



Installation guide and user manual



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# 1. PRE-INSTALLATION

## Prepare The Installation Site

The preparations that must be made prior to installation are:

- **120V Electrical Power Outlet**
- **Activated Ethernet Port:** Can be run by an electrician from the facility's nearest data room and activated by IT staff.  
**A note about network firewalls:** Some institutional IT departments prefer to firewall network connections for security reasons. Emonix can operate on a firewalled network connection as long as it can make outgoing TCP connections on ports 443 and 1194.
- **Soft Water Test Tap:** Drawn from the water softener valve or by tapping a soft water line immediately after the softener. Install a valve to isolate the Emonix line from the soft water test tap to allow for manual testing and maintenance when needed.
- **Water Drain:** Emonix discards water after it is finished testing. Most water softeners have a drain nearby to flush water during regeneration cycles.
- **Flowmeter and Closed Contact Inputs:** Consult your water softener's user manual in order to locate where the flowmeter input is on your softener's control board. If your water softener allows for closed contact regenerations locate this input as well.

# 2. INSTALLATION

## Initial Setup

Mount your Emonix system near your water softener using the attached brackets.

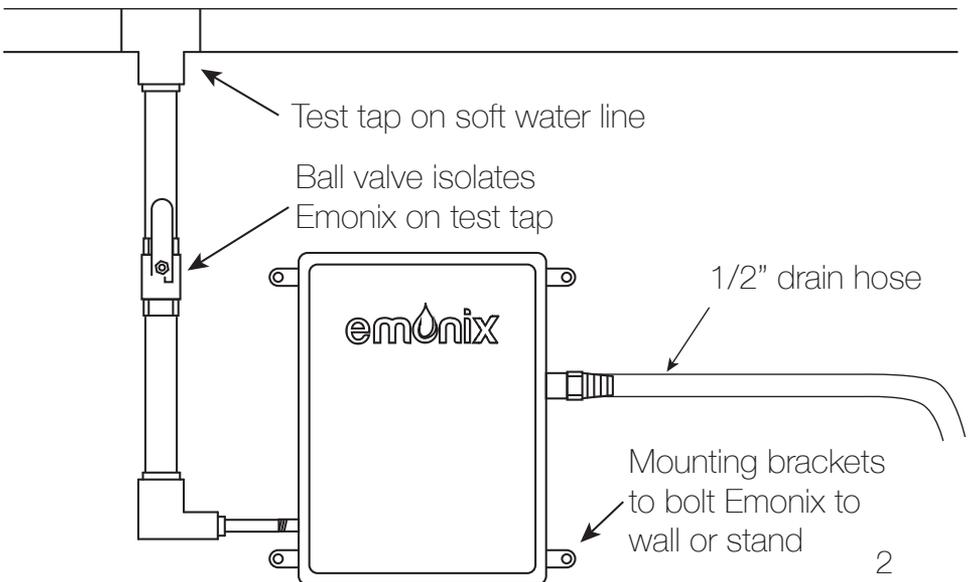
**Pro Tip: Mount your Emonix system as close as possible to the soft water test tap to reduce water usage and testing time.**

Remove the sensor from its storage bottle and place into the black sensor fitting until less than an inch of the gray sensor body is visible. Hand tighten to secure. Connect the BNC cable to the input panel.

## Plumbing

Connect the soft water line to the 1/4" inlet on Emonix. **DO NOT ATTACH PRESSURIZED WATER LINE TO 1/2" DRAIN HOSE BARB. THIS WILL DAMAGE YOUR EMONIX SYSTEM AND VOID YOUR WARRANTY.**

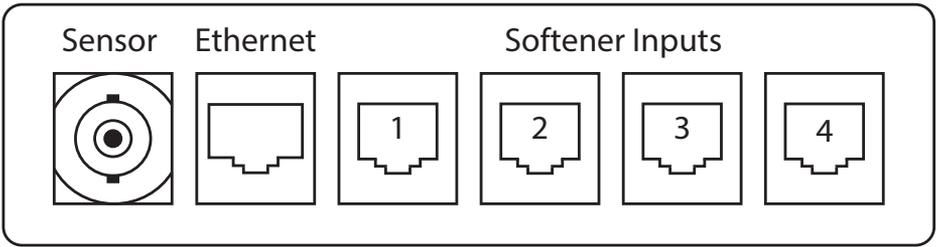
Attach a length of 1/2" drain hose to the brass outlet of your Emonix system. Run the hose to a nearby drain. Once both of these connections are made, open the valve to pressurize the inlet side of the system.



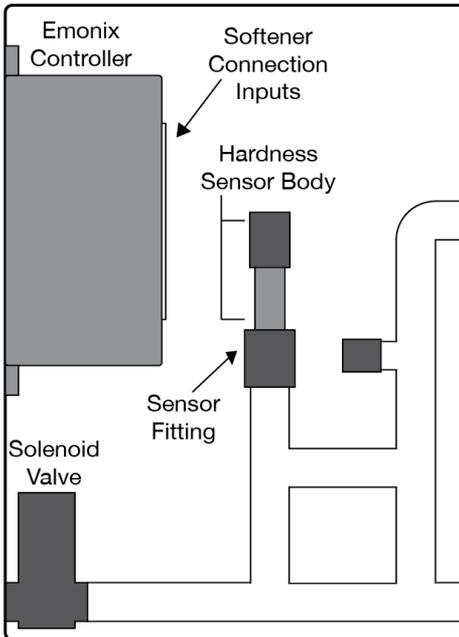
# Water Softener Connections

**WARNING: ONLY USE CABLES SUPPLIED BY EMONIX. USING OTHER CABLES WILL VOID YOUR WARRANTY AND CAN DAMAGE YOUR SOFTENER AND EMONIX SYSTEM**

The system must be connected to the controller in the head of your water softener to monitor flow and initiate regenerations. All cables needed for installation are included with your system. Run one cable from a softener input on the side of your Emonix controller to each head. Attach this cable to the black connection to the Emonix controller on a flowmeter adapter inside the softener head.



## System Diagram



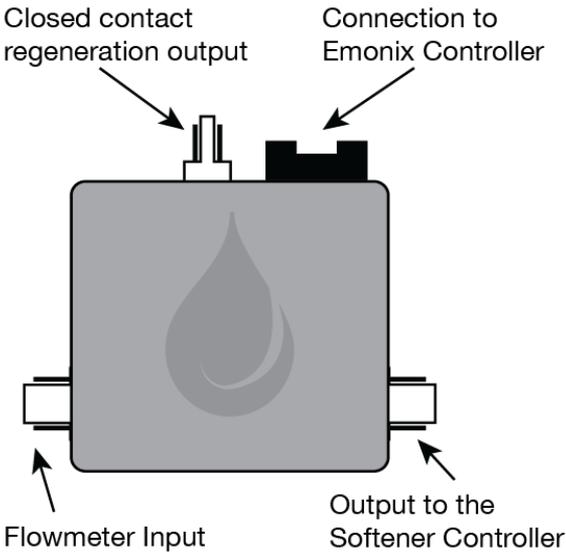
Follow the diagram above to determine where connections need to be made. Emonix will identify each softener based on which softener input the cable is connected to. Ensure that each softener is connected to its corresponding input e.g. softener number 1 should connect to softener input 1.

**Pro Tip:** Many water softener control heads include extra holes knockouts that can be used for cable entry.

**Pro Tip: Ensure all cables inside the control head enclosure are clear of the softener's drive motors when installing.**

Follow these steps to install your flowmeter adapters:

- Disconnect the cable that runs from your softener's flowmeter to the control board in the head of your water softener.
- Connect this cable to the flowmeter input on the adapter.
- Connect a cable from the output to the softener controller on the adapter to the input that the flowmeter cable was removed from on the control board.



To enable closed-contact regenerations follow these steps:

- Connect the included two wire lead to the closed-contact regeneration output on the flowmeter adapter.
- Connect the leads to the closed-contact regeneration input on the control

## Flowmeter Adapter

## Electrical Connections

Connect an Ethernet cable from your Emonix system to the activated ethernet port. Plug the 12V DC power supply into the 120V outlet and connect it to your Emonix system to power it on. If your network is set up correctly your system will automatically connect. If it does not, refer to Network Troubleshooting on page 10.

# 3. Device Registration & Setup

PC or mobile internet access is required for the next two sections.

## Account Set-up

If you do not have an Emonix account, navigate to [login.emonix.io](http://login.emonix.io) and click **Register** in the lower right corner of the page. Enter your email address, a desired password, and click Register to create an account.

## Device Association

Navigate to [register.emonix.io](http://register.emonix.io) and enter your account credentials. Enter the device ID and registration code of your newly installed Emonix system. This can be found on the sticker inside the cover of the enclosure.

### Emonix Device Registration

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Enable email alerts for this device

### emonix user registration

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**Note:** It is possible to register multiple devices to one account and one device to multiple accounts.

# Technician Setup

In order to access Technician Setup navigate to [setup.emonix.io](http://setup.emonix.io) or click the link within device settings.

**Note: In order to access this page you must be an authorized Emonix technician. If you are installing your own unit and are not an authorized technician contact [help@emonix.io](mailto:help@emonix.io)**

- Building name: Enter the name of the building or softening system.
- Gallons Between Regenerations: Enter the current capacity the softener is functioning at.
- Feed Water Hardness: Enter the estimated feed water hardness programmed in the softener controller.
- System Type: Choose one of the following based on your system.
  1. Single Tank: For use in systems with only 1 softener
  2. Parallel: For use in systems where multiple softeners are running simultaneously.
  3. Alternating: For use in systems with multiple softeners when only 1 can be in use at any time.
  4. Progressive: For use in a system with multiple softeners that will bring another on line when there is high flow. Also known as demand recall.
- Hardness Regen Threshold: Enter the hardness level that signals a softener regeneration. 3 grains per gallon is recommended, this is well within the limits of safe water and allows Emonix to obtain an accurate reading.
- Flowmeter Pulses per Gallon: Enter how many gallons one pulse from your flowmeter signal equal. Consult your original softener or flowmeter manual to find this information. If you know the model of your flowmeter you can access this online.

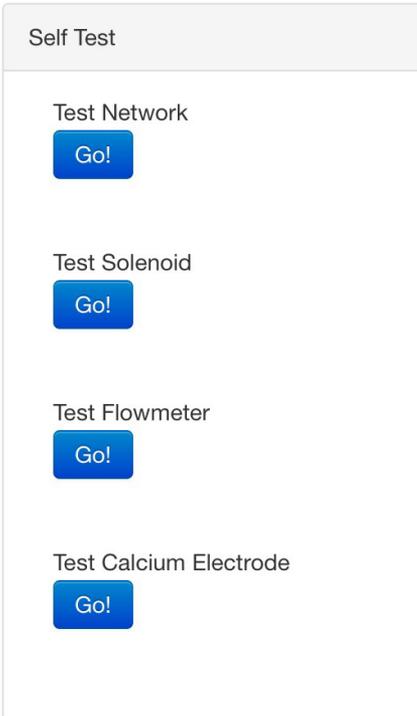
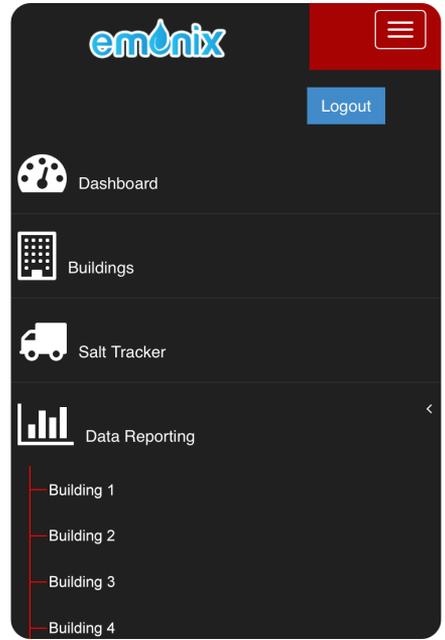
**Note: All of these settings and more can be edited under  [Device Settings](#) within the building dashboard page**

# 4. System Testing

## Network

Navigate to <http://data.emonix.io> and click **Data Reporting** to expand the list of buildings registered to your account. To view details of the newly installed device, click on the building name.

On the building details page, click **Self Test** at the top of the page to open testing options. Execute each test on the Self Test page to verify that your new Emonix sensor is configured properly.



**Test Network** verifies that your Emonix system has a working network connection and is communicating with the Emonix server. It may take 3-5 minutes to establish a connection after powering on. If the network test fails, debug the connection by following the instructions in Network Troubleshooting on Page 7.

**Note:** You will not be able to run the other self tests without a working network connection.

# Hardware

**Test Solenoid** opens the solenoid valve. To confirm that this test runs properly, you must visually verify that water is running through the system manifold and out of the drain.

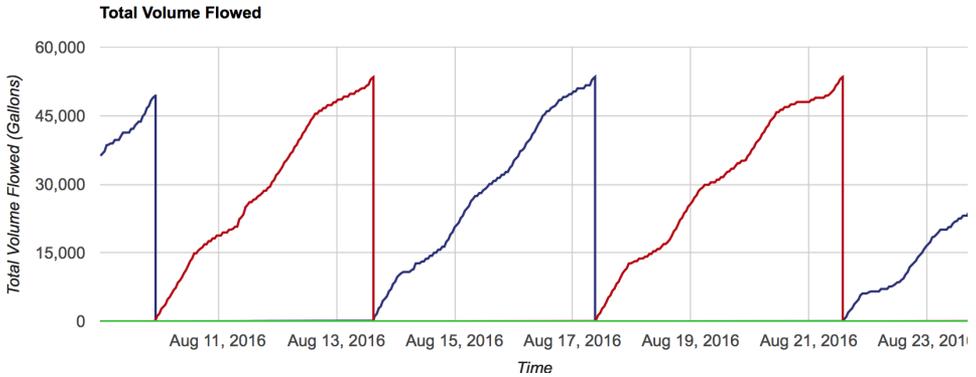
**Test Flowmeter** verifies that Emonix is properly interfacing with your water softener and the flowmeter adapters are connected correctly.

**Test Electrode** samples the hardness sensor to verify that it is reading consistently. Sensor readings should be near 200mV. If your electrode is reading erratically (i.e. a wide range of values on successive tests) or if it is reading outside of the expected range, follow the instructions in Sensor Troubleshooting on Page 11

# 5. Dashboard Features

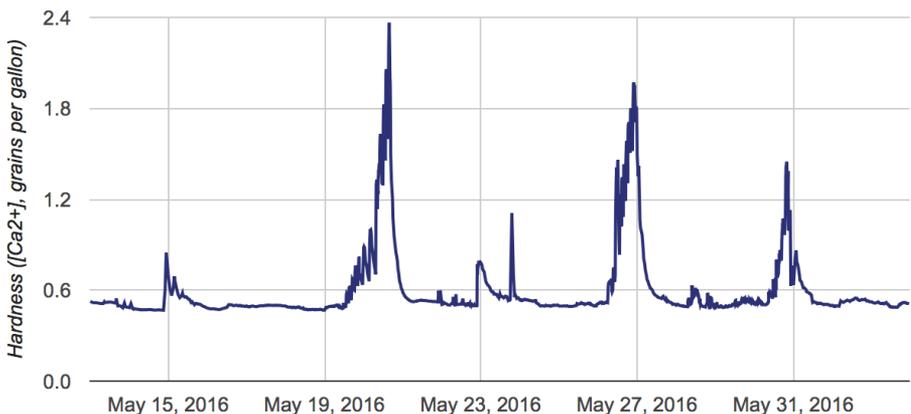
## Flow History

Your dashboard allows you to view the history of flow through your water softeners since Emonix was installed. Historical data can help you predict future usage and diagnose problems. If abnormally high flow is detected you will receive a notification alerting you of a possible leak.



## Hardness Monitoring

Online hardness monitoring is the premier feature of Emonix. Emonix will automatically regenerate your softeners and recalibrate its sensor without intervention. You can view a live feed of hardness exiting your water softeners on your dashboard. If hard water remains for an extended period of time you will receive an alert that your softener has malfunctioned.



# Salt Tracking

Select the salt tracker icon on the left side of your dashboard to access the platform. Emonix's salt tracker allows you to track past salt usage and anticipate future usage.



The salt tracker is an additional monitoring system and is not required for Emonix to function as intended. This simply allows you to track your salt usage more accurately and provide organized data.

Enter the amount of bags you added to your brine tank and the day that you added them. This allows you to enter past data if you forget a day or keep handwritten records.

Added  bags of salt to **Emonix Headquarters** on

2016-06-23

Go

To access past data navigate to the bottom of the page to Chart Date Range. Simply select your start date, end date and select update chart. This updates the flow, hardness, and salt charts to the preferred date range.

Chart Date Range

Start Date:

End Date:

Update Chart

# 6. TROUBLESHOOTING

## Network Troubleshooting

If the network self test fails, there may be a problem with your network connectivity.

- Verify that your Emonix controller is plugged into a 120V AC power outlet using the supplied 12V DC adapter.
- Confirm that your Emonix controller is connected to an active ethernet port.
- To confirm that the ethernet port is active, connect a laptop to the it and try using a web browser with WiFi disabled. If you cannot access the internet through this port, there is likely a problem with the network jack. There are two common sources of network jack connection problems: physical connectivity to the network switch and firewalls.
  - Verify physical connectivity to the network switch by tracing the network cable from the network jack to the termination at a network switch or router. Verify that the network cable is physically connected to a router and that the link light on the router port is on.
  - Verify that the network connection for Emonix is not blocked by a firewall at the router and that all outgoing ports are enabled. If your system's network disables any outgoing connections, Emonix will not be able to contact its server and the network self test will fail. The firewall settings on the router will need to be adjusted by the building's IT staff
- If your network still fails after troubleshooting with an active ethernet port refer to Electronics Maintenance on page 13

# Sensor Troubleshooting

If Test Sensor fails, there may be a problem with the electrode's connection or the plumbing manifold inside your Emonix system. The steps in this troubleshooting guide assume that your Emonix system has had all the necessary plumbing and electrical connections described in previous sections installed.

- Verify that the BNC connector that attaches to the Emonix controller is securely fastened. Push it in to the connector on the logic box and turn clockwise until it latches.
- Verify that the test manifold is completely filled with water. If your sensor is not submerged in water, it will report incorrect readings.
  - Run water from the soft water test tap through the manifold before running the sensor self test. Use the Test Solenoid feature on the self test page of the Emonix dashboard to take a sample and submerge the sensor.
  - If Test Sensor still reads erratic values after running water through the manifold there may be air trapped inside. Use the following process to manually remove air from the manifold:
    1. Loosen the cap that fastens the sensor to the manifold.
    2. Gently remove the sensor from the manifold. Take care not to bump or damage the tip of the sensor that is submerged inside the manifold. **WARNING: CRUSHING, DROPPING, OR MISHANDLING YOUR SENSOR WILL DAMAGE IT AND VOID YOUR WARRANTY.**
    3. Place the sensor on a soft surface such as a towel.
    4. Pour water into the manifold through the open sensor fitting until it is full.
    5. Gently return the sensor into its fitting. Some of the water from the manifold will spill as you replace the sensor. Be sure to place the sensor fully into the manifold so that less than an inch of the gray sensor body is visible.
    6. Finger tighten the cap to secure the sensor in the manifold. **DO NOT USE A WRENCH OR OTHER TOOLS TO TIGHTEN THE CAP. THIS WILL VOID YOUR WARRANTY AND CAN BREAK YOUR SENSOR.**

# 7. Maintenance

## Sensor Replacement

Emonix recommends that you replace your hardness sensor every 2 years to prevent failure. You will be notified when it is time.

Replacements can be done by anyone with access to the Emonix system quickly and with no training. To replace your sensor follow the steps below:

1. Order your new sensor by contacting [help@emonix.io](mailto:help@emonix.io)
2. Select sensor replacement on the Emonix dashboard. This deactivates the solenoid and walks you through the following steps.
3. Loosen the black sensor grip and remove the sensor from the enclosure
4. Remove the new sensor from its long term storage container.
5. Hand tighten the sensor fitting around the sensor body. Ensure that the old black o-ring was removed with the old sensor.
6. Connect the BNC connector from the sensor to the Emonix controller.
7. Click sensor installed on your device settings and the sensor replacement is complete. Your Emonix system will now calibrate your sensor in the upcoming days and return to normal use.

## Electronics Replacement

Contact Emonix immediately if you believe maintenance is needed on your system. This is the easiest way to receive help with the following situations:

- Further troubleshooting and potential server issues.
- Determining if the system is covered under the limited warranty
- Removal and replacement of the Emonix controller with a new one. Your Emonix controller was designed to be easily removed for maintenance and shipping.

# 8. Warranty

DO NOT USE YOUR PRODUCT UNTIL YOU HAVE READ THE TERMS OF THE WARRANTY. IF YOU DO NOT AGREE TO THE TERMS OF THE WARRANTY, DO NOT USE THE PRODUCT

Emonix Inc. warrants to the original purchaser that the Emonix system will be free from defects in material and/or workmanship from the date of the original installation for a period of ONE YEAR.

THIS WARRANTY IS EFFECTIVE TO THE ORIGINAL PURCHASER ONLY, AND ONLY FOR AS LONG AS THE SYSTEM REMAINS AT THE ORIGINAL INSTALLATION SITE. COVERAGE TERMINATES IF YOU SELL OR OTHERWISE TRANSFER THE SYSTEM WITHOUT PREVIOUS CONFIRMATION FROM EMONIX

THIS WARRANTY DOES NOT COVER defects caused by outdoor installation, extreme temperatures, tampering with internal components, sand, sediment or bacteria fouling, accident, fire, food, Act of God, misuse, misapplication, neglect, alteration, installation or operation contrary to Emonix Inc.'s printed instructions, or installation, repair or service by anyone other than Emonix Inc. or an authorized seller of Emonix Inc. products.

UNDER NO CIRCUMSTANCES SHALL EMONIX INC. BE LIABLE TO THE ORIGINAL PURCHASER OR TO ANY OTHER PERSON FOR ANY INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR FOR ANY OTHER LOSS, DAMAGE, OR EXPENSE OF ANY KIND, INCLUDING LOSS OF PROFITS, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT, IN TORT OR OTHERWISE, AND REGARDLESS OF WHETHER EMONIX WAS AWARE OF THE POSSIBILITY OF SUCH LOSS. THESE LIMITATIONS WILL APPLY REGARDLESS OF ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

This warranty gives you specific rights and you may have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

No sales representative, distributor, agent, dealer, reseller, authorized seller or any other person or entity is authorized to make any other warranty, or modify or expand the warranty provided herein on behalf of Emonix Inc. Upon expiration of the applicable warranty period, Emonix Inc. shall have no further liability related to the System/parts to which the warranty period applies, except with respect to valid warranty claims asserted during the appropriate warranty period

If you believe that your system is eligible for a warranty repair contact Emonix immediately. Based on the affected part and location of the system Emonix will determine the best way to return the system to working order. This may include but is not limited to the following options:

(i) Mail-in. If the affected part is detachable, Emonix may request that it be sent to an authorized Emonix service center for repair. If a repair cannot be completed then a full replacement will be issued.

(ii) Do-it-yourself (DIY) Parts Service. DIY service allows you to service your own system when the circumstances are right. If Emonix determines the solution is a simple fix then the parts will be sent to the customer for installation.



# Contact Us

Direct inquiries to:  
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help@emonix.io  
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Madison WI, 53703

emonix™