



RCW-400A USER GUIDE

User Guide

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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

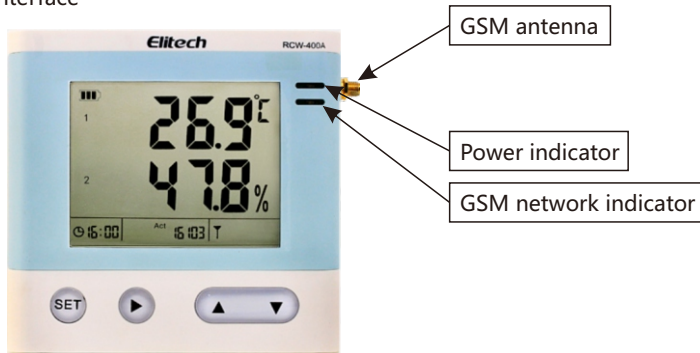


Figure 1

2.1.2 LCD display

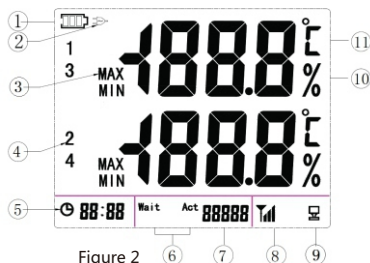


Figure 2

(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

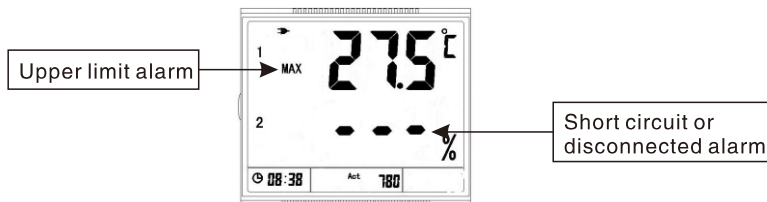


Figure 3

2.2 Installation

2.2.1 Accessories installation

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

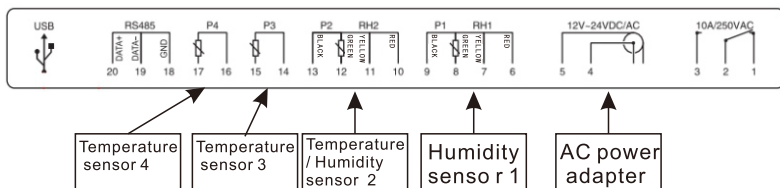


Figure 4

- (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

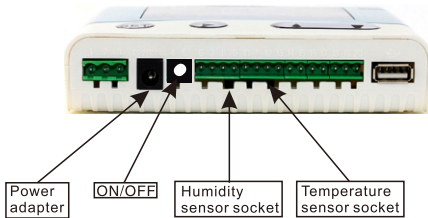
Please use cellphone SIM card, and ensure the card has enough credit. If you do not know the correct type of SIM card, please contact the supplier. Please disconnect the external power supply before you change the SIM card. (Only support the microSIM of WCDMA system)



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

LOGIN

Username :

Password :

Checkcode :

[Login](#) [Register](#)

1

Step 2: Submit information

Company Name :

Company address :

Company type :

Username :

Password :

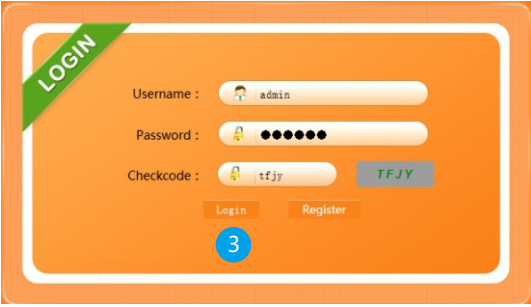
Confirm Password :

Telephone :

[Return](#) [Register](#)

2

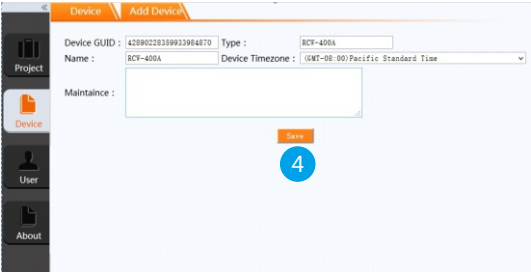
Step 3: Log in the platform



A login form with an orange background and a green diagonal banner in the top-left corner that says "LOGIN". The form contains three input fields: "Username" with the text "admin", "Password" with masked characters, and "Checkcode" with the text "tfjy" and a green button labeled "TFJY" to its right. Below the inputs are two buttons: "Login" and "Register". A blue circle with the number "3" is positioned at the bottom center of the form.

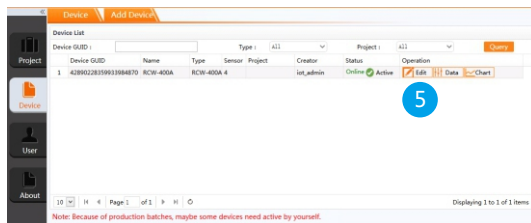
Add devices in the platform

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

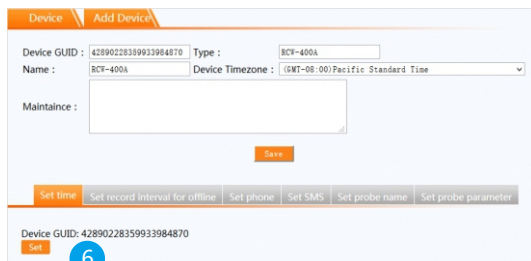


A web application interface for adding a device. It features a sidebar on the left with icons for "Project", "Device" (highlighted), "User", and "About". The main area has a title bar with "Device" and "Add Device" tabs. The form contains the following fields: "Device GUID" (42890228399932984870), "Type" (BCF-400A), "Name" (BCF-400A), and "Device Timezone" (GMT-08:00)Pacific Standard Time. There is a large empty text area for "Maintaince". A "Save" button is located at the bottom right. A blue circle with the number "4" is positioned below the "Save" button.

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.

Device Add Device

Device GUID : 42890228359933984870 Type : BCF-400a

Name : BCF-400a Device Timezone : (GMT-08:00)Pacific Standard Time

Maintaince :

Save

Set time Set record interval for offline Set phone Set SMS Set probe name Set probe parameter

Device GUID: 42890228359933984870

Hours: 0Hours

Minutes: 1Minutes

Seconds: 0Seconds

Set

7

Step 8: Synchronize cellphone number
Step 9: Set the bound cellphone number

Device Add Device

Device GUID : 42890228359933984870 Type : BCF-400a

Name : BCF-400a Device Timezone : (GMT-08:00)Pacific Standard Time

Maintaince :

Save

Set time Set record interval for offline Set phone Set SMS Set probe name Set probe parameter

Device GUID: 42890228359933984870

Administrator Phone: America/Canada 1

User Phone 1: America/Canada 1

User Phone 2: America/Canada 1

User Phone 3: America/Canada 1

User Phone 4: America/Canada 1

Note:
1: You can set blank phone to remove it.

8 Update

9 Set

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

The screenshot shows the 'Set SMS' configuration page. At the top, there's a 'Device' tab and an 'Add Device' button. Below this, the 'Device GUID' is 42890228359933984870, 'Type' is BCF-400A, 'Name' is BCF-400A, and 'Device Timezone' is (GMT-08:00)Pacific Standard Time. There's a 'Maintainance' text area. A 'Save' button is below. A navigation bar at the bottom includes 'Set time', 'Set record interval for offline', 'Set phone', 'Set SMS' (highlighted), 'Set probe name', and 'Set probe parameter'. Below the navigation bar, the 'Device GUID' is repeated, followed by 'Enable' (checkbox), 'Start time' (0:00), 'End time' (0:00), 'Interval time' (1 Hour), 'Digital' (checkbox), 'Password' (3 digits), and 'Call telephone' (checked). A 'Set' button is at the bottom.

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Step 11: Set probe name

The screenshot shows the 'Set probe name' configuration page. It has the same top section as Step 10. The navigation bar at the bottom includes 'Set time', 'Set record interval for offline', 'Set phone', 'Set SMS', 'Set probe name' (highlighted), and 'Set probe parameter'. Below the navigation bar, the 'Device GUID' is repeated, followed by a table for probe names:

Probe	Name	Set
Probe1	P1	Set
Probe2	P2	Set
Probe3	P3	Set
Probe4	P4	Set

Below the table is a 'Note' section: '1.Maybe some probes are integrated with temperature-humidity sensor in one.'

11

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 adminster. 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.

Device Add Device

Device GUID: 42890228359933984870 Type: RCY-400A

Name: RCY-400A Device Timezone: (GMT-08:00) Pacific Standard Time

Maintenance:

Save

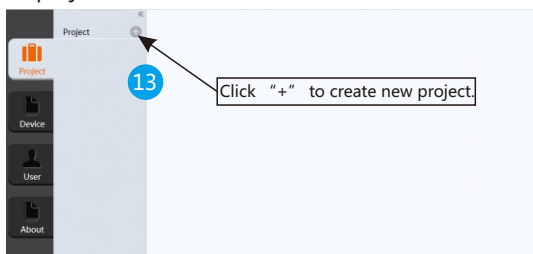
12

Set time Set record interval for offline Set phone Set SMS Set probe name Set probe parameter

Device GUID: 42890228359933984870	Probe1 Type: Humidity NRH	Caps: 80	Limit: 10	Correct: 0	Delay: 0Minutes	Enable: ☒	Set
Probe2 Type: Temperature	Caps: 80	Limit: -20	Correct: 0	Delay: 0Minutes	Enable: ☒	Set	
Probe3 Type: Temperature	Caps: 50	Limit: -20	Correct: 0	Delay: 0Minutes	Enable: ☒	Set	
Probe4 Type: Temperature	Caps: 80	Limit: -20	Correct: 0	Delay: 0Minutes	Enable: ☒	Set	

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.

Add Project

Name: Cold Storage

Type: Cold Storage Capability: 200

Address: Chinese mainland Jiangsu Suzhou No. 1 Mount Huangshan Road

Remark:

Select device

Selected device

RCY-400A

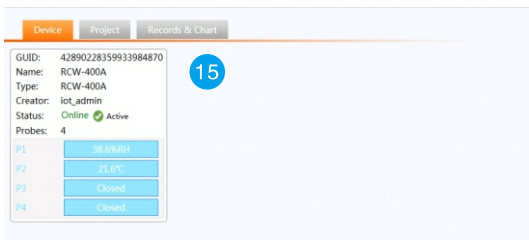
Add selected < Remove selected Add all >> << Remove all

Save

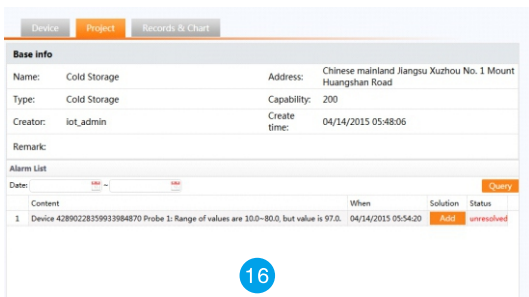
14

Browse project function

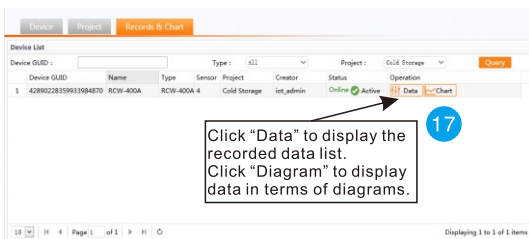
Step 15: Device overview—display device list in the format of squares



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°C, 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°C, 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°C, and alarm is relieved!	
Sensor abnormality	(Alarm) Probe is not connected.	
Cold storage power outage	(Alarm) Power supply abnormal. Please check it soon.	
Cold storage power connection	(Abnormality 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°C ~70°C ;
- ◇ Temperature accuracy: $\pm 1^{\circ}\text{C}$ (-25 °C ~ 0°C); $\pm 0.5^{\circ}\text{C}$ (0 °C ~ 40°C); $\pm 2^{\circ}\text{C}$ (others); (If sensor wire is longer than 50m, accuracy deviates 1%).
- ◇ Temperature resolution: 0.1;
- ◇ Humidity measuring range: 10~90%RH;

- ◇ Humidity accuracy: $\pm 5\%RH$ (typical) ($25^{\circ}C$, $30 \sim 80\%$);
 $\pm 5\%RH$ ($10^{\circ}C$, $30 \sim 80\%$);
 $\pm 5\%RH$, ($40^{\circ}C$, $30 \sim 80\%$);
- ◇ 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 $-10^{\circ}C \sim 45^{\circ}C$;
relative humidity $30\% \sim 70\%$;
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 "--. °C " 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.