GT-PW (50YEW) Water-To-Water Series

WATER-TO-WATER PURON® SYSTEMS
SIZE 010 [10 kW]

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Carrier®
turn to the experts℠

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50YEW Water-To-Water Design Features

The 50YEW series is unlike any other water-to-water heat pump on the market today. The large operating map of the scroll compressor allows high temperature operation, up to 145°F [63°C] leaving load water temperature even at 32°F [0°C] entering source water temperature. The combination of a coaxial (tube-in-tube) heat exchanger for the source (ground loop) side and a brazed plate heat exchanger for the load (heating/hot water) side provides very high efficiencies. Integral controls for hydronic heating and domestic water heating avoid the need for external microprocessor-based controls for outdoor temperature reset, warm weather shutdown, staging and other controls.

The 50YEW has an extended range refrigeration circuit, capable of ground loop (geothermal) applications as well as open loop (well water) applications. Standard features and factory-installed options are many. Unique application-specific controls make the 50YEW series ideal for hydronic heating and domestic hot water generation. The heating-only refrigeration circuit is optimized for high water temperatures, heating efficiencies, and capacities.

The dual level compressor isolation mounting system, insulated compressor enclosure, and compressor discharge muffler make the 50YEW series one of the quietest water-to-water heat pumps available. The attractive "Euro-style" cabinet allows the unit to fit into any decor.

Application Flexibility
- Capacities 10kW [32,600 Btuh].
- High temperature scroll compressor, up to 145°F [63°C] leaving water temperature.
- Ultra high efficiencies (4.2 COP at ground loop conditions; up to 5.5 COP at ground water conditions).
- Built-in programmable controller with Outdoor Temperature Reset and Warm Weather Shutdown.
- Large, back-lit digital user interface.
- Rugged coaxial (tube-in-tube) "Source" heat exchanger (copper or cupro-nickel).
- Close approach temperature brazed plate stainless steel "Load" heat exchanger.
- Dual level compressor isolation, compressor enclosure, and discharge muffler for Ultra quiet operation.
- "Euro-style" cabinet for attractive look.
- Insulated cabinet with foil backed insulation for ease of cleaning.
- Flush-mount FPT fittings, secured to the cabinet (no backup wrench required).
- TXV metering device.
- 12-point low voltage terminal strip for ease of installation.
- ETL safety listing.
- Wide variety of options including internally factory installed Domestic Hot Water Mode, Load and Source side pumps with expansion tanks, VSFP (variable speed floor pump connection) Controls and Cupro-Nickel Source Heat Exchanger.

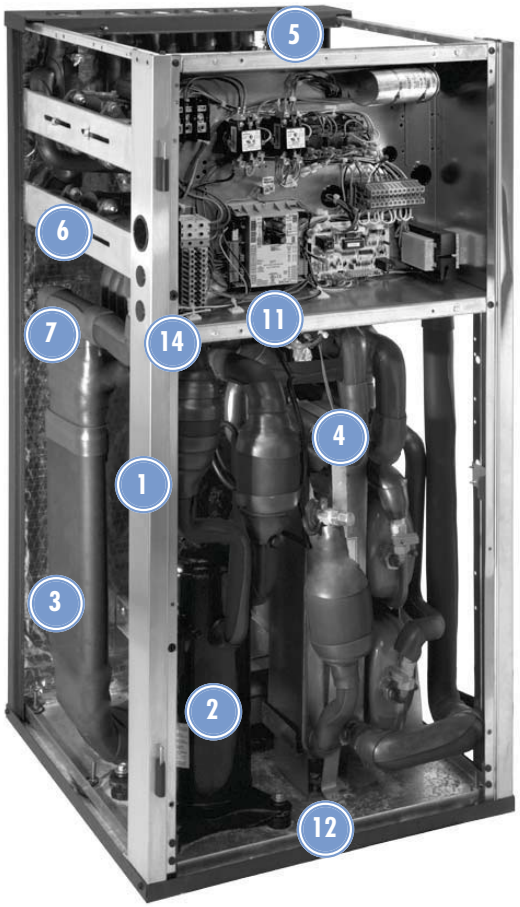
Service & Installation Advantages
- Hinged front access door and 3 removable panels for ease of installation and service.
- Galvanized steel construction with protective powder coat paint and hinged front access door.
- Bi-directional thermal expansion valve.
- Puron® HFC-410A zero ozone depletion refrigerant.
- Circuit breaker protected 75VA control transformer.
- High and low pressure service ports on refrigerant circuit.
- Accurate refrigerant sensing freeze protection.

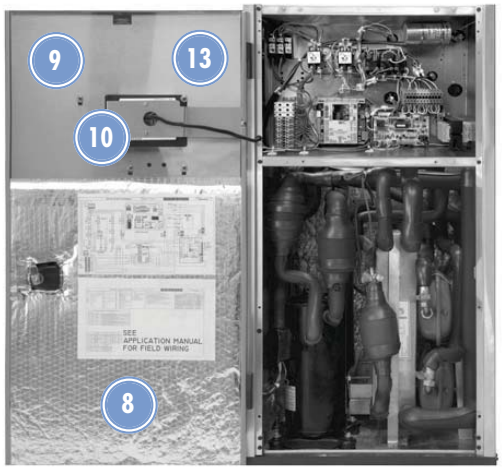
Factory Quality & Certifications
- All units are built on our Integrated Process Control Assembly System (IPCS). The IPCS is a unique state of the art manufacturing system that is designed to assure quality of the highest standards of any manufacturer in the water-source industry. Our IPCS system:
  a. Verifies that the correct components are being assembled.
  b. Automatically performs special leak tests on all joints.
  c. Conducts pressure tests.
  d. Performs highly detailed run test unparalleled in the HVAC industry.
  e. Automatically disables packaging for a "failed" unit.
  f. Creates computer database for future service analysis and diagnostics from run test results.
- All units are water run-tested in all modes to insure efficiency and reliability.
- Heavy gauge galvanized steel cabinets are epoxy powder coated for durable and long-lasting finish.
- All refrigerant brazing is done in a nitrogen atmosphere.
- All units are deep evacuated to less than 100 microns prior to refrigerant charging.
- All joints are both helium and halogen leak tested to insure annual leak rate of less than 1/4 ounce.
- Coaxial heat exchanger, refrigerant suction lines and all water lines are fully insulated to eliminate condensation problems in low temperature applications.
- Noise Reduction features include: dual level compressor isolation, insulated compressor compartment, interior cabinet insulation using 1/2" coated glass fiber, and variable speed fan.
- Safety features include: high pressure and loss of charge to protect the compressor, condensate overflow protection, freeze protection sensors to safeguard the coaxial heat exchanger and air coil, hot water high-limit and low compressor discharge temperature switch provided to shut down the hot water generator when conditions dictate. Fault lockout enables emergency heat and prevents compressor operation until thermostat or circuit breaker has been reset.
- 10-year limited warranty on major refrigerant circuit components, Optional extended warranties available.
- AHRI/ASHRAE/ANSI/ISO 13256-2 certified.
- NRTL & CSA listed.
- US EPA "Energy Star" compliant.
- ISO 9001:2000 Certified.

Options & Accessories
- Full Condensing Hot Water Generation With Internal Secondary Heat Exchanger and Potable Water Circulating Pump.
- Factory Installed "Load" and "Source" Pumps.
- Factory Installed Expansion Tanks.
- Cupro-Nickel Source Water Coil.
- Extended Labor Allowance and Service Warranty.

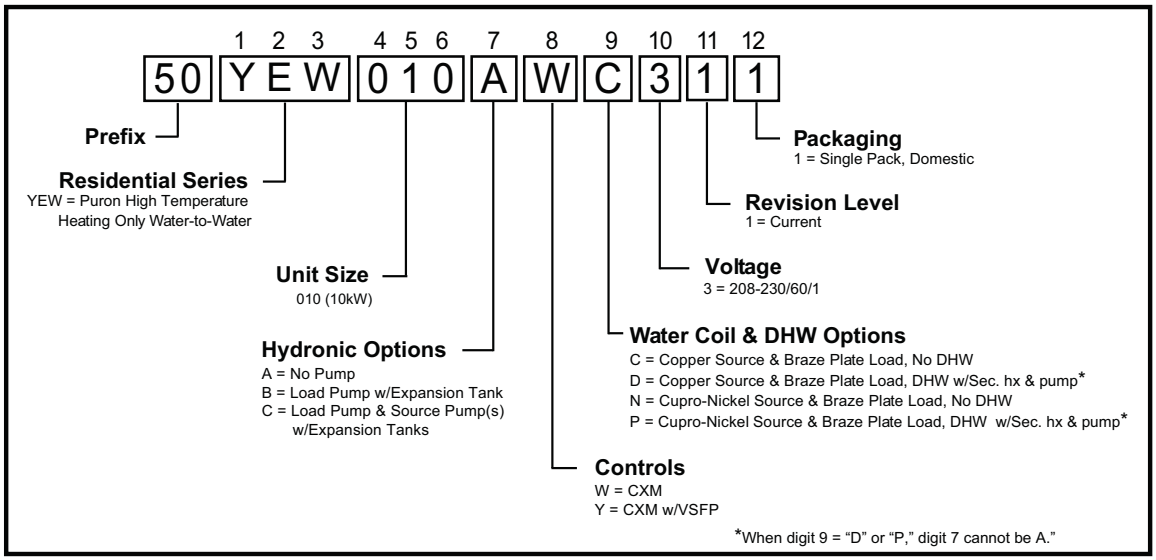
50YEW Water-To-Water Series Features

1. Euro-Style Cabinet For Attractive Look
2. High Temperature Scroll Compressor
3. Rugged Coaxial "Source" Heat Exchanger
4. Close Approach Temperature Brazed Plate Stainless Steel "Load" Heat Exchanger
5. Optional Full Condensing Hot Water Generation With Internal Secondary Heat Exchanger and Potable Water Circulating Pump
6. Optional Factory Installed "Load" and "Source" Pumps with expansion tanks
7. Fully Insulated Water and Refrigerant Lines
8. Fully Insulated Compressor Section
9. Powder Coated Galvanized Steel Cabinet and Front Access Panel For Long Life, Taupe Metallic
10. Large Backlight User Interface
11. Built-In Programmable Controller With Outdoor Temperature Reset and Warm Weather Shutdown
12. Dual level compressor isolation and discharge muffler for ultra quiet operation
13. Hinged Front Access Door and Three Removable Panels For Ease of Installation and Service
14. 12-Point Terminal Strip For Ease of Low Voltage Wiring





Model Key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50 YEW 010 A W C 3 1 1
Prefix
Residential Series
YEW = Puron High Temperature Heating Only Water-to-Water
Unit Size
010 (10kW)
Hydronic Options
A = No Pump
B = Load Pump w/Expansion Tank
C = Load Pump & Source Pump(s) w/Expansion Tanks
Controls
W = CXM
Y = CXM w/VSFP
Water Coil & DHW Options
C = Copper Source & Braze Plate Load, No DHW
D = Copper Source & Braze Plate Load, DHW w/Sec. hx & pump*
N = Cupro-Nickel Source & Braze Plate Load, No DHW
P = Cupro-Nickel Source & Braze Plate Load, DHW w/Sec. hx & pump*
Voltage
3 = 208-230/60/1
Revision Level
1 = Current
Packaging
1 = Single Pack, Domestic
*When digit 9 = "D" or "P," digit 7 cannot be A."

Rated Equipment Performance & Efficiencies

60 Hz (I-P) Units

Model	Ground Loop Heat Pump				Ground Water Heat Pump			
	Heating				Heating			
	Indoor 86/95°F Outdoor 32/27°F		Indoor 104/113°F Outdoor 32/27°F		Indoor 86/95°F Outdoor 50/45°F		Indoor 104/113°F Outdoor 50/45°F	
	Capacity Mbtuh	COP	Capacity Mbtuh	COP	Capacity Mbtuh	COP	Capacity Mbtuh	COP
50YEW010	32.6	4.2	30.8	3.3	42.6	5.2	39.9	4.1

Indoor temperature is also called "Load;" outdoor temperature is also called "Source." Numbers shown with "/" indicate entering/leaving water temperatures. Bold outline indicates typical radiant floor application temperatures. Ratings at 40°C [104°F] are based upon AHRI/ISO Standard 13256-2; all other ratings are based upon Standard EN 14511-2.

60 Hz (S-I) Units

Model	Ground Loop Heat Pump				Ground Water Heat Pump			
	Heating				Heating			
	Indoor 30/35°C Outdoor 0/-3°C		Indoor 40/45°C Outdoor 0/-3°C		Indoor 30/35°C Outdoor 10/7°C		Indoor 40/45°C Outdoor 10/7°C	
	Capacity kW	COP	Capacity kW	COP	Capacity kW	COP	Capacity kW	COP
50YEW010	9.57	4.2	9.03	3.3	12.50	5.2	11.69	4.1

Indoor temperature is also called "Load;" outdoor temperature is also called "Source." Numbers shown with "/" indicate entering/leaving water temperatures. Bold outline indicates typical radiant floor application temperatures. Ratings at 40°C [104°F] are based upon AHRI/ISO Standard 13256-2; all other ratings are based upon Standard EN 14511-2.

Performance Data - 50YEW010

Source				Load														
EWT °F	GPM	WPD		EWT °F	5.4 GPM					WPD		7.3 GPM					WPD	
		PSI	FT		HC MBtuh	Power kW	HE MBtuh	LWT °F	COP	PSI	FT	HC MBtuh	Power kW	HE MBtuh	LWT °F	COP	PSI	FT
20	8.3	1.3	3.1	50	32.3	1.10	28.6	61.9	8.6	0.8	1.7	32.7	1.10	32.7	59.4	8.7	1.8	4.0
				70	30.0	1.74	27.7	81.1	5.1	0.6	1.4	30.3	1.68	30.3	78.7	5.3	1.1	2.6
				90	27.8	2.41	22.9	100.2	3.4	0.5	1.2	28.0	2.35	28.0	98.0	3.5	1.0	2.2
				110	25.5	2.99	18.4	119.4	2.5	0.4	0.9	25.7	2.93	25.7	117.4	2.6	0.8	1.9
30	4.2	0.3	0.8	50	31.9	1.10	28.1	61.8	8.5	0.8	1.7	32.1	1.11	32.1	58.8	8.5	1.8	4.0
				70	29.6	1.74	23.7	80.9	5.6	0.6	1.4	29.7	1.68	29.7	78.1	5.2	1.1	2.6
				90	27.4	2.40	19.2	100.1	3.8	0.5	1.2	27.2	2.34	27.2	97.5	3.4	1.0	2.2
				110	25.2	2.97	15.1	119.3	2.8	0.4	0.9	24.8	2.91	24.8	116.8	2.5	0.8	1.9
				130	22.8	3.68	10.3	138.4	2.1	0.3	0.7	22.4	3.62	22.4	136.2	1.8	0.7	1.6
	8.3	0.9	2.0	50	36.3	1.12	32.5	63.4	9.5	0.8	1.7	36.7	1.12	36.7	60.1	9.6	1.8	4.0
				70	33.7	1.76	27.7	82.4	5.6	0.6	1.4	34.1	1.7	34.1	79.3	5.9	1.1	2.6
				90	31.2	2.43	22.9	101.5	3.8	0.5	1.2	31.5	2.37	31.5	98.6	3.9	1.0	2.2
				110	28.7	3	18.4	120.6	2.8	0.4	0.9	28.9	2.94	28.9	117.9	2.9	0.8	1.9
				130	26.0	3.72	13.3	139.6	2.1	0.3	0.7	26.3	3.66	26.3	137.2	2.1	0.7	1.6
50	4.2	0.3	0.7	50	44.2	1.12	40.4	66.3	11.6	0.8	1.7	43.9	1.11	43.9	62.0	11.6	1.8	4.0
				70	41.1	1.81	34.9	85.2	7.3	0.6	1.4	40.6	1.71	34.8	81.1	6.9	1.1	2.6
				90	38.2	2.53	29.6	104.1	4.8	0.5	1.2	37.5	2.43	29.2	100.3	4.5	1.0	2.2
				110	35.1	3.15	24.4	123.0	3.8	0.4	0.9	34.2	3.06	23.8	119.4	3.3	0.8	1.9
				130	32.1	3.92	18.7	141.8	2.6	0.3	0.7	31.0	3.82	18.0	138.5	2.4	0.7	1.6
	8.3	0.7	1.7	50	48.9	1.13	45.0	68.1	12.7	0.8	1.7	49.3	1.12	49.3	63.5	12.9	1.8	4.0
				70	45.5	1.83	39.2	86.8	7.3	0.6	1.4	45.9	1.73	40.0	82.6	7.8	1.1	2.6
				90	42.3	2.56	33.5	105.6	4.8	0.5	1.2	42.7	2.46	34.3	101.7	5.1	1.0	2.2
				110	38.9	3.18	28.1	124.4	3.8	0.4	0.9	39.3	3.09	28.8	120.8	3.7	0.8	1.9
				130	35.5	3.96	22.0	143.1	2.6	0.3	0.7	35.9	3.86	22.7	139.8	2.7	0.7	1.6
70	4.2	0.3	0.7	50	57.0	1.13	53.1	71.1	14.8	0.8	1.7	56.3	1.12	56.3	65.4	14.8	1.8	4.0
				70	53.1	1.87	46.7	89.6	8.3	0.6	1.4	52.0	1.73	46.1	84.2	8.8	1.1	2.6
				90	49.6	2.63	40.6	108.3	5.5	0.5	1.2	48.1	2.49	39.5	103.2	5.6	1.0	2.2
				110	45.8	3.30	34.5	126.9	4.1	0.4	0.9	44.0	3.17	33.2	122.1	4.1	0.8	1.9
				130	41.9	4.11	27.9	145.5	3.0	0.3	0.7	39.8	3.98	26.3	140.9	2.9	0.7	1.6
	8.3	0.7	1.7	50	61.4	1.14	57.5	72.7	15.8	0.8	1.7	62.0	1.13	62.0	67.0	16.1	1.8	4.0
				70	57.2	1.89	50.8	91.1	8.9	0.6	1.4	57.8	1.75	51.8	85.8	9.7	1.1	2.6
				90	53.4	2.66	44.3	109.7	5.9	0.5	1.2	53.9	2.52	45.3	104.8	6.3	1.0	2.2
				110	49.3	3.34	37.9	128.2	4.3	0.4	0.9	49.8	3.2	38.9	123.6	4.6	0.8	1.9
				130	45.1	4.16	30.9	146.7	3.2	0.3	0.7	45.5	4.02	31.8	142.5	3.3	0.7	1.6

50YEW operating parameters are as follows: Min Source EWT = 20°F; Max Load LWT = 145°F (see application section for design guidelines).
Interpolation is permissible; extrapolation is not.
Operation below 40°F EWT (source) is based upon 15% methanol antifreeze solution.
All performance data is based upon the lower voltage of dual voltage units.
Antifreeze for source water is required for operation in the shaded area and all source EWTs below 40°F.

Performance Data - 50YEW010

Source				DHW Circuit														
EWT °F	GPM	WPD		EWT °F	GPM=3.5					WPD		LGPM=5.4					WPD	
		PSI	FT		HC MBtuh	Power kW	HE MBtuh	LWT °F	COP	PSI	FT	HC MBtuh	Power kW	HE MBtuh	LWT °F	COP	PSI	FT
20	6.75	0.8	1.8	50	28.2	1.78	22.1	66.1	4.6	1.9	4.3	28.3	1.57	22.9	60.4	5.3	3.7	8.6
				70	27.1	2.15	19.8	85.5	3.7	1.80	4.2	27.1	1.89	20.7	80.1	4.2	3.6	8.3
				90	25.6	2.61	16.7	104.7	2.9	1.8	4.1	25.7	2.29	17.9	99.6	3.3	3.5	8.2
				110	23.9	3.16	13.1	123.8	2.2	1.8	4.0	24.0	2.78	14.5	119.0	2.5	3.5	8.1
				120	22.9	3.47	11.1	133.2	1.9	1.7	4.0	23.0	3.06	12.6	128.6	2.2	3.5	8.0
	8.3	1.4	3.2	50	29.0	1.76	23.0	66.5	4.8	1.9	4.3	29.1	1.55	23.8	60.7	5.5	3.7	8.6
				70	27.9	2.12	20.6	85.9	3.8	1.8	4.2	27.9	1.87	21.6	80.4	4.4	3.6	8.3
				90	26.4	2.58	17.6	105.2	3.0	1.8	4.1	26.5	2.27	18.7	99.9	3.4	3.5	8.2
				110	24.6	3.13	14.0	124.2	2.3	1.8	4.0	24.7	2.75	15.3	119.2	2.6	3.5	8.1
				120	23.6	3.44	11.9	133.6	2.0	1.7	4.0	23.7	3.02	13.4	128.9	2.3	3.5	8.0
30	6.75	0.7	1.7	50	33.4	1.82	27.2	69.0	5.4	1.8	4.3	34.2	1.61	28.7	62.6	6.2	3.7	8.6
				70	31.5	2.20	24.0	88.0	4.2	1.8	4.2	32.2	1.95	25.6	81.9	4.8	3.6	8.3
				90	29.5	2.70	20.3	107.0	3.2	1.8	4.1	30.2	2.40	22.0	101.2	3.7	3.5	8.2
				110	27.5	3.31	16.2	125.8	2.4	1.8	4.0	28.1	2.94	18.0	120.5	2.8	3.5	8.1
				120	26.4	3.66	13.9	135.2	2.1	1.7	4.0	27.0	3.24	15.9	130.1	2.4	3.5	8.0
	8.3	1.3	3.0	50	34.8	1.78	28.7	69.8	5.7	1.9	4.3	35.5	1.58	30.1	63.1	6.6	3.7	8.6
				70	32.8	2.16	25.4	88.7	4.4	1.80	4.2	33.5	1.91	27.0	82.4	5.1	3.6	8.3
				90	30.7	2.65	21.7	107.6	3.4	1.8	4.1	31.4	2.35	23.4	101.7	3.9	3.5	8.2
				110	28.5	3.25	17.5	126.5	2.6	1.8	4.0	29.2	2.88	19.4	120.9	3.0	3.5	8.1
				120	27.4	3.59	15.2	135.8	2.2	1.7	4.0	28.1	3.18	17.2	130.5	2.6	3.5	8.0
50	6.75	0.6	1.5	50	43.1	1.91	36.5	74.5	6.6	1.9	4.3	45.7	1.72	39.8	66.8	7.8	3.7	8.6
				70	40.3	2.35	32.3	93.1	5.0	1.8	4.2	42.7	2.11	35.6	85.8	5.9	3.6	8.3
				90	37.4	2.85	27.7	111.5	3.8	1.8	4.1	39.6	2.57	30.9	104.8	4.5	3.5	8.2
				110	34.3	3.43	22.5	129.7	2.9	1.8	4.0	36.3	3.09	25.8	123.6	3.4	3.5	8.1
				120	32.6	3.75	19.8	138.8	2.5	1.7	4.0	34.6	3.37	23.1	132.9	3.0	3.5	8.0
	8.3	1.2	2.8	50	45.2	1.85	38.9	75.7	7.1	1.6	4.3	47.9	1.67	42.2	67.7	8.4	3.7	8.6
				70	42.3	2.28	34.6	94.2	5.5	1.8	4.2	44.9	2.05	37.9	86.6	6.4	3.6	8.3
				90	39.3	2.77	29.8	112.5	4.2	1.8	4.1	41.6	2.49	33.1	105.5	4.9	3.5	8.2
				110	36.0	3.33	24.6	130.7	3.2	1.8	4.0	38.1	3.00	27.9	124.2	3.7	3.5	8.1
				120	34.2	3.64	21.8	139.8	2.8	1.7	4.0	36.3	3.27	25.1	133.6	3.3	3.5	8.0
70	6.75	0.6	1.3	50	49.5	1.96	42.8	78.1	7.4	1.9	4.3	54.1	1.79	48.0	70.0	8.9	3.7	8.6
				70	46.9	2.41	38.7	96.8	5.7	1.8	4.2	51.3	2.20	43.8	89.0	6.8	3.6	8.3
				90	43.7	2.95	33.6	115.1	4.3	1.8	4.1	47.8	2.70	38.6	107.8	5.2	3.5	8.2
				110	39.9	3.60	27.6	133.0	3.2	1.8	4.0	43.7	3.28	32.5	126.3	3.9	3.5	8.1
				120	37.7	3.96	24.2	141.8	2.8	1.7	4.0	41.3	3.61	29.0	135.5	3.4	3.5	8.0
	8.3	1.1	2.6	50	32.8	1.88	26.3	68.6	5.1	1.9	4.3	35.9	1.72	20.0	63.2	6.1	3.7	8.6
				70	52.4	2.31	44.5	100.0	6.6	1.8	4.2	57.4	2.11	50.2	91.3	8.0	3.6	8.3
				90	49.7	2.83	40.0	118.5	5.1	1.8	4.1	54.4	2.59	45.6	110.2	6.2	3.5	8.2
				110	46.3	3.45	34.5	136.7	3.9	1.8	4.0	50.7	3.15	39.9	128.9	4.7	3.5	8.1
				120	42.3	3.80	29.3	144.4	3.3	1.7	4.0	46.3	3.46	34.5	137.3	3.9	3.5	8.0
90	6.75	0.5	1.2	50	55.9	2.01	49.0	81.8	8.2	1.9	4.3	62.9	1.86	56.5	73.2	9.9	3.7	8.6
				70	53.46	2.47	45.0	100.6	6.4	1.8	4.2	60.2	2.28	52.4	92.3	7.7	3.6	8.3
				90	50.0	3.05	39.6	118.7	4.8	1.8	4.1	56.3	2.82	46.7	111.0	5.8	3.5	8.2
				110	45.5	3.76	32.7	136.2	3.5	1.8	4.0	51.3	3.48	39.4	129.1	4.3	3.5	8.1
				120	42.9	4.17	28.7	144.8	3.0	1.7	4.0	48.3	3.85	35.2	138.1	3.7	3.5	8.0
	8.3	1.1	2.4	50	60.9	1.92	54.3	84.6	9.3	1.9	4.3	68.5	1.77	62.5	75.3	11.3	3.7	8.6
				70	58.3	2.35	50.2	103.3	7.3	1.8	4.2	65.6	2.18	58.2	94.3	8.8	3.6	8.3
				90	54.5	2.91	44.6	121.3	5.5	1.8	4.1	61.4	2.69	52.18	112.8	6.7	3.5	8.2
				110	49.6	3.59	37.4	138.6	4.0	1.8	4.0	55.9	3.32	44.53	130.9	4.9	3.5	8.1
				120	46.8	3.98	33.2	147.0	3.4	1.7	4.0	52.6	3.68	40.1	139.7	4.2	3.5	8.0
110	6.75	0.5	1.2	50	59.3	2.04	52.4	83.8	8.5	1.9	4.3	68.4	1.91	61.9	75.2	10.5	3.7	8.6
				70	57.4	2.54	48.7	102.8	6.6	1.8	4.2	66.2	2.38	58.1	94.6	8.1	3.6	8.3
				90	54.1	3.18	43.3	121.1	5.0	1.8	4.1	62.4	2.98	52.3	113.2	6.1	3.5	8.2
				110	49.5	3.96	36.0	138.5	3.7	1.8	4.0	57.1	3.71	44.4	131.3	4.5	3.5	8.1
	8.3	1.0	2.4	50	64.7	1.94	58.0	86.8	9.8	1.9	4.3	74.6	1.82	68.4	77.5	12.0	3.7	8.6
				70	62.6	2.42	54.3	105.8	7.6	1.8	4.2	72.2	2.27	64.5	96.8	9.3	3.6	8.3
				90	59.0	3.03	48.7	123.9	5.7	1.8	4.1	68.1	2.84	58.4	115.3	7.0	3.5	8.2
				110	53.9	3.77	41.1	141.1	4.2	1.8	4.0	62.2	3.53	50.2	133.2	5.2	3.5	8.1

50YEW operating parameters are as follows: Min Source EWT = 20°F; Max Load LWT = 145°F (see application section for design guidelines).
Interpolation is permissible; extrapolation is not.
Operation below 40°F EWT (source) is based upon 15% methanol antifreeze solution.
All performance data is based upon the lower voltage of dual voltage units.
Antifreeze for source water is required for operation in the shaded area and all source EWTs below 40°F.

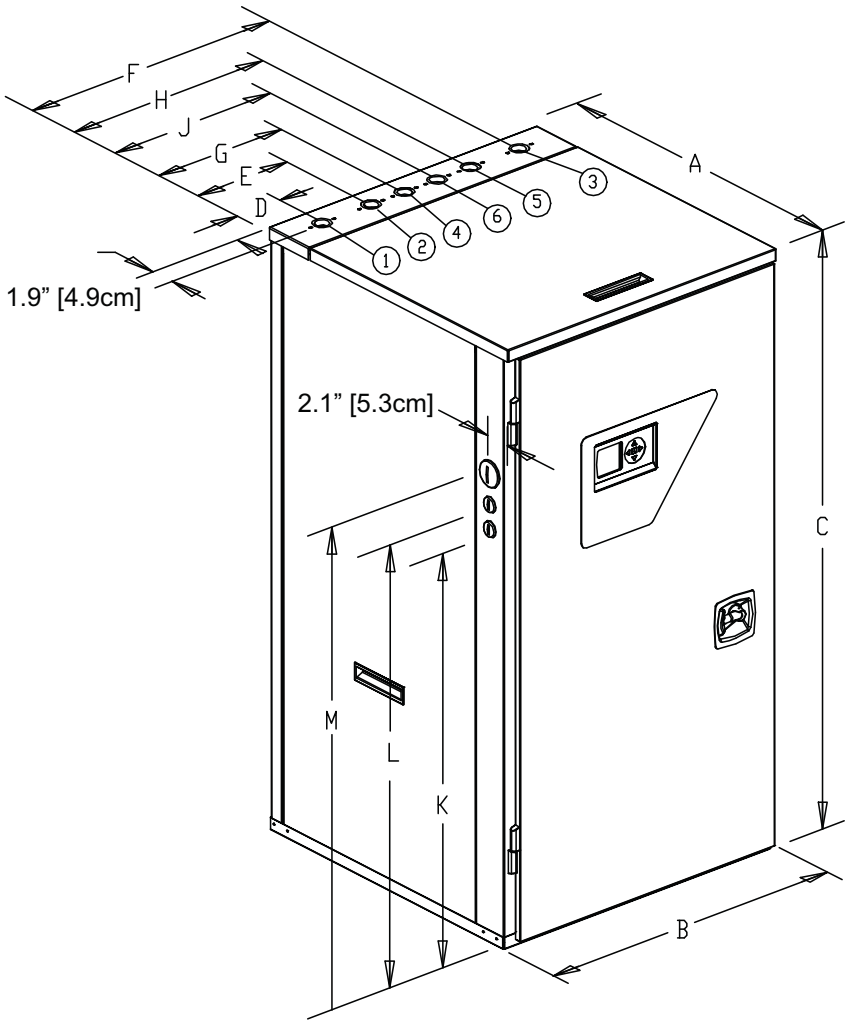
Physical Data

Model	010
Compressor (qty)	1
Factory Charge HFC-410A (oz) [kg]	88 [2.50]
Indoor/Load Water Connection Size	
FPT (in)	1
Outdoor/Source Water Connection Size	
FPT (in)	1
Domestic Hot Water Connection Size	
FPT (in)	3/4
Maximum Working Pressure (Water Side)	
Base Unit (PSIG) [kPa]	500 [3445]
DHW Option (PSIG) [kPa]	145 [999]
Internal Source Pump* w/Expansion Tank (PSIG) [kPa]	45 [310]
Internal Load Pump * w/Expansion Tank (PSIG) [kPa]	45 [310]
Weight - Operating, (lbs) [kg]	455 [207]
Weight - Packaged, (lbs) [kg]	470 [214]

Dual isolation compressor mounting
Balanced Port Expansion Valve (TXV)
Insulated Source and Load Water Coils

*Does not apply to DHW potable water circuit

50YEW Dimensions



Model		Overall Cabinet			Water Connections						Electric Access Plugs		
					1	2	3	4	5	6			
		A Depth	B Width	C Height	D Source (Outdoor) Water In	E Source (Outdoor) Water Out	F Load (Indoor) Water In	G DHW Water Out	H Load (Indoor) Water Out	J DHW Water In	K Low Voltage	L Low Voltage	M Power Supply
010	in.	26.8	25.6	48.9	3.4	8.1	22.3	11.3	17.7	14.4	33.6	35.6	38
	cm.	68.1	65.1	124.2	8.6	20.6	56.6	28.7	45	36.6	85.3	90.4	96.5

Electrical Data

Units with DHW Option

Model	Voltage Code	Voltage	Min/Max Voltage	Compressor			*Load Pump FLA	*Source Pump FLA	ISBP Pump FLA	Total Unit FLA	Min Circuit Amps	Max Fuse HACR
				Qty	RLA	LRA						
50YEW010	G	208-230/60/1	197/254	1	20.7	81	1.07	-	1.07	22.8	28	45
							1.07	1.07	1.07	23.9	29.1	45

Standard (No DHW)

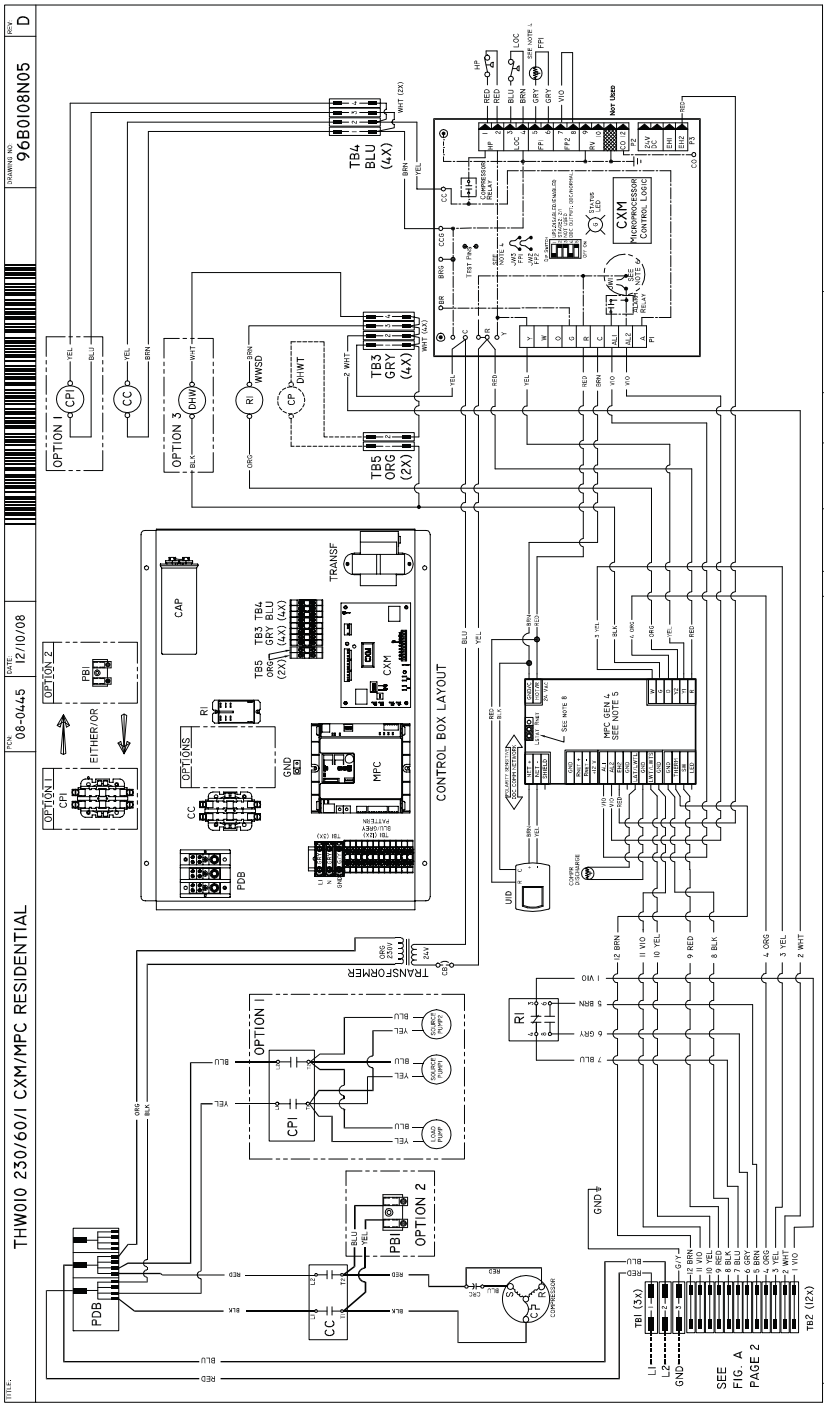
Model	Voltage Code	Voltage	Min/Max Voltage	Compressor			*Load Pump FLA	*Source Pump FLA	Total Unit FLA	Min Circuit Amps	Max Fuse HACR
				Qty	RLA	LRA					
50YEW010	G	208-230/60/1	197/254	1	20.7	81	1.07	-	21.8	26.9	45
							1.07	1.07	22.8	28	45

*Denotes optional items. Consult unit data plate if configuration is unknown.

Electrical - Wiring Diagram Matrix

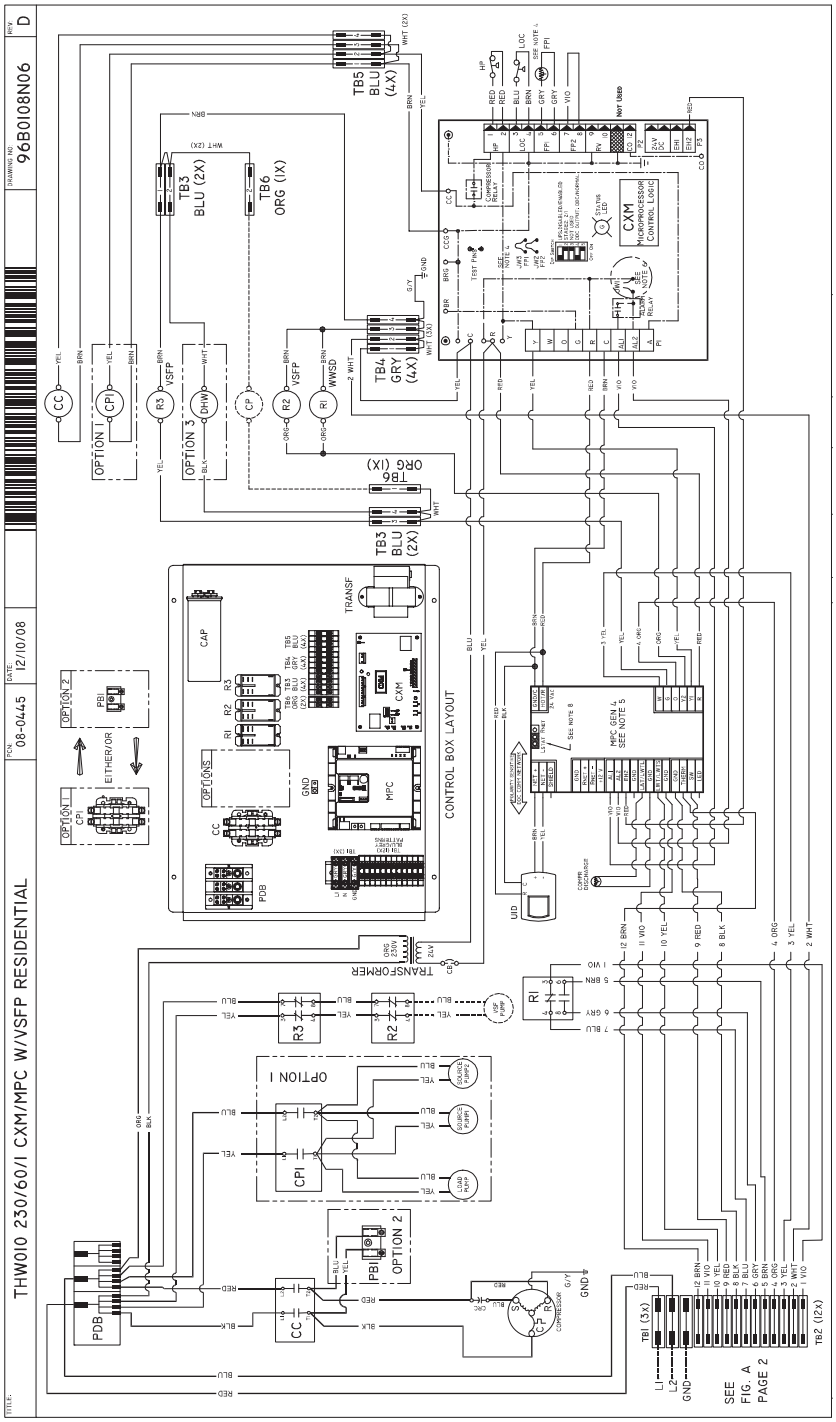
Model	Diagram Number	Voltage	Option
50YEW010	96B0108N05	230/60/1	-
50YEW010	96B0108N06	230/60/1	VSFP
50YEW010	96B0108N08	230/60/1	DHW
50YEW010	96B0108N09	230/60/1	DHW + VSFP

50YEW010 Electrical Wiring Diagram - 230/60/1
96B0108N05

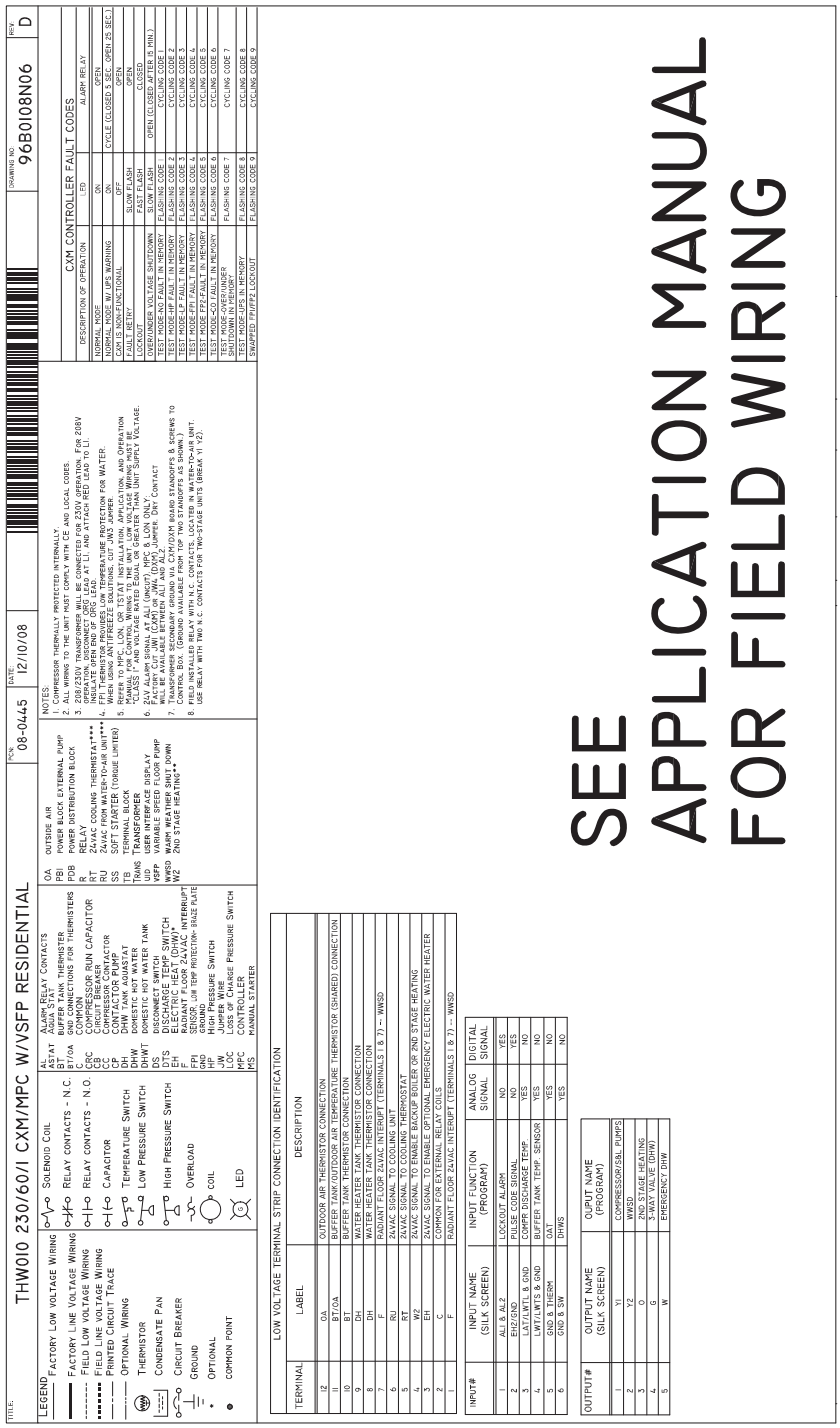


50YEW010 Electrical Wiring Diagram - 230/60/1
96B0108N05

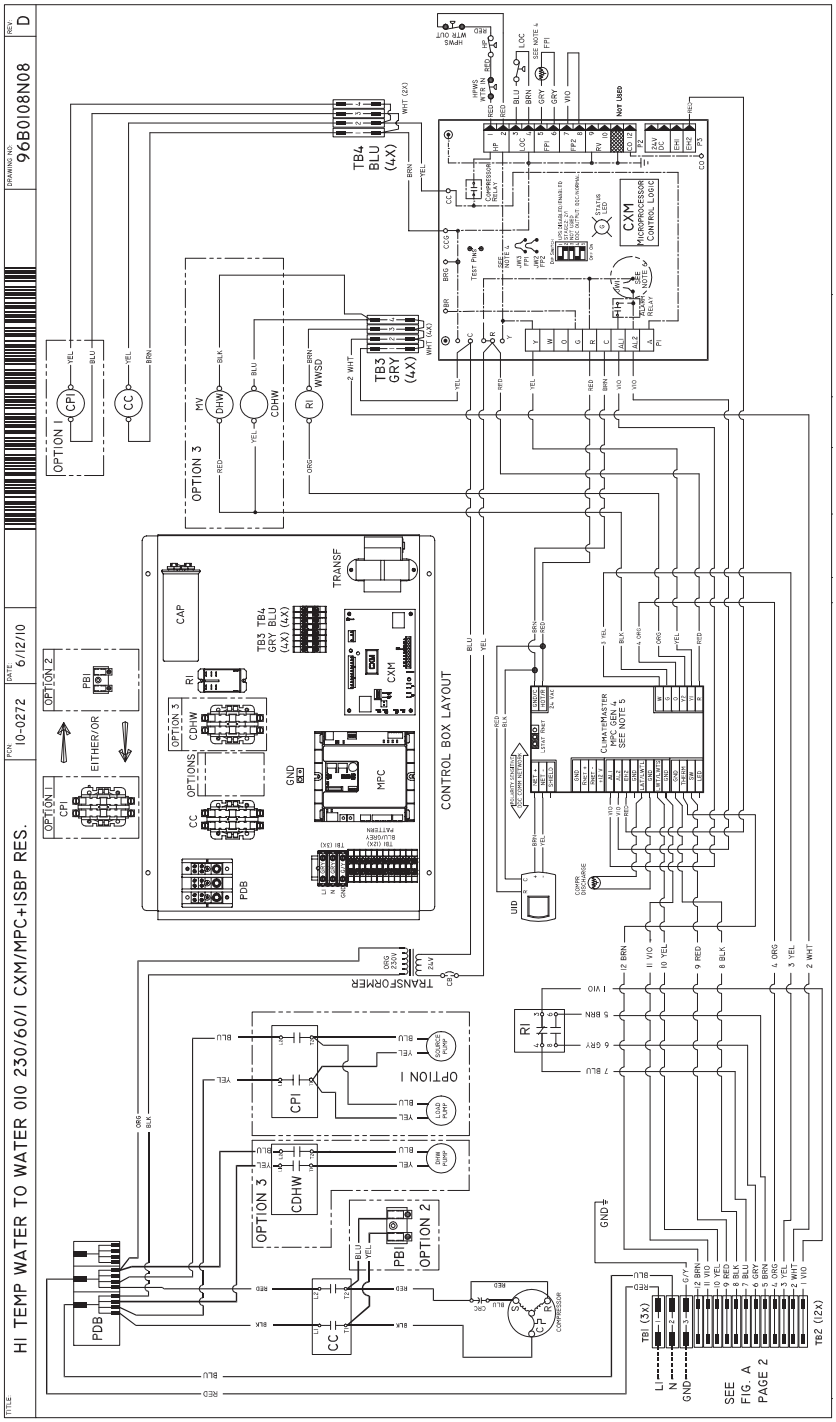
50YEW010 Electrical Wiring Diagram - 230/60/1
VSFP - 96B0108N06



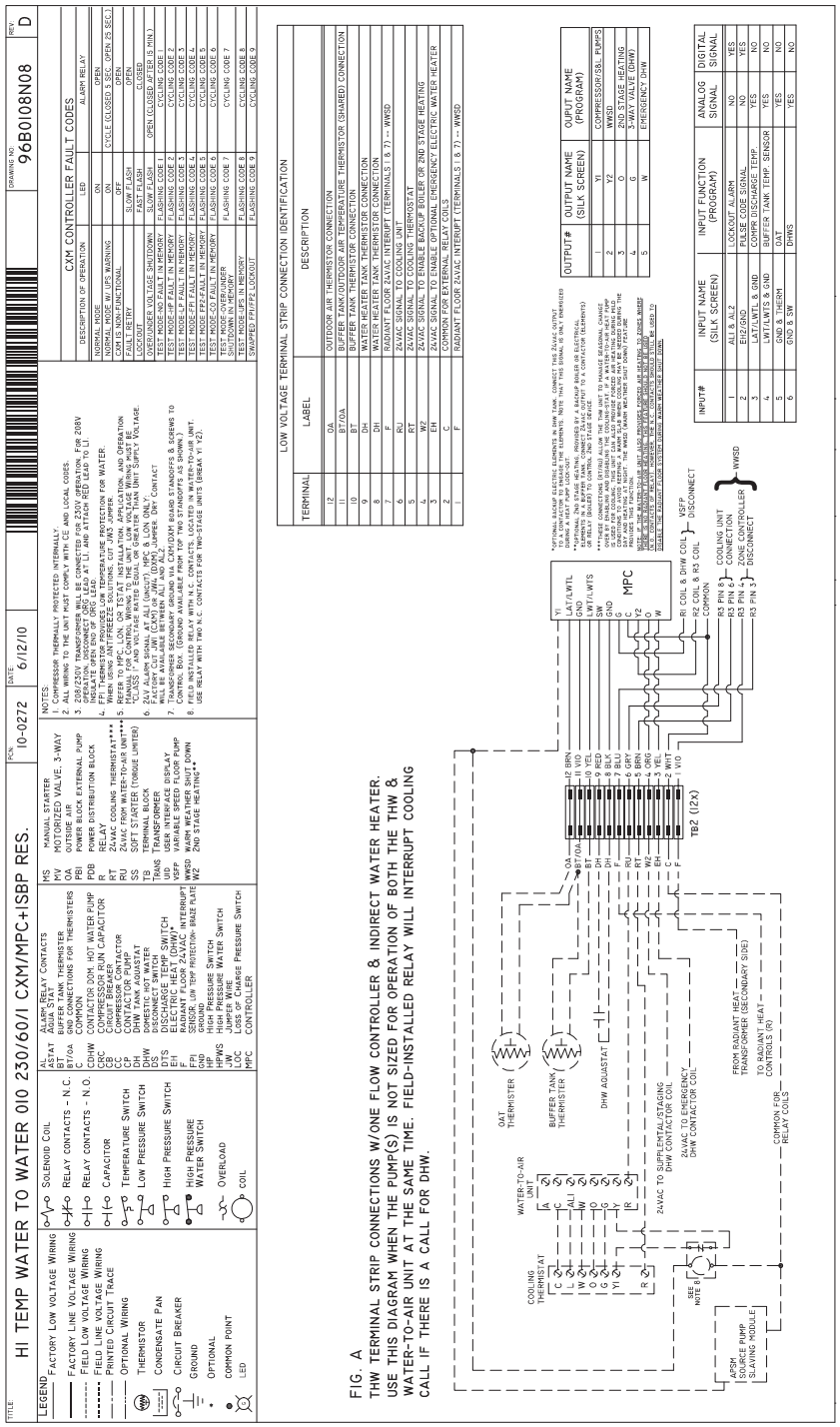
50YEW010 Electrical Wiring Diagram - 230/60/1
VSFP - 96B0108N06



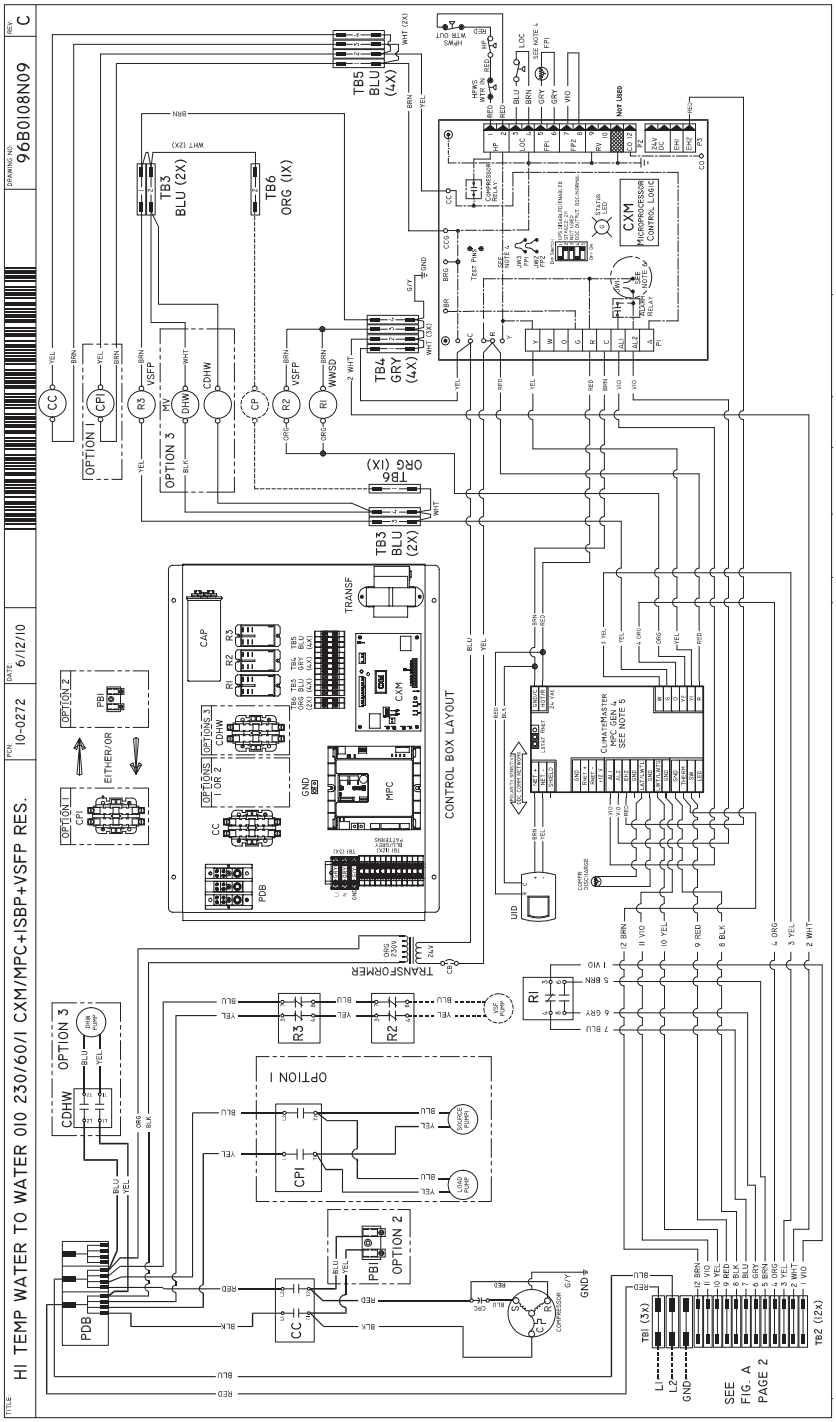
50YEW010 Electrical Wiring Diagram - 230/60/1
DHW - 96B0108N08



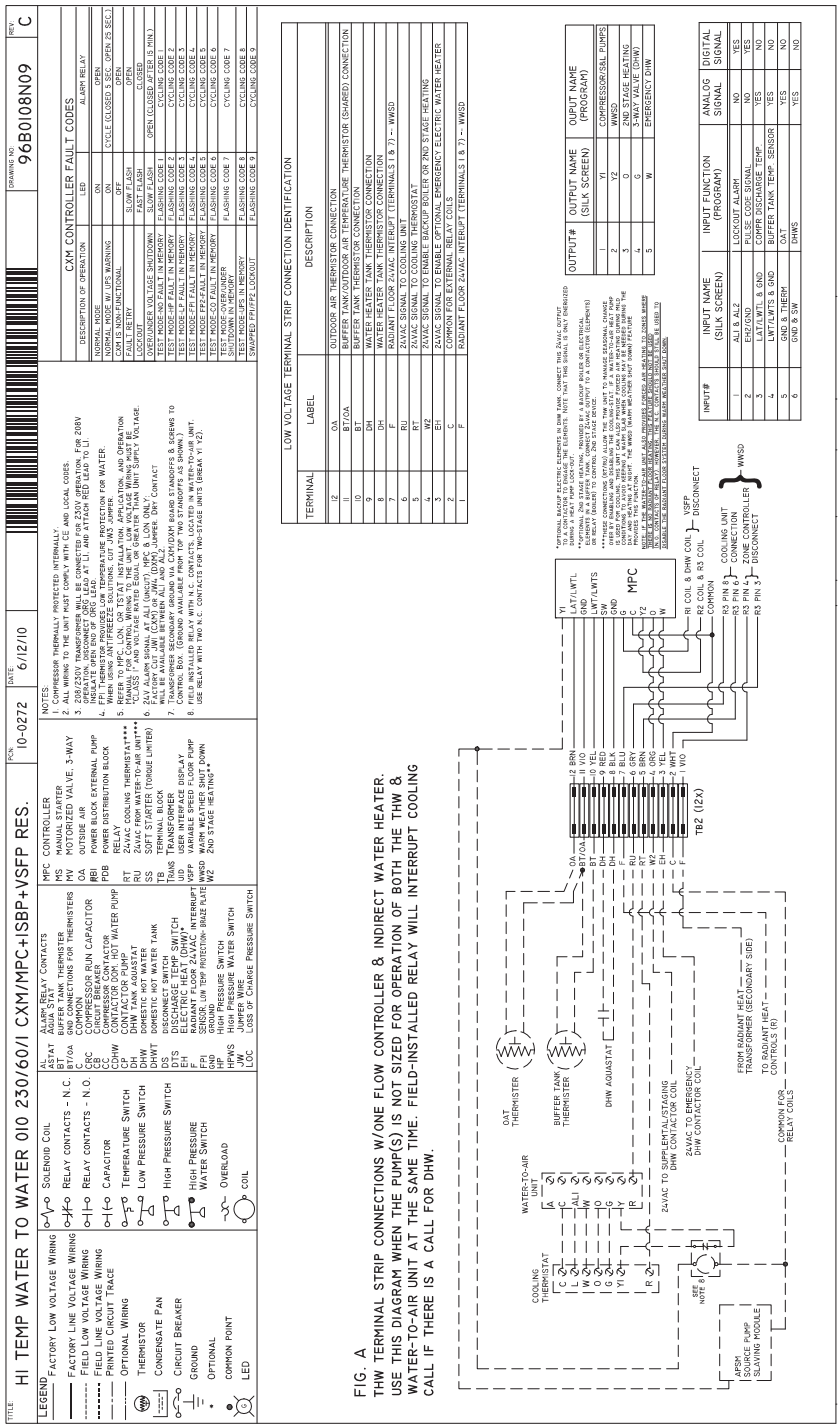
50YEW010 Electrical Wiring Diagram - 230/60/1
DHW - 96B0108N08



50YEW010 Electrical Wiring Diagram - 230/60/1 DHW + VSFP - 96B0108N09



50YEW010 Electrical Wiring Diagram - 230/60/1 DHW + VSFP - 96B0108N09



Engineering Guide Specifications

General
The water-source heating units shall be high temperature water-to-water heat pumps. Units shall be performance rated in accordance with EN 14511-2 or ARI/ISO/ASHRAE 13256-2, and listed by a recognized safety-testing laboratory or agency, such as ETL. Each unit shall be water run-tested at the factory. The quality control system shall automatically perform via computer: triple leak check, pressure tests, evacuate and accurately charge system, perform detailed heating mode tests, and quality cross check all operational and test conditions to pass/fail data base. Each unit shall be pallet mounted and shipped with appropriate protective packaging to help avoid damage in transportation.

The units shall be warranted by the manufacturer against defects in materials and workmanship for a period of 10 years on all parts, and 10 years on the compressor and refrigerant circuit parts with a service labor allowance for 5 years on refrigeration components and 2 years on other parts. An optional extended warranty is available for the 50YEW Series units, which increases the labor allowance to 10 years on all parts. The water source units shall be designed to operate with entering Source temperature between 20 and 110°F [-7 and 43°C], and entering Load temperature between 50 and 130°F [10 and 54°C] with a maximum leaving load temperature of 145°F [63°C].

Casing & Cabinet
The cabinet shall be fabricated from heavy-gauge galvanized steel and painted with a polyester powder coating. Access door shall be hinged for easy access. The interior shall be insulated with 1/2" [13mm] thick, multi-density, foil-backed coated glass fiber. Three access panels shall be provided and shall be removable with piping in place. The internal component layout shall provide for major service with the unit in place for restricted access installations. The units shall have an insulated compressor section to minimize the transmission of compressor noise.

Refrigerant Circuit
All units shall contain Puron® (HFC-410A) sealed refrigerant circuit employing a hermetic motor-compressor, thermal expansion valve, coaxial tube water-to-refrigerant Source heat exchanger, brazed plate Load heat exchanger, compressor discharge muffler, 100% molecular sieve filter drier with XH-11 desiccant, and service ports. An optional Domestic Hot Water mode shall be available. Compressors shall be scroll type designed for heat pump duty and shall be double isolated from the cabinet with two sets of compressor mounting hardware. Compressor motors shall be single-phase PSC with internal over load protection.

The coaxial water-to-refrigerant heat exchangers shall be designed for close approach temperatures and be constructed of a convoluted copper (optional cupro-nickel) inner tube and steel outer tube. The brazed plate heat exchanger shall be designed for close approach temperatures and shall be constructed with stainless steel plates. The thermal expansion valve shall provide proper superheat over the entire fluid temperature range with minimal "hunting". The coaxial heat exchangers and refrigerant suction lines shall be insulated to prevent condensation at low liquid temperatures.

Electrical
CXM Control – A microprocessor-based compressor controller shall be provided to monitor and control unit operation. The control shall provide compressor enable, high and low pressure monitoring, field selectable water coil low temperature sensing, and over/under voltage monitoring. The control shall also provide for water valve connection, a test mode, short cycle protection, random start-up, as well as fault LED, fault memory, and intelligent fault retry. The control shall employ quick attach harness assemblies for low voltage connections to the control board to aid in troubleshooting or replacement. An integral terminal block with screw terminals shall be provided on the control for connection to other low voltage controls. The control system microprocessor board shall be specifically designed to protect against building electrical system noise contamination, EMI, and RFI interference.

MPC Control – A programmable controller shall be provided to monitor buffer tank temperature, Domestic Hot Water (DHW) tank temperature, outdoor air temperature, and other inputs to determine when to operate the compressor, pump(s) and hot water valve. The MPC shall be factory-wired to the CXM compressor control module and user interface. MPC programming shall include outdoor temperature reset, warm weather shutdown, cooling enable, heat pump staging, emergency DHW output, pump control, vacation mode, DHW time schedule, advanced diagnostics, user interface communication, and sensor monitoring.

Digital User Interface – A panel-mounted backlit digital user interface shall be factory installed and wired for customization of the MPC programming. Four arrow keys and a select key will be used to control a large dot-matrix style 2" x 2" (5 x 5 cm) backlit display. The main screen shall display current outdoor and water temperatures, and allow the user to change settings by selecting from one of the menus at the bottom of the screen. A special installer set up mode will allow the technician to change some of the default MPC parameters. The user interface shall include a time schedule for DHW operation, Fahrenheit/Celsius selection, vacation mode for DHW, and other user preference options.

12-point terminal block – A low voltage terminal block with a blue/gray pattern for ease of identification shall be provided to connect thermistors and external wiring. The MPC, user interface, CXM board and other relays/components shall be factory-wired to the terminal block.

Line voltage lugs shall be provided for unit wiring. A circuit breaker protected 75VA transformer shall be employed. Units shall have knockouts for entrance of low and line voltage wiring.

Piping
Source/Load supply and return water connections, as well as Domestic Hot Water supply and return connections shall be FPT (Female Pipe Thread) copper fittings and shall be securely mounted flush to the cabinet allowing for connection to an MPT (Male Pipe Thread) fitting without the use of a back-up wrench. All Source water piping shall be insulated to prevent condensation at low liquid temperatures.

Accessories & Options

Hot Water Mode Option
An optional mode to provide domestic hot water shall be provided. This mode shall include a factory-installed, internal secondary heat exchanger and a factory-installed potable water, bronze circulating pump. This option shall provide an additional set of water connections for the potable domestic hot water and shall be completely factory installed and wired. An external sensor shall be provided to sense the domestic water storage tank temperature.

Internal Source and Load Pumps / Internal Expansion Tanks
Optional Source pump(s), Load pump, and expansion tank(s) shall be factory installed and wired to help lower installation costs and labor. When installed at the factory, pumps are controlled by the MPC.

Variable Speed Floor Pump Connection
An optional relay and line voltage lugs shall be provided for a variable speed radiant floor system pump. Some radiant floor systems utilize a variable speed pump on the floor system, which changes flow based upon the number of zones open or closed. Since the pump has built-in controls, only a power supply is needed.

Cupro-Nickel Heat Exchanger
An optional corrosion resistant CuNi coaxial heat exchanger shall be factory installed in lieu of standard copper construction (Source heat exchanger only).

Flow Controller (field installed)
A self-contained module shall provide all fluid pumping, fill and connection requirements for ground-source closed-loop systems up to 20 GPM [76 l/m]. The Flow Controller shall provide 1" pump isolation valves/3-way service valves. Pump heads shall be removable from the volute for easy replacement. The Flow Controller shall be enclosed in a polystyrene case and fully insulated with urethane foam to prevent condensation. The Flow Controller shall have a 5- year warranty on all parts.

Hose Connection Kit (field installed)
An accessory hose kit shall provide 150psi [1034 kPa] 1" rubber hose with brass fittings equipped with service pressure/temperature ports for connection between the unit and Flow Controller.

Warranty Information

The 2010 standard warranty applies to units ordered on or after July 1, 2010. See Carrier's 2010 Limited Express Residential Warranty Certificate CA234 for specific coverage and limitation.

Carrier residential class heat pumps are backed by a ten-year limited warranty on all unit parts, including the following accessories when installed with Carrier units: Flow Controllers & Electric Heaters.

Carrier goes even further to back up its commitment to quality by including a service labor allowance for the first five years on refrigeration circuit components and two years on all other parts, auxiliary heaters and geothermal pumping modules.

The Optional Extended Factory Service Labor Allowance Warranty offers additional length of term protection to the consumer by offsetting service labor costs for 10 years.

To order this warranty, contact your Carrier distributor. This coverage must be purchased within 90 days of unit installation. See Limited Express Extended Labor Warranty Certificate CA235 for details.

Revision History

Date	Page #	Description
21 July, 10	Wiring Diagram Pages	Wire Diagram revision: water-side high pressure switches added
01 June, 10	Various	Warranty, Paint, Nomenclature Updates
30 Mar, 10	All	Misc. format, physical data, and electrical data
30 Mar, 10	Decoder Page	Decoder Updated
1 Mar, 10	All	Misc. format and desc. updates
15 Dec, 09	All	Updated Performance pages, added DHW mode information
01 Jan, 09	All	Reformatted Document Size
01 Oct, 06	All	First Published