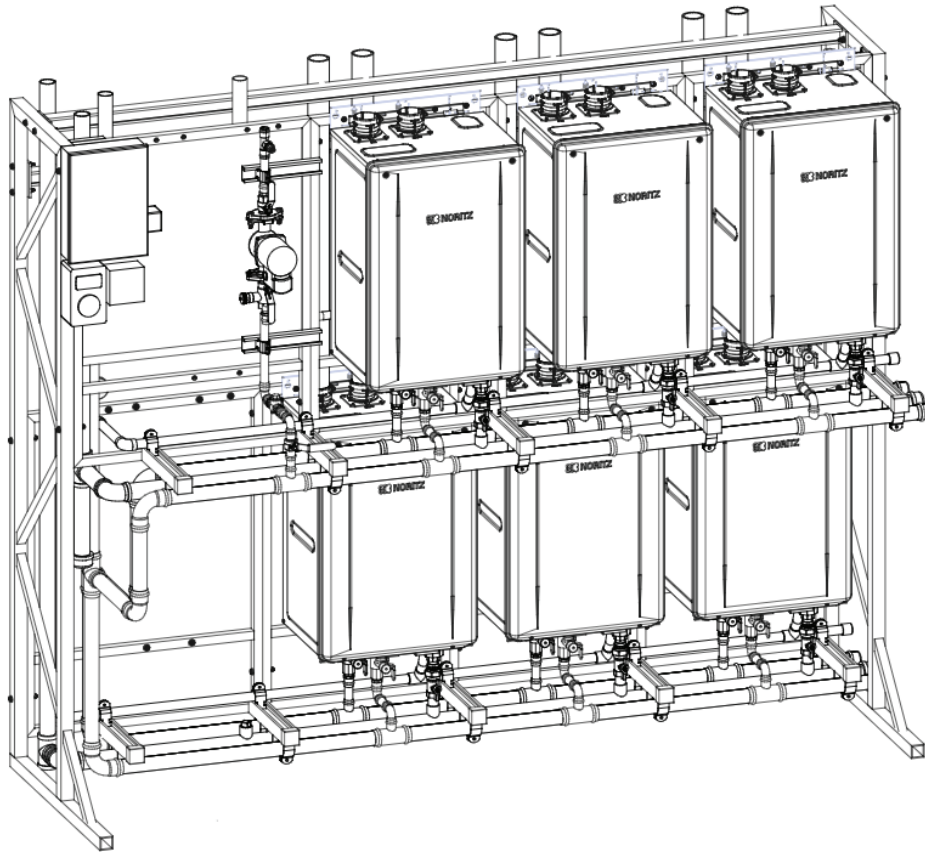




TTS (Total Tankless Solution) Commercial Water Heating System (Standard Series) Installation Manual



TTS-S6
6 Water Heater System

CAUTION

Requests to Installers

- In order to use the water heater safely, read this installation manual carefully, and follow the installation instructions.
- Failures and damage caused by erroneous work or work not as instructed in this manual are not covered by the warranty.
- Check that the installation was done properly in accordance with this Installation Manual upon completion.
- After completing installation, please either place this Installation Manual in a plastic pouch and attach it to the side of the water heater (or the inside of the pipe cover or recess box if applicable), or hand it to the customer to retain for future reference. Also, be sure to fill in all of the required items on the warranty and to hand the warranty to the customer along with the Owner's Guide.

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Description

FRG's TTS Series provides the most complete commercial water heater solution in the market. This tankless water heating system provides up to 1.2 mil-lion BTU/h in the smallest footprint while having the advantage of redundancy and equalizing heating performance.

The TTS-S provides a time and labor-saving solution when installing multiple Noritz tankless water heaters.

OPC (One Point of Connection)

- Water, Power, Gas, Venting & Condensation Drain
 - Manifold systems
 - Hot Water Outlet, Cold Water Inlet, Gas, Condensate Drain Building Recirculation
 - Reduction in labor hours
 - Worry-free installation
 - Designed to fit through 3'-0" x 7'-0" Door
 - Pre-engineered system
 - Pre-configured control wiring
 - Pre-installed system controllers
 - Additional accessories (included):
- Condensate Neutralizer (2x for TTS-S5/6 Models)
- Expansion Tank (Non-ASME)
 - 2.1 Gallon (TTS-S2MINI/3/4MINI Models)
 - 4.5 Gallon (TTS-S5/6 Models)

Before Installation

- A licensed professional must install the TTS
- Installer should have skills such as connecting gas line, water line, electricity, and knowledge of applicable national state and local codes.
- Stop if you lack the skills above. Contact a licensed professional.

Potential dangers from accidents during installation and use are divided into the following four categories. Closely observe these warnings, they are critical to your safety.

⚠ DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
NOTICE	Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Check the Power

The power supply required is 120 VAC, at 60 Hz. Using the incorrect voltage may result in fire or electric shock.

⚠ WARNING

Precautions on Vent Pipe Replacement

The vent system will almost certainly need to be replaced when this appliance is being installed. Only use vent materials that are specified in this Installation Manual for use on this appliance. Refer to the "Venting the Water Heater" section for details. If PVC, CPVC, or Category IV listed pipe is already installed, check for punctures, cracks, or blockages and consult with the vent pipe manufacturer before reusing. Improper venting may result in fires, property damage or exposure to Carbon Monoxide.

⚠ CAUTION

Do Not Use Appliance for Purposes Other Than Those Specified

Do not use for other than increasing the temperature of the water supply, as unexpected accidents may occur as a result.

Check Water Supply Quality

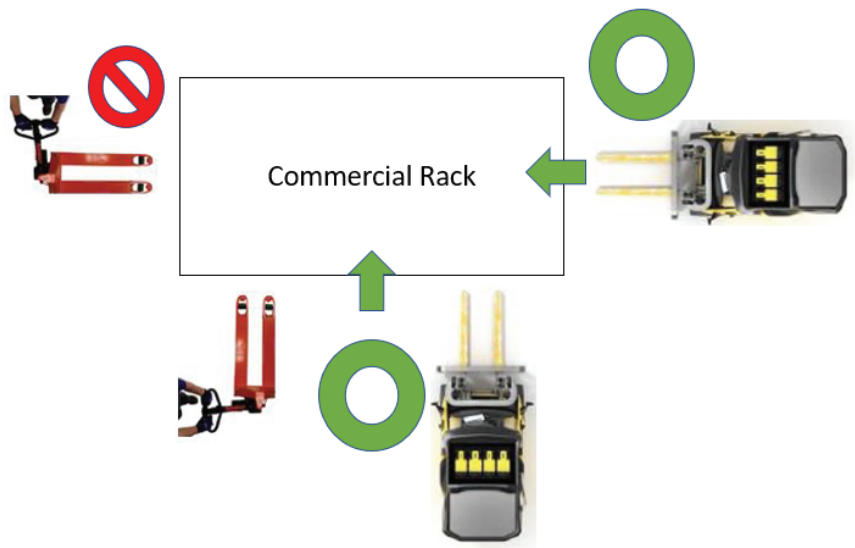
If the water supply is in excess of 12 grains per gallon (200 mg/L) of hardness, acidic or otherwise impure, treat the water with approved methods in order to ensure full warranty coverage.

Uncrating the TTS

[Moving the TTS Racks]

The rack is designed to be accessible from either of 2 directions. Refer to the following diagram for accessibility options for moving the rack system.

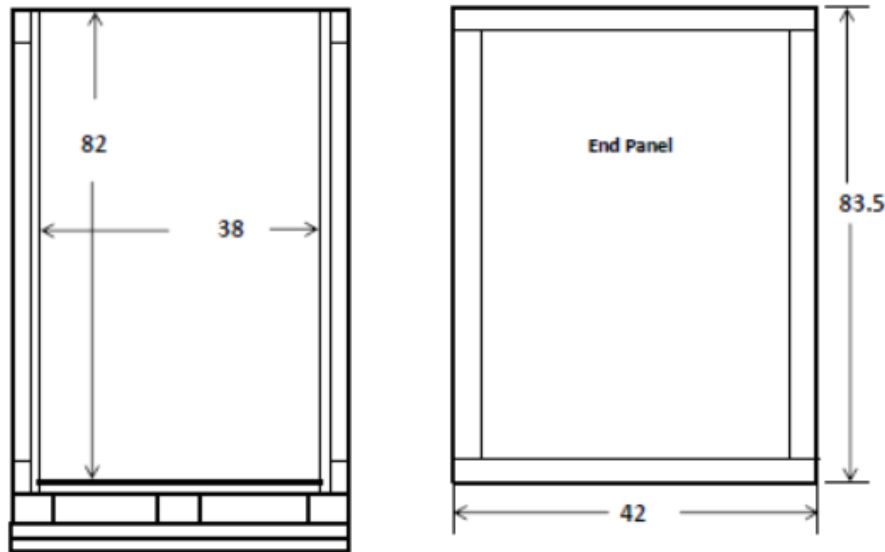
Orientation	Pallet Jack	Forklift
Front/Back	Accessible	Accessible
Sides	Not Accessible	Accessible



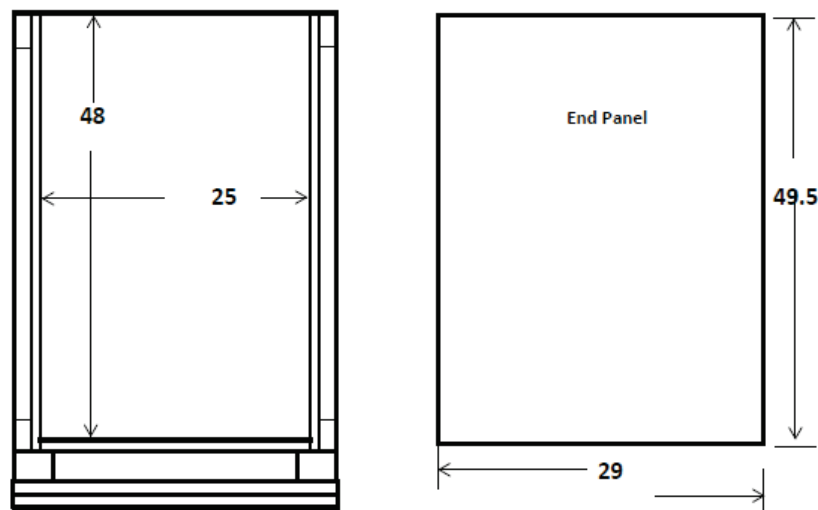
Note Before unpacking the rack, verify that the product is physically free of damage

[TTS Crate Dimensions]

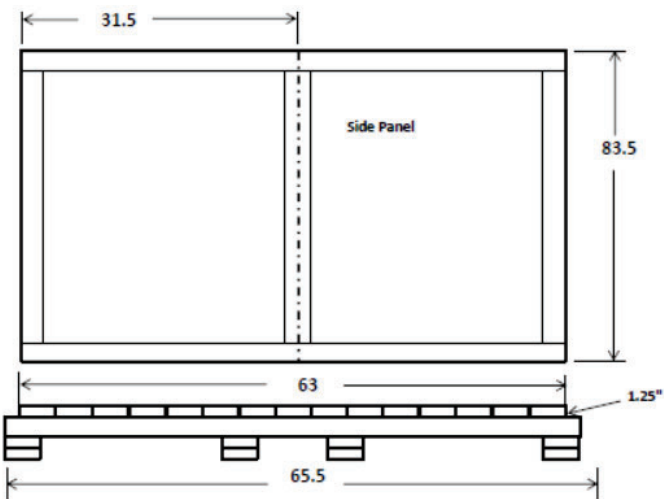
TTS-S2MINI, 3, 4MINI, 5, 6, SWH4 Side View



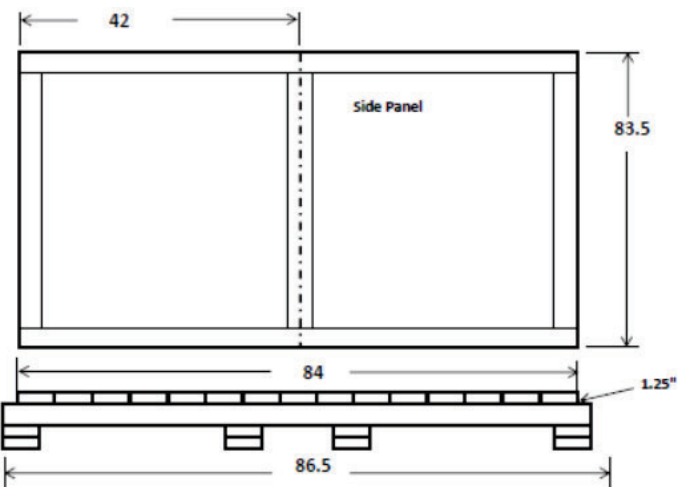
TTS-SWH2, 3 Side View



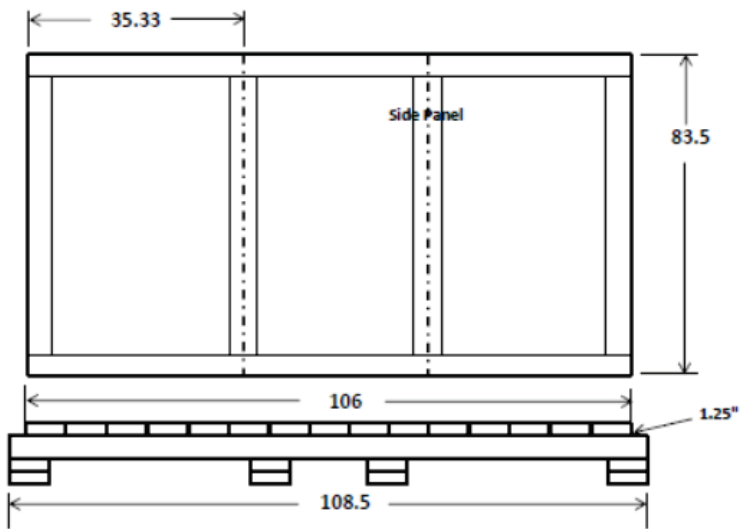
TTS-S2MINI, 3 Front/Rear View



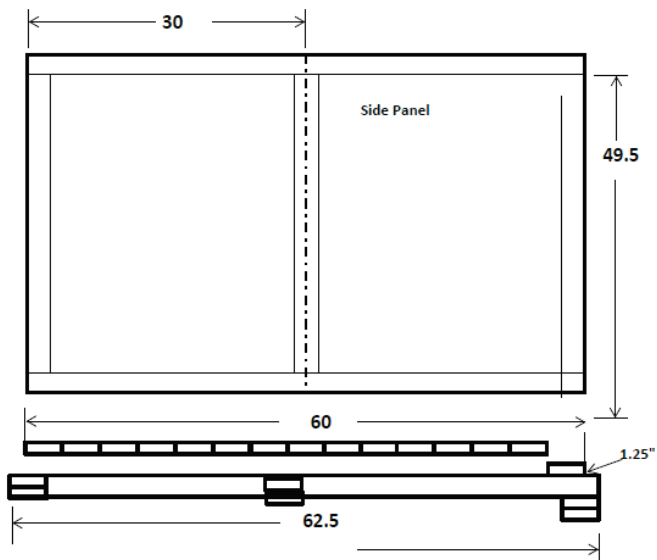
TTS-S4MINI, 5 Front/Rear View



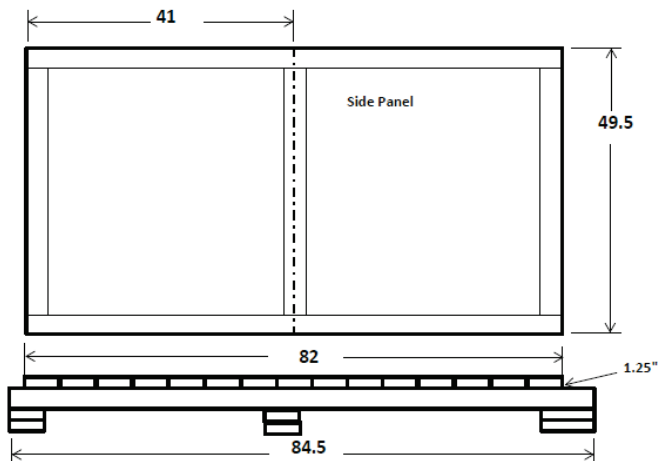
TTS-S6, SWH4 Front/Rear View



TTS-SWH2 Front/Rear View

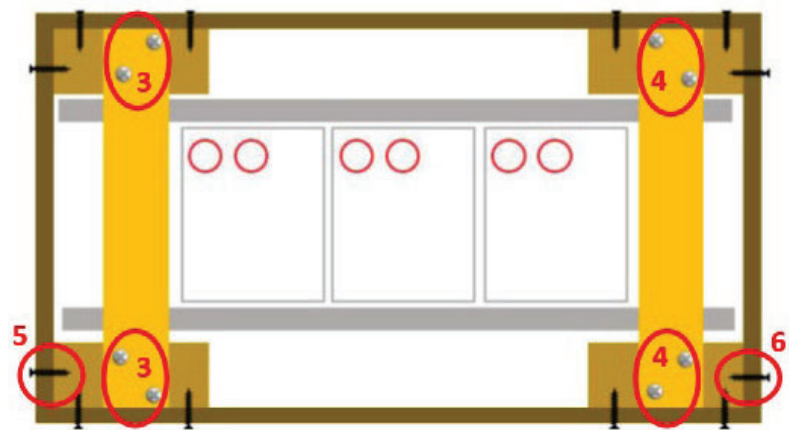


TTS-SWH3 Front/Rear View

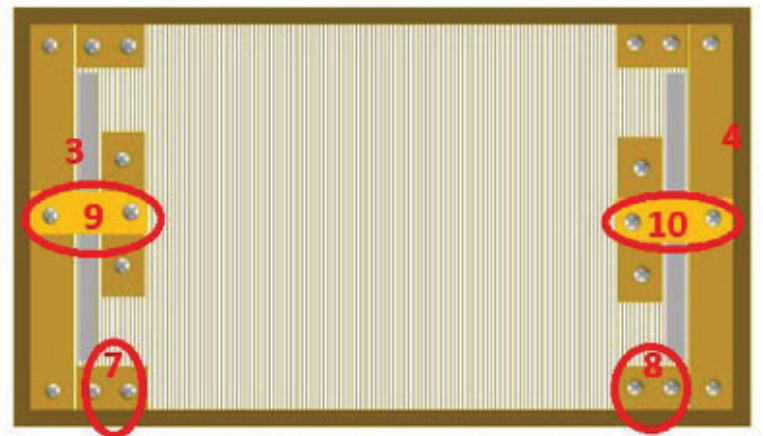


[Unpacking the TTS Rack]

1. Remove six (6) screws to remove the top panel of the TTS rack
2. Remove six (6) screws to remove the front panel
3. Remove four (4) screws to remove the left top retaining blocks
4. Remove four (4) screws to remove the left top retaining blocks
5. Remove one (1) screw from the top of the left side panel
6. Remove one (1) screw from the top of the right-side panel
7. Remove two (2) screws from the left bottom holding block
8. Remove two (2) screws from the right bottom holding block
9. Remove two (2) screws from the left cross block
10. Remove two (2) screws from the right cross block
11. Slide the TTS rack forward to remove from crate



(View from Top)



(View from Top)

Venting the TTS Rack System

WARNING

CARBON MONOXIDE POISONING

Follow all vent system requirements in accordance with relevant local or state regulation, or, in the absence of local or state code, if in the U.S., refer to the National Fuel Gas Code ANSI Z223.1 / NFPA 54- latest edition, and if in Canada, in accordance with the Natural Gas and Propane Installation Code CSA B149.1- latest edition.

- Only vent materials approved for use with Category IV appliances shall be used.
- Under normal conditions, this water heating system will not produce exhaust flue temperatures in excess of 149 °F (65 °C) and schedule 40 PVC pipe may be used as the vent material. **If the system set temperature is 160 °F (70 °C) or higher and there is a return line to the system from either a recirculation pump or a storage tank, schedule 40/80 CPVC or PP must be used.**
- This water heater must be vented with plastic pipe materials as specified in the table below. Vent Installations in Canada which utilize plastic vent systems must comply with ULC S636.

[Exhaust Vent / Air Intake]

Material	United States		Canada	
	Exhaust	Air Intake	Exhaust	Air Intake
Schedule 40 PVC	ANSI/ASTM D1785		ULC S636 Certified Materials Only	CSA B137.3
PVC-DWV	ANSI/ASTM D2665			CSA B181.2
Schedule 40 CPVC	ANSI/ASTM F441			CSA B137.3
Polypropylene (PP)*	Centrotherm- InnoFlue® (certified ULC S636)			
System 1738™ PVC Fuel Gas Venting	IPEX Management Inc. (certified UL 1738)			

*Only listed manufacture specified vent parts may be used for this Water Heater.

Refer to the manufacture's literature for detailed information.

[Pipe Cement / Primer]

Material	United States	Canada
PVC	ANSI/ASTM D2564	ULC S636 Certified Materials Only
CPVC	ANSI/ASTM F493	

Note: Use of cellular core PVC (ASTM F891), cellular core CPVC, or Radel® (polyphenylsulfone) in non-metallic venting systems is prohibited.

- Under normal conditions, this appliance will not produce an exhaust flue temperature in excess of 149°F (65°C) and schedule 40 PVC pipe may be used as the vent material. If the water heater set temperature is 160°F (70°C) or higher and there is a return line to the water heater from either a recirculation pump or a combination space heating system, use schedule 40/80 CPVC or PP
- Maximum vent length adjustment dials may need to be adjusted to accommodate vent runs. Refer to the Water Heater Installation Manual Page 9 for additional details.
- All piping must be fully supported. Use pipe hangers at a minimum of 3 ft. (0.9m) or at the instructions of the vent manufacturer. Do not use the Water Heater to support the venting.
- For additional installation procedures, refer to the Water Heater Installation Manual or contact Noritz technical support (866) 766-7489.

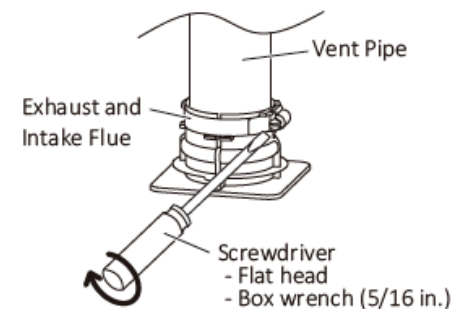
[How to tighten the vent pipe to the water heater]

1. Continue to insert the Vent Pipe until it touches the base of the Water Heater Exhaust (or Intake) Flue. The vent pipe will be inserted approximately 2.3 in. (60mm).
2. Secure the Vent Pipe by tightening the band using a screwdriver.

The tightening torque shall be the following:

PVC: 16-20 in-lb

PP: 12-15 in-lb



When Venting Each Water Heater Individually

- These commercial water heating systems are designed to vented either individually or common vented (up to 6 units per manifold).
- Follow all general venting guidelines as outlined in this manual and the appliance Installation Manual.
- The total vent length including horizontal and vertical vent runs should be no less than 3 ft (0.9m).
- The Water Heater can be adjusted to accommodate longer vent runs; refer to the Water Heater Installation Manual (pg. 19) for additional details.

Maximum Vent Lengths (Individual Vent)

- The maximum vent length when using 2 in. (50 mm) pipe is 65 ft.
- The maximum vent length when using 3 in. (75mm) pipe is 150 ft.
- The maximum lengths are reduced by the number elbows used, as shown in the following table:

Vent Diameter	Maximum Equivalent Vent Length* ¹ V (Vertical) + H (Horizontal)	Maximum # of Elbows* ²	Equivalent Length
2 in.	65 ft (20 m)	6	90° elbow: 5 ft (1.5 m)
3 in.	150 ft (46 m)	15	45° elbow: 3 ft (0.9 m)

*1 The maximum vent length includes elbows.

*2 Not including the termination.

Acceptable Termination Types

The vent for each water heater may be terminated with any of the specialty terminations listed in the table below. For full vent termination requirements, refer to the appliance Installation Manual.

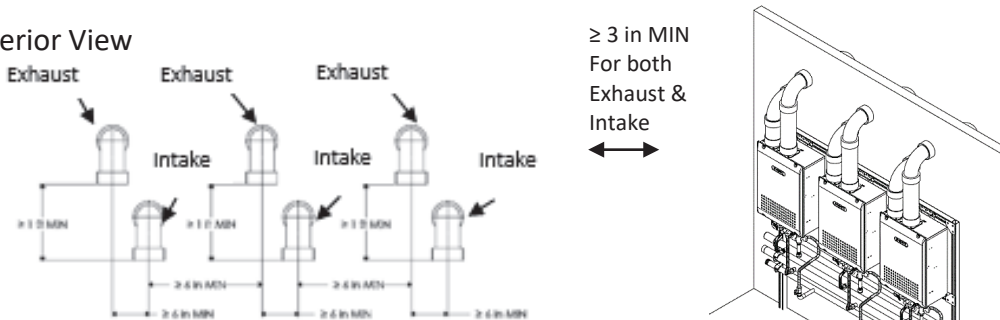
Manufacturer	Part Number	Vent Diameter	Material
Noritz	PVT-HL	3"	PVC
Noritz	PVC-2CT	2"	PVC
Noritz	PVC-3CT	3"	PVC
Noritz	PVC-UCVK	2 or 3"	PVC
Noritz	PVC-2LPT	2"	PVC
Noritz	PVC-3LPT	3"	PVC
IPEX	196984	2"	PVC
IPEX	196985	3"	PVC
IPEX	196256	2" or 3"	PVC

Clearance Requirements Between Terminations (Horizontal)

When using 90 Elbows or Tee Fittings

- When venting individual units out the side of the building with separate intake and exhaust pipes, maintain the exhaust pipes must be at least 1 ft (0.3m) above the intake pipes.
- Avoid locating the intake pipes directly below the exhaust pipe.
- The exhaust and intake must extend at least 3 in (75 mm) beyond the exterior of the building.

Interior View

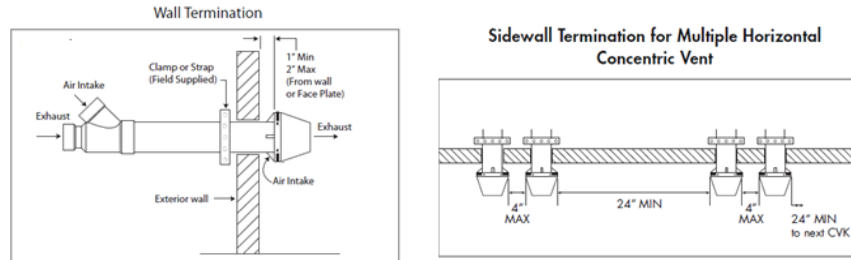


When using Concentric Terminations

Using the PVC-2CT or PVC-3CT

Multiple concentric terminations clearances should be grouped in pairs. One set shall be terminated a maximum of 4 in (100 mm) apart, with the next pair maintaining a minimum of 24 in (0.6 m) spacing from the next pair.

- Refer to the Vent Termination Installation Manual for full clearance requirements.

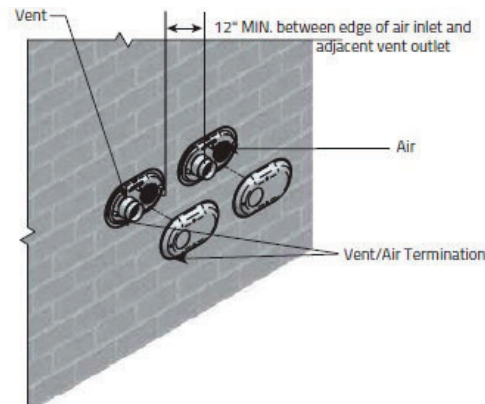


Illustrations shown with PVC-3CT as a representative example

When using Concentric Terminations

Using the PVC-2LPT, PVC-3LPT, or PVC-UCVK

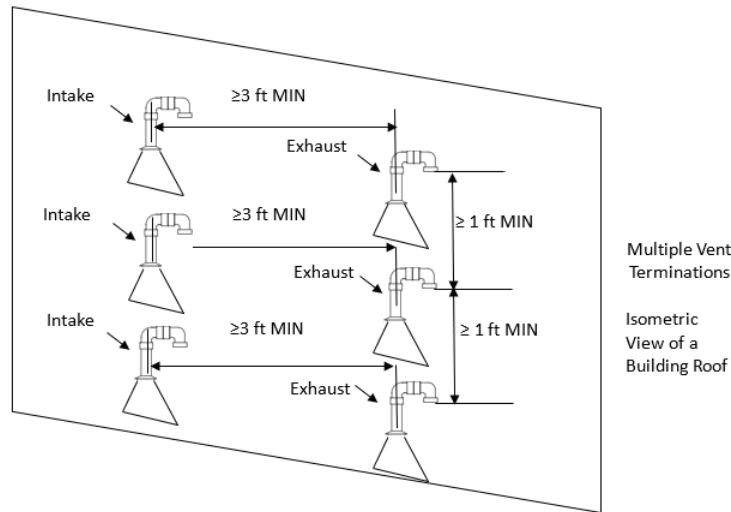
- Multiple concentric terminations must be a minimum of 12" (0.3m) between terminations
- Do not vertically align multiple terminations.



Clearance Requirements Between Multiple Terminations (Vertical)

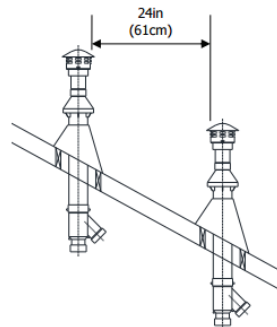
When Using 90 Elbows or Tee Fittings

- Maintain at least 3 ft (0.9m) distance between the intake and exhaust of the appliance
- Maintain at least 1 ft (0.3m) distance between the exhausts of multiple units.

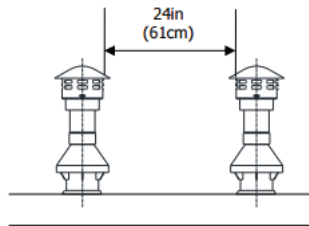


When Using Concentric Terminations

- For terminations at un-equal heights, maintain 24" (600 mm) minimum clearance.



- For terminations at equal heights, maintain a 24" (600 mm) minimum clearance.



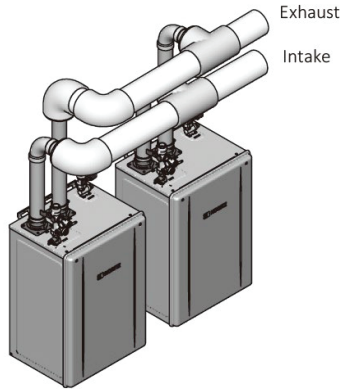
Note: Drawings shown with optional PRC-1 accessory

WARNING

- If the distance between the air inlet and exhaust vent terminations is too short, the water heater will draw in the exhaust gases through the intake. There is a risk of inadequate combustion air for the water heater, increasing Carbon Monoxide (CO) emissions and noise due to vibration.
- Termination elbows must be oriented vertically, pointing directly downward. Attempts to prevent exhaust air from entering the air inlet by angling termination elbows in directions other than directly downward will increase the risk of freezing.
- Reversing the air intake and exhaust pipes is not allowed. Carbon Monoxide (CO) emissions and noise due to vibration will increase.

Common Venting the NCC199CDV

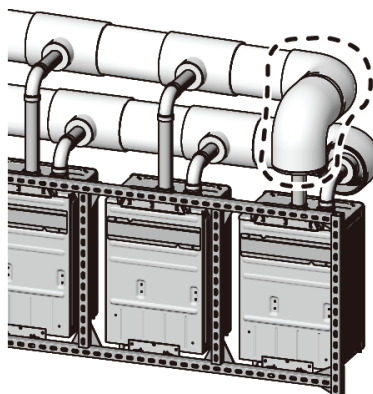
The NCC199CDV is tested and approved to be common vented up to a maximum of 6 units on a single exhaust system. For full installation instruction on common venting the TTS-S, refer to the Common Vent Installation Manual.



Guidelines for Common Venting

- Do not reduce the vent diameter.
- Common vent must be installed with approved venting materials. Materials not specified in the Manual are not acceptable.
- The unit Dip Switch Setting must be changed for each unit. (SW1 must be set to the ON position).
- Do not change Dip Switch 7 and 8 when Dip Switch 1 is ON (Common Vent Installation).
- For Canadian Installations, only vent material approved to ULC-S636 may be utilized.
- When utilizing room air configurations, a room air conversion kit (SV-CK-2) must be installed on each unit.
- Slope the horizontal vent $\frac{1}{4}$ in. (or $\frac{5}{8}$ in when using PP pipe) upwards for every 12 in. toward the termination.
- Provide vertical support every 3' (0.9m) or as required by the vent pipe manufacturer's instructions.
- Ensure that the vent termination is at least 12 in. above ground, 12 in. above the highest anticipated snow level, or as required by local codes, whichever is the greatest.
- [PVC /CPVC/PP 3"]

Do not reduce the trunk vent diameter for any unit connected to the Common Vent System. Reducing the vent diameter may lead to excessive condensation draining directly into the appliance.



Determining the Size of the Common Vent

- The minimum equivalent vent length is 3 ft.
- Follow the table below for determining the maximum vent length and diameter of the common vent installation.

- For complete instructions on determining the appropriate sizing of the common vent installation, refer to the Common Vent Installation Manual or contact Noritz technical support at (866) 766-7489.

Model	Configuration	No. of Units	Table 1: Vent Diameter (in) and Maximum Equivalent Vent Length (ft)							
			PVC or CPVC Schedule 40 pipe				PP Pipe			
			3"	4"	6"	8"	3"	4"	6"	8"
NCC199CDV (GQ-C3260WZ-FF US)	Both Direct Vent (DV) and Non-Direct Vent (SV)	2	18*	95*	200		18*	110*	200	
		3	N/A	39*	155*	200	N/A	45*	155*	200
		4	N/A	N/A	90*	200	N/A	N/A	90*	200
		5	N/A	N/A	50*	150*	N/A	N/A	50*	150*
		6	N/A	N/A	35*	130*	N/A	N/A	35*	130*

*The BTU/h input of the unit may be reduced by up to 9%.

Note The sizing method shown in Table 1 is provided for the convenience of the installer. Maximum acceptable vent system static pressure drop is 0.6 in. w.c.

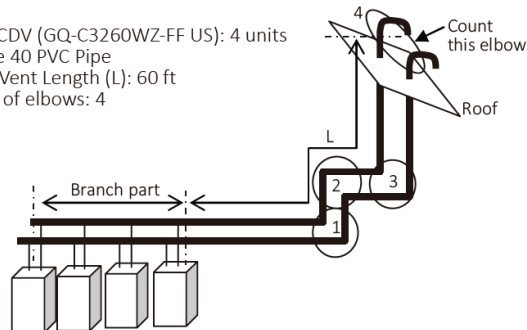
	Table 2: Equivalent Length of each Elbow (ft)			
Diameter of Elbow	3"	4"	6"	8"
Length	5	12	18	20

Total Equivalent Vent Length (TL) = Straight Vent Length (L) + Equivalent Length of Elbows

- TL shall be less than the values listed in Table 1 above.
- Count the number of elbows and multiply by the equivalent length of each elbow in accordance with Table 2.
- Termination fitting (elbow or tee) is accounted for and does not need to be counted.
- The entire branch section is accounted for and does not need to be counted.

[Calculation Example]

- NCC199CDV (GQ-C3260WZ-FF US): 4 units
- Schedule 40 PVC Pipe
- Straight Vent Length (L): 60 ft
- Number of elbows: 4



Total Equivalent length
= 60 ft + 4 × 18 ft (6" Elbow) = **132 ft** > 90 ft (Refer to Table 1)

6" vent system is NOT suitable

= 60 ft + 4 × 20 ft (8" Elbow) = **140 ft** < 200 ft (Refer to Table 1)

8" vent system is suitable

Clearances

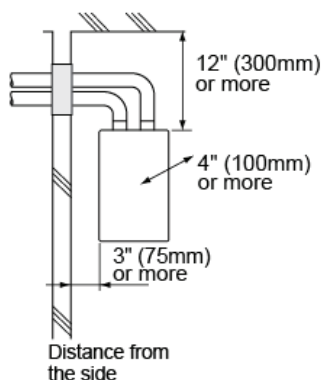
! WARNING

Before installing, check for the following:

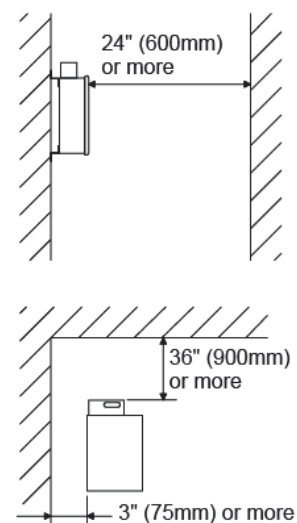
Install in accordance with relevant building and mechanical codes, as well as any local, state or national regulations, or in the absence of local and state codes, to the National Fuel Gas Code ANSI Z223.1/NFPA 54 – latest edition. In Canada, see the Natural Gas and Propane Installation Code CSA B149.1 - latest edition for detailed requirements.

Install the rack system so that the clearances shown below are followed.

Clearance Requirements for Both Combustibles and Non-Combustibles		
	Indoor	Outdoor (with vent cap)
Top of Heater	12" (300mm)	36" (900mm)
Left Side of Rack	3" (75mm)	3" (75mm)
Right Side of Rack	3" (75mm)	3" (75mm)
Front of Heater	4" (100mm)	24" (600mm)
Vent Pipe	0" (0mm)	N/A



Minimum Indoor Clearance Requirements

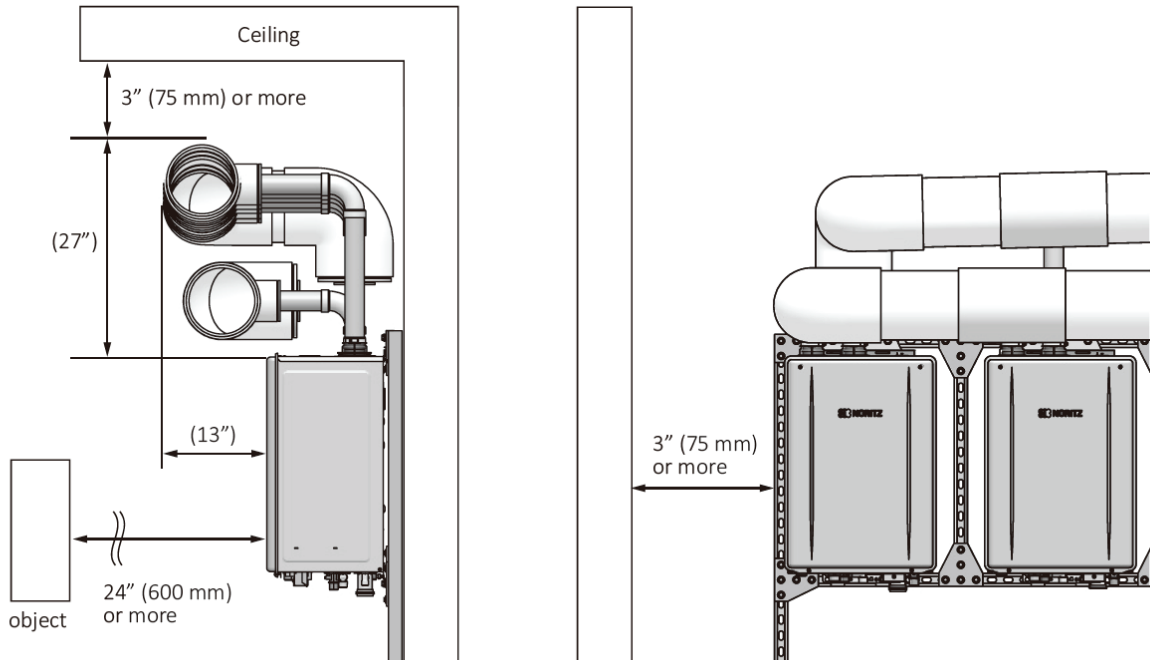


Minimum Outdoor Clearance Requirements

Recommended Clearance for Service and Maintenance when Common Venting

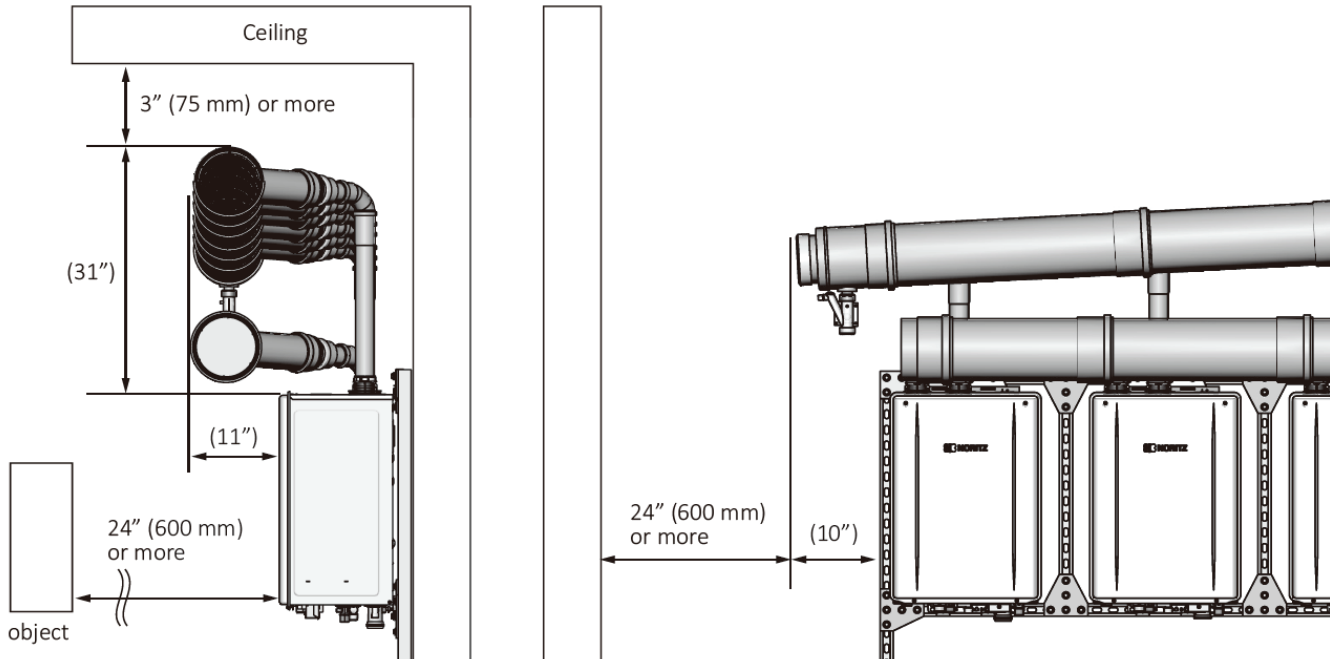
When common venting the TTS system, the following clearances are recommended in order to facilitate service and repair of the TTS system.

[Inline Configurations – PVC or CPVC]



e.g. 8" Vent Diameter- In Line Configuration

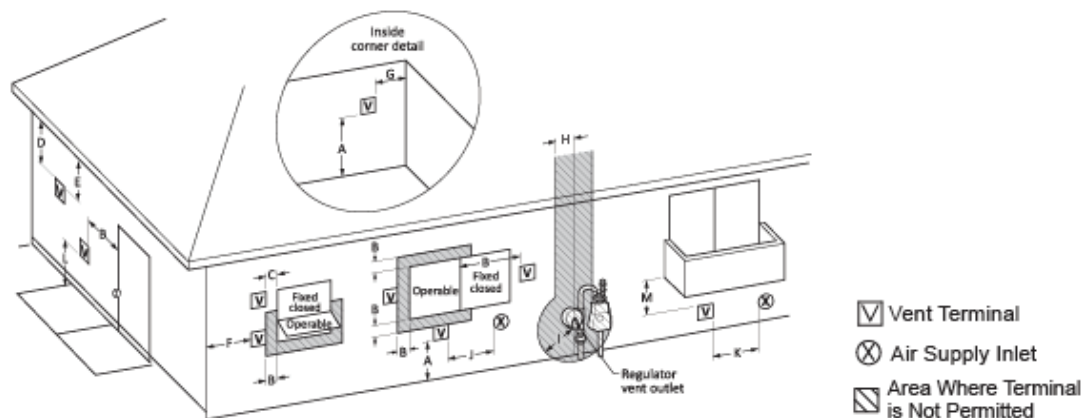
[Inline Configurations – using PP]



e.g. In Line Configuration (e.g. 6 units)

Clearance Requirements from Vent Terminations to Building Openings <When supplying combustion air from the outdoors (Direct Vent)>

* All clearance requirements are in accordance with ANSI Z21.10.3 and the National Fuel Gas Code, ANSI Z223.1 and in Canada, in accordance with the Natural Gas and Propane Installation Code CSA B149.1.



Ref	Description	Canadian Direct Vent Installations ¹	US Direct Vent Installations ²
A=	Clearance above grade, veranda, porch, deck, or balcony	12 in (30 cm)	12 in (30 cm)
B=	Clearance to window or door that may be opened	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances > 100,000 Btuh (30 kW)	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 9 in (23 cm) for appliances > 10,000 Btuh (3kW) and ≤ 50,000 Btuh (15 kW), 12 in (30 cm) for appliances > 50,000 Btuh (15 kW)
C=	Clearance to permanently closed window	*	*
D=	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*	*
E=	Clearance to unventilated soffit	*	*
F=	Clearance to outside corner	*	*
G=	Clearance to inside corner	*	*
H=	Clearance to each side of center line extended above meter/regulator assembly	*	*
I=	Clearance to service regulator vent outlet	Above a regulator within 3 ft (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 ft (4.5 m)	*
J=	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances > 100,000 Btuh (30 kW)	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 9 in (23 cm) for appliances > 10,000 Btuh (3kW) and ≤ 50,000 Btuh (15 kW), 12 in (30 cm) for appliances > 50,000 Btuh (15 kW)
K=	Clearance to a mechanical air supply inlet	6 ft (1.83 m)	3 ft (91 cm) above if within 10 ft (3 m) horizontally
L=	Clearance above paved sidewalk or paved driveway located on public property	7 ft (2.13 m)†	*
M=	Clearance under veranda, porch, deck, or balcony	12 in (30 cm)‡	*

¹ In accordance with the current CSA B149.1 Natural Gas and Propane Installation Code

² In accordance with the current ANSI Z223.1 / NFPA 54 National Fuel Gas Code

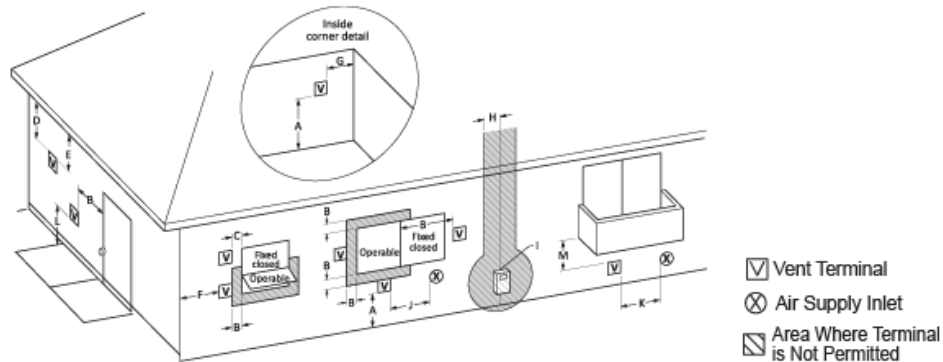
† A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

‡ Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

* Clearance in accordance with local installation codes and the requirements of the gas supplier.
Clearance to opposite wall is 24 inches (60 cm).

Clearance Requirements from Vent Terminations to Building Openings <Other than Direct Vent>

* All clearance requirements are in accordance with ANSI Z221.10.3 and the National Fuel Gas Code, ANSI Z223.1 and in Canada, in accordance with the Natural Gas and Propane Installation Code CSA B149.1.



Ref	Description	Canadian Non-Direct Vent Installation ¹	US Non-Direct Vent Installation ²
A=	Clearance above grade, veranda, porch, deck, or balcony	12 in (30 cm)	12 in (30 cm)
B=	Clearance to window or door that may be opened	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances > 100,000 Btuh (30 kW)	4 ft (1.2 m) below or to side of opening; 1 ft (300 mm) above opening
C=	Clearance to permanently closed window	*	*
D=	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*	*
E=	Clearance to unventilated soffit	*	*
F=	Clearance to outside corner	*	*
G=	Clearance to inside corner	*	*
H=	Clearance to each side of center line extended above meter/regulator assembly	*	*
I=	Clearance to service regulator vent outlet	Above a regulator within 3 ft (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 ft (4.5 m)	*
J=	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances > 100,000 Btuh (30 kW)	4 ft (1.2 m) below or to side of opening; 1 ft (300 mm) above opening
K=	Clearance to a mechanical air supply inlet	6 ft (1.83 m)	3 ft (91 cm) above if within 10 ft (3 m) horizontally
L=	Clearance above paved sidewalk or paved driveway located on public property	7 ft (2.13 m)†	*
M=	Clearance under veranda, porch, deck, or balcony	12 in (30 cm)‡	*

¹ In accordance with the current CSA B149.1 Natural Gas and Propane Installation Code

² In accordance with the current ANSI Z223.1 / NFPA 54 National Fuel Gas Code

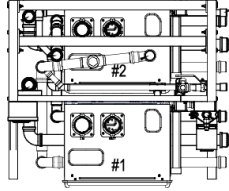
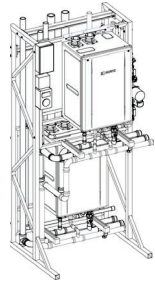
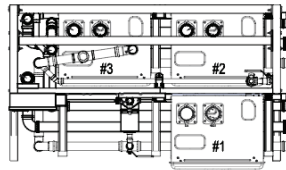
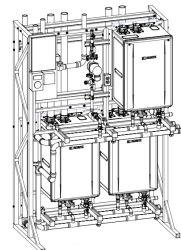
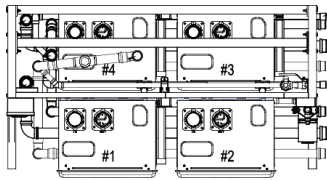
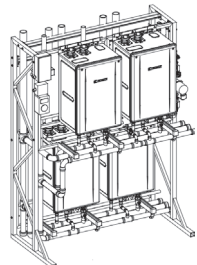
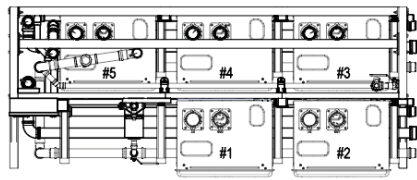
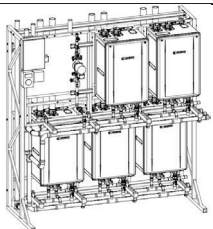
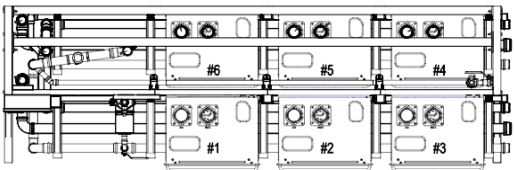
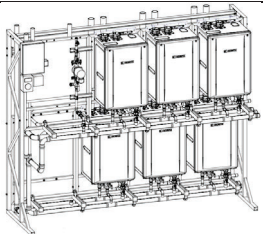
† A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

‡ Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

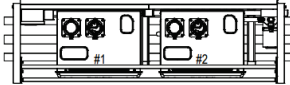
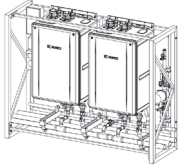
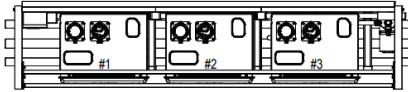
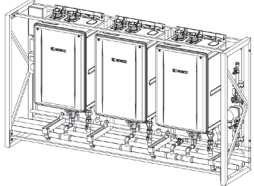
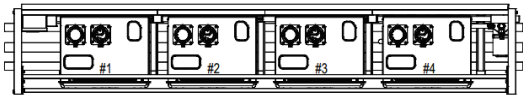
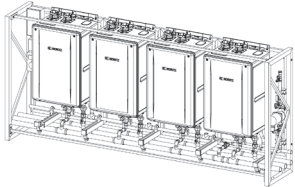
* Clearance in accordance with local installation codes and the requirements of the gas supplier.
Clearance to opposite wall is 24 inches (60 cm).

* The clearance requirements from vent terminations to building openings chart above apply to SV converted units.

TTS-S Commercial Water Heating System Parts Number & Main Components

TTS (Standard Series) Commercial Water Heating System			
Model Number	Rack Type	Configuration	Illustration
TTS-S2MINI-LP	2 Unit, Total Tankless Solution Standard Series, LP (399,800 BTU/hr.)		
TTS-S2MINI-NG	2 Unit, Total Tankless Solution Standard Series, NG (399,800 BTU/hr.)		
TTS-S3-LP	3 Unit, Total Tankless Solution Standard Series, LP (599,700 BTU/hr.)		
TTS-S3-NG	3 Unit, Total Tankless Solution Standard Series, NG (599,700 BTU/hr.)		
TTS-S4MINI-LP	4 Unit, Total Tankless Solution Standard Series, LP (799,600 BTU/hr.)		
TTS-S4MINI-NG	4 Unit, Total Tankless Solution Standard Series, NG (799,600 BTU/hr.)		
TTS-S5-LP	5 Unit, Total Tankless Solution Standard Series, LP (999,500 BTU/hr.)		
TTS-S5-NG	5 Unit, Total Tankless Solution Standard Series, NG (999,500 BTU/hr.)		
TTS-S6-LP	6 Unit, Total Tankless Solution Standard Series, LP (1,199,400 BTU/hr.)		
TTS-S6-NG	6 Unit, Total Tankless Solution Standard Series, NG (1,199,400 BTU/hr.)		

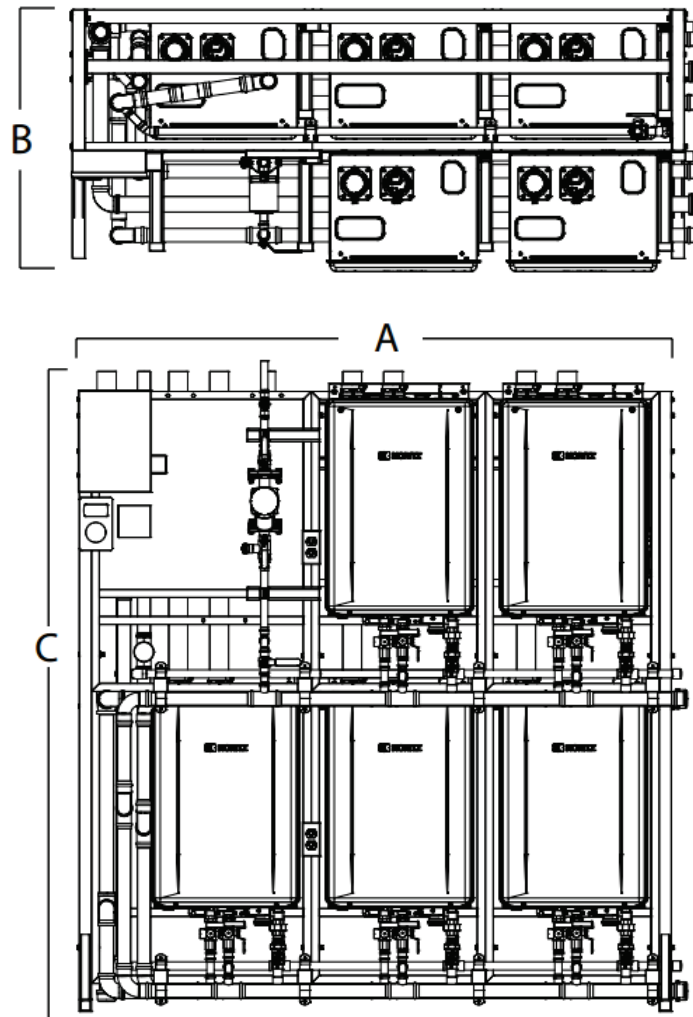
TTS (Standard Wall Hung Series) Commercial Water Heating System

Model Number	Rack Type	Configuration	Illustration
TTS-SWH2-LP	2 Unit, Total Tankless Solution Standard Wall Hung Series, LP (399,800 BTU/hr.)		
TTS-SWH2-NG	2 Unit, Total Tankless Solution Standard Wall Hung Series, NG (399,800 BTU/hr.)		
TTS-SWH3-LP	3 Unit, Total Tankless Solution Standard Wall Hung Series, LP (599,700 BTU/hr.)		
TTS-SWH3-NG	3 Unit, Total Tankless Solution Standard Wall Hung Series, NG (599,700 BTU/hr.)		
TTS-SWH4-LP	4 Unit, Total Tankless Solution Standard Wall Hung Series, LP (799,600 BTU/hr.)		
TTS-SWH4-NG	4 Unit, Total Tankless Solution Standard Wall Hung Series, NG (799,600 BTU/hr.)		

TTS-S Specifications (System Dimensions)

	Length (A)	Depth (B)	Height (C)
TTS-S2MINI: Total Tankless Solution – Standard Series (399,800 BTU/hr.)	35"	31.5"	80"
TTS-SWH2: Total Tankless Solution – Standard Wall Hung Series (399,800 BTU/hr.)	58"	17"	44"
TTS-S3: Total Tankless Solution – Standard Series (599,700 BTU/hr.)	52.25"	31.5"	80"
TTS-SWH3: Total Tankless Solution – Standard Wall Hung Series (599,700 BTU/hr.)	79.75"	17"	44"
TTS-S4MINI: Total Tankless Solution – Standard Series (799,600 BTU/hr.)	56.75"	31.5"	80"
TTS-SWH4: Total Tankless Solution – Standard Wall Hung Series (799,600 BTU/hr.)	101.5"	17"	44"
TTS-S5: Total Tankless Solution – Standard Series (999,500 BTU/hr.)	74"	31.5"	80"
TTS-S6: Total Tankless Solution – Standard Series (1,199,400 BTU/hr.)	95.75"	31.5"	80"

Example Model: TTS-S5



TTS-S Specifications (Parameters)

Securing Floor Standing TTS-S Models

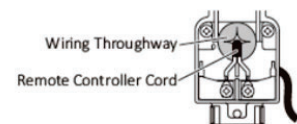
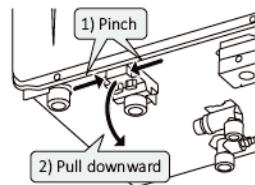
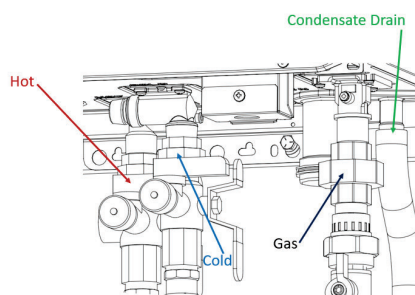
- Anchor and install all mechanical components in accordance with national and local codes including anchorage to building structures.
- For minimum concrete thickness, refer to local codes or consult with a licensed structural engineer regarding the use of appropriate expansion anchors capable of supporting the TTS weight. The fully assembled weight is available in the specifications section of this manual.

Securing Wall Hung TTS-SWH Models

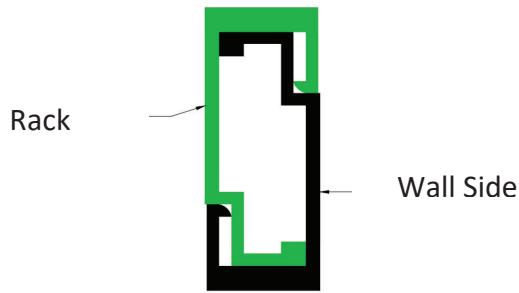
- Anchor and install all mechanical components in accordance with national and local codes including anchorage to building structures.
- Mount the included bracket using the included hardware, ensure the correct orientation Holes in bracket designed for 16" and 24" stud spacing (additional holes may be required).
 - Secure the top portion of the bracket to the wall where you want the top of the rack to be.
 - Place the included 25-3/8" spacer square with the bottom of the top bracket
 - Secure the bottom portion of the bracket to the wall square with the bottom end of the spacer.



- Note: In cases where the rack is determined to be too heavy to lift, remove units to reduce weight
 - To begin this process, identify the last unit (EX. In the TTS-SWH4 configuration this would be unit 4)
 - Disconnect the Unions connecting the unit to the manifolds. There are 3 unions hot, cold, and gas, the hot and cold unions have O-rings that must be intact when removed for reinstallation. Disconnect the condensate drains by unscrewing barb from bottom of unit, and finally
 - To disconnect the control wire grab either side of the control wire housing and squeeze with 2 fingers, the housing will drop down exposing 2 terminals. Unscrew these terminals and remove the control wire (If you are required to remove unit 1 leave control wires attached to this unit as unit 1 contains the controller).



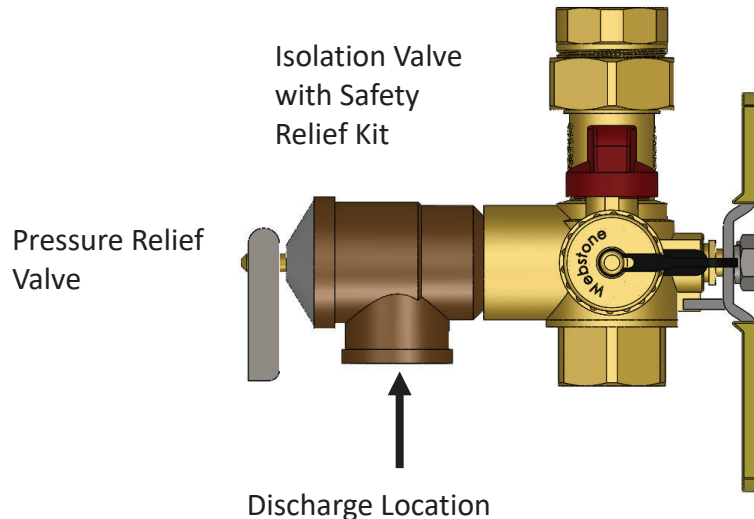
- Remove the 4 bolts securing the unit to the rack (2 top and 2 bottom), after removing bolts unit should be removable by lifting unit towards top of rack sliding unit off hanging bracket.
- Repeat as necessary until you can lift rack on to the wall portion of the bracket.
- Align brackets together (use reference to align brackets properly)



- Reinstall removed units to rack.

Relief Valve Piping

- Each Noritz tankless water heater on the TTS comes installed with an isolation valve and a pressure relief valve on the hot water outlet side.
- The pressure relief valve shall be operated once a year to ensure that it is functioning properly and there is no obstruction. Turn the power off to the unit before opening the relief valve, and make sure that water draining out of the valve will not cause any damage.
- If the relief valve discharges periodically, it may be due to thermal expansion in a closed water system. Contact the water supplier or a local plumbing inspector on how to correct this situation. Do not plug the relief valve.
- The relief valve must be installed such that the discharge will be conducted to a suitable place for disposal when relief occurs.
- Refer to the Water Heater installation manual for more information and proper piping for the relief valve drain.



Freeze Prevention / Insulation

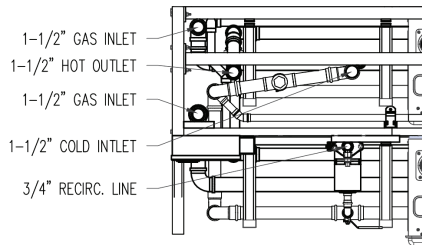
- In normal operation, freezing is prevented within the device automatically unless the outside temperature without wind is below -30°F (-35°C) for indoor installation or -4°F (-20°C) for outdoor installations.
- For models installed in an area where the outside temperature can approach freezing conditions of 30°F (-35°C) or outdoor -4°F (-20°C) or below, then additional protection measures must be used. For temporary freeze protection measures, refer to the Water Heater Owner's Guide.
- The built-in freeze prevention on the water heaters require power to function.

- When supplying combustion air from the indoors, the room temperature must be greater than 32°F (0°C) to prevent freezing and the room inside must not have negative pressure.
- The freeze prevention heaters will not prevent the plumbing external to the unit from freezing. Insulate or apply heating materials to both the cold water and the hot water supply piping to prevent freezing during cold weather and to prevent heat loss through the piping.

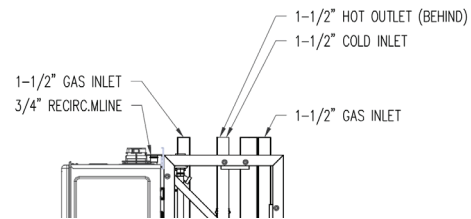
Piping Connection Orientation (5 Total)

(1) 1-1/2" Cold Water Inlet, (1) 1-1/2" Hot Water Outlet, (1) 3/4" Recirculation Line, (2) 1-1/2" Gas Inlet

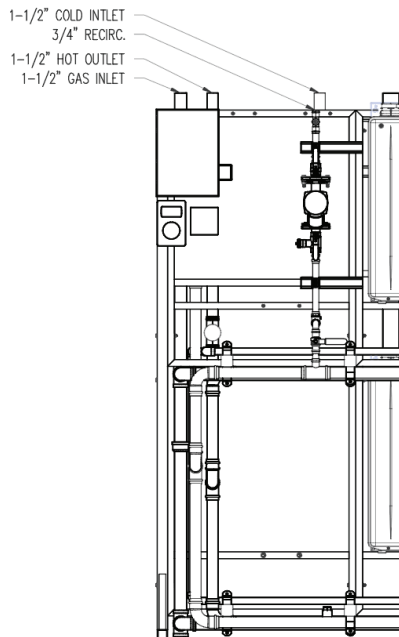
Top View:



End View:



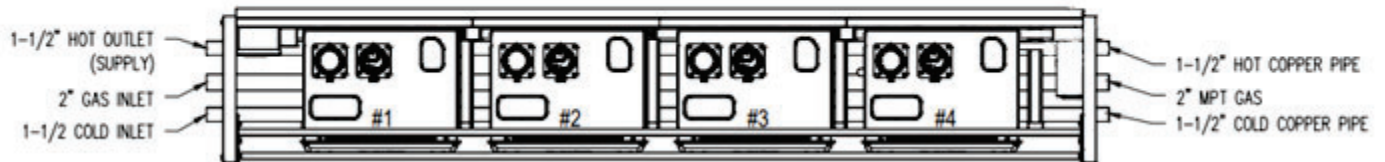
Front View:



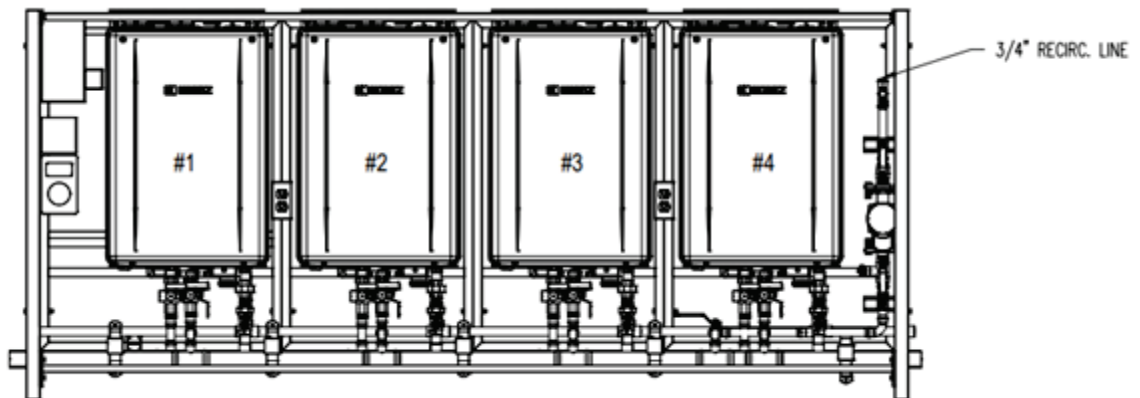
Piping Connection Orientation (7 Total)

(2) 1-1/2" Cold Water Inlet, (2) 1-1/2" Hot Water Outlet, (1) 3/4" Recirculation Line, (2) 2" Gas Inlet

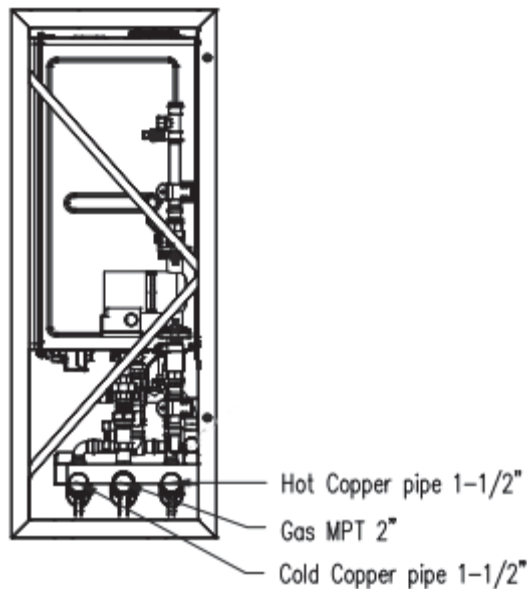
Top View:



Front View:



Right View:



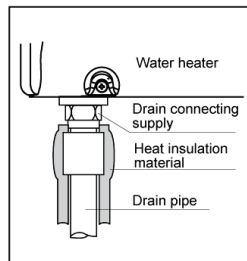
Condensate Drain to Floor or with Pump

CAUTION

Due to the acidic nature of the condensate, be sure to properly drain and if necessary, treat the condensate prior to disposal. Damage caused by improperly handled condensate is not covered by the warranty.

- Each TTS unit comes with a condensate drain pre-piped which must be properly drained to ensure proper operation of this appliance.
- The pH level of the condensate is approximately 2-3. An external neutralizer must be installed on the drain piping prior to disposal when required by local code or when the condensate could cause damage.
- For condensate piping discharging to a floor drain, an airgap must be maintained. Refer to local plumbing code for minimum requirements.
- For long runs or where the drain is above the TTS-S, a condensate pump may be required (field supplied). Size the pump to allow for a maximum condensate discharge of 2 GPH/unit (Ex. 6 units = 12GPH) from the water heater.
- NC-2 commercial condensate neutralizer kit accessory (included)
The NC-2 will need to be discharged to an acceptable location. For long runs or with a drain above the NC-2, a condensate pump is needed, followed by piping to a floor drain. Refer to NC-2 Installation Manual for full installation and usage instructions.

- The end of the drainpipe must not be submerged in water or blocked in any way. To ensure proper drainage, leave the end of the drainpipe open to the atmosphere. Also, make sure that there are no obstructions blocking the drain line from discharging condensate outlet.
- Be sure to check that condensate is freely flowing from the drain piping after the system has been installed. Condensate will begin flowing out of the TTS-S within 15-20 minutes after operation has started.
- If the drain line becomes clogged or frozen, condensate water will flow back into the water heater and a "90" error code will flash on the remote controller, stopping the tankless water heater operation. If this occurs, clear the clog or frozen water so that condensate can freely flow again. Apply freeze prevention measures (when necessary) to prevent the drain line from clogging or freezing.
- Take measures to prevent the condensate drain lines from freezing (insulation, heat tape, electric heaters, etc.) as illustrated below if being installed outdoors or in other unconditioned space.



- If the water heater has been out of use for an extended period of time, make sure that you fill the condensate trap with water. This is to prevent dangerous exhaust gases from entering the building. Failure to fill the condensate trap could result in severe personal injury or death.

* Do not use the condensate water, discharged from the drainpipe, for drinking

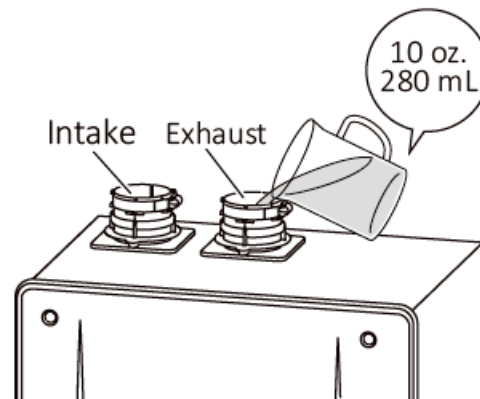
Filling the Condensate Trap with Water (Indoor Installation)

purposes.

1) Fill the condensate container by pouring approx. 10 oz.(280ml) of water into the exhaust accessory on the top of the appliance as illustrated below. Or, if the vent pipe has already been installed:

2) After installing the drainpipe, make sure that the area around the appliance is well ventilated; open a window or a door if necessary. Then, operate the unit and verify that condensate is coming out of the drainpipe. (During normal use of the water heater, condensate will begin to discharge from the drainpipe within 15 minutes of use. However, depending on the season and/or installation site conditions, it may take longer.)

*Note: This procedure must be done on each unit installed on the system.



Water Treatment

If the TTS-S will be installed in an application where the supply water is hard, the water must be treated with a water softener. Refer to the below tables for suggested treatment and maintenance measures to be taken based on the water hardness level. Damage to the water heater because of water more than 12 gpg (200 mg/L) of hardness is not covered by the Noritz America Limited Warranty.

Note: Water softeners may be regulated by the local water jurisdiction, consult with the manufacturer for code, sizing, and installation guidelines.

Installation of Gas Supply

WARNING

1. A licensed professional must install the gas supply.
2. Turn off the power supply.
3. Turn off the gas and do not smoke or have other ignition sources while working on the gas.
4. Do not turn on Noritz tankless water heater or gas line until all the fumes are gone.
5. Check the rating plate for the correct gas type and gas inlet pressure before connecting to the water heater.
6. Before operating, all gas piping should be checked and evaluated by a leak detector or an equivalent nonflammable solution.
7. Purge the gas line of any debris before connecting it to the water heater.
8. To check gas pressure setting and measuring gas pressure of the system please refer to the diagram below.

Gas Pressure

Size the gas line according to total btuh demand of the building and length from the meter or regulator so that the following supply pressures are available even at maximum demand:

Natural Gas Supply Pressure

Min. 3.5" WC

Max. 10.5" WC

LP Gas Supply Pressure

Min. 8" WC

Max. 14" WC

Gas Meter

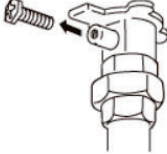
Select a gas meter capable of supplying the entire btuh demand of all gas appliances in the building.

Gas Connection

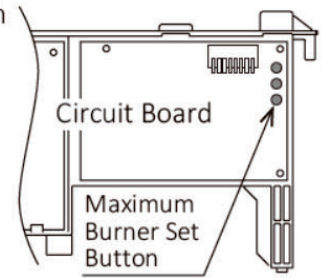
- Do not use piping with a diameter smaller than the inlet diameter of the water heater.
- Gas flex lines are not recommended unless they are rated for 199,900 btuh.
- Install a gas shutoff valve on the supply line.
- Use only approved gas piping materials.

Measuring Gas Pressure

In order to check the gas supply pressure to the Water Heater, a tap is provided on the gas inlet.

1. Remove the **9/32 in. hex head /Philips screw** from the tap. 
2. Connect a manometer using a silicon tube.
3. Open up at least two fixtures with hot water side fully.

4. Hold in the "Maximum Burner Set Button" on the circuit board.

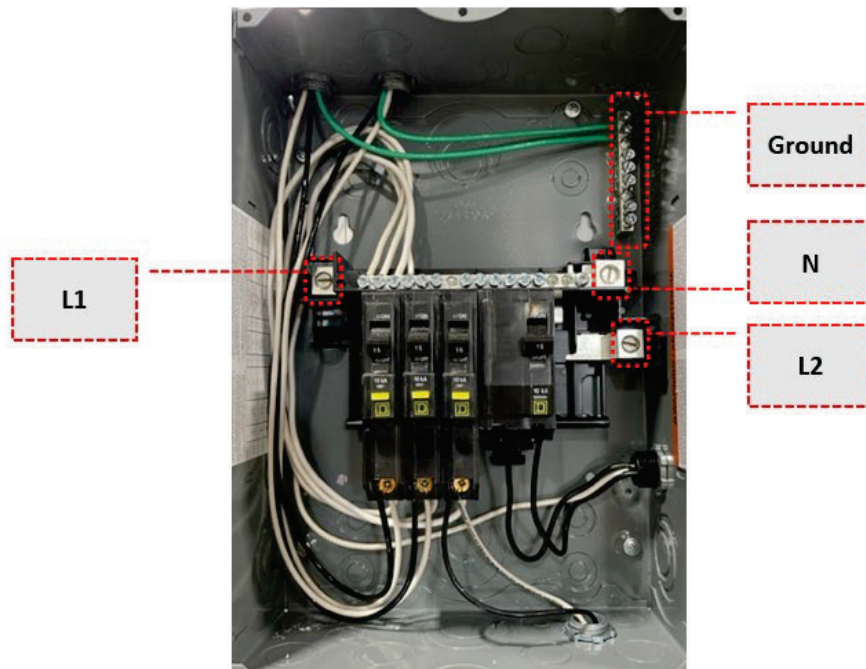


Electrical wiring

The power connection of each unit on the TTS has been completed at the factory. These units are powered from the break panel located on the TTS Rack. The Electrical Contractor will need to do the following:

- Install one circuit - 30A, 208/240V-1Ph-3Wire w/Ground to the panel on the TTS Rack in accordance with all National, State and Local Codes

Power Connection inside Break Panel:

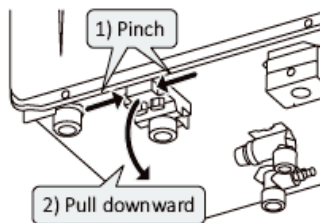


Remote Controller

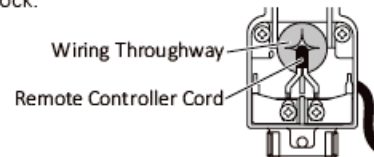
- The TTS-S comes with a remote controller (RC-9018M) that must be installed into unit #1. Refer to the schematic on pg. 58 of this manual for instructions on locating unit #1.
- Refer to directions below or pg. 45 of the Water Heater Installation Manual for description on installing the remote controller

Connecting the Remote Controller Cord

1. Check to make sure that the Remote Controller Cord has plenty of slack in order to reach the external connection terminal block.
2. Make sure the electrical power is disconnected from the Water Heater.
3. Open the external remote terminal block.



4. Pass the Remote Controller Cord through the wiring throughway. Connect the Y-shaped terminals at the end of the Remote Controller Cord to the terminal block.



NOTE Tie the redundant cord outside the Water Heater. Do not put the extra length inside the Water Heater.

5. Reattach the terminal block cover.

- The remote controller can be mounted adjacent to the TTS-S utilizing the provided cord, or extended utilizing 18 AWG wire up to 300 ft. Refer to the Water Heater Installation Manual for additional mounting instructions.
- Only one remote controller is connected to the Noritz tankless water heater to monitor and control all the units. If two or more remote controllers are connected a malfunction will occur.
- When power is first connected to the m the remote enters an initial setting mode where you will be prompted to choose between a system type (Standard, Recirc., or Tank Recirc.).

List of the Sys settings

Item in the Sys settings	system type			Yes	No
	Standard	Recirc	Tank recirc		
Quick staging	Available	Available	Not Available	Units will stage more rapidly from heater to heater*	Units will stage more slowly
Pump error check	Not Available	Available	Available	System will check for flow when system controller pump terminals are energized. If no flow is present, it will display 63 error code	System will not check for pump operation*
Pump rotation	Not Available	Available	Available	System will rotate pump 1 and 2 operation	Pump 1 and 2 will operate simultaneously*

*Factory Default Settings

- If “Recirc” is selected, properly set the recirculation system operation timer (Ex. 5:00am – 8:00am).
- Refer to the RC -9018M (Remote Controller) Installation Manual for additional information such as system clock button (pg. 8), setting hot water temperature (pg. 10), locking (pg. 14), additional settings (pg. 15), and disabling recirculation operation (pg. 18).
- For additional information, refer to (SC-401-6M) Installation Manual for information such as remote initial setup (pg. 9), recirculation pump timer setup (pg. 13), system check button (pg. 15), maintenance monitors and additional settings (pg. 16).

*The remote controller is not resistant to water, steam, chemicals, or UV rays. Store the remote in a location where it will not be exposed to these conditions.

Multi System Controller

- The TTS-S comes pre-installed with a system controller for up to 6 units (SC-401-6M).
- Each Noritz tankless water heater will be electronically connected with the multi system controller.

Basic Operation

The SC-401-8M system controller is used to combine 1 to 6 Noritz heaters into a single "multi-unit system". The system controller stages units on and off based on hot water demand and rotates their operation to ensure even usage. It also has two additional modes which optimize the system for operation with a recirculation line or storage tank.

(Note: for systems of 7-12 units use the SCU-401-12M system controller
for systems of 13-24 units use the SCU-401-24M system controller)

Unit Staging

Staging allows the multi-unit system to track hot water demand from the minimum flow rate of a single unit up to the maximum output of several units. When the primary firing heater reaches ~50% of its maximum output, the system controller activates the next unit in the system. When both these units reach ~50% of their maximum output, a third unit is activated and so on. The SC-401-8M may also be configured to activate two heaters during primary firing to allow for rapid initial hot water demand.

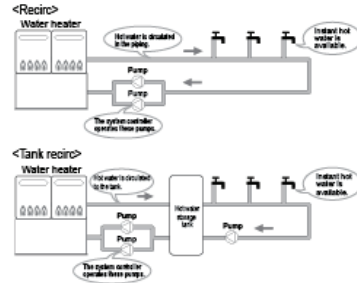
Unit Rotation

The SC-401-8M system controller rotates operation of the primary firing heater every 8 hours of combustion time or up to 24 hours of plug-in time. This helps to ensure even usage of all units.

UNIT1	UNIT2	UNIT3	UNIT4	UNIT5	UNIT6
1st	2nd	3rd	4th	5th	6th
Rotation					
6th	1st	2nd	3rd	4th	5th
Rotation					
5th	6th	1st	2nd	3rd	4th
Rotation					
4th	5th	6th	1st	2nd	3rd

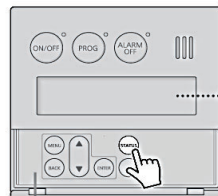
System Selection

The SC-401-8M allows the user to select two additional system types: "Recirc" and "Tank recirc." These settings optimize performance with recirculation and storage tank systems, and allow the system controller to operate one or two pumps.





* These diagrams are for illustration purposes only.

If you press the **STATUS** button, you can check the status of the system

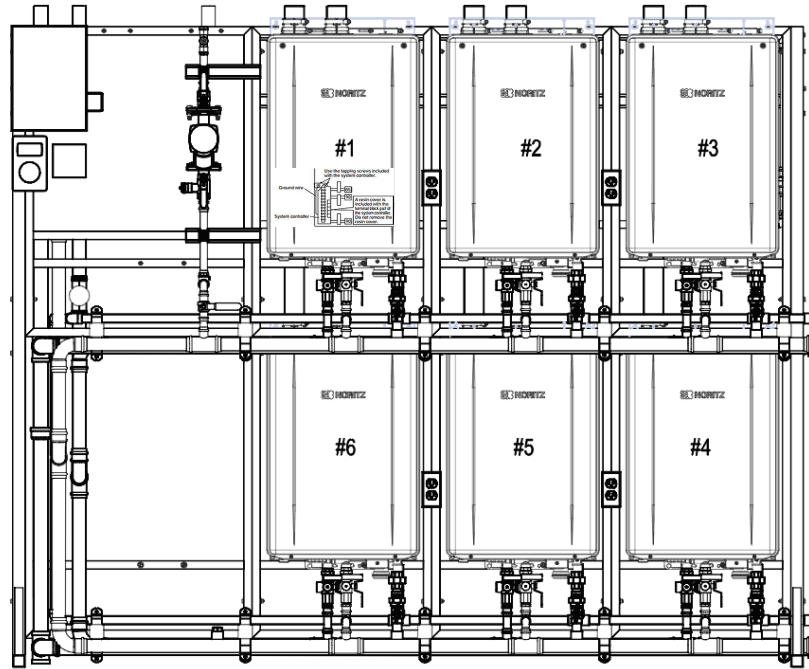


Cover shown in the open position.

System [Rrcr] Active [06]
Units [06] Pump1 [OFF]
Online [06] Pump2 [ON]
(Display Screen Example [System [Rrcr]])

System Displayed on the Remote Controller	System Description
System [Std]	Water heater only operation.
System [Rrcr]	<ul style="list-style-type: none"> * Water heater and recirculation operation. * During recirculation operation, hot water is always circulated in the piping to provide instant hot water when a fixture is opened. <p>[If you set the ON/OFF button to "ON",  is displayed.]</p>
System [Tank]	<ul style="list-style-type: none"> * Water heater combined with a storage tank operation. * If a recirculation system is also installed, hot water is always circulated in the piping to provide instant hot water when a fixture is opened. <p>[If you set the ON/OFF button to "ON",  is displayed.]</p>

- The system controller is installed inside the rightmost unit denoted by a #1 sticker located on the front cover of the unit.
- Each unit will have a numbered sticker on the front cover, ordered in a clockwise direction (Refer to diagram below).



● **When two or more multi-unit systems are installed in parallel**

One remote controller is necessary for each multi-unit system (i.e. 3 multi-unit systems will require 3 system controllers and 3 remote controllers). Each system will have separately wired remote controller cords.

- Refer to the system controller installation manual SC-401-6M (6 Unit System Controller) for additional multi system controller features such as warning and operation light pg. 20, circulation pumps pg. 21, exhaust fan, pressure switch pg. 22, and thermostat pg. 23.

Building Recirculation Pump Functions Overview

Building Recirculation

Building recirculation will need to be set up with both the Recirculation Pump and Digital Controller:

- Settings:
 - Digital Controller Differential: 3 °F
 - Digital Controller Setpoints: 5 °F below System Setpoint (MM Setpoint)
 - Building Recirculation Pump Setting Range: 2 – 3 GPM






4 Front Panel Commands



Figure 4-1 - XR35CX Front Panel

4.1. Keys and Functions

Table 4-1 shows the keys that are found on the front panel of the XR35CX controller and their corresponding functions:

Key	Function
SET	To display the target setpoint; in programming mode, it selects a parameter or confirms an operation.
	(DEF key) To start a manual defrost.
	(UP arrow key) To see the MAX stored temperature; in programming mode, it browses the parameter codes or increases the displayed value.
	(DOWN arrow key) To see the MIN stored temperature; in programming mode, it browses the parameter codes or decreases the displayed value.
	Switches the controller OFF, if onF = oFF.
	Switches the light ON and OFF, if oA1 = Lig.
Key Combinations	

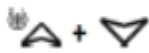

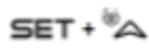
	To lock and unlock the keyboard.
SET + 	To enter programming mode.
SET + 	To return to the room temperature display.

Table 4-1 - XR35CX Front Panel Keys and Functions

4.2. Use of LEDS

Each LED function is described in Table 4-2:









LED	Mode	Function
	ON	Compressor enabled
	Flashing	Anti-short cycle delay enabled
	ON	Defrost enabled
	Flashing	Drip time in progress
	ON	An alarm is occurring
	ON	Continuous cycle is running
	ON	Energy saving enabled
	ON	Light ON
AUX	ON	Auxiliary relay ON
°C/°F	ON	Measurement unit
°C/°F	Flashing	Programming phase

Table 4-2 - LEDS

5 MAX and MIN Temperature Memorization

5.1. How to See the MIN Temperature

1. Press and release the DOWN arrow key.
 2. The Lo message will be displayed followed by the minimum temperature recorded.
 3. By pressing the DOWN arrow key again or by waiting 5 seconds, the normal display will be restored.
-

5.2. How to See the MAX Temperature

1. Press and release the UP arrow key.
 2. The Hi message will be displayed followed by the maximum temperature recorded.
 3. By pressing the UP arrow key again or by waiting 5 seconds, the normal display will be restored.
-

5.3. How to Reset MAX and MIN Temperature Recorded

1. Press and hold the SET key for more than 3 seconds while the maximum or minimum temperature is displayed. (rSt message will be displayed)
2. To confirm the operation, the rSt message starts blinking and the normal temperature will be displayed.

6 Main Functions

6.1. How to See the Setpoint



1. Push and immediately release the SET key: the display will show the setpoint value.

2. Push and immediately release the SET key or wait for 5 seconds to display the probe value again.

Parameters for the list of parameters). Press the SET key to display its value.

3. Use the UP or DOWN arrow keys to change its value.
4. Press SET to store the new value and move to the following parameter.
5. To exit, press SET + UP arrow keys or wait 15 seconds without pressing a key.



NOTE: The set value is stored even when the time-out expires and ends the procedure.

6.2. How to Change the Setpoint

1. Push the SET key for more than 2 seconds to change the setpoint value.
2. The value of the setpoint will be displayed and the °C or °F LED starts blinking.
3. To change the setpoint value, push the UP or DOWN arrow keys within 10 seconds.
4. To memorize the new setpoint value, push the SET key again or wait 10 seconds.

6.5. The Hidden Menu

The Hidden Menu includes all the parameters of the controller.

6.5.1. How to Enter the Hidden Menu

1. Enter the Programming mode by pressing the SET + DOWN arrow keys for 3 seconds (the °C or °F LED starts blinking).
2. Immediately release the keys, then push the SET + DOWN arrow keys again for more than 7 seconds. The Pr2 label will be displayed immediately followed by the Hy parameter. **NOW YOU ARE IN THE HIDDEN MENU.**
3. Select the required parameter. See **Section 7, Parameters** for the list of parameters.
4. Press the SET key to display its value.
5. Use the UP or DOWN arrow keys to change its value.
6. Press SET to store the new value and move to the next parameter.
7. Press SET + DOWN arrow keys or wait for 15 seconds without pressing a key to exit.

6.3. How to Start a Manual Defrost



Push the DEF key for more than 2 seconds and a manual defrost will start.

6.4. How to Change a Parameter Value

To change the parameter's value operate as follows:

1. Enter the Programming mode by pressing the SET + DOWN arrow keys for 3 seconds (the °C or °F LED starts blinking).
2. Select the required parameter (refer to **Section 7,**



NOTE: If a parameter is not present in Pr1, the noP message is displayed after 3 seconds. Keep the keys pressed until the Pr2 message is displayed.



NOTE: The set value is stored even when the time-out expires and ends the procedure.

6.5.2. How to Move a Parameter from the Hidden Menu to the First Level and Vice Versa

Each parameter present in the Hidden Menu can be removed or put into THE FIRST LEVEL (user level) by pressing SET + DOWN arrow keys.

In the Hidden Menu, when a parameter is present in First Level, the decimal point is visible.

6.6. How to Assign a MODBUS Address

1. Follow *Steps 1 and 2 of Section 6.5.1., How to Enter the Hidden Menu* to access the Hidden Menu.
2. Select the **Adr** parameter.
3. Press SET to select.
4. Choose the address number using the arrow keys and press SET again to save.
5. Press the SET and UP arrow keys to exit.

Note that devices cannot have duplicate addresses on the network. Assigning MODBUS addresses prior to terminating the network and leaving the address of device 1 as unused until the network is connected can prevent duplicate addressing network issues.

6.7. How to Lock the Keyboard

1. Keep the UP and the DOWN arrow keys pressed for more than 3 seconds.
2. The **PoF** message will be displayed and the keyboard will be locked. At this point it will be possible to see the setpoint or the MAX or MIN temperature stored only.
3. If a key is pressed more than 3 seconds, the **PoF** message will be displayed.

6.8. To Unlock the Keyboard

To unlock the keyboard, press the UP and the DOWN arrow keys for more than 3 seconds until the **Pon** message displays.

6.9. The Continuous Cycle

When defrost is not in progress, it can be activated by pressing the UP arrow key for about 3 seconds. The compressor operates to maintain the CCS setpoint for the time set through the CCt parameter. The cycle can be terminated before the end of the set time by pressing the same activation key (UP arrow key) for 3 seconds.

6.10. The ON/OFF Function



With **onF = oFF**, pushing the ON/OFF key will turn the controller OFF. The OFF message is displayed. In this configuration, the regulation is disabled.

To switch the controller ON, push again the ON/OFF key.



WARNING! Loads connected to the normally closed contacts of the relays are always supplied and under voltage, even if the controller is in stand-by mode.

7 Parameters

Code	Parameter	Function
REGULATION		
Hy	Differential	(0.1 to 25.5°C / 1 to 255°F) Intervention differential for setpoint. Compressor Cut IN is Setpoint + differential (Hy). Compressor Cut OUT is when the temperature reaches the setpoint.
LS	Minimum setpoint	(-100°C to SEt/-148°F to SEt) Sets the minimum value for the setpoint.
US	Maximum setpoint	(SEt to 110°C/ SEt to 230°F) Sets the maximum value for the setpoint.
ot	Thermostat probe calibration	(-12.0 to 12.0°C; -120 to 120°F) Allows to adjust possible offset of the thermostat probe.
P2P	Evaporator probe presence	n = not present: the defrost stops by time y = present: the defrost stops by temperature
oE	Evaporator probe calibration	(-12.0 to 12.0°C; -120 to 120°F) Allows to adjust possible offset of the evaporator probe.
P3P	Third probe presence (P3)	n = not present: the terminals 18-20 operate as digital input y = present: the terminals 18-20 operate as third probe
o3	Third probe calibration (P3)	(-12.0 to 12.0°C; -120 to 120°F) Allows to adjust possible offset of the third probe.
P4P	Fourth probe presence	(n = not present, y = present)
o4	Fourth probe calibration	(-12.0 to 12.0°C) Allows to adjust possible offset of the fourth probe.
Ods	Outputs activation delay at start up	(0 to 255 min) This function is enabled at the initial start up of the controller and inhibits any output activation for the period of time set in the parameter.
Ac	Anti-short cycle delay	(0 to 50 min) Minimum interval between the compressor stop and the following restart.
rtr	Percentage of the second and first probe for regulation (0 to 100; 100 = P1, 0 = P2)	Allows to set the regulation according to the percentage of the first and second probe, as for the following formula $(rtr(P1 - P2)/100 + P2)$.
CCt	Compressor ON time during continuous cycle	(0.0 to 24.0 hr, res. 10 min) Allows to set the length of the continuous cycle: compressor stays ON without interruption for the CCt time. Can be used, for instance, when the room is filled with new products.
CCS	Setpoint for continuous cycle	(-100 to 150°C) Sets the setpoint used during the continuous cycle.
Con	Compressor ON time with faulty probe	(0 to 255 min) Time during which the compressor is active in case of faulty thermostat probe. With Con = 0, compressor is always OFF.

Table 7-1 - List of Parameters

Code	Parameter	Function
CoF	Compressor OFF time with faulty probe	(0 to 255 min) Time during which the compressor is OFF in case of faulty thermostat probe. With CoF = 0, compressor is always active.
CH	Type of action	CL = cooling; Ht = heating
DISPLAY		
CF	Temperature measurement unit	°C = Celsius; °F = Fahrenheit CAUTION! <i>When the measurement unit is changed, the setpoint and the values of the parameters Hy, LS, US, ot, ALU and ALL have to be checked and modified if necessary.</i>
rES	Resolution (for °C)	(in = 1°C; dE = 0.1°C) Allows decimal point display.
Lod	Controller display	(P1, P2, P3, P4, SEt, dtr) Selects which probe is displayed by the controller: P1 = Thermostat probe P2 = Evaporator probe P3 = Third probe (only for model with this option enabled) P4 = Fourth probe SEt = setpoint dtr = percentage of visualization
Red	X- REP display (optional)	(P1, P2, P3, P4, SEt, dtr) Selects which probe is displayed by X-REP: P1 = Thermostat probe P2 = Evaporator probe P3 = Third probe (only for model with this option enabled) P4 = Fourth probe SEt = setpoint dtr = percentage of visualization
dLy	Display delay	(0 to 20.0 min, res. 10 sec) When the temperature increases, the display is updated of 1°C/1°F after this time.
dtr	Percentage of the second and first probe for visualization when Lod = dtr (0 to 100; 100 = P1, 0 = P2)	if Lod = dtr: Allows to set the visualization according to the percentage of the first and second probe, as for the following formula (dtr(P1 - P2)/100 + P2).
DEFROST		
tdF	Defrost type	EL = electric heater; in = hot gas
dFP	Probe selection for defrost termination	nP = no probe P1 = thermostat probe P2 = evaporator probe P3 = configurable probe P4 = probe on Hot Key plug
dtE	Defrost termination temperature	(-50 to 50°C/ -58 to 122°F) (Enabled only when EdF = Pb) Sets the temperature measured by the evaporator probe, which causes the end of defrost.
IdF	Interval between defrost cycles	(0 to 120 hr) Determines the time interval between the beginning of two defrost cycles.

Table 7-1 - List of Parameters

Code	Parameter	Function
MdF	Maximum duration for defrost	(0 to 255 min) When P2P = n , (not evaporator probe: timed defrost), it sets the defrost duration. When P2P = y (defrost end based on temperature), it sets the maximum duration for defrost.
dSd	Start defrost delay	(0 to 99 min) This is useful when different defrost start times are necessary to avoid overloading the plant.
dFd	Temperature displayed during defrost	(rt = real temperature; it = temperature at defrost start; SEt = setpoint; dEF = dEF label)
dAd	MAX display delay after defrost	(0 to 255 min) Sets the maximum time between the end of defrost and the restarting of the real room temperature display.
Fdt	Drip time	(0 to 120 min) Time interval between reaching defrost termination temperature and the restoring of the controller's normal operation. This time allows the evaporator to eliminate water drops that might have formed due to defrost.
dPo	First defrost after start-up	(y = immediate; n = after the IdF time)
dAF	Defrost delay after continuous cycle	(0 to 23.5 hr) Time interval between the end of the fast freezing cycle and the following defrost related to it.
AUXILIARY THERMOSTAT CONFIGURATION (terms. 1-7) - oAl = AUS		
ACH	Kind of regulation for auxiliary relay	Ht = heating; CL = cooling
SAA	Setpoint for auxiliary relay	(-100 to 110.0°C; -148 to 230°F) Defines the room temperature setpoint to switch auxiliary relay.
SHy	Differential for auxiliary output	(0.1 to 25.5°C / 1 to 255°F) Intervention differential for auxiliary output setpoint. With ACH = CL , AUX Cut in is SAA + SHy ; AUX Cut out is SAA . With ACH = Ht , AUX Cut in is SAA - SHy ; AUX Cut out is SAA .
ArP	Probe selection for auxiliary	nP = no probe, the auxiliary relay is switched only by the digital input P1 = Probe 1 (thermostat probe) P2 = Probe 2 (evaporator probe) P3 = Probe 3 (display probe) P4 = Probe 4
Sdd	Auxiliary relay OFF during defrost	n = the auxiliary relay operates during defrost; y = the auxiliary relay is switched OFF during defrost
ALARMS		
ALP	Probe selection for alarm	nP = no probe, the temperature alarms are disabled P1 = Probe 1 (Thermostat probe) P2 = Probe 2 (evaporator probe) P3 = Probe 3 (display probe) P4 = Fourth probe

Table 7-1 - List of Parameters

Code	Parameter	Function
ALC	Temperature alarms configuration	(Ab; rE) Ab = Absolute temperature: alarm temperature is given by the ALL or ALU values; rE = Temperature alarms are referred to the setpoint. Temperature alarm is enabled when the temperature exceeds the SET + ALU or SET-ALL values.
ALU	MAXIMUM temperature alarm	(ALL to 110°C; ALL to 230°F) When this temperature is reached, the alarm is enabled after the ALd delay time.
ALL	Minimum temperature alarm	(-100°C to ALU; -148 to ALU) When this temperature is reached, the alarm is enabled after the ALd delay time.
AFH	Differential for temperature alarm recovery	(0.1 to 25.5°C; 1 to 45°F) Intervention differential for recovery of temperature alarm.
ALd	Temperature alarm delay	(0 to 255 min) Time interval between the detection of an alarm condition and alarm signaling.
dAo	Exclusion of temperature alarm at start-up	(from 0.0 min to 23.5 hr) Time interval between the detection of the temperature alarm condition after controller power ON and alarm signaling.
CONDENSER TEMPERATURE ALARM		
AP2	Probe selection for temperature alarm of condenser	nP = no probe P1 = thermostat probe P2 = evaporator probe P3 = configurable probe P4 = probe on Hot Key plug
AL2	Low temperature alarm of condenser	(-100 to 150°C; -148 to 302°F) When this temperature is reached the LA2 alarm is signaled, possibly after the Ad2 delay.
AU2	High temperature alarm of condenser	(-100 to 150°C; -148 to 302°F) When this temperature is reached the HA2 alarm is signaled, possibly after the Ad2 delay.
AH2	Differential for temperature condenser alarm recovery	(0.1 to 25.5°C; 1 to 45°F)
Ad2	Condenser temperature alarm delay	(0 to 255 min) Time interval between the detection of the condenser alarm condition and alarm signaling.
dA2	Condenser temperature alarm exclusion at start up	(from 0.0 min to 23.5 hr, res. 10 min)
bLL	Compressor OFF with low temperature alarm of condenser	n = no: compressor keeps on working Y = yes: compressor is switched OFF until the alarm is present, in any case regulation restarts after Ac time at minimum
AC2	Compressor OFF with high temperature alarm of condenser	n = no: compressor keeps on working Y = yes: compressor is switched OFF till the alarm is present, in any case regulation restarts after Ac time at minimum
AUXILIARY RELAY		

Table 7-1 - List of Parameters

Code	Parameter	Function
tbA	Alarm relay silencing (with oAl = ALr)	n = silencing disabled: alarm relay stays ON until alarm condition lasts y = silencing enabled: alarm relay is switched OFF by pressing a key during an alarm
oAl	Second relay configuration (1-7)	dEF = defrost; FAn : do not select it!; ALr : alarm; Lig : light; AUS : Auxiliary relay; onF : always ON with controller ON; db = neutral zone; cP2 = do not select it!; dEF2 : do not select it!; HES : night blind
AOP	Alarm relay polarity	Set if the alarm relay is open or closed when an alarm happens. CL = terminals 1-7 closed during an alarm oP = terminals 1-7 open during an alarm
DIGITAL INPUTS		
i1P	Digital input polarity (18-20)	oP = the digital input is activated by opening the contact CL = the digital input is activated by closing the contact
i1F	Digital input configuration (18-20)	dor = door switch function dEF = activation of a defrost cycle
i2P	2 nd digital input polarity (18-19)	oP = the digital input is activated by opening the contact CL = the digital input is activated by closing the contact
i2F	2 nd digital input configuration (18-19)	EAL = external alarm: EA message is displayed; bAL = serious alarm; CA message is displayed; PAL = pressure switch alarm, CA message is displayed; dor = door switch function; dEF = activation of a defrost cycle; ES = energy saving; AUS = auxiliary relay activation with oAl = AUS ; Htr = kind of action inversion (cooling – heating); FAn = fan; HdF = Holiday defrost (enable only with RTC); onF = to switch the controller OFF
did	With i2F = EAL or i2F = bAL : digital input alarm delay (18-20)	(0 to 255 min) Delay between the detection of the external alarm condition and its signaling.
	With i2F = PAL : time for pressure switch function	(0 to 255 min) Time interval to calculate the number of the pressure switch activation.
doA	Door open signaling delay	(0 to 255 min)
nPS	Pressure switch number	(0 to 15) Number of activation of the pressure switch, during the did interval, before signaling the alarm event (i2F = PAL). If the nPS activation in the did time is reached, switch OFF and ON the controller to restart normal regulation.
Odc	Compressor status when open door	no ; FAn = normal; CPr , F_C = Compressor OFF
rrd	Outputs restart after doA alarm	no = outputs not affected by the doA alarm yES = outputs restart with the doA alarm
HES	Temperature increase during the Energy Saving cycle	(-30.0°C to 30.0°C) Sets the increasing value of the setpoint during the Energy Saving cycle.
TO SET CURRENT TIME AND WEEKLY HOLIDAYS (ONLY FOR MODELS WITH RTC)		
Hur	Current hour (0 to 23 hr)	Sets the current hour.
Min	Current minute (0 to 59 min)	Sets the current minute.
dAY	Current day (Sun to SAst)	Sets the current day of the week.

Table 7-1 - List of Parameters

Code	Parameter	Function
Hd1	First weekly holiday (Sun to <i>not used</i>)	Sets the first day of the week which follows the holiday times. <i>NOTE: Hd1 can be set also as not used value.</i>
Hd2	Second weekly holiday (Sun to <i>not used</i>)	Sets the second day of the week which follows the holiday times. <i>NOTE: Hd2 can be set also as not used value.</i>
TO SET ENERGY SAVING TIMES (ONLY FOR MODELS WITH RTC)		
iLE	Energy Saving cycle start during workdays	(0 to 23 hr 50 min) During the Energy Saving cycle, the setpoint is increased by the value in HES so that the operation setpoint is SET + HES.
dLE	Energy Saving cycle length during workdays	(0 to 24 hr 00 min) Sets the duration of the Energy Saving cycle on workdays.
iSE	Energy Saving cycle start on holidays. (0 to 23 hr 50 min)	
dSE	Energy Saving cycle length on holidays (0 to 24 hr 00 min)	
TO SET DEFROST TIMES (ONLY FOR MODELS WITH RTC)		
Ld1 to Ld6	Workday defrost start (0 to 23 hr 50 min)	These parameters set the beginning of the 6 programmable defrost cycles during workdays. (e.g., When Ld2 = 12.4 the second defrost starts at 12:40 during workdays.)
Sd1 to Sd6	Holiday defrost start (0 to 23 hr 50 min)	These parameters set the beginning of the 6 programmable defrost cycles on holidays. (e.g., When Sd2 = 3.4 the second defrost starts at 3:40 on holidays.)
<i>NOTE: To disable a defrost cycle, set it to not used. (e.g., If Ld6 = not used, the sixth defrost cycle is disabled.)</i>		
OTHER PARAMETERS		
Adr	Serial address (1 to 244)	Identifies the controller address when connected to a MODBUS compatible monitoring system.
pbC	Type of probe	Allows to set the kind of probe used by the controller. Pt1 = Pt1000 probe ntc = NTC probe CtC = Standard CPC temp sensor Set this pbC parameter to CtC to support standard CPC temp sensors - factory default.
onF	ON/OFF key enabling	not used = disabled oFF = enabled ES = not set it
dP1	Thermostat probe display	
dP2	Evaporator probe display	
dP3	Third probe display (optional)	
dP4	Fourth probe display	
rSE	Real setpoint	Shows the setpoint used during the energy saving cycle or during the continuous cycle.
rEL	Software release	For internal use only.
Ptb	Parameter table code	Read only

Table 7-1 - List of Parameters

14 Alarm Signals

Message	Cause	Outputs
P1	Room probe failure	Compressor output acc. to par. Con and COF
P2	Evaporator probe failure	Defrost end is timed
P3	Third probe failure	Outputs unchanged
P4	Fourth probe failure	Outputs unchanged
HA	Maximum temperature alarm	Outputs unchanged
LA	Minimum temperature alarm	Outputs unchanged.
HA2	Condenser high temperature	It depends on the Ac2 parameter
LA2	Condenser low temperature	It depends on the bLL parameter
dA	Door open	Compressor restarts
EA	External alarm	Output unchanged
CA	Serious external alarm (iIF = bAL)	All outputs OFF
CA	Pressure switch alarm (iIF = PAL)	All outputs OFF

Table 14-1 - Alarm Signals

Temperature alarms **HA**, **LA**, **HA2**, and **LA2** automatically stop as soon as the temperature returns to normal values.

Alarms **EA** and **CA** (with **iIF** = **bAL**) recover as soon as the digital input is disabled.

Alarm **CA** (with **iIF** = **PAL**) recovers only by switching the controller OFF and ON.

14.3. Other Messages

Message	Output
Pon	Keyboard unlocked
PoF	Keyboard locked
noP	In programming mode: No parameter is present in Pr1 . On the display or in dP2 , dP3 , dP4 : The selected probe is not enabled.

Table 14-2 - Additional Display Messages

Timer Switch Operation

Operation

1. Rotate the program disc, in the direction of the arrows, to align the correct time of day (the correct day of the week for weekly models) with the time of day mark.
2. Set the desired switching program by pushing the switch actuators toward the center of the time switch. Each actuator provides a 15 minute on time (2 hour on time for weekly models). The now visible orange area(s) indicate the switch on period.

IMPORTANT: MODELS WITH BATTERY RESERVE

These models utilize a nickel cadmium battery to provide power during power outages. This battery has a normal operating life of 6 to 8 years and it is not user replaceable.

For maximum battery life the unit should not be disconnected from the power source and stored for long periods of time (over two weeks) in a discharged condition. The maximum battery life is realized by maintaining a constant float charge in normal service operation. Normal power interruptions or disconnections of less than five days are considered to be normal service.

Troubleshooting Chart

SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Time switch does not run	Proper power not reaching unit	Check that time switch is connected to a live power line with good fuses, and that the voltage at the terminals is correct

Final checklist

Review the following checklist. The answer to each of these questions should be “Yes”. If you answer “No” to any of the items (except items with designated conditional answers), installation is not complete. Review the appropriate sections to complete the installation. If you have any questions or need assistance with the installation, contact Facilities Resource Group at 877-554-0004.

Before Installation	Yes	No
Rating Plate indicates the correct gas type (Natural Gas / Propane)		
Water Heaters and frame are free of physical damage		
Installation location is below 2,000 ft (610m)		
If the answer above is no: Is dipswitch in each unit set to proper altitude setting? (Refer to the Water Heater Installation manual for instructions on making this adjustment)		
Mounting	Yes	No
For wall type, wall is capable of supporting shear load of the frame and water heaters		
Frame is mounted on a flat, level surface		
Frame is securely fastened to the wall / floor as required by local building code		
Venting	Yes	No
Vent materials used are approved for use with these Category IV appliances (PVC, CPVC, approved Polypropylene)		
Vent length is within requirements		
Clearance from termination meets the clearance requirements		
While operating there is no leakage from any fitting or pipe		
Vent system has a horizontal section		
If the answer above is yes: Horizontal section has a slope of at least ¼” upwards for each 12” toward the termination		
Gas Supply	Yes	No
Gas inlet supply pressure is between 3.5-10.5” w.c. (NG) or 8-14” w.c. (LP)		
There is no leakage from water heater or gas connection		
Gas pipe connection to gas manifold connection is appropriate		
Unused end of the gas manifold is capped		
Water Supply	Yes	No
Water supply pressure is between 15-150 psi (103.4-1034 kPa) (Recommended water pressure between 30-70 psi (207 – 483 kPa) for maximum performance. Installing a pressure regulating valve above 70 psi supply pressure can help to reduce water hammer)		
There is no leakage from the cold-water supply pipe, hot water supply pipe, or the water heaters		
Pressure relief valves are installed and piped in accordance with local building code		
Condensate Drain	Yes	No
Condensate drain is discharging condensate (This may require operating water heaters for upwards of 15 minutes)		
Condensate is flowing freely		
Condensate line is free of leaks		
Condensate is disposed of in accordance with local building codes		
Electrical	Yes	No

Electricity supplied is single phase, 120VAC, 60 Hz		
Post Installation	Yes	No
Control module (RC-9018M) is mounted in a clean, dry location (RC-9018M is not waterproof or UV rated)		
Open a water fixture and confirm fire from water heater and that hot water is available		
No error codes are displayed on the water heaters		
Water filter on each unit is free of debris		
Explain to customer the operation of the water heater, safety guidelines, maintenance and warranty		
Manual placed next to water heater or passed directly to the customer		

*This checklist is **not** a replacement for thoroughly reading all the TTS Commercial Water Heater System manual literature.

Trial Operation

The installer should test operate the unit, followed by explaining to the customer how to use the unit, and give the owner this manual before leaving the installation site.

Preparation steps.

1. Confirm the condensate trap is filled with approx. 10 oz. (280 mL) of water inside the exhaust (indoor installations).
2. Open a hot water fixture to confirm that water is available, and then close the fixture.
3. Open the gas supply valve.
4. Turn on the power supply. Using the remote controller, turn on the Power On / Off button (the operation lamp will turn on).

Operation steps.

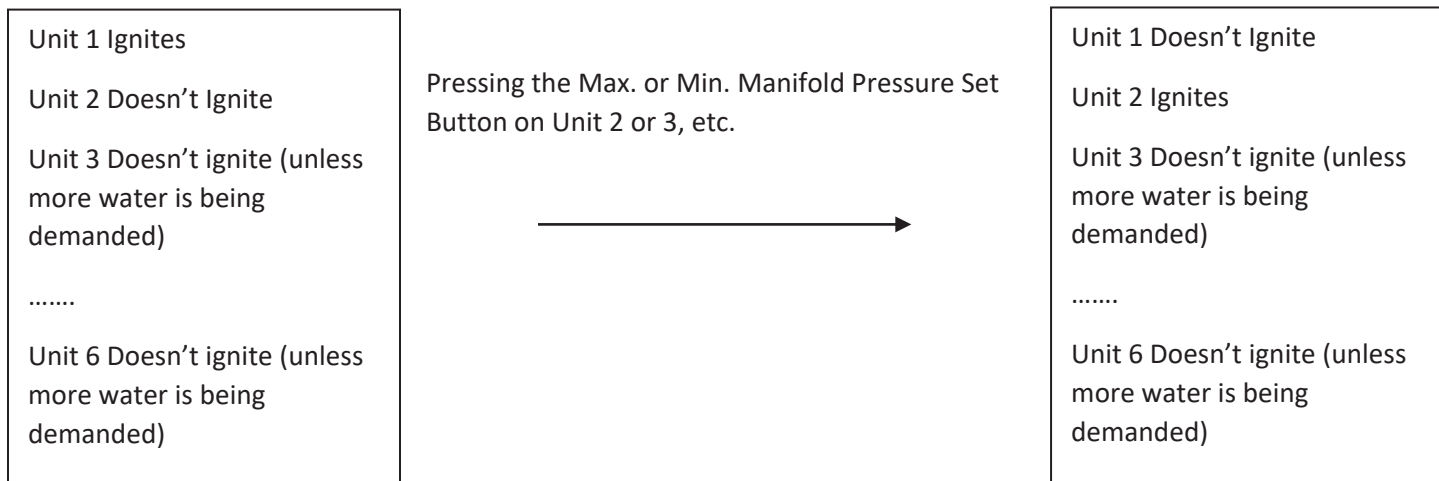
1. Open a hot water fixture and confirm that the Burner On lamp on the remote controller lights on, and that hot water is being produced. (If necessary, repeat until the air in the gas piping is bled out).

* White smoke may be produced from the exhaust vent during cold weather. This is not a malfunction of the unit.

* If an "11" error code appears on the remote controller, turn the unit off and then on 2 - 3 times. Followed by opening the hot water fixture again.

2. Change the temperature setting on the remote controller and check whether the water temperature changes.

• Check to see that the hot water temperature is the same as the temperature displayed on the remote controller. If multiple units do not ignite, switch which unit will ignite first by pressing the Max. or Min. Manifold Pressure Set Button on the circuit board.



- If the water heater does not operate normally, refer to “Troubleshooting” in the Operation Manual. After the trial operation, clean the filter in the cold-water inlet.
- Use the remote controller to see the status of how many units are igniting.

Shutdown Steps.

1. Stop any water demand
2. Turn off electrical power.
3. Drain the water out of each unit to prevent freezing.
4. Clean the filter in the cold water inlet and instruct client the process.



Handling after trial operation

- If the unit will not be used immediately, close off all gas and water shutoff valves, drain all of the water out of the unit and the plumbing system to prevent the unit and system from freezing, and bleed the gas out of the gas line.
Freezing is not covered by the warranty.

Warranty for Tankless Units & TTS System Components

Warranty Registration Required *

Start Up Sheet Required**

Warranty Period			
Period of Coverage (Date of Installation or 30 Days After Purchase)			
	Labor	Parts	Heat Exchanger
Tankless Water Heater*	1 year	5 years	10 years
TTS-S Series**	1 year		

Noritz America Corporation LIMITED WARRANTY - TANKLESS WATER HEATERS

1. What is Covered by this Warranty During the applicable Warranty Period (specified below), Noritz America Corporation ("Noritz") warrants to the original purchaser ("Buyer") that the new Noritz gas water heater in the originally installed location ("Product") is free from material defects in material or workmanship (the "Warranty"). There are different Warranty Periods for different components of the Product, as described below. This Warranty is for the benefit of the original Buyer only and terminates upon transfer of the Product from the original Buyer to any other person or entity. For this Warranty to be effective (i) the Product must be installed by a method recognized and authorized by Noritz and in compliance with Noritz published materials specifically indicated in writing to be applicable to the type and model number of the Product and in compliance with instructions in the Installation Manual and Owner's Guide, which are included with the Product ("Proper Installation"); and (ii) Buyer must use the Product in compliance with instructions in the Installation Manual and Owner's Guide, which are included with the Product.

2. Warranty Period This Warranty is provided by Noritz to the Buyer for the duration of the applicable Warranty Period for the particular component of the Product as specified below. This Warranty takes effect ("Warranty Effective Date") on the date of Proper Installation of the Product, or 30 days after the date of purchase of the Product, whichever occurs first, and is effective until the expiration of the "Warranty Period" for the particular Product component as shown below. The date of Proper Installation must be provided to Noritz as well as a copy of the original receipt for the purchase of the Product to establish the Warranty Effective Date. For example, when the Product is installed in new single-family residential construction, the Warranty Effective Date is the date upon which the Buyer takes title to the real property (e.g., the date of recordation of the deed conveying title to Buyer).

■ Warranty Period for Heat Exchanger

Product	Conditions		
	A) Used in a single family dwelling	B) Used in conjunction with a controlled recirculation system[1] installed in accordance with the installation manual in a single family dwelling	C) Used in a commercial capacity; used in other than a single family dwelling; supplied with pre-heated water or used in conjunction with uncontrolled recirculation
EZ98, EZ111, EZTR50 and EZTR75 (excluding EZTR40)	25 years [2]	15 years [3]	8 years [4]
NRCR92 and NRCR111	15 years [3]		8 years [4]
Residential Products with prefix "NR" 180,000 btu and higher	12 years	12 years [5]	3 years [6]
Residential Products with prefix "NR" 157,000 btu and lower, and EZTR40	12 years	3 years [6]	
NCC199CDV	25 years [2] [7]	15 years [3] [7]	10 years [8]
Commercial Products with prefix "NC" except NCC199CDV	12 years [7]	12 years [5] [7]	5 years [9]

■ Warranty Period for Parts and Labor

All Products	Parts other than Heat Exchanger	5 years
	Reasonable labor [10]	1 year

Footnote:

- [1] An aquastat is the minimum pump control requirement in order to maintain the full recirculation warranty. Point of use or "on demand" recirculation systems which are thermally controlled (i.e. aquastat) also classify as controlled systems.
 [2] 25 years or 15,000 operational (burn) hours, whichever occurs first.
 [3] 15 years or 12,000 operational (burn) hours, whichever occurs first.
 [4] 8 years or 12,500 operational (burn) hours, whichever occurs first.
 [5] 12 years or 6,500 operational (burn) hours, whichever occurs first.
 [6] 3 years or 4,000 operational (burn) hours, whichever occurs first.

- [7] Provided that temperature is ≤140°F. If temperature is >140°F, then applicable Warranty Period is the one used for a commercial capacity (Condition C above).
 [8] 10 years or 12,500 operational (burn) hours, whichever occurs first.
 [9] 5 years or 6,500 operational (burn) hours, whichever occurs first.
 [10] A reasonable labor rate will be paid by Noritz to service/repair professional on Noritz-approved Warranty repairs, subject to Noritz's schedule of approved labor allowances.

Register your Warranty online at www.noritz.com/warranty



Warranty Registration

Register your Noritz product/s at www.noritz.com/warranty or fill out the Warranty card below and return to Noritz America.

Customer Name*:			
Customer Address*:			
City*:	State*:	Zip*:	
Telephone*:			
Email*:			
Installation Company:			
Company Address:			
City:	State:	Zip:	
The model, serial number and gas type can be found on the water heater's rating plate located either on the front cover or side of the product.			
Model No.*:	Gas Type (Circle One)*: Natural Gas / Propane		
<i>Model No. should start with "GQ-". If "GQ-" numbers cannot be found, please write the Model No. with prefix "NR" or "NC".</i>			
Serial No.(12 digits)*: 20	Date of Installation*:		

* These items must be completed to properly register the water heater.

Please keep a copy of this warranty registration card for your records.



Save The Environment! Do it Online!

Register your Warranty online at www.noritz.com/warranty

NORITZ AMERICA CORP.
 11160 Grace Avenue
 Fountain Valley, CA 92708
 Phone: (714) 433-2905
 Fax: (714) 241-1514

3. How do I Use this Warranty? If Buyer discovers, within the applicable Warranty Period, a defect in material or workmanship ("Defect"), Buyer must promptly notify Noritz or its authorized representative. Please notify Noritz by contacting Noritz's Customer Care at info@noritz.com, or by writing to Noritz Customer Care at 11160 Grace Avenue, Fountain Valley, CA 92708, or by calling Noritz Customer Care at 866-766-7489. Buyer must provide evidence of the Warranty Effective Date (See Section 2 above). Within a reasonable time after Noritz receives such notification, Noritz will ship at Noritz's expense, either new or used/refurbished replacement parts to correct a Noritz-confirmed Defect. Buyer is responsible for any other costs, including but not limited to labor for servicing or replacing the part or Product (except to the extent that labor is covered as described in the Warranty Period section above), costs for permits or materials necessary for the repair or replacement, or incidental costs resulting from damage external to the Product resulting from the Defect. The replacement component or Product will be warranted only for the unexpired portion of the original component's applicable Warranty Period. If during the applicable Warranty Period, the Noritz-provided new or used replacement parts, when properly installed, do not correct the Defect, or if Noritz is unable to correct the Defect after a reasonable number of attempts, Noritz will provide, at its option, one of the following: (i) a replacement new or used/refurbished Product (at Noritz's option, either the same, comparable or better model), to be shipped at Noritz's expense, or (ii) a full refund of the purchase price paid for the Product (excluding labor or installation costs). These remedies are the Buyer's only remedies for breach of Warranty.

4. What is Not Covered by this Warranty Please refer to the Installation Manual and Owner's Guide supplied with your new Noritz Product. In addition, this Warranty becomes null and void if any of the following are determined to be contributing factors to failure of the Product under this Warranty:

- Abuse, neglect, misuse or misapplication
- Improper, dangerous, or destructive maintenance procedures
- Use in conjunction with any unapproved device
- Installation in an environment that is corrosive or otherwise destructive to the Product, whether internal or external
- Incorrect gas or water pressure
- Incorrect sizing for the application
- Use with improper gas type
- Damage as a result of freezing within the Product or surrounding piping
- Damage as a result of use with non-potable water, untreated or poorly treated well water, or water with high PH levels or hardness levels in excess of 12 grains per gallon (200 mg/L). (Please refer to the "Water Quality" section of the Owner's Guide for details)
- Damage caused by acts of God including, but not limited to; fire, flood, lightning, or natural disaster
- Damage caused by use of the Product for purposes other than those for which it was designed
- Damage caused by unauthorized attachments or modifications
- Damage resulting from improper installation of the Product
- Damage during shipment

Product purchased from any seller or retailer that is not authorized by Noritz, or any installer that obtained the Product from a distributor or supplier that is not authorized by Noritz (collectively, "Non-Authorized Product") is not covered by this Warranty and the Warranty shall be void as to such Non-Authorized Product.

5. DISCLAIMER OF WARRANTIES THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. NORITZ DISCLAIMS ALL OTHER OBLIGATIONS OR LIABILITIES ON ITS PART AND NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON OR ENTITY TO BIND OR ASSUME FOR NORITZ ANY OTHER LIABILITIES IN CONNECTION WITH THE PERFORMANCE OF THE PRODUCT. THIS WARRANTY ONLY COVERS REPLACEMENT PRODUCT OR PARTS THEREOF, AND EXCEPT AS EXPRESSLY SET FORTH ABOVE, DOES NOT COVER THE COST OF LABOR OR SERVICES UNDER ANY CIRCUMSTANCES. SOME STATES OR PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

6. LIMITATION OF REMEDIES NORITZ'S TOTAL LIABILITY FOR ANY CLAIM ARISING HEREUNDER SHALL NOT EXCEED THE PURCHASE PRICE WHICH YOU PAID FOR THE PRODUCT. IN NO EVENT WILL NORITZ BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES BASED ON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT, OR ANY OTHER LEGAL THEORY. DAMAGES THAT NORITZ WILL NOT BE RESPONSIBLE FOR INCLUDE, BUT ARE NOT LIMITED TO: LOSS OF PROFITS; LOSS OF SAVINGS OR REVENUE; LOSS OF USE OF THE PRODUCT OR ANY ASSOCIATED EQUIPMENT; COST OF CAPITAL; COST OF ANY SUBSTITUTE EQUIPMENT, FACILITIES, OR SERVICES; DOWNTIME; THE CLAIMS OF THIRD PARTIES, INCLUDING CUSTOMERS; AND INJURY TO PROPERTY.

7. Time Limit for Bringing Suit Any action for breach of Warranty must be filed and served within 6 months following the expiration of the applicable Warranty Period with respect to the particular Product component.

8. No Other Warranties There are no express warranties other than those contained in this agreement. Unless modified in a writing signed by both parties, this agreement is understood to be the complete and exclusive agreement between the parties, superseding all oral or written prior agreements and all other communications between the parties relating to the subject matter of this agreement, including but not limited to statements made by salespersons. No employee or representative of Noritz, or any other person or entity, is authorized to make any warranty in addition to those made in this agreement, or to modify any warranty made in this agreement. Buyer is warned, therefore, to check this agreement carefully to see that it correctly reflects those terms that are important to the Buyer.

9. Allocation of Risks This agreement allocates the risks of Product failure between Noritz and the Buyer. This allocation is recognized by both parties and is reflected in the price of the goods. Buyer acknowledges that it has read this agreement, understands it, and is bound by its terms. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state or province to province.

NORITZ AMERICA CORP.
11160 Grace Avenue
Fountain Valley, CA 92708

PLACE
STAMP
HERE

MAIL TO: NORITZ AMERICA CORP.
11160 Grace Avenue
Fountain Valley, CA 92708

ATTN: WARRANTY REGISTRATION