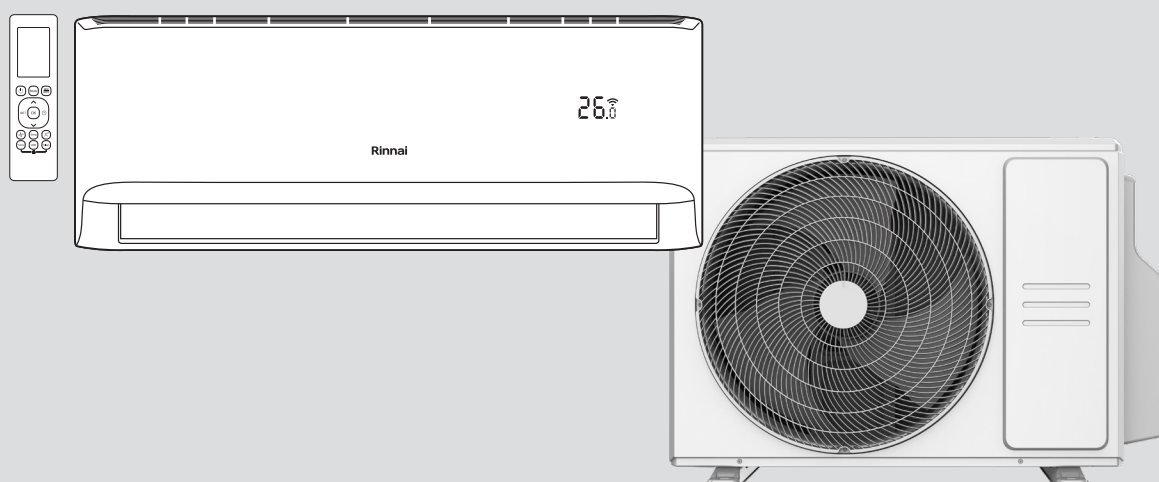## Models

System	Indoor	Outdoor
HSNRTX25	HINRTX25	HONRTX25
HSNRTX35	HINRTX35	HONRTX35
HSNRTX50	HINRTX50	HONRTX50
HSNRTX60	HINRTX60	HONRTX60
HSNRTX70	HINRTX70	HONRTX70
HSNRTX80	HINRTX80	HONRTX80
HSNRTX90	HINRTX90	HONRTX90

R32
REFRIGERANT

Pro Series 2 High Wall Split Heat Pump / Air Conditioner
Installation guide

Rinnai

Important

This appliance must be installed in accordance with:
- Manufacturer's installation instructions
- Current AS/NZS 3000, AS/NZS 5141, AS/NZS 5149, AS/NZS 1677, AS/NZS 60335.2.40, and G12/AS1

Appliance must be installed, commissioned, serviced, and removed by an authorised person.

Warning
Improper installation, adjustment, alteration, service and maintenance can cause property damage, personal injury or loss of life.

For more information about buying, using, and servicing of Rinnai appliances call: 0800 RINNAI (0800 746 624).

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Web: rinnai.co.nz
               youtube.com/rinnainz
               facebook.com/rinnainz

Contents

(i) Images in this guide are for illustration purposes. The system purchased may be slightly different in design.

Safety messages / important information

HEAVY
Use two people or
a mechanical lifting device

This appliance is heavy, use two people or a mechanical lifting device. Improper lifting may result in serious injury.

For safety and warranty, appliances that are damaged MUST NOT be installed or operated under any circumstances.

Electrical warnings

WARNING DO NOT modify the electrical wiring of this appliance. If the control power wiring is damaged or deteriorated then it must be replaced by an authorised person. Failure to do so may result in electric shock, fire, serious injury, or product failure.

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.

The PCB is designed with a fuse to provide overcurrent protection. The specifications of the fuse are printed on the PCB. For units using R32 refrigerant, only a blast-proof ceramic fuse can be used.

Only connect the unit to an individual branch circuit outlet. Do not connect another appliance to that outlet.

Electrical wires

This a Class 1 electrical appliance. Make sure the live wire, neutral wire, and earth wire in the power socket are properly connected. Inadequate or incorrect electrical connections may cause fire or electric shock.

The yellow-green wire in the air conditioner is the earthing wire which cannot be used for any other purpose. Improper earthing may cause electric shock. The unit must be earthed in accordance with local regulations.

Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in a product malfunction and possible fire.

Do not let live wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.

Circuit breaker

The circuit break must have the functions of magnetic tripping and heat tripping to prevent short circuiting and/or overload. Use a standard circuit breaker and fuse conforming with the rating of the appliance.

Fixed wiring

If connecting power to fixed wiring[1]:
• A surge protector and mains power switch should be installed.
• A switch or circuit breaker that disconnects all poles and has a contact separation of at least ⅛ ″(3 mm) must be incorporated in the fixed wiring.

[1] Consult a qualified electrician as it must comply with AS/NZS 5601 and AS/NZS 3000 and other relevant local regulations.

R32 refrigerant
This appliance uses R32 (difluoromethane) refrigerant, which is a flammable gas, class 2.2 according to AS/NZS 1677 and must be handled by a qualified person with the appropriate refrigerant handling licence.

Make sure to check for and rectify any refrigerant leaks after you install or repair the unit.

Certain levels of refrigerant require minimum room sizes. Please ensure that these room sizes are adhered to for standard installations (up to 10 m pipe length). If larger refrigerant charges than standard are used then please consult AS/NZS 60335.2.40 to determine the safe minimum floor area for the installation.

Make sure the area has been made safe by having suitable ventilation and is free from ignition sources before charging or releasing the charge of R32.

Model	2.5 kW	3.5 kW	5.0 kW	6.0 kW	7.0 kW	8.0 kW	9.0 kW
Pre-charge (kg)	0.62	0.85	1.26	1.26	1.40	1.40	2.20
Min. floor area (m²)	4.0	4.0	4.0	4.0	4.0	4.0	5.0

⚠ Never mix refrigerant types.

Note:
- Minimum height of installation is 1.8 m
- Minimum floor area is based on the factory pre-charge in the unit.
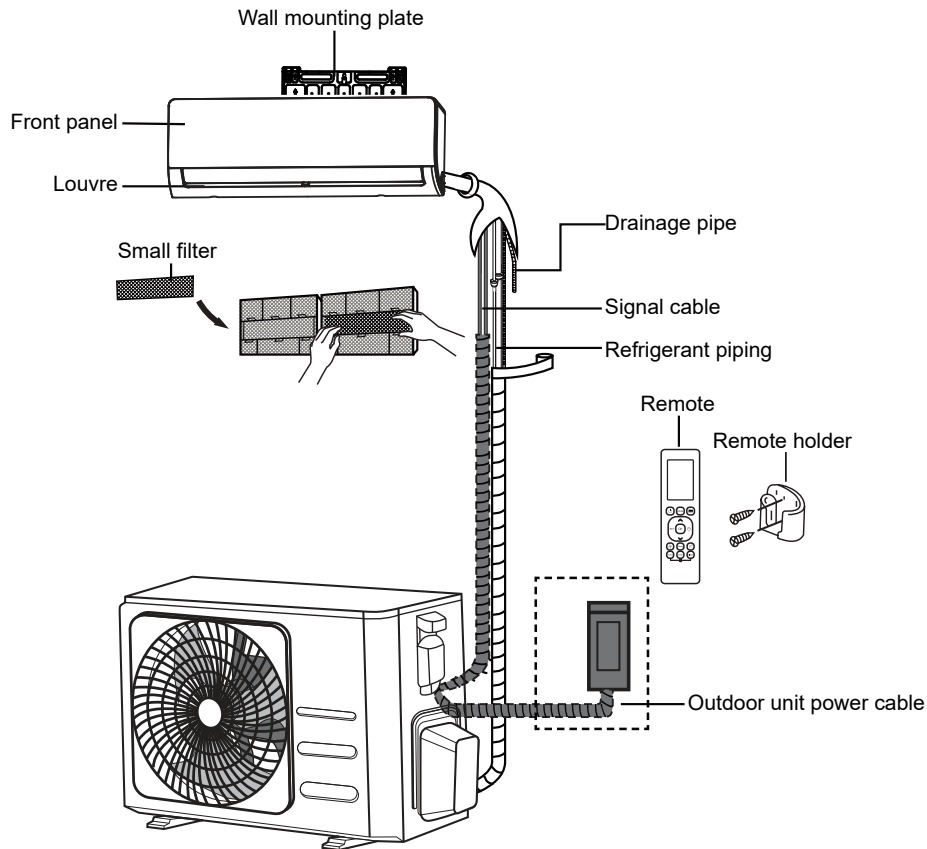
Pro Series 2 specification summary

		2.5 kW	3.5 kW	5.0 kW
Rated cooling @ outdoor 35 °C	Capacity	2.5 kW	3.5 kW	5.0 kW
	Range	0.9-3.45 kW	1.05-3.90 kW	2.3-6.2 kW
	Rated power input	540 W	850 W	1338 W
	Rated current	2.42 A	3.80 A	5.92 A
	AEER	4.606 W/W	4.1 W/W	3.729 W/W
Rated heating @ outdoor 7 °C	Capacity	2.8 kW	4.0 kW	5.5 kW
	Range	1.10-3.75 kW	1.20-4.10 kW	2.40-6.40 kW
	Rated power input	571 W	930 W	1314 W
	Rated current	3.56 A	4.10 A	5.79 A
	ACOP	4.871 W/W	4.290 W/W	4.207 W/W
Suitable area coverage up to 2.6 m (insulated ceiling)		11~17 m^2	16~23 m^2	23~33 m^2

ZERL ENERGY PERFORMANCE

		2.5 kW	3.5 kW	5.0 kW
Rated heating capacity @ outdoor 2 °C		3.0 kW	3.9 kW	4.96 kW
Energy consumption	Heating (cold zone)	797 kWh	1245 kWh	1898 kWh
	Cooling (cold zone)	100 kWh	150 kWh	232 kWh
Star rating (hot, average, cold)	Cooling	5.5 / 5.0 / 5.0	5.0 / 4.5 / 5.0	4.5 / 4.0 / 4.5
	Heating	3.5 / 3.5 / 3.0	3.5 / 3.0 / 2.5	3.0 / 2.5 / 2.0

POWER and CONNECTIVITY

	2.5 kW	3.5 kW	5.0 kW
Power supply to outdoor unit	220 - 240 V, 1-phase, 50 Hz		
Max. input power (cooling / heating)	2300 W	2300 W	3400 W
Max. input current (cooling / heating)	10.5 A	10 A	15.5 A
Connectivity	Wireless + Bluetooth setup		

INDOOR UNIT

		2.5 kW	3.5 kW	5.0 kW
Dimensions	Unit (W*D*H)	802 x 200 x 295 mm	802 x 200 x 295 mm	971 x 228 x 321 mm
	Packaged unit	875 x 285 x 380 mm	875 x 285 x 380 mm	1045 x 305 x 405 mm
Weight	Net / gross	8.6 / 11.1 kg	8.6 / 11.1 kg	11.0 / 14.6 kg
Sound pressure level turbo @ 1 m (hi / mi / lo / silence) dB(A)		45.5/39/32/25/20	45/39.5/33/26/19.5	48.5/45.5/38/30.5/20
Sound power level		56.7 dB(A)	59 dB(A)	60.5 dB(A)
Airflow (turbo / hi / mi / lo / silence)		175/139/100/83/50 L/s	183/147/106/86/56 L/s	264/222/167/139/125 L/s
Operation	Modes	Heat / Cool / Dry / Fan / Auto		
	Indoor temp. cooling	16~32 °C		
	Indoor temp. heating	0~30 °C		

OUTDOOR UNIT

		2.5 kW	3.5 kW	5.0 kW
Dimensions	Unit (W*D*H)	765 x 303 x 555 mm	765 x 303 x 555 mm	890 x 342 x 673 mm
	Packaged unit	887 x 336 x 610 mm	887 x 336 x 610 mm	995 x 398 x 740 mm
Weight	Net / gross	24.7 / 27 kg	25.8 / 28 kg	38.6 / 42.1 kg
Sound pressure level @ 1 m		54 dB(A)	56 dB(A)	58 dB(A)
Sound power level		59 dB(A)	62.9 dB(A)	67.4 dB(A)
Refrigerant	Type	R32 / 0.62 kg	R32 / 0.85 kg	R32 / 1.26 kg
	Pre-charged length		15 m	
	Additional pre-charge		12 g/m	
	Pipe size: liquid / gas	6.35 / 9.52 mm	6.35 / 9.52 mm	6.35 / 12.7 mm
		¼ / ⅜ in	¼ / ⅜ in	¼ / ½ in
	Max. pipe length	25 m	25 m	30 m
	Max. vert. separation	10 m	10 m	20 m

Capacities tested in accordance with AS/NZS 3823.2, with 5 m interconnecting pipe length. With our policy of continuous improvement, we reserve the right to change, or discontinue at any time, specifications or designs without notice.

		6.0 kW	7.0 kW	8.0 kW	9.0 kW
Rated cooling @ outdoor 35 °C	Capacity	6.0 kW	7.0 kW	7.65 kW	9.0 kW
	Range	2.3-6.2 kW	2.91-8.23 kW	3.03-8.23 kW	3.22-9.38 kW
	Rated power input	1735 W	2010 W	2274 W	2585 W
	Rated current	7.73 A	9.10 A	10.3 A	11.6 A
	AEER	3.453 W/W	3.48 W/W	3.36 W/W	3.48 W/W
Rated heating @ outdoor 7 °C	Capacity	6.5 kW	7.5 kW	8.2 kW	9.5 kW
	Range	2.40-6.40 kW	2.38-8.36 kW	2.40-8.46 kW	2.78-9.96 kW
	Rated power input	1702 W	1945 W	2285 W	2469 W
	Rated current	7.43 A	8.70 A	10.20 A	11.20 A
	ACOP	3.813	3.850 W/W	3.580 W/W	3.840 W/W
Suitable area coverage up to 2.6 m (insulated ceiling)		27~40 m²	32~47 m²	35~51 m²	41~60 m²
ZERL ENERGY PERFORMANCE					
Rated heating capacity @ outdoor 2 °C		4.96 kW	7.60 kW	7.66 kW	7.48 kW
Energy consumption	Heating (cold zone)	2465 kWh	2603 kWh	2974 kWh	3448 kWh
	Cooling (cold zone)	298 kWh	346 kWh	402 kWh	426 kWh
Star rating (hot, average, cold)	Cooling	4.0 / 3.5 / 4.0	4.0 / 3.5 / 4.0	3.5 / 3.5 / 3.5	4.0 / 4.0 / 4.0
	Heating	3.0 / 2.5 / 1.5	3 / 2.5 / 2.0	3.0 / 2.5 / 2.0	3.5 / 2.5 / 2.0
POWER and CONNECTIVITY					
Power supply to outdoor unit		220~240 V - 1-phase - 50 Hz			
Max. input power (cooling / heating)		3400 W	4050 W	4050 W	4100 W
Max. input current (cooling / heating)		15. 5 A	17.5 A	17.5 A	18.0 A
Connectivity		Wireless + Bluetooth setup			
INDOOR UNIT					
Dimensions	Unit	971 x 228 x 321 mm	1082 x 234 x 337 mm	1082 x 234 x 337 mm	1259 x 283 x 362 mm
	Packaged unit	1045 x 305 x 405 mm	1155 x 415 x 315 mm	1155 x 415 x 315 mm	1340 x 450 x 385 mm
Weight	Net / gross	11.0 / 14.6 kg	13.2 / 17.1 kg	13.2 / 17.1 kg	19.0 / 24.7 kg
Sound pressure level turbo @ 1 m (hi / med / lo / silence) dB(A)		48.5/45.5/38/30.5/20	52/50/41.5/27/21	52/50/41.4/27/21	54.5/52/45.5/34.5/22.5
Sound power level		59.6 dB(A)	65.1 dB(A)	64.8 dB(A)	65.2 dB(A)
Airflow (turbo / hi / mi / lo / silence)		264/222/167/139/125 L/s	337/293/190/140/137 L/s	337/293/190/140/137 L/s	375/308/211/156/97 L/s
Operation	Modes	Heat / Cool / Dry / Fan / Auto			
	Indoor temp. cooling	16~32 °C			
	Indoor temp. heating	0~30 °C			
OUTDOOR UNIT					
Dimensions	Unit (W*D*H)	890 x 342 x 673 mm	890 x 342 x 673 mm	890 x 342 x 673 mm	946 x 410 x 810 mm
	Packaged unit	995 x 398 x 740 mm	1030 x 438 x 750 mm	1030 x 438 x 750 mm	1090 x 500 x 885 mm
Weight	Net / gross	38.6 / 42.1 kg	43.8 / 47.2 kg	43.8 / 47.2 kg	60.3 / 64.6 kg
Sound pressure level @ 1 m		58 dB(A)	61 dB(A)	61 dB(A)	59.5 dB(A)
Sound power level		67.1 dB(A)	69.6 dB(A)	69.1 dB(A)	68.3 dB(A)
Refrigerant	Type	R32 / 1.26 kg	R32 / 1.4kg	R32 / 1.4 kg	R32 / 2.2 kg
	Precharged length	15 m		15 m	
	Additional precharge	12 g/m		12 g/m	24 g/m
	Pipe size: liquid / gas	6.35 / 12.7 mm	6.35 / 15.9 mm	6.35 / 15.9 mm	9.52 / 15.9 mm
		¼ / ½ in	¼ ⅝ in	¼ ⅝ in	⅜ ⅝ in
	Max. pipe length	30 m	50 m	50 m	50 m
	Max. vert. separation	20 m	25 m	25 m	25 m

Capacities tested in accordance with AS/NZS 3823.2, with 5 m interconnecting pipe length. With our policy of continuous improvement, we reserve the right to change, or discontinue at any time, specifications or designs without notice.
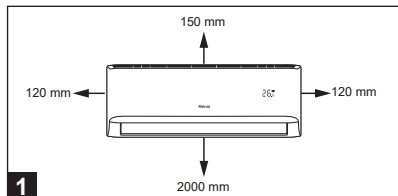
Component description

Wall mounting plate

Front panel

Louvre

Small filter

Drainage pipe

Signal cable

Refrigerant piping

Remote

Remote holder

Outdoor unit power cable

Installation overview

1

150 mm

120 mm

120 mm

2000 mm

Select installation location.
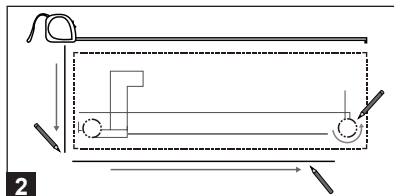
2

Determine wall hole position.
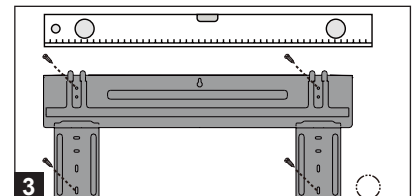
3

Attach mounting plate.
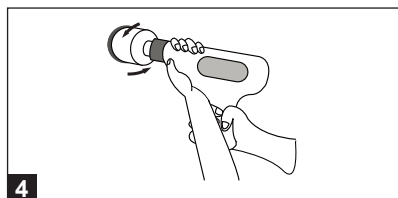
4

Drill hole in wall.
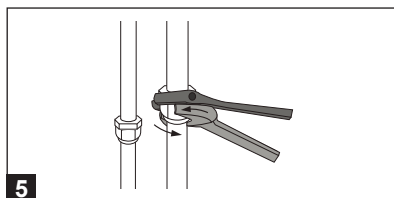
5

Connect piping.
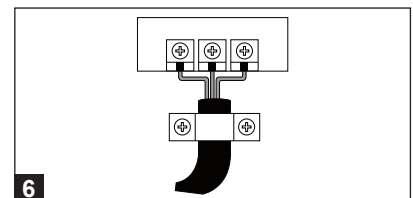
6

Connect wiring.
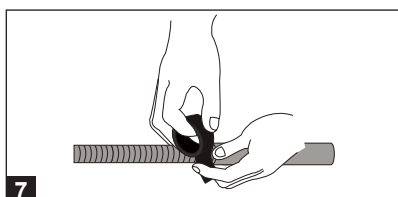
7

Prepare drain hose.
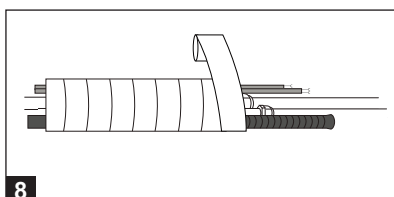
8

Wrap pipe and cable.
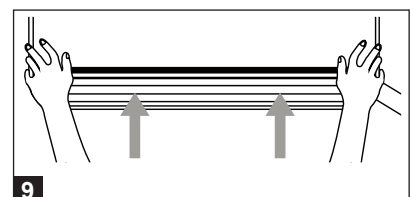
9

Mount indoor unit.

Positioning and clearances - indoor unit

Required clearances

150 mm

120 mm ← | → 120 mm

2000 mm
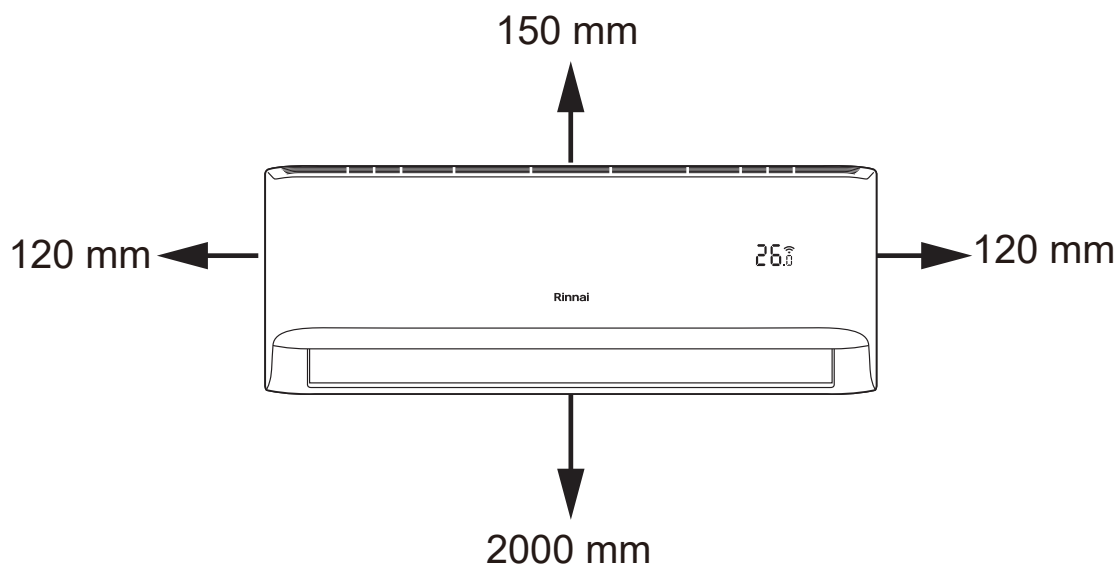
Ensure the following:

☑ Good air circulation
☑ Convenient drainage
☑ Noise from the unit will not disturb others
☑ Firm and solid—location will not vibrate
☑ At least 1 m from other electrical devices (e.g. TV, radio, computer)

DO NOT install:

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

Install the unit on a wall 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.

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 a fire.

For R32 refrigerant models, appliance shall be installed and operated in a room with a floor area larger than 4 m^2.

When choosing a location be aware that there needs to be ample room for a hole for the signal cable and refrigerant piping that connects the indoor and outdoor units. The default position for all piping is to the right side of the indoor unit (while facing the unit). However the unit can accommodate piping to the left and right.

Positioning and clearances - outdoor unit

Clearances

The outdoor unit must be installed in accordance with the clearances outlined below. Note maintenance access, there must be sufficient room for installation and maintenance.
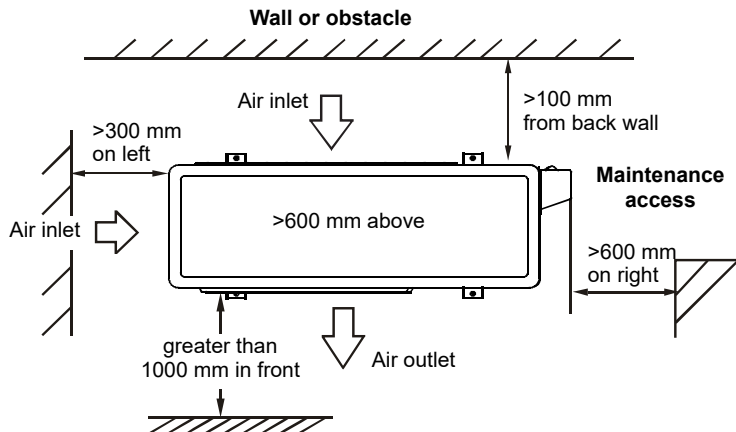
Ensure the following:

☑ Good air circulation and ventilation
☑ Noise from the unit will not disturb others
☑ Firm and solid—location will not vibrate
☑ Protected from prolonged periods of direct sunlight or rain
☑ Where snow is anticipated, raise the unit above the base pad to prevent ice buildup and cold damage. Mount the unit high enough to be above the average accumulated area snowfall.

DO NOT install:

☒ Near any source of combustible gas
☒ In locations exposed to excessive dust
☒ Near an obstacle that will block the air inlets and outlets
☒ Near animals or plants that will be harmed by hot air discharge
☒ Where it will be exposed to sea wind (salt spray) as this will reduce durability

Special considerations for extreme weather

If the unit is exposed to strong prevailing winds install the unit so that the air outlet fan is at a 90 degree angle to the direction of the wind. If needed, build a barrier in front of the unit to protect it from extremely strong winds.

If the unit is exposed to heavy rain or snow, build a shelter above the unit. Be careful not to obstruct air flow around the unit.
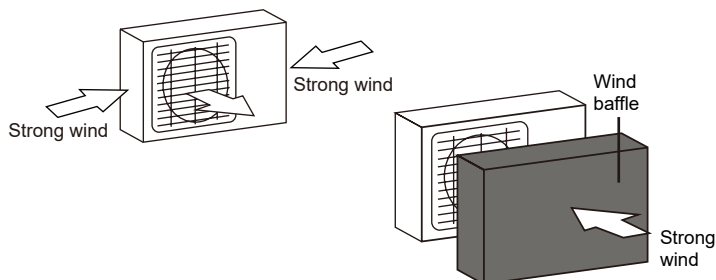
Wall or roof mounted installations

If the outdoor unit is installed on roof structures or external walls, this may result in excessive noise and vibration. It may also be classed as a non-serviceable installation and may void warranty.

Indoor installation

1. **Select installation location**
Refer notes and clearances diagram on p.9.

2. **Attach mounting plate to wall**
- 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 the mounting plate is flat against the wall.

If the wall is made of brick, concrete, or similar, drill 5 mm diameter holes in the wall and insert sleeve anchors. Secure the mounting plate to the wall by tightening the screws directly to the clip anchors.

3. **Drill hole in wall for connective piping**
Determine the location of the hole in the wall based on the position of the mounting plate. Refer mounting plate dimensions on p.22 for the different model types.

Using a 65 mm or 75 mm core drill, drill a hole in the wall. When drilling make sure to avoid wires, plumbing, and other sensitive components. 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 approximately 5-7 mm. This will ensure the water drains properly.
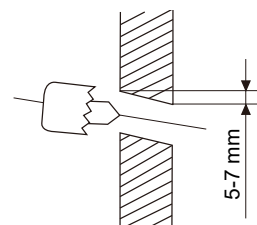
Place the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when the installation is finished.

4. **Prepare refrigerant piping**
The refrigerant piping is inside an insulating sleeve which is attached to the back of the unit. You must prepare the piping before passing it through the hole in the wall.

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

Knockout panel
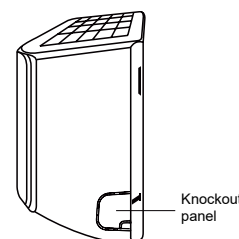
Connect the indoor unit's refrigerant piping to the connective piping that will join the indoor and outdoor unit. Be careful not to dent or damage the piping while bending away from the unit. Any dents in the piping will affect the unit's performance.
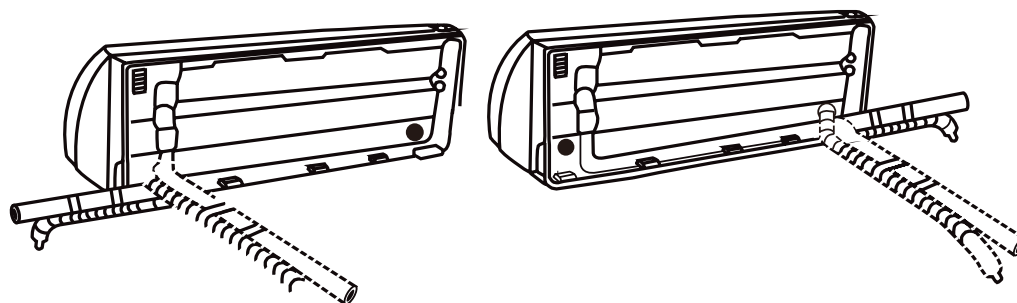
Refrigerant piping can exit the indoor unit from four different angles; left-hand side, right-hand side, left rear, and right rear.

5. **Connect drain hose**

By default the drain hose is attached to the left-hand side of the unit (when 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. Attach the drain hose extension (purchased separately) to the end of the drain hose.

Wrap the connection point firmly with Teflon tape to ensure a good seal to prevent leaks. For the portion of drain hose that will remain indoors, wrap it with foam pipe insulation to prevent condensation.

Remove the air filter and pour a small amount of water into the drain pan to make sure that water flows from the unit correctly. To prevent unwanted leaks plug the unused drain hole with the rubber plug provided.

CORRECT	INCORRECT	INCORRECT	INCORRECT
Make sure there are no kinks or dents in the drain hose to ensure proper drainage	Kinks in the drain hose will create water traps.	Kinks in the drain hose will create water traps.	Do not place the end in water or other containers that collect water. This will prevent proper drainage.
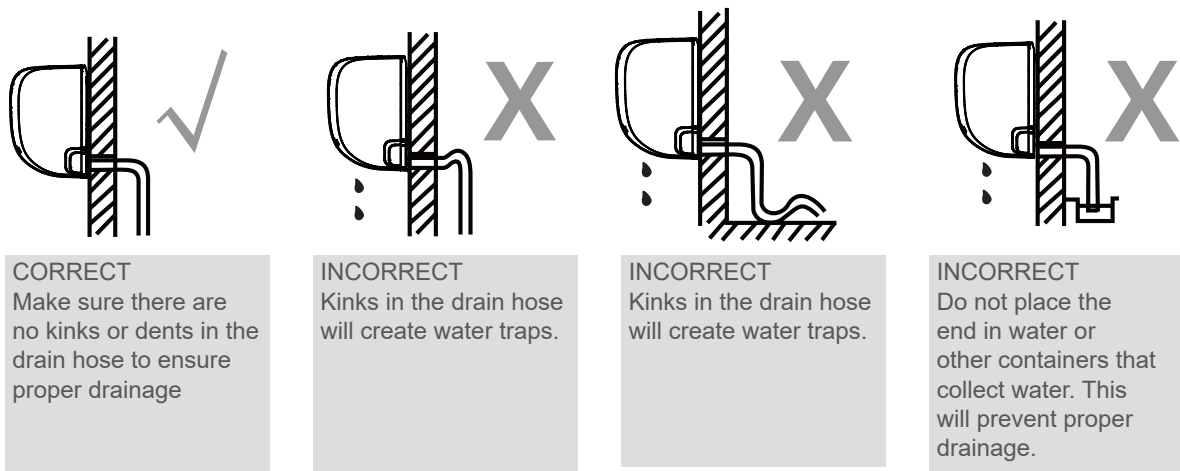
6. **Connect signal and power cables**

⚠ **WARNING** Before performing any electrical or wiring work, turn off the mains power to the system. All wiring must be performed in accordance with the wiring diagram located on the back of the indoor unit's front panel.

The signal cable enables communication between the indoor and outdoor units. You must choose the right cable size before preparing it for connection. The size of the power supply cable, signal cable, fuse, and switch is determined by the maximum current of the unit. The maximum current is indicated on the data plate located on the side panel of the unit.

1. Open front panel of the indoor unit.

2. Using a screwdriver, open the wire box cover on the right side of the unit, this will reveal the terminal block.

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.

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 wires according to the wiring diagram, connect the u-lug and firmly screw each wire to its corresponding terminal.

7. 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.

7. Wrap piping and cables

Before passing the piping, drain hose, and the signal cable through the wall bundle them together to save space, protect and insulate them.

Bundle the drain hose, refrigerant pipes, and signal cable as shown. Make sure the drain hose is at the bottom of the bundle. Putting the drain hose at the top can cause the drain pan to overflow, which can lead to fire or water damage.

Space behind unit
Refrigerant piping
Insulation tape
Signal wire   Drain hose
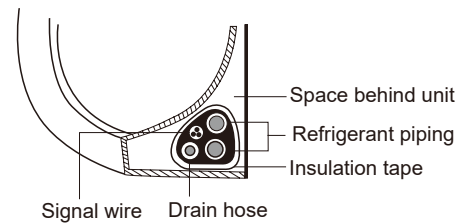
While bundling, DO NOT intertwine or cross the signal cable with any other wiring.

Using adhesive vinyl tape, attach the drain hose to the underside of the refrigerant pipes. Using insulation tape, wrap the signal wire, refrigerant pipes, and drain hose tightly together. When wrapping the bundle keep the ends of the piping unwrapped so they can be tested for leaks at the end of the installation process.

8. Mount indoor unit

1. Check the ends of the refrigerant pipes are sealed to prevent dirt or foreign materials from entering the pipes.

2. Slowly pass the wrapped bundle of refrigerant pipes, drain hose, and signal wire through the hole in the wall.

3. Hook the top of the indoor unit on the upper hook of the mounting plate. Check that the unit is hooked firmly by applying slight pressure to the left and right-hand sides of the unit. The unit should not move.

4. Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto hooks along the bottom of the mounting plate. Check that the unit is firmly mounted.

If the refrigerant piping is already embedded in the wall do the following:
1. Hook the top of the indoor unit on the upper hook of the mounting plate.

2. Use a bracket or wedge to prop up the unit, giving you enough room to connect the refrigerant piping, signal cable, and drain hose.

3. Connect drain hose and refrigerant piping, refer previous pages.

4. Keep the pipe connection points exposed to perform the leak test. After the leak test wrap the connection points with insulation tape.

5. Remove the bracket or wedge that is propping up the unit, and 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.

ⓘ **Unit is adjustable:** The hooks on the mounting plate are smaller than the holes on the back of the unit. If you find you don't have enough room to connect embedded pipes to the indoor unit, the unit can be adjusted left or right by 30-50 mm, depending on the model.

Outdoor installation

1. **Select installation location**
Refer notes and clearances diagram on p.10.

2. **Install drain joint**
Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit so condensate can be properly drained away so as not to cause property damage.

3. **Anchor outdoor unit**
The outdoor unit can be anchored to the ground or to a wall mounted bracket with M10 bolts. The following is a list of different outdoor unit sizes and distances between their mounting feet. Prepare the installation base of the unit according to the dimensions of the model being installed.
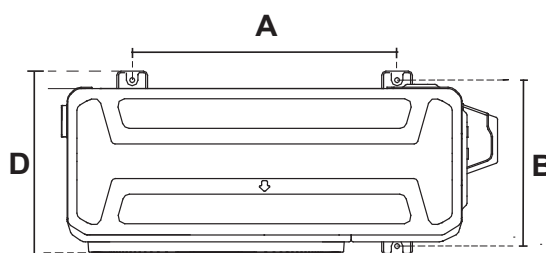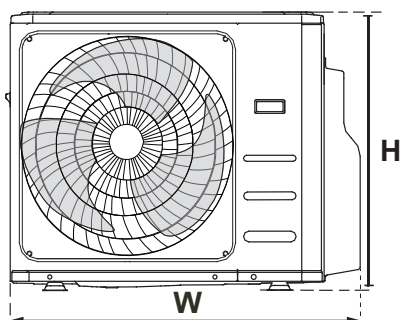
Model	Outdoor unit dimensions			Mounting dimensions	
	Width - W	Height - H	Depth - D	Distance A	Distance B
2.5, 3.5 kW	765 mm	555 mm	303 mm	452 mm	286 mm
5.0, 6.0, 7.0, 8.0 kW	890 mm	673 mm	342 mm	663 mm	354 mm
9.0 kW	946 mm	810 mm	420 mm	673 mm	403 mm

If you install the unit on the ground or on a mounting platform do the following:

• Mark the positions for the four expansion bolts based on the model.
• Pre-drill holes for the expansion bolts.
• Place a nut on the end of each expansion bolt.
• Hammer the expansion bolts into the pre-drilled holes.
• Remove the nuts from the expansion bolts, and place the outdoor unit on the bolts.
• Put a washer on each expansion bolt, then replace the nuts.
• Using a wrench tighten each nut until snug.

If you install the unit on a wall mounted bracket do the following:

• Mark the position of the bracket holes based on the dimensions of the model.
• Pre-drill the holes for the expansion bolts.
• Place a washer and nut on the end of each expansion bolt.
• Thread expansion bolts through the holes in the mounting brackets, put the mounting brackets in position, and hammer expansion bolts into the wall.
• Check the mounting brackets are level.
• Carefully lift the unit and place the mounting feet on the brackets.
• Bolt the unit firmly to the brackets.
• If applicable, install the unit with rubber gaskets to reduce vibration and noise.

Outdoor installation continued

4. **Connect signal and power cables**

⚠️ **WARNING** Before performing any electrical or wiring work, turn off the mains power to the system. All wiring must be performed in accordance with the wiring diagram located on the inside of the wiring cover.

The signal cable enables communication between the indoor and outdoor units. You must choose the right cable size before preparing it for connection. The size of the power supply cable, signal cable, fuse, and switch is determined by the maximum current of the unit. The maximum current is indicated on the data plate located on the side panel of the unit.

The outside unit's terminal block is protected by an electrical wiring cover on the side of the unit.

1. Prepare the cable for connection. Using wire strippers, strip the rubber jacket from both ends of the cable to reveal approximately 40 mm of the wires inside. Strip the insulation from the ends of the wires. Using a crimper, crimp u-lugs on the ends of the wires. While crimping make sure to clearly distinguish the live wire from the other wires.

2. To access the electrical control box remove the screws from the side cover.

3. Connect the wires according to the wiring diagram, and firmly screw the u-lug of each wire to it's corresponding terminal.

4. After checking to make sure every connection is secure, loop the wires around to prevent rain water from entering into the terminal.

5. Using the cable clamp, fasten the cable to the unit. Screw the cable clamp down tightly.

6. Insulate unused wires with PVC electrical tape. Arrange them so that they do not touch any electrical or metal parts.

7. Replace the wire cover on the side of the unit and screw it in place.
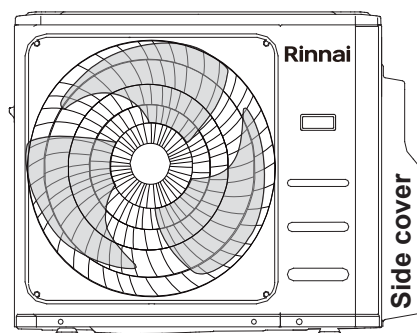
Pipe length and drop height

The length and elevation of the connection pipe is shown in the table below. If the pipe length exceeds charged pipe length, additional refrigerant should be charged to ensure nominal cooling/heating capacity.

Capacity	Pre-charge length	Max. pipe length	Max. elevation	Additional refrigerant
<4.0 kW		25 m	10 m	
5.0-6.0 kW	15 m	30 m	20 m	12 g /m
7.0-8.0 kW		50 m	25 m	
9.0 kW		50 m	25 m	24 g/m

If oil flows back into the outdoor unit's compressor, this might cause liquid compression or deterioration of oil return. Oil traps in the rising gas pipe can prevent this.

If the outdoor unit is installed higher than the indoor unit, proper oil should return to the compressor along with the suction of refrigerant to keep the compressor lubricated. If the suction flow velocity drops below 7.62 m/s oil won't return to the compressor. An oil trap should be installed every 6m of vertical distance.

Refrigerant piping connection

⚠️ **WARNING** When connecting refrigerant piping do not let substances or other 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.

The length of refrigerant piping will affect the performance and energy efficiency of the unit. Nominal efficiency is tested on units with a pipe length of 5 m—a minimum pipe run of 3 m is required to minimise vibration and excessive noise.

1. Cut pipes

Be careful not to damage, dent, or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit. When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficient operation and minimise the need for future maintenance and repair.

1. Measure the distance between the indoor and outdoor units.
2. 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.
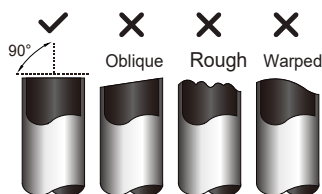
2. Remove burrs

Burrs can affect the airtight seal of the refrigerant pipe 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 deburring tool, remove all burrs from the cut section of the pipe.

3. Flare pipe ends

Proper flaring is essential to achieve an airtight seal.

1. After removing burrs from the 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 the pipe. Make sure they are facing in the right direction. You can't put them on or change their direction after flaring.

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 edge of the flare form in accordance with the dimensions below.

Outer diam. of pipe (mm)	A (mm)	
	Minimum	Maximum
Ø 6.35 (Ø 0.25 ")	0.7 (0.0275 ")	1.3 (0.05 ")
Ø 9.52 (Ø 0.375 ")	1.0 (0.04 ")	1.6 (0.063 ")
Ø 12.7 (Ø 0.5 ")	1.0 (0.04 ")	1.8 (0.07 ")
Ø 16 (Ø 0.63 ")	2.0 (0.078 ")	2.2 (0.086 ")
Ø 19 (Ø 0.75 ")	2.0 (0.078 ")	2.4 (0.094 ")
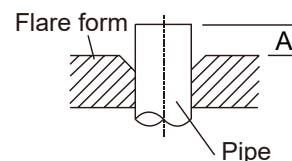
3. **Flare pipe ends continued**

Place flaring tool onto the form. Turn the handle of the flaring tool clockwise until the pipe is fully flared. Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and even flaring.

4. **Connect pipes**

When connecting refrigerant pipes be careful not to use excessive torque or to deform the piping in any way. You should first connect the low-pressure pipe, then the high pressure pipe. When bending connective refrigerant piping, the minimum bend radius is 10 cm.

Bend the pipe

Minimum radius 10 cm
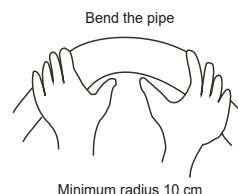
Connecting pipe to indoor unit

1. Align the center of the two pipes being connected.

Indoor unit pipe   Flare nut   Pipe
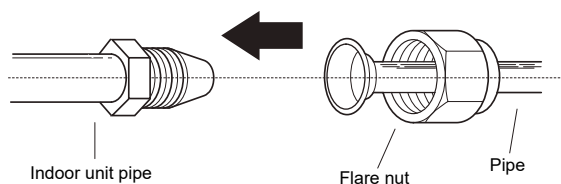
2. Tighten the flare nut as tightly as possible by hand.

3. Using a spanner, grip the nut on the unit pipe.

4. While firmly gripping the nut on the unit pipe, use a torque wrench to tighten the flare nut according to the torque values in the table below. Loosen the flare nut slightly then tighten again. DO NOT use excessive torque, excessive force can break the nut or damage the refrigerant piping.
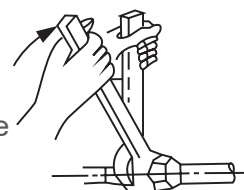
Outer diam. of pipe (mm)	Tightening torque (N•m)	Flare dimension B (mm)	Flare shape
Ø 6.35 (Ø 0.25 ")	18~20 (180-200 kgf.cm)	8.4~8.7 (0.33~0.34 ")	90°±4
Ø 9.52 (Ø 0.375 ")	32~39 (320-390 kgf.cm)	13.2~13.5 (0.52~0.53 ")	45° ±2
Ø 12.7 (Ø 0.5 ")	49~59 (490-590 kgf.cm)	16.2~16.5 (0.64~0.65 ")	B
Ø 16 (Ø 0.63 ")	57~71 (570-710 kgf.cm)	19.2~19.7 (0.76~0.78 ")	R0.4~0.8
Ø 19 (Ø 0.75 ")	67~101 (670-1010 kgf.cm)	23.2~23.7 (0.91~0.93 ")	

Connecting pipe to outdoor unit

1. Unscrew the cover from the packed valve on the side of the outdoor unit.

2. Remove protective caps from ends of valves.

3. Align flared pipe end with each valve, and tighten the flare nut as tightly as possible by hand.

4. Using a spanner, grip the body of the valve. Do not grip the nut that seals the service valve. Over tightening of the flare nut can snap off other parts of the valve.

5. While firmly gripping the body of the valve use a torque wrench to tighten the flare nut according to the torque values above.

6. Loosen the flare nut slightly then tighten again.

7. Repeat steps 3-6 for the remaining pipe.
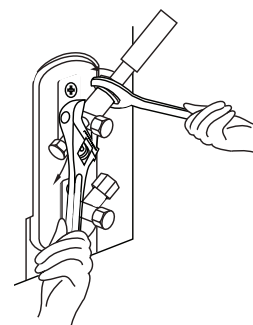
Evacuation

Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the unit, reduce its efficiency, and cause injury. Use a vacuum pump and manifold gauge to evacuate the refrigerant circuit, removing any residual gas and moisture from the system. Evacuation should be performed upon initial installation and when the unit is relocated.

Before performing evacuation make sure the connecting pipes between the units, and all the wiring, is connected properly.

1. Connect the charge hose of the manifold gauge to the service port on the outdoor unit's low pressure valve.

2. Connect another charge hose from the manifold gauge 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 -76 cmHg (-10^5 Pa).

MANIFOLD GAUGE

Compound gauge | Pressure gauge
-76 cmHg
Low pressure valve
Pressure / charge hose
High pressure valve
Charge hose
Vaccum pump
Low pressure valve

6. Close the low pressure side of the manifold gauge, and turn off the vacuum pump.

7. Wait five minutes, then check that there has been no change in system pressure. If there is a change in system pressure, refer to gas leak checks on next page. If there is no change, unscrew the cap from the high pressure valve and using a hexagonal wrench open the valve by a quarter turn (clockwise). Listen for gas exiting the system, then close the valve after five seconds.

8. Watch the pressure gauge for one minute and make sure that there is no change in pressure. The pressure gauge should read slightly higher than atmospheric pressure.

9. Remove the charge hose from the service port. Using a hexagonal wrench, fully open both the high pressure and low pressure valves. Tighten valve caps on all three valves (service port, high pressure, low pressure) by hand. You may tighten it further using a torque wrench if needed.
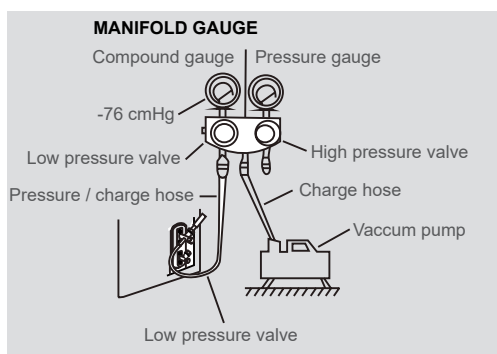
Adding refrigerant

Some systems require additional charging depending on pipe lengths. The standard pipe length varies according to local regulations. The refrigerant should be charged from the service port on the outdoor unit's low pressure. The additional refrigerant to be charged can be calculated using the following formula.

Connective pipe length	Air purifying method	Additional refrigerant
> Std. pipe length (m)	Vacuum pump	Liquid side Ø 6.35 (ø 0.25") (pipe length-standard length) x 12g/m
		Liquid side Ø 9.52 (ø 0.375") (pipe length-standard length) x 24g/m

Open valve stems gently

⚠ **IMPORTANT** When opening valve stems, turn the hexagonal wrench until it hits against the stopper. Do not try to force the valve to open further.

Electrical and gas leak checks

Confirm the unit's electrical system is safe and operating properly. Check all flare nut connections and confirm the system is not leaking. Confirm gas and liquid (high and low pressure) valves are fully open.

Electrical safety checks
After installation confirm that all electrical wiring is installed in accordance with the wiring diagrams on the appliance and with local regulations.

Before test run - check grounding work
Measure grounding resistance by visual detection and with a grounding resistance tester. Grounding resistance must be less than 0.1 Ω.

During test run- check for electrical leakage
During the test run, use a multimeter to perform a comprehensive electrical leakage test. If electrical leakage is detected, turn off the unit immediately and call a licensed electrician to find and resolve the cause of the leakage.

Gas leak checks
There are two different methods to check for gas:

Soap and water
Using a soft brush, apply soapy water or liquid detergent to all pipe connection points on the indoor, and outdoor unit. The presence of bubbles indicates a leak.

Leak detector method
If using a leak detector, refer to the device's instructions for correct usage.

After confirming that all the pipe connection points do not leak, replace the valve cover on the outside unit.

Checkpoints of indoor unit

Checkpoints of outdoor unit

D
B   C
A

A: Low pressure stop valve
B: High pressure stop valve
C / D: Indoor flare nuts
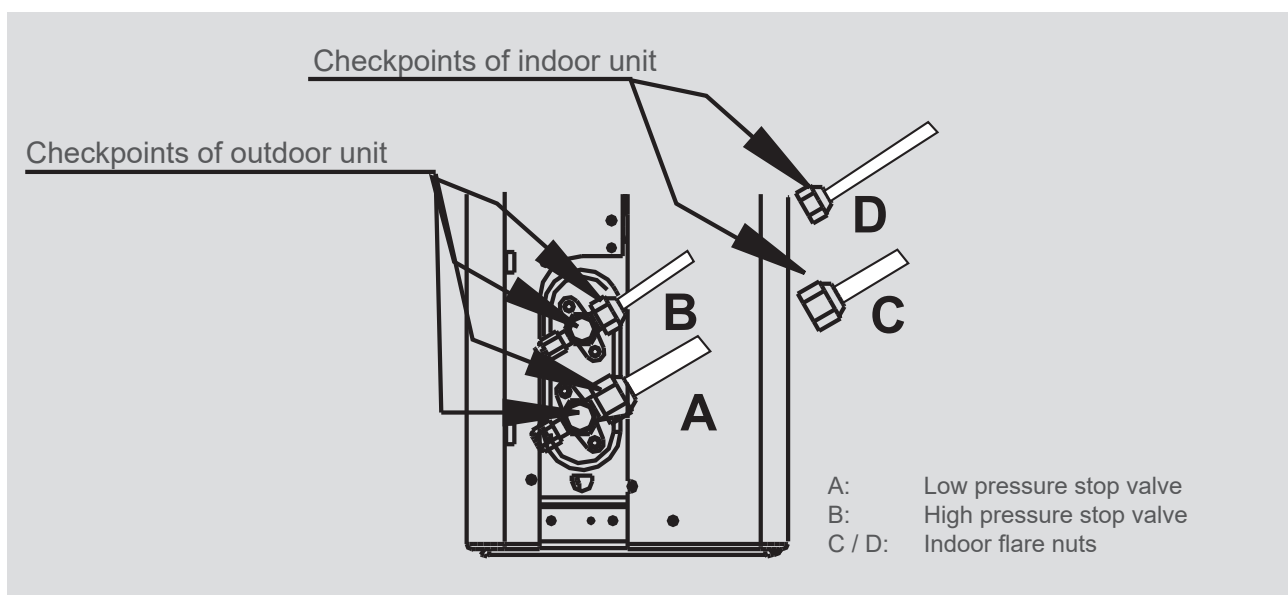
Test run

Perform the test run for at least thirty minutes.

1. Connect power to the unit and press the ON/OFF button on the remote to turn it on.

2. Press the MODE button to scroll through the following functions:
- COOL   select the lowest temperature
- HEAT   select the highest temperature

Let each function run for five minutes and perform the following checks:
- ☑ No electrical leakage
- ☑ Unit is properly grounded
- ☑ All electrical terminals properly covered
- ☑ Indoor and outdoor units installed correctly
- ☑ All pipe connections do not leak
- ☑ Water drains properly from the drain hose
- ☑ All piping is properly insulated
- ☑ COOL function performs correctly
- ☑ HEAT function performs correctly
- ☑ Indoor unit louvres rotate properly
- ☑ Indoor unit remote operates correctly

During operation, the pressure of the refrigerant circuit will increase. This may reveal leaks that were not present during your initial leak check. Take time during the test to double-check that all refrigerant pipe connection points do not have leaks.

During installation and test run you may get an error code. Refer Appendix 2 on pages 23-24 for an error code summary to help diagnose the fault.

3. After the test run is successfully completed and all checks PASS, do the following:
- Using the remote, return the unit to a normal operating temperature
- Using insulation tape, wrap the indoor refrigerant pipe connections left uncovered

---

Ambient temperature below 17 °C

⚠ **NOTE** When the ambient temperature is below 17 °C the COOL function won't work. In this instance you can use the manual control button to test the COOL function. Lift the front panel of the indoor unit and raise it until it clicks. The manual control button is on the right hand side of the unit. Press it two times to select the COOL function. Perform test run as normal.

Installation checklist

Complete the installation checklist below and make sure this is left with the homeowner. Also instruct the homeowner about the use, care, and maintenance of the system, and ensure they understand the safety instructions.

Check	Issues if not checked
☐ Is the indoor unit installed securely?	Dislodgement, vibration, noise
☐ Checked for gas leaks?	No cooling or heating
☐ Has all thermal insulation been completed (vapour pipes, liquid pipes, indoor portions of the drain hose extension)?	Condensation
☐ Is the drainage secure?	Water leakage
☐ Electric wires installed correctly?	No cooling or heating, may cause electrical shock or fire
☐ Wiring in accordance within the specifications?	Operation failure, electrical fire
☐ Inlets / outlets of the indoor and outdoor unit free of any obstructions?	No cooling or heating
☐ Are the stop valves open?	No cooling or heating
☐ Are the pipes designed for use with R32?	Pipe or pipe connection leakage
☐ Leak test pipe connections?	Pipe connection leakage
☐ Air purging carried out?	No cooling or heating
☐ Appliance tested for correct operation?	No cooling or heating
☐ End user aware of operating and safety procedures	Incorrect operation

Appendix 1: Mounting plate dimensions

The Pro Series 2 mounting plates differ to those represented in the dimension diagrams below, they look like this.

2.5 and 3.5 kW

403

130   133

37

296

45   45

806

65   65
Left rear wall hole   Right rear wall hole

Indoor unit outline

5.0 and 6.0 kW

520

95

41

321

45   29   136

45

971

65   65
Left rear wall hole   Right rear wall hole

Indoor unit outline

7.0 and 8.0 kW

579

97

70

338

53   149

53

1082

90   90
Left rear wall hole   Right rear wall hole

Indoor unit outline

9.0 kW

644

389   257

172   332

362

Indoor unit outline

52   52

90   1259   90
Left rear wall hole   Right rear wall hole
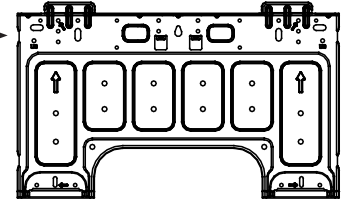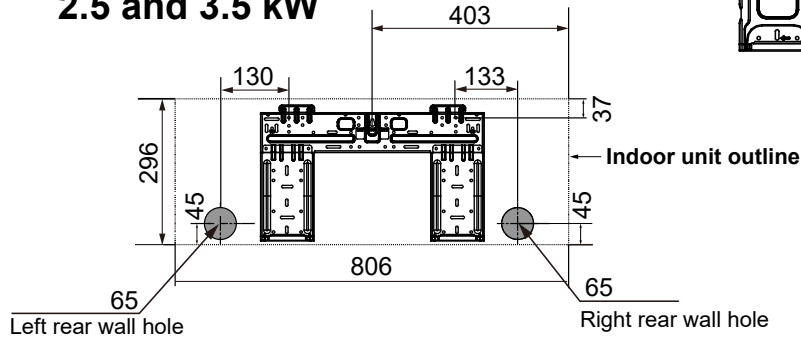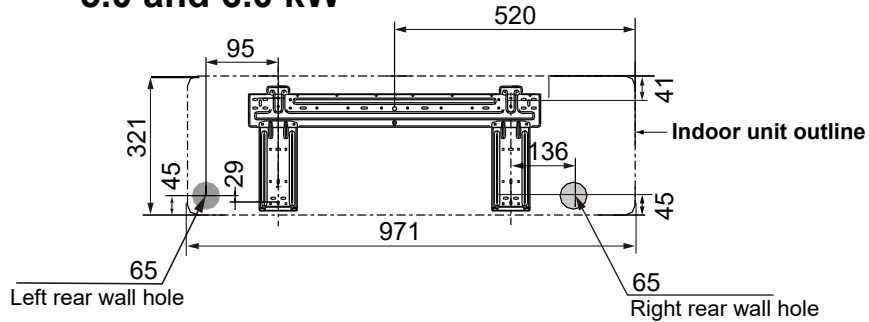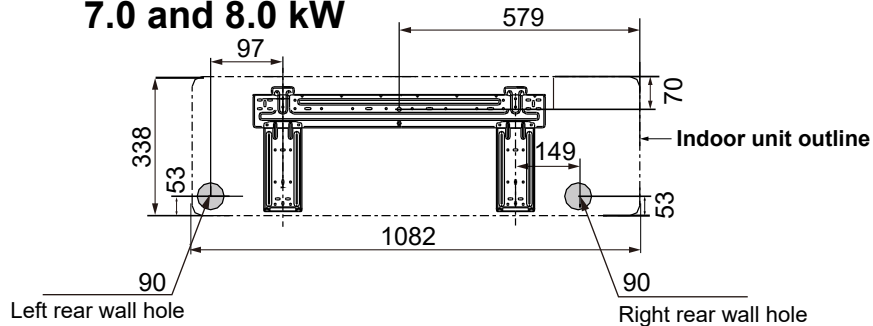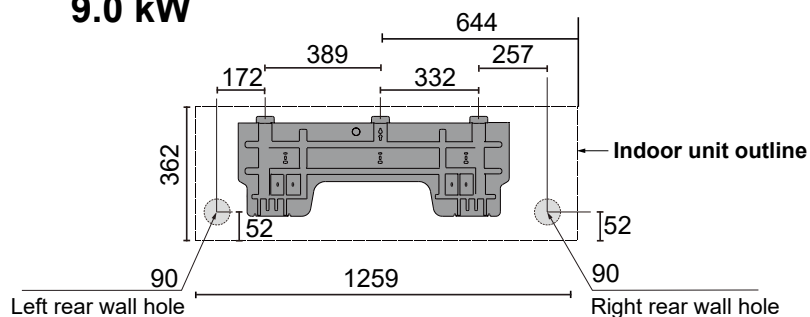
Appendix 2: Error code summary
Indoor and outdoor combined

Error code	Error description
EH 00 / EH 0R	Indoor unit EEPROM[1] parameter error
EL 01	Indoor / outdoor communication error
EH 02	Zero crossing signal detection error
EH 30	Over low voltage protection of indoor external fan
EH 31	Over voltage protection of indoor external fan
EH 03	Indoor fan speed operating outside the normal range
EC 51	Outdoor unit EEPROM parameter error
EC 52	Condenser coil temperature sensor T3 is in open circuit or has short circuited
EC 53	Outdoor room temperature sensor T4 is in an open circuit or has short circuited
EC 54	Compressor discharge temperature sensor TP is in an open circuit or has short circuited
EC 56	Evaporator coil outlet temperature sensor T2B is in an open circuit or has short circuited
EH 60	Indoor room temperature sensor T1 is in an open circuit or has short circuited
EH 61	Evaporator coil temperature sensor T2 is in an open circuit or has short circuited
EC 07	The outdoor fan speed is operating outside the normal range
EH 0b	Indoor PCB / display board communication error
EH 0C	Refrigerant leak detected
PC 00	IPM malfunction or IGBT over-strong current protection
PC 10	Over low voltage protection
PC 11	Over voltage protection
PC 12	DC voltage protection
PC 02	Compressor top high temperature protection (OLP)
PC 03	Pressure protection
PC 40	Communication error between outdoor main chip and compressor driven chip
PC 41	Current input detection protection
PC 42	Compressor start error
PC 43	Lack of phase (3 phase) protection
PC 44	No speed protection
PC 45	341 PWM error
PC 46	Compressor speed malfunction
PC 49	Compressor over current protection
--	Indoor unit mode conflict (match with multi outdoor unit)

[1] EEPROM: Electrically Erasable Programmable Read-Only Memory. A small memory chip used to store important data that must be retained even when the unit is off. In the case of HVAC units it usually relates to a control board error.

T1:   Indoor air temperature sensor (room temp.)   - replacement part 'Room temperature sensor'
T2:   Indoor coil (evaporator) temp. sensor   - replacement part 'Pipe temperature sensor'
T3:   Outdoor ambient temp. sensor (outdoor air)   - replacement part 'Combination sensor'
T4:   Sometimes used for the outdoor coil (condenser) temp - no replacement part

IPM: Intelligent Power Module
PWM: Pulse Width Modulation. The control board is not receiving a proper PWM signal to control the compressor or fan.

Error code	Error description
PC 0R	Condenser high temperature protection
FH 0C	Humidity sensor is in open circuit or has short circuited
PC 06	Compressor discharge temperature protection
PC 08	Outdoor current protection
PH 09	Anti-cold air in heating mode
PC 0F	PFC module malfunction
PC 30	High pressure protection
PC 31	Low pressure protection
PC 0L	Outdoor ambient temperature too low
PH 90	Evaporator coil temperature over high protection
PH 91	Evaporator coil temperature over low protection
LC 01	Frequency limit caused by T3
LC 02	Frequency limit caused by TP
LC 03	Frequency limit caused by over current
LC 05	Frequency limit caused by voltage
LC 06	Frequency limit caused by PFC
LH 00	Frequency limit caused by T2
LH 07	Frequency limit caused by remote controller
NA	No malfunction or protection

Appendix 3: Wiring diagrams
Indoor wiring diagram: 2.5-6 kW models

Indoor wiring diagram 1602200002218D

.... Optional elements

RED
BLUE (BLACK)
YELLOW
Y/G
JX1
Indoor unit
Outdoor unit

1(L) 2(N) S

L-IN
N_IN
CN31

L-OUT
RY1

CN27
ION
OPTIONAL

INDOOR FAN
M
CAP
OPTIONAL
5(3 or 2)
CN12
3
CN13
OPTIONAL
Applicable to AC motor only

SWING MOTOR1
M
5(10)
CN19

SWING MOTOR2
M
5
CN22

OPTIONAL Transformer
2(4)
CN10
CN11
2
CN26

PLASMA/UVC
OPTIONAL

SWITCH BOARD
CN701
OPTIONAL
CN29
2

Pipe temp. sensor
CN15

Room temp. sensor
OPTIONAL
CN14

Wi-Fi Controller
OPTIONAL
4

Wire Controller
OPTIONAL
5

Main board

CN18
4(8)
3

CN3
CN2
CN1
CN4
DISPLAY BOARD
Room temp. sensor
OPTIONAL

MULTI-FUNCTION CONTROL BOARD
CN32
2
CN43
CN40
CN46
To Remote Switch
CN45
To Remote Alarm
CN44 HA HB
To Randomly Connected Wire-controller
CN41 E 12V/5V
CN42 X Y
To CCM Comm.Bus or 485 Wire-controller
OPTIONAL

FOR SETTING NETADDRESS (CCM Comm.Bus)

ENC3+F1 (MULTI-FUNCTION CONTROL BOARD)	ON 1 2	ON 1 2	ON 1 2	ON 1 2
CODE	0~F	0~F	0~F	0~F
NETADDRESS	0~15	16~31	32~47	48~63
FACTORY SETTING				

| 25

Appendix 3: Wiring diagrams
Indoor wiring diagram: 7-8 kW models

Indoor wiring diagram 16022000032436

-------- Optional elements

MAIN BOARD

Optional SWING MOTOR2

Optional PLASMA/UVC

Optional MICRO SWITCH

Room temp. sensor

Pipe temp. sensor

Optional Wi-Fi controller

Wired controller Optional

CN14 CN44 2

CN43 2

CN8

CN9

5

DISPLAY BOARD CN1(CN201)

CN3(CN301)

CN2 (CN101/CN01)

5

Optional KEY BOARD

CN-KEY 3

SWING MOTOR1

CN5 5(10)

P_1

CN10A (CN10) 8(4)

Optional

INDOOR FAN CAP

CN4 5(3 or 2)

CN6 3

FANBACK

L-OUT

RY1

Multi-function control box Optional

Optional ION

CN12

CN6_1(CN13_1)

CN6_2(CN13_2)

L-IN(CN2)

CN11 N

CN16 S

Optional Heater

RED

BLUE(BLACK)

YELLOW

Y/G

JX1

Indoor unit

Outdoor unit

1(L)2(N) S

Magnet ring Optional

To outdoor unit

Appendix 3: Wiring diagrams
Indoor wiring diagram: 9 kW model

Indoor wiring diagram
1602200032769

.... Optional elements

Main board

OPTIONAL MICRO SWITCH

OPTIONAL PLASMA/UVC OPTIONAL

Room temp. sensor

OPTIONAL Wireless Controller CN602

Wire Controller OPTIONAL

SWING MOTOR2 OPTIONAL

CN14

SWING MOTOR1

CN5

INDOOR FAN

OPTIONAL Applicable to AC motor only

CN4

CN6

OPTIONAL Y/G ION

CN12_1 CN12_2

CN6_1

CN6_2

CN43 CN44

CN8

CN9

Pipe temp. sensor

DISPLAY BOARD
CN1(OR CN201)
CN3(OR CN301)
CN2(OR CN101)

CN10A (CN10)

8(7)

Wireless Controller

Wire Controller

OPTIONAL MULTI-FUCTION CONTROL BOX

OPTIONAL

L-OUT

RY1

L-IN

N

CN11(CN1)

CN16

S

OPTIONAL HEATER

RED

BLUE(BLACK)

YELLOW

Y/G

INDOOR UNIT

JX1

OPTIONAL Magnet ring

OUTDOOR UNIT

1(L) 2(N) S

| 27

Appendix 3: Wiring diagrams
Outdoor wiring diagram: All models

**Outdoor wiring diagram
16022000033989**

·········· Optional elements

Y/G Y/G

BLUE BROWN BLACK

CN 2_1 CN 2_2 CN 2_3
L N S

4 OPTIONAL 4 CN 4 CN 3 ② RJ45 DR

CN 3 CN 1 CN 2 CN 16 CN 6

CN 1A

1(L) 2(N) S L N Y/G

OPTIONAL FAST JOINT POWER SUPPLY

Y/G

INDOOR UNIT

OPTIONAL
4-WAY

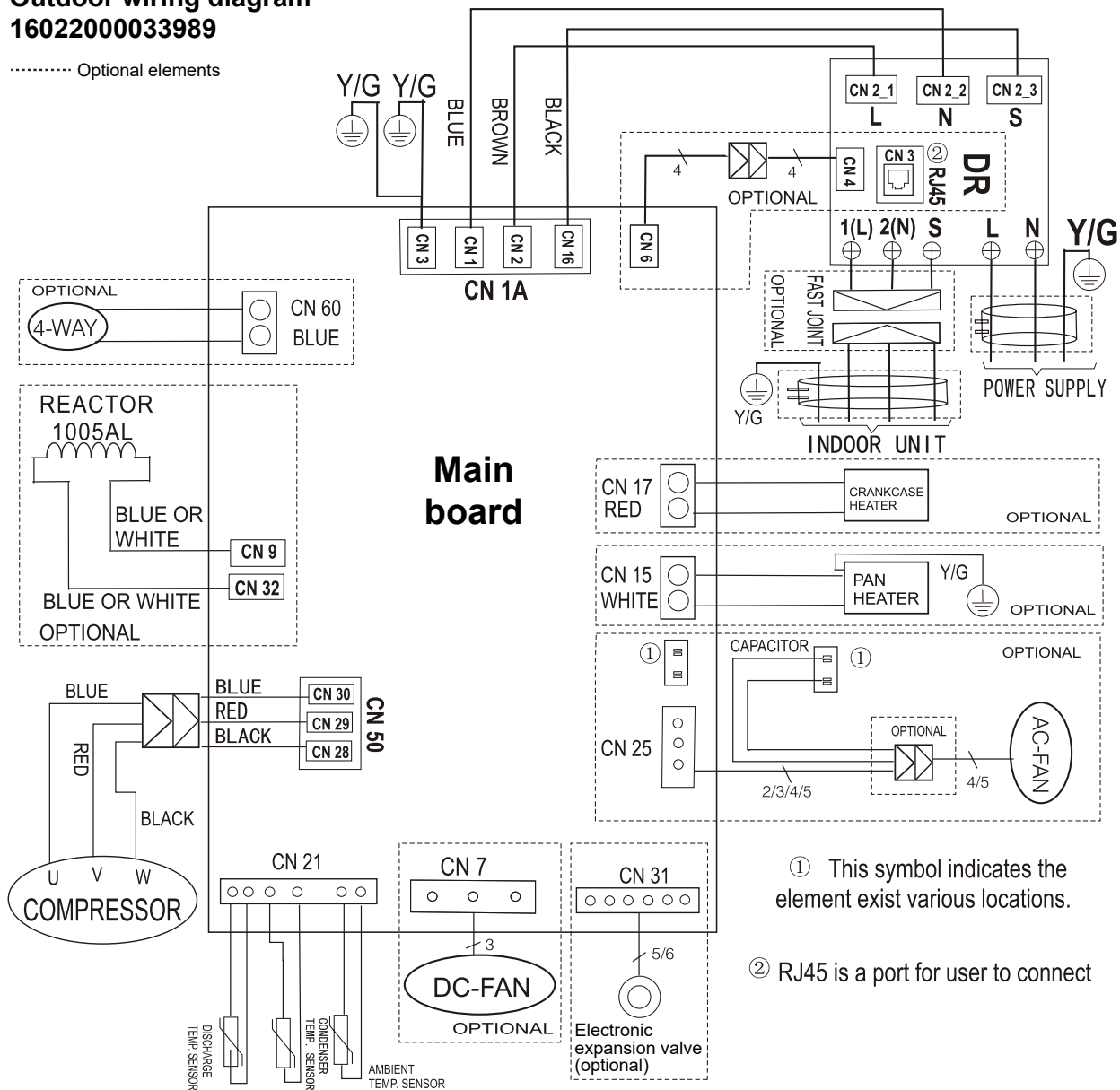CN 60
BLUE

**Main
board**

CN 17
RED

CRANKCASE
HEATER

OPTIONAL

REACTOR
1005AL

BLUE OR
WHITE

CN 9

CN 32

BLUE OR WHITE

OPTIONAL

CN 15
WHITE

PAN
HEATER

Y/G

OPTIONAL

CAPACITOR ① OPTIONAL

BLUE BLUE CN 30
RED RED CN 29
BLACK CN 28

CN 50

①

CN 25

OPTIONAL AC-FAN

2/3/4/5 4/5

RED BLACK

U V W
COMPRESSOR

CN 21 CN 7 CN 31

① This symbol indicates the
element exist various locations.

3 DC-FAN 5/6

OPTIONAL

② RJ45 is a port for user to connect

DISCHARGE
TEMP. SENSOR

CONDENSER
TEMP. SENSOR

AMBIENT
TEMP. SENSOR

Electronic
expansion valve
(optional)

Notes

Notes

Notes

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