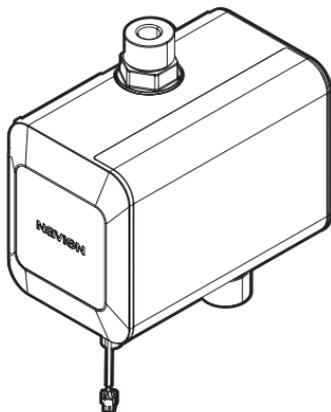


# ComfortCirc

## Installation and Operation Manual



### Note

This device is designed and optimized for use only on Navien NWP500 water heater.

## **⚠ WARNING**

All installations should be done only by a qualified expert and in accordance with the provided instructions by the manufacturer. Before starting the installation, please review these installation and operating instructions carefully. The installation must comply with national, state, and local plumbing codes and regulations.

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# 1. Important Safety Information



The following Safety Alert Symbols appear in this manual to warn you of potential personal injury hazards. Always follow the accompanying safety messages to avoid serious injury or death. This Safety Alert Symbol precedes any message related to personal injury and may be accompanied by one of the following signal words.

Failure to follow the instructions exactly may result in fire or explosion, causing property damage, personal injury or death.

## **DANGER**

Indicates a hazardous situation that if not avoided will result in death or serious injury.

## **WARNING**

Indicates a hazardous situation that if not avoided could result in death or serious injury.

## **CAUTION**

Indicates a potentially hazardous situation that if not avoided could result in minor or moderate injury.

## **NOTICE**

Indicates information considered important but not hazard-related (such as property damage).

## **WARNING**

### **Electric Shock Hazards**



- Always plug the product into a properly grounded DC 24 V GFCI-protected power supply.  
If the supply power is higher or lower than the rated power, it may cause a fire, and the performance of the product may be degraded or its lifespan shortened.
- Do not use a power strip or extension cord.
- Do not touch the power plug with wet hands.
- Do not clean with water or a wet cloth.

### **When using the product**

- Do not disassemble the product by yourself.  
If repair is required, contact Navien Technical Support at 800-519-8794 or an authorized Navien distributor.
- Insulate all exposed pipes in winter to prevent damage from freezing.
- Do not unplug the power cord or close valves during extended winter absences to ensure the Freeze Prevention System operates.  
In extremely cold conditions, the recirculation pump will automatically operate to prevent damage from freezing.

### **High Temperature Hazards**

- If the water heater is operated at a high temperature, hot water circulated through the system may cause scalding. To reduce this risk, it is recommended to install thermostatic mixing valves at each point-of-use.

## **CAUTION**

### **When using the HotButton**

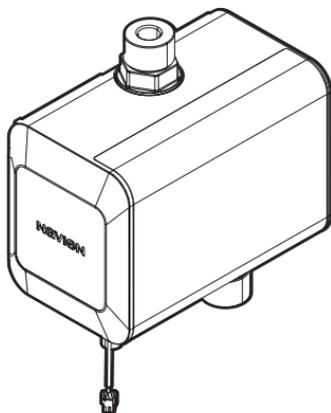
- Keep out of reach of children.
- Do not apply excessive force or impact to the product.
- Do not insert foreign substances into the product.

California law requires the following Prop 65 warning to be provided:

## **WARNING**

Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

## 2. About the ComfortCirc



The ComfortCirc is designed for domestic hot water recirculation system, either with a dedicated return line or a shared return line using the optional NaviCirc.

The recirculation pump has built-in temperature and flow sensors. You can configure the operation mode, timer, and other settings through the NaviLink® app and send On-demand signals directly from the app. If necessary, you can install wired On-demand S/W using HotButton™ (optional).

When the recirculation pump is connected to the Navien heat pump water heater, you can control the pump from the heat pump water heater to minimize energy loss. Return operation is automatically switched according to Demand-Response (CTA-2045), and various settings can be configured via the front panel on the heat pump water heater.

### 2.1 Intended Use

The ComfortCirc is intended for domestic hot water recirculation with a dedicated return line.

## 2.2 Pumped Liquids

### **⚠ WARNING**

#### **Electric Shock Hazards**

- The ComfortCirc is for indoor use only.
- The ComfortCirc has not been tested for use in swimming pool or marine areas.

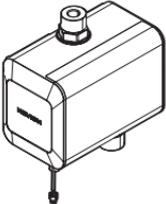
### **⚠ WARNING**

#### **Fire or Explosion Hazard**

The ComfortCirc must not be used for the transfer of flammable liquids such as diesel oil, gasoline and similar liquids.

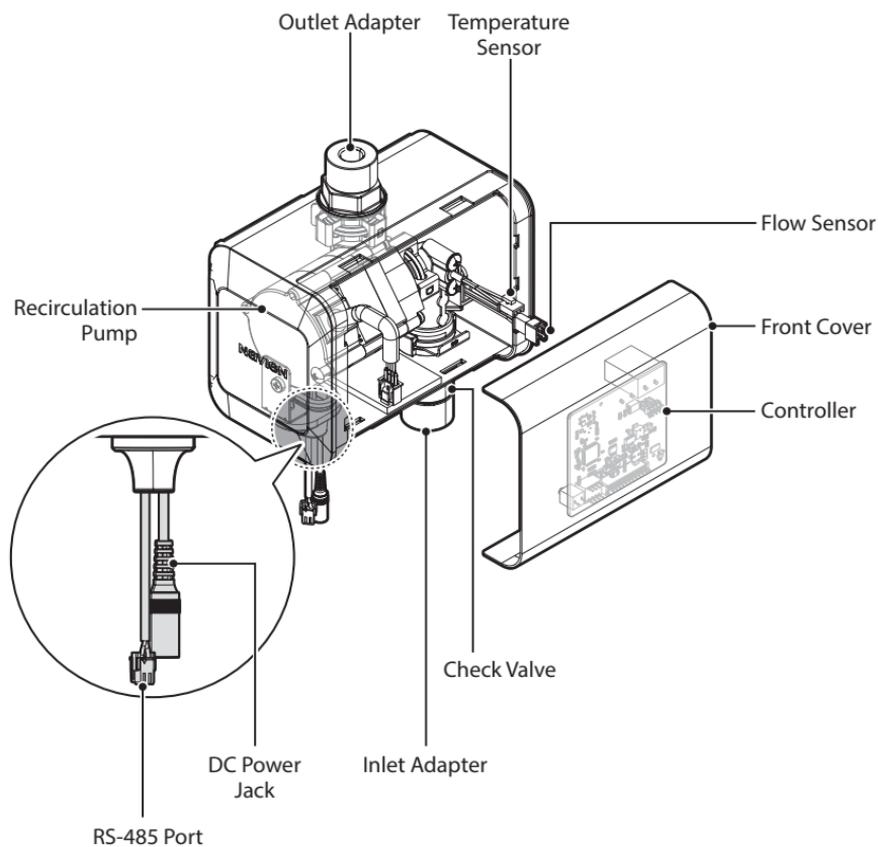
- The ComfortCirc is intended for domestic hot water recirculation with a dedicated return line.
- The ComfortCirc is suitable for pumping clean, thin, non-aggressive and non-explosive liquids without solid particles or fibers or mineral oils.
- The ComfortCirc is designed to circulate water from 36°F to 140°F (2°C to 60°C) up to a maximum pressure of 145 psi (1 MPa), depending on the variant.

## 2.3 Included Items

		
<b>ComfortCirc (Recirculation Pump)</b>	<b>Installation and Operation Manual</b>	<b>Power Adapter</b>

## 2.4 Configuration

Refer to the following diagram for the ComfortCirc layout.



## 2.5 Specifications

Refer to the following table for product specifications.

Items		Specifications
<b>Model</b>		NAP-10SS
<b>Product Name</b>		ComfortCirc
<b>Country of Manufacturing</b>		Republic of Korea
<b>Operation Mode</b>		Wired On-Demand / Schedule / Always-On
<b>Output Level</b>		1 level
<b>Pump Specs.</b>	<b>Pump Head</b>	17.7 ft
	<b>Flow Rate</b>	1.32 GPM at 15.4ft head
	<b>Power Supply</b>	24 V DC
	<b>Pump Type</b>	BLDC Pump
	<b>Operating Temperature</b>	140°F (60°C)
	<b>Operating Pressure</b>	145 psi
	<b>Flow/Temperature Control</b>	Built-in flow and temperature sensors
	<b>Pipe Diameter</b>	3/4"
	<b>Noise</b>	40 dB
	<b>Rated Current</b>	< 2.5 A
<b>Power Consumption</b>	< 60 W	
<b>Dimensions</b>	<b>Product (W x H x D)</b>	3.15 x 5.51 x 4.61 in
<b>Certifications</b>	<b>FCC/ICES</b>	47 CFR FCC Part 15 Subpart B with ANSI C63.4a-2017 ICES-003 Issue 7 / ANSI C63.4-2014 amended as per ANSI 63.4a-2017
	<b>UL/CSA</b>	Comforms to UL STD. 778 Certified to CSA STD. C22.2 NO. 108
	<b>NSF</b>	NSF 372
	<b>cUPC</b>	PS 115/B125.3

## 3. System Configuration

### 3.1 About the Recirculation Systems

The external recirculation system circulates hot water continuously or on demand to reduce the time it takes for hot water to reach fixtures.

Depending on the plumbing layout and site conditions, the system can be configured using either a dedicated return line or a crossover valve.

The ComfortCirc is compatible only with specific Navien products and operates through direct communication with them. After installation, follow the instructions in this manual to ensure the system is functioning properly.

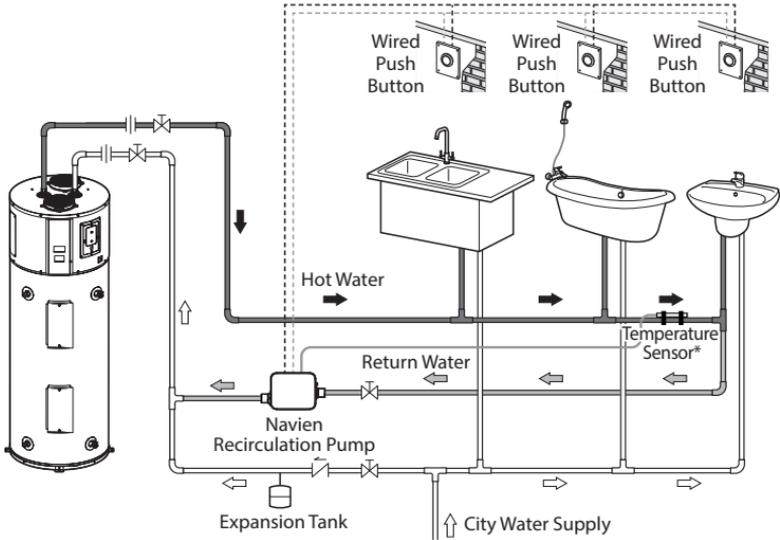
#### **NOTICE**

- The return water pipe must be connected to the cold water inlet side. Improper connection may result in poor circulation, backflow of hot water, and reduced system efficiency and safety.
- Adding a recirculation system to a heat pump water heater may cause the water heater to operate more frequently.

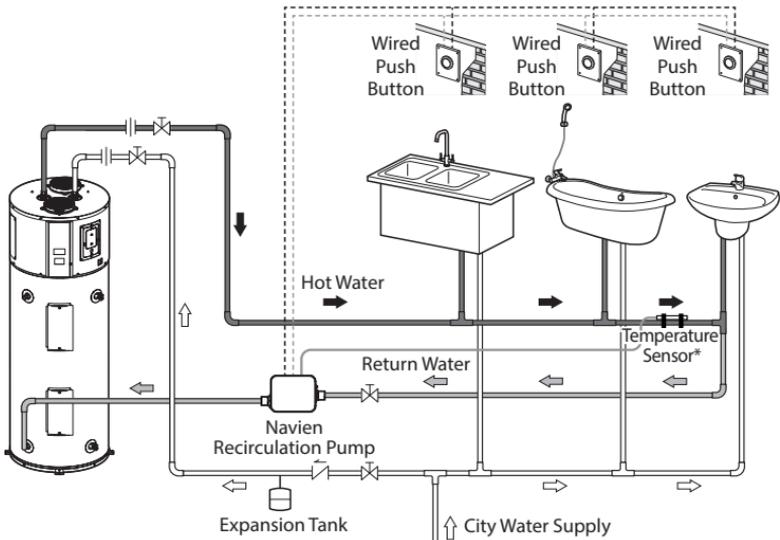
## 3.2 Standard Piping Diagram

### Top Inlet and Outlet Connections with a Return Line

- When using the top inlet and outlet only

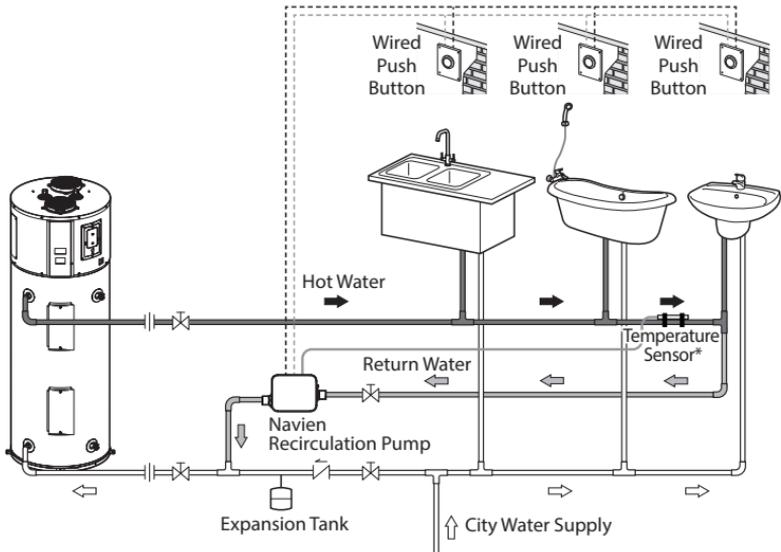


- When using the optional side inlet for the return line

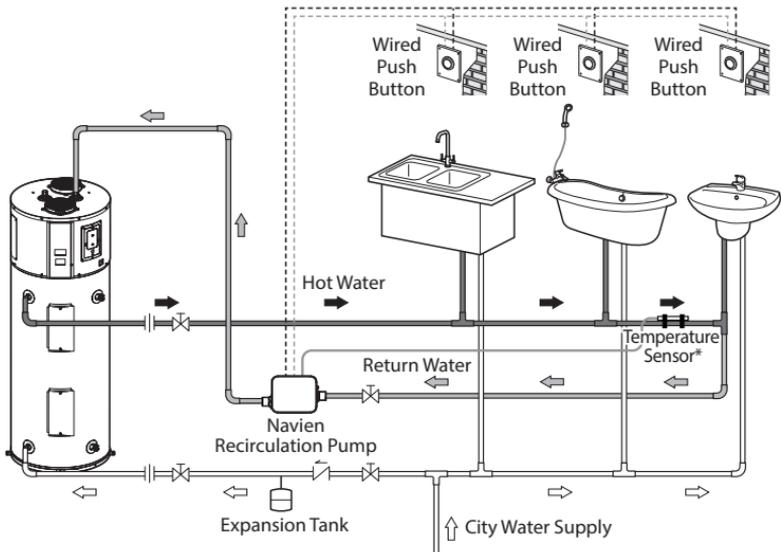


## Side Inlet and Outlet Connections with a Return Line

- When using the side inlet and outlet only

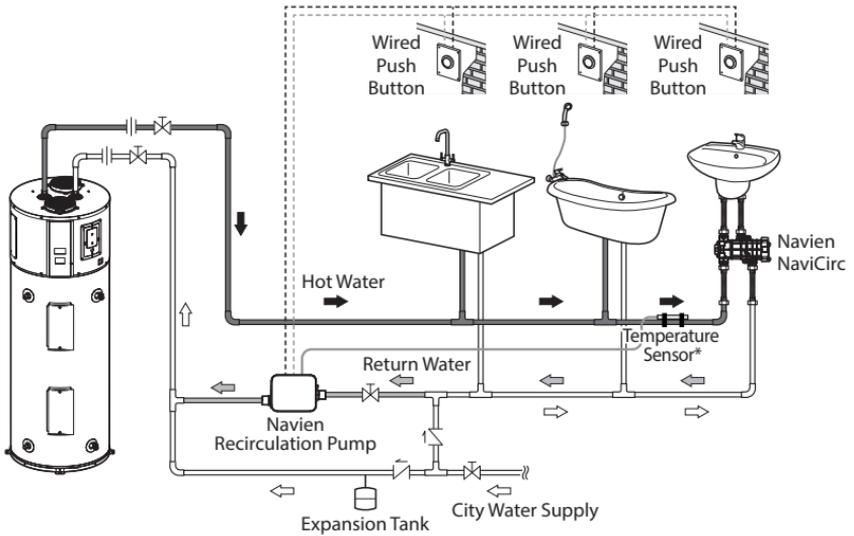


- When using the top inlet for the return line

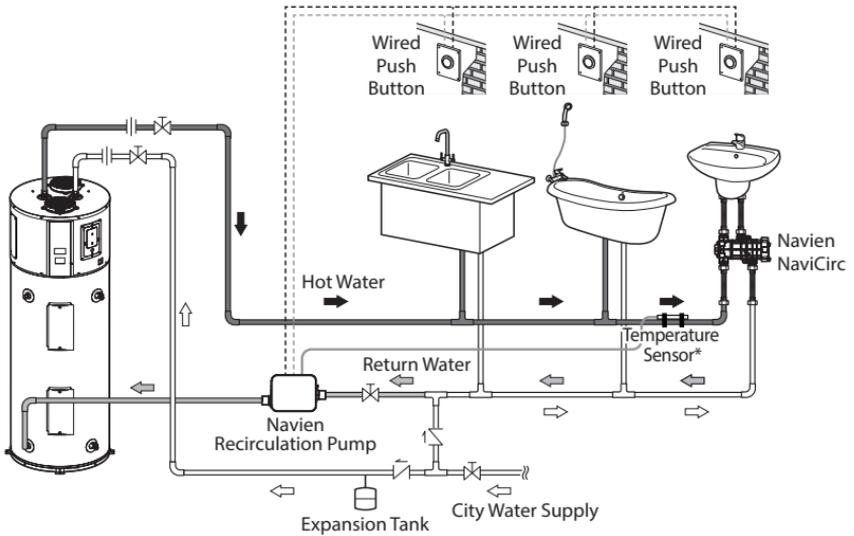


## Top Inlet and Outlet Connections with Navien NaviCirc

- When using the top inlet and outlet only

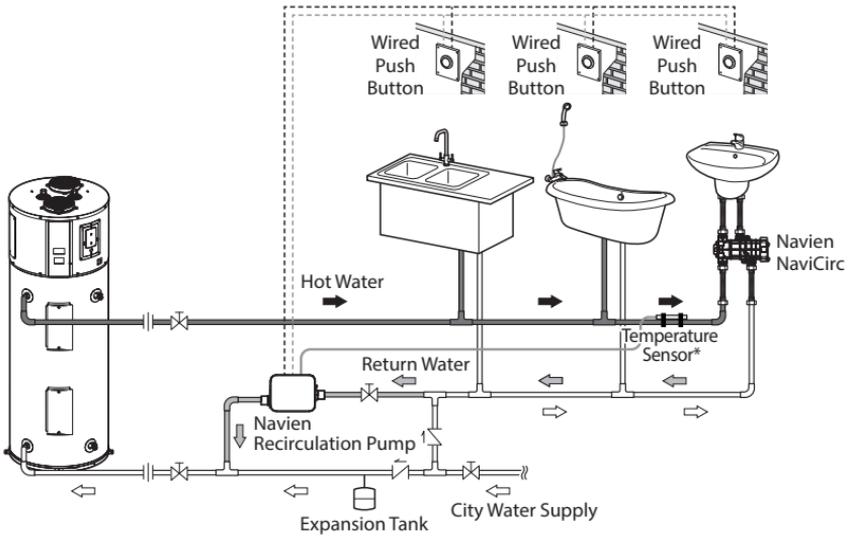


- When using the optional side inlet for the return line

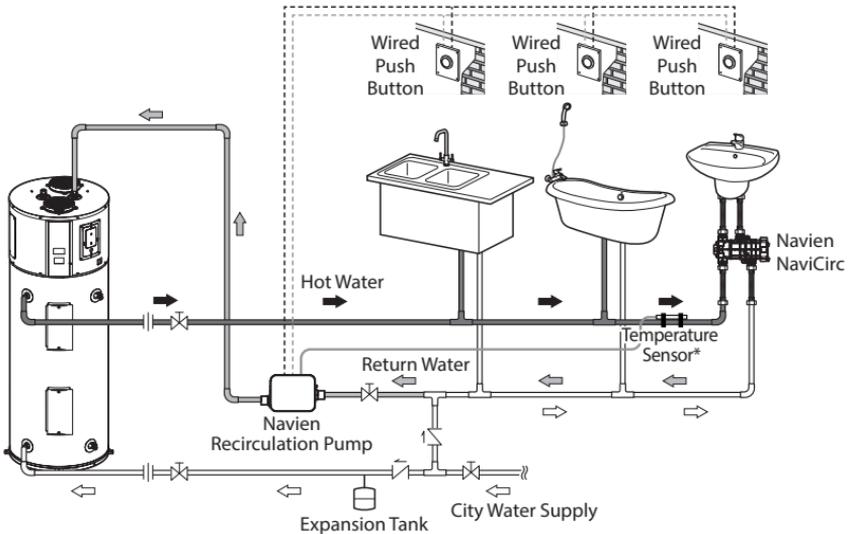


## Side Inlet and Outlet Connections with Navien NaviCirc

- When using the side inlet and outlet only



- When using the top inlet for the return line



\* For Eco Recirculation Mode only

## 4. Using the ComfortCirc

### 4.1 Connecting HPWH and the Recirculation Pump for Communication

#### 4.1.1 Installing the Navien Recirculation Pump

The recirculation pump can be installed at the top or on the side, depending on the water heater's configuration.

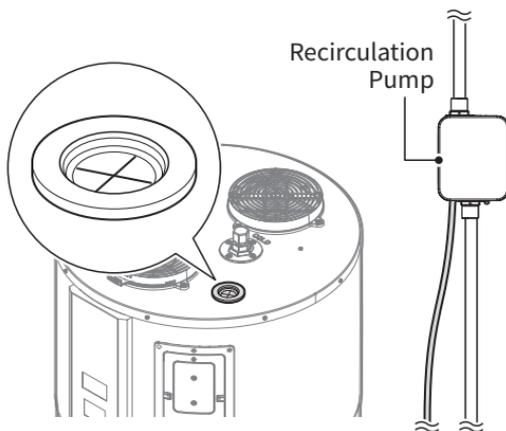
**Note**

- The NaviCirc recirculation valve, push buttons, and temperature sensor are not included with the recirculation pump but are available for purchase separately. Refer to their respective manuals for proper usage.
- The Navien recirculation pump must be installed on the system's return line. Turn off the power to the water heater.

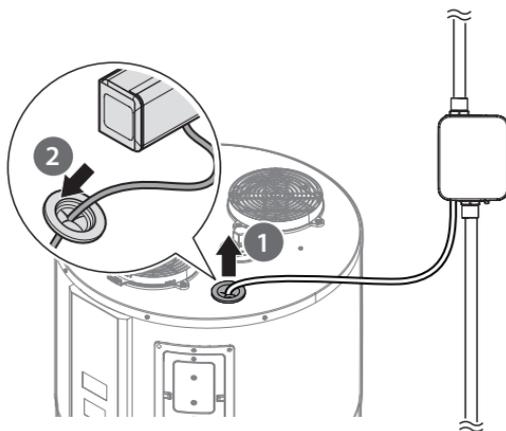
#### 4.1.2 Top Installation

1. Ensure the electrical power to the water heater is turned off.
2. Refer to the standard piping diagrams to choose an appropriate location for the recirculation loop and pump.

3. Cut a slit on the rubber packing to allow the recirculation pump's communication cable to pass through.

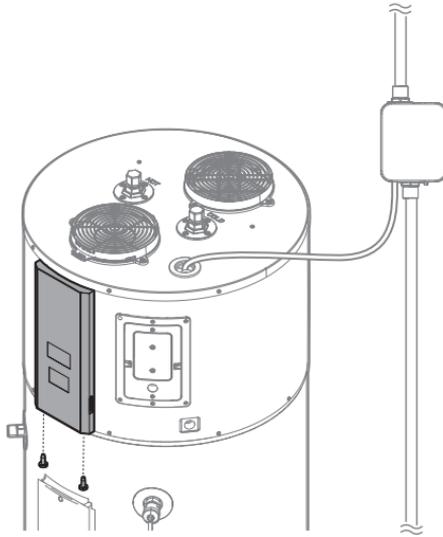


4. Take out the rubber packing and connect it to the designated point.

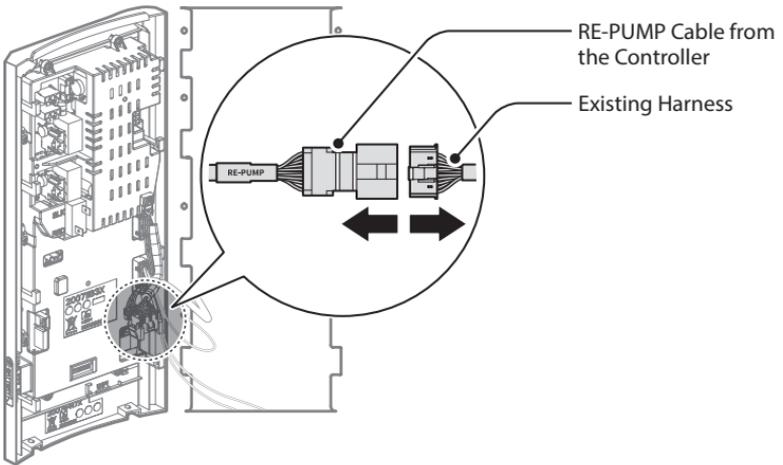


5. Fit the rubber packing into the top plate hole to align it properly.

6. Remove the 2 screws from the bottom of the front panel. Then, remove it from the water heater.



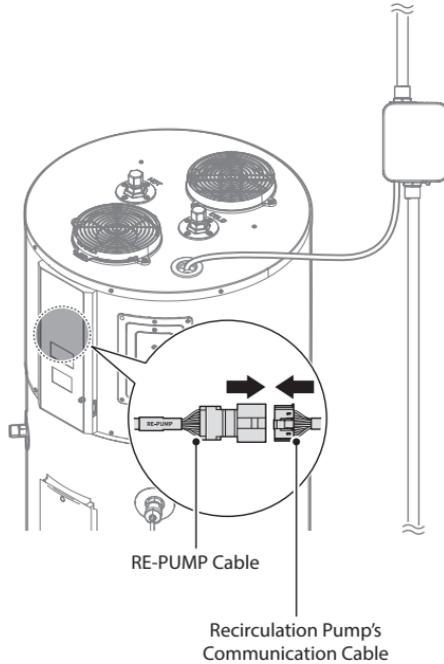
7. Disconnect the connected RE-PUMP cable from the controller.



8. Connect the recirculation pump's communication cable to the RE-PUMP cable from the controller. Then, use the supplied power adapter to provide power to the pump.

**Note**

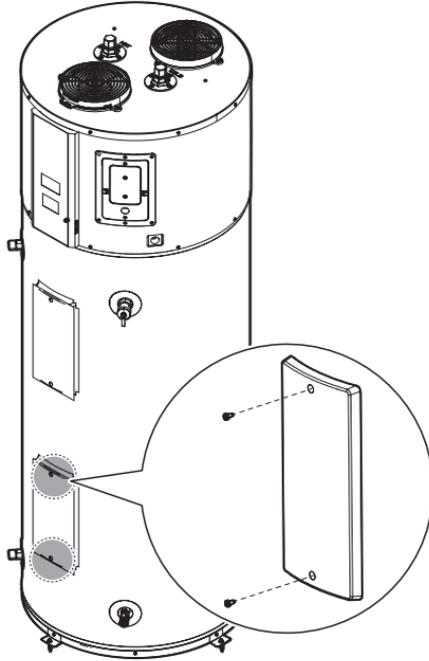
After connecting the connectors, ensure that all cables are secured inside the front panel.



9. Install the front panel and fasten it using the two screws at the bottom.
10. Inspect all piping connections for leaks before turning the water heater on.

### 4.1.3 Side Installation

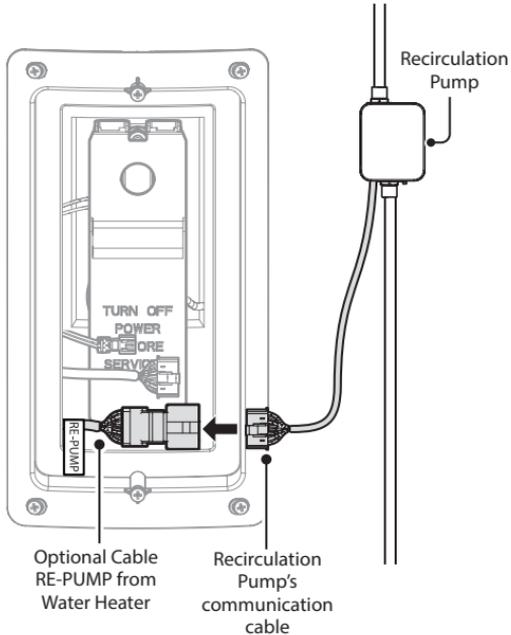
1. Ensure the electrical power to the water heater is turned off.
2. Refer to the standard piping diagrams to choose an appropriate location for the recirculation loop and pump.
3. Remove the 2 screws from the lower heating element cover. Then, remove it from the water heater.



4. Connect the recirculation pump's communication cable to the RE-PUMP cable from the water heater. Then, use the supplied power adapter to provide power to the pump.

**Note**

After connecting the connectors, ensure that all cables are secured inside the element cover.

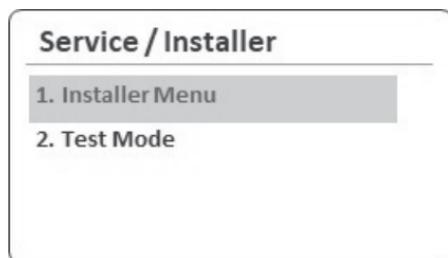
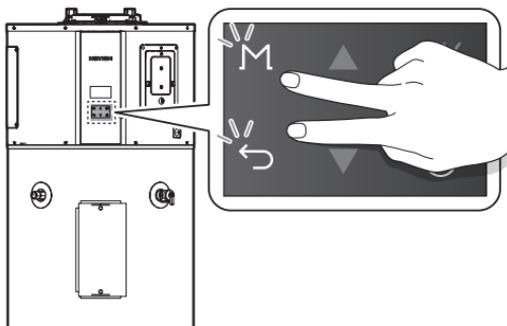


5. After connecting them, route the cable through the opening in the lower heating element cover. Then, reinstall the cover on the water heater.
6. Inspect all piping connections for leaks before turning the water heater on.

## 4.2 Configuring the Installer Settings

You can configure detailed operation settings for service, reset all settings, or change the installer menu password.

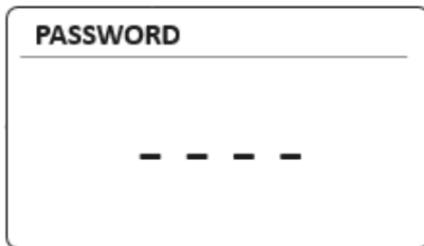
1. Press and hold the Menu button (M) and the Back button (↶) simultaneously for more than 5 seconds, and then select **Installer Menu**.



2. On the Password screen, use the Up (▲) or Down (▼) button to change numbers and OK (OK) button to move to the next digit. Press OK (OK) button after entering all four digits to confirm the password. If the password is correct, the Installer Menu will be displayed.

**Note**

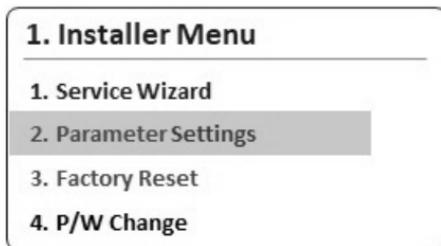
The factory default password is "1234."



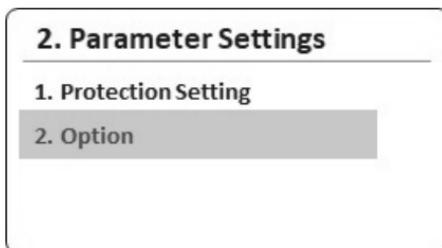
**Note**

- If you enter an incorrect password 10 times or make no input for 1 minute, the water heater will return to Normal mode.
- To return to the previous mode, press the Back button (↶).

3. From the Installer Menu, select **Parameter Settings**.



4. From the Parameter Settings menu, select **Option**.



5. Press the Up (▲) or Down (▼) button to scroll through parameters and adjust their settings. Press the OK (OK) button to select an option or confirm a change.

Item	Description
3. Recirc Pump Kit	Enable or disable the Navien recirculation pump kit. <ul style="list-style-type: none"> <li>• Setting range: Enable, Disable</li> <li>• Default: Disable</li> </ul>
4. Eco Recirc Mode	Enable or disable the Eco recirculation mode. <ul style="list-style-type: none"> <li>• Setting range: Enable, Disable</li> <li>• Default: Disable</li> </ul>
5. Recirc Interval Time	Set the recirculation duration. <ul style="list-style-type: none"> <li>• Setting range: 1–120 min</li> <li>• Default: 20 Min</li> </ul> <p><b>Note</b></p> A default setting of 5 minutes is applied when the Eco recirculation mode is enabled
6. Recirc Sample Time	Set the recirculation interval. <ul style="list-style-type: none"> <li>• Setting range: 1–120 Min</li> <li>• Default: 30 min</li> </ul>
7. Recirc Off Diff. Temp	Set the Recirculation Off offset temperature. It cannot be set when the Eco Recirc Mode is enabled. <ul style="list-style-type: none"> <li>• Setting range: 5°F (3°C)–55°F (30.5°C)</li> <li>• Default: 9°F (5°C)</li> </ul> <p><b>Note</b></p> The recirculation temperature does not exceed 131°F (55°C).
8. Fixture Distance	If the external HotButton surface temperature sensor is not used, configure the pipe length setting to define the virtual turn-off point. The internal thermostat will then be used to control recirculation. <ul style="list-style-type: none"> <li>• Setting range: 15 ft (4.5 m)–660 ft (198 m)</li> <li>• Default: 30 ft (9 m)</li> </ul>

**Note**

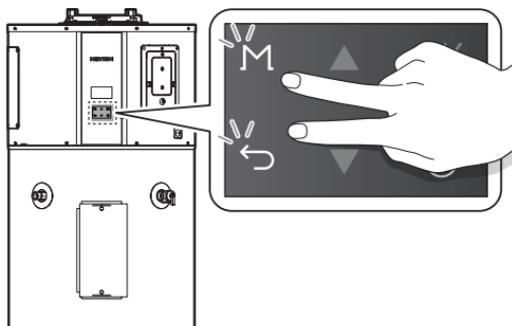
If you make no input for 10 seconds in the Parameter Edit mode, the current parameter value will be saved automatically.

6. Press the Back button (↩) to return to the previous screen or menu.

## 4.3 Diagnosing the Recirculation Pump

You can diagnose recirculation system of the water heater.

1. Press and hold the Menu button (M) and the Back button (↶) simultaneously for more than 5 seconds, and then select **Test Mode**.



### Service / Installer

#### 1. Installer Menu

#### 2. Test Mode

2. From the Test Mode menu, select **Recirc Pump Kit**.

Item	Description
5. Recirc Pump Kit	Press the Up (▲) or Down button (▼) to turn the recirculation pump on or off. If the recirculation pump on the water heater does not operate for 5 minutes, the test will end.

### Note

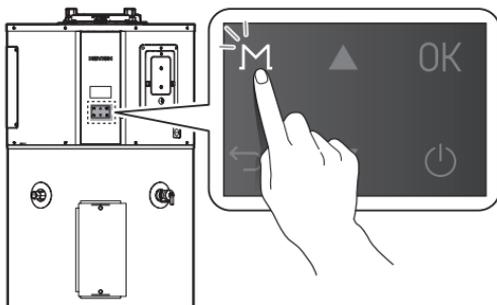
This test turns the Recirculation Pump Kit on and off. The control status and recirculation flow rate are displayed on the front panel.

3. Press the Back button (↶) to return to the previous screen or menu.

## 4.4 Setting the Recirculation Mode

You can customize the water heater's operation by enabling the preheating function in the recirculation mode to match your lifestyle.

1. Press and hold the Menu button (M) for at least 5 seconds, and then select **Recirculation Settings**.



### Main Menu

4. Error History
5. EMS Data
6. Configuration
- 7. Recirculation Settings**

2. Press the Up (▲) or Down button (▼) to switch between the items. Press the OK Button (OK) to select an item.

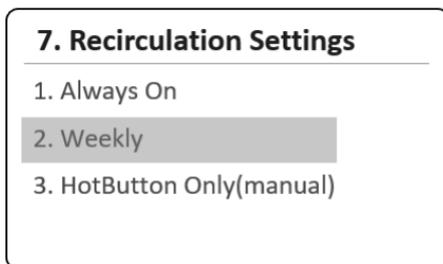
Item	Description
1. Always On	Run continuous domestic hot water (DHW) recirculation.
2. Weekly	Schedule the weekly recirculation operation.
3. HotButton Only(Manual)	Manually activate a one-time DHW recirculation cycle using an external HotButton or the NavILink app.

3. Press the Back button (↶) to return to the previous screen or menu.

## 4.4.1 Setting the Recirculation Weekly Operation Schedule

You can set and review a weekly recirculation schedule.

1. From the Recirculation Settings Menu, select **Weekly**.



2. Press the Up (▲) or Down button (▼) to switch between the items, and set the weekly operation schedule details.

Item	Description
1. Weekly Enable	Turn the weekly recirculation schedule On or Off (Default: Off).
2. Weekly Set	Create or modify the weekly recirculation schedule.
3. Weekly List	View all saved weekly recirculation schedules.
4. Weekly Delete	Remove a weekly recirculation schedule.

3. Press the Back button (↶) to return to the previous screen or menu.

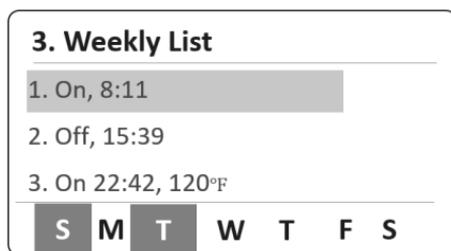
### **Setting Weekly Recirculation Operation Schedule Details**

1. From the Weekly Menu, select **Weekly Set**.
2. Press the Up (▲) or Down button (▼) to switch between items. Press the OK button (OK) to select a sub menu of parameters, then set the schedule details.

Item	Description
Day	Set the days for the recirculation to operate. Multiple days can be chosen. 1. Press the OK button (OK) to select a day of the week. <ul style="list-style-type: none"><li>• Setting range: Sun, Mon, Tue, Wed, Thu, Fri, Sat</li></ul> 2. Press and hold the OK button (OK) to move to the next setting.
Time	Set the operating time. 1. Press the OK button (OK) to select the time. 2. Press and hold the OK button (OK) to move to the next setting.
Operation	Select the recirculation On or Off for selected days and time.

### **Viewing the weekly schedule list**

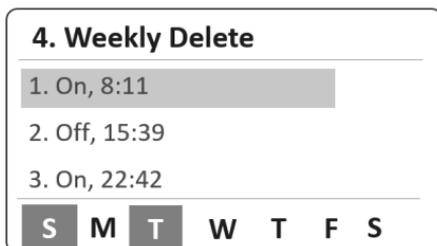
1. From the Weekly Menu, select **Weekly List**.
2. Press the Up (▲) or Down button (▼) to switch between schedule items, and select an item to view its details.



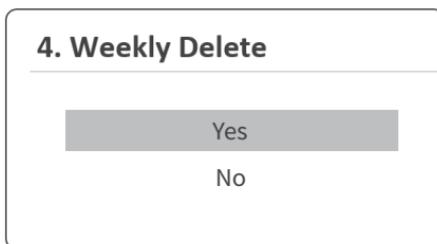
The programmed On and Off time will be displayed, and the selected days in the weekly schedule will appear at the bottom of the screen.

### **Deleting Weekly Recirculation Operation Schedules**

1. From the Weekly Menu, select **Weekly Delete**.
2. From the list, press the Up (▲) or Down button (▼) to select a schedule item to delete. Then, press the OK (OK) button.



3. From the Weekly Delete screen, press the Up (▲) or Down button (▼) to select **Yes**, then press the OK (OK) button to delete the selected schedule item. To cancel, select **No**.



## 4.5 Installing Optional Kits

### Items Not Included



Push Button Switch  
(#GXXX001426)



Wall Plate  
(#GXXX001427)



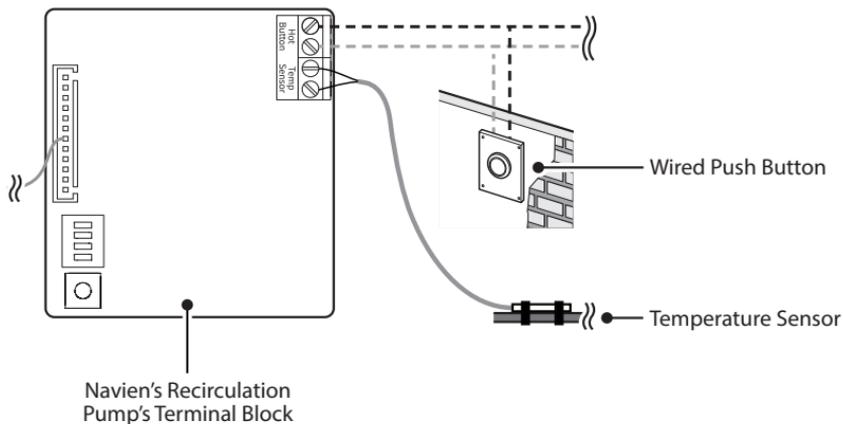
Temperature Sensor  
(#GXXX001640)

#### Note

In addition to activating the HotButton using push buttons, recirculation can also be started through the NaviLink app.

### 4.5.1 Installing a Wired HotButton

When wiring the Navien recirculation pump, connect the temperature sensor to the **Temp Sensor** terminal and the wired push button to the **Hot Button** terminal on the pump's terminal block.



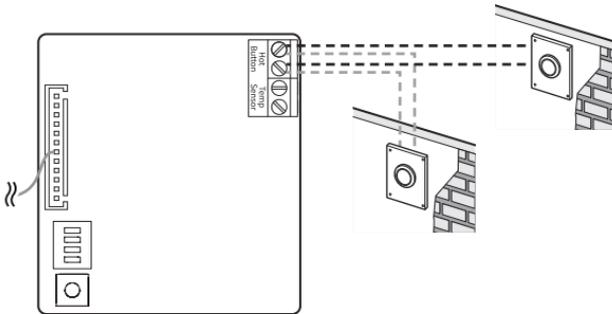
## Connecting Wired Switches

Connect a wired switch, or multiple wired switches to the HotButton controller.

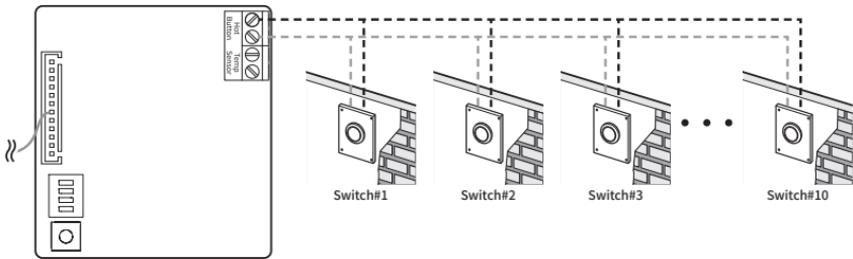
### Note

- Multiple wired switches may be connected to the same terminal contacts.
- Use spade connectors at the end of the cables to securely install the cables to the terminal contacts.

When you connect the push button switches to the controller, you can run cables from each switch directly to the controller and connect them to the same terminal. Or, you can run a common branch circuit that runs from the controller and connect each switch to the branch.



[Multiple switches connected directly to the same terminals at the controller]



**[Multiple switches connected to a common branch circuit]**

**Note**

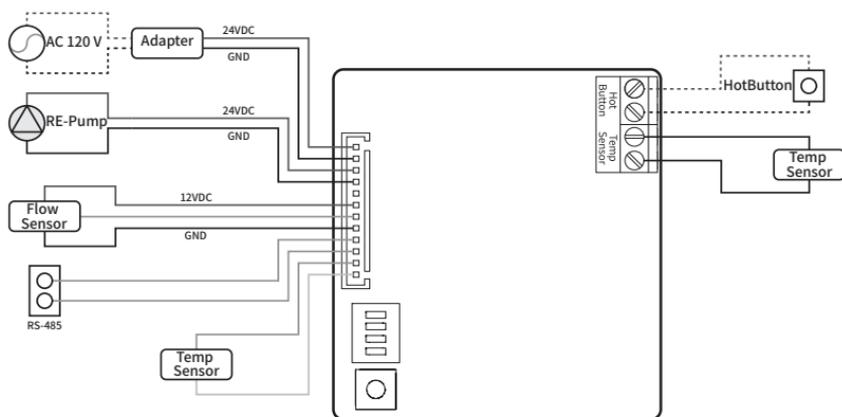
- You can connect up to 10 push button switches to one HotButton controller.
- Use UTP cables or cables with a diameter greater than AWG 24.
- Make sure that the total cable length does not exceed 328 feet (100 meters).
- Additional push button switches (#GXXX001426) and wall plates (#GXXX001427) can be purchased through Navien.

## 5. Troubleshooting

If you experience a problem with the recirculation pump, refer to the following table for possible remedies.

Problem	Possible cause(s)	What to do
<b>The water from the hot water tap is not hot enough.</b>	<ul style="list-style-type: none"><li>• Full temperature water has not reached the fixture.</li><li>• The hot water temperature of the water heater is set too low.</li><li>• The pump is not operating properly.</li><li>• Recirculation Pump is not installed properly.</li></ul>	<ul style="list-style-type: none"><li>• Keep the fixture open to allow the hot water line to purge.</li><li>• Set the water heater temperature to a higher temperature.</li><li>• Check whether the pump is stuck.</li><li>• Clean out the water heater filter and the Recirculation Pump inlet.</li><li>• Contact Navien Technical Support.</li></ul>
<b>The water from the hot water tap is not hot enough even when the water heater is set at a high temperature.</b>	<ul style="list-style-type: none"><li>• Recirculation Pump malfunction.</li></ul>	<ul style="list-style-type: none"><li>• Contact Navien Technical Support.</li></ul>
<b>The water from the hot water tap is too hot.</b>	<ul style="list-style-type: none"><li>• The water heater temperature is set too high.</li></ul>	<ul style="list-style-type: none"><li>• Adjust the water heater temperature.</li></ul>

## 6. Wiring Diagram



# LIMITED WARRANTY NAVIEN, INC.

## Warranty Period

Navien products come with a limited warranty covering parts. The following warranty periods begin to run from the date of original installation. The date of original installation must be provided to Navien, and upon request, proof of the original installation date must also be provided to Navien. When the product is installed in a new construction, the commencement date shall be dated upon which the end-user takes title to the property.

**Note** Navien does not guarantee the performance of the NaviCirc when used on a non-Navien appliance.

## Applicable Warranty Period

Period of Coverage	
All other part and components	3 years

## Warranty Claim Procedures

To obtain warranty repair service, the end user or homeowner must contact the original installer of your Navien product. If the original installer cannot be identified, the end user or home owner may contact Navien's Technical Administration Department at (800) 519-8794. Proof of purchase is required to obtain warranty service.

## Warranty Service

At its option, Navien will replace the defective component (part), in accordance with the terms of this Limited Warranty, if it fails in normal use and service during the applicable warranty period identified above. The replacement component must be Navien original factory component. Navien, at its sole discretion, may replace the product with a new or refurbished product of comparable quality and design. The replacement component or product will be warranted only for the unexpired portion of the original component's applicable warranty period. Payment for labor in completing the warranty service is subject to Navien's prior written approval and shall be subject to Navien's schedule of approved labor allowances.

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# MEMO

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# ComfortCirc

## Installation and Operation Manual



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