# GPRS Remote Terminal Unit

USR-RTU-411

File version: V1.1

# Content

# Product Description

## Instruction

USR-RTU-411 is a device used to monitor and control wild devices through the mobile phone operator's network, with data transmission using GPRS. The device will automatically connect to the server supplied by our company. You can use LonHand software on different platforms such as Windows, Android, IOS, MAC system for remote control.

## Features

- Four frequencies for all countries
- Easy to use, no need to configure
- Support GPRS/GSM network, do not support CDMA/EDEG/3G
- 4 relay control outputs can control devices whose power supplied with AC 220V
- With analog input detection, input voltage ranges from 0 V to 10V
- With digital input monitoring if an external passive switch is connected
- Use MD251 industrial module
- Use single module embedded protocol stack, no external CPU, higher stability
- Embedded TCP/IP protocol stack and GPRS technology
- Support remote parameters settings, can change IP, port, ect. by SMS
- Support public and APN network access
- Register an account, do remote observation and control using software anywhere at anytime
- Matched sucker antenna, convenient for customers install and use inside the iron housing.

## Parameters

- Dimension: 11.3*7.2*3.4cm(L*W*H)
- Working Voltage: DC:12V
- Working Current: 20~500mA, max 1000mA
- Working temperature: -40~80Celsius
- Storage temperature: -40~80Celsius
- Storage humidity: 5%~95%RH
- Working Frequency: 850/900/1800/1900MHZ
- Output: 4 Channel, max work voltage of each channel is AC/250 DC/30v; Current:2A
- Switch state acquisition: 1 channel, check switch status
- Analog signal acquisition: 1 channel, range 0~10V,support SMS setting acquisition frequency (>5s)
- Support LonHand system ( Windows/MAC/IOS/Android/HTML 5 web control)

- Support change output port state via SMS, support SMS password authentication

## Packing list

- 1. USR-RTU-411 * 1 (with plastic shell)
- 2. GPRS antenna (SMA Interface)
- 3. Power adapter * 1
- 4. User guide CD * 1

## Wiring Connection Diagram

USR-RTU-411 product can be used independently. Housing has a mounting slot, can be user-friendly installed. Wiring connection is as shown below.

# Instruction

## Antenna and SIM Card Installation

The antenna use SMA female receptacle. Revolve the TNC male head to RTU antenna female receptacle, and ensure it is tightened, in case it affects the signal quality.

When remove SIM card, use a needle to push the yellow point on the right side of SIM base, then SIM cutting ferrule is open. SIM card should be put into cutting ferrule at first while installing, ensure metal face upside.

## Power Supply

USR-RTU-411 is widely used in complicated external environment. To adapt to its application and improve working stability of system, it use advanced power technologies, users can use our 12V 1A power adapter directly.

## Indicator Lamps

There are 3 indicators on USR-RTU-411: “NET”, ”POWER”, ”DATA”

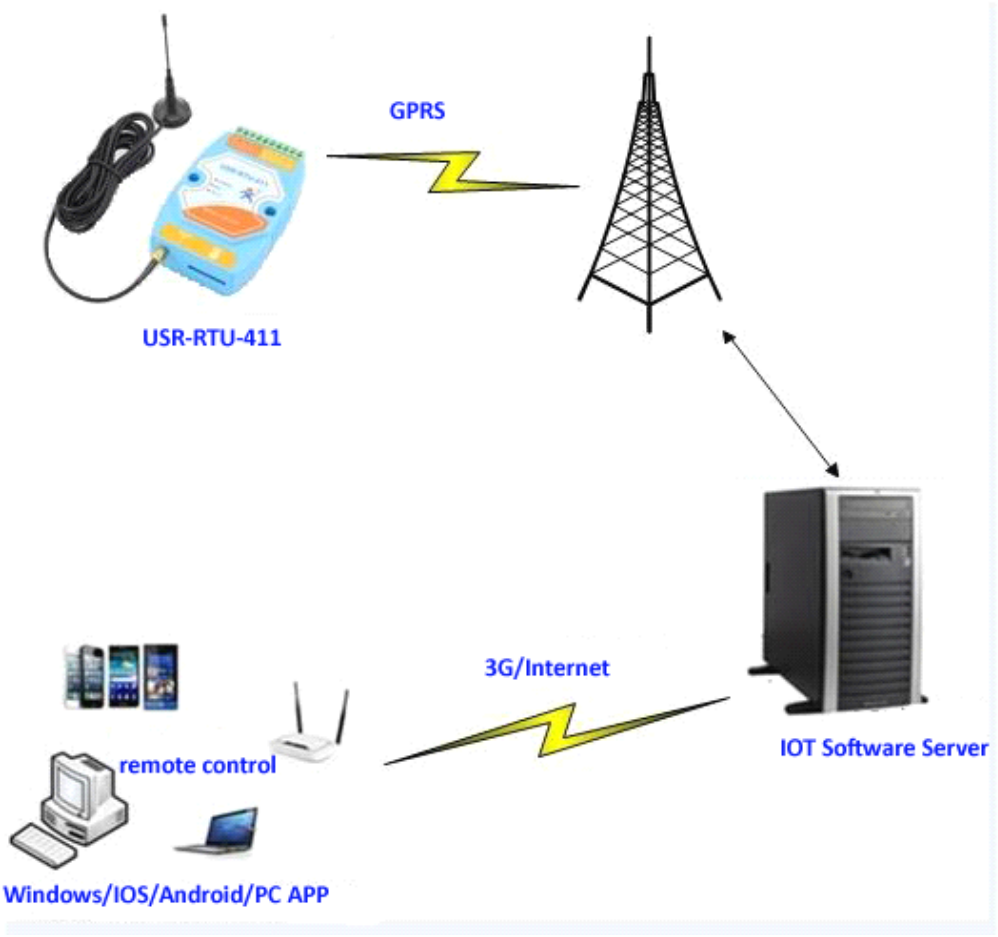
| index | name | description |
|---|---|---|
| 1 | POWER | On once power is supplied |
| 2 | NET | Flash when Module work<br>Off : Module is not running;<br>64ms On/800ms Off Module does not find the network;<br>64ms On/3000ms Off Module find the network;<br>64ms On/300ms Off GPRS communication; |
| 3 | DATA | When TCP link is established, it will on |

## Device Interface

| Pin | description |
|---|---|
| DC-12V | Power supplied |
| GND | Ground |
| INPUT | Digital inputs for dry contacts access |
| AIN+ | Analog signal input(range from 0 to 10V DC, change slowly) |
| AGND | Analog ground |
| COMM | Power line input. AC: 3A/220V, DC: 3A/30V<br>The power supplied to device controlled by USR-RTU-411 |
| OUT1-4 | Relays output.<br>Relays are connected to power line in-circuit, when relays are switched on. |

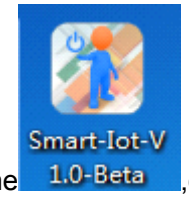
# USR-RTU-411 application structure

USR-RTU-411 are easy to use, users do not need any configuration to access our public servers.



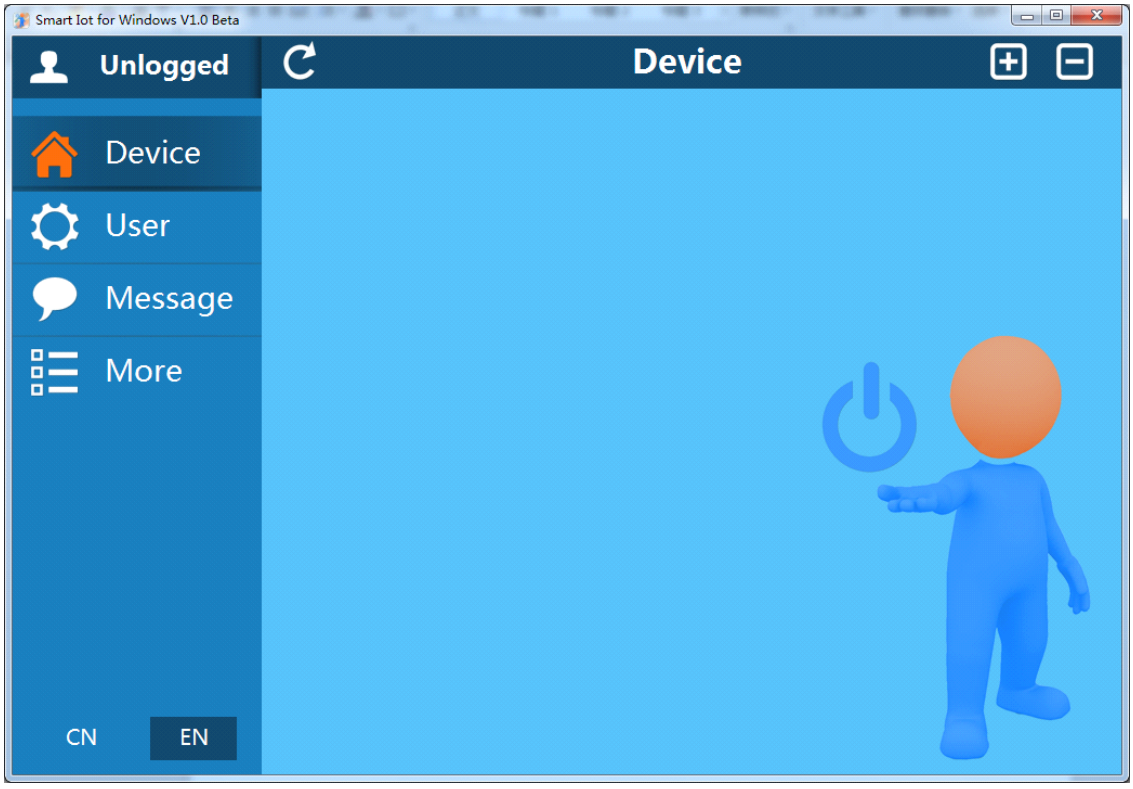

## Software Operation

Below WINDOWS platform, for example the use of a brief RTU:

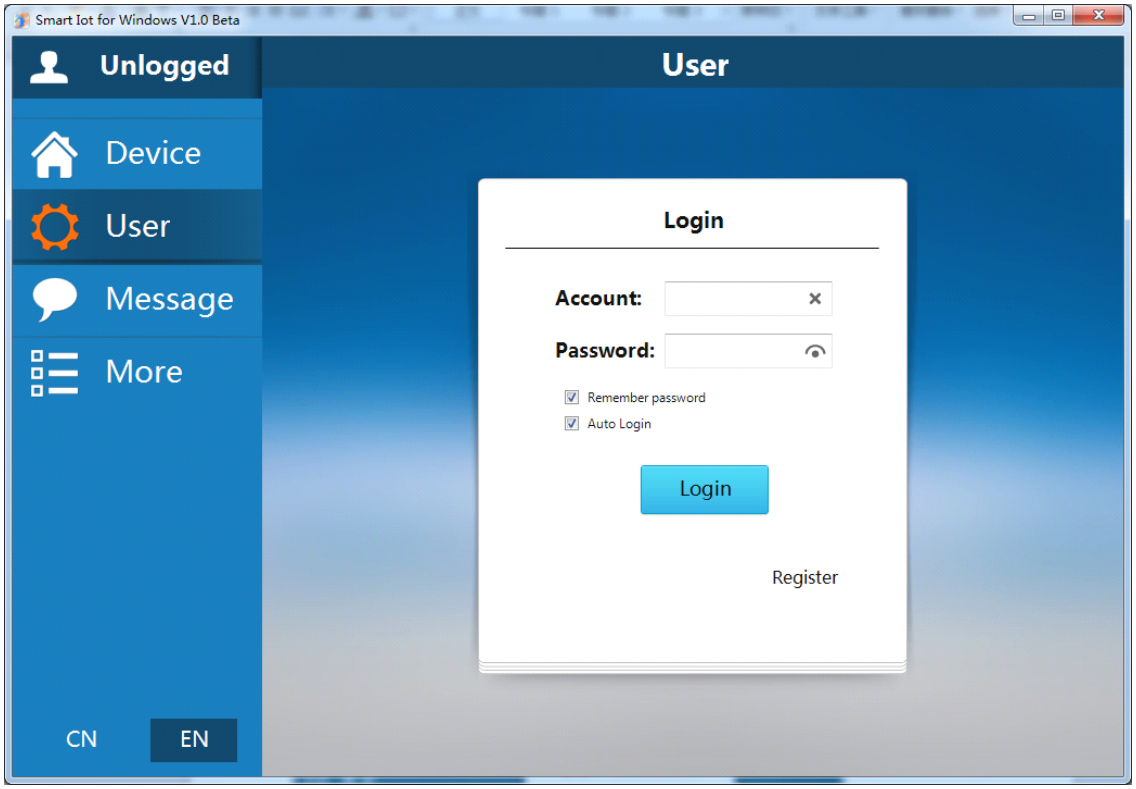
1.Double-click the 

,open IOT software.

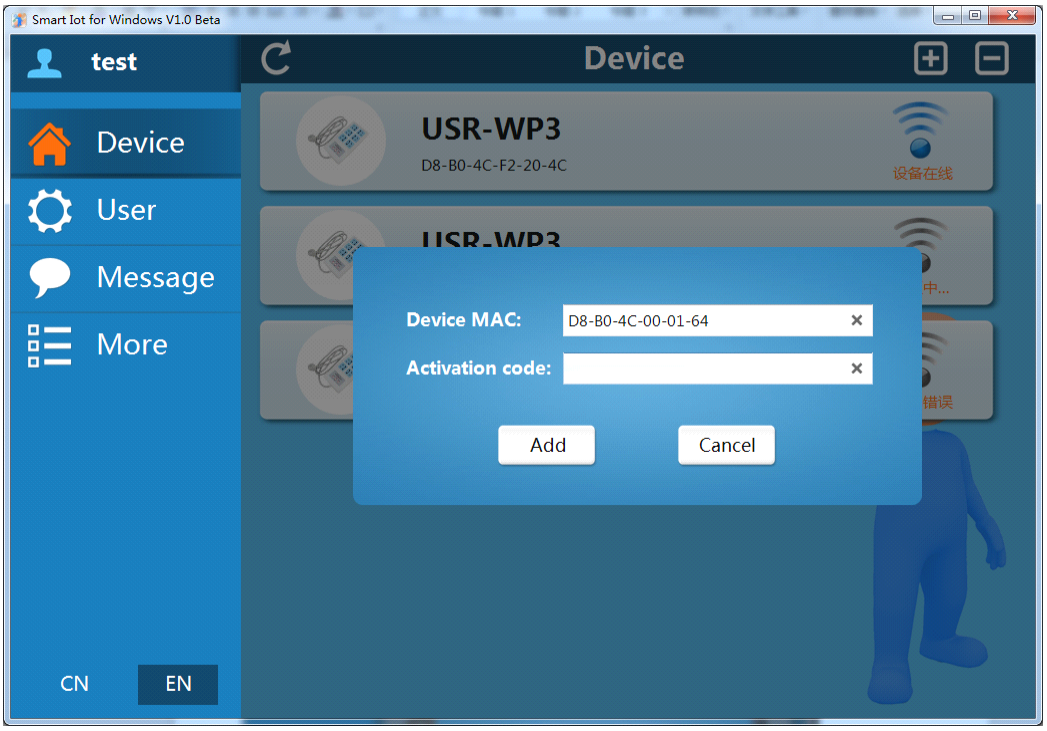
2.Run the software, the software interface as shown below:



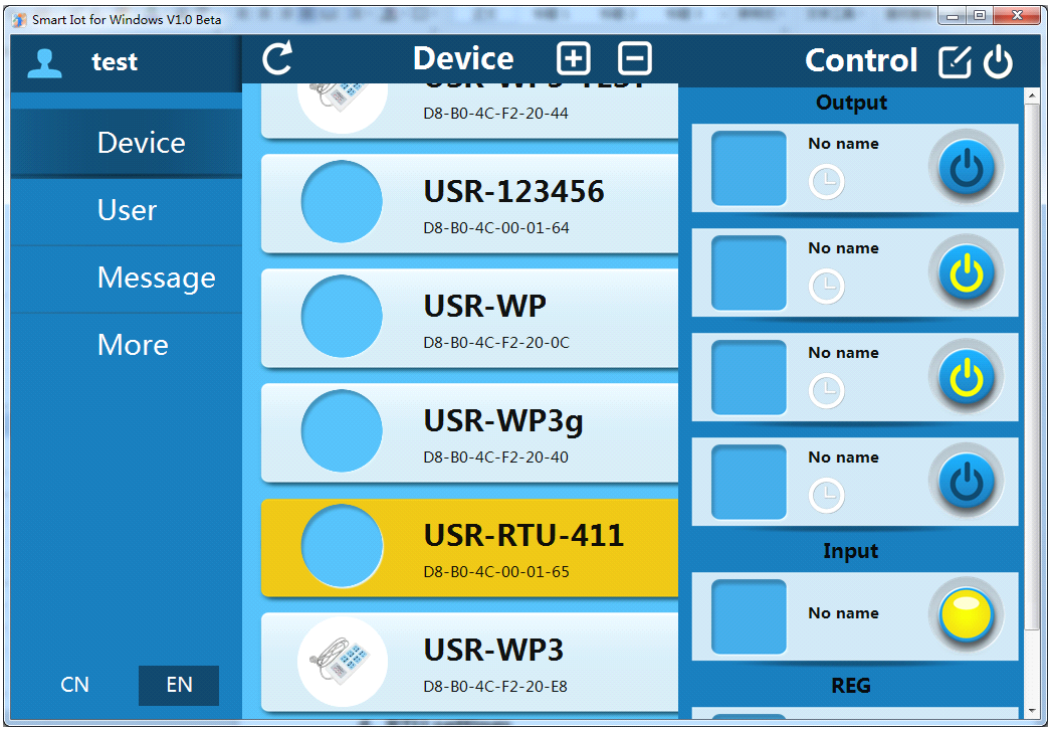

3.To register a first control Bao account, click on the "user" through the prompts to register.



4.Registered, login account, click on "Device", click Add, enter the device's MAC and the corresponding activation code (equipment enclosure label carries), add RTU devices to the server.




5.Click the  will appear added device, a display device name is USR-RTU-× × ×, device MAC address, as well as online situation, click the device name software will read detailed information and updates to the right, as shown below:



- The click on  will change the output io status
- When input status change, the  icon will display
- The click on  , you can modify the device attributes:


Software SMART IOT detailed instructions, see instructions for use.

# Configuration Introductions

USR-RTU-411 support configuration via SMS, such as APN, the analog acquisition frequency which can be configured by At command, and support operate the switch output state through SMS to control equipment. Support SMS password authentication, can be set or controlled in the case of sending the correct password.

Format as below:

PSW,CMD

**PSW** - Password, device will execute command when the message begins with the correct password. The password does not exceed 5 characters in length, default as

admin.

**CMD -** Control Command. All character should be input in English. Such as: admin, SETOUT1, means the second output switch is set to the ON state

## 4.1 Configuration Command

**Command for set APN account:**

AT+CSTT=”APN”,”NAME”,”PSW”
APN: APN account
NAME: User name
PSW: APN password
Above items need provide by local operators

**Command for sett device password:**

AT+CIPSW=PSW
PSW: Device password; If need control device by SMS after modifying the password, you should use the new password. Setting will fail if the password beyond five characters

**Command for set return time of memorizer:**

SETIME=TIME
TIME: Time interval for return data, unit is second. Can’t return memorizer data automatic if the time < 5 seconds

## 4.2 Control Command

A total of 8 control commands which are used to control ON/OFF status of 1~4 channel:

| | |
|---|---|
| SETOUT1 | return：SETOUT1 OK |
| SETOUT2 | return：SETOUT2 OK |
| SETOUT3 | return：SETOUT3 OK |
| SETOUT4 | return：SETOUT4 OK |

The above 4 commands for set channel status as ON status, the number stands for 1,2,3,4 channel

| | |
|---|---|
| RESETOUT1 | return：RESETOUT1 OK |
| RESETOUT2 | return：RESETOUT2 OK |
| RESETOUT3 | return：RESETOUT3 OK |
| RESETOUT4 | return：RESETOUT4 OK |

The above 4 commands for set channel status as OFF status

**Example for SMS controlling：**

# Contact

Company: Jinan USR IOT Technology Limited
Address: 1-728, Huizhan Guoji Cheng, Gaoxin Qu, Jinan, Shandong, China
Tel: 86-531-55507297, 86-531-88826739
Web: www.usr.so
Email: sales@usr.cn, order@usr.cn

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# Update History

V1.0 First edition publish
V1.1 Some content change with product update