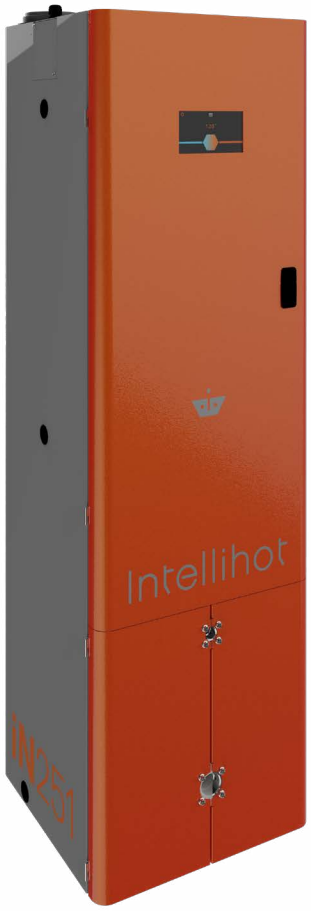
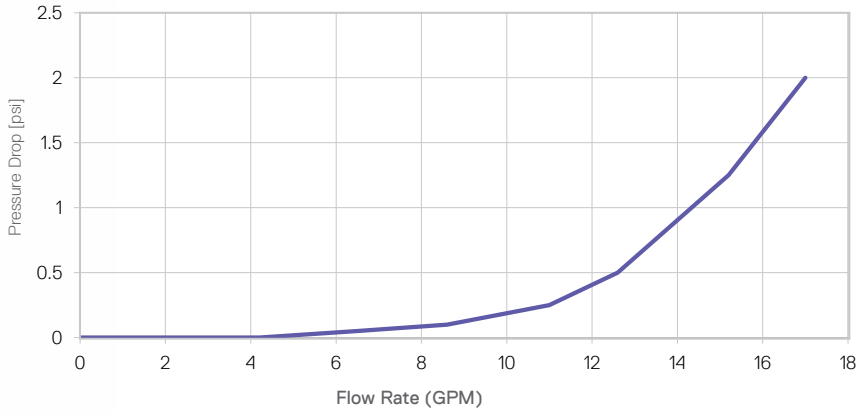
Commercial Tankless **iN**251 Submittal Data

Date:		Bid Date:	
Project Name:		Fuel Type:	☐ Natural Gas ☐ Propane
Project #:		Factory Option:	☐ Propane Setup
City | State | Zip:			
Engineer:			
Contractor:			

Operational Modes	Temperature Rise (ΔT)°F											
	30	40	45	50	60	70	80	90	100	120	130	140
Flow (GPM)	16.1	12.1	10.8	9.7	8.1	6.9	6.0	5.4	4.8	4.0	3.7	3.5
Flow (GPH)	968	726	645	581	484	415	363	323	290	242	223	207



PRESSURE DROP VS. FLOW RATE



KEY FEATURES

- 1 Weldless 316L Stainless Steel Heat Exchanger with Individual Controls for Masterless Cascading
- ASME-HLW Compliant | Designed & Built in the U.S.
- Factory monitoring via telliCare messaging
- Turn Down Ratio 8.4:1 per Unit, Cascade Up to 4 Units for 33:1 Turndown

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iN251 Short Spec & Accessories

The water heater shall be a direct fired tankless, fully condensing, water-tube design. The power burner shall have full modulation. The minimum firing rate shall not exceed 30,000 BTU/HR. The heat exchanger shall be constructed with 316L stainless steel helical water tube and be fully floating with no welded joints. The water heater control system shall incorporate onboard multi-unit sequencing logic that would allow masterless cascading without the need for a master controller. The heat exchangers shall sequence between each other, operating in parallel to meet the load. Each heat exchanger will default to individual control upon failure of the sequencing chain. Changes to operational parameters on any one of the heat exchangers will automatically adjust all other heat exchangers to the most recent parameter change. The water heater shall utilize a low loss header design that utilizes an internal pump and heat exchanger bypass to reduce pressure drop through the vessel.

Recommended Accessories iN199-iN199A-iN251:

1. Condensate Neutralizer Kit

This condensate is acidic, with a pH level between 3 and 4. Local building codes apply for an in-line neutralizer to be installed (not included) to treat this water.

2. Outdoor Installation Kit

3. iBMS BacNET

Intellihot's iNTouch BMS has three unique features that are not available in any other BMS in the industry.

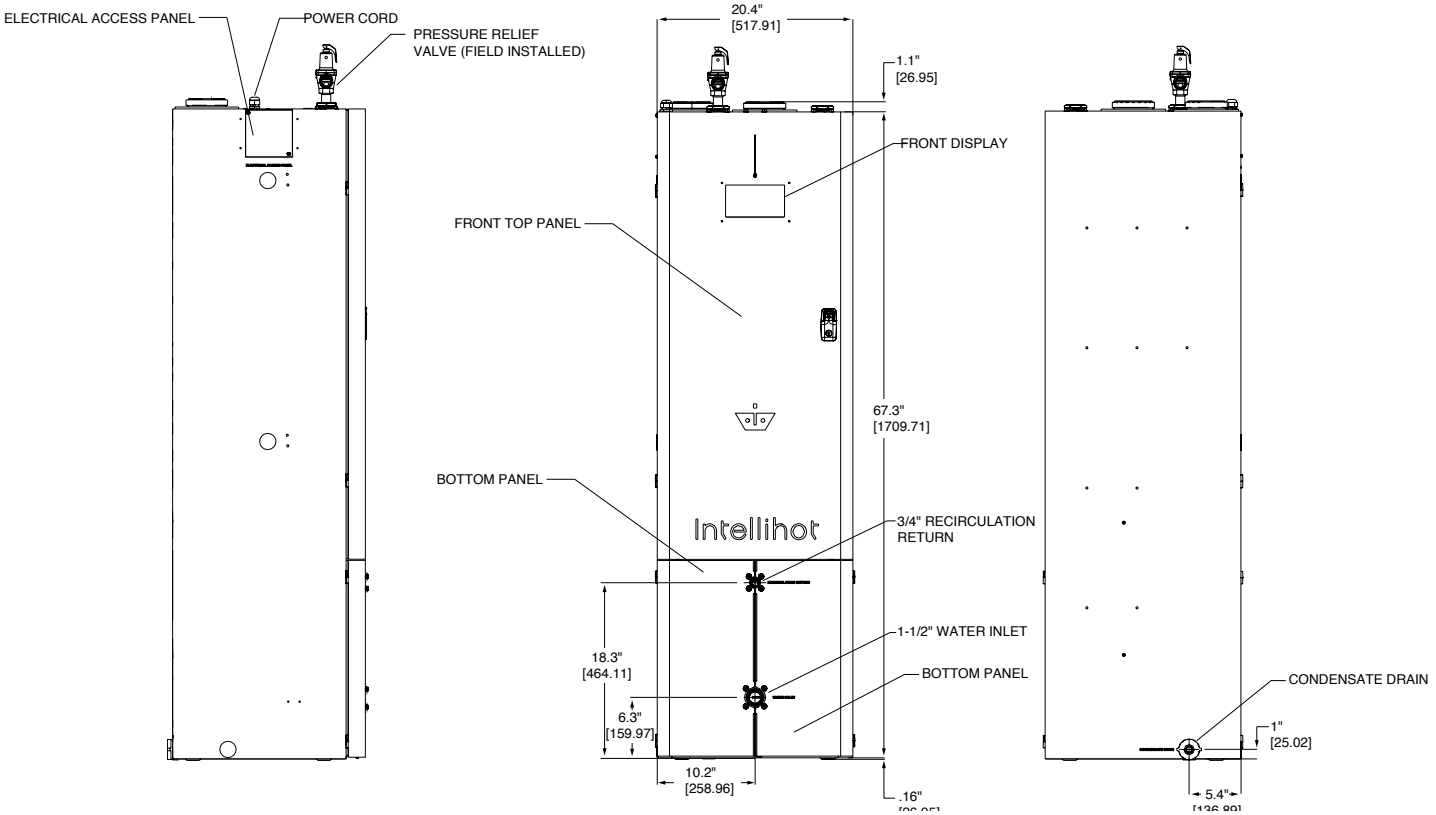
- External Pump Power – Powers building recirculation.
- Remote Setpoint – Allows the temperature to be set remotely via a 0-10 VDC or 4-20mA signal.
- Alarm – Buzzes if it detects anything wrong with any of the components it is connected to, and communicates the appropriate error codes so that the user knows which component needs attention.

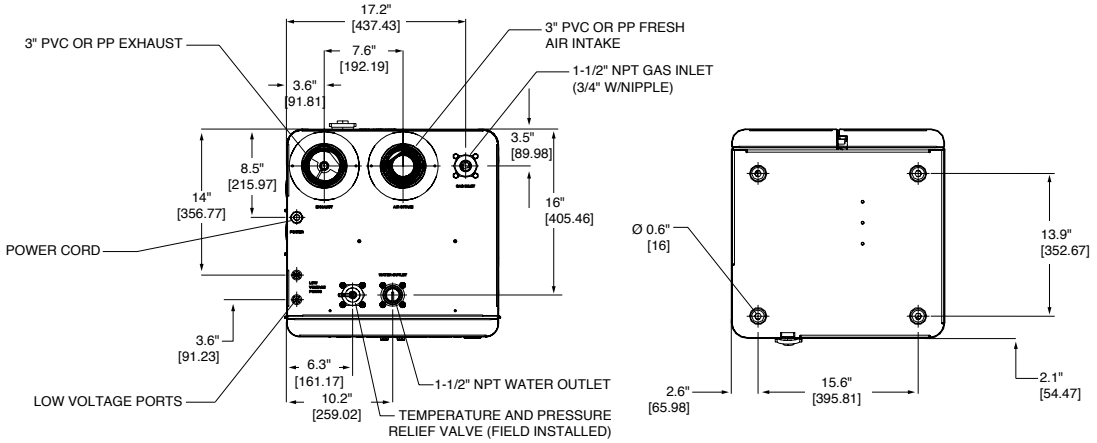
iN251 Specifications

PARAMETER	MODELS
	iN251
Type	Indoor, Floor Mounted, On-Demand Water Heater
Fuel	Preset for NG / LP convertible without additional parts
Minimum Input (BTU/hr)	30,000
Maximum Input (BTU/hr)	251,000
Maximum Output (BTU/hr)	240,960
Thermal Efficiency	96%
Turn Down Ratio (TDR)	8.4:1
Water Inlet / Outlet Connections	1-1/2" NPT
Gas Inlet Connection	1-1/2" NPT (3/4" w/nipple)
Condensate Drain Connection	33/4" PVC
Maximum Condensate Flow Rate (GPH)	1.8
Unit Dimensions H X W X D (Inches)	67.5 X 20 X 20 (15.6 CU. FT)
Service Clearances	4" on the back, 6" on the top, 21" on the front, and 6" on the sides
Unit Weight (LBS)	273 LBS
Shipping Crate Dimensions H X W X D / Weight	85 X 29.5 X 27 (Inches) / 373 (LBS)
Venting Type	Direct Vent (2 pipe – air intake and exhaust gas outlet), Power Vent (1 pipe – exhaust gas only)
Venting Materials (USA)	Sch. 40 PVC, Sch. 80 CPVC, Polypropylene, Stainless Steel (AL29-4C)
Venting Materials (Canada)	Type BH Gas Vent Classes: II A (PVC), II B (CPVC), II C (Polypropylene), I (AL294C SS)
Vent Size (Diameter)	3" Ø
Max 3" Vent Length - Single Pipe / Power Vent	130 FT*
Max 3" Vent Length - Two Pipe / Direct Vent	65 FT*
* Venting Note: From the maximum lengths above, deduct 5 ft. per 90º elbow and 2 ft. per 45º elbow	
Ignition	Electronic Spark Ignition
Temperature Range	100ºF – 190ºF
Temperature Stability	+/- 4ºF (During Demand)
Installation Location Ambient Temperature	40ºF – 130ºF
Safety	Flame Rod, Thermal Fuse, Overheat Prevention Device, Fan Speed Monitor, Flue Temperature Monitor, Blocked Vent Detector, Dual Flame Sensing
Water Pressure Min / Max (PSIG)	30 / 160
NG/LP - Min. Dynamic Gas Pressure (Full Fire)	NG = 2.5" WC LP= 8" WC (set Gas regulator to 8" WC for NG 11" WC for LP)
NG/LP - Maximum Static Gas Pressure	14" WC (set Gas regulator to 8" WC for NG 11" WC for LP)
Gas Regulator Pressure Set To	8" WC for Natural Gas, 11" WC for Propane
Electrical	120V AC, 60 Hz
Power Consumption	Max 9 Amps, 10W (Standby)
Internal Water Volume (gallons)	1
Features	**iN**251
Cascading	Masterless, 4 units, Automatic Rotation
Common Venting	Yes - up to 4 units
Heat Exchanger	Expandable, Stainless 316L
Appliance Certification to ANSI Z21.10.3	ETL (Z21.10.3 / CSA 4.3), ASME HLW
SCAQMD (Pending)	Ultra Low Nox (under 20 PPM)
Performance GPM / GPH	**iN**251
Hot Water Capacity (30F Rise)	16.1/968
Hot Water Capacity (40F Rise)	12.1/726
Hot Water Capacity (45F Rise)	10.8/645
Hot Water Capacity (50F Rise)	9.7/581
Hot Water Capacity (60F Rise)	8.1/484
Hot Water Capacity (70F Rise)	6.9/415
Hot Water Capacity (80F Rise)	6.0/363
Hot Water Capacity (90F Rise)	5.4/323
Hot Water Capacity (100F Rise)	4.8/290
Hot Water Capacity (120F Rise)	4.0/242
Hot Water Capacity (130F Rise)	3.7/223
Hot Water Capacity (140F Rise)	3.5/207
WARRANTY†	**iN**251
Basic Warranty (without StartUp)	Hex – 1 Year, Parts – 1 Year, Labor - None
Enhanced Warranty (with StartUp)	Hex – 10 Years, Parts – 2 Years, Labor - None
Labor Warranty (with Start Up & telliCare Connection)	Hex – 10 Years, Parts – 2 Years, Labor - 1 Year

† Heat Exchanger assembly (HEX) does not include, gas valve/blower assembly & sidecast. On 10 year| prorated after year 5. On 6 year| prorated after year 3. telliCare Service is free for one year. Start of warranty is: Per startup report or 2 months from date of manufacture, More specific warranty details can be found in 1/0 Manuals section 18.

iN251 Dimensional Specifications



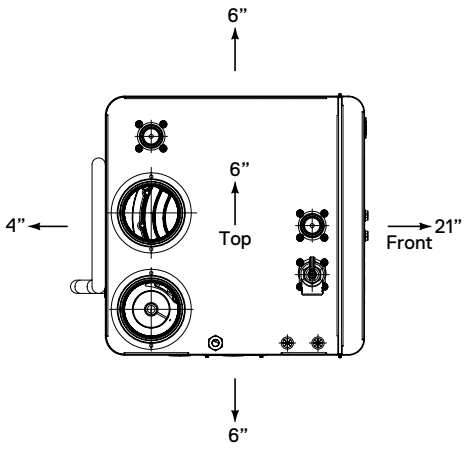


Note: All dimensions are in Inches, and equivalent metric values are specified within []

iN251 Service Clearances

Location	Required		Recommended
	From Combustibles	From Non-Combustibles	Service Clearance[1]
Top	6” (152 mm)	2” (50.8 mm)	6” (152 mm)
Back	5/8” (15.8 mm)	5/8” (15.8 mm)	4” (10 cm)
Sides	1” (25.4 mm)	1/2” (12.7 mm)	6” (152 mm)
Front	2” (51 mm)	2” (50.8 mm)	21” (53 cm)
Bottom	0” (0 mm)	0” (0 mm)	0” (0 mm)

[1] Service clearances are recommended dimensions to allow for normal service of the unit.



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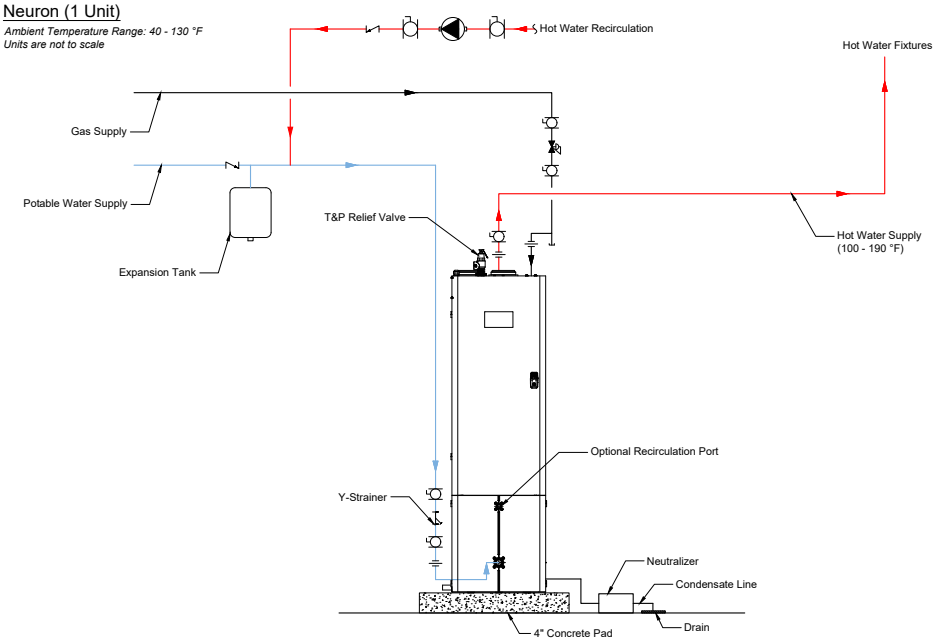
iN251 Configuration Options

Neuron (1 Unit)

Ambient Temperature Range: 40 - 130 °F
Units are not to scale



LEGEND
- T&P Relief Valve
- Isolation Valve
- Check Valve
- Pipe Coupling
- Sediment Trap
- Recirculation Pump
- Gas Pressure Regulator

Notes:
1. This schematic is a suggested piping diagram. Any additional requirements from local codes and ordinances shall supersede this diagram.
2. Units are not to be installed in a closed loop system. Our gas fired units are HLW stamped.
3. For pipe sizes and gas pressure requirements, please refer to the operation and installation manual.
4. Gas pressure regulators to be installed for each unit. Follow manufacturer's installation instructions.
5. Water hammer arrestor comes installed in the units.
6. Y-strainer to be installed according to manufacturer's instructions, horizontal or vertical preferred.
7. Temperature and pressure relief valve (shipped with the unit) to be installed on the top hot water port.
8. Expansion tank to be sized based on the gallons of water in the plumbing system and to be installed per manufacturer's instruction.

DRAWING NUMBER:
JOB NAME:

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Neuron (2 Units)

Ambient Temperature Range: 40 - 130 °F
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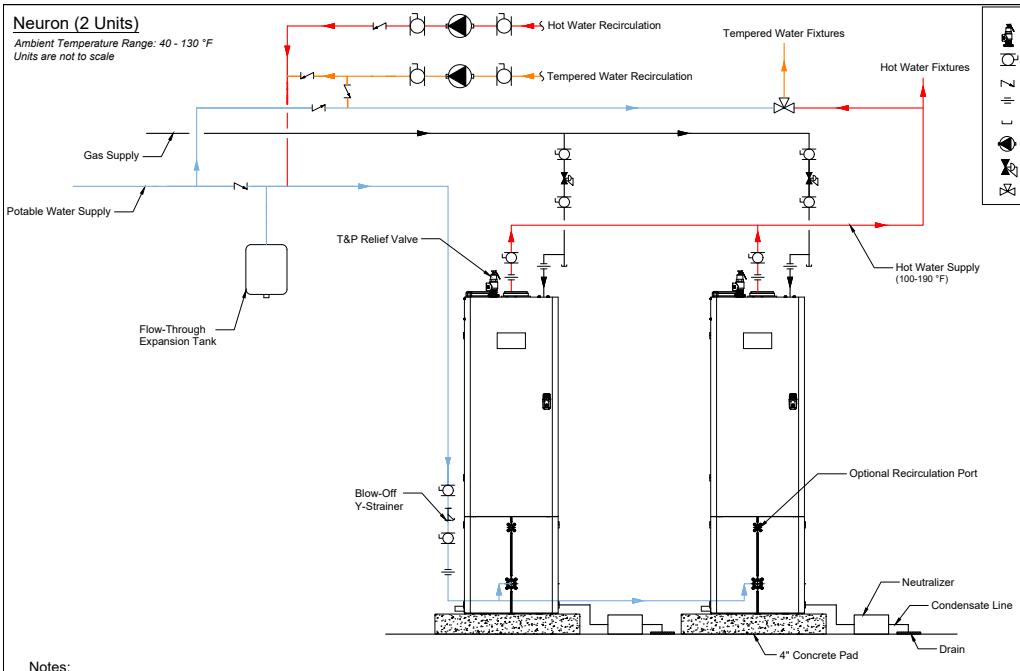

LEGEND
- T&P Relief Valve
- Isolation Valve
- Check Valve
- Pipe Coupling
- Sediment Trap
- Recirculation Pump
- Gas Pressure Regulator
- Mixing Valve

Notes:
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4. Gas pressure regulators to be installed for each unit. Follow manufacturer's installation instructions.
5. Water hammer arrestor comes installed in the units.
6. Mixing Valves, Pumps, Y-strainers, other Valves etc. to be installed according to their manufacturer's instructions.
7. Temperature and pressure relief valve (shipped with the unit) to be installed on the top hot water port.
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DRAWING NUMBER:
JOB NAME:

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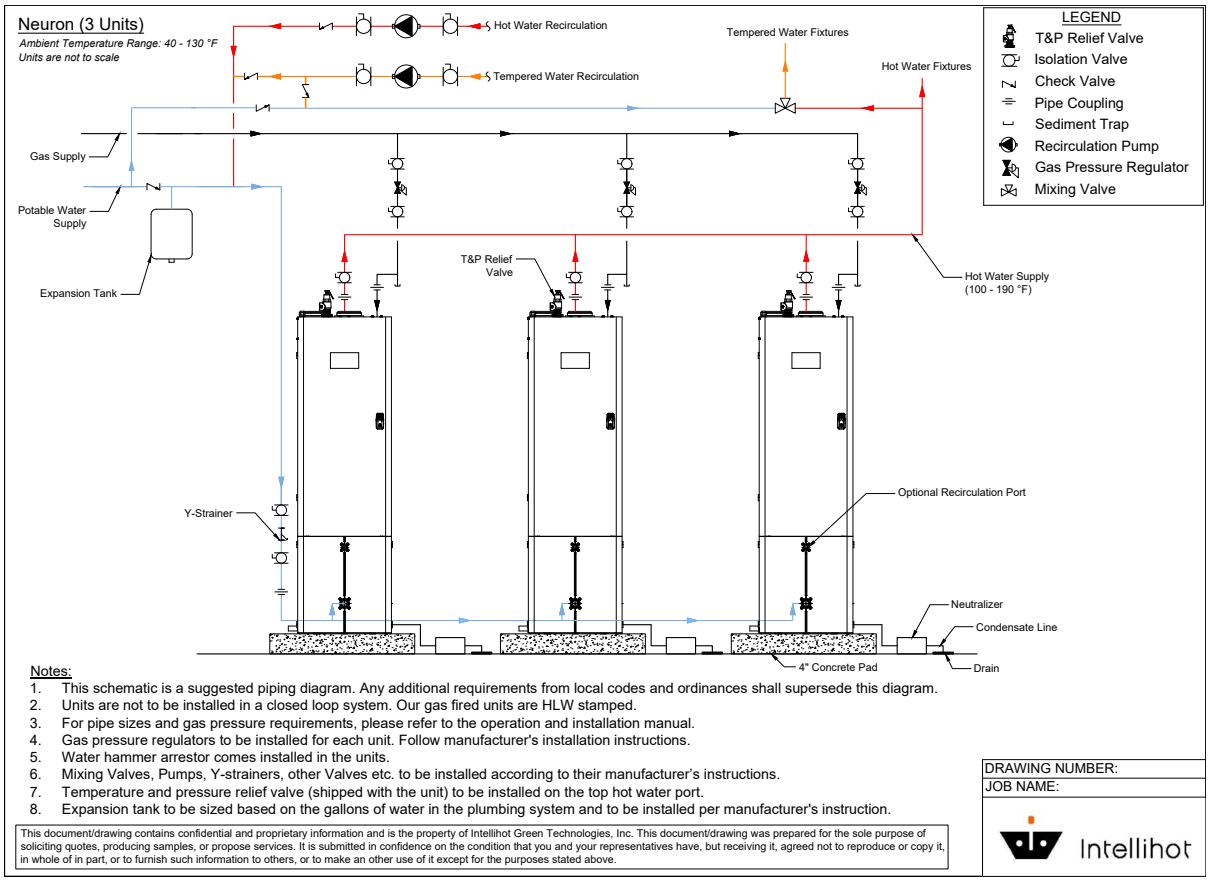
iN251 Configuration Options



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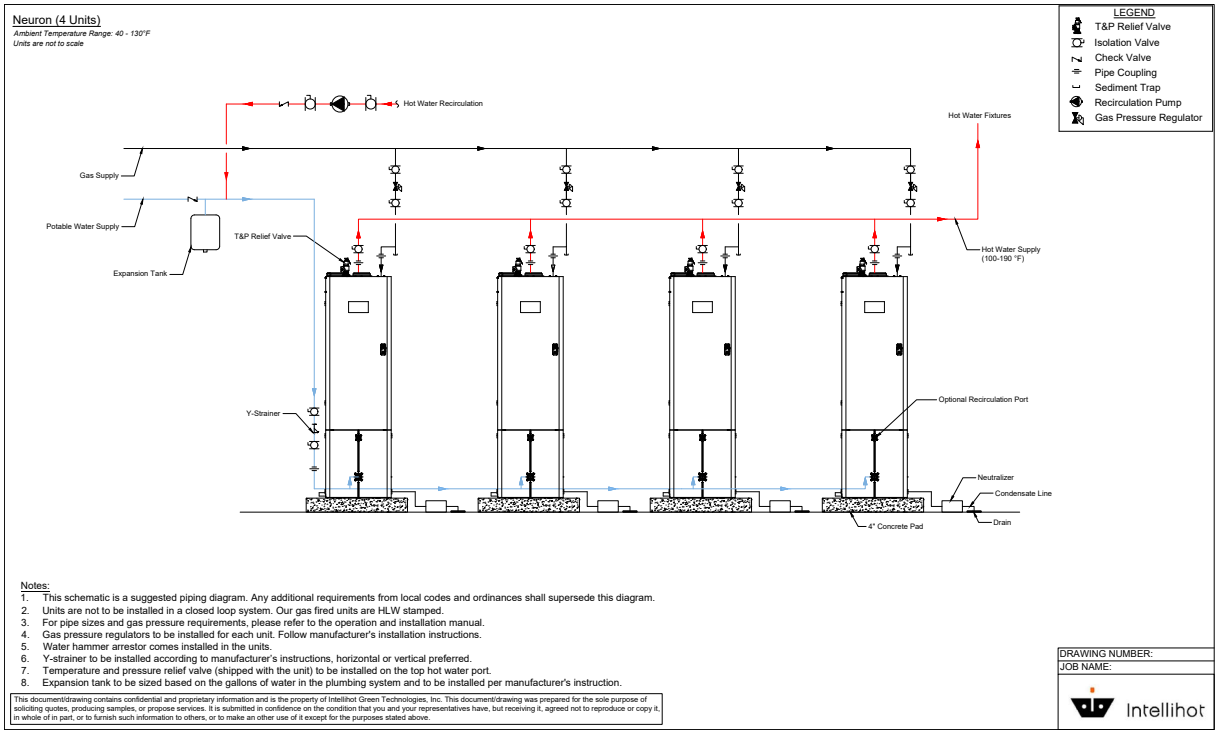

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DRAWING NUMBER:
JOB NAME:

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iN251 Venting Guidelines

Maximum Pipe Length in Feet				
Number of Units	Venting Type	3" Diameter **iN**251	4" Diameter **iN**251	6" Diameter **iN**251
1	1 Pipe	130	200	200
	2 Pipe	65	100	100
2	1 Pipe	-	150	200
	2 Pipe	-	75	100
3	1 Pipe	-	70	200
	2 Pipe	-	35	100
4	1 Pipe	-	-	200
	2 Pipe	-	-	100

1 Pipe - Only exhaust out pipe is connected and the combustion air intake is from within the room. For example, one iN251 with a 4" diameter, the maximum exhaust pipe length for 1 pipe is 200 feet.

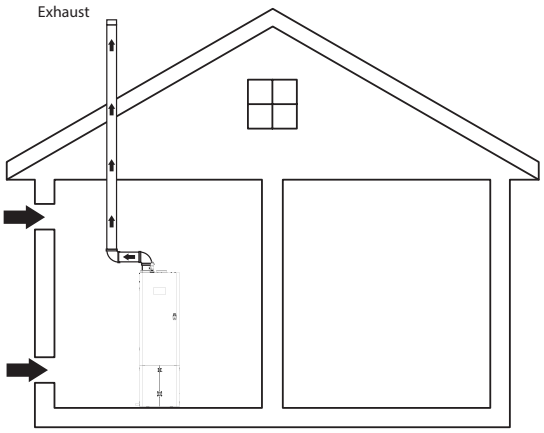
2 Pipes - Both the Combustion air intake and the exhaust pipe are connected. In this case, the table specifies the maximum length per pipe. For example, one iN251 with 4" diameter, 100 feet maximum is allowed for combustion air intake pipe and exhaust out pipe. The 100 feet maximum is per pipe.

Note:

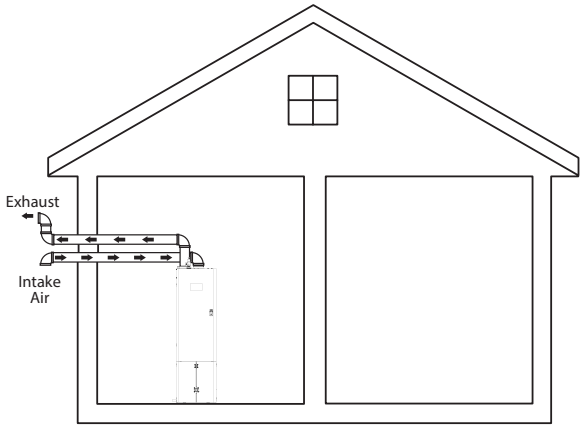
1. Reduce the maximum equivalent length above by 5 feet per 90º elbow used and by 2 feet per 45º elbow used. Do not exceed the above set limits.

2. If multiple units are common vented, then the units must be cascaded. Please refer to the combustion section for how to do combustion with common vented units.

3. SAFETY INSTRUCTIONS: Do not connect any other appliance vents to the water heater inlet or outlet pipes.



1-Pipe



2-Pipe

iN251 Electrical Data

Electrical power required for the water heater is 120V AC, 60 Hz. The circuit breaker shall be sized for a power consumption of 15A (FLA). Larger breakers can be used for multiple units. Please ensure correct polarity of wiring before powering up unit.

iN251 Cascading Compatibility

Model	Compatible (Max # of Cascaded Units)
iN251	Yes (Max. 4 Units)
All Other Models: i200, i250, iQ251, iQ251D, iN401, iN501, iQ751, iQ1001, iQ1501, iQ2001, and iQ3001	Not Supported

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