



Installation Manual

Air Handler Application

Model RTGR199, LT199NR1,
RTGS199, LT199NX1

FOR YOUR SAFETY: This product must be installed and serviced by a professional service technician, qualified in water heater installation and maintenance. Improper installation and/or operation could create carbon monoxide gas in flue gases which could cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

⚠ WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a nearby phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency, or gas supplier.

⚠ AVERTISSEMENT

Assurez-vous de bien suivre les instructions données dans cette notice pour réduire au minimum le risque d'incendie ou d'explosion ou pour éviter tout dommage matériel, toute blessure ou la mort.

Ne pas entreposer ni utiliser d'essence ou ni d'autres vapeurs ou liquides inflammables dans le à proximité de cet appareil ou de tout autre appareil.

QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:

- Ne pas tenter d'allumer d'appareils.
- Ne touchez à aucun interrupteur. Ne pas vous servir des téléphones dans le bâtiment où vous vous trouvez.
- Appelez immédiatement votre fournisseur de gaz depuis un voisin. Suivez les instructions du fournisseur.
- Si vous ne pouvez rejoindre le fournisseur de gaz, appelez le service des incendies.

L'installation et l'entretien doivent être assurés par un installateur ou un service d'entretien qualifié ou par le fournisseur de gaz.

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SECTION 1 Overview

This manual is for installing RTGR, RTGS, and LT199 series tankless water heaters with the air handler systems. It explains the wiring and piping methods required for air handler installation. Following these instructions will enable the water heater to provide heating and hot water.

WARNING

- Install wiring and electrically ground Water Heater in accordance with authority having jurisdiction or in the absence of such requirements follow the National Electrical Code, NFPA 70, and/or CSA C22.1 Electrical Code-Part 1 in Canada.
 - **ELECTRICAL SHOCK HAZARD** — For your safety, turn off electrical power supply at service panel before making any electrical connections to avoid possible electric shock hazard. Failure to do so can cause severe personal injury or death.
-
- This appliance must be electrically grounded per local codes. Ensure the electrical receptacle, in which the water heater will be plugged into, is properly grounded; if wiring directly.
 - Do not attach the ground wire to the gas or the water piping as plastic pipe or dielectric unions may isolate the Water Heater electrically.
 - The wiring diagrams contained in this manual are for reference purposes only.
 - Refer to this diagram and the wiring diagram of any controls used with the Water Heater. Read, understand and follow all wiring instructions supplied with the controls.
 - Do not disconnect the power supply when the unit is in normal operation.
 - Damage caused by freezing is not covered under the warranty.

Tankless Water Heater with Hydronic Air Handler – Technical Features

1. Hydronic Heating and Domestic Hot Water Supply
Provides reliable and efficient space heating in addition to continuous domestic hot water.
2. Flexible Circulation Options
Compatible with air handlers with or without an integrated circulation pump.
3. Versatile Installation
Designed for both new construction and retrofit installations.
4. Integrated Operation
Simultaneously delivers space heating and domestic hot water with simplified setup.
5. Built-In Anti-Bacterial Function
Circulates water automatically to reduce bacterial buildup in the system (Default: one minute every six hours).
6. Domestic Hot Water (DHW) Priority Control
Field-supplied DHW priority switch enables uninterrupted hot water during high-demand periods.
7. Additional Functional Features:
 - Selectable operation mode: Energy Saving or Standard, with DHW priority enabled.
 - Simplified parameter configuration for faster setup.
 - Two-wire thermostat connection simplifies integration with room temperature control.

CAUTION

Scalding Risk: The use of an anti-scald mixing valve at the hot water outlet (water heater location) can reduce potential for scalding.

The maximum hot water supply temperature at Point-of-Distribution and/or Point-of-Use, anti-scald device/thermostatic mixing valve at plumbing fixture or integral to the bathroom fixtures are dictated by the Plumbing Code and Health & Safety Code. Comply with all local codes.

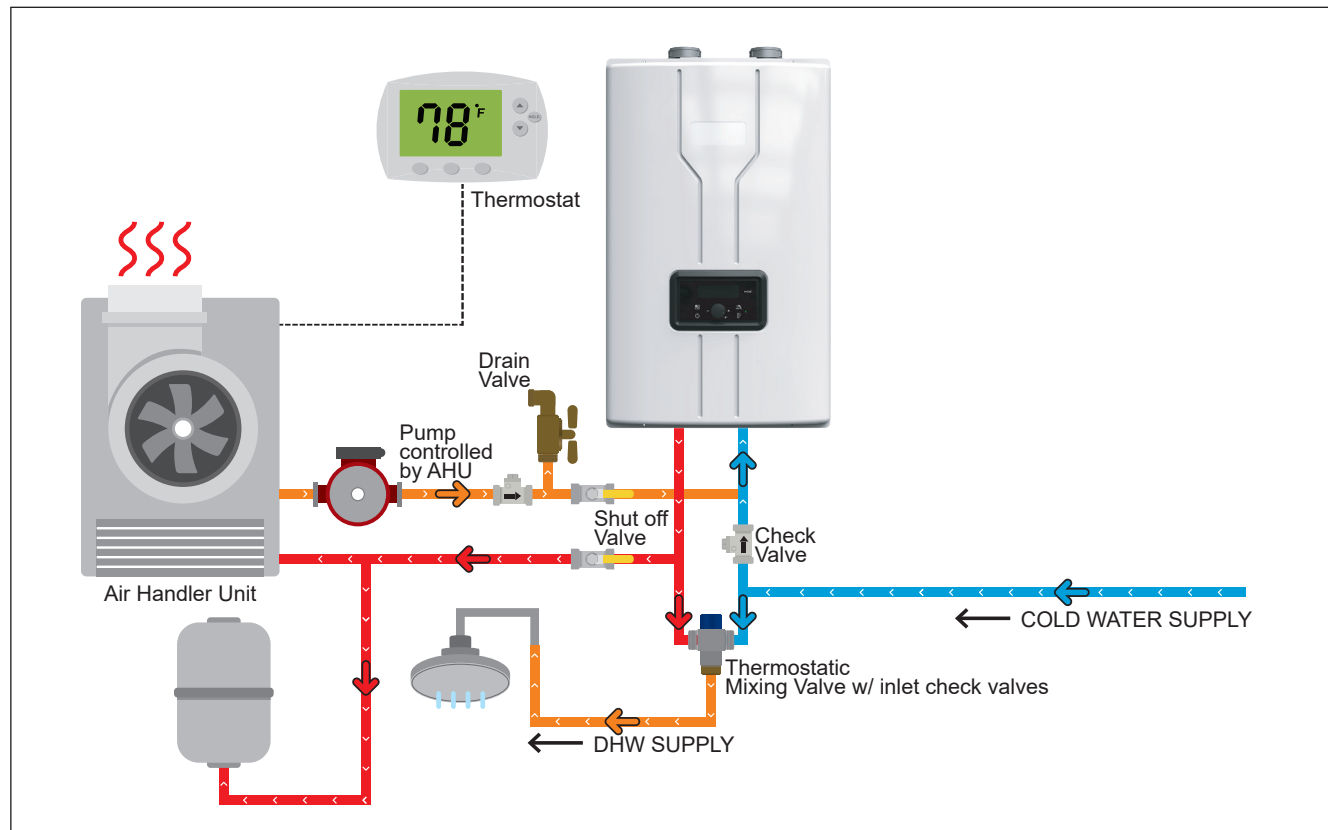


SECTION 2 Air handler installation

2.1 Tankless Standard Model with Air Handler

2.1.1 System diagram for tankless standard model using air handler pump for air handler re-circulation (9:AH Std)

• System Diagram



• Parameter Setting

1. Turn OFF the power to the Display Panel.
2. With the power OFF, press and HOLD (5 seconds) the () button to get into the Installer Mode.
3. Rotate the dial to find 9:AH. Press the dial.
4. Adjust the dial to scroll through the settings then press the dial to save.
5. Finish by pressing the () button.

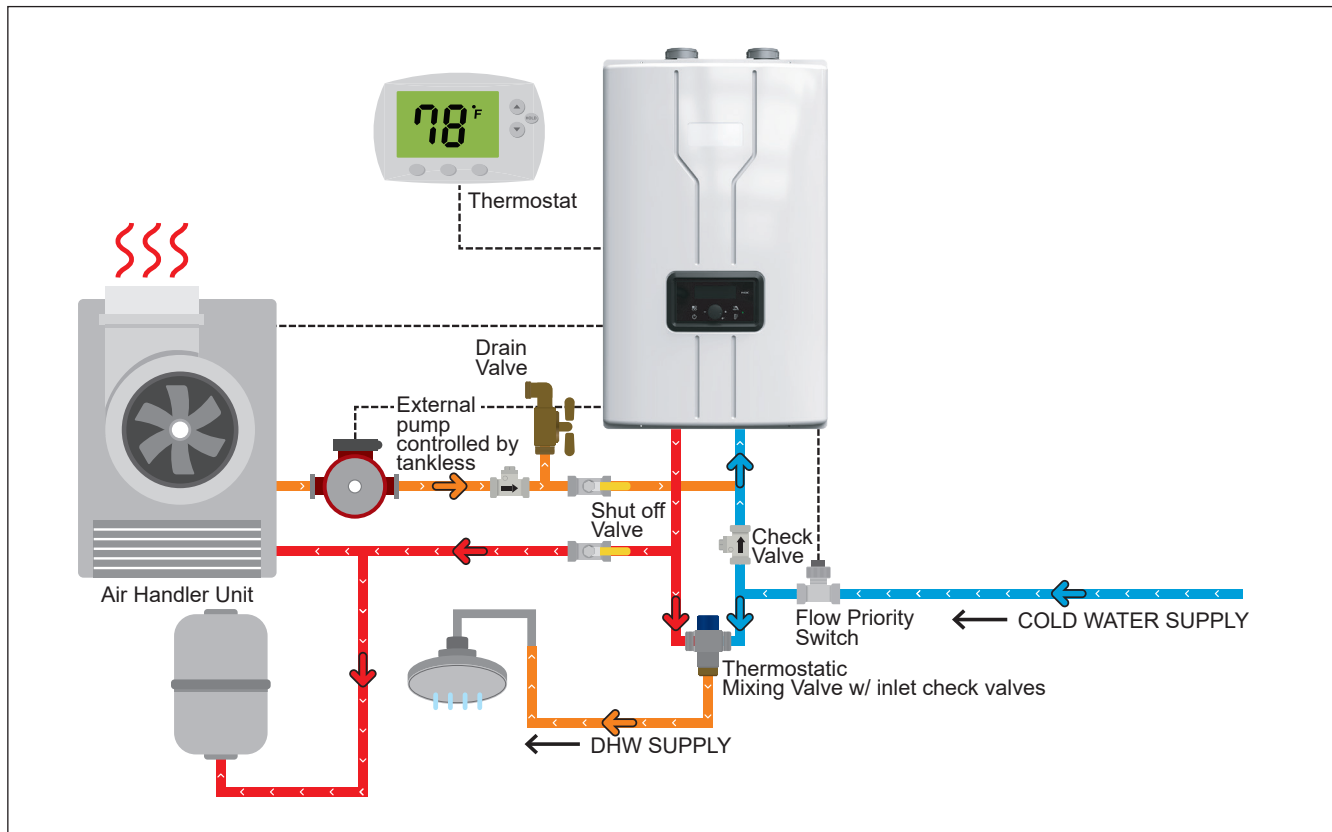
Main Menu	Sub Menu	Description
9:AH	Std	The thermostat is connected directly to the AHU. Use this mode in case when AHU controls the heating pump and tankless does not employ DHW priority functions, recommended for combined heating and DHW demands is less than the total BTU rating of the tankless water heater and domestic re-circulation is not needed.

* Wire Diagram

Additional wire connection between Water heater and Air handler, thermostat, or pump is not required.

2.1.2 System diagram for tankless standard model using external pump controlled by tankless for air handler re-circulation (9:AH ECO)

• System Diagram



• Parameter Setting

1. Turn OFF the power to the Display Panel.
2. With the power OFF, press and HOLD (5 seconds) the () button to get into the Installer Mode.
3. Rotate the dial to find 9:AH. Press the dial.
4. Adjust the dial to scroll through the settings then press the dial to save.
5. Finish by pressing the () button.

Main Menu	Sub Menu			Description
9:AH	ECO			Thermostat signal relayed by the tankless water heater. Use this mode in cases when AHU needs to be shut off for DHW Priority. Recommended for combined heating and DHW demands that are greater than the total BTU rating of the tankless water heater. Where domestic recirc is not needed.
	Anti	On	1~10 min	ANTI mode offers adjustable heating & cycle time for anti-bacteria mode. When ECO is selected, Anti automatically set to default setting. (Default setting: one minute every six hours of water circulation in the system)
		Off	1~10 hour	
	PP	On		When ECO is selected, PP (Pump Power) automatically set to ON. This setting will allow the heating pump to be powered by the tankless water heater. This disables the ability to use tankless power for external domestic re-circulation.

• Wire Diagram

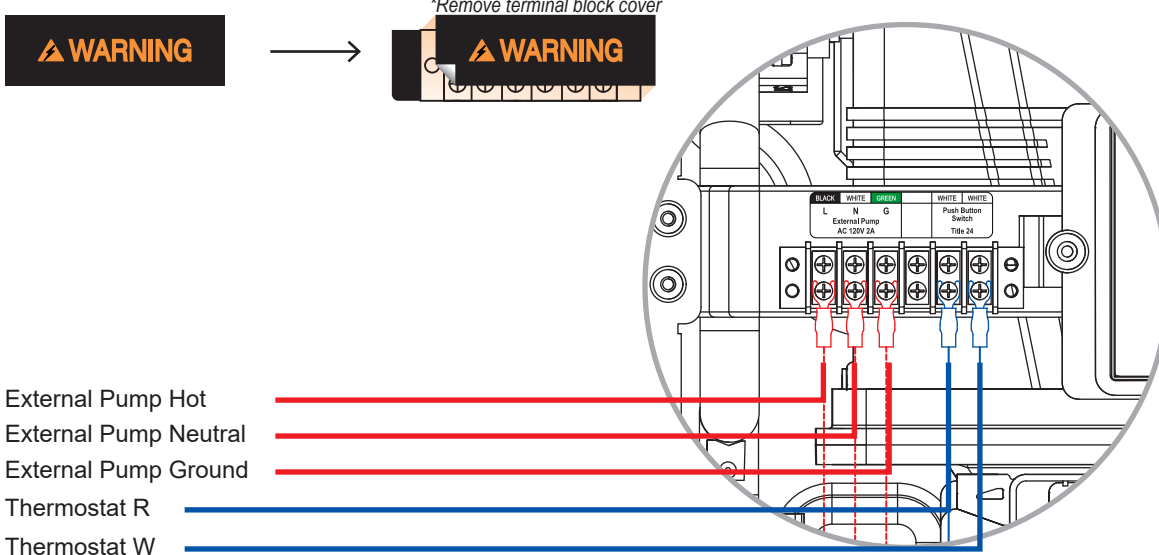
Labeling on Terminal block	Wire to be connected to this terminal
Push Button Switch	Thermostat R (no polarity)
Push Button Switch	Thermostat W (no polarity)
External Pump	External Pump (120VAC Max 2A)

Table 1. Terminal block wire connection description

Air Handler R	Air Handler Unit R (no polarity)
Air Handler W	Air Handler Unit W (no polarity)
Flow priority switch	Flow priority switch (Dry Contact)

Table 2. PCB wire connection description

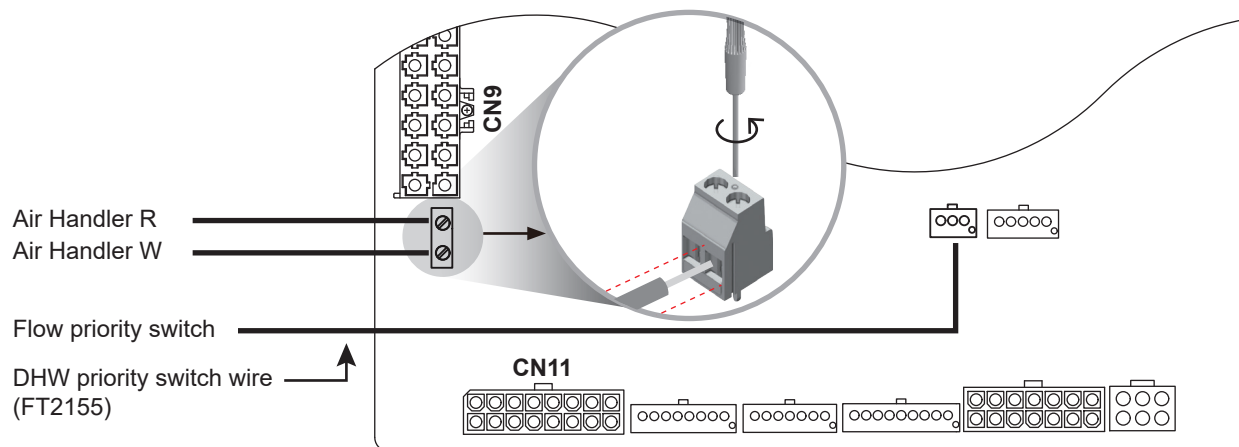
• Terminal block wire connection



* When pump is controlled by AHU, do not connect the pump wire to the terminal block of tankless water heater

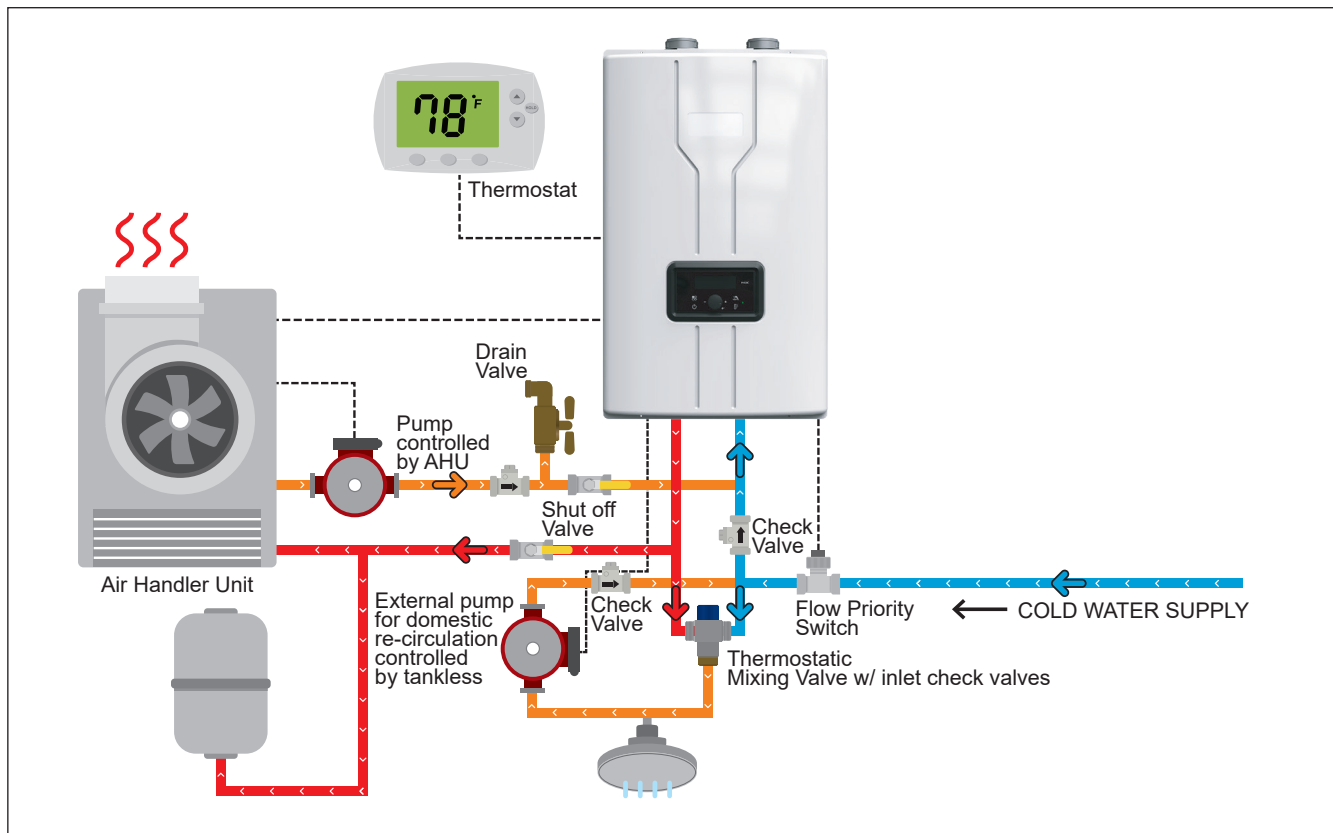
* The connection with thermostat is only for the contact signal, not supplying the power to the thermostat.

* Thermostat R or W wire needs to be connected to the terminal block labeled Push Button Switch



2.1.3 System diagram for tankless standard model using air handler pump for air handler re-circulation, external pump for domestic re-circulation controlled by tankless standard model (9:AH ECO, PP OFF)

• System Diagram



• Parameter Setting

1. Turn OFF the power to the Display Panel.
2. With the power OFF, press and HOLD (5 seconds) the () button to get into the Installer Mode.
3. Rotate the dial to find 9:AH. Press the dial.
4. Adjust the dial to scroll through the settings then press the dial to save.
5. Finish by pressing the () button.

Main Menu	Sub Menu			Description
9:AH	ECO			Thermostat signal relayed by the tankless water heater. Use this mode in cases when AHU needs to be shut off for DHW Priority. Recommended for combined heating and DHW demands that are greater than the total BTU rating of the tankless water heater. Where domestic recirc is not needed.
	Anti	On	1~10 min	ANTI mode offers adjustable heating & cycle time for anti-bacteria mode. When ECO is selected, Anti automatically set to default setting. (Default setting: one minute every six hours of water circulation in the system)
		Off	1~10 hour	
	PP	OFF		When ECO is selected, PP (Pump Power) automatically set to ON. PP (Pump Power) setting should be changed to OFF to allow the heating pump to be powered by the AHU. This disables the ability to use tankless power for external domestic re-circulation.

- Wire Diagram

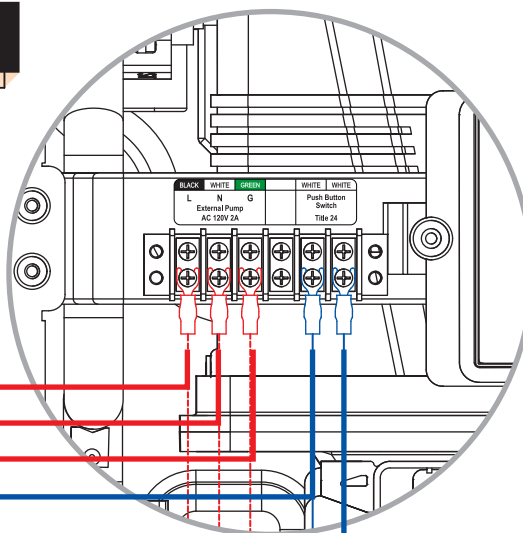
Labeling on Terminal block	Wire to be connected to this terminal
Push Button Switch	Thermostat R (no polarity)
Push Button Switch	Thermostat W (no polarity)
External Pump	External Pump (120VAC Max 2A)

Table 3. Terminal block wire connection description

Air Handler R	Air Handler Unit R (no polarity)
Air Handler W	Air Handler Unit W (no polarity)
Flow priority switch	Flow priority switch (Dry Contact)

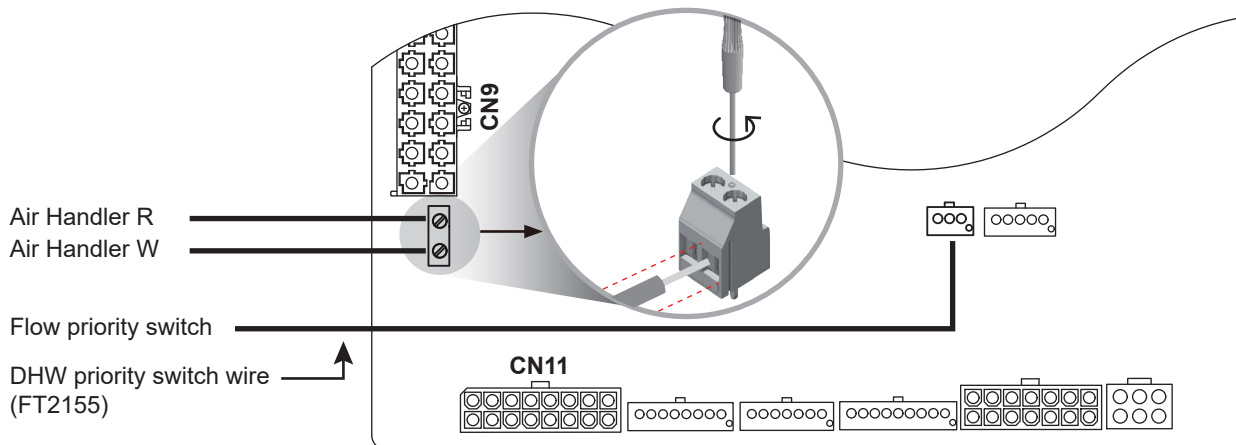
Table 4. PCB wire connection description

- Terminal block wire connection



External Pump Hot
External Pump Neutral
External Pump Ground
Thermostat R
Thermostat W

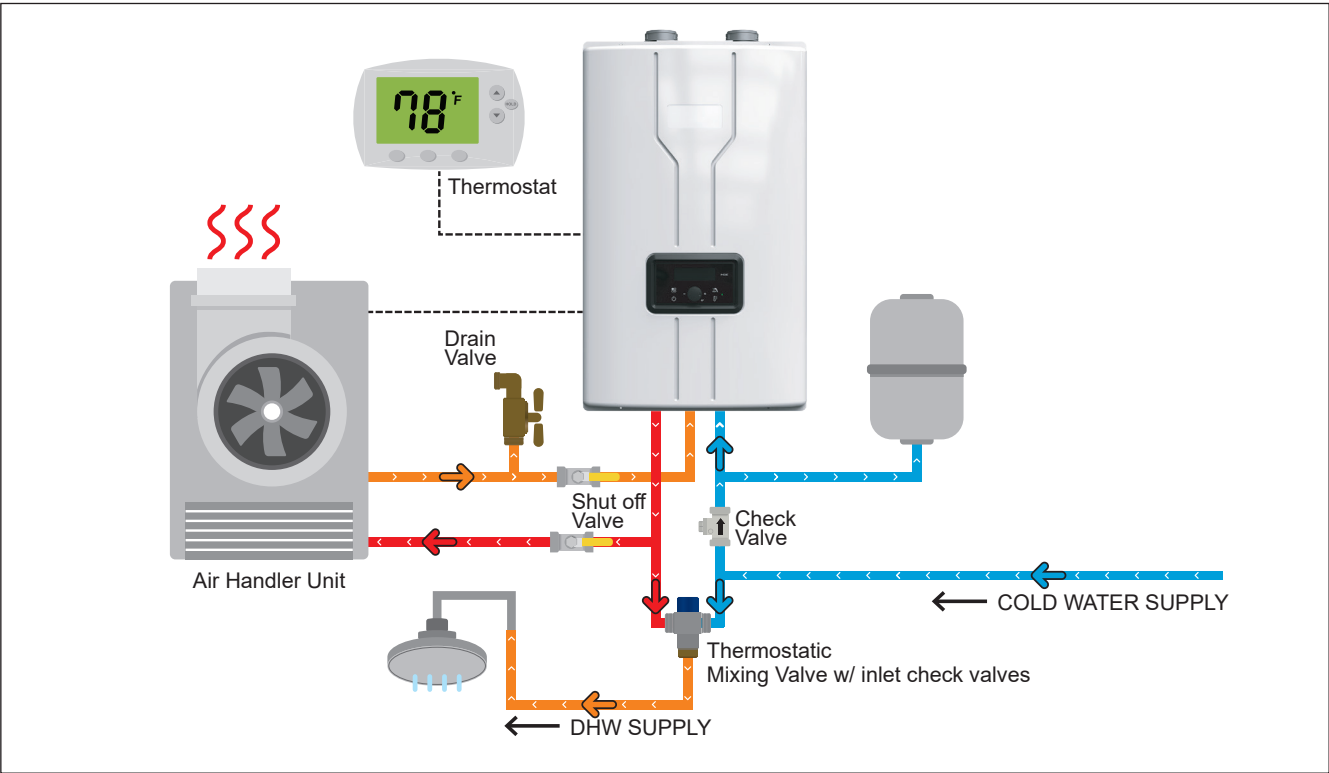
- * When pump is controlled by AHU, do not connect the pump wire to the terminal block of tankless water heater
- * The connection with thermostat is only for the contact signal, not supplying the power to the thermostat.
- * Thermostat R or W wire needs to be connected to the terminal block labeled Push Button Switch



2.2 Tankless Recirculation Model with Air Handler

2.2.1 System diagram for Tankless re-circulation model using internal pump for Air handler re-circulation(7:AH ECO)

• System Diagram



• Wire Diagram

Labeling on Terminal block	Wire to be connected to this terminal
Push Button Switch	Thermostat R (no polarity)
Push Button Switch	Thermostat W (no polarity)
External Pump	External Pump (120VAC Max 2A)

Table 5. Terminal block wire connection description

Air Handler R	Air Handler Unit R (no polarity)
Air Handler W	Air Handler Unit W (no polarity)
Flow priority switch	Flow priority switch (Dry Contact)

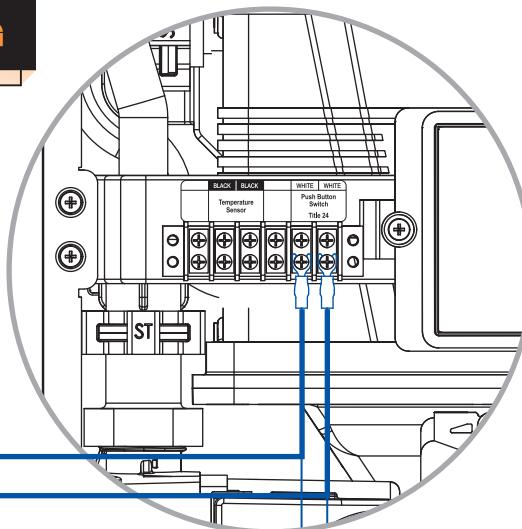
Table 6. PCB wire connection description

• Terminal block wire connection

WARNING



*Remove terminal block cover
WARNING



Thermostat R

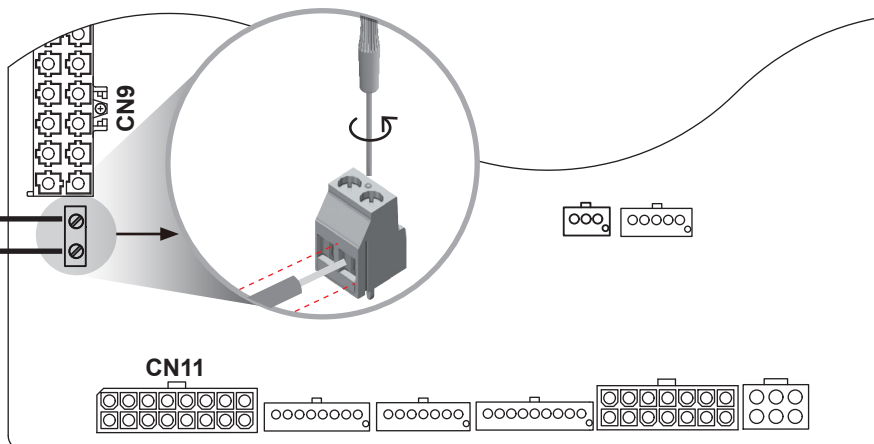
Thermostat W

* The connection with thermostat is only for the contact signal, not supplying the power to the thermostat.

* Thermostat R or W wire needs to be connected to the terminal block labeled Push Button Switch

Air Handler R

Air Handler W



• Parameter Setting

1. Turn OFF the power to the Display Panel.
2. With the power OFF, press and HOLD (5 seconds) the () button to get into the Installer Mode.
3. Rotate the dial to find 7:AH. Press the dial.
4. Adjust the dial to scroll through the settings then press the dial to save.
5. Finish by pressing the () button.

• RTGR199, LT199NRX1

Main Menu	Sub Menu	Description
7:AH	ECO	Thermostat signal relayed by the tankless water heater. Use this mode in cases when AHU needs to be shut off for DHW Priority. Recommended for combined heating and DHW demands that are greater than the total BTU rating of the tankless water heater. Where domestic recirc is not needed. Domestic priority switch is built in to the heater.

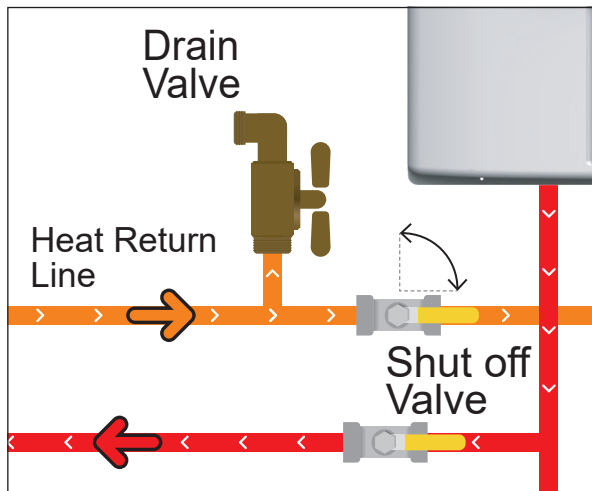
Main Menu	Sub Menu			Description
	Anti	On	1~10 min	ANTI mode offers adjustable heating & cycle time for anti-bacteria mode. When ECO is selected, Anti automatically set to default setting. (Default setting: one minute every six hours of water circulation in the system)
		Off	1~10 hour	

NOTES FOR AIR HANDLER APPLICATION:

1. Massachusetts state plumbing code requires a distance no greater than 50 feet from the water heater to the fan coil in the air handler.
2. Massachusetts state plumbing code requires an electronically timed circulator pump to activate every six hours for 60 seconds.
3. All water piping must be insulated.
4. You must install a vacuum relief valve per 248 cmr.

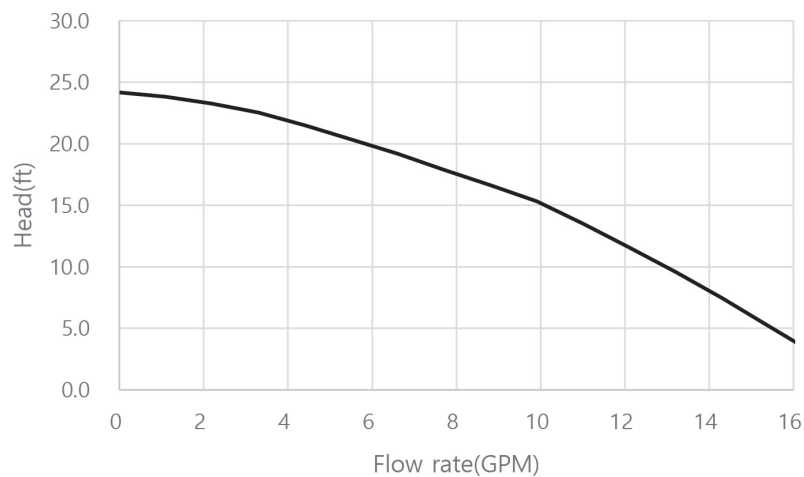
SECTION 3 System Air removal

1. Connect a garden hose to the drain valve.
2. Close the shut-off valve on the heating return line.
3. Open the drain valve until all air is purged.
4. Close the drain valve, then reopen the shut-off valve on the AHU return line.

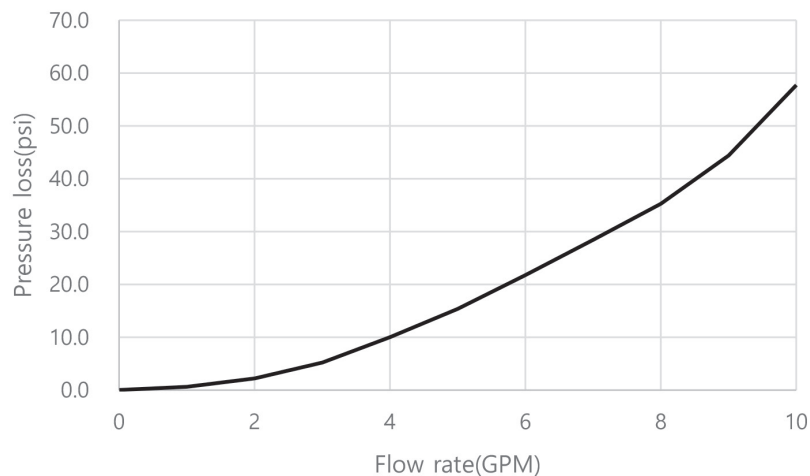


SECTION 4 Appendix

4.1 Pump Curve



4.2 Tankless Heater Pressure Loss



4.3 Internal Pump Curve

