40MAQ / 38MAQ
High- Wall Ductless Split System
Sizes 09 to 30

Carrier
turn to the experts

Product Data





INDUSTRY LEADING FEATURES / BENEFITS

A PERFECT BALANCE BETWEEN BUDGET LIMITS, ENERGY SAVINGS AND COMFORT.

The 38/40MAQ series ductless split systems are a matched combination of an outdoor condensing unit and an indoor fan coil unit connected only by refrigerant tubing and wires.

The fan coil is mounted on the wall, near the ceiling. This selection of fan coils permits creative solutions to design problems such as:

- Add-ons to current space (an office or family room addition)
- Special space requirements
- When changes in the load cannot be handled by the existing system.
- When adding air conditioning to spaces that are heated by hydronic or electric heat and have no ductwork.
- Historical renovations or any application where preserving the look of the original structure is essential.

The ideal compliment to your ducted system when it is impractical or prohibitively expensive to use ductwork.

These compact indoor fan coil units take up very little space in the room and do not obstruct windows. The fan coils are attractively styled to blend with most room decors. Advanced system components incorporate innovative technology to provide reliable cooling performance at low sound levels.

LOW SOUND LEVELS

When noise is a concern, the ductless split systems are the answer. The indoor units are whisper quiet. There are no compressors indoors, either in the conditioned space or directly over it, and there is none of the noise usually generated by air being forced through ductwork.

When sound ordinances and proximity to neighbors demand quiet operation, the 38MAQ unit is the right choice: The advanced, horizontal airflow design distributes air more evenly over the coil.

SECURE OPERATION

If security is an issue, outdoor and indoor units are connected only by refrigerant piping and wiring to prevent intruders from crawling through ductwork. In addition, since 38MAQ units can be installed close to an outside wall, coils are protected from vandals and severe weather.

FAST INSTALLATION

This compact ductless split system is simple to install. A mounting bracket is standard with the indoor units and only wire and piping need to be run between indoor and outdoor units. These units are fast and easy to install ensuring minimal disruption to customers in the home or workplace. This makes the 38/40MAQ ductless split systems the equipment of choice, especially in retrofit situations.

SIMPLE SERVICING AND MAINTENANCE

Removing the top panel on outdoor units provides immediate access to the control compartment, providing a service technician access to check unit operation. In addition, the draw-thru design of the outdoor section means that dirt accumulates on the outside surface of the coil. Coils can be cleaned quickly from the inside using a pressure hose and detergent.

On all indoor units, service and maintenance expense is reduced due to easy-to-use cleanable filters. In addition, these high wall systems have extensive self-diagnostics to assist in troubleshooting.

BUILT-IN RELIABILITY

Ductless split system indoor and outdoor units are designed to provide years of trouble-free operation.

The high wall indoor units include protection against freeze-up and high evaporator temperatures on heat pumps.

The condensing units on heat pumps are protected by a three minute time delay before the compressor will start the over-current protection and the high temperature protection.

INDIVIDUAL ROOM COMFORT

Maximum comfort is provided because each space can be controlled individually based on usage pattern. The air sweep feature provided permits optimal room air mixing to eliminate hot and cold spots for occupant comfort. In addition, year-round comfort can be provided with heat pumps.

ECONOMICAL OPERATION

The ductless split system design allows individual room heating or cooling when required. There is no need to run large supply-air fans or chilled water pumps to handle a few spaces with unique load patterns. In addition, because air is moved only in the space required, no energy is wasted moving air through ducts.

EASY-TO-USE CONTROLS

The high-wall units have microprocessor-based controls to provide the ultimate in comfort and efficiency. The user friendly wireless remote control provides the interface between user and the unit.

ACCESSORIES

Customizing these ductless split systems to your application is easily accomplished.

Adding a condensate pump accessory to the high wall fan coil provides installation flexibility.

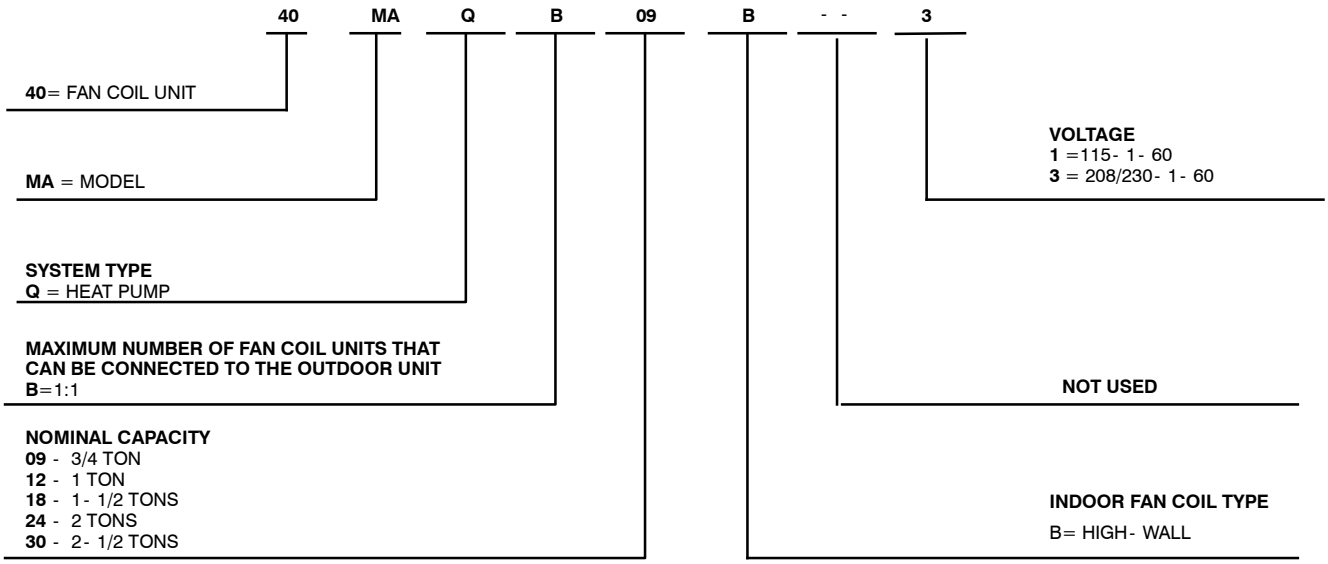
OPTIONAL WIRED CONTROLLER

AGENCY LISTINGS

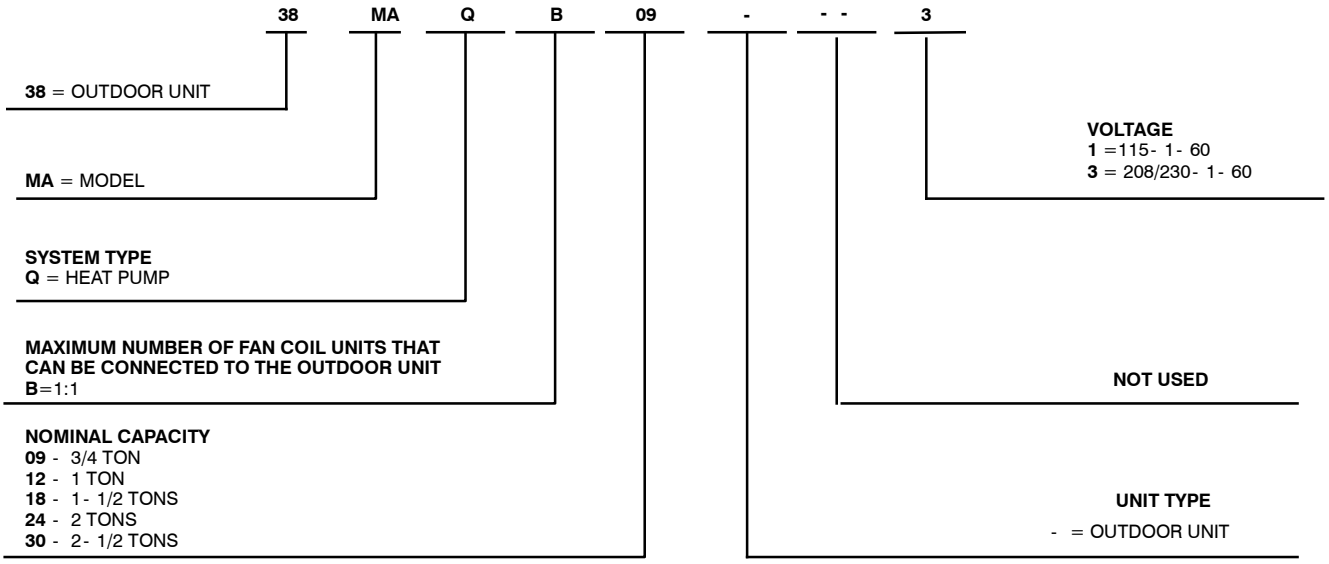
All systems are listed with AHRI (Air Conditioning, Heating & Refrigeration Institute), and ETL.

MODEL NUMBER NOMENCLATURE

INDOOR UNIT



OUTDOOR UNIT



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

STANDARD FEATURES AND ACCESSORIES

Ease Of Installation	
Mounting Brackets	S
Low Voltage Controls	S
Comfort Features	
Microprocessor Controls	S
Wired Remote Control	A
Wireless Remote Control	S
Automatic Horizontal Air Sweep	S
Air Direction Control	S
Auto Restart Function	S
Cold Blow Protection On Heat Pumps	S
Freeze Protection Mode On Heat Pumps	S
Turbo Mode	S
Silence Mode	S
Auto Changeover On Heat Pumps	S
Follow Me	S
Energy Saving Features	
Sleep Mode	S
Stop/Start Timer	S
46° F Heating Mode (Heating Setback)	S
Safety And Reliability	
3 Minute Time Delay For Compressor	S
Over Current Protection For Compressor	S
Indoor Coil Freeze Protection	S
Indoor Coil High Temp Protection in Heating Mode	S
Condenser High Temp Protection in Cooling Mode	S
Ease Of Service And Maintenance	
Cleanable Filters	S
Diagnostics	S
Liquid Line Pressure Taps	S
Application Flexibility	
Condensate Pumps	A
Crankcase Heater	S

Legend
S Standard
A Accessory

INDOOR UNITS

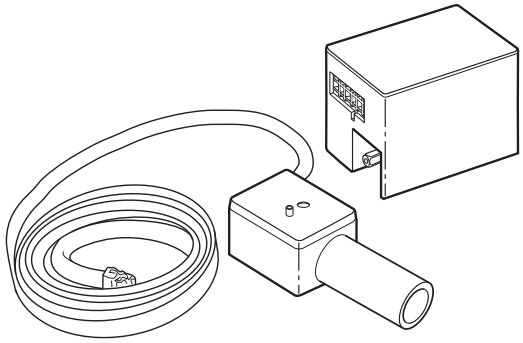


Fig. 1 – Condensate Pump Accessory

On high wall fan coils, the condensate pump has a lift capability of 12 ft (3.6 m) on the discharge side with the pump mounted in the fan coil or 6 ft (1.8 m) on the suction side if the pump is remote mounted. The pump is recommended when adequate drain line pitch cannot be provided, or when the condensate must move up to exit.

NOTE: An external 115v power source will be required to run the pump on unit sizes 9k and 12k.

OUTDOOR UNITS

Crankcase Heater

Standard on all unit sizes. Heater clamps around compressor oil stump.

DIMENSIONS - INDOOR

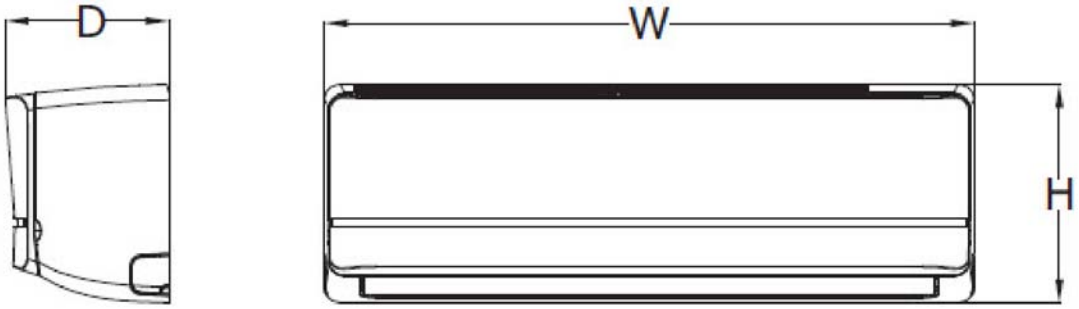


Fig. 2 – Indoor unit

Unit Size	W in (mm)	D in (mm)	H in (mm)	Operating Weight lb (kg)
9K/12K	32.9 (835)	7.8 (198)	11.0 (280)	19.2 (8.7)
18K	39.0 (990)	8.6 (218)	12.4 (315)	26.5 (12.0)
24K/30K	46.7 (1186)	10.2 (258)	13.4 (343)	40.8 (18.5)

DIMENSIONS - OUTDOOR

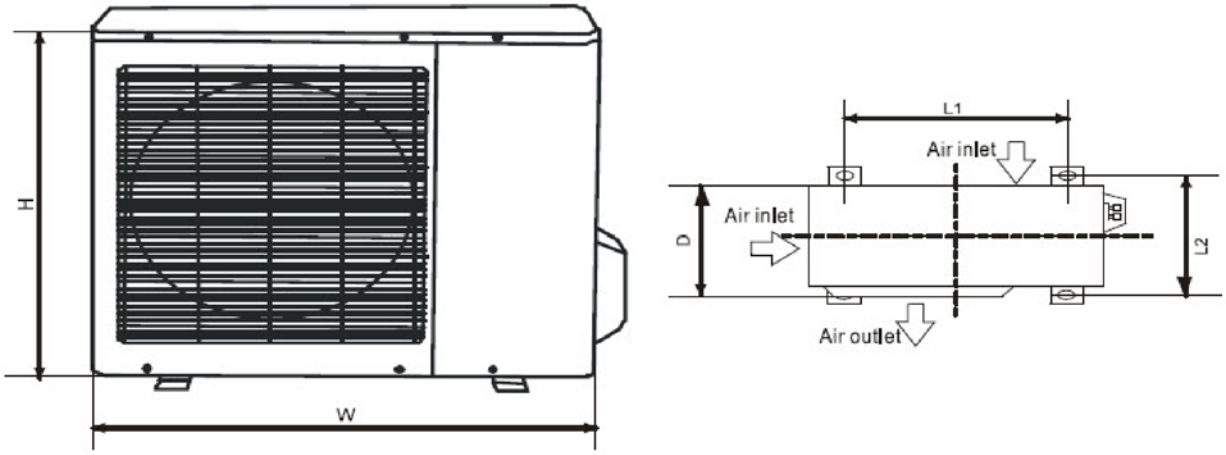


Fig. 3 – Outdoor unit

Model	W in (mm)	D in (mm)	H in (mm)	L1 in (mm)	L2 in (mm)	Operating Weight lb (kg)
9K/12K	32.0 (810)	12.2 (310)	22.0 (558)	20.9 (530)	11.4 (290)	82.5 (37.4)
18K	32.3 (845)	12.6 (320)	27.6 (700)	22.1 (560)	13.2 (335)	102.5 (46.5)
24K	37.2 (945)	15.6 (395)	31.9 (810)	25.1 (640)	15.9 (405)	137.6 (62.4)
30K	37.2 (945)	15.6 (395)	31.9 (810)	25.1 (640)	15.9 (405)	157.6 (71.5)

CLEARANCES - INDOOR

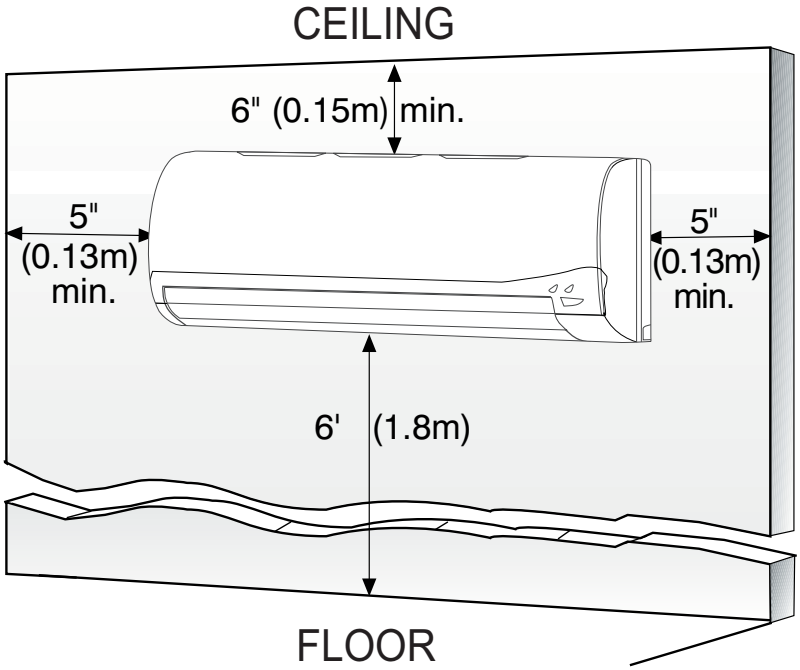


Fig. 4 – Indoor Unit Clearance

CLEARANCES - OUTDOOR

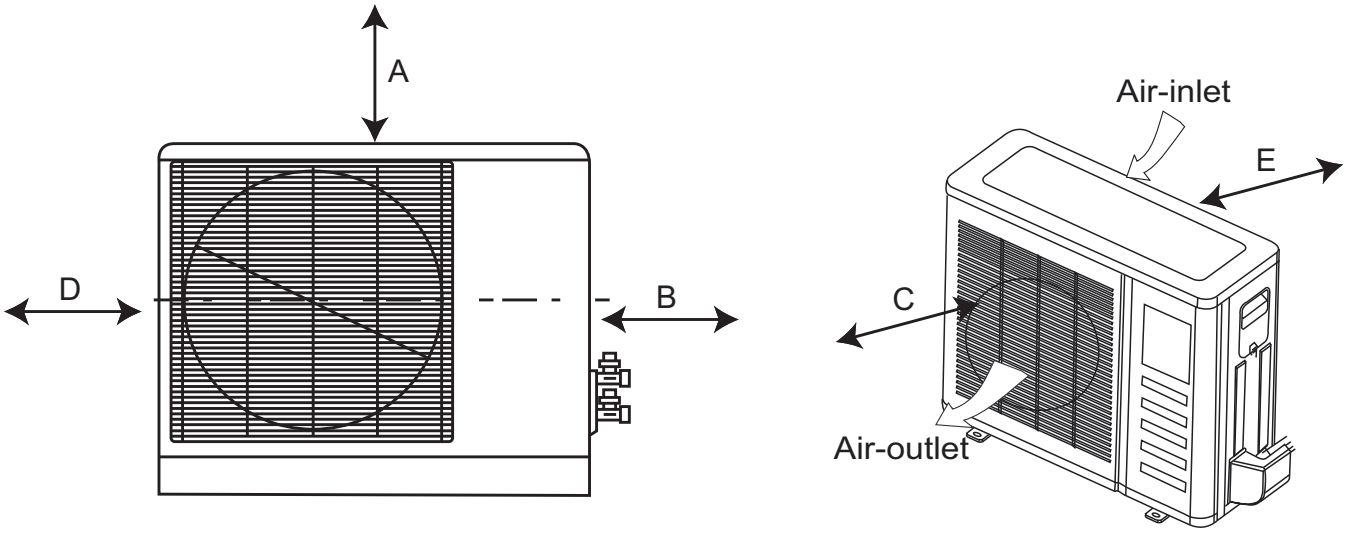


Fig. 5 – Clearances Outdoor

UNIT	Minimum Value in. (mm)
A	24 (609)
B	24 (609)
C	24 (609)
D	4 (101)
E	4 (101)

SPECIFICATIONS - HEAT PUMP UNITS (MAQ SERIES)

	Size		9	12	9	12	18	24	30
System	Outdoor Model		38MAQB09---1	38MAQB12---1	38MAQB09---3	38MAQB12---3	38MAQB18---3	38MAQB24---3	38MAQB30---3
	Indoor Model		40MAQB09B--1	40MAQB12B--1	40MAQB09B--3	40MAQB12B--3	40MAQB18B--3	40MAQB24B--3	40MAQB30B--3
	Energy Star		YES	YES	YES	YES	YES	YES	NO
Perfor-mance	Cooling Rated Capacity	Btu/h	9,000	12,000	9,000	12,000	17,500	23,000	30,000
	Cooling Cap. Range Min - Max	Btu/h	3500~11000	4000~13000	3500~11000	4000~13000	4500~18000	5500~23500	8000~30500
	SEER		23.5	21.5	23.5	21.5	19.5	20.0	16.5
	EER		14.5	13	14.5	13	12.5	12.5	9.5
	Heating Rated Capacity	Btu/h	10,000	12,000	10,000	12,000	18,000	25,000	32,000
	Heating Cap. Range Min - Max	Btu/h	4,500~11,500	5,000~13,500	4,500~11,500	5,000~13,500	5,500~19,000	6,000~26,000	9,000~34,000
	HSPF		10.0	10.0	10.0	10.0	9.6	10.0	9.6
	COP	W/W	3.36	3.22	3.66	3.36	3.36	3.22	2.92
Controls	Wireless Remote Controller (°F/°C Convertible)		Standard						
	Wired Remote Controller (°F/°C Convertible)		Optional						
Operating Range	Cooling Outdoor DB Min - Max	°F	4~122	4~122	4~122	4~122	4~122	4~122	4~122
	Heating Outdoor DB Min - Max	°F	4~86	4~86	4~86	4~86	4~86	4~86	4~86
	Cooling Indoor DB Min -Max	°F	63~90	63~90	63~90	63~90	63~90	63~90	63~90
	Heating Indoor DB Min -Max	°F	32~86	32~86	32~86	32~86	32~86	32~86	32~86
Piping	Total Piping Length	Ft.	82	82	82	82	98	98	164
	Piping Lift*	Ft.	32	32	32	32	65	65	82
	Pipe Connection Size - Liquid	In.	1/4	1/4	1/4	1/4	1/4	3/8	3/8
	Pipe Connection Size - Suction	In.	3/8	1/2	3/8	1/2	1/2	5/8	5/8
Refrigerant	Type		R410A						
	Design Pressure	PSIG	550	550	550	550	550	550	550
	Metering Device		Electronic Expansion Valve					Capillary Tube	
Refrigerant	Charge	Lb.	2.76	2.76	2.76	2.76	4.19	5.18	6.62
Outdoor Coil	Face Area	Sq. Ft.	9.2	9.2	9.2	9.2	16.0	21.1	17.2
	No. Rows		2	2	2	2	2	3	3
	Fins per inch		21	21	21	21	18	18	17
	Circuits		4	4	4	4	6	8	6
Indoor Coil	Face Area (sq. ft.)	Sq. Ft.	2.2	2.2	2.2	2.2	2.6	3.7	3.7
	No. Rows		2	2	2	2	2	3	3
	Fins per inch		20	20	20	20	20	18	18
	Circuits		3	3	3	3	4	7	7
Compres-sor	Type		Hermetic Rotary DC Inverter Compressor						
	Model		ASM98D1UFZA	ASM108D1UFZA	ASM98D1UFZA	ASM108D1UFZA	ASM135D23UFZ	DA250S2C-30MT	TNB306FPGMC-L
	Oil Type		VG74	VG74	VG74	VG74	VG74	VG74	FV50S
	Oil Charge	Fl. Oz.	12.5	12.5	12.5	12.5	15.2	27.7	36.2
	Rated Current	RLA	5.3	5.7	5.3	5.7	7.3	8.8	13.5
Electrical	Voltage, Phase, Cycle	V/Ph/Hz	115-1-60	115-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
	Power Supply		Indoor unit powered from outdoor unit						
	MCA	A.	15	15	15	15	13	15	20
	MOCP - Fuse Rating	A.	20	20	15	15	20	25	30
Outdoor	Unit Width	In.	31.9	31.9	.9	31.9	33.3	37.2	37.2
	Unit Height	In.	22.0	22.0	.0	22.0	.6	31.9	31.9
	Unit Depth	In.	12.2	12.2	.2	12.2	.6	15.6	15.6
	Net Weight	Lbs.	82.5	82.5	82.5	82.5	102.5	137.6	157.6
	Airflow	CFM	1200	1200	1200	1200	1390	2130	2130
	Sound Pressure	dB(A)	56	56	56	56	59	60	63
Indoor	Unit Width	In.	32.9	32.9	32.9	32.9	39.0	46.7	46.7
	Unit Height	In.	11.0	11.0	11.0	11.0	12.4	13.4	13.4
	Unit Depth	In.	7.8	7.8	7.8	7.8	8.6	10.2	10.2
	Net Weight	Lbs.	19.2	19.2	19.2	19.2	26.5	40.1	40.1
	Number of Fan Speeds		4	4	4	4	4	4	4
	Airflow (lowest to highest)	CFM	210/290/360/380	210/300/360/380	210/290/360/380	210/300/360/380	310/450/650/680	520/620/780/870	520/620/780/870
	Sound Pressure (lowest to highest)	dB(A)	27/34/42	27/34/42	27/34/42	27/34/42	33/40/46	39/45/50	39/45/50
	Air throw Data	Ft.	23	23	23	23	30	36	36

Condensing unit above or below indoor unit

COOLING PERFORMANCE DATA - 38/40MAQ (HEAT PUMP)

Model	Cooling			Outdoor conditions (DB)					
	Indoor Conditions DB	Indoor Conditions WB		77F(25C)	86F(30C)	95F(35C)	104F(40C)	113F(45C)	122F(50C)
09 (115V)	69.8F(21C)	59F(15C)	TC	7.43	7.83	9.74	8.38	6.11	5.11
			SC	6.68	6.69	8.18	7.37	4.36	3.74
			Input	0.35	0.54	0.81	0.8	0.75	0.75
	75.2F(24C)	62.6F(17C)	TC	7.78	9.14	9.89	8.65	6.92	5.83
			SC	3.58	8.11	6.27	5.52	4.85	4.29
			Input	0.35	0.54	0.81	0.8	0.75	0.75
	80.6F(27C)	66.2F(19C)	TC	8.21	9.22	10.41	9.27	7.32	6
			SC	7.39	5.88	8.22	7.79	5.11	4.37
			Input	0.35	0.75	0.82	0.81	0.75	0.75
	89.6F(32C)	73.4F(23C)	TC	8.41	9.72	11.59	10.22	8.82	7.51
			SC	3.68	5.76	6.9	6.2	5.55	5
			Input	0.36	0.56	0.83	0.82	0.76	0.77
12 (115V)	69.8F(21C)	59F(15C)	TC	8.21	11.75	11.42	9	7.85	6.68
			SC	7.06	9.05	8.68	7.38	6.42	5.58
			Input	0.38	0.8	1.04	0.87	0.82	0.81
	75.2F(24C)	62.6F(17C)	TC	8.42	11.84	12.01	9.35	8.32	7.34
			SC	7.28	8.69	8.66	7.62	6.53	5.81
			Input	0.57	0.94	1.25	1.27	0.98	0.94
	80.6F(27C)	66.2F(19C)	TC	8.81	11.95	12.23	9.69	8.87	7.95
			SC	7.49	8.32	8.63	7.85	6.64	6.04
			Input	0.39	0.75	1.06	0.89	0.85	0.82
	89.6F(32C)	73.4F(23C)	TC	9.01	12.15	12.43	9.89	9.07	8.15
			SC	7.7	8.53	8.84	8.06	6.85	6.25
			Input	0.4	0.97	1.3	1.34	0.92	0.85
09 (208-230V)	69.8F(21C)	59F(15C)	TC	7.41	7.82	9.73	8.34	6.12	5.1
			SC	6.64	6.69	8.18	7.37	4.36	3.74
			Input	0.35	0.54	0.81	0.8	0.75	0.75
	75.2F(24C)	62.6F(17C)	TC	7.76	9.16	9.89	8.62	6.92	5.83
			SC	3.58	8.11	6.27	5.52	4.85	4.29
			Input	0.35	0.54	0.81	0.8	0.75	0.75
	80.6F(27C)	66.2F(19C)	TC	8.21	9.22	10.41	9.27	7.32	6
			SC	7.39	5.88	8.22	7.79	5.11	4.37
			Input	0.35	0.75	0.82	0.81	0.75	0.75
	89.6F(32C)	73.4F(23C)	TC	8.41	9.72	11.59	10.22	8.82	7.51
			SC	3.68	5.76	6.9	6.2	5.55	5
			Input	0.36	0.56	0.83	0.82	0.76	0.77
12 (208-230V)	69.8F(21C)	59F(15C)	TC	8.21	11.75	11.42	9	7.85	6.68
			SC	7.06	9.05	8.68	7.38	6.42	5.58
			Input	0.38	0.8	1.04	0.87	0.82	0.81
	75.2F(24C)	62.6F(17C)	TC	8.42	11.84	12.01	9.35	8.32	7.34
			SC	7.28	8.69	8.66	7.62	6.53	5.81
			Input	0.57	0.94	1.25	1.27	0.98	0.94
	80.6F(27C)	66.2F(19C)	TC	8.81	11.95	12.23	9.69	8.87	7.95
			SC	7.49	8.32	8.63	7.85	6.64	6.04
			Input	0.39	0.75	1.06	0.89	0.85	0.82
	89.6F(32C)	73.4F(23C)	TC	9.01	12.15	12.43	9.89	9.07	8.15
			SC	7.7	8.53	8.84	8.06	6.85	6.25
			Input	0.4	0.97	1.3	1.34	0.92	0.85
18 (208-230V)	69.8F(21C)	59F(15C)	TC	12.58	15.24	16.25	11.04	8.32	6.78
			SC	8.34	10.3	10.6	7.93	6.18	5.16
			Input	0.58	0.93	1.53	1.2	1.42	1.32
	75.2F(24C)	62.6F(17C)	TC	13.48	16.41	16.66	12.3	9.43	7.74
			SC	8.85	10.94	11.35	8.62	6.87	5.91
			Input	0.57	0.93	1.56	1.22	1.45	1.35
	80.6F(27C)	66.2F(19C)	TC	14.43	18.04	18.37	13.35	9.97	7.96
			SC	9.59	11.95	12.37	9.28	7.23	6.02
			Input	0.57	0.94	1.59	1.24	1.48	1.38
	89.6F(32C)	73.4F(23C)	TC	14.7	19.03	20.18	15.36	12.02	9.97
			SC	9.08	11.72	12.5	9.69	7.85	6.89
			Input	0.6	0.97	1.62	1.27	1.51	1.41
24 (208-230V)	69.8F(21C)	59F(15C)	TC	19.5	20.69	21.43	18.05	14.27	13.32
			SC	15.15	15.61	15.49	14.23	10.03	8.78
			Input	1.2	1.88	2.29	2.14	1.9	1.86
	75.2F(24C)	62.6F(17C)	TC	20.01	21.21	22.31	18.51	15.08	13.3
			SC	15.25	15.71	15.59	14.33	10.13	8.88
			Input	1.2	1.87	2.3	2.21	2.14	1.92
	80.6F(27C)	66.2F(19C)	TC	20.54	21.75	23.21	18.98	15.91	13.3
			SC	15.35	15.81	15.69	14.43	10.23	8.98
			Input	1.21	1.86	2.31	2.26	2.16	1.93
	89.6F(32C)	73.4F(23C)	TC	20.61	22.94	24.4	21.84	19.17	16.66
			SC	15.58	16.04	15.92	14.66	10.46	9.21
			Input	1.22	1.87	2.34	2.33	2.32	1.96
30 (208-230V)	69.8F(21C)	59F(15C)	TC	27.33	27.43	27.51	22.77	18.29	17.32
			SC	19.4	19.48	19.56	17.21	16.32	15.28
			Input	2.28	3.29	3.63	3.11	2.35	2.25
	75.2F(24C)	62.6F(17C)	TC	29.41	30.01	29.82	24.53	20.71	18.24
			SC	19.95	20.47	20.07	17.73	17.24	16.29
			Input	2.31	3.32	3.68	3.17	2.41	2.31
	80.6F(27C)	66.2F(19C)	TC	31.57	32.68	32.21	26.37	23.2	19.21
			SC	20.55	21.52	20.65	18.3	18.21	17.35
			Input	2.35	3.35	3.74	3.23	2.47	2.38
	89.6F(32C)	73.4F(23C)	TC	32.6	33.71	33.24	27.4	24.23	20.24
			SC	20.9	21.87	21	18.65	18.56	17.7
			Input	2.42	3.42	3.81	3.3	2.54	2.45

LEGEND
DB - Dry Bulb
WB - Wet Bulb
TC - Total Net Cooling Capacity (1000 Btu/hour)
SC - Sensible Capacity (1000 Btu/hour)
Input - Total Power (kW)

HEATING PERFORMANCE DATA - - 38/40MAQ (HEAT PUMP)

Model 38-40MAQ	Heating		Outdoor conditions (DB)							
	Indoor Conditions DB		53.6F(12C)	44.6F(7C)	39.2F(4C)	32F(0C)	24.8F(-4C)	19.4F(-7C)	17F(-8C)	5F(-15C)
09(115V)	59F(15C)	TH	11.2	11.1	10.89	10.65	9.87	9.11	8.27	6.71
		Input	0.73	0.79	1.04	1.01	0.96	0.9	0.84	0.8
	64.4F(18C)	TH	11.1	10.8	10.65	10.54	9.63	8.84	8.01	5.46
		Input	0.78	0.8	1.08	1.03	0.98	0.94	0.9	0.82
	69F(20.5C)	TH	10.8	10.6	10.48	10.32	9.43	8.55	7.95	4.29
		Input	0.8	0.81	1.11	1.05	1	0.98	0.96	0.84
	71.6F(22C)	TH	10.6	10.3	10.21	10.11	9.23	8.41	7.89	4.11
		Input	0.82	0.83	1.15	1.07	1.02	1.02	0.92	0.86
12(115V)	59F(15C)	TH	11.8	12.7	12.42	11.32	10.4	9.54	8.9	5.75
		Input	0.79	1.01	1.05	1.1	1.02	1	0.98	0.83
	64.4F(18C)	TH	12.1	12.7	12.32	11.34	10.32	9.32	8.81	6.14
		Input	0.83	1.37	1.4	1.26	1.22	1.27	1.01	0.91
	69F(20.5C)	TH	12.3	12.6	12.12	11.32	10.21	9.12	8.43	6.49
		Input	0.83	1.1	1.12	1.19	1.19	1.25	1.03	0.98
	71.6F(22C)	TH	11.1	12.4	12.01	11.21	10.01	9.02	8.21	6.01
		Input	0.85	1.15	1.16	1.21	1.23	1.31	1.05	1
09 (208-230V)	59F(15C)	TH	11.2	11.1	10.89	10.65	9.87	9.11	8.27	6.71
		Input	0.73	0.79	1.04	1.01	0.96	0.9	0.84	0.8
	64.4F(18C)	TH	11.1	10.8	10.65	10.54	9.63	8.84	8.01	5.46
		Input	0.78	0.8	1.08	1.03	0.98	0.94	0.9	0.82
	69F(20.5C)	TH	10.8	10.6	10.48	10.32	9.43	8.55	7.95	4.29
		Input	0.8	0.81	1.11	1.05	1	0.98	0.96	0.84
	71.6F(22C)	TH	10.6	10.3	10.21	10.11	9.23	8.41	7.89	4.11
		Input	0.82	0.83	1.15	1.07	1.02	1.02	0.92	0.86
12 (208-230V)	59F(15C)	TH	11.8	12.7	12.42	11.32	10.4	9.54	8.9	5.75
		Input	0.79	1.01	1.05	1.1	1.02	1	0.98	0.83
	64.4F(18C)	TH	12.1	12.7	12.32	11.34	10.32	9.32	8.81	6.14
		Input	0.83	1.37	1.4	1.26	1.22	1.27	1.01	0.91
	69F(20.5C)	TH	12.3	12.6	12.12	11.32	10.21	9.12	8.43	6.49
		Input	0.83	1.1	1.12	1.19	1.19	1.25	1.03	0.98
	71.6F(22C)	TH	11.1	12.4	12.01	11.21	10.01	9.02	8.21	6.01
		Input	0.85	1.15	1.16	1.21	1.23	1.31	1.05	1
18 (208-230V)	59F(15C)	TH	23.2	20.5	19.42	17.56	16.52	14.28	12.08	9.39
		Input	1.58	1.49	1.48	1.58	1.46	1.4	1.35	1.21
	64.4F(18C)	TH	22.4	20.1	18.66	16.89	16.05	13.94	12.06	9.16
		Input	1.62	1.55	1.55	1.61	1.52	1.45	1.4	1.29
	69F(20.5C)	TH	21.7	19.7	17.93	16.26	15.62	13.62	12.07	8.95
		Input	1.67	1.62	1.63	1.65	1.58	1.5	1.45	1.38
	71.6F(22C)	TH	21	19	17.23	15.56	14.92	12.92	11.37	8.25
		Input	1.72	1.67	1.68	1.7	1.63	1.55	1.5	1.43
24 (208-230V)	59F(15C)	TH	28.6	27.8	25.85	23.56	23.42	23.22	23.16	18.93
		Input	2	2.25	2.24	2.21	2.2	2.23	2.24	2.17
	64.4F(18C)	TH	27.6	27.6	24.52	23.54	23.4	22.52	20.45	17.45
		Input	2.24	2.45	2.35	2.35	2.32	2.23	2.21	2.16
	69F(20.5C)	TH	29.1	29.3	26.75	24.63	22.98	21.85	19.61	16.38
		Input	2.39	2.74	2.64	2.58	2.42	2.25	2.2	2.18
	71.6F(22C)	TH	26.9	27.5	24.21	23.41	22.54	21.67	19.54	16.24
		Input	2	2.25	2.24	2.21	2.2	2.23	2.24	2.17
30 (208-230V)	59F(15C)	TH	43	41.2	37.52	34.65	32.32	30.65	28.84	20.51
		Input	3.79	3.99	3.69	3.43	3.2	2.96	2.82	2.61
	64.4F(18C)	TH	39.6	39.9	36.55	33.84	30.95	28.58	26.47	19.96
		Input	3.35	4.23	3.85	3.65	3.24	3.11	3.04	2.76
	69F(20.5C)	TH	36.3	38.6	35.62	33.07	29.62	26.54	24.13	19.43
		Input	3.45	4.46	4.01	3.9	3.31	3.2	3.16	2.89
	71.6F(22C)	TH	32.9	35.2	32.22	29.67	26.22	23.14	20.73	16.03
		Input	3.68	4.69	4.24	4.13	3.54	3.43	3.39	3.12

LEGEND
DB - Dry Bulb
WB - Wet Bulb
TH - Total Net Heating Capacity (1000 Btu/hour)
Input - Total Power (kW)

APPLICATION DATA

UNIT SELECTION

Select equipment to either match or be slightly less than anticipated peak load. This provides better humidity control, fewer unit cycles, and less part-load operation.

For units used in spaces with high sensible loads, base equipment selection on unit sensible load, not on total anticipated load. Adjust for anticipated room wet bulb temperature to avoid undersizing equipment.

UNIT MOUNTING (INDOOR)

Refer to unit Installation Instructions for further details.

Unit leveling - For reliable operation, units should be level in all planes.

Clearance - Provide adequate clearance for airflow (see Fig. 2.)

Unit location - Select a location which will provide the best air circulation for the room. These units should be positioned as high as possible on the wall for best air circulation. The unit return and discharge should not be obstructed by furniture, curtains, or anything which may cause unit short cycling or air recirculation. Place the unit in the middle of the selected wall (if possible). Use an outside wall, if available, to make piping easier, and place the unit so it faces the normal location of room occupants.

UNIT MOUNTING (OUTDOOR)

Refer to unit Installation Instructions for further details.

Unit leveling - For reliable operation, units should be level in all planes.

Clearance - Minimum clearance (see Fig. 5) must be provided for airflow. The condensing units are designed for free-flow application. Air inlets and outlets should not be restricted.

Unit location - A location which is convenient to installation and not exposed to strong wind. A location that can bear the weight of outdoor unit and where the outdoor unit can be mounted in a level position.

Do not install the indoor or outdoor units in a location with special environmental conditions. For those applications, contact your Carrier representative.

MOUNTING TEMPLATE

Refer to unit Installation Instructions for further details.

The fan coil units are furnished with mounting to mark the location of the wiring, and refrigeration line hole locations.

SUPPORT

Adequate support must be provided to support the weight of all fan coils. Refer to the Physical Data section for fan coil weights, and the base unit dimensional drawings for the location of mounting brackets.

SYSTEM OPERATING CONDITIONS

Operating Range Min / Max °F (°C)		
	Cooling	**Heating**
Outdoor DB	4 / 122 (-20 / 50)	4 / 86 (-20 / 30)
Indoor DB	63 / 90 (17 / 32)	32 / 86 (0 / 30)
Indoor WB	59 / 84 (15 / 29)	

Non-Operating Temperature Range Min / Max °F (°C)	
Indoor/Outdoor DB	32 / 86 (0 / 30)

NOTE: Reference the Product Installation Instructions for more information.

METERING DEVICES

The outdoor unit (Sizes 09 - 18) has an electronic expansion valve to manage the refrigerant flow of the fan coil connected.
Sizes 24 and 30 have capillary tube metering devices in the outdoor unit.

DRAIN CONNECTIONS

Install drains to meet local sanitation codes. If adequate gravity drainage cannot be provided, unit should be equipped with accessory condensate pump. High wall fan coil unit condensate pumps have a maximum lift of 10' (3.05 m) for 9k and 12k units and 25' (7.62 m) for 18k and 30k units.

See physical dimension tables for drain sizes.

NOTE: **High wall fan coil units have internal condensate traps. A trap is not required.**

Drain connections may be routed through alternate locations on most fan coils (see Fig. 4).

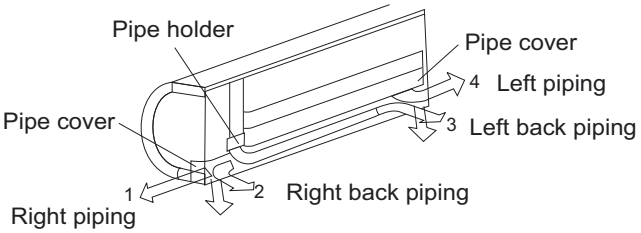


Fig. 6 – Piping Locations

REFRIGERANT LINES

General refrigerant line sizing:

1. The 38MAQ units are shipped with a full charge of R410A refrigerant. All charges, line sizing, and capacities are based on runs of 25 ft (7.6 m). For runs over 25 ft (7.6 m), consult long-line section on this page for proper charge adjustments.
2. Refrigerant lines should not be buried in the ground. If it is necessary to bury the lines, not more than 36-in (914 mm) should be buried. Provide a minimum 6-in (152 mm) vertical rise to the service valves to prevent refrigerant migration.
3. Both lines must be insulated. Use a minimum of 1/2-in. (12.7 mm) thick insulation. Closed-cell insulation is recommended in all long-line applications.
4. Special consideration should be given to isolating interconnecting tubing from the building structure. Isolate the tubing so vibration or noise is not transmitted into the structure.

Long Line Applications, 38MAQ Units:

1. No change in line sizing is required.
2. Add refrigerant per table below.

ADDITIONAL CHARGE TABLE

Unit Size	Total Line Length ft		Additional Charge, oz/ft. ft (m)		
	Min	Max	10 - 25 (3 - 8)	>25 - 82 (8 - 25)	>82 - 164 (25 - 50)
9	10	82	None	0.16	
12					
18		98			
24				0.32	0.32
30		164			

WIRING

Recommended Connection Method for Power and Communication Wiring (To minimize communication wiring interference)

Power Wiring:

The main power is supplied to the outdoor unit. The field supplied connecting cable from the outdoor unit to indoor unit consists of three (3) wires and provides the power for the indoor unit. Two wires are high voltage AC power and one is a ground wire.

Consult your local building codes and the NEC (National Electrical Code) or CEC (Canadian Electrical Code) for special requirements.

All wires must be sized per NEC or CEC and local codes. Use Electrical Data table MCA (minimum circuit amps) and MOCP (maximum over current protection) to correctly size the wires and then disconnect fuse or breakers respectively.

Per caution note, only copper conductors with a minimum 300 volt rating and 2/64- inch thick insulation must be used.

Communication Wiring:

A separate shielded copper conductor only, with a minimum 300 volt rating and 2/64- inch thick insulation, must be used as the communication wire from the outdoor unit to the indoor unit.

To minimize voltage drop, the factory recommended wire size is 14/3 stranded with a ground. In special cases where there is high electrical interference, please use a separate shielded 16GA stranded control wire.

Alternate Connection Method for Power and Communication Wiring (May not prevent communication wiring interference)

The main power is supplied to the outdoor unit. The field supplied connecting cable from the outdoor unit to indoor unit consists of four (4) wires and provides the power and communication signals for the indoor unit. Two conductors are for power wiring (L1/L2, or L/N), one is a ground wire, and one is a DC communication wire.

Consult your local building codes and the NEC (National Electrical Code) or CEC (Canadian Electrical Code) for special requirements. All power wires must be sized per NEC or CEC and local codes. Use Electrical Data table MCA (minimum circuit amps) and MOCP (maximum over current protection) to correctly size the wires and the disconnect fuse or breakers respectively.

Per caution note, only copper conductors with a minimum 300 volt rating and 2/64- inch thick insulation must be used.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

- Wires should be sized based on NEC and local codes.
- Use copper conductors only with a minimum 300 volt rating and 2/64 inch thick insulation.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

- Be sure to comply with local codes while running wire from indoor unit to outdoor unit.
- Every wire must be connected firmly. Loose wiring may cause terminal to overheat or result in unit malfunction. A fire hazard may also exist. Therefore, be sure all wiring is tightly connected.
- No wire should be allowed to touch refrigerant tubing, compressor or any moving parts.
- Disconnecting means must be provided and shall be located within sight and readily accessible from the air conditioner.
- Connecting cable with conduit shall be routed through hole in the conduit panel.

The main power is supplied to the outdoor unit. The field supplied connecting cable from the outdoor unit to indoor unit consists of four wires and provides the power for the indoor unit as well as the communication signal between the outdoor unit and indoor unit. Two wires are high voltage AC power (L1 and L2), one is a ground wire, and one is a DC communication wire.

CONTROL SYSTEM

The 619P unit is equipped with a microprocessor control to perform two functions:

1. Provide safety for the system
2. Control the system and provide optimum levels of comfort and efficiency

The main microprocessor is located on the control board of the fan coil unit (outdoor units have a microprocessor too) with thermistors located in the fan coil air inlet and on the indoor coil. Heat pump units have a thermistor on the outdoor coil. These thermistors monitor the system operation to maintain the unit within acceptable parameters and control the operating mode.

WIRELESS REMOTE CONTROL



Fig. 7 – Wireless remote control

1. A wireless remote control is supplied for system operation for system operation of all high- wall units.
2. Each battery operated wireless (infrared) remote control may be used to control more than one unit.

WIRED REMOTE CONTROL (OPTIONAL)

P/N KSACN0101AAA

1. Optional wired remote controller used for system operation of all high- wall units.
2. Kit includes a wired remote controller and a connecting cable.
3. Connect with wire terminal between remote controller and indoor unit.
4. Display in °F or °C and temperature increments every 1°F or every 1°C.



Fig. 8 – Wired Remote Control

AIR FLOW DATA

SYSTEM SIZE		9K	12K	9K	12K	18K	24K	30K
		(115V)	(115V)	(208-230V)	(208-230V)	(208-230V)	(208-230V)	(208-230V)
Indoor (CFM)	Turbo	380	380	380	380	680	870	870
	High	360	360	360	360	650	780	780
	Medium	290	300	290	300	450	620	620
	Low	210	210	210	210	310	520	520
Outdoor (CFM)		1200	1200	1200	1200	1390	2130	2130

AIR THROW DATA

Unit Capacity	Max Approximate Air Throw ft. (m)	Approximate Air Throw ft. (m) range
9K, 12K	23 (7)	11 (3.5) - 23 (7)
18K	30 (9)	13 (4) - 30 (9)
24K	36 (11)	16 (5) - 36 (11)
30K	36 (11)	16 (5) - 36 (11)

SOUND PRESSURE

System Size		9K	12K	9K	12K	18K	24K	30K
		(115V)	(115V)	(208-230V)	(208-230V)	(208-230V)	(208-230V)	(208-230V)
Indoor Sound Pressure cooling mode (at different speeds)	dBa	42/34/27	42/34/27	42/34/27	42/34/27	46.5/40/33	50/45/39	50/45/39
Indoor Sound Pressure heating mode (at different speeds)	dBa	40/33/26	41/34/27	40/33/26	41/34/27	45/39/32	47/44/38	47/44/38
Outdoor sound pressure level	dBa	55.5	56	55.5	56	59	60	63

ELECTRICAL DATA

UNIT SIZE	OPER. VOLTAGE MAX / MIN*	COMPRESSOR		OUTDOOR FAN				INDOOR FAN				MCA	MAX FUSE CB AMP
		V/PH/HZ	RLA	V/PH/HZ	FLA	HP	W	V/PH/HZ	FLA	HP	W		
9K	127 / 104	115/1/60	5.3	115/1/60	0.14	0.053	40	115/1/60	0.17	0.027	20	15	20
12K			5.7										
9K	253 / 187	208-230/1/60	5.3	208-230/1/60	0.42	0.053	40	208-230/1/60	0.07	0.027	20	15	15
12K			5.70		0.42	0.053	40		0.07	0.027	20	15	
18K			7.3		0.95	0.067	50		0.17	0.077	58	15	20
24K			8.8		0.47	0.16	120		0.23	0.080	60	15	25
30K			13.5		1.21	0.16	120		0.23	0.080	60	20	30

*Permissible limits of the voltage range at which the unit will operate satisfactorily.

LEGEND

FLA - Full Load Amps

MCA - Minimum Circuit Amps

RLA - Rated Load Amps

FAN AND MOTOR SPECIFICATIONS

System size			9K (115V)	12K (115V)	9K (208-230V)	12K (208-230V)	18K (208-230V)	24K (208-230V)	30K (208-230V)
Indoor fan	material		AS	AS	AS	AS	AS	AS	AS
	Type		GL-98*655-N	GL-98*655-N	GL-98*655-N	GL-98*655-N	GL-107.5*760-IN	GL-118*895-IN	GL-118*895-IN
Indoor fan	Diameter	inch	3.8	3.8	3.8	3.8	4.2	4.6	4.6
	Height	inch	25.8	25.8	25.8	25.8	30	35.2	35.2
Outdoor fan	material		AS	AS	AS	AS	AS	AS	AS
	Type		ZL-421*117*8-3K	ZL-421*117*8-3K	ZL-421*117*8-3K	ZL-421*117*8-3K	ZL-460*180*10-3N	ZL-560*139*12-3KN	ZL-560*139*12-3KN
	Diameter	inch	16.5	16.5	16.5	16.5	18.1	22	22
	Height	inch	4.6	4.6	4.6	4.6	7	5.5	5.5
Indoor fan motor	Model		WZDK20-38M	WZDK20-38M	WZDK20-38G	WZDK20-38G	WZDK58-38G	WZDK60-38G	WZDK60-38G
	Type		DC	DC	DC	DC	DC	DC	DC
	Phase		3	3	3	3	3	3	3
	FLA		0.17	0.17	0.07	0.07	0.17	0.23	0.23
	Insulation class		E	E	E	E	E	E	E
	Safe class		IPX0	IPX0	IPX0	IPX0	IPX0	IPX0	IPX0
	Input	W	25	25	22	22	52	72	72
	Output	W	20	20	20	20	58	60	60
	Range of current	Amps	0.17±10%	0.17±10%	0.07±10%	0.07±10%	0.17±10%	0.23±10%	0.23±10%
	Rated current	Amps	0.17	0.17	0.07	0.07	0.17	0.23	0.23
	Rated HP	HP	0.027	0.027	0.027	0.027	0.077	0.08	0.08
	Speed	rev/min	1300/1170/900/700	1300/1170/900/700	1300/1170/900/700	1300/1170/900/700	1300/1170/900/700	1250/1200/1100/900	250/1200/1100/900
	Rated RPM	rev/min	1350	1350	1350	1350	1350	1350	1350
	Max. input	W	25	25	22	22	52	72	72
Outdoor fan motor	Model		WZDK40-38G-1	WZDK40-38G-1	WZDK40-38G-W-1	WZDK40-38G-W-1	ZKFN-50-8-2	WZDK120-38G-1	WZDK120-38G-W
	Phase		3	3	3	3	3	3	3
	FLA		0.14	0.14	0.42	0.42	0.95	0.47	1.21
	Type		DC	DC	DC	DC	DC	DC	DC
	Insulation class		E	E	E	E	E	E	E
	Safe class		IPX0	IPX0	IPX0	IPX0	IPX0	IPX0	IPX0
	Input	W	42	42	46	46	116	145	150
	Output	W	40	40	40	40	50	120	120
	Range of current	Amps	0.14±10%	0.14±10%	0.42±10%	0.42±10%	0.95±10%	0.47±10%	1.21±10%
	Rated current	Amps	0.14	0.14	0.42	0.42	0.95	0.47	1.21
	Rated HP	HP	0.053	0.053	0.053	0.053	0.067	0.16	0.16
	Speed	rev/min	800/700/600	800/700/600	800/700/600	800/700/600	800/700/600	850/750/700	850/800/750
	Rated RPM	rev/min	900	900	900	900	900	1050	1050
	Max. input	W	42	42	46	46	116	145	150

WIRING DIAGRAMS
INDOOR UNIT

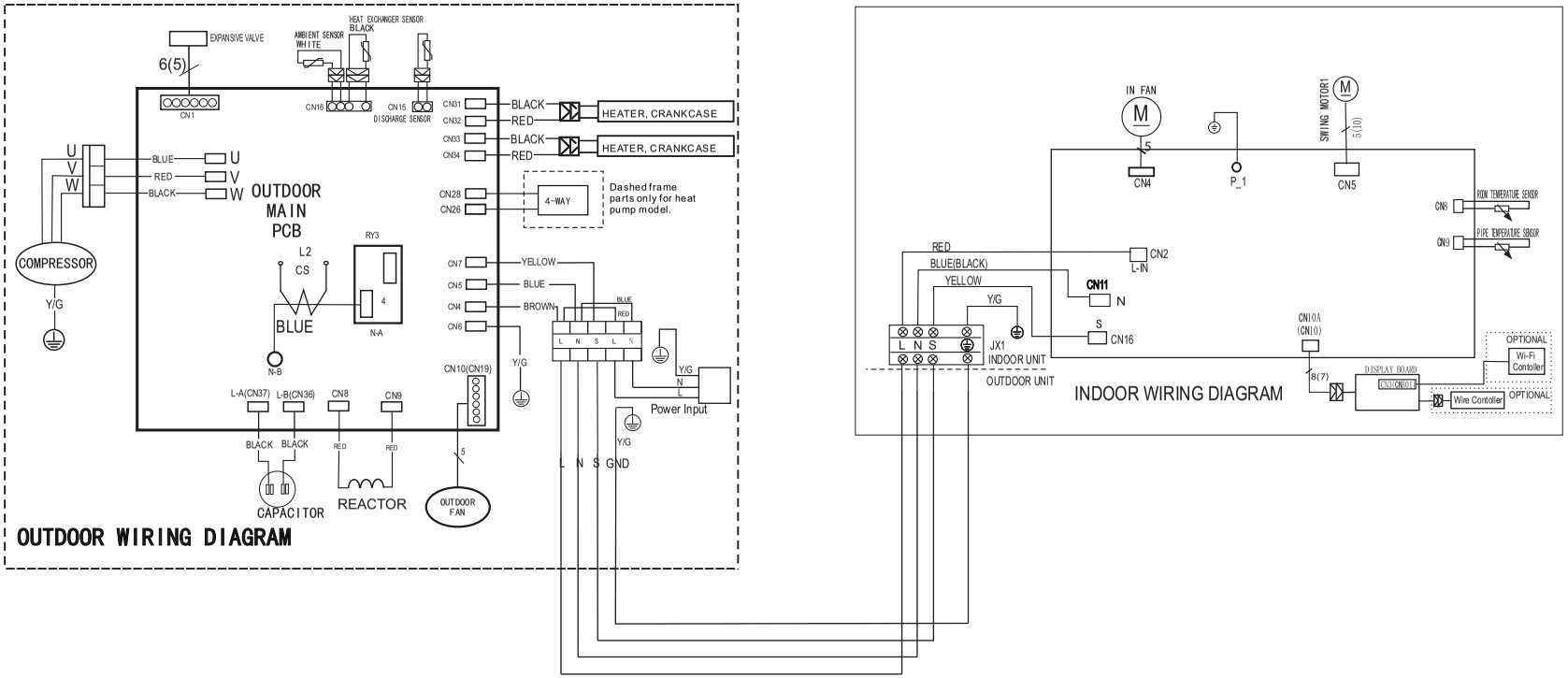


Fig. 9 – Wiring Diagram Sizes 09-12 (115V)

INDOOR UNIT CONTROL BOARD

	INPUT or OUTPUT VALUE
L_IN	Power Voltage ：AC 115V
CN11	Power Voltage ：AC115V
CN16	Relative to the N terminal voltage：DC 24V
CN15	Maximum voltage：DC5V
CN4	Indoor fan interface,Maximum voltage：DC310V
CN5	Stepper motor interface,Maximum voltage between the lines：DC12V
P_1	Ground
CN8	Room temperature sensor interface,maximum voltage：DC5V
CN9	Pipe temperature sensor interface,maximum voltage：DC5V
CN10A	Display interface,maximum voltage between the lines：DC5V

OUTDOOR UNIT CONTROL BOARD

CODE	PART NAME
CN1	Output:Pin5&6(12V) Pin1-Pin4:Pulse waveform,(0-12V)
CN15	Input:Pin1-Pin2(0-1.8V)
CN16	Input: Pin1,Pin3 ,Pin4,Pin5(0-1.8V)
CN19	Output:Pin1-Pin5(0-115V High voltage)
CN31,CN33	Output:115VAC High voltage
CN32,CN34	Output:115 VAC High voltage
CN26,CN28	Output:115 VAC for 4-way control
CN4	Input:115 VAC High voltage
CN5	Input:115 VAC High voltage
CN6	Connection to the earth
CN7	Output: Connection of the high voltage
CN8,CN9	Output: High voltage
CN36,CN37	Output: High voltage
N-B	Output: High voltage
U V W	Output: Pulse(0-320VDC)

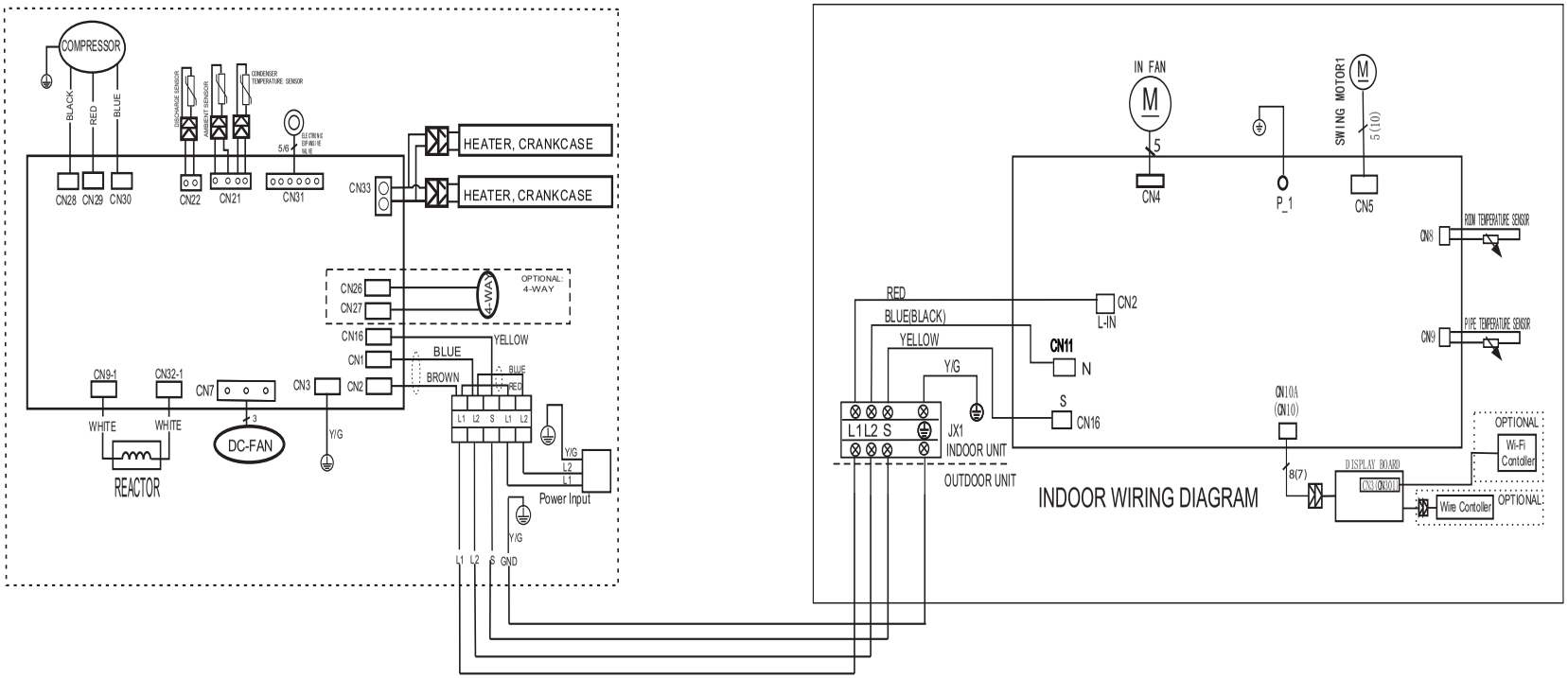


Fig. 10 – Wiring Diagram Sizes 09- 12 (208- 230V)

INDOOR UNIT CONTROL BOARD

INPUT or OUTPUT VALUE	
L_IN	Power Voltage ：AC 230V
CN11	Power Voltage ：AC230V
CN16	Relative to the N terminal voltage：DC 24V
CN15	Maximum voltage：DC5V
CN4	Indoor fan interface,Maximum voltage：DC310V
CN5	Stepper motor interface,Maximum voltage between the lines：DC12V
P_1	Ground
CN8	Room temperature sensor interface,maximum voltage：DC5V
CN9	Pipe temperature sensor interface,maximum voltage：DC5V
CN10A	Display interface,maximum voltage between the lines：DC5V

OUTDOOR UNIT CONTROL BOARD

INPUT or OUTPUT VALUE	
CN31	Output:Pin5&6(12V) Pin1-Pin4:Pulse waveform,(0-12V)
CN21	Input:Pin3-4 (3.3V) Pin2(0V),Pin1,Pin5(0-3.3V)
CN22	Input:Pin1 (3.3V) Pin2(0-3.3V)
CN37	Output: 230VAC High voltage
CN9-1,CN32-1	Output: Connection of the high voltage
CN1	Input:230VAC High voltage
CN2	Input:230 VAC High voltage
CN3	Connection to the earth
CN16	Output: Connection of the high voltage
CN26,CN27	Output: High voltage for 4-way control
CN7	Output: Pulse(0-320VDC) for DC FAN
U V W	Output: Pulse(0-320VDC) for COMPRESSOR

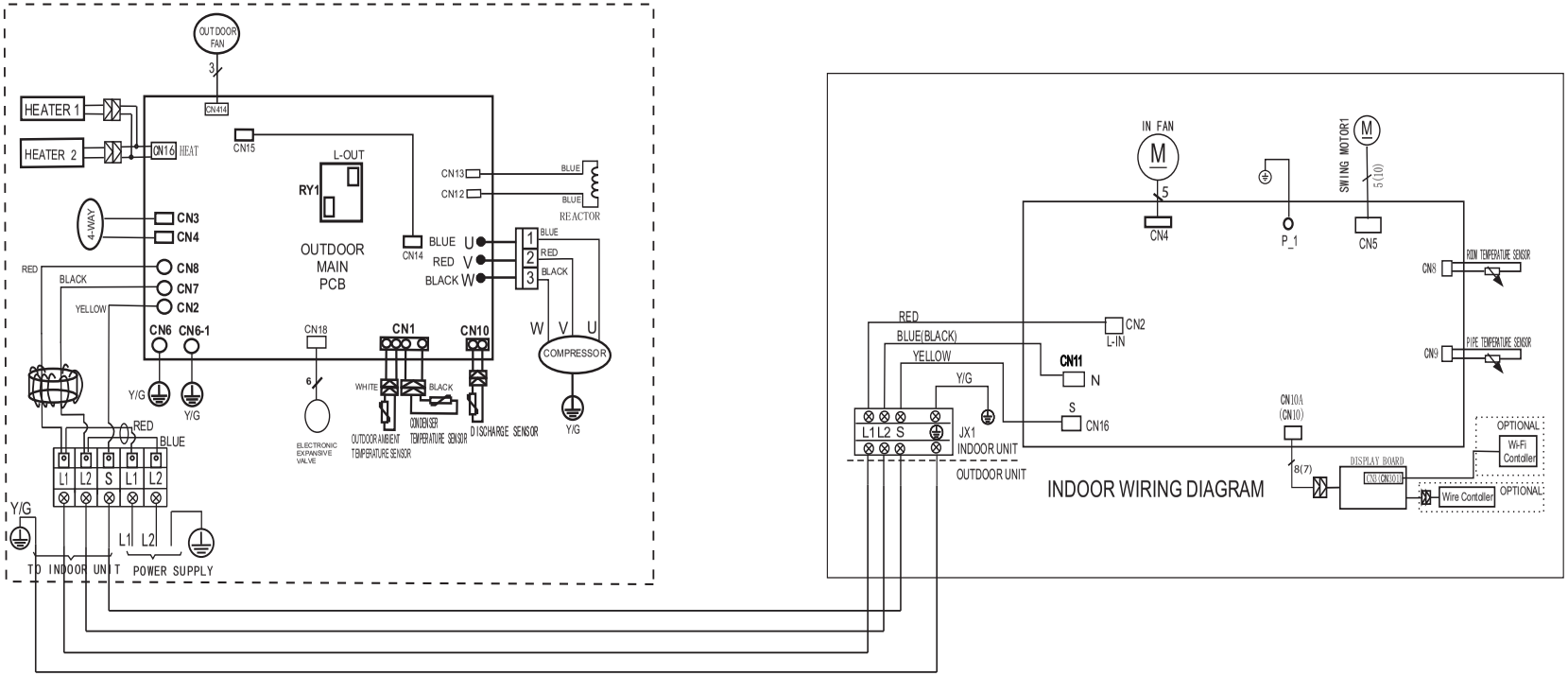


Fig. 11 – Wiring Diagram Size 18 (208- 230V)

INDOOR UNIT CONTROL BOARD

INPUT or OUTPUT VALUE	
L_IN	Power Voltage ：AC 230V
CN11	Power Voltage ：AC230V
CN16	Relative to the N terminal voltage：DC 24V
CN15	Maximum voltage：DC5V
CN4	Indoor fan interface,Maximum voltage：DC310V
CN5	Stepper motor interface,Maximum voltage between the lines：DC12V
P_1	Ground
CN8	Room temperature sensor interface,maximum voltage：DC5V
CN9	Pipe temperature sensor interface,maximum voltage：DC5V
CN10A	Display interface,maximum voltage between the lines：DC5V

OUTDOOR UNIT CONTROL BOARD

INPUT or OUTPUT VALUE	
CN7、CN8	Input: 230V High voltage
CN2	Output: Connection of the high voltage
CN3、CN4	Output: High voltage for 4-way control
CN11、CN16	Output: 230V High voltage for HEATER
CN5	Output: Pulse(0-320V) for DC FAN
CN12、CN13	Output: Connection of the high voltage
U V W	Output: Pulse(0-320V) for compressor
CN10	Input:Pin1 (5V) Pin2(0-5V)
CN1	Input:Pin3-4 (5V) Pin2(0V),Pin1,Pin5(0-5V)
CN18	Output:Pin5&6(12V) Pin1-Pin4:Pulse waveform,(0-12V)

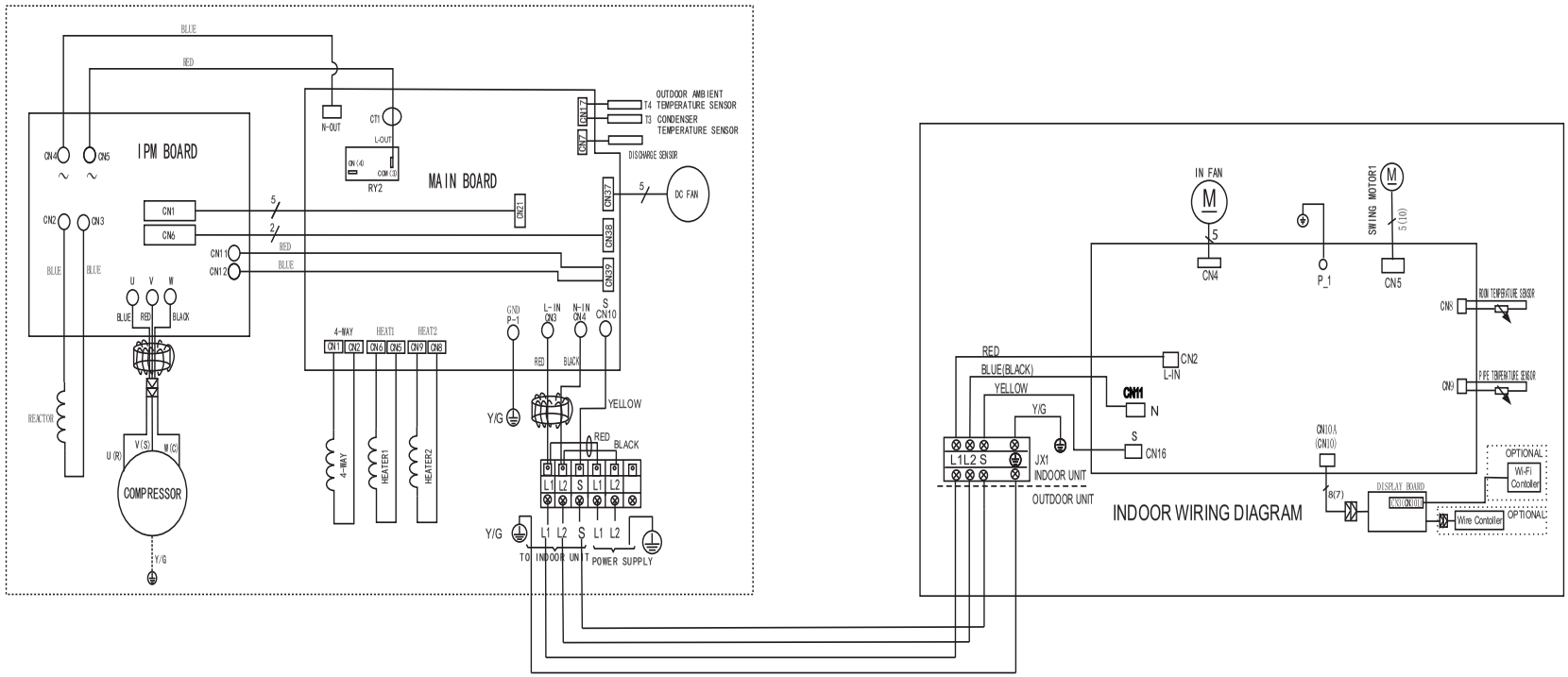


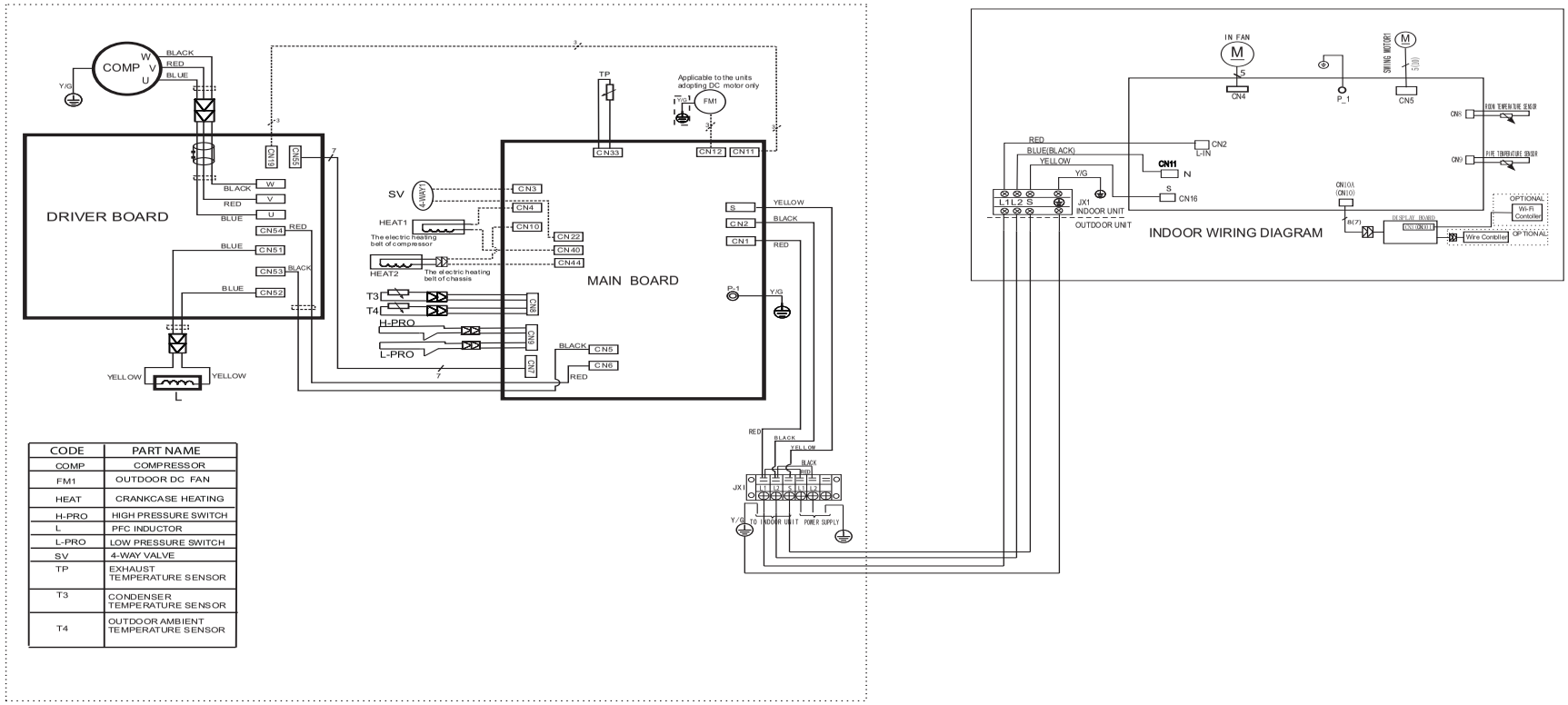
Fig. 12 – Wiring Diagram Size 24 (208-230V)

INDOOR UNIT CONTROL BOARD

INPUT or OUTPUT VALUE	
L_IN	Power Voltage ：AC 230V
CN11	Power Voltage ：AC230V
CN16	Relative to the N terminal voltage：DC 24V
CN15	Maximum voltage：DC5V
CN4	Indoor fan interface,Maximum voltage：DC310V
CN5	Stepper motor interface,Maximum voltage between the lines：DC12V
P_1	Ground
CN8	Room temperature sensor interface,maximum voltage：DC5V
CN9	Pipe temperature sensor interface,maximum voltage：DC5V
CN10A	Display interface,maximum voltage between the lines：DC5V

OUTDOOR UNIT CONTROL BOARD

INPUT or OUTPUT VALUE	
L_IN	Power Voltage ：AC 230V
CN11	Power Voltage ：AC230V
CN16	Relative to the N terminal voltage：DC 24V
CN15	Maximum voltage：DC5V
CN6	Maximum output voltage ：AC230V
CN4	Indoor fan interface,Maximum voltage：DC310V
CN5	Stepper motor interface,Maximum voltage between the lines：DC12V
P_1	Ground
CN8	Room temperature sensor interface,maximum voltage：DC5V
CN9	Pipe temperature sensor interface,maximum voltage：DC5V
CN10A	Display interface,maximum voltage between the lines：DC5V
CN14	Stepper motor interface (optional),maximum voltage between the lines：DC12V



CODE	PART NAME
COMP	COMPRESSOR
FM1	OUTDOOR DC FAN
HEAT	CRANKCASE HEATING
H-PRO	HIGH PRESSURE SWITCH
L	PFC INDUCTOR
L-PRO	LOW PRESSURE SWITCH
SV	4-WAY VALVE
TP	EXHAUST TEMPERATURE SENSOR
T3	CONDENSER TEMPERATURE SENSOR
T4	OUTDOOR AMBIENT TEMPERATURE SENSOR

Fig. 13 – Wiring Diagram Size 30 (208- 230V)

INDOOR UNIT CONTROL BOARD

INPUT or OUTPUT VALUE	
L_IN	Power Voltage ：AC 230V
CN11	Power Voltage ：AC230V
CN16	Relative to the N terminal voltage：DC 24V
CN15	Maximum voltage：DC5V
CN4	Indoor fan interface,Maximum voltage：DC310V
CN5	Stepper motor interface,Maximum voltage between the lines：DC12V
P_1	Ground
CN8	Room temperature sensor interface,maximum voltage：DC5V
CN9	Pipe temperature sensor interface,maximum voltage：DC5V
CN10A	Display interface,maximum voltage between the lines：DC5V

OUTDOOR UNIT CONTROL BOARD

INPUT or OUTPUT VALUE	
CN1、CN2	Input: 230V High voltage
S	Output: Connection of the high voltage
CN11、CN12	Output: Pulse(0-320V) for DC FAN
CN33	Input:Pin1 (5V) Pin2(0-5V)
CN3、CN22	Output: High voltage for 4-way control
CN4、CN40	Output: 230V High voltage for HEATER1
CN10、CN44	Output: 230V High voltage for HEATER2
CN8	Input:Pin3-4 (5V) Pin2(0V),Pin1,Pin5(0-5V)
CN9	Input:Pin1~3 (0V) Pin2~4(0-5V)
CN51 CN52	Output: Connection of the high voltage
U V W	Output: Pulse(0-380V) for compressor

GUIDE SPECIFICATIONS

INDOOR WALL-MOUNTED DUCTLESS UNITS

Size Range: 3/4 to 2 1/2 Ton Nominal Cooling and Heating Capacity
Carrier Model Number: 40MAQ

PART 1 - GENERAL

1.01 System Description

Indoor, wall-mounted, direct-expansion fan coils are matched with the heat pump outdoor unit.

1.02 Agency Listings

Unit shall be rated per AHRI Standards 210/240 and listed in the AHRI directory as a matched system.

1.03 Delivery, Storage, And Handling

Units shall be stored and handled per unit manufacturer's recommendations.

1.04 Warranty (For Inclusion By Specifying Engineer)

PART 2 - PRODUCTS

2.01 Equipment

A. General:

Indoor, direct-expansion, wall-mounted fan coil. Unit shall be complete with cooling/heating coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, and integral temperature sensing. Unit shall be furnished with integral wall mounting bracket and mounting hardware.

B. Unit Cabinet:

Cabinet discharge and inlet grilles shall be attractively styled, high-impact polystyrene. Cabinet shall be fully insulated for improved thermal and acoustic performance.

C. Fans:

1. Fan shall be tangential direct-drive blower type with air intake at the top of the unit and discharge at the bottom front. Automatic, motor-driven vertical air sweep shall be provided standard.
2. Air sweep operation shall be user selectable. The vertical sweep may be adjusted (using the remote control) and the horizontal air direction may be set manually.

D. Coil:

Coil shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins shall be bonded to the tubes by mechanical expansion. A drip pan under the coil shall have a drain connection for hose attachment to remove condensate. Condensate pan shall have internal trap.

E. Motors:

Motors shall be open drip-proof, permanently lubricated ball bearing with inherent overload protection. Fan motors shall be 4-speed.

F. Controls:

Controls shall consist of a microprocessor-based control system which shall control space temperature, determine optimum fan speed, and run self diagnostics. The temperature control range shall be from 62°F to 86°F (17°C to 30°C) in increments of 1°F or 1°C, and have 46°F Heating Mode (Heating Setback). The wireless remote controller shall have the ability to act as the temperature sensing location for room comfort.

The unit shall have the following functions as a minimum:

1. An automatic restart after power failure at the same operating conditions as at failure.
2. A timer function to provide a minimum 24-hour timer cycle for system Auto Start/Stop.
3. Temperature-sensing controls shall sense return air temperature.
4. Indoor coil freeze protection.
5. Wireless infrared remote control to enter set points and operating conditions.
6. Automatic air sweep control to provide on or off activation of air sweep louvers.
7. Dehumidification mode shall provide increased latent removal capability by modulating system operation and set point temperature.
8. Fan-only operation to provide room air circulation when no cooling is required.
9. Diagnostics shall provide continuous checks of unit operation and warn of possible malfunctions. Error messages shall be displayed at the unit.
10. Fan speed control shall be user-selectable: turbo, high, medium, low, or microprocessor controlled automatic operation during all operating modes.
11. Automatic heating-to-cooling changeover in heat pump mode. Control shall include deadband to prevent rapid mode cycling between heating and cooling.
12. Indoor coil high temperature protection shall be provided to detect excessive indoor discharge temperature when unit is in heat pump mode.

G. Filters:

Unit shall have filter track with factory-supplied cleanable filters.

H. Electrical Requirements:

Indoor fan motor to operate on 115V on model sizes 09-12 and on 208-230V on model sizes 09- 30, as specified. Power is supplied from the outdoor unit.

I. Operating Characteristics:

The 40MA system shall have a minimum SEER (Seasonal Energy Efficiency Ratio) and HSPF at AHRI conditions, as listed on the specifications table.

J. Refrigerant Lines:

All units should have refrigerant lines that can be oriented to connect from the left, right or back of unit. Both refrigerant lines need to be insulated.

K. Special Features (Field Installed):

1. Condensate Pump:
   - The condensate pump shall remove condensate from the drain pan when gravity drainage cannot be used. Pump shall be designed for quiet operation. Pump shall consist of two parts: an internal reservoir/sensor assembly, and a remote sound-shielded pump assembly. A liquid level sensor in the reservoir shall stop cooling operation if the liquid level in the reservoir is unacceptable.

GUIDE SPECIFICATIONS
HORIZONTAL DISCHARGE OUTDOOR UNITS

Size Range: 3/4 to 2 1/2 Ton Nominal Cooling and Heating Capacity
Carrier Model Number:38MAQ

PART 1 - GENERAL

1.01 System Description

A. Outdoor air-cooled split system compressor sections suitable for on-the-ground, rooftop, wall hung or balcony mounting. Units shall consist of a rotary compressor, an air-cooled coil, propeller-type draw-through outdoor fan, reversing valve (HP), accumulator (HP units), metering device(s), and control box. Units shall discharge air horizontally as shown on the contract drawings. Units shall function as the outdoor component of an air-to-air heat pump system.

B. Units shall be used in a refrigeration circuit matched to ductless heat pump fan coil units.

1.02 Agency Listings

A. Unit construction shall comply with ANSI/ASHRAE 15, latest revision, and with the NEC.

B. Units shall be evaluated in accordance with UL standard 1995.

C. Units shall be listed in the CEC directory.

D. Unit cabinet shall be capable of withstanding 500-hour salt spray test per Federal Test Standard No. 141 (method 6061).

E. Air-cooled condenser coils shall be leak tested at 550 psig.

1.03 Delivery, Storage, And Handling

Units shall be shipped in one piece and shall be stored and handled per unit manufacturer's recommendations.

1.04 Warranty (For Inclusion By Specifying Engineer)

PART 2 - PRODUCTS

2.01 Equipment

A. General:

Factory assembled, single piece, air-cooled outdoor unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, and the compressor.

B. Unit Cabinet:

1. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a baked-enamel finish on inside and outside.
2. Unit access panels shall be removable with minimal screws and shall provide full access to the compressor, fan, and control components.
3. Outdoor compartment shall be isolated and have an acoustic lining to assure quiet operation.

C. Fans:

1. Outdoor fans shall be direct-drive propeller type, and shall discharge air horizontally. Fans shall draw air through the outdoor coil.
2. Outdoor fan motors shall be totally-enclosed, single phase motors with class B insulation and permanently-lubricated ball bearings. Motor shall be protected by internal thermal overload protection.
3. Shaft shall have inherent corrosion resistance.
4. Fan blades shall be non metallic and shall be statically and dynamically balanced.
5. Outdoor fan openings shall be equipped with PVC metal/mesh coated protection grille over fan.

D. Compressor:

1. Compressor shall be fully hermetic rotary type.
2. Compressor shall be equipped with oil system, operating oil charge, and motor. Internal overloads shall protect the compressor from over-temperature and over-current.
3. Motor shall be NEMA rated class F, suitable for operation in a refrigerant atmosphere.
4. Compressor assembly shall be installed on rubber vibration isolators.
5. Compressors shall be single phase.

E. Outdoor Coil:

Coil shall be constructed of aluminum fins mechanically bonded to seamless copper tubes, which are cleaned, dehydrated, and sealed.

F. Refrigeration Components:

Refrigerant circuit components shall include brass external liquid line service valve with service gage port connections, suction line service valve with service gage connection port, service gage port connections on compressor suction and discharge lines with Schrader type fittings with brass caps, accumulator, reversing valve.

G. Controls and Safeties:

Operating controls and safeties shall be factory selected, assembled, and tested. The minimum control functions shall include the following:

1. Controls:
   a. A time delay control sequence is provided standard through the fan coil board.
   b. Automatic outdoor-fan motor protection.
2. Safeties:
   a. System diagnostics.
   b. Compressor motor current and temperature overload protection.
   c. Outdoor fan failure protection.

H. Electrical Requirements:

1. Unit shall operate on single-phase, 60 Hz power at 115 v for unit sizes 09-12 and 208-230v for unit sizes 09, 12, 18, 24, and 30, as specified.
2. Unit electrical power shall be a single point connection.
3. Unit Control voltage to the indoor fan coil shall be 0-15V DC.
4. All power and control wiring must be installed per NEC and all local electrical codes.
5. Unit shall have high- and low-voltage terminal block connections.