印刷成品尺寸 100x90 mm
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MOCREO®

# ST5 Temperature Sensors Kit

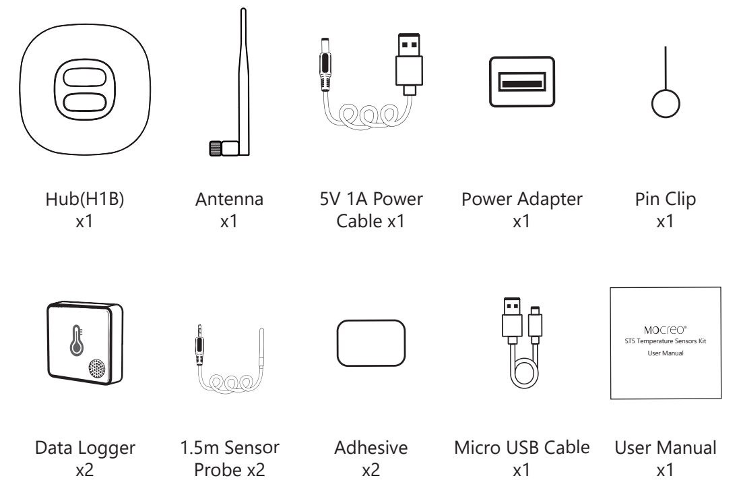
User Manual

## Contents

## Introduction

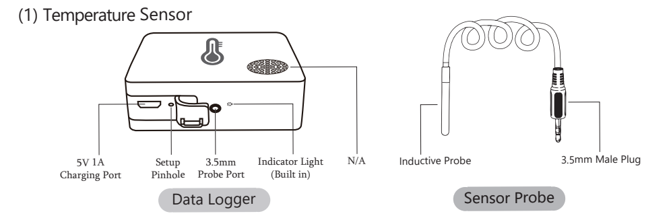
- With 4.9ft waterproof external probe for extreme conditions, which can detect and record ambient temperature in real-time.
- Detectable Temperature Range: -40°F ~ 257°F.
- Three Alarm Methods: E-Mail Alert, App Push Notification, Hub Beeping.
- ST5 Sensor is suitable for refrigerator/freezer, hot tub, fish tank, pet cage, or other scenes.
- Take the example of monitoring the temperature of freezer. Please place the ST5 Sensor's Data Logger outside the freezer and place the probe inside the freezer to ensure that they are reliable.

## What's in the Box



## Product Parameter

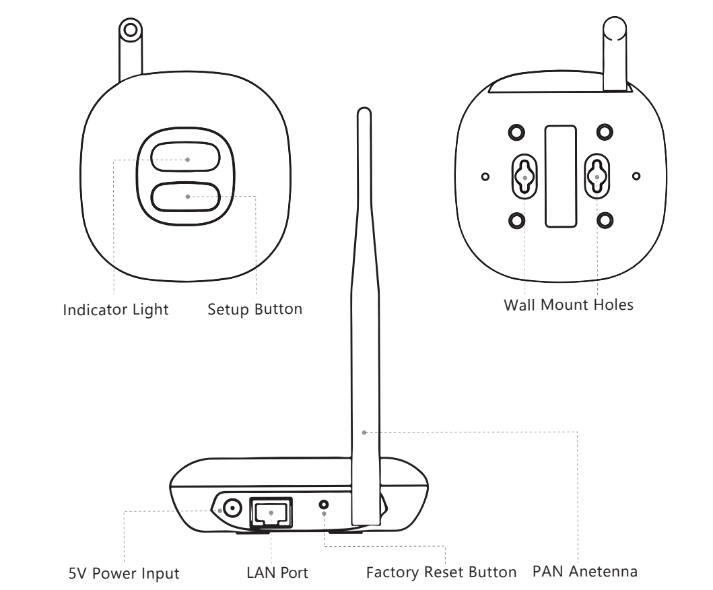
(1) Temperature Sensor



### Specifications

| | |
|---|---|
| Model | ST5 |
| Wireless Connection | Bluetooth |
| Communication Range | 131ft/40m (No Obstacles) |
| Dimensions | 2.4 X 2.4 X0.7inch (L x W x H) |
| Weight (Including probe) | 83g |
| Battery (Rechargeable) | 3.7V 1800mAh Lithium Battery |
| Size of Stainless Steel Shell | 6 mm in diameter |
| Cable Length | 1.5m |
| Cable Cross Section | 4mm x 1.3mm |
| Probe Measuring Rage | -40℉~ 257℉ (-40℃ ~ 125℃) |
| Temperature Accuracy | ±0.9℉(In the range of 14℉ to 185℉) |

(2) Hub



### Specifications

| | |
|---|---|
| Model | H1B |
| Working Temperature Range | -4℉~145℉(-20℃~60℃) |
| Working Humidity Range | 0~95%RH(No Condensation) |
| PAN Wireless Communication | Bluetooth & Zigbee 3.0 |
| Power | 5V/1A USB Adapter |
| Ethermet | 10Mbps/100Mbps |
| Wi-Fi | 2.4GHz 802.11b/g/n Wi-Fi |

### Hub Indicators

There are 3 types of color of Hub indicators

| | |
|---|---|
| Purple | Normal working condition |
| Blue | The Hub is in setup mode (A long press on the Hub setup button, then the Hub will enter the Hub-setup mode) |
| Red | 1) The Hub is not connected to Wi-Fi/Ethernet<br>2) The alarm event is triggered (The temperature measured has exceeded the set threshold) |

## Setup

### ① Download MOCREO App

Search "MOCREO Sensor" on Google Play/ App Store or scan the QR Code below to download the MOCREO Sensor App and register a MOCREO account on the App (MOCREO will send you a confirmation Email, click on the confirmation to complete the registration)

Google Play App Store MOCREO App

### ② Setup Tutorial

Please scan the QR code below to watch the setup turorial.

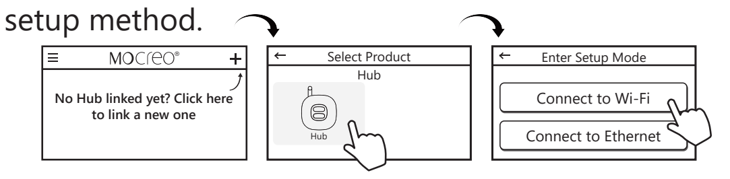
### ③ Turn on the Bluetooth

Make sure the Bluetooth is ON during the whole setup process. For Android, please also enable GPS and agree to grant location permissions.

### ④ Add a Hub

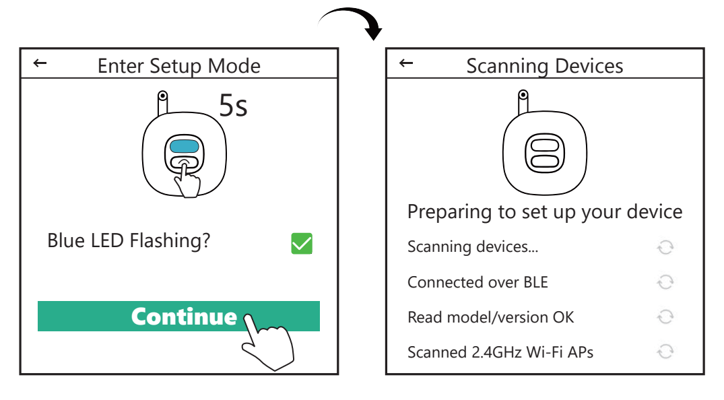
Power up the Hub, Open the MOCREO App, log into your MOCREO account. Tap the [+] Button at the upper right of the MOCREO Home Page to add a Hub, and select the type of network connection, here is an example of Wi-Fi connction.

**Tips:** If you are using Ethernet to add a Hub, please refer to the "Customer Service" of this manual (Page 34) and scan the FAQ QR code to get the setup method.



### ⑤ Set the Hub Into Setup Mode

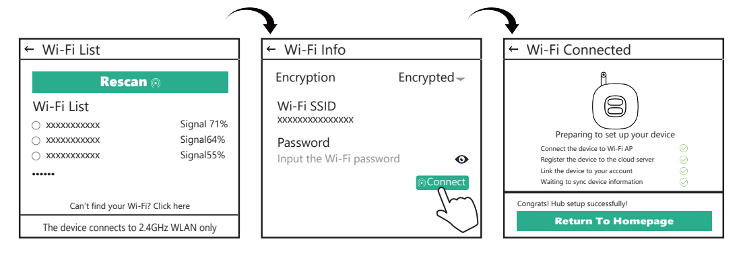
Press and hold the setup button of the Hub for 5s until the Hub indicator light turns blue.



### ⑥ Select the Wi-Fi and Enter the Wi-Fi Password

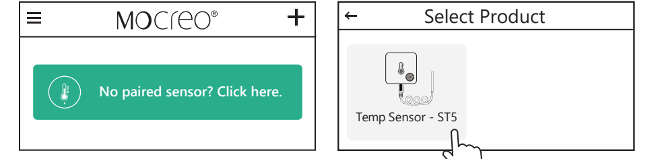
Select the Wi-Fi SSID you want to connect to and enter the Wi-Fi password, Supports 2.4GHz Wi-Fi Only.

When "Congrats! Hub setup successfully!" appears on the page, it means the Hub is successfully added.



### ⑦ Sensor Joins the Hub

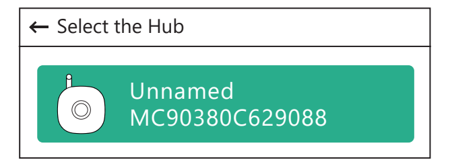
Tap the [+] Button at the upper right of the MOCREO Home Page and select 'Temp Sensor -ST5'.



**Note:**

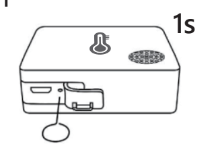
- Please make sure the Bluetooth of your mobile device (smart phone/ tablet) is enabled during the whole setup process.
- The Bluetooth and GPS can be turned off after the Sensor setup is complete.

### ⑧ Select the Hub



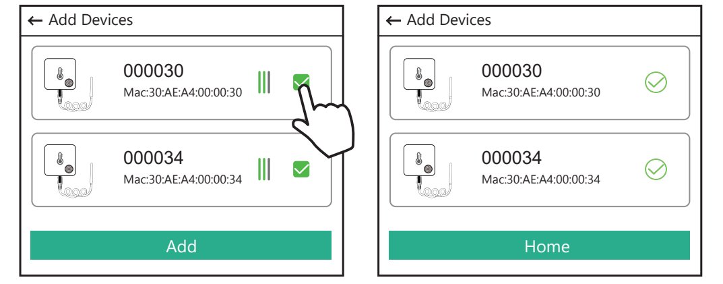
### ⑨ Poke the Sensor

Poke the Sensor pinhole with a pin for 1s and release, then the indicator light of Sensor will flash (Please complete this operation within 60 seconds, and you can add up to 10 Sensors at a time).



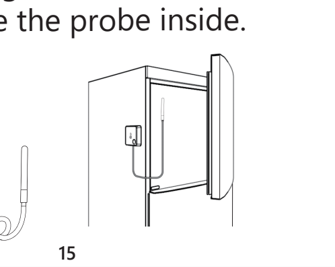
### ⑩ Add the Sensor

Select the Sensor you want to add and click on the "Add Button" (up to 10 devices can be added at a time). When the ✓ appears on the Sensor card, it means the Sensor is successfully added. Please wait until all Sensors status to become complete.



## Installation

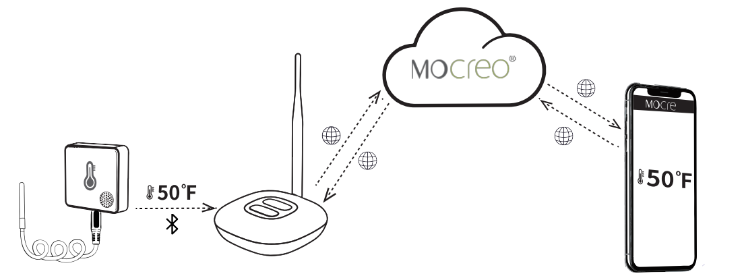
1. Please place the Hub at a relatively high position. The suggested distance between the Hub and Sensor is within 131ft (No obstacles, signal value stronger than 20% is ideal).
2. Please make sure the Sensor probe was inserted firmly (Note: ST5 probe is waterproof but the Sensor Data Logger is not).
3. Paste the Data Logger on the outside of refrigerator and place the probe inside.



## Test the Effectve Distance

- Place the paired ST5 Sensor in the location you want to monitor. The suggested distance between the Hub and Sensor is within 67ft-82ft (Household environment)
- Poke the Sensor pinhole for 1s and release.
- After 20~30 seconds, Tap the corresponding Sensor card on the App to reach the Sensor Settings Page and view the signal value (refer to Page 25), signal value stronger than 20% is ideal.

## How the System Works



The ST5 Sensors use Bluetooth LE to communicate with the Hub. Therefore, the distance are limited to a Bluetooth range centered on the Hub(e.g., around the house).

This range is affected by distance and obstacles such as walls, windows, water, radio interference,

etc. In short, longer distances and more obstacles mean weaker signals.

The MOCREO Hub uses a Wi-Fi (2.4GHz only) or Ethernet to transmit data from the MOCREO Sensors in range to the Internet. A cellular hotspot with Wi-Fi or Ethernet capability can also be used to provide Internet access. Then, the MOCREO App can be used to view your device data from anywhere in the world.

## Battery

- ST5 Sensor built- in 1800mAh rechargeable lithium battery.
- The battery can last up to 2 years before it needs to be charged again.
- Please charge the Sensor with a Micro USB Cable and a 5V 1A power adapter.
- The battery percentage can be checked on the App: Sensor Settings Page>Battery Level (Please do not check the battery level while the device is charging).
- When charging, the red indicator light will stay on and when the red indicator light goes off it means charging is complete.
- Low battery alert will be triggered when the battery is below 10%(Including Email alerts and APP notification).

## Calibration

- When the Sensor was taken to or from the refrigerator/freezer, the ST5 Sensor will spend some time calibrating the reading, and it would take about 20 minutes for the ST5 to measure to proper ambient temperature.
- The ST5 has a built-in USA-made DS18B20 chip, which is a strictly calibrated industrial-grade chip and is more accurate than ordinary consumer chips.
- Calibration is usually not required, if you need information about the chip, please check the FAQ.
- Calibration is only used to correct for small variations of ±0.9°F (±0.5°C). If you find larger differences than this during calibration, which indicates a problem with the calibration process of your Sensor, please contact MOCREO Customer Service

## Configuration

【Name the Sensor】Tap Sensor Card > ⚙ Button on the Upper Right > Alias Name > Save

【Name the Hub】Tap ☰ Button on the Upper Left > Hubs > Click ⚙ Button on the Hub Card > Name > Save

【Alert】Tap ☰ Button on the Upper Left > Alerts > Set Alert Model > Save

【Export Data】Tap Sensor Card > ⚙ Button on the Upper Right > Export Historical Data > Choose Time Period > Export

## App Interface Overview

Tips: The following introduction is based on MOCREO App version: 1.4.0. The actual interface may vary with different versions.

### Sensor Card

1) **Yellow:** The Sensor is online and updates data normally (The Sensor card will flash when the Sensor status is changed or when the Sensor is poked with a pin for 1s).

2) **Grey:** Sensor Offline/ Hub Offline
- When the Hub is offline, the upper right corner of the Sensor card shows "Hub offline".
- When Sensor is offline, "no signal icon" will be displayed on the upper right corner of Sensor card.


14:46
MOCREO Sensor
There are unread notifications view
D9C2E8 8.6 °F Last updated Nov 15, 2022 9:21 AM
Lab-freezer-AB12 4.1 °F Last updated Nov 15, 2022 9:20 AM
freezer Hub offline 7.3 °F Last updated Nov 15, 2022 9:29 AM

## MOCREO Home Page

This is the main page of the MOCREO App. It lists all Sensors in card form. Each Sensor card shows the most recent information obtained from the MOCREO Cloud.

### Temperature

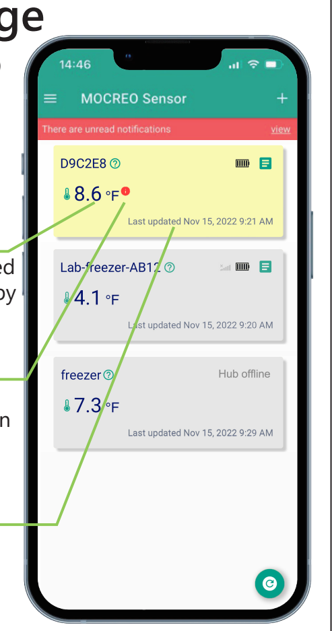
This position shows the latest data detected by the Sensor. The temperature detected by this Sensor is shown here.

### Alarm Signs

Alarm Signs will appears next to the Temperature, It will only be displayed when the Sensor triggers an alarm to alert you.

### Last Updated Timestamp

It shows the latest data reporting time of Sensor.


14:46
MOCREO Sensor
There are unread notifications view
D9C2E8 8.6 °F Last updated Nov 15, 2022 9:21 AM
Lab-freezer-AB12 4.1 °F Last updated Nov 15, 2022 9:20 AM
freezer Hub offline 7.3 °F Last updated Nov 15, 2022 9:29 AM

## Sensor Detail Page

Tap a Sensor card on the MOCREO Home Page to reach the Sensor Detail Page.

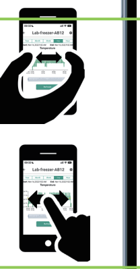
### Time Period

The hour, day, week, month buttons change the time period of the graphs shown on this page.

### Temp Graphs

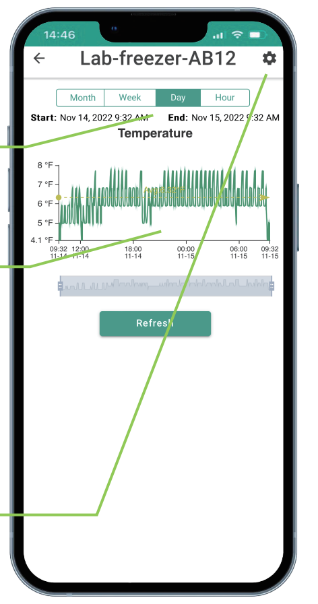
**Use two fingers to pinch** (Similar to zooming in on a device) to see a larger or smaller window of time.

**Drag your finger left or right** to move the graph forward or backward in time.



### Setting Button

Tap here you will enter the Settings Page for this Sensor to set the configuration.


14:46
Lab-freezer-AB12
Month Week Day Hour
Start: Nov 14, 2022 9:32 AM End: Nov 15, 2022 9:32 AM
Temperature
Refresh

## Sensor Settings Page

The Sensor Settings Page is where you configure settings for an individual Sensor.

### Alias Name

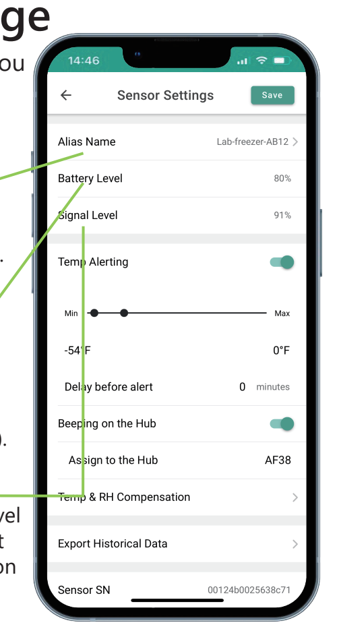
Tap here to change the Sensor name. Sensor name will be displayed on the Sensor card of the MOCREO Home Page.

### Battery Level

This position shows the current battery level of this Sensor. A low battery alarm is triggered when the battery level drops below 10%. More details please reach to "Battery" section of this manual(Page 19).

### Signal Level

This position shows the current signal level of this Sensor. Sensor signal should be at least 40% to ensure stable communication between Hub and Sensor.


14:46
Sensor Settings Save
Alias Name Lab-freezer-AB12
Battery Level 80%
Signal Level 91%
Temp Alerting
Min Max
-54°F 0°F
Delay before alert 0 minutes
Beeping on the Hub
Assign to the Hub AF38
Temp & RH Compensation
Export Historical Data
Sensor SN 00124b0025638c71

### Temp Alerting

When the Temp Alerting option is switched on, you can set a maximum/minimum templimit for this Sensor and when this Sensor exceeds the limit, an alarm will be triggered.

### Delay Before Alert

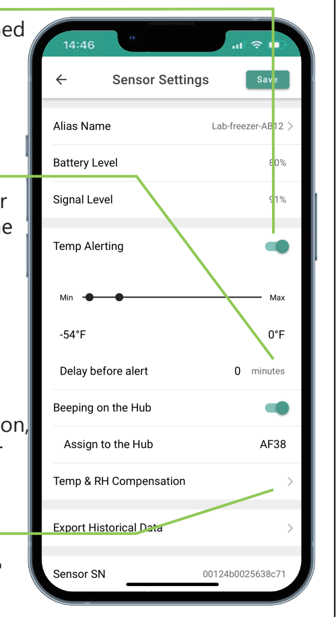
Fill in here to set the alarm delay time. For example, if you fill in 10 minutes, when the temperature exceeds the threshold, the alarm will not be triggered immediately, but after 10 minutes.

### Beeping on the Hub

This option will only be displayed if "Temp Alerting" is switched on. When "Beeping on the Hub" option is switched on, the Hub will buzzer as soon as the Sensor exceeds the limit.

### Temp & RH Compensation

Tap here you can calibrate the Sensor. More details please reach to "Calibration" section of this manual(Page 20).


14:46
Sensor Settings Save
Alias Name Lab-freezer-AB12
Battery Level 80%
Signal Level 91%
Temp Alerting
Min Max
-54°F 0°F
Delay before alert 0 minutes
Beeping on the Hub
Assign to the Hub AF38
Temp & RH Compensation
Export Historical Data
Sensor SN 00124b0025638c71

### Save Button

Tap here to save your settings. If you do not save after you finish editing, your settings for Sensor will not take effect.

### Export Historical Data

Tap here to export historical data, the data exported to CSV format, you can organize the data through Excel table form for easy analysis.

### Sensor SN

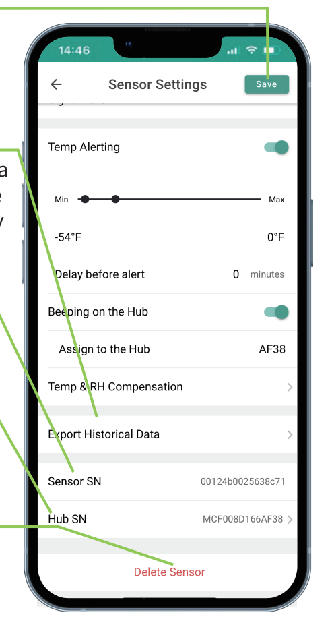
This is the identification ID of the Sensor

### Hub SN

This is the identification ID of the Hub to which this Sensor is bound.

### Delete Sensor

Select "Delete Sensor" will completely remove the Sensor from the App (it can be re-added).


14:46
Sensor Settings Save
Temp Alerting
Min Max
-54°F 0°F
Delay before alert 0 minutes
Beeping on the Hub
Assign to the Hub AF38
Temp & RH Compensation
Export Historical Data
Sensor SN 00124b0025638c71
Hub SN MCF008D166AF38
Delete Sensor

## Menu Page

Tap the Menu Button at the upper left of MOCREO Home Page to reach the Menu Page, It includes a variety of options for the App as a whole.

### Alerts

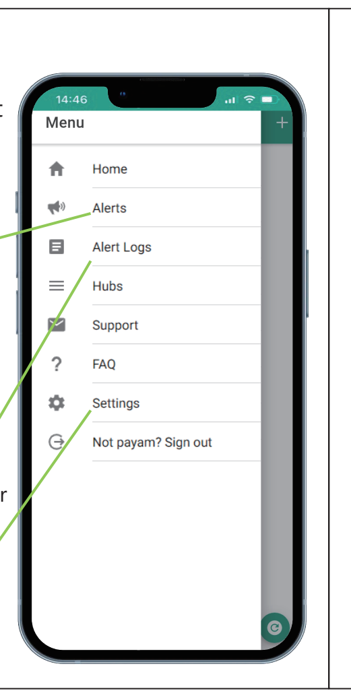
Tap here to set the alerts (including Email Alerts and App Push Notification) of the whole App. And you also need to turn on the alert option in the Sensor Settings Page to receive alerts from the specific Sensor.

### Alert Logs

Tap here to go to the Alerts Page, and you will see the historical alarm notifications for all Sensors.

### Settings

Tap here to set timezone, switch between Celsius and Fahrenheit, and check the App Version.


14:46
Menu
Home
Alerts
Alert Logs
Hubs
Support
FAQ
Settings
Not payam? Sign out

### Hubs

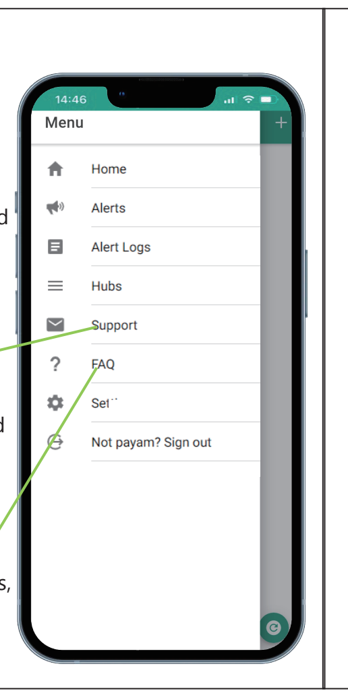
Tap here to see all the Hubs under your account and click on the Hub Card to see specific information about the Hub (IP Address, PAN, Firmware Version, Hardware Version, SN, etc.). And you can open Hub's Web Portal, name the Hub and turn on the Schedule(set the Hub to stop beeping at a specific time range and set the cycle).

### Support

If you encounter any problems, please tap here to submit a question, our technical staff will check your problem remotely and reply to you within 24 hours.

### FAQ

Tap here to go to the FAQ page of the MOCRO website. If you have any problems, you may check here for solutions.


14:46
Menu
Home
Alerts
Alert Logs
Hubs
Support
FAQ
Settings
Not payam? Sign out

## Alerts Page

Tap the alert logs option at Menu Page to reach the Alerts Page, and you will see the historical alarm notifications for all MOCREO Sensors.

### Green Alert Card

Green alert card means that the temperature detected by the Sensor has returned to within the set threshold

### Red Alert Card

Red alert card means the Sensor has triggered an alarm. For ST4 Sensor, it will send this notification when the Sensor detects that the temperature exceeds the set threshold

### Dismiss All

Tap here and all your unread alerts will turn to read (grey alarm card means they are read) And you can also close Hub beeping remotely by tapping here.


14:46
Alerts Dismiss All
Node : CHEST-FREEZER Temperature : 69.1'F Expected : 45.0 ~ 173.0 'F Dec 2, 2022 5:38 PM
Node : CHEST-FREEZER Temperature : 69.1'F Expected : 45.0 ~ -3.0 'F Dec 2, 2022 5:38 PM
Node : KITCHEN Temperature : 68.9'F Expected : 50.0 ~ 87.8 'F Humidity : 52.51% Expected : 0 ~ 100 % Dec 2, 2022 3:42 PM
Node : KITCHEN Temperature : 68.9'F Expected : 154.4 ~ 176.0 'F Humidity : 52.51% Expected : 0 ~ 100 % Dec 2, 2022 3:41 PM

## Troubleshooting

### 1. The Hub Cannot Connect to Wi-Fi?

a. The Hub only supports 2.4 GHz (not 5 GHz) Wi-Fi
b. Please check if Bluetooth is turned on and' if the Hub is in setup mode during setup.
c. Check the Wi-Fi SSID and password of Wi-Fi, Wi-Fi password length supports 8-64 ASCII (numbers 0-9, English letters A-Z, a-z and regular English punctuation) or hexadecimal characters (numbers 0-9, 16 of A/B/C/D/E/F). All other characters are not supported
d. The device should be placed within the coverage of the Wi-Fi signal. Please try to shorten the distance between the Hub and AP (Access Point). And reduce obstacles like metal doors or multiple/thick walls.

### 2. Sensor Failed to Add?

1. The App can't scan the Sensor in the Sensor setup process.
a) Please make sure your phone is within 15ft from the Sensor
b) Please check whether ST5 Sesor has entered setup mode(poke Sensor for 1s, blue LED will flashing, which means the Sensor enters Setup mode)
c) Please do not turn off the Bluetooth and network on your phone (Android needs to open the GPS and authorize the positioning permission)

2. When adding a Sensor, the App scanned Sensor but did not add successfully
a) Click "Retry Button" on the page to re-add
b) If the Sensor still can't be added, please contact MOCREO Support for help

**Note:**

**1. To improve wireless stability, it is recommended**
(a) Install the Sensor as close to the Hub as possible. It's better if the Hub and the Sensor are in sight.
(b) Reduce the obstacles between the Hub and the Sensor.
(c) The Hub and Sensor should be placed far away from water to avoid signal interference.
(d) Check if the Hub's antenna is tightened and keep it upright.
(e) Stay away from high power equipment, flammable and explosive materials.

**2. Precautions about the Sensor placement environment**
(a) The Data Logger is non-waterproof, please avoid water submerging and extreme temperature.
(b) The working temperature range of the Sensor is from -40°F to +257°F (-40°C to +125°C). When exceeding this range, the data monitored might be inaccurate or the Sensor might be damaged.
(c) The battery is rechargeable. It can be charged with the .micro USB cable equipped. But the battery is not removable.

## Warranty

MOCREO products enjoy a 12-Month limited warranty (start from the date when customer receives the product), which applies only to hardware components of the device that are not subject to accident, misuse, neglect, fire, or other external causes, alterations, repair.

## Customer Service

https://mocreo.com/doc/manual/support/faq.html
+1 (530) 988-8608
contact@mocreo.com
YouTube MOCREO Sensor

FAQ

Search [ MOCREO Sensor ] on YouTube to watch the setup video tutorials

## Disclaimer

The contents about how to use the product and the App guidance are only for reference, please refer to the actual situation for specific application. If there is something differs from the instruction during using the product, please contact MOCREO Support for updates. This product is for detecting and monitoring only, MOCREO is not responsible for any property damage or other consequences of the use of this product.

## FCC Statement

FCC ID (Sensor) : 2A36D-ST4
FCC ID (Hub) : 2A36D-H1

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

**Warning:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(v1.2)