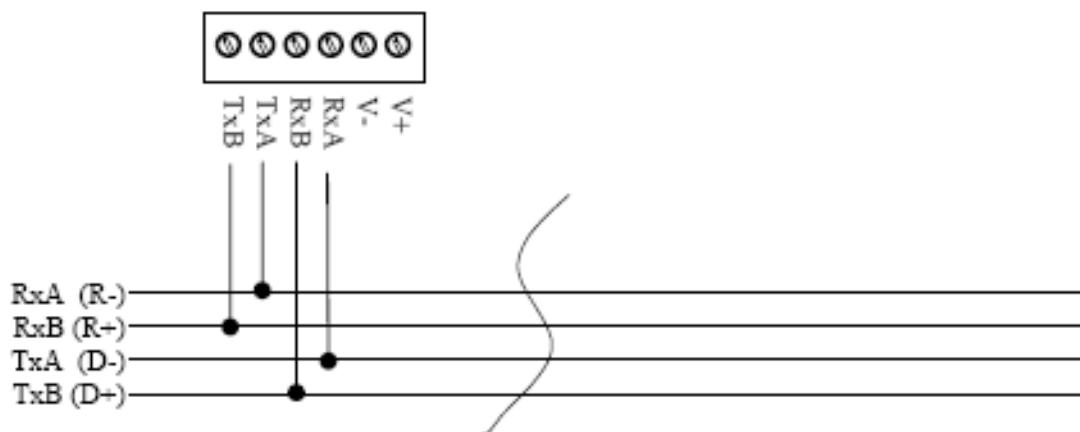
3个电台的接线方式 TxB 和 RxB 接 485+ TxA 和 RxA 接 485 - 一般情况下使用 4852 线制接线方式



Green Conn.	Name	Input or
1	TxB (D+)	O
2	TxA (D-)	O
3	RxB (R+)	I
4	RxA (R-)	I
5	Vin -	
6	Vin +	I



2 线制 485 接线方式



4 线制接线方式

实拍 2 线制 485 接线方式。



电台 1 192.168.168.1 主站 485 串口配置如下

System	Network	Wireless	Comport	Firewall	Multicast
Status Com1 Com2					
<b>Comport Configuration</b>					
<b>com1 Configuration</b>					
Com1 Port status	Enable ▼				
Channel Mode	RS485 ▼				
Data Baud Rate	9600 ▼				
Data Format	8N1 ▼				
Flow Control	none ▼				
Pre-Data Delay (ms)	100				
Post-Data Delay (ms)	100				
Data Mode	<input checked="" type="radio"/> Seamless <input checked="" type="radio"/> Transparent				
Character Timeout	200				
Maximum Packet Size	1024				
Priority	<input checked="" type="radio"/> Normal <input type="radio"/> Medium <input checked="" type="radio"/> High				
No-Connection Data	<input checked="" type="radio"/> Disable <input type="radio"/> Enable				
MODBUS TCP Status	<input checked="" type="radio"/> Disable <input type="radio"/> Enable				
IP Protocol Config	UDP Point to Multipoint(P) ▼				
<b>UDP Configure</b>					
Multicast IP Address	224.1.1.1				
Multicast port	20001				
Listening port	20011				
Time To Live	1				

电台 2 192.168.168.2 从站 485 串口配置如下

Comport Configuration

com1 Configuration

Com1 Port status	Enable
Channel Mode	RS485
Data Baud Rate	9600
Data Format	8N1
Flow Control	none
Pre-Data Delay (ms)	100
Post-Data Delay (ms)	100
Data Mode	<input type="radio"/> Seamless <input checked="" type="radio"/> Transparent
Character Timeout	200
Maximum Packet Size	1024
Priority	<input type="radio"/> Normal <input checked="" type="radio"/> Medium <input type="radio"/> High
No-Connection Data	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
MODBUS TCP Status	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
IP Protocol Config	UDP Point to Multipoint(MP)

UDP Configure

Remote IP Address	192.168.168.1
Remot port	20011
Multicast IP Address	224.1.1.1
Multicast Port	20001

电台 3 192.168.168.3 从站 485 串口配置如下

System Network Wireless Comport Firewall Multicast Tools

Status Com1 Com2

### Comport Configuration

#### com1 Configuration

Com1 Port status	Enable
Channel Mode	RS485
Data Baud Rate	9600
Data Format	8N1
Flow Control	none
Pre-Data Delay (ms)	100
Post-Data Delay (ms)	100
Data Mode	<input checked="" type="radio"/> Seamless <input checked="" type="radio"/> Transparent
Character Timeout	200
Maximum Packet Size	1024
Priority	<input checked="" type="radio"/> Normal <input type="radio"/> Medium <input checked="" type="radio"/> High
No-Connection Data	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
MODBUS TCP Status	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
IP Protocol Config	UDP Point to Multipoint(MP)

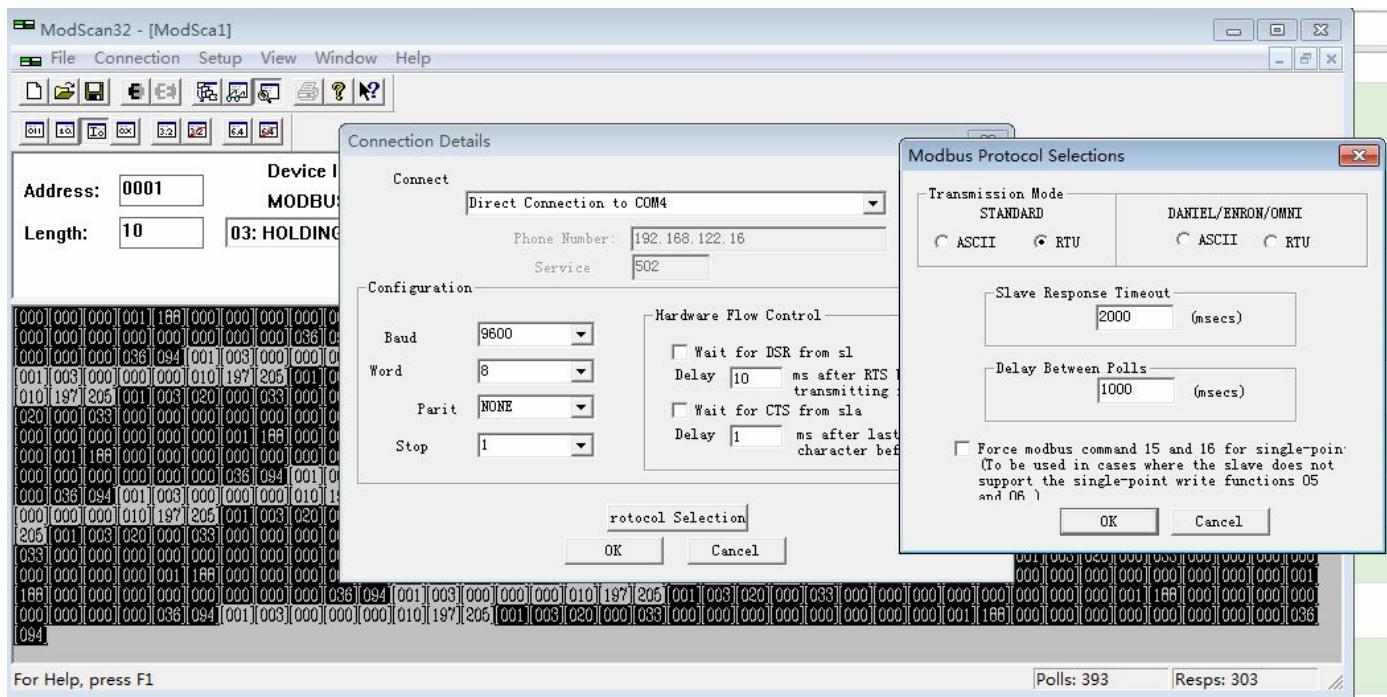
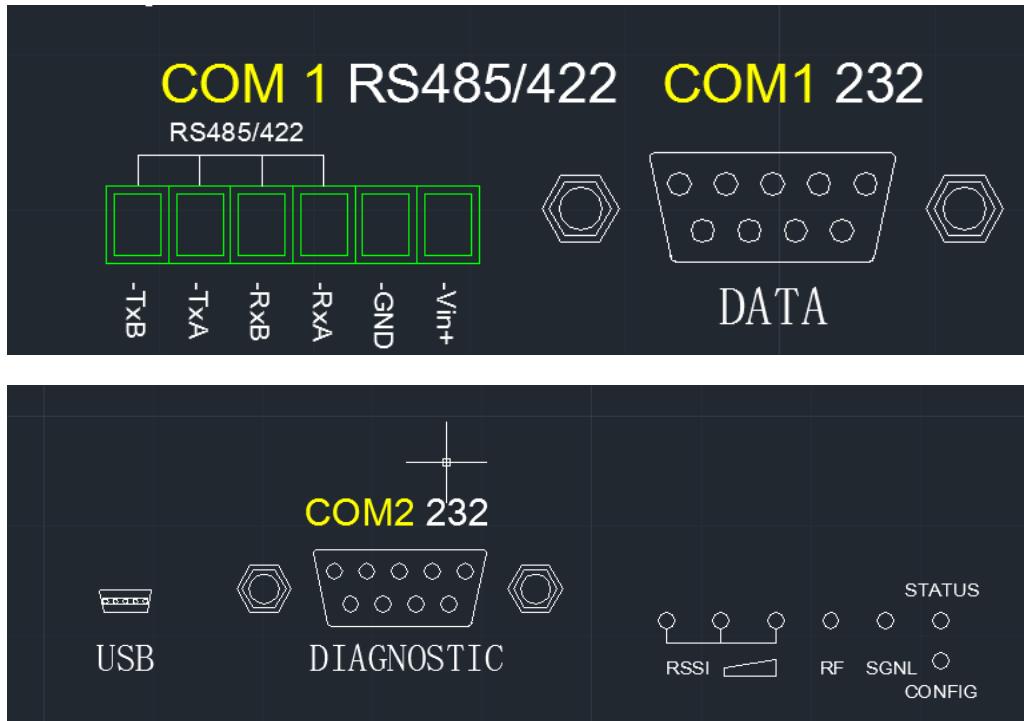
#### UDP Configure

Remote IP Address	192.168.168.1
Remot port	20011
Multicast IP Address	224.1.1.1
Multicast Port	20001

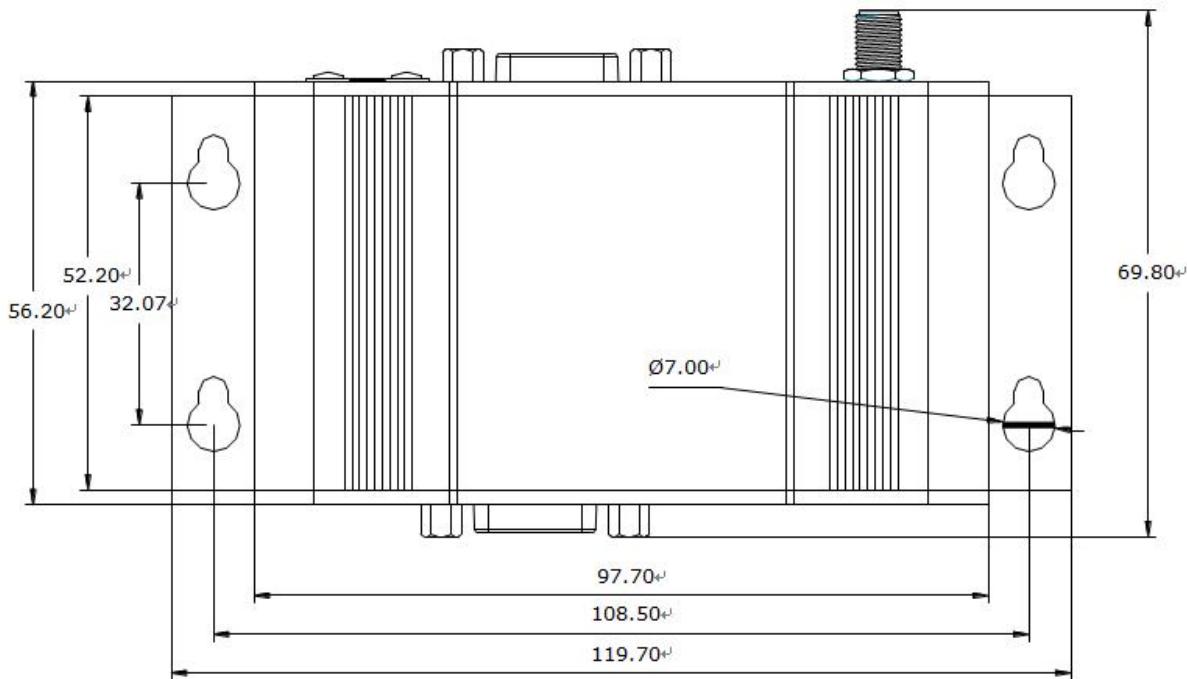
电台 COM 端口对应关系如下图：电台的 COM1 的 232 和 485 和 COM2 的 232 都可以透明传输数据。

例如电台 1 串口设备接 COM1 的 485，电台 2 串口接 COM1 的 232，电台 3 串口接 COM2 的 232，这都是可以相互通讯的。

232 接线 一般是 2,3,5. 这 3 个点。



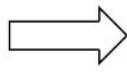
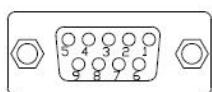
## 五, 电台尺寸(单位: 毫米)



## 六, 电台接线方式:

The **DATA (RS232 Port (DCE))** on the rear of the circuit board is used for:

- RS232 serial data (300-921kbps) when in **DATA MODE**, or
- for configuring the modem when in **COMMAND MODE**.

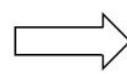
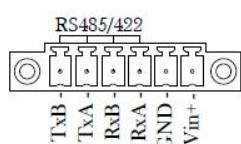


Name	Data Port	Input or Output
DCD	1	O
RXD	2	O
TXD	3	I
DTR	4	I
SG	5	
DSR	6	O
RTS	7	I
CTS	8	O
RING	9	O

Table 3-4: Data RS232 Pin Assignment

The **RS422/485 Port** is used to interface the Nano Development Board to a DTE with the same interface type. Either the RS232 or RS422/485 interface is used for data traffic.

**Vin+/Vin-** is used to power the unit. The input Voltage range is 7-30 Vdc.

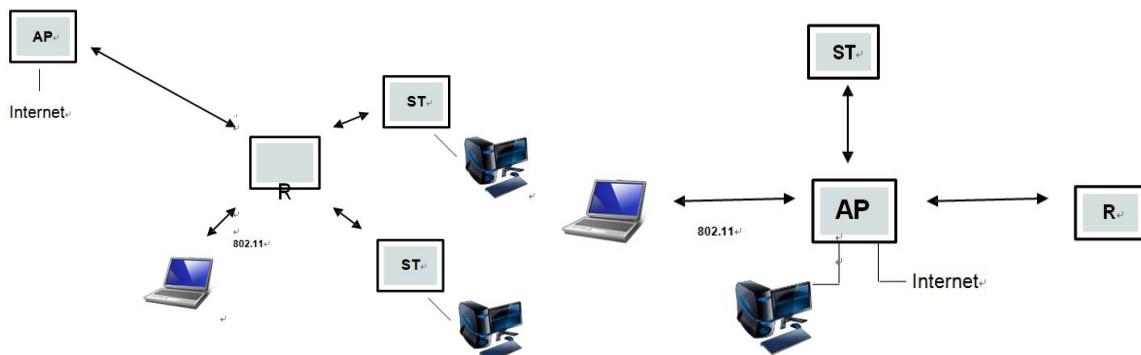


Green Conn. Pin No.	Name	Input or Output
1	TxB (D+)	O
2	TxA (D-)	O
3	RxB (R+)	I
4	RxA (R-)	I
5	Vin -	
6	Vin +	I

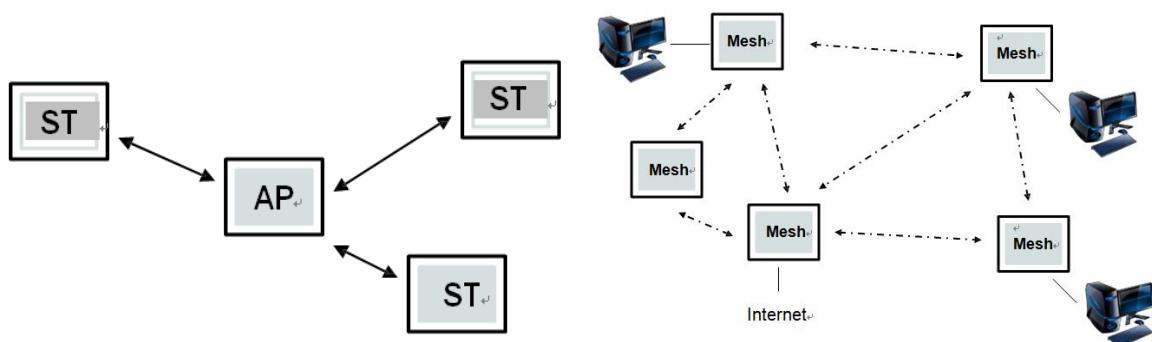
Table 3-5: Data RS422/485 / Vin Pin Assignment

## 七, 常用电台网络拓扑图

### AP-AP 主站 R-AP 中继



### ST-AP 从站 MESH-无主站



## 联系我们

如果在使用过程中有更多的问题，可以通过以下方式联系我们获得支持。

客户服务热线 (中国大陆)	4008-710-598
技术支持	<a href="mailto:support@beacongt.com">support@beacongt.com</a>
亚太区销售	<a href="mailto:asia@beacongt.com">asia@beacongt.com</a>
北美区销售	<a href="mailto:usa@beacongt.com">usa@beacongt.com</a>