

# CWT7100

## Configuration manual

Editor	Version	Update time
	V1.0	2021-11-25

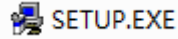
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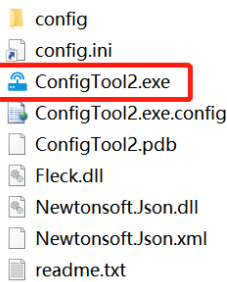
# 1 GO TO SETUP MODE

step

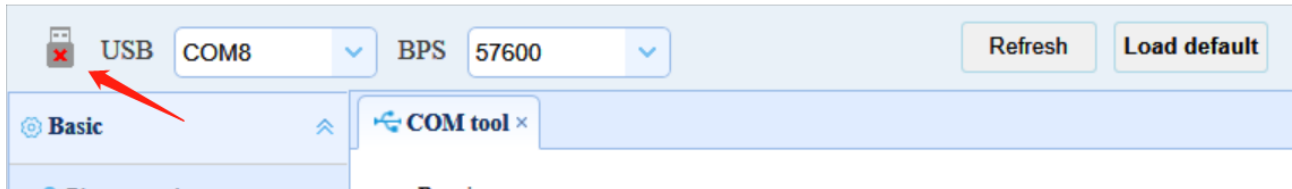
1. Install USB driver on PC (only windows)



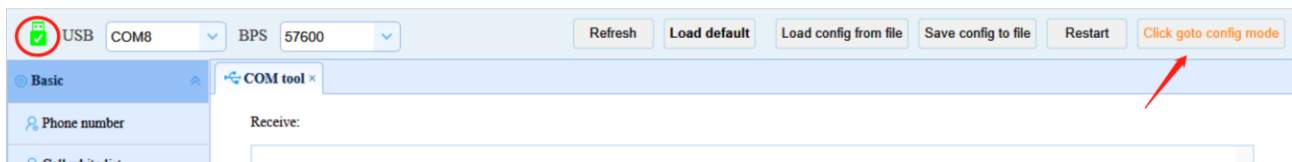
2. Connect device to PC via USB, please refer to device Installation Manual.
3. Run config tool



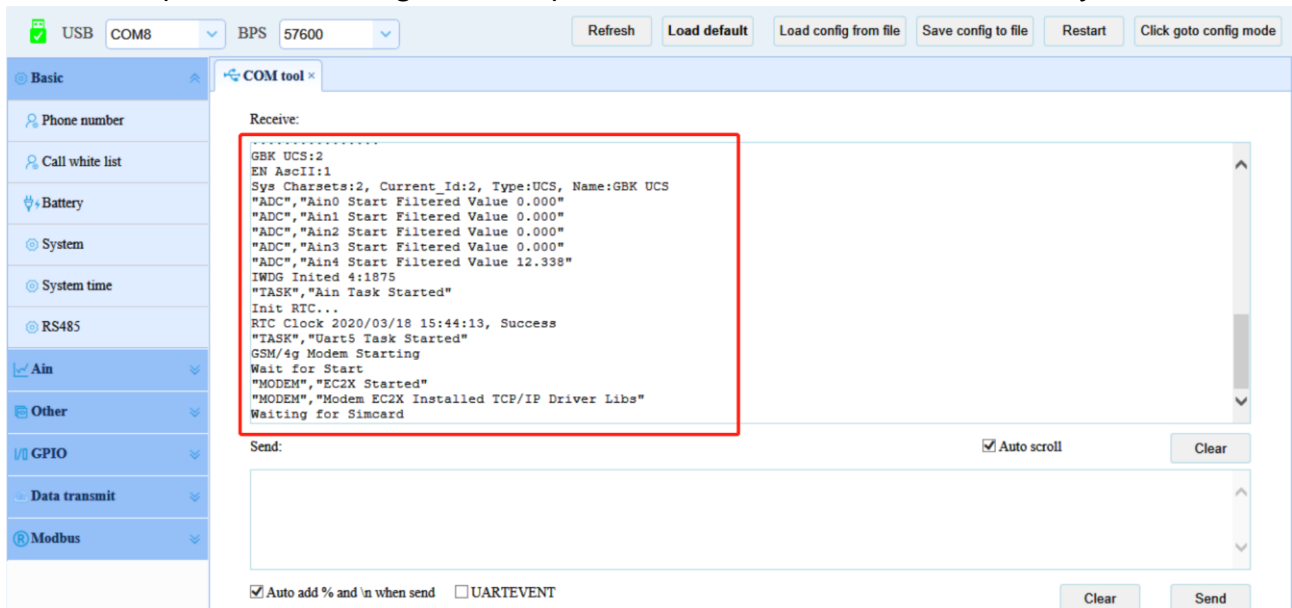
4. Click USB icon



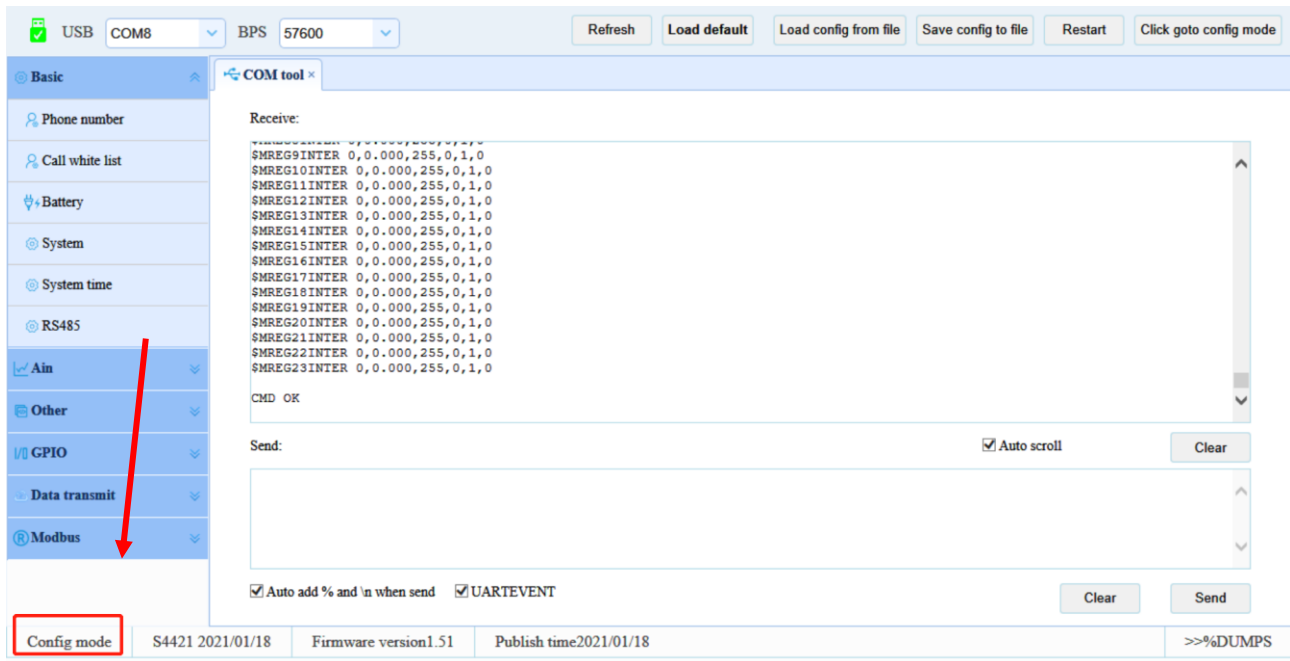
5. USB icon turns green and click "config mode" button



6. Power up, it shows messages in com port mean connect software successfully



wait for “config mode”



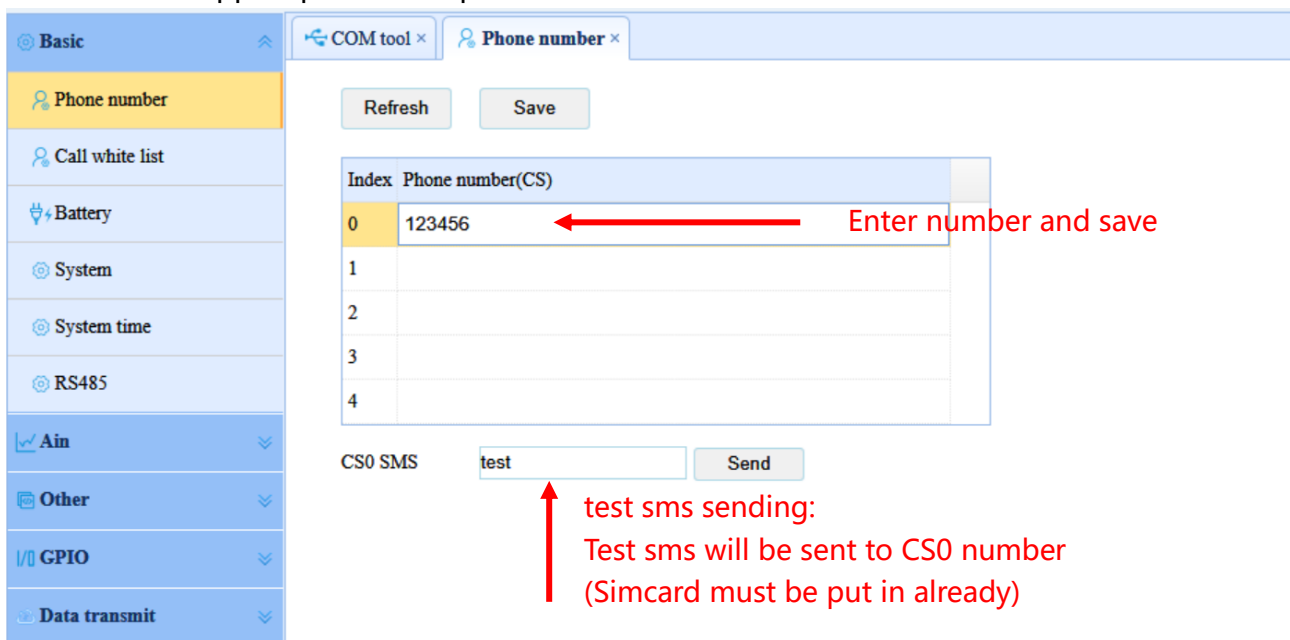
#### ⚠ NOTE

Go to Setup mode, the simcard and antenna is unnecessary, it' s only for configuration, device doesn' t connect network, like send sms, connect server etc.  
 After set up, please restart device to working mode to test functions.

## 2 BASIC PARAMETERS

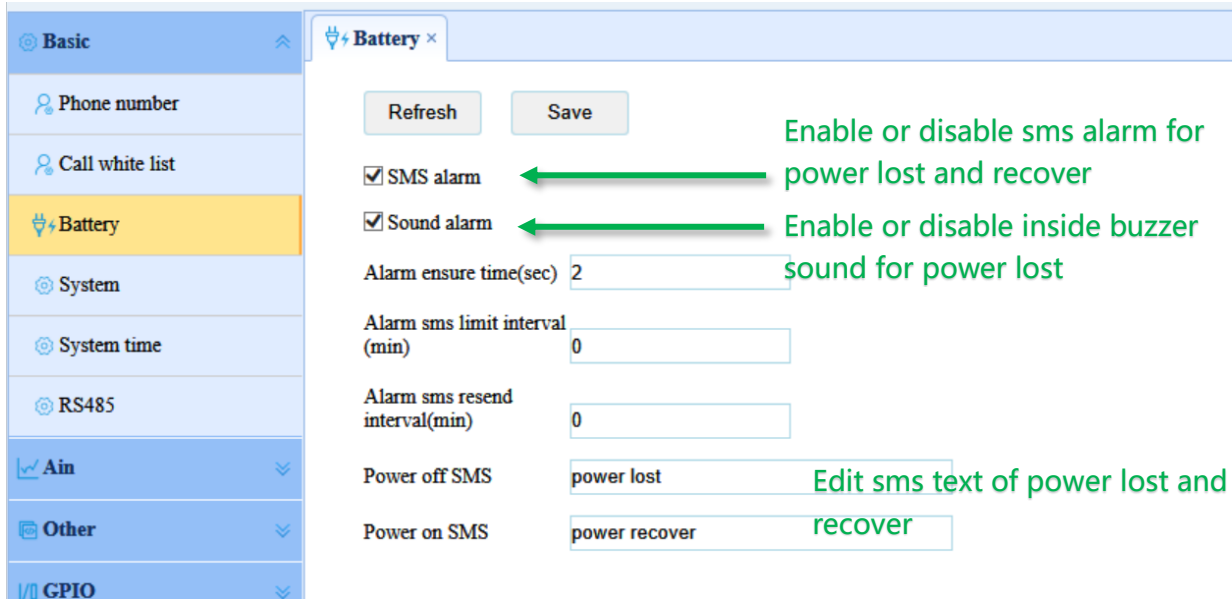
### 2.1 CS number

Device only sends sms (alarm SMS, report SMS etc.) to CS numbers and accept commands from CS numbers. Support preset 5 CS phone numbers, CS0-CS4



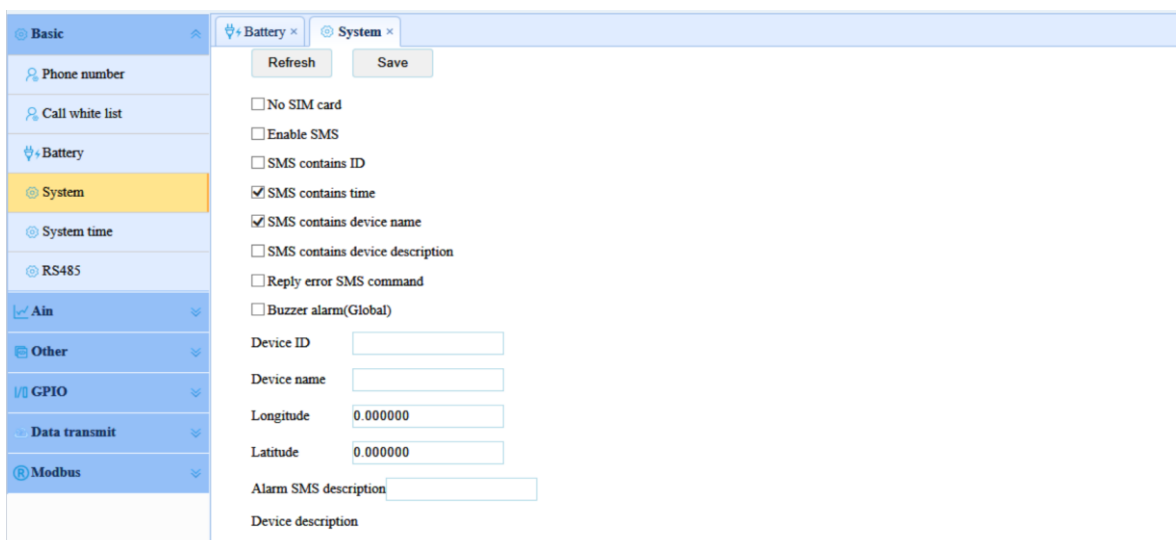
## 2.2 Battery

Inside battery can power supply for 6-8 hours when external power lost, and send alert sms.



Items	Explanation
Alarm ensure time (sec)	External power outage lasts longer than this time, it sends alert sms, default is 2 seconds.
Alarm sms limit interval (min)	Mean in this interval device only send sms one time even external power frequently lost and recover, it avoids sending lots of sms. Default is 0 that mean device always responds power lost.
Alarm sms resend interval (min)	During power outage, how often does the device send an alarm sms

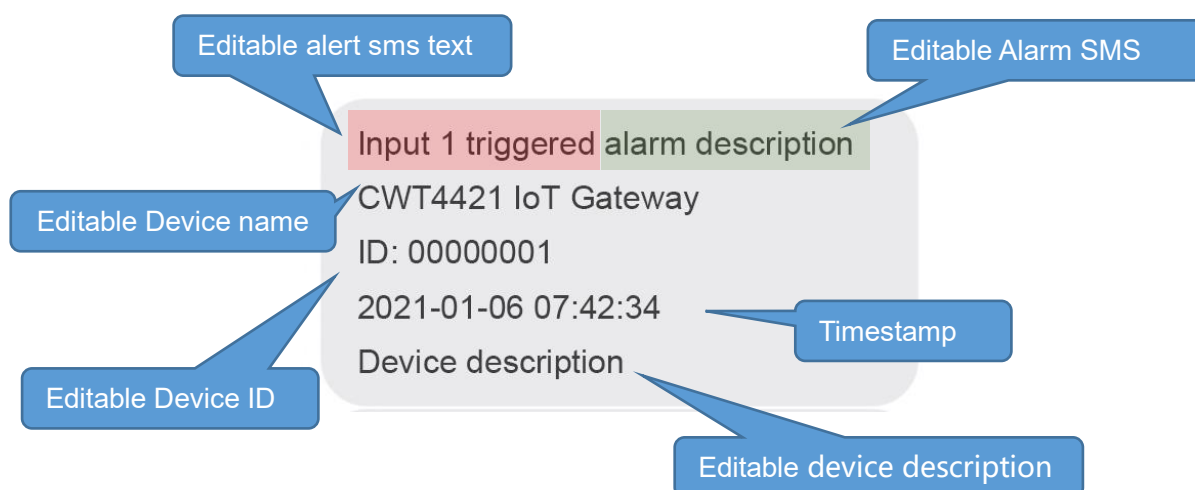
## 2.3 System



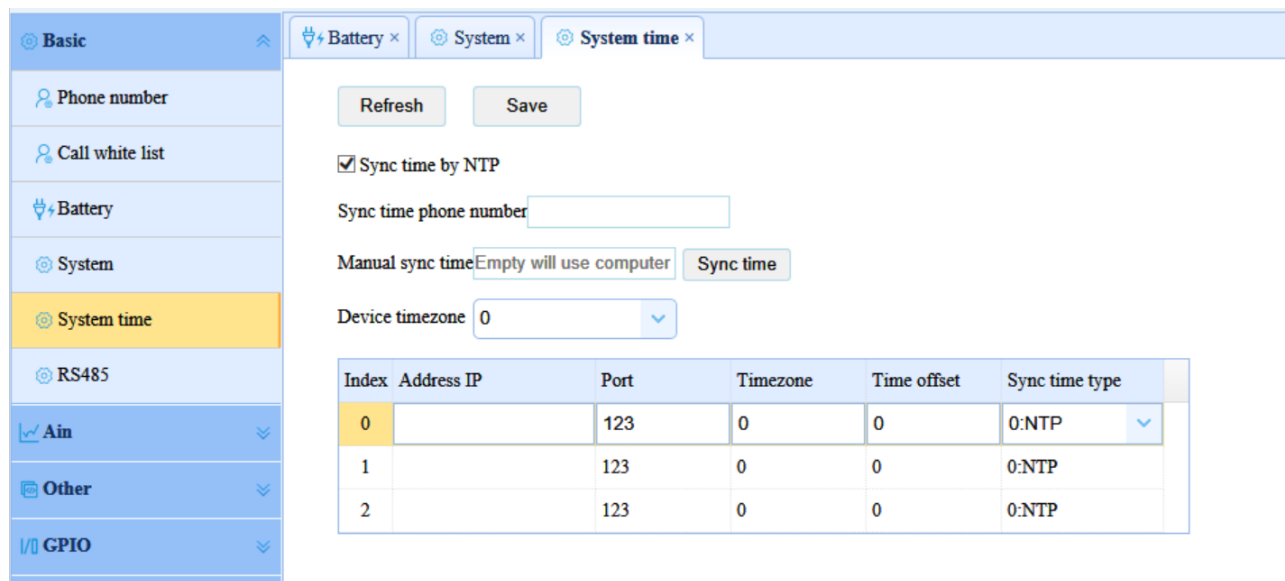
Items	Explanation
<input type="checkbox"/> No SIM card	Check this, device works without simcard, sms and gprs are no longer valid
<input type="checkbox"/> Enable SMS	Enable or disable sms sending
<input type="checkbox"/> SMS contains ID	If show ID or not in sms
<input checked="" type="checkbox"/> SMS contains time	If show timestamp or not in sms
<input checked="" type="checkbox"/> SMS contains device name	If show device name or not in sms
<input type="checkbox"/> SMS contains device description	If show device description or not in sms
<input type="checkbox"/> Reply error sms command	If reply sms or not when receive error command from cs number
<input type="checkbox"/> Buzzer alarm (Global)	Enable or disable inside buzzer

Items	Explanation
Device ID	ID is 8 characters
Device name	Enable or disable sms sending
Longitude	Location info, send to server by gprs when startup
Latitude	Location info, send to server by gprs when startup
Alarm SMS description	Show in alert sms
Device description	Show in sms

Sms sample:



## 2.4 System time



Index	Address IP	Port	Timezone	Time offset	Sync time type
0		123	0	0	0:NTP
1		123	0	0	0:NTP
2		123	0	0	0:NTP

There are 3 ways to synchronize time

### 1) By sms

Sync time phone number

Enter a phone number here, device sends sms to the number request synchronize time when device startup, the number just reply sms 999

### 2) Manually set time

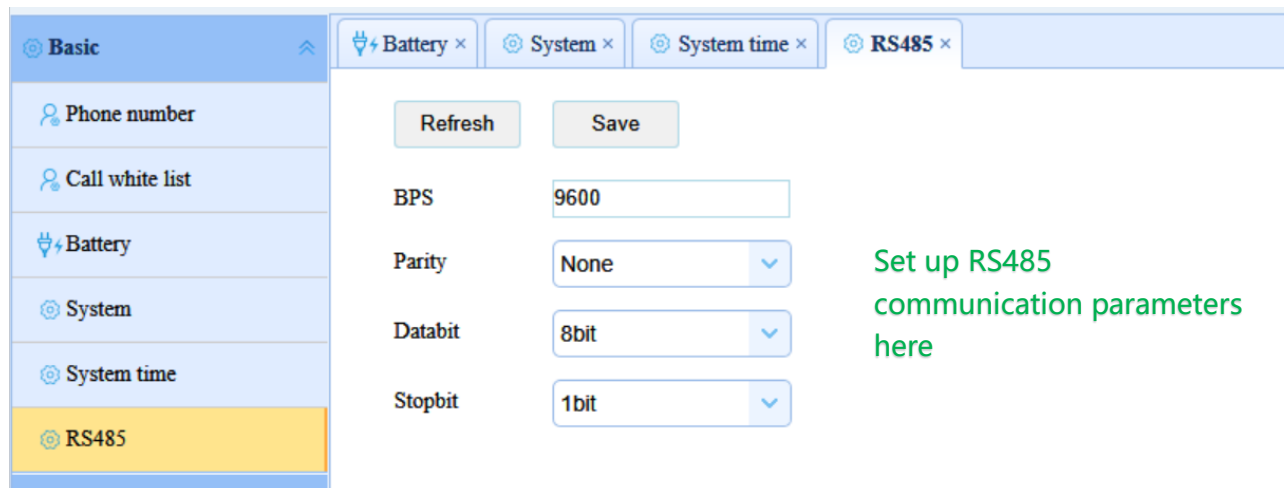
Manual sync time  Empty will use computer

Directly click button "Sync time"

### 3) By NTP

Enter NTP server address, device automatically get time from NTP server when startup

## 2.5 RS485 parameters

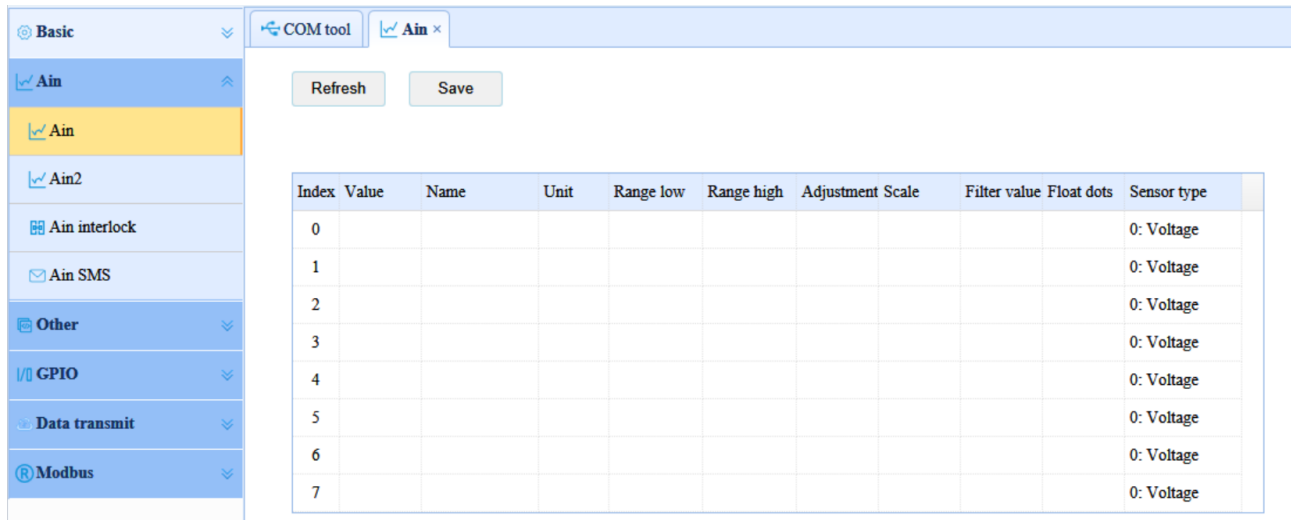


Set up RS485 communication parameters here

### 3 ANALOG INPUT

#### 3.1 Ain data acquisition parameters

The analog input accept 0~20mA, and can convert 4-20mA to actual measuring value

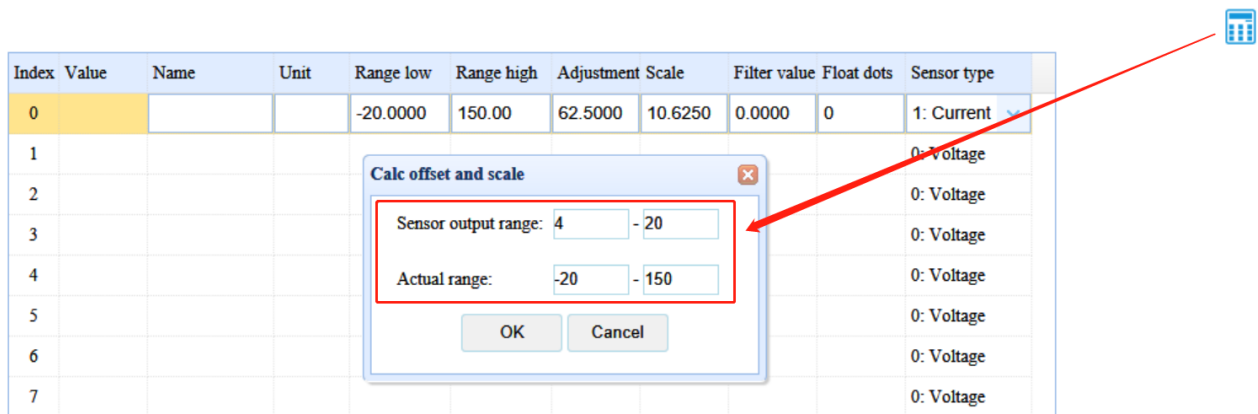


Index	Value	Name	Unit	Range low	Range high	Adjustment Scale	Filter value	Float dots	Sensor type
0									0: Voltage
1									0: Voltage
2									0: Voltage
3									0: Voltage
4									0: Voltage
5									0: Voltage
6									0: Voltage
7									0: Voltage

#### Example:

Ain0 connect a temperature sensor, measuring range of the sensor is -20°C~150°C, analog output is 4-20 mA, convert 4-20mA to actual measuring value, set as below

Refresh Save



Index	Value	Name	Unit	Range low	Range high	Adjustment Scale	Filter value	Float dots	Sensor type	
0				-20.0000	150.00	62.5000	10.6250	0.0000	0	1: Current
1										0: Voltage
2										0: Voltage
3										0: Voltage
4										0: Voltage
5										0: Voltage
6										0: Voltage
7										0: Voltage

**Calc offset and scale**

Sensor output range:  -

Actual range:  -

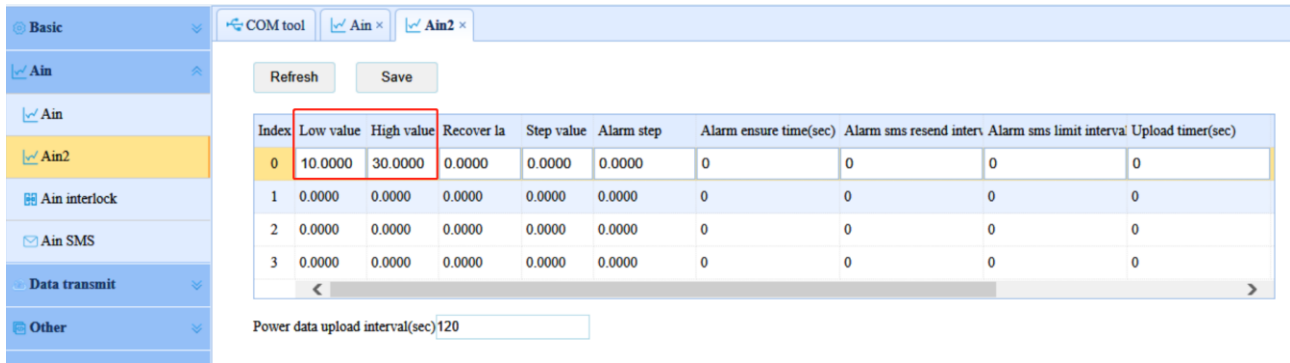
OK Cancel

Items	Explanation
Value	Measuring value
Name	Channel name, shows in sms
Unit	shows in sms
Range low	the max value of the measurement of sensor
Range high	the min value of the measurement of sensor
Adjustment	Measuring value=output value×scale - adjustment




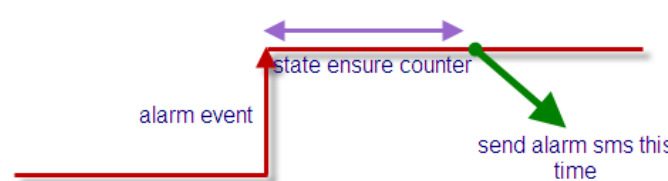
Scale	
Filter value	Don' t need to set
Float dots	The number of decimal places reserved
Sensor type	Sensor signal output type, 0: voltage; 1: current (default)

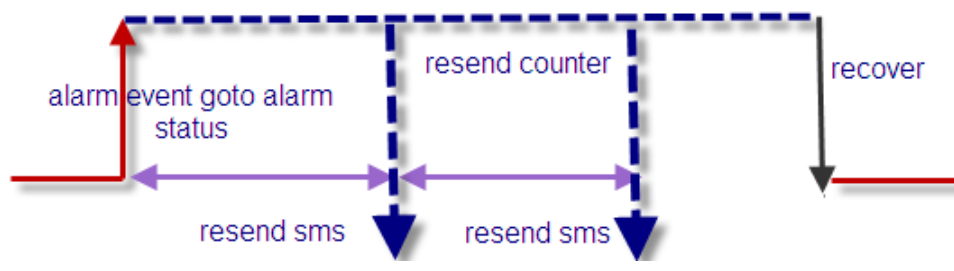

In "Ain2" page, more parameters can be setup  
 e.g., set Ain0 alarm above 30°C and below 10°C



Index	Low value	High value	Recover la	Step value	Alarm step	Alarm ensure time(sec)	Alarm sms resend interv	Alarm sms limit interval	Upload timer(sec)
0	10.0000	30.0000	0.0000	0.0000	0.0000	0	0	0	0
1	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0
2	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0
3	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0

Power data upload interval(sec) 120

Items	Explanation
Low value	If current value is out of low or high, device send sms and data to server
High value	
Recover lag	<p>Set lag to avoid sending lots of alarm/recover sms around alarm value. "0" means disable the function.</p> 
Step value	When the changing value of this channel (current value compare to last uploaded value) reaches the "step" , it uploads data one time by GPRS
Alarm ensure time(sec)	<p>The ensure time delay device alert action (send alert sms and upload data).</p> <p>If alarm is recovered in this time, alert action release, it avoids error alarm.</p> 

Alarm sms resend interval)	<p>Device alert at regular intervals in alert status</p> 
Alarm sms limit interval	<p>Mean in this interval device only alert one time even triggered again, it avoids sending lots of sms. Default is 0 that mean device always responds alert</p> 
Upload timer(sec)	The interval of upload data
Sensor type	Sensor signal output type, 0: voltage; 1: current (default)
SMS alarm	Enable or disable alert sms sending of this channel
Recover SMS	Enable or disable recover sms sending of this channel
Disconnect SMS	When the sensor is disconnected, alert sms sends or not (Yes or No)
Sound alarm	Enable or disable buzzer sound for this channel (Yes or No)

### 3.2 Ain interlock

In this page, can set Ain at high and low point automatically activate any output

E.g., Ain0 activate output0 on at high point, and activate output 1 pulse 10 seconds, set as follow.

Index	High interlock	High interlock type	Low interlock	Low interlock type	Interlock pulse time(sec)	Alarm->user cmd	Recover->user cmd
0	0: Output0	1: ON	1: Output1	2: Pulse	10	0: User comr	0: User commn
1	0: Output0	0: OFF	0: Output0	0: OFF		0: User command0	0: User command
2	0: Output0	0: OFF	0: Output0	0: OFF		0: User command0	0: User command
3	0: Output0	0: OFF	0: Output0	0: OFF		0: User command0	0: User command

### 3.3 Ain SMS

Basic

Ain

Ain

Ain interlock

Ain SMS

Other

GPIO

Data transmit

Modbus

COM tool ×

Ain SMS ×

Refresh

Save

Index	Alarm SMS	Recover SMS
0		
1		
2		
3		

Edit alarm and recover sms text for each Ain

## 4 DIGITAL INPUT AND OUTPUT

### 4.1 input

Basic

Ain

Other

GPIO

Counter

Counter interlock

Counter SMS

Input

Input SMS

COM tool ×

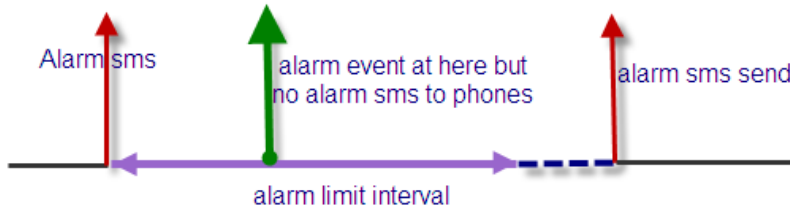
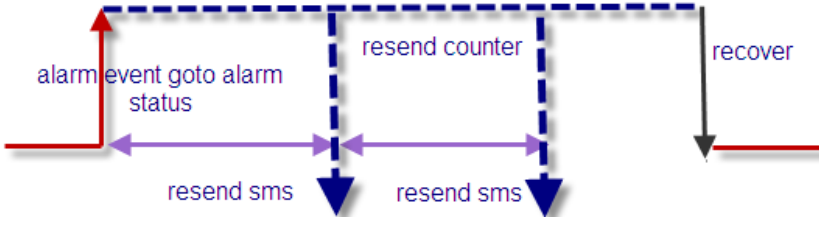
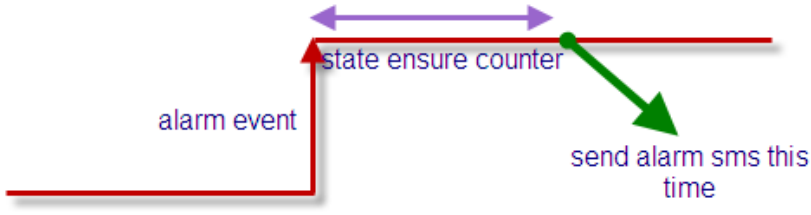
Input ×

Refresh

Save

Index	State	Normal state	Alarm sms limit inte	Alarm sms resend in	Alarm ensure time(s)	SMS alarm	Sound alarr
0	0	OFF	0	0	0	Y	Y
1	0	OFF	0	0	0	Y	Y
2	0	OFF	0	0	0	Y	Y
3	0	OFF	0	0	0	Y	Y

Items	Explanation
State	Show digital input real-time state, 0: open 1: close
Normal state	Set on or off as normal state, E.g., off is normal, when Di get on, it alarms
Alarm sms limit interval(min)	Mean in this interval, device only alert one time even trigger again, it avoids sending lots of sms. Default is 0 that mean device always responds alert.

	
Alarm sms resend interval(min)	<p>Device alert at regular intervals in alert status</p> 
Alarm ensure time(sec)	<p>The ensure time delay device alert action (send alert sms and upload data). If alarm is recovered in this time, alert action release, it avoids error alarm.</p> 
SMS alarm	Enable or disable alert sms sending of this channel
Sound alarm	Enable or disable buzzer sound for this channel (Yes or No)

## 4.2 Input sms

Basic

Ain

Other

GPIO

Counter

Counter interlock

Counter SMS

Input

Input SMS

Output

COM tool ×

Input ×

Input SMS ×

Refresh

Save

Index	Alarm SMS	Recover SMS
0		
1		
2		
3		

Here edit alarm sms and recover sms for each channel

### 4.3 Output

Basic

Ain

Other

**GPIO**

Counter

Counter interlock

Counter SMS

Input

Input SMS

**Output**

COM tool ×

Input ×

Input SMS ×

**Output ×**

Refresh

Save

☐ Allow non-CS number control output(PWD+space+IOOHx/IOOLx)

Siren alarm time(sec) 

Stop siren alarm

Index	State	Pulse time(sec)	Siren	Save output state
0	0	10	N	N
1	0	10	N	N

Items	Explanation
State	Show digital output real-time state, 0: off    1: on
Pulse time(sec)	The time of holding on
Siren	If check the siren, mean this output automatically turn on when device any alert event happens The activate time is settable. Default is 300s Siren alarm time(sec) <input type="text" value="300"/>
Save output state	after device start up, output get back to the last state

output only can be manually activated by sending sms command from admin cell phone or TCP command from server.

Common command:

Output action	command	Explanation
On	IOOH<n>	<n> represent output sequence number. e.g., let output 0 on, admin phone sends sms IOOH0 to RTU
Off	IOOL<n>	
Pulse (hold on 1 second then off)	IOOP<n>	

☐ Allow non-CS number control output(PWD+space+IOOHx/IOOLx)

If check this box, any number (not cs number) can send sms to activate output.

Sms format is password command

Default password is 000000

E.g., any number turn on output0, send sms: 000000 iooh0

## 5 DATA TRANSMIT

### 5.1 Ethernet

Setup Ethernet parameters in this page, like IP address

Basic

Ain

Other

GPIO

Data transmit

**Ethernet**

GPRS

Parameter upload

WiFi config

Modbus

COM tool

Ethernet ×

Refresh

Save

☐ DHCP

MAC address

Current IP

Gateway

Mask

DNS1

DNS2

Static parameters(DHCP not checked)

Static IP

### 5.2 GPRS

Refresh

Save

☐ DTU transparent transmission

CWTIO-ID

Data upload timer(sec)

HTTP POST address

Set to the default cloud server

Index	Server address	Port	TCP/UDP	Data protocol	Heartbeat tim	Heartbeat packet	Heartbeat format	Register mess
0		0	0: TCP	0: CWTIO	0		0: Hex	
1		0	0: TCP	0: CWTIO	0		0: Hex	
2		0	0: TCP	0: CWTIO	0		0: Hex	
3		0	0: TCP	0: CWTIO	0		0: Hex	

Device can connect 4 server and optional multiple communication protocol

Items	Explanation
Server address	IP or domain
port	TCP port
TCP/UDP	Choose TCP or UDP transmit mode
Data protocol	Learn more in protocol manual
Heartbeat time	It is a regular interval for sending heartbeat to hold connection with server

Heartbeat packet	Set heart packet content, like 000, or can be null
Heartbeat format	Hex or characters
Register message	The message is sent to server one time when device start up

### 5.3 Wi-Fi config

Setup Wi-Fi parameters in this page, like IP address

Basic

Ain

Other

GPIO

Data transmit

Ethernet

GPRS

Parameter upload

WiFi config

Modbus

COM tool

Ethernet ×

Parameter upload ×

WiFi config ×

Refresh

Save

Static IP

Gateway

Netmask

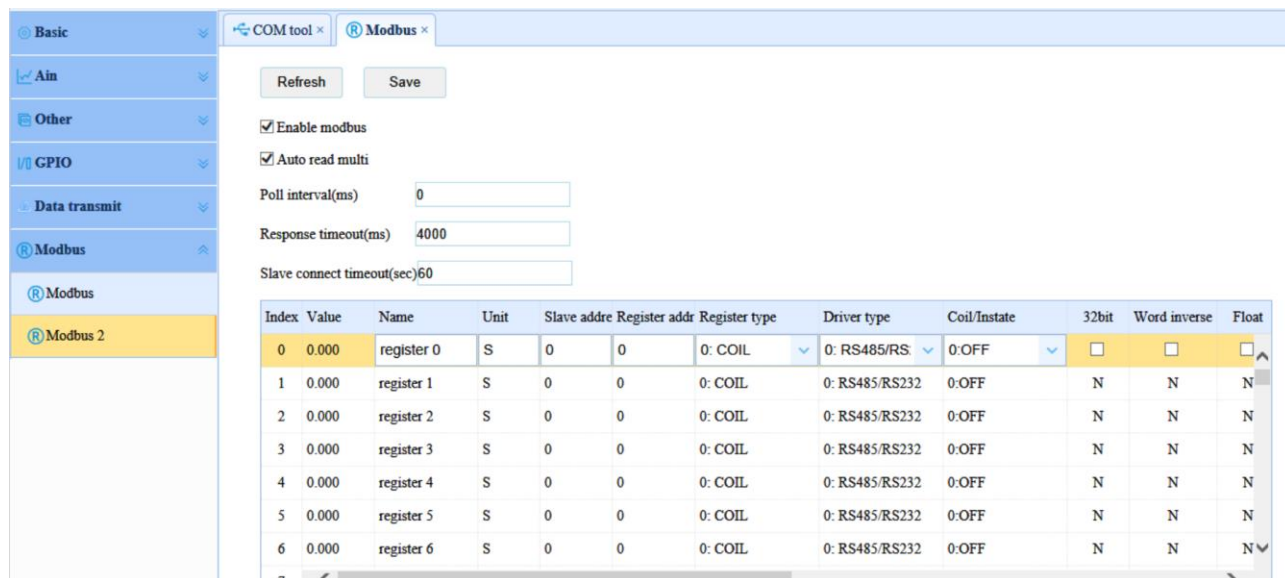
State

Index	SSID(WiFi name)	Password
0		
1		
2		
3		
4		

set Wi-Fi name and password

## 6 MODBUS

### 6.1 Modbus



Index	Value	Name	Unit	Slave address	Register address	Register type	Driver type	Coil/Instate	32bit	Word inverse	Float
0	0.000	register 0	S	0	0	0: COIL	0: RS485/RS	0: OFF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	0.000	register 1	S	0	0	0: COIL	0: RS485/RS232	0: OFF	N	N	N
2	0.000	register 2	S	0	0	0: COIL	0: RS485/RS232	0: OFF	N	N	N
3	0.000	register 3	S	0	0	0: COIL	0: RS485/RS232	0: OFF	N	N	N
4	0.000	register 4	S	0	0	0: COIL	0: RS485/RS232	0: OFF	N	N	N
5	0.000	register 5	S	0	0	0: COIL	0: RS485/RS232	0: OFF	N	N	N
6	0.000	register 6	S	0	0	0: COIL	0: RS485/RS232	0: OFF	N	N	N

Modbus communication mode:

It's master, can read 48 registers from slave over RS485

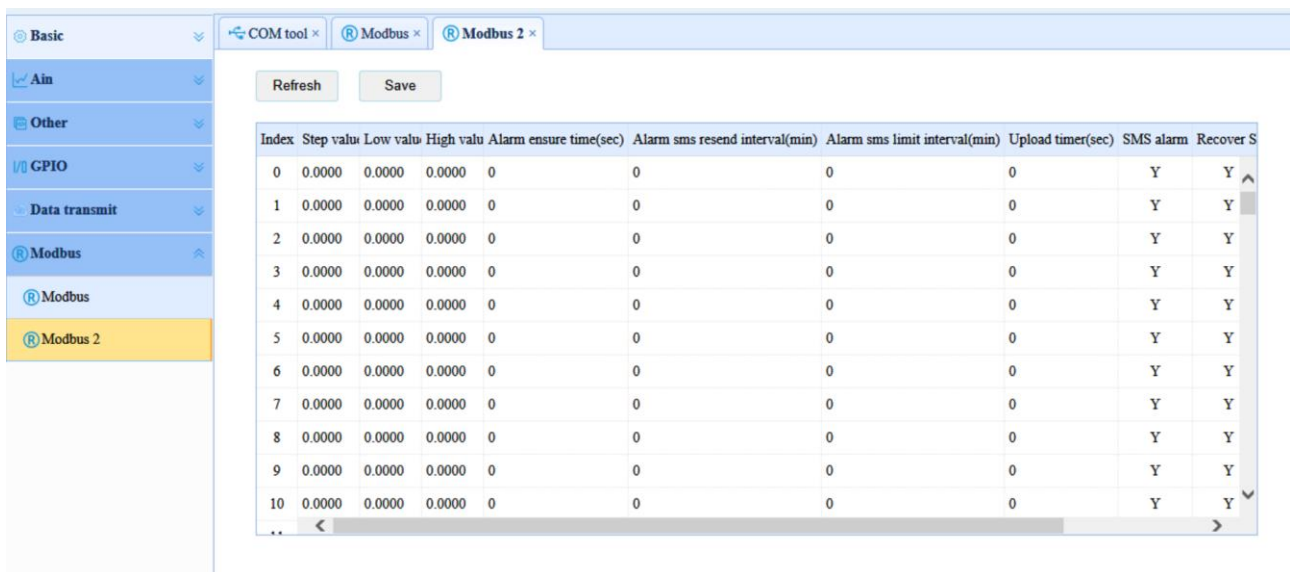
48 lines represent 48 registers

Items	Explanation
Value	Value=register value*scale-adjustment Scale and adjustment can be set below
Name	The register name can be show in sms
Unit	The unit can be show in sms
Slave address	slave id
Register address	Offset address (DEC), E.g., target register address is 42001, enter 2001 here
Register type	Register type COIL: function code is 01, address range: 0XXXXX KEEP: function code is 03, address range: 4XXXXX INPUT: function code is 04, address range: 3XXXXX INSTATE (Discrete): function code is 02, address range: 1XXXXX
Driver type	Read register over RS485 or RS232
Coil/Instate	It is valid for Coil/Instate type register, can set off or on as normal state.
32 bit	It is valid for input and keep type register, device read 32 registers if check

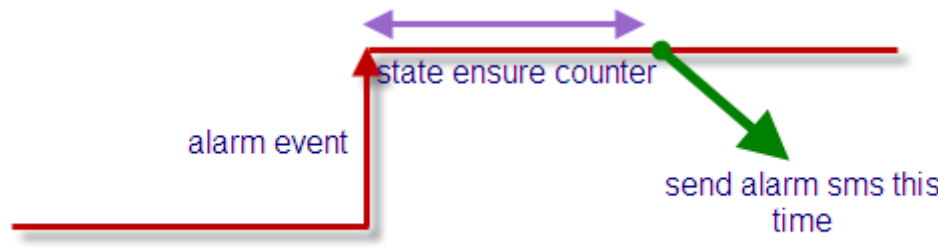
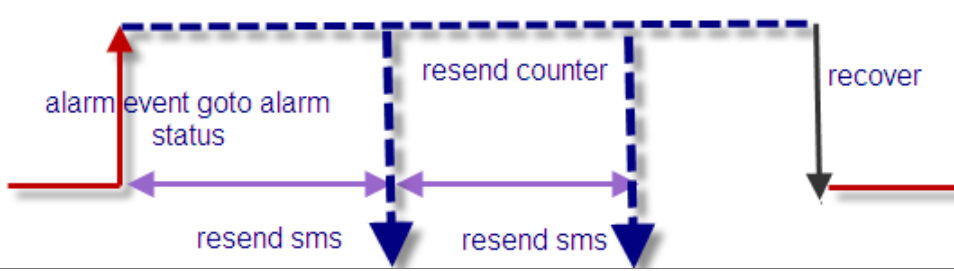
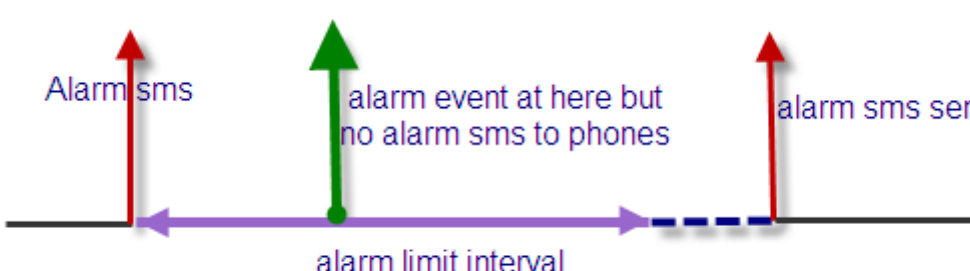


	the box, reading 16bit register is default
Word inverse	When read 32bit register, can choose high 8byte or low 8byte ahead. According to slave register description to choose
Float	Need to check it for Float type register
unsigned	Register data type
Byte inverse	can choose high 8bit or low 8bit ahead. According to slave register description to choose
Mask alarm	Enable or disable Mask alarm
Mask normal	If 0 is normal, value&mask value>0, it alarm If 1 is normal, value&mask value=0, it alarm
16bit	Read 16bit register
Mask value	It' s a 8bit binary number
Adjustment	Value=register value*scale-adjustment
Scale	Value=register value*scale-adjustment

## 6.2 Modbus 2



Items	Explanation
Step value	When the changes value of this channel (current value compare to last uploaded value) reaches the "step" , it uploads data one time by GPRS
Low value	If current value is out of low or high, device send sms and data to server
High value	
Alarm ensure time(sec)	The ensure time delay device alert action (send alert sms and upload data). If alarm is recovered in this time, alert action release, it avoids error alarm.

	 <p>alarm event</p> <p>state ensure counter</p> <p>send alarm sms this time</p>
Alarm sms resend interval (min)	<p>Device alert at regular intervals in alert status</p>  <p>alarm event goto alarm status</p> <p>resend counter</p> <p>recover</p> <p>resend sms</p> <p>resend sms</p>
Alarm sms limit interval (min)	<p>Mean in this interval device only alert one time even alert triggered again, it avoids sending lots of sms. Default is 0 that mean device always responds alert</p>  <p>Alarm sms</p> <p>alarm event at here but no alarm sms to phones</p> <p>alarm sms sen</p> <p>alarm limit interval</p>
Upload timer(sec)	The interval of upload data
SMS alarm	Enable or disable alert sms sending of this channel
Recover SMS	Enable or disable recover sms sending of this channel
Disconnect Sms	When the sensor is disconnected, alert sms sends or not (Yes or No)
Sound alarm	Enable or disable buzzer sound for this channel (Yes or No)