

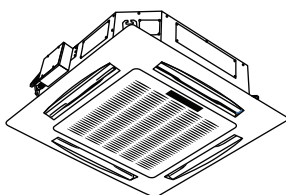


Product Data

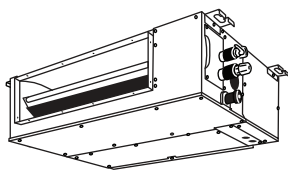
38WAH Outdoor Units and 40WAC, WAD, WAF, WAH, WAU, WAV, WAW Indoor Units for Single-Phase Variable Refrigerant Flow (VRF) Heat Pump Systems

Outdoor Units: 3 to 4 Tons
Indoor Units: 1/2 to 4 Tons

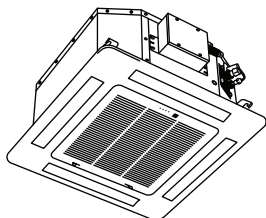
**40WAF INDOOR UNIT
4-WAY CASSETTE**



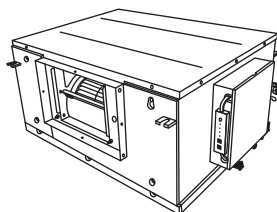
**40WAD INDOOR UNIT
CONCEALED DUCTED**



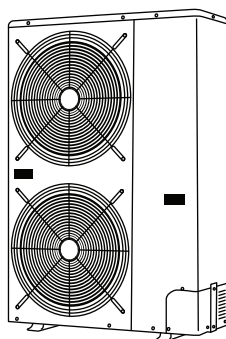
**40WAC INDOOR UNIT
COMPACT CASSETTE**



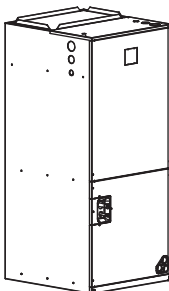
**40WAH INDOOR UNIT
HIGH STATIC DUCTED**



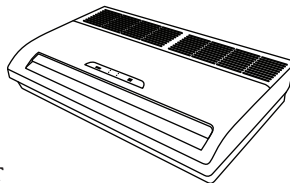
38WAH OUTDOOR UNIT



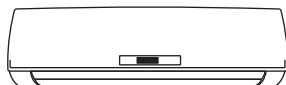
**40WAV INDOOR UNIT
VERTICAL AIR-HANDLING**



**40WAU INDOOR UNIT
UNDER CEILING/FLOOR**



**40WAW INDOOR UNIT
HIGH WALL MOUNT**



The Carrier Single-Phase Variable Refrigerant Flow (VRF) system offers:

- Full DC Inverter system
- High efficiency solution for light commercial and residential buildings
- AHRI (Air-Conditioning, Heating, and Refrigeration Institute) certified unit performance

Features/Benefits

The single-phase VRF heat pump system allows individual temperature control and flexible design, resulting in energy savings and energy-efficient systems

Design flexibility

The single-phase VRF heat pump system offers variety of indoor unit style and sizes ranging from 0.5 to 4 tons. Outdoor units are available in 3-ton and 4-ton capacities to suit the number of indoor units. A 3-ton outdoor unit can connect up to 5 different indoor units and a 4-ton outdoor unit can connect up to 7 different indoor units. The outdoor unit can be piped to indoor units using branch (Y) piping or branch (flow selector or divergence) boxes. The system can operate from 50% to 130% connected capacity, allowing the design engineer to create a system that precisely meets customer and application needs.

Each indoor unit can be controlled by an individual thermostat, or all units can be connected to a central controller. A variety of control options are offered based on feature requirements.

Features/Benefits (cont)



Built in design efficiency

The outdoor unit's rotary compressor is equipped with a DC inverter and brushless motor to optimize start-up and provide highly efficient operation. Dual rotor technology provides better balance and lower compressor vibrations. The high-efficiency DC condenser fan motor rapidly matches changing compressor capacity at part-load conditions, enhancing part load efficiency. Aerodynamically designed condenser fans and air deflectors increase airflow over the coil and reduce noise.

Indoor unit selections for a variety of applications

40WAC is a compact ceiling-mounted 4-way cassette that supplies air in all four directions, providing optimal air distribution. These units are 2 ft by 2 ft with a concentric supply/return panel and fit neatly into a standard ceiling grid.

40WAF is a ceiling-mounted 4-way cassette that supplies air in all directions and provides the very best in air distribution. The 40WAF units are 3 ft by 3 ft with a concentric supply/return panel.

40WAD is a furred-in ceiling-mounted concealed ducted unit with rear return and front supply as standard air arrangement. Unit is equipped with condensate drain pump as standard. Rear return to bottom return is a field-configurable option.

40WAH is a furred-in, ceiling-mounted, concealed ducted high-static unit able to serve multiple zones. This unit can handle higher static requirements; a condensate drain pump is optional.

40WAW is an exposed high wall mounted unit designed to blend with any interior space decor. The wide air swing louver angle provides uniform distribution of air within the space.

40WAU is an exposed under ceiling/floor mount unit with auto swing and wide angle airflow features. This unit can be installed under the ceiling or lower on the wall, close to the floor.

40WAV is a vertical air-handling unit that can be ducted to serve multiple spaces. Dual drain spouts allow the unit to be mounted horizontally when required for specific applications.

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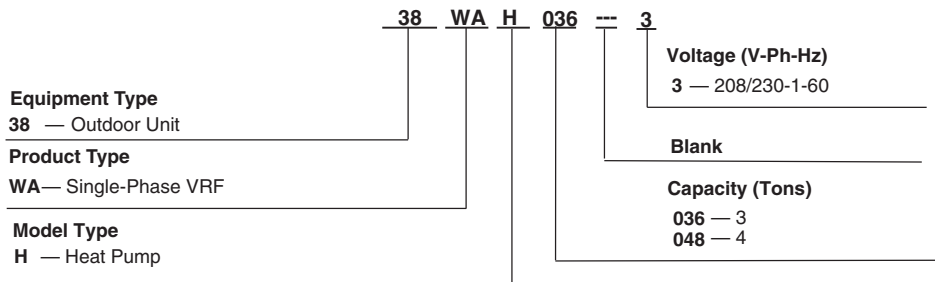


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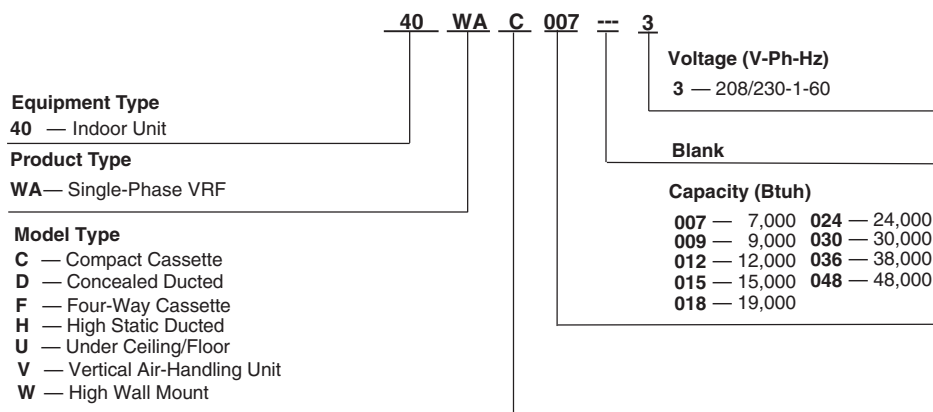
Model number nomenclature



OUTDOOR UNITS



INDOOR UNITS



LEGEND

VRF — Variable Refrigerant Flow

AHRI* capacity ratings

SINGLE-PHASE VRF HEAT PUMP SYSTEM

38WAH OUTDOOR UNIT SIZE	INDOOR UNIT TYPE	EER (95 F)	SEER	HSPF	COOLING (Btuh)	HIGH HEATING AT 47 F (Btuh)	LOW HEATING AT 17 F (Btuh)
036	Non-Ducted	10.70	16.40	8.80	36,000	40,000	25,000
	Ducted	11.30	16.50	9.60	36,000	40,000	25,000
	Mixed Ducted and Non-Ducted	11.00	16.45	9.20	36,000	40,000	25,000
048	Non-Ducted	8.90	16.00	8.90	47,500	52,500	34,000
	Ducted	9.30	16.20	9.60	47,500	52,500	34,000
	Mixed Ducted and Non-Ducted	9.10	16.10	9.25	47,500	52,500	34,000

LEGEND

EER — Energy Efficiency Ratio
HSPF — Heating Seasonal Performance Factor
SEER — Seasonal Energy Efficiency Ratio

*Air-Conditioning, Heating, and Refrigeration Institute (U.S.A.).

NOTE: Rated in accordance with AHRI Standard 210/240 at standard rating conditions.



Field-installed accessories

ACCESSORIES

INDOOR UNIT ACCESSORIES	40WAC	40WAD	40WAF	40WAH	40WAU	40WAV	40WAW
WIRELESS REMOTE CONTROLLER	X	—	X	—	X	—	X
WIRED REMOTE CONTROLLER (NON-PROGRAMMABLE)	X	X	X	X	X	X	X
WIRED REMOTE CONTROLLER (PROGRAMMABLE)	X	X	X	X	X	X	X
CENTRAL CONTROLLER	X	X	X	X	X	X	X
GRILLE PANEL	X	—	X	—	—	—	—
SYSTEM ACCESSORIES							
BRANCH BOX (See System Piping, page 7)							
BRANCH (Y) JOINT (See System Piping, page 7)							

X — Available Accessory

Controls

Wired controller (non-programmable)



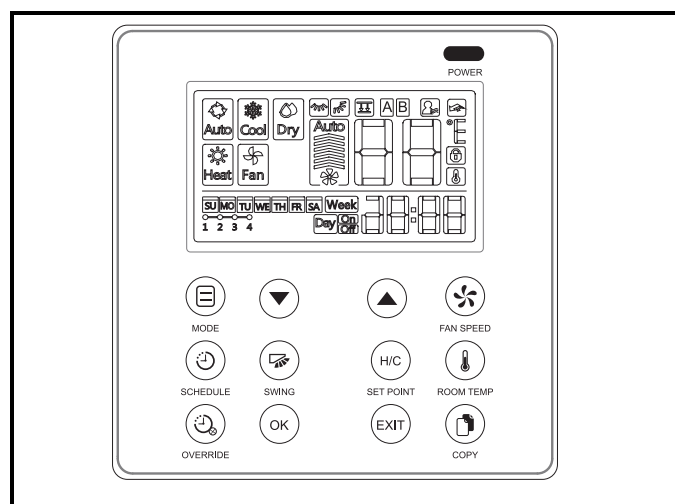
The single-phase VRF wired non-programmable controller is a wall-mounted, low-voltage thermostat that maintains room temperature by controlling system operation. The controller, which does not require batteries, is capable of displaying temperatures from 62 to 86 F.

The wired non-programmable controller accessory is available for use with the single-phase VRF (variable refrigerant flow) indoor units listed below.

WIRED NON-PROGRAMMABLE CONTROLLER ACCESSORY USAGE

UNIT	SIZES
40WAC Compact Cassette	007,009,012,015
40WAD Ducted	007,009,012,015,018,024
40WAF 4-Way Cassette	009,012,015,018,024,030,036,048
40WAH High Static	024,030,036,048
40WAU Under Ceiling	012,015,018,024,030,036,048
40WAV Vertical	018,024,030,036,048
40WAW High Wall	007,009,012,015,018

Wired controller (programmable)



The single-phase VRF wired programmable controller is a wall-mounted, low-voltage thermostat that maintains room temperature by controlling system operation. The controller, which requires a battery, is capable of displaying temperatures from 62 to 86 F.

The wired programmable controller accessory is available for use with the single-phase VRF indoor units listed below.

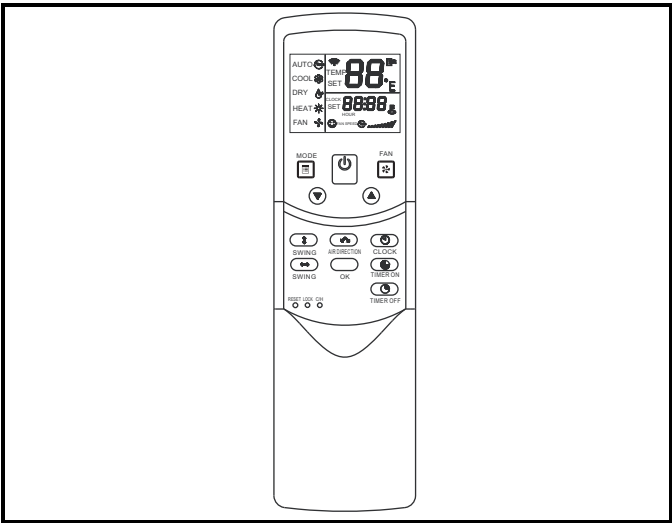
WIRED PROGRAMMABLE CONTROLLER ACCESSORY USAGE

UNIT	SIZES
40WAC Compact Cassette	007,009,012,015
40WAD Ducted	007,009,012,015,018,024
40WAF 4-Way Cassette	009,012,015,018,024,030,036,048
40WAH High Static	024,030,036,048
40WAU Under Ceiling	012,015,018,024,030,036,048
40WAV Vertical	018,024,030,036,048
40WAW High Wall	007,009,012,015,018

Controls (cont)



Wireless controller



A wireless controller accessory is also available for use with the single-phase VRF system. Operating ranges of the wireless controller are as follows:

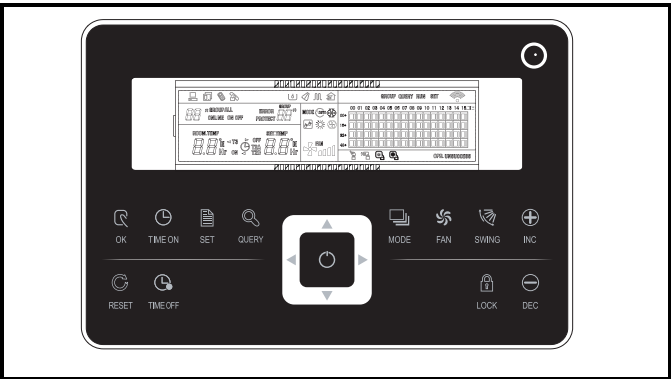
- Rated voltage: 3.0 v (2 AAA alkaline batteries)
- Minimum voltage for signal transmission: 2.4 v
- Effective receiving distance: 26 to 36 ft
- Operating temperature range: 23 to 140 F

The wireless controller accessory can be used with the single-phase VRF indoor units listed below.

WIRELESS CONTROLLER ACCESSORY USAGE

UNIT	SIZES
40WAC Compact Cassette	007,009,012,015
40WAF 4-Way Cassette	009,012,015,018,024,030,036,048
40WAU Under Ceiling	012,015,018,024,030,036,048
40WAW High Wall	007,009,012,015,018

Central controller



The single-phase VRF central controller is a wall-mounted, line-voltage supply (24 vac) thermostat that can control 64 indoor units. The controller does not require batteries.

The central controller accessory is available for use with the single-phase VRF indoor units listed below.

CENTRAL CONTROLLER ACCESSORY USAGE

UNIT	SIZES
40WAC Compact Cassette	007,009,012,015
40WAD Ducted	007,009,012,015,018,024
40WAF 4-Way Cassette	009,012,015,018,024,030,036,048
40WAH High Static	024,030,036,048
40WAU Under Ceiling	012,015,018,024,030,036,048
40WAV Vertical	018,024,030,036,048
40WAW High Wall	007,009,012,015,018

Selection procedure

Please contact your Carrier sales representative for system selection and pricing.

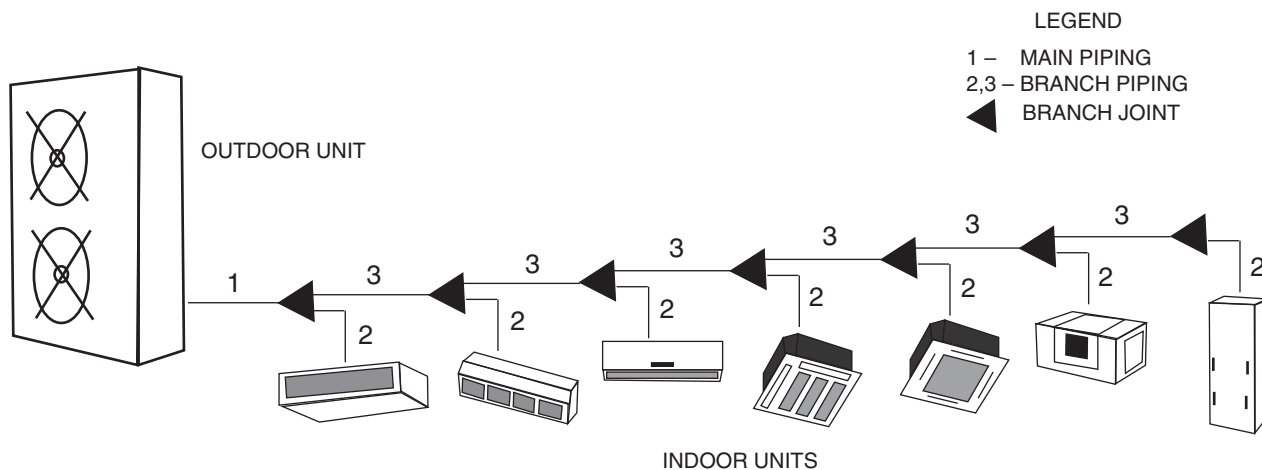
System application data

System piping

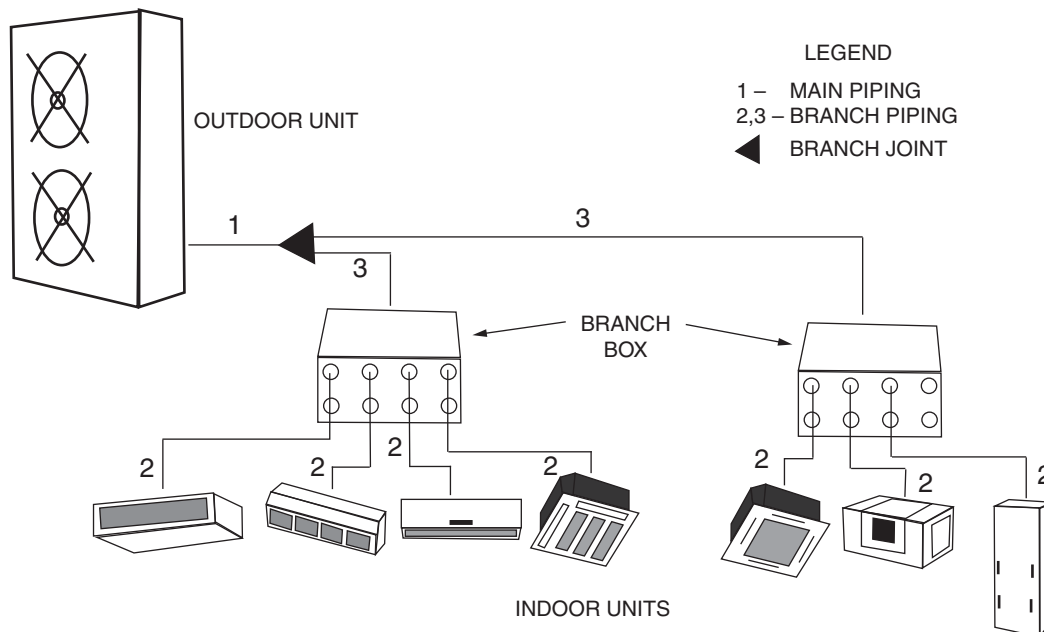
Indoor units are connected to outdoor units using branch (Y) joints, branch boxes, or a combination of the two. For open floor plans, branch (Y) joints are ideal. If there are separate areas on the same floor, branch boxes are the appropriate solution. A combination of methods can also be used, but

a branch (Y) joint cannot be placed after a branch box. Sample layouts are shown below. See the Allowable Piping Length and Elevation Differential figure on page 8 for more piping information.

BRANCH PIPING (Y) LAYOUT



BRANCH BOX PIPING LAYOUT

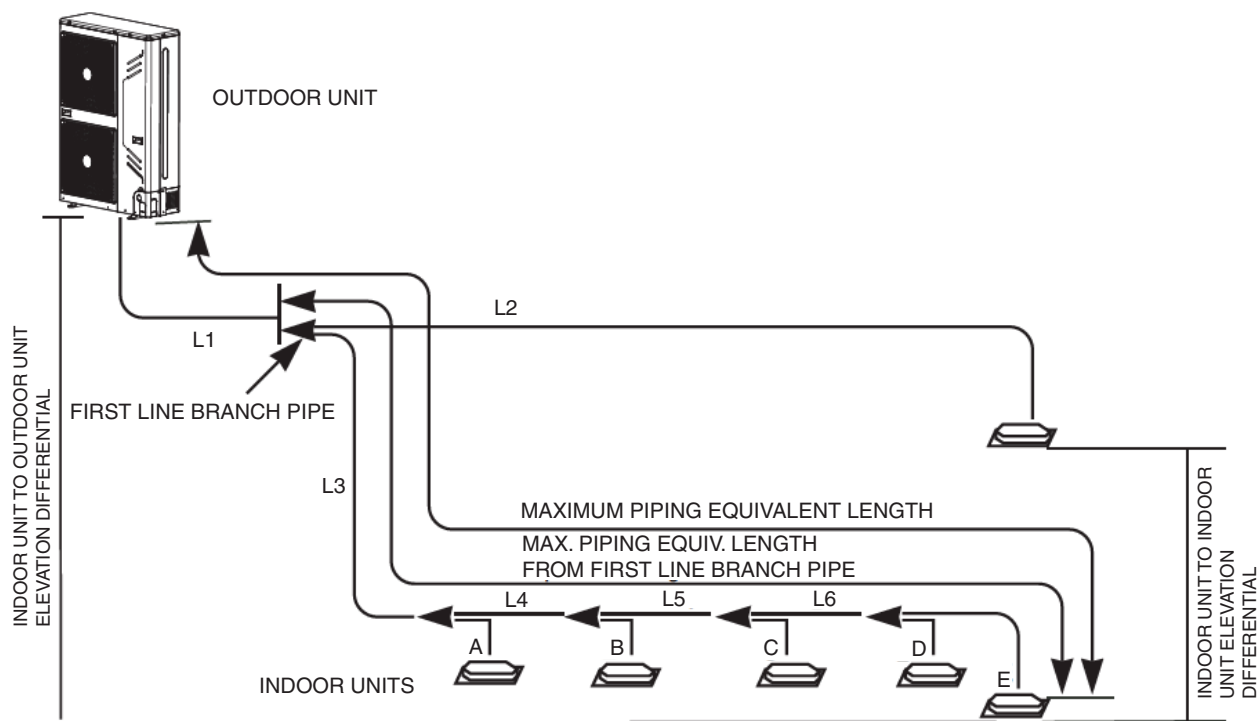


System application data (cont)

ALLOWABLE PIPING LENGTH AND ELEVATION DIFFERENTIAL

PIPING LENGTH	ALLOWABLE VALUE (ft)	PIPES
TOTAL PIPING LENGTH (ACTUAL)	≤ 328	$L1 + L2 + L3 + L4 + L5 + L6 + A + B + C + D + E$
MAXIMUM PIPING (L)		
Actual	≤ 148	$L1 + L3 + L4 + L5 + L6 + E$
Equivalent	≤ 164	
FIRST TO FARTHEST INDOOR UNIT	≤ 66	$L3 + L4 + L5 + L6 + E$

ELEVATION DIFFERENTIAL	ALLOWABLE VALUE (ft)
INDOOR UNIT TO OUTDOOR UNIT	
Outdoor Unit Above	98
Outdoor Unit Below	66
INDOOR UNIT TO INDOOR UNIT	26



System electrical data

Power wiring

Installation of wiring must conform with local codes and with NEC (National Electrical Code) ANSI/NFPA (American National Standards Institute/National Fire Protection Association) 70, current editions. Units must be electrically grounded in conformance with the code. In Canada, wiring must comply with CSA (Canadian Standards Association) C22.1, Electrical Code. Separate power sources are required for indoor and outdoor units. Terminals for field power supply are suitable for copper conductors. The table below shows field wiring sizes.

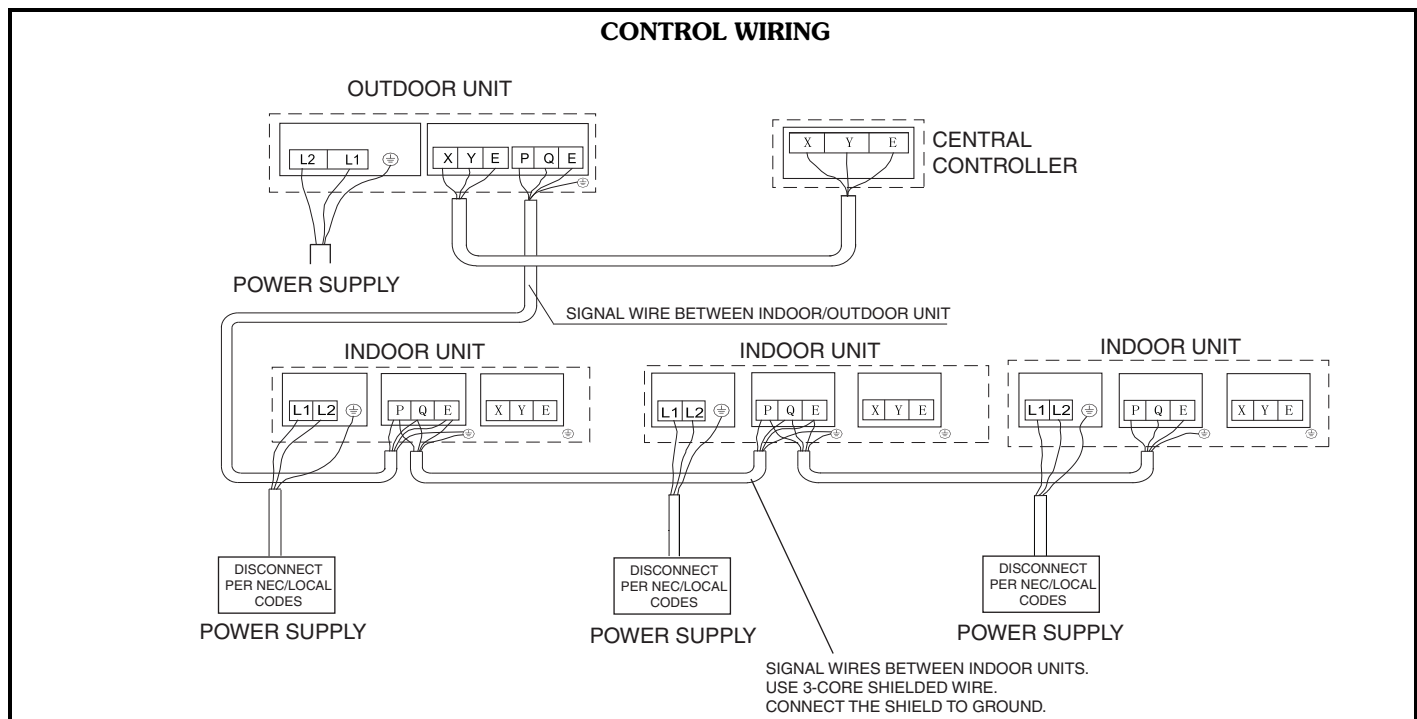
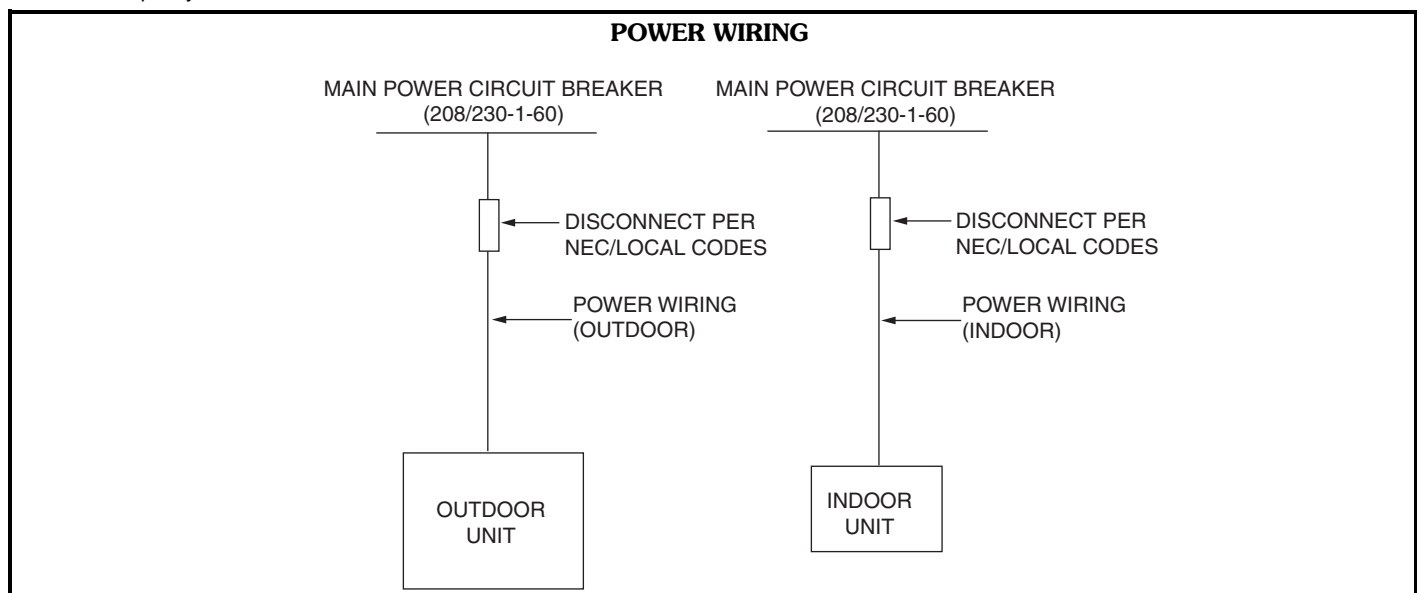
FIELD WIRING SIZES

UNIT	POWER SUPPLY (V-Ph-Hz)	CIRCUIT BREAKER (A)
OUTDOOR	208/230-1-60	40/50*
INDOOR		15

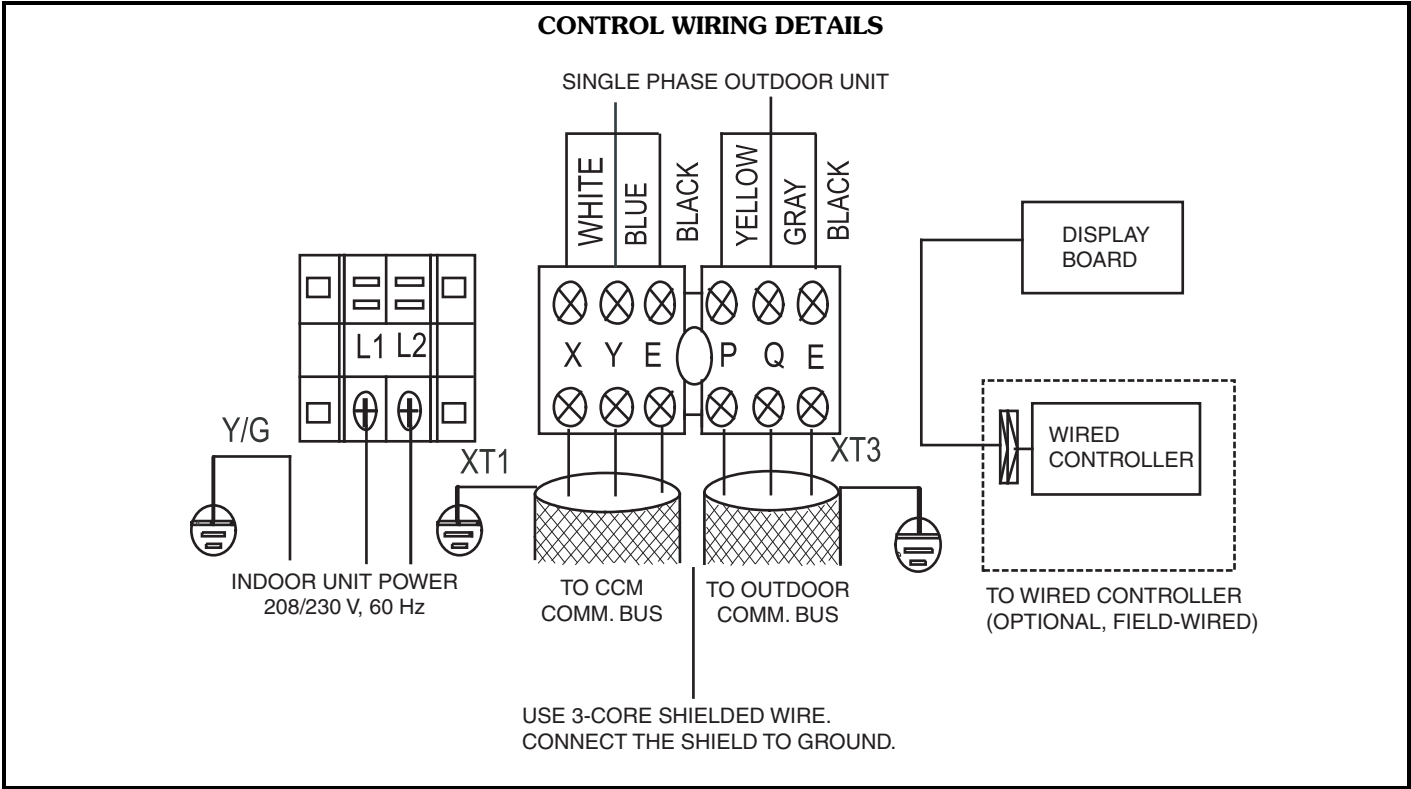
* Based on capacity.

Control wiring

Control power comes from the control board in the outdoor unit and does NOT require a separate source. Use of 3-core polarized and shielded wire is required. Shield is used to protect the signal from interference. The control wire between outdoor and indoor units is bus type.



System electrical data (cont)



38WAH outdoor unit



Physical data

38WAH PHYSICAL DATA

UNIT 38WAH	036	048
POWER SUPPLY (V-Ph-Hz)	208/230-1-60	
COOLING CAPACITY (Btuh)	36,000	47,500
HEATING CAPACITY (Btuh)	40,000	52,500
MINIMUM CIRCUIT AMPS	25	31
COMPRESSOR		
Type	Rotary	
Number	1	
Rated Current, RLA (A)	18.5	22.8
Crankcase (W)	25	
Refrigerant Oil Type/Viscosity Index	FV50S/84	
Refrigerant Oil (oz.)	50.6	
OUTDOOR FAN MOTOR		
Type	DC Motor	
Insulation Class	E	
Rated Current (A)	2 x 0.9	
Speed (RPM)	800	
OUTDOOR FAN		
Material	ASG20	
Type	Axial Fan	
Air Flow (cfm)	4,200	
Diameter (in.)	20	
Height (in.)	6 11/16	
OUTDOOR COIL		
Number of Rows	2	
Fin Spacing (fins/in.)	16	
Fin Type	Aluminum with Hydrophilic Coating	
Tube Diameter, OD (in.)	5/16	
Tube Type	Copper Tube with Inner Groove	
Number of Circuits	7	
SOUND DATA, HIGH SPEED (dBA)	58	58
UNIT DIMENSIONS W x H x D (in.)	35 1/2 x 52 1/4 x 15 3/4	
PACKING DIMENSIONS W x H x D (in.)	40 9/16 x 57 5/16 x 17 1/8	
NET/GROSS WEIGHT (lb)	209/234	
REFRIGERANT		
Type	R-410A	
Charge Volume (lb)	7.3	8.6
EXPANSION DEVICE	EXV	
DESIGN PRESSURE, High/Low (psig)	650/250	
REFRIGERANT PIPING (in.)		
Liquid Side, OD	3/8	
Suction Side, OD	5/8	
Total Pipe Length (ft)	≤ 328	
Longest Pipe Length, Actual (ft)	148	
Maximum Elevation Differential between Indoor Units (ft)	≤ 26	
CONNECTING WIRING		
Power Wiring	Sized per NEC and Local Codes Based on Nameplate Electrical Data 3 x 8 AWG	
Signal Wiring	3-Core Shielded Wire x 20 AWG	
COOLING AMBIENT TEMPERATURE (F)	5 to 118.4	
HEATING AMBIENT TEMPERATURE (F)	-4 to 80.6	
TOTAL CONNECTED CAPACITY (%)	50 to 130	
MAXIMUM NUMBER OF INDOOR UNITS TO BE CONNECTED	5	7

LEGEND

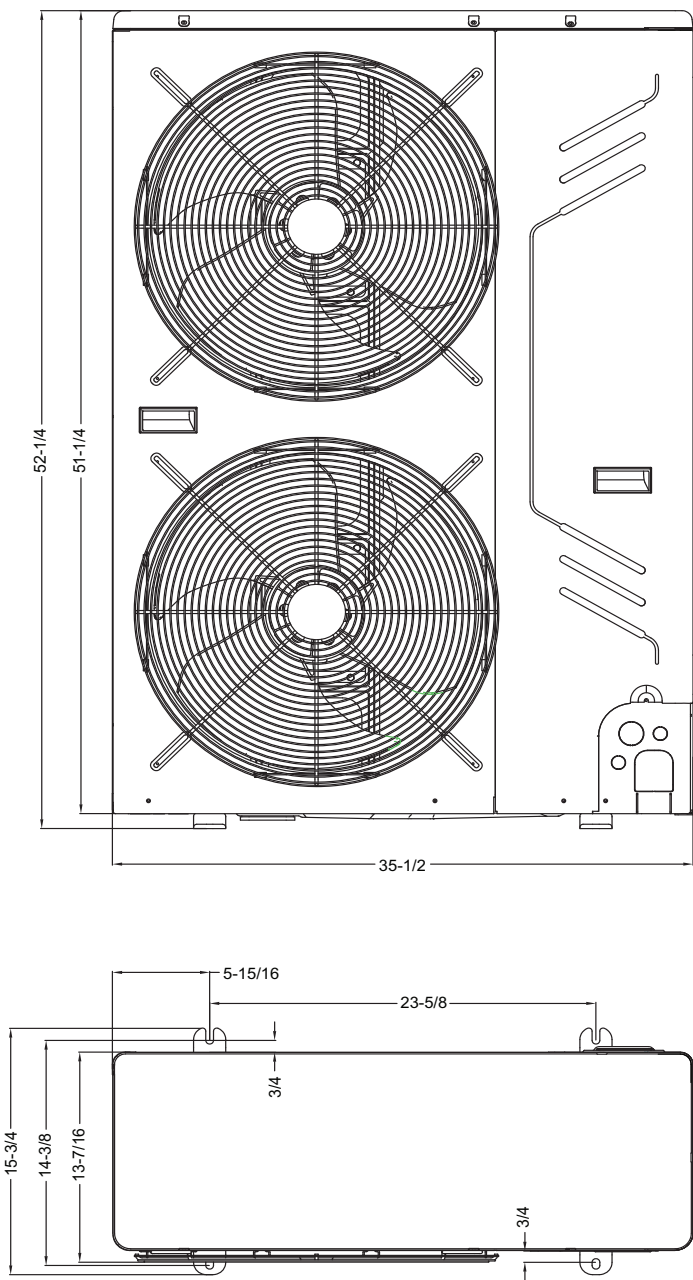
AWG — American Wire Gage
EXV — Electronic Expansion Valve
NEC — National Electrical Code
RLA — Rated Load Amps

38WAH outdoor unit (cont)



Dimensions

38WAH036,048 DIMENSIONS



NOTE: All dimensions shown in inches.

Application data

Indoor units are connected to the outdoor units using branch piping or branch box methods. See System Application Data section. The Main Pipe Sizing table below lists pipe sizing. Branch pipe sizing depends on the size of the indoor unit selected; see the Branch Pipe Sizing table below. See the Maximum Indoor Unit Connections table for the maximum number of indoor units and connected capacity range per 38WAH outdoor unit. See the System Application Data section for allowable piping lengths and elevation differentials.

MAIN PIPE SIZING

38WAH UNIT	CAPACITY (tons)	MAIN PIPE SIZE	
		SUCTION SIDE (in.)	LIQUID SIDE (in.)
036	3	5/8	3/8
048	4		

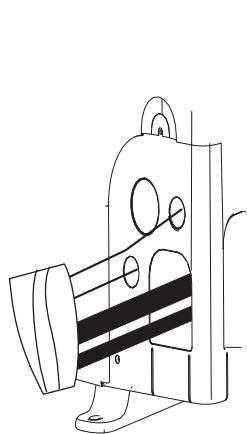
BRANCH PIPE SIZING

INDOOR UNIT SIZE (Btuh)	SUCTION SIDE (in.)	LIQUID SIDE (in.)
7,000 to 15,000	1/2	1/4
18,000 to 48,000	5/8	3/8

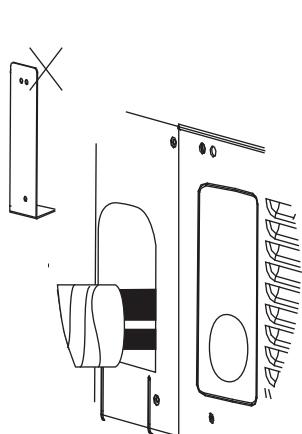
MAXIMUM INDOOR UNIT CONNECTIONS

38WAH UNIT	MAXIMUM NUMBER OF INDOOR UNITS	CONNECTED CAPACITY (%)
036	5	50 to 130
048	7	

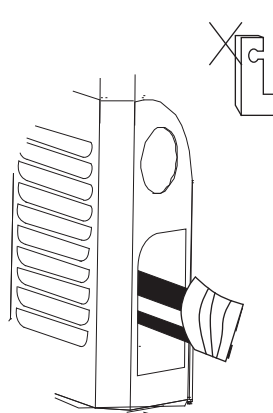
38WAH PIPING AND WIRING OPTIONS



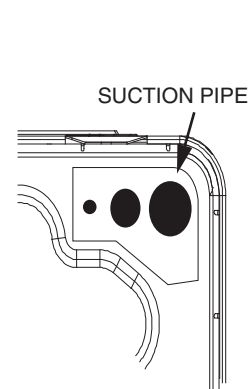
FRONT PIPE



SIDE PIPE



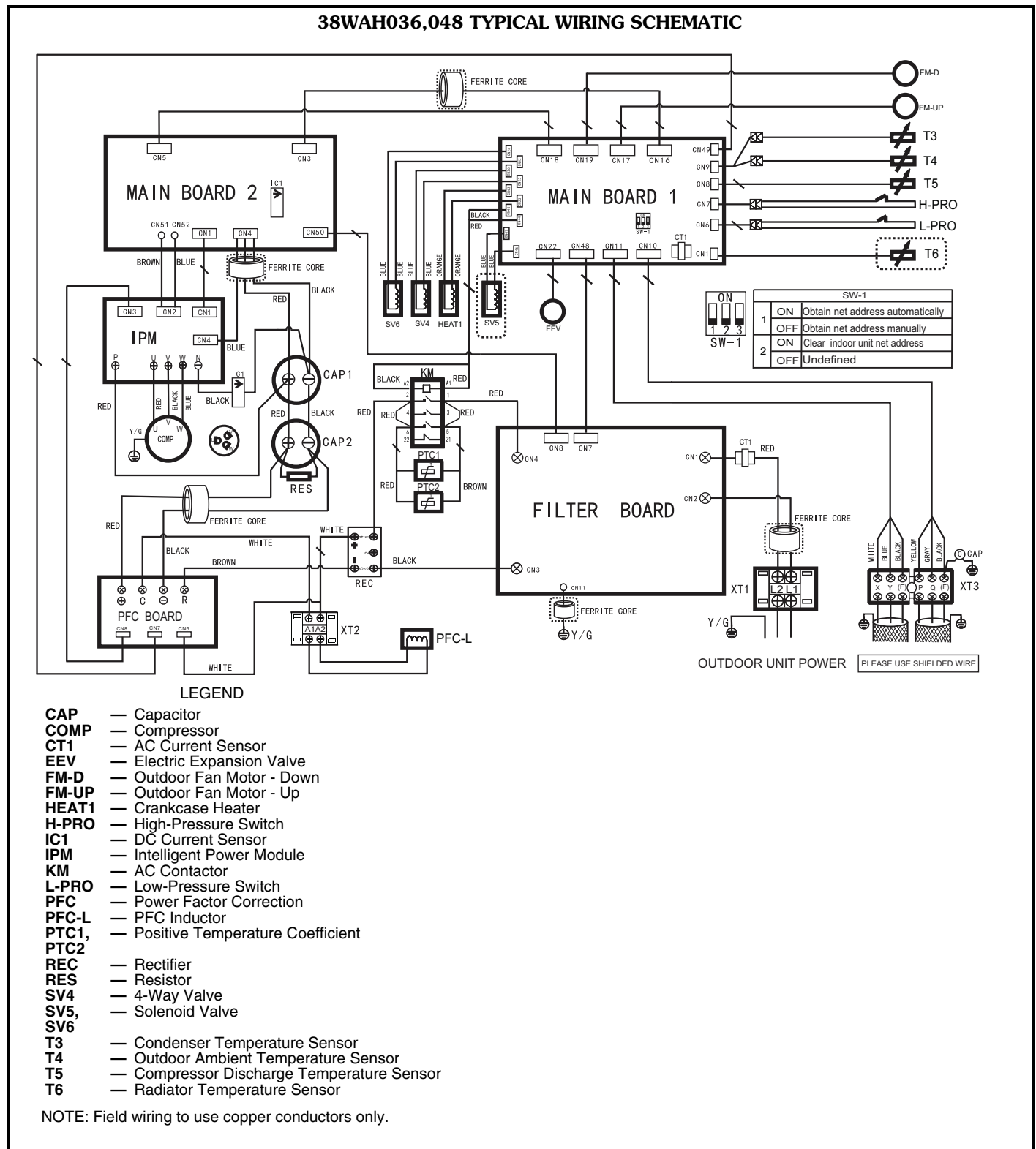
BACK PIPE



BOTTOM PIPE

NOTE: All wiring must use conduit connection points provided and comply with NEC (National Electrical Code) and local codes.

Typical wiring schematic



40WAC (compact cassette)



Physical data

40WAC PHYSICAL DATA

UNIT 40WAC	007	009	012	015
POWER SUPPLY (V-Ph-Hz)	208/230-1-60			
COOLING CAPACITY (Btuh)	7,000	9,000	12,000	15,000
HEATING CAPACITY (Btuh)	8,000	10,900	13,600	17,000
INDOOR FAN MOTOR	AC Motor			
Type	AC Motor			
Input (W)	50			
INDOOR COIL				
Number of Rows	1		2	
Fin Spacing (fins/in.)	16			
Fin Type	Aluminum with Hydrophilic Coating			
Tube Diameter, OD (in.)	9/32			
Tube Type	Copper Tube with Inner Groove			
Number of Circuits	2		4	
INDOOR AIRFLOW (cfm)				
Low	210		250	440
Medium	250		300	500
High	300		350	550
INDOOR NOISE LEVEL (dBA)				
Low	23.4		28.8	
Medium	33.4		35.6	
High	38.1		41.5	
UNIT				
Unit Dimensions, W x H x D (in.)	22 5/8 x 10 3/8 x 22 5/8			
Packing Dimensions, W x H x D (in.)	26 x 11 1/4 x 27 1/2			
Net/Gross Weight (lb)	37/46		40/49	
PANEL				
Panel Dimensions, W x H x D (in.)	25 1/2 x 2 x 25 1/2			
Packing Dimensions, W x H x D (in.)	28 1/8 x 4 7/8 x 28 1/8			
Net/Gross Weight (lb)	5 1/2/10			
REFRIGERANT TYPE	R-410A			
EXPANSION DEVICE	EXV			
DESIGN PRESSURE, High/Low (psig)	650/250			
REFRIGERANT PIPING (in.)				
Liquid Side, OD	1/4			
Suction Side, OD	1/2			
CONNECTING WIRING				
Power Wiring	Sized per NEC and Local Codes Based on Nameplate Electrical Data 3x14 AWG			
Signal Wiring	3-Core Shielded Wire x 20 AWG			
DRAINAGE WATER PIPE DIAMETER, OD (in.)	1			

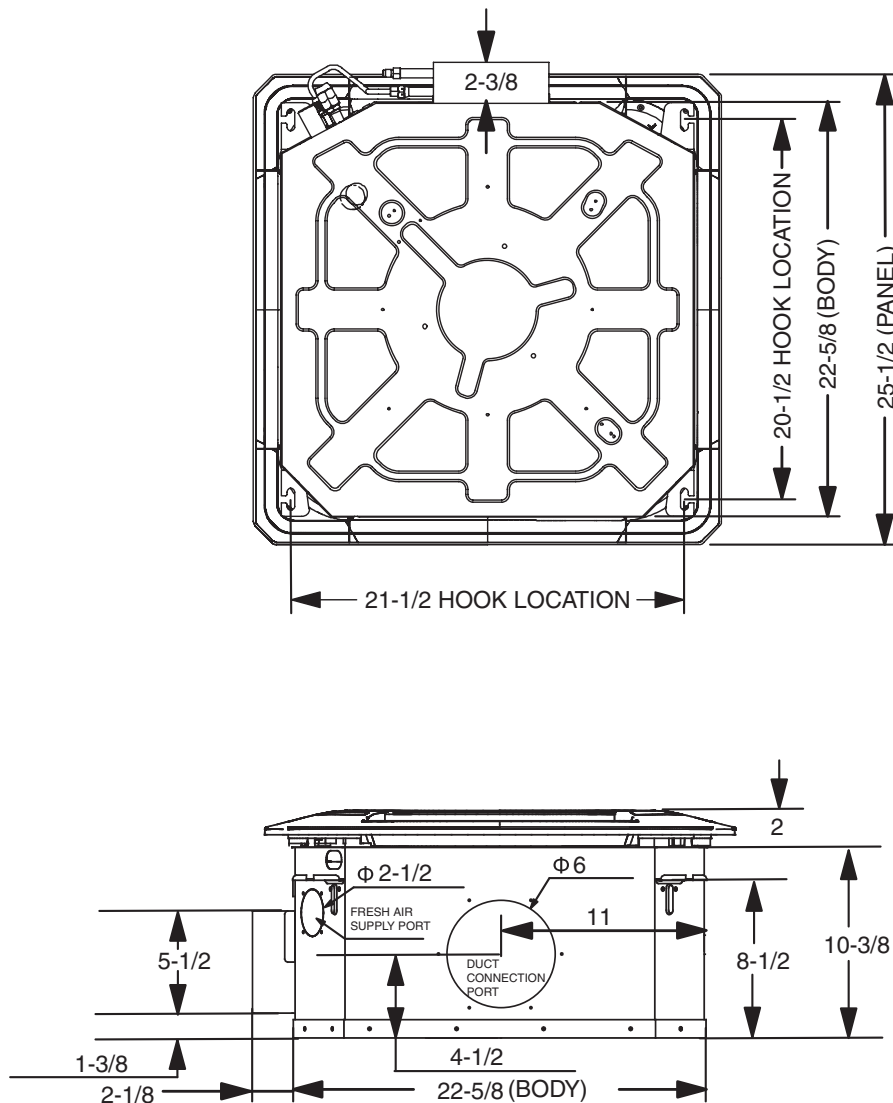
LEGEND

AWG — American Wire Gage
EXV — Electronic Expansion Valve
NEC — National Electrical Code

40WAC (compact cassette) (cont)

Dimensions

40WAC007-015 DIMENSIONS



NOTE: All dimensions shown in inches.

Application data

The 40WAC indoor unit must be installed in a location that meets the following requirements:

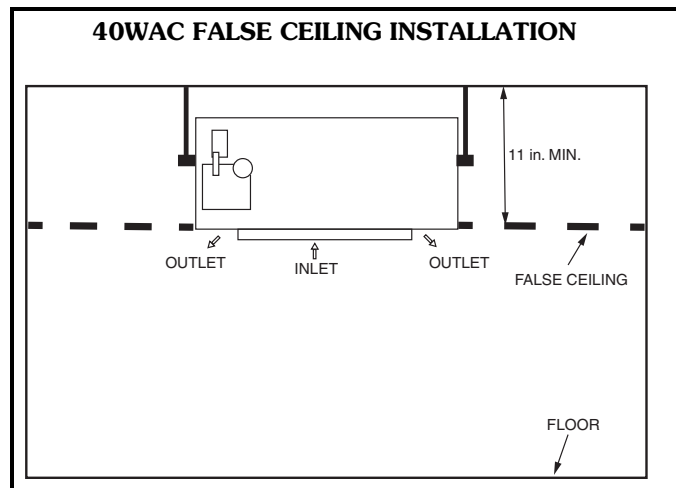
- The unit must be located in a position within the room that allows uniform airflow in all directions. The unit should be installed in a position that is suitable to support the total weight of the unit, refrigerant piping and condensate piping.
- The unit should be at least 40 in. from a wall or similar obstruction.
- Recommended distance between 2 units is 10 ft to avoid air recirculation.
- Proper access must be provided for maintenance for refrigerant piping, EXV (electronic expansion valve), electrical box, and condensate pump. A 2-ft clearance is recommended all around the unit.
- The hanger bolts must be able to support the weight of the unit. See below.

40WAC UNIT WEIGHT

40WAC UNIT	WEIGHT (lb)*
007	42 1/2
009	
012	
015	45 1/2

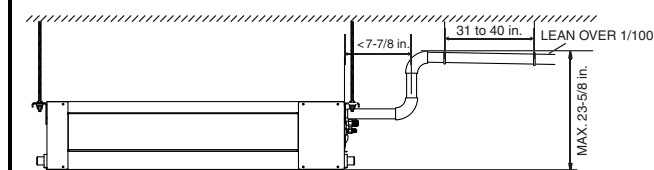
*Includes grille (panel) weight.

- Adequate space must be allowed for installation, service clearance, piping and electrical connections, and necessary ductwork. There should be enough room within the false ceiling for installation and maintenance. See below.



Condensate piping — The 40WAC unit is supplied with a 1-in. OD drain connection to connect copper or PVC drain piping. The condensate drain should have sufficient downward slope (1 in. per 100 in.) in any horizontal run between unit and drain. Maximum condensate lift is 23 5/8 inches. The highest point in the condensate piping should be as close to the unit as possible. See the 40WAC Condensate Piping figure, this page.

40WAC CONDENSATE PIPING



Refrigerant piping — Check for maximum height drop and length of refrigerant piping between the indoor and outdoor unit. If the difference is more than 33 ft, consider mounting the outdoor unit above indoor unit.

The refrigeration piping starts at the indoor unit and ends at the outdoor unit. The number of bends in the refrigeration piping must be fewer than 15. The bending angle of the refrigerant pipe should not exceed 90 degrees and the bending radius should be as large as possible to prevent any breakage in piping.

Electrical data

Electric wiring must be sized to carry the full load amp draw of the motor, starter, and any other controls that are used with the unit. See below.

40WAC ELECTRICAL DATA

UNIT	POWER SUPPLY	
	MCA	MOPD
40WAC007	0.3	15
40WAC009	0.3	15
40WAC012	0.3	15
40WAC015	0.3	15

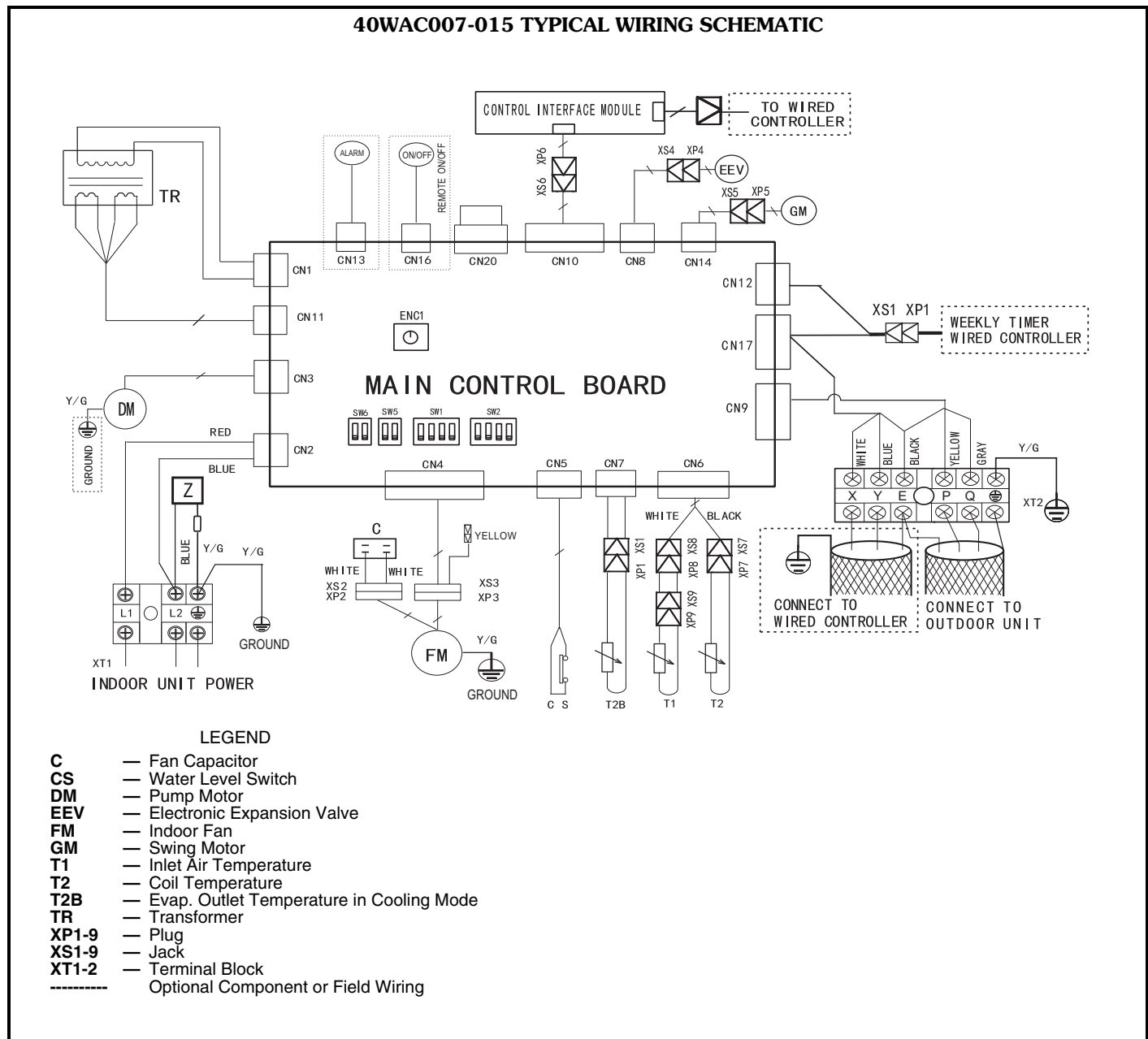
LEGEND

MCA — Minimum Circuit Amps
MOPD — Maximum Overcurrent Protective Device



40WAC (compact cassette) (cont)

Typical wiring schematic



40WAD (concealed ducted)



Physical data

40WAD PHYSICAL DATA

UNIT 40WAD	007	009	012	015	018	024
POWER SUPPLY (V-Ph-Hz)	208/230-1-60					
COOLING CAPACITY (Btuh)	7,000	9,000	12,000	15,000	19,000	24,000
HEATING CAPACITY (Btuh)	8,000	10,900	13,600	17,000	21,000	27,300
INDOOR FAN MOTOR						
Type	DC Motor					
Input (W)	50		55	80	90	110
INDOOR COIL						
Number of Rows	2					
Fin Spacing (fins/in.)	16				19	
Fin Type	Aluminum with Hydrophilic Coating					
Tube Diameter, OD (in.)	1/4					
Tube Type	Copper Tube with Inner Groove					
Number of Circuits	3	4		6		
INDOOR AIRFLOW (cfm)						
Low	230		230	300	350	470
Medium	280		280	370	420	560
High	330		330	430	500	660
INDOOR EXTERNAL STATIC PRESSURE (High), in. wg	0.04 to 0.20					
INDOOR NOISE LEVEL (dBA)						
Low	31	31	33	33		34
Medium	34	34	36	37		38
High	35	36	37	38		40
UNIT						
Unit Dimensions, W x H x D (in.)	27 1/2 x 8 1/4 x 19 3/4			36 1/4 x 8 1/4 x 19 3/4		44 7/8 x 8 1/4 x 19 3/4
Packing Dimensions, W x H x D (in.)	37 1/2 x 11 1/4 x 20 1/2			46 1/2 x 11 1/2 x 21		55 x 11 1/4 x 22 1/2
Net/Gross Weight (lb)	38.5/51			49.6/57.3		61.7/71
FRESH AIR INTAKE HOLE DIAMETER (in.)	3 5/8					
REFRIGERANT TYPE	R-410A					
EXPANSION DEVICE	EXV (Weld Connection)					
DESIGN PRESSURE, High/Low (psig)	650/250					
REFRIGERANT PIPING (in.)						
Liquid Side, OD	1/4				3/8	
Suction Side, OD	1/2				5/8	
CONNECTING WIRING						
Power Wiring	Sized per NEC and Local Codes Based on Nameplate Electrical Data 3 x 14 AWG					
Signal Wiring	3-Core Shielded Wire x 20 AWG					
DRAINAGE WATER PIPE DIAMETER, OD (in.)	1					

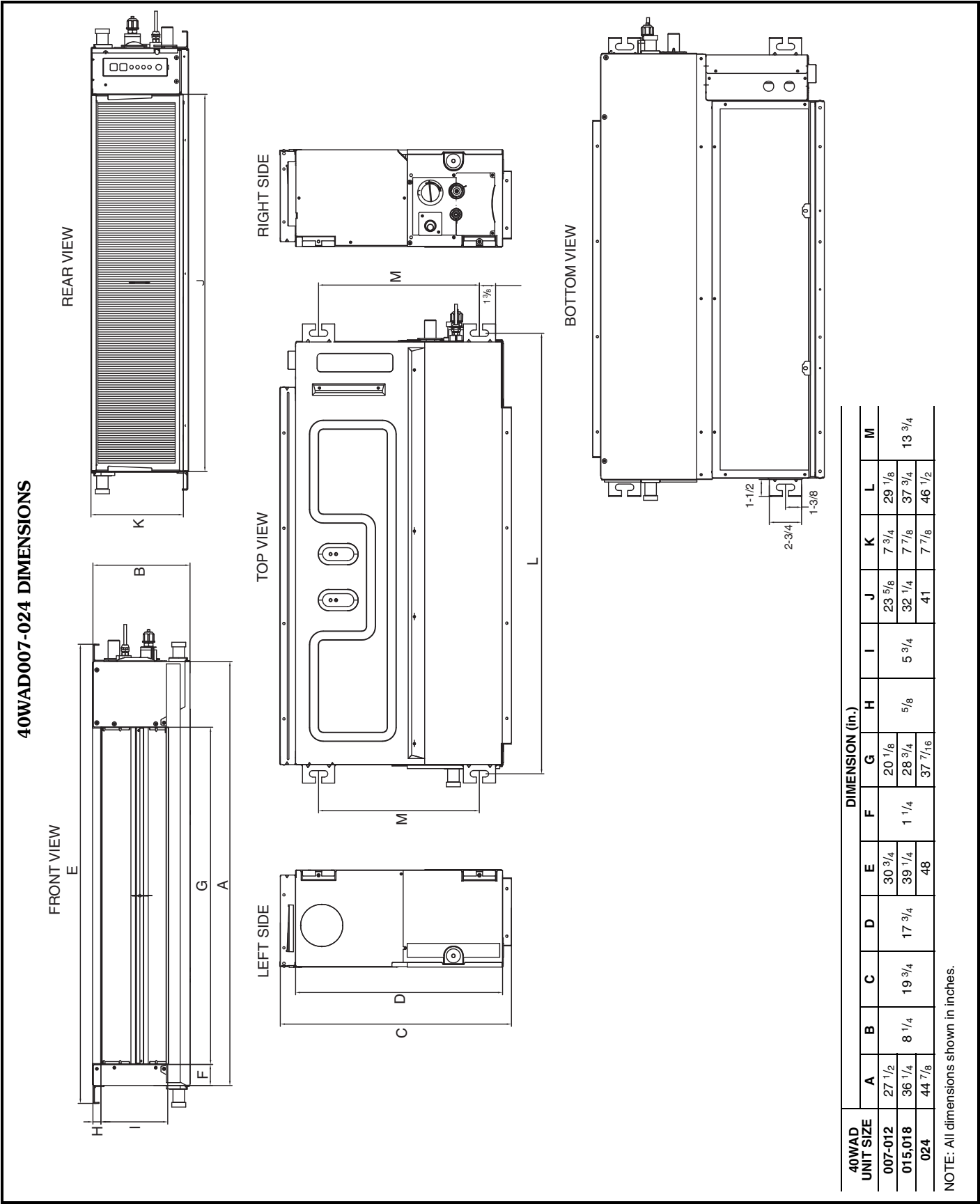
LEGEND

AWG — American Wire Gage
EXV — Electronic Expansion Valve
NEC — National Electrical Code

40WAD (concealed ducted) (cont)

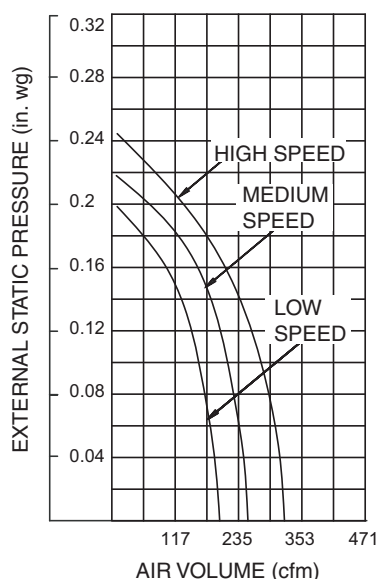


Dimensions

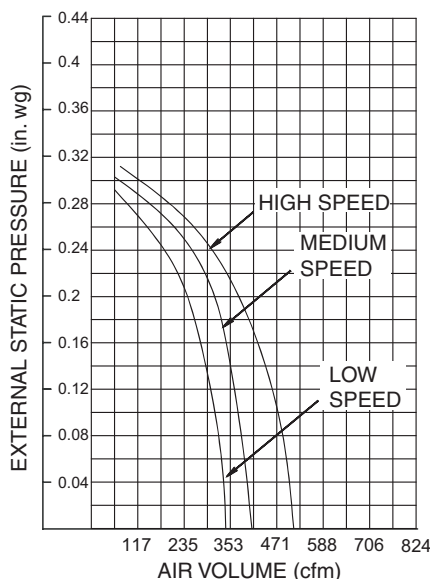


Performance data

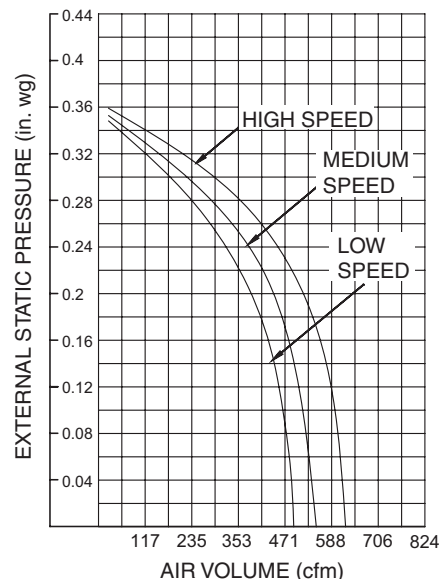
40WAD FAN PERFORMANCE CURVES



40WAD007-012



40WAD015,018



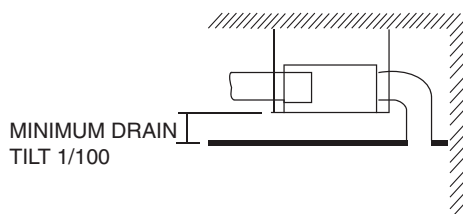
40WAD024

Application data

The 40WAD indoor unit must be installed in a location that meets the following requirements:

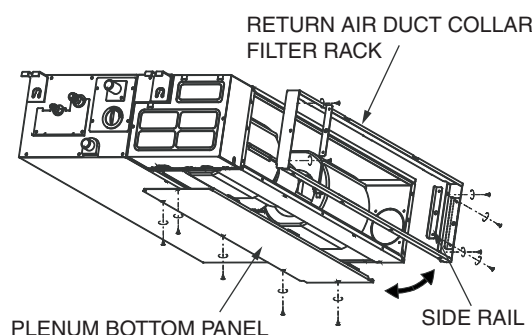
- The unit must be located in a position within the room that allows uniform airflow in all directions. The unit should be installed in a position that is suitable to support the total weight of the unit, refrigerant piping and condensate piping.
- Proper access must be provided for maintenance for refrigerant piping, EXV, electrical box, and condensate pump. A 2-ft clearance is recommended all around the unit.
- The ceiling is must be able to support the weight of the unit. See 40WAD Physical Data on page 19 for nominal weight.
- There should be enough room within the false ceiling for installation and maintenance (see below).

40WAD FALSE CEILING INSTALLATION



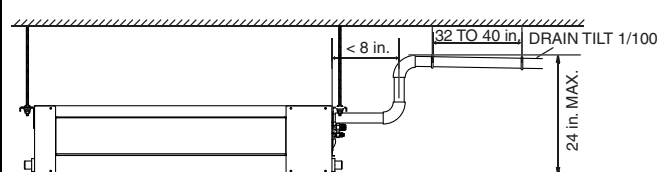
Based on the return air arrangement requirement in the field, the unit can be modified from rear return to bottom return. As shown in the 40WAD Return Air Arrangement figure, remove return air duct collar/filter rack and plenum bottom panel. Swap the position to change the rear return to bottom return arrangement.

40WAD RETURN AIR ARRANGEMENT



Condensate piping — The 40WAD unit is supplied with a 1 1/4-in. OD drain connection to connect copper or PVC drain piping. The condensate drain should have sufficient downward slope (1 in. per 100 in.) in any horizontal run between unit and drain. Maximum condensate lift is 29 1/2 inches. The highest point in the condensate piping should be as close to the unit as possible. Condensate piping must not be installed where it may be exposed to freezing temperatures. See below.

40WAD CONDENSATE PIPING



40WAD (concealed ducted) (cont)



Refrigerant piping — Check for maximum elevation level and length of refrigerant piping between the indoor and outdoor unit. If the difference is more than 33 ft, consider mounting the outdoor unit above indoor unit.

The refrigeration piping starts at the indoor unit and ends at the outdoor unit. The number of bends in the refrigeration piping must be fewer than 15. The bending angle of the refrigerant pipe should not exceed 90 degrees and the bending radius should be as large as possible to prevent any breakage in piping.

Electrical data

Electric wiring must be sized to carry the full load amp draw of the motor, starter, and any other controls that are used with the unit. See the 40WAD Electrical Data table below.

40WAD ELECTRICAL DATA

40WAD UNIT SIZE	POWER SUPPLY	
	MCA	MOPD
007	0.5	15
009	0.5	15
012	0.6	15
015	0.7	15
018	0.9	15
024	1.1	15

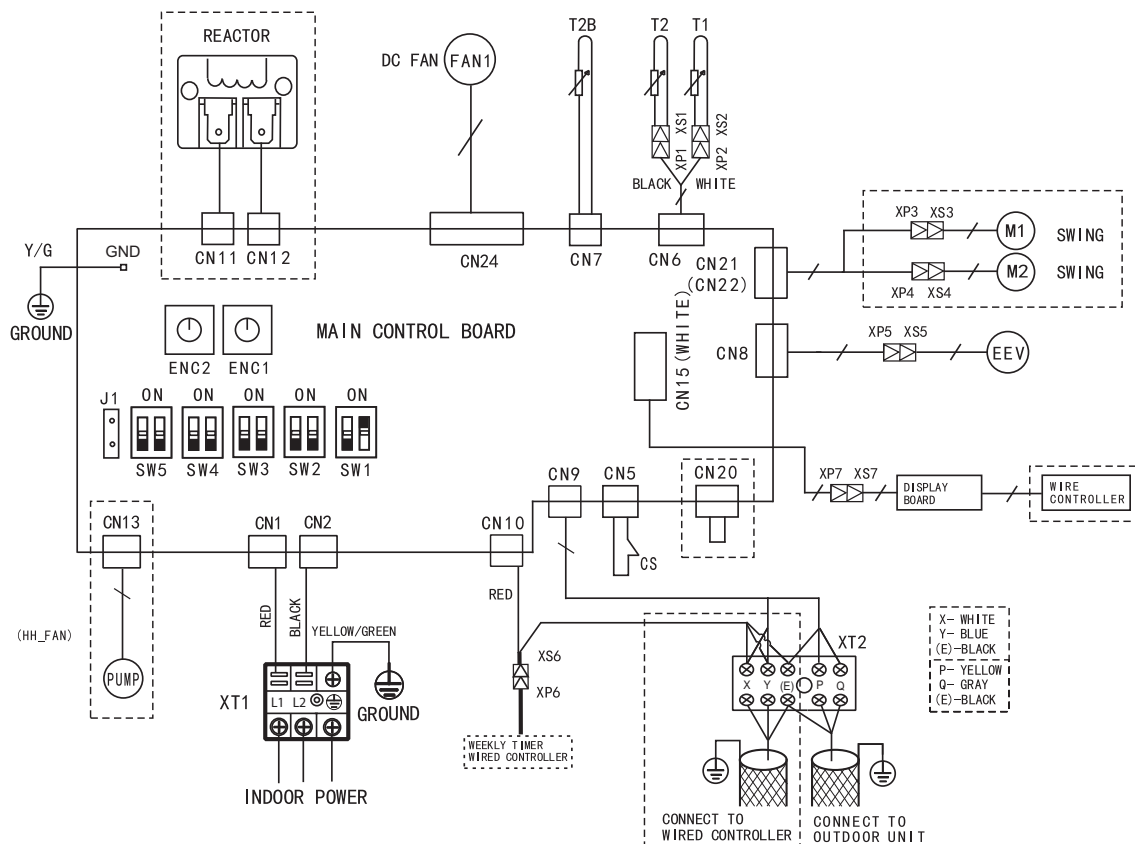
LEGEND

MCA — Minimum Circuit Amps
MOPD — Maximum Overcurrent Protective Device



Typical wiring schematic

40WAD007-024 TYPICAL WIRING SCHEMATIC



LEGEND

CS	— Water Level Switch
EEV	— Electronic Expansion Valve
FAN1	— DC Indoor Fan
M1, M2	— Swing Motor
PUMP	— Pump Motor
T1	— Inlet Air Temperature
T2	— Coil Temperature
T2B	— Evap. Outlet Temperature in Cooling Mode
XP1-9	— Plug
XS1-9	— Jack
XT1-2	— Terminal Block
-----	— Optional Component or Field Wiring

NOTE: Field wiring must use copper conductors only.

40WAF (4-way cassette)



Physical data

40WAF PHYSICAL DATA

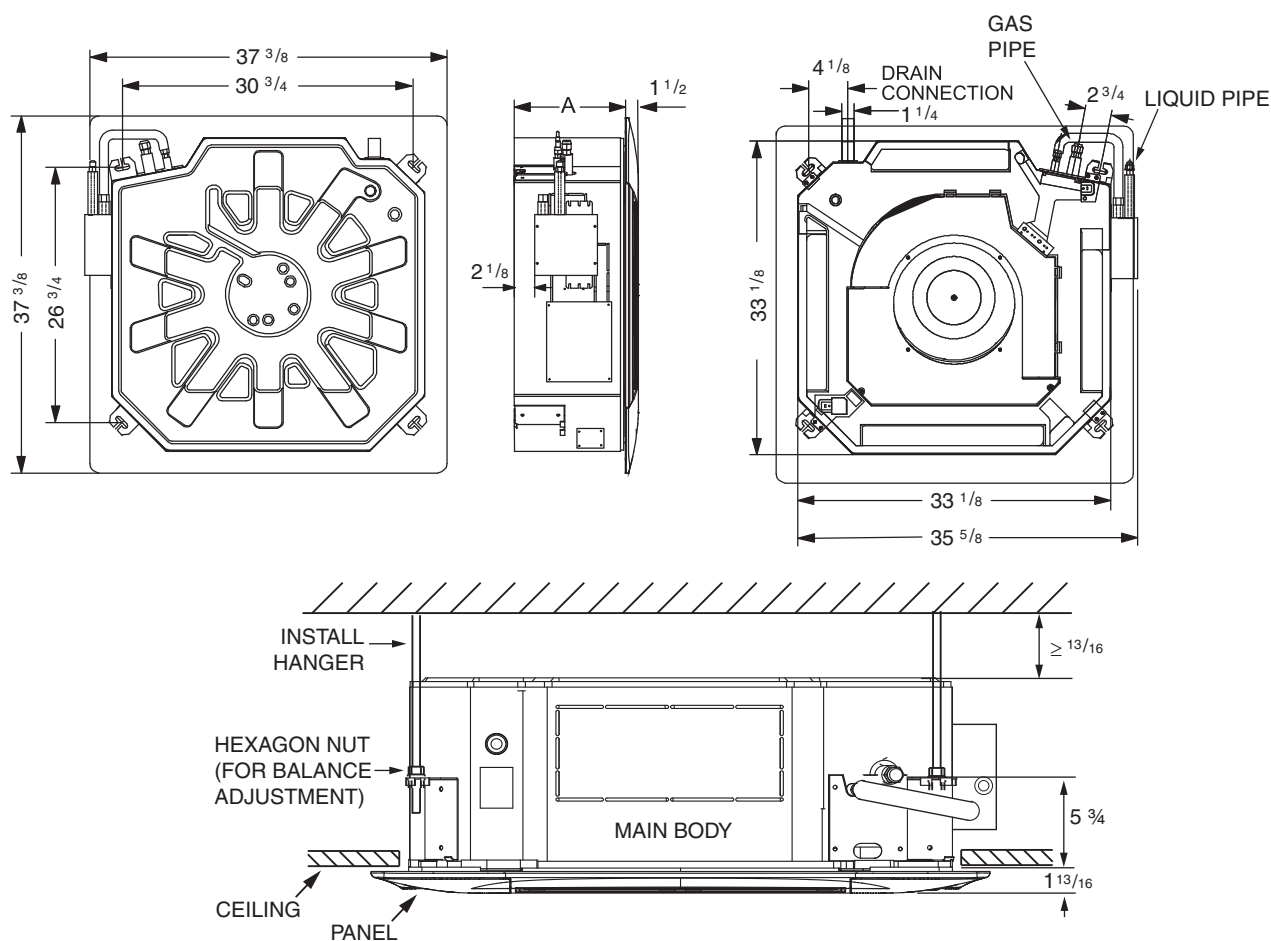
UNIT 40WAF	009	012	015	018	024	030	036	048
POWER SUPPLY (V-Ph-Hz)	208/230-1-60							
COOLING CAPACITY (Btuh)	9,000	12,000	15,000	18,000	24,000	30,000	36,000	48,000
HEATING CAPACITY (Btuh)	10,900	13,600	17,000	21,500	27,000	34,000	42,000	51,200
INDOOR FAN MOTOR	DC Motor							
Type								
Input (W)	55	55		60	120		135	
INDOOR COIL	2							
Number of Rows								
Fin Spacing (fins/in.)	16							
Fin Type	Aluminum with Hydrophilic Coating							
Tube Diameter, OD (in.)	0.275							
Tube Type	Copper Tube with Inner Groove							
Number of Circuits	4		8				12	
INDOOR AIRFLOW (cfm)	720							
Low								
Medium	490		504		584		729	
High	578		606		706		939	
INDOOR NOISE LEVEL (dBA)	35							
Low								
Medium	37		38		39		41	
High	42		43		45		47	
UNIT	35 5/8 x 9 x 33 1/8							
Unit Dimensions, W x H x D (in.)								
Packing Dimensions, W x H x D (in.)	37 19/32 x 10 15/64 x 37 19/32				37 19/32 x 12 63/64 x 37 19/32			
Net/Gross Weight (lb)	49/64		53/66			62/77		66/82
PANEL	37 3/8 x 2 9/64 x 37 3/8							
Panel Dimensions, W x H x D (in.)								
Packing Dimensions, W x H x D (in.)	13/20							
Net/Gross Weight (lb)	R-410A							
REFRIGERANT TYPE	EXV							
EXPANSION DEVICE	650/250							
DESIGN PRESSURE, High/Low (psig)	5/8							
REFRIGERANT PIPING (in.)								
Liquid Side, OD	1/2		5/8					
Suction Side, OD	Sized per NEC and Local Codes Based on Nameplate Electrical Data 3 x 14 AWG (<65 ft)							
CONNECTING WIRING								
Power Wiring	1 1/4							
Signal Wiring	Wireless Remote Controller (Standard)							
DRAINAGE WATER PIPE DIAMETER, OD (in.)								
CONTROLLER								

LEGEND

AWG — American Wire Gage
EXV — Electronic Expansion Valve
NEC — National Electrical Code

Dimensions

40WAF009-048 DIMENSIONS



40WAF UNIT SIZE	DIMENSION A
009	9
012	
015	
018	
024	
030	11 $\frac{7}{8}$
036	
048	

NOTE: All dimensions shown in inches.

40WAF (4-way cassette) (cont)



Application data

The 40WAF indoor unit must be installed in a location that meets the following requirements:

- The unit must be located in a position within the room that allows uniform airflow in all directions. The unit should be installed in a position that is suitable to support the total weight of the unit, refrigerant piping and condensate piping.
- The unit should be at least 40 in. from a wall or similar obstruction.
- Recommended distance between 2 units is 10 ft to avoid air recirculation.
- Proper access should be provided for maintenance for refrigerant piping, EXV, electrical box, and condensate pump. A 2-ft clearance is recommended all around the unit.
- The hanger bolts must be able to support the weight of the unit. See below.

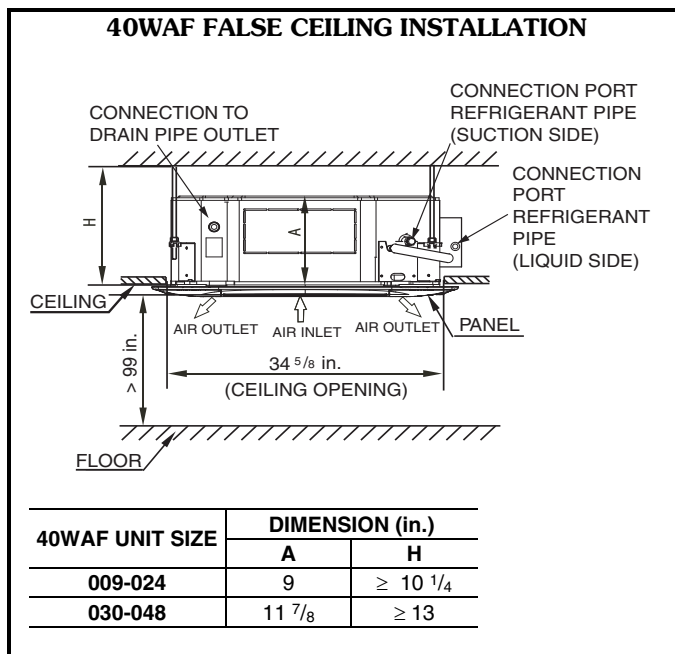
40WAF UNIT WEIGHT

40WAF UNIT	WEIGHT (lb)*
009	62
012	62
015	66
018	66
024	66
030	75
036	75
048	79

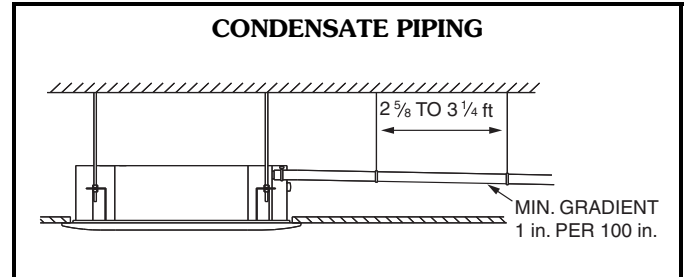
*Includes grille (panel) weight.

- Adequate space must be allowed for installation, service clearance, piping and electrical connections, and necessary ductwork. There should be enough room within the false ceiling for installation and maintenance.

40WAF FALSE CEILING INSTALLATION



Condensate piping — The 40WAF unit is supplied with a $1 \frac{1}{4}$ -in. OD drain connection to connect copper or plastic drain piping. The condensate drain should have sufficient downward slope (1 in. per 100 in.) in any horizontal run between unit and drain. Maximum condensate lift is $29 \frac{1}{2}$ inches. The highest point in the condensate piping should be as close to the unit as possible. Condensate piping must not be installed where it may be exposed to freezing temperatures. See below.



Refrigerant piping — Check for maximum elevation level and length of refrigerant piping between the indoor and outdoor unit. If the difference is more than 33 ft, consider mounting the outdoor unit above indoor unit.

The refrigeration piping starts at the indoor unit and ends at the outdoor unit. The number of bends in the refrigeration piping must be fewer than 15. The bending angle of the refrigerant pipe should not exceed 90 degrees and the bending radius should be as large as possible to prevent any breakage in piping.

Electrical data

Electric wiring must be sized to carry the full load amp draw of the motor, starter, and any other controls that are used with the unit. See below.

40WAF ELECTRICAL DATA

40WAF UNIT SIZE	POWER SUPPLY	
	MCA	MOPD
009	0.7	15
012	0.7	15
015	0.7	15
018	0.7	15
024	0.8	15
030	1.4	15
036	1.4	15
048	1.4	15

LEGEND

MCA — Minimum Circuit Amps
MOPD — Maximum Overcurrent Protective Device



40WAH (high static ducted)



Physical data

40WAH PHYSICAL DATA

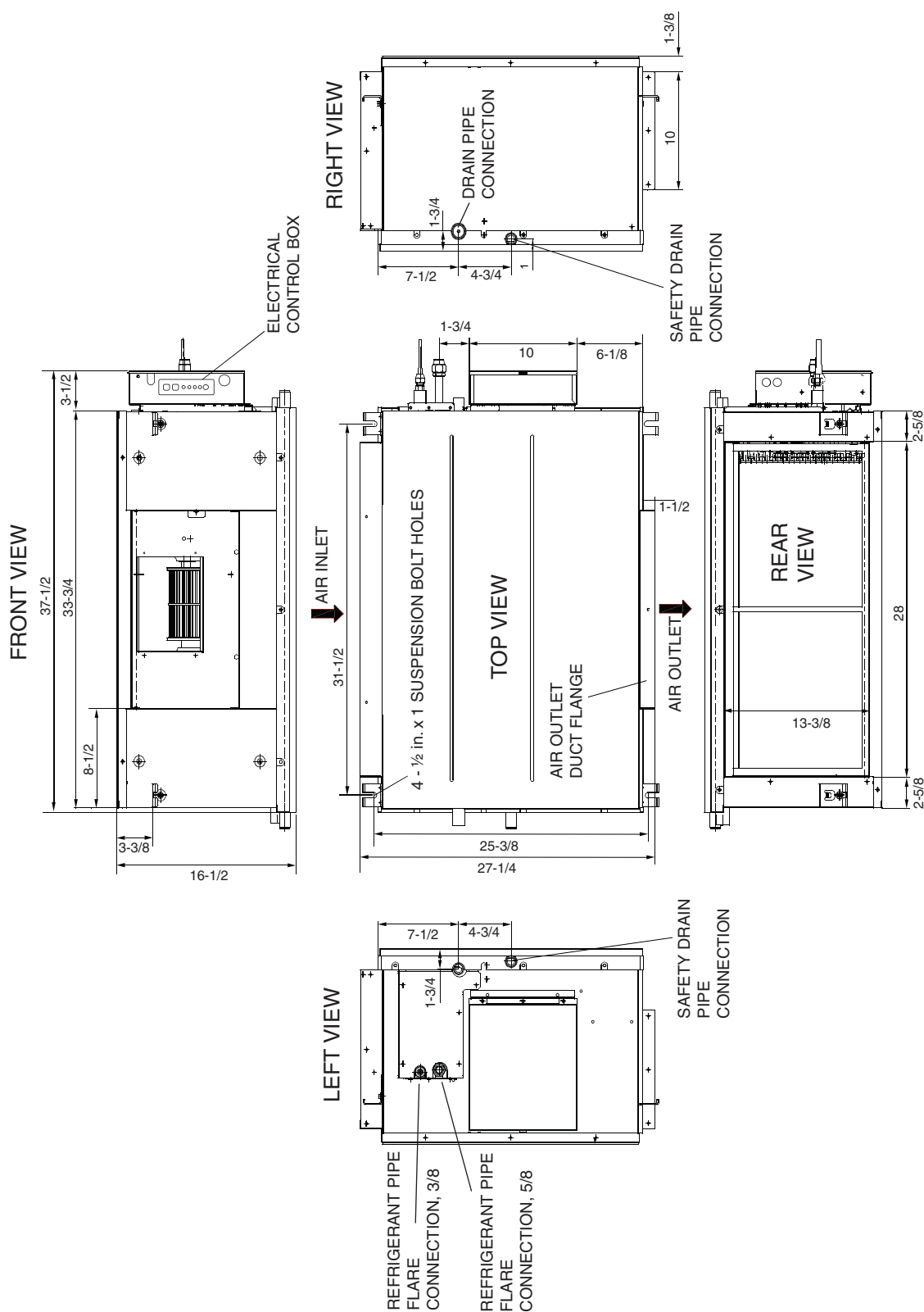
UNIT 40WAH	024	030	036	048
POWER SUPPLY (V-Ph-Hz)	208/230-1-60			
COOLING CAPACITY (Btuh)	24,000	30,000	36,000	48,000
HEATING CAPACITY (Btuh)	27,000	34,000	42,000	54,000
INDOOR FAN MOTOR	AC Motor			
Type				
Input (W)	435	430	430	555
INDOOR COIL				
Number of Rows	2	3	3	4
Fin Spacing (fins/in.)	16			
Fin Type	Aluminum with Hydrophilic Coating			
Tube Diameter, OD (in.)	$\frac{3}{8}$			
Tube Type	Copper Tube with Inner Groove			
Number of Circuits	3	7	7	7
INDOOR AIRFLOW (cfm)				
Low	690	910	1010	1290
Medium	730	970	1140	1500
High	780	1030	1210	1730
INDOOR EXTERNAL STATIC PRESSURE, High (in. wg)	0.1 to 0.8	0.15 to 0.8	0.2 to 0.8	0.2 to 0.8
INDOOR NOISE LEVEL (dBA)				
Low	44.5	47	47	48
Medium	46	49	49	50
High	48	52	52	53
UNIT DIMENSIONS, W x H x D (in.)	37 $\frac{1}{2}$ x 16 $\frac{1}{2}$ x 27 $\frac{1}{4}$			51 $\frac{1}{4}$ x 16 $\frac{1}{2}$ x 27 $\frac{1}{4}$
PACKING DIMENSIONS, W x H x D (in.)	43 x 17 $\frac{3}{4}$ x 30 $\frac{1}{4}$			56 $\frac{1}{2}$ x 17 $\frac{3}{4}$ x 30 $\frac{1}{4}$
NET/GROSS WEIGHT (lb)	95/107	105/118	105/118	150/165
REFRIGERANT TYPE	R-410A			
EXPANSION DEVICE	EXV			
DESIGN PRESSURE, High/Low (psig)	650/250			
REFRIGERANT PIPING (in.)				
Liquid Side, OD	$\frac{3}{8}$			
Suction Side, OD	$\frac{5}{8}$			
CONNECTING WIRING				
Power Wiring	Sized per NEC and Local Codes Based on Nameplate Electrical Data 3 x 13 AWG (<65 ft)			
Signal Wiring	3-Core Shielded Wire x 20 AWG			
DRAINAGE WATER PIPE DIAMETER, OD (in.)	1 $\frac{1}{4}$			
CONTROLLER	Wired Controller			

LEGEND

- AWG** — American Wire Gage
EXV — Electronic Expansion Valve
NEC — National Electrical Code

Dimensions

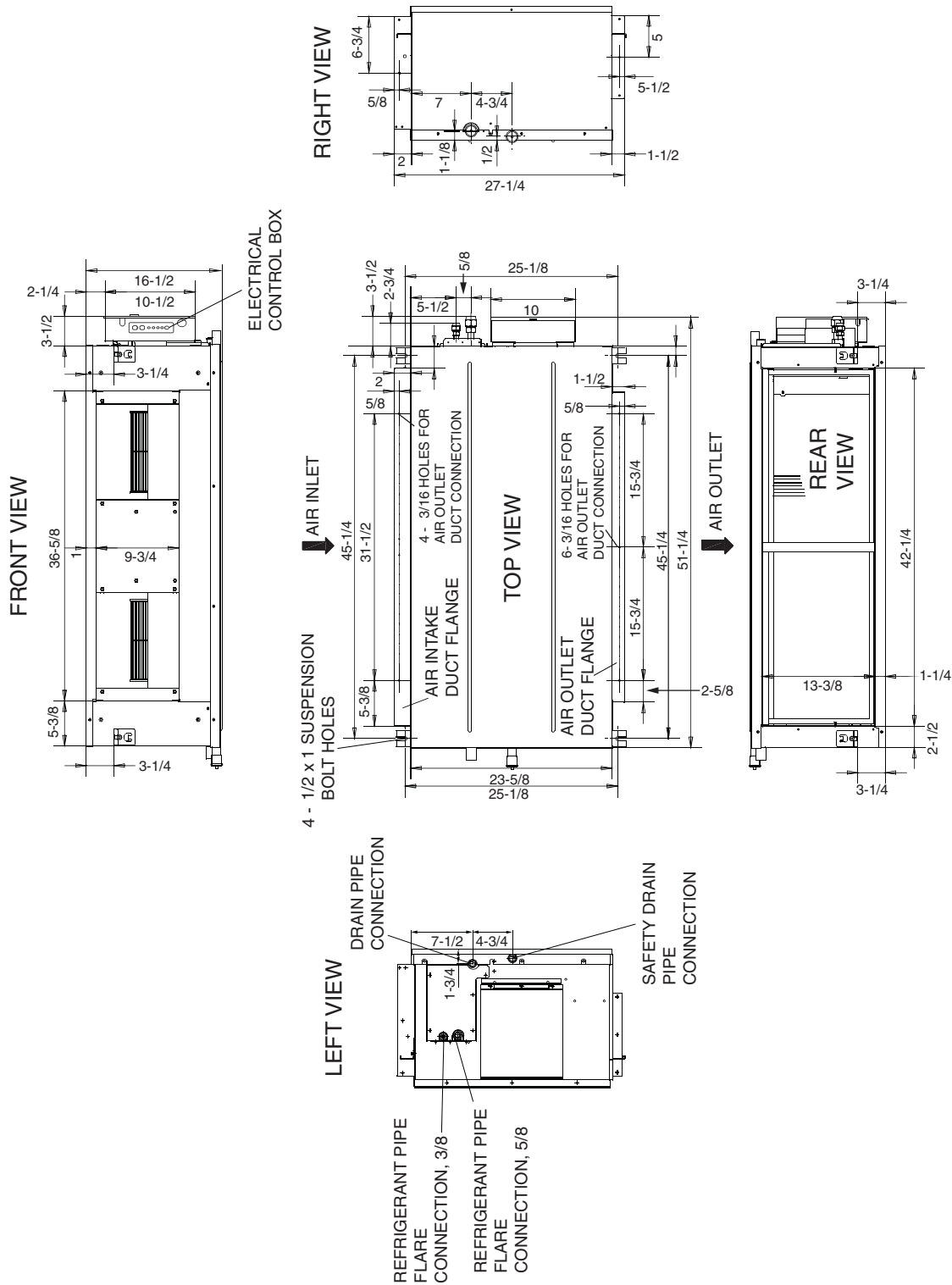
40WAH024-036 DIMENSIONS



NOTE: All dimensions shown in inches.

40WAH048 (high static ducted) (cont)

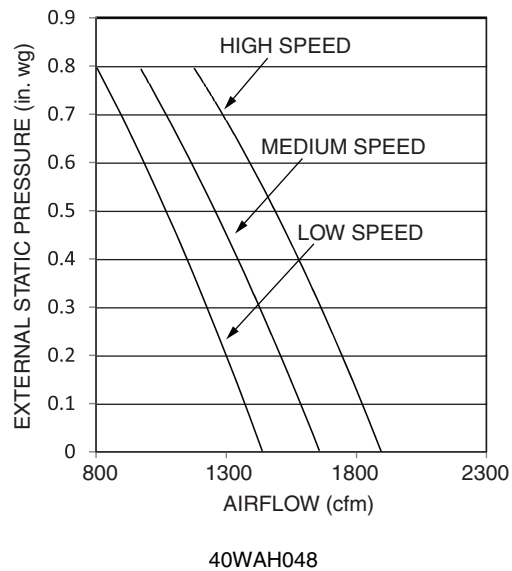
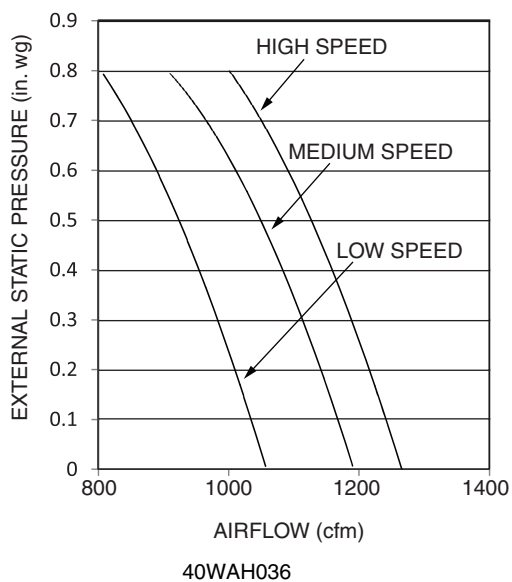
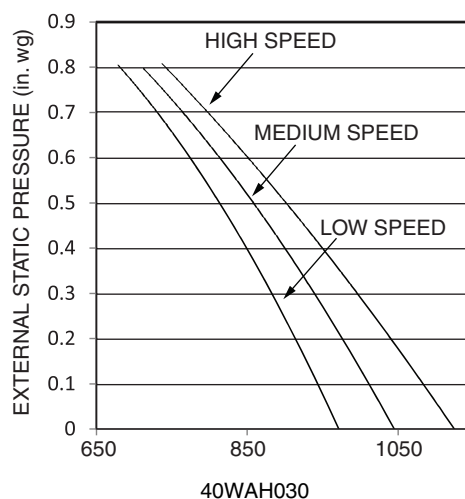
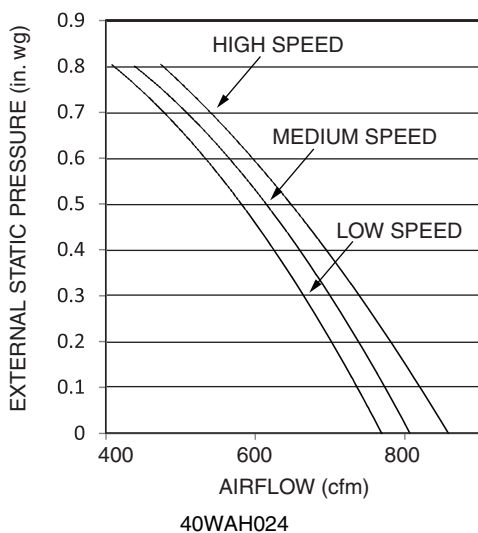
40WAH048 DIMENSIONS



NOTE: All dimensions shown in inches.

Performance data

40WAH FAN PERFORMANCE CURVES

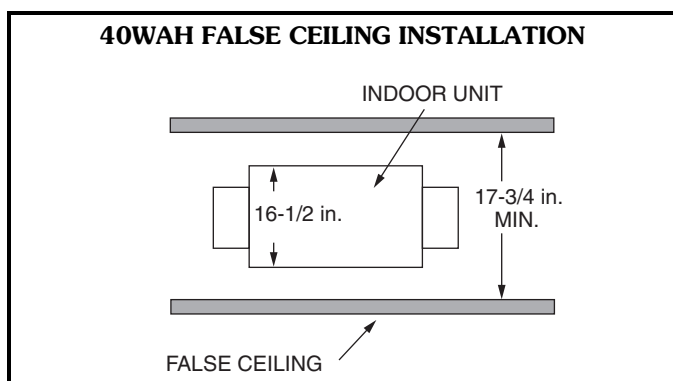


40WAH (high static ducted) (cont)

Application data

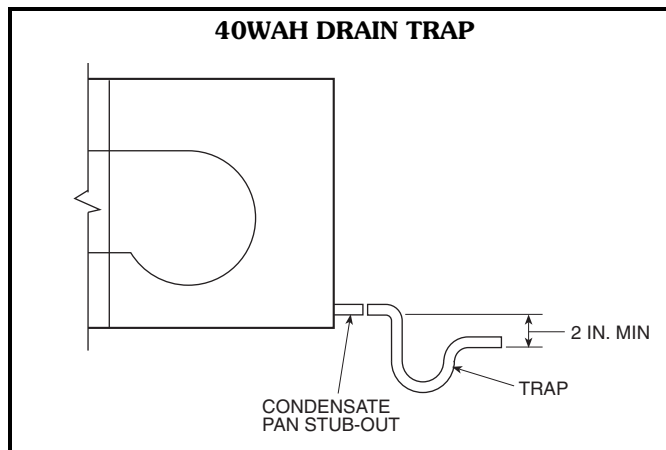
The 40WAH indoor unit must be installed in a location that meets the following requirements:

- The unit must be located in a position within the room that allows uniform airflow in all directions. The unit should be installed in a position that is suitable to support the total weight of the unit, refrigerant piping and condensate piping.
- Proper access should be provided for maintenance for refrigerant piping, EXV, electrical box, and condensate pump. A 2-ft clearance is recommended all around the unit.
- The ceiling is able to support the weight of the unit. See 40WAH Physical Data on page 28 for nominal weight.
- There should be enough room within the false ceiling for installation and maintenance (see below).



Condensate piping — The 40WAH unit is supplied with a 1 1/4-in. OD drain connection to connect copper or PVC drain piping. Condensate piping should slope downward in the direction of condensate flow, with a minimum gradient of 1 in. per 100 inches. Condensate piping must not be installed where it may be exposed to freezing temperatures.

A drain trap may be required by local codes and is recommended for odor control. The differential inlet-to-outlet height must be at least 1 in. wg greater than the total static pressure of the unit. The differential height of the outlet to the bottom of the trap must be equal to or greater than the total static pressure of the unit. Provide a trap of at least 2 in. near the end of the drain line to prevent odors. See 40WAH Drain Trap figure, this page.



Refrigerant piping — Maximum elevation differential (indoor to outdoor) and length of refrigerant piping is 33 ft. If this is exceeded consider mounting the outdoor unit above the indoor unit.

The refrigeration piping starts at the indoor unit and ends at the outdoor unit. The number of bends in the refrigeration piping must be fewer than 15. The bending angle of the refrigerant pipe should not exceed 90 degrees and the bending radius should be as large as possible to prevent any breakage in piping.

Electrical data

Electric wiring must be sized to carry the full load amp draw of the motor, starter, and any other controls that are used with the unit. See below.

40WAH ELECTRICAL DATA

40WAH UNIT SIZE	POWER SUPPLY	
	MCA	MOPD
024	2.4	15
030	2.5	15
036	2.5	15
048	3.0	15

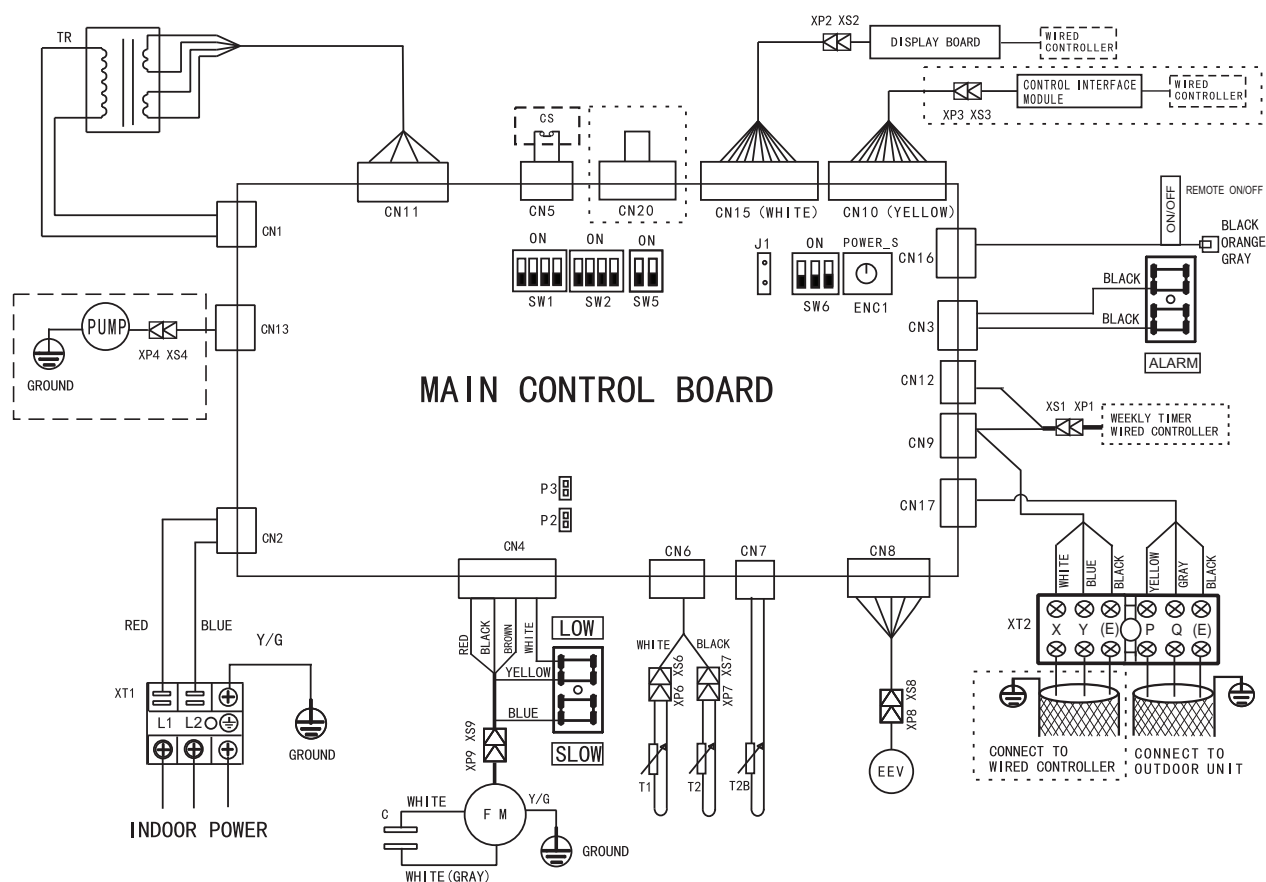
LEGEND

MCA — Minimum Circuit Amps
MOPD — Maximum Overcurrent Protective Device



Typical wiring schematic

40WAH024-036 TYPICAL WIRING SCHEMATIC



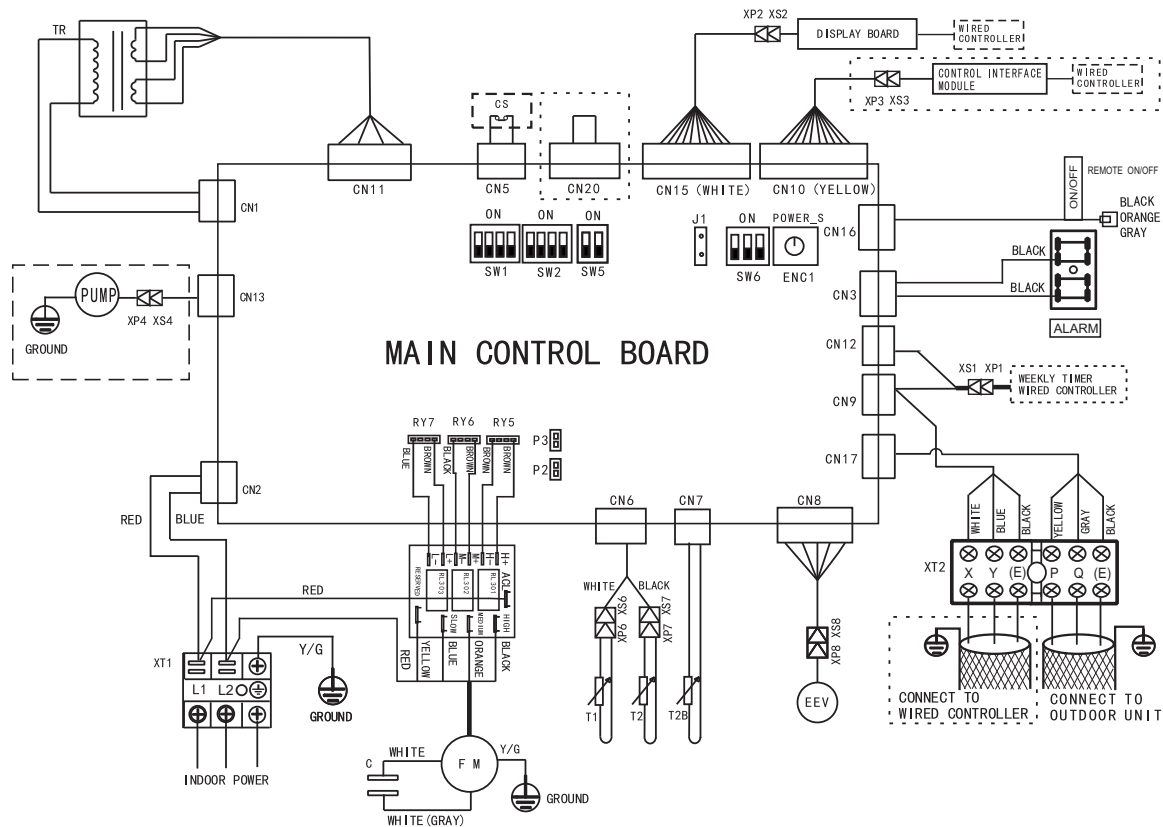
LEGEND

C	— Fan Capacitor
CS	— Water Level Switch
EEV	— Electronic Expansion Valve
FM	— Indoor Fan
PUMP	— Pump Motor
T1	— Inlet Air Temperature
T2	— Coil Temperature
T2B	— Evap. Outlet Temperature in Cooling Mode
TR	— Transformer
XP1-8	— Plug
XS1-8	— Jack
XT1-2	— Terminal Block
-----	Optional Component or Field Wiring

NOTE: Field wiring must use copper conductors only.

40WAH (high static ducted) (cont)

40WAH048 TYPICAL WIRING SCHEMATIC



NOTE: Field wiring must use copper conductors only.

40WAU (under ceiling)



Physical data

40WAU PHYSICAL DATA

UNIT 40WAU	012	015	018	024	030	036	048
POWER SUPPLY (V-Ph-Hz)	208/230-1-60						
COOLING CAPACITY (Btuh)	12,000	16,000	18,000	24,000	30,000	38,000	48,000
HEATING CAPACITY (Btuh)	13,600	17,000	21,000	27,000	34,000	42,000	54,000
INDOOR FAN MOTOR	AC Motor						
Type							
Input (W)	45	170			195	265	
INDOOR COIL	3						
Number of Rows							
Fin Spacing (fins/in.)	15	14					
Fin Type	Aluminum with Hydrophilic Coating						
Tube Diameter, OD (in.)	3/8						
Tube Type	Copper Tube with Inner Groove						
Number of Circuits	3				5		
INDOOR AIRFLOW (cfm)	700						
Low							
Medium	350	650			800	900	
High	450	750			900	1200	
INDOOR NOISE LEVEL (dBA)	42						
Low							
Medium	38	41			43	45	
High	40	43			45	47	
UNIT	39 x 26 x 8						
Unit Dimensions, W x H x D (in.)							
Packing Dimensions, W x H x D (in.)	43 x 29 1/2 x 12				55 x 29 1/2 x 12		69 1/2 x 30 x 13
Net/Gross Weight (lb)	57/70	62/75			76/90	110/128	
REFRIGERANT TYPE	R-410A						
EXPANSION DEVICE	EXV (Built-In)						
DESIGN PRESSURE, High/Low (psig)	650/250						
REFRIGERANT PIPING (in.)	3/8						
Liquid Side, OD							
Suction Side, OD	1/2		5/8				
CONNECTING WIRING	Sized per NEC and Local Codes Based on Nameplate Electrical Data 3 x 14 AWG (<65 ft)						
Power Wiring							
Signal Wiring	3-Core Shielded Wire x 20 AWG						
DRAINAGE WATER PIPE DIAMETER, OD (in.)	5/8						

LEGEND

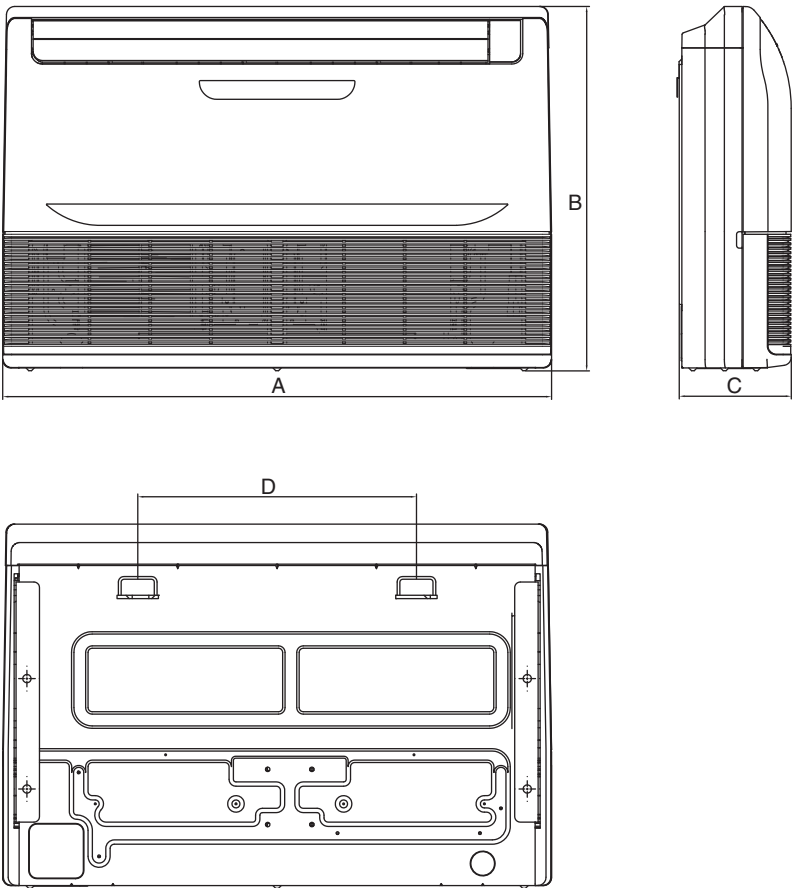
AWG — American Wire Gage
EXV — Electronic Expansion Valve
NEC — National Electrical Code

40WAU (under ceiling) (cont)



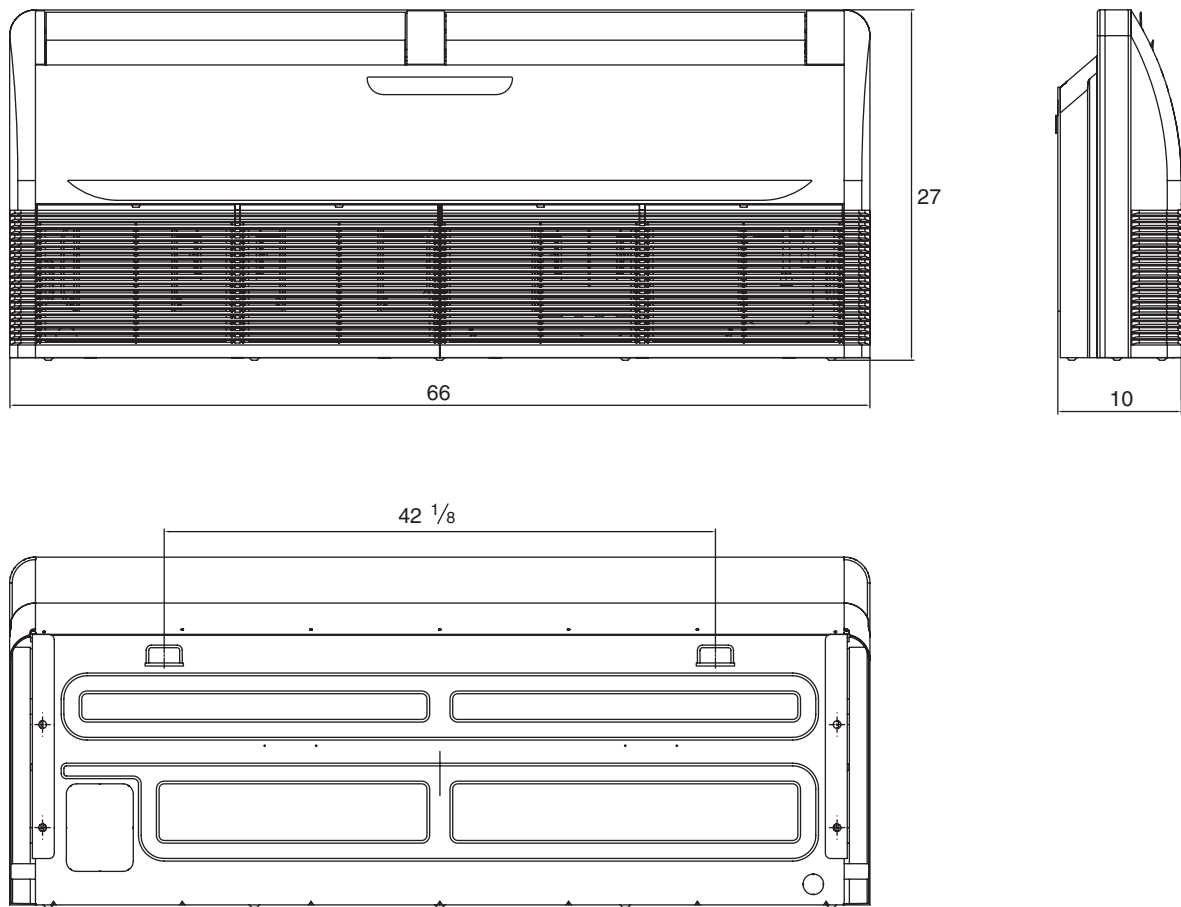
Dimensions

40WAU012-030 DIMENSIONS



40WAU UNIT SIZE	DIMENSION (in.)			
	A	B	C	D
012-024	39	26	8	19 7/8
030	50 1/2	26	8	31 1/4

40WAU036,048 DIMENSIONS



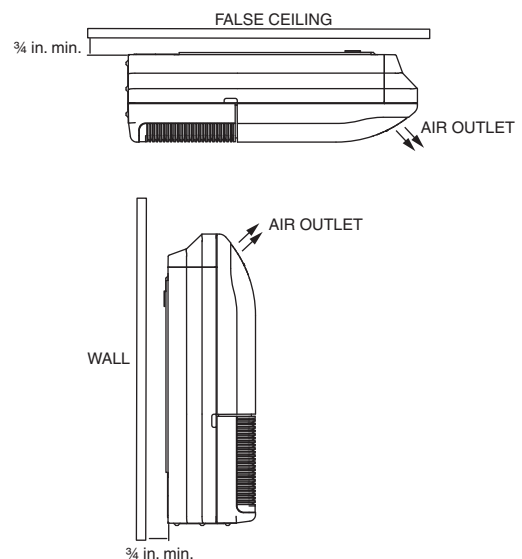
NOTE: All dimensions shown in inches.

Application data

The 40WAU indoor unit must be installed in a location that meets the following requirements:

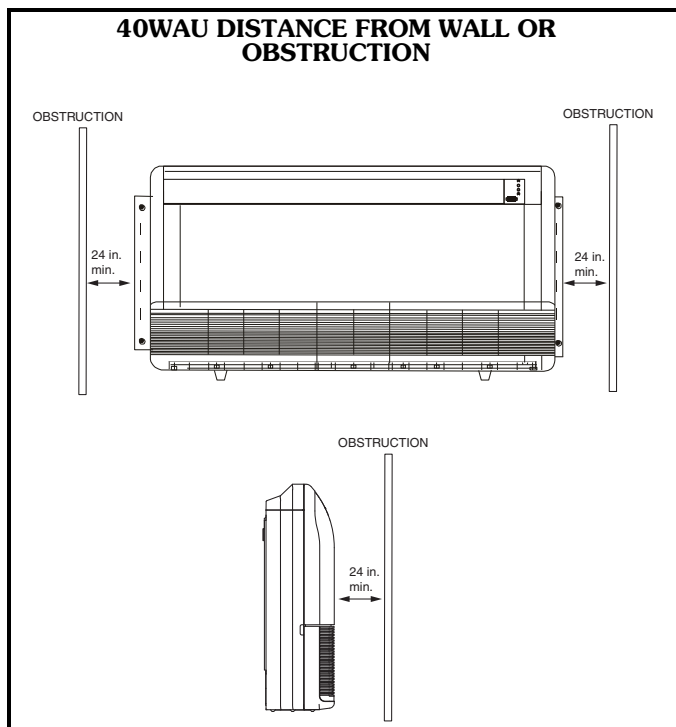
- The unit must be located in a position within the room that allows uniform airflow in all directions. The unit should be installed in a position that is suitable to support the total weight of the unit, refrigerant piping and condensate piping.
- Proper access should be provided for maintenance for refrigerant piping, EXV, electrical box, and condensate pump. A 2-ft clearance is recommended all around the unit.
- The ceiling or wall is able to support the weight of the unit. See 40WAU Physical Data on page 35 for nominal weight.
- There should be adequate space between the false ceiling and unit top for under-ceiling units, or between the wall and the back for floor units, for installation and maintenance.

40WAU SPACING FROM CEILING OR WALL



40WUA (under ceiling) (cont)

- The unit should be at least 24 in. from a wall or similar obstruction. See below.



Condensate piping — The unit is supplied with a 5/8-in. OD drain connection to connect copper or plastic drain piping. Condensate piping should slope downward in the direction of condensate flow, with a minimum gradient of 1 in. per 100 inches.

When multiple units are connected to a common condensate drain, ensure that the drain is large enough to accommodate the volume of condensate from all units. It is also recommended to have an air vent in the condensate piping to prevent any air locks.

Condensate piping must not be installed where it may be exposed to freezing temperatures.

Refrigerant piping — Check for maximum elevation differential and length of refrigerant piping between the indoor and outdoor unit. If the difference is more than 33 ft, consider mounting the outdoor unit above indoor unit.

The refrigeration piping starts at the indoor unit and ends at the outdoor unit. The number of bends in the refrigeration piping must be fewer than 15. The bending angle of the refrigerant pipe should not exceed 90 degrees and the bending radius should be as large as possible to prevent any breakage in piping.

Electrical data

Electric wiring must be sized to carry the full load amp draw of the motor, starter, and any other controls that are used with the unit. See below.

40WUA ELECTRICAL DATA

UNIT	POWER SUPPLY	
	MCA	MOPD
40WUA012	0.3	15
40WUA015	0.9	15
40WUA018	0.9	15
40WUA024	0.9	15
40WUA030	1.1	15
40WUA036	1.4	15
40WUA048	1.4	15

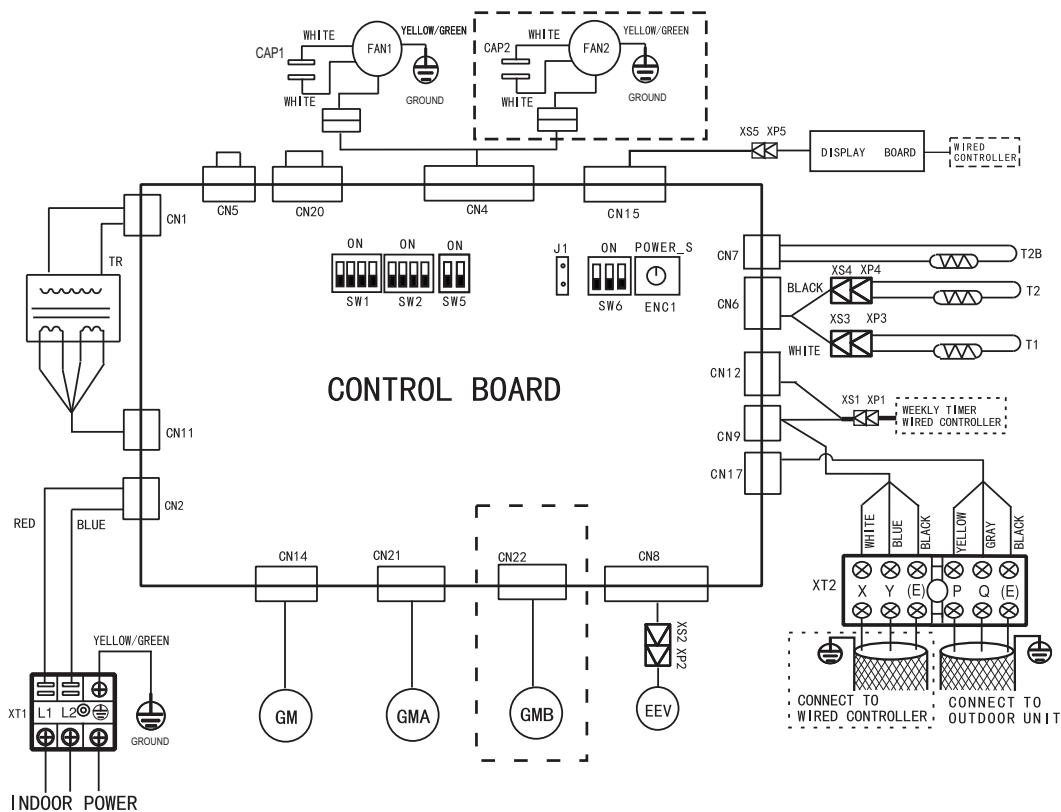
LEGEND

MCA — Minimum Circuit Amps
MOPD — Maximum Overcurrent Protective Device



Typical wiring schematic

40WAU012-048 TYPICAL WIRING SCHEMATIC



40WAV (vertical air-handling)



Physical data

40WAV PHYSICAL DATA

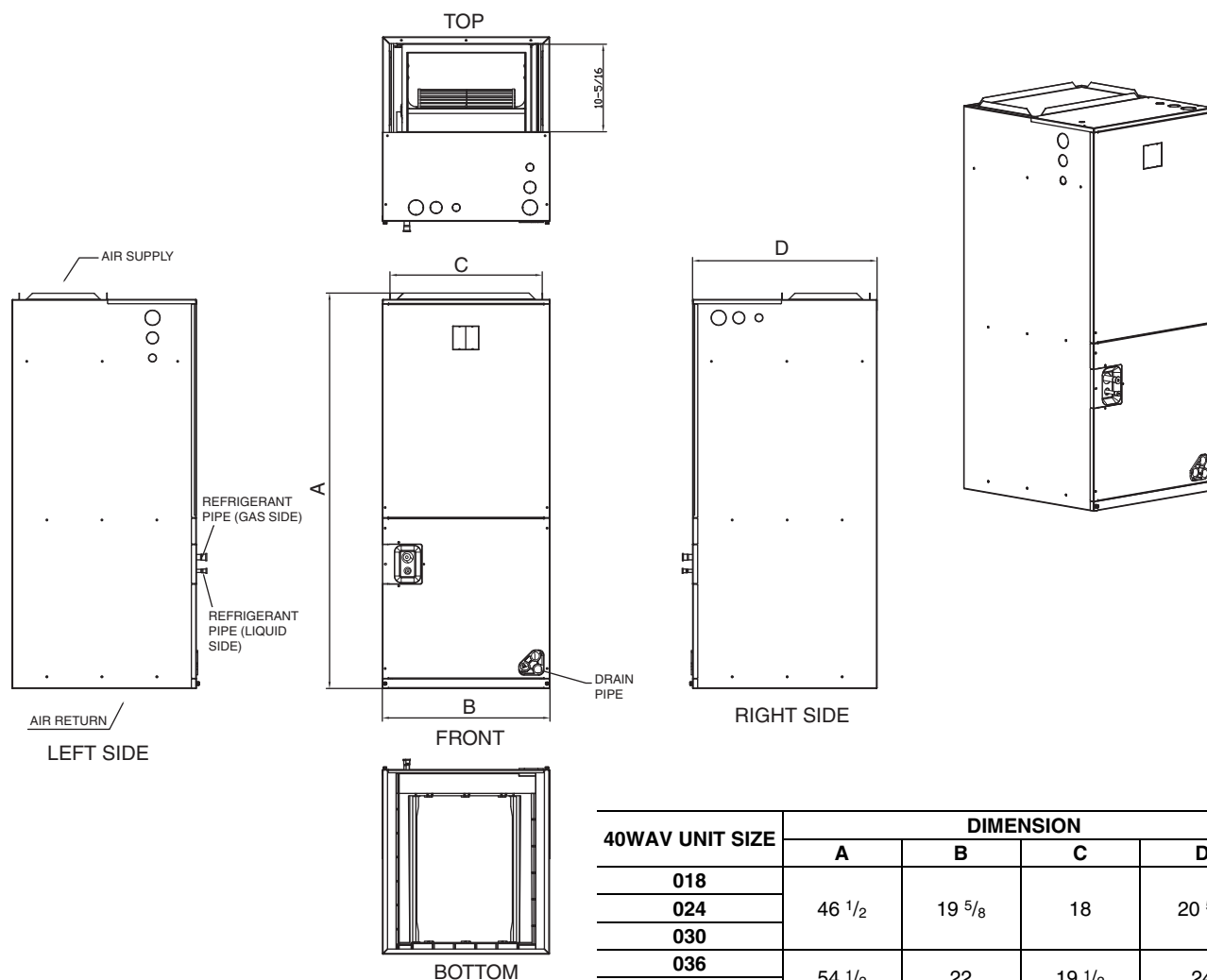
UNIT 40WAV	018	024	030	036	048
POWER SUPPLY (V-Ph-Hz)	208/230-1-60				
COOLING CAPACITY (Btuh)	18,000	24,000	30,000	36,000	48,000
HEATING CAPACITY (Btuh)	21,000	27,000	34,000	40,000	54,000
INDOOR FAN MOTOR					
Type	DC Motor				
Input (W)	220	290	390	350	590
Insulation Class	E				
INDOOR COIL					
Number of Rows	4 x 2				
Fin Spacing (fins/in.)	16				
Fin Type	Aluminum With Hydrophylc Coating				
Tube Diameter, OD (in.)	9/32				
Tube Type	Copper Tube with Inner Groove				
Number of Circuits	8			12	
INDOOR AIRFLOW (cfm)					
Low	460	600	750	900	1120
Medium	550	730	870	1050	1360
High	650	800	1000	1200	1650
EXTERNAL STATIC PRESSURE, HIGH (in. wg)	0.6		0.8		
INDOOR NOISE LEVEL (dBA)					
Low	43	43	47	52	55
Medium	45	47	49	54	57
High	48	49	52	57	58
SUPPLY DUCT DIMENSIONS, W x D (in.)	18 x 10 5/16			19 1/2 x 10 5/16	
DIMENSIONS					
Unit Dimensions, W x H x D (in.)	19 5/8 x 46 1/2 x 20 5/8			22 x 54 1/2 x 24	
Packing Dimensions, W x H x D (in.)	22 3/8 x 50 1/4 x 25 3/8			24 5/8 x 58 1/4 x 27 3/4	
Net/Gross Weight (lb)	123/147			163/190	
REFRIGERANT TYPE	R-410A				
EXPANSION DEVICE	EXV				
DESIGN PRESSURE (psig)	650				
REFRIGERANT PIPING (in.)					
Liquid Side, OD	1/4	3/8			
Suction Side, OD	1/2	5/8			
CONNECTING WIRING					
Power Wiring	Sized per NEC and Local Codes Based on Nameplate Electrical Data 3 x 14 AWG (<65 ft)				
Signal Wiring	3-Core Shielded Wire x 20 AWG				
DRAINAGE WATER PIPE DIAMETER, OD (in.)	3/4				

LEGEND

AWG — American Wire Gage
EXV — Electronic Expansion Valve
NEC — National Electrical Code

Dimensions

40WAV018-048 DIMENSIONS



40WAV UNIT SIZE	DIMENSION			
	A	B	C	D
018	46 1/2	19 5/8	18	20 5/8
024				
030				
036	54 1/2	22	19 1/2	24
048				

NOTE: All dimensions shown in inches.

Application data

The 40WAV indoor unit must be installed in a location that meets the following requirements:

- Allow adequate space for installation, service clearance, piping and electrical connections, and necessary ductwork. For specific unit dimensions, refer to 40WAV Physical Data on page 40 and 40WAV018-048 Dimensions above. Allow clearance according to local and national codes.
- Unit can be installed standing vertically on the floor or on a field-provided stand. If a stand is used, be sure it can support the weight of the unit. Unit can also be installed horizontally, either resting on the floor or suspended from the ceiling. If suspended, confirm that the ceiling is able to support the weight of the unit. See 40WAV Physical Data on page 40 for nominal weight.

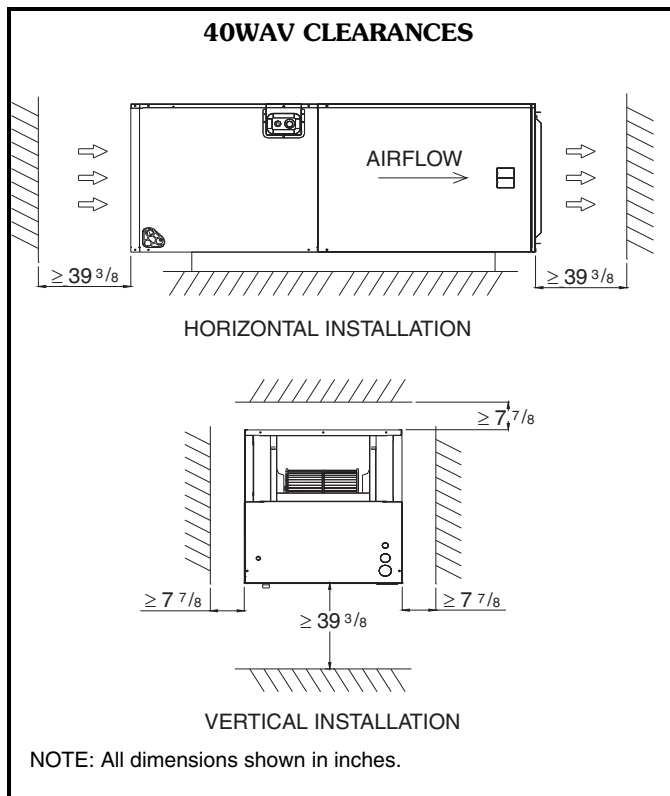
The unit should be installed on a structure that is suitable to support the total weight of the unit, refrigerant piping and condensate pping.

- If installed in the ceiling, be sure that the ceiling grid is supported separately from the unit. The ceiling grid must not be supported by any part of the unit, grille, or any associated wiring or piping.
- If the unit is to be installed over a finished ceiling and/or living area, building codes may require a field-supplied secondary condensate drain pan to be installed under the entire unit. Consult local codes inspector for additional information.
- Proper access should be provided for maintenance for refrigerant piping, EXV, electrical box, and condensate pump. A 2-ft clearance is recommended all around the unit.

40WAV (vertical air-handling) (cont)



- The unit should not be positioned close to a wall or similar obstruction, or in a position where the discharge air could blow directly on the thermostat. The unit should not be positioned directly above any obstruction. See below.



Ductwork

Up-flow installation — If return air is to be ducted, install duct flush to the floor. Use only the return-air opening provided. All return air must pass through the coil.

Horizontal installation — Installation must comply with all applicable building codes, which may require installation of a secondary condensate pan. To ensure proper drainage for horizontal installations, unit must be installed so it is within $\frac{1}{8}$ in. level of the length and width of the unit. Arrange support for unit by setting it in or above secondary condensate pan. When suspending unit from ceiling, dimples in casing indicate proper location of screws for mounting metal support straps.

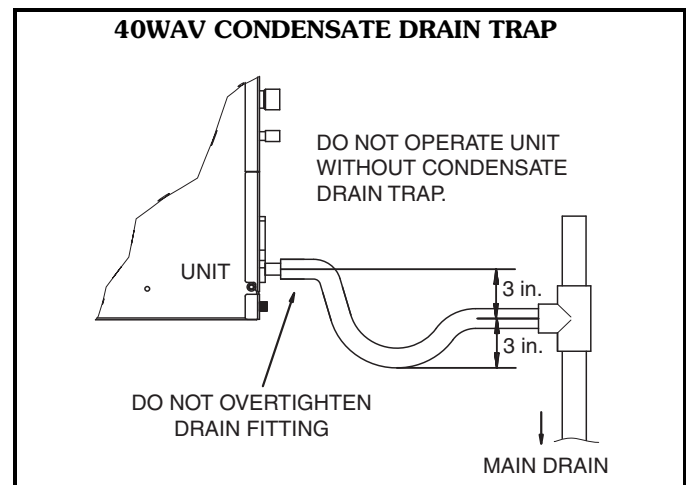
Duct connections — The supply-air duct is connected over the outside of a $\frac{3}{4}$ -in. flange provided on supply-air opening. Duct is secured to flange with proper fasteners for type of duct used, and the duct-to-unit joint must be sealed. Duct connection flanges are provided at the discharge air unit connection. Flexible connectors between ductwork and unit are used to prevent transmission of vibration. Ductwork passing through unconditioned space must be insulated and covered with vapor barrier.

Ductwork acoustical treatment — Metal duct systems that do not have a 90-degree elbow and 10 ft of main duct to first branch takeoff may require internal acoustical insulation lining. As an alternative, fibrous ductwork may be used if constructed and installed in accordance with the latest edition of SMACNA (Sheet Metal and Air-Conditioning Contractors' National Association) construction standard on fibrous glass ducts. Both acoustical lining and fibrous ductwork shall

comply with National Fire Protection Association Standards 90A or B as tested by UL (Underwriters Laboratories) Standard 181 for Class 1 air ducts.

Condensate piping — The unit is supplied with a $\frac{3}{4}$ -in. female pipe thread drain connection to connect drain piping. Condensate piping should slope downward in the direction of condensate flow, with a minimum gradient of 1 in. per 100 inches. Condensate piping should be installed in such a way that it does not block the front service panel. A drain trap may be required by local codes and is recommended for odor control.

The differential height between inlet and outlet should be at least 3 inches. The differential height between the bottom of the trap and outlet should also be 3 inches. See below.



Auxiliary drain should be connected and run to a location where it is easily visible when it becomes active, suggesting a problem with the main drain system.

When multiple units are connected to a common condensate drain, ensure that the drain is large enough to cope with the volume of condensate from all units. It is also recommended to have an air vent in the condensate piping to prevent air locks. Insulate the drain line to prevent sweating and provide proper support to prevent undue stress. Condensate piping must not be installed where it may be exposed to freezing temperatures.

Refrigerant piping — Check for maximum elevation differential and length of refrigerant piping between the indoor and outdoor unit. If the difference is more than 33 ft, consider mounting the outdoor unit above indoor unit.

The refrigeration piping starts at the indoor unit and ends at the outdoor unit. The number of bends in the refrigeration piping must be fewer than 15. The bending angle of the refrigerant pipe should not exceed 90 degrees and the bending radius should be as large as possible to prevent any breakage in piping. Insulating both suction and liquid refrigerant pipes is required.

Electrical data

Electric wiring must be sized to carry the full load amp draw of the motor, starter, and any other controls that are used with the unit. See below.

40WAV ELECTRICAL DATA

40WAF UNIT SIZE	POWER SUPPLY	
	MCA	MOPD
018	3.8	15
024	3.8	15
030	3.8	15
036	5.3	15
048	5.3	15

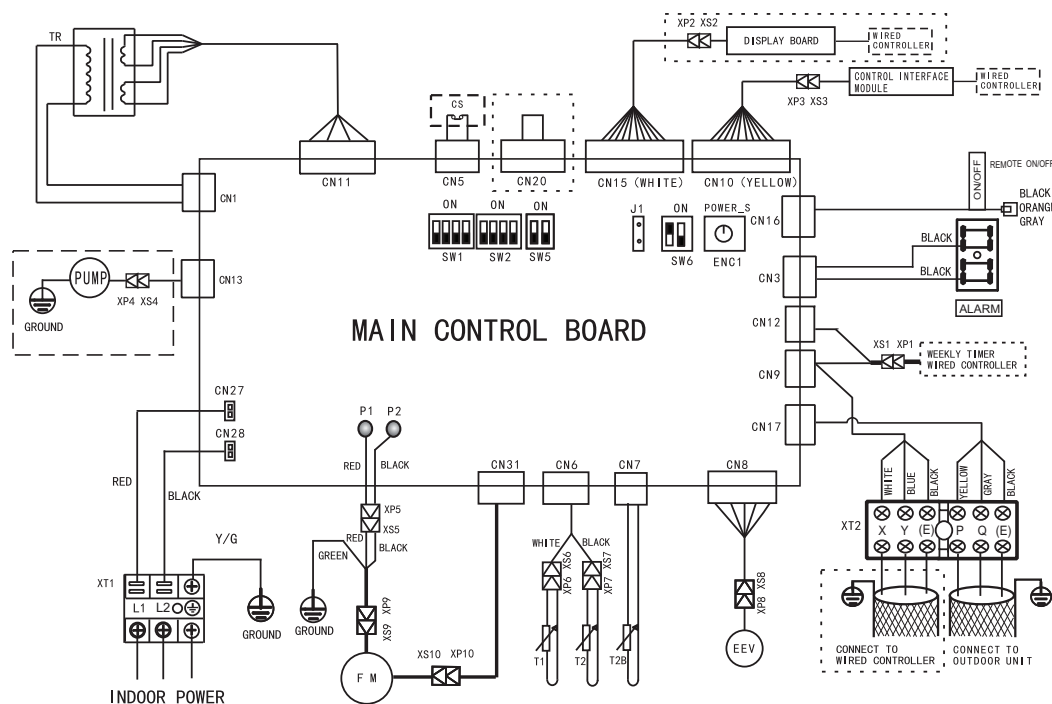
LEGEND

MCA — Minimum Circuit Amps
MOPD — Maximum Overcurrent Protective Device



Typical wiring schematic

40WAV018-048 TYPICAL WIRING SCHEMATIC



LEGEND

CS — Water Level Switch
EEV — Electronic Expansion Valve
FM — Indoor Fan
PUMP — Pump Motor
T1 — Inlet Air Temperature
T2 — Coil Temperature
T2B — Evap. Outlet Temperature in Cooling Mode
TR — Transformer
XP1-10 — Plug
XS1-10 — Jack
XT1-2 — Terminal Block
----- Optional Component or Field Wiring

40WAW (high wall mount)



Physical data

40WAW PHYSICAL DATA

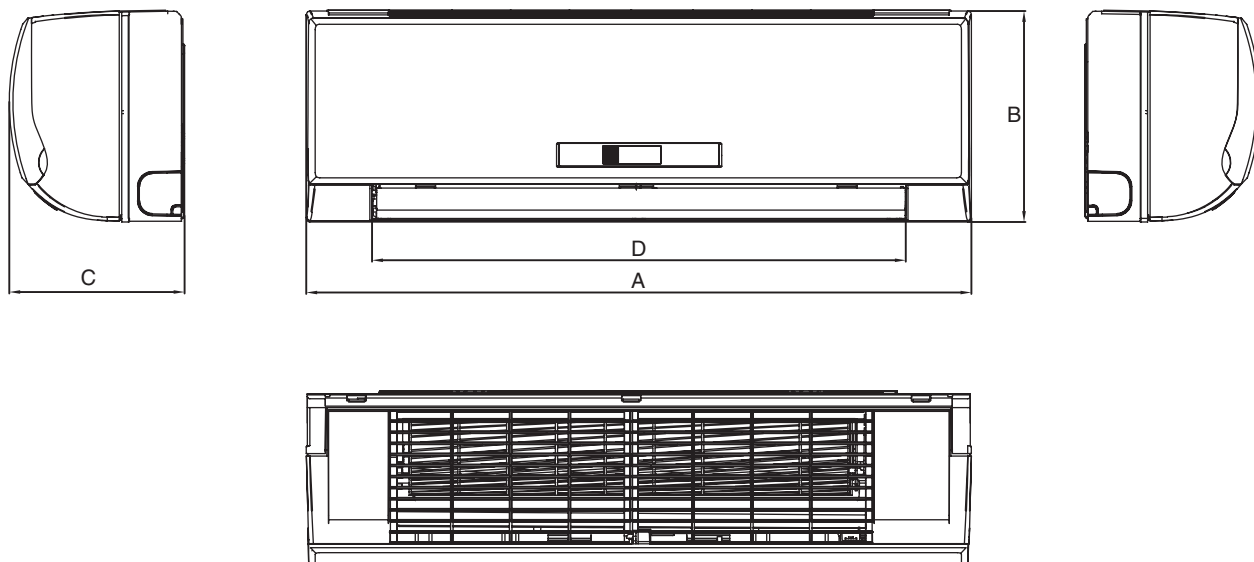
UNIT 40WAW	007	009	012	015	018
POWER SUPPLY (V-Ph-Hz)	208/230-1-60				
COOLING CAPACITY (Btuh)	7,500	9,500	12,000	15,000	19,000
HEATING CAPACITY (Btuh)	8,500	10,900	13,600	17,000	21,000
INDOOR FAN MOTOR	AC Motor				
Type					
Input (W)	35			55	
INDOOR COIL	2				
Number of Rows					
Fin Spacing (fins/in.)	16				
Fin Type	Aluminum with Hydrophilic Coating				
Tube Diameter, OD (in.)	9/32				
Tube Type	Copper Tube with Inner Groove				
Number of Circuits	3			6	
INDOOR AIRFLOW (cfm)	253				
Low					
Medium	282.5		306		444
High	309		347		544
INDOOR NOISE LEVEL (dBA)	29				
Low					
Medium	32		38		40
High	35		40		40
UNIT DIMENSIONS (in.)	36				
Width					
Height	11 1/2		12 1/2		42 1/4
Depth	9		9		12 1/2
PACKING DIMENSIONS (in.)	40 1/4				
Width					
Height	15 3/8		16 3/8		46 1/2
Depth	12 1/2		12 1/2		16 3/8
NET/GROSS WEIGHT (lb)	30/37			35/44	
REFRIGERANT TYPE	R-410A				
EXPANSION DEVICE	EXV (Integrated with the Evaporator)				
DESIGN PRESSURE, High/Low (psig)	650/250				
REFRIGERANT PIPING (in.)	1/4				
Liquid Side, OD					
Suction Side, OD	1/2			5/8	
CONNECTING WIRING	Sized per NEC and Local Codes Based on Nameplate Electrical Data 3 x 14 AWG (<65 ft)				
Power Wiring					
Signal Wiring	3-Core Shielded Wire x 20 AWG				
DRAINAGE WATER PIPE DIAMETER, OD (in.)	3/4				

LEGEND

AWG — American Wire Gage
EXV — Electronic Expansion Valve
NEC — National Electrical Code

Dimensions

40WAW007-018 DIMENSIONS



40WAW UNIT SIZE	DIMENSION			
	A	B	C	D
007-012	36	11 1/2	9	28 1/4
015,018	42 1/4	12 1/2	9	35 1/8

NOTE: All dimensions shown in inches.

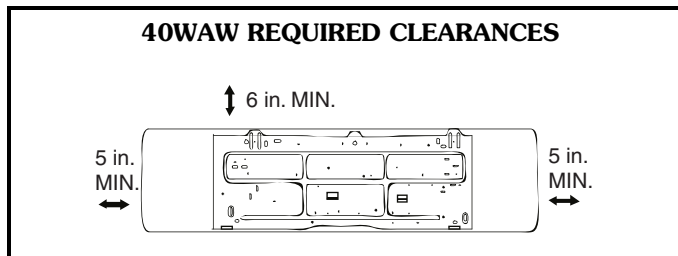
40WAW (high wall mount) (cont)



Application data

The 40WAW indoor unit must be installed in a location that meets the following requirements:

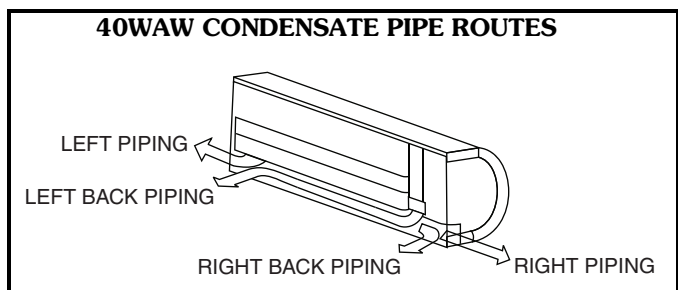
- The unit should be installed on wall studs that are strong enough to support the total weight of the unit, refrigerant piping, and condensate piping.
- The unit should be mounted 8 ft or more from the floor and if possible, centrally located on the wall from both ends. The unit should not be positioned directly above any obstruction.
- Proper clearance should be provided on the side and top as shown below.



Condensate piping — The unit is supplied with a 3/4-in. OD drain connection to connect copper or PVC drain piping. The condensate drain should slope downward in the direction of condensate flow. DO NOT install any U bends or dump the condensate line in a sump filled with water.

When multiple units are connected to a common condensate drain, ensure that the drain is large enough to accommodate the volume of condensate from all units. It is also recommended to have an air vent in the condensate piping to prevent any air locks. Condensate piping must not be installed where it may be exposed to freezing temperatures.

Condensate piping can be routed in one of the four directions shown below.



Refrigerant piping — Check maximum elevation differential and length of refrigerant piping between the indoor and outdoor unit. If the difference between them is more than 33 ft, consider mounting the outdoor unit above indoor unit.

The refrigeration piping starts at the indoor unit and ends at the outdoor unit. The number of bends in the refrigeration piping must be fewer than 15. The bending angle of the refrigerant pipe should not exceed 90 degrees and the bending radius should be as large as possible to prevent any breakage in piping.

Electrical data

Electrical wiring must be sized to carry the full load amp draw of the motor, starter, and any other controls that are used with the unit. See below.

40WAW ELECTRICAL DATA

UNIT	POWER SUPPLY	
	MCA	MOPD
40WAW007	0.2	15
40WAW009	0.2	15
40WAW012	0.2	15
40WAW015	0.3	15
40WAW018	0.3	15

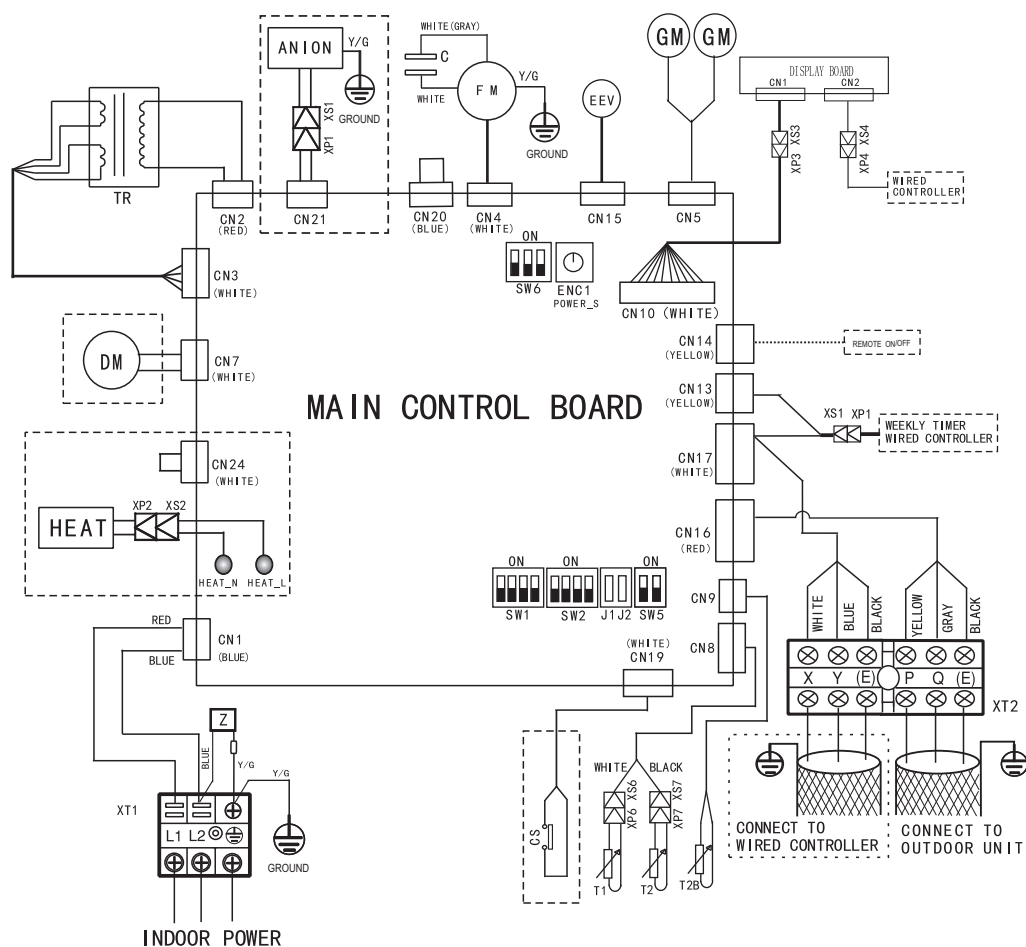
LEGEND

MCA — Minimum Circuit Amps
MOPD — Maximum Overcurrent Protective Device



Typical wiring schematic

40WAW007-018 TYPICAL WIRING SCHEMATIC



LEGEND

ANION	— Anion Generator
C	— Fan Capacitor
CS	— Water Level Switch
DM	— Pump Motor
EEV	— Electronic Expansion Valve
FM	— Indoor Fan
GM	— Swing Motor
HEAT	— Auxiliary Heater
T1	— Inlet Air Temperature
T2	— Coil Temperature
T2B	— Evap. Outlet Temperature in Cooling Mode
TR	— Transformer
XP1-7	— Plug
XS1-7	— Jack
XT1-2	— Terminal Block
-----	Optional Component or Field Wiring

Heat Pump Variable Refrigerant Flow Outdoor Units

HVAC Guide Specifications

Size Range: **3 to 4 Tons, Nominal**

Carrier Model Number: **38WAH**

Part 1 — General

1.01 SYSTEM DESCRIPTION

- A. The Carrier Heat Pump Variable Refrigerant Flow (VRF) system is a two-pipe system consisting of an outdoor unit, multiple indoor units of various types and capacities, individual or central indoor unit controls with on/off temperature settings, all connected by fully insulated refrigerant lines utilizing factory supplied, fully insulated, branching kits. Indoor units are connected to condensate piping that shall be terminated to the nearest drain point.
- B. The system shall be fully capable of providing heating or cooling as requested by the individual indoor zones that can consist of single or multiple indoor units. The heating priority shall be the default factory setting and can be changed into cooling, majority, or a single zone priority.
- C. Up to 5 different indoor units can be connected to the 3-ton outdoor unit, and up to 7 different indoor units can be connected to the 4-ton outdoor unit.
- D. The total connected indoor unit capacity shall range between 50 and 130% of the outdoor unit capacity.

1.02 QUALITY ASSURANCE

- A. Unit shall be ETL (Engineering Testing Laboratory) listed and certified to UL (Underwriters Laboratories) 1995 4th edition and CSA (Canadian Standards Association) C22.2 No. 236-11 standards.
- B. Units shall be listed in the AHRI (Air-Conditioning, Heating and Refrigeration Institute) directory.
- C. All units shall be tested per AHRI 210/240 Standard.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Units shall be shipped in one piece and shall be stored and handled per unit manufacturer's recommendations.
- B. Units shall be shipped on pallets to facilitate handling by fork truck.

1.04 WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER)

Part 2 — Products

2.01 EQUIPMENT

A. General:

1. Factory assembled, single piece, air-cooled outdoor unit. Contained within the unit enclosure shall be all factory wiring, piping, controls and the DC inverter driven dual rotor compressor.
2. The maximum sound pressure rating for the outdoor unit shall not exceed 58 dB(A) at high speed.

3. The outdoor unit shall include an oversized accumulator and a liquid tank for proper heating performance while allowing the indoor unit EXV (electronic expansion valve) to shut off completely when a zone is satisfied.
4. The outdoor unit shall be protected by a high pressure switch, a high pressure sensor, a low pressure sensor, a fusible plug, a PC (process control) board fuse, and inverter over-current protection.
5. The outdoor unit shall be capable of operating in cooling mode down to 5 F ambient air temperature and in heating mode down to -4 F ambient air temperature.
6. The outdoor unit shall include a total oil management system that automatically replenishes oil to the compressor from the oil separator when required.

B. Unit Cabinet:

1. Unit cabinet shall be constructed of pre-coated steel, finished on both the inside and outside.
2. Unit access panels shall be removable with minimal fasteners and provide full access to the compressor, fan, and unit control components.
3. Compressors shall have an acoustic wrap to ensure quiet operation.
4. The outdoor unit control panel cover shall be removable to provide access to controls.

C. Fans:

1. Outdoor fan shall discharge air horizontally and be driven by a DC motor with wide speed range.
2. Outdoor fan motor shall be totally enclosed with permanently lubricated bearings.
3. Motor shall be protected by an internal thermal overload.
4. Fan blade shall be non-metallic and shall be statically and dynamically balanced.
5. Outdoor fan blade shall be covered by a protective wire grille.

D. Compressors:

1. Each outdoor unit module shall be equipped with one DC inverter driven dual rotor compressor.
2. Compressor shall be totally enclosed in the unit machine compartment.
3. Compressors shall be equipped with factory mounted crankcase heaters.
4. Internal overloads shall protect the compressor from thermal and current overload operation.
5. Motor shall be suitable for operation in an R-410A refrigerant environment.
6. Compressor assembly shall be installed on rubber vibration isolators.

E. Outdoor Coil:

1. Coil shall be constructed of aluminum fins mechanically bonded to seamless copper tubes, which are cleaned, dehydrated, and sealed.
2. The coil configuration shall be 2-sided and fully separated from the machine compartment for more effective heat transfer and sound isolation.

F. 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. Compressor speed to match the refrigerant flow and capacity with the system requirements.
 - b. Outdoor fan motor speed for higher efficiency and lower sound.
 - c. Oil control for improved system reliability and comfort.
 - d. Electronic expansion valve control for precise control of the refrigerant distribution and accurate capacity management to avoid starving any indoor units.
 - e. Module control of compressor operation, compressor speed, and outdoor heat exchange surface to maximize efficiency and reliability and minimize sound level across the entire operating range of the system.
 - f. Control of the outdoor heat exchanger surface (main vs. sub heat exchangers) to maximize performance, efficiency, and comfort.

2. Safeties:

The following safety devices shall be part of the condensing unit:

- a. High pressure switch
- b. Fuses
- c. Crankcase heater
- d. Fusible plug
- e. Over-current relay for the compressor
- f. Thermal protectors for compressor and fan motor
- g. Compressor time delay
- h. Oil recovery system
- i. Oil level sensor
- j. Over-current sensor
- k. Compressor suction and discharge temperature sensors
- l. Compressor suction and discharge pressure sensors

G. Electrical Requirements:

1. All capacities shall utilize 208/230-1-60 power supply.
2. Outdoor and indoor units shall have separate field power supplies.
3. All power and control wiring must be installed per NEC (National Electrical Code) and all local electrical codes.

H. Refrigerant Piping and Line Lengths:

1. Piping connections shall be from the front, back, side or bottom of the unit. The system shall be capable of operating with maximum connected refrigerant line lengths ≤ 328 ft.
2. The maximum elevation differential between the outdoor unit and the lowest indoor unit, if the outdoor unit is located above the indoor units, is 98 ft.
3. The maximum elevation differential between the outdoor unit and the highest indoor unit, if the outdoor unit is located below the indoor units, is 66 ft.
4. The maximum distance between the outdoor unit and the farthest indoor unit is 148 ft.
5. The maximum elevation differential between the highest and lowest indoor units is 26 ft.

I. Auxiliary Refrigerant Components:

1. All field-supplied copper tubing connecting the outdoor unit to the indoors unit shall use factory-supplied branching kits consisting of either Y joints or branch boxes.
2. To provide piping flexibility the system can have Y joints connected in series moving downstream from the outdoor unit.
3. Branch boxes can be connected in series, or in parallel.

Compact Cassette Indoor Fan Coil Units

HVAC Guide Specifications

Size Range: **7,000 to 15,000 Btuh, Nominal**

Carrier Model Number: **40WAC**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, in-ceiling mounted, direct-expansion fan coils are matched with a heat pump VRF (variable refrigerant flow) outdoor unit.

1.02 QUALITY ASSURANCE

Unit shall be ETL (Engineering Testing Laboratory) listed and certified to UL (Underwriters Laboratories) 1995 4th edition and CSA (Canadian Standards Association) C22.2 No. 236-11 standards.

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:

40WAC cassettes are direct-expansion, low profile (10 ⁵/₁₆ in.), compact (25 ¹/₂ in. x 25 ¹/₂ in.) in-ceiling indoor fan coils. Unit shall be complete with a coil, fan, AC fan motor, EXV (electronic expansion valve), piping connectors, electrical controls, PC (process control) board, integral temperature sensing, condensate pump with a lift capability of 23 ⁵/₈ in., and hanging brackets.

B. Unit Cabinet:

Cabinet shall be constructed of zinc-coated steel. Fully insulated discharge and inlet grilles shall be attractively styled, high-impact non-metallic material. The inlet grille shall have hinges and can be opened to obtain access to the cleanable filters, indoor fan motor and control box. Outside air can be introduced through the OA (outdoor air) opening on the unit.

C. Fans:

Fan shall be centrifugal direct-drive blower type with air intake in the center of the unit and discharge at the perimeter.

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 condensate pan under the coil shall include a factory-installed pump and a drain fitting for field connection to a condensate disposal system.

E. Motors:

Motors shall be totally enclosed, permanently lubricated, ball bearing type with inherent overload protection.

F. Controls:

The system shall have a PC board with sensors to maintain precise room temperature and minimum power consumption.

Any of the following user interface accessories shall be compatible with the unit:

1. Wireless Remote Controller:

Wireless remote controller can be used to control the system. The receiver for the wireless remote controller is mounted on the panel/grille of the unit.

2. Wired Controller (Non-Programmable):

Wired controller (non-programmable) shall communicate over 5 core shielded wire up to 19 ft. It must be connected one per unit and cannot be used in daisy chain arrangement to control multiple units. The wired controller (non-programmable) shall be able to control ON-OFF, set point, mode, and louver swing functions.

3. Wired Controller (Programmable):

Wired controller (programmable) shall communicate over 4 core shielded wire up to 66 ft. It shall be capable of controlling up to 7 indoor units in daisy chain arrangement. The wired controller (programmable) shall be able to control ON-OFF, set point and weekly scheduling, mode, and louver swing functions.

4. Centralized Controller:

Centralized controller shall communicate over 3 core shielded wire up to 3,937 ft and use existing indoor-outdoor communication terminals to operate. A single centralized controller shall be capable of controlling up to 64 indoor units individually. The centralized controller shall be equipped to force all the connected units ON or OFF. It shall provide operation monitoring, and generate a digital display in response to an alarm. It shall be able to facilitate indoor unit operation without the use of local remote controller(s).

G. Electrical Requirements:

Indoor units are 208/230-1-60 and require their own separate power supply.

H. Special Features (Accessories):

1. User interface can be accomplished with wireless remote controller.

2. Ceiling panel/grille.

Concealed Ducted Indoor Units

HVAC Guide Specifications

Size Range: **7,000 to 24,000 Btuh, Nominal**

Carrier Model Number: **40WAD**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, direct-expansion concealed ducted fan coils are matched with a heat pump VRF (variable refrigerant flow) outdoor unit.

1.02 QUALITY ASSURANCE

Unit shall be ETL (Engineering Testing Laboratory) listed and certified to UL (Underwriters Laboratories) 1995 4th edition and CSA (Canadian Standards Association) C22.2 No. 236-11 standards.

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:

40WAD concealed ducted indoor units are direct-expansion indoor fan coils. Units shall include a coil, fan, DC fan motor, EXV (electronic expansion valve), piping connectors, electrical controls, PC (process control) board, integral temperature sensing, condensate pump with a lift capability of 29 1/2 in., and hanging brackets.

B. Unit Cabinet:

Cabinet shall be constructed of zinc-coated steel. The unit shall be capable of being configured for either bottom or rear return. The cabinet shall have a knockout for fresh air intake.

C. Fans:

Fan shall be centrifugal direct-drive blower type with performance designed to match the coil performance. The fans shall be statically and dynamically balanced to ensure low noise and vibration and capable of up to 0.2 in. wg external static pressure.

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 condensate pan under the coil shall include a factory-installed pump and a drain fitting for field connection to a condensate disposal system.

E. Motors:

Motors shall be totally enclosed, permanently lubricated, ball bearing type with inherent overload protection.

F. Controls:

The system shall have a PC board with sensors to maintain precise room temperature and minimum power consumption.

Any of the following user interface accessories shall be compatible with the unit:

1. Wired Controller (Non-Programmable):

Wired controller (non-programmable) shall communicate over 5 core shielded wire up to 19 ft. It must be connected one per unit and cannot be used in daisy chain arrangement to control multiple units. The wired controller (non-programmable) shall be able to control ON-OFF, set point, and mode.

2. Wired Controller (Programmable):

Wired controller (programmable) shall communicate over 4 core shielded wire up to 66 ft. It shall be capable of controlling up to 7 indoor units in daisy chain arrangement. The wired controller (programmable) shall be able to control ON-OFF, set point and weekly scheduling, and mode.

3. Centralized Controller:

Centralized controller shall communicate over 3 core shielded wire up to 3,937 ft and use existing indoor-outdoor communication terminals to operate. A single centralized controller shall be capable of controlling up to 64 indoor units individually. The centralized controller shall be equipped to force all the connected units ON or OFF. It shall provide operation monitoring, and generate a digital display in response to an alarm. It shall be able to facilitate indoor unit operation without the use of local remote controller(s).

G. Filters:

The cabinet shall include a filter track.

H. Electrical Requirements:

Indoor units are 208/230-1-60 and require their own separate power supply.

4-Way Cassette Indoor Fan Coil Units

HVAC Guide Specifications

Size Range: **9,000 to 48,000 Btuh, Nominal**

Carrier Model Number: **40WAF**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, in-ceiling mounted, direct-expansion fan coils are matched with a heat pump VRF (variable refrigerant flow) outdoor unit.

1.02 QUALITY ASSURANCE

Unit shall be ETL (Engineering Testing Laboratory) listed and certified to UL (Underwriters Laboratories) 1995 4th edition and CSA (Canadian Standards Association) C22.2 No. 236-11 standards.

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:

40WAF cassettes are direct-expansion, low profile (11 ⁷/₈ in.) in-ceiling (37 ³/₈ in. x 37 ³/₈ in.) indoor fan coils. Units shall include a coil, fan, DC fan motor, EXV (electronic expansion valve), piping connectors, electrical controls, PC (process control) board, integral temperature sensing, condensate pump with a lift capability of 29 ¹/₂ in., and hanging brackets.

B. Unit Cabinet:

Cabinet shall be constructed of zinc-coated steel. Fully insulated discharge and inlet grilles shall be attractively styled, high-impact non-metallic material. The inlet grille shall have hinges and can be opened to obtain access to the cleanable filters, indoor fan motor and control box. Outside air can be introduced through the OA (outdoor air) opening on the unit cabinet.

C. Fans:

Fan shall be centrifugal direct-drive blower type with air intake in the center of the unit and discharge at the perimeter. The unit shall be provided with motorized louvers as standard on the panel/grille.

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 condensate pan under the coil shall include a factory-installed pump and a drain fitting for field connection to a condensate disposal system.

E. Motors:

Motors shall be totally enclosed, permanently lubricated, ball bearing type with inherent overload protection.

F. Controls:

The system shall have a PC board with sensors to maintain precise room temperature and minimum power consumption.

Any of the following user interface accessories shall be compatible with the unit:

1. Wireless Remote Controller:

Wireless remote controller can be used to control the system. The receiver for the wireless remote controller is mounted on the panel/grille of the unit.

2. Wired Controller (Non-Programmable):

Wired controller (non-programmable) shall communicate over 5 core shielded wire up to 19 ft. It must be connected one per unit and cannot be used in daisy chain arrangement to control multiple units. The wired controller (non-programmable) shall be able to control ON-OFF, set point, mode, and louver swing functions.

3. Wired Controller (Programmable):

Wired controller (programmable) shall communicate over 4 core shielded wire up to 66 ft. It shall be capable of controlling up to 7 indoor units in daisy chain arrangement. The wired controller (programmable) shall be able to control ON-OFF, set point and weekly scheduling, mode, and louver swing functions.

4. Centralized Controller:

Centralized controller shall communicate over 3 core shielded wire up to 3,937 ft and use existing indoor-outdoor communication terminals to operate. A single centralized controller shall be capable of controlling up to 64 indoor units individually. The centralized controller shall be equipped to force all the connected units ON or OFF. It shall provide operation monitoring, and generate a digital display in response to an alarm. It shall be able to facilitate indoor unit operation without the use of local remote controller(s).

G. Electrical Requirements:

Indoor units are 208/230-1-60 and require their own separate power supply.

H. Special Features (Accessories):

1. User interface can be accomplished with wireless remote controller.

2. Ceiling panel/grille.

High Static Ducted Indoor Fan Coil Units

HVAC Guide Specifications

Size Range: **24,000 to 48,000 Btuh, Nominal**

Carrier Model Number: **40WAH**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, direct-expansion high static ducted fan coils are matched with a heat pump VRF (variable refrigerant flow) outdoor unit.

1.02 QUALITY ASSURANCE

Unit shall be ETL (Engineering Testing Laboratory) listed and certified to UL (Underwriters Laboratories) 1995 4th edition and CSA (Canadian Standards Association) C22.2 No. 236-11 standards.

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:

40WAH high static ducted units are direct expansion, indoor fan coils. Units shall be complete with a coil, fan, AC fan motor, EXV (electronic expansion valve), piping connectors, electrical controls, PC (process control) board, integral temperature sensing, and hanging brackets.

B. Unit Cabinet:

Cabinet shall be constructed of zinc-coated steel and configured for rear return.

C. Fans:

Fan shall be centrifugal direct-drive blower type with performance designed to match the coil performance. The fans shall be statically and dynamically balanced to ensure low noise and vibration and capable of up to 0.8 in. wg external static pressure.

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 condensate pan under the coil shall include a factory-installed pump and a drain fitting for field connection to a condensate disposal system.

E. Motors:

Motors shall be totally enclosed, permanently lubricated, ball bearing type with inherent overload protection.

F. Controls:

The system shall have a PC board with sensors to maintain precise room temperature and minimum power consumption.

Any of the following user interface accessories shall be compatible with the unit:

1. Wired Controller (Non-Programmable):

Wired controller (non-programmable) shall communicate over 5 core shielded wire up to 19 ft. It must be connected one per unit and cannot be used in daisy chain arrangement to control multiple units. The wired controller (non-programmable) shall be able to control ON-OFF, set point, and mode.

2. Wired Controller (Programmable):

Wired controller (programmable) shall communicate over 4 core shielded wire up to 66 ft. It shall be capable of controlling up to 7 indoor units in daisy chain arrangement. The wired controller (programmable) shall be able to control ON-OFF, set point and weekly scheduling, and mode.

3. Centralized Controller:

Centralized controller shall communicate over 3 core shielded wire up to 3,937 ft and use existing indoor-outdoor communication terminals to operate. A single centralized controller shall be capable of controlling up to 64 indoor units individually. The centralized controller shall be equipped to force all the connected units ON or OFF. It shall provide operation monitoring, and generate a digital display in response to an alarm. It shall be able to facilitate indoor unit operation without the use of local remote controller(s).

G. Filters:

The cabinet shall include a filter track.

H. Electrical Requirements:

Indoor units are 208/230-1-60 and require their own separate power supply.

Under Ceiling/Floor Indoor Fan Coil Units

HVAC Guide Specifications

Size Range: **12,000 to 48,000 Btuh, Nominal**

Carrier Model Number: **40WAU**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, direct-expansion under ceiling or floor mounted fan coils are matched with a heat pump VRF (variable refrigerant flow) outdoor unit.

1.02 QUALITY ASSURANCE

Unit shall be ETL (Engineering Testing Laboratory) listed and certified to UL (Underwriters Laboratories) 1995 4th edition and CSA (Canadian Standards Association) C22.2 No. 236-11 standards.

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:

40WAU under ceiling/floor units are direct expansion, low profile indoor fan coils. Units shall be complete with a coil, fan, AC fan motor, EXV (electronic expansion valve), piping connectors, electrical controls, PC (process control) board, and integral temperature sensing. The unit shall be furnished with hanging brackets.

B. Unit Cabinet:

Cabinet shall be constructed of pre-coated steel. The discharge components are coated to prevent condensation. The inlet grilles shall be attractively styled, high-impact non-metallic material. The inlet grilles shall have hinges and can be opened to obtain access to the cleanable filters, indoor fan motor, and control box.

C. Fans:

1. Fans shall be centrifugal direct-drive blower type with air intakes on the bottom rear of the unit cabinet and discharge at the front of the unit cabinet for the ceiling mount unit. For the floor mount unit, the intakes are at the bottom front of the unit cabinet and the discharge is at the top of the unit cabinet.
2. Units shall be provided with dual direction auto swing louvers.

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 condensate pan under the coil shall have factory-installed dual drain fittings (left and right side) for field connection to a condensate disposal system.

E. Motors:

Motors shall be permanently lubricated, ball bearing type with inherent overload protection.

F. Controls:

The system shall have a PC board with sensors to maintain precise room temperature and minimum power consumption.

Any of the following user interface accessories shall be compatible with the unit:

1. Wireless Remote Controller:

Wireless remote controller can be used to control the system. The receiver for the wireless remote controller is mounted on the panel/grille of the unit.

2. Wired Controller (Non-Programmable):

Wired controller (non-programmable) shall communicate over 5 core shielded wire up to 19 ft. It must be connected one per unit and cannot be used in daisy chain arrangement to control multiple units. The wired controller (non-programmable) shall be able to control ON-OFF, set point, mode, and louver swing functions.

3. Wired Controller (Programmable):

Wired controller (programmable) shall communicate over 4 core shielded wire up to 66 ft. It shall be capable of controlling up to 7 indoor units in daisy chain arrangement. The wired controller (programmable) shall be able to control ON-OFF, set point and weekly scheduling, mode, and louver swing functions.

4. Centralized Controller:

Centralized controller shall communicate over 3 core shielded wire up to 3,937 ft and use existing indoor-outdoor communication terminals to operate. A single centralized controller shall be capable of controlling up to 64 indoor units individually. The centralized controller shall be equipped to force all the connected units ON or OFF. It shall provide operation monitoring, and generate a digital display in response to an alarm. It shall be able to facilitate indoor unit operation without the use of local remote controller(s).

G. Filters:

Unit shall have factory-supplied (cleanable) type filters. The return air filter material shall have the following characteristics:

1. Odorless
2. Temperature resistant to 185 F (85 C)
3. Humidity resistant up to 95% RH (relative humidity)

H. Electrical Requirements:

Indoor units are 208/230-1-60 and require their own separate power supply.

I. Special Features (Accessories):

User interface can be accomplished with wireless remote controller.

Vertical Air-Handling Indoor Fan Coil Units

HVAC Guide Specifications — 40WAV

Size Range: **18,000 to 48,000 Btuh, Nominal**

Carrier Model Number: **40WAV**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, direct-expansion vertical air-handling ducted fan coils are matched with a heat pump VRF (variable refrigerant flow) outdoor unit.

1.02 QUALITY ASSURANCE

Unit shall be ETL (Engineering Testing Laboratory) listed and certified to UL (Underwriters Laboratories) 1995 4th edition and CSA (Canadian Standards Association) C22.2 No. 236-11 standards.

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:

40WAV vertical air-handling ducted units are direct expansion, indoor fan coils. Units shall be complete with a coil, fan, DC fan motor, EXV (electronic expansion valve), piping connectors, electrical controls, PC (process control) board, and integral temperature sensing.

B. Unit Cabinet:

Cabinet shall be constructed of zinc-coated steel and configured for vertical or horizontal mounting.

C. Fans:

Fan shall be centrifugal direct-drive blower type with performance designed to match the coil performance. The fans shall be statically and dynamically balanced to ensure low noise and vibration and capable of up to 0.2 in. wg external static pressure.

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 condensate pan under the coil shall include a factory-installed drain fitting for field connection to a condensate disposal system.

E. Motors:

Motors shall be totally enclosed, permanently lubricated, ball bearing type with inherent overload protection.

F. Controls:

The system shall have a PC board with sensors to maintain precise room temperature and minimum power consumption.

Any of the following user interface accessories shall be compatible with the unit:

1. Wired Controller (Non-Programmable):

Wired controller (non-programmable) shall communicate over 5 core shielded wire up to 19 ft. It must be connected one per unit and cannot be used in daisy chain arrangement to control multiple units. The wired controller (non-programmable) shall be able to control ON-OFF, set point, and mode.

2. Wired Controller (Programmable):

Wired controller (programmable) shall communicate over 4 core shielded wire up to 66 ft. It shall be capable of controlling up to 7 indoor units in daisy chain arrangement. The wired controller (programmable) shall be able to control ON-OFF, set point and weekly scheduling, and mode.

3. Centralized Controller:

Centralized controller shall communicate over 3 core shielded wire up to 3,937 ft and use existing indoor-outdoor communication terminals to operate. A single centralized controller shall be capable of controlling up to 64 indoor units individually. The centralized controller shall be equipped to force all the connected units ON or OFF. It shall provide operation monitoring, and generate a digital display in response to an alarm. It shall be able to facilitate indoor unit operation without the use of local remote controller(s).

G. Filters:

The cabinet shall include a filter track.

H. Electrical Requirements:

Indoor units are 208/230-1-60 and require their own separate power supply.

High Wall Mount Indoor Fan Coil Units

HVAC Guide Specifications — 40WAW

Size Range: **7,000 to 18,000 Btuh, Nominal**

Carrier Model Number: **40WAW**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, direct-expansion fan coils are matched with a heat pump VRF (variable refrigerant flow) outdoor unit.

1.02 QUALITY ASSURANCE

Unit shall be ETL (Engineering Testing Laboratory) listed and certified to UL (Underwriters Laboratories) 1995 4th edition and CSA (Canadian Standards Association) C22.2 No. 236-11 standards.

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:

40WAW high wall mount units are direct-expansion indoor fan coils. Units shall include a coil, fan, AC fan motor, EXV (electronic expansion valve), piping connectors, electrical controls, PC (process control) board, and integral temperature sensing. Units shall be furnished with a wall mounting plate and mounting hardware.

B. Unit Cabinet:

Cabinet discharge and inlet grilles shall be attractively styled, high-impact non-metallic material.

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.
2. Unit shall be provided with automatic vertical louver swing. Horizontal air distribution must 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 condensate pan under the coil shall include a factory-installed pump and a drain fitting for field connection to a condensate disposal system.

E. Motors:

Motors shall be totally enclosed, permanently lubricated, ball bearing type with inherent overload protection.

F. Controls:

The system shall have a PC board with sensors to maintain precise room temperature and minimum power consumption.

Any of the following user interface accessories shall be compatible with the unit:

1. Wireless Remote Controller:

Wireless remote controller can be used to control the system. The receiver for the wireless remote controller is mounted on the front panel of the unit.

2. Wired Controller (Non-Programmable):

Wired controller (non-programmable) shall communicate over 5 core shielded wire up to 19 ft. It must be connected one per unit and cannot be used in daisy chain arrangement to control multiple units. The wired controller (non-programmable) shall be able to control ON-OFF, set point, mode, and louver swing functions.

3. Wired Controller (Programmable):

Wired controller (programmable) shall communicate over 4 core shielded wire up to 66 ft. It shall be capable of controlling up to 7 indoor units in daisy chain arrangement. The wired controller (programmable) shall be able to control ON-OFF, set point and weekly scheduling, mode, and louver swing functions.

4. Centralized Controller:

Centralized controller shall communicate over 3 core shielded wire up to 3,937 ft and use existing indoor-outdoor communication terminals to operate. A single centralized controller shall be capable of controlling up to 64 indoor units individually. The centralized controller shall be equipped to force all the connected units ON or OFF. It shall provide operation monitoring, and generate a digital display in response to an alarm. It shall be able to facilitate indoor unit operation without the use of local remote controller(s).

G. Filters:

Unit shall have factory-supplied (cleanable) type filters. The air filter material shall have the following characteristics:

1. Odorless.
2. Temperature resistant to 185 F (85 C).
3. Humidity resistant up to 95% RH (relative humidity).

H. Electrical Requirements:

Indoor units are 208/230-1-60 and require their own separate power supply.

I. Special Features (Accessories):

User interface can be accomplished with wireless remote controller.

