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NRCB OVERVIEW

Introduction to the NRCB

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INTRODUCTION

- Specifications
- Key Features
- Installation
  - Venting
  - Water Connections
  - Dip Switch Settings
  - Control Panel
  - Heating Control Settings
  - Electrical Wiring
  - Additional Accessories
  - Water Treatment
  - Maintenance Monitors

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SPECIFICATIONS

Models	NRCB180DV / NRCB199DV
Standard Gas Input	Min: 18k Max: 180k / Min: 18k Max: 199k
Heating Gas Input	Min: 18k Max: 100k / Min: 18k Max: 120k
DHW Flow Range	0.4 – 9.8 GPM / 0.4 – 11.1 GPM
AFUE	95%
DHW Burner Off Flow	0.29 GPM
Heating Temp Range	100F – 180F (As low as 80F with setting)
DHW Temp Range	90F – 140F
Simultaneous Heating & DHW	YES
Max Elevation	10,000 feet
Connection Sizes	¾" DHW & Gas, 1" Heating, ½" Auto Feeder & Condensate
Quick Connect Capable	YES (With same BTU EZ or CDV Unit)
Outdoor Temp Sensor	INCLUDED
Warranty	10 Year HEX, 5 Year Parts, 1 Year Labor

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KEY FEATURES

- Simultaneous Operation of DHW & Heating
- Quick Temperature Control and Stability
- High DHW Flow Rates

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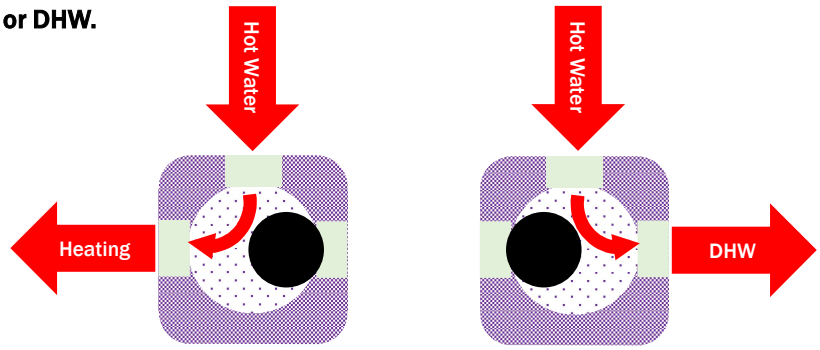
SIMULTANEOUS OPERATION

Most Competitor's 3-Way Valve:

Either Heating or DHW.



Heating Position **DHW Position**

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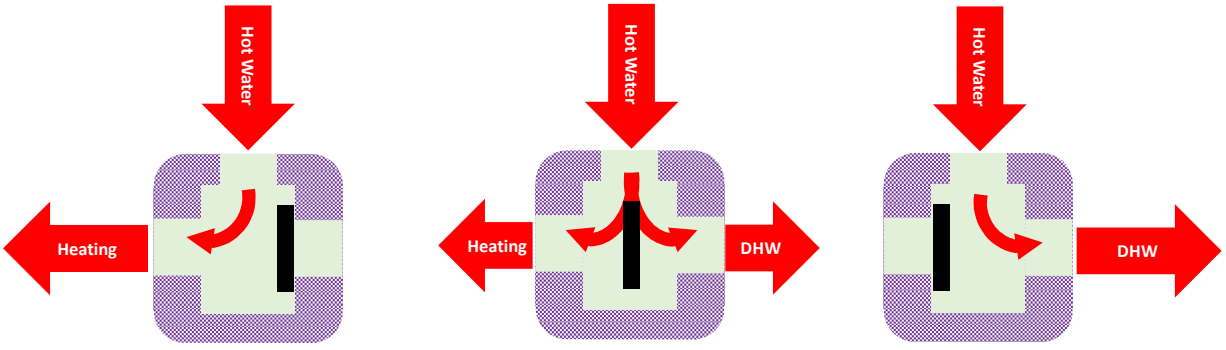
SIMULTANEOUS OPERATION

NRCB 3-Way Valve:

BOTH Heating and DHW!



Heating Position **Simultaneous Position** **DHW Position**

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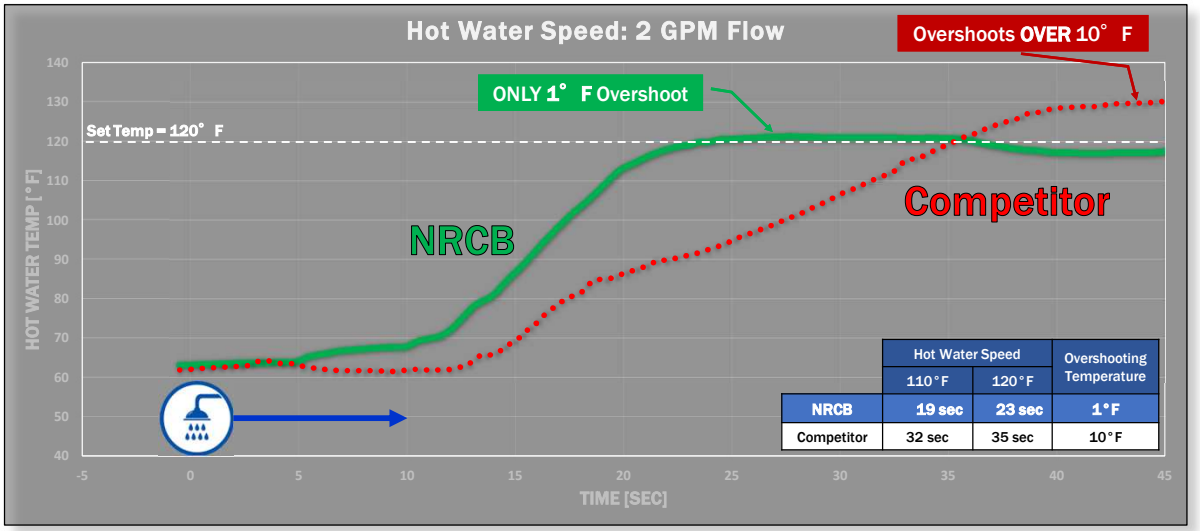
QUICK TEMP CONTROL & STABILITY



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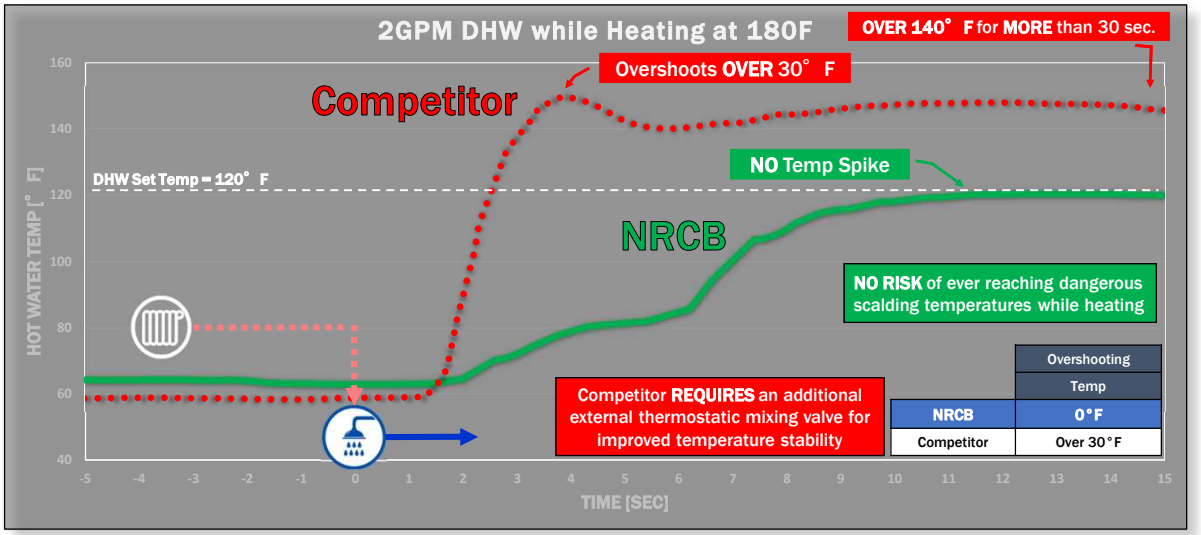
QUICK TEMP CONTROL & STABILITY



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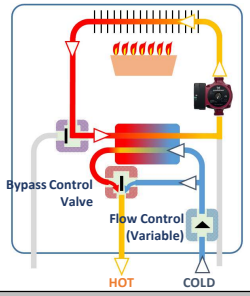
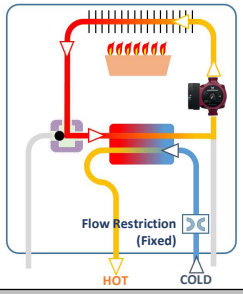
HIGH DHW FLOW RATES

	NRCB	Competitor
Water Pathway		
Flow Control	Variable	Fixed
Max GPM (199k btu Model)	11.1 GPM	5.6 GPM
Min Activation	0.4 GPM	0.5 GPM
Min Operation	0.29 GPM	Not Mentioned

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INSTALLATION

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VENTING & TOP OF UNIT

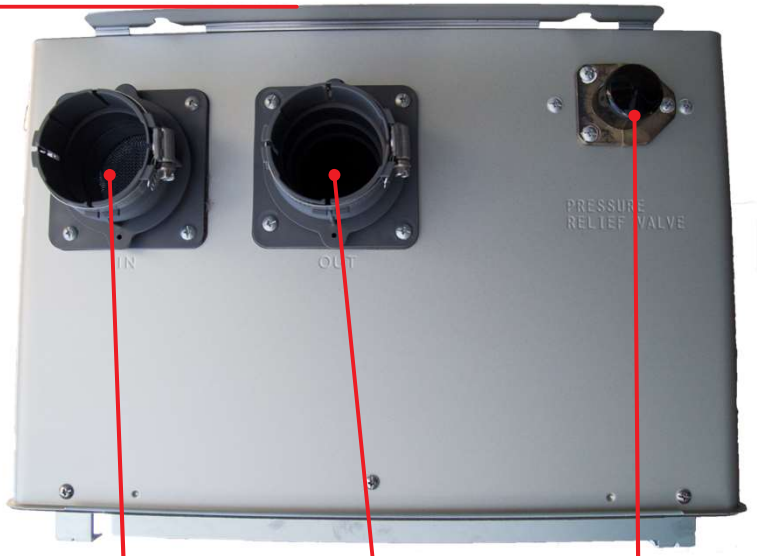
DV and SV Venting

OD Capable w/ VCK-NRCB

2” or 3” PVC/CPVC or PP

60ft w/ 2”

100ft w/ 3”



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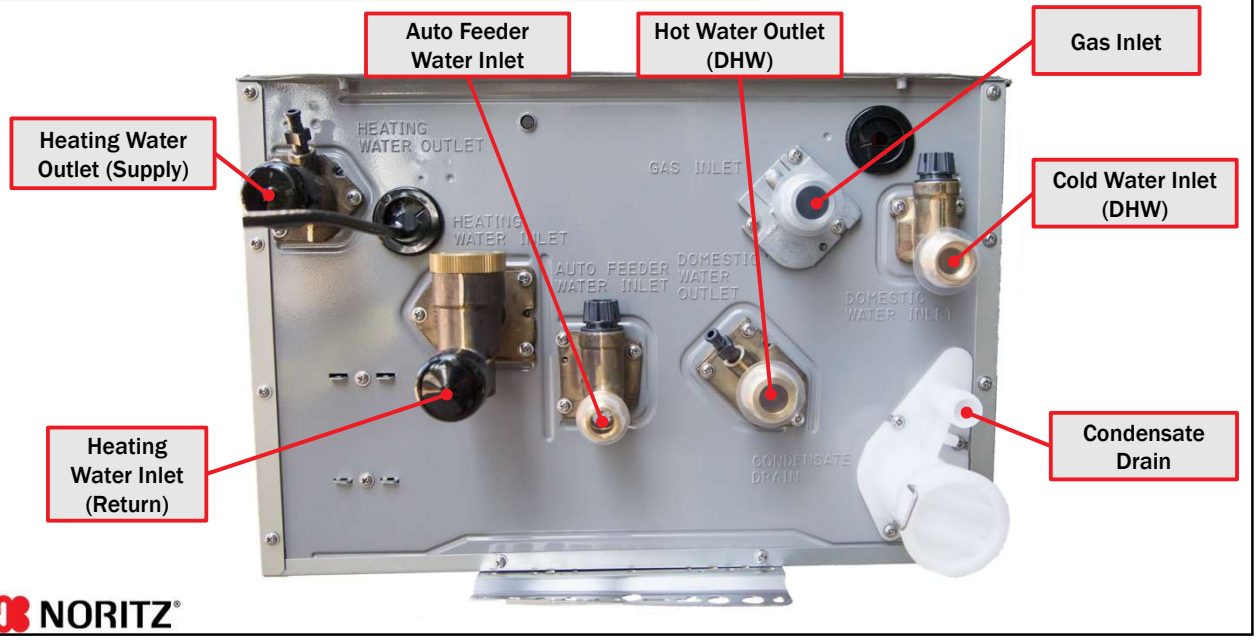
BOTTOM CONNECTIONS



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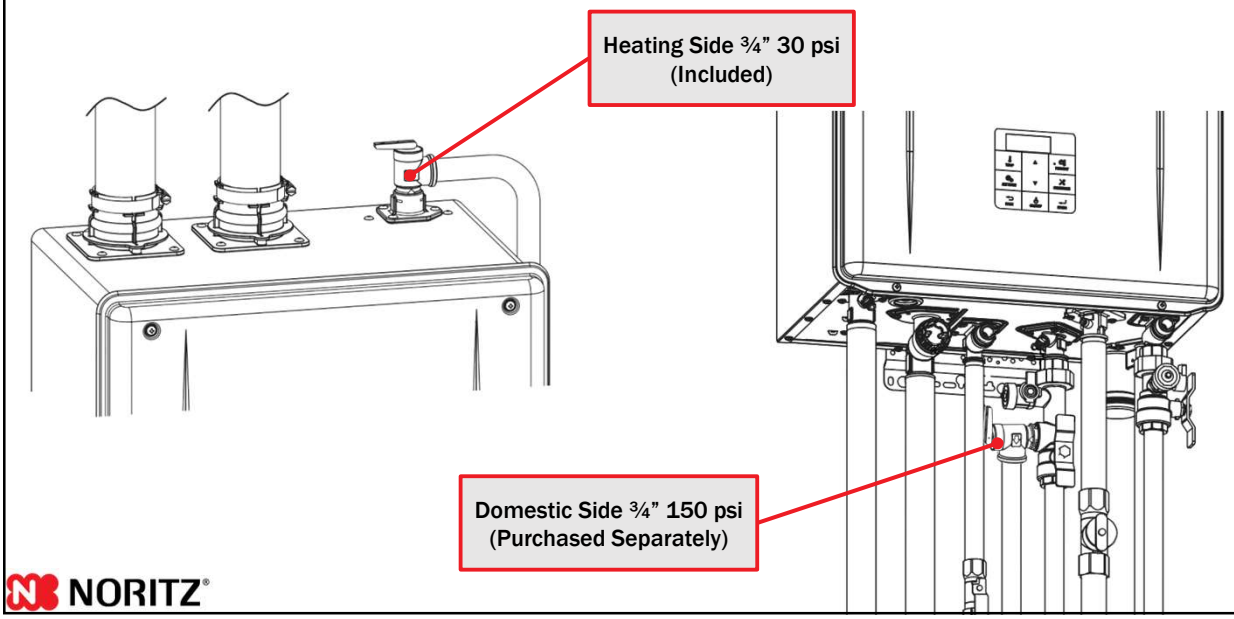
PRESSURE RELIEF VALVES



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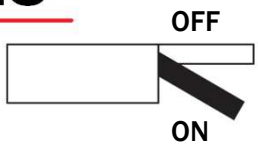
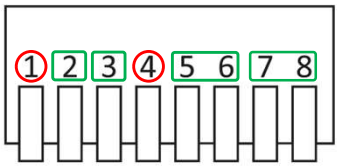
DIPSWITCH SETTINGS

Set up the unit for expanding simultaneous, vent type, elevation, vent length and size.





SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
DO NOT USE	Simultaneous Use	Vent Type	DO NOT USE	Elevation Adjustment		Vent Length Adjustment and Vent Size	
	Normal*	DV*		0 - 2,000 Ft*		2" Short Length*	
	Expanding	SV		2,001 - 4,000 Ft		2" Long Length	
					4,001 - 7,000 Ft		3" Short Length
				7,001 - 10,000 Ft		3" Long Length	

**Default Setting*

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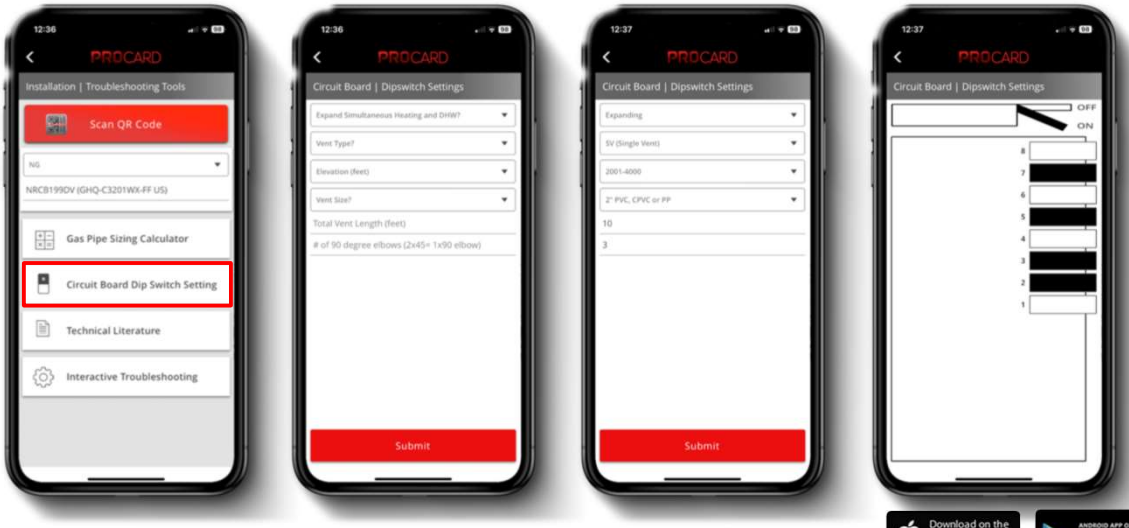
DIPSWITCH SETTINGS W/ PROCARD

Made simple using the PROCard APP!



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CONTROL PANEL

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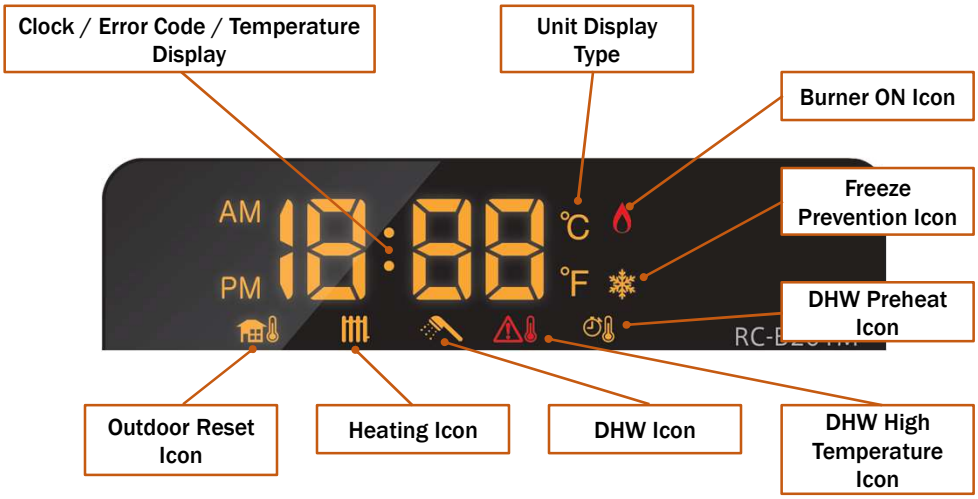
DISPLAY SCREEN



- ✓ If set to °F, Display will read Fahrenheit and Gallons per minute
- ✓ If set to °C, Display will read Celsius and Liters per minute

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HEATING CONTROL SETTINGS

There are 3 main ways to control the NRCB

1. Standard (Manual Heating Settings) most common
2. Outdoor Reset Control
3. External Control (0-10 V) not common

When using Outdoor Reset there are 6 preprogrammed heating types and 1 custom type

Type of Heating System	Low Setpoint (°F)	High Setpoint (°F)
Fin Tube Baseboard	120	180
Air Handler	140	180
Cast Iron Baseboard	100	170
Low Mass Radiant Floor	80	140
Mass Radiant Floor (Snow Melt)	80	120
Radiator	120	170
Custom	100 ~ (Max Setpoint - 30)	(Min Setpoint + 30) ~ 180

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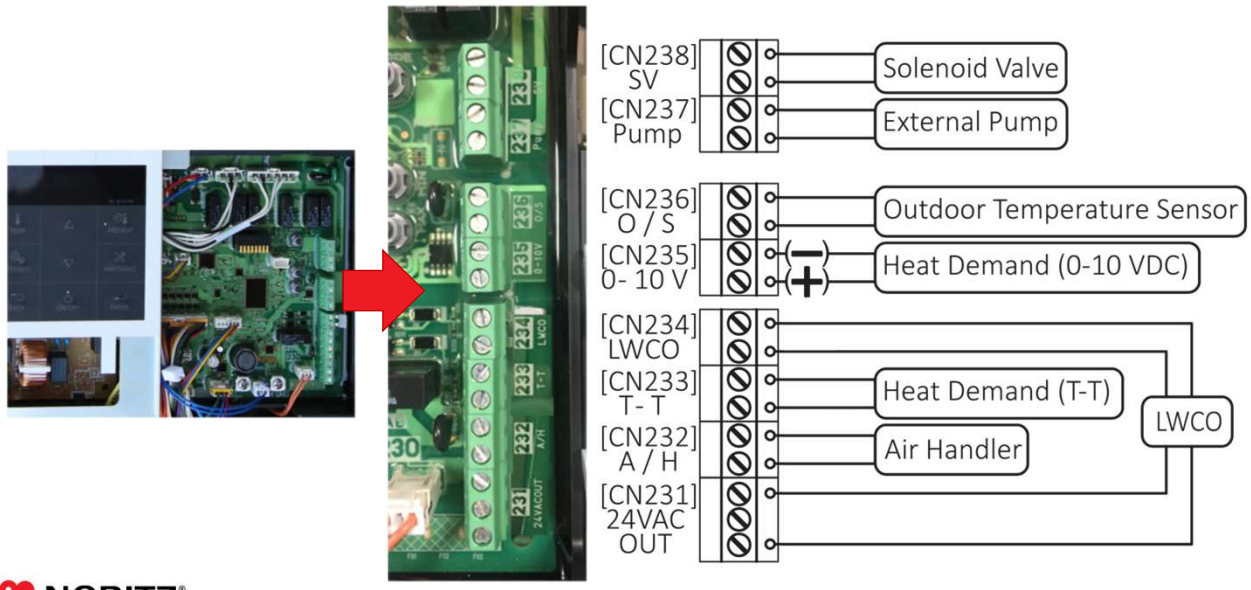
ELECTRICAL WIRING



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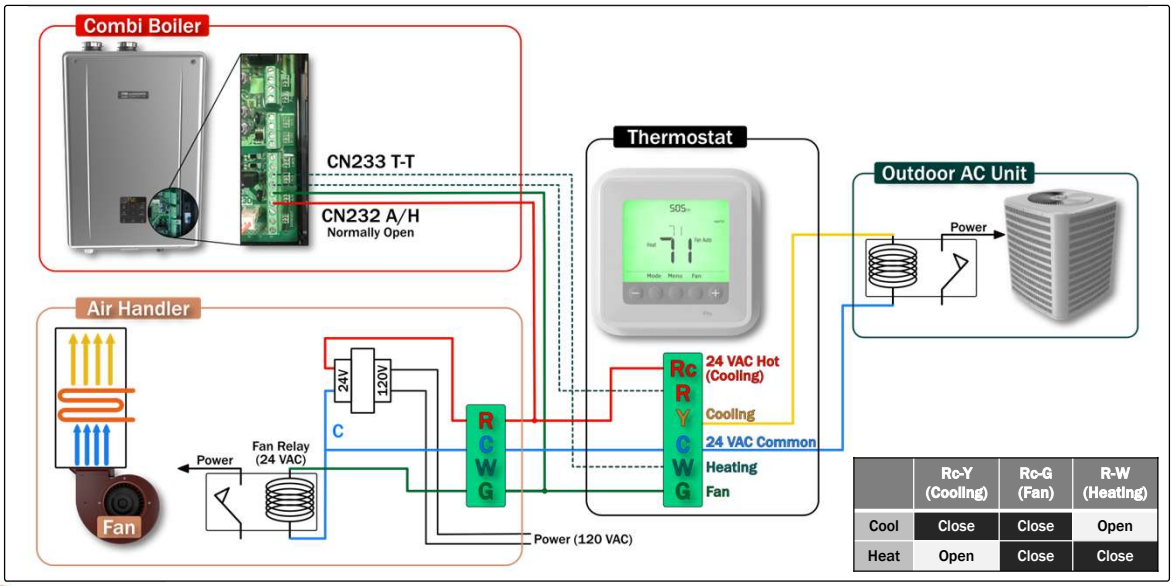
THERMOSTAT & AIR HANDLER WIRING



	Rc-Y (Cooling)	Rc-G (Fan)	R-W (Heating)
Cool	Close	Close	Open
Heat	Open	Close	Close

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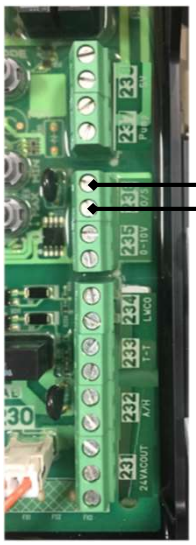
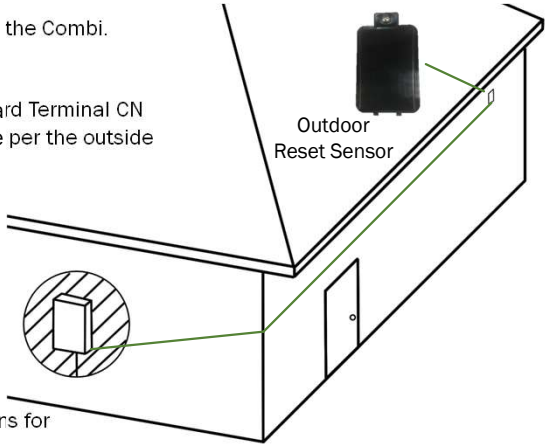
OUTDOOR RESET SENSOR WIRING



- Outdoor Reset Sensor is included in the box with the Combi. No additional charge!!!
- It should be hardwired to the Combi's Circuit Board Terminal CN 236 (O/S) to control the heating set temperature per the outside temperature. Energy Savings!!!



- Installing the Outdoor Reset provides more options for different heating applications
- Additional programming is needed to set up see installation manual
- Avoid Areas with direct sunlight or near a heat source which may not be representative of true outdoor temperature
- Best location is on a N or NE facing wall, beneath the eaves, where the sensor is shielded from direct sunlight and moisture

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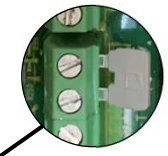
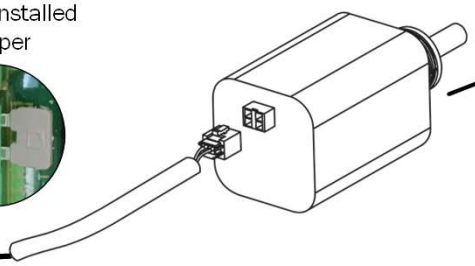
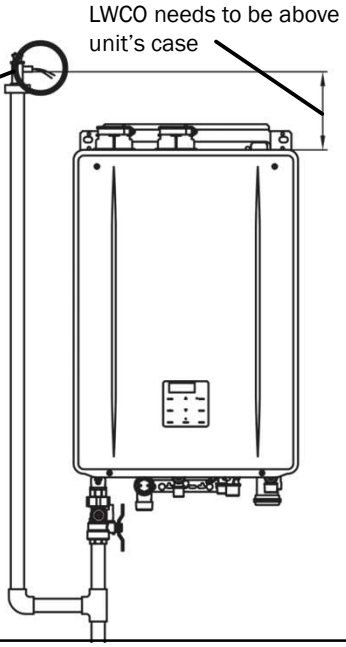
OPTIONAL EXTERNAL LWCO







LWCO Line

24 VAC

- Install LWCO above unit's case
- Disconnect Factory Installed Jumper Wire from CN 234 on Circuit Board
- Wire LWCO Line to CN 234
- Wire 24 VAC (*max 0.5 Amps*) to CN 231

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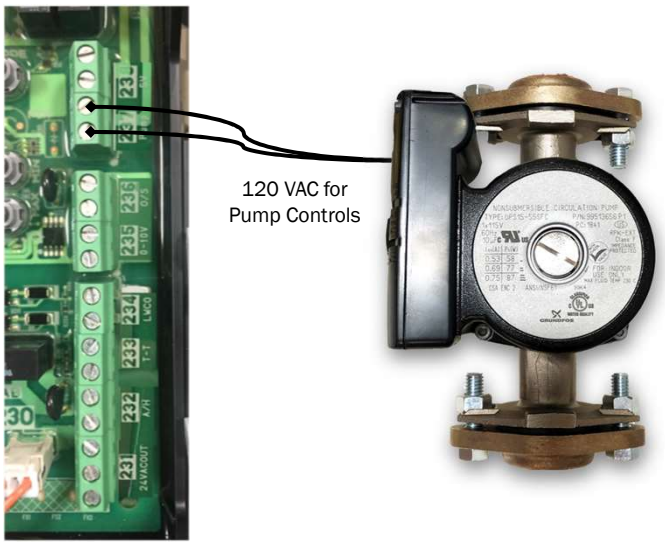
OPTIONAL EXTERNAL PUMP WIRING



- The Combi can control an External Pump
- Pump must be *120V AC* and *2 Amp Max*
- The pump should be used for the Secondary Loop in a Primary/Secondary Loop Application *(Internal Pump in the Combi is the Primary Pump)*
- Additional programming is needed to set up an External Pump *(see installation manual)*

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NEED MORE DHW?

Add a PRO Series Unit with a QC-2 Quick Connect Cord

Use the remote on the boiler

Slow closing solenoid valve is required between the NRCB and Tankless

The units will not rotate, and a recirculation system can be used.

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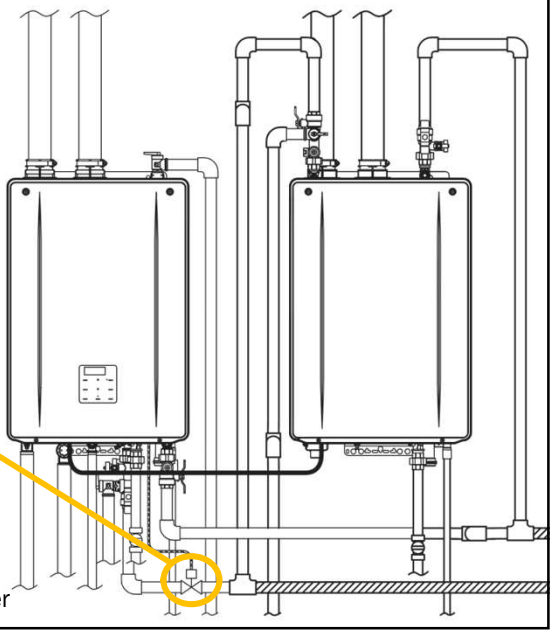
SOLENOID WIRING FOR QC SYSTEMS

Solenoid Valve must be
¾” 120V AC - 1.5 Amp Max



- Solenoid Valve is needed when using a QC System with any PRO Unit
- The Solenoid Valve must be Normal Closed Valve and Slow Closing to avoid water hammer

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ADDITIONAL ACCESSORIES

½” Pressure Reducing Valve
Needed on the auto feeder connection line to reduce the inlet water pressure to below 30 psi

Air Separator
Required at the highest point of the heating system

Manifold Kit MK-NRCB-1
Premade to align with the heating supply and return ports. Shut off valves and ports to flush the HEX along with a drain port to bleed out air in the system

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WATER TREATMENT

Water Quality Guidelines in the Installation Manual should always be followed.

Treatment Guidelines

Type of Water	Hardness Level	Treatment Device*1	Flush Frequency*2
Soft	0-1 gpg (0-17 mg/L)	None	None
Slightly Hard	1-3 gpg (17-51 mg/L)		
Moderately Hard	3-7 gpg (51-120 mg/L)	Scale Shield or Water Softener	Once a Year*3
Hard	7-10 gpg (120-171 mg/L)		
Very Hard	10-12 gpg (171-200 mg/L)		
Extremely Hard	> 12 gpg (> 200 mg/L)		

NOTE Damage to the Combi Boiler as a result of the items below is not covered by the Noritz America Limited Warranty.

- Water in excess of 12 gpg (200 mg/L) of hardness
- Poor water quality (See the Water Quality List on page 14).

*1 When selecting a treatment device, you must consult with the device's spec sheet and installation manual for guidelines and limitations. Not all water supplies are compatible. A water test may be required.

*2 Install Isolation Valve to allow for flushing.

*3 Flushing is required if a water treatment device is not installed.

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MAINTENANCE MONITORS

General Combustion Information for Warranty Purposes

Data No.	Item Name	Multiplier	Units
01	Total Heating Combustion Time	X 10	Hours
02		X 10,000	Hours
03	Total Plug In Time	X 100	Hours
04	Total DHW Combustion Time	X 1	Hours
05		X 1,000	Hours
06	Total Simultaneous Use of DHW & Heating	X 1	Hours
07	Number of DHW Ignition Times	X 100	Time
08		X 100,000	Time
11	Number of Heating Ignition Times	X 100	Time
12		X 100,000	Time
78	Total Circulation Pump Run Time	X 10	Hours
79		X 10,000	Hours

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Full list of Maintenance Monitors are located on the Technical Data Sheet inside the front cover of unit

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MAINTENANCE MONITORS

Flow, Temperature, Pressure and Error Code Information

Data No.	Item Name	Multiplier	Units*
14	Total DHW Flow Rate	X 0.1	gal/min
30	DHW Inlet Temperature	X 1	°F
31	DHW Outlet Temperature	X 1	°F
32	DHW Heat Exchanger Temperature	X 1	°F
34	Heating Return Temperature	X 1	°F
35	Heating Supply Temperature	X 1	°F
36	Exhaust Temperature	X 1	°F
38	Outdoor Temperature Sensor Temp	X 1	°F
67	Heating Water Pressure	X 0.1	psi
91-98	Error Code History (91 is most recent) If 3 digit error code the first 2 digits will show and then flip to subdivision number, this will flip every 2 seconds		

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* If [I:00_FC] is set to C (Celsius) then units will be in lit/min and °C

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THANK YOU

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