

**38MBQ
Outdoor Unit Single Zone Ductless System
Sizes 36 to 48**



Product Data



INDUSTRY LEADING FEATURES / BENEFITS

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

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

The ductless system 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 style ductless system when it is impractical or prohibitively expensive to use ductwork.

The 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 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 38MBQ 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 38MBQ units can be installed close to an outside wall, coils are protected from vandals and severe weather.

FAST INSTALLATION

This compact ductless system is simple to install. Mounting brackets are standard with the indoor units and only wire and piping need to be run between the 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 38MBQ ductless 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 systems have extensive self-diagnostics to assist in troubleshooting.

BUILT-IN RELIABILITY

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

The 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 starts 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 (in some indoor models) 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 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 while air moves through the ducts.

EASY-TO-USE CONTROLS

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

ACCESSORIES

Customizing these ductless systems to your application is easily accomplished.

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

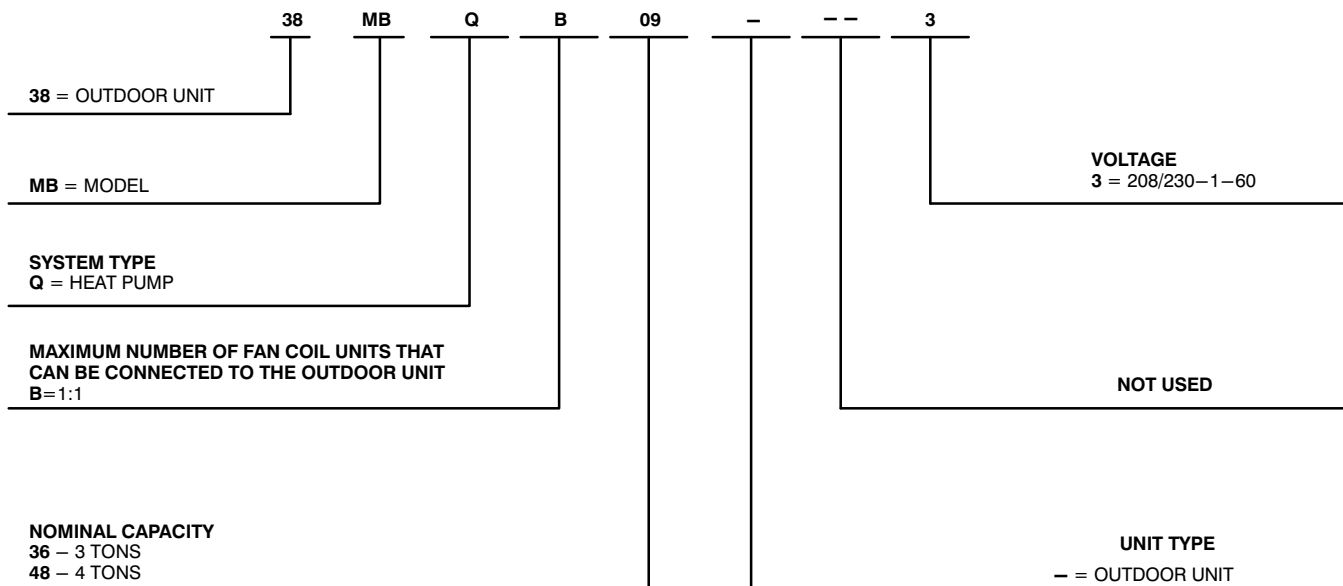
OPTIONAL WIRED CONTROLLER

AGENCY LISTINGS

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

MODEL NUMBER NOMENCLATURE

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	
Low Voltage Controls	S
Energy Saving Features	
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
Condenser High Temp Protection in Cooling Mode	S
Ease Of Service And Maintenance	
Diagnostics	S
Liquid Line Pressure Taps	S
Application Flexibility	
Crankcase Heater	S
Base pan Heater	S

Legend

- S Standard
- A Accessory

OUTDOOR UNITS

Crankcase Heater

The crankcase heater is standard on all unit sizes. Heater clamps must be placed around the compressor oil stump.

Base pan Heater

The base pan heater is standard on all unit sizes.

DIMENSIONS - OUTDOOR

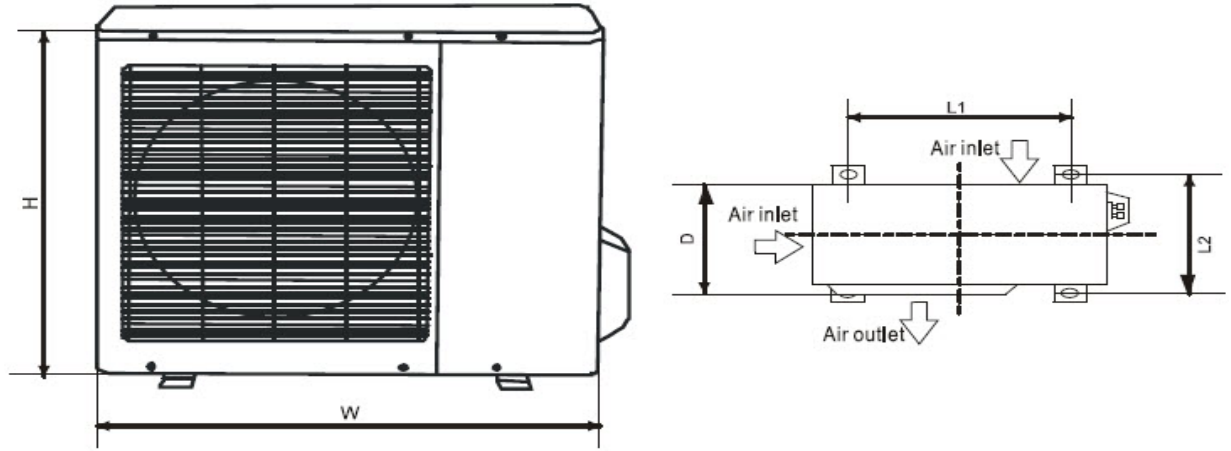


Fig. 1 - Outdoor Unit

UNIT SIZE	W in (mm)	D in (mm)	H in (mm)	L1 in (mm)	L2 in (mm)	OPERATING WEIGHT lb (kg)
36K	37.2(945)	15.5(395)	31.8(810)	25.2(640)	15.9(405)	137.5(62.4)
48K	36.93(938)	15.4(392)	53.9(1369)	24.9(634)	15.9(404)	220(100)

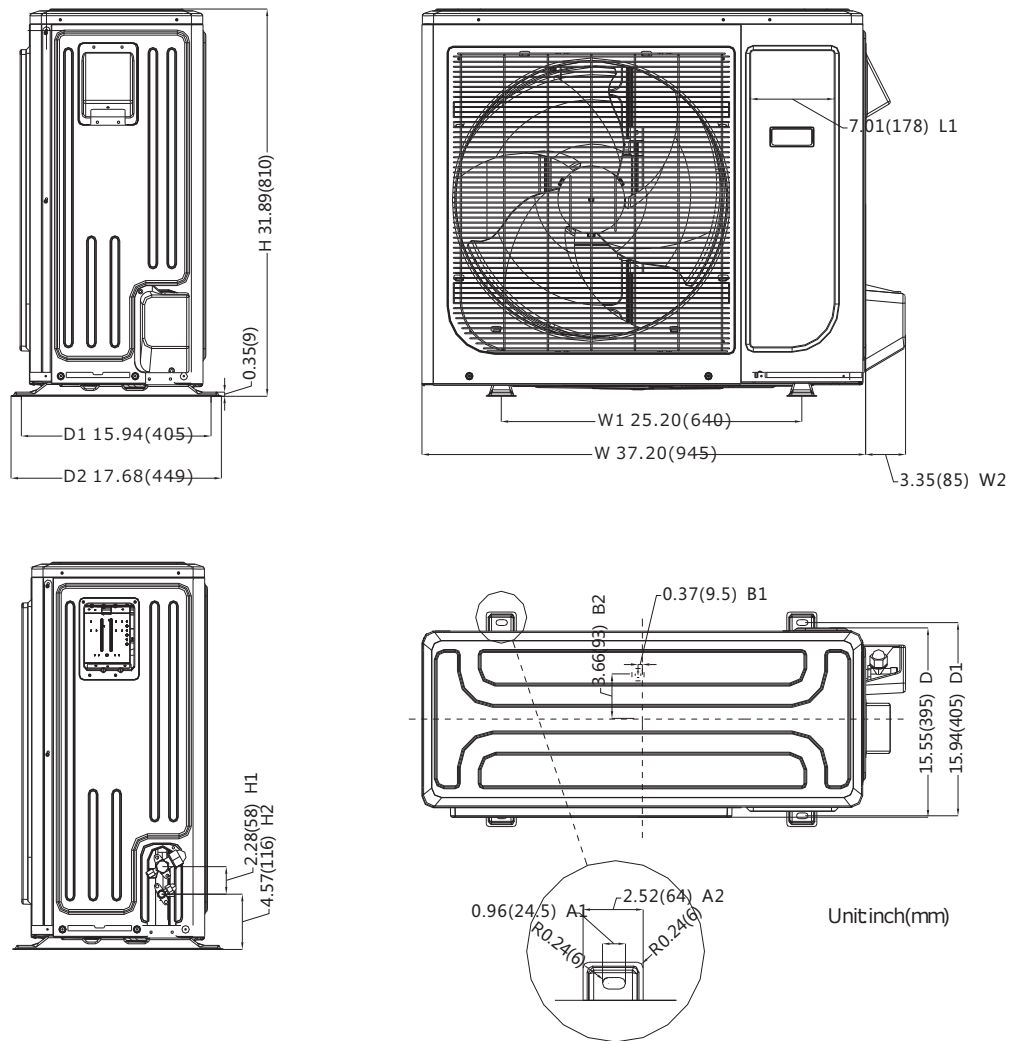
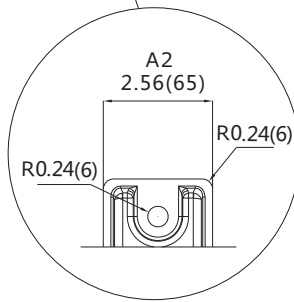
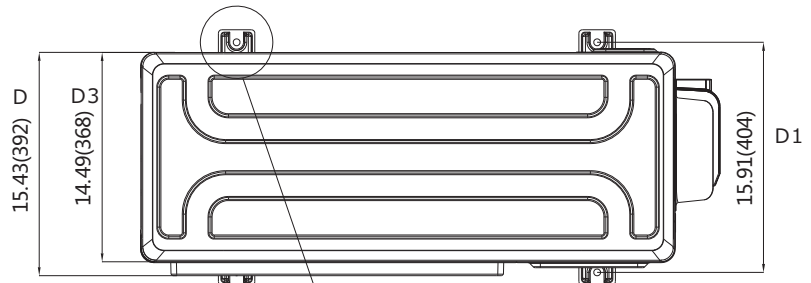
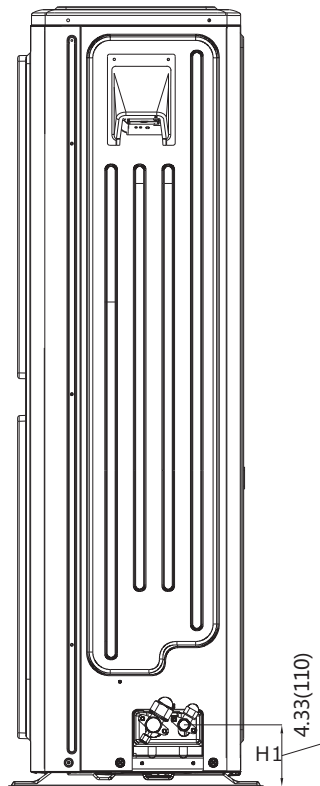
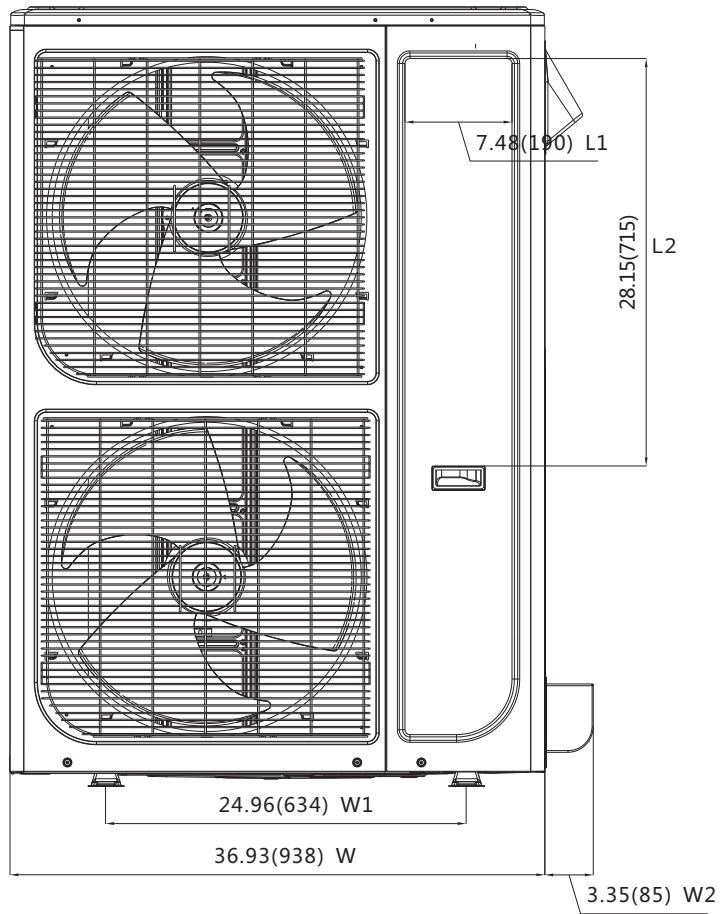
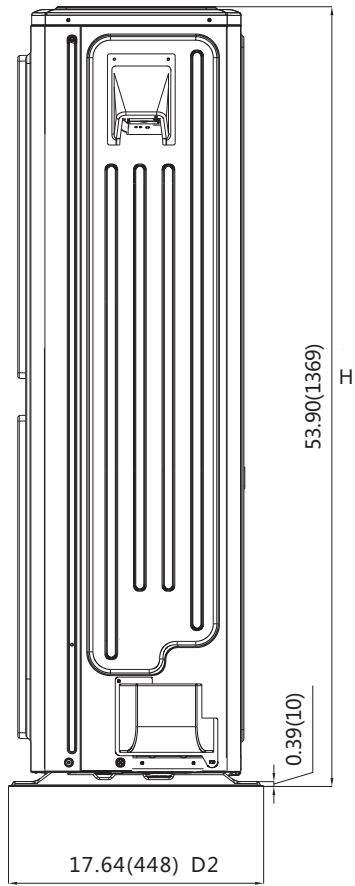


Fig. 2 - Sizes 36K

DIMENSIONS - OUTDOOR (CONT)



Unit: inch(mm)

Fig. 3 - Sizes 48K

CLEARANCES - OUTDOOR

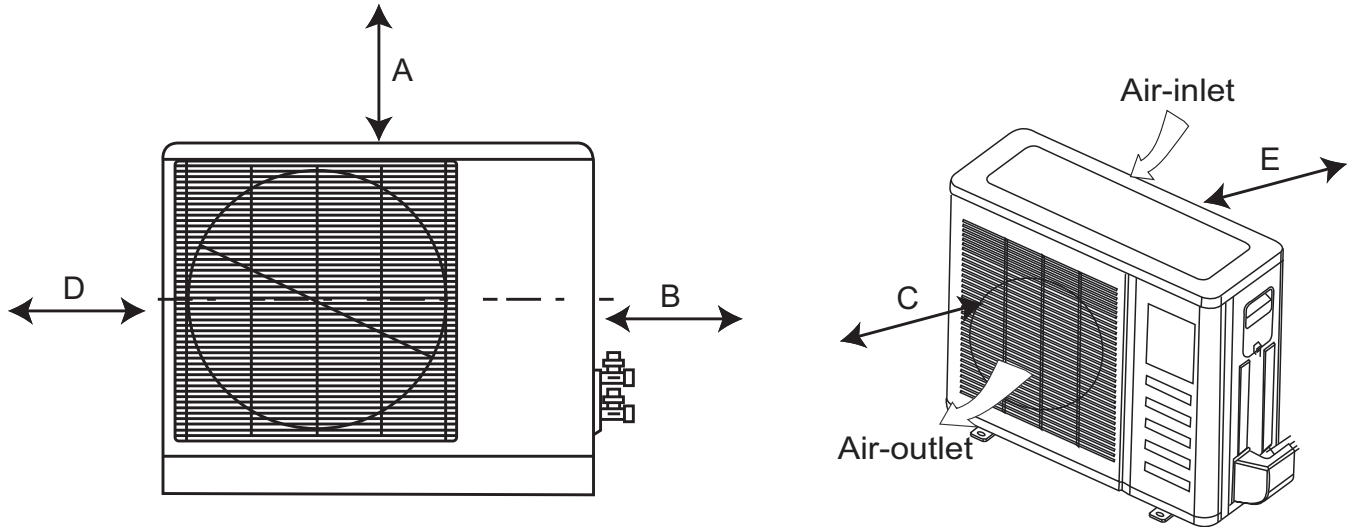


Fig. 4 – Clearances Outdoor

UNIT	MINIMUM VALUE
	in. (mm)
A	24 (609)
B	24 (609)
C	24 (609)
D	4 (101)
E	4 (101)

SPECIFICATIONS – OUTDOOR HEAT PUMP

SYSTEM	SIZE		36	48
	Outdoor Model		38MBQB36---3	38MBQB48---3
Electrical	Voltage, Phase, Cycle	V/Ph/Hz	208/230-1-60	208/230-1-60
	MCA	A.	30	35
	MOCP - Fuse Rating	A.	50	55
Operating Range	Cooling Outdoor DB Min - Max	°F(°C)	-4~122 (-20~50)	-4~122 (-20~50)
	Heating Outdoor DB Min - Max	°F(°C)	-4~86 (-20~30)	-4~86 (-20~30)
Piping	Total Piping Length	ft (m)	213 (65)	213 (65)
	Piping Lift	ft (m)	98 (30)	98 (30)
	Pipe Connection Size - Liquid	in (mm)	3/8 (9.52)	3/8 (9.52)
	Pipe Connection Size - Suction	in (mm)	5/8 (16)	5/8 (16)
Refrigerant	Type		R410A	R410A
	Charge	lbs (kg)	7.5 (3.4)	9.48 (4.3)
	Metering Device		EEV	EEV
Outdoor Coil	Face Area	Sq. Ft.	8.2	14.1
	No. Rows		2.6	2
	Fins per inch		17	17
	Circuits		6	10
Compressor	Type		Rotary Inverter	Rotary Inverter
	Model		TNB306FPGMC-L	MNB36FAAMC-L
	Oil Type		FV50S	FV50S
	Oil Charge	Fl. Oz.	36.2	47.3
	Rated Current	RLA	13.5	13.5
Outdoor	Unit Width	in (mm)	37.20 (945)	36.93 (938)
	Unit Height	in (mm)	31.89 (810)	53.90 (1369)
	Unit Depth	in (mm)	15.55 (395)	15.43 (392)
	Net Weight	lbs (kg)	160.94 (73)	220 (100)
	Airflow	CFM	2,940	4,240
	Sound Pressure	dB(A)	65.0	65.0

* Condensing unit above or below indoor unit

PERFORMANCE – DUCTED STYLE

	Indoor Model		40MBQB36D--3	40MBQB48D--3
Ducted	Energy Star		NO	NO
	Cooling System Tons		3.0	4.0
	Cooling Rated Capacity	Btu/h	36,000	48,000
	Cooling Cap. Range Min - Max	Btu/h	8,500~38,000	9,000~50,000
	SEER		15.5	16.5
	EER		8.5	8.2
	Heating Rated Capacity (47°F)	Btu/h	38,000	50,000
	Heating Rated Capacity (17°F)	Btu/h	24,400	35,000
	Heating Maximum Capacity (17°F)	Btu/h	29,700	32,800
	Heating Capacity (5°F)	Btu/h	24,100	26,900
	Heating Cap. Range Min - Max	Btu/h	9,500~50,000	10,000~55,000
	HSPF		10.5	10.0
	COP (47°F)	W/W	3.45	3.45
	COP (17°F)	W/W	2.24	2.07
	COP (5°F)	W/W	1.92	1.83

COMPATIBILITY TABLE

INDOOR UNIT		38MBQB36---3	38MBQB48---3
Ducted	40MBQB36D--3	●	
	40MBQB48D--3		●

COOLING PERFORMANCE DATA – DUCTED STYLE

MODEL	COOLING		OUTDOOR CONDITIONS (DB)						
	Indoor Conditions		TC	77F(25C)	86F(30C)	95F(35C)	104F(40C)	113F(45C)	122F(50C)
	DB	WB							
36	69.8F(21C)	59F(15C)	TC	31.83	34.35	30.88	26.58	22.28	17.98
			SC	25.53	26.76	25.25	23.31	18.05	13.66
			Input	2.71	3.85	3.89	3.68	3.47	3.26
	75.2F(24C)	62.6F(17C)	TC	34.39	37.02	33.71	29.08	24.45	19.82
			SC	26.33	27.54	26.22	24.37	18.75	14.20
			Input	2.74	3.92	3.94	3.74	3.54	3.34
	80.6F(27C)	66.2F(19C)	TC	36.95	39.70	36.55	31.59	26.63	21.67
			SC	27.12	28.31	27.19	25.43	19.44	14.74
			Input	2.77	3.98	4.00	3.80	3.61	3.42
	89.6F(32C)	73.4F(23C)	TC	37.68	40.49	37.28	32.22	27.16	22.10
			SC	27.66	28.87	27.73	25.94	19.83	15.04
			Input	2.83	4.04	4.07	3.86	3.67	3.49
48	69.8F(21C)	59F(15C)	TC	44.27	42.12	40.55	30.06	25.26	20.66
			SC	33.64	32.90	32.12	27.45	20.97	16.17
			Input	3.83	4.28	5.25	3.77	3.62	3.51
	75.2F(24C)	62.6F(17C)	TC	47.83	45.91	44.54	33.88	28.40	23.12
			SC	34.88	34.19	33.54	29.12	23.91	16.95
			Input	3.94	4.35	5.36	3.84	3.65	3.45
	80.6F(27C)	66.2F(19C)	TC	51.39	49.72	48.53	37.71	31.53	25.35
			SC	36.12	35.47	34.95	30.80	26.83	17.74
			Input	4.06	4.43	5.48	3.90	3.69	3.39
	89.6F(32C)	73.4F(23C)	TC	52.41	50.72	49.51	38.47	32.16	25.86
			SC	37.20	24.93	35.99	31.71	27.63	18.26
			Input	4.14	4.51	5.58	3.97	3.76	3.45

LEGEND

DB – Dry Bulb

WB – Wet Bulb

TC – Total Net Capacity (1000 Btu/hour)

SC – Sensible Capacity (1000 Btu/hour)

Input – Total Power (kW)

HEATING PERFORMANCE DATA – DUCTED STYLE

MODEL	HEATING		OUTDOOR CONDITIONS (DB)										
	Indoor Conditions		-4F (-20C)	0F (-17C)	5F (-15C)	17F (-8C)	19.4F (-7C)	24.8F (-4C)	32F (0C)	39.2F (4C)	44.6F (7C)	53.6F (12C)	
	DB	WB											
36	59F (15C)	TC	17.87	22.34	28.87	34.13	34.52	38.89	42.54	42.58	42.61	43.92	
			Input	3.35	3.52	3.87	4.22	4.29	4.34	4.36	4.19	4.13	3.67
			COP	1.56	1.86	2.19	2.37	2.36	2.63	2.86	2.98	3.02	3.51
	64.4F (18C)	TC	17.15	21.43	26.30	31.74	32.23	36.62	39.69	40.43	41.36	42.49	
			Input	3.25	3.42	3.77	4.04	4.14	4.23	4.31	4.18	4.12	3.65
			COP	1.55	1.84	2.04	2.30	2.28	2.54	2.70	2.83	2.94	3.41
	69F (20.5C)	TC	16.42	20.53	24.16	29.76	30.32	34.73	37.31	38.64	40.31	41.29	
			Input	3.15	3.32	3.68	3.89	4.02	4.15	4.27	4.18	4.11	3.63
			COP	1.53	1.81	1.92	2.24	2.21	2.45	2.56	2.71	2.87	3.33
	71.6F (22C)	TC	16.13	20.16	22.87	28.57	29.17	33.59	35.88	37.56	39.68	40.57	
			Input	3.10	3.27	3.62	3.81	3.95	4.10	4.24	4.18	4.10	3.62
			COP	1.52	1.81	1.85	2.20	2.16	2.40	2.48	2.63	2.84	3.28
48	59F (15C)	TC	17.98	22.47	28.09	34.38	35.34	36.67	48.25	53.90	58.14	58.98	
			Input	3.73	3.92	4.13	4.46	4.46	4.43	4.90	4.90	4.89	4.33
			COP	1.41	1.68	1.99	2.26	2.32	2.43	2.89	3.22	3.48	3.99
	64.4F (18C)	TC	17.57	21.96	27.45	33.57	34.77	37.07	47.54	51.15	53.86	56.50	
			Input	3.82	4.02	4.23	4.57	4.60	4.70	5.06	4.87	4.72	4.51
			COP	1.35	1.60	1.90	2.15	2.21	2.31	2.75	3.08	3.34	3.67
	69F (20.5C)	TC	17.22	21.53	26.91	32.89	34.27	37.41	46.94	48.81	50.22	54.39	
			Input	3.89	4.09	4.31	4.66	4.72	4.93	5.20	4.84	4.57	4.67
			COP	1.30	1.54	1.83	2.07	2.13	2.22	2.64	2.95	3.22	3.41
	71.6F (22C)	TC	17.02	21.28	26.60	32.50	33.98	37.60	46.59	47.48	48.16	53.19	
			Input	3.93	4.13	4.35	4.71	4.78	5.05	5.27	4.82	4.48	4.75
			COP	1.27	1.51	1.79	2.02	2.08	2.18	2.59	2.89	3.15	3.28

LEGEND

DB – Dry Bulb

TC – Total Net Capacity (1000 Btu/hour)

Input – Total Power (kW)

APPLICATION DATA

UNIT SELECTION

Select equipment that either matches or supports slightly more than the 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 the equipment.

UNIT MOUNTING (OUTDOOR)

Refer to the unit's installation instructions for further details.

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

Clearance – Minimum clearance (see Fig. 4) 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 winds. A location that can bear the weight of the 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 sales representative.

SYSTEM OPERATING CONDITIONS

OPERATING RANGE MIN / MAX °F (°C)		
	COOLING	HEATING
Outdoor DB	-4 / 122 (-20 / 50)	-4 / 86 (-20 / 30)

NON-OPERATING TEMPERATURE RANGE MIN / MAX °F (°C)	
Outdoor DB	32 / 86 (0 / 30)

NOTE: Reference the product installation instructions for more information.

METERING DEVICES

The outdoor unit has an electronic expansion valve to manage the refrigerant flow of the connected fan coil.

DRAIN CONNECTIONS

Install drains to meet the local sanitation codes. See the physical dimension tables for the drain sizes.

REFRIGERANT LINES

General refrigerant line sizing:

1. The outdoor 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), review the *Long Line Applications* section for the proper charge adjustments.
2. Refrigerant lines should not be buried in the ground. If it is necessary to bury the lines, do not bury more than 36-in (914 mm). 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 the interconnecting tubing from the building structure. Isolate the tubing so vibration or noise is not transmitted into the structure.

Long Line Applications:

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

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)	>82-98 (25-30)	>98-213 (30-65)
36	10	213	None	0.43	0.43	0.43
48						

WIRING

All wires must be sized per NEC (National Electrical Code) or CEC (Canadian Electrical Code) 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 the caution note, only stranded copper conductors with a 600 volt rating and double insulated copper wire must be used.

The use of BX cable is not recommended.

Recommended Connection Method for Power and Communication Wiring

Power and Communication Wiring:

The main power is supplied to the outdoor unit. The field supplied 14/3 power/communication wiring from the outdoor unit to indoor unit consists of four (4) wires and provides the power for the indoor unit. Two wires are high voltage AC power, one is communication wiring and the other is a ground wire.

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 power wiring 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.

To minimize voltage drop, the factory recommended wire size is 14/2 stranded with a ground.

Communication Wiring:

A separate shielded Stranded copper conductor only, with a 600 volt rating and double insulated copper wire, must be used as the communication wire from the outdoor unit to the indoor unit. Please use a separate shielded 16GA stranded control wire.



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 600 volt rating and double insulated copper wire.



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 the indoor unit to the outdoor unit.
- Every wire must be connected firmly. Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also exist. Ensure all wiring is tightly connected.
- No wire should touch the 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 the hole in the conduit panel.

AIR FLOW DATA

SYSTEM SIZE	36	48
Outdoor (CFM)	2940	4240

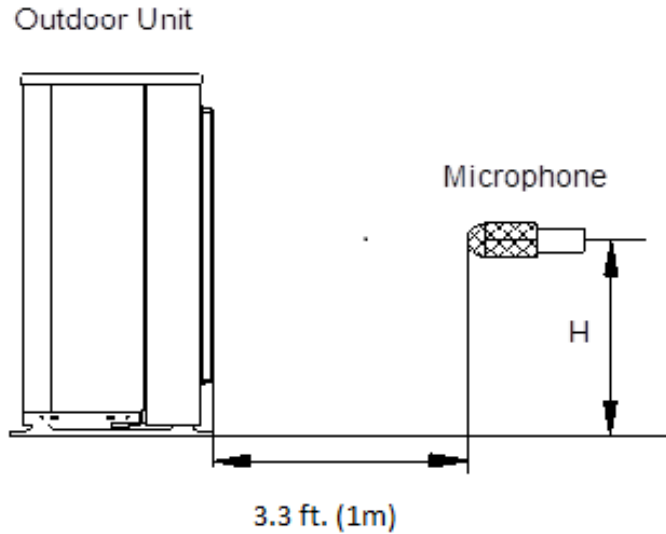
SOUND PRESSURE

SYSTEM SIZE	36	48	
Outdoor sound pressure level	dBa	65	65

SOUND POWER

SYSTEM SIZE	36	48	
Outdoor sound power level	dBa	75	75

OUTDOOR UNIT SOUND PRESSURE TEST CONDITIONS



NOTE: H=0.5 x Height of outdoor unit

	INDOOR CONDITION		OUTDOOR CONDITION	
	DB	WB	DB	WB
Cooling	80.6F (27C)	66.2F (19C)	95F (35C)	75.2F (24C)
Heating	68F (20C)	59F (15C)	44.6F (7C)	42.8F (6C)

FAN AND MOTOR SPECIFICATIONS

SYSTEM SIZE			9	12	18	24	36	48
Indoor Fan	Material		ABS	ABS	ABS	ABS	ABS	ABS
	Type		LX-140*150*12-41J	LX-140*150*12-41J	LX-142*180*12-42J	LX-188*190*12-40J	LX-188*190*12-40J	LX-188*190*12-40J
	Diameter	inch	140	140	142	188	188	188
	Height	inch	150	150	180	190	490	490
Indoor Fan Motor	Model		WZDK55-38GS-W	WZDK55-38GS-W	WZDK90-38GS-W	WZDK90-38GS-W	WZDK150-38GS-W	WZDK240-38GS-W
	Type		DC	DC	DC	DC	DC	DC
	Phase		3	3	3	3	3	3
	FLA		1.03	1.03	0.83	0.83	1.263	2.23
	Insulation class		E	E	E	E	E	E
	Safe Class		IPX0	IPX0	IPX0	IPX0	IPX0	IPX0
	Input	W	118	118	143	143	167	276
	Output	W	55	55	90	90	150	240
	Range of Current	Amps	1.03±10%	1.03±10%	1.15±10%	1.15±10%	1.263±10%	2.23±10%
	Rated Current	Amps	1.03	1.03	0.83	0.83	1.263	2.23
	Rated HP	HP	0.073	0.073	0.12	0.12	0.2	0.32
	Speed	rev/min	1100/950/800	1150/1000/900	1100/1050/880/820	1030/880/800	1120/1000/860	1040/950/830
	Rated RPM	rev/min	1450	1450	1200	1200	1180	1200
	Max. Input	W	118	118	143	143	167	276
Outdoor Fan	Material		AS	AS	AS	AS	AS	AS
	Type		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	ZL-525*135*12-3KFN
	Diameter	inch	421	421	460	560	560	525
	Height	inch	117	117	180	139	139	135
Outdoor Fan Motor	Model		WZDK40-38G-W-1	WZDK40-38G-W-1	ZKFN-50-8-2	WZDK120-38G-1	WZDK120-38G-W	WZDK85-38G
	Phase		DC	DC	DC	DC	DC	DC
	FLA		3	3	3	3	3	3
	Type		0.42	0.42	0.85	0.47	1.21	0.33
	Insulation Class		E	E	E	E	E	E
	Safe Class		IPX0	IPX0	IPX0	IPX0	IPX0	IPX0
	Input	W	46	46	103	145	150	98
	Output	W	40	40	50	120	120	85
	Range of Current	Amps	0.42±10%	0.42±10%	0.85±10%	0.47±10%	1.21±10%	0.33±10%
	Rated Current	Amps	0.42	0.42	0.85	0.47	1.21	0.33
	Rated HP	HP	0.053	0.053	0.067	0.16	0.16	0.11
	Speed	rev/min	800/700/600	800/700/600	800/700/600	850/750/700	950/850/750	950/850/750
	Rated RPM	rev/min	900	900	800	1050	1050	850
	Max. Input	W	46	46	103	145	150	98

ELECTRICAL DATA

OUTDOOR UNIT SIZE		36K	48K
Power Supply	Volts-PH-Hz	208/230-1-60	208/230-1-60
	Max - Min* Oper. Voltage	253-187	253-187
	MCA	30	35
	Max Fuse/ CB AMP	50	55
Compressor	Volts-PH-Hz	208/230-1-60	208/230-1-60
	RLA	13.5	13.4

*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

WIRING DIAGRAMS

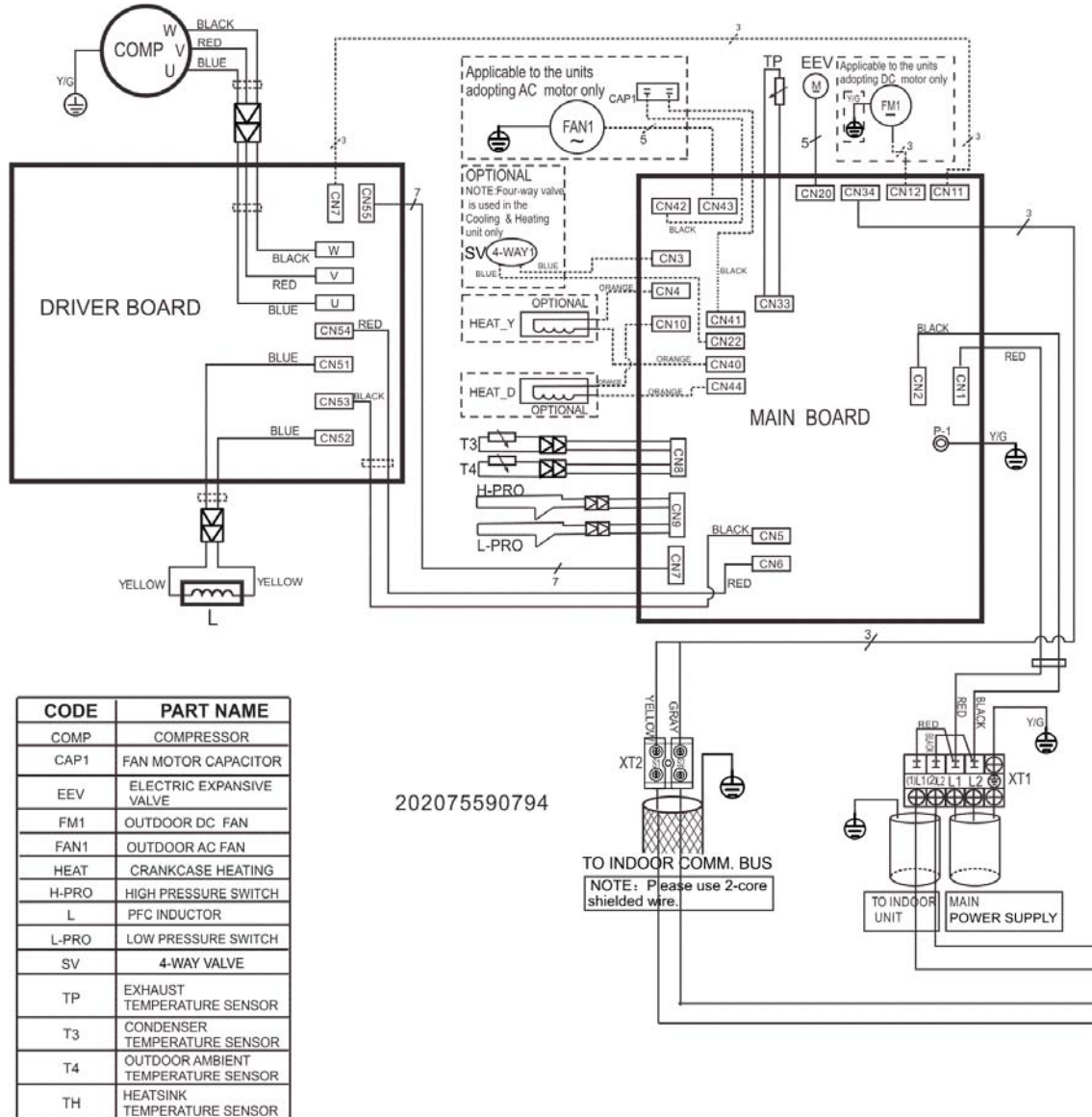


Fig. 5 – Wiring Diagram Size 36K

OUTDOOR UNIT (MAIN BOARD)	
PART NAME	PART NAME
CN1,CN2	Power input: 230V AC
CN3,CN22	Output: High voltage for 4–way control (230V AC)
CN4,CN40	Output: High voltage for HEAT_Y control(230V AC)
CN5,CN6	Output: Power output to DRIVER BOARD (230V AC)
CN7	Input: Communication Main board and IPM Board,Pin1(12V DC),Pin2(5V DC)
CN8,CN33	Input: Temperature sensor (5V DC)
CN9	Input: Pressure test (5V DC)
CN10,CN44	Output: High voltage for HEAT_D control (230V AC)
CN11,CN12	Output: Pulse(0–380VDC) for DC FAN
CN20	Output: PMV control, Pin5(12V DC),Pin6(12V DC)
CN34	Communication to indoor unit,Pin1(5V DC),Pin3(5V DC)
CN41,CN42,CN43	Output: Power output for AC fan motor (230V AC)
P-1	Connection to the earth
OUTDOOR UNIT (DRIVER BOARD)	
PART NAME	PART NAME
U V W	Output: Pulse(0–380VDC) for COMPRESSOR
CN7	Output: Pulse(0–380VDC) for DC FAN
CN51,CN52	Output: Connect PFC Inductance, high DC Voltage
CN53,CN54	Input: Power input for DRIVER BOARD (230V AC)
CN55	Output: Communication IPM Board and Main board,Pin1(12V DC),Pin2(5V DC)

WIRING DIAGRAMS (CONTINUED)

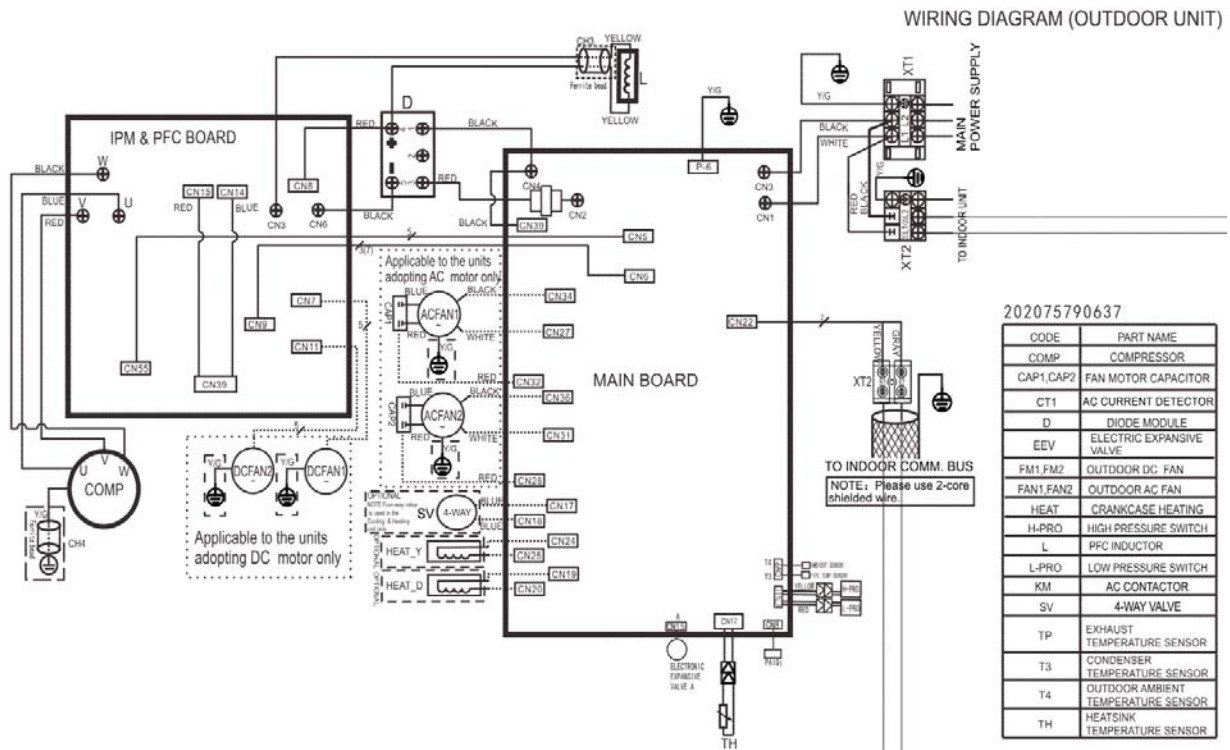


Fig. 6 – Wiring Diagram – Size 48K

OUTDOOR UNIT (MAIN BOARD)	
CN1,CN3	Power input: 230V AC
CN2,CN4	Output: Power output for DRIVER BOARD (230V AC)
CN5	Input: Communication Main board and IPM Board, Pin1(5V DC)
CN6	Input: DC FAN motor1 and DC FAN motor2 control, (Pin7 5V DC)
CN8,CN9,CN12	Input: Temperature sensor (5V DC)
CN10	Input: Pressure test (5V DC)
CN15	Output: PMV control, Pin5(12V DC),Pin6(12V DC)
CN17,CN18	Output: High voltage for 4–way(SV) control (230V AC)
CN19,CN20	Output: High voltage for HEAT_D control (230V AC)
CN22	Communication to indoor unit,Pin1(5V DC),Pin3(5V DC)
CN24,CN25	Output: High voltage for HEAT_Y control(230V AC)
CN27、CN32、CN34、CN28、CN31、CN36	Output: Power output for AC FAN motor1 and AC FAN motor2 (230V AC)
CN39	Output: L2 for AC FAN、SV and HEAT ,High voltage (AC)
P–6	Connection to the earth
OUTDOOR UNIT (DRIVER BOARD)	
U V W	Output: Pulse(0–380VDC) for COMPRESSOR
CN6 ,CN8	Input: Power input for DRIVER BOARD (200–320V DC)
CN3	Output: Connect PFC Inductance, high DC voltage
CN7,CN11	Output: DC FAN motor1 and DC FAN motor2 control (Pin1 310V or 380V DC)
CN9	Output: Communication Main board and IPM Board Pin7(5V DC)
CN55	Output: Communication IPM Board and Main board Pin1(12V DC)
CN14、CN15— CN39,	Output: High DC voltage (310V or 380V DC)

GUIDE SPECIFICATIONS

HORIZONTAL DISCHARGE OUTDOOR UNITS

Size Range: 3 to 4 Ton Nominal Cooling and Heating Capacity

Carrier Model Number: 38MBQ

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 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 a control box. Units discharge air horizontally as shown on the contract drawings. Units function as the outdoor component of an air-to-air heat pump system.
- B. Units are to be used in a refrigeration circuit matched to ductless heat pump fan coil units.

1.02 Agency Listings

- A. Unit construction complies with ANSI/ASHRAE 15, latest revision, and with the NEC.
- B. Units are evaluated in accordance with UL standard 1995.
- C. Units are listed in the CEC directory.
- D. Unit cabinet is capable of withstanding 500-hour salt spray test per Federal Test Standard No. 141 (method 6061).
- E. Air-cooled condenser coils are leak tested at 550 psig.

1.03 Delivery, Storage, And Handling

Units are shipped in one piece and are 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 is all the factory wiring, piping, controls, and the compressor.

B. Unit Cabinet:

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

C. Fans:

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

D. Compressor:

- 1. Compressor is the fully hermetic rotary type.
- 2. Compressor is equipped with an oil system, operating oil charge, and a motor.
- 3. Motor is NEMA rated class E, suitable for operation in a refrigerant atmosphere.
- 4. Compressor assembly is installed on rubber vibration isolators.

E. Outdoor Coil:

The coil is constructed of aluminum blue hydrophilic pre-coated fins mechanically bonded to seamless copper tubes, which are cleaned, dehydrated, and sealed.

F. Refrigeration Components:

Refrigerant circuit components include a brass external liquid line service valve with service gage port connections, a suction line service valve with a 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 are factory selected, assembled, and tested. The minimum control functions 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 operates on single-phase, 60 Hz power at 208/230V as specified.
- 2. Unit electrical power has a single point connection.
- 3. Unit Control voltage to the indoor fan coil is 0-15V DC.
- 4. All power and control wiring must be installed per NEC and all local electrical codes.
- 5. The unit has high and low voltage terminal block connections.