SolarHVAC

Solar HVAC – Model "M" Residential Multi-Splits and Mounting Kits I/O/M manual

PD 04/14/2025 - v 1.00
PN IOM-0058

Table of Contents

Air Conditioning and Heating

Split System Heat Pump and Air Conditioner | 1.5 - 5 Tons | Up to 5 Zones | R410A

AHRI CERTIFIED® www.ahridirectory.org
Ask About Our Certified Products

c UL® LISTED

C ETL LISTED US
Intertek

Warning:

- Installation MUST conform with local building codes or, in the absence of local codes, with the National Electrical Code NFPA70/ANSI C1-1993 or current edition and Canadian Electrical Code Part1 CSA C.22.1.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments
- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

Part Ⅰ Technical Information

1. Important Notice

This service manual is intended for use by individuals possessing adequate backgrounds of electrical, electronic and mechanical experience. Any attempt to repair the appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

The information, specifications and parameter are subject to change due to technical modification or improvement without any prior notice. The accurate specifications are presented on the nameplate label.

Safety Precautions

Read Safety Precautions Before Operation and Installation

Incorrect installation due to ignoring instructions can cause serious damage or injury.
The seriousness of potential damage or injuries is classified as either a **WARNING** or **CAUTION**.

⚠ WARNING
This symbol indicates the possibility of personnel injury or loss of life.

⚠ CAUTION
This symbol indicates the possibility of property damage or serious consequences.

⚠ WARNING

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

This appliance is not intended for use by persons(including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

⚠ WARNINGS FOR PRODUCT USE

- If an abnormal situation arises (like a burning smell), immediately turn off the unit and disconnect the power. Call your dealer for instructions to avoid electric shock, fire or injury.
- **Do not** insert fingers, rods or other objects into the air inlet or outlet. This may cause injury, since the fan may be rotating at high speeds.
- **Do not** use flammable sprays such as hair spray, lacquer or paint near the unit. This may cause fire or combustion.
- **Do not** operate the air conditioner in places near or around combustible gases. Emitted gas may collect around the unit and cause explosion.
- **Do not** operate your air conditioner in a wet room such as a bathroom or laundry room. Too much exposure to water can cause electrical components to short circuit.
- **Do not** expose your body directly to cool air for a prolonged period of time.
- **Do not** allow children to play with the air conditioner. Children must be supervised around the unit at all times.
- If the air conditioner is used together with burners or other heating devices, thoroughly ventilate the room to avoid oxygen deficiency.
- In certain functional environments, such as kitchens, server rooms, etc., the use of specially designed air-conditioning units is highly recommended.

CLEANING AND MAINTENANCE WARNINGS

- Turn off the device and disconnect the power before cleaning. Failure to do so can cause electrical shock.
- **Do not** clean the air conditioner with excessive amounts of water.

CLEANING AND MAINTENANCE WARNINGS

- **Do not** clean the air conditioner with combustible cleaning agents. Combustible cleaning agents can cause fire or deformation.

⚠ CAUTION

- Turn off the air conditioner and disconnect the power if you are not going to use it for a long time.
- Turn off and unplug the unit during storms.
- Make sure that water condensation can drain unhindered from the unit.
- **Do not** operate the air conditioner with wet hands. This may cause electric shock.
- **Do not** use device for any other purpose than its intended use.
- **Do not** climb onto or place objects on top of the outdoor unit.
- **Do not** allow the air conditioner to operate for long periods of time with doors or windows open, or if the humidity is very high.

⚠ ELECTRICAL WARNINGS

- Only use the specified power cord. If the power cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Keep power plug clean. Remove any dust or grime that accumulates on or around the plug. Dirty plugs can cause fire or electric shock.
- **Do not** pull power cord to unplug unit. Hold the plug firmly and pull it from the outlet. Pulling directly on the cord can damage it, which can lead to fire or electric shock.
- **Do not** modify the length of the power supply cord or use an extension cord to power the unit.
- **Do not** share the electrical outlet with other appliances. Improper or insufficient power supply can cause fire or electrical shock.
- The product must be properly grounded at the time of installation, or electrical shock may occur.
- For all electrical work, follow all local and national wiring standards, regulations, and the Installation Manual. Connect cables tightly, and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections can overheat and cause fire, and may also cause shock. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
- All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.
- If connecting power to fixed wiring, an all-pole disconnection device which has at least 3mm clearances in all poles, and have a leakage current that may exceed 10mA, the residual current device(RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

TAKE NOTE OF FUSE SPECIFICATIONS

The air conditioner's circuit board (PCB) is designed with a fuse to provide overcurrent protection.
The specifications of the fuse are printed on the circuit board ,such as :
T20A/250VAC(for <24000Btu/h unit), T30A/250VAC(for >24000Btu/h unit)
NOTE: For the units with R32 or R290 refrigerant , only the blast-proof ceramic fuse can be used.

⚠ WARNINGS FOR PRODUCT INSTALLATION

1. Installation must be performed by an authorized dealer or specialist. Defective installation can cause water leakage, electrical shock, or fire.

⚠ WARNINGS FOR PRODUCT INSTALLATION

2. Installation must be performed according to the installation instructions. Improper installation can cause water leakage, electrical shock, or fire.
   (In North America,installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.)
3. Contact an authorized service technician for repair or maintenance of this unit. This appliance shall be installed in accordance with national wiring regulations.
4. Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and can cause the unit to fail.
5. Install the unit in a firm location that can support the unit's weight. If the chosen location cannot support the unit's weight, or the installation is not done properly, the unit may drop and cause serious injury and damage.
6. Install drainage piping according to the instructions in this manual. Improper drainage may cause water damage to your home and property.
7. For units that have an auxiliary electric heater, **do not** install the unit within 1 meter (3 feet) of any combustible materials.
8. **Do not** install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it may cause fire.
9. Do not turn on the power until all work has been completed.
10. When moving or relocating the air conditioner, consult experienced service technicians for disconnection and reinstallation of the unit.
11. How to install the appliance to its support, please read the information for details in "indoor unit installation" and "outdoor unit installation" sections .

Note about Fluorinated Gasses(Not applicable to the unit using R290 Refrigerant)

1. This air-conditioning unit contains fluorinated greenhouse gasses. For specific information on the type of gas and the amount, please refer to the relevant label on the unit itself or the "Owner's Manual - Product Fiche " in the packaging of the outdoor unit. (European Union products only).
2. Installation, service, maintenance and repair of this unit must be performed by a certified technician.
3. Product uninstallation and recycling must be performed by a certified technician.
4. For equipment that contains fluorinated greenhouse gases in quantities of 5 tonnes of CO_2 equivalent or more, but of less than 50 tonnes of CO_2 equivalent, If the system has a leak-detection system installed, it must be checked for leaks at least every 24 months.
5. When the unit is checked for leaks, proper record-keeping of all checks is strongly recommended.

⚠ WARNING for Using R32 Refrigerant

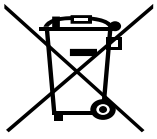
- When flammable refrigerants are utilized, appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
  For R32 refrigerant models:
  Appliance shall be installed, operated and stored in a room with a floor area larger than X m^2 .
  Appliance shall not be installed in an unventilated space, if that space is smaller than X m^2 .
  (Please see the following form).

Amount of refrigerant to be charged (kg)	Installation height (m)	Minimum room area (m²)	Amount of refrigerant to be charged (kg)	Installation height (m)	Minimum room area (m²)
1.0	0.6 /1.8 /2.2	9 /1 /1	1.95	0.6 /1.8 /2.2	33 /4 /2.5
1.05	0.6 /1.8 /2.2	9.5 /1.5 /1	2.0	0.6 /1.8 /2.2	34.5 /4 /3
1.1	0.6 /1.8 /2.2	10.5 /1.5 /1	2.05	0.6 /1.8 /2.2	36 /4 /3
1.15	0.6 /1.8 /2.2	11.5 /1.5 /1	2.1	0.6 /1.8 /2.2	38 /4.5 /3
1.2	0.6 /1.8 /2.2	12.5 /1.5 /1	2.15	0.6 /1.8 /2.2	40 /4.5 /3
1.25	0.6 /1.8 /2.2	13.5 /1.5 /1	2.2	0.6 /1.8 /2.2	41.5 /5 /3.5
1.3	0.6 /1.8 /2.2	14.5 /2 /1.5	2.25	0.6 /1.8 /2.2	43.5 /5 /3.5
1.35	0.6 /1.8 /2.2	16 /2 /1.5	2.3	0.6 /1.8 /2.2	45.5/5 /3.5
1.4	0.6 /1.8 /2.2	17/2 /1.5	2.35	0.6 /1.8 /2.2	47.5/5.5 /4
1.45	0.6 /1.8 /2.2	18 /2 /1.5	2.4	0.6 /1.8 /2.2	49.5 /5.5 /4
1.5	0.6 /1.8 /2.2	19.5 /2.5 /1.5	2.45	0.6 /1.8 /2.2	51.5 /6 /4
1.55	0.6 /1.8 /2.2	21 /2.5 /2	2.5	0.6 /1.8 /2.2	54 /6 /4
1.6	0.6 /1.8 /2.2	22 /2.5 /2	2.55	0.6 /1.8 /2.2	56 /6.5 /4.5
1.65	0.6 /1.8 /2.2	23.5 /3 /2	2.6	0.6 /1.8 /2.2	58 /6.5 /4.5
1.7	0.6 /1.8 /2.2	25 /3 /2	2.65	0.6 /1.8 /2.2	60.5/7 /4.5
1.75	0.6 /1.8 /2.2	26.5 /3 /2	2.7	0.6 /1.8 /2.2	63 /7 /5
1.8	0.6 /1.8 /2.2	28 /3.5 /2.5	2.75	0.6 /1.8 /2.2	65 /7.5 /5
1.85	0.6 /1.8 /2.2	29.5 /3.5 /2.5	2.8	0.6 /1.8 /2.2	67.5 /7.5 /5
1.9	0.6 /1.8 /2.2	31/3.5 /2.5	2.85	0.6 /1.8 /2.2	70 /8 /5.5

- Reusable mechanical connectors and flared joints are not allowed indoors. (EN Standard Requirements).
- Mechanical connectors used indoors shall have a rate of not more than 3g/year at 25% of the maximum allowable pressure. When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be re-fabricated. (UL Standard Requirements)
- When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be re-fabricated. (IEC Standard Requirements
- Mechanical connectors used indoors shall comply with ISO 14903.

European Disposal Guidelines

This marking shown on the product or its literature, indicates that waste electrical and eletrical equipment should not be mixed with general household waste.



Correct Disposal of This Product

(Waste Electrical & Electronic Equipment)

This appliance contains refrigerant and other potentially hazardous materials. When disposing of this appliance, the law requires special collection and treatment. **Do not** dispose of this product as household waste or unsorted municipal waste.
When disposing of this appliance, you have the following options:

- Dispose of the appliance at designated municipal electronic waste collection facility.
- When buying a new appliance, the retailer will take back the old appliance free of charge.
- The manufacturer will take back the old appliance free of charge.
- Sell the appliance to certified scrap metal dealers.

Special notice

Disposing of this appliance in the forest or other natural surroundings endangers your health and is bad for the environment. Hazardous substances may leak into the ground water and enter the food chain.

Model “Z” Multi-Split Part Number Scheme

SH12P M - 45 6 - 7

Configuration (1,2)	Type	Brand (3)	BTU’s (4,5)	CU/AHU (6)	Options (7
MU - Multi-Split AH - Multi-Split AHU	P - Heat Pump	M - Midea	18 - 18,000 BTUs 24 - 24,000 BTUs 36 - 36,000 BTUs 48 - 48,000 BTU's 60 - 60,000 BTU's	0 - Condenser Only C - Ceiling Cassette AHU D - Concealed Duct AHU F - Floor Console AHU W - Wall Mount AHU	0 - No Options D - Condenser Only Y - Start Up 7 - Phase Monitor

Model “Z” Multi-Split Description

AHRI CERTIFIED®
www.ahridirectory.org
Ask About Our Certified Products

A Solar HVAC multi-split is more than twice as efficient as a standard multi-split.

A solar box equipped with chambers lined with specialty reflective film is mounted to the top of the condensing unit. Through a patented process, ambient light is converted to thermal energy which reduces the energy demand on the compressor.

Units come with a 1-year parts warranty.

SHMUPM-18 | Solar HVAC Model “M” Multi-Split Description

Part Number

SHMUPM-180-0

Configuration	Type	Brand	BTU’s	CU/AHU	Options
MU - Multi-Split	P - Heat Pump	M - Midea	18 - 18,000 BTUs	0 - Condenser Only	0 - No Options

Description

A Solar HVAC multi-split is more than twice as efficient as a standard multi-split.

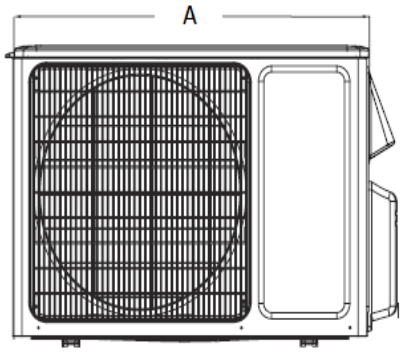
A solar box equipped with chambers lined with specialty reflective film is mounted to the top of the condensing unit. Through a patented process, ambient light is converted to thermal energy which reduces the energy demand on the compressor.

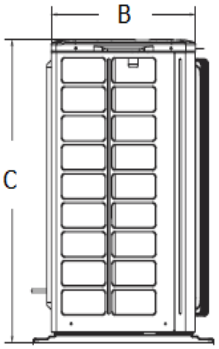
Units come with a 1-year parts warranty.

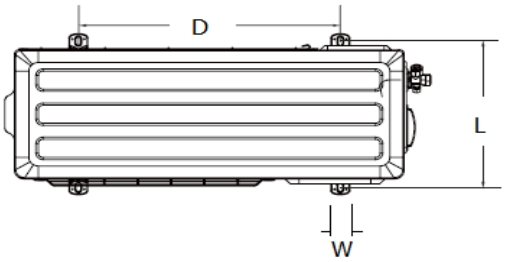
AHRI CERTIFIED® www.ahridirectory.org
Ask About Our Certified Products

SHMUPM-18 | Solar HVAC Model “M” Multi-Split Dimensions

Outdoor Unit:





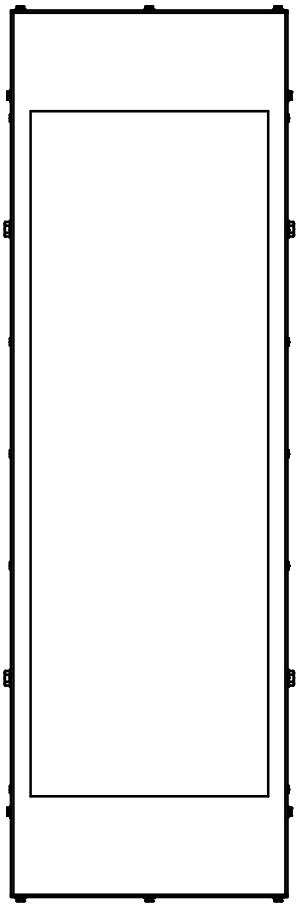


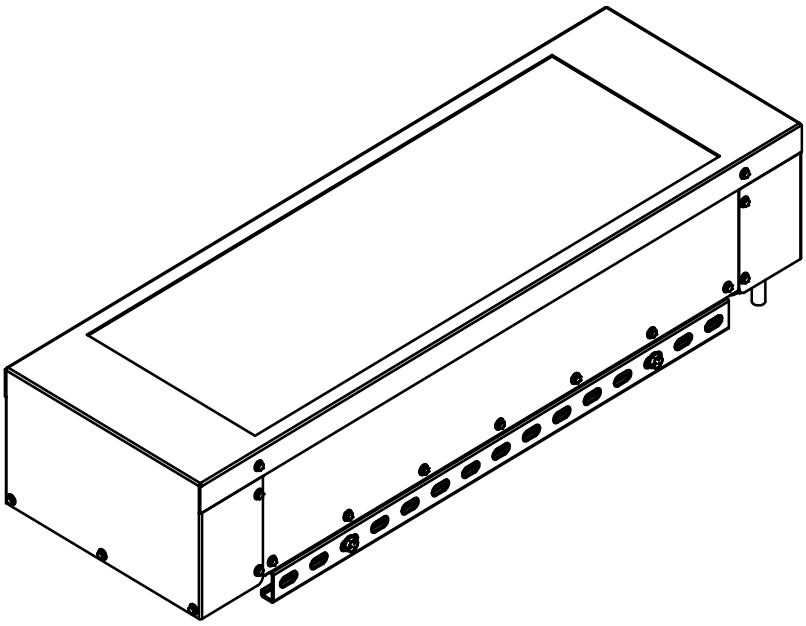
A (in)	36.2
B (in)	14.6
C (in)	31.1

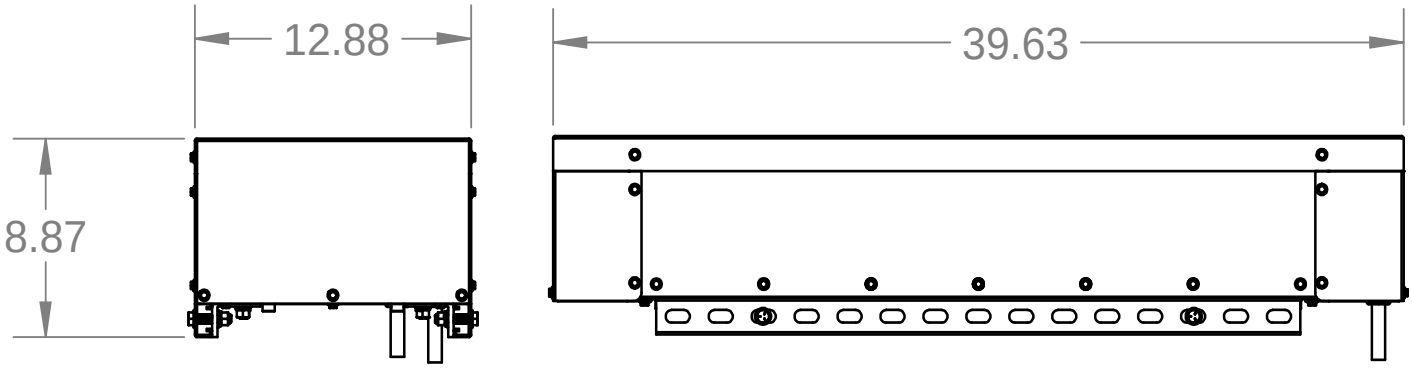
D (in)	24.0
L (in)	15.6
W (in)	2.4

SHMUPM-18 | Solar HVAC Model “M” Solar Box Dimensions

Solar Box Weight: 50 lbs.







SHMUPM-18 | Solar HVAC Model "M" Multi-Split Specifications

SYSTEM PERFORMANCE DATA		
Power supply		
Normal Operational Voltage	(V, Ph, Hz)	208/230V,1Ph, 60Hz
Voltage Range	(V)	187-253
Electrical		
Minimum circuit ampacity	(A)	18.0
Max.fuse	(A)	25.0
Connection wiring		14AWG*4 Stranded, unshielded
Cooling		
Capacity	(Btu/h)	18000(5650~22000)
Powrer Input	(W)	1295(217~2027)
Current	(A)	6.2(1.76~8.93)
SEER2	(Btu/W)	22.9
EER2	(Btu/W)	13.9
Heating		
Capacity	(Btu/h)	19000(5050~24400)
Powrer Input	(W)	1489(304~2095)
Current	(A)	6.3(2.31~9.21)
HSPF2-4	(Btu/W)	10.5
HSPF2-5	(Btu/W)	8.0
COP	W/W	3.74
Heat at 17F(H32)	(Btu/h)	14300
Heat at 5F(H42)	(Btu/h)	12600
COP at 5F(H42)	W/W	2.00

REFRIGERANT PIPE DATA		
Design pressure	(PSIG)	550/340
Refrigerant Type		R410A
Refrigerant charge	oz	65.3
Refrigerant precharge	(ft)	25x2
Additional charge for each ft (Φ6.35 (1/4") liquid pipe)	(oz/ft)	0.16
	(g/ft)	15.0
Additional charge for each ft (Φ9.52 (3/8") liquid pipe)	(oz/ft)	0.32
	(g/ft)	30.0
Liquid side	(inch)	2x1/4"
	(mm)	2x6.35
Gas side	(inch)	2x3/8"
	(mm)	2x9.52
Max. length for all rooms	(ft)	131.2
	(m)	40.0
Max. length for one indoor unit	(ft)	82.0
	(m)	25.0
Max. height difference between indoor and outdoor unit	(ft)	49.2
	(m)	15.0
Max. height difference between indoor units	(ft)	33.0
	(m)	10.0

Outdoor(cooling)	(Deg. ℉)	5~122
	(Deg. °C)	-15～50
Outdoor(heating)	(Deg. ℉)	-13～75
	(Deg. °C)	-25～24

OUTDOOR UNIT DATA		
Compressor		
Type		Twin-ROTARY
Model		KTN150D30UFZA
Brand		GMCC
Capacity	(Btu/h)	16139
Input	(W)	1250
Rated current (RLA)	(A)	/
Refrigerant oil/oil charge	(ml)	ESTER OIL VG74 450
Outdoor fan motor		
Model		ZKFN-80-8-3
Qty		1
Input	(W)	/
Output	(W)	80.00
RLA	(A)	/
Speed	(r/min)	750/600/500
Air flow & Noise level		
Outdoor air flow (Max.)	(CFM)	1764.71
Outdoor noise level	[dB(A)]	58.50
Outdoor unit		
Dimension (W×D×H)	(inch)	35.04x13.46x26.50
	(mm)	890x342x673
Packing (W×D×H)	(inch)	40.55x17.24x29.53
	(mm)	1030x438x750
Net/ Gross weight	(lbs.)	100.31/108.69
	(kg)	45.5/49.3

SHMUPM-24 | Solar HVAC Model “M” Multi-Split Description

Part Number

SHMUPM-240-0

Configuration	Type	Brand	BTU’s	CU/AHU	Options
MU - Multi-Split	P - Heat Pump	M - Midea	24 - 24,000 BTUs	0 - Condenser Only	0 - No Options

Description

A Solar HVAC multi-split is more than twice as efficient as a standard multi-split.

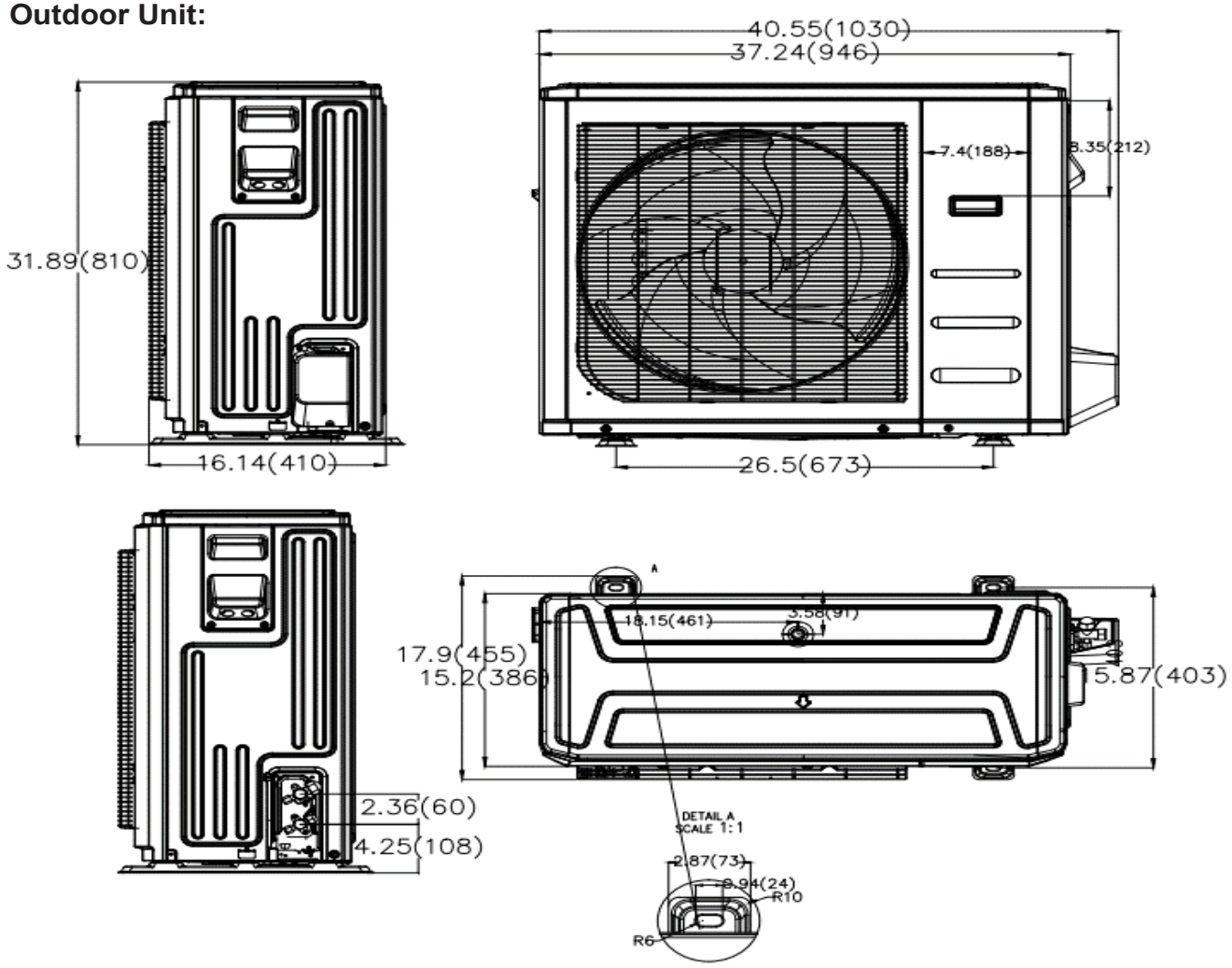
A solar box equipped with chambers lined with specialty reflective film is mounted to the top of the condensing unit. Through a patented process, ambient light is converted to thermal energy which reduces the energy demand on the compressor.

Units come with a 1-year parts warranty.

AHRI CERTIFIED® www.ahridirectory.org
Ask About Our Certified Products

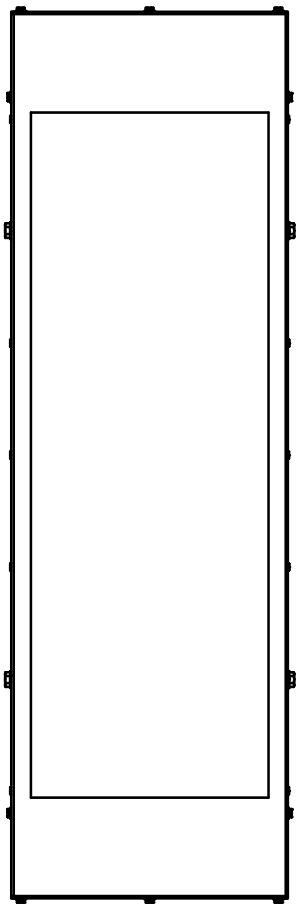
SHMUPM-24 | Solar HVAC Model “M” Multi-Split Dimensions

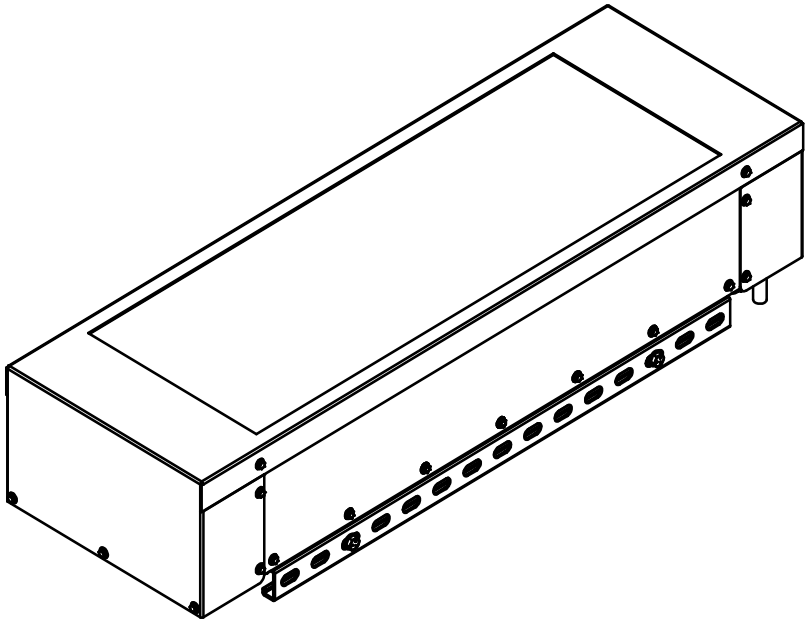
Outdoor Unit:

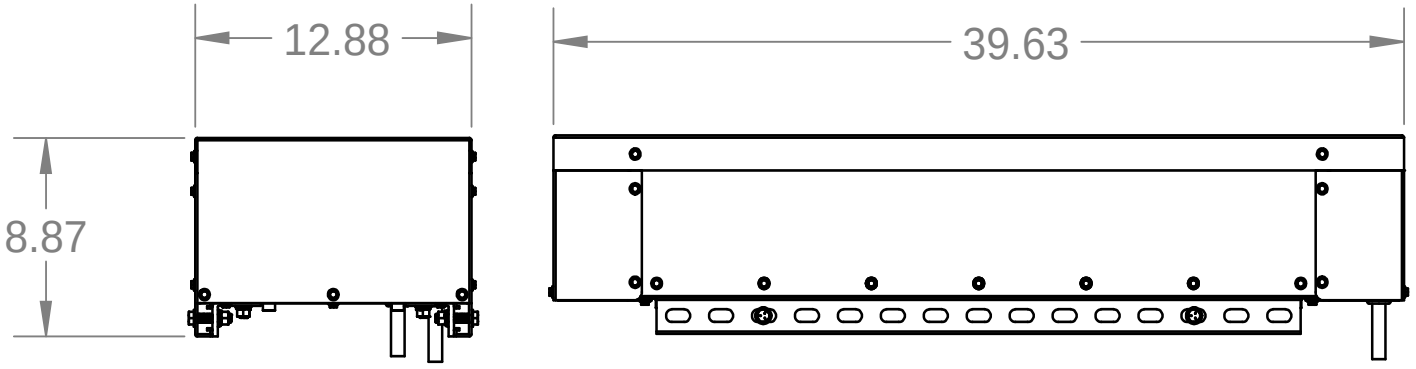


SHMUPM-24 | Solar HVAC Model “M” Solar Box Dimensions

Solar Box Weight: 50 lbs.







SHMUPM-24 | Solar HVAC Model "M" Multi-Split Specifications

SYSTEM PERFORMANCE DATA		
Power supply		
Normal Operational Voltage	(V, Ph, Hz)	208/230V,1Ph, 60Hz
Voltage Range	(V)	187-253
Electrical		
Minimum circuit ampacity	(A)	24.5
Max.fuse	(A)	30.0
Connection wiring		14AWG*4 Stranded, unshielded
Cooling		
Capacity	(Btu/h)	28000(9838~30438)
Powrer Input	(W)	2240(341~3246)
Current	(A)	11(2.32~14.5)
SEER2	(Btu/W)	24.6
EER2	(Btu/W)	12.7
Heating		
Capacity	(Btu/h)	28000(8218~31000)
Powrer Input	(W)	2200(465~3120)
Current	(A)	10.5(3.3~14.2)
HSPF2-4	(Btu/W)	9.3
HSPF2-5	(Btu/W)	7.1
COP	W/W	3.73
Heat at 17F(H32)	(Btu/h)	21000
Heat at 5F(H42)	(Btu/h)	19000
COP at 5F(H42)	W/W	2.00

REFRIGERANT PIPE DATA		
Design pressure	(PSIG)	550/340
Refrigerant Type		R410A
Refrigerant charge	oz	91.7
Refrigerant precharge	(ft)	25x3
Additional charge for each ft (Φ6.35 (1/4") liquid pipe)	(oz/ft)	0.16
	(g/ft)	15.0
Additional charge for each ft (Φ9.52 (3/8") liquid pipe)	(oz/ft)	0.32
	(g/ft)	30.0
Liquid side	(inch)	3x1/4"
	(mm)	3x6.35
Gas side	(inch)	3x3/8"
	(mm)	3x9.52
Max. length for all rooms	(ft)	196.9
	(m)	60.0
Max. length for one indoor unit	(ft)	98.4
	(m)	30.0
Max. height difference between indoor and outdoor unit	(ft)	49.2
	(m)	15.0
Max. height difference between indoor units	(ft)	33.0
	(m)	10.0

Outdoor(cooling)	(Deg. ℉)	5~122
	(Deg. °C)	-15～50
Outdoor(heating)	(Deg. ℉)	-13～75
	(Deg. °C)	-25～24

Compressor		
Type		Twin-ROTARY
Model		KTM240D43UKT
Brand		GMCC
Capacity	(Btu/h)	25931
Input	(W)	2045
Rated current (RLA)	(A)	14
Refrigerant oil/oil charge	(ml)	ESTER OIL VG74 620
Outdoor fan motor		
Model		ZKFN-120-8-2
Qty		1
Input	(W)	150.00
Output	(W)	120.00
RLA	(A)	1.70
Speed	(r/min)	1050/900/850
Air flow & Noise level		
Outdoor air flow (Max.)	(CFM)	2129.41
Outdoor noise level	[dB(A)]	61.00
Outdoor unit		
Dimension (W×D×H)	(inch)	37.24x16.14x31.89
	(mm)	946x410x810
Packing (W×D×H)	(inch)	42.91x19.69x34.84
	(mm)	1090x500x885
Net/ Gross weight	(lbs.)	139.77/150.57
	(kg)	63.4/68.3

SHMUPM-36 | Solar HVAC Model “M” Multi-Split Description

Part Number

SHMUPM-360-0

Configuration	Type	Brand	BTU’s	CU/AHU	Options
MU - Multi-Split	P - Heat Pump	M - Midea	36 - 36,000 BTUs	0 - Condenser Only	0 - No Options

Description

A Solar HVAC multi-split is more than twice as efficient as a standard multi-split.

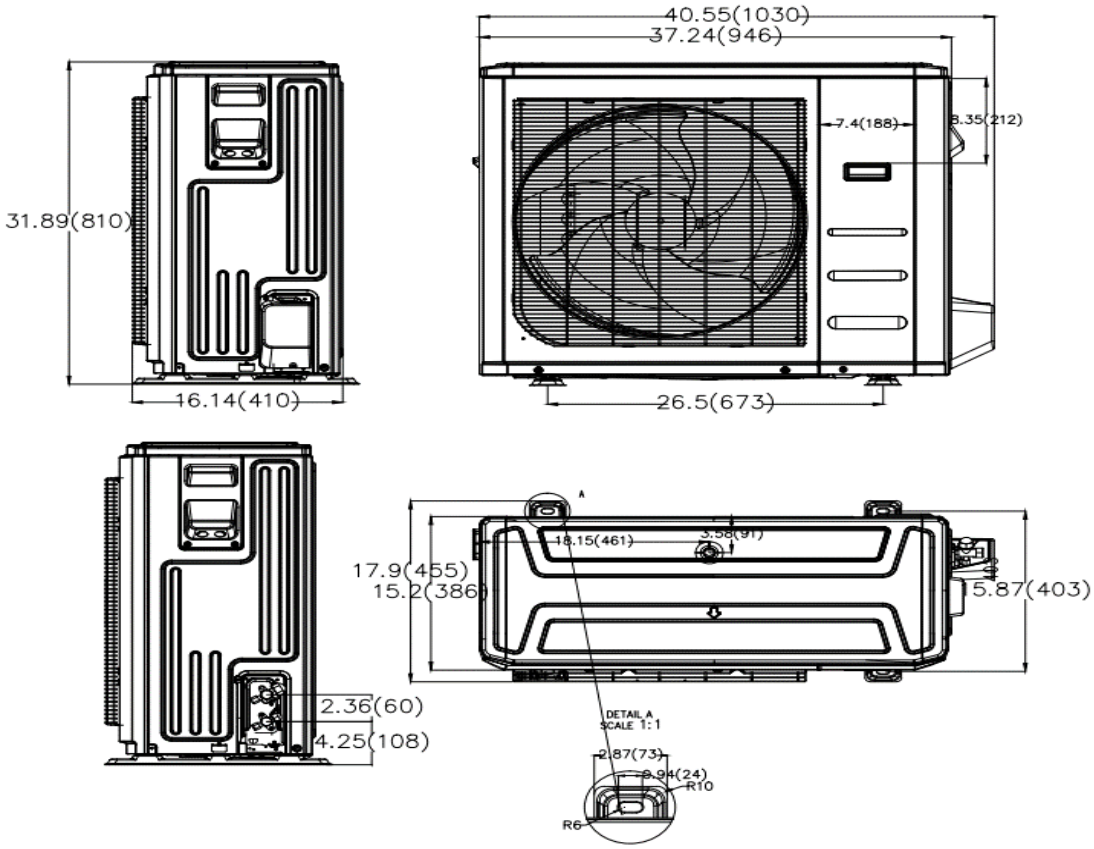
A solar box equipped with chambers lined with specialty reflective film is mounted to the top of the condensing unit. Through a patented process, ambient light is converted to thermal energy which reduces the energy demand on the compressor.

Units come with a 1-year parts warranty.

AHRI CERTIFIED® www.ahridirectory.org
Ask About Our Certified Products

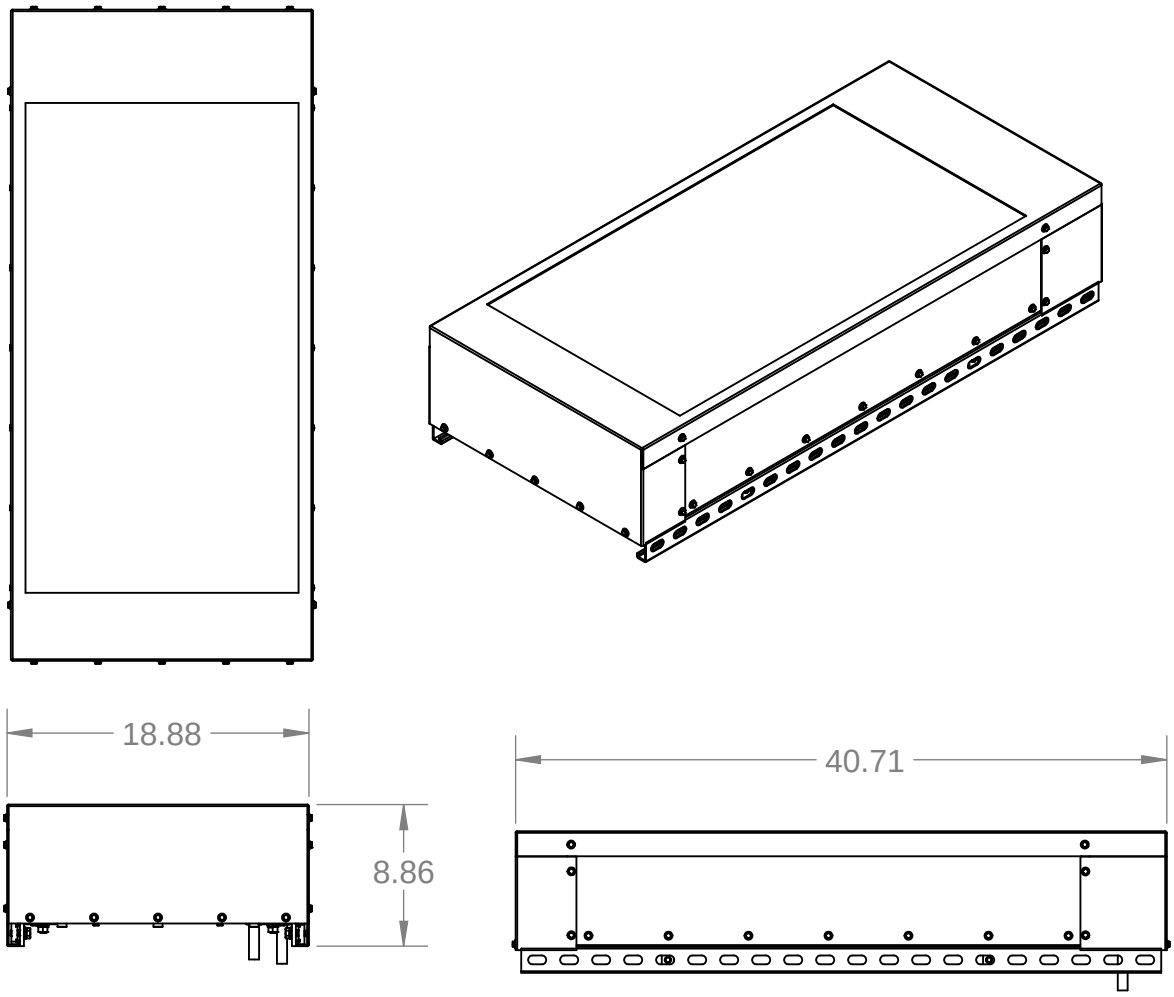
SHMUPM-36 | Solar HVAC Model “M” Multi-Split Dimensions

Outdoor Unit:



SHMUPM-36 | Solar HVAC Model “M” Solar Box Dimensions

Solar Box Weight: 50 lbs.



SHMUPM-36 | Solar HVAC Model "M" Multi-Split Specifications

SYSTEM PERFORMANCE DATA		
Power supply		
Normal Operational Voltage	(V, Ph, Hz)	208/230V,1Ph, 60Hz
Voltage Range	(V)	187-253
Electrical		
Minimum circuit ampacity	(A)	25.0
Max.fuse	(A)	40.0
Connection wiring		14AWG*4 Stranded, unshielded
Cooling		
Capacity	(Btu/h)	36000(8209~40555)
Powrer Input	(W)	3077(270~4017)
Current	(A)	13.6(2.44~17.97)
SEER2	(Btu/W)	23.9
EER2	(Btu/W)	11.7
Heating		
Capacity	(Btu/h)	37000(8008~44632)
Powrer Input	(W)	3098(439~4263)
Current	(A)	13.0(3.23~18.73)
HSPF2-4	(Btu/W)	9.3
HSPF2-5	(Btu/W)	7.1
COP	W/W	3.50
Heat at 17F(H32)	(Btu/h)	26800
Heat at 5F(H42)	(Btu/h)	25200
COP at 5F(H42)	W/W	1.80

REFRIGERANT PIPE DATA		
Design pressure	(PSIG)	550/340
Refrigerant Type		R410A
Refrigerant charge	oz	134.0
Refrigerant precharge	(ft)	25x4
Additional charge for each ft (Φ6.35 (1/4") liquid pipe)	(oz/ft)	0.16
	(g/ft)	15.0
Additional charge for each ft (Φ9.52 (3/8") liquid pipe)	(oz/ft)	0.32
	(g/ft)	30.0
Liquid side	(inch)	4x1/4"
	(mm)	4x6.35
Gas side	(inch)	3x3/8"+1x1/2"
	(mm)	3x9.52+1x12.7
Max. length for all rooms	(ft)	262.5
	(m)	80.0
Max. length for one indoor unit	(ft)	114.8
	(m)	35.0
Max. height difference between indoor and outdoor unit	(ft)	49.2
	(m)	15.0
Max. height difference between indoor units	(ft)	33.0
	(m)	10.0

Outdoor(cooling)	(Deg. ℉)	5~122
	(Deg. °C)	-15～50
Outdoor(heating)	(Deg. ℉)	-13～75
	(Deg. °C)	-25～24

OUTDOOR UNIT DATA		
Compressor		
Type		ROTARY
Model		KTF310D43UMT
Brand		GMCC
Capacity	(Btu/h)	34154
Input	(W)	2765
Rated current (RLA)	(A)	18
Refrigerant oil/oil charge	(ml)	VG74/1000
Outdoor fan motor		
Model		ZKFN-120-8-2
Qty		1
Input	(W)	150.00
Output	(W)	120.00
RLA	(A)	1.00
Speed	(r/min)	1000/900/750
Air flow & Noise level		
Outdoor air flow (Max.)	(CFM)	2147.06
Outdoor noise level	[dB(A)]	63.00
Outdoor unit		
Dimension (W×D×H)	(inch)	37.24x16.14x31.89
	(mm)	946x410x810
Packing (W×D×H)	(inch)	42.91x19.69x34.84
	(mm)	1090x500x885
Net/ Gross weight	(lbs.)	169.09/181.44
	(kg)	76.7/82.3

SHMUPM-48 | Solar HVAC Model “M” Multi-Split Description

Part Number

SHMUPM-480-0

Configuration	Type	Brand	BTU’s	CU/AHU	Options
MU - Multi-Split	P - Heat Pump	M - Midea	48 - 48,000 BTUs	0 - Condenser Only	0 - No Options

Description

A Solar HVAC multi-split is more than twice as efficient as a standard multi-split.

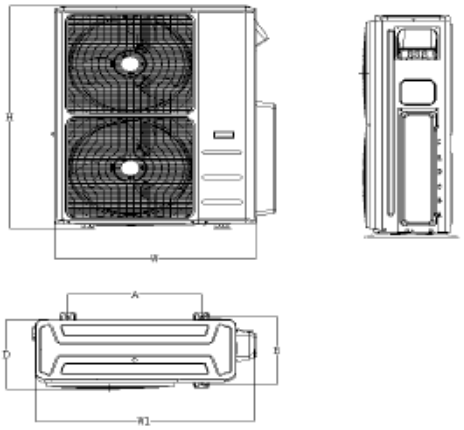
A solar box equipped with chambers lined with specialty reflective film is mounted to the top of the condensing unit. Through a patented process, ambient light is converted to thermal energy which reduces the energy demand on the compressor.

Units come with a 1-year parts warranty.

AHRI CERTIFIED® www.ahridirectory.org
Ask About Our Certified Products

SHMUPM-48 | Solar HVAC Model “M” Multi-Split Dimensions

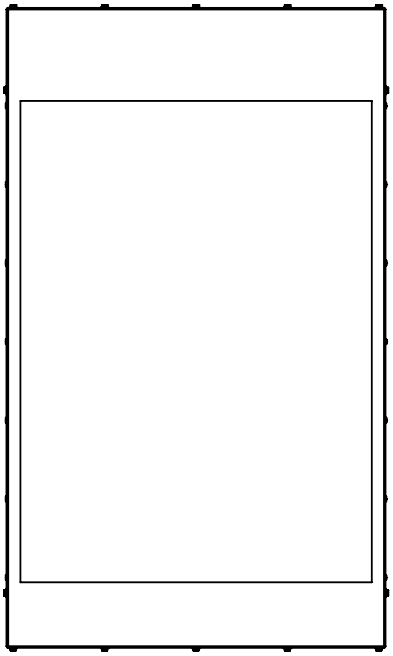
Outdoor Unit:

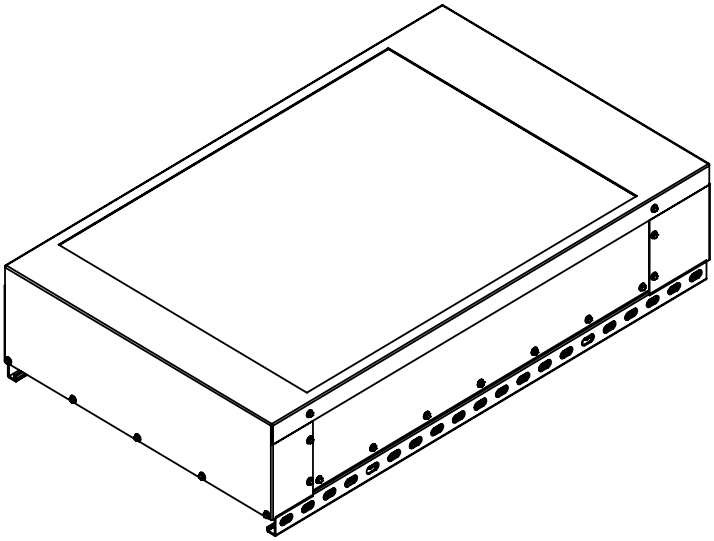


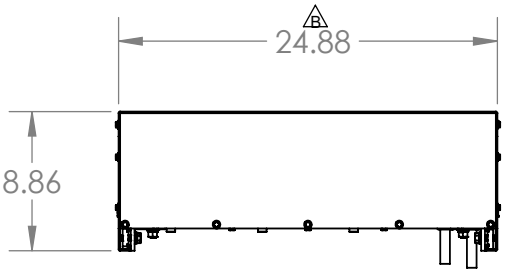
Unit	W	D	H	W1	A	B
mm	962	415	1333	1060	634	404
inch	37.5	16.3	52.5	41.7	25.0	15.9

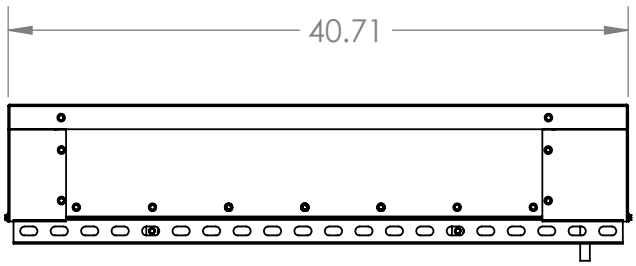
SHMUPM-48 | Solar HVAC Model “M” Solar Box Dimensions

Solar Box Weight: 100 lbs.









SHMUPM-48 | Solar HVAC Model "M" Multi-Split Specifications

SYSTEM PERFORMANCE DATA		
Power supply		
Normal Operational Voltage	(V, Ph, Hz)	208/230V,1Ph, 60Hz
Voltage Range	(V)	187-253
Electrical		
Minimum circuit ampacity	(A)	40.0
Max.fuse	(A)	60.0
Connection wiring		14AWG*4 Stranded, unshielded
Cooling		
Capacity	(Btu/h)	48000(19000~50000)
Powrer Input	(W)	3840(750~4990)
Current	(A)	16.8(4.3~21.9)
SEER2	(Btu/W)	23.4
EER2	(Btu/W)	12.5
Heating		
Capacity	(Btu/h)	48000(12500~52000)
Powrer Input	(W)	3940(770~5300)
Current	(A)	17.1(4.4~23.3)
HSPF2-4	(Btu/W)	8.7
HSPF2-5	(Btu/W)	6.8
COP	W/W	3.57
Heat at 17F(H32)	(Btu/h)	34000
Heat at 5F(H42)	(Btu/h)	33000
COP at 5F(H42)	W/W	1.80

REFRIGERANT PIPE DATA		
Design pressure	(PSIG)	550/340
Refrigerant Type		R410A
Refrigerant charge	oz	162.0
Refrigerant precharge	(ft)	25x5
Additional charge for each ft (Φ6.35 (1/4") liquid pipe)	(oz/ft)	0.16
	(g/ft)	15.0
Additional charge for each ft (Φ9.52 (3/8") liquid pipe)	(oz/ft)	0.32
	(g/ft)	30.0
Liquid side	(inch)	5x1/4"
	(mm)	5x6.35
Gas side	(inch)	3x3/8"+2x1/2"
	(mm)	3x9.52+2x12.7
Max. length for all rooms	(ft)	262.5
	(m)	80.0
Max. length for one indoor unit	(ft)	114.8
	(m)	35.0
Max. height difference between indoor and outdoor unit	(ft)	49.2
	(m)	15.0
Max. height difference between indoor units	(ft)	33.0
	(m)	10.0

Outdoor(cooling)	(Deg. ℉)	5~122
	(Deg. °C)	-15～50
Outdoor(heating)	(Deg. ℉)	-13～75
	(Deg. °C)	-25～24

OUTDOOR UNIT DATA		
Compressor		
Type		ROTARY
Model		ATQ360D1UMU
Brand		GMCC
Capacity	(Btu/h)	38214
Input	(W)	3040
Rated current (RLA)	(A)	24
Refrigerant oil/oil charge	(ml)	VG74/1400
Outdoor fan motor		
Model		ZKFN-85-8-22-5
Qty		2
Input	(W)	126.00
Output	(W)	85.00
RLA	(A)	2.50
Speed	(r/min)	900/850/800/750
Air flow & Noise level		
Outdoor air flow (Max.)	(CFM)	4500.00
Outdoor noise level	[dB(A)]	64.00
Outdoor unit		
Dimension (W×D×H)	(inch)	37.48x16.34x52.48
	(mm)	952x415x1333
Packing (W×D×H)	(inch)	43.11x19.49x58.27
	(mm)	1095x495x1480
Net/ Gross weight	(lbs.)	225.53/256.62
	(kg)	102.3/116.4

SHMUPM-60 | Solar HVAC Model “M” Multi-Split Description

Part Number

SHMUPM-600-0

Configuration	Type	Brand	BTU’s	CU/AHU	Options
MU - Multi-Split	P - Heat Pump	M - Midea	60- 60,000 BTUs	0 - Condenser Only	0 - No Options

Description

A Solar HVAC multi-split is more than twice as efficient as a standard multi-split.

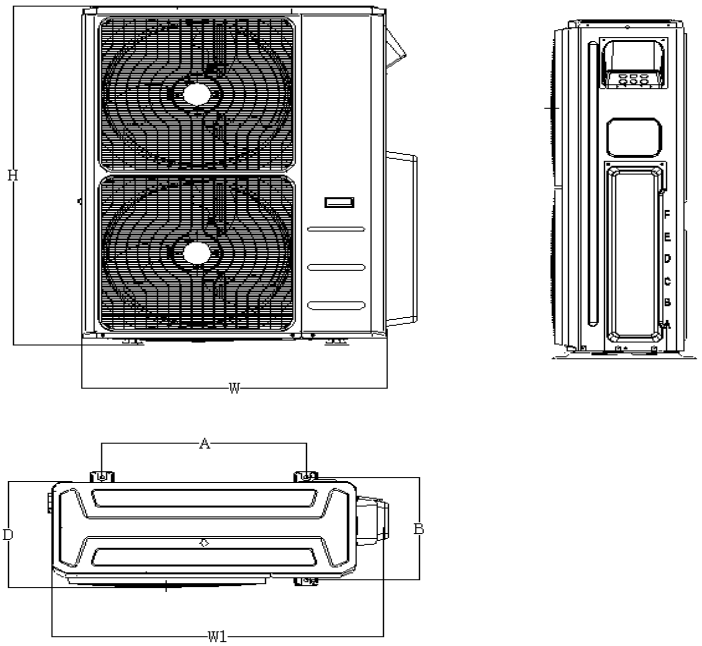
A solar box equipped with chambers lined with specialty reflective film is mounted to the top of the condensing unit. Through a patented process, ambient light is converted to thermal energy which reduces the energy demand on the compressor.

Units come with a 1-year parts warranty.

AHRI CERTIFIED® www.ahridirectory.org
Ask About Our Certified Products

SHMUPM-60 | Solar HVAC Model “M” Multi-Split Dimensions

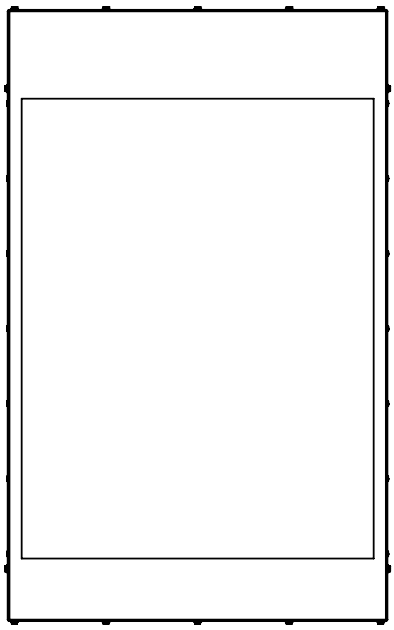
Outdoor Unit:

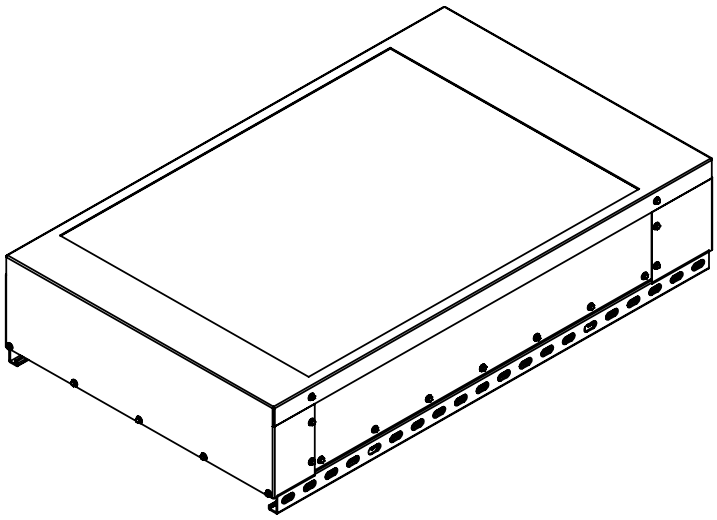


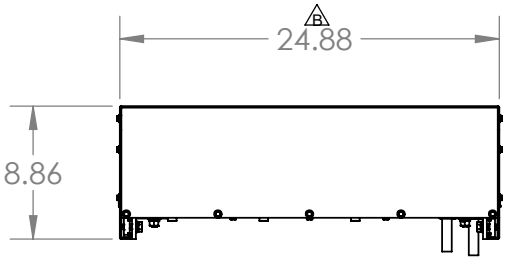
Unit	W	D	H	W1	A	B
mm	952	415	1333	1060	634	404
inch	37.5	16.3	52.5	41.7	25.0	15.9

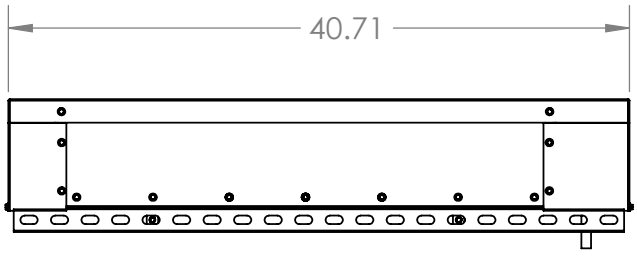
SHMUPM-60 | Solar HVAC Model “M” Solar Box Dimensions

Solar Box Weight: 100 lbs.









SHMUPM-60 | Solar HVAC Model "M" Multi-Split Specifications

SYSTEM PERFORMANCE DATA		
Power supply		
Normal Operational Voltage	(V, Ph, Hz)	208/230V,1Ph, 60Hz
Voltage Range	(V)	187-253
Electrical		
Minimum circuit ampacity	(A)	40.0
Max.fuse	(A)	60.0
Connection wiring		14AWG*4 Stranded, unshielded
Cooling		
Capacity	(Btu/h)	55000(19000~57300)
Powrer Input	(W)	5238(750~5900)
Current	(A)	23.5(4.3~26.5)
SEER2	(Btu/W)	21.3
EER2	(Btu/W)	10.5
Heating		
Capacity	(Btu/h)	55000(12500~60000)
Powrer Input	(W)	5037(770~5450)
Current	(A)	22.5(4.4~24.5)
HSPF2-4	(Btu/W)	9.1
HSPF2-5	(Btu/W)	6.8
COP	W/W	3.20
Heat at 17F(H32)	(Btu/h)	34400
Heat at 5F(H42)	(Btu/h)	33200
COP at 5F(H42)	W/W	1.80

REFRIGERANT PIPE DATA		
Design pressure	(PSIG)	550/340
Refrigerant Type		R410A
Refrigerant charge	oz	162.0
Refrigerant precharge	(ft)	25x5
Additional charge for each ft (Φ6.35 (1/4") liquid pipe)	(oz/ft)	0.16
	(g/ft)	15.0
Additional charge for each ft (Φ9.52 (3/8") liquid pipe)	(oz/ft)	0.32
	(g/ft)	30.0
Liquid side	(inch)	5x1/4"
	(mm)	5x6.35
Gas side	(inch)	3x3/8"+2x1/2"
	(mm)	3x9.52+2x12.7
Max. length for all rooms	(ft)	262.5
	(m)	80.0
Max. length for one indoor unit	(ft)	114.8
	(m)	35.0
Max. height difference between indoor and outdoor unit	(ft)	49.2
	(m)	15.0
Max. height difference between indoor units	(ft)	33.0
	(m)	10.0

Outdoor(cooling)	(Deg. ℉)	5~122
	(Deg. ℃)	-15～50
Outdoor(heating)	(Deg. ℉)	-13～75
	(Deg. ℃)	-25～24

OUTDOOR UNIT DATA		
Compressor		
Type		ROTARY
Model		KTQ420D1UMU
Brand		GMCC
Capacity	(Btu/h)	46744
Input	(W)	3700
Rated current (RLA)	(A)	25.0
Refrigerant oil/oil charge	(ml)	VG74/1400
Outdoor fan motor		
Model		ZKFN-85-8-22-5
Qty		2
Input	(W)	126.0
Output	(W)	85.0
RLA	(A)	2.5
Speed	(r/min)	900/850/800/750
Air flow & Noise level		
Outdoor air flow (Max.)	(CFM)	4500.00
Outdoor noise level	[dB(A)]	62.00
Outdoor unit		
Dimension (W×D×H)	(inch)	37.48x16.34x52.48
	(mm)	952x415x1333
Packing (W×D×H)	(inch)	43.11x19.49x58.27
	(mm)	1095x495x1480
Net/ Gross weight	(lbs.)	224.21/257.28
	(kg)	101.7/116.7

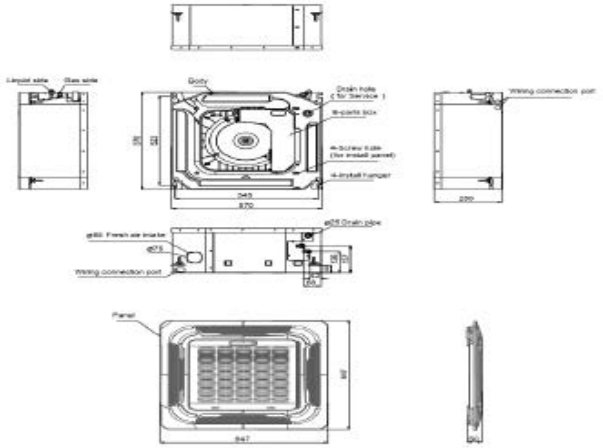
Model “M” Multi-Split Ceiling Mount 9K Indoor Unit Specifications

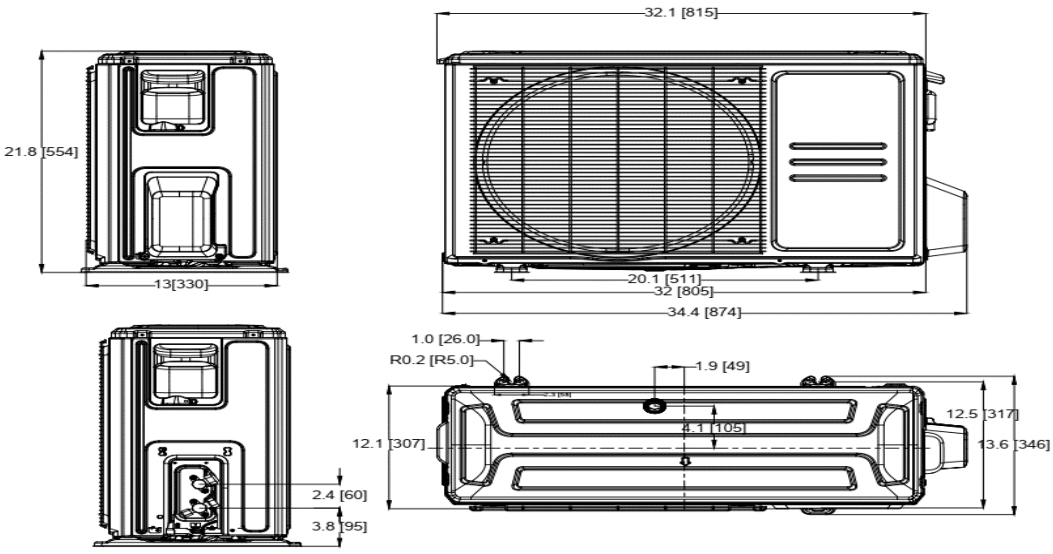
INDOOR UNIT DATA		
Model		ZKFP-46-8-1
Qty		1
Input	(W)	45.00
Output	(W)	46.0
RLA	(A)	0.00
Speed(Hi/Mi/Lo)	(r/min)	600/520/460
Air flow & Noise level		
Indoor air flow (Hi	(CFM)	//352.94/305.88/270.59
Indoor noise level (	[dB(A)]	39.5/36/32.5
Dehumidification	(L/H)	1.03
Indoor unit		
Dimension (WxDxH)	(inch)	22.44x22.44x10.24
	(mm)	570x570x260
Packing(WxDxH)	(inch)	26.06x26.06x12.48
	(mm)	662x662x317
Net/Gross weight	(lbs.)	31.97/38.14
	(kg)	14.5/17.3

AHRI

UL

ENERGY STAR



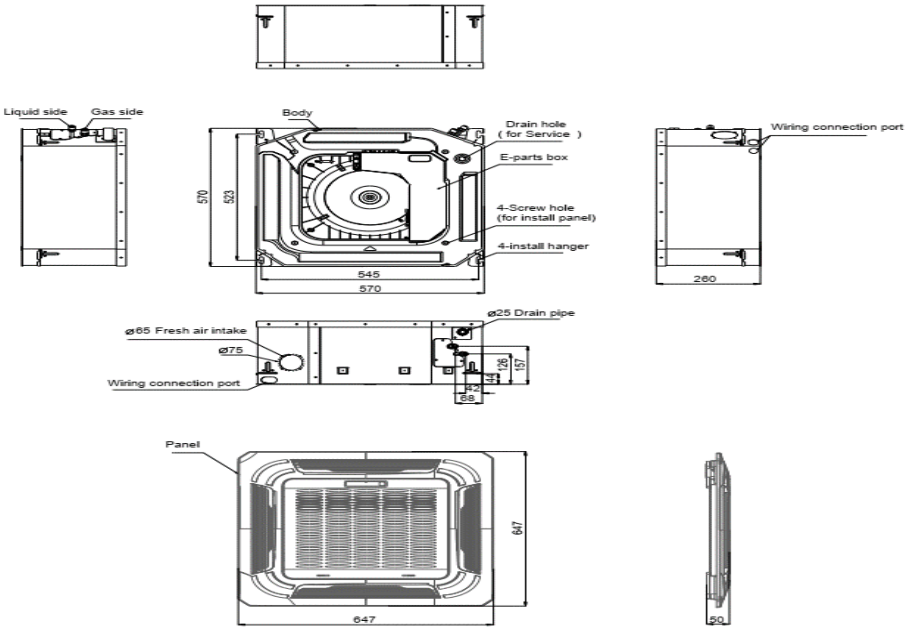


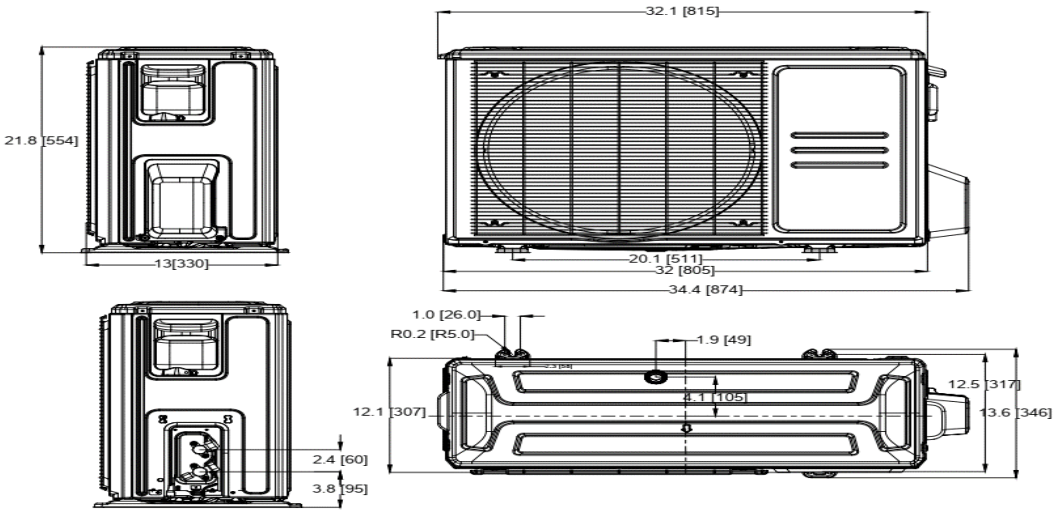
Model “M” Multi-Split Ceiling Mount 12K Indoor Unit Specifications

INDOOR UNIT DATA		
Model		ZKFP-46-8-1
Qty		1
Input	(W)	45.00
Output	(W)	46.0
RLA	(A)	0.00
Speed(Hi/Mi/Lo)	(r/min)	/
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//335.29/282.35/241.18
Indoor noise level (Hi/Med/Lo)	[dB(A)]	40.5/35.5/31.5
Dehumidification	(L/H)	1.69
Indoor unit		
Dimension (WxDxH)	(inch)	22.44x22.44x10.24
	(mm)	570x570x260
Packing(WxDxH)	(inch)	26.06x26.06x12.48
	(mm)	662x662x317
Net/Gross weight	(lbs.)	35.27/41.01
	(kg)	16/18.6

AHRI

UL



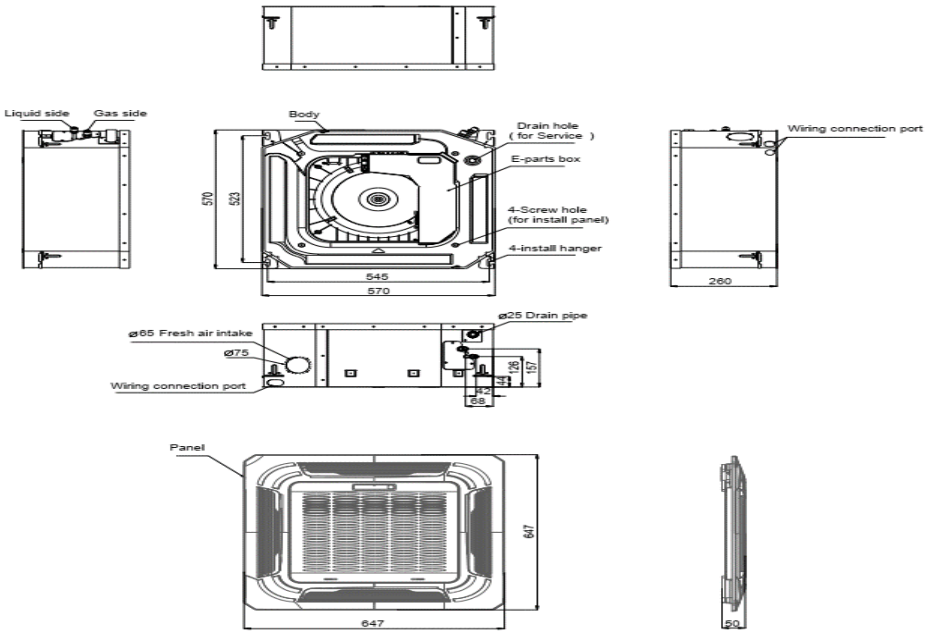


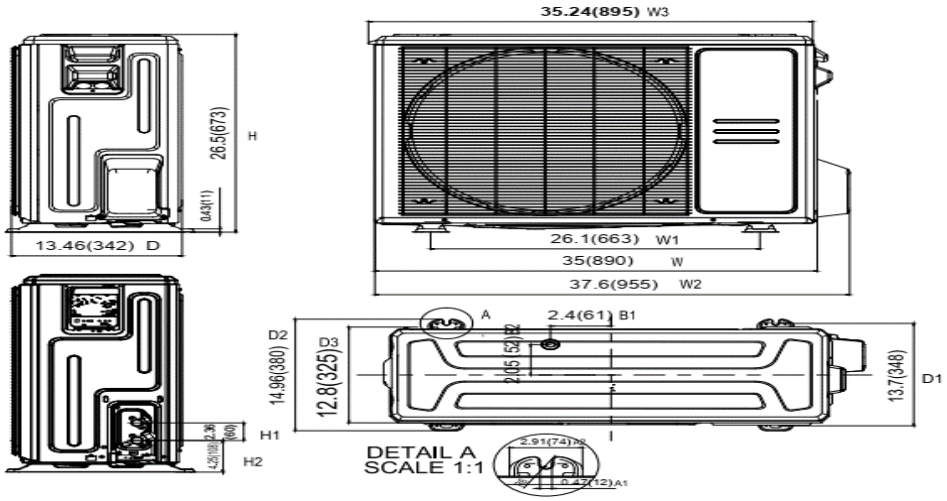
Model “M” Multi-Split Ceiling Mount 18K Indoor Unit Specifications

INDOOR UNIT DATA		
Model		ZKFP-46-8-1
Qty		1
Input	(W)	45.00
Output	(W)	46.0
RLA	(A)	1.50
Speed(Hi/Mi/Lo)	(r/min)	730/630/570
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//562.35/485.29/438.82
Indoor noise level (Hi/Med/Lo)	[dB(A)]	43.5/38.5/35.5
Dehumidification	(L/H)	2.22
Indoor unit		
Dimension (WxDxH)	(inch)	22.44x22.44x10.24
	(mm)	570x570x260
Packing(WxDxH)	(inch)	26.06x26.06x12.48
	(mm)	662x662x317
Net/Gross weight	(lbs.)	35.71/46.96
	(kg)	16.2/21.3

AHRI

UL





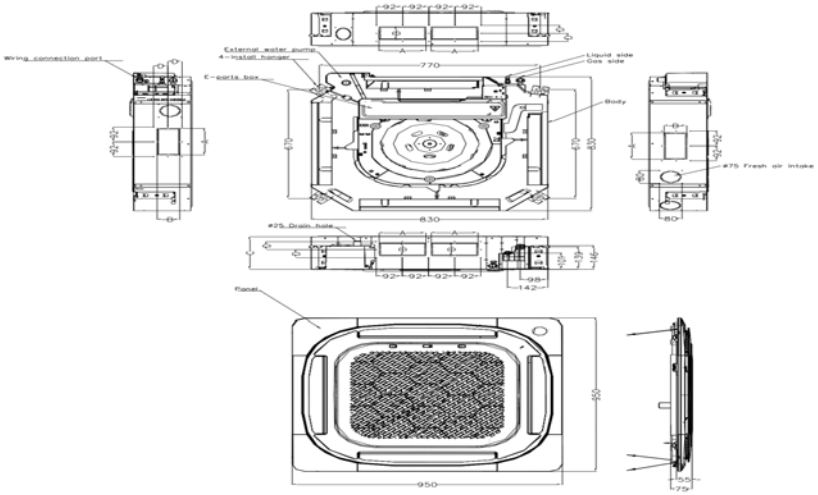
Model “M” Multi-Split Ceiling Mount 24K Indoor Unit Specifications

INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-45-8-1
Qty		1
Input	(W)	/
Output	(W)	45.0
RLA	(A)	1.00
Speed(Hi/Mi/Lo)	(r/min)	680/624/568/512
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	764.71/705.88/635.29/547.06
Indoor noise level (Hi/Med/Lo)	[dB(A)]	48/45.5/43
Dehumidification	(L/H)	2.72
Indoor unit		
Dimension (WxDxH)	(inch)	32.68x32.68x8.07
	(mm)	830x830x205
Packing(WxDxH)	(inch)	35.83x35.83x9.84
	(mm)	910x910x250
Net/Gross weight	(lbs.)	47.18/55.34
	(kg)	21.4/25.1

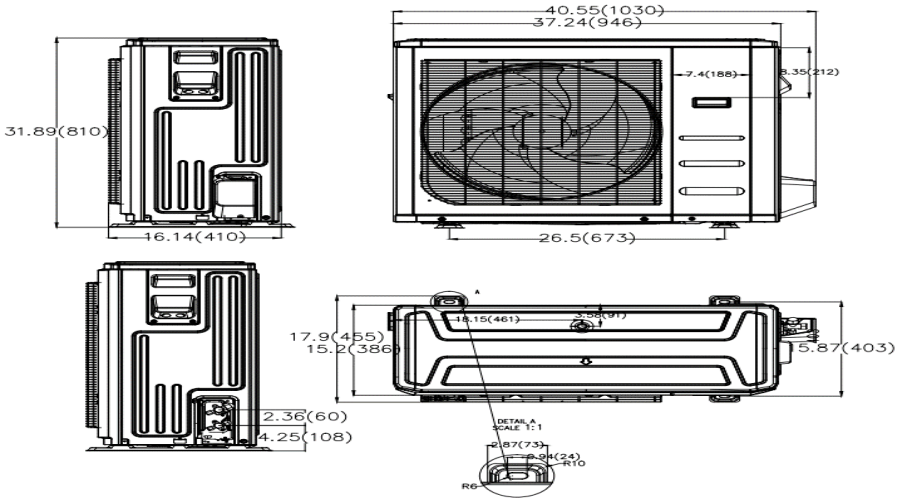
AHRI

UL

ENERGY STAR



Capacity (Btu/h)	Unit	A	B	C	D
24K	mm	165	80	205	50
	inch	6.5	3.15	8.07	1.97
36K	mm	165	100	245	60
	inch	6.5	3.64	9.65	2.36
48K	mm	165	100	287	60
	inch	6.5	3.64	11.30	2.36



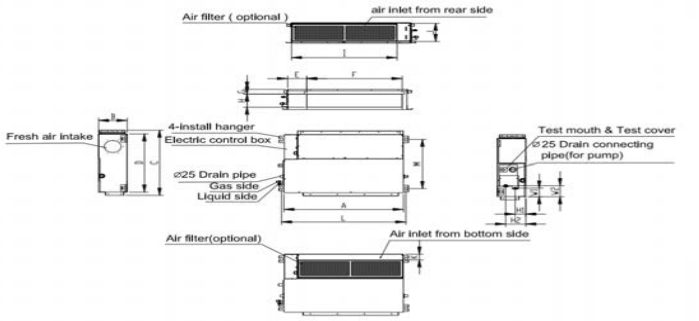
Model “M” Multi-Split Duct Mount 9K Indoor Unit Specifications

INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-55-8-22-1
Qty		1
Input	(W)	130.00
Output	(W)	55.0
RLA	(A)	0.9
Speed(Hi/Mi/Lo)	(r/min)	1170/1030/850
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//352.94/282.35/176.47
Indoor noise level (Hi/Med/Lo)	[dB(A)]	33/30.5/27
Dehumidification	(L/H)	0.92
Indoor unit		
Dimension (WxDxH)	(inch)	27.56x19.92x7.87
	(mm)	700x506x200
Packing(WxDxH)	(inch)	33.86x21.26x11.22
	(mm)	860x540x285
Net/Gross weight	(lbs.)	39.02/48.28
	(kg)	17.7/21.9

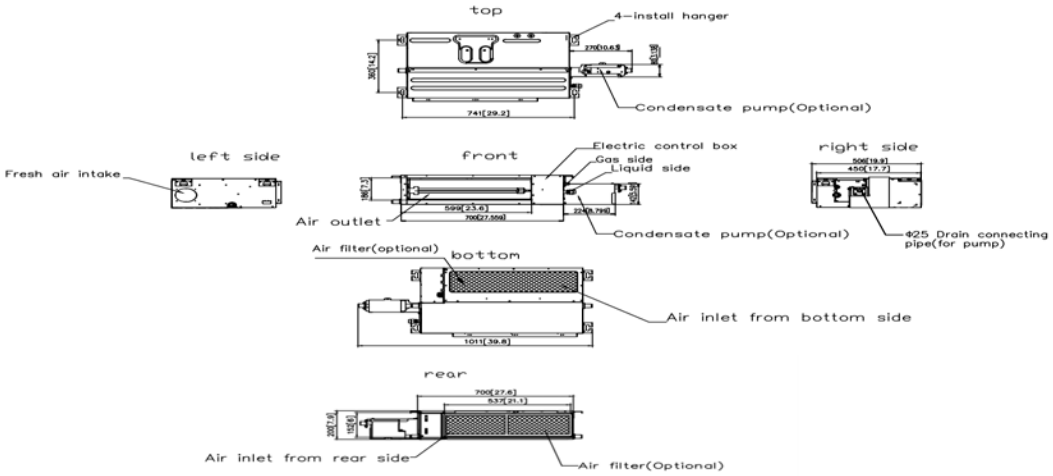
AHRI

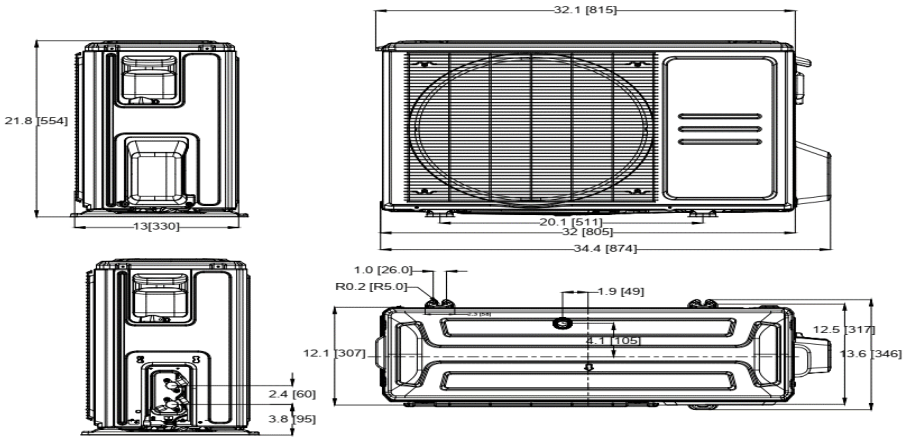
UL

ENERGY STAR



Model (KBtu/h)	unit	A	B	C	D	E	F	G	H	I	J	K	L	M	H1	H2	W1	W2
9/12	mm	700	200	506	450	137	537	30	152	599	186	50	741	360	84	140	84	84
	inch	27.6	7.9	19.9	17.7	5.4	21.1	1.2	6.0	23.6	7.3	2.0	29.2	14.2	3.3	5.5	3.3	3.3
18	mm	880	210	674	600	140	706	50	136	782	190	40	920	508	78	148	88	112
	inch	34.6	8.3	26.5	23.6	5.5	27.8	2.0	5.4	30.8	7.5	1.6	36.2	20.0	3.1	5.8	3.5	4.4
24	mm	1100	249	774	700	140	926	50	175	1001	228	5	1140	598	80	150	130	155
	inch	43.3	9.8	30.5	27.6	5.5	36.5	2.0	6.9	39.4	9.0	0.2	44.9	23.5	3.1	5.9	5.1	6.1
36	mm	1360	249	774	700	140	1186	50	175	1261	228	5	1400	598	80	150	130	155
	inch	53.5	9.8	30.5	27.6	5.5	46.7	2.0	6.9	49.6	9.0	0.2	55.1	23.5	3.1	5.9	5.1	6.1
48	mm	1200	300	874	800	123	1044	50	227	1101	280	5	1240	697	80	150	185	210
	inch	47.2	11.8	34.4	31.5	4.8	41.1	2.0	8.9	43.3	11.0	0.2	48.8	27.4	3.1	5.9	7.3	8.3



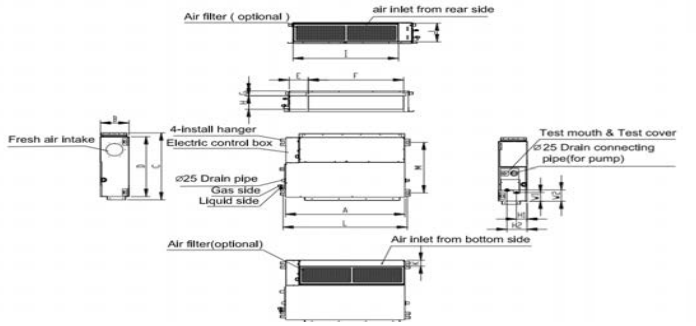


Model “M” Multi-Split Duct Mount 12K Indoor Unit Specifications

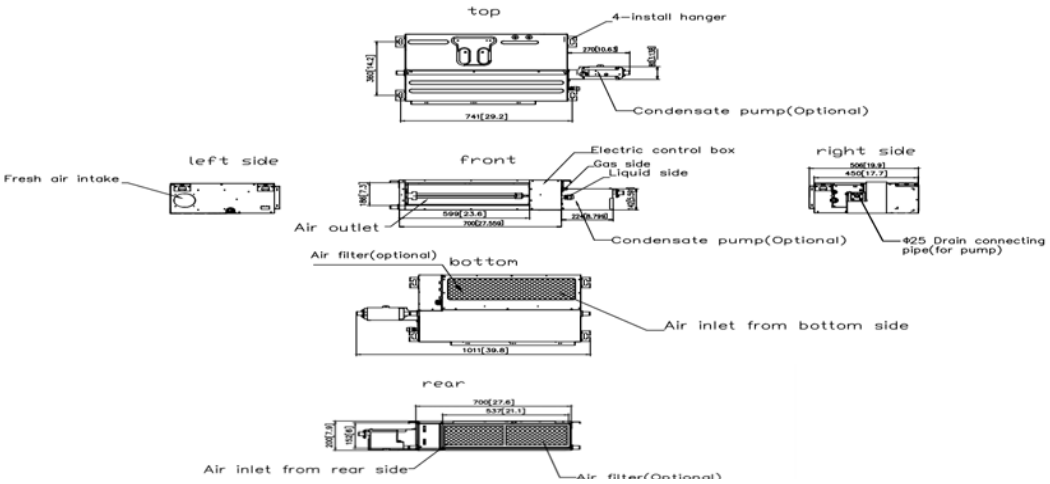
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-55-8-22-1
Qty		1
Input	(W)	130.00
Output	(W)	55.0
RLA	(A)	1.0
Speed(Hi/Mi/Lo)	(r/min)	1170/1030/850
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//352.94/282.35/176.47
Indoor noise level (Hi/Med/Lo)	[dB(A)]	40/31.5/26.5
Dehumidification	(L/H)	1.65
Indoor unit		
Dimension (WxDxH)	(inch)	27.56x19.92x7.87
	(mm)	700x506x200
Packing(WxDxH)	(inch)	33.86x21.26x11.22
	(mm)	860x540x285
Net/Gross weight	(lbs.)	39.24/48.50
	(kg)	17.8/22

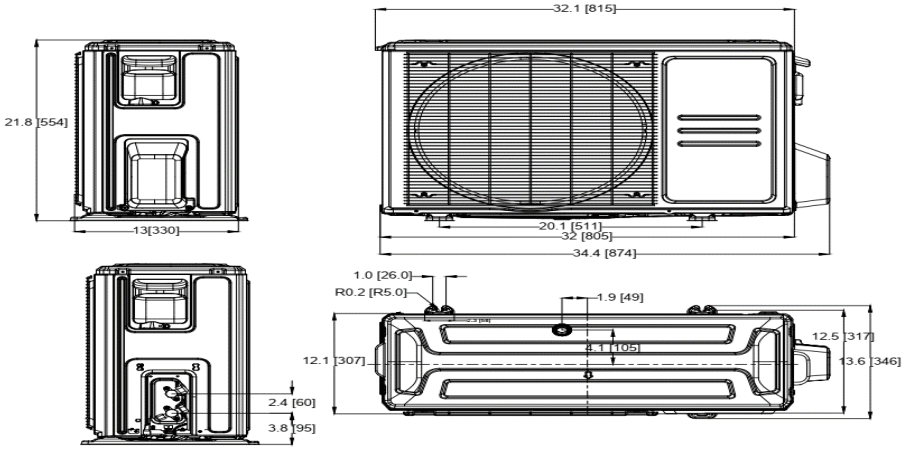
AHRI

UL



Model (KBtu/h)	unit	A	B	C	D	E	F	G	H	I	J	K	L	M	H1	H2	W1	W2
9/12	mm	700	200	506	450	137	537	30	152	599	186	50	741	360	84	140	84	84
	inch	27.6	7.9	19.9	17.7	5.4	21.1	1.2	6.0	23.6	7.3	2.0	29.2	14.2	3.3	5.5	3.3	3.3
18	mm	880	210	674	600	140	706	50	136	782	190	40	920	508	78	148	88	112
	inch	34.6	8.3	26.5	23.6	5.5	27.8	2.0	5.4	30.8	7.5	1.6	36.2	20.0	3.1	5.8	3.5	4.4
24	mm	1100	249	774	700	140	926	50	175	1001	228	5	1140	598	80	150	130	155
	inch	43.3	9.8	30.5	27.6	5.5	36.5	2.0	6.9	39.4	9.0	0.2	44.9	23.5	3.1	5.9	5.1	6.1
36	mm	1360	249	774	700	140	1186	50	175	1261	228	5	1400	598	80	150	130	155
	inch	53.5	9.8	30.5	27.6	5.5	46.7	2.0	6.9	49.6	9.0	0.2	55.1	23.5	3.1	5.9	5.1	6.1
48	mm	1200	300	874	800	123	1044	50	227	1101	280	5	1240	697	80	150	185	210
	inch	47.2	11.8	34.4	31.5	4.8	41.1	2.0	8.9	43.3	11.0	0.2	48.8	27.4	3.1	5.9	7.3	8.3





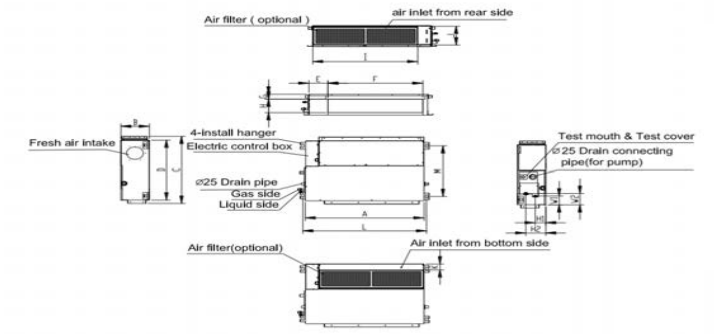
Model “M” Multi-Split Duct Mount 18K Indoor Unit Specifications

INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-160-8-1-2
Qty		1
Input	(W)	90.00
Output	(W)	160.0
RLA	(A)	1.2
Speed(Hi/Mi/Lo)	(r/min)	850/700/450
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//529.41/450.00/370.59
Indoor noise level (Hi/Med/Lo)	[dB(A)]	40/37.5/35
Dehumidification	(L/H)	1.6
Indoor unit		
Dimension (WxDxH)	(inch)	34.65x26.54x8.27
	(mm)	880x674x210
Packing(WxDxH)	(inch)	42.13x28.54x11.02
	(mm)	1070x725x280
Net/Gross weight	(lbs.)	55.34/67.02
	(kg)	25.1/30.4

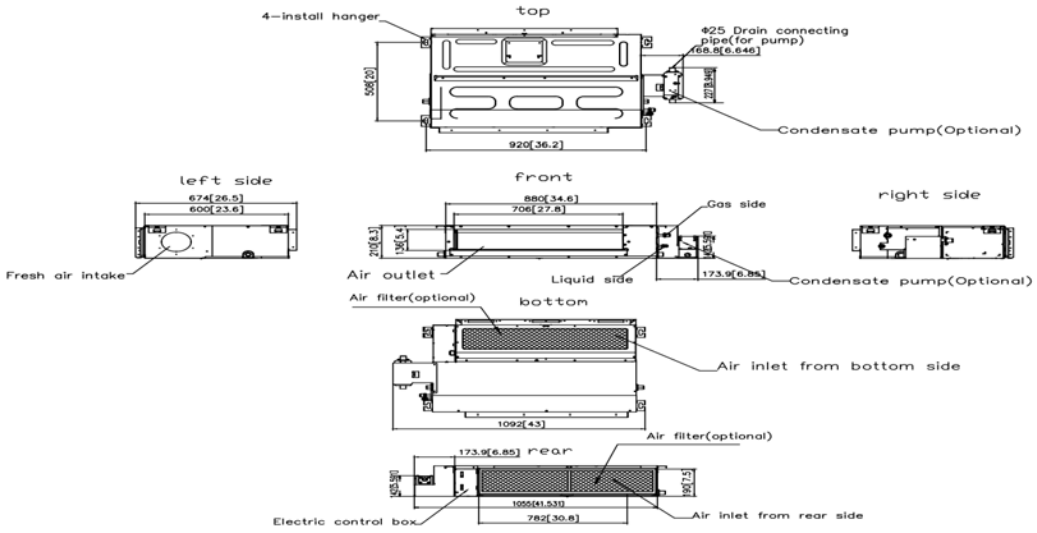
AHRI

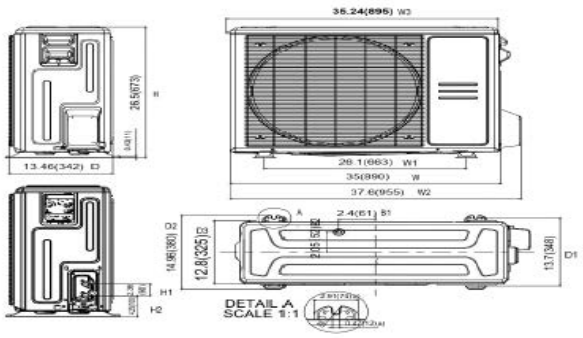
UL

ENERGY STAR



Model (KBtu/h)	unit	A	B	C	D	E	F	G	H	I	J	K	L	M	H1	H2	W1	W2
9/12	mm	700	200	506	450	137	537	30	152	599	186	50	741	360	84	140	84	84
	inch	27.6	7.9	19.9	17.7	5.4	21.1	1.2	6.0	23.6	7.3	2.0	29.2	14.2	3.3	5.5	3.3	3.3
18	mm	880	210	674	600	140	706	50	136	782	190	40	920	508	78	148	88	112
	inch	34.6	8.3	26.5	23.6	5.5	27.8	2.0	5.4	30.8	7.5	1.6	36.2	20.0	3.1	5.8	3.5	4.4
24	mm	1100	249	774	700	140	926	50	175	1001	228	5	1140	598	80	150	130	155
	inch	43.3	9.8	30.5	27.6	5.5	36.5	2.0	6.9	39.4	9.0	0.2	44.9	23.5	3.1	5.9	5.1	6.1
36	mm	1360	249	774	700	140	1186	50	175	1261	228	5	1400	598	80	150	130	155
	inch	53.5	9.8	30.5	27.6	5.5	46.7	2.0	6.9	49.6	9.0	0.2	55.1	23.5	3.1	5.9	5.1	6.1
48	mm	1200	300	874	800	123	1044	50	227	1101	280	5	1240	697	80	150	185	210
	inch	47.2	11.8	34.4	31.5	4.8	41.1	2.0	8.9	43.3	11.0	0.2	48.8	27.4	3.1	5.9	7.3	8.3





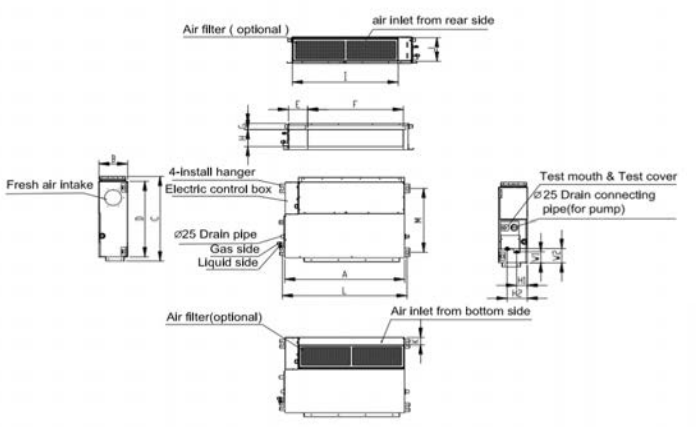
Model “M” Multi-Split Duct Mount 24K Indoor Unit Specifications

INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-160-8-1-2
Qty		1
Input	(W)	90.00
Output	(W)	160.0
RLA	(A)	1.5
Speed(Hi/Mi/Lo)	(r/min)	/
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//775.47/693.06/434.88
Indoor noise level (Hi/Med/Lo)	[dB(A)]	44/40/35.5
Dehumidification	(L/H)	1.59
Indoor unit		
Dimension (WxDxH)	(inch)	43.31x30.47x9.80
	(mm)	1100x774x249
Packing(WxDxH)	(inch)	51.38x31.69x12.40
	(mm)	1305x805x315
Net/Gross weight	(lbs.)	90.39/105.82
	(kg)	41/48

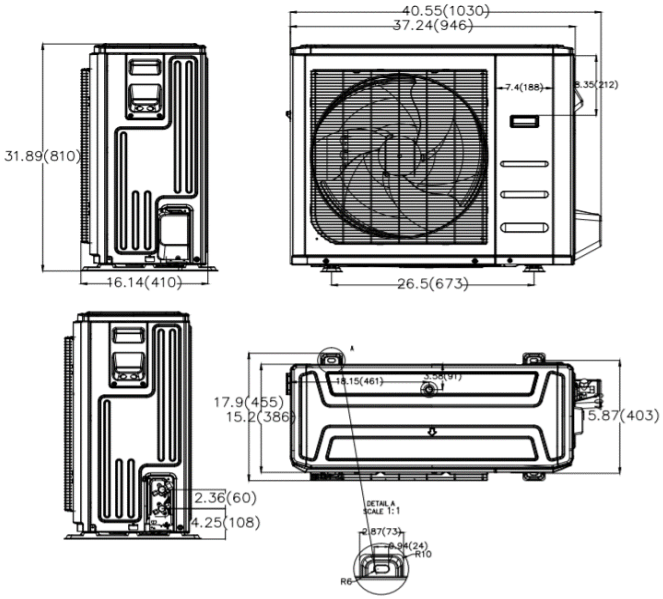
AHRI

UL

ENERGY STAR



Model (KBtu/h)	unit	A	B	C	D	E	F	G	H	I	J	K	L	M	H1	H2	W1	W2
9/12	mm	700	200	506	450	137	537	30	152	599	186	50	741	360	84	140	84	84
	inch	27.6	7.9	19.9	17.7	5.4	21.1	1.2	6.0	23.6	7.3	2.0	29.2	14.2	3.3	5.5	3.3	3.3
18	mm	880	210	674	600	140	706	50	136	782	190	40	920	508	78	148	88	112
	inch	34.6	8.3	26.5	23.6	5.5	27.8	2.0	5.4	30.8	7.5	1.6	36.2	20.0	3.1	5.8	3.5	4.4
24	mm	1100	249	774	700	140	926	50	175	1001	228	5	1140	598	80	150	130	155
	inch	43.3	9.8	30.5	27.6	5.5	36.5	2.0	6.9	39.4	9.0	0.2	44.9	23.5	3.1	5.9	5.1	6.1
36	mm	1360	249	774	700	140	1186	50	175	1261	228	5	1400	598	80	150	130	155
	inch	53.5	9.8	30.5	27.6	5.5	46.7	2.0	6.9	49.6	9.0	0.2	55.1	23.5	3.1	5.9	5.1	6.1
48	mm	1200	300	874	800	123	1044	50	227	1101	280	5	1240	697	80	150	185	210
	inch	47.2	11.8	34.4	31.5	4.8	41.1	2.0	8.9	43.3	11.0	0.2	48.8	27.4	3.1	5.9	7.3	8.3

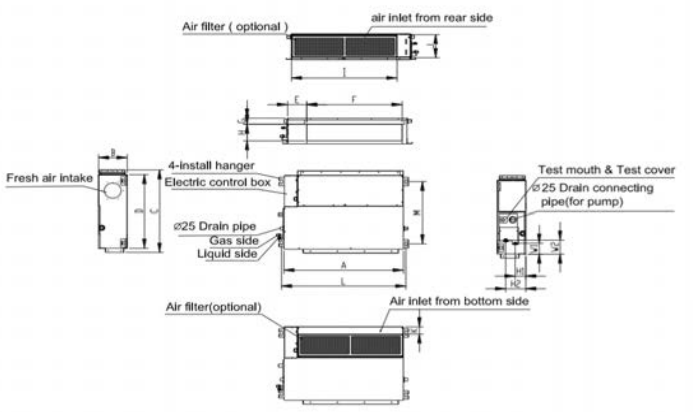


Model “M” Multi-Split Duct Mount 36K Indoor Unit Specifications

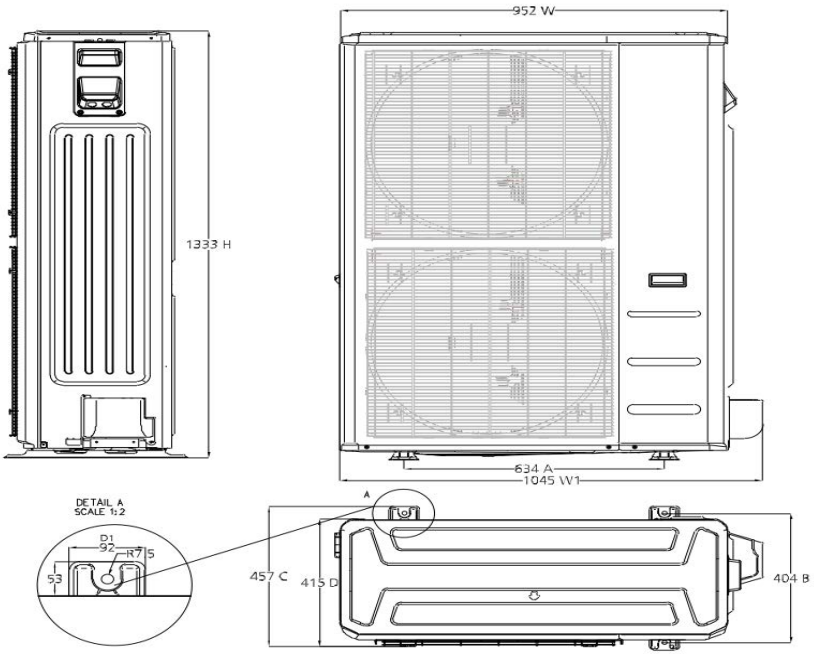
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-300-8-1
Qty		1
Input	(W)	250.00
Output	(W)	300.0
RLA	(A)	1.6
Speed(Hi/Mi/Lo)	(r/min)	1130/1050/990
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//1081.76/912.35/702.94
Indoor noise level (Hi/Med/Lo)	[dB(A)]	49.5/46.5/43.0
Dehumidification	(L/H)	2.85
Indoor unit		
Dimension (WxDxH)	(inch)	53.54x30.47x9.80
	(mm)	1360x774x249
Packing(WxDxH)	(inch)	61.81x31.69x12.99
	(mm)	1570x805x330
Net/Gross weight	(lbs.)	110.89/128.09
	(kg)	50.3/58.1

AHRI

UL



Model (KBtu/h)	unit	A	B	C	D	E	F	G	H	I	J	K	L	M	H1	H2	W1	W2
9/12	mm	700	200	506	450	137	537	30	152	599	186	50	741	360	84	140	84	84
	inch	27.6	7.9	19.9	17.7	5.4	21.1	1.2	6.0	23.6	7.3	2.0	29.2	14.2	3.3	5.5	3.3	3.3
18	mm	880	210	674	600	140	706	50	136	782	190	40	920	508	78	148	88	112
	inch	34.6	8.3	26.5	23.6	5.5	27.8	2.0	5.4	30.8	7.5	1.6	36.2	20.0	3.1	5.8	3.5	4.4
24	mm	1100	249	774	700	140	926	50	175	1001	228	5	1140	598	80	150	130	155
	inch	43.3	9.8	30.5	27.6	5.5	36.5	2.0	6.9	39.4	9.0	0.2	44.9	23.5	3.1	5.9	5.1	6.1
36	mm	1360	249	774	700	140	1186	50	175	1261	228	5	1400	598	80	150	130	155
	inch	53.5	9.8	30.5	27.6	5.5	46.7	2.0	6.9	49.6	9.0	0.2	55.1	23.5	3.1	5.9	5.1	6.1
48	mm	1200	300	874	800	123	1044	50	227	1101	280	5	1240	697	80	150	185	210
	inch	47.2	11.8	34.4	31.5	4.8	41.1	2.0	8.9	43.3	11.0	0.2	48.8	27.4	3.1	5.9	7.3	8.3

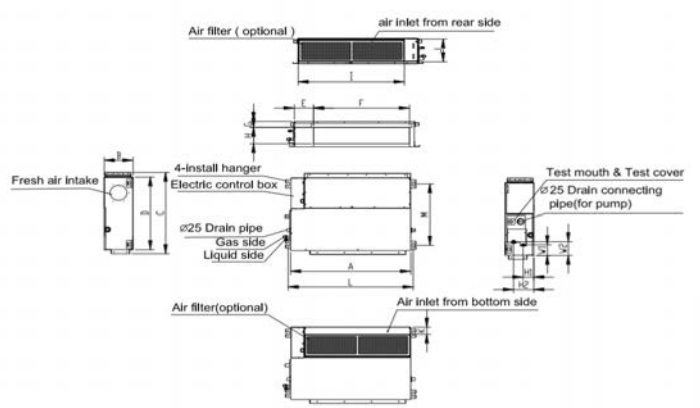


Model “M” Multi-Split Duct Mount 48K Indoor Unit Specifications

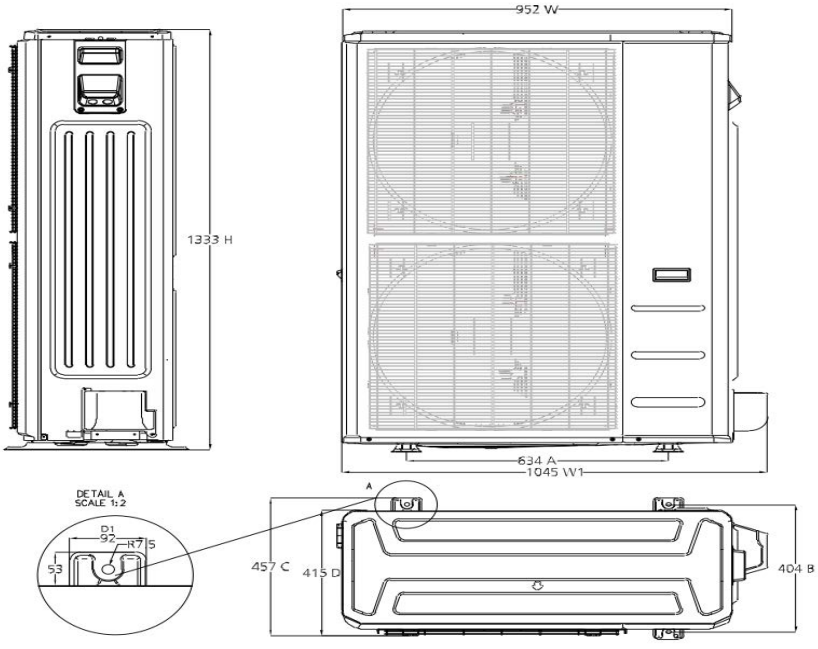
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-560-8-1-1
Qty		1
Input	(W)	560.00
Output	(W)	560.0
RLA	(A)	2.5
Speed(Hi/Mi/Lo)	(r/min)	940/820/740
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	1529.41/1529.41/1117.65/735.29
Indoor noise level (Hi/Med/Lo)	[dB(A)]	54.5/50.5/47.5
Dehumidification	(L/H)	4.87
Indoor unit		
Dimension (WxDxH)	(inch)	47.24x34.41x11.81
	(mm)	1200x874x300
Packing(WxDxH)	(inch)	55.31x36.02x14.37
	(mm)	1405x915x365
Net/Gross weight	(lbs.)	119.71/141.76
	(kg)	54.3/64.3

AHRI

UL



Model (KBtu/h)	unit	A	B	C	D	E	F	G	H	I	J	K	L	M	H1	H2	W1	W2
9/12	mm	700	200	506	450	137	537	30	152	599	186	50	741	360	84	140	84	84
	inch	27.6	7.9	19.9	17.7	5.4	21.1	1.2	6.0	23.6	7.3	2.0	29.2	14.2	3.3	5.5	3.3	3.3
18	mm	880	210	674	600	140	706	50	136	782	190	40	920	508	78	148	88	112
	inch	34.6	8.3	26.5	23.6	5.5	27.8	2.0	5.4	30.8	7.5	1.6	36.2	20.0	3.1	5.8	3.5	4.4
24	mm	1100	249	774	700	140	926	50	175	1001	228	5	1140	598	80	150	130	155
	inch	43.3	9.8	30.5	27.6	5.5	36.5	2.0	6.9	39.4	9.0	0.2	44.9	23.5	3.1	5.9	5.1	6.1
36	mm	1360	249	774	700	140	1186	50	175	1261	228	5	1400	598	80	150	130	155
	inch	53.5	9.8	30.5	27.6	5.5	46.7	2.0	6.9	49.6	9.0	0.2	55.1	23.5	3.1	5.9	5.1	6.1
48	mm	1200	300	874	800	123	1044	50	227	1101	280	5	1240	697	80	150	185	210
	inch	47.2	11.8	34.4	31.5	4.8	41.1	2.0	8.9	43.3	11.0	0.2	48.8	27.4	3.1	5.9	7.3	8.3

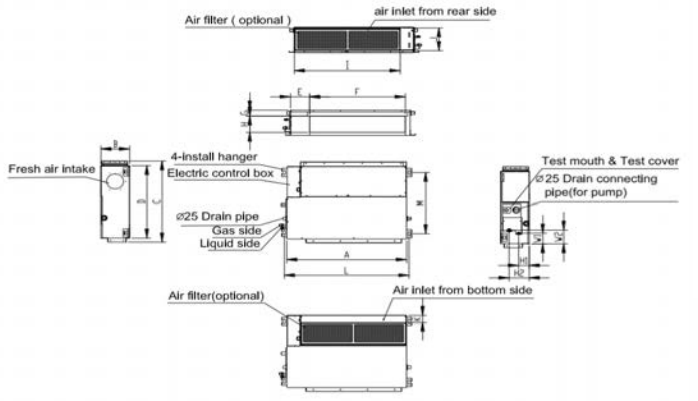


Model “M” Multi-Split Duct Mount 60K Indoor Unit Specifications

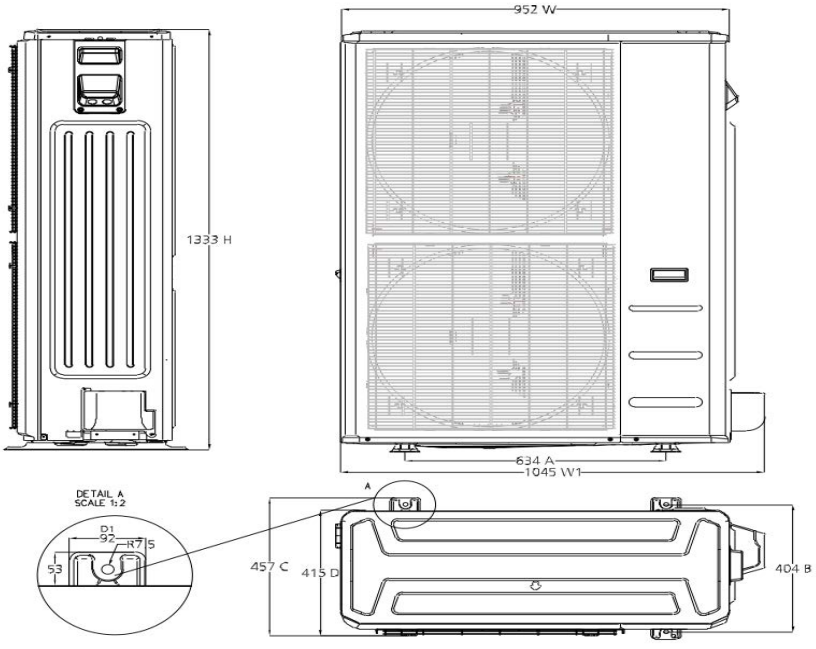
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-700-8-1
Qty		1
Input	(W)	420.00
Output	(W)	700.0
RLA	(A)	2.5
Speed(Hi/Mi/Lo)	(r/min)	1060/910/790
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	2302.94/2155.88/1709.41/1261.76
Indoor noise level (Hi/Med/Lo)	[dB(A)]	54/49.5/46
Dehumidification	(L/H)	5.84
Indoor unit		
Dimension (WxDxH)	(inch)	55.12x33.78x18.11
	(mm)	1400x858x460
Packing(WxDxH)	(inch)	63.19x35.83x21.06
	(mm)	1605x910x535
Net/Gross weight	(lbs.)	174.60/200.40
	(kg)	79.2/90.9

AHRI

UL



Model (KBtu/h)	unit	A	B	C	D	E	F	G	H	I	J	K	L	M	H1	H2	W1	W2
9/12	mm	700	200	506	450	137	537	30	152	599	186	50	741	360	84	140	84	84
	inch	27.6	7.9	19.9	17.7	5.4	21.1	1.2	6.0	23.6	7.3	2.0	29.2	14.2	3.3	5.5	3.3	3.3
18	mm	880	210	674	600	140	706	50	136	782	190	40	920	508	78	148	88	112
	inch	34.6	8.3	26.5	23.6	5.5	27.8	2.0	5.4	30.8	7.5	1.6	36.2	20.0	3.1	5.8	3.5	4.4
24	mm	1100	249	774	700	140	926	50	175	1001	228	5	1140	598	80	150	130	155
	inch	43.3	9.8	30.5	27.6	5.5	36.5	2.0	6.9	39.4	9.0	0.2	44.9	23.5	3.1	5.9	5.1	6.1
36	mm	1360	249	774	700	140	1186	50	175	1261	228	5	1400	598	80	150	130	155
	inch	53.5	9.8	30.5	27.6	5.5	46.7	2.0	6.9	49.6	9.0	0.2	55.1	23.5	3.1	5.9	5.1	6.1
48	mm	1200	300	874	800	123	1044	50	227	1101	280	5	1240	697	80	150	185	210
	inch	47.2	11.8	34.4	31.5	4.8	41.1	2.0	8.9	43.3	11.0	0.2	48.8	27.4	3.1	5.9	7.3	8.3



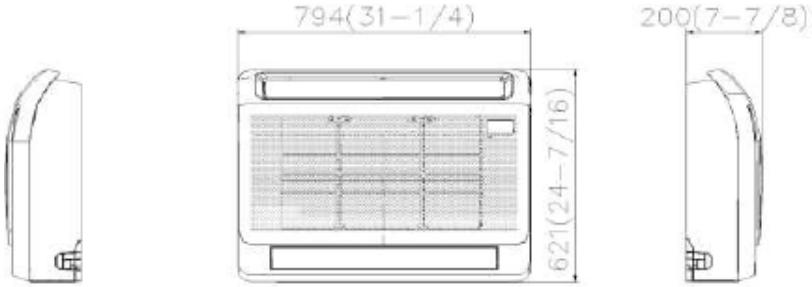
Model “M” Multi-Split Floor Mount 12K Indoor Unit Specifications

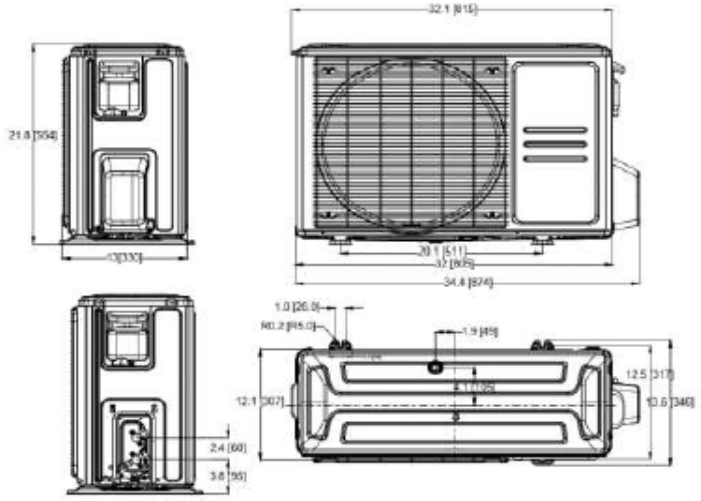
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFP-13-8-136+ZKFP-13-8-104
Qty		1+1
Input	(W)	/
Output	(W)	13.0
RLA	(A)	0.50
Speed(Hi/Mi/Lo)	(r/min)	992/884/776
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	441.18/376.47/323.53/264.71
Indoor noise level (Hi/Med/Lo)	[dB(A)]	42/39/25
Dehumidification	(L/H)	1.4
Indoor unit		
Dimension (WxDxH)	(inch)	31.26x7.87x24.45
	(mm)	794x200x621
Packing(WxDxH)	(inch)	34.06x11.02x28.31
	(mm)	865x280x719
Net/Gross weight	(lbs.)	32.85/41.45
	(kg)	14.9/18.8

AHRI

UL

ENERGY STAR



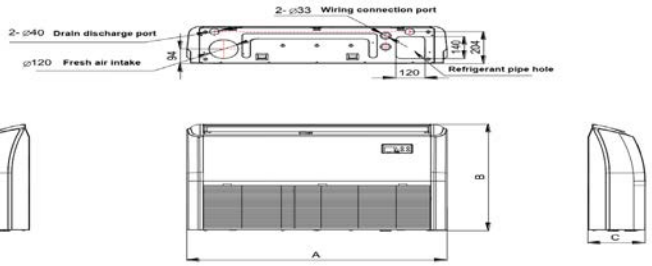


Model “M” Multi-Split Floor Mount 18K Indoor Unit Specifications

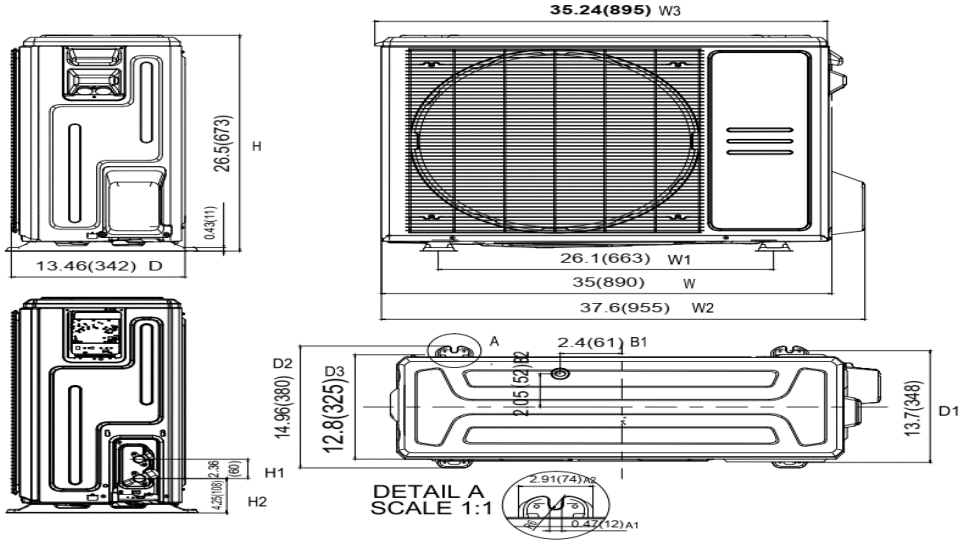
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-90-8-1
Qty		1.00
Input	(W)	96.00
Output	(W)	90.0
RLA	(A)	1.50
Speed(Hi/Mi/Lo)	(r/min)	950/850/750
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//548.24/485.29/420.59
Indoor noise level (Hi/Med/Lo)	[dB(A)]	45.5/43/39
Dehumidification	(L/H)	2.19
Indoor unit		
Dimension (WxDxH)	(inch)	42.05x26.57x9.25
	(mm)	1068x675x235
Packing(WxDxH)	(inch)	45.08x29.72x12.52
	(mm)	1145x755x318
Net/Gross weight	(lbs.)	57.10/68.34
	(kg)	25.9/31

AHRI

UL



Capacity (Btu/h)	Unit	A	B	C	D
18K / 24K	mm	1068	675	235	983
	inch	42.05	26.57	9.25	38.70
36K	mm	1285	675	235	1200
	inch	50.59	26.57	9.25	47.24
48K/60K	mm	1650	675	235	1565
	inch	64.96	26.57	9.25	61.61

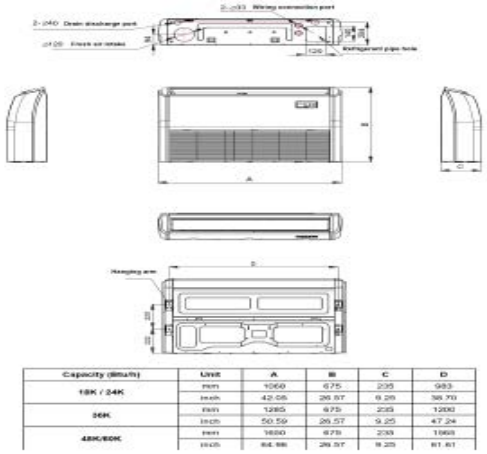


Model “M” Multi-Split Floor Mount 24K Indoor Unit Specifications

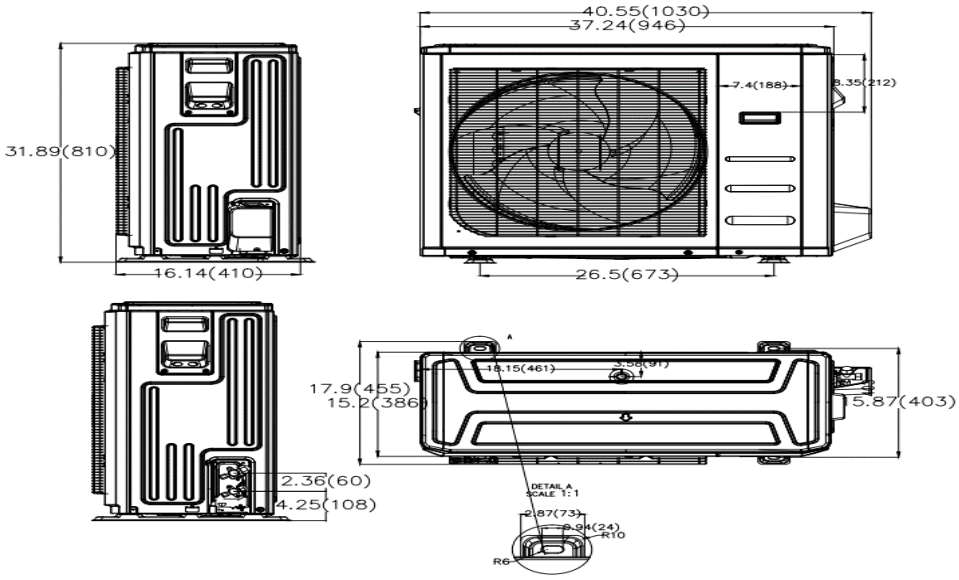
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-90-8-1
Qty		1.00
Input	(W)	96.00
Output	(W)	90.0
RLA	(A)	0.00
Speed(Hi/Mi/Lo)	(r/min)	1350/1260/1120
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//758.82/708.24/598.24
Indoor noise level (Hi/Med/Lo)	[dB(A)]	51/47.5/42
Dehumidification	(L/H)	3.06
Indoor unit		
Dimension (WxDxH)	(inch)	42.05x26.57x9.25
	(mm)	1068x675x235
Packing(WxDxH)	(inch)	45.08x29.72x12.52
	(mm)	1145x755x318
Net/Gross weight	(lbs.)	60.63/72.09
	(kg)	27.5/32.7

AHRI

UL



Capacity (Btu/h)	Unit	A	B	C	D
18K / 24K	mm	1060	675	235	983
	inch	42.05	26.57	9.25	38.70
36K	mm	1285	675	235	1200
	inch	50.59	26.57	9.25	47.24
48K/60K	mm	1680	675	235	1868
	inch	64.96	26.57	9.25	81.61

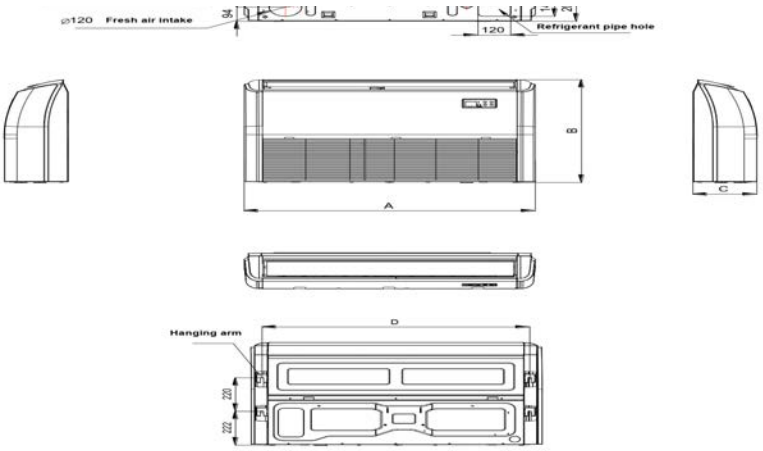


Model “M” Multi-Split Floor Mount 36K Indoor Unit Specifications

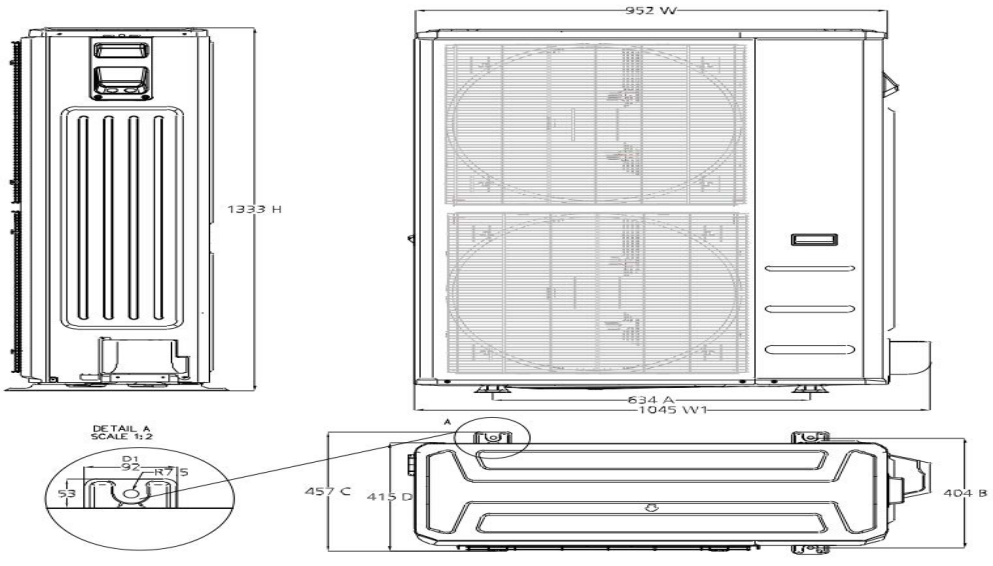
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-115-8-1
Qty		1
Input	(W)	130.0
Output	(W)	115.0
RLA	(A)	1.50
Speed(Hi/Mi/Lo)	(r/min)	1300/1150/800
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//1036.47/917.06/637.65
Indoor noise level (Hi/Med/Lo)	[dB(A)]	52.5/48.5/42.5
Dehumidification	(L/H)	4.919
Indoor unit		
Dimension (WxDxH)	(inch)	50.59x26.57x9.25
	(mm)	1285x675x235
Packing(WxDxH)	(inch)	53.54x29.72x12.52
	(mm)	1360x755x318
Net/Gross weight	(lbs.)	69.00/81.57
	(kg)	31.3/37

AHRI

UL



Capacity (Btu/h)	Unit	A	B	C	D
18K / 24K	mm	1068	675	235	983
	inch	42.05	26.57	9.25	38.70
36K	mm	1285	675	235	1200
	inch	50.59	26.57	9.25	47.24
48K/60K	mm	1650	675	235	1565
	inch	64.96	26.57	9.25	61.61

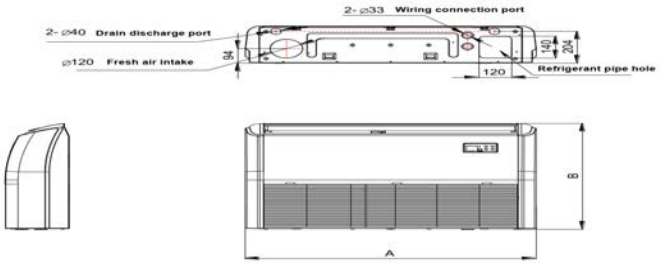


Model “M” Multi-Split Floor Mount 48K Indoor Unit Specifications

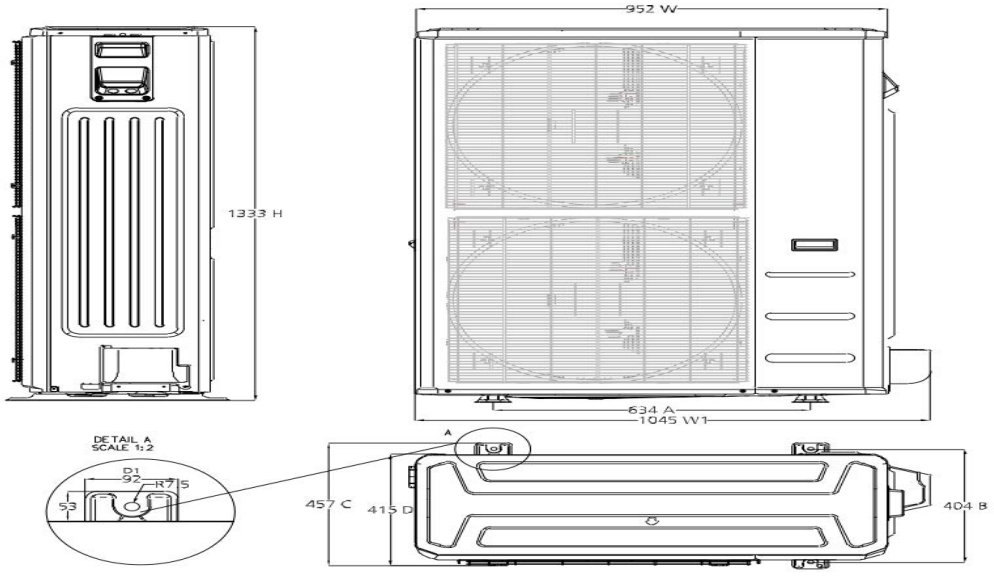
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-90-8-1
Qty		1
Input	(W)	96.0
Output	(W)	90.0
RLA	(A)	1.80
Speed(Hi/Mi/Lo)	(r/min)	1320/1200/1120
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//1352.94/1117.65/1000.00
Indoor noise level (Hi/Med/Lo)	[dB(A)]	55/50/44
Dehumidification	(L/H)	6.22
Indoor unit		
Dimension (WxDxH)	(inch)	64.96x26.57x9.25
	(mm)	1650x675x235
Packing(WxDxH)	(inch)	67.91x29.72x12.52
	(mm)	1725x755x318
Net/Gross weight	(lbs.)	87.74/102.29
	(kg)	39.8/46.4

AHRI

UL



Capacity (Btu/h)	Unit	A	B	C	D
18K / 24K	mm	1068	675	235	983
	inch	42.05	26.57	9.25	38.70
36K	mm	1285	675	235	1200
	inch	50.59	26.57	9.25	47.24
48K/60K	mm	1650	675	235	1565
	inch	64.96	26.57	9.25	61.61

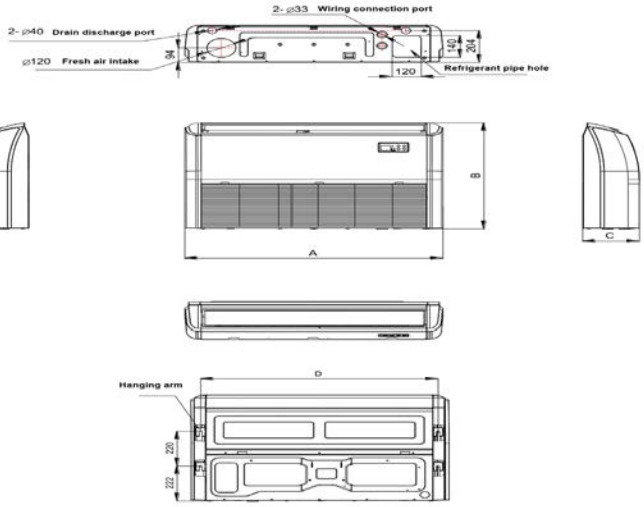


Model “M” Multi-Split Floor Mount 60K Indoor Unit Specifications

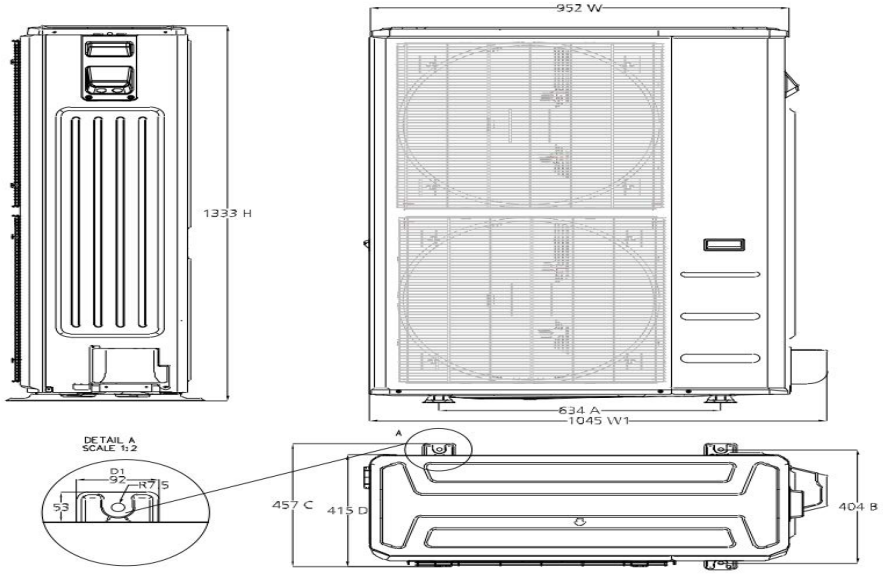
INDOOR UNIT DATA		
Indoor fan motor		
Model		ZKFN-160-8-1-2
Qty		1
Input	(W)	/
Output	(W)	160.0
RLA	(A)	2.40
Speed(Hi/Mi/Lo)	(r/min)	1350/1050/850
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No duct)	(CFM)	//1384.12/1028.82/795.29
Indoor noise level (Hi/Med/Lo)	[dB(A)]	54/47/44
Dehumidification	(L/H)	7.57/7.67
Indoor unit		
Dimension (WxDxH)	(inch)	64.96x26.57x9.25
	(mm)	1650x675x235
Packing(WxDxH)	(inch)	67.91x29.72x12.52
	(mm)	1725x755x318
Net/Gross weight	(lbs.)	96.56/111.99
	(kg)	43.8/50.8

AHRI

UL



Capacity (Btu/h)	Unit	A	B	C	D
18K / 24K	mm	1068	675	235	983
	inch	42.05	26.57	9.25	38.70
36K	mm	1285	675	235	1200
	inch	50.59	26.57	9.25	47.24
48K/60K	mm	1650	675	235	1565
	inch	64.96	26.57	9.25	61.61

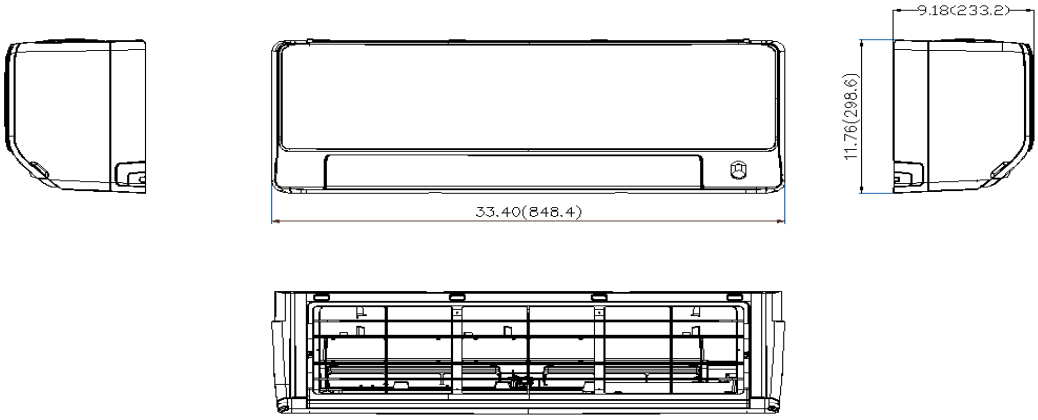


Model “M” Multi-Split Wall Mount 9K Indoor Unit Specifications

Indoor fan motor		
Type		Cross-Flow
Model		ZKFP-20-8-6-21
Qty		1
Input	(W)	50.0
RLA	(A)	0.25
LRA	(A)	---
Winding Resistance	(Ω)	---
Capacitor	(uF)	---
Speed(Hi/Mi/Lo)	(r/min)	1100/850/700
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No	(CFM)	335.29/229.41/176.47
Indoor noise level (Hi/Med/Lo)	[dB(A)]	38/34/23
Dehumidification	(Pint/H)	---
Indoor unit		
Dimension (WxDxH)	(inch)	33.40x9.18x11.76
	(mm)	848.4x233.2x298.6
Packing(WxDxH)	(inch)	36.22x12.20x14.57
	(mm)	920x310x370
Net/Gross weight	(lbs.)	22.71/28.88
	(kg)	10.3/13.1
Indoor(cooling)	(Deg. ℉/°C)	60～90 / 16～32
Indoor(heating)	(Deg. °F/°C)	32～86 / 0～30
Application area	(sq.ft)	129.17～193.75
	(m2)	12～18

AHRI

UL



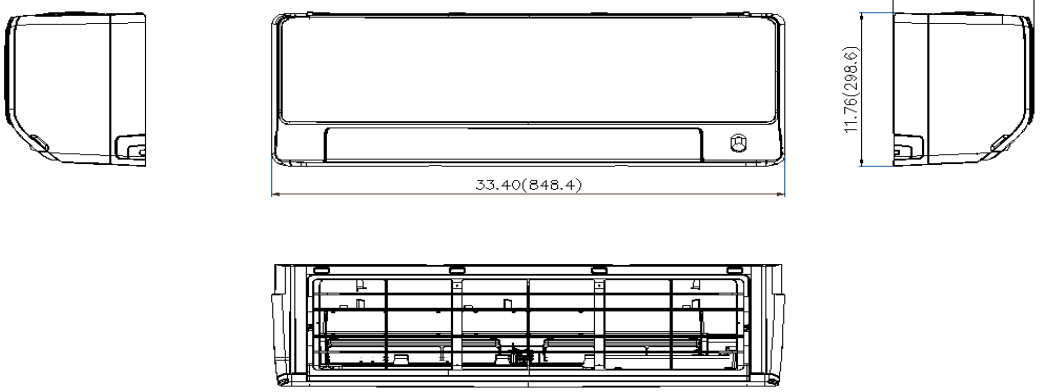
Model “M” Multi-Split Wall Mount 12K Indoor Unit Specifications

Indoor fan motor		
Type		Cross-Flow
Model		ZKFP-20-8-6-21
Qty		1
Input	(W)	50.0
RLA	(A)	0.25
LRA	(A)	---
Winding Resistance	(Ω)	---
Capacitor	(uF)	---
Speed(Hi/Mi/Lo)	(r/min)	1050/930/870
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No	(CFM)	335.29/229.41/176.47
Indoor noise level (Hi/Med/Lo)	[dB(A)]	36/33.5/22.5
Dehumidification	(Pint/H)	---
Indoor unit		
Dimension (WxDxH)	(inch)	33.40x9.18x11.76
	(mm)	848.4x233.2x298.6
Packing(WxDxH)	(inch)	36.22x12.20x14.57
	(mm)	920x310x370
Net/Gross weight	(lbs.)	22.93/28.88
	(kg)	10.4/13.1

Indoor(cooling)	(Deg. ℉/°C)	Inner groove tube / Φ7
Indoor(heating)	(Deg. ℉/°C)	1.3 / 21x13.37
Application area	(sq.ft)	172.22～247.57
	(m2)	16～23

AHRI

UL



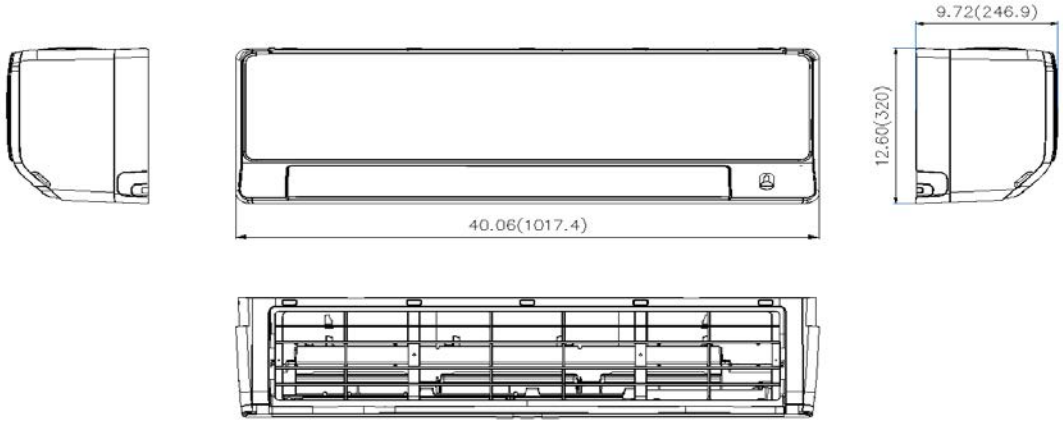
Model “M” Multi-Split 18K Wall Mount Indoor Unit Specifications

Indoor fan motor		
Type		Cross-Flow
Model		ZKFP-30-8-3-10
Qty		1
Input	(W)	36.0
RLA	(A)	0.4
LRA	(A)	---
Winding Resistance	(Ω)	---
Capacitor	(uF)	---
Speed(Hi/Mi/Lo)	(r/min)	1240/1024/916
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No	(CFM)	523.53/376.47/305.88
Indoor noise level (Hi/Med/Lo)	[dB(A)]	46.5/43/32.5
Dehumidification	(Pint/H)	---
Indoor unit		
Dimension (WxDxH)	(inch)	40.06x9.72x12.60
	(mm)	1017.4x246.9x320
Packing(WxDxH)	(inch)	43.11x12.80x15.75
	(mm)	1095x325x400
Net/Gross weight	(lbs.)	27.12/35.71
	(kg)	12.3/16.2

Indoor(cooling)	(Deg. ℉/°C)	60～90 / 16～32
Indoor(heating)	(Deg. ℉/°C)	32～86 / 0～30
Application area	(sq.ft)	1.3
	(m2)	21x13.37

AHRI

UL



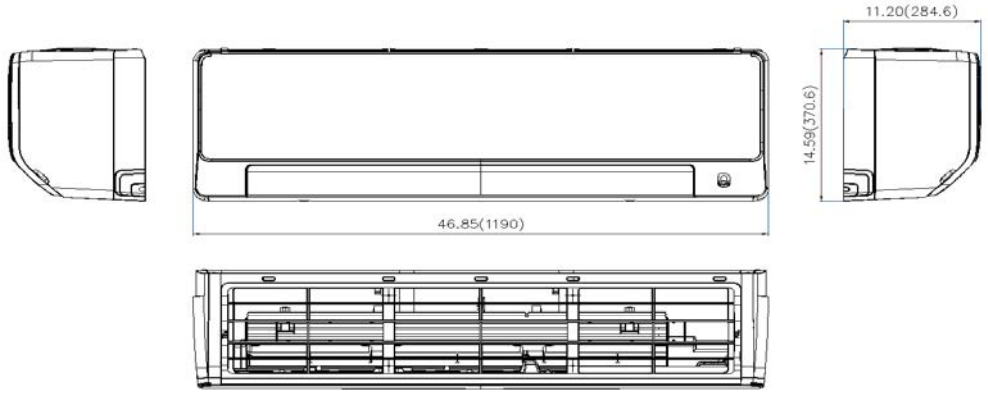
Model “M” Multi-Split 24KWall Mount Indoor Unit Specifications

Indoor fan motor		
Type		Cross-Flow
Model		ZKFP-58-8-1-6
Qty		1
Input	(W)	58.0
RLA	(A)	0.5
LRA	(A)	---
Winding Resistance	(Ω)	---
Capacitor	(uF)	---
Speed(Hi/Mi/Lo)	(r/min)	1000/850/700
Air flow & Noise level		
Indoor air flow (Hi/Med/Lo) (No	(CFM)	611.18/414.12/318.82
Indoor noise level (Hi/Med/Lo)	[dB(A)]	44/39.5/34
Dehumidification	(Pint/H)	---
Indoor unit		
Dimension (WxDxH)	(inch)	46.85x11.20x14.59
	(mm)	1190x284.6x370.6
Packing(WxDxH)	(inch)	50.39x14.17x17.91
	(mm)	1280x360x455
Net/Gross weight	(lbs.)	43.65/54.89
	(kg)	19.8/24.9

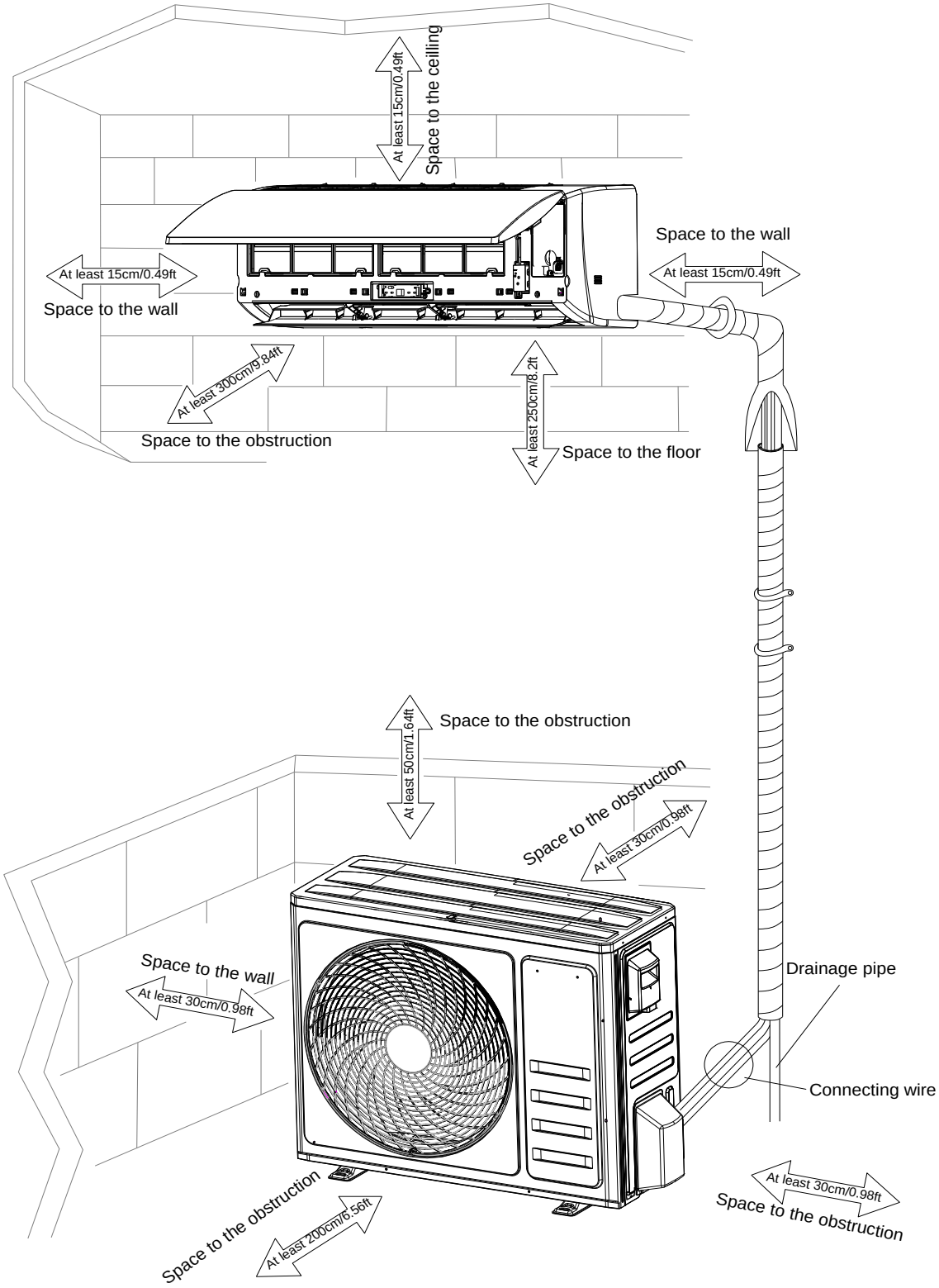
	(Deg. ℉/°C)	
Indoor(heating)	(Deg. °F/°C)	1.3 / 21x13.37
Application area	(sq.ft)	1.3
	(m2)	21x13.37

AHRI

UL



SHMUPM-xx | Solar HVAC Model “M” Multi-Split Clearances



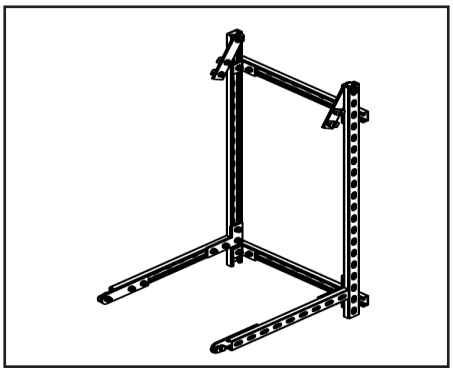
Solar Box Mounting Kit Part Numbers

Solo Solar Boxes

SLR-MNT-02C15.75-2610 - 1.25-Ton
SLR-MNT-02C31.50-4018 - 2.50-Ton
SLR-MNT-03C31.50-4018 - 3.75-Ton
SLR-MNT-04C31.50-4018 - 5-Ton

Description

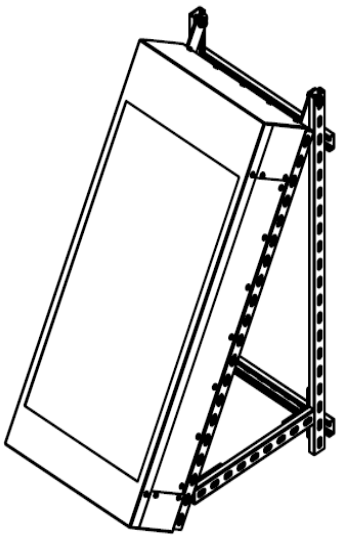
A Solar HVAC Solar Mounting Kit allows mounting of a Solar Box, in a sunny location, away from the condensing unit to which it is plumbed.



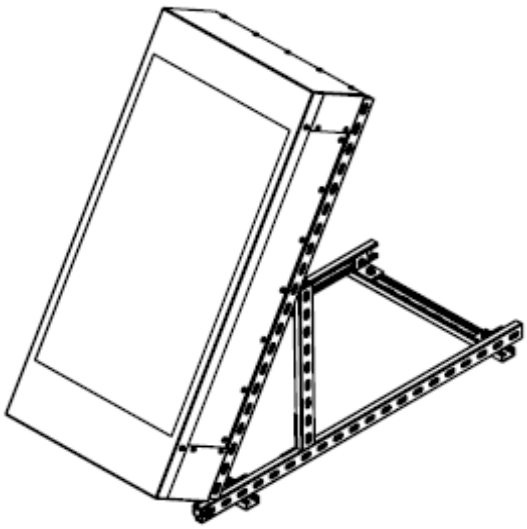
The Solar Mounting Kit allows for wall, floor, or roof mounting and is sized per tonnage of the Solar Box. A single solar box can be mounted per kit at an angle of 30 degrees to 60 degrees.

Strut mounting frame and hardware only. All parts ship loose and are to be assembled in the field. Solar Boxes are ordered separately. Customer must provide their own lagging and plumbing hardware.

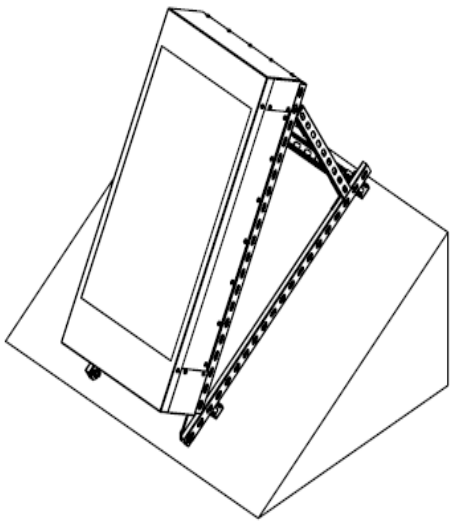
Wall Mounted



Floor Mounted

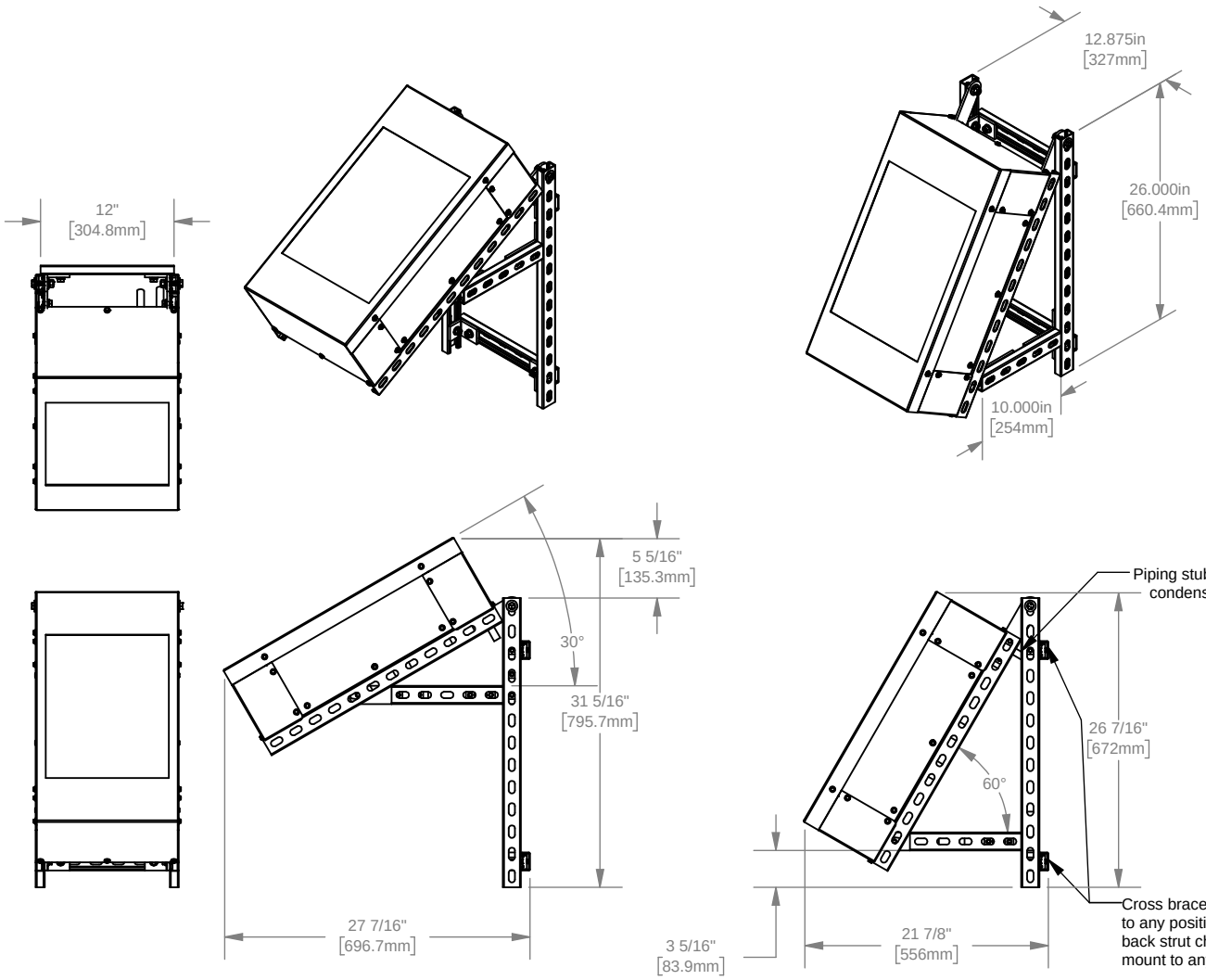


Roof Mounted



SLR-MNT-02C15.75-2610 1.25-Ton Dimensions

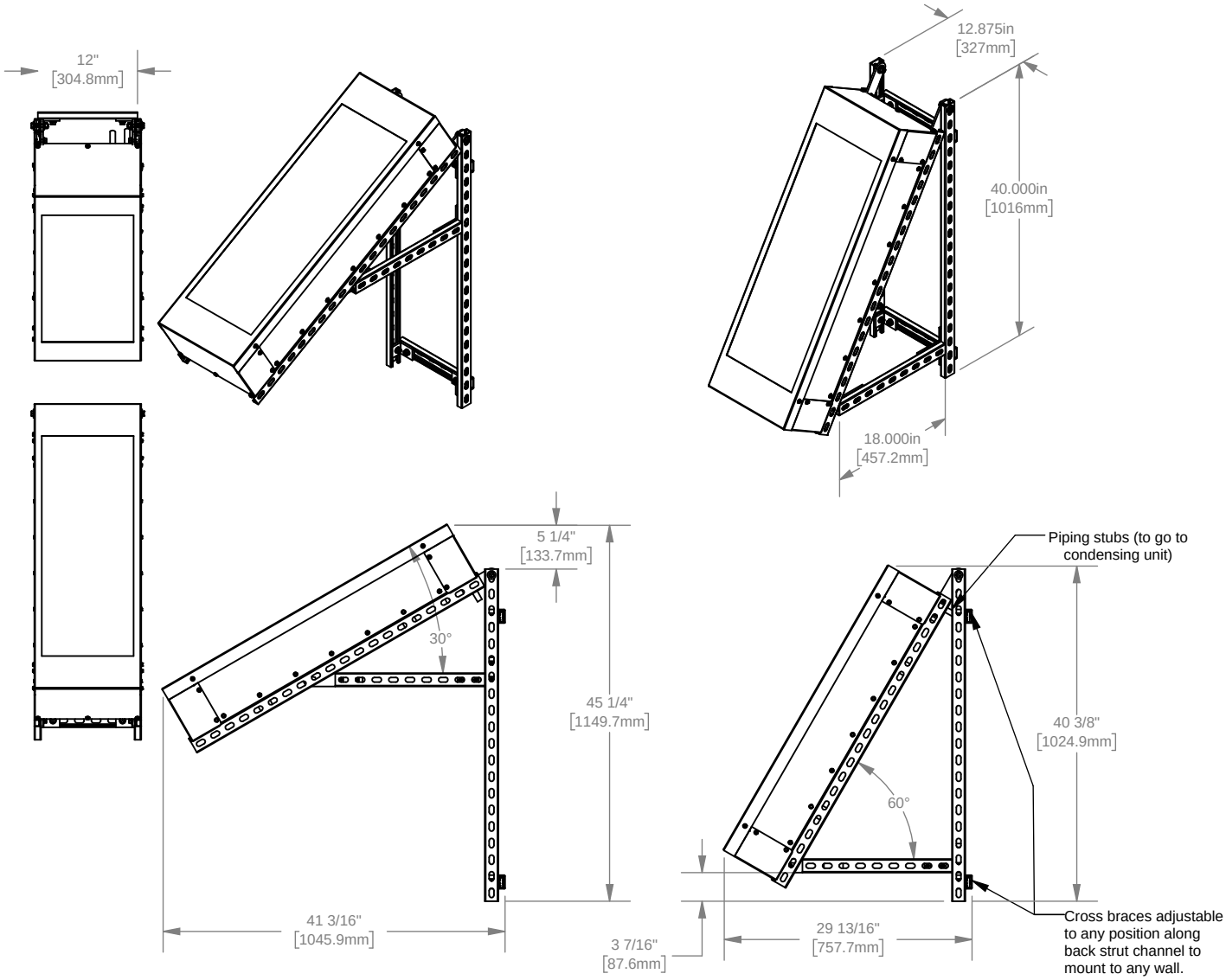
Strut mounting frame and hardware only. All parts ship loose to be assemblied in the field. Lag mounting and plumbing hardware NOT included. Solar box ordered/shipped separate.



Approximate "Minimum" Angle **Approximate "Maximum" Angle**

SLR-MNT-02C31.50-4018 - 2.50-Ton Dimensions

Strut mounting frame and hardware only. All parts ship loose to be assemblied in the field. Lag mounting and plumbing hardware NOT included. Solar box ordered/shipped separate.

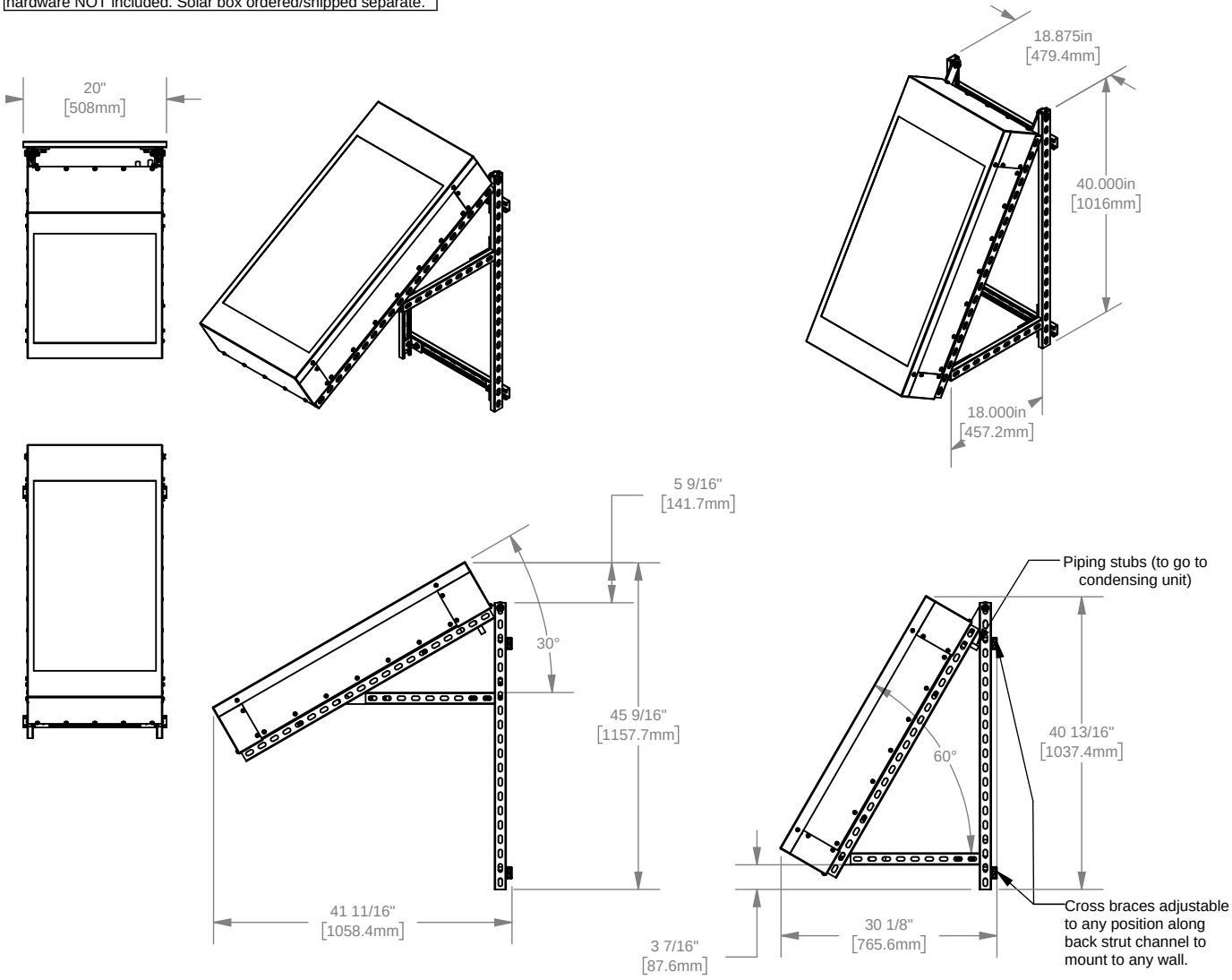


Approximate "Minimum" Angle

Approximate "Maximum" Angle

SLR-MNT-03C31.50-4018 - 3.75-Ton Dimensions

Strut mounting frame and hardware only. All parts ship loose to be assemblied in the field. Lag mounting and plumbing hardware NOT included. Solar box ordered/shipped separate.

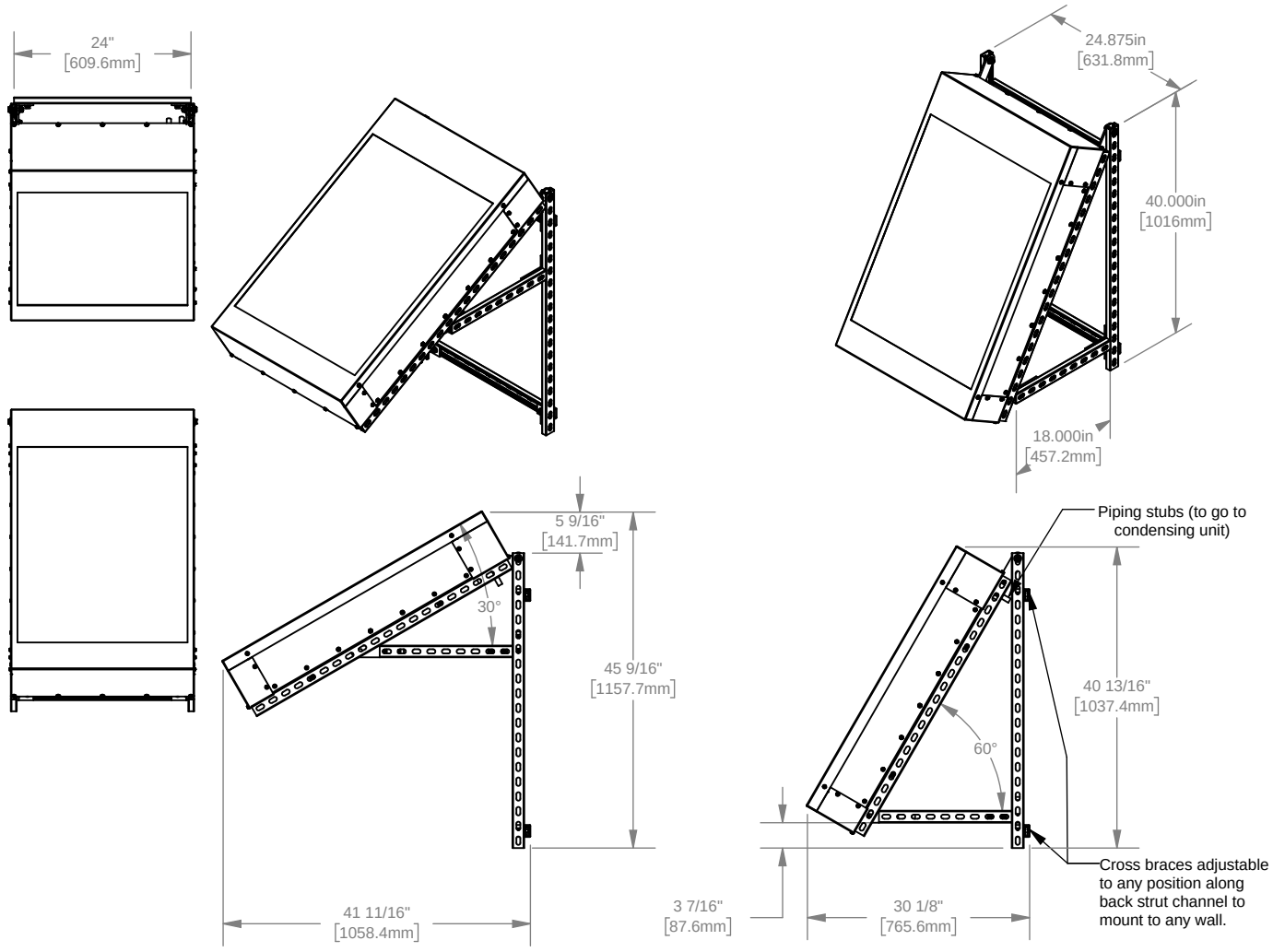


Approximate "Minimum" Angle

Approximate "Maximum" Angle

SLR-MNT-04C31.50-4018 - 5.00-Ton Dimensions

Strut mounting frame and hardware only. All parts ship loose to be assemblied in the field. Lag mounting and plumbing hardware NOT included. Solar box ordered/shipped separate.

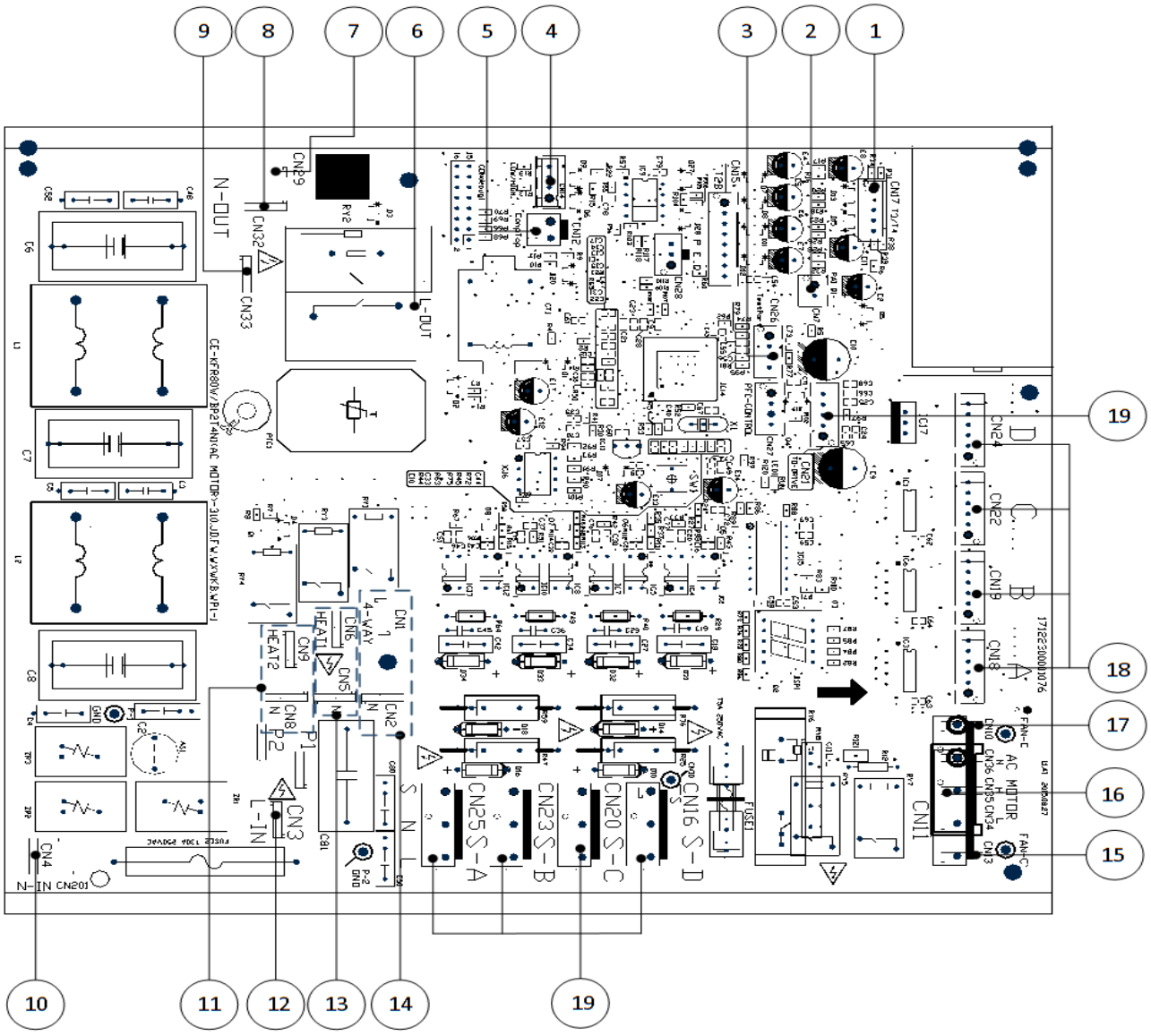


Approximate "Minimum" Angle

Approximate "Maximum" Angle

PCB Layouts

PCB board of ACIQ-18Z-HH-M2B, ES-27Z-M3B, ACIQ-27Z-HH-M3B, ES-36Z-M4B



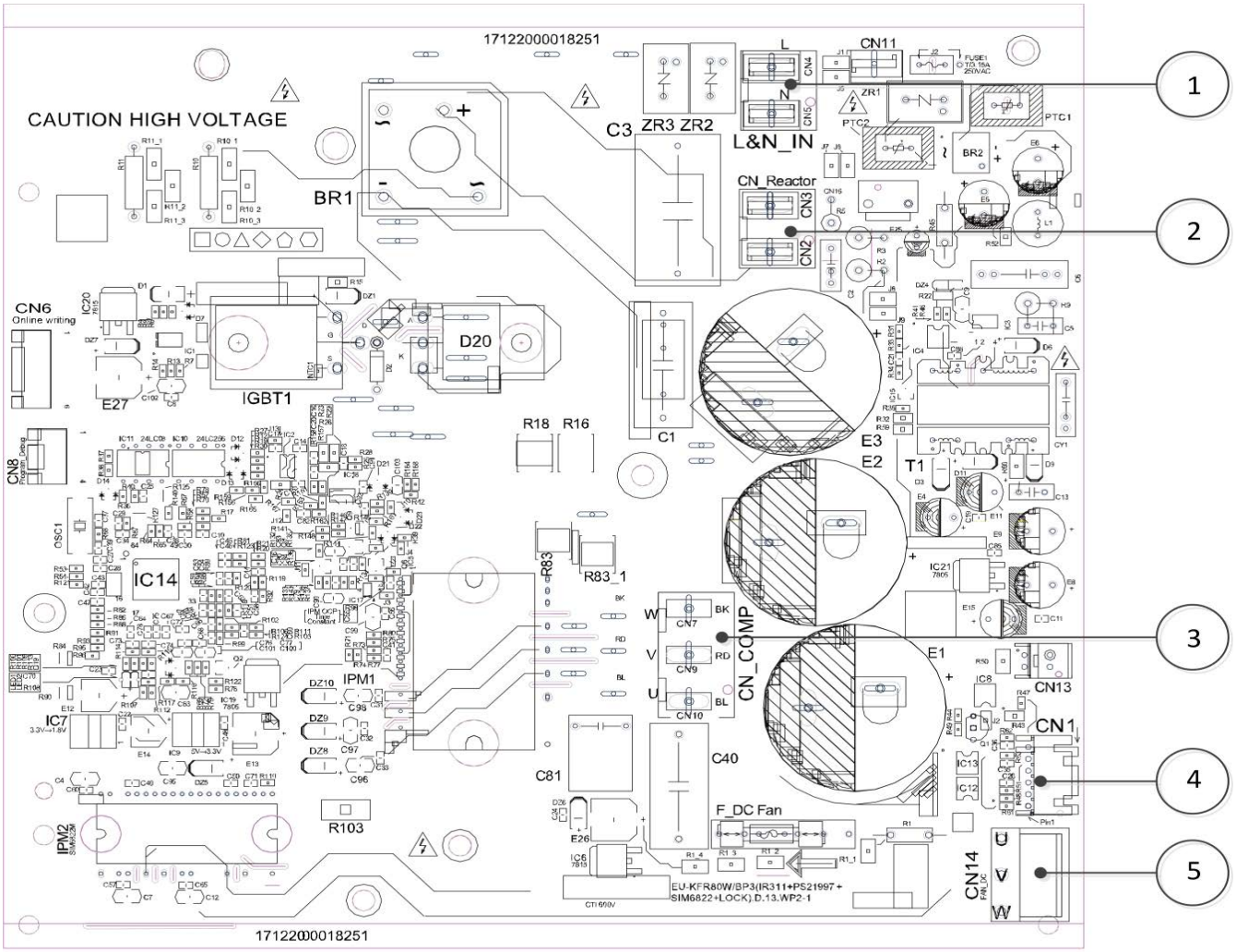
No.	Name	CN#	Meaning
1	T3/T4	CN17	T3: condenser temperature sensor T4: outdoor ambient temperature sensor
2	CN7	CN7	connect to discharge sensor
3	TESTPORT	CN26	connect to DR board CN1
4	LOW/HIGH	CN14	Red: low pressure protect

PCB Layouts (cont'd)

			Yellow: high pressure protect
5	Comp Top	CN12	compressor top temperature sensor
6	L-OUT	L-OUT	connect to IPM board CN4
7	N-OUT	N-OUT	connect to IPM board CN5
8	CN32	CN32	connect to DR board CN5
9	CN33	CN33	connect to DR board CN5
10	N-in	CN4	N_in: connect to N-line (208-230V AC input)
11	HEAT2	CN8/CN9	connect to chassis heater, 208-230V AC when is ON
12	L-in	CN3	L_in: connect to L-line (208-230V AC input)
13	HEAT1	CN5/CN6	connect to compressor heater, 208-230V AC when is ON
14	4-way	CN1/CN2	connect to 4 way valve, 208-230V AC when is ON.
15	Fan-C	CN13	connect to fan capacitor
16	Outdoor AC Fan	CN11	connect to outdoor AC fan
17	Fan-C	CN10	connect to fan capacitor
18	Electronic Expansion valve	CN18	connect to Electric Expansion Valve A
		CN19	connect to Electric Expansion Valve B
		CN22	connect to Electric Expansion Valve C
		CN24	connect to Electric Expansion Valve D
19	S-A	CN25	Current loop communication A, signal wire, connect to the terminal (24V DC Pulse wave)
	S-B	CN23	Current loop communication B, signal wire, connect to the terminal (24V DC Pulse wave)
	S-C	CN20	Current loop communication C, signal wire, connect to the terminal (24V DC Pulse wave)
	S-D	CN16	Current loop communication D, signal wire, connect to the terminal (24V DC Pulse wave)

PCB Layouts (cont'd)

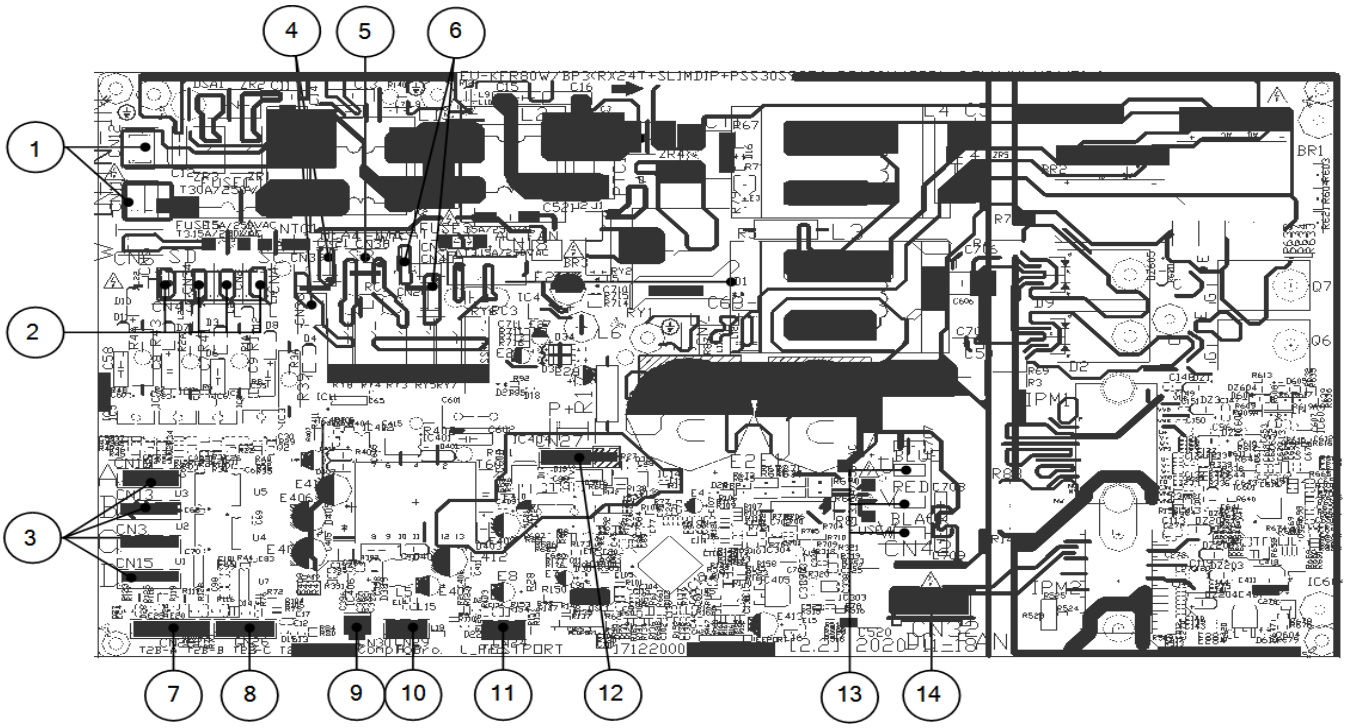
IPM board of ACIQ-18Z-HH-M2B, ES-27Z-M3B, ACIQ-27Z-HH-M3B, ES-36Z-M4B



No.	Name	CN#	Meaning
1	CN4	CN4	connect to main board L-Out
	CN5	CN5	connect to main board N-Out
2	CN_Reactor	CN2/CN3	connect to reactor
3	CN_COMP	CN_COMP	connect to compressor
4	CN1	CN1	connect to main board CN21
5	AN_DC	CN14	connect to outdoor DC fan

PCB Layouts (cont'd)

PCB board of ES-18Z-M2B



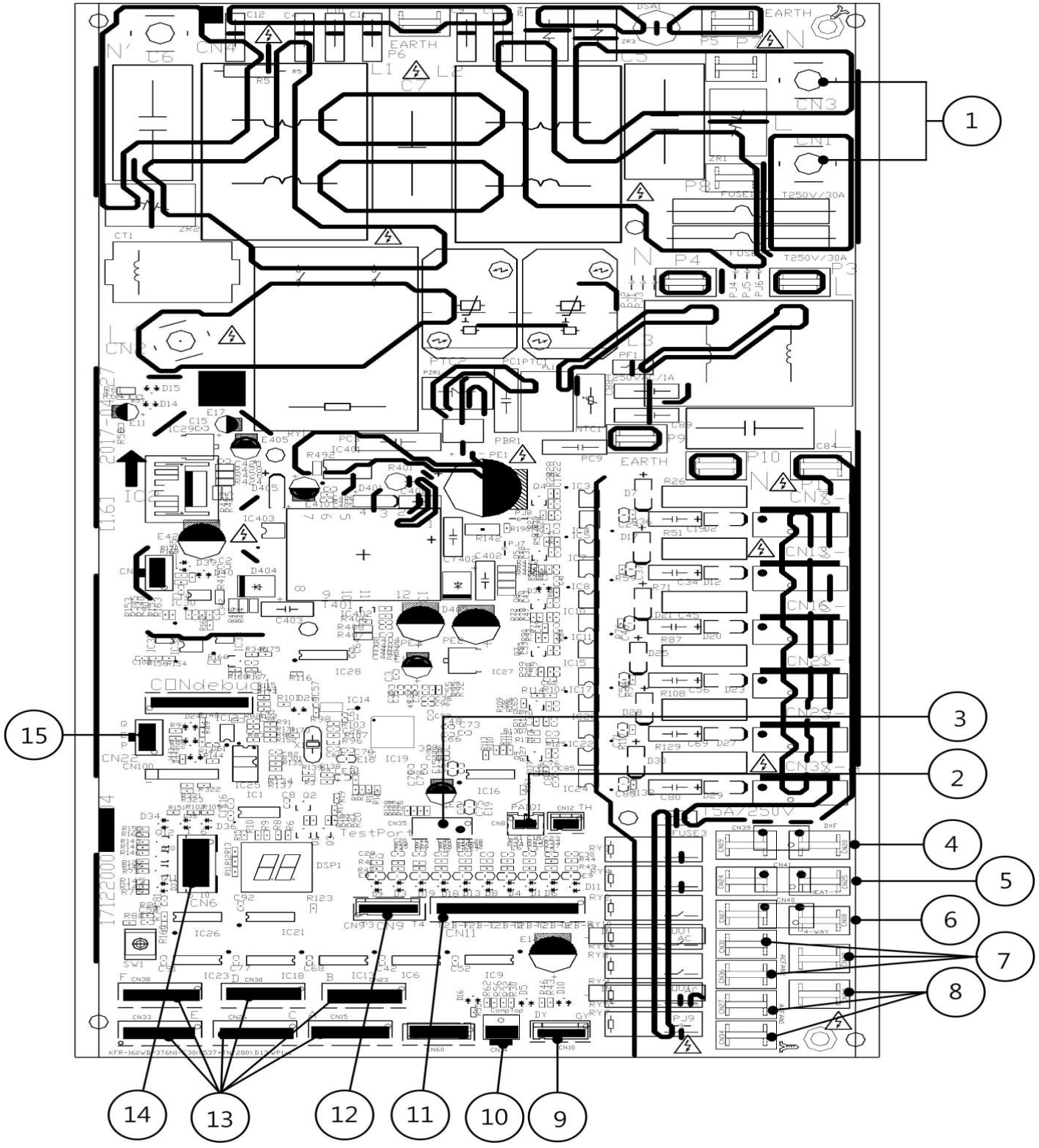
No.	Name	CN#	Meaning
1	Power Supply	CN11	L_in: connect to N-line (208-230V AC input)
		CN12	N_in: connect to L-line (208-230V AC input)
2	Electronic Expansion valve	CN4	connect to Electric Expansion Valve A
		CN2	connect to Electric Expansion Valve B
		CN34	connect to Electric Expansion Valve C
		CN5	connect to Electric Expansion Valve D
3	S-A	CN10	S: connect to indoor unit communication(pin1-pin2: 24VDC Pulse wave; pin2-pin3: 208-230V AC input)
	S-B	CN13	
	S-C	CN3	
	S-D	CN15	
4	HEAT_D	CN21/CN36	connect to chassis heater, 208-230V AC when is ON
5	4-way	CN38	connect to 4 way valve, 208-230V AC when is ON.
6	HEAT_Y	CN8/CN20	connect to compressor heater, 208-230V AC when is ON
7	T2B	CN28	connect to evaporator coil outlet temperature sensor T2B

PCB Layouts (cont'd)

8	T3 T4 T5	CN26	connect to pipe temp. sensor T3, ambient temp. sensor T4, exhaust temp. sensor T5
9	OLP TEMP. SENSOR	CN30	connect to compressor top temp. sensor (5VDC Pulse wave)
10	H-PRO,L-RPO	CN29	connect to high and low pressure switch(pin1-pin2&pin3-pin4:5VDC pulse wave)
11	TESTPORT	CN24	used for testing
12	/	CN27	connect to key board CN1

PCB Layouts (cont'd)

PCB Board of ACIQ-48Z-HH-M5B, ACIQ-36Z-HH-M4B, ES-48Z-M5B, ES-55Z-M5B & ACIQ-55Z-HH-M5B

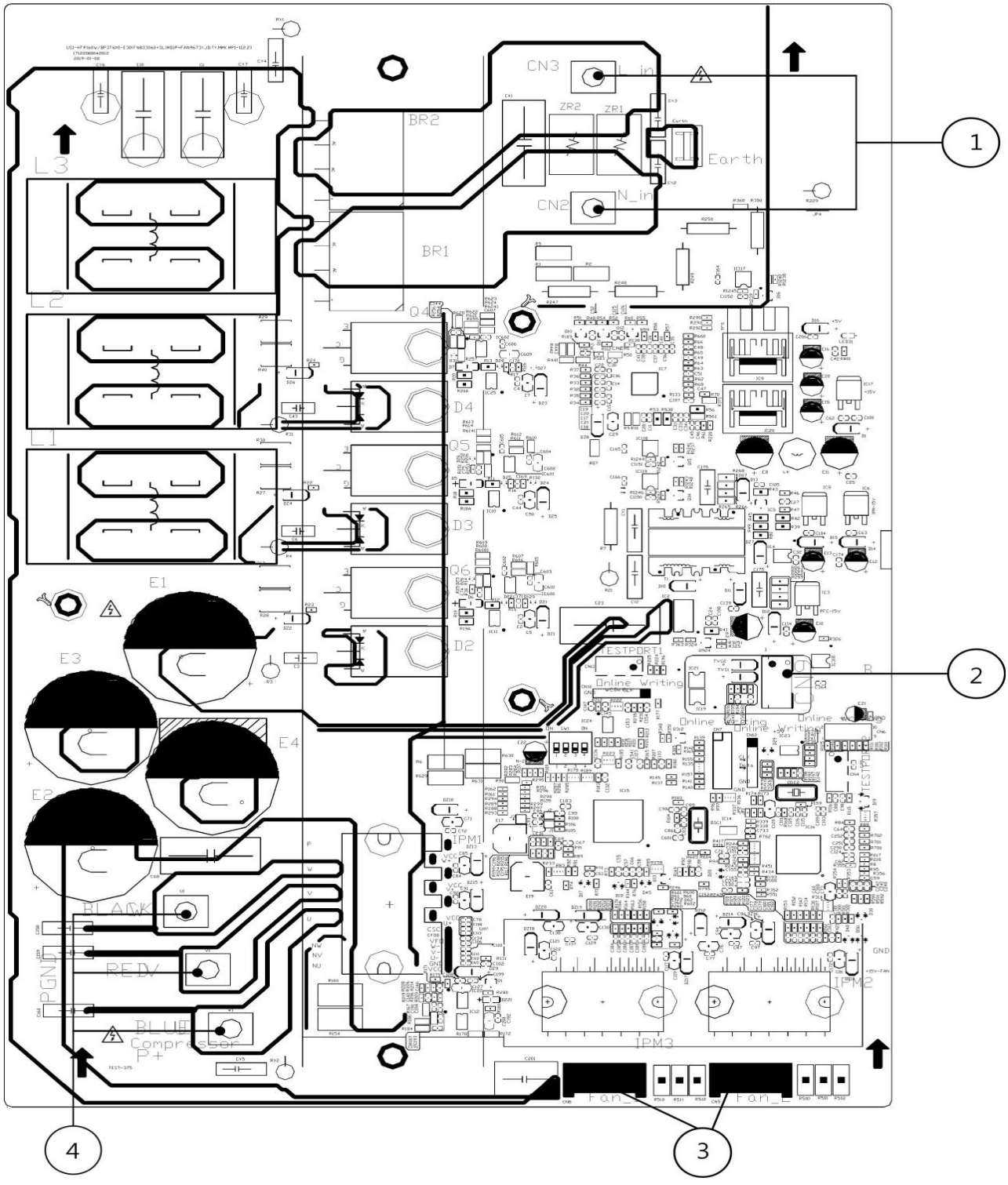


PCB Layouts (cont'd)

No.	Name	CN#	Meaning
1	Power Supply	CN1	L1_in: connect to L1-line (230V AC input)
		CN3	L2_in: connect to L2-line (230V AC input)
2	T5	CN8	Exhaust temp. sensor T5
3	TESTPORT	CN35	used for testing
4	HEAT1	CN19/CN20	connect to chassis heater, 208-230V AC when is ON
5	HEAT2	CN24/CN25	connect to compressor heater, 208-230V AC when is ON
6	4-WAY	CN17/ CN18	connect to 4 way valve, 208-230V AC when is ON.
7	AC-FAN2	CN28/ CN31/ CN36	connect to AC fan2
8	AC-FAN1	CN27/ CN32/ CN34	connect to AC fan1
9	H-PRO,L-RPO	CN10	connect to high and low pressure switch(pin1-pin2&pin3-pin4:5VDC pulse wave)
10	OLP TEMP. SENSOR	CN14	connect to compressor top temp. sensor (5VDC Pulse wave)
11	T2B	CN11	connect to pipe temp. sensor T2B
12	T3 T4	CN9	connect to pipe temp. sensor T3, ambient temp. sensor T4
13	Electronic Expansion valve	CN15	connect to Electric Expansion Valve A
		CN23	connect to Electric Expansion Valve B
		CN26	connect to Electric Expansion Valve C
		CN30	connect to Electric Expansion Valve D
		CN33	connect to Electric Expansion Valve E
		CN38	connect to Electric Expansion Valve F
14	/	CN6	connect to IPM&PFC board CN9
15	PQE	CN22	485 communication

PCB Layouts (cont'd)

IPM board of ACIQ-48Z-HH-M5B , ACIQ-36Z-HH-M4B, ES-48Z-M5B, ES-55Z-M5B & ACIQ-55Z-HH-M5B



PCB Layouts (cont'd)

No.	Name	CN#	Meaning
1	Power Supply	CN3	connect to main board L-Out
		CN2	connect to main board N-Out
2	/	CN9	Connect to main PCB CN6
3	FAN_DC	FAN_1/FAN_2	connect to outdoor DC fan 1& DC fan 2
4	CN_COMP	U1	Connect to compressor
		V1	
		W1	

Electronic Controller Information

5. Electronic Function

5.1 Abbreviation

T1: Indoor ambient temperature

T2: Middle indoor heat exchanger coil temperature

T2B: Indoor heat exchanger exhaust coil temperature (located on the outdoor unit)

T3: Outdoor heat exchanger pipe temperature

T4: Outdoor ambient temperature

T5: Compressor discharge temperature

T6A: Plate heat exchanger inlet temperature

T6B: Plate heat exchanger outlet temperature

T3B: Outdoor heat exchanger middle temperature

TF: Refrigerant tube inlet temperature

5.2 Electric Control Working Environment.

5.2.1 Input voltage: 230V.

5.2.2 Input power frequency: 60Hz.

5.2.3 Indoor fan standard working amp.: <1A

5.2.4 Outdoor fan standard working amp.: <1.5A.

5.2.5 Four-way valve standard amp.: <1A.

5.3 Main Protection

5.3.1 Compressor Restart Delay

---- The compressor takes 1 minute to start up the first time. Further restarts take 3 minutes.

5.3.2 Temperature Protection of Compressor Discharge.

When the discharge temperature of the compressor rises, the running frequency is limited according to the following rules:

----If TA≦T5<TB, maintain the current frequency.

----If the temperature increase and T5 ≧ TB, decrease the frequency to a lower level every 2 minutes till to F1.

---If T5≧TC for 10 seconds, the compressor stops and then restart until T5<90℃ (194 ℉).

TA=105℃ (221 ℉) TB=110℃ (230 ℉) TC=115℃ (239 ℉)

5.3.3 Fan Speed Malfunction

---- If outdoor fan speed is lower than 100RPM or higher than 2400RPM for 60 seconds or more, the unit stops and LED displays failure code.

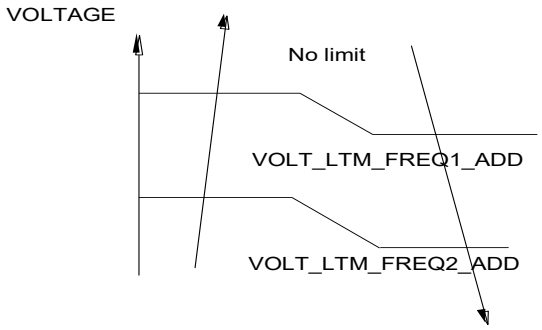
5.3.4 Inverter Module Protection.

---- The inverter protection module ensures that faults related to current, voltage, or temperature does not damage the inverter.

If these protections are triggered, the A/C unit stops and the LED displays the failure code.

The unit restarts 3 minutes after the protection mechanism has turned off.

5.3.5 Low Voltage Protection



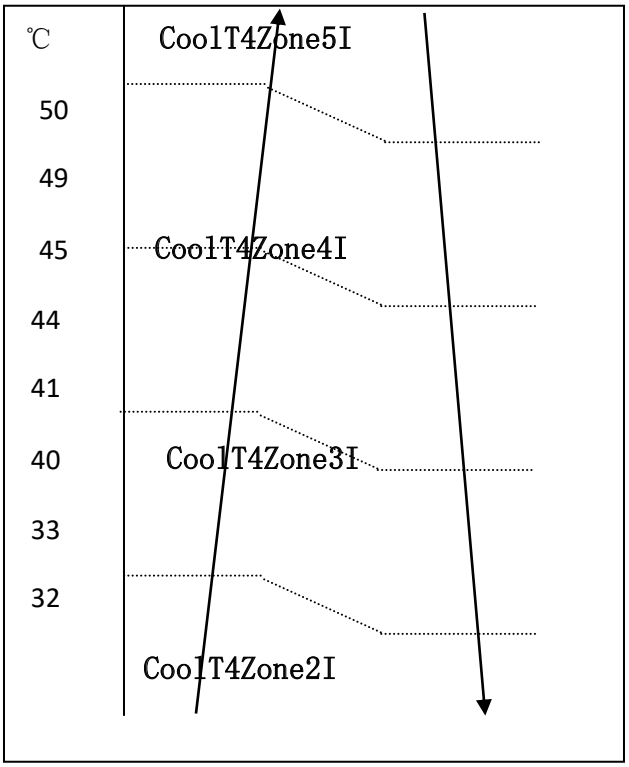
Note: If low voltage protection triggers and voltage is not restored to normal within 3 minutes, the protection remains active even after a machine restart.

Electronic Controller Information (cont'd)

5.3.6 Compressor Current Limit Protection

The temperature interval for the current limit is the same as the range of the T4 frequency limit.

Cooling mode:

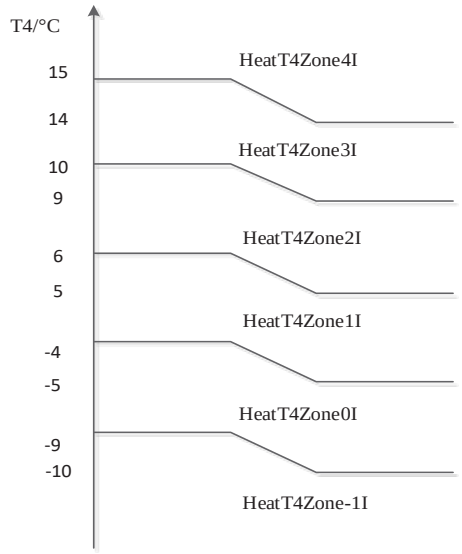


CoolReturnI	The difference between current limit and shutdown current
CoolT4Zone5I	Cooling T4≥50℃ current limit value
CoolT4Zone4I	Cooling 49＞T4≥45℃ current limit value
CoolT4Zone3I	Cooling 44＞T4≥41℃ current limit value
CoolT4Zone2I	Cooling 40 ﹥T4≥33℃ current limit value
CoolT4Zone1I	Cooling 32＞T4℃current limit value
CoolStopI	Cooling stop protection current value

Electronic Controller Information (cont'd)

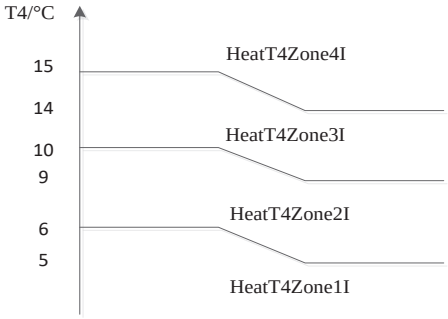
Heating mode:

For ACIQ-36Z-HH-M4B, ES-48Z-M5B, ACIQ-48Z-HH-M5B, ACIQ-55Z-HH-M5B



HeatReturnI	The difference between current limit and shutdown current
HeatT4Zone4I	Heating T4≥15℃current limit value
HeatT4Zone3I	Heating 14℃＞T4≥10℃ current limit value
HeatT4Zone2I	Heating 9℃＞T4≥6℃ current limit value
HeatT4Zone1I	Heating 5℃＞T4≥-4℃ current limit value
HeatT4Zone0I	Heating -5℃＞T4≥-9℃ current limit value
HeatT4Zone-1I	Heating -10℃＞T4 current limit value
HeatStopI	Heating stop protection current value

For other models,



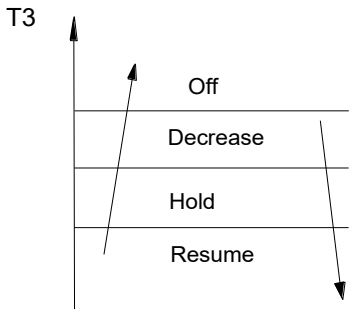
HeatReturnI	The difference between current limit and shutdown current
HeatT4Zone4I	Heating T4≥15℃current limit value
HeatT4Zone3I	Heating 14℃＞T4≥10℃ current limit value
HeatT4Zone2I	Heating 9℃＞T4≥6℃ current limit value
HeatT4Zone1I	Heating 5℃＞T4 current limit value
HeatStopI	Heating stop protection current value

Electronic Controller Information (cont'd)

5.3.7 Indoor / Outdoor Units Communication Protection

If the outdoor unit do not receive the feedback signal from anyone indoor units for 3 consecutive minutes, the unit stops. The unit displays the failure code.

5.3.8 High Condenser Coil Temp. Protection



• Off: Compressor stops.

• Decrease: Decrease the running frequency to the lower level per 1 minute.

• Hold: Keep the current frequency.

• Resume: No limitation for frequency.

5.3.9 Outdoor Unit Anti-Freezing Protection

When T2<4℃ for 250seconds or T2<0℃, the indoor unit capacity demand is zero and resumes normal operation when T2>8℃ and the protection time is no less than 3 minutes.

5.3.10 Oil Return

Rules for Operation

1. If the compressor frequency continues to be lower than the frequency set for setting time, the unit raises the frequency to the frequency set for setting time and then resumes with the former frequency.
2. The EXV continues at 300p while indoor units maintain their operation.

If the outdoor ambient temperature is higher than the set frequency during oil return, the unit stops the oil return process.

5.3.11 Low Outdoor Ambient Temperature Protection

When the compressor is off and T4 is lower than -35℃ for 10 seconds, the unit stops and displays "LP" or "PC0L"

When the compressor is on and T4 remains lower than -40℃ for 10 seconds, the unit stops and displays "LP" or "PC0L"

When T4 is no lower than -32℃ for 10 seconds, the unit exits protection.

5.4 Control and Functions

5.4.1 Capacity Request Calculation

For Old Console series, Old Duct/Cassette/Floor Ceiling Series:

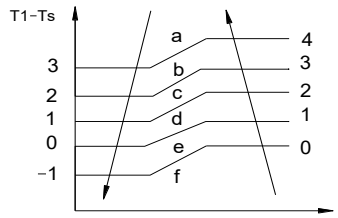
Total capacity Request=Σ(Norm code × HP) /10× modify rate+ correction

For All new models(New Wall mounted(Hi-Wall) series, New Duct/Cassette/Console/Floor Ceiling):

Total capacity Request=Σ(Norm code × HP) /40× modify rate+ correction ∑

Electronic Controller Information (cont'd)

Cooling Mode:



Capacity area	a	b	c	d	e	f
Norm code (N)	3	2	1.5	1	0.5	0

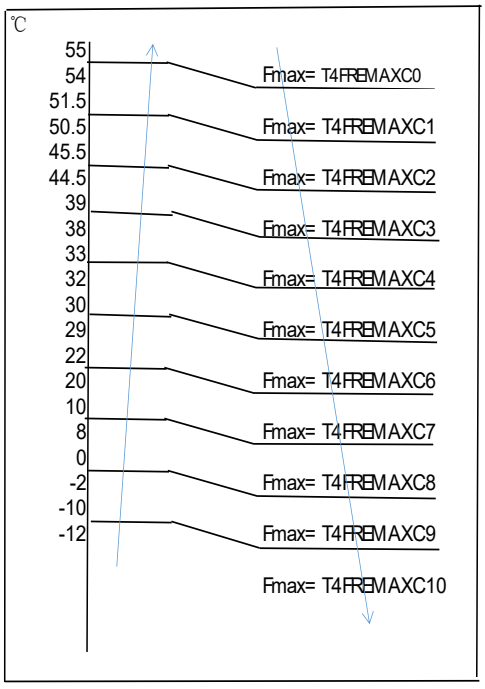
Model	6K	7K	9K	12K	18K	24K	24K/28K	30K	36K
HP	0.6	0.8	1.0	1.2	1.5	2.5	2.8	3.0	3.2

Note: The final result is an integer.

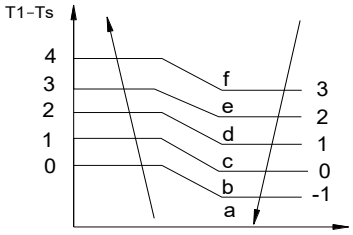
Use the following table and final capacity request to confirm the operating frequency.

Frequency (Hz)	0	COOL_F1	COOL_F2	… …	COOL_F24	COOL_F25
Amendatory capacity demand.	0	1	2	… …	24	25

The maximum running frequency is adjusted according to the outdoor ambient temperature



Heating Mode



Capacity area	a	b	c	d	e	f
Norm code (N)	3 or 4	2	1.5	1	0.5	0

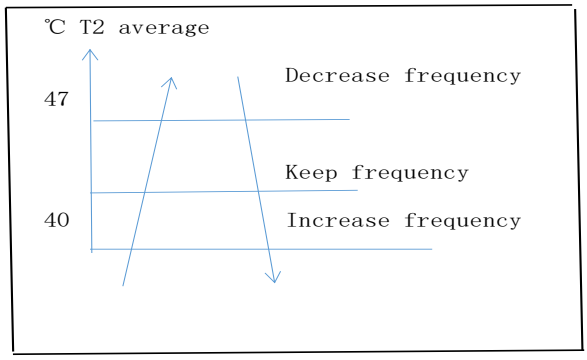
Model	6K	7K	9K	12K	18K	24K	24K/28K	30K	36K
HP	0.6	0.8	1.0	1.2	1.5	2.5	2.8	3.0	3.2

Note: The final result is an integer.

Then modify it according to a T2 average (correction):

Electronic Controller Information (cont'd)

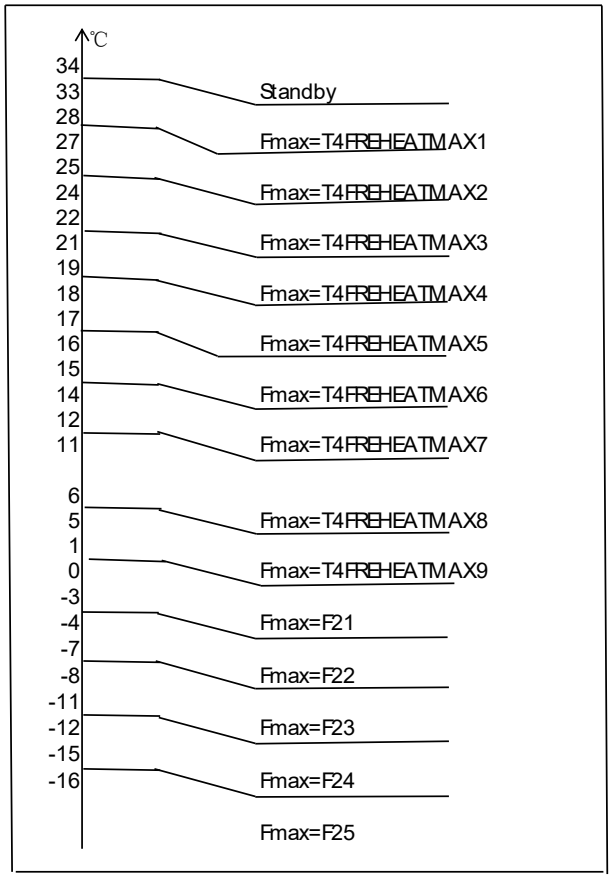
Note:Average value of T2：Sum T2 value of all indoor units)/ (indoor units number



Use the following table and final capacity request to confirm the operating frequency.

Frequency (Hz)	0	HEAT _F1	HEAT _F2	…	HEAT _F24	HEAT _F25
Amendatory capacity demand.	0	1	2	…	24	25

The maximum running frequency is adjusted according to the outdoor ambient temperature



5.4.2 Defrosting Control

Conditions for Defrosting:

After the compressor starts and enters normal operation, mark the minimum value of T3 from the 10th to 15th minute as T30.

If any one of the following conditions is satisfied, the unit enters defrosting mode:

1) If the compressor's cumulative running time reaches 29 minutes and T3< TCDI1 and T3＋T30SUBT3ONE≦T30.

2) If the compressor cumulative running time reaches 35 minutes and T3< TCDI2 and T3＋T30SUBT3TWO≦T30.

3) If the compressor cumulative running time reaches 40 minutes and T3< -24C for 3 minutes.

Electronic Controller Information (cont'd)

4) If the compressor cumulative running time reaches 120 minutes and T3<-15℃.

5) If the air conditioner is shut down from heating mode, it will enter defrost if any of the following conditions are met (this condition can be shielded by parameters):

a) The continuous operation time of the press exceeds 30 minutes, and T3<-7 degrees;

b) The continuous operation time of the press is more than 30 minutes, and T30<-15 degrees;

6) For the first defrosting when the machine is turned on, after the compressor has been running for 30 minutes, when T4-T3> (0.5T4 + KDELTT_ADD) and T3 <TCDIN5_ADD, it will immediately enter the defrosting action. After performing this defrosting action once, this rule will be invalid until the next restarting operation.

7) If any one of the following conditions is satisfied, the unit enters defrosting mode,

a) If T3 or T4 is lower than -3°C for 30 seconds,Ts-T1 is lower than 5°C and compressor running time is more than DEFROST_COND6_IN_TIM.

b) If T3 or T4 is lower than -3°C for 30 seconds and compressor running time is more than DEFROST_COND6_IN_TIM +30.

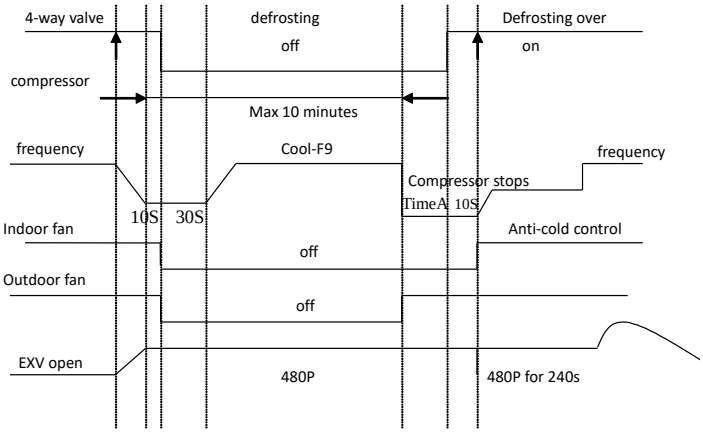
Defrost Stop Conditions

If any one of the following conditions is satisfied, defrosting ends and the unit returns to normal heating mode:

----T3 rises above than TCDE1℃.

----T3 remains at TCDE2℃ or above for 80 seconds.

----The machine runs for 10 consecutive minutes in defrosting mode.

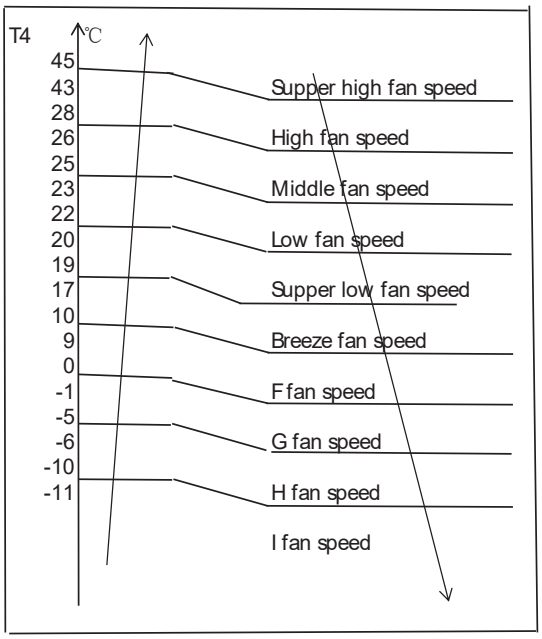


Electronic Controller Information (cont'd)

5.4.3 Outdoor Fan Control

5.4.3.1 Cooling Mode

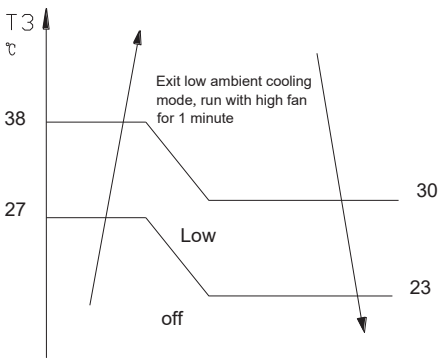
Under normal operating conditions, the system chooses the running fan speed according to the ambient temperature:

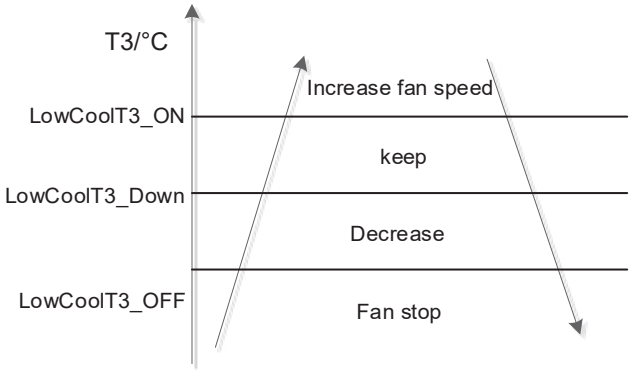


When low ambient cooling is in effect:

Outdoor fan speed control logic (low ambient cooling)

When T4 <15 ℃ (59 ℉) and T3 < 30 ℃ (86 ℉), the unit enters into low ambient cooling mode. The outdoor fan chooses a speed according to T3. When T3≥38 ℃ (100.4 ℉) or when T4≥15 ℃ (59 ℉), the outdoor fan chooses a speed according to T4 again.

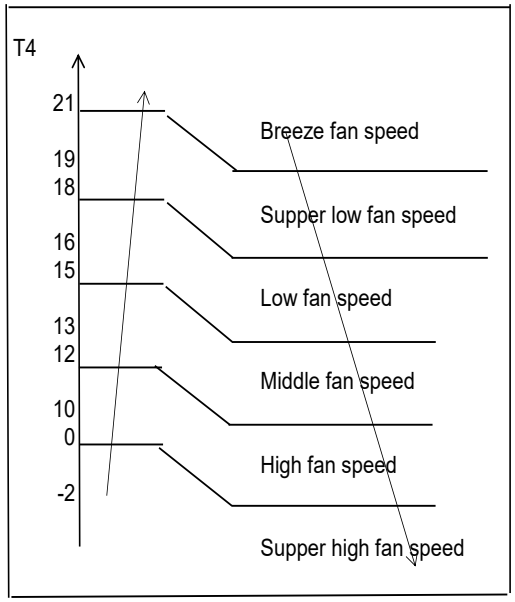




Electronic Controller Information (cont'd)

5.4.3.2 Heating Mode

Under normal operating conditions, the system chooses a running fan speed according to ambient temperature:



5.4.4 Electronic Expansion Valve (EXV) For ACIQ-48Z-HH-M5B, ACIQ-55Z-HH-M5B

1.After the outdoor unit is powered on again, the main valve first opens 510P, then opens 530P, and then is in the standby state (if the current outdoor mode is the heating mode or the standby mode, it maintains 0P, and the cooling mode opens to the initial cooling opening). The EVI valve opens 510P first, then 530P, then the counter is cleared to 0P. The other EXVs are first closed 520P, and then in standby mode (if the current mode is heating mode, the initial heating degree is run, otherwise the initial cooling degree is run, and the internal machine is not connected. deal with 7k unit).
2. After the compressor is stopped,
2.1 If the EVI valve has a valve opening action before the stop, the PMV_CLOSE_EE step is closed in the reverse direction after the stop, and then the EXV opening counter is cleared to 0P. If the EVI valve does not operate before the stop, 0P will be maintained.
2.2 Reverse the valve to close the PMV_CLOSE_EE step (after closing the valve to the 0P, and then continue to run PMV_CLOSE_EE in the valve closing direction, the EXV opening counter is cleared. If the current opening is 300P, go to the valve Run the 320P in the closing direction to close the EXV.), then in the standby state (if the current outdoor mode is the heating mode, the initial heating opening is run, otherwise the initial cooling opening is run, and the internal machine is not connected. deal with 7k unit).
2.3 Main EXV action: When the compressor is off, the main EXV keeps the opening degree when the compressor is turned off within the first 90 seconds. If it is currently heating mode, -20P, clear and keep 0P, otherwise adjust to 480P.
3. Other EXVs(except for EVI valve) cannot be operated at the same time. The action priority order is main EXV-A-B-C-D-E. The EVI valve can be operated together with other EXV.

1. EXV remains fully closed while the device is powering up. EXV then remains on standby with 350P open. It opens to the target angle after the compressor starts.
2. EXV closes with -40P when the compressor stops. Then it remains on standby with 350P open. It opens to the target angle after the compressor starts.
3. The action priority for the EXVs is A-B-C-D-E.
4. The compressor and outdoor fan commence operation only after EXV initializes.

Electronic Controller Information (cont'd)

5.4.4.1 Cooling Mode

The initial open angle of the EXV depends on the size of the indoor model. The adjustment range is 100-400p.

When the unit has been running for 3 minutes, the outdoor receives indoor units' capacity demand and T2B information and then calculates their average. After comparing each indoor's T2B with the average, the outdoor gives the following modification commands:

---- If the T2B＞average, the relevant valve needs to open 16p more

---- If the T2B= average, the relevant valve's open range remains as is

---- If the T2B＜average, the relevant valve needs to close 16p more

This modification is carried out every 2 minutes.

5.4.4.2 Heating Mode

The initial open angle of the EXV depends on the size of the indoor model. The adjustment range is 150-350p.

When the unit has been running for 3 minutes, the outdoor unit receives the indoor units' indoor units' capacity demand and T2 information and then calculates their average.

After comparing each indoor unit's T2 with the average, the outdoor gives the following modification commands:

----If the T2 ＞ average+2, the relevant valve needs to close 16p more

---- If average+2≥the T2≥ average-2, the relevant valve's open range remains as is

----If the T2＜average-2, the relevant valve needs to open 16p more

This modification is carried out every 2 minutes.

5.4.5 Four-Way Valve Control

In heating mode, a four-way valve is opened.

In defrosting, a four-way valve operates according to the current defrosting action.

In other modes, a four-way valve is closed.

When the unit is switched from heating to other modes, the four-way valve turns off after the compressor has been off for 2 consecutive minutes.

Failure or protection (excluding discharge temperature protection, high/low pressure protection or plate inlet temp. sensor T6A, plate outlet temp. sensor T6B, condenser coil middle temp. sensor T3B, refrigerant tube inlet temp. sensor TF sensor error) causes the four-way valve to immediately shut down.

18k - 60k Manual Operations and Maintenance

Operation mode selection

While two or more indoor units are simultaneously operating, make sure the modes do not conflict with each other. The heat mode claims precedence over all other modes. If the unit intially started to operate in HEAT mode, the other units can operate in HEAT mode only. For example: If the unit intially started operates under COOL (or FAN) mode, the other units can operate under any mode except HEAT. If one of the unit selects HEAT mode, the other operating units will stop operation and diplay "--" (for units with display window only) or the auto and operation indication light will flash rapidly, the defrost indication light will turn off, and the timer indication light will remain on (for units without a display window). Alternatively, the defrost and alarm indication light (if applicable) wil light up, or the operation indication light will flash rapidly, and the timer indication light will turn off (for the floor and standing type).

Maintenance

If you plan to leave the unit idle for a long time, perform the following tasks:

1. Clean the indoor unit and air filter.
2. Select FAN ONLY mode and let the indoor fan run for a time to dry the inside of the unit.
3. Disconnect the power supply and remove the battery from the remote control.
4. Check components of the outdoor unit periodically. Contact a local dealer or a customer service centre if the unit requires servicing.

NOTE: Before you clean the air conditioner, be sure to switch off the unit and disconnect the power supply plug.

Optimal operation

To achieve optimal performance, please note the following:

- Adjust the direction of the air flow so that it is notblowing directly on people.
- Adjust the temperature to achieve the highest possible level of comfort. Do not adjust the unit to excessive temperature levels.
- Close doors and windows in COOL mode or HEAT mode.
- Use the TIMER ON button on the remote controller to select a time you want to start your air conditioner.
- Do not place any object near the air inlet or air outlet, as the efficiency of the air conditioner may be reduced and the air conditioner may stop running.
- Clean the air filter periodically, otherwise cooling or heating per formance may be reduced.
- Do not operate unit with horizontal louvre in closed position.

Suggestion:
For units that feature an electric heater, when the outside ambient temperature is below 0°C (32°F), it is strongly recommended that you to keep the machine plugged in so as to guarantee smooth operation.

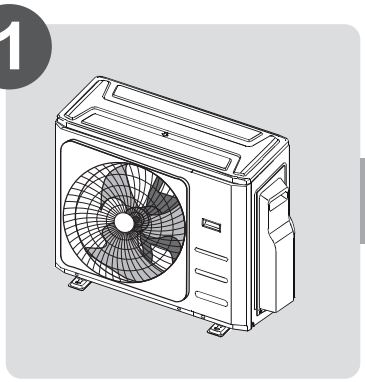
When the air conditioner is to be used again:

- Use a dry cloth to wipe off the dust accumulated on the rear air intake grille in order to avoid the dust being dispersed from the indoor unit.
- Check that the wiring is not broken off or disconnected.
- Check that the air filter is installed.
- Check if the air outlet or inlet is blocked after the air conditioner has not been used for a long time.

18k - 60k Installation Summary

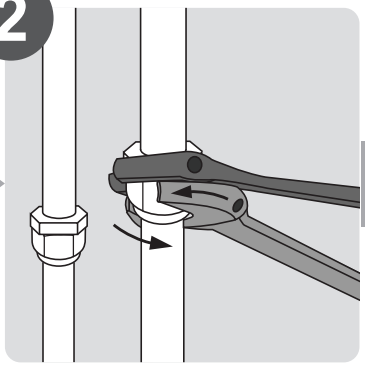
INSTALLATION ORDER

1



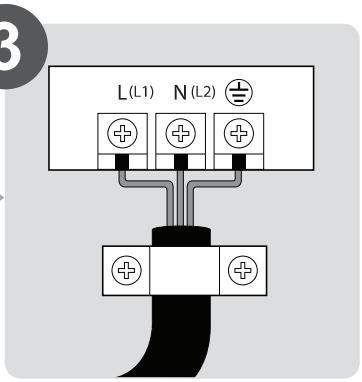
Install the outdoor unit

2



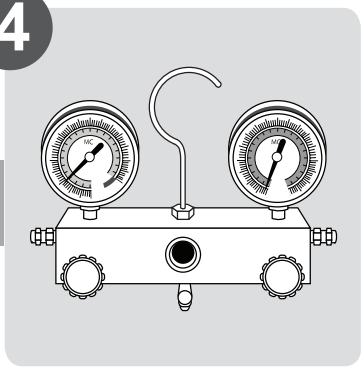
Connect the refrigerant pipes

3



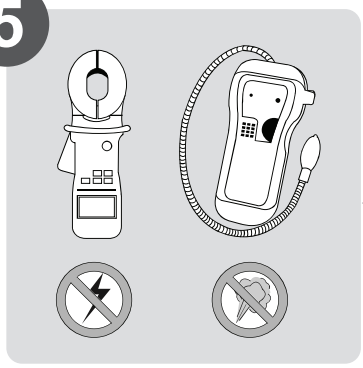
Connect the wires

4



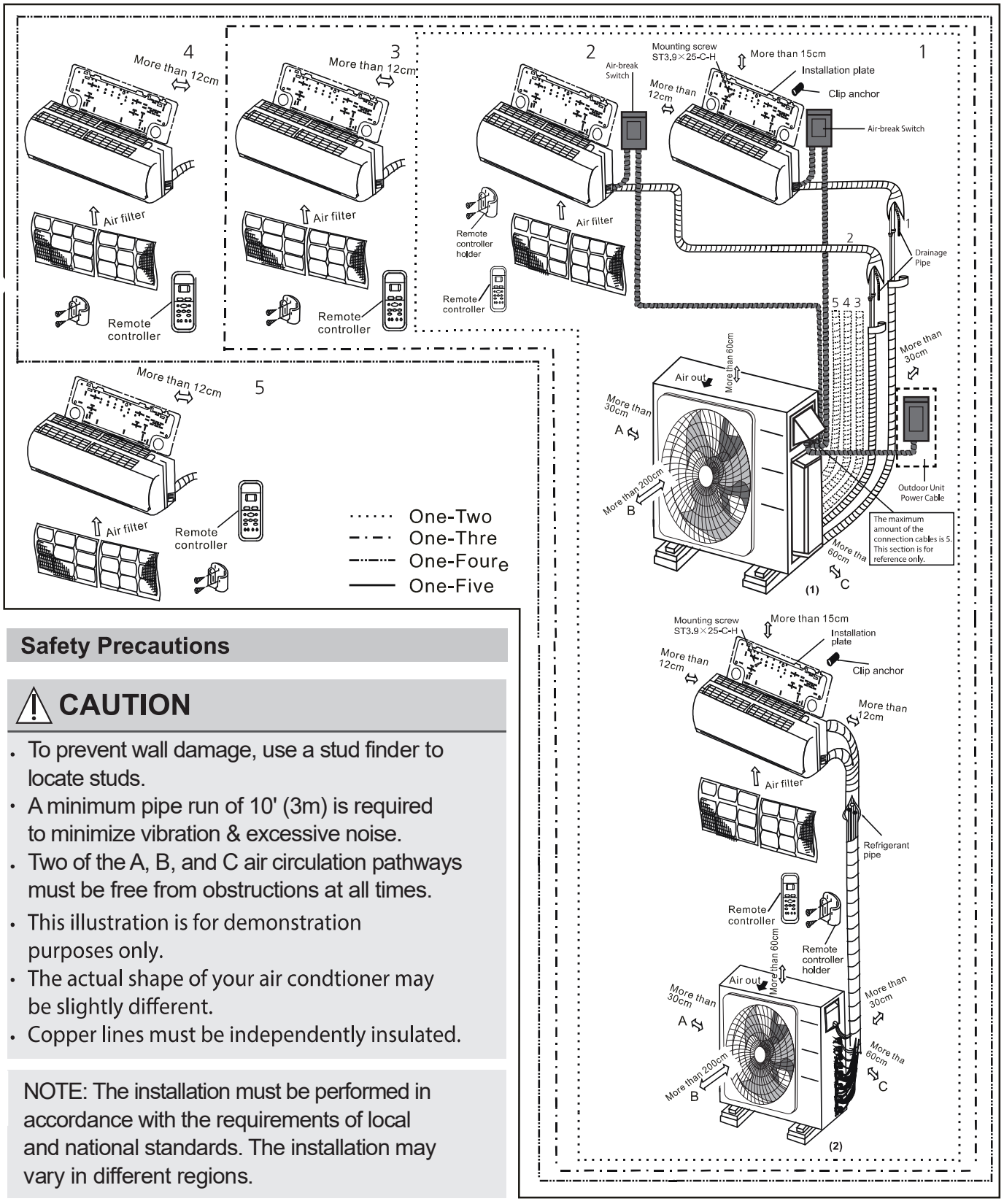
Evacuate the refrigeration system

5



Perform a test run

18k - 60k Installation Diagram



Safety Precautions

⚠ CAUTION

- To prevent wall damage, use a stud finder to locate studs.
- A minimum pipe run of 10' (3m) is required to minimize vibration & excessive noise.
- Two of the A, B, and C air circulation pathways must be free from obstructions at all times.
- This illustration is for demonstration purposes only.
- The actual shape of your air condtioner may be slightly different.
- Copper lines must be independently insulated.

NOTE: The installation must be performed in accordance with the requirements of local and national standards. The installation may vary in different regions.

18k - 60k Outdoor Specifications

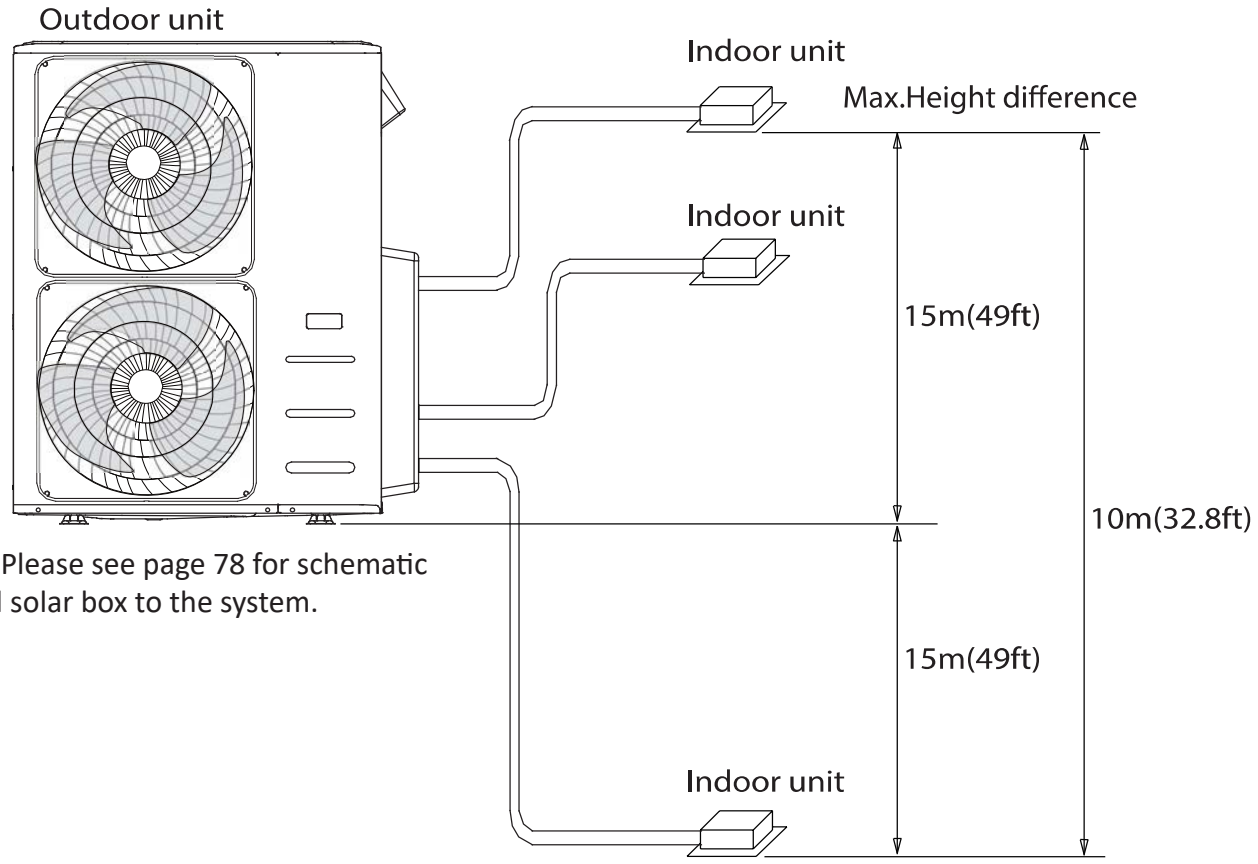
Number of units that can be used together	Connected units	1-5 units
Compressor stop/start frequency	Stop time	3 min or more
Power source voltage	voltage fluctuation	within ±10% of rated voltage
	voltage drop during start	within ±15% of rated voltage
	interval unbalance	within ±3% of rated voltage

Unit: m/ft.

	1 drive 2	1 drive 3	1 drive 4	1 drive 5
Max. length for all rooms	40/131	60/197	80/262	80/262
Max. length for one indoor unit	25/82	30/98	35/115	35/115
Max. height different between indoor and outdoor unit	15/49	15/49	15/49	15/49
Max. height different between indoor units	10/33	10/33	10/33	10/33

NOTE: The Max. length for one indoor unit with Quick connector is 50' (15m).

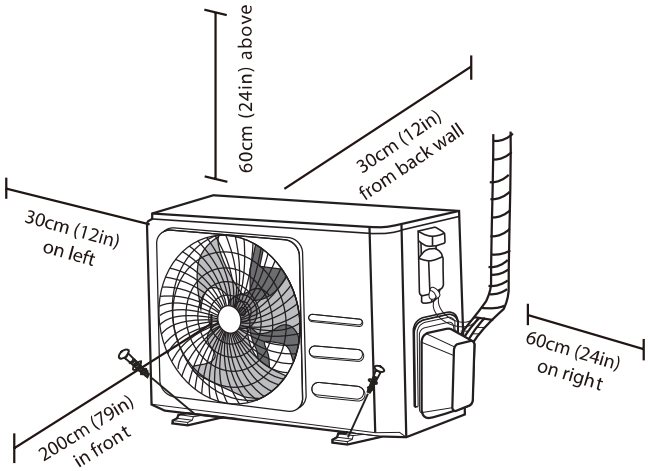
When installing multiple indoor units with a single outdoor unit, ensure that the length of the refrigerant pipe and the drop height between the indoor and outdoor units meet the requirements illustrated in the following diagram:



Note: Please see page 78 for schematic to add solar box to the system.

18k - 60k Outdoor Unit Installation

Install the unit by following local codes and regulations.



Installation Instructions – Outdoor unit

Step 1: Select installation location

Before installing the outdoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:

- ☑ Meets all spatial requirements shown in Installation Space Requirements above.
- ☑ Good air circulation and ventilation
- ☑ Firm and solid—the location can support the unit and will not vibrate
- ☑ Noise from the unit will not disturb others
- ☑ Protected from prolonged periods of direct sunlight or rain
- ☑ Where snowfall is anticipated, raise the unit above the base pad to prevent ice buildup and coil damage. Mount the unit high enough to be above the average accumulated area snowfall. The minimum height must be 18 inches

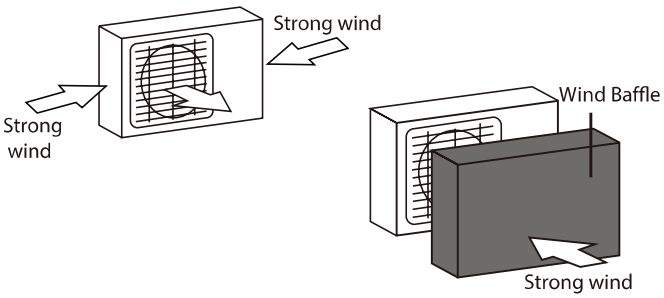
DO NOT install unit in the following locations:

- ⊘ Near an obstacle that will block air inlets and outlets
- ⊘ Near a public street, crowded areas, or where noise from the unit will disturb others
- ⊘ Near animals or plants that will be harmed by hot air discharge
- ⊘ Near any source of combustible gas
- ⊘ In a location that is exposed to large amounts of dust
- ⊘ In a location exposed to a excessive amounts of salty air

SPECIAL CONSIDERATIONS FOR EXTREME WEATHER

If the unit is exposed to heavy wind:

Install unit so that air outlet fan is at a 90° angle to the direction of the wind. If needed, build a barrier in front of the unit to protect it from extremely heavy winds.
See Figures below.



If the unit is frequently exposed to heavy rain or snow:

Build a shelter above the unit to protect it from the rain or snow. Be careful not to obstruct air flow around the unit.

If the unit is frequently exposed to salty air (seaside):

Use outdoor unit that is specially designed to resist corrosion.

Note: Please see page 78 for schematic to add solar box to the system.

18k - 60k Outdoor Unit Installation (cont'd)

Step 2: Install drain joint (Heat pump unit only)

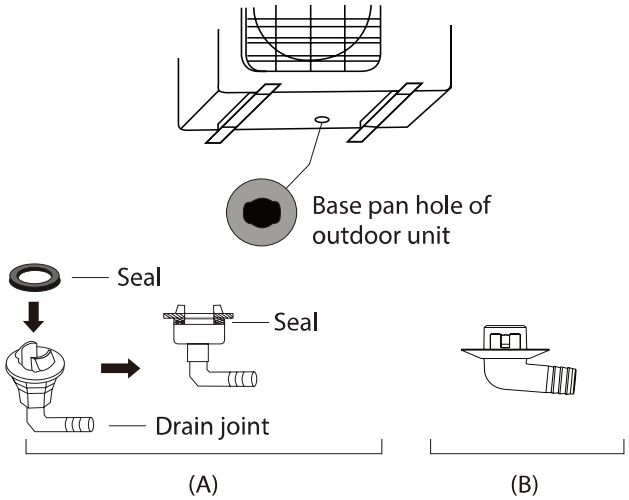
Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. Note: There are two different types of drain joints depending on the type of outdoor unit.

If the drain joint comes with a rubber seal (see **Fig. A**):

1. Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.
2. Insert the drain joint into the hole in the base pan of the unit.
3. Rotate the drain joint 90° until it clicks in place facing the front of the unit.
4. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.

If the drain joint doesn't come with a rubber seal (see **Fig. B**):

1. Insert the drain joint into the hole in the base pan of the unit. The drain joint will click in place.
2. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.



Step 3: Anchor outdoor unit

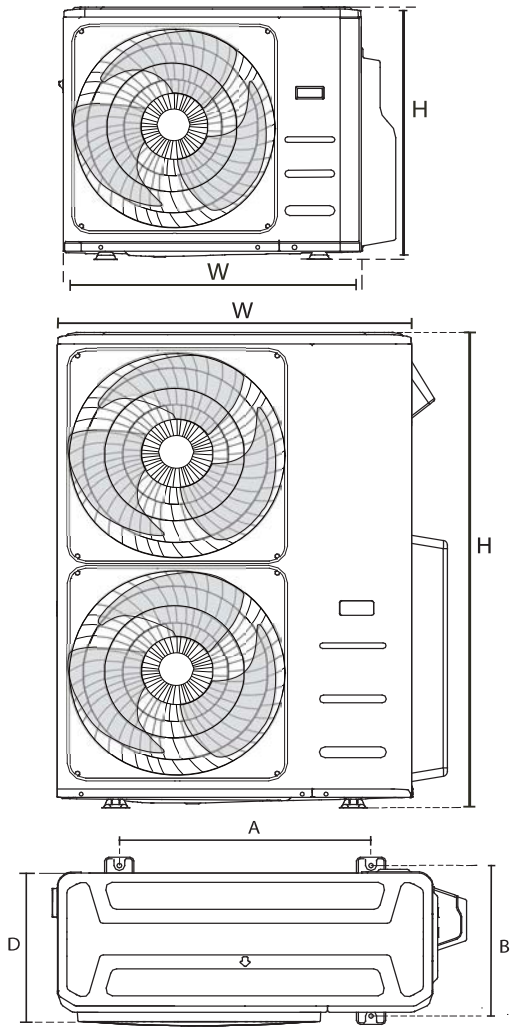
The outdoor unit can be anchored to the ground or to a wall-mounted bracket with bolt(M10). Prepare the installation base of the unit according to the dimensions below.

UNIT MOUNTING DIMENSIONS

The following is a list of different outdoor unit sizes and the distance between their mounting feet. Prepare the installation base of the unit according to the dimensions below.

Outdoor Unit Types and Specifications

Split Type Outdoor Unit



18k - 60k Outdoor Unit Installation (cont'd)

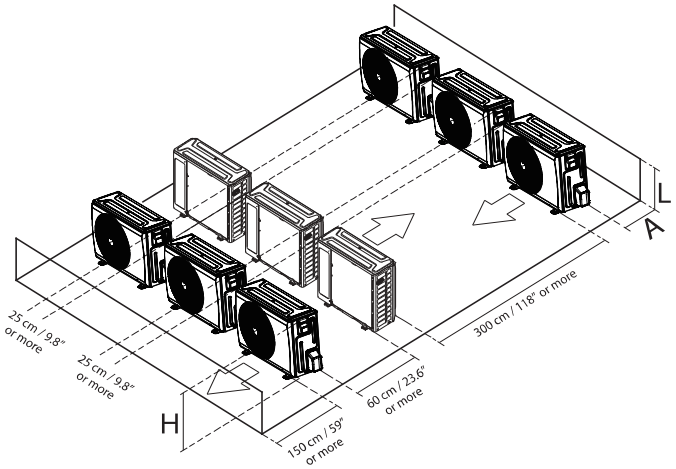
(unit: mm/inch)

Outdoor Unit Dimensions W x H x D	Mounting Dimensions	
	Distance A	Distance B
760x590x285 (29.9x23.2x11.2)	530 (20.85)	290 (11.4)
810x558x310 (31.9x22x12.2)	549 (21.6)	325 (12.8)
845x700x320 (33.27x27.5x12.6)	560 (22)	335 (13.2)
900x860x315 (35.4x33.85x12.4)	590 (23.2)	333 (13.1)
945x810x395 (37.2x31.9x15.55)	640 (25.2)	405 (15.95)
990x965x345 (38.98x38x13.58)	624 (24.58)	366 (14.4)
938x1369x392 (36.93x53.9x15.43)	634 (24.96)	404 (15.9)
900x1170x350 (35.4x46x13.8)	590 (23.2)	378 (14.88)
800x554x333 (31.5x21.8x13.1)	514 (20.24)	340 (13.39)
845x702x363 (33.27x27.6x14.3)	540 (21.26)	350 (13.8)
946x810x420 (37.2x31.9x16.53)	673 (26.5)	403 (15.87)
946x810x410 (37.2x31.9x16.14)	673 (26.5)	403 (15.87)
952x1333x410 (37.5x52.5x16.14)	634 (24.96)	404 (15.9)
952x1333x415 (37.5x52.5x16.14)	634 (24.96)	404 (15.9)

Rows of series installation

The relations between H, A and L are as follows.

	L	A
L ≤ H	L ≤ 1/2H	25 cm / 9.8" or more
	1/2H < L ≤ H	30 cm / 11.8" or more
L > H	Can not be installed	



Notes On Drilling Hole In Wall

You must drill a hole in the wall for the refrigerant piping, and the signal cable that will connect the indoor and outdoor units.

1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 2.5" (65mm) core drill, drill a hole in the wall.

   NOTE: When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.

3. Place the protective wall cuff in the hole. This protects the edges of the hole and helps seal it when you finish the installation process.

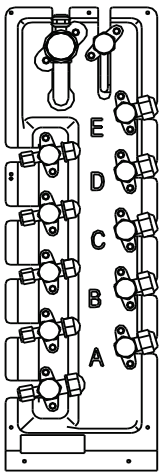
When Select a 24K Indoor Unit

The 24K indoor unit can only be connected with an A system. If there are two 24K indoor units, they can be connected with A and B systems.

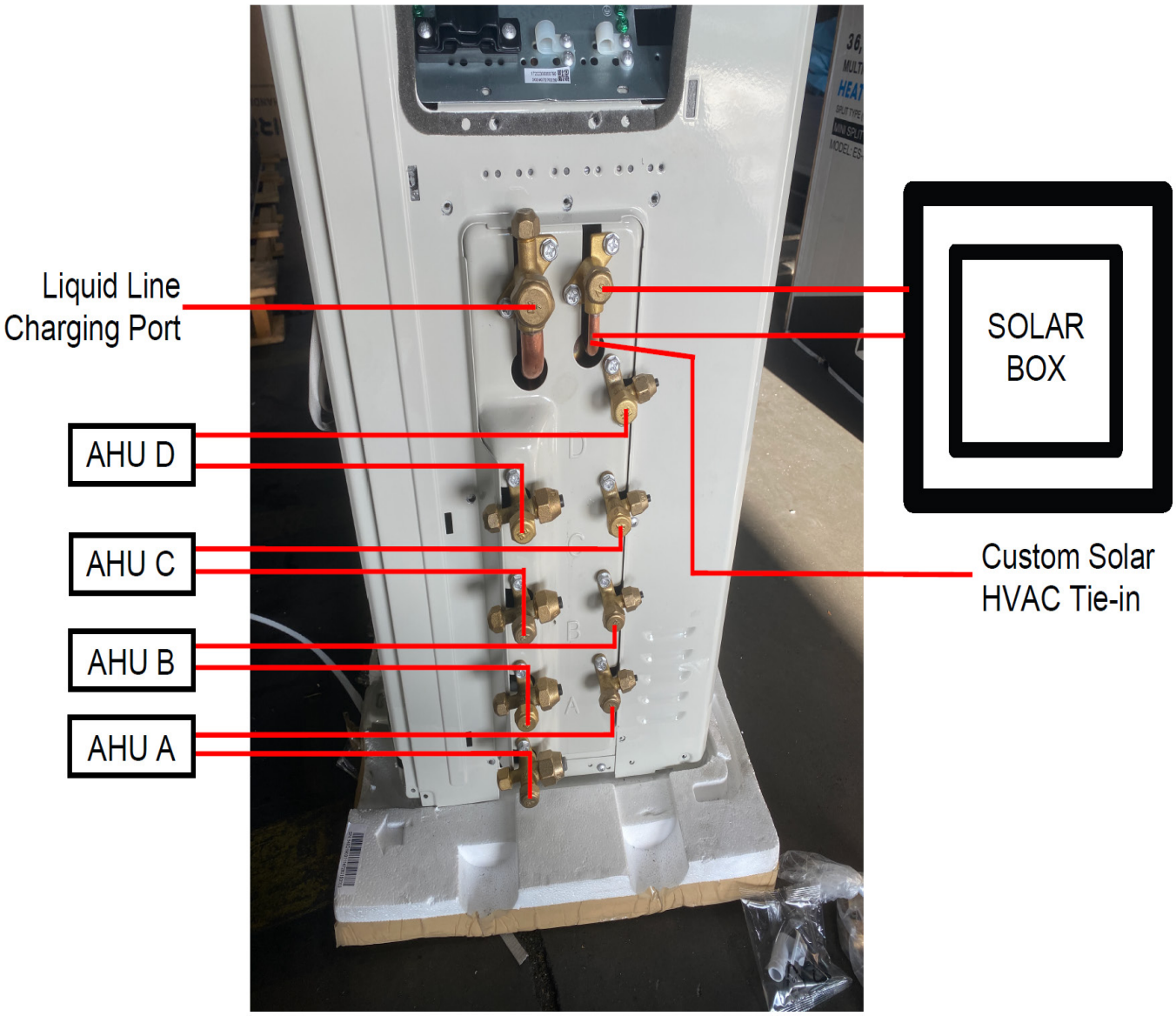
Connective pipe size of an A and B system

(unit: inch)

Indoor Unit capacity (Btu/h)	Liquid	Gas
7K/9K/12K	1/4	3/8
12K/18K	1/4	1/2
24K	3/8	5/8



Multiple AHU Plumbing



"Plumb Solar Box into the gas line using the upper charging port connection. Customer must supply plumbing fixture either replacing existing or brazing into the exposed pipe below. Follow all other plumbing requirements for attaching AHUs including plumbing line lengths."

Refrigerant Piping Connection

NOTE: For quick-connect models, please refer to the internal machine manual for the installation method of the connecting pipe. The external machine manual does not repeat the instructions.

When connecting refrigerant piping, **do not** let substances or gases other than the specified refrigerant enter the unit. The presence of other gases or substances will lower the unit's capacity, and can cause abnormally high pressure in the refrigeration cycle. This can cause explosion and injury.

Connection Instructions – Refrigerant Piping

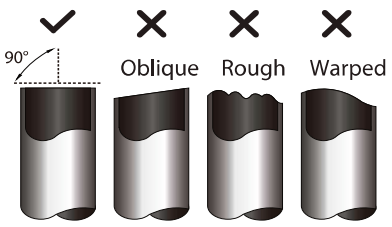
⚠ CAUTION

- The branching pipe must be installed horizontally. An angle of more than 10° may cause malfunction.
- **DO NOT** install the connecting pipe until both indoor and outdoor units have been installed.
- Insulate both the gas and liquid piping to prevent water leakage.

Step 1: Cut pipes

When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficient operation and minimize the need for future maintenance.

1. Measure the distance between the indoor
2. and outdoor units.
   Using a pipe cutter, cut the pipe a little longer than the measured distance.
3. Make sure that the pipe is cut at a perfect 90° angle.



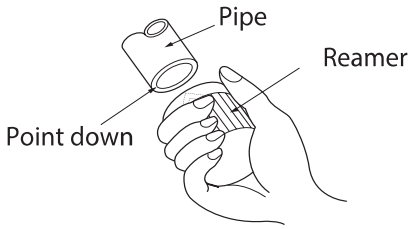
⊘ DO NOT DEFORM PIPE WHILE CUTTING

Be extra careful not to damage, dent, or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit.

Step 2: Remove burrs.

Burrs can affect the air-tight seal of refrigerant piping connection. They must be completely removed.

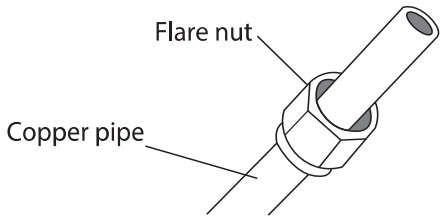
1. Hold the pipe at a downward angle to prevent burrs from falling into the pipe.
2. Using a reamer or deburring tool, remove all burrs from the cut section of the pipe.



Step 3: Flare pipe ends

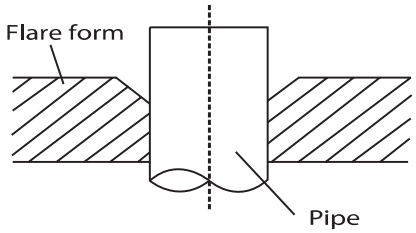
Proper flaring is essential to achieve an airtight seal.

1. After removing burrs from cut pipe, seal the ends with PVC tape to prevent foreign materials from entering the pipe.
2. Sheath the pipe with insulating material.
3. Place flare nuts on both ends of pipe. Make sure they are facing in the right direction, because you can't put them on or change their direction after flaring.



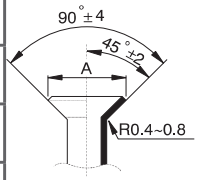
Refrigerant Piping Connection (cont'd)

4. Remove PVC tape from ends of pipe when ready to perform flaring work.
5. Clamp flare form on the end of the pipe. The end of the pipe must extend beyond the flare form.



6. Place flaring tool onto the form.
7. Turn the handle of the flaring tool clockwise until the pipe is fully flared. Flare the pipe in accordance with the dimensions .

PIPING EXTENSION BEYOND FLARE FORM

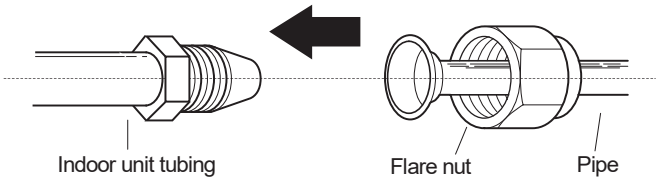
Pipe gauge	Tightening torque	Flare dimension (A) (Unit: mm/Inch)		Flare shape
		Min.	Max.	
Ø 6.4	18-20 N.m (183-204 kgf.cm)	8.4/0.33	8.7/0.34	
Ø 9.5	25-26 N.m (255-265 kgf.cm)	13.2/0.52	13.5/0.53	
Ø 12.7	35-36 N.m (357-367 kgf.cm)	16.2/0.64	16.5/0.65	
Ø 15.9	45-47 N.m (459-480 kgf.cm)	19.2/0.76	19.7/0.78	
Ø 19.1	65-67 N.m (663-683 kgf.cm)	23.2/0.91	23.7/0.93	
Ø 22	75-85N.m (765-867 kgf.cm)	26.4/1.04	26.9/1.06	

8. Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and even flaring.

Step 4: Connect pipes

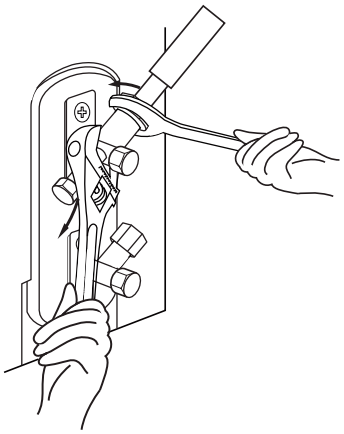
Connect the copper pipes to the indoor unit first, then connect it to the outdoor unit. You should first connect the low-pressure pipe, then the high-pressure pipe.

1. Align the center of the two pipes that you will connect.



2. Tighten the flare nut as tightly as possible by hand.
3. Using an adjustable wrench, grip the nut on the unit tubing.
4. While firmly gripping the nut, use a torque wrench to tighten the flare nut according to the torque values in above table.

NOTE: Use both an adjustable wrench and a torque wrench when connecting or disconnecting pipes to/from the unit.



⚠ CAUTION

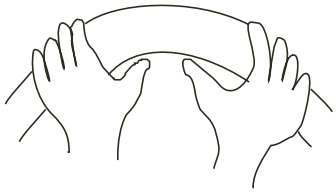
- Ensure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
- Make sure the pipe is properly connected. Over tightening may damage the bell mouth and under tightening may lead to leakage.

Refrigerant Piping Connection (cont'd)

NOTE ON MINIMUM BEND RADIUS

Carefully bend the tubing in the middle according to the diagram below. **DO NOT** bend the tubing more than 90° or more than 3 times.

Bend the pipe with thumb



min-radius 3.9" (10cm)

6. After connecting the copper pipes to the indoor unit, wrap the power cable, signal cable and the piping together with binding tape.

NOTE: DO NOT intertwine signal cable with other wires. While bundling these items together, do not intertwine or cross the signal cable with any other wiring.

7. Thread this pipeline through the wall and connect it to the outdoor unit.
8. Insulate all the piping, including the valves of the outdoor unit.
9. Open the stop valves of the outdoor unit to start the flow of the refrigerant between the indoor and outdoor unit.

⚠ CAUTION

Check to make sure there is no refrigerant leak after completing the installation work. If there is a refrigerant leak, ventilate the area immediately and evacuate the system (refer to the Air Evacuation section of this manual).

Wiring

BEFORE PERFORMING ANY ELECTRICAL WORK, READ THESE REGULATIONS

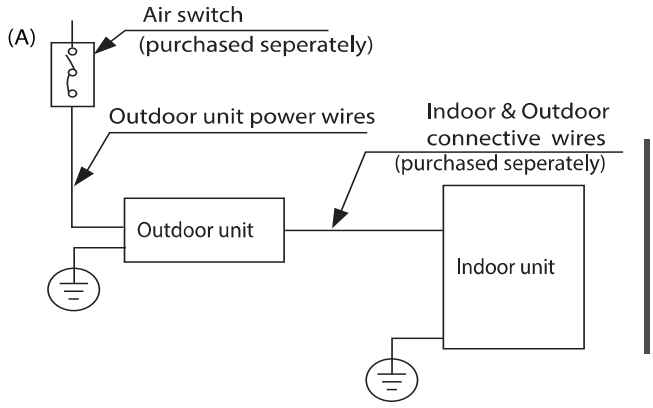
1. All wiring must comply with local and national electrical codes, regulations and must be installed by a licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3. If there is a serious safety issue with the power supply, stop work immediately.
4. Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or re.
5. If connecting power to fixed wiring, a surge protector and main power switch should be installed.
6. If connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The qualified technician must use an approved circuit breaker or switch.
7. Only connect the unit to an individual branch circuit outlet. Do not connect another appliance to that outlet.
8. Make sure to properly ground the air conditioner.
9. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
10. Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.
11. If the unit has an auxiliary electric heater, it must be installed at least 1 meter (40in) away from any combustible materials.
12. To avoid getting an electric shock, never touch the electrical components soon after the power supply has been turned off. After turning off the power, always wait 10 minutes or more before you touch the electrical components.
13. Make sure that you do not cross your electrical wiring with your signal wiring. This may cause distortion and interference.
14. No other equipment should be connected to the same power circuit.
15. Connect the outdoor wires before connecting the indoor wires.

⚠ WARNING

BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, TURN OFF THE MAIN POWER TO THE SYSTEM.

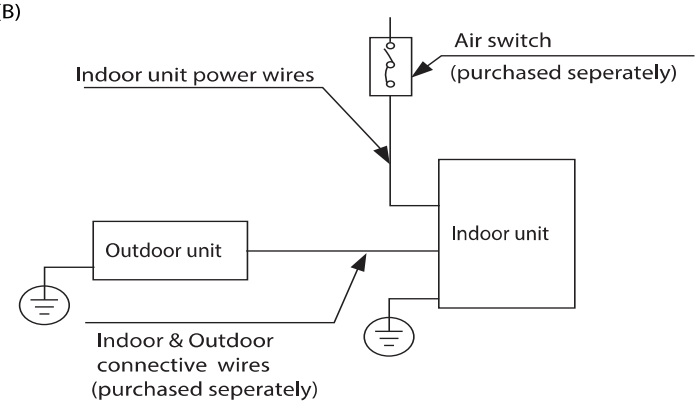
NOTE ON AIR SWITCH

When the maximum current of the air conditioner is more than 16A, an air switch or leakage protection switch with protective device shall be used (purchased seperately) .
When the maximum current of the air conditioner is less than 16A, the power cord of air conditioner shall be equipped with plug (purchased seperately).
In North America , the applicance should be wired according to NEC and CEC requirements.

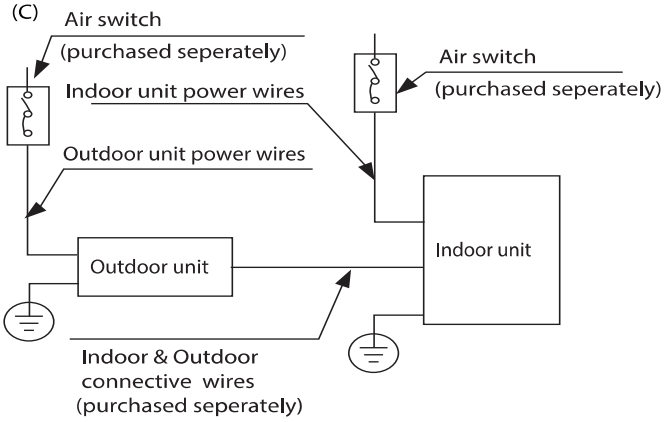


Wiring (cont'd)

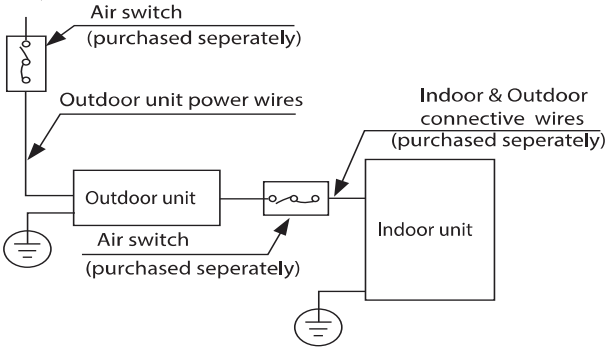
(B)



(C)



(D) (Only for the North American)



NOTE: The graphs are for explanation purpose only. Your machine may be slightly different.

Outdoor Unit Wiring

⚠ WARNING

Before performing any electrical or wiring work, turn off the main power to the system.

1. Prepare the cable for connection
a. You must first choose the right cable size. Be sure to use H07RN-F cables.

NOTE: In North America, choose the cable type according to the local electrical codes and regulations.

Minimum Cross-Sectional Area of Power and Signal Cables (For reference)

Rated Current of Appliance (A)	Nominal Cross-Sectional Area (mm²)
> 3 and ≤ 6	0.75
> 6 and ≤ 10	1
> 10 and ≤ 16	1.5
> 16 and ≤ 25	2.5
> 25 and ≤ 32	4
> 32 and ≤ 40	6

CHOOSE THE RIGHT CABLE SIZE

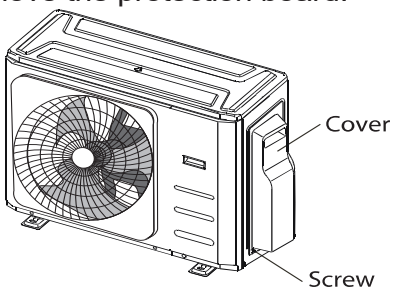
The size of the power supply cable, signal cable, fuse, and switch needed is determined by the maximum current of the unit. The maximum current is indicated on the nameplate Refer to this nameplate to choose the right cable, fuse, or switch.

NOTE: Please choose the right cable size according to the Minimum Circuit Ampacity indicated on the nameplate of the unit.

b. Using wire strippers, strip the rubber jacket from both ends of the signal cable to reveal approximately 5.9" (15cm) of wire.
c. Strip the insulation from the ends.
d. Using a wire crimper, crimp u-lugs on the ends.

NOTE: When connecting the wires, strictly follow the wiring diagram found inside the electrical box cover.

2. Remove the electric cover of the outdoor unit. If there is no cover on the outdoor unit, take o the bolts from the maintenance board and remove the protection board.



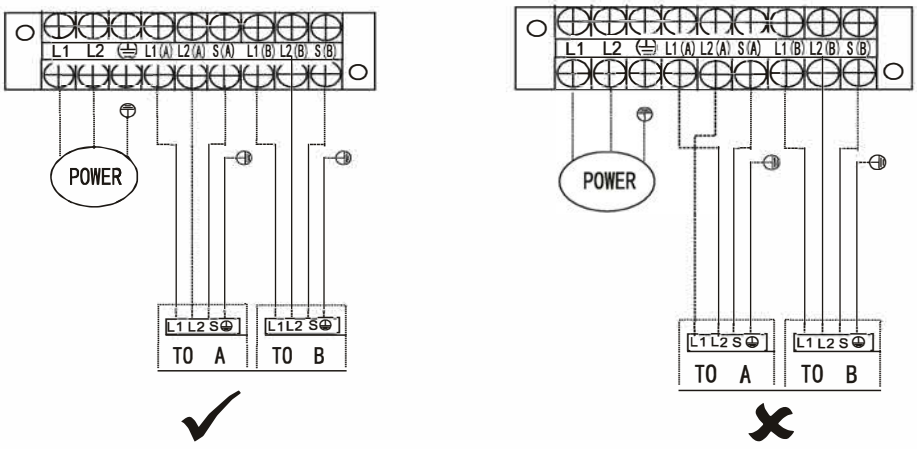
Wiring (cont'd)

3. Connect the u-lugs to the terminals Match the wire colors/labels with the labels on the terminal block, and firmly screw the u-lug of each wire to its corresponding terminal.
4. Clamp down the cable with designated cable clamp.
5. Insulate unused wires with electrical tape. Keep them away from any electrical or metal parts.
6. Reinstall the cover of the electric control box.

Wiring Figure

⚠ CAUTION

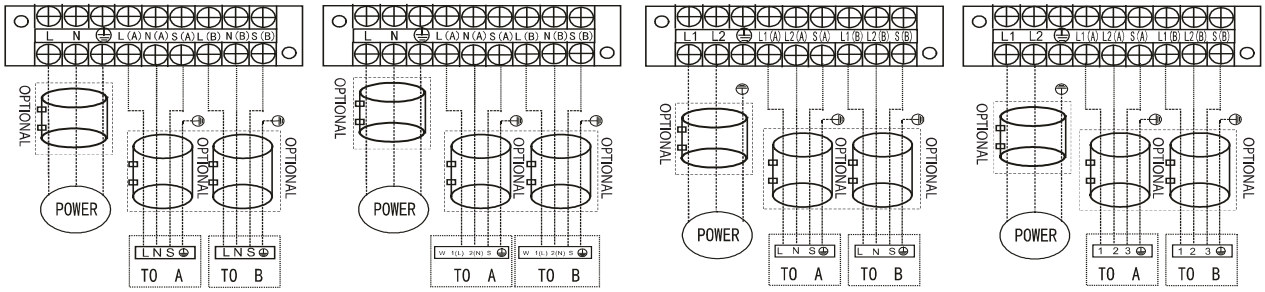
Connect the connective cables to the terminals, as identified, with their matching numbers on the terminal block of the indoor and outdoor units. For example, in the US models shown in the following diagram, Terminal L1(A) of the outdoor unit must connect with terminal L1 on the indoor unit.



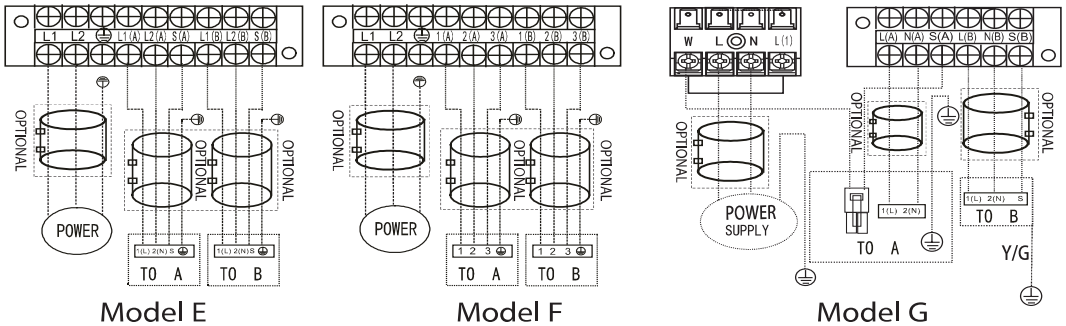
NOTE: Refer to the following figures if end-users wish to perform their own wiring.
Run the main power cord through the lower line-outlet of the cord clamp.
---- This symbol indicates field wiring.

Wiring (cont'd)

One-two models:

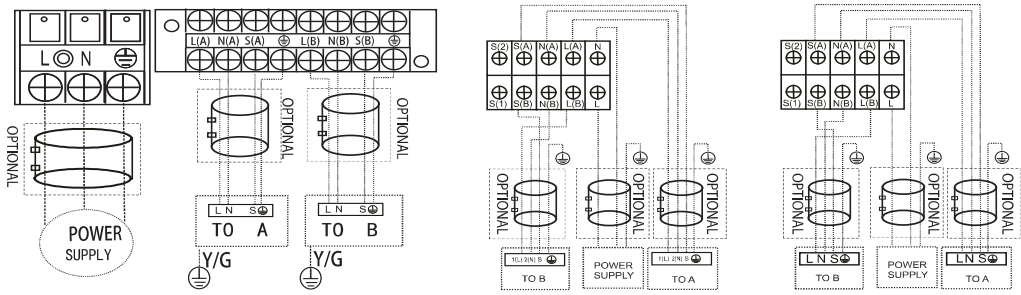


Model A Model B Model C Model D

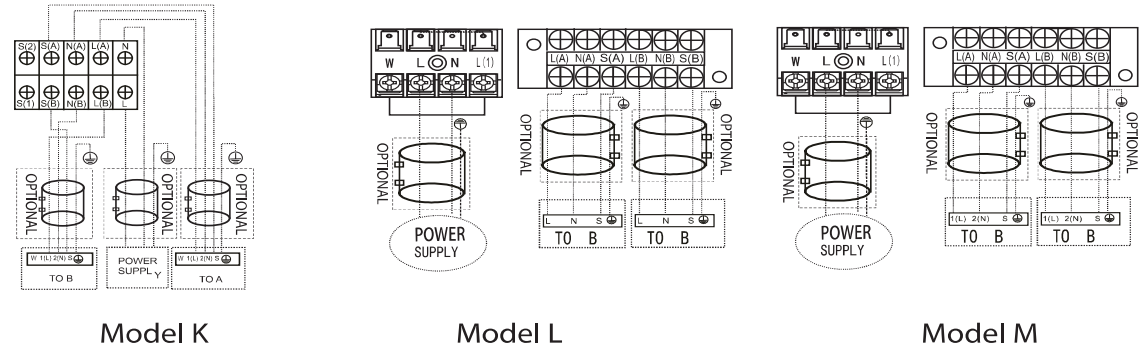


Model E Model F Model G

NOTE: Use the magnetic ring (not supplied, optional part) to hitch the connective cable of indoorand outdoor units after installation. One magnetic ring is used for each cable.



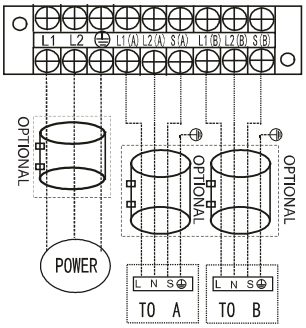
Model H Model I Model J



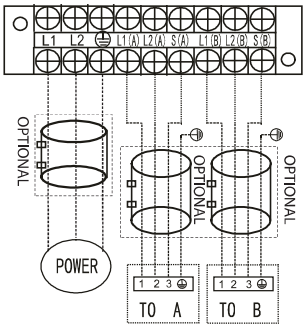
Model K Model L Model M

NOTE: Please refer to the following figures if end-users wish to perform their own wiring.

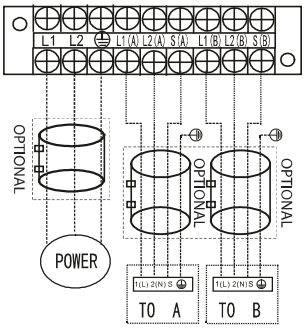
Wiring (cont'd)



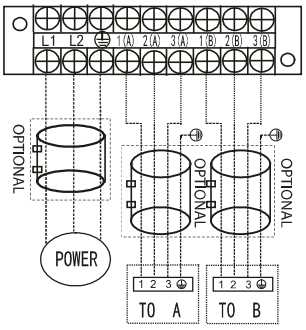
Model N



Model O

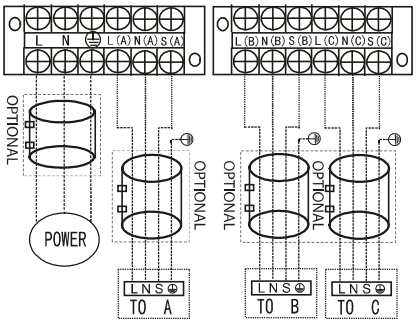


Model P

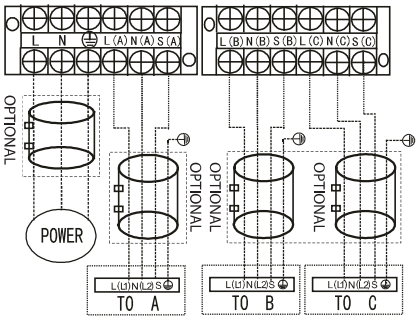


Model Q

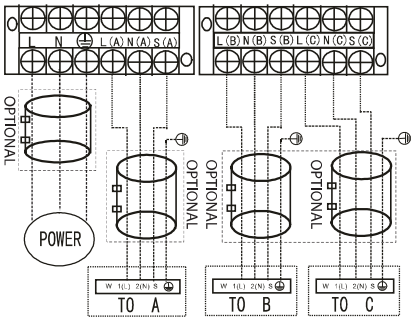
One-three models:



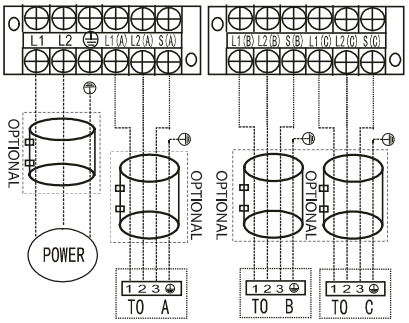
Model A



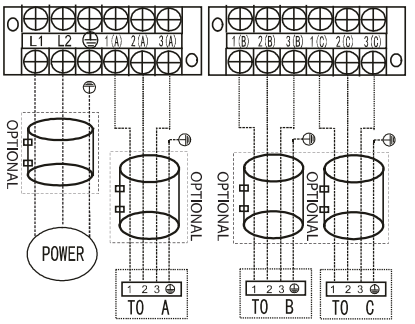
Model B



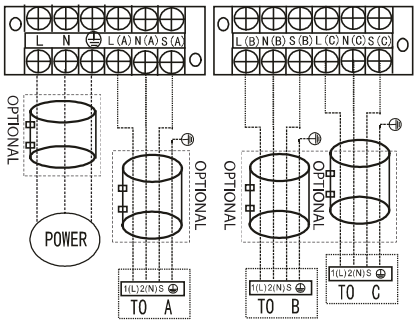
Model C



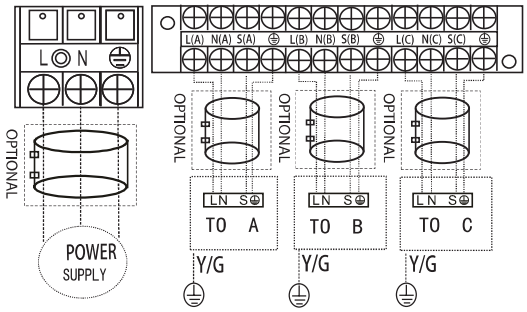
Model D



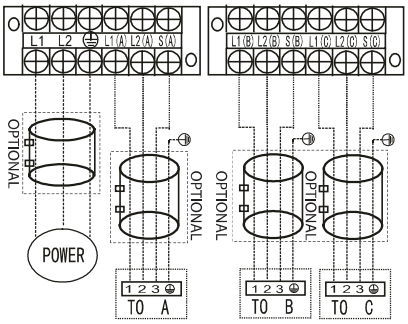
Model E



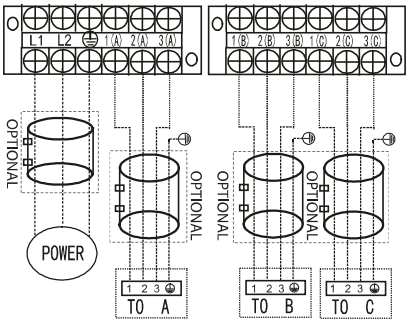
Model F



Model G



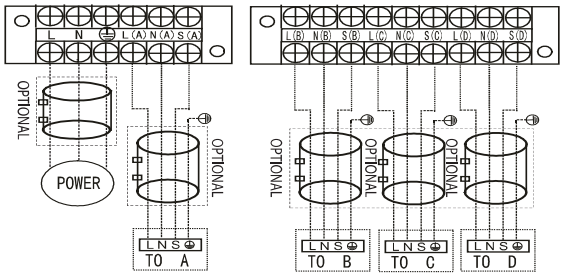
Model H



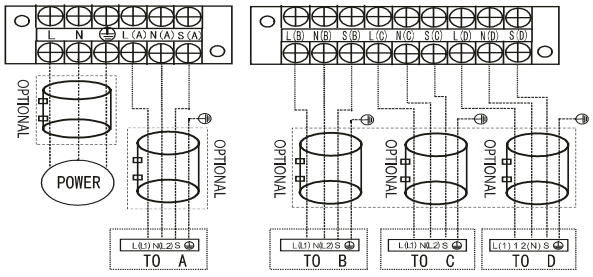
Model I

Wiring (cont'd)

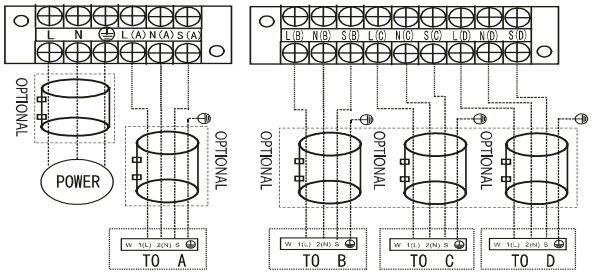
One-four models:



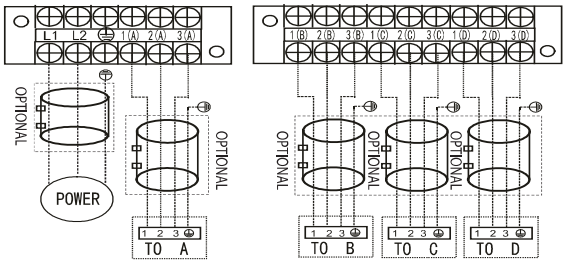
Model A



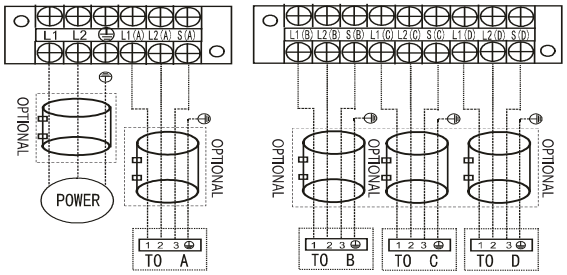
Model B



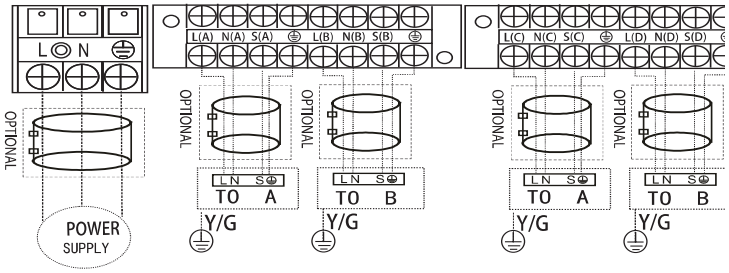
Model C



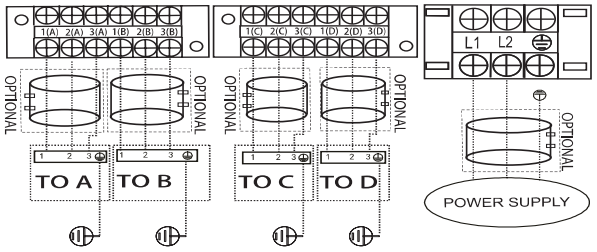
Model D



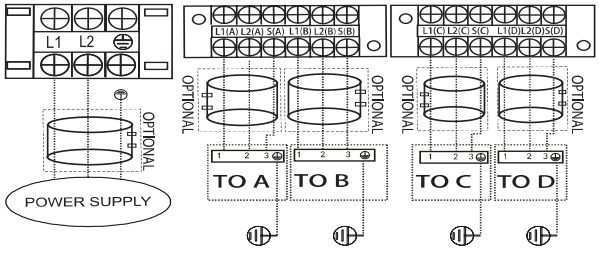
Model E



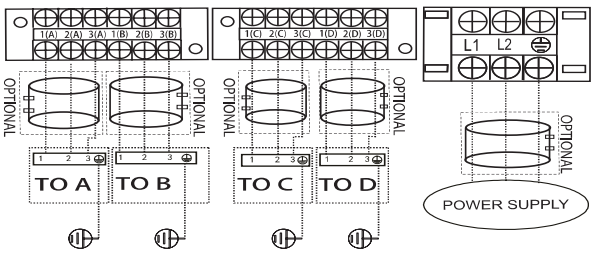
Model F



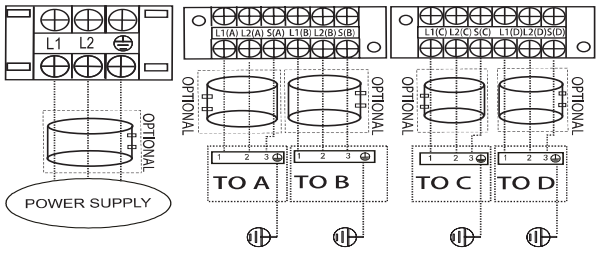
Model G



Model H

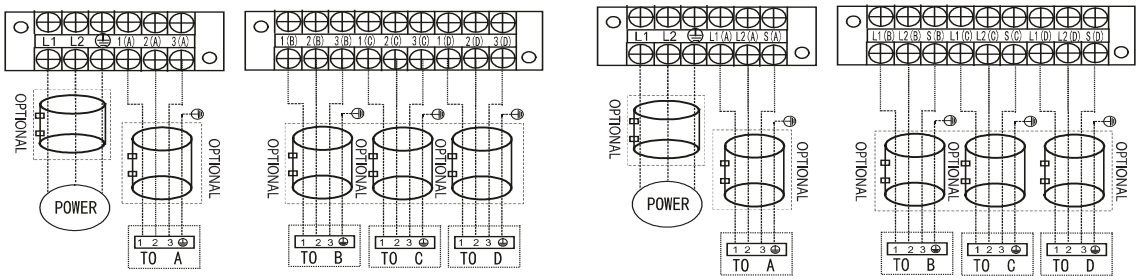


Model I



Model J

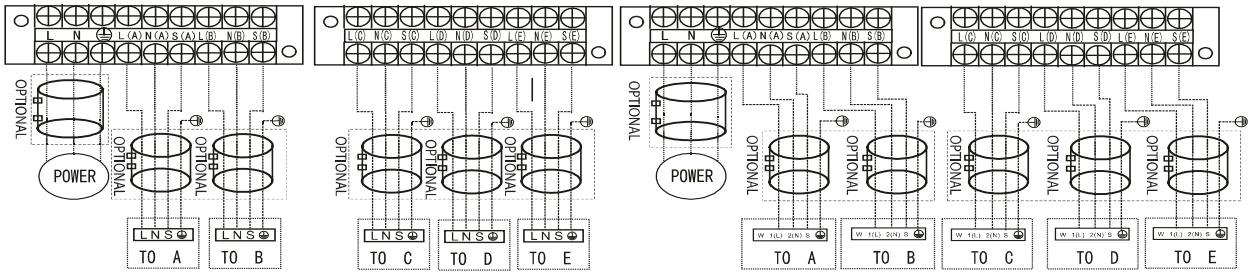
Wiring (cont'd)



Mode K

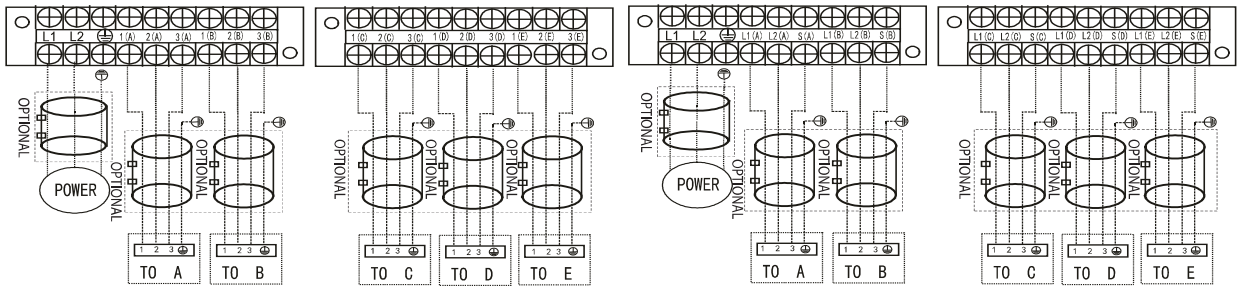
Model L

One-five models:



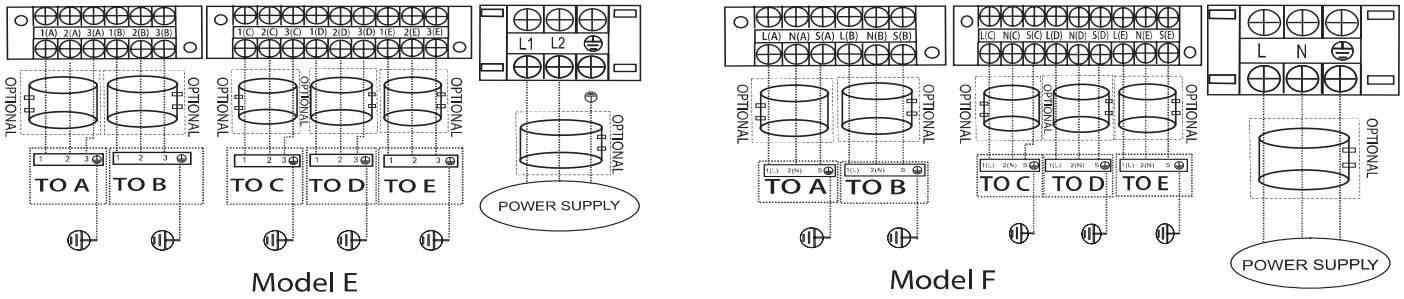
Model A

Model B



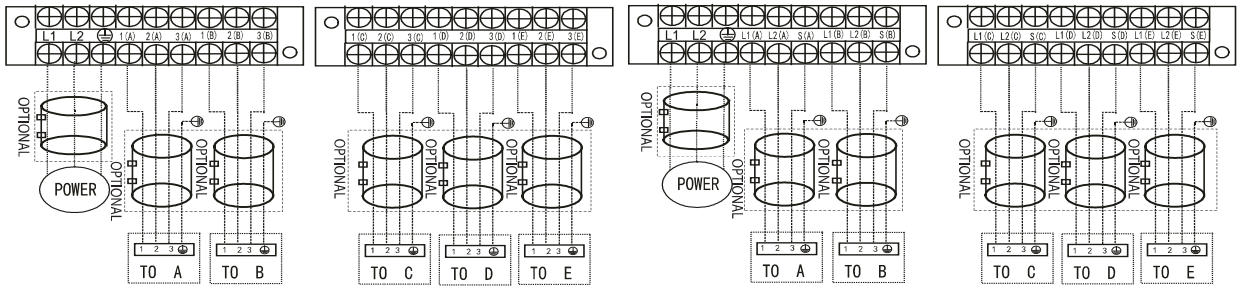
Model C

Model D



Model E

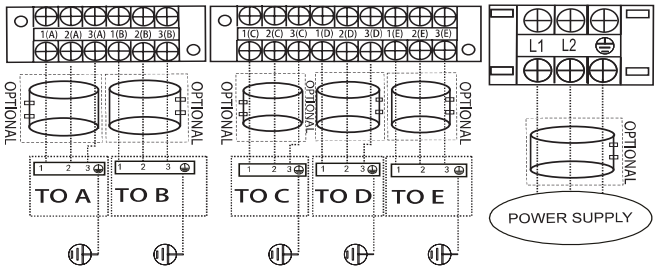
Model F



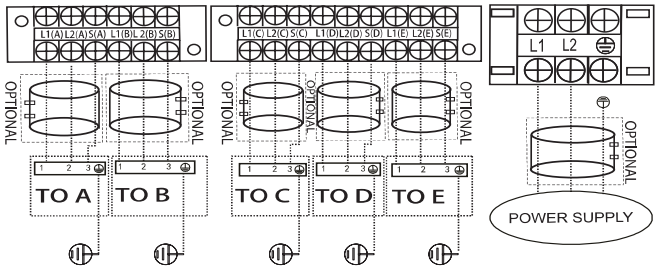
Model G

Model H

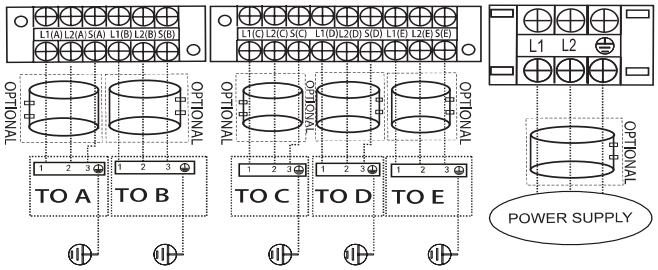
Wiring (cont'd)



Model I



Model J



Model K

⚠ CAUTION

After confirmation of the above conditions, follow these guidelines when performing wiring:

- Always have an individual power circuit specifically for the air conditioner. Always follow the circuit diagram posted on the inside of the control cover.
- Screws fastening the wiring in the casing of electrical fittings may come loose during transportation. Because loose screws may cause wire burn-out, check that the screws are tightly fastened.
- Check the specifications for the power source.
- Confirm that electrical capacity is sufficient.
- Confirm that starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
- Con rm that the cable thickness is as specified in the power source specifications.
- Always install a grounding circuit in wet or moist areas.
- The following can be caused by a drop in voltage: vibration of a magnetic switch, damaging the contact point, broken fuses, and disturbance of normal functioning.
- Disconnection from a power supply must be incorporated into the fixed wiring. It must have an air gap contact separation of at least 3mm in each active (phase) conductors.
- Before accessing terminals, all supply circuits must be disconnected.

NOTE:

To satisfy the EMC compulsory regulations, which is required by the international standard CISPR 14-1:2005/A2:2011 in specific countries or districts, please make sure you apply the correct magnetic rings on your equipment according to the wiring diagram that adhere to the your equipment .

Please contact your distributor or installer to get further information and purchase magnetic rings (The supplier of magnetic ring is TDK（model ZCAT3035-1330） or similar) .

Air Evacuation

Preparations and Precautions

Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the air conditioner, reduce its efficiency, and cause injury. Use a vacuum pump and manifold gauge to evacuate the refrigerant circuit, removing any non-condensable gas and moisture from the system.

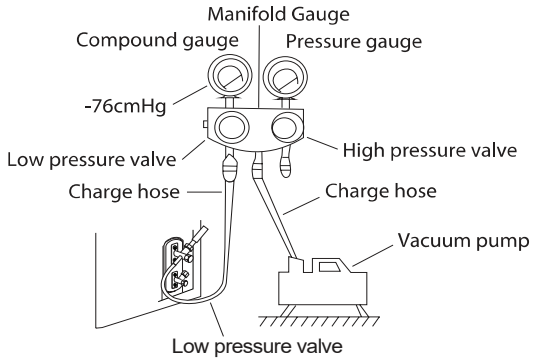
Evacuation should be performed upon initial installation and if the unit is relocated.

BEFORE PERFORMING EVACUATION

- ☑ Check to make sure the connective pipes between the indoor and outdoor units are connected properly.
- ☑ Check to make sure all wiring is connected

Evacuation Instructions

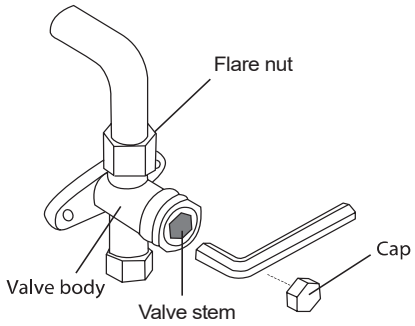
Before using a manifold gauge and a vacuum pump, read their operation manuals to make sure you know how to use them properly.



1. Connect the manifold gauge's charge hose to the service port on the outdoor unit's low pressure valve.
2. Connect the manifold gauge's charge hose to the vacuum pump.
3. Open the Low Pressure side of the manifold gauge. Keep the High Pressure side closed.
4. Turn on the vacuum pump to evacuate the system.
5. Run the vacuum for at least 15 minutes, or until the Compound Meter reads -76cmHG (-1x105Pa).
6. Close the manifold gauge's Low Pressure valve and turn o the vacuum pump.
7. Wait for 5 minutes, then check that there has been no change in system pressure.

NOTE: If there is no change in system pressure, unscrew the cap from the packed valve (high pressure valve). If there is a change in system pressure, there may be a gas leak.

8. Insert hexagonal wrench into the packed valve (high pressure valve) and open the valve by turning it a quarter turn counterclockwise. Listen for gas to exit the system, then close the valve after 5 seconds.



9. Watch the Pressure Gauge for one minute to make sure that there is no change in pressure. It should read slightly higher than the atmospheric pressure.
10. Remove the charge hose from the service port.
11. Using hexagonal wrench, fully open both the high pressure and low pressure valves.

OPEN VALVE STEMS GENTLY

When opening valve stems, turn the hexagonal wrench until it hits against the stopper. **DO NOT** try to force the valve to open further.

12. Tighten valve caps by hand, then tighten it using the proper tool.

Air Evacuation (cont'd)

Note On Adding Refrigerant

⚠ CAUTION

- Refrigerant charging must be performed after wiring, vacuuming, and the leak testing.
- **DO NOT** exceed the maximum allowable quantity of refrigerant or overcharge the system. Doing so can damage the unit or impact it's functioning.
- Charging with unsuitable substances may cause explosions or accidents. Ensure that the appropriate refrigerant is used.
- Refrigerant containers must be opened slowly. Always use protective gear when charging the system.
- **DO NOT** mix refrigerants types.
- For the R290 or R32 refrigerant model, make sure the condtions within the area have been made safe by control of flammable material when the refrigerant added into air conditioner.

N=2(one-two models), N=3(one-three models), N=4(one-four models), N=5(one-five models). Depending on the length of connective piping or the pressure of the evacuated system, you made need to add refrigerant. Refer to table below for refrigerant amounts to be added:

ADDITIONAL REFRIGERANT PER PIPE LENGTH

Connective Pipe Length(m)	Air Purging Method	Additional Refrigerant	
Pre-charge pipe length (ft/m) (pre-charge pipe length xN)	Vacuum Pump	N/A	
More than (pre-charge pipe lengthxN) ft/m	Vacuum Pump	Liquid Side: Ø 6.35 (Ø 1/4") R32 (Total pipe length - pre-charge pipe lengthxN) x12g/m (Total pipe length - pre-charge pipe lengthxN) x0.13oZ/ft	Liquid Side: Ø 9.52 (Ø 3/8") R32 (Total pipe length - pre-charge pipe lengthxN) x24g/m (Total pipe length - pre-charge pipe lengthxN) x0.26oZ/ft
		Liquid Side: Ø 6.35 (Ø 1/4") R410A (Total pipe length - pre-charge pipe lengthxN) x15g/m (Total pipe length - pre-charge pipe lengthxN) x0.16oZ/ft	Liquid Side: Ø 9.52 (Ø 3/8") R410A (Total pipe length - pre-charge pipe lengthxN) x30g/m (Total pipe length - pre-charge pipe lengthxN) x0.32oZ/ft

NOTE: The standard pipe length is 25' (7.5m).

Safety and Leakage Check

Electrical safety check

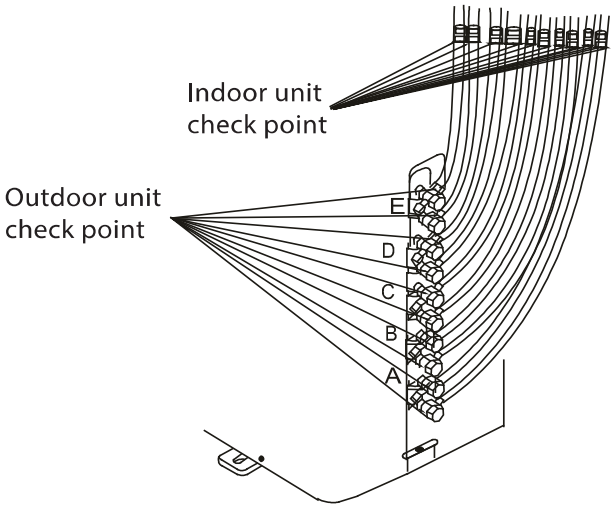
Perform the electrical safety check after completing installation. Cover the following areas:

1. Insulated resistance
   The insulated resistance must be more than 2MΩ.
2. Grounding work
   After finishing grounding work, measure the grounding resistance by visual detection and using the grounding resistance tester. Make sure the grounding resistance is less than 4Ω.
3. Electrical leakage check (performing during test while unit is on)
   During a test operation after completed installation, the use the electroprobe and multimeter to perform an electrical leakage check. Turn off the unit immediately if leakage happens. Try and evaluate different solutions until the unit operates properly.

Gas leak check

1. Soap water method:
   Apply a soap-water solution or a liquid neutral detergent on the indoor unit connection or outdoor unit connections with a soft brush to check for leakage of the connecting points of the piping. If bubbles emerge, the pipes are experiencing leakage.
2. Leak detector
   Use the leak detector to check for leakage.

NOTE: The illustration is for example purposes only. The actual order of A, B, C, D, and E on the machine may be slightly different from the unit you purchased but the general shape will remain the same.



A, B,C,D are points for one-four type.
A, B,C,D, and E are points for the one-five type.

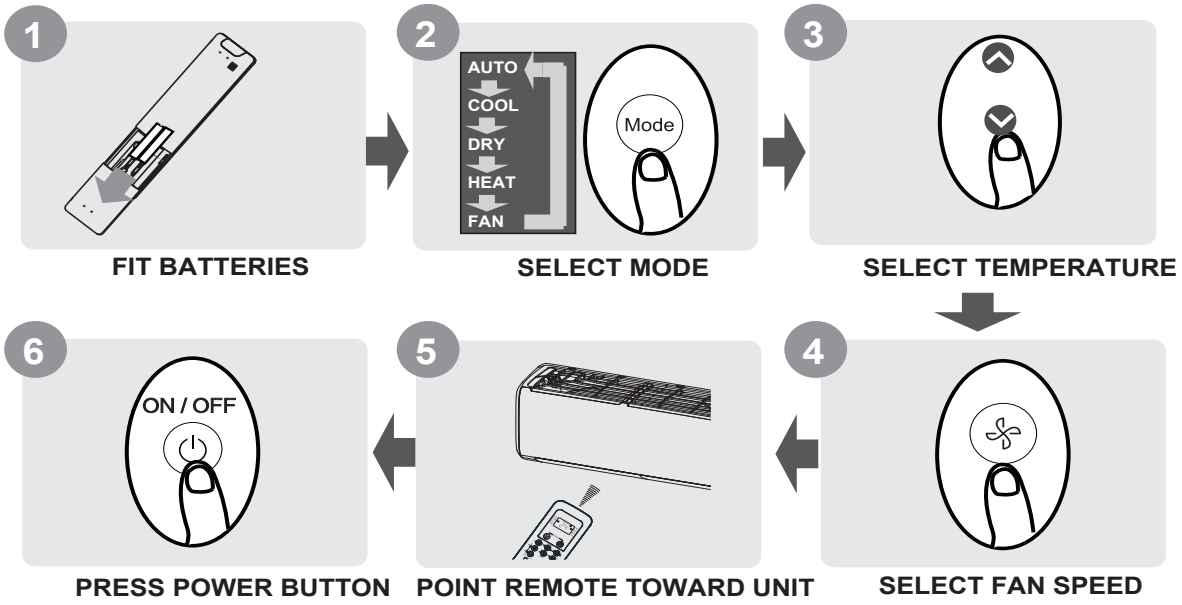
Remote Control Instructions

Remote Controller Specifications

Model	RG10A(D2S)/BGEF, RG10A(D2S)/BGEFU1,RG10A1(D2S)/BGEF, RG10A2(D2S)/BGEFU1, RG10A2(D2S)/BGCEFU1, RG10A2(D2S)/BGCEF, RG10A10(D2S)/BGEF, RG10B(D2)/BGEF, RG10B1(D2)/BGEF, RG10B2(D2)/BGCEF,RG10B10(D2)/BGEF, RG10B10(D2)/BGCEF, RG10Y1(D2)/BGEF,RG10Y2(D2S)/BGEF
Rated Voltage	3.0V(Dry batteries R03/LR03×2)
Signal Receiving Range	8m
Environment	-5°C~60°C(23°F~140°F)

NOTE: For models of RG10Y1 (D2)/BGEF,RG10Y2(D2S)/BGEF, If the unit is turned off under COOL, AUTO or DRY mode with the set temperature less than 24℃, the set temperature will be automatically set to 24℃ when you turn on the unit again. If the unit is turned off under HEAT mode with the set temperature more than 24℃, the set temperature will be automatically set to 24℃ when you turn on the unit again.

Quick Start Guide



NOT SURE WHAT A FUNCTION DOES?
Refer to the **How to Use Basic Functions** and **How to Use Advanced Functions** sections of this manual for a detailed description of how to use your air conditioner.

SPECIAL NOTE

- Button designs on your unit may differ slightly from the example shown.
- If the indoor unit does not have a particular function, pressing that function's button on the remote control will have no effect.
- When there are wide differentces between "Remote controller Manual" and "USER'S MANUAL" on function description, the description of "USER'S MANUAL" shall prevail.

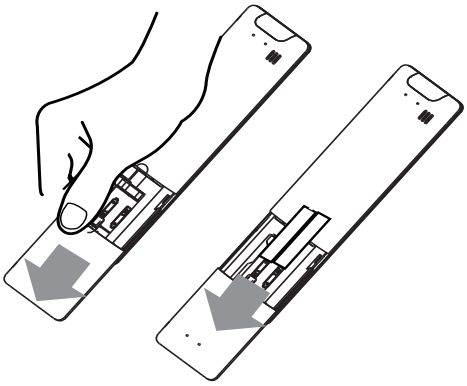
Remote Control Instructions (cont'd)

Handling the Remote Controller

Inserting and Replacing Batteries

Your air conditioning unit may come with two batteries(some units). Put the batteries in the remote control before use.

1. Slide the back cover from the remote control downward, exposing the battery compartment.
2. Insert the batteries, paying attention to match up the (+) and (-) ends of the batteries with the symbols inside the battery compartment.
3. Slide the battery cover back into place.



BATTERY NOTES

For optimum product performance:

- Do not mix old and new batteries, or batteries of different types.
- Do not leave batteries in the remote control if you don't plan on using the device for more than 2 months.

BATTERY DISPOSAL

Do not dispose of batteries as unsorted municipal waste. Refer to local laws for proper disposal of batteries.

TIPS FOR USING REMOTE CONTROL

- The remote control must be used within 8 meters of the unit.
- The unit will beep when remote signal is received.
- Curtains, other materials and direct sunlight can interfere with the infrared signal receiver.
- Remove batteries if the remote will not be used more than 2 months.

NOTES FOR USING REMOTE CONTROL

The device could comply with the local national regulations.

- In Canada, it should comply with CAN ICES-3(B)/NMB-3(B).
- In USA, this device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
  (1) This device may not cause harmful interference, and
  (2) this device must accept any interference received, including interference that may cause undesired operation.

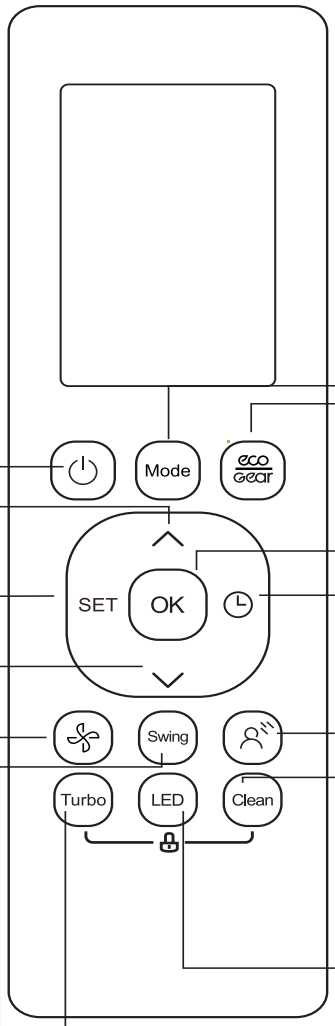
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- Changes or modifications not approved by the party responsible for compliance could void user's authority to operate the equipment.

Remote Control Instructions (cont'd)

Buttons and Functions

Before you begin using your new air conditioner, make sure to familiarize yourself with its remote control. The following is a brief introduction to the remote control itself. For instructions on how to operate your air conditioner, refer to the **How to Use Basic Functions** section of this manual.



ON/OFF
Turns the unit on or off.

TEMP ∧
Increases temperate in 1°C (1°F) increments. Max. temperature is 30°C (86°F).
NOTE: Press together ∨ & ∧ buttons at the same time for 3 seconds will alternate the temperature display between the °C & °F.

SET
Scrolls through operation functions as follows:
Fresh( ) → Sleep( )→ Follow Me( ) → AP mode( ) → Fresh...
The selected symbol will flash on the display area, press the OK button to confirm.

TEMP ∨
Decreases temperature in 1°C(1°F) increments. Min. temperature is 16°C(60°F).

FAN SPEED
Selects fan speeds in the following order: AU→ 20% →40%→60%→ 80%→ 100%.
Press the TEMP ∧ or ∨ button to increase/decrease the fan speed in 1% increments.

SWING
Starts and stops the horizontal louver movement. Hold down for 2 seconds to initiate vertical louver auto swing feature.

MODE
Scrolls through operation modes as follows: **AUTO → COOL → DRY → HEAT → FAN**
NOTE: HEAT mode is not supported by the cooling only appliance.

ECO/GEAR
Press this button to enter the energy efficient mode in a sequence of following:
ECO → GEAR(75%) → GEAR(50%) → Previous setting mode → ECO · · · · · ·

OK
Used to confirm the selected functions

TIMER
Set timer to turn unit on or off

BREEZE AWAY
This feature avoids direct air flow blowing on the body and makes you feel indulging in silky coolness.
NTOE: This feature is available under cool, Fan and Dry mode only

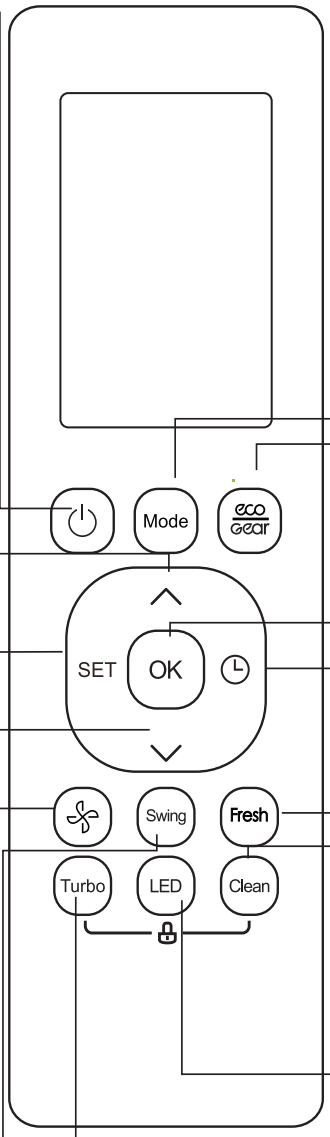
CLEAN
Used to start/stop the Self Clean or Active Clean function. (Model dependent, please refer to the USER'S OPERATION & INSTALLATION MANUAL).

LED
Turns indoor unit's LED display and air conditioner buzzer on and off (model dependent), which create a comfortable and quiet environment.

Turbo
Enables unit to reach preset temperature in shortest possible time

Model: RG10A2(D2S)/BGEFU1,RG10Y2(D2S)/BGEF
RG10A10(D2S)/BGEF(20-28°C/68-82°F)
RG10A(D2S)/BGEF & RG10A(D2S)/BGEFU1(Fresh feature is not available)
RG10A2(D2S)/BGCEFU1 & RG10A2(D2S)/BGCEF
(Cooling only models, AUTO mode and HEAT mode are not available)

Remote Control Instructions (cont'd)



ON/OFF
Turns the unit on or off.

TEMP ∧
Increases temperate in 1°C (1°F) increments. Max. temperature is 30°C (86°F).
NOTE: Press together ∨ & ∧ buttons at the same time for 3 seconds will alternate the temperature display between the °C & °F.

SET
Scrolls through operation functions as follows: Breeze Away( ) → Sleep ( ) → Follow Me( ) → AP mode( ) → Breeze Away ...
The selected symbol will flash on the display area, press OK button to confirm.

TEMP ∨
Decreases temperature in 1°C(1°F) increments. Min. temperature is 16°C(60°F).

FAN SPEED
Selects fan speeds in the following order: AU→ 20% → 40%→60%→ 80%→ 100%.
Press the TEMP ∧ or ∨ button to increase/decrease the fan speed in 1% increments.

SWING
Starts and stops the horizontal louver movement. Hold down for 2 seconds to initiate vertical louver auto swing feature.

MODE
Scrolls through operation modes as follows: **AUTO → COOL → DRY → HEAT → FAN**
NOTE: HEAT mode is not supported by the cooling only appliance.

ECO/GEAR
Press this button to enter the energy efficient mode in a sequence of following:
ECO → GEAR(75%) → GEAR(50%) → Previous setting mode → ECO · · · · · ·

OK
Used to confirm the selected functions

TIMER
Set timer to turn unit on or off

FRESH
Used to starts and stops the Fresh feature.

CLEAN
Used to start/stop the Self Clean or Active Clean function. (Model dependent, please refer to the USER'S OPERATION & INSTALLATION MANUAL).

LED
Turns indoor unit's LED display and air conditioner buzzer on and off (model dependent), which create a comfortable and quiet environment.

Turbo
Enables unit to reach pr temperature in shortest possible time

Model: RG10A1(D2S)/BGEF

Remote Control Instructions (cont'd)

ON/OFF
Turns the unit on or off.

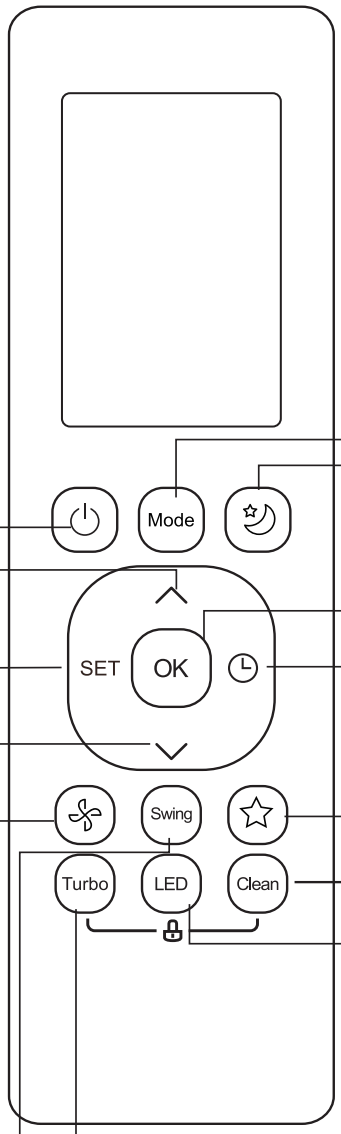
TEMP ∧
Increases temperate in 1°C (1°F) increments. Max. temperature is 30°C (86°F).
NOTE: Press together ∨ & ∧ buttons at the same time for 3 seconds will alternate the temperature display between the °C & °F.

SET
Scrolls through operation functions as follows:
Fresh( ) → Follow Me( )
AP mode( ) → Fresh ....
The selected symbol will flash on the display area, press the OK button to confirm.

TEMP ∨
Decreases temperature in 1°C(1°F) increments. Min. temperature is 16°C(60°F).

FAN SPEED
Selects fan speeds in the following order:
AUTO → LOW → MED → HIGH
NOTE: Holding this button down for 2 seconds will activate Silence feature.

SWING
Starts and stops the horizontal louver movement. Hold down for 2 seconds to initiate vertical louver auto swing feature(some units).



MODE
Scrolls through operation modes as follows: **AUTO → COOL → DRY → HEAT → FAN**
NOTE: HEAT mode is not supported by the cooling only appliance.

SLEEP
Saves energy during sleeping hours.

OK
Used to confirm the selected functions

TIMER
Set timer to turn unit on or off.

SHORTCUT
Used to restore the current settings or resume previous settings.

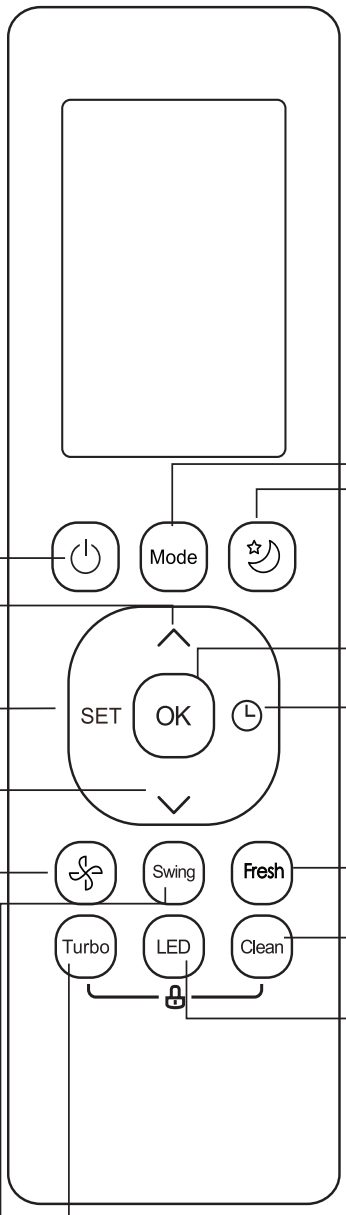
CLEAN
Used to start/stop the Self Clean or Active Clean function. (Model dependent, please refer to the USER'S OPERATION & INSTALLATION MANUAL).

LED
Turns indoor unit's LED display and air conditioner buzzer on and off (model dependent), which create a comfortable and quiet environment.

Turbo
Enables unit to reach preset temperature in shortest possible time

Model: RG10B(D2)/BGEF(Fresh feature is not available)
RG10B10(D2)/BGEF & RG10B10(D2)/BGCEF(20-28°C/68-82°F)
RG10B2(D2)/BGCEF & RG10B10(D2)/BGCEF (Cooling only model, AUTO mode and HEAT mode are not available)
RG10Y1(D2)/BGEF

Remote Control Instructions (cont'd)



ON/OFF
Turns the unit on or off.

TEMP ∧
Increases temperate in 1°C (1°F) increments. Max. temperature is 30°C (86°F).
NOTE: Press together ∨ & ∧ buttons at the same time for 3 seconds will alternate the temperature display between the °C & °F.

SET
Scrolls through operation functions as follows:
Follow Me( )→ AP mode ( ) →Follow Me( )...

The selected symbol will flash on the display area, press OK button to confirm.

TEMP ∨
Decreases temperature in 1°C(1°F) increments. Min. temperature is 16°C(60°F).

FAN SPEED
Selects fan speeds in the following order:
AUTO → LOW→MED→HIGH

NOTE: Holding this button down for 2 seconds will activate Silence feature.

SWING
Starts and stops the horizontal louver movement. Hold down for 2 seconds to initiate vertical louver auto swing feature(some units).

MODE
Scrolls through operation modes as follows: **AUTO→ COOL → DRY → HEAT→ FAN**
NOTE: HEAT mode is not supported by the cooling only appliance.

SLEEP
Saves energy during sleeping hours.

OK
Used to confirm the selected functions

TIMER
Set timer to turn unit on or off

FRESH
Used to start/stop the air fresh feature.

CLEAN
Used to start/stop the Self Clean or Active Clean function. (Model dependent, please refer to the USER'S OPERATION & INSTALLATION MANUAL).

LED
Turns indoor unit's LED display and air conditioner buzzer on and off (model dependent), which create a comfortable and quiet environment.

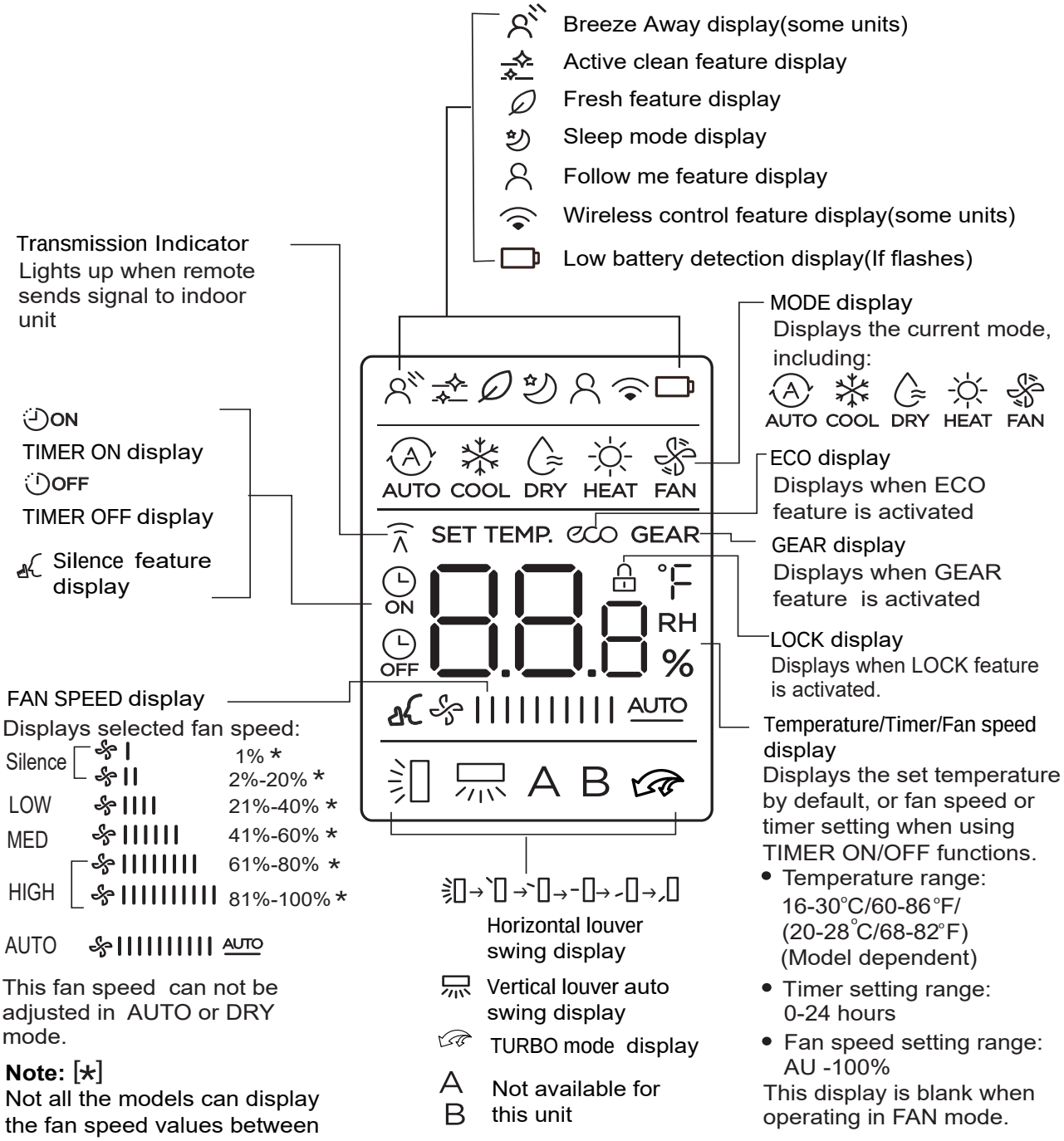
TURBO
Enables unit to reach preset temperature in shortest possible time

Model: RG10B1(D2)/BGEF

Remote Control Instructions (cont'd)

Remote Screen Indicators

Information are displayed when the remote controller is power up.



Note:
All indicators shown in the figure are for the purpose of clear presentation. But during the actaul operation, only the relative function signs are shown on the display window.

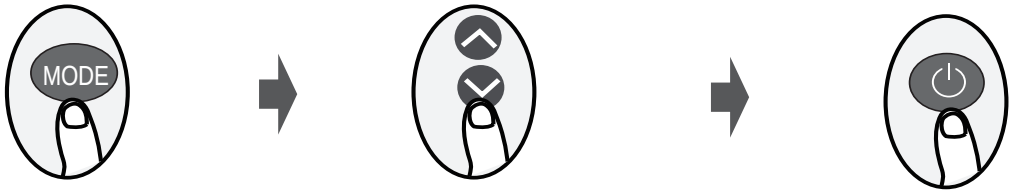
Remote Control Instructions (cont'd)

How to Use Basic Functions

ATTENTION ***Before operation, please ensure the unit is plugged in and power is available.***

AUTO Mode

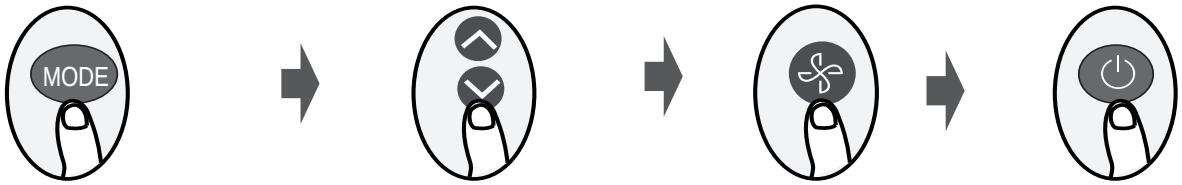
Select AUTO mode → Set your desired temperature → Turn on the air conditioner



NOTE:
1. In AUTO mode, the unit will automatically select the COOL, FAN, or HEAT function based on the set temperature.
2. In AUTO mode, fan speed can not be set.

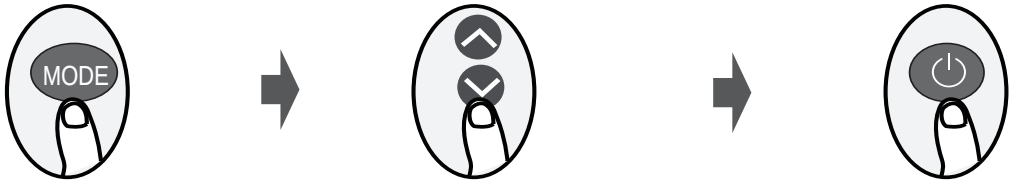
COOL or HEAT Mode

Select COOL/HEAT mode → Set the temperature → Set the fan speed → Turn on the air conditioner



DRY Mode

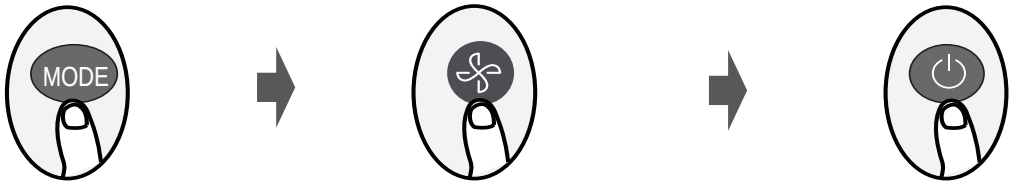
Select DRY mode → Set your desired temperature → Turn on the air conditioner



NOTE: In DRY mode, fan speed can not be set since it has already been automatically controlled.

FAN Mode

Select FAN mode → Set the fan speed → Turn on the air conditioner



NOTE: In FAN mode, you can't set the temperature. As a result , no temperature displays in remote screen.

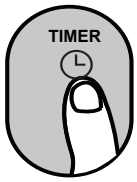
Remote Control Instructions (cont'd)

Setting the TIMER

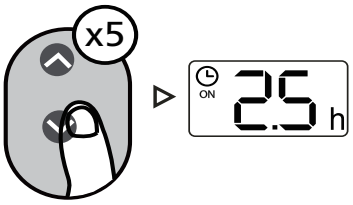
TIMER ON/OFF - Set the amount of time after which the unit will automatically turn on/off.

TIMER ON setting

Press TIMER button to initiate the ON time sequence.



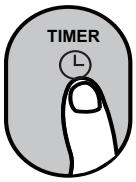
Press Temp. up or down button for for multiple times to set the desired time to turn on the unit.



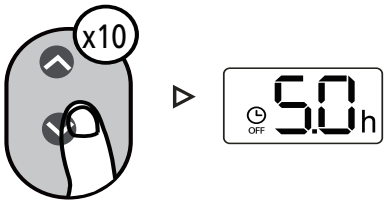
Point remote to unit and wait 1sec, the TIMER ON will be activated.

TIMER OFF setting

Press TIMER button to initiate the OFF time sequence.



Press Temp. up or down button for for multiple times to set the desired time to turn off the unit.



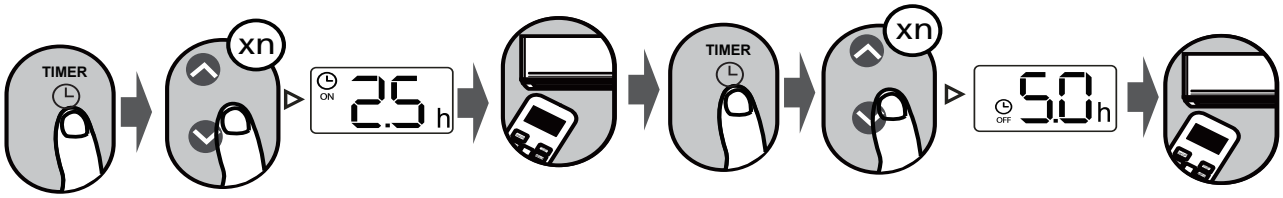
Point remote to unit and wait 1sec, the TIMER OFF will be activated.

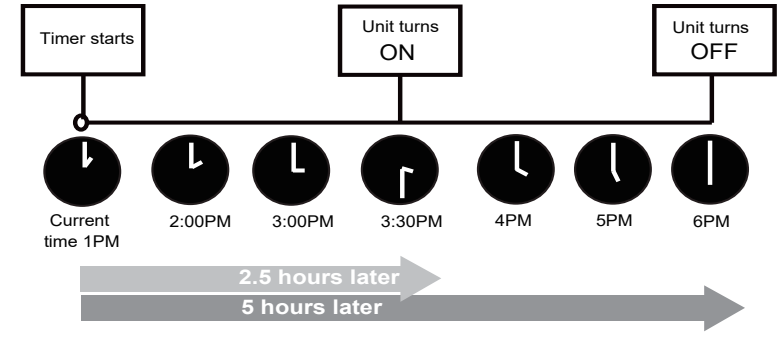
NOTE:

1. When setting the TIMER ON or TIMER OFF, the time will increase by 30 minutes increments with each press, up to 10 hours. After 10 hours and up to 24, it will increase in 1 hour increments. (For example, press 5 times to get 2.5h, and press 10 times to get 5h,) The timer will revert to 0.0 after 24.
2. Cancel either function by setting its timer to 0.0h.

TIMER ON & OFF setting(example)

Keep in mind that the time periods you set for both functions refer to hours after the current time.





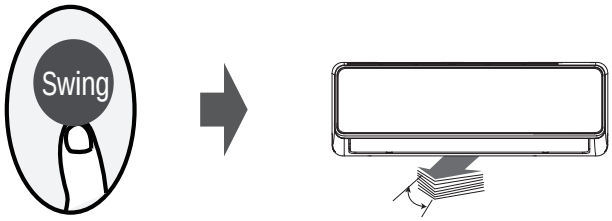
Example: If current timer is 1:00PM, to set the timer as above steps, the unit will turn on 2.5h later (3:30PM) and turn off at 6:00PM.

Remote Control Instructions (cont'd)

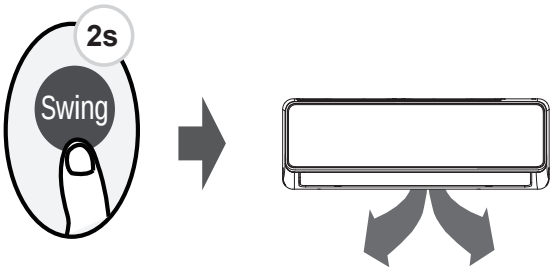
How to Use Advanced Functions

Swing function

Press Swing button

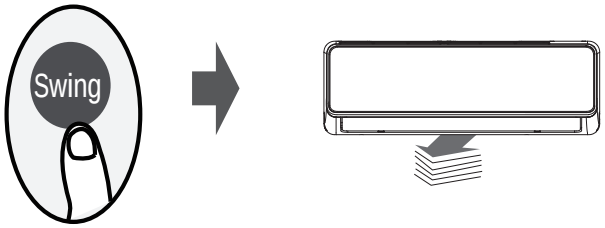


The horizontal louver will swing up and down automatically when pressing Swing button. Press again to make it stop.



Keep pressing this button more than 2 seconds, the vertical louver swing function is activated. (Model dependent)

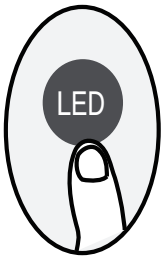
Airflow direction



If continue to press the SWING button, five different airflow directions can be set. The louver can be move at a certain range each time you press the button. Press the button until the direction you prefer is reached.

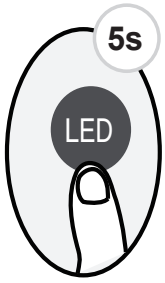
NOTE: When the unit is off, press and hold **MODE** and **SWING** buttons together for one second, the louver will open for a certain angle, which makes it very convenient for cleaning. Press and hold **MODE** and **SWING** buttons together for one second to reset the louver(Model dependent).

LED DISPLAY



Press LED button

Press this button to turn on and turn off the display on the indoor unit.



Press this button more than 5 seconds(some units)

Keep pressing this button more than 5 seconds, the indoor unit will display the actual room temperature. Press more than 5 seconds again will revert back to display the setting temperature.

Remote Control Instructions (cont'd)

ECO/GEAR function

Press this button to enter the energy efficient mode in a sequence of following:

ECO → GEAR(75%) → GEAR(50%) → Previous setting mode → ECO.....

Note:This function is only available under COOL mode.

ECO operation:

Under cooling mode, press this button, the remote controller will adjust the temperature automatically to 24°C/75°F, fan speed of Auto to save energy (only when the set temperature is less than 24° C/75°F). If the set temperature is above 24°C/75°F, press the ECO button, the fan speed will change to Auto, the set temperature will remain unchanged.

NOTE:

Pressing the ECO/GEAR button, or modifying the mode or adjusting the set temperature to less than 24°C/75°F will stop ECO operation.

Under ECO operation, the set tmeperature should be 24°C/75°F or above, it may result in insufficient cooling. If you feel uncomfortable, just press the ECO button again to stop it.

GEAR operation:

Press the ECO/GEAR button to enter the GEAR operation as following:

75%(up to 75% electrial energy consumption)

↓

50%(up to 50% electrial energy consumption)

↓

Previous setting mode.

Under GEAR operation, the display on the remote controller will alternage between electical energy consumption and set temperature.

SHORTCUT function

Press SHORTCUT button(some units)

Push this button when remote controller is on, the system will automatically revert back to the previous settings including operating mode, setting temperature, fan speed level and sleep feature (if activated).

If pushing more than 2 seconds, the system will automatically restore the current operation settings including operating mode, setting temperature, fan speed level and sleep feature (if activated).

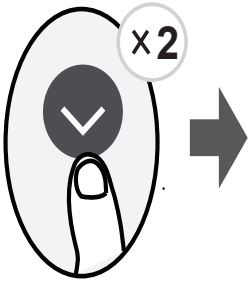
Remote Control Instructions (cont'd)

Silence function

Keep pressing Fan button for more than 2 seconds to activate/disable Silence function(some units).

Due to low frequency operation of compressor, it may result in insufficient cooling and heating capacity. Press ON/OFF, Mode, Sleep, Turbo or Clean button while operating will cancel silence function.

FP function



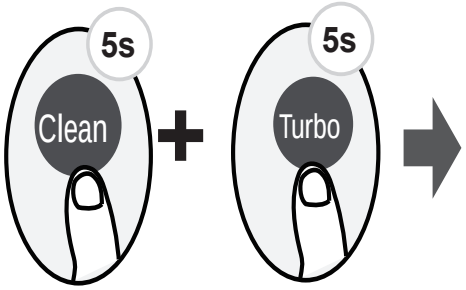
The unit will operate at high fan speed (while compressor on) with temperature automatically set to 8°C/46°F.

Note: This function is for heat pump air conditioner only.

Press this button 2 times during one second under HEAT Mode and setting temperature of 16°C/60°F or 20°C/68°F(for models of RG10A10(D2S)/BGEF, RG10B10(D2)/BGEF and RG10B10(D2)/BGCEF) to activate FP function.

Press On/Off, Sleep, Mode, Fan and Temp. button while operating will cancel this function.

LOCK function

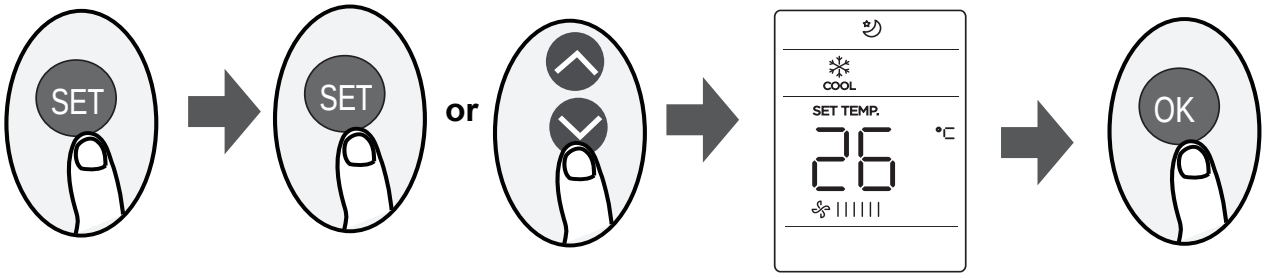


Press together **Clean** button and **Turbo** button at the same time more than 5 seconds to activate Lock function.

All buttons will not response except pressing these two buttons for two seconds again to disable locking.

Remote Control Instructions (cont'd)

SET function



- Press the SET button to enter the function setting, then press SET button or TEMP ⌄ or TEMP ⌃ button to select the desired function. The selected symbol will flash on the display area, press the OK button to confirm.
- To cancel the selected function, just perform the same procedures as above.
- Press the SET button to scroll through operation functions as follows:

  Breeze Away*( ) → Fresh*( ) → Sleep( ) → Follow Me( ) → AP mode( )

  [*]: If your remote controller has Breeze Away button, Fresh button or Sleep button, you can not use the SET button to select the Breeze Away, Fresh or Sleep feature.

Breeze Away function( ) (some units) :

This feature avoids direct air flow blowing on the body and makes you feel indulging in silky coolness.

NTOE: This feature is available under cool, Fan and Dry mode only.

FRESH function( ) (some units) :

When the FRESH function is initiated, the ion generator is energized and will help to purify the air in the room.

Sleep function( ) :

The SLEEP function is used to decrease energy use while you sleep (and don't need the same temperature settings to stay comfortable). This function can only be activated via remote control.

For the detail, see " sleep operation " in " USER'S MANUAL".

Note: The SLEEP function is not available in FAN or DRY mode.

Follow me function( ):

The FOLLOW ME function enables the remote control to measure the temperature at its current location and send this signal to the air conditioner every 3 minutes interval. When using AUTO, COOL or HEAT modes, measuring ambient temperature from the remote control(instead of from the indoor unit itself) will enable the air conditioner to optimize the temperature around you and ensure maximum comfort.

NOTE: Press and hold Turbo button for seven seconds to start/stop memory feature of Follow Me function.

- If the memory feature is activated, " **On** " displays for 3 seconds on the screen.
- If the memory feature is stopped, " **OF** " displays for 3 seconds on the screen.
- While the memory feature is activated, press the ON/OFF button, shift the mode or power failure will not cancel the Follow me function.

AP function( )(some units) :

Choose AP mode to do wireless network configuration. For some units, it doesn't work by pressing the SET button. To enter the AP mode, continuously press the LED button seven times in 10 seconds.

Model “M” Ceiling Mount AHU Installation

NOTE: Panel installation should be performedafter piping and wiring have been completed.

Step 1: Select installation location

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:

- ☑ Enough room exists for installation and maintenance.
- ☑ Enough room exists for the connecting the pipe and drainpipe.
- ☑ The ceiling is horizontal and its structure can sustain the weight of the indoor unit.
- ☑ The air inlet and outlet are not blocked.
- ☑ The airflow can fill the entire room.
- ☑ There is no direct radiation from heaters.

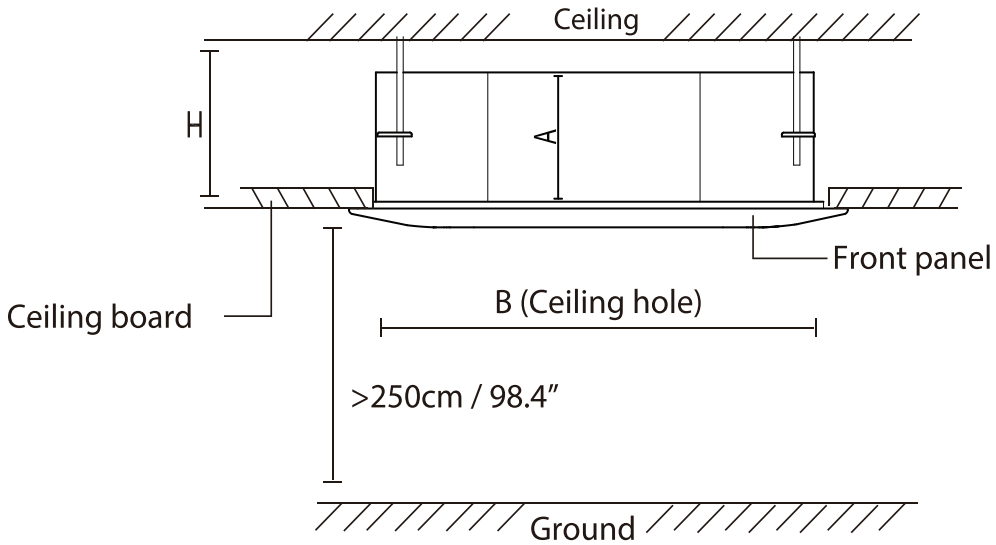
DO NOT install unit in the following locations:

- ⊘ Areas with oil drilling or fracking
- ⊘ Coastal areas with high salt content in the air
- ⊘ Areas with caustic gases in the air, such as hot springs
- ⊘ Areas that experience power fluctuations, such as factories
- ⊘ Enclosed spaces, such as cabinets
- ⊘ Kitchens that use natural gas
- ⊘ Areas with strong electromagnetic waves
- ⊘ Areas that store flammable materials or gas
- ⊘ Rooms with high humidity, such as bathrooms or laundry rooms

Recommended distances between the indoor unit and the ceiling

The distance between the mounted indoor unit and the internal ceiling should meet the following specifications.

(A)

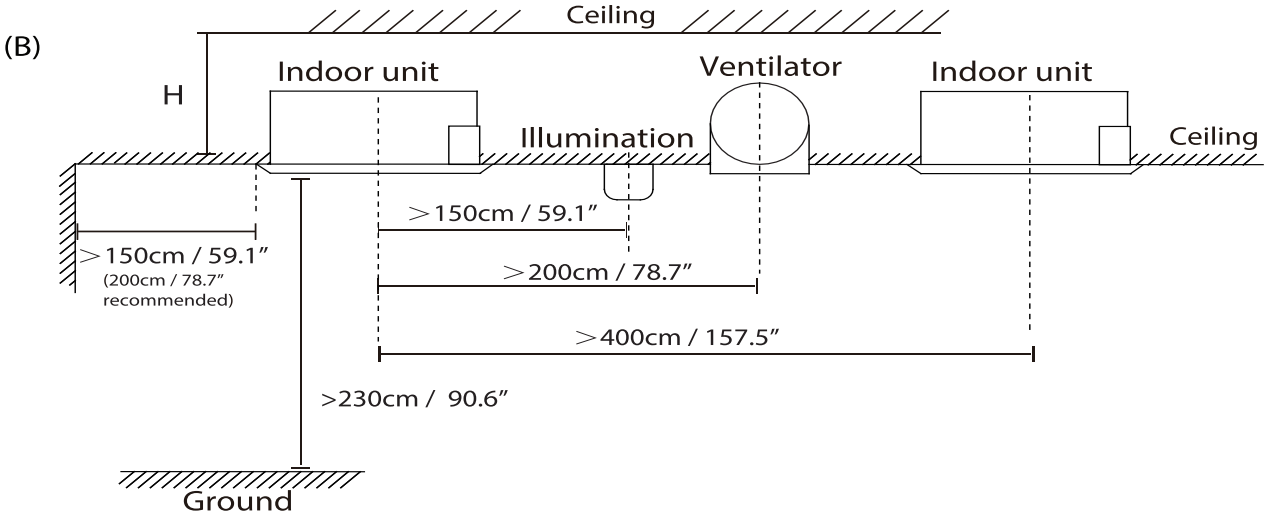


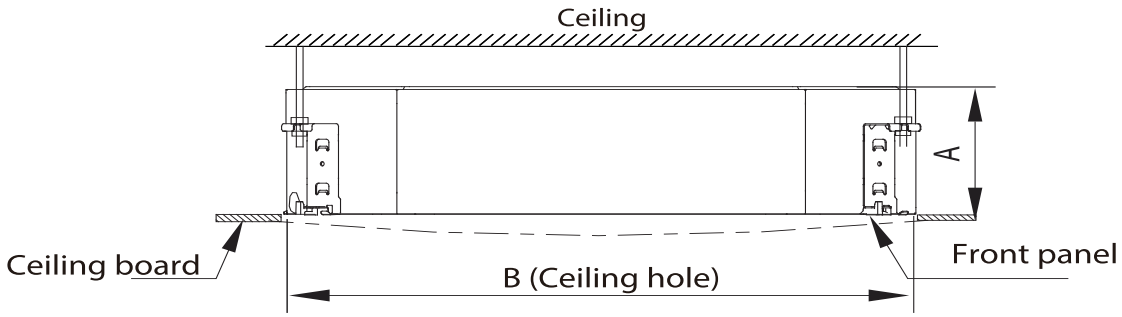
Model “M” Ceiling Mount AHU Installation (cont’d)

Distance from ceiling relative to height of indoor unit

TYPE	MODEL	Length of A (mm/inch)	Length of H (mm/inch)	Length of B (mm/inch)
Super-Slim models	18-24	205/8	> 235/9.3	880/34.5
	24	245/9.6	> 275/10.8	
	30	205/8	> 235/9.3	
	30-48	245/9.6	> 275/10.8	
	48-60	287/11.3	> 317/12.5	
	48-60	287/11.3	> 317/12.5	940/37.0
Compact models		260/10.2	> 290/11.4	600/23.6

(B)





Distance from ceiling relative to height of indoor unit

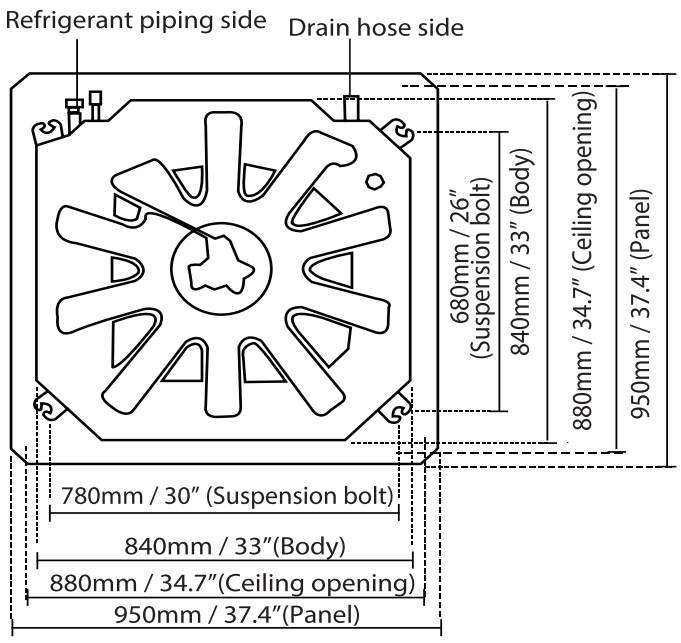
MODEL	Length of A (mm/inch)	Length of H (mm/inch)	Length of B (mm/inch)
18-24	205/8.03	230/9.06	900/35.4
30-42	245/9.65	271/10.7	
42-60	287/11.3	313/12.3	

Model “M” Ceiling Mount AHU Installation (cont’d)

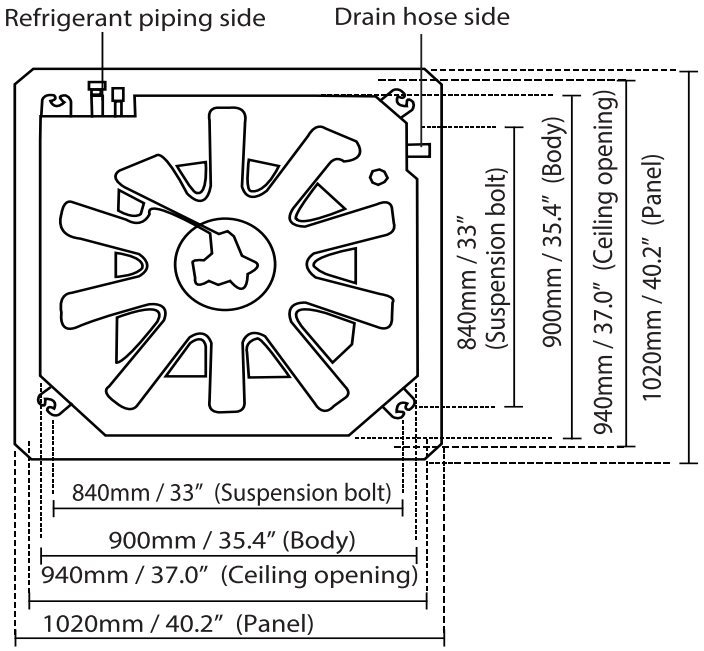
Step 2: Hang indoor unit

1. Use the included paper template to cut a rectangular hole in the ceiling, leaving at least 1m (39”) on all sides. The cut hole size should be 4cm(1.6”) larger than the boby size.
   Be sure to mark the areas where ceiling hook holes will be drilled.

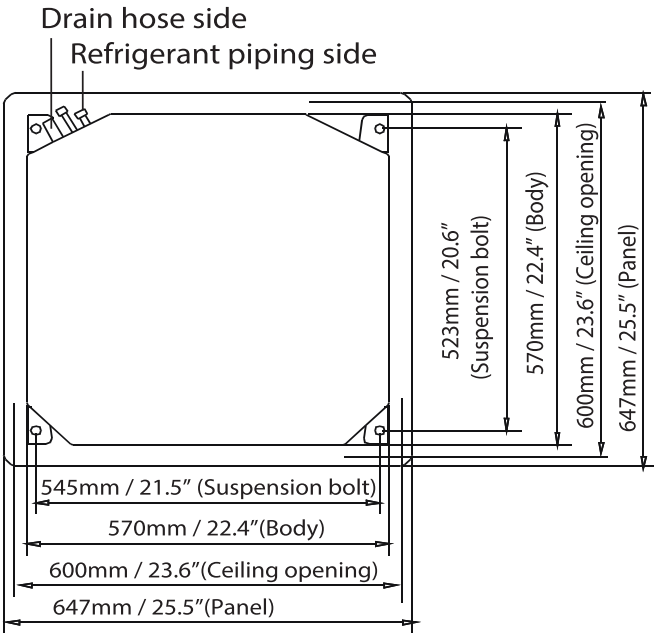
(A)



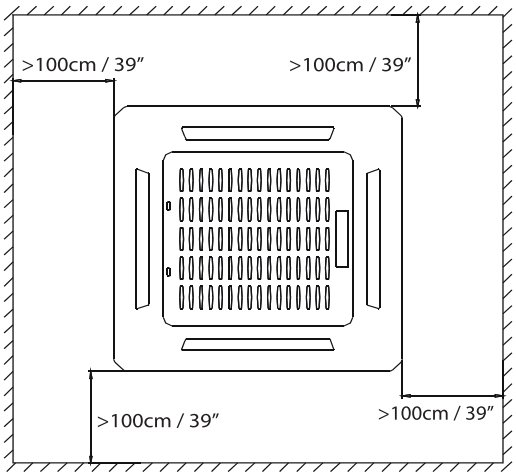
18-48K Super-Slim models ceiling hole size



60K Super-Slim models ceiling hole size

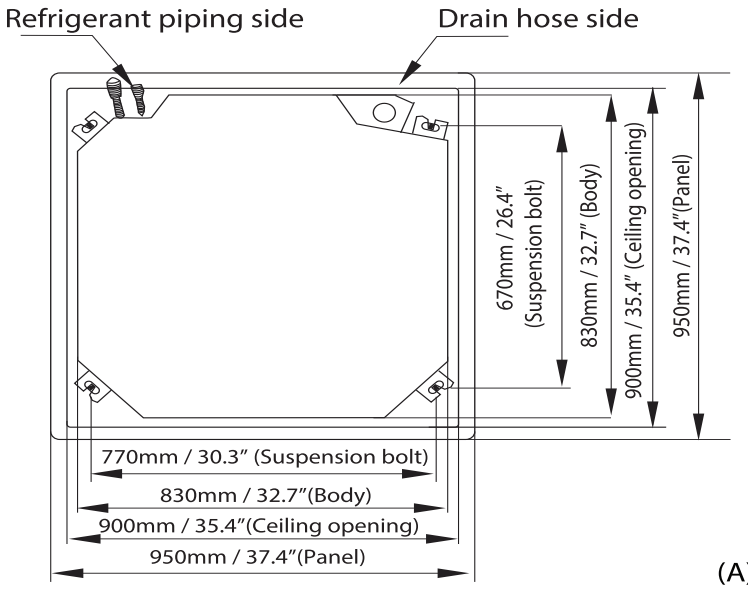


Compact models ceiling hole size

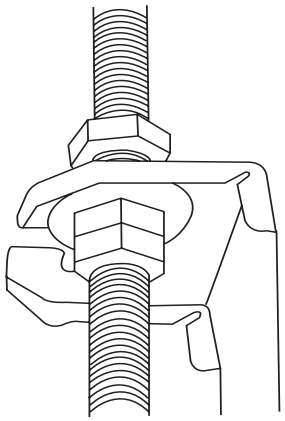


Model “M” Ceiling Mount AHU Installation (cont’d)

(B)

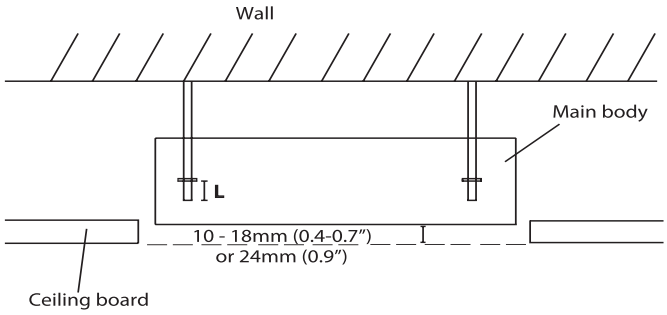


5. Mount the indoor unit. You will need two people to lift and secure it. Insert suspension bolts into the unit’s hanging holes. Fasten them using the included washers and nuts.



(A)

NOTE: The bottom of the unit should be 10-18mm(0.4-0.7”)(Super-Slim models) or 24mm (0.9”)(Compact models) higher than the ceiling board. Generally, L (indicated in the following figure) should be half the length of the suspension bolt or long enough to prevent the nuts from coming off.



⚠ CAUTION

The unit body should align perfectly with the hole. Ensure that the unit and the hole are the same size before moving on.

2. (A)

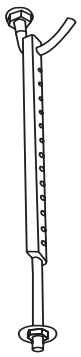
Drill 4 holes 5cm (2”) deep at the ceiling hook positions in the internal ceiling. Be sure to hold the drill at a 90° angle to the ceiling.

(B)

Drill 4 holes 12cm-15.5cm (4.7”-6.1”) deep at the ceiling hook positions in the internal ceiling. Be sure to hold the drill at a 90° angle to the ceiling.

3. Using a hammer, insert the ceiling hooks into the pre-drilled holes. Secure the bolt using the included washers and nuts.

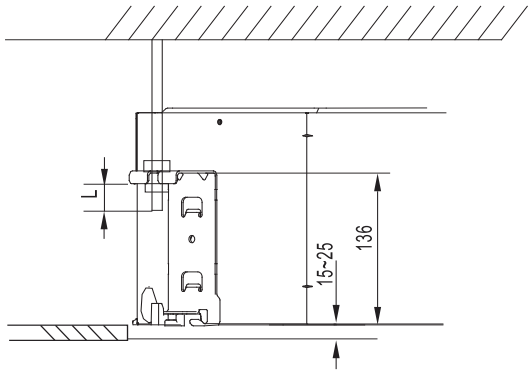
4. Install the four suspension bolts.



Model “M” Ceiling Mount AHU Installation (cont’d)

(B)

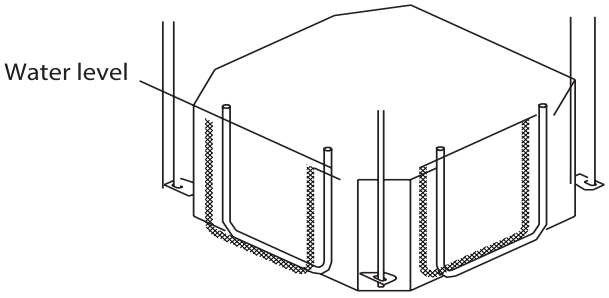
NOTE: The bottom of the unit should be 10-25mm(0.4-0.98”)higher than the ceiling board. Generally, L (indicated in the following figure) should be half the length of the suspension bolt or long enough to prevent the nuts from coming off.



⚠ CAUTION

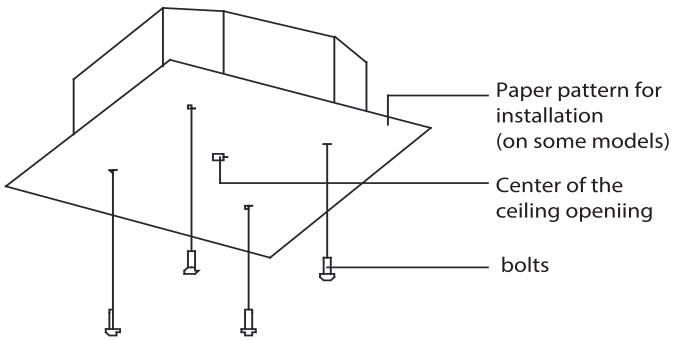
Ensure that the unit is completely level. Improper installation can cause the drain pipe to back up into the unit or water leakage.

NOTE: Ensure that the indoor unit is level. The unit is equipped with a built-in drain pump and float switch. If the unit is tilted against the direction of condensate flows (the drainpipe side is raised), the float switch may malfunction and cause water to leak.
（for some models）



NOTE FOR NEW HOME INSTALLATION

When installing the unit in a new home, the ceiling hooks can be embedded in advance. Make sure that the hooks do not come loose due to concrete shrinkage. After installing the indoor unit, fasten the installation paper template onto the unit with bolts to determine in advance the dimension and position of the opening on the ceiling. Follow the instructions above for the remainder of the installation.



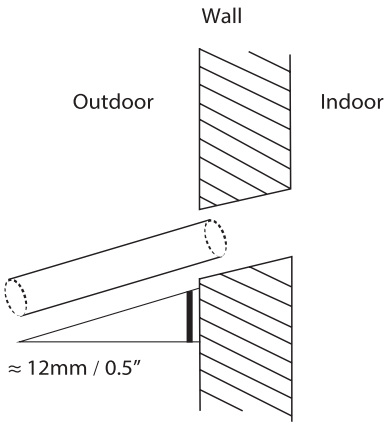
Step 3: Drill wall hole for connective piping

1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 65mm (2.56”) or 90mm(3.54”) (depending on models)core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 12mm (0.5”). This will ensure proper water drainage.
3. Place the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when you finish the installation process.

Model “M” Ceiling Mount AHU Installation (cont’d)

⚠ CAUTION

When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive



Step 4: Connect drain hose

The drainpipe is used to drain water away from the unit. Improper installation may cause unit and property damage.

⚠ CAUTION

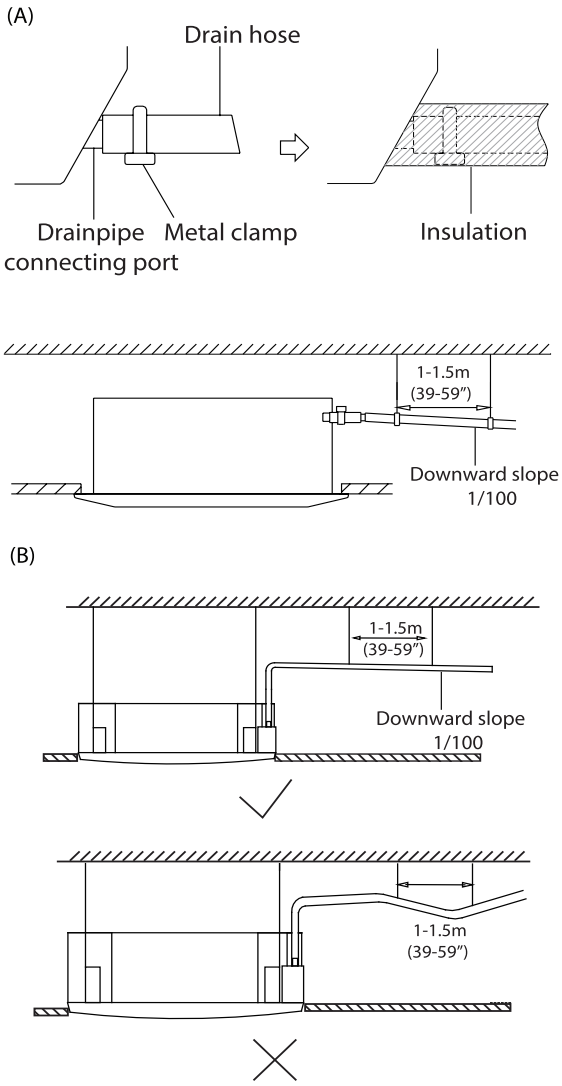
- Insulate all piping to prevent condensation, which could lead to water damage.
- If the drainpipe is bent or installed incorrectly, water may leak and cause a water-level switch malfunction.
- In HEAT mode, the outdoor unit will discharge water. Ensure that the drain hose is placed in an appropriate area to avoid water damage and slippage.
- **DO NOT** pull the drainpipe forcefully. This could disconnect it.

NOTE ON PURCHASING PIPES

Installation requires a polyethylene tube (exterior diameter = 2.5cm or 3.7-3.9cm) (depending on models), which can be obtained at your localhardware store or dealer.

Indoor Drainpipe Installation

Install the drainpipe as illustrated in the following Figure.

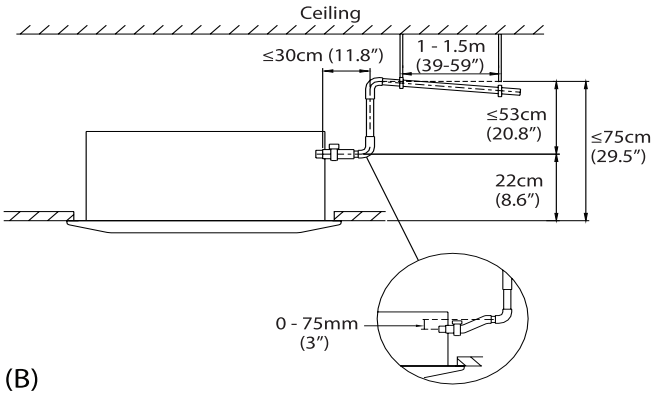


Model “M” Ceiling Mount AHU Installation (cont’d)

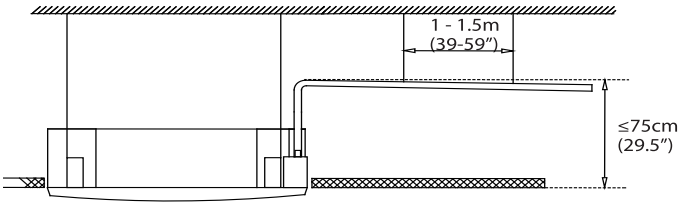
NOTE ON DRAINPIPE INSTALLATION

- When using an extended drainpipe, tighten the indoor connection with an additional protection tube to prevent it from pulling loose.
- The drainpipe should slope downward at a gradient of at least 1/100 to prevent water from flowing back into the air conditioner.
- To prevent the pipe from sagging, space hanging wires every 1-1.5m (39-59”).
- If the outlet of the drainpipe is higher than the body’s pump joint, provide a lift pipe for the exhaust outlet of the indoor unit. The lift pipe must be installed no higher than 75cm (29.5”) from the ceiling board and the distance between the unit and the lift pipe must be less than 30cm (11.8”) (depending on models).
  Incorrect installation could cause water to flow back into the unit and flood.
- To prevent air bubbles, keep the drain hose level or slightly tiled up (<75mm / 3”) (some models).

(A)

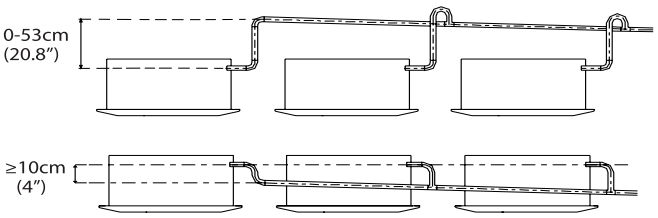


(B)

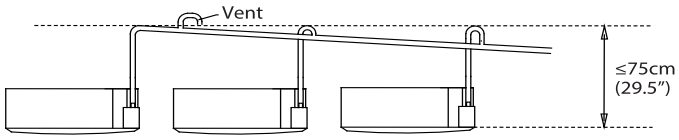


NOTE: When connecting multiple drainpipes, install the pipes as illustrated in the following Figure.

(A)



(B)

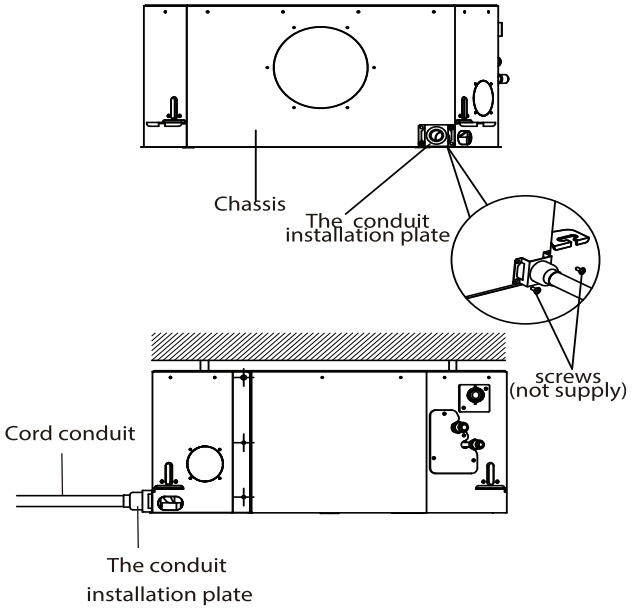


Pass the drain hose through the wall hole. Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

NOTE: The drainpipe outlet should be at least 5cm (1.9”) above the ground. If it touches the ground, the unit may become blocked and malfunction. If you discharge the water directly into a sewer, make sure that the drain has a U or S pipe to catch odors that might otherwise come back into the house.

How to install the conduit installation plate (if supplied)

1. Fix the sheath connector (not supply) on the wire hole of the conduit installation plate.
2. Fix the the conduit installation plate on the chassis of the unit.



Model “M” Duct Mount AHU Installation

Installation Instructions – Indoor unit

NOTE: Panel installation should be performedafter piping and wiring have been completed.

Step 1: Select installation location

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

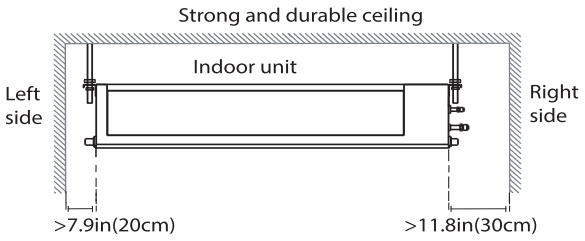
Proper installation locations meet the following standards:

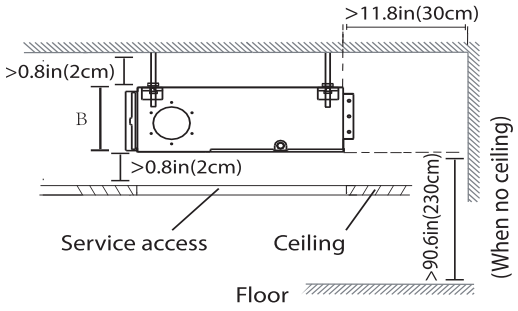
- ☑ Enough room exists for installation and maintenance.
- ☑ Enough room exists for the connecting the pipe and drainpipe.
- ☑ The ceiling is horizontal and its structure can sustain the weight of the indoor unit.
- ☑ The air inlet and outlet are not blocked.
- ☑ The airflow can fill the entire room.
- ☑ There is no direct radiation from heaters.
- ☑ Models with a cooling capacity of 9000Btu to 18000Btu only apply to one room.

DO NOT install unit in the following locations:

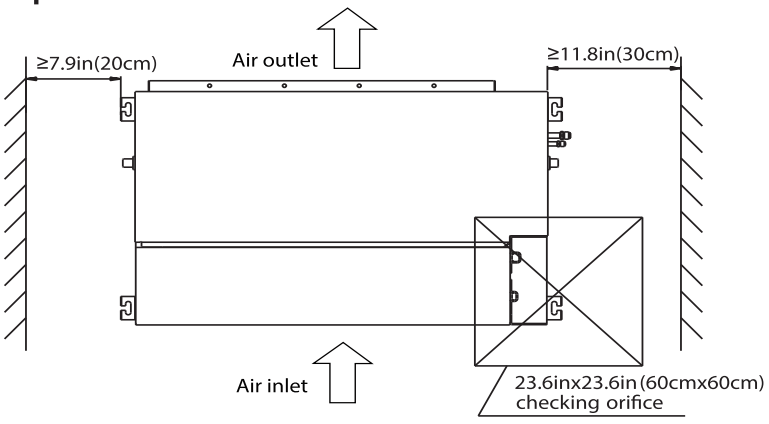
- ⊘ Areas with oil drilling or fracking
- ⊘ Coastal areas with high salt content in the air
- ⊘ Areas with caustic gases in the air, such as hot springs
- ⊘ Areas that experience power fluctuations, such as factories
- ⊘ Enclosed spaces, such as cabinets
- ⊘ Kitchens that use natural gas
- ⊘ Areas with strong electromagnetic waves
- ⊘ Areas that store flammable materials or gas
- ⊘ Rooms with high humidity, such as bathrooms or laundry rooms

Installation place





Maintenance space

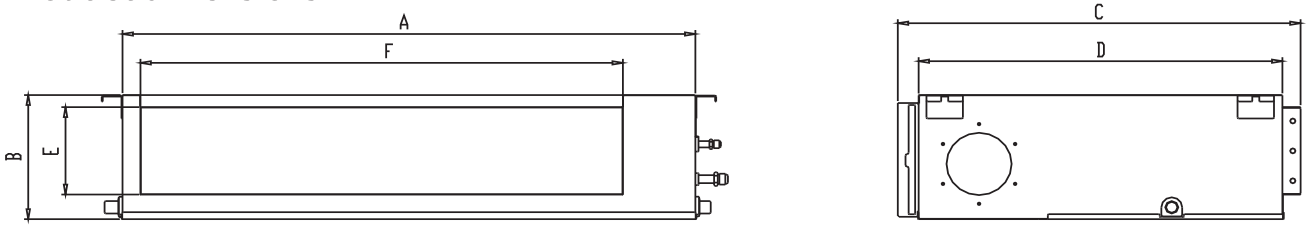


Model “M” Duct Mount AHU Installation (cont’d)

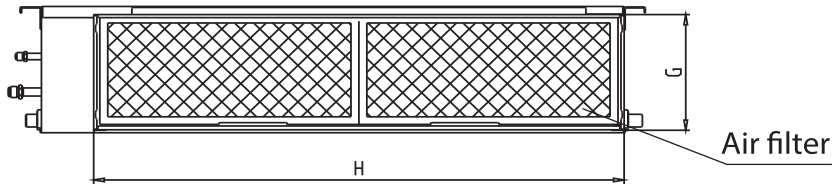
Step 2: Hang indoor unit.

1. Please refer to the following diagrams to locate the four positioning screw bolt holes on the ceiling. Be sure to mark the paces where you will drill ceiling hook holes.

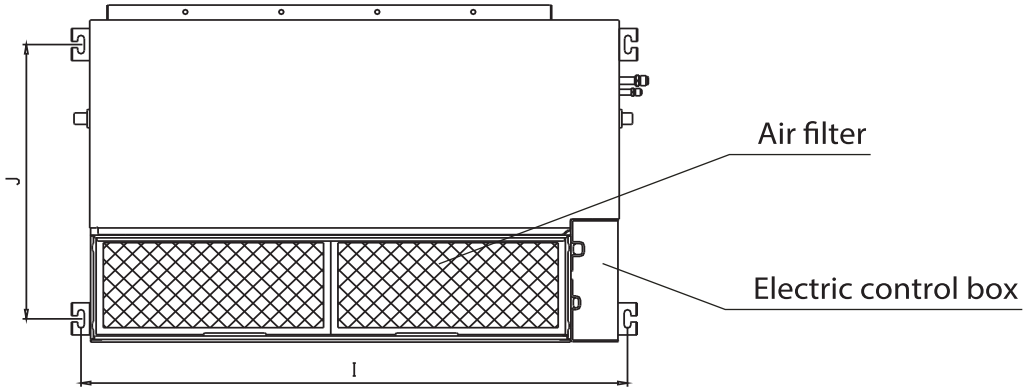
Air outlet dimensions



Air inlet dimensions



Descending ventilation opening and mounted hook



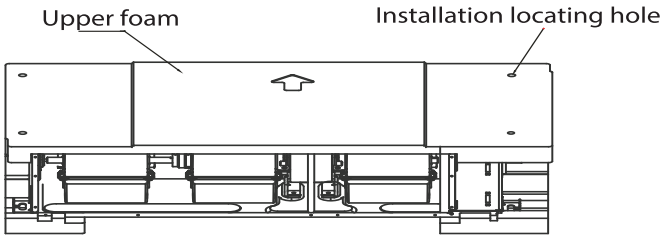
(unit: mm/inch)

MODEL (Btu/h)	Outline dimension				air outlet opening size		air return opening size		Size of mounted lug	
	A	B	C	D	E	F	G	H	I	J
9K/12K	700/27.6	200/7.9	506/19.9	450/17.7	152/6	537/21.1	186/7.3	599/23.6	741/29.2	360/14.2
18K	880/34.6	210/8.3	674/26.5	600/23.6	136/5.4	706/27.8	190/7.5	782/30.8	920/36.2	508/20
24K~36K	1100/43.3	249/9.8	774/30.5	700/27.6	175/6.9	926/36.5	228/8.9	1001/39.4	1140/44.9	598/23.5
30K~36K	1360/53.5	249/9.8	774/30.5	700/27.6	175/6.9	1186/46.7	228/8.9	1261/49.6	1400/55.1	598/23.5
36K~60K	1200/47.2	300/11.8	874/34.4	800/31.5	227/8.9	1044/41.1	280/11	1101/43.3	1240/48.8	697/27.4

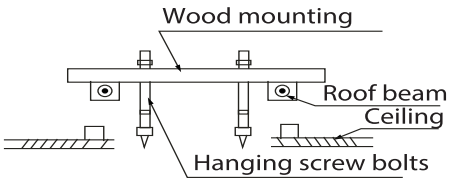
Model “M” Duct Mount AHU Installation (cont’d)

Wood

The mounting holes for upper foam are used for auxiliary positioning bolts (if the foam is damaged or damaged, the spacing between the actual lifting lugs shall be the standard).



Place the wood mounting across the roof beam, then install the hanging screw bolts.



New concrete bricks

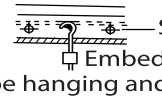
Inlay or embed the screw bolts.


(Blade shape insertion)


(Slide insertion)

Original concrete bricks

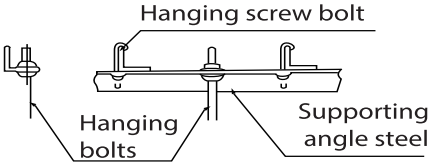
Use an embedding screw bolt, crock, and stick harness.



(Pipe hanging and embedding screw bolt)

Steel roof beam structure

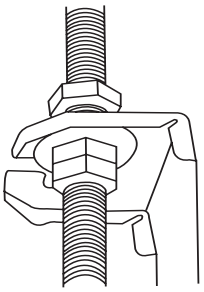
Install and use the supporting steel angle.



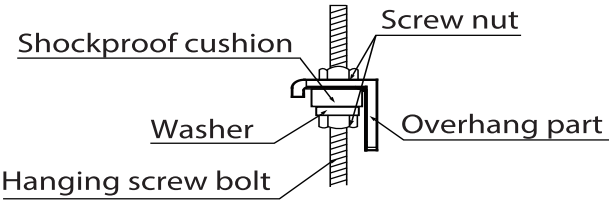
⚠ CAUTION

The unit body must be completely aligned with the hole. Ensure that the unit and the hole arethe same size before moving on.

2. Install and fit pipes and wires after you have finished installing the main body.When choosing where to start, determine the direction of the pipes to be drawn out. Especially in cases where there is a ceiling involved, align the refrigerant pipes, drain pipes, and indoor and outdoor lines with their connection points before mounting the unit.
3. Install hanging screw bolts.
   - Cut off the roof beam.
   - Strengthen the point at which the cut was made. Consolidate the roof beam.
4. After you select an installation location,align the refrigerant pipes, drain pipes, as well as indoor and outdoor wires with their connection points before mounting the unit.
5. Drill 4 holes 10cm (4”) deep at the ceiling hook positions in the internal ceiling. Be sure to hold the drill at a 90° angle to the ceiling.
6. Secure the bolt using the washers and nuts provided.
7. Install the four suspension bolts.
8. Mount the indoor unit with at least two people to lift and secure it. Insert suspension bolts into the unit’s hanging holes. Fasten them using the washers and nuts provided.



9. Mount the indoor unit onto the hanging screw bolts with a block. Position the indoor unit flat using a level indicator to prevent leaks.

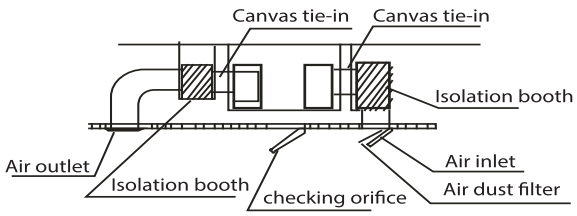


NOTE: Confirm the minimum drain tilt is 1/100 or more.

Model “M” Duct Mount AHU Installation (cont’d)

Step 3: Duct and accessories installation

1. Install the filter (optional) according to the size of the air inlet.
2. Install the canvas tie-in between the body and duct.
3. The air inlet and air outlet duct should be far enough apart enough to a avoid air passage short-circuit.
4. Connect the duct according to the following diagram:



NOTE:
The min. length of the duct should be more than 1m, and fix on the air inlet by screws(applicable to the unit that the air inlet filter is not fasten by screws).

5. Refer to the following static pressure guidelines when installing the indoor unit.

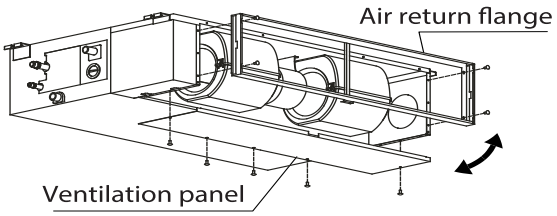
MODEL (Btu/h)	Static Pressure (Pa/in.wg)
9K	0~50/0~0.2
12K	0~50/0~0.2
18K	0~100/0~0.4
24K	0~160/0~0.64
30K~36K	0~160/0~0.64
42K~60K	0~160/0~0.64

Change the fan motor static pressure according to external duct static pressure.

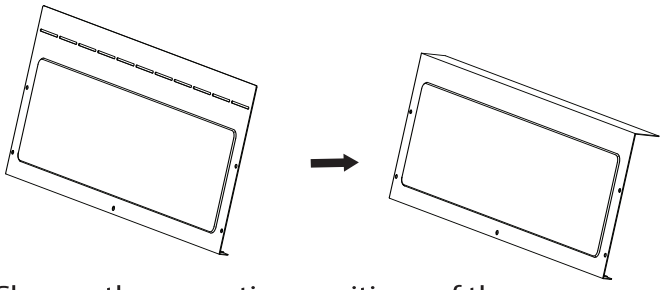
NOTE:
1. Do not place the connecting duct weight on the indoor unit.
2. When connecting the duct, use an nonflammable canvas tie-in to prevent vibrating.
3. Insulation foam must be wrapped outside the duct to avoid condensate. An internal duct underlayer can be added to reduce noise, if the end-user requires.

Step 4: Adjust the air inlet direction (From rear side to under-side)

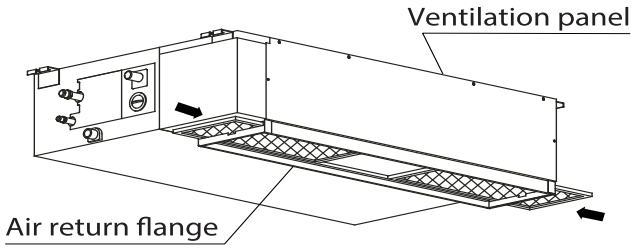
1. Take off the ventilation panel and flange.



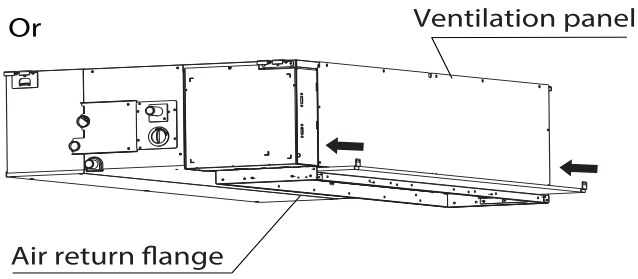
Bend the rear ventilation panel 90 degrees along the dotted line into a descending ventilation panel.(some models)



2. Change the mounting positions of the ventilation panel and air return flange.
3. When installing the filter mesh, fit it into the flange as illustrated in the following figure.



Or

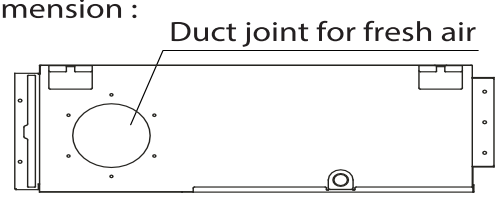


NOTE: All the figures in this manual are for demonstration purposes only. The air conditioner you have purchased may be slightly different in design, though similar in shape.

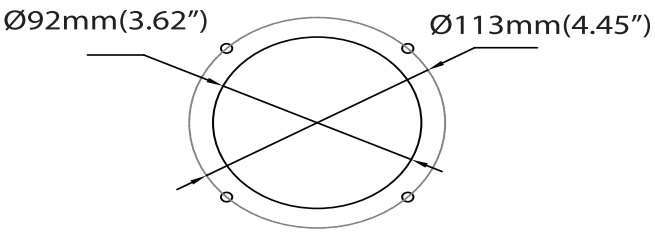
Model “M” Duct Mount AHU Installation (cont’d)

Step 5: Fresh air duct installation

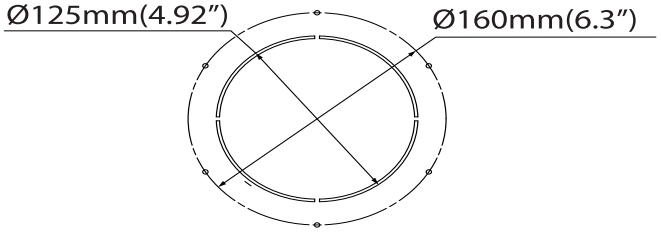
Dimension :



MODLE 9-12



MODLE 18-60

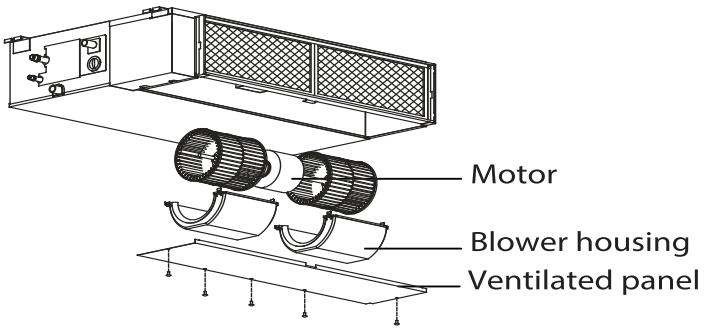


Step 6: Motor and drain pump maintenance

(the rear ventilated panel is used as an example)

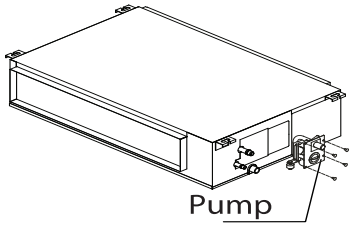
Motor maintenance:

1. Take off the ventilated panel.
2. Take off the blower housing.
3. Take off the motor.



Pump maintainance:

1. Remove four screws from the drain pump.
2. Unplug the pump power supply and water level switch cable.
3. Detach the pump.

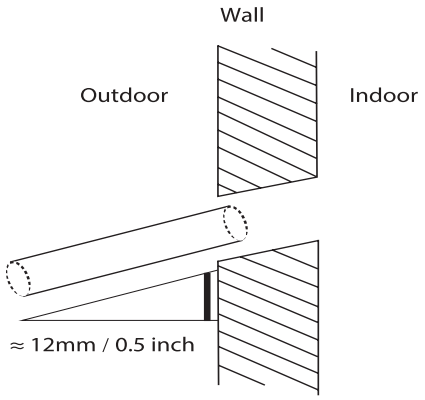


Step 7: Drill wall hole for connective piping

1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 65mm (2.5in) or 90mm(3.54in) (depending on models)core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 12mm (0.5in). This will ensure proper water drainage.
3. Place the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when you finish the installation process.

⚠ CAUTION

When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.



Model “M” Duct Mount AHU Installation (cont’d)

Step 8: Connect drain hose

The drainpipe is used to drain water away from the unit. Improper installation may cause unit and property damage.

⚠ CAUTION

- Insulate all piping to prevent condensation, which could lead to water damage.
- If the drainpipe is bent or installed incorrectly, water may leak and cause a water-level switch malfunction.
- In HEAT mode, the outdoor unit will discharge water. Ensure that the drain hose is placed in an appropriate area to avoid water damage and slippage.
- **DO NOT** pull the drainpipe forcefully. This could disconnect it.

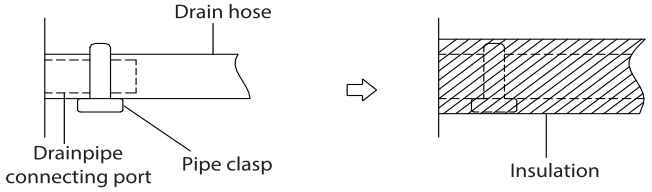
NOTE ON PURCHASING PIPES

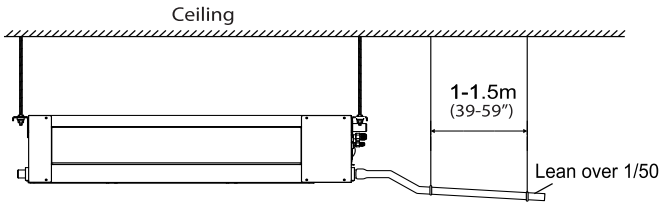
Installation requires a polyethylene tube (exterior diameter = 3.7-3.9cm, interior diameter = 3.2cm), which can be obtained at your localhardware store or dealer.

Indoor Drainpipe Installation

Install the drainpipe as illustrated in the following Figure.

1. Cover the drainpipe with heat insulation to prevent condensation and leakage.
2. Attach the mouth of the drain hose to the unit’s outlet pipe. Sheath the mouth of the hose and clip it firmly with a pipe clasp.

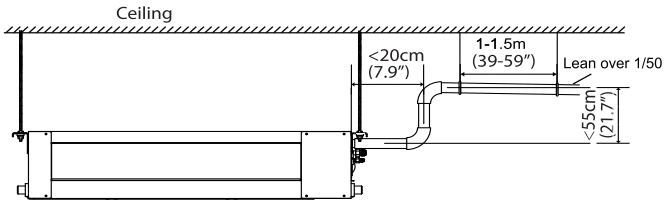




NOTE ON DRAINPIPE INSTALLATION

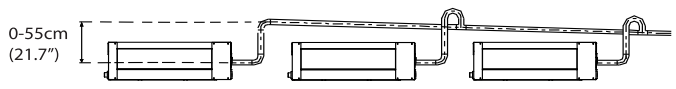
- When using an extended drainpipe, tightenthe indoor connection with an additionalprotection tube. This prevents it from pulling loose.
- The drainpipe should slope downward at a gradient of at least 1/100 to prevent water from flowing back into the air conditioner.
- To prevent the pipe from sagging, space hanging wires every 1-1.5m (39-59″).
- If the outlet of the drainpipe is higher than the body’s pump joint, use a lift pipe for the indoor unit’s exhaust outlet. The lift pipe must be installed no higher than 55cm (21.7″) from the ceiling board. The distance between the unit and the lift pipe must be less than 20cm (7.9″). Incorrect installation could cause water to flow back into the unit and flood.
- To prevent air bubbles, keep the drain hose level or slightly tiled up (<75mm / 3″).

Drainpipe installation for units with a pump

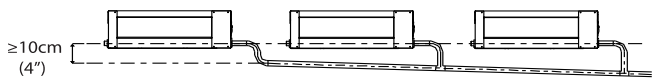


NOTE: When connecting multiple drainpipes, install the pipes as illustrated.

Units with a pump



Units without a pump



Model “M” Duct Mount AHU Installation (cont’d)

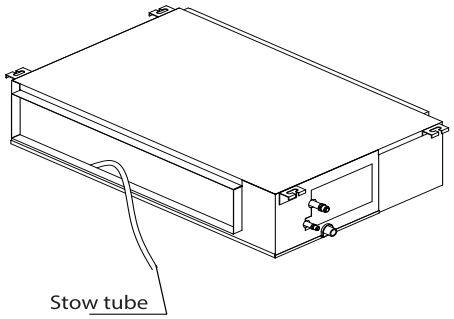
3. Pass the drain hose through the wall hole. Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

NOTE: The drainpipe outlet should be at least 5cm (1.9”) above the ground. If it touches the ground, the unit may become blocked and malfunction. If you discharge the water directly into a sewer, make sure that the drain has a U or S pipe to catch odors that might otherwise come back into the house.

Drainage test

Check whether the drainpipe is unhindered. This test should be performed on newly built houses before the ceiling is paved.

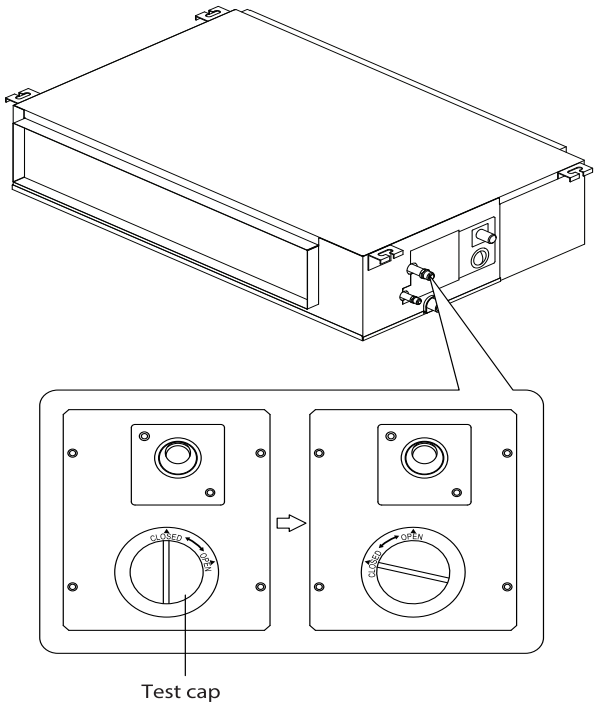
Units without a pump.

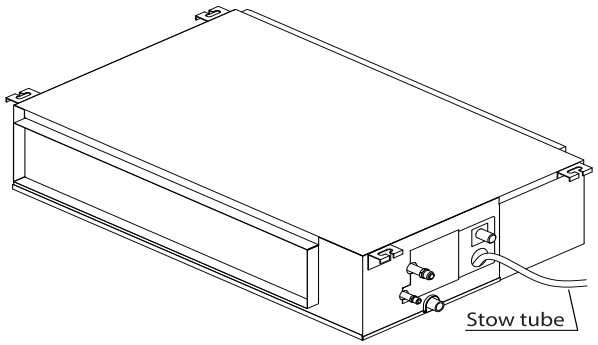


Fill the water pan with 2 liters of water.
Check that the drainpipe is unhindered.

Units with a pump.

1. Remove the test cover.
   Fill the water pan with 2 liters of water.





2. Turn on the unit in COOLING mode. You will hear the drain pump.Check whether the water is discharged properly (a 1-minute lag is possible, depending on the length of the drain pipe), Check whether water leaks from the joints.

3. Turn off the air conditioner and put the cap back on.

Model “M” Floor Mount AHU Installation

Installation Instructions – Indoor unit

NOTE: Panel installation should be performed after piping and wiring have been completed.

Step 1: Select installation location

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:

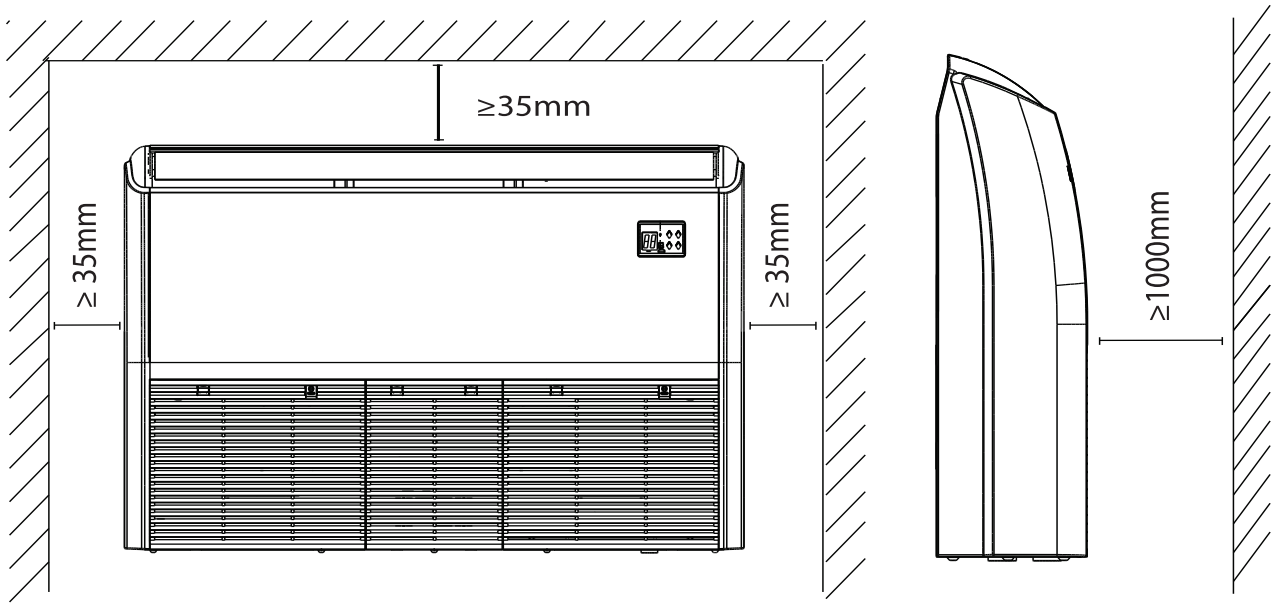
- ☑ Enough room exists for installation and maintenance.
- ☑ Enough room exists for the connecting the pipe and drainpipe.
- ☑ The ceiling is horizontal and its structure can sustain the weight of the indoor unit.
- ☑ The air inlet and outlet are not blocked.
- ☑ The airflow can fill the entire room.
- ☑ There is no direct radiation from heaters.

DO NOT install unit in the following locations:

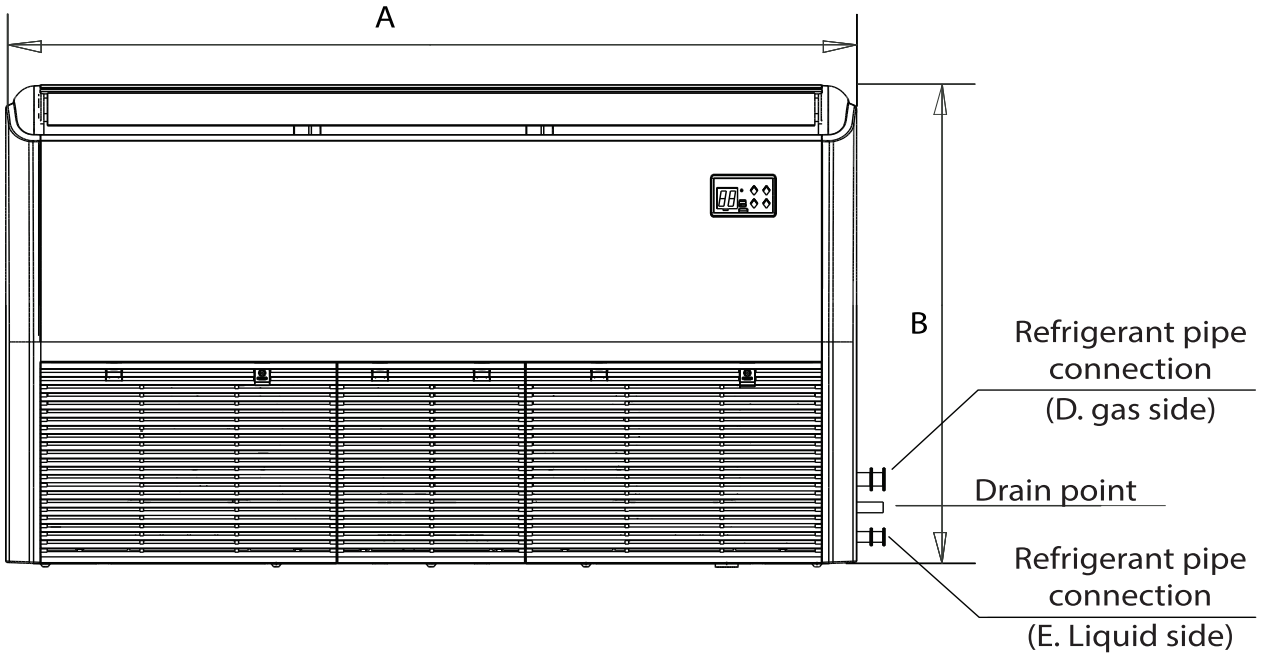
- ⊘ Areas with oil drilling or fracking
- ⊘ Coastal areas with high salt content in the air
- ⊘ Areas with caustic gases in the air, such as hot springs
- ⊘ Areas that experience power fluctuations, such as factories
- ⊘ Enclosed spaces, such as cabinets
- ⊘ Kitchens that use natural gas
- ⊘ Areas with strong electromagnetic waves
- ⊘ Areas that store flammable materials or gas
- ⊘ Rooms with high humidity, such as bathrooms or laundry rooms

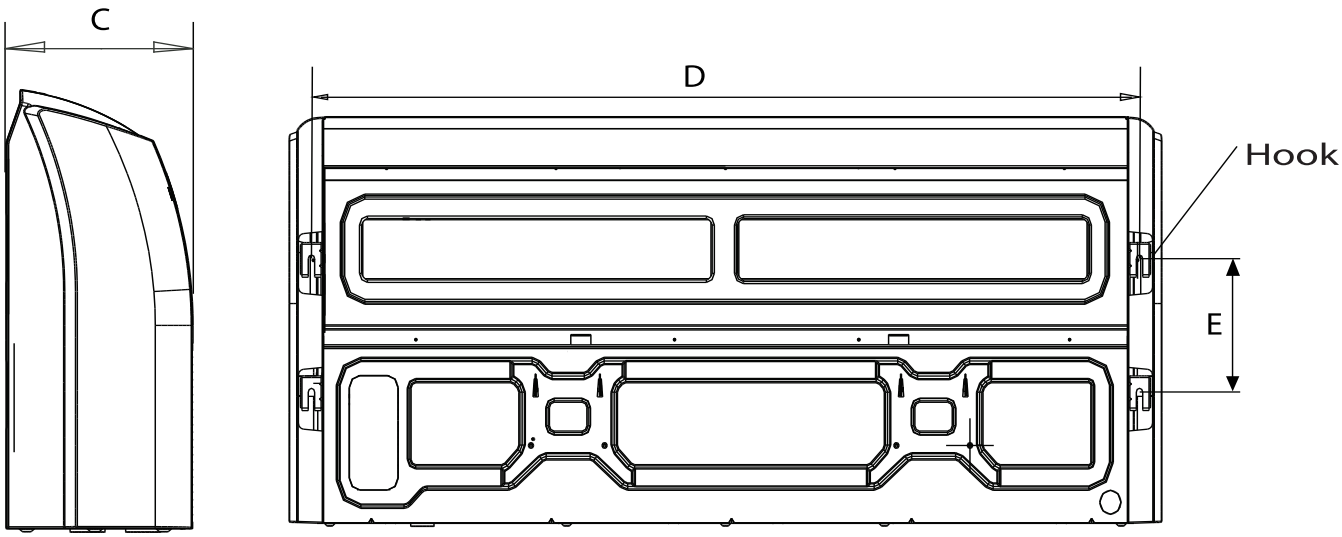
Recommended distances between the indoor unit

The distance between the mounted indoor unit should meet the specifications illlustrated in the following diagram.



Model “M” Floor Mount AHU Installation (cont’d)





Indoor parts installation size

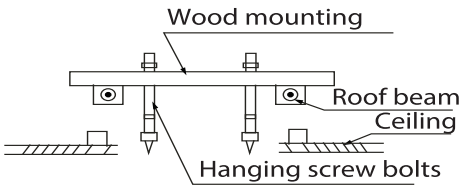
MODEL(Btu/h)	Length of A (mm/inch)	Length of B (mm/inch)	Length of C (mm/inch)	Length of D (mm/inch)	Length of E (mm/inch)
18K~24K	1068/42	675/26.6	235/9.3	983/38.7	220/8.7
30K~48K	1285/50.6	675/26.6	235/9.3	1200/47.2	220/8.7
36K~48K	1650/65	675/26.6	235/9.3	1565/61.6	220/8.7
48K~60K	1650/65	675/26.6	235/9.3	1565/61.6	220/8.7

Model “M” Floor Mount AHU Installation (cont’d)

Step 2: Hang indoor unit

Wood

Place the wood mounting across the roof beam, then install the hanging screw bolts.

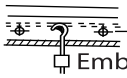


New concrete bricks

Inlay or embed the screw bolts.


(Blade shape insertion)

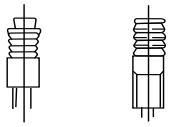

(Slide insertion)



(Pipe hanging and embedding screw bolt)

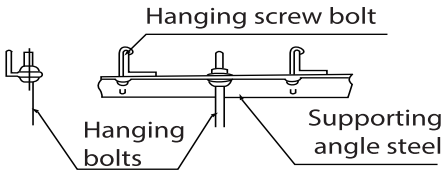
Original concrete bricks

Install the hanging hook with expansible bolt into the concrete to a depth of 45~50mm to prevent loosening.



Steel roof beam structure

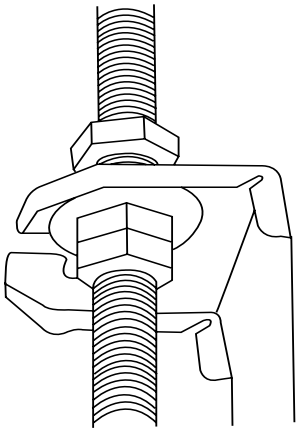
Install and use the supporting steel angle.



⚠ CAUTION

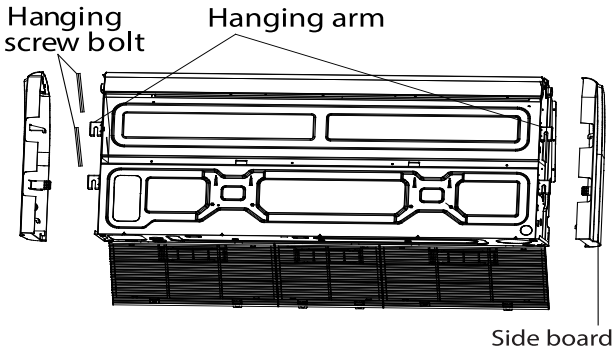
The unit body must be completely aligned with the hole. Ensure that the unit and the hole are the same size before moving on.

1. Install and fit pipes and wires after you have finished installing the main body.When choosing where to start, determine the direction of the pipes to be drawn out. Especially in cases where there is a ceiling involved, align the refrigerant pipes, drain pipes, and indoor and outdoor lines with their connection points before mounting the unit.
2. The installation of hanging screw bolts.
   - Cut off the roof beam.
   - Strengthen the area at which the cut was made and consolidate the roof beam.
3. After the selection of the installation location, position the refrigerant pipes, drain pipes, and indoor and outdoor wires to the connection points before mounting the machine.
4. Drill 4 holes 10cm (4”) deep at the ceiling hook positions in the internal ceiling. Be sure to hold the drill at a 90° angle to the ceiling.
5. Secure the bolt using the included washers and nuts.
6. Install the four suspension bolts.
7. Mount the indoor unit. You will need two people to lift and secure it. Insert suspension bolts into the unit’s hanging holes. Fasten them using the included washers and nuts.

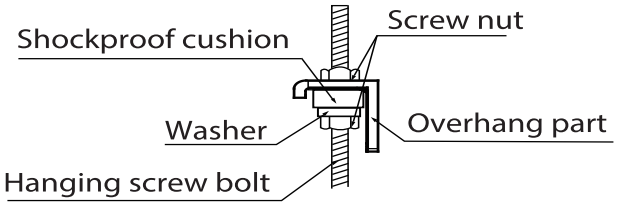


Model “M” Floor Mount AHU Installation (cont’d)

8. Remove the side board and the grille.

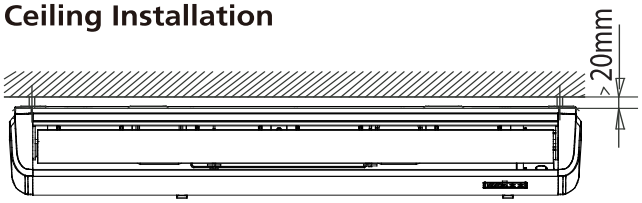


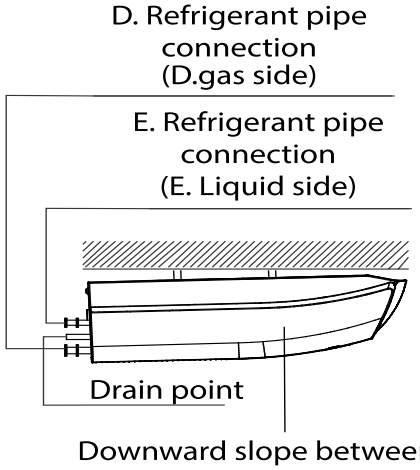
9. Mount the indoor unit onto the hanging screw bolts with a block.
   Position the indoor unit on a flat level by using a level to prevent leaks.



NOTE: Confirm the minimum drain tilt is 1/100 or more.

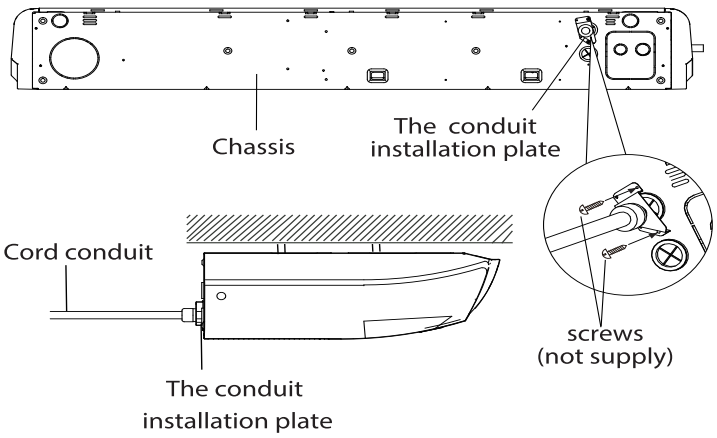
Ceiling Installation



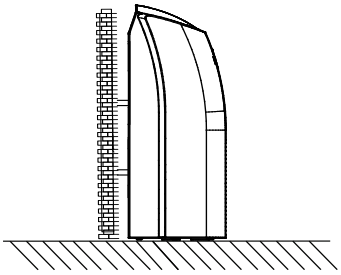


How to install the conduit installation plate (if supplied)

1. Fix the sheath connector (not supply) on the wire hole of the conduit installation plate.
2. Fix the the conduit installation plate on the chassis of the unit.

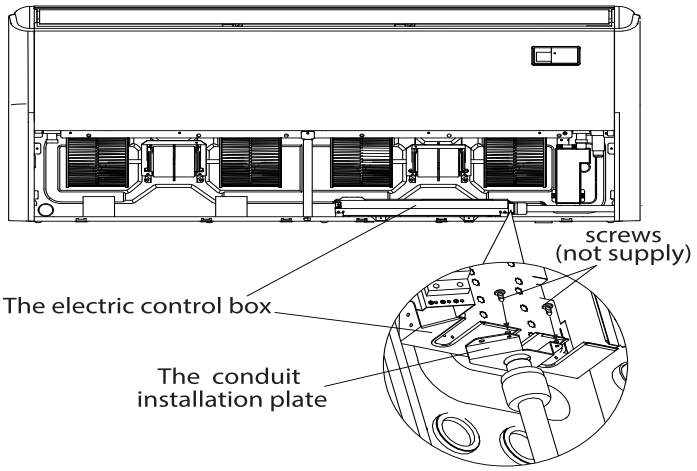


Wall-Mounted Installation



How to install the conduit installation plate (if supplied)

1. Fix the sheath connector (not supply) on the wire hole of the conduit installation plate.
2. Fix the conduit installation plate on the electric control box.



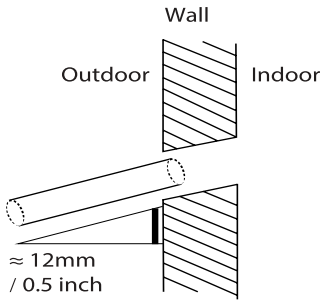
Model "M" Floor Mount AHU Installation (cont'd)

Step 3: Drill wall hole for connective piping

1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 65mm (2.5in) or 90mm(3.54in) (depending on models)core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 12mm (0.5in). This will ensure proper water drainage.
3. Place the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when you finish the installation process.

⚠ CAUTION

When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.



Step 4: Connect drain hose

The drainpipe is used to drain water away from the unit. Improper installation may cause unit and property damage.

⚠ CAUTION

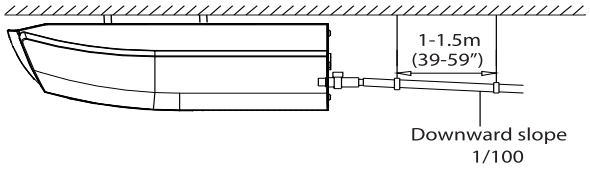
- Insulate all piping to prevent condensation, which could lead to water damage.
- If the drainpipe is bent or installed incorrectly, water may leak and cause a water-level switch malfunction.
- In HEAT mode, the outdoor unit will discharge water. Ensure that the drain hose is placed in an appropriate area to avoid water damage and slippage.
- **DO NOT** pull the drainpipe forcefully. This could disconnect it.

NOTE ON PURCHASING PIPES

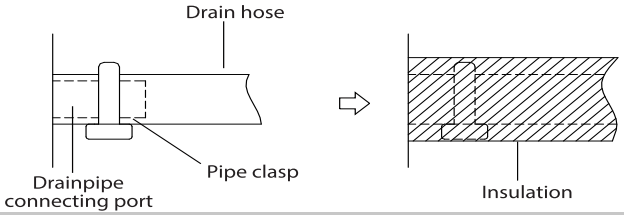
Installation requires a polyethylene tube (exterior diameter = 3.7-3.9cm, interior diameter = 3.2cm), which can be obtained at your local hardware store or dealer.

Indoor Drainpipe Installation

Install the drainpipe as illustrated in the following Figure.



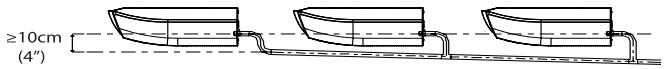
1. Cover the drainpipe with heat insulation to prevent condensation and leakage.
2. Attach the mouth of the drain hose to the unit's outlet pipe. Sheath the mouth of the hose and clip it firmly with a pipe clasp.



NOTE ON DRAINPIPE INSTALLATION

- When using an extended drainpipe, tighten the indoor connection with an additional protection tube to prevent it from pulling loose.
- The drainpipe should slope downward at a gradient of at least 1/100 to prevent water from flowing back into the air conditioner.
- To prevent the pipe from sagging, space hanging wires every 1-1.5m (39-59").
- Incorrect installation could cause water to flow back into the unit and flood.

NOTE: When connecting multiple drainpipes, install the pipes as illustrated in the following Figure.



3. Pass the drain hose through the wall hole. Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

NOTE: The drainpipe outlet should be at least 5cm (1.9") above the ground. If it touches the ground, the unit may become blocked and malfunction. If you discharge the water directly into a sewer, make sure that the drain has a U or S pipe to catch odors that might otherwise come back into the house.

Model “M” Wall Mount AHU Installation

Installation Instructions – Indoor unit

PRIOR TO INSTALLATION

Before installing the indoor unit, refer to the label on the product box to make sure that the model number of the indoor unit matches the model number of the outdoor unit.

Step 1: Select installation location

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:

- ☑ Good air circulation
- ☑ Convenient drainage
- ☑ Noise from the unit will not disturb other people
- ☑ Firm and solid—the location will not vibrate
- ☑ Strong enough to support the weight of the unit
- ☑ A location at least one meter from all other electrical devices (e.g., TV, radio, computer)

DO NOT install unit in the following locations:

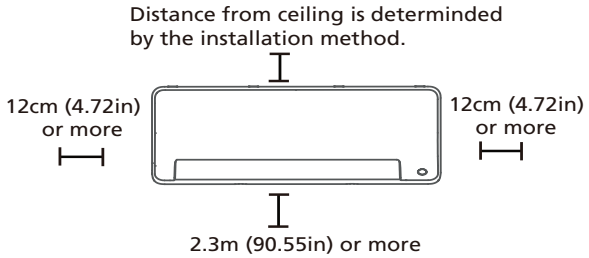
- ⊘ Near any source of heat, steam, or combustible gas
- ⊘ Near flammable items such as curtains or clothing
- ⊘ Near any obstacle that might block air circulation
- ⊘ Near the doorway
- ⊘ In a location subject to direct sunlight

NOTE ABOUT WALL HOLE:

If there is no fixed refrigerant piping:

While choosing a location, be aware that you should leave ample room for a wall hole (see **Drill wall hole for connective piping** step) for the signal cable and refrigerant piping that connect the indoor and outdoor units. The default position for all piping is the right side of the indoor unit (while facing the unit). However, the unit can accommodate piping to both the left and right.

Refer to the following diagram to ensure proper distance from walls and ceiling:



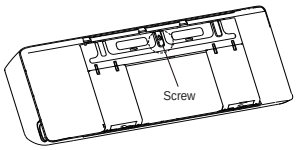
NOTE:

- **If no need the back holder to prop up the unit:**
  Finishing the pipe and cable connections before mount the indoor unit on the wall. If the instllation height is limited, 5cm from the ceiling is allowable, but this can lower product performance. To ensure enough space to install and remove the top air filter, keep at least 10cm or more from the ceiling.
- **Need the back holder to prop up the unit:**
  If connecting pipe and cable with front panel open, the minimum distance from ceiling is 22cm or more, if connecting pipe and cable without front panel(remove it) , the minimum distance from ceiling is 11cm or more.

Step 2: Attach mounting plate to wall

The mounting plate is the device on which you will mount the indoor unit.

- Remove the screw that attaches the mounting plate to the back of the indoor unit.



- Secure the mounting plate to the wall with the screws provided. Make sure that mounting plate is flat against the wall.

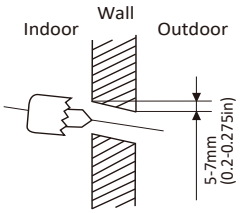
NOTE FOR CONCRETE OR BRICK WALLS:

If the wall is made of brick, concrete, or similar material, drill 5mm-diameter (0.2in-diameter) holes in the wall and insert the sleeve anchors provided. Then secure the mounting plate to the wall by tightening the screws directly into the clip anchors.

Model “M” Wall Mount AHU Installation (cont’d)

Step 3: Drill wall hole for connective piping

1. Determine the location of the wall hole based on the position of the mounting plate. Refer to **Mounting Plate Dimensions.**
2. Using a 65mm (2.5in) or 90mm(3.54in) (depending on models)core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 5mm to 7mm (0.2-0.275in). This will ensure proper water drainage.



NOTE: When the gas side connective pipe is Φ 16mm(5/8in) or more, the wall hole should be 90mm(3.54in).

3. Place the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when you finish the installation process.

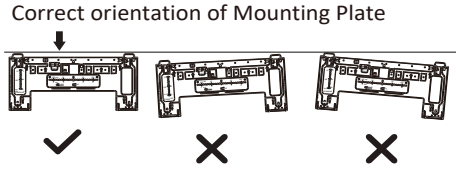
⚠ CAUTION

When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.

MOUNTING PLATE DIMENSIONS

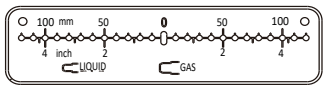
Different models have different mounting plates. For the convenience of installation, there are bubble level, carved dimensions on the mounting plate. Please install the plate and drill wall hole according to the information of the mounting plate. See the figures below.

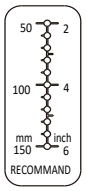
Correct orientation of Mounting Plate



Unit: mm(inch)

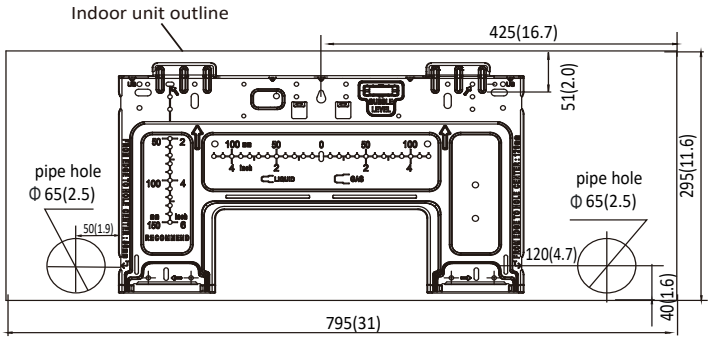
Horizontal direction ruler



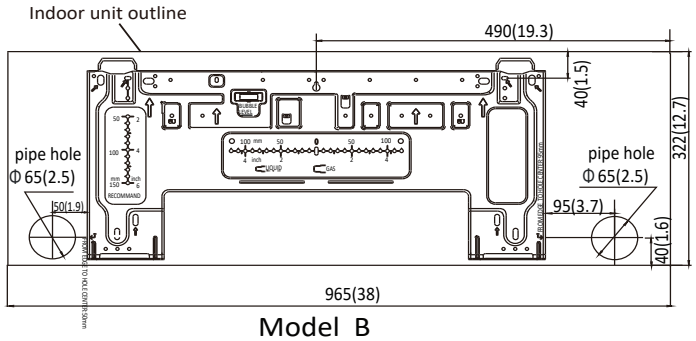


Vertical direction ruler

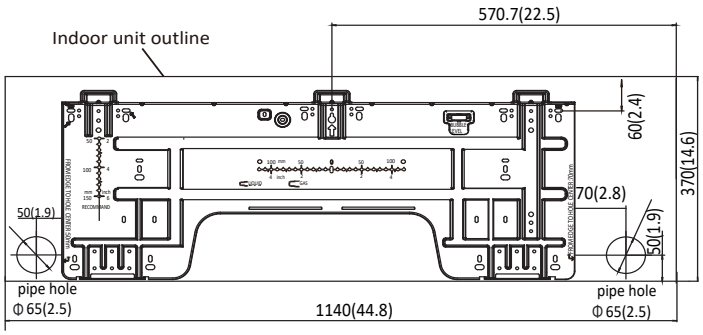
CAUTION: The Bubble level on the mounting plate can’t be removed. If it is broken, make sure to clean up the leaking liquid.



Model A



Model B



Model C

Model “M” Wall Mount AHU Installation (cont’d)

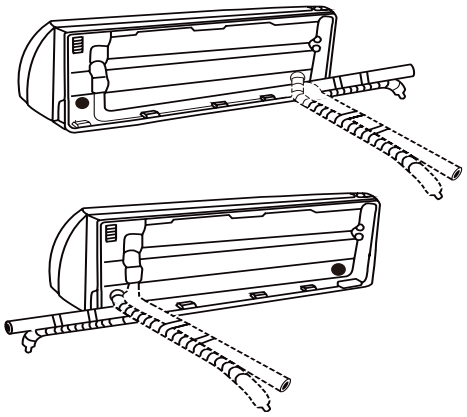
Step 4: Prepare refrigerant piping The refrigerant piping is inside an insulating sleeve attached to the back of the unit. You must prepare the piping before passing it through the hole in the wall. Refer to the **Refrigerant Piping Connection** section of this manual for detailed instructions on pipe flaring and flare torque requirements, technique, etc.

NOTE ON PIPING ANGLE

Refrigerant piping can exit the indoor unit from four different angles:

- Left-hand side
- Left rear
- Right-hand side
- Right rear

Refer to **figures below** for details.



NOTE ON PIPING CONNECTING

- In some locations of US, a conduit tube must be used to connect the cable.
To ensure an enough space for the pipes running and the machine is against the wall after installation, It is recommended to attach the drain hose to the right-hand side (when you’re facing the back of the unit). When
- choose Left-hand side or Right-hand side piping, please make sure that the pipes come out horizontally so as not to affect the lower panel installtion.

⚠ CAUTION

Be extremely careful not to dent or damage the piping while bending them away from the unit. Any dents in the piping will affect the unit’s performance.

If refrigerant piping is already embedded in the wall, do the following:

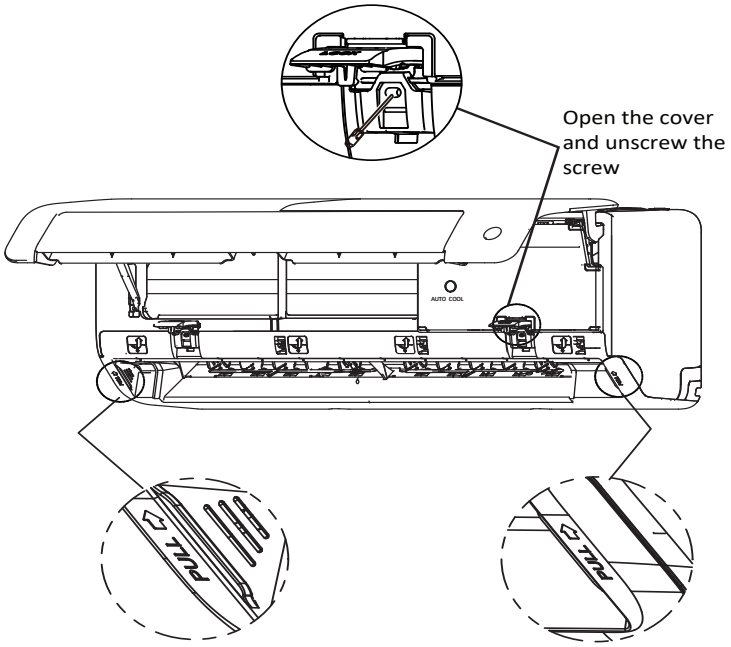
Step 1:Hook the indoor unit on the mounting plate:

1. Keep in mind that the hooks on the mounting plate are smaller than the holes on the back of the unit.
If you find that you don’t have ample room to connect embedded pipes to the indoor unit, the unit can be adjusted left or right by about 30-50mm (1.18-1.95in), depending on the model.

Move to left or right

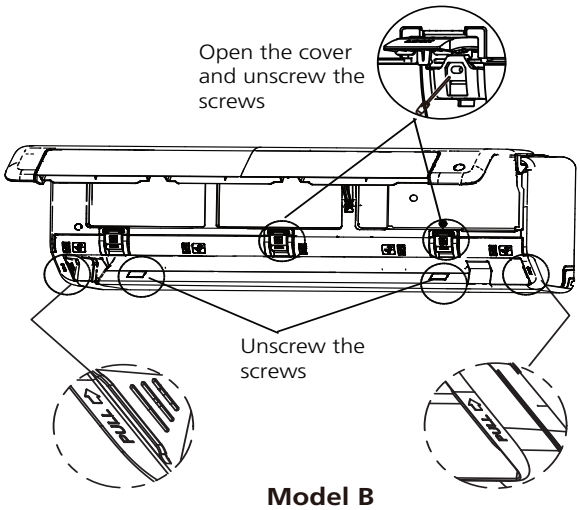
Step 2: Prepare refrigerant piping:

1. Open and fix the position of the panel, then, open the covers of the two lock blocks, unscrew the screw showed in the picture below, then hold both sides of the lower panel in the place marked “PULL”, pull it upwards to release the buckles, then take the lower panel down.



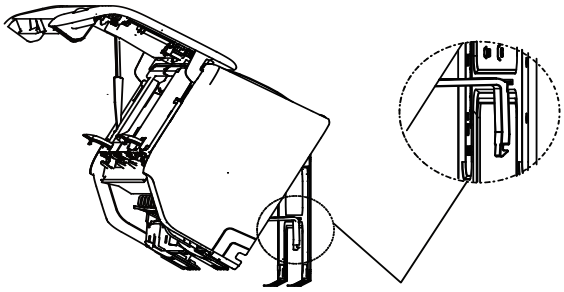
Model A

Model "M" Wall Mount AHU Installation (cont'd)



Model B

2. Use the holder at the back of the unit to prop up the unit, giving you enough room to connect the refrigerant piping, signal cable, and drain hose.



Use the holder at the back of the unit against on the mounting plate to prop up the unit

Step 3. Connect drain hose and refrigerant piping (refer to **Refrigerant Piping Connection** section of this manual for instructions).

Step 4. Keep pipe connection point exposed to perform the leak test (refer to **Electrical Checks and Leak Checks** section of this manual).

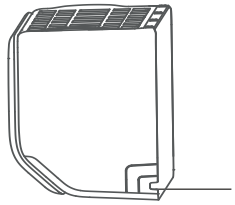
Step 5. After the leak test, wrap the connection point with insulation tape.

Step 6. Remove the bracket or wedge that is propping with insulation tape.

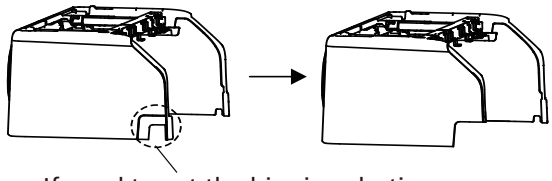
Step 7. Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.

If there is no refrigerant piping embedded in the wall, do the following:

1. Based on the position of the wall hole relative to the mounting plate, choose the side from which the piping will exit the unit.
2. If the wall hole is behind the unit, keep the knock-out panel in place. If the wall hole is to the side of the indoor unit, remove the plastic knock-out panel from that side of the unit. (See figure below). This will create a slot through which your piping can exit the unit. Use needle nose pliers if the plastic panel is too difficult to remove by hand.



Knock-out Panel (cut depending on the actual size needed)



If need to cut the big size plastic panel, cut as shown above.

3. Use scissors to cut down the length of the insulating sleeve to reveal about 40mm (1.57in) of the refrigerant piping. This serves two purposes:
   - To facilitate the **Refrigerant Piping Connection** process.
   - To facilitage **Gas Leak Checks** and enable you to check for dents
4. Use the holder at the back of the unit to prop up the unit, giving you enough room to connect the refrigerant piping, signal cable, and drain hose.
5. Connect the indoor unit's refrigerant piping to the connective piping that will join the indoor and outdoor units. Refer to the **Refrigerant Piping Connection** section of this manual for detailed instructions.
6. Based on the position of the wall hole relative to the mounting plate, determine the necessary angle of your piping.
7. Grip the refrigerant piping at the base of the bend.
8. Slowly, with even pressure, bend the piping towards the hole. **Do not** dent or damage the piping during the process.

Model “M” Wall Mount AHU Installation (cont’d)

Step 5: Connect drain hose

By default, the drain hose is attached to the left-hand side of unit (when you’re facing the back of the unit). However, it can also be attached to the right-hand side. To ensure proper drainage, attach the drain hose on the same side that your refrigerant piping exits the unit.

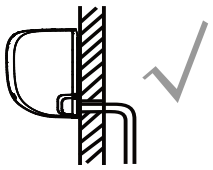
NOTE: In some locations of US, if the machine has installed the conduit panel, please choose right-hand side drainage.

- Wrap the connection point firmly with Teflon tape to ensure a good seal and to prevent leaks.
- Remove the air filter and pour a small amount of water into the drain pan to make sure that water flows from the unit smoothly.

NOTE ON DRAIN HOSE PLACEMENT

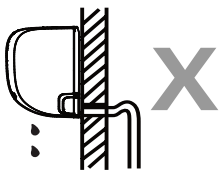
Make sure to arrange the drain hose according to the following figures.

- ⊘ **DO NOT** kink the drain hose.
- ⊘ **DO NOT** create a water trap.
- ⊘ **DO NOT** put the end of drain hose in water or a container that will collect water.



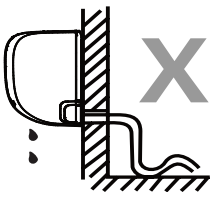
CORRECT

Make sure there are no kinks or dent in drain hose to ensure proper drainage.



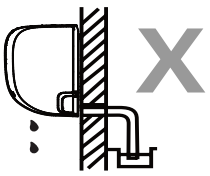
NOT CORRECT

Kinks in the drain hose will create water traps.



NOT CORRECT

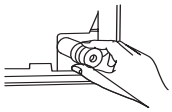
Kinks in the drain hose will create water traps.



NOT CORRECT

Do not place the end of the drain hose in water or in containers that collect water. This will prevent proper drainage.

PLUG THE UNUSED DRAIN HOLE



To prevent unwanted leaks you must plug the unused drain hole with the rubber plug provided.

BEFORE PERFORMING ANY ELECTRICAL WORK, READ THESE REGULATIONS

1. 1. All wiring must comply with local and national electrical codes, regulations and must be installed by a licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3. If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client, and refuse to install the unit until the safety issue is properly resolved.
4. Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
5. If connecting power to fixed wiring, a surge protector and main power switch should be installed.
6. If connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The qualified technician must use an approved circuit breaker or switch.
7. Only connect the unit to an individual branch circuit outlet. Do not connect another appliance to that outlet.
8. Make sure to properly ground the air conditioner.
9. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire. Do not let
10. wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit. If the unit has an auxiliary electric heater, it must be
11. installed at least 1 meter (40in) away from any combustible materials. To avoid getting an electric shock, never touch the
12. electrical components soon after the power supply has been turned off. After turning off the power, always wait 10 minutes or more before you touch the electrical components.

⚠ WARNING

BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, TURN OFF THE MAIN POWER TO THE SYSTEM.

Model “M” Wall Mount AHU Installation (cont’d)

Step 6: Connect signal and power cables

The signal cable enables communication between the indoor and outdoor units. You must first choose the right cable size before preparing it for connection. **Cable Types**

- **Indoor Power Cable** (if applicable): H05VV-F or H05V2V2-F
- **Outdoor Power Cable:** H07RN-F or H05RN-F
- **Signal Cable:** H07RN-F

NOTE: In North America, choose the cable type according to the local electrical codes and regulations.

Minimum Cross-Sectional Area of Power and Signal Cables (For reference)(Not applicable for North America)

Rated Current of Appliance (A)	Nominal Cross-Sectional Area (mm²)
> 3 and ≤ 6	0.75
> 6 and ≤ 10	1
> 10 and ≤ 16	1.5
> 16 and ≤ 25	2.5
> 25 and ≤ 32	4
> 32 and ≤ 40	6

CHOOSE THE RIGHT CABLE SIZE

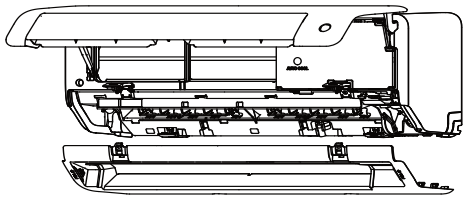
The size of the power supply cable, signal cable, fuse, and switch needed is determined by the maximum current of the unit. The maximum current is indicated on the nameplate located on the side panel of the unit. Refer to this nameplate to choose the right cable, fuse, or switch.
NOTE: In North America, please choose the right cable size according to the Minimum Circuit Ampacity indicated on the nameplate of the unit.

1. Open and fix the position of the panel, then, open the covers of the two lock blocks, unscrew the screw , then hold both sides of the lower panel in the place marked “PULL”, pull it upwards to release the buckles, then take the lower panel down(please refer to Page 22-23).
2. Open the wire box cover to connect the cable.
3. Unscrew the cable clamp below the terminal block and place it to the side.
4. Facing the back of the unit, remove the plastic panel on the bottom left-hand side.

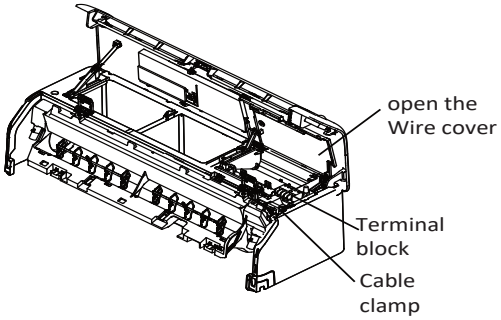
⚠ WARNING

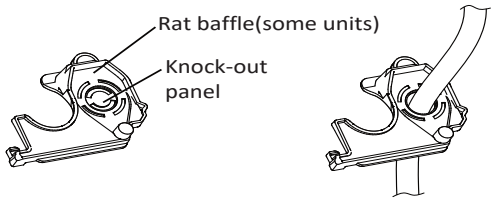
ALL WIRING MUST BE PERFORMED STRICTLY IN ACCORDANCE WITH THE WIRING DIAGRAM LOCATED ON THE BACK OF THE INDOOR UNITS FRONT PANEL

5. Feed the signal wire through this slot, from the back of the unit to the front.
6. Facing the front of the unit, connect the wire according to the indoor unit’s wiring diagram, connect the u-lug and firmly screw each wire to its corresponding terminal.



First open the front panel, then remove the lower panel.



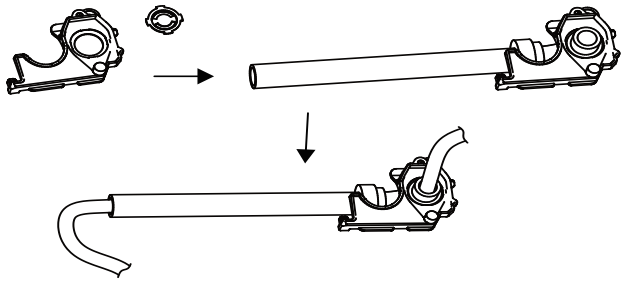


NOTE: If the size of the cable is too big, remove the middle small plastic knock-out panel to create a slot through which the cable can exit. If you want to remove the chassis or drain hose, please remove the rat baffle first.

In North America

First remove the knok-out panel to create a slot through whick the conduit tube can install. Then make the cable through the conduit tube and connect to the indoor unit.

Model “M” Wall Mount AHU Installation (cont’d)



⚠ CAUTION

DO NOT MIX UP LIVE AND NULL WIRES

This is dangerous, and can cause the air conditioning unit to malfunction.

7. After checking to make sure every connection is secure, use the cable clamp to fasten the signal cable to the unit. Screw the cable clamp down tightly.
8. Replace the wire cover on the front of the unit, and the plastic panel on the back.

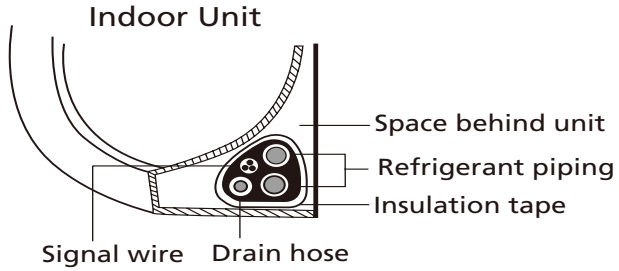
NOTE ABOUT WIRING

THE WIRING CONNECTION PROCESS MAY DIFFER SLIGHTLY BETWEEN UNITS AND REGIONS.

Step 7: Wrappping and cables

Before passing the piping, drain hose, and the signal cable through the wall hole, you must bundle them together to save space, protect them, and insulate them(This may not applicable for some locations in US).

1. Bundle the drain hose, refrigerant pipes, and signal cable as shown below:



DRAIN HOSE MUST BE ON BOTTOM

Make sure that the drain hose is at the bottom of the bundle. Putting the drain hose at the top of the bundle can cause the drain pan to overflow, which can lead to fire or water damage.

DO NOT INTERTWINE SIGNAL CABLE WITH OTHER WIRES

While bundling these items together, do not intertwine or cross the signal cable with any other wiring.

2. Using adhesive vinyl tape, attach the drain hose to the underside of the refrigerant pipes.
3. Using insulation tape, wrap the signal wire, refrigerant pipes, and drain hose tightly together. Double-check that all items are bundled.

DO NOT WRAP ENDS OF PIPING

When wrapping the bundle, keep the ends of the piping unwrapped. You need to access them to test for leaks at the end of the installation process (refer to **Electrical Checks and Leak Checks** section of this manual)

Step 8: Mount indoor unit

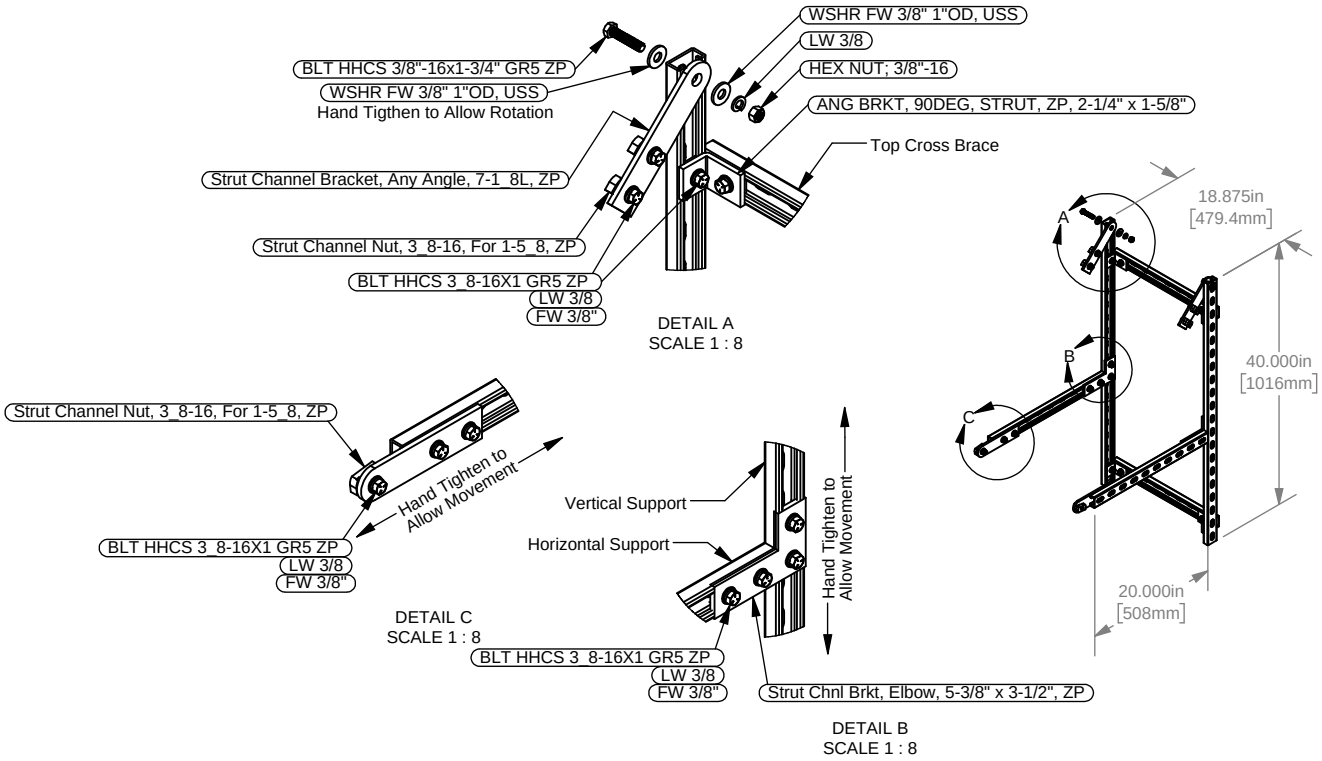
If you installed new connective piping to the outdoor unit, do the following:

1. If you have already passed the refrigerant piping through the hole in the wall, proceed to Step 4.
2. Otherwise, double-check that the ends of the refrigerant pipes are sealed to prevent dirt or foreign materials from entering the pipes.
3. Slowly pass the wrapped bundle of refrigerant pipes, drain hose, and signal wire through the hole in the wall.
4. Hook the top of the indoor unit on the upper hook of the mounting plate.
5. Check that unit is hooked firmly on mounting by applying slight pressure to the left and right-hand sides of the unit. The unit should not jiggle or shift.
6. Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.
7. Again, check that the unit is firmly mounted by applying slight pressure to the left and the right-hand sides of the unit.

General Assembly Instructions

Generic Assembly Instructions

1. Assemble frame componets together without solar box.
    1. See Exploded views for hardware.
    2. Mount Top Cross Brace at least low enough along the Vertical Support to allow the Any Angle Bracket to rotate.
    3. Mount Bottom Cross Brace either well above or well below the Horizontal Support. Positioning is determined by angle of Solar Box.
    4. Note: Larger (10- and 15-Ton) frames have an additional Cross Brace.
    5. Note: Larger (15-Ton) frames have an additional Horizontal Support.
2. Measure desired angle for Solar Box and fix Horizontal Supports in approximate position. This can be adjusted after Solar Box mounting to ensure desired angle.
3. Mount frame to wall with lag bolts (not included) through the Cross Braces. For floor or roof mounting see next section.
4. Mount Solar Box (pipe pop-outs on top) with edge of strut channels touching to form a solid triangle. Tighten strut channel nuts once desired position is obtained.
5. Brace and secure piping to unistrut to plumb into the condensing unit. Be sure to follow line length requirements for determining how far away the Solar Box can be mounted.
6. Insulate any exposed copper piping.



Floor and Roof Assembly Instructions

To mount Solar Box to a floor or roof, lay the frame with the cross braces on the bottom facing downward. Assembly of components are exactly the same as the wall mounting configuration; see previous page for detailed instructions.

1. Assemble frame components together without solar box. See Exploded views for hardware.
   a. Mount Top Cross Brace at least low enough along the Vertical Support to allow the Any Angle Bracket to rotate.
   b. Mount Bottom Cross Brace either well above or well below the Horizontal Support. Positioning is determined by angle of Solar Box.
   c. Note: Larger (10- and 15-Ton) frames have an additional Cross Brace.
   d. Note: Larger (15-Ton) frames have an additional Horizontal Support.

2.Measure desired angle for Solar Box and fix Horizontal Supports in approximate position. This can be adjusted after Solar Box mounting to ensure desired angle.

3. Mount frame to wall with lag bolts (not included) through the Cross Braces. For floor or roof mounting see next page.

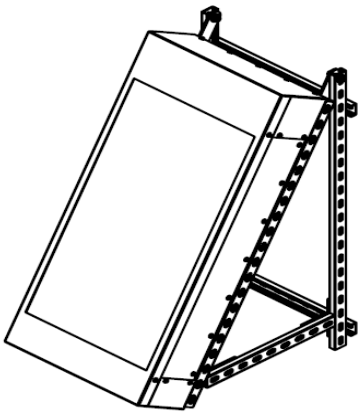
4. Mount Solar Box (pipe pop-outs on top) with edge of strut channels touching to form a solid triangle. Tighten strut channel nuts once desired position is obtained.

5. Brace and secure piping to unistrut to plumb into the condensing unit. Be sure to follow line length requirements for determining how far away the Solar Box can be mounted.

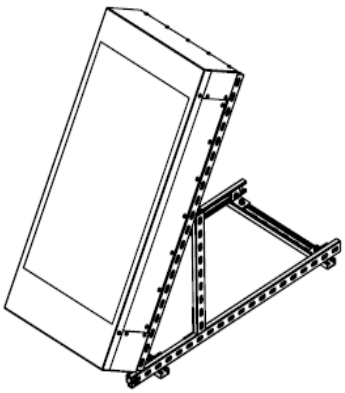
6. Insulate any exposed copper piping.

To mount Solar Box to a floor or roof, lay the frame with the cross braces on the bottom facing downward. Assembly of components are exactly the same as the wall mounting configuration; see previous page for detailed instructions.

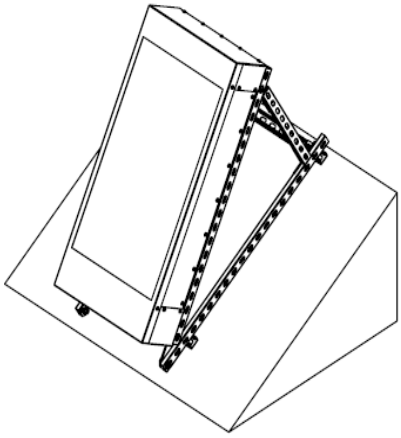
Wall Mounted



Floor Mounted



Roof Mounted



Solar HVAC Multi-Split Plumbing Diagram