



Monnit Wireless Sensors  
and iMonnit Online Monitoring System

# User Guide

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## About Monnit Corp.

Monnit is a leader in the design and manufacture of turnkey, self-installing, low cost wireless sensor solutions targeted at the commercial, industrial and consumer markets. Monnit's sensing solutions are designed to be easily installed and used by anyone wanting to remotely monitor information and activities, including: access, presence of water, luminosity, temperature, humidity, and vibration in or around structures, machinery, and various environments.

## Please Read Before Proceeding

THE WIRELESS SENSORS ARE ACTIVE AND HAVE ALREADY BEEN ASSIGNED TO YOUR CUSTOMER SENSOR NETWORK. YOUR WARRANTY IS INVALIDATED IF YOU DISASSEMBLE OR ATTEMPT TO DISASSEMBLE ANY OF THESE DEVICES.

# Network and Computer Requirements

## MonnitLink™ USB Gateway Computer System Requirements

To use your wireless sensors with a MonnitLink USB Gateway you will need a Windows PC with the following:

- A MonnitLink™ USB Wireless Gateway
- Windows XP with 512 MB Memory  
(Windows 7 with 1024 MB Recommended)
- 20 MB Free Disk Space
- ASP.NET 3.5  
( <http://www.asp.net/downloads/essential> )

## MonnitLink™ Ethernet Gateway

To use your wireless sensors with a MonnitLink Ethernet Gateway you will need the following:

- A MonnitLink™ Ethernet Wireless Gateway
- An Internet enabled router with one available Ethernet port or a direct internet ethernet connection.

# Monnit Wireless Hardware

Monnit wireless sensor networks consist of MonnitLink™ Wireless Gateways, Monnit WIT™ Wireless Sensors and Monnit Sensor Monitoring Software such as iMonnit™ On-line, Monnit Express™ PC Software and Monnit Enterprise™ Server Software.

The simplest way to get started with Monnit wireless sensors is to select either a USB or Ethernet version of the gateway and monitor your sensors online through the iMonnit Online Sensor Monitoring and Notification System.

MonnitLink USB Gateways require the use of a personal computer running windows XP or later and requires that the computer remain running and connected to the internet in able for the sensors to communicate to the online system. A MonnitLink Ethernet Gateway is a standalone unit that operates continuously without the need for a computer and only requires an Ethernet connection with access to the Internet.

RF Specifications	
Operating Frequency	902 MHz - 928 MHz
Power Output	+8 dBm
Receiver Sensitivity	-102 dBm
RF Range	250 - 300 ft. non-line-of-sight
Modulation	Frequency Shift Keying (FSK)

## MonnitLink™ Ethernet Gateway



Contains FCC ID: ZTL-RFSC1 & IC: 9794A-RFSC1

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 and (2) this device must accept any interference received, including interference that may cause undesired operation.

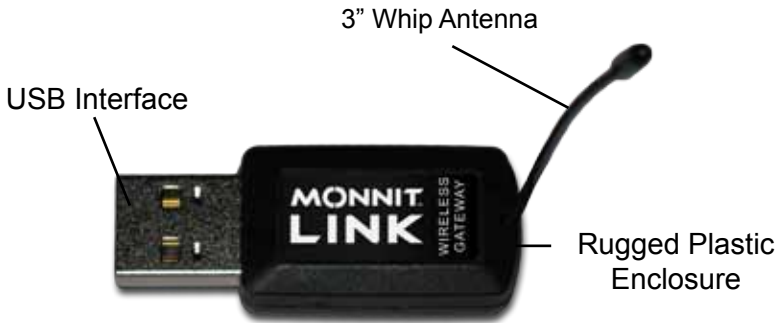
*This device has been designed to operate with an approved antenna listed on page 11, and having a maximum gain of 5.1 dBi. Antennas not included in this list or having a gain greater than 5.1 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.*

*To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.*

**FCC Approval (USA)** - Refer To Page 34 for FCC Requirements.

**IC Approval (Canada)** - Refer To Page 35.

## MonnitLink™ USB Gateway



FCC ID: ZTL-RFUSB1 & IC: 9794A-RFUSB1

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 and (2) this device must accept any interference received, including interference that may cause undesired operation.

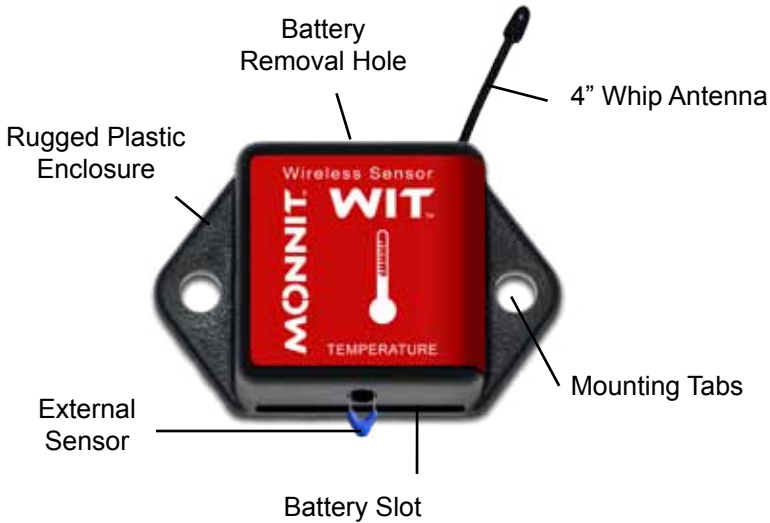
*This device has been designed to operate with the attached non-removable antenna.*

**FCC Approval (USA)** - Refer To Page 34 for FCC Requirements.

**IC Approval (Canada)** - Refer To Page 35.



## Monnit WIT™ Wireless Sensors



Contains FCC ID: ZTL-RFSC1 & IC: 9794A-RFSC1

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 and (2) this device must accept any interference received, including interference that may cause undesired operation.

*This device has been designed to operate with an approved antenna listed on page 11, and having a maximum gain of 5.1 dBi. Antennas not included in this list or having a gain greater than 5.1 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.*

*To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.*

**FCC Approval (USA)** - Refer To Page 34 for FCC Requirements.

**IC Approval (Canada)** - Refer To Page 35.

## Monnit Wireless Repeater



Contains FCC ID: ZTL-RFSC1 & IC: 9794A-RFSC1

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 and (2) this device must accept any interference received, including interference that may cause undesired operation.

*This device has been designed to operate with an approved antenna listed on page 11, and having a maximum gain of 5.1 dBi. Antennas not included in this list or having a gain greater than 5.1 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.*

*To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.*

**FCC Approval (USA)** - Refer To Page 34 for FCC Requirements.

**IC Approval (Canada)** - Refer To Page 35.

# MonnitLink™ USB Sensor Networks

*(The following information is for sensor networks using a MonnitLink™ USB Gateway. If using a MonnitLink™ Ethernet or Cellular Gateway skip to page 12.)*

Before inserting the MonnitLink™ USB Gateway into your computer, you will need to install the USB Drivers and the Monnit Gateway Application which will allow your sensor network to communicate with the iMonnit™ Online Sensor Monitoring System.

**Note:** If you purchased the Monnit Express™ standalone PC application, then you will have received an email with download and installation instructions. If you have lost the email please contact a Monnit representative to have the email resent.

## MonnitLink™ USB Driver Installation

The latest MonnitLink™ USB drivers can be installed directly from the web or downloaded for manual installation.

<http://www.monnit.com/support/downloads.php>

From the downloads page, click on *MonnitLink™ USB Driver Installer* to launch the web installer download. The driver file should automatically start downloading, if prompted to save the file, select a location that is easily accessible and click “Save”.

When the file has completed downloading, browse to the folder where the file was saved. Double click the “*Monnit-Driver-Setup.exe*” file and select “Run”. Select “Next” then follow the on-screen guide to install the drivers.

When the setup has finished, the program will automatically determine which drivers to install for your system and another guide will launch to guide you through the installation of the drivers. Click “Next” to install the drivers. When the drivers are done installing you will see a success screen. Click “Finish” to exit the installation program.

**Note:** To manually install the driver you can download the appropriate file from the downloads page and follow the included instructions.

## Monnit Gateway Application Installation

The Monnit Gateway Application allows your wireless sensors to communicate with the iMonnit™ Online Sensor Monitoring and Notification System. (iMonnit allows you to view all your sensor data, sensor status' and configure all sensor parameters as well as setup notifications or alerts via sms text and email.)

To install the software, open a web browser and navigate to <http://www.monnit.com/support/downloads.php>. From the downloads page, click on "*Monnit Gateway Application Installer*" to launch the web installer download. If prompted to save the file, select a location that is easily accessible and click "Save".

When the file has completed downloading, browse to the folder where the file was saved. Double click the "*MonnitGatewaySetup.msi*" file, select "Run" when prompted then follow the on-screen instructions to complete the installation.

When installation is complete the program will automatically launch. You can now begin using your Monnit wireless sensors online.

**Note:** The Monnit Gateway application needs to be running on your computer in order for the sensor data to be transmitted to the iMonnit Online System. If the gateway is not running your sensor data is not being recorded and notifications based on sensor data cannot be sent from the system.

## Bringing Sensors Online

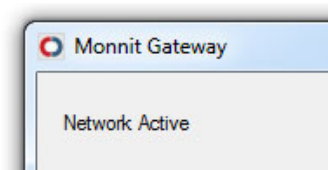
### 1 Launch the Monnit Gateway Application:

From the Windows “Start Menu” under “All Programs” > “Monnit” click on “Monnit Gateway”.

(Skip this step if using an Ethernet or Cellular Gateway)

### 2 Insert the MonnitLink™ USB Wireless Gateway:

With the Monnit™ Gateway application running, insert the MonnitLink™ USB into your computer. The network status in the software should change to active when the USB gateway has been plugged in.



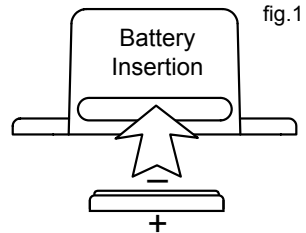
(If the status does not change, try unplugging and re-inserting the USB gateway.)

(Skip this step if using an Ethernet or Cellular Gateway)

### 3 Insert batteries into the sensors:

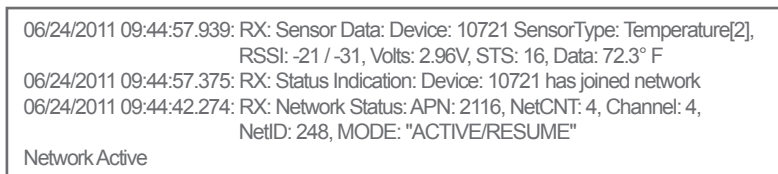
Peel back the black sticker cover of the battery slot and slide the coin cell battery into the sensor. It will power on within 10-20 seconds.

**Note:** Note the proper orientation of battery in fig.1. When inserting, make sure to push the battery all the way back.



### 4 Check that Sensor Data is Being Received:

As the sensors power up, they will check into the Monnit-Sphere Gateway and transmit their current reading. Your gateway window should look similar to this:



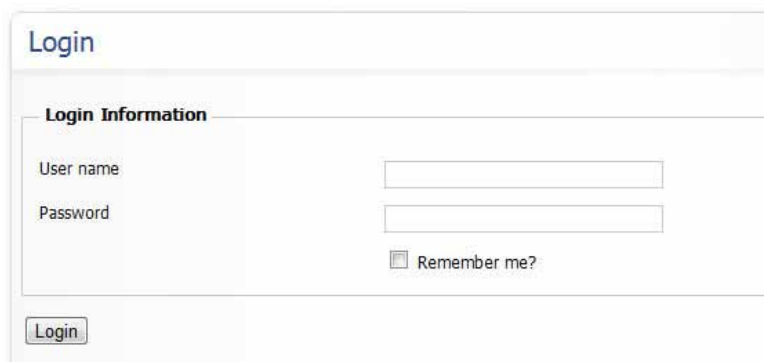
#### **4 Continued...**

If a sensor does not join the network when a battery is inserted, try cycling the power by removing and re-inserting the battery. (You should wait 45 seconds before re-inserting the battery.) Once you have verified that your sensors are all powered on and have checked into the MonnitSphere Gateway they are ready to be deployed. If you wish to change a sensor configuration, all of the parameters are editable in the MonnitSphere online software. The new parameters will be downloaded to the Wireless Gateway every 5 minutes, then transmitted to the sensors on their next heartbeats. If you need more immediate response from a sensor, you can press the “Download Sensor Updates” button in the Monnit Gateway application, then cycle the sensor by removing, then re-inserting the battery.

# Using the iMonnit™ Online System

## Logging into iMonnit™

Open any Internet Browser and navigate to the iMonnit website at [www.imonnit.com](http://www.imonnit.com).

A screenshot of the iMonnit online system login page. The page has a light gray background. At the top left, the word "Login" is displayed in a blue, sans-serif font. Below this, there is a white rectangular box with a thin gray border. Inside this box, the text "Login Information" is centered at the top. Below this text, there are two input fields: "User name" and "Password", each followed by a white rectangular text box. To the right of the "Password" input box is a checkbox with the text "Remember me?". At the bottom left of the white box, there is a "Login" button with a gray border and a light gray background.

Enter your username and password in the appropriate field and click the “Login” button to continue.

Your username and password are included on the information sheet that shipped with your sensors.

**Note:** You will be prompted to change your password when you login for the first time.

# iMonnit User Interface (Overview)

The screenshot shows the iMonnit Online Wireless Sensors Portal. It features a top navigation bar with links for Network Overview, Sensor Maps, and My Account. The main content area is divided into several sections:

- 1. Menu System:** A horizontal bar at the top containing 'Network Overview', 'Sensor Maps', and 'My Account'.
- 2. Sensor List:** A section on the left titled 'Sensor List' with a 'Last Update' column. It lists four sensors: 'Button Sensor', 'Open / Closed Sensor', 'Temperature Sensor', and 'Water Sensor'. Each sensor has a green status indicator and a checkmark icon.
- 3. Sensor Status Indicators:** A vertical label on the left side of the 'Sensor List' section, pointing to the green status indicators.
- 4. Current Sensor Quick Stats:** A section on the right titled 'Temperature Sensor' showing 'Last Checkin: 6/27/2011 10:21 AM', a large display of '74.8° F', and a bar chart. Below this is a 'Sensor Reading' table.
- 5. Sensor Data Window:** A red-bordered box highlighting the 'Sensor Reading' table.

Date	Signal	Battery	Sensor Reading
6/27/2011 10:21 AM	100	100	74.8° F
6/27/2011 10:17 AM	100	100	74.8° F
6/27/2011 9:30 AM	100	100	75.7° F
6/27/2011 8:59 AM	100	100	71.8° F
6/27/2011 8:17 AM	100	100	73° F

## 1

### Menu System

Provides quick links to areas of the software for navigational purpose.

#### Network Overview

Displays a list of all wireless sensor networks associated with the account. Clicking on a network name will change the current view to the selected network.

#### Sensor Maps

Visual Tool for uploading a building blueprint or schematic, allowing you to visually place sensor tags on the map. Clicking on the sensor graphics gives you a quick view of the latest sensor reading and status.

#### My Account

Access and edit account information and system users.

#### Reports

Access reports for your account.



## 2 Sensor List

Displays all sensors that are currently assigned to your sensor network. Clicking on a sensor name allows you to select which sensor information is viewable on-screen. Clicking the edit button by a sensor's name allows you to change the sensor specific settings such as sensor name and heartbeat (report interval) as well as advanced sensor configuration information that is stored on the sensor hardware.

## 3 Sensor Status Indicators

Displays the status for each individual sensor.



Sensor is checking in and within user defined safe parameters.



Sensor has not checked in.



Sensor has met a user defined threshold or triggered event.

## 4 Current Sensor Quick Stats

Displays the most current information from the selected sensor, including: sensor name, signal strength, battery power and sensor reading / status.

## 5 Sensor Data Window

The sensor data window displays content according to the selected sensor data tab. There are four different views available.

**History** - Displays a history of the data sent from the selected sensor.

**Alerts** - Allows you to view, create, edit or delete user customizable notifications for the selected sensor.

**Chart** - Displays a graphical view of the readings sent from the selected sensor.

**Export** - You can archive data by exporting as a .csv file or send the sensor data to an external source.

**Calibrate** - Allows you to calibrate your sensors by correcting a current reading, and applying the adjustment to all future readings. (Only available on applicable sensors.)

## Using “My Account” (Account and Contacts)

Clicking on the “My Account” link in the navigation bar will open the account settings page. From here you have the ability to edit your account information, manage users, and create a master recipient for all messages from the system.



- 1 Edit Account Information**  
Allows you to change general account information such as; company name, address, time zone and primary contact.
- 2 Create New Account User**  
Allows you to create new users for the account by entering contact information and sensor network permissions.
- 3 Edit Account User**  
Allows you to change contact information, change login password and change sensor network permissions.
- 4 Edit Sensor Networks**  
Allows you to change the name of the sensor network and enable or disable notifications for all sensors located in that network.
- 5 Configure All Notification Recipient**  
Allows you to create a contact that will overwrite all existing notifications for all sensors and networks within the account.  
**Note:** Using this function will overwrite all existing notifications setup in the account.

# Selecting the Date Range

All of the sensor information viewed through the user interface is selectable by a “Date Range”. The default view for the system is the past 30 days. To change this simply click on the date range box at the top of the sensor data window.



After clicking on the date range box, the following pop-up window will appear. You can click on any of the pre-determined date configurations in the left column or select “Pick a Date” to view single day data for a given date or select “Date Range” to define a specific range of dates.






**Note:** The current date is highlighted in yellow, while your selected dates will be displayed in red.

# Using the Sensor List

The sensor list provides a quick view of the status for all sensors in the selected network as well as providing quick link access to sensor data and configuration windows.

The following is a summary of the status indicators and what they mean.

-  Sensor is checking in and within user defined safe parameters.
-  Sensor has not checked in for the past 3 heartbeats.
-  Sensor has met a user defined threshold or triggered event.

Clicking on the name of a sensor in the list opens the sensor display view and clicking on the “Edit” icon by each name opens the sensor configuration window.

## List Options (Sorting the Sensor List)


For larger sensor networks, we have provided a way to easily sort your sensor list to only show sensors by “Type” or “Status”.



To activate a sorting filter on the list, mouse over “List Options” and select the filter you would like to apply. To reset to the default sensor list view select “Reset View”.



## Configuring Sensors (Basic)

Click the “Edit” icon next to the name of the sensor that you would like to configure. (You can also click on the “Edit” tab in the sensor information window.)

**Edit: Temperature** 

**Fields**

**Basic Sensor Configuration**

Sensor Type	Temperature
Last Communication	12/22/2010 1:48 PM
Temperature Scale	<input type="text" value="Fahrenheit"/>
Sensor Name	<input type="text" value="Temperature"/> 
Heartbeat (Minutes)	<input type="text" value="5"/> 


[Advanced Configuration](#)  
[Return](#)

The basic sensor configuration window allows you to set the primary configurations for each sensor. The basic configurations will suffice for the majority of users. Within this window you can name your sensor, set the heartbeat (how frequently the sensor will take a reading and communicate with the MonnitSphere online monitoring and notification system), and select the units of measurement etc. If more advanced configurations are needed, click on “Advanced Configuration” link above the “Save” button.

**Note:** Be sure to click the “Save” button anytime you make a change to any of the configuration elements.

## Configuring Sensors (Advanced)

All of the advanced configuration settings are transmitted to the sensor and stored on the sensor hardware. These settings allow the sensor to act differently, independent of the software.

**Advanced Edit: Temperature**

**Fields**

**Basic Sensor Configuration**

Sensor Type	Temperature
Last Communication	12/22/2010 1:51 PM
Temperature Scale	<input type="text" value="Fahrenheit"/>
Sensor Name	<input type="text" value="Temperature"/> ?
Heartbeat (Minutes)	<input type="text" value="5"/> ?

**Advanced Sensor Configuration**

Inactivity Alert (Minutes)	<input type="text" value="250"/> ?
Active Between	<input type="text" value="12"/> : <input type="text" value="00"/> <input type="text" value="AM"/> ?
	and
	<input type="text" value="12"/> : <input type="text" value="00"/> <input type="text" value="AM"/>
Assessments per Heartbeat (1-250)	<input type="text" value="1"/> ?
Minimum Threshold	<input type="text"/> ?
Maximum Threshold	<input type="text"/> ?
Hysteresis	<input type="text" value="0"/> ?
Transmission Offset	<input type="text" value="0"/> ?
Aware State Heartbeat (Minutes)	<input type="text" value="5"/> ?

[Basic Configuration](#)  
[Return](#)

## Advanced Sensor Setting Definitions

### Inactivity Alert (Minutes)

The amount of time that elapses without a heartbeat before you are notified. The default is 3 times the set heartbeat interval.

### Active Between

The time of day the sensor is actively working. No communication will be sent while sensor is hibernating.

### Assessments per Heartbeat

How many times between heartbeats a sensor will check its measurements against its thresholds to determine whether it will enter the aware state.

### Minimum Threshold

Any assessments below this value will cause the sensor to enter the aware state.

### Maximum Threshold

Any assessments above this value will cause the sensor to enter the aware state.

### Hysteresis

A buffer to prevent the sensor from bouncing between standard operation and the aware state when the assessments are very close to a threshold. For example, if a maximum threshold is set to 90° and the hysteresis is set to 1°, when a sensor takes an assessment of 90.0° and enters the aware state it will remain in the aware state until the temperature reading drops to 89.0°. Similarly, at the minimum threshold the temperature will have to rise 1° above the threshold to return to standard operation.

### Transmission Offset

In large sensor networks, offset is used to prevent all sensors from transmitting simultaneously; therefore minimizing communication disruption.

### Aware State Heartbeat

How often the sensor communicates with the gateway while in the aware state.

## Configure Multiple Sensors Simultaneously

You can make certain configurations to multiple sensors by clicking on “Configure Multiple Sensors” at the bottom of the Sensor List Window. Click the checkboxes in front of all sensors that you would like to apply the settings to, then click “Save” to apply the same settings for all selected sensors.

### Configure Multiple Sensors

**Sensors**

Select which sensors to update.

☐ Open / Closed ☐ Temperature

☐ Water

**Sensor Configurations**

Send notifications for these sensors ☒

Heartbeat (Minutes)

Inactivity Alert (Minutes)

Aware State Heartbeat (Minutes)

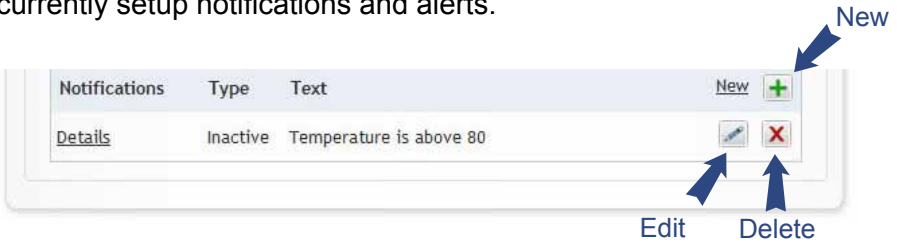
[Return](#)


**Note:** Settings configured through this window will overwrite any custom settings currently set for the selected sensors.




# Setting Up Notifications and Alerts

Clicking on the “Notifications” tab within the sensor data window will bring up a list of sent notifications as well as a list of all currently setup notifications and alerts.



To create a new notification or alert, click on the “New”  icon at the bottom right of the window. To edit or delete an existing notification, click on the “Edit” icon or the “Delete” icon.

## Creating a New Notification or Alert

**Notification for: Temperature** 

**Fields**

Person to Notify [Add New](#)

demo user (demo@monnit.com)

Type of Notification

Email ▼

Notification Text

Temperature is above 80

Notify when sensor temperature reading is

Equal ▼ (to) 80.0000( degrees

Notify again after

60 minutes

Notification is on

☐

[Cancel](#) [Save](#)

### Person to Notify

Start typing a name into the box and the system will show all users with a similar name, if you need to create a new user click “Add New”.

### Type of Notification

Allows you to choose the notification delivery method (Email or SMS.)

### Notification Text

This is a user defined message that will be emailed or texted to the recipient when the conditions have been met.

### Sensor Conditions for Alert

This area is dependant upon what type of sensor is being used. For example a temperature sensor will ask for a condition that when met will trigger the alert, such as a temperature above 80°.

### Notify Again After

Allows you to define how frequently you want to be notified if the sensor condition is still met or exceeded. For example, if the temperature is still above 80° I can be notified every 10 minutes until I have addressed the issue.

### Notification is On

Allows you to turn off a notification temporarily, without deleting it.

# History and Chart Views

Clicking on the “History” or “Chart” tabs within the sensor data window allows you to view the sensor data history as text or in a graphical chart.



Date	Signal	Battery	Sensor Reading
12/21/2010 4:22 PM	100	90	76.3° F
12/21/2010 4:21 PM	100	90	75° F
12/21/2010 4:14 PM	100	92	73.6° F
12/21/2010 4:09 PM	100	92	74.3° F



To change the date range of the viewable information, click on the date range box at the top right of the sensor data window.

# Exporting Data

Clicking on the “Export” tab within the sensor data window allows you to export sensor data to a comma separated value (.csv) file or send the sensor data to an external web source.

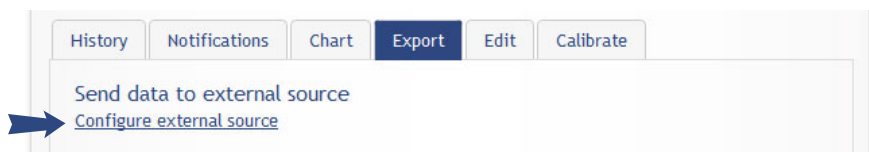


To export sensor data to a comma separated value (.csv) file for use in spreadsheet software such as Microsoft Excel®, click on “Export Data” at the bottom of this window. The default value will export data for the viewed sensor only, if you would like to include data for all sensors in the viewed network, click the checkbox by “Include Data from All Sensors”.

**Note:** Only the first 5,000 records within the selected date range will be exported, you can adjust the date range to export more data if needed.

## Exporting Data to an External Source

To send the sensor data to an external web source, click on “Configure External Source”.



On this page you can select the “External Data Subscription Type” which can be a Generic URL or an external service that is currently registered with the MonnitSphere System such as Sensing Planet™. If you are using a registered external subscription service enter your “External Identifier” and “Connection Information”. All available parameters are listed on the page.

### External Configuration Temperature

**Parameters**

External Data Subscription Type

Generic URL ▼

External Identifier

Connection Information

[Cancel](#) [Save](#)

#### Generic URL

This external configuration tool allows you to pass data from Monnit Sensor Network devices to another service in real time. This is done by coding the data into a url query then sending the data via http get request at the time data is recieved. There is an extensive list of parameters that can be passed, as seen below, allowing you to send detailed information about both the data and the sensor.

#### Available Parameter Values

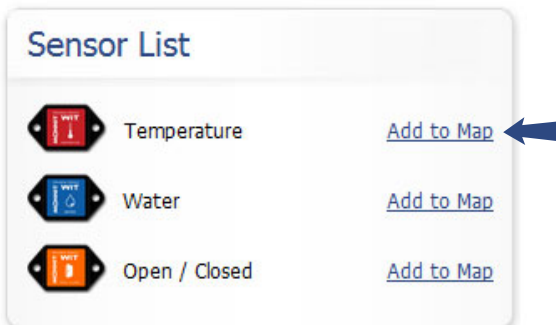
{0}	ExternalID	Defined by above
{1}	MessageID	Transaction ID for this message from the sensor
{2}	Data	Data transmitted with the message
{3}	DisplayData	Data translated to ui value
{4}	MessageDate	Date message was delivered
{5}	Battery	Approximate percentage remaining on battery
{6}	SignalStrength	Strength of radio signal (0-100)
{7}	State	Encoded state data (in general 0 = Normal, 2=Awake State)

## Sensor Maps

By clicking on “Sensor Maps” in the main navigation bar you can access MonnitSphere’s Visual Sensor Mapping Tool. This tool allows you to upload a graphic of your building or sensor area, and visually place sensor tags on the graphical map to remind you where sensors have been placed. The tool also allows for one click access to current sensor readings and status.



To create a new sensor map, click on the “New” icon. In the pop-up window, type a name for your map and then click “Choose File” to browse your computer for the graphic you would like to upload. Click “Create” to save the map to your list. Once your map is created, you can add sensors from your sensor list to the map by clicking on “Add to Map” by each sensor.



Once the sensors have been added to the map they will disappear from the sensor list and a sensor image will appear on the map. You can move the sensor tags on the map by single click and holding to drag. Right click on a sensor image for a context menu to remove a sensor from the map.

Once the sensors have been placed where you like, you can view a sensors status and last reading by mousing over the sensor tag. Single clicking on a sensor image will open a pop-up window showing it's current readings and sensor history. You can close this view by clicking the X in the upper right corner of the pop-up window.

## Reports

By clicking on "Reports" in the main navigation bar you can access any standardized reports generated by the MonnitSphere software system. To suggest a report idea email [software@monnit.com](mailto:software@monnit.com) with a full description.

# Error Reporting, Troubleshooting and Support

For technical support and troubleshooting tips please visit our support library online at <http://www.monnit.com/support/>. If you are unable to solve your issue using our online support, email Monnit support at [support@monnit.com](mailto:support@monnit.com) with your contact information and a description of the problem, and a support representative will call you within one business day.

For error reporting, please email a full description of the error to [support@monnit.com](mailto:support@monnit.com).

## Warranty Information

(a) Monnit warrants that Monnit-branded products will be free from defects in materials and workmanship for a period of one (1) year from the date of delivery with respect to hardware and will materially conform to their published specifications for a period of one (1) year with respect to software. Monnit may resell sensors manufactured by other entities and are subject to their individual warranties; Monnit will not enhance or extend those warranties. Monnit does not warrant that the software or any portion thereof is error free. Monnit will have no warranty obligation with respect to Products subjected to abuse, misuse, negligence or accident. If any software or firmware incorporated in any Product fails to conform to the warranty set forth in this Section, Monnit shall provide a bug fix or software patch correcting such non-conformance within a reasonable period after Monnit receives from Customer (i) notice of such non-conformance, and (ii) sufficient information regarding such non-conformance so as to permit Monnit to create such bug fix or software patch. If any hardware component of any Product fails to conform to the warranty in this Section, Monnit shall, at its option, refund the purchase price less any discounts, or repair or replace non-conforming Products with conforming Products or Products having substantially identical form, fit, and function and deliver the repaired or replacement Product to a carrier for land shipment to customer within a reasonable period after Monnit receives from Customer (i) notice of such non-conformance, and (ii) the non-conforming Product provided; however, if, in its opinion, Monnit cannot repair or replace on commercially reasonable terms it may choose to refund the purchase price. Repair parts and replacement products may be reconditioned or new. All replacement products and parts become the property of Monnit. Repaired or replacement products shall be subject to the warranty, if any remains, originally applicable to the product repaired or replaced. Customer must obtain from Monnit a Return Material Authorization Number (RMA) prior to returning any Products to Monnit. Products returned under this Warranty must be unmodified.

Customer may return all Products for repair or replacement due to defects in original materials and workmanship if Monnit is notified within ninety (90) days of customer's receipt of the product. Monnit reserves the right to repair or replace products at its own and complete discretion. Customer must obtain from Monnit a Return Material Authorization Number (RMA) prior to returning any products to Monnit. Products returned under this Warranty must be unmodified and in original packaging. Monnit reserves the right to refuse warranty repairs or replacements for any products that are damaged or not in original form. For products outside the ninety-day warranty period repair services are available at Monnit at standard labor rates for a period of one year from the Customer's original date of receipt.



(b) As a condition to Monnit's obligations under the immediately preceding paragraphs, Customer shall return Products to be examined and replaced to Monnit's facilities, in shipping cartons which clearly display a valid RMA number provided by Monnit. Customer acknowledges that replacement products may be repaired, refurbished or tested and found to be complying. Customer shall bear the risk of loss for such return shipment and shall bear all shipping costs. Monnit shall deliver replacements for Products determined by Monnit to be properly returned, shall bear the risk of loss and such costs of shipment of repaired products or replacements, and shall credit Customer's reasonable costs of shipping such returned Products against future purchases.

(c) Monnit's sole obligation under the warranty described or set forth here shall be to repair or replace non-conforming products as set forth in the immediately preceding paragraph, or to refund the documented purchase price for non-conforming Products to Customer. Monnit's warranty obligations shall run solely to Customer, and Monnit shall have no obligation to customers of Customer or other users of the Products.

#### Limitation of Warranty and Remedies.

THE WARRANTY SET FORTH HEREIN IS THE ONLY WARRANTY APPLICABLE TO PRODUCTS PURCHASED BY CUSTOMER. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. MONNIT'S LIABILITY WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, IN NEGLIGENCE OR OTHERWISE SHALL NOT EXCEED THE PURCHASE PRICE PAID BY CUSTOMER FOR THE PRODUCT. UNDER NO CIRCUMSTANCES SHALL MONNIT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES. THE PRICE STATED FOR THE PRODUCTS IS A CONSIDERATION IN LIMITING MONNIT'S LIABILITY. NO ACTION, REGARDLESS OF FORM, ARISING OUT OF THIS AGREEMENT MAY BE BROUGHT BY CUSTOMER MORE THAN ONE YEAR AFTER THE CAUSE OF ACTION HAS ACCRUED.

IN ADDITION TO THE WARRANTIES DISCLAIMED ABOVE, MONNIT SPECIFICALLY DISCLAIMS ANY AND ALL LIABILITY AND WARRANTIES, IMPLIED OR EXPRESSED, FOR USES REQUIRING FAIL-SAFE PERFORMANCE IN WHICH FAILURE OF A PRODUCT COULD LEAD TO DEATH, SERIOUS PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE SUCH AS, BUT NOT LIMITED TO, LIFE SUPPORT OR MEDICAL DEVICES OR NUCLEAR APPLICATIONS. PRODUCTS ARE NOT DESIGNED FOR AND SHOULD NOT BE USED IN ANY OF THESE APPLICATIONS.

# Certifications

## United States FCC

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*This equipment has been tested and found to comply with the limits for a Class B digital devices, 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 instruction manual, 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 of 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.*

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

### RF Exposure

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**WARNING:** To satisfy FCC RF exposure requirements for mobile transmitting devices, the antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter.

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### FCC ID: ZTL-RFSC1

*This device has been designed to operate with an approved antenna listed below, and having a maximum gain of 5.1 dBi. Antennas not included in this list or having a gain greater than 5.1 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.*

*To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.*

### Approved Antennas

The following antennas are approved for use with FCC ID: ZTL-RFSC1

- *Hyperlink HG905RD-RSP (5.1 dBi Rubber Duck)*
- *Pulse W1063 (3.0 dBi Rubber Duck)*
- *ChangHong GSM-09 (2.0 dBi Rubber Duck)*
- *Specialized Manufacturing MC-ANT-20/4.0C (4" whip)*

### FCC ID: ZTL-RFUSB1

*This device has been designed to operate with the attached non-removable antenna.*

## Canada (IC)

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### English

*Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.*

*This radio transmitter (IC: 9794A-RFSC1 and IC: 9794A-RFUSB1) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.*

*This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.*

### French

*Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.*

*Le présent émetteur radio (IC: 9794A-RFSC1 et IC: 9794A-RFUSB1) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.*

*Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

For additional information on Monnit Wireless Sensors and Software, please visit us on the web at [www.monnit.com](http://www.monnit.com).



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