EC6 Module
User Manual

Applicable model：
EC6

JIANGSU SFERE ELECTRIC CO., LTD.

Safety instructions

Thank you for choosing the products developed by Jiangsu Sfere Electric Co., Ltd. In order to facilitate your purchase and help you use this product safely, correctly and efficiently, please read this manual carefully and pay attention to the following points when using it.

CAUTION：

◆ Make sure only the qualified technicians perform the installation and maintenance;

◆Before performing wiring operation to the meter, make sure the input signal and the power supply are switched off;

◆The proper voltage detecting device should be used to guarantee no voltage in any part of the meter;

◆The electrical parameters supplied should be within the rated range;

The following situations may result in damage to the device or cause mistakes in the operation of the device：

◆The voltage of the auxiliary power supply goes beyond the rated range.

◆The frequency of the power distribution system goes beyond the rated range.

◆The input polarity of the voltage or the current is incorrect.

◆Remove or connect the communication plugs without powering off.

◆Connect the terminal wires against the related instructions.

Please don’t touch the terminals when the meter is in operation!

The latest manual can be downloaded from the company's homepage and some corresponding test software downloads also provided.If you need an electronic user manual, you can obtain it from our technical service department.

Catalog

1 Product Introduction

1.1 Summary

EC6 module is a wireless transmission module based on NB-IoT mode, using the existing mobile network can easily let your device achieve wireless connection with Internet. It has many advantages, such as wide network coverage, flexible and fast networking.

Figure 1.1 product physical figure

2 Technical specifications

2.1 Technical parameter

Project		Parameters
Wireless Interface	Frequency band	B3/B5/B8
	Network type	NB-IoT
	SIM card voltage	3V、1.8V
	Antenna interface	50Ω/SMA(female head)
RS485 Interface	Communication	half duplex
	Communication baud rate	2400～19200bps,default 9600bps
	Data format	n81/n82/o81/e81,default n81
Main	Model	PD194Z-E1X

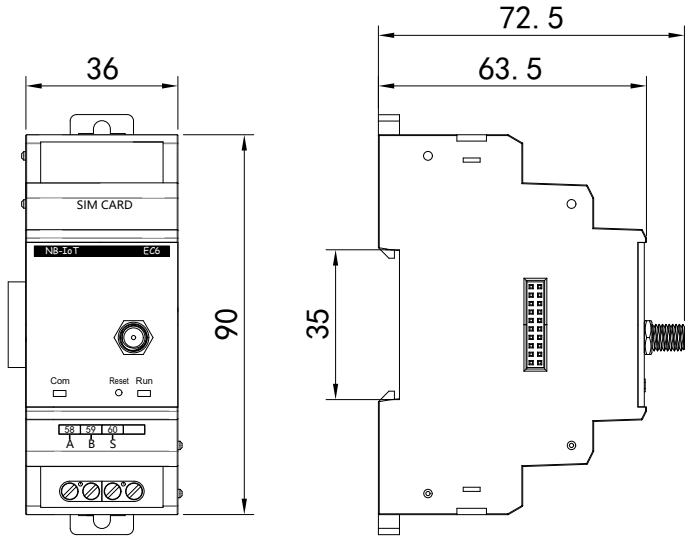
module		
Working environment		-25℃～70℃，≤93%RH
Storage environment		-40℃～85℃，≤93%RH

2.2 Main function

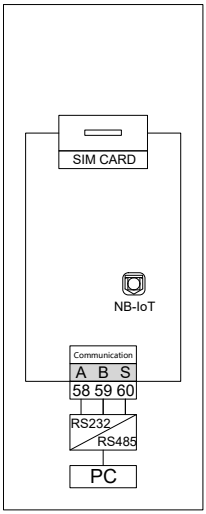
- ✧ Support dynamic domain name or IP address access.
- ✧ Support break line automatic reconnection function.
- ✧ Support local graphical interface configuration and maintenance.
- ✧ Have Reset key, can restore to factory configuration in case of system parameter configuration confusion.
- ✧ Support local firmware update capability to facilitate user to update the device.

3 Dimensions and wiring diagrams

3.1 Size

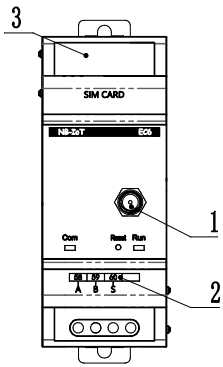


3.2 Wiring



4 Operation

4.1 Panel



Left figure is the display diagram of the EC6 module.

1：antenna interface(50Ω/SMA female head)

2：RS-485interface

3：SIM card slot

Run light：always on after power on

Com light: successfully flashing into network

Reset key： used to reset and restore default configuration

4.2 Use Preparation and Function Description

4.2.1 Hardware preparation

The EC6 module is spliced with PD194Z-E1X series of instruments, the RS-485 interface of the EC6 module is connected to the computer, the SIM card is inserted, the antenna is connected to the antenna interface, and then the power is on.

4.2.2 Light Function Description

There are two small lights on the panel: Run and Com.. The function of each lamp is described in detail below.

1. All small lights flash once after power on, then the Run light is always on.
2. Connect server successfully, Com light flash slowly.
3. Data interaction with the server, Com lights flash quickly.

4.2.3 Key function description

Reset key have the following functions：

1. The Run indicator is always on. Press the Reset button to enter the configuration mode. The Run indicator flashes.

2. The Run indicator flashes, press the Reset button to launch the configuration mode, the Run indicator is always on.

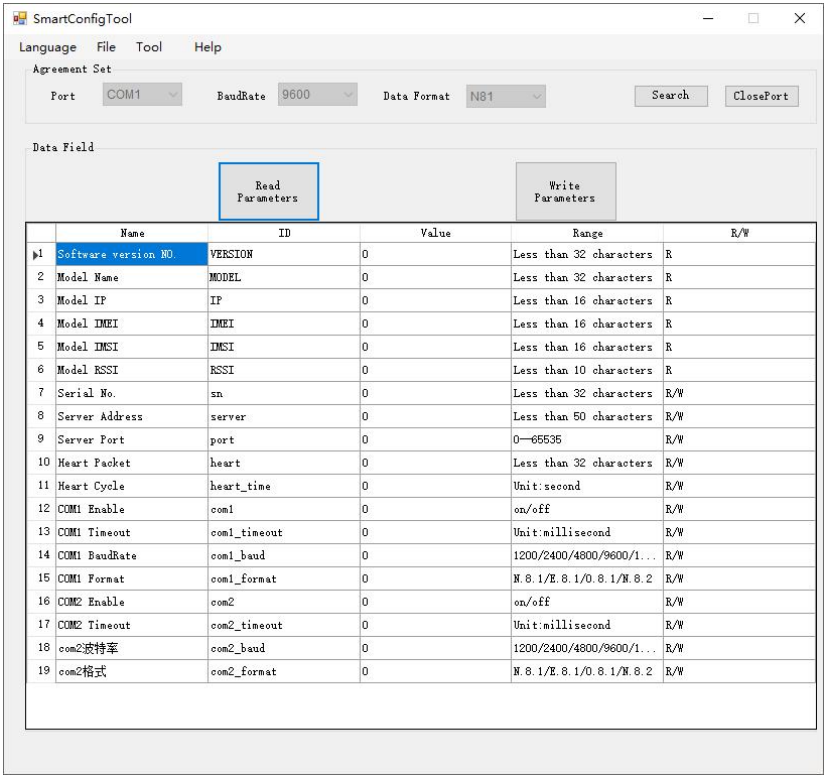
3. Press and hold the Reset button for 3-4 seconds to release, all indicator lights flash quickly, and the EC6 module is reset.

4. Press and hold the Reset button for more than 10 seconds to release, all the indicators flash slowly, the EC6 module restores the factory settings

4.3 Parameter configuration and reading

Connect the RS-485 interface of the EC6 module with the PC, open the SmartConfigTool software and set the serial port parameters (baud rate :9600, data format: N81), press the Reset button to enter the configuration mode.

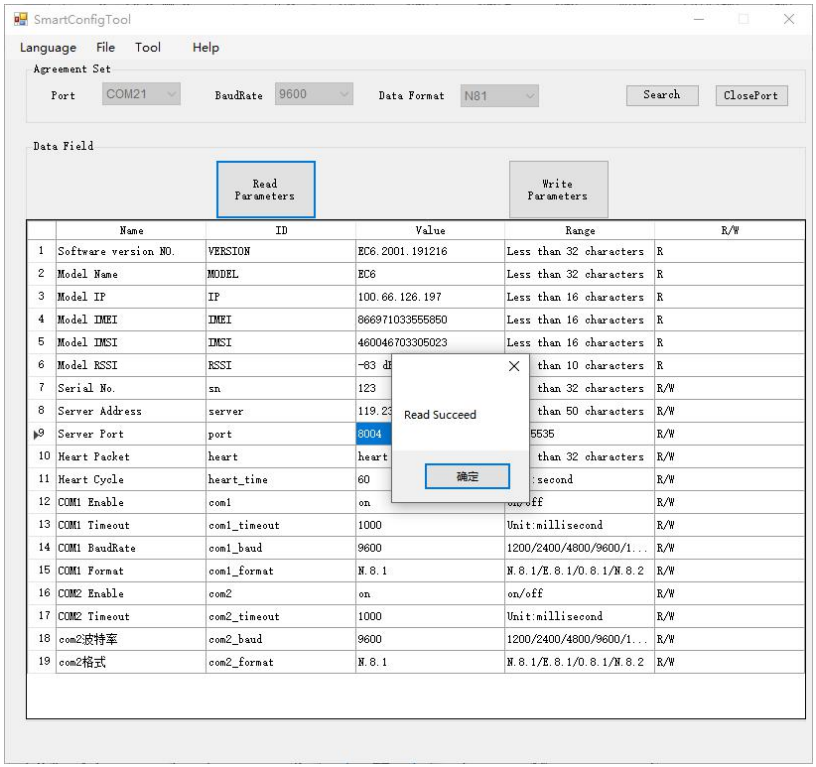
Click on the import configuration option under the SmartConfigTool file menu, select TGate.xlsx profile to import the configuration parameters.



	Name	ID	Value	Range	R/W
1	Software version NO.	VERSION	0	Less than 32 characters	R
2	Model Name	MODEL	0	Less than 32 characters	R
3	Model IP	IP	0	Less than 16 characters	R
4	Model IMEI	IMEI	0	Less than 16 characters	R
5	Model IMSI	IMSI	0	Less than 16 characters	R
6	Model RSSI	RSSI	0	Less than 10 characters	R
7	Serial No.	sn	0	Less than 32 characters	R/W
8	Server Address	server	0	Less than 50 characters	R/W
9	Server Port	port	0	0—65535	R/W
10	Heart Packet	heart	0	Less than 32 characters	R/W
11	Heart Cycle	heart_time	0	Unit:second	R/W
12	COM1 Enable	com1	0	on/off	R/W
13	COM1 Timeout	com1_timeout	0	Unit:millisecond	R/W
14	COM1 BaudRate	com1_baud	0	1200/2400/4800/9600/1...	R/W
15	COM1 Format	com1_format	0	N.8.1/E.8.1/O.8.1/N.8.2	R/W
16	COM2 Enable	com2	0	on/off	R/W
17	COM2 Timeout	com2_timeout	0	Unit:millisecond	R/W
18	com2波特率	com2_baud	0	1200/2400/4800/9600/1...	R/W
19	com2格式	com2_format	0	N.8.1/E.8.1/O.8.1/N.8.2	R/W

4.3.1 Parameter reading

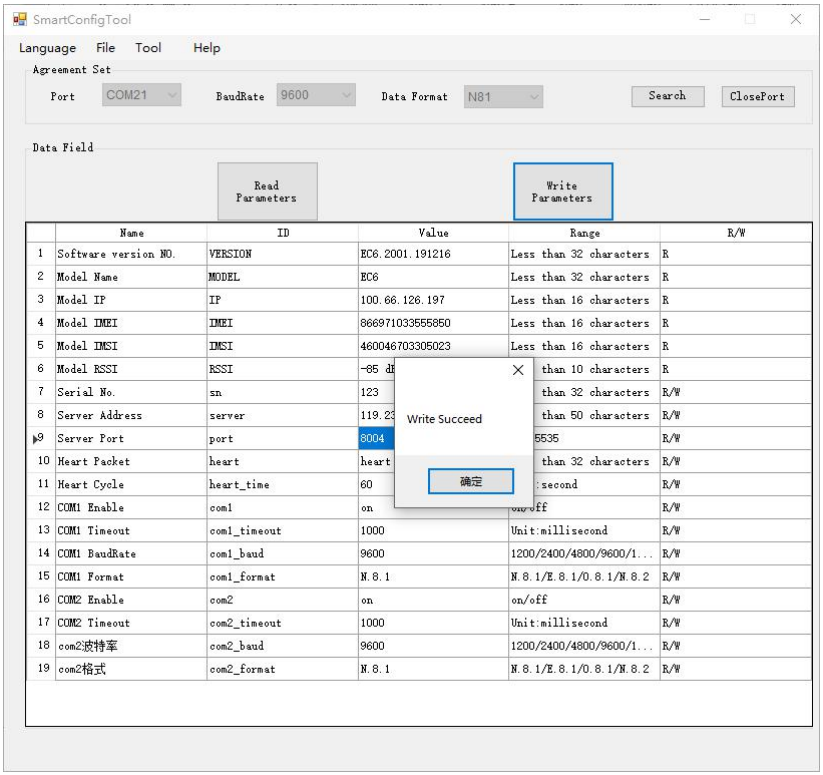
Click the Parameter Read button to read the configuration parameters within the module.



	Name	ID	Value	Range	R/W
1	Software version NO.	VERSION	EC6.2001.191216	Less than 32 characters	R
2	Model Name	MODEL	EC6	Less than 32 characters	R
3	Model IP	IP	100.66.126.197	Less than 16 characters	R
4	Model IMEI	IMEI	866971033555850	Less than 16 characters	R
5	Model IMSI	IMSI	460046703305023	Less than 16 characters	R
6	Model RSSI	RSSI	-83 dB	than 10 characters	R
7	Serial No.	sn	123	than 32 characters	R/W
8	Server Address	server	119.23	than 50 characters	R/W
9	Server Port	port	8004	5535	R/W
10	Heart Packet	heart	heart	than 32 characters	R/W
11	Heart Cycle	heart_time	60	:second	R/W
12	COM1 Enable	com1	on	on/off	R/W
13	COM1 Timeout	com1_timeout	1000	Unit:millisecond	R/W
14	COM1 BaudRate	com1_baud	9600	1200/2400/4800/9600/1...	R/W
15	COM1 Format	com1_format	N.8.1	N.8.1/E.8.1/O.8.1/N.8.2	R/W
16	COM2 Enable	com2	on	on/off	R/W
17	COM2 Timeout	com2_timeout	1000	Unit:millisecond	R/W
18	com2波特率	com2_baud	9600	1200/2400/4800/9600/1...	R/W
19	com2格式	com2_format	N.8.1	N.8.1/E.8.1/O.8.1/N.8.2	R/W

4.3.2 Parameter configuration

Change the value of the parameter in a column of values as required. After the parameter is set, click the parameter configuration button to write the parameter inside the EC6 module and save it



	Name	ID	Value	Range	R/W
1	Software version NO.	VERSION	EC6.2001.191216	Less than 32 characters	R
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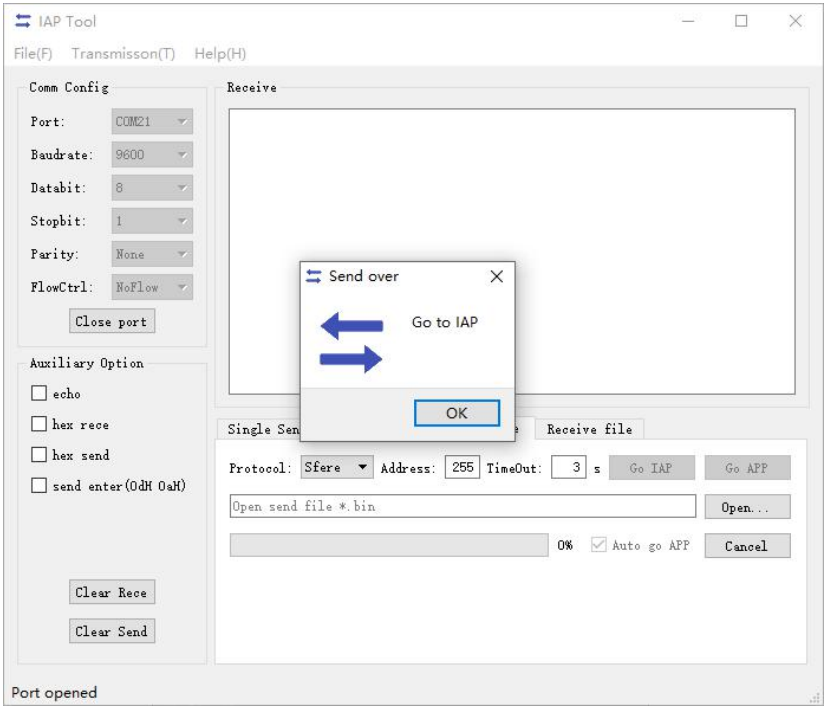
4	Model IMEI	IMEI	866971033555850	Less than 16 characters	R
5	Model IMSI	IMSI	460046703305023	Less than 16 characters	R
6	Model RSSI	RSSI	-85 dB	than 10 characters	R
7	Serial No.	sn	123	than 32 characters	R/W
8	Server Address	server	119.23	than 50 characters	R/W
9	Server Port	port	8004	5535	R/W
10	Heart Packet	heart	heart	than 32 characters	R/W
11	Heart Cycle	heart_time	60	:second	R/W
12	COM1 Enable	com1	on	on/off	R/W
13	COM1 Timeout	com1_timeout	1000	Unit:millisecond	R/W
14	COM1 BaudRate	com1_baud	9600	1200/2400/4800/9600/1...	R/W
15	COM1 Format	com1_format	N.8.1	N.8.1/E.8.1/O.8.1/N.8.2	R/W
16	COM2 Enable	com2	on	on/off	R/W
17	COM2 Timeout	com2_timeout	1000	Unit:millisecond	R/W
18	com2波特率	com2_baud	9600	1200/2400/4800/9600/1...	R/W
19	com2格式	com2_format	N.8.1	N.8.1/E.8.1/O.8.1/N.8.2	R/W

4.4 Firmware upgrade

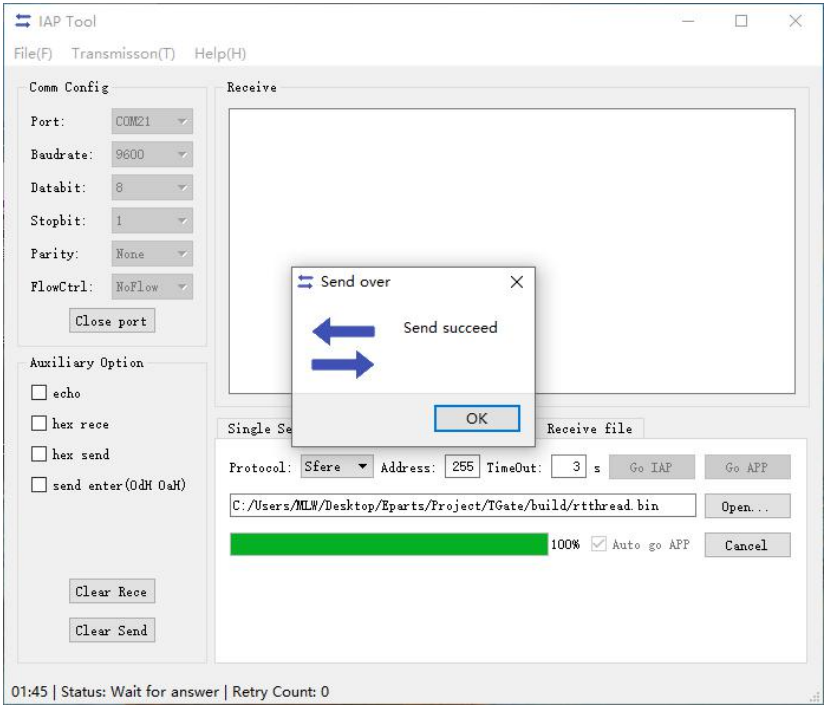
4.4.1 Access IAP

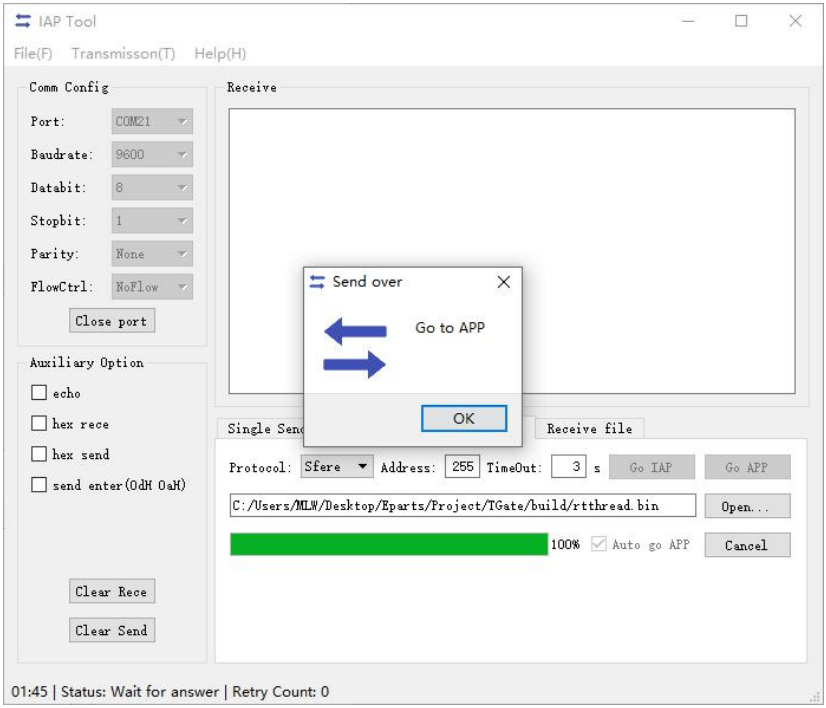
Click the firmware upgrade option under the SmartConfigTool software tools menu in configuration mode, pop up IAP Tool the upper computer, set the serial port parameters (baud rate :9600, data format: N81). Select Protocol Sfere, Click Enter IAP. Enter successfully, Run light flashes quickly.



4.4.2 Firmware update

Open the firmware file and click send, waiting for the firmware update to complete. pop up the send finish prompt box. If checked complete enter APP, close prompt box and enter application execution. .




IAP Tool
File(F) Transmisson(T) Help(H)
Comm Config
Port: COM21
Baudrate: 9600
Databit: 8
Stopbit: 1
Parity: None
FlowCtrl: NoFlow
Close port
Auxiliary Option
echo
hex rece
hex send
send enter(0dH 0aH)
Clear Rece
Clear Send
Receive
Send over
Go to APP
OK
Single Send
Receive file
Protocol: Sfere
Address: 255
TimeOut: 3 s
Go IAP
Go APP
C:/Users/MLW/Desktop/Eparts/Project/TGate/build/rtthread.bin
Open...
100%
Auto go APP
Cancel
01:45 | Status: Wait for answer | Retry Count: 0