



## Installation and Instruction Manual

# ***On Demand Kit***

Model LT199NXX1 / LT199PXX1  
LT199NRX1 / LT199PRX1  
RTGS199N1 / RTGS199X1  
RTGR199N1 / RTGR199X1

**⚠ CAUTION**

**Electrical Shock Hazard**

Do not turn the power on until electrical wiring is finished. Disconnect the power before servicing.  
Failure to do so may result in death or serious injury from electrical shock.

**1. About this Kit**

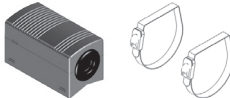


On-Demand Kit offers the most efficient way to save energy and water by adding Temperature Sensor and setting on the panel. This kit is designed to deliver hot water to your entire home with the press of a button (within a few minutes). There are no standby losses, no stack losses, and no need for extra storage tanks.

This kit can be used only on an external recirculation system with a dedicated return line.

Note> It may take a few minutes depending on the length of the pipe to prepare hot water to the desired fixture.

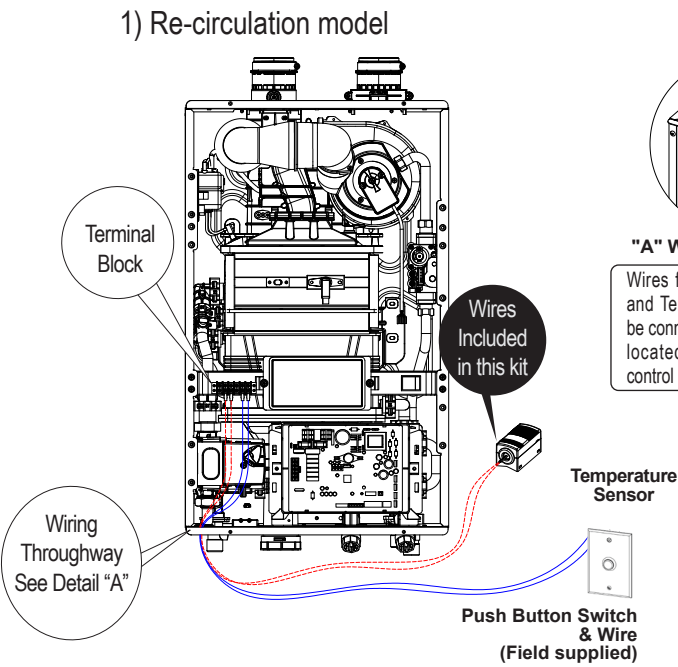
**■ Items included in the kit**

Before installation, verify that all the items below are included .

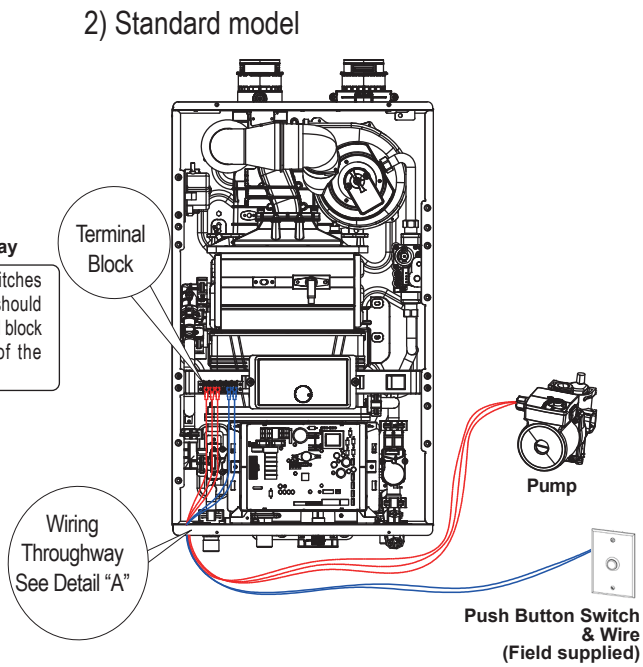
#	Parts	Shape	Q'ty
1	Temperature Sensor (2 ties included)		1
2	Wire for Temperature Sensor (4.0 ft [1.2 m])		1
3	Instruction		1

**2. Overall installation schematic**

1) Re-circulation model



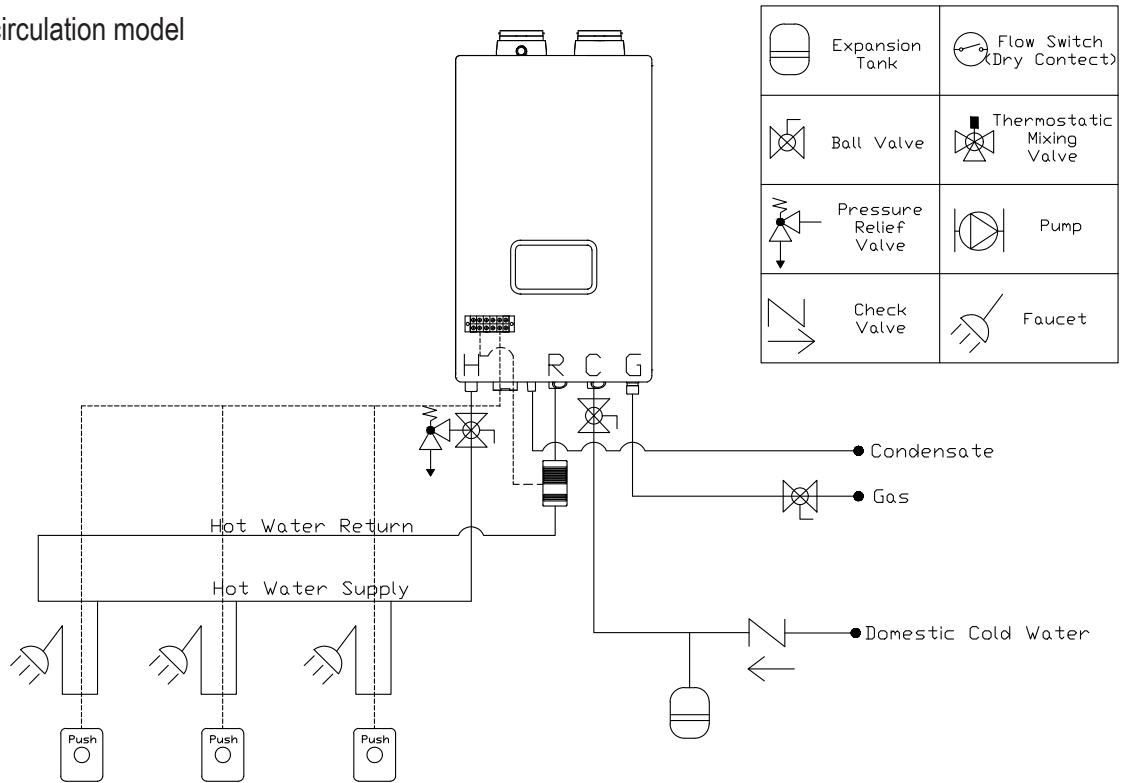
2) Standard model



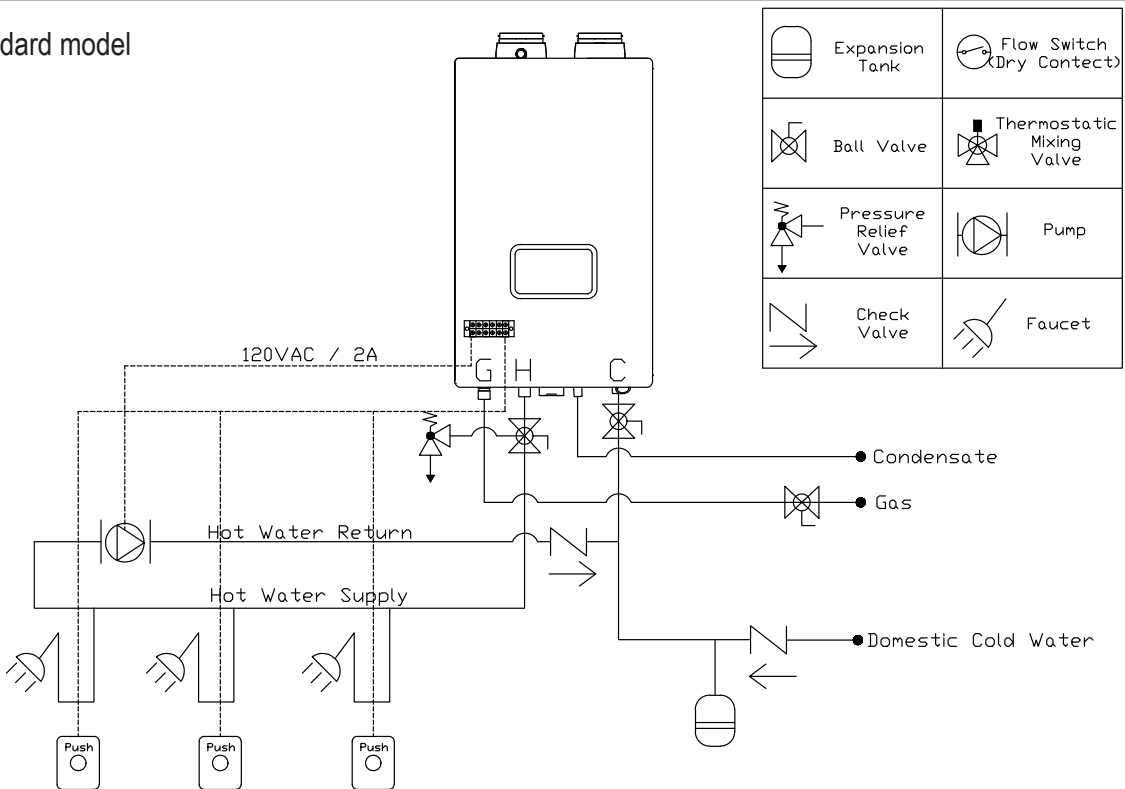
### 3. Installation

#### 1) Schematic diagram

##### \* Re-circulation model



##### \* Standard model



## 2) Wiring

- ① Turn off both gas and water supply to the water heater. Turn the power off.
- ② Remove the front cover by loosening the 4 screws. (See Figure 1)

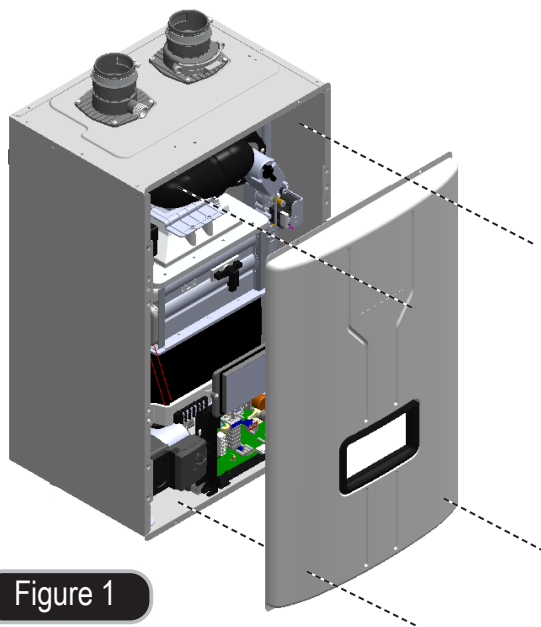
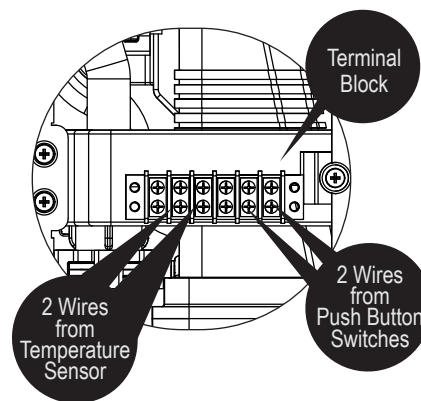


Figure 1

### \* Re-circulation model



### \* Standard model

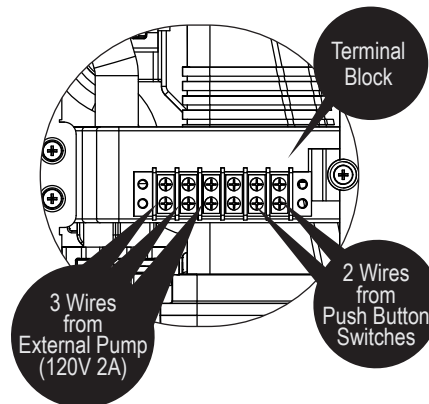


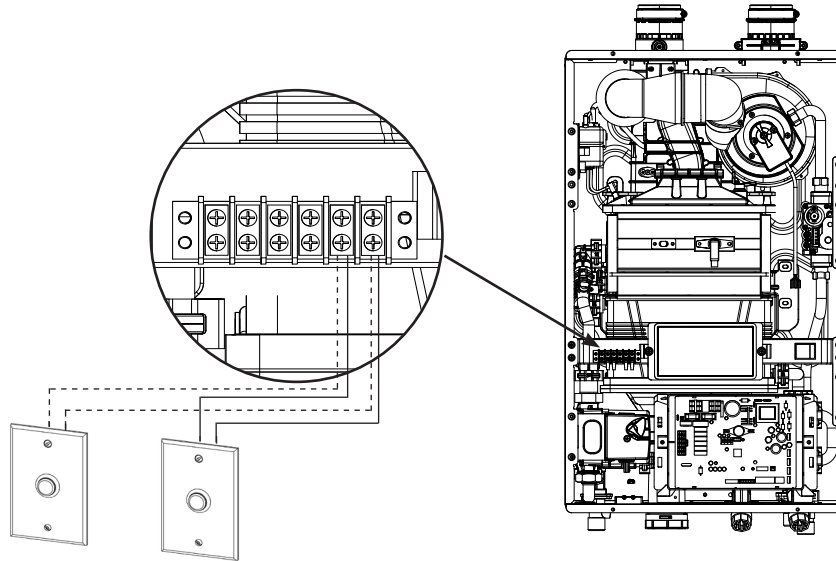
Figure 2

- ③ Connect both push button switch and temperature sensor to the connector on the terminal block. (See Figure 2)
  - ④ Close the front cover with secure 4 screws.
- \* The temperature sensor is included in the re-circulation model only.

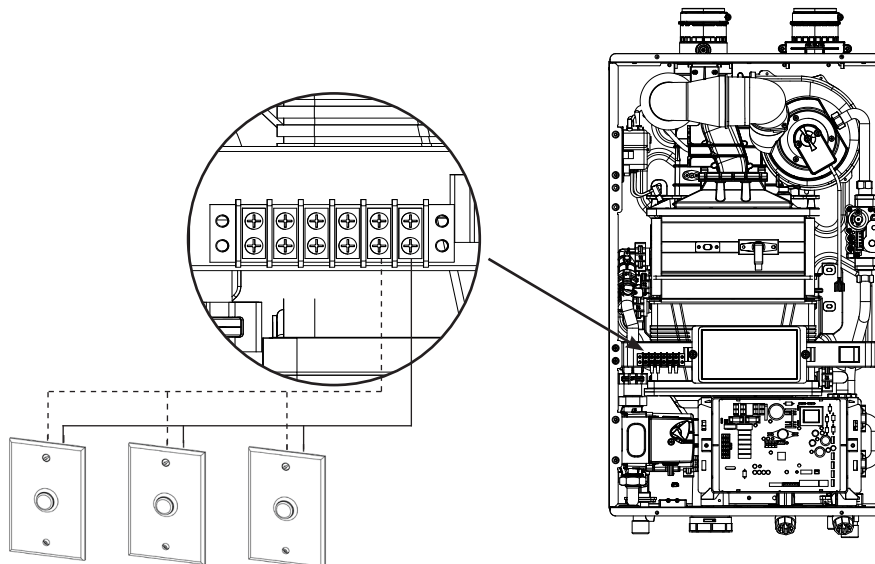
## 4. Wiring for Push Button Switches

There are two acceptable methods for connecting the push button switches to the water heater:

- ① Multiple switches connected directly to the same terminal at the terminal block.



- ② Multiple switches connected to a common branch circuit.



- Note>
- ① You can connect up to 10 push button switches to one terminal.
  - ② Use cables with a diameter of AWG24 or greater.
  - ③ Make sure that the total cable length does not exceed 328 feet (100 meters).

## 5. Installing temperature sensor on recirculation system

The sensor should be installed as close to the return connection of the unit as possible in order to measure the return temperature accurately.

- ① Open the cover of temperature sensor package. (See Figure 3)

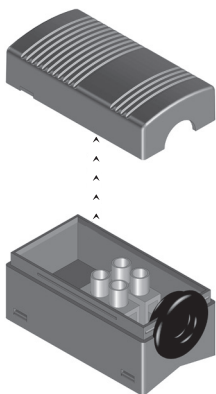


Figure 3

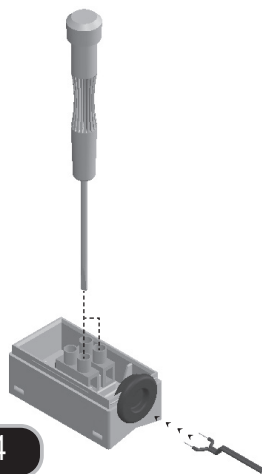


Figure 4

- ② Connect cables to terminal block. (See Figure 4)

- ③ Close the cover. (See Figure 5)

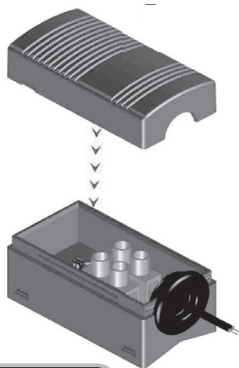


Figure 5

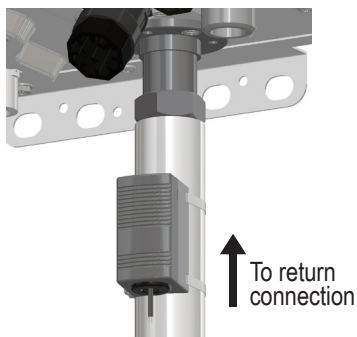


Figure 6

- ④ Install the temperature sensor:
- Fasten to the pipe using the included stainless steel tie bands.
  - Temperature sensor must be installed in the vertical position.
  - Sensor orientation must be installed as pictured. (See Figure 6)


## 6. Setting on the control panel

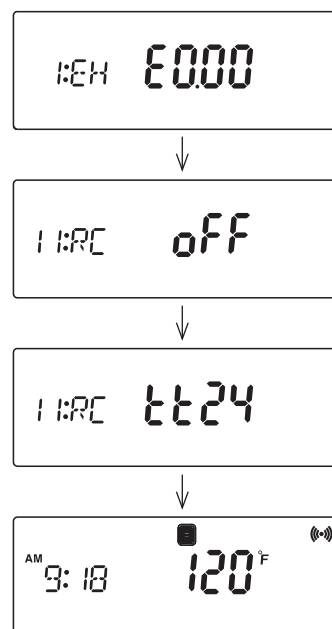
To activate the function, follow the procedure below.

### 1) Re-circulation model

- ① Turn the power off on the control display.
- ② Press and hold the 'Function Button' to enter 'Installer Mode', '[1:EH]' will be displayed.
- ③ Turn the 'Dial Button' clockwise so [11:RC] is flashing.
- ④ Press the 'Dial Button' so 'oFF' is flashing. (Default setting is 'oFF' and recirculation function is not activated.)
- ⑤ Turn the 'Dial Button' to [tt24] then press the 'Dial Button' to save the setting.

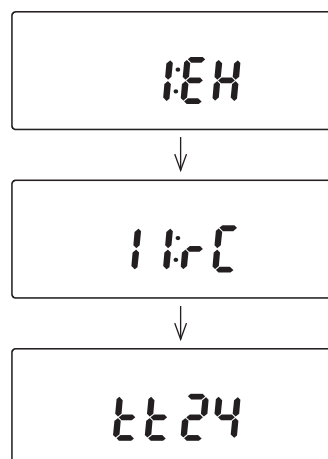
Note> ① '[tt24]' (On-Demand Recirculation Mode) will not be accessible if the temperature sensor is not connected.

- ②  icon will display on the control panel if the temperature sensor is connected properly.



### 2) Standard model

- ① Turn the power off on the control display.
- ② Press and hold the 'Function Button' to enter 'Installer Mode', '[1:EH]' will be displayed.
- ③ Turn the 'Dial Button' clockwise so [11:rC] is displayed.
- ④ Press the 'Dial Button' so 'oFF' is displayed. (Default setting is 'oFF' and recirculation function is not activated.)
- ⑤ Turn the 'Dial Button' to [tt24] then press the 'Dial Button' to save the setting.



**⚠ NOTICE** Normal recirculation control is overwritten by the following:

1. Set to External recirculation automatically.
2. Recirculation is initiated by pressing a Push Button Switch.
3. Disables automatic timer function.
4. When the temperature reaches 102°F at the Temperature Sensor, recirculation will stop.
5. Or when 5 minutes have passed after pressing the Push Button Switch, recirculation will stop.

## 7. How to Use

- ① Before hot water is required, press any of the push button switches.
- ② Pump will begin to circulate and prime the lines with hot water. The pump will continue to run until water temperature reaches the comfort level.

Note> Pump run time and delivery time are determined by water pipe distance and size. Longer runs will result in longer run times.

- ③ Pump will shut down automatically once hot water is available.
- ④ Do not repeatedly press the push button switch.