

MICO-RACE

Wireless temperature monitor

User Manual

Version: 2.1

Read me

When you use MICO-RACE wireless temperature monitor, be sure to read this user manual carefully, and be able to fully understand the implications, the correct guidance of operations in accordance with user manual, which will help you make best use of MICO-RACE wireless temperature monitor, and help to solve the various problems at the scene.

1. Before the MRR receiver turning on the power supply, be sure that the power supply within the provisions of the instrument;
2. Be sure the MRR wiring consistent with the label marked;
3. MRS remote sensor must be installed in standard distance(less than 100m outside and less than 20m in room), between sensor and receiver without electromagnetic shielding layer;
4. Communication port (RS232/RS485 or Ethernet) is strictly prohibited to impose on high pressure;
5. When commissioning on PC, please make sure use series port(RS232/RS485), or use serial port simulation tools for conversion.



- **Please read this user manual carefully**
- **Please save this document**

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1. - Guide for MRR-E and software operation

1.1- MRR-E wiring

Mico-Race data receiver MRR-E standard use RJ45 port(Ethernet connection) and 6~34VDC power supply;

Blue Jay Technology standard provide 12VDC 1A adapter.

	MRR-E
Pictures	

Notes:

Ethernet chip will emits some of heat in working, please make sure MRR-E device body in cool and well-ventilated place!

Package list:

MRR-E
MRR-E device *1 12VDC 1A adapter *1 1.5m 433Mhz Antenna *1

1.2-MRR-E configuration

MRR-E has a built-in Ethernet chip for TCP/IP communication, and there have two version of MRR-E, standard MRR-E do not support DHCP, advanced MRR-ED type with DHCP function, please follow the guide step for initial configuration:

- 1: Close the firewall of your computer system.
- 2: Please disable the excess NIC(Network Interface Card) in your PC or wireless NIC in your laptop, leave only one physical NIC connected to MRR.
- 3: Connect the MRR-E to the Ethernet Router and power ON; please make sure your PC in same network.
- 4: Use the configuration software **TCP232-E45_V1.4.2(DHCP types)** or **TCP232-T24_V5.1.0.1(Standard types)** for initial configuration

Ethernet chip had done the initial setting, default parameter as following:

Module IP: 192.168.0.7

Subnet mask: 255.255.255.0

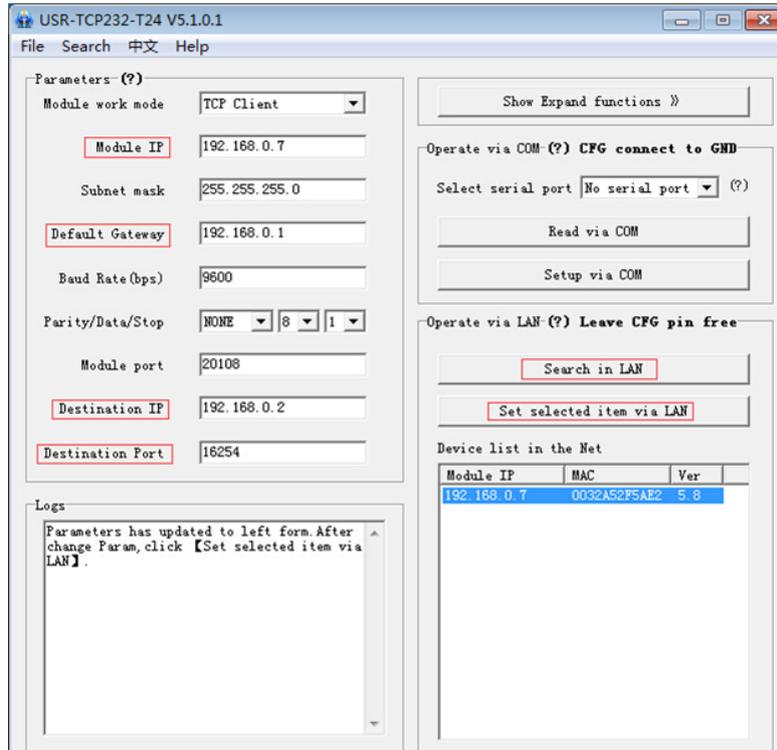
Default Gateway: 192.168.0.1

Destination IP: 192.168.0.2

Destination Port: 16254

1.2.1- Part I: Ethernet Port configuration in MRR-E

Use [TCP232-T24-V5.1.0.1]



Step 1: Run [USR-TCP232-T24 V5.1.0.1.exe] in your PC, press button **Search in LAN**, software will auto scan your network to find MRR-E device, device shown in right box:

Step 2: Double click the searched device can read the configuration parameters in left chart:

Step 3: Please change the following configuration:

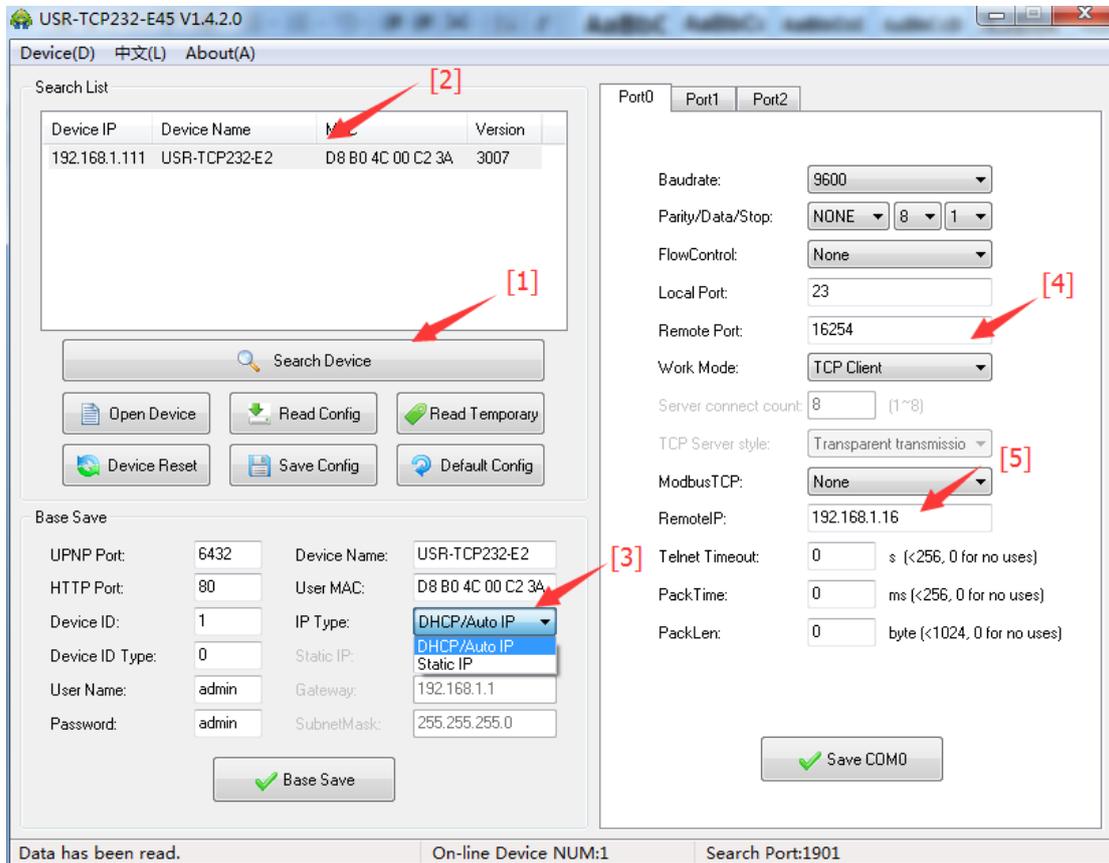
Module IP:	Assign the MRR-E device IP to any one you like in your sub-network, do not duplicate existing equipment, otherwise there will be a network error.
Default Gateway:	Change Gateway IP that matched with your network setting. Notes: if you purchase DHCP type please see Part II
Destination IP Destination port	Change the IP and TCP port that direction to your PC run [Microtemp]

Notes: Please do not change other parameter in Ethernet Port, or MRR-E may unable to work.

Step4: Press button **Set selected item via LAN** to end the Set

1.2.2- Part II: Ethernet Port configuration in MRR-ED

Use [TCP232-E45_V1.4.2]



Step1- Press **Search Device** button for auto find the MRR device

Step2- Choose the MRR device in lists, software will update the device configuration info

Step3- If MRR-E connects to router, you can choose **DHCP mode**, please make sure your router can assign IP; if connected directly to host PC, please chose **Static IP** mode, and configuration the MRR Ethernet gateway & IP address related your host PC setting.

Note: Only Port0 is available, and do not change other parameter in Ethernet Port, or MRR-E may unable to work.

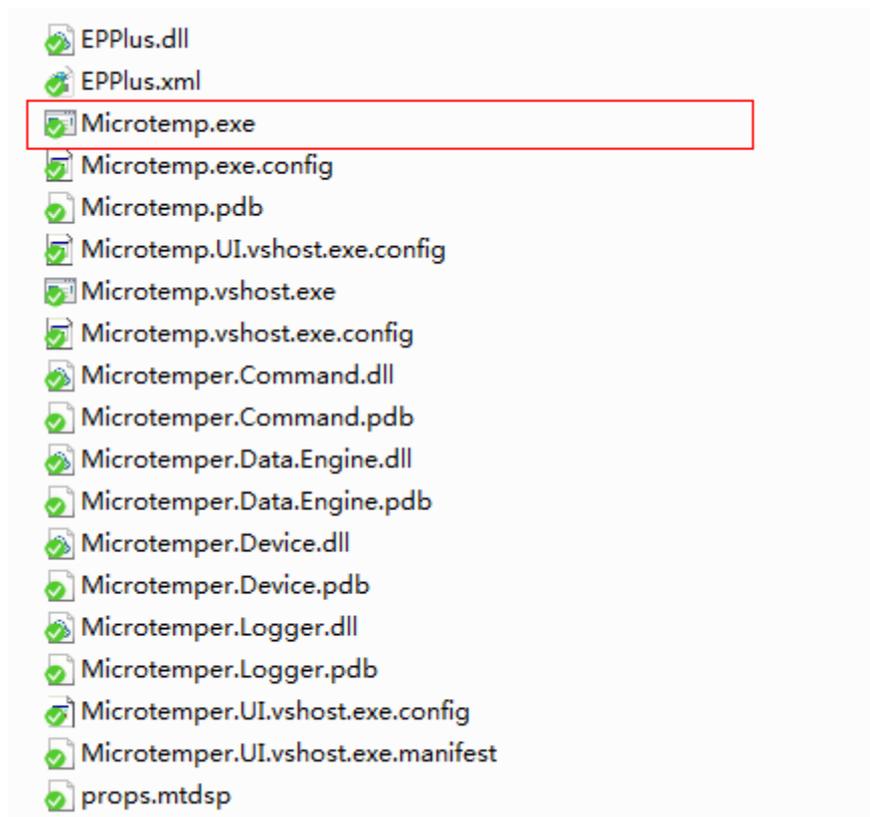
Please do not change the Baud rate(9600)or MRR will not work

1.3. - How to use Microtemp Desktop

Blue Jay Technology provide standard local software "**Microtemp.exe**" for MRS sensor setting and test operation, it provide MRS parameter configuration and basic monitor & record on your Desktop PC, please follow the guide to start.

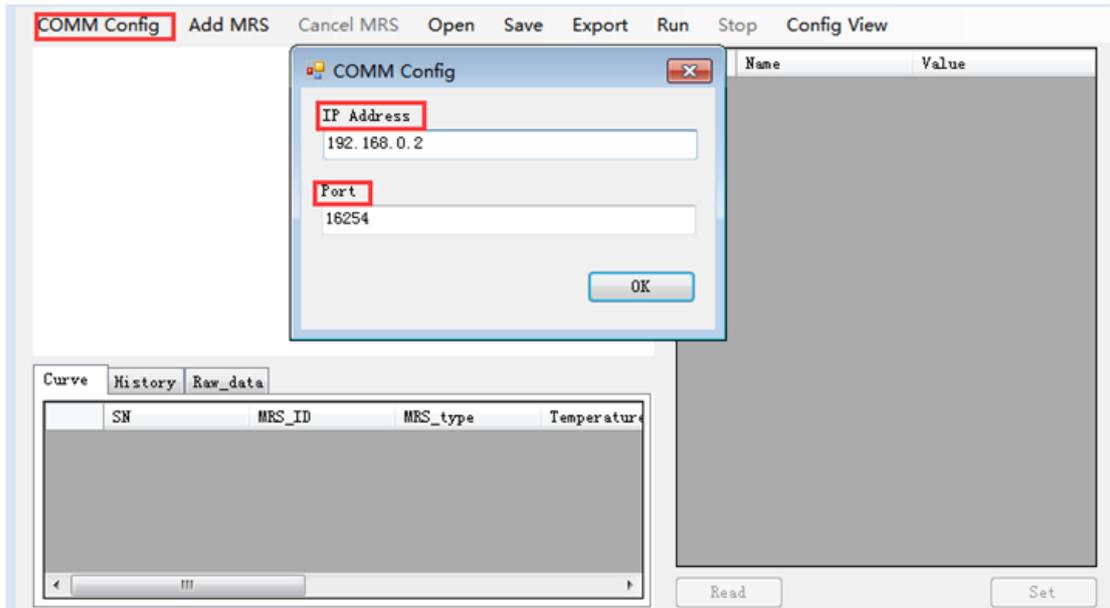
Notes: Software only have Chinese character, if the software displayed shows garbled code, please install the windows Chinese Language Pack.

Run "Microtemp.exe" to show temperature data from MRS in your PC



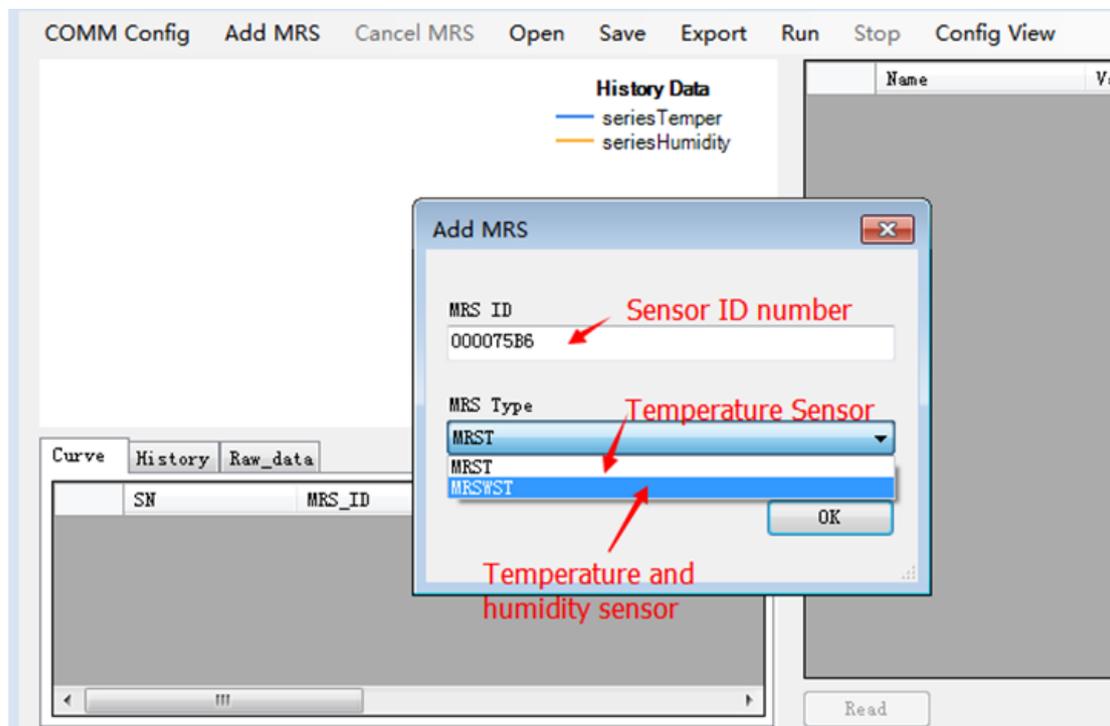
Step 1: Set communication parameter

Click **COMM Config**, software will automatic detect LAN IP of your PC and show in the dialog window, please make sure the IP same as preset "**Destination IP**" in **Chart 1.2.1** or **Chart 1.2.2**, then input the preset " **Destination port**" (in example we use default is 16254), after that click **OK**:



Step 2: Add MRS sensor

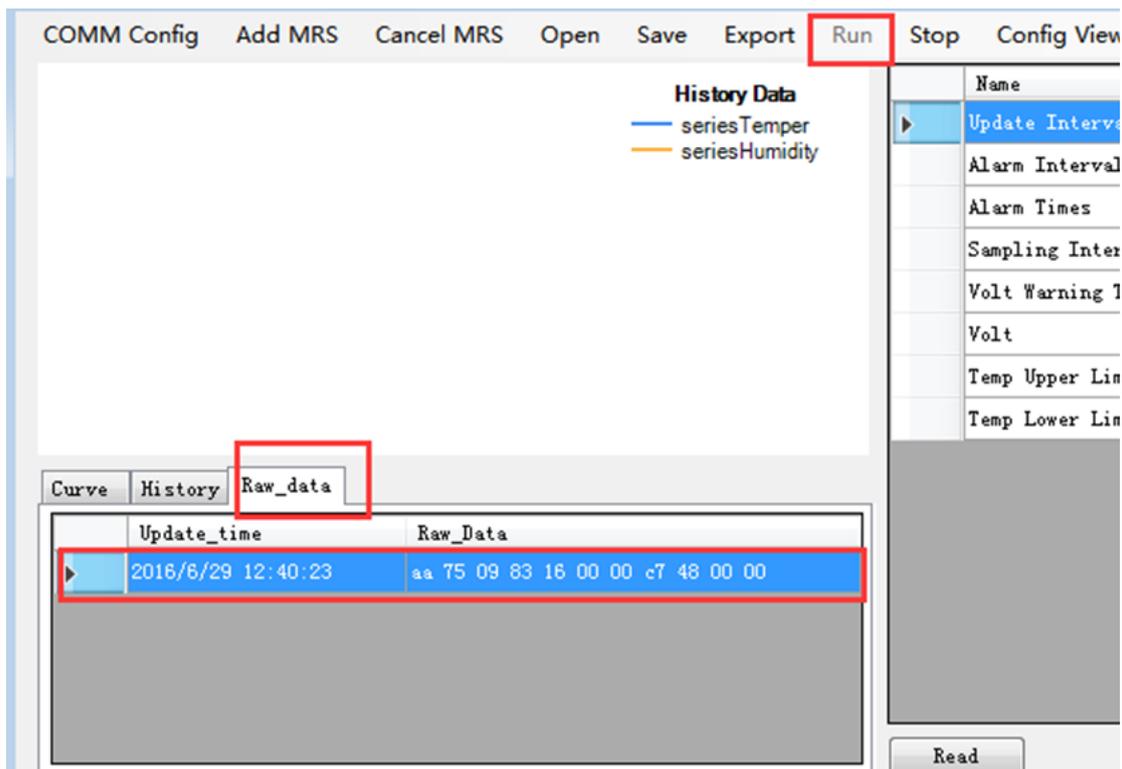
Click **Add MRS**, you can add MRS sensor in record list, please make sure your MRS types, and input the ID on the MRS label, then click **OK**; repeat this step until all the MRS sensor added:



Curve	SN	MRS_ID	MRS_type	Temperature
	0	000075B6	T	27.3C
	1	00230005	T	/
	2	0023001C	T	/

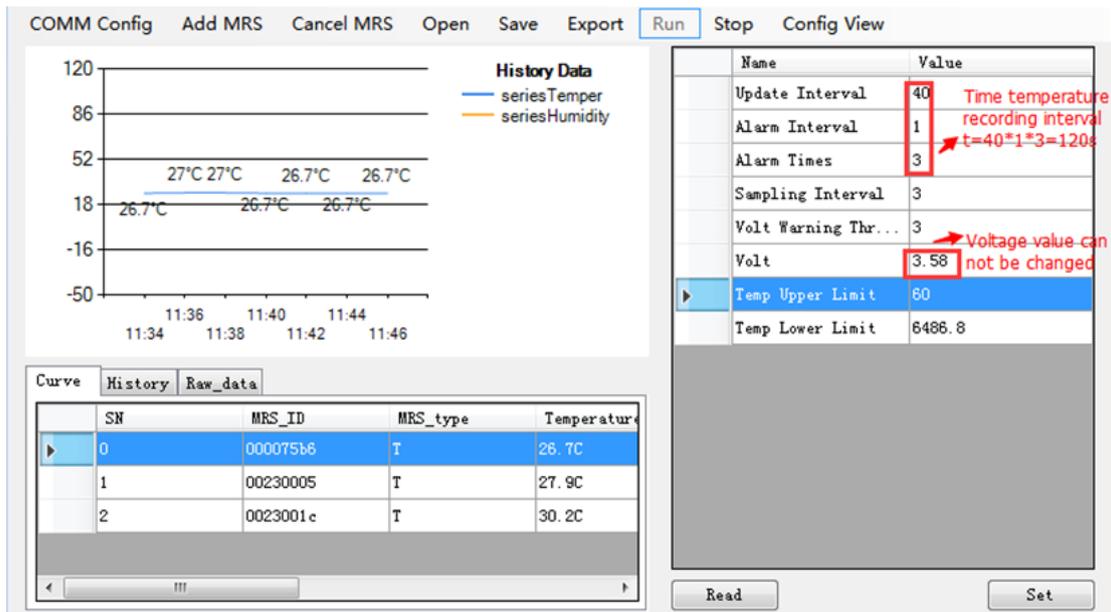
Step 3: Start operation

Click **RUN** in toolbar, then switch to "Raw_data" page, you should see a upload command, it contain MRR ID inside, mean connection success. Otherwise, the connection is unsuccessful, please check the connection of MRR-E or configuration in **Chart 1.2.1** or **Chart 1.2.2**:



Step 4: basic configuration

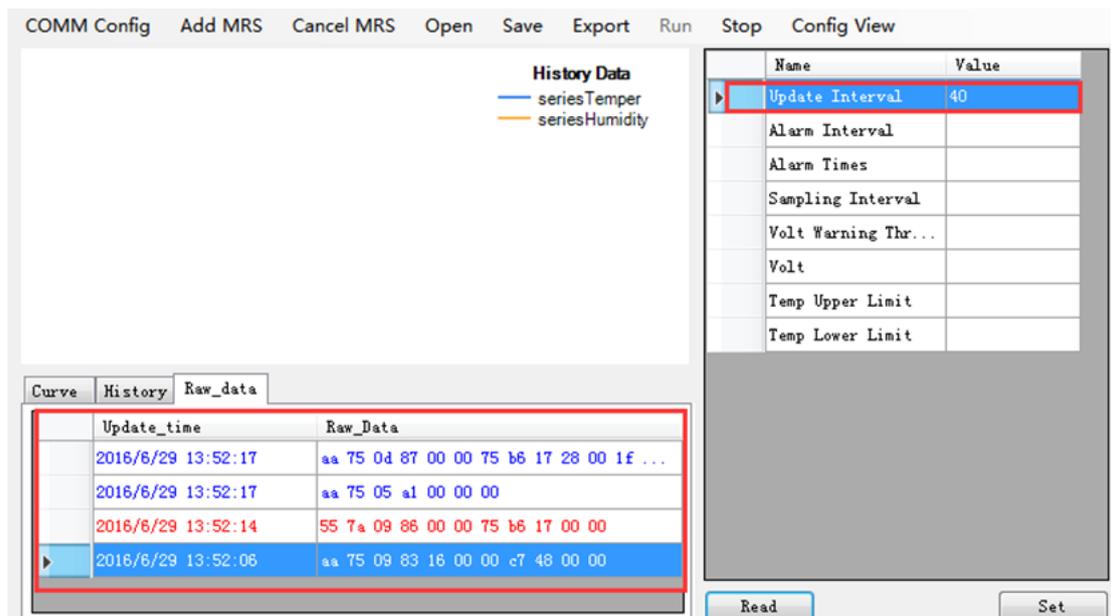
In "Curve" page, click each MRS line, you can see record curve drawn by latest 10 record point. also you can see the "Basic Config" table in the right part of screen. detail of each parameter please refer to the " Mico Race Data Format_1.6 "



in example show setting of MRS (000075B6):

Choose any parameter you want to know in 000075B6, press **Read**, you can see the data in "value" column; Double-click column can input the setting value, then press **Set**.

In configuration operation, after set one MRS, you can switch to the "Raw_Data" screen to see detail data flow, that can easy help test engineer understand MICO-RACE protocol.

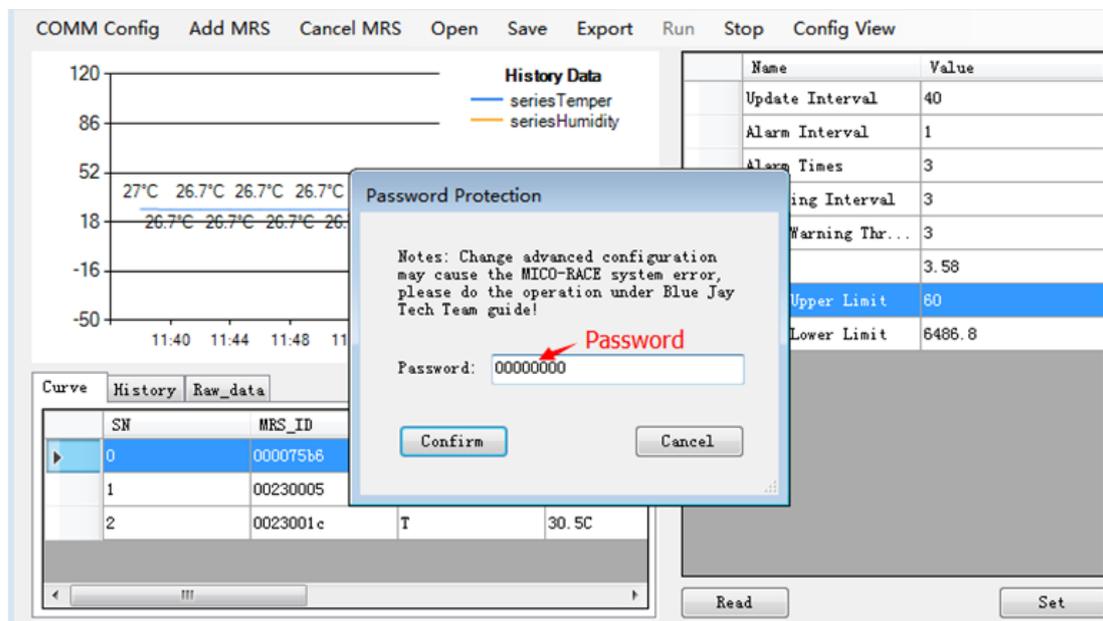


Step 5: Advanced configuration

In [Config View] in toolbar, you can change the operation screen in "MRS Advanced Config" or "MRR Advanced Config" page:

Notes: we do not suggest client change the advance configuration, if operation step wrong, may cause MICO-RACE disable erro; please contact Blue Jay Tech Team for more support --tech@cqbluejay.com--

If you understand the operation step and accept this risk, input password "00000000" for entry the advanced configuration page:



detail meaning of each parameter please refer to the " Mico Race Data Format_1.6 "

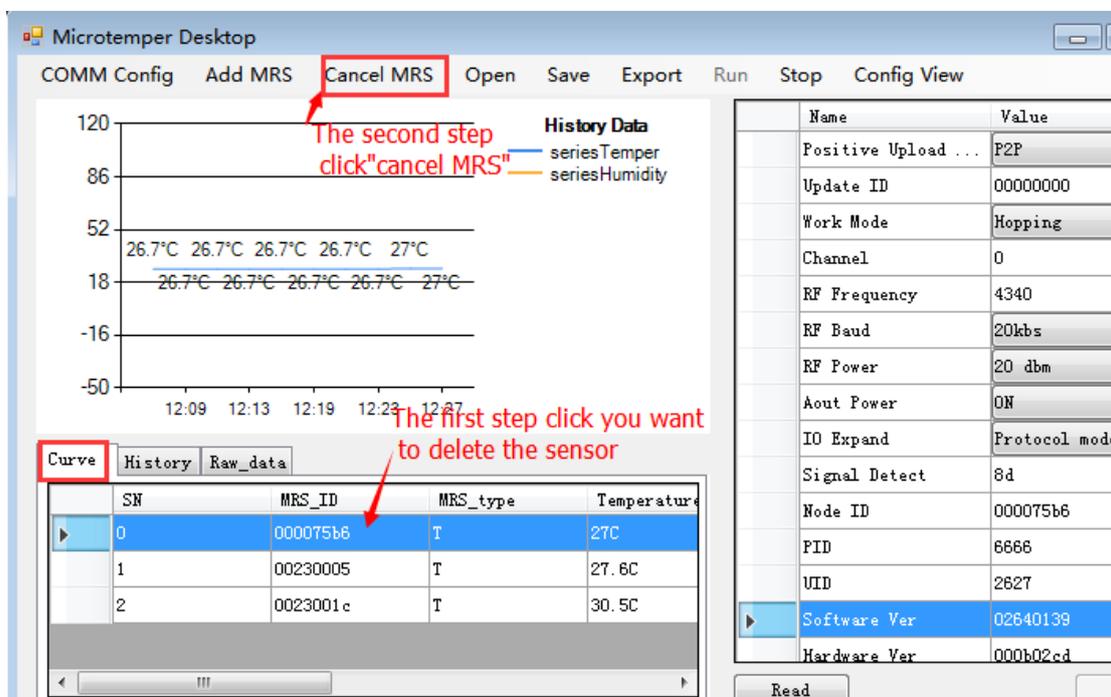
Notes: in Forest Network (FN), if you want add other MRS in existed MRR group, just configuration "Update ID" same as this existed MRR, you can do this work from any MRR device.

Other function:

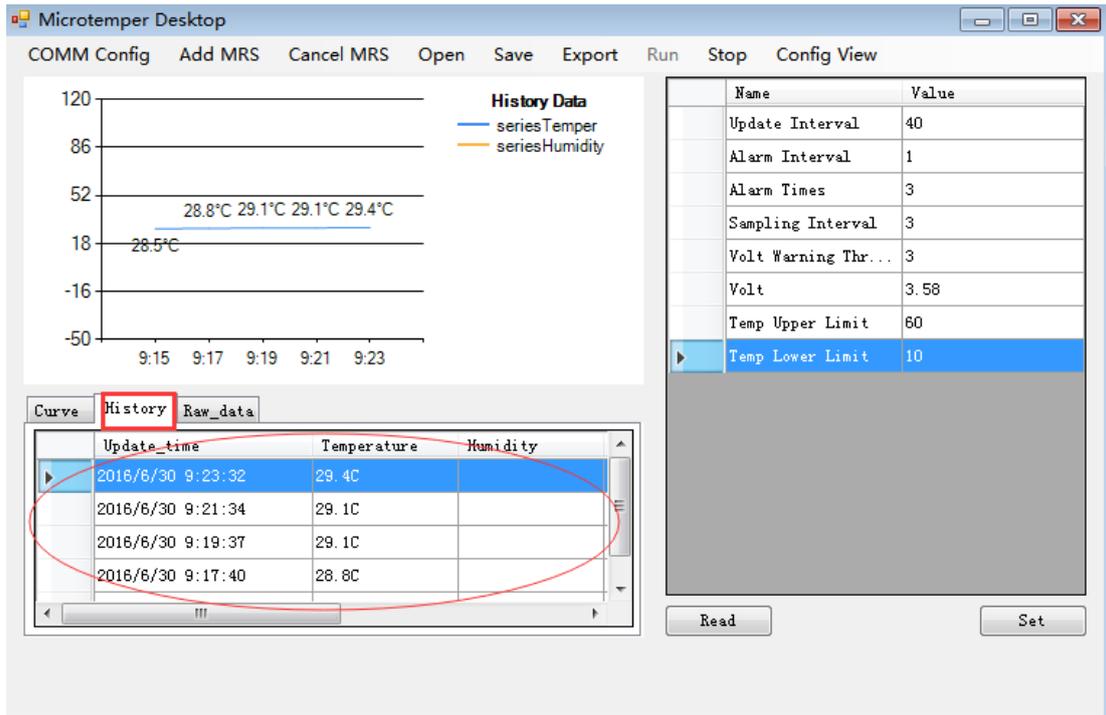
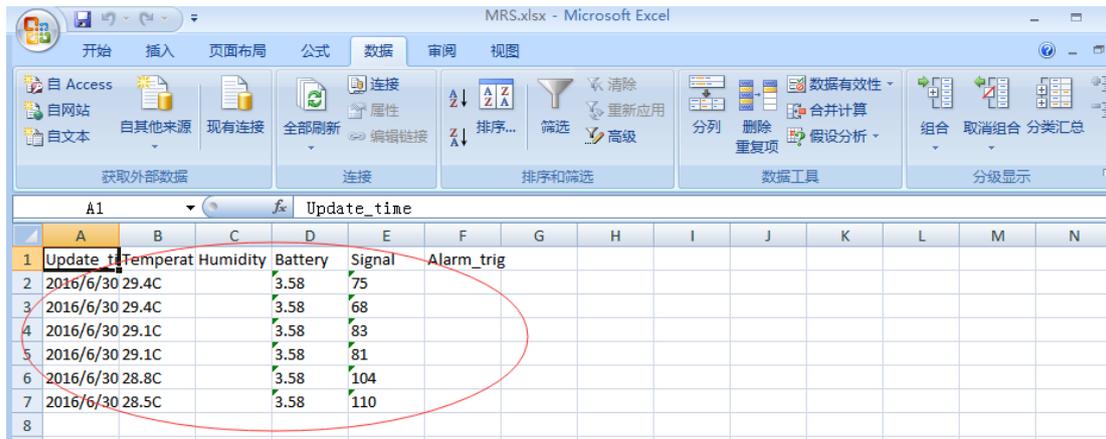
1. **Save MRS list**, click [Save] on tool bar, you can save the MRS list in "Microtemp". Next time you can press [Open] to load the MRS list and continue work.



2. **Cancel MRS in your list**, select the MRS you want to delete. (need switch to "Curve" page), Click **Cancel MRS** on the toolbar.



3. **MRS record value**, Software will record the latest 100 data in "History" page for each listed MRS, you can press **[Export]** on toolbar to save the record data in Excel file.

The screenshot shows an Excel spreadsheet with the following data:

Update_time	Temperature	Humidity	Battery	Signal	Alarm_trig
2016/6/30 29.4C	29.4C	3.58	75		
2016/6/30 29.4C	29.4C	3.58	68		
2016/6/30 29.1C	29.1C	3.58	83		
2016/6/30 29.1C	29.1C	3.58	81		
2016/6/30 28.8C	28.8C	3.58	104		
2016/6/30 28.5C	28.5C	3.58	110		

The data rows are circled in red.

Notes: this guide is only for standard MRS sensor. If purchase special types, some of the function parameter read/write is disable, please refer to the "Mico Race Data Format Introduction " for more details

2. - Guide for MRR-R

Blue Jay provide MRR-R for special client for connect third party router(RS232 or RS485 port), only communication port is different with MRR-E

2.1- MRR-R wiring

Mico-Race data receiver MRR-R standard use DB9 PIN male port(RS232/RS485) and used 6~34VDC power supply;

Blue Jay Technology standard provide 12VDC 1A adapter (85~265VAC input), and DB9P adapter (for MRR-R-485).

	MRR-R-232	MRR-R-485
Terminal No.	2-RX / 3-TX	6-A / 1-B
Baud ratio	9600	9600
Pictures		

Notes:

Please refer to the wiring drawing on product label!

Please use the cross-connect wire kit in package for MRR-R-232 communicate with PC, If you use the USB adapter cable, please also connect the cross-connect wire between adapter and MRR-R



Package list:

MRR-R-232	MRR-R-485
MRR-R-232 device *1 RS232 cross-connect female cable *1 12VDC 1A adapter *1 1.5m 433Mhz Antenna *1	MRR-R-232 device *1 RS485 connect kit *1 12VDC 1A adapter *1 1.5m 433Mhz Antenna *1

2.2- MRR-R configuration

MRR-R do not need special configuration, Blue Jay Tech Team had preset the device working parameter, user can use any **series port scan software** to check MRR-R connection is success.

Notes: please make sure your series port scan software use 9600 baud ratio and send the following code to MRR

55 7A 07 82 00 01 04 00 00

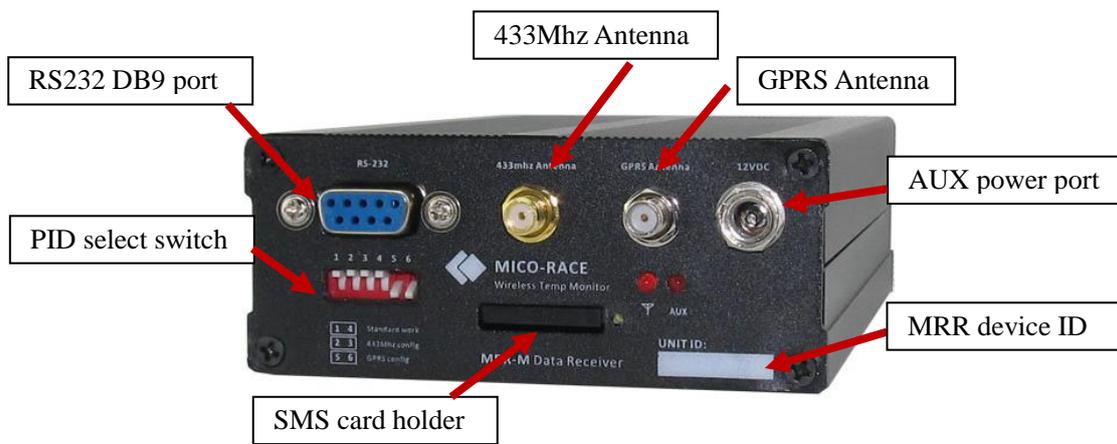
if you can received the following code mean MRR-R connect well and prepared working

AA 75 0C 83 00 00 00 01 3C 00 04 01 00 00

3.- Guide for MRR-M

MRR is special designed for MICO-RACE system, with standard MRR-R and one GPRS router inside. GPRS router support 850/900/1800/1900 frequency, GSM network, default use 900/1800 frequency.

3.1- Front Panel Description



Notes:

1. Antenna have different sharp, depends one client requirement, all use standard SMA port, if antenna damaged or dissatisfied with signal performance, users can change higher gain antenna with same specification and port.
2. Aux power support standard 12/24V AC-DC adapter or battery, if power less than 6V MRR-M may work abnormal.
3. Please make sure your SMS card support GPRS network (2G), if your local mobile network service providers other frequency, please contact Blue Jay Tech team
4. User can use any types of RS232 adapter for configuration, or use SMS command to set basic parameter, more details please refer to **Chart 3.3**

3.2- System configuration- GPRS router

MRR-M communication port is RS232, you can use any type of RS232 adapter to connect host PC, every MRR-M default setting is send data to Blue Jay Cloud Server www.microtemper.com, if you want send data to other IP, please follow this guide:

Step 1: Set PID switch for GSM configuration



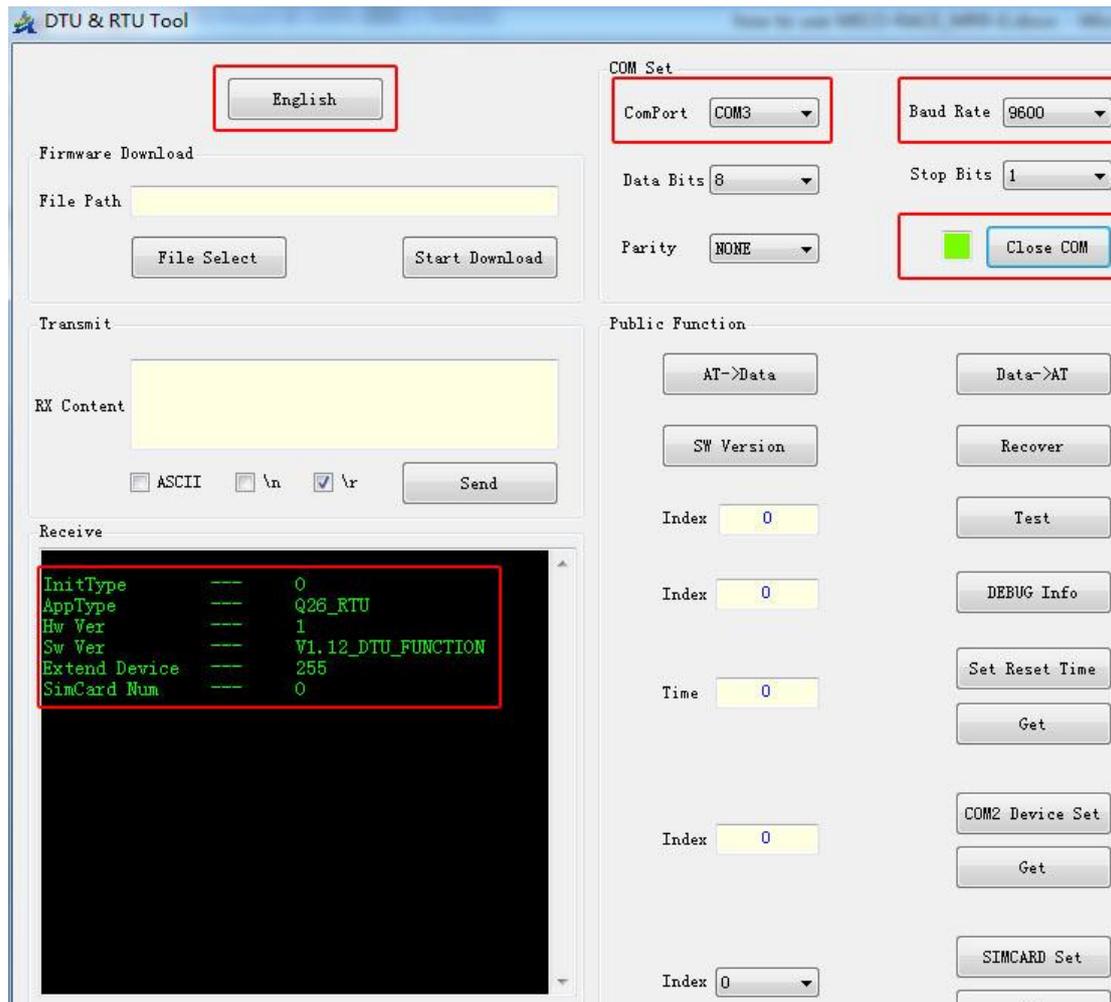
Change the PID switch 5.6 ON, as photo shown; and connect RS232 port to your host PC.

Step 2: Open [DTU-RTU tool.exe] (You can choose 64/32bit only for PC Windows OS).

Software provides English display, press button as indicate change to English.

1. Change Comport to right port no. (In demo is COM5).
2. Choose Baud Rate to "9600".
3. Leave other buttons do not change or set, then press **Open COM** button.
4. Make sure SIM card in holder and powered on MRR-M.

The left screen window show welcome info as follow, mean GPRS router is connect to PC and prepare configuration.



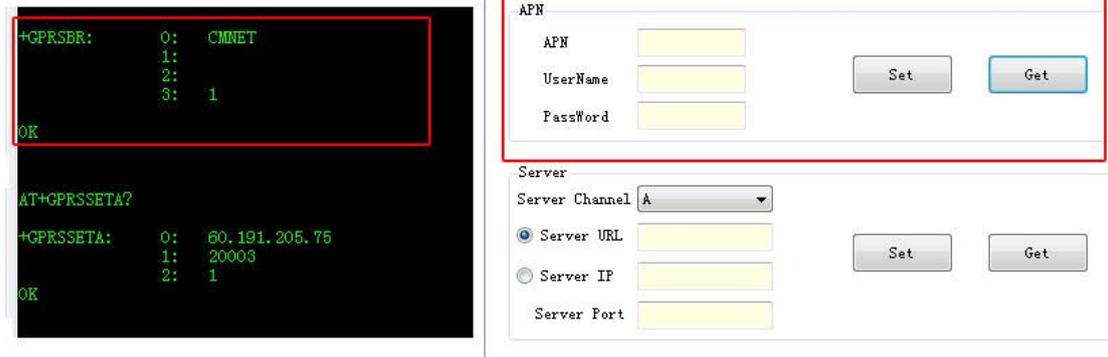
Notes: MRR-M default set to automatic connect remote server, please do all the configuration in 30sec, that parameter setting will invalid after screen window show "**CONNECTED**". in this situation only needs to repower the MRR-M.



Step 3: Set APN (Access Point Name) info

Please contact your local mobile network service providers for confirm the APN account and password, in demo use china mobile.

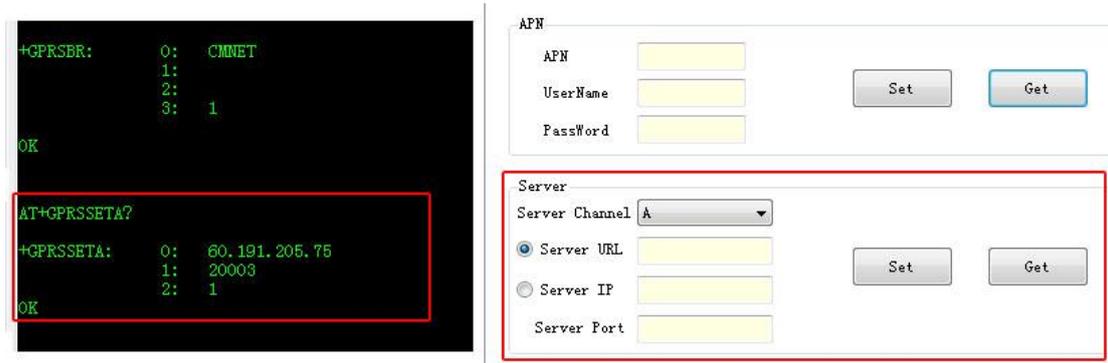
After enter right APN info, press button **Set** to confirm setting, user can press button **Get** to check presetting in left screen window.



Step 4: Set destination IP to remote server

MRR-M support URL or IP setting, send data to max 6 different remote IP (named from A to F). In demo use BLUE JAY cloud server(User can get a 6 month free account for testing, you can find your own Server Port and account info in products package, or contact your sale manager. more details please refer Chart 3.

After enter right Server info, press button **Set** to confirm setting, user can press button **Get** to check presetting in left screen window.



Notes: Please do not change other parameter in GPRS router, if you want advanced function, please contact Blue Jay Tech Team: tech@cqbluejay.com

After set the GPRS configuration, powered off the MRR-M, then disconnect RS232 adapter and recovery PID switch 1.4 ON, as following photo, repower the MRR-M it will send data to the destination IP.



3.3.- Remote config & check MRR-M

MRR-M support remote configuration via SMS, just need send txt message to cell phone number inside MRR-M.

Function	SMS command	Feedback data
Check registered situation of DTU	(07,XXX=1)	[*GPRS IM*+8 digital] ----- Each digital use (0/1) meaning as follow: 1. SMS card normal 2. Had registered in GSM network 3. Had obtained IP address 4. Had connect to GSM server 5. Had received data from server 6. Heartbeat opened 7. Reversed 8. GPRS protocol stack open
DTU Signal strength query	AT+CSQ	[AT+CSQ +CSQ:25,0] ----- Signal strength 25, the value max is 31, high value mean signal is better
Query DTU destination IP and TCP port	(20,XXX=1)	IP_A:60.191.205.75,20006 ----- Only IP_A is valid
Config DTU destination IP and TCP port	(21,XXX=IP,PORT)	
Set Heartbeat	(04,XXX=HB_time,HB_text)	HB_time: Heartbeat interval, unit in sec HB_text: text in Heartbeat, do not over 100 characters
Set APN Username & password	(00,XXX=apn,username,password)	
Restart DTU	(06,XXX=1)	

If need send command from TCP server, command format:

[ID][SMS command]*

[SMS command] is same in above chart

[ID] is DTU ID, default is 00000000

4. - Access Blue Jay cloud software

Blue Jay Technology also provide cloud record software in English version for test use. please configure MRR-E or MRR-M send data to following IP and TCP port:

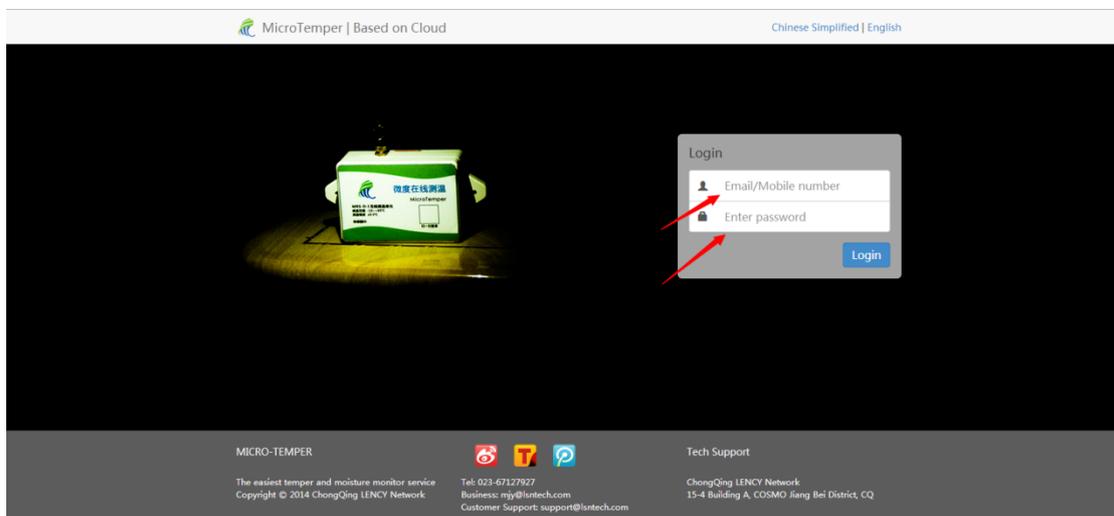
Destination IP: 106.75.224.56

Destination Port: 30XXX (you can find in the customer mail in package or contact our sales team)

please refer to [chart 1.2.1\(2\)](#) and [chart 3.2](#) for configuration MRR direct to Blue Jay cloud server

Then open your Web Browser

Connect this site: <http://106.75.224.56>



User Name and Password you can find in customer mail in package

Default test account:

username: test@cqbluejay.com

password: 000000

Tel:+0086-023-67628702
www.cqbluejay.com
Add: 1802,Building 2,No.88,Jianxin East Road,Chongqing,400020,China

Email:tech@cqbluejay.com

5.- Trouble shooting

Q: Why can't I connect MRR-E or even cannot search MRR-E ?

A: please confirm you MRR-E and you host PC in same sub-section, and please allow the TCP port in & out your host PC 1500, 2317, 16254, 27011. if possible please close your firewall when do configuration.

Q: Why the MRS can automatically upload data, but I cannot read data from host actively ?

A: the MRS use IPEX connector to antenna, due to vibration the connector may lose, please open the MRS case to re-tightening the IPEX connector.

Q: I cannot connect to Blue Jay cloud server?

A: Blue Jay provide free cloud server for every client test, our engineers will be debug and update the cloud server program from time to time, please be patient and server can reopen in 24 hours. Any of your comment would be much appreciated.