

NORAIRE[®]

Air To Water Heat Pump System



- ~ RADIANT HEATING WITH ELECTRO-BOILER ASSIST
- ~ COOLING WITH CHILLED WATER



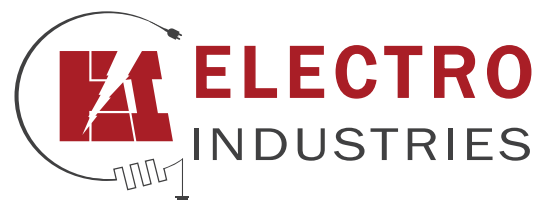
(OUTDOOR UNIT SOLD SEPARATELY)

Features

- Air to water heat pump system with complete hydronic HVAC capability
- Concept - Split HP/AC system with standard line sets
- Self-contained outdoor evaporator/condenser (ODU)
- Indoor cabinet (IDU) with heat/cool exchanger, hydronic pump, standard Electro-Boiler, defrost energy boost technique, chilled water out, integrated control system
- When needed the heat pump's heating water is boosted with the integrated Electro-Boiler

Refrigerant System

- Copeland scroll compressor
- R-410A
- 2-row ODU coil
- Quiet ODU fan
- Coax coil exchanger
- Unique defrost system (average 3 minutes)



Specification Table

	Units	3-Ton	4-Ton	5-Ton
Heating capacity ① ②	Btu/h	33,000	46,000	55,000
	kW	9.7	13.5	16.2
Cooling capacity ③	Btu/h	35,000	47,000	57,000
	kW	10.3	13.8	16.8
Power voltage	Volts/60Hz	208/240, 1 phase	208/240, 1 phase	208/240, 1 phase
ODU source breaker	Amps	40	50	60
ODU RLA	Amps	17.6	23.5	28.1
ODU LRA	Amps	88	123	155
ODU noise level	dB	65	65	65
ODU width	Inches	29	28	28
ODU height	Inches	25	33	33
ODU depth	Inches	29	28	28
ODU shipping weight	Pounds	270	286	298
Line sets	Inches	3/8 and 3/4	3/8 and 7/8	3/8 and 7/8
R-410A charged (if packaged with factory ODU)	Feet	25	25	25
Max line set	Feet	100	100	100
Max vertical separation	Feet	35	35	35
IDU non-backup	Amps	3	4	5
IDU backup ④	Amps	38	63	84
IDU source breaker	Amps	50	80	125
Hydronic pump	-	26-64	26-99	26-116
Water connection	NPT, female	1"	1"	1"
Nominal water flow	GPM/L per minute	8/30	11/41	14/53
Min water flow	GPM/L per minute	6.5/24	9/34	11/41
Internal pressure drop	Ft of head	7	7	12
IDU width	Inches	20	20	20
IDU height	Inches	48	48	48
IDU depth	Inches	23	23	23
IDU shipping weight	Pounds	212	233	236

① HEATING CAPACITY AT 47° F (8° C) ODU INLET AIR

② HEATING HYDRONIC SUPPLY AT 100° F (38° C)

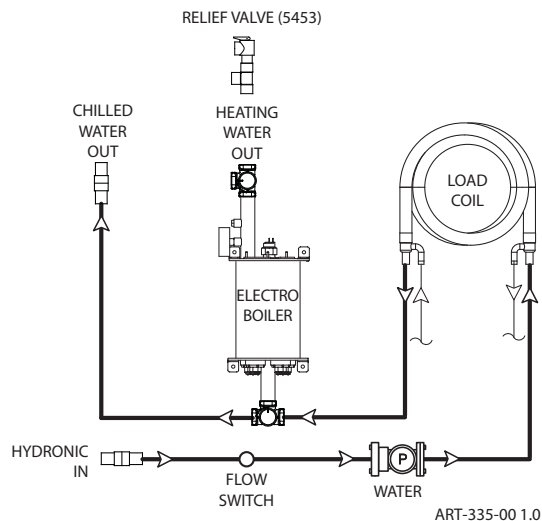
③ COOLING CAPACITY AT 95° F (35° C) ODU INLET AIR

④ REPRESENTS MAXIMUM, CONFIGURATION ALLOWS 4 AND 5 TON MODELS REDUCED KW TO MATCH THE LOCAL COLDEST BTU/H REQUIRED

⑤ DATA MAY BE UPDATED WITHOUT NOTICE

Hydronic Circuit

- Coax coil, copper or cupronickel
- Water filter not necessary
- 1" internal piping, female flange cabinet plates
- Internal circulator pump, included
- Safety flow switch
- Separate heating and chilled water outputs
 - Water coil gets coolest water
 - Chilled water does not go through boiler
 - Can be piped direct
 - Internal pump supplies both

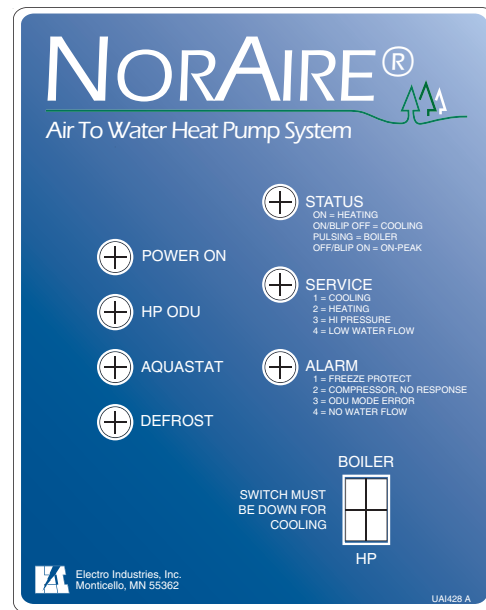


System Controller

- Activated with basic W or Y input
- Proper control and monitor interface to the ODU
- Safety redundant circuit/logic/components
 - Safety and limits are not part of the microprocessor software
- HP cycles on preset temperature limits or 500 psig limit
- Mode dial switch, field select system configuration
 - A - heat pump only
 - B - internal AUX boiler
 - C - external AUX source
- AUX boiler used during tank cold to hot switchover

WarmFlo® Supply Sensing, Modulation Control

- Auxiliary is only used to temper or boost the HP supply output
- Auxiliary does not switch on at a fixed water temperature
- Boiler supply has its own set point (target)
 - Below HP ODT, target can be higher



Heat Pump Operating Conditions

<u>Outdoor Temperature</u>	<u>Mode</u>	<u>3-Ton Btu/h Output</u>	<u>5-Ton Btu/h Output</u>
> 20° F (-7° C)	Heat pump only	@ 20° F (-7° C) = 21,000 (Cooling = 36,000)	@ 20° F (-7° C) = 33,000 (Cooling = 56,500)
0° F to 20° F (-18° C to -7° C)	Heat pump and resistance*	@ 10° F (-12° C) = 27,000	@ 10° F (-12° C) = 44,000
< 0° F (-18° C)	Resistance only	@ 0° F (-18° C) or less = 31,000	@ 0° F (-18° C) or less = 68,000

*WarmFlo technology modulates resistance heat.



ODU SERVICE HOOKUP
(OUTDOOR UNIT SOLD SEPARATELY)



IDU SERVICE HOOKUP
CB DISCONNECT INCLUDED

NorAire Model Numbers

<u>Heating @ 47° F (8° C)</u>			
NC-FE-036-1-CPXX1-XX	3-ton system	33,000 Btu/h	No boiler
NC-FE-036-1-CPXX1-10	3-ton system	33,000 Btu/h	10 kW boiler
NC-FE-048-1-CPXX1-XX	4-ton system	46,000 Btu/h	No boiler
NC-FE-048-1-CPXX1-10	4-ton system	46,000 Btu/h	10 kW boiler
NC-FE-048-1-CPXX1-15	4-ton system	46,000 Btu/h	15 kW boiler
NC-FE-060-1-CPXX1-XX	5-ton system	55,000 Btu/h	No boiler
NC-FE-060-1-CPXX1-15	5-ton system	55,000 Btu/h	15 kW boiler
NC-FE-060-1-CPXX1-20	5-ton system	55,000 Btu/h	20 kW boiler

Forced Air, Cool/Heat

- IDU piping is direct to water coil
- Radiant output (buffer tank) is set up independent
- Conventional 4-wire room thermostat connection, independent input and air handler/coil pump control
- Radiant load can be up to 8 zones
- Air handler can be a gas furnace (dual fuel)
- Full installation drawings and procedure
- Use optional Electro Buffer Tank Controller

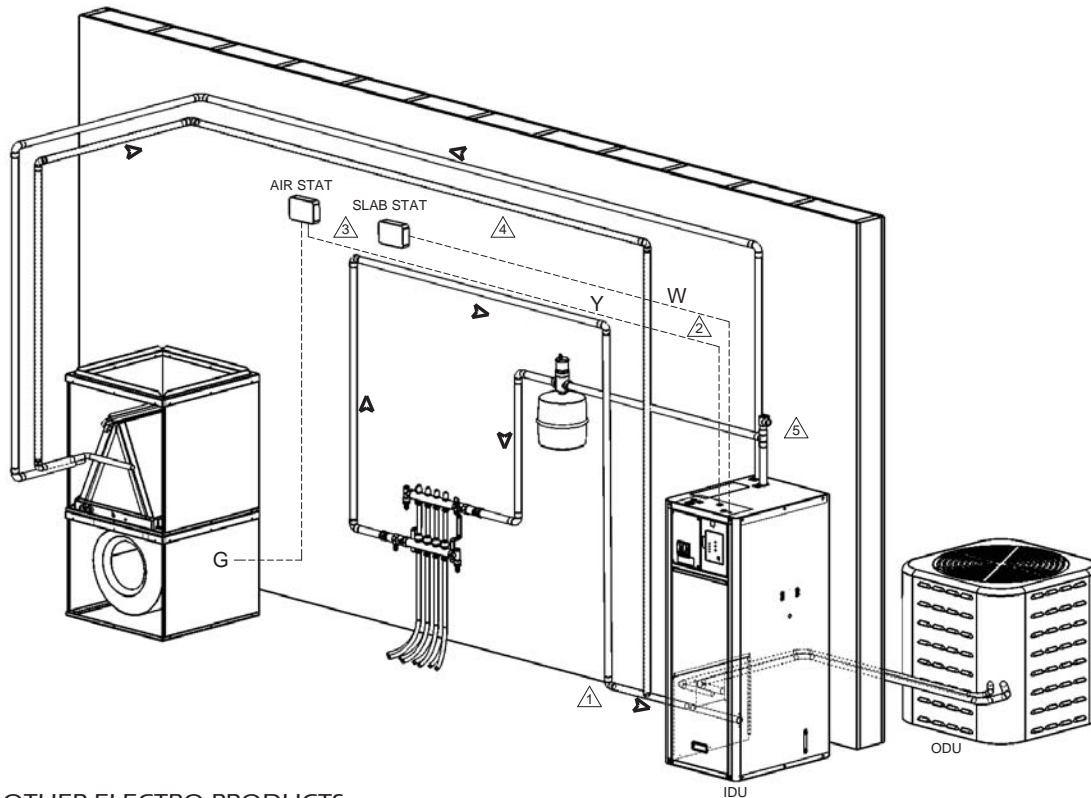


Options, Control Integrated

- Heat/cool buffer tank
- Buffer Tank Controller, heat and cool
- Water coil air handler
- Water coil for gas furnace
- Gas boiler, dual fuel

Additional Helps

- Radiant floor zones HX103, pages 1, 3, 7, 8
- Cooling air handler HX103, pages 2, 4, 5
- Buffer tank system HX103, pages 6, 7, 8, 9, 10
- Gas furnace/dual fuel HX103, pages 6, 7, 8
- Gas boiler, backup HH120, page 5



OTHER ELECTRO PRODUCTS

NORTHERN HEAT PUMP
ELECTRO-BOILER™
WARMFLO® FORCED AIR
ELECTRO INSERT

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