

# Temperature Monitoring

## Using the X-600 Modular Series

Version 1.0



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## TEMPERATURE MONITORING INTRODUCTION

This application will allow you to send email alarms based on temperatures recorded from 1-Wire temperature sensors connected directly to the X-600M. These alarms will be adjustable by the user, so changing environments can be taken into account.

## EQUIPMENT REQUIRED

- 1 – X-600M
- 2 – 1-Wire Temperature Sensors
- Power Supplies, and Network Equipment as required

## INSTRUCTIONS

### *Basic Setup and Wiring*

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Begin by connecting a 9-28 VDC power supply (24V power supply recommended) to the **Vin+** and **Vin-** terminals on the X-600M (A regulated power supply is recommended). Verify that the power supply is rated for the operating current of the X-600M. (For more information see **Section 2.3.2** of the X-600M User's Manual).

Connect one of the Ethernet ports of the X-600M to a 10 Base-T or 10/100 Base-T Ethernet connection. Typically an Ethernet hub, switch, or router. (For more information see **Section 2.3.6** of the X-600M User's Manual).

Attach the positive wires of the 1-Wire temperature sensors on the temperature sensors to the **+5V** terminal on the X-600M.

Connect the ground wires of the 1-Wire temperature sensors to the **Gnd** and the data lines to the **Dat** terminal.

***Note:** Be sure that all the connections to any of the devices are clean and don't have the possibility of shorting out, and that all the screws are tight.*

### *Adding/Configuring I/O*

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Access the X-600M setup pages by typing its IP address into the address bar of your internet browser followed by /setup.html (i.e., 192.168.1.2/setup.html). Log into the setup pages (default user name: admin, password: webrelay) and navigate to the **I/O** menu tab.

Choose the **1-Wire Sensors** sub-menu, and click **Add New Sensor**.

Choose one of the sensor addresses from the drop down box, give it a *Description*, but leave the *Name* as the default value. Click **Add**.

Repeat process for the second sensor.

Next navigate to the **Registers** tab, and click **Add New Register**. We are going to use these registers to hold our adjustable alarm values.

Call it `highAlarm`, then set the *Type* to *Float*, the *Decimal Values* to 2, and the *Initial Value* to 0 (or a default alarm value of your choice).

Create another register, and call this one `lowAlarm`. Give it the same settings as the previous register.

## Conditional Events

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Once all the I/O have been added, navigate to the **Control/Logic** menu tab, then to the **Conditional Events** sub-menu. Here we will add the control events.

Click **Add New Event**. This event will send an email when the first sensor goes below the `lowAlarm` register value.

Set the *Type* to *Analog*, and the *Condition* to *X less than A*. *X* will be the `owSensor1`, and *A* will be set to *Variable*, and the `lowAlarm` register. Then adjust the rest of the settings to your own specifications.

Create another event for the `highAlarm` on the second sensor.

Set the *Type* to *Analog*, and the *Condition* to *X greater than A*. *X* will be the `owSensor2`, and *A* will be set to *Variable*, and the `highAlarm` register. Then adjust the rest of the settings to your own specifications.

## Actions

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Now that the events have been set up we can tie actions to those events.

Navigate to the **Actions** sub-menu, and click **Add New Action**.

Set the **Event Source** to the first event (`condEvent1`), and set the *Type* to *Send Email*.

Choose to whom you would like to send the email from the drop-down list of users, and then give it a *Subject* and *Text*.

Repeat the same steps for the second event (`condEvent2`).

## Dashboards

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To finish up this application we will add the dashboards.

Navigate to the **Edit Dashboards** menu tab. You will notice that a panel has been added by default so we just need to add a widget. Do this by clicking the small “+” button in the top right-hand corner of the panel. This widget will display all of the temperature information, so you can give it a title (e.g., *Temperature Controls*).

Add a component by clicking the “+” button in the top right corner of the widget. In the *Type* box choose *1-Wire Sensor*.

In the *Data Source* row choose the first sensor (*owSensor1*).

You can choose to display a background color when an event has occurred, for example we can change the color to red when *condEvent1* is active.

Finish adding the component, by clicking the Add button.

Repeat these steps for the second sensor (*owSensor2*), but change the event to *condEvent2*.

Click the “+” button again, and set the *Type* to *Register* under the *Numeric Control* heading. This will setup a box that will allow you to adjust the alarm value.

Set the *Data Source* to *lowAlarm*, and disable all the controls except the *Spinner*. Then set the rest of the specifications to values specific to your application.

Repeat for the *highAlarm* register.

Now that all of the settings have been added be sure to click the **Commit Settings** button in the upper right-hand corner of the screen to activate your new temperature monitoring functionality.

Once this is done you will receive email alarms whenever the sensors go outside the boundaries specified. You can also view the dashboard and see the current temperatures, and adjust the alarm values.