RCW-400A

USER GUIDE

Version 1.1

Keep Running After Power–off User–friendly Interface

User Guide

Chapter I Product Introduction

1.1 Overview

Coldwatch RCW-400A is a four way temperature/humidity data logger with a wide temperature range and high precision. Segment LCD screen can display the system clock, current running status, record capacity and record data. It has functions of buzzer and relay alarm. It can transmit data wirelessly by 3G to our cold chain cloud platform, and users can check real-time temperature/humidity data through internet terminals and receive SMS (short message service) alarms by GSM. Users can view, manage and monitor data online remotely by browser or smart phone APP.

The standard accessories include one temperature sensor and one humidity sensor, which can be doubled into two temperature sensors and two humidity sensors. Coldwatch has a built-in rechargeable lithium battery which enables continuous real-time data uploading and SMS alarms even in case of power outage.

The product could be widely used in foodstuff, medicine, restaurant, transportation and other industries in accordance with HACCP system certification.

1.2 Features and functions

- Monitor running status of cold storage
- Over temperature/humidity SMS alarm function
- Keep working for at least 6 hours after power off
- Two alarm output: buzzer alarm and relay alarm
- Monitor and record temperature and humidity data
- Record cycle could be flexibly adjusted.
- The device record capacity is 20000 points, with no data storage restriction in server.
- The device can communicate with our cloud platform, which allows real-time remote monitoring, uploading, printing and managing record data.

Chapter II Instructions for Use

2.1 Product Display

2.1.1 Interface

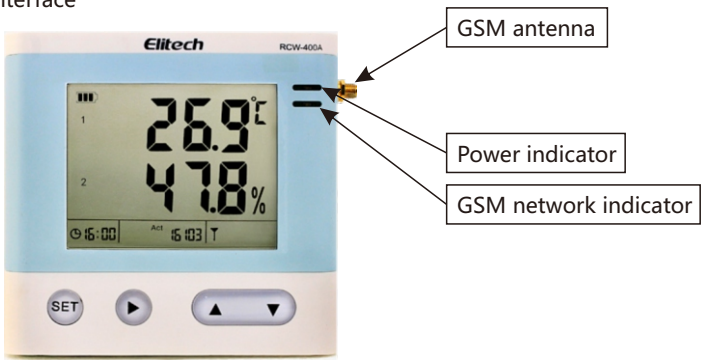


Figure 1

2.1.2 LCD display

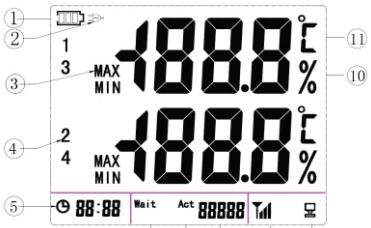


Figure 2

(1) Battery display	(7) Record number
(2) Power on/off indicator	(8) GSM network signal strength
(3) Over limit alarm indication: MAX—Over upper limit alarm MIN—Over lower limit alarm	(9) 3G network platform indicator
(4) Sensor channel display	(10) Humidity unit
(5) Date and time display	(11) Temperature unit
(6) Recording status indicator Wait—Wait to record Act—Recording	

2.1.3 Alarm display

2.1.3.1 Sensor alarm

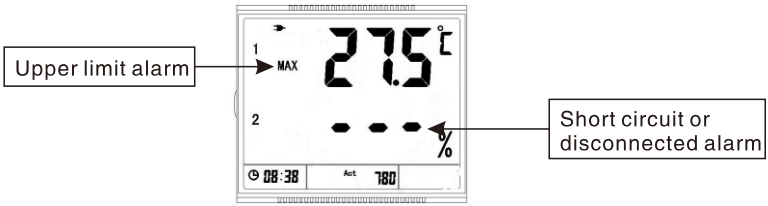


Figure 3

2.2 Installation

2.2.1 Accessories installation

The symbols shown in wiring label have the meaning as below:

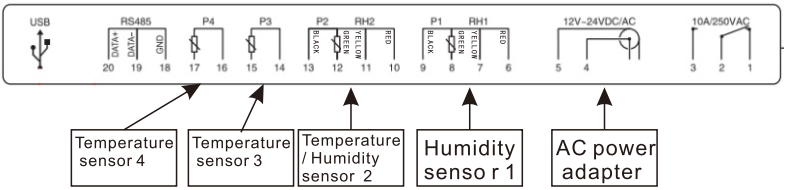


Figure 4

(1) Wiring label

(2) AC power adapter

(3) Humidity sensor 1 : humidity sensor inserts to 6 7 8 9;

(4) Temperature and humidity sensor multiplexing 2; temperature sensor inserts to 12 13; humidity sensor inserts to 10 11 12 13;

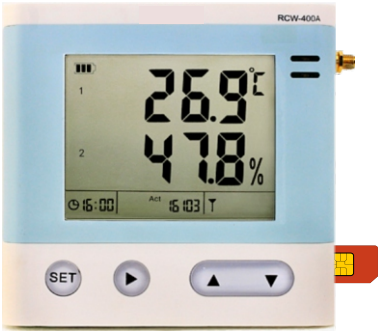
(5) Temperature sensor 3 (optional);

(6) Temperature sensor 4 (optional);

(7) USB and RS485 interface is reserved for future extension.

2.2.2 SIM card installation

Please use cellphone SIM card, and ensure the card has enough credit. If you do not know the correct type of SIM card, please contact the supplier. Please disconnect the external power supply before you change the SIM card. (Only support the microSIM of WCDMA system)

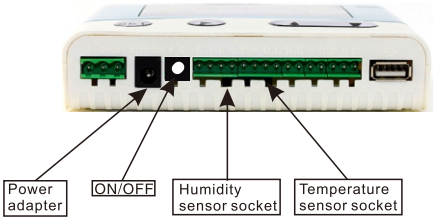


2.2.3 SIM card replacement

(1) Switch off the monitor and change SIM card. Then switch it on again.

(2) After replacement, the previous bound cellphone number still exists, please do not repeat binding.

2.2.4 Product installation diagram



2.3 Use Instruction

2.3.1 User guide

(1) Insert a SIM card which is of normal use with 3G flow rate available into the monitor.

(2) Connect the temperature or humidity sensor needed.

(3) Connect the external power, press the On/Off button to switch on the monitor.

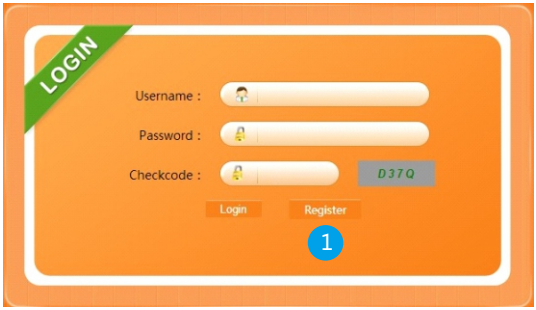
(4) Wait for the display to show GSM network signal, send SMS setting and APN in accordance with SIM operator (If APN is set, there is no need to repeat setting.) and receive a SMS receipt indicating a successful setup.

(5) Wait until 3G network platform indicator icon shows, indicating that the monitor starts successfully.

2.3.2 Platform registration

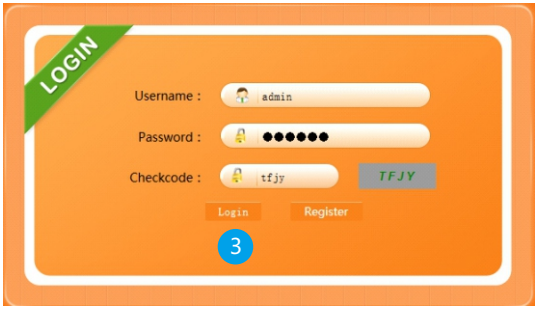
Visit website: http://www.i–elitech.com

Step 1: Register account



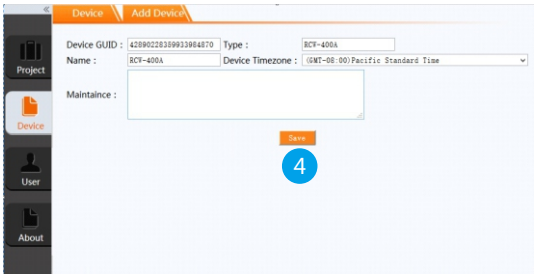
Step 2: Submit information

Step 3: Log in the platform

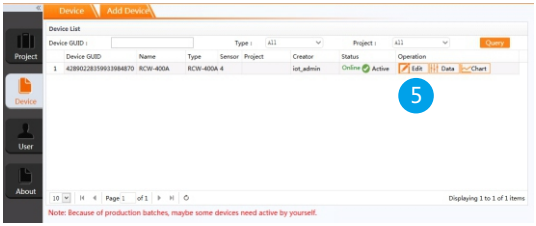


Add devices in the platform

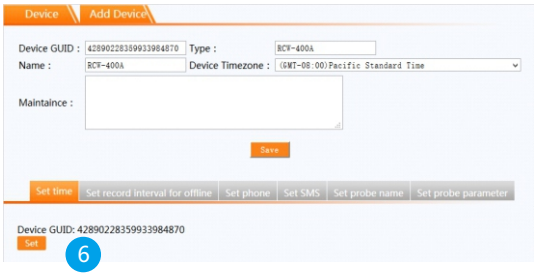
Step 4: send the command [id] via cellphone message to the device cellphone to acquire ID number



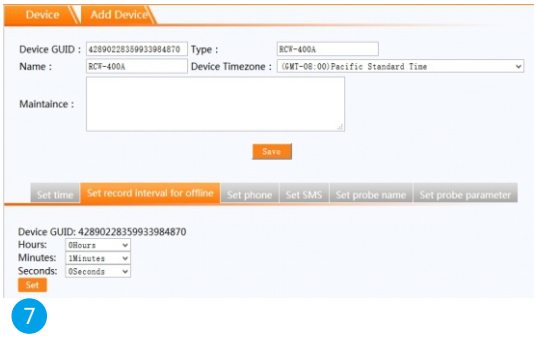
Step 5: After the adding of devices is finished, in the status column, it displays the status of “online activated”, then click “Edit” to set the device parameters.



Device parameter setting in the platform
Step 6: Set the time of the device



Step 7: Set offline record interval—If the device keeps offline for a long time (for example, no credit in the SIM card), it is suggested setting a long record interval in order to record data in a long term.



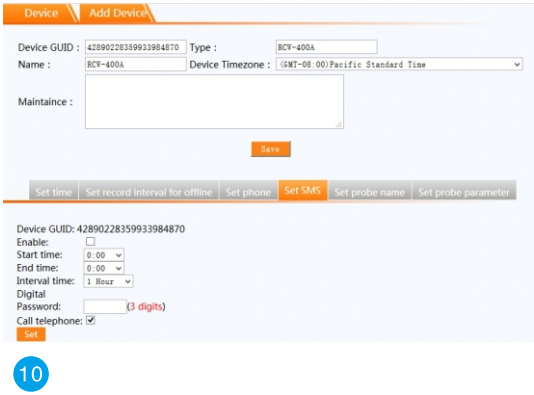
Step 8: Synchronize cellphone number

Step 9: Set the bound cellphone number

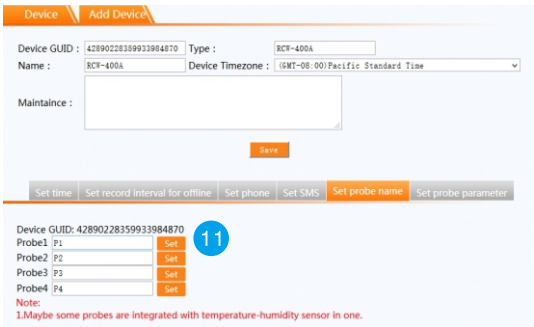
Click “Set” to bind cellphone number. This can be achieved by sending a cellphone short message.

The bound cellphone number can be displayed in current interface.

Step 10: Set short message

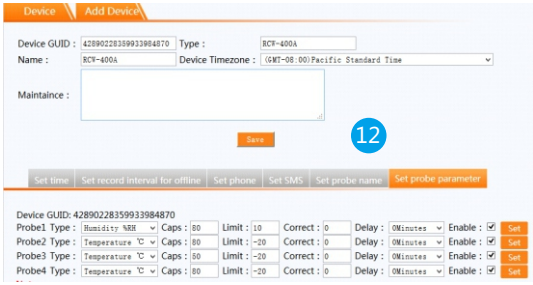


Step 11: Set probe name



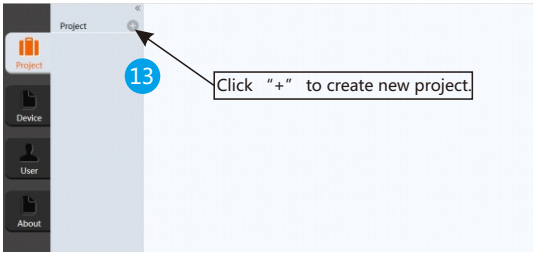
Step 12: Set probe parameters

1) Set upper/lower limit of probes.
2) Modify the deviation of temperature and humidity. This function is only available for administer. For common users, it is invisible.
3) Alarm delay time; unit: minute.
4) After finishing setting, check “Enable” and then click “SET” to finish probe setting.



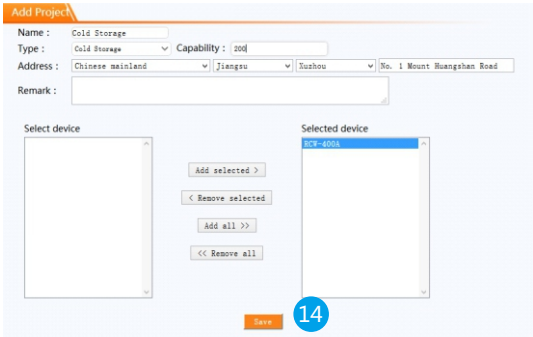
Create project in the platform

Step 13: Create project



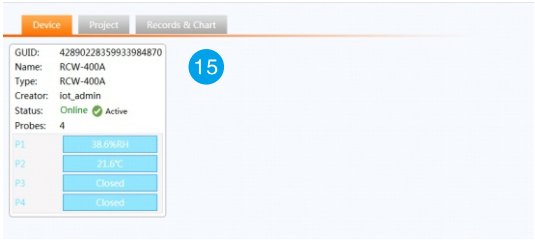
Step 14: Edit project information

1. Edit the name of project, the type of project, and storage volume (cold storage volume).
2. It displays all added devices in the column of "Select devices". Select certain device (such as medicine storage shown in the following diagram), and click "Add" button, then it will appear in the column of "selected devices". Click "Save" button to finish project creating. In next figure, it has created a medicine project, which uses medicine cold storage device.

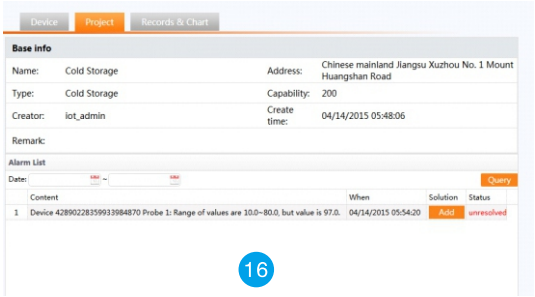


Browse project function

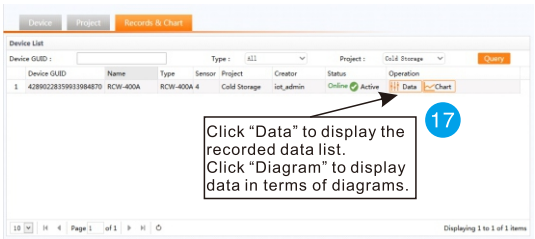
Step 15: Device overview—display device list in the format of squares



Step 16: Project information—display the basic project information and alarm list information



Step 17: Data record—display the recorded data and diagram of the device



Cellphone Operation Guide
SMS setting command list

Aim	Message user sent	Message device received	Operating instruction
Get the device GUID	「id」	12345678912 345678912	Get the device GUID
APN settings	「#apn#username #password#」	APN Set successfully	Set APN.

SMS query command

Aim	Message user sent	Message device received	Operating instruction
Query cold storage status	「qs」	(Reply) P1: temperature 12.1℃, normal; P2: humidity 40%RH, normal; power supply normal.	Query current temperature and power supply status of cold storage.
		(Reply) P1: temperature 12.1℃, normal; P2: humidity 40%RH, normal; power supply normal.	
		(Reply) P1: temperature 12.1℃, over upper limit; P2: humidity 40%RH, below lower limit; power supply normal.	
Wrong command		Wrong command, send 「code」 to query device code.	Only bound cellphone users receive this message when sending wrong command.

Push message cellphone received

Aim	Message device received	Operating instruction
Over limit alarm	(alarm) P1: temperature 30.4℃, over upper limit; the device is alarming now ! To cancel alarm, please dial the phone of the device.	
	(alarm) P2: humidity 40%RH , over upper limit; the device is alarming now! To cancel alarm, please dial the phone of the device.	
	(alarm) P1: temperature 30.4℃, over lower limit; the device is alarming now! To cancel alarm, please dial the phone of the device.	
	(alarm) P2: humidity 50%RH , over lower limit; the device is alarming now! To cancel alarm, please dial the phone of the device.	
Relieve alarm	P1 temperature 10.4℃, and alarm is relieved!	
Sensor abnormity	(Alarm) Probe is not connected.	
Cold storage power outage	(Alarm) Power supply abnormal. Please check it soon.	
Cold storage power connection	(Abnormity recovered) Power is connected.	
Low battery warning	(Alarm) Power outage and device will be power off soon. Please check it asap.	

Chapter III Technical Parameters

- Power supply: 12V/2.5A(DC);
- Temperature measuring range: -40℃ ～70℃ ;
- Temperature accuracy: ± 1 ℃ (-25 ℃ ~ 0℃); ± 0.5 ℃ (0 ℃ ~ 40℃); ± 2 ℃ (others); (If sensor wire is longer than 50m, accuracy deviates 1%.)
- Temperature resolution: 0.1;
- Humidity measuring range: 10～90%RH;

◇ Humidity accuracy: ±5%RH (typical) (25℃ , 30～80%);
±5%RH (10℃ , 30～80%);
±5%RH, (40℃ , 30～80%);
◇ Temperature sensor type: NTC;
◇ Humidity sensor type: SHT21;
◇ Record cycle: 1 min to 24 hours continuously set;
◇ Record capacity: each channel 20000 points (Max);
◇ Applicable environment: temperature -10 ℃ ~ 45 ℃ ;
elative humidity 30% ~ 70%;
Indoor use only, prohibited from exposure to rain and sun.
◇ Alarm output: buzzer and relay;
◇ Communication interface: 3G, SMS;
◇ Sensor input interface: RH1 and RH2 input temperature or humidity;
◇ Standby battery: 3.7V 2200mAH lithium battery.

Chapter IV Accessory

4.1 Standard Accessories

- One Coldwatch RCW-400A device
- One temperature sensor (with 5m wire)
- One humidity sensor (with 5m wire)
- One user manual
- One power adapter

4.2 Device Optional Accessories

Temperature sensor
Humidity sensor
Temperature and humidity combined sensor

4.3【User guide of Elitech cold chain network platform】
Download address: http://www.i-elitech.com

Chapter V Troubleshooting

1. Data display shows "--.- ℃ " or " --.- %" .
   (1) Sensors are not connected or poorly connected! Please check whether connection wire color is consistent with the instruction of wiring label.
2. Cellphone could not be bound.
   (1) Check if there is signal in LCD display.
   (2) Check if there is enough credit in the device' s SIM card. Remove SIM card from the device and insert into a cellphone to check.
   (3) Check if there has a reliable signal around the device.
3. Cancel phone call alert
   (1) After receiving an alarm message or alarm call, dial the device' s phone, alert could be canceled when you hear the hanging up of the device.
4. Big temperature and humidity data error
   (1) Do not put probe lines and high-voltage power lines together.
   (2) If extending probe line, please solder the connection points by tin solder to ensure a good connection.
   (3) Open humidity probe housing to see if the white seal is removed. If not, please remove it.