2-10. Checks to electrical devices • Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. · Initial safety checks shall include but not limit to: That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking That there is no live electrical components and wiring are exposed while charging, recovering or purging the system That there is continuity of earth bonding. At all times the manufacturer's maintenance and service guidelines shall be followed. . If in doubt consult the manufacturer's technical department for assistance • If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. • The owner of the equipment must be informed or reported so all parties are advised thereinafter Repairs to sealed components covers, etc. • If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc. Ensure that apparatus is mounted securely that they no longer serve the purpose of preventing the ingress equipment. of flammable atmospheres Reduced type, built-in safety components (intrinsically safe component) do not have Replacement parts shall be in accordance with the manufacturer's to be isolated prior to working on them. Repair to intrinsically safe components • Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current • Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating . Replace components only with parts specified by the manufacturer. Unspecified parts by manufacturer may result ignition of refrigerant in the atmosphere from a leak. • Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. • The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans. • Under no circumstances shall potential sources of ignition be used in the searching or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used. • The following leak detection methods are deemed acceptable for all refrigerant systems. No leaks shall be detected when using detection equipment with a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure (>1.04 MPa, max 4.15 MPa) for example, a universal sniffer Electronic leak detectors may be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. - Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work. If a leak is suspected, all naked flames shall be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. The precautions in #7 must be followed to remove the refrigerant. • When breaking into the refrigerant circuit to make repairs - or for any other purpose - conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to: • remove refrigerant -> • purge the circuit with inert gas -> • evacuate -> • purge with inert gas -> • open the circuit by cutting or brazing The refrigerant charge shall be recovered into the correct recovery cylinders • The system shall be purged with OFN to render the appliance safe. (remark: OFN = oxygen free nitrogen, type of inert gas) This process may need to be repeated several times. Compressed air or oxygen shall not be used for this task. · Purging shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. · This process shall be repeated until no refrigerant is within the system When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe work are to take place. • Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and there is ventilation available 8. Charging procedures In addition to conventional charging procedures, the following requirements shall be followed. - Ensure that contamination of different refrigerants does not occur when using charging equipment Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them. Cylinders shall be kept in an appropriate position according to the instructions Ensure that the refrigerating system is earthed prior to charging the system with refrigerant. Label the system when charging is complete (if not already). Extreme care shall be taken not to over fill the refrigerating system Prior to recharging the system it shall be pressure tested with OFN (refer to #7). The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site. Electrostatic charge may accumulate and create a hazardous condition when charging and discharging the refrigerant. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging. . Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. • It is recommended good practice that all refrigerants are recovered safely. • It is essential that electrical power is available before the task is commenced. a) Become familiar with the equipment and its operation. b) Isolate system electrically. c) Before attempting the procedure ensure that: · mechanical handling equipment is available, if required, for handling refrigerant cylinders all personal protective equipment is available and being used correctly; • the recovery process is supervised at all times by a competent person; recovery equipment and cylinders conform to the appropriate standards. promptly and all isolation valves on the equipment are closed off. d) Pump down refrigerant system, if possible e) If a vacuum is not possible, make a manifold so that refrigerant can be system unless it has been cleaned and checked. removed from various parts of the system. · Electrostatic charge may accumulate and create a hazardous condition when charging or discharging the refrigerant. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging.

Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant.

g) Start the recovery machine and operate in accordance with instructions. n) Do not over fill cylinders. (No more than 80 % volume liquid charge).

When the cylinders have been filled correctly and the process completed make sure that the cylinders and the equipment are removed from site

The label shall be dated and signed.

Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed.

Ensure that the correct number of cylinders for holding the total system charge are available.

· Hoses shall be complete with leak-free disconnect couplings and in good condition Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical

• The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged.

refrigerant does not remain within the lubricant.

• The evacuation process shall be carried out prior to returning the compressor to the suppliers.

• When oil is drained from a system, it shall be carried out safely.

During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level

Ensure that apparatus is mounted securely.
 Ensure that seals or sealing materials have not degraded such
 The use of silicon sealant may inhibit the effectiveness of some types of leak detection

Leak detection fluids are also suitable for use with most refrigerants, for example, bubble method and fluorescent method agents. The use of detergents

f) Make sure that cylinder is situated on the scales before recovery takes

Do not exceed the maximum working pressure of the cylinder, even

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant

• When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

•

• All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant).

 Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order Recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

• The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order.

components are sealed to prevent ignition in the event of a refrigerant release Consult manufacturer if in doubt.

 Do not mix refrigerants in recovery units and especially not in cylinders • If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable

Only electric heating to the compressor body shall be employed to accelerate this process.

#### **Check of Density Limit**

The refrigerant (R32), which is used in the air conditioner, is a flammable refrigerant. So the requirements for installation space of appliance are determined according to the refrigerant charge amount (me) used in the appliance The minimum indoor floor space compared with the amount of refrigerant is roughly as follows:

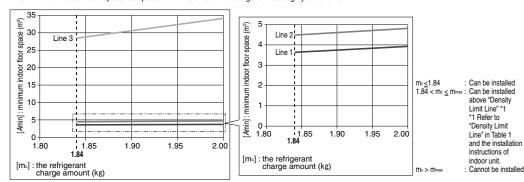


Table 1							
Installation height of Indoor Unit: hinst			Indoor Unit Type			Density Lim	it Line
h <sub>inst</sub> ≥ 2.2 m		4-Way Cassette Duct units (Horizontal Installation) Duct units (Horizontal Installation)			Line 1 Line 2		
1.8 m ≤ h <sub>inst</sub> < 2.2 m							
h <sub>inst</sub> < 1.8 m			Duct units (Vertical Installation)			Line 3	3
		18PZ*** BPF3HB)	U-21PZ***	ι	J-24PZ***		

1.44

mo : The refrigerant charge amount (Total of refrigerant at shipment and refrigerant charge amount in the field). • Please calculate me according to piping length in the field as shown in the calculation example below < Calculating example > • Refer to table "Specification for pipe connecting indoor unit to outdoor unit.".

(conditions : U-24PZ\*\*\* Total pipe length = 50 m)

 $m_c = (1 + (2) = (1 + (3) * (4 - (5))) = 1.32 \text{ kg} + (0.017 \text{ kg}^* (40 \text{ m} - 30 \text{ m})) = 1.49 \text{ kg}$ 

①: Refrigerant charged at shipment ②: Refrigerant charge amount in the field ③: Additional charge per 1m ⑤: Charge-less pipe length(max.)

• If the total piping length is within the maximum value of the charge-less piping length, refrigerant charge in

 $m_{\mbox{\tiny max}}$  : The maximum refrigerant charge amount

# Please install according to \[ \text{Warning} \] \[ \text{Caution} \] on page 1.

#### 1. SELECT THE OUTDOOR UNIT INSTALLATION LOCATION

Warning Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

Install the unit once you have checked that the installation location matches the following conditions. A location with sufficient ventilation.

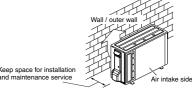
- Possibly a location that is sheltered from rain or direct sunlight and is well-ventilated so that hot and cool air does not build up.
   A location where the area around the discharge is not exposed to animals or plants which could adversely affect the release of hot or cool air
- from the unit. A location where the discharge and operation noise will not be a nuisance to the neighbours.
- A location that can support the product's weight or vibrations and secured for horizontal installation wherever possible
- A location that does not obstruct the air discharge or intake.
   A location where there is no danger of flammable or corrosive gas leaks.
- A location that provides space for installation and service.
- A location that allows the pipe and cable length fixture for internal and external connections
- It may need two or more people to carry out the installation work. Refer to the diagram below for the installation location which is exposed to strong wind.
- If a strong wind of more than 5 m/sec blows to the area directly in front of the discharge, the outdoor unit's air flow is reduced and the outflow may re-enter (short circuit) causing the following outcome:

"Reduced capacity", "Increased frost formation during heating" or "Operation stopped due to increased pressure".

Should an exceptionally strong wind blow to the area directly in front of the discharge of the outdoor unit; there is the risk of damage due to the fan's high-speed reverse rotation

If the direction of the prevailing wind is known when operating the unit, place the unit at an appropriate angle to the wind's direction so that the discharge faces towards a building or a wall.





(8) Obstructions on the front side and rear side (Left side, right side and above the

nstallation with intakes facing intakes or outlets facing outlets (Left side, right side

One of the obstructions' height shall be not more than 2000 mm.

One of the obstructions' height shall be not more than 2000 mm.

(10) In the case of continuous installation of the outdoor units, provide a space of

500 mm or more every three units for the maintenance space.

1000 mm or more

If installing at locations prone to snowfall, install the unit as high as possible with suitable roofing which shelters the unit from snow.

Avoid installing the unit in locations where there are petroleum products (such as machine oil), saline content (such as coastal areas), sulphurous gas and where high frequency noise is generated.

Place the indoor and outdoor unit, power cords and connection cable between outdoor and indoor unit at a minimum distance of 1 meter or more away from televisions and radios. This is to avoid interference to picture and/or sound.

However, depending on the electromagnetic waves, noise interference may still occur even with the 1 meter separation.) For restaurants and kitchens, avoid installing at locations which draws oil and steam. Plastic parts can deteriorate from droplets of oil and steam or it can cause falling parts or water leakage Avoid installing at the location where cutting oil mist or iron powder is present.

If there is an immense voltage fluctuation due to the location's problem, ensure to split the power supply. When installing the product in a place where it will be affected by typhoon or strong wind such as wind blowing between buildings, including the rooftop of a building and a place where there is no building in surroundings, fix the product with an

10. Ensure to assign several people or use a mechanical lift, etc. to transport the unit.

(1) Obstructions on the rear side (Front side, left side, right (6) Obstructions on the left side, right side and rear side (Front side and above the side and above the unit are opened). unit are opened).

unit are opened).

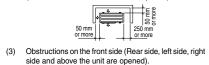
(9) Installation in front-rear rows

(500 mm or more or more)

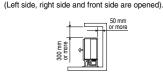
and above the unit are opened).



The outdoor units require necessary space to see a sufficient maintenance and if a sufficient maintenance space is provided if a sufficient maintenance space is provided on the rear side (400 mm), the space of over 150 mm or more or more. (2) Obstructions on the left side, right side and rear side (7) Obstructions on the front side (Rear side, left side, right side and above the unit (Front side and above the unit are opened). are opened).







2. TRANSPORT AND INSTALL THE OUTDOOR UNIT

Transport the outdoor unit in its original packaging as close as possible to the installation location. In the event that the unit needs to be lifted or suspended, use a rope or belt and use cloth or wood as padding to avoid damaging the unit.

. Use the side handles to carry the unit and be careful not to touch the fin with your hand or any object Read the "Select the outdoor unit installation location" thoroughly before installing the outdoor unit.

When installing to a concrete or solid surface, use M10 or a W 3/8 bolts and nuts to secure the unit. Ensure that it installed upright on a horizontal plane.

(Use an anchor bolt for the installation as shown in the diagram below.)

Avoid installing on the slanted roof. In the event where the roof is at risk of receiving oscillations or vibrations, secure the unit with a seismic isolating mount or vibration absorbing rubber.

The drain water will be discharged from the unit during heating or defrosting operation mode.

Select an appropriate location with good drainage system. (In the winter, there is risk of slipping due to freezing, and depending on the installation set up there is risk of drain water running overhead.) Please consult us if installing drain elbows. In cold regions (where the outdoor temperature can drop to below 0° for 2 to 3 consecutive days), the drain water may freeze and may prevent the fan

from operating. For this case, do not use the drain elboy Model A B C 18.5 mm 24 mm 613 mm 131 mm 360.5 mm

#### 3. REFRIGERANT INSTALLATION

For indoor unit refrigerant piping installation, refer to the installation instruction manual that comes with that indoor unit

Total refrigerant amount (Max. pipe length)

Use clean pipes with no dust inside.
The pipe may corrode with the presence of fluorine dust which will adversely affect the refrigerant piping system due to deterioration of the refrigerant oil, etc.
This unit is specifically for R32. Ensure to adhere to the following items and install accordingly:
Use pipe cutters and flaring tools which are specially designed for use with R32.
When connecting with flaring tools, coat the flare section with ether-based oil.
Ensure to use flare nuts supplied with the unit when connecting this unit.
Only for storing or for coap pices.

Only for storing or for open pipes.
Set the lower limit of the allowable pipe length to 3 m.

Specification for pipe connecting indoor unit to outdoor unit.

If the pipe is shorter than 3 m, the refrigerant may become overfilled and a problem such as abnormal high pressure could occur.

Carefully handle the liquid refrigerant, as it may cause a frostbite.

Do not release refrigerants during the piping works for installing, re-installing and repairing refrigeration parts.

U-21PZ\*\*\* U-24PZ\*\*\* 6.35 (1/4) Pipe outer diameter mm (in. 12.7 (1/2) 15.88 (5/8) Outdoor unit is placed higher Maximum elevation Outdoor unit is placed lower 3 ~ 7.5 Charge-less pipe length 3 ~ 10 3 ~ 30 Additional charge per 1 m 1 15 1.32 Refrigerant charged at shipment

Piping Thickness:						
Size mm (in.)	6.35 (1/4)	9.52 (3/8)	12.7 (1/2)	15.88 (5/8)		
Thickness. mm	≥ 0.6	≥ 0.6	≥ 0.6	≥ 0.8		
Material	Temper-O(Soft copper tube)					

#### Precautions when operating the 2/3-way valve for piping installation

• Do not open the 2/3-way valve until the piping installation is completed. It is closed during shipment.

When removing or tightening the gas tube flare nut, use 2 adjustable wrenches together: one at the

gas tube flare nut, and the other at part A.

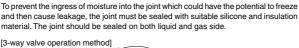
Refer to the following table for the tightening torque of the 2/3-way valve flare nuts.

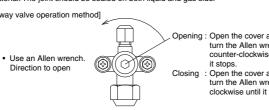
If the nuts are over tightened, they may cause the flares to break or leak.

Do not ad

 Using spanners on the cover or valve itself (other than the hexagonal parts) may cause gas leakage Avoid using spanners on the cover or parts other than the hexagonal part of the valve.







Opening: Open the cover and turn the Allen wrench Closing: Open the cover and turn the Allen wrench clockwise until it stops.

Precautions for handling the valve cap Ensure not to scratch the inner surface of the valve or the end of the valve shaft.

Precautions for handling the service ports

Use a push-rod with a charge hose

· Once adjustments to the valve are completed, ensure to tighten the valve cap

10.7 N•m~14.7 N•m (107 kgf•cm~147 kgf•cm) Caulking treatment, etc

Insulation material and silicone sealant. Please ensure there are no gaps where moisture can enter the joint.

Tightening torque (approx.)

14 N•m~18 N•m

(140 kgf•cm~180 kgf•cm)

20.6 N·m~28.4 N·m

(206 kgf•cm~284 kgf•cm)

49 N•m~55 N•m

(490 kgf•cm~550 kgf•cm)

48.0 N•m~59.8 N•m

(480 kgf•cm~598 kgf•cm)

Silicone Sealant must be neutral cure and ammonia free. Use

of silicon containing ammonia can lead to stress corrosio on the joint and cause leakage.

ø6.35 (1/4")

ø9.52 (5/8")

ø12.7 (1/2")

ø15.88 (5/8")

1.30

# Once adjustments to the valve are completed, ensure to tighten the valve cap according to the prescribed torque. Precautions for connecting the pipes

For proper connection, align the union and flare straight with each other.
 Ensure that the pipes do not come into contact with the compressor's bolts or exterior panel.

There is a risk of condensation from the 3-way valve coming out between the insulation material and the indoor unit's piping when you install the outdoor unit above than the indoor unit. Ensure to caulk the connection parts.

# Precautions for insulation installation | Maximum temperature limit of gas or liquid piping is 120 °C

• In high humidity environment, reinforce the insulation material for the refrigerant piping. Failure to do so may result in condensation on the

 Use materials with good heat-resistant properties as the heat insulator for the pipes. Ensure to insulate both the gas side and liquid side pipes If the pipes are not adequately insulated, condensation and water leakages may occur
 Ensure that the current insulation covers the pipes up to the unit's connecting part.

If the piping is exposed, it may cause condensation or burn (when touch the pipe)

#### Precautions for flare nut installation

Piping size	Tightening torque (approx.)	Flare section dimensions A	Flare configuration
ø 6.35	18.0 N•m (180 kgf•cm)	8.7 ~ 9.1 mm	$\triangle$
ø 9.52	42.0 N•m (420 kgf•cm)	12.8 ~ 13.2 mm	° × / & / ←   → →
ø 12.7	55.0 N•m (550 kgf•cm)	16.2 ~ 16.6 mm	\$\\\
ø 15.88	65.0 N•m (650 kgf•cm)	19.3 ~ 19.7 mm	

After piping connection has completed, ensure there is no gas leakage.

When tightening the flare nut, coat the flares (inner surface only) with refrigerant oil on the flares

Firstly, screw in 3-4 turns by hand \* Ensure not to get oil on the screw part. Refrigerant oil used is ether-based.

Once the piping connections are completed, perform leakage inspection using nitrogen gas. When flared joints are reused, the flare part shall be re-fabricated.

### INCASE OF REUSING EXISTING REFRIGERANT PIPING

Observe the followings to decide reusing the existing refrigerant piping.
 Poor refrigerant piping could result in product failure.
 In the circumstances listed below, do not reuse any refrigerant piping. Instead, make sure to install a new piping.
 Heat insulation is not provided for either liquid-side or gas-side piping or both.

The existing refrigerant pipe has been left in an open condition.
 The existing refrigerant pipe has been left in an open condition.
 The diameter and thickness of the existing refrigerant piping does not meet the requirement. (Refer to above tables)
 The piping length and elevation does not meet the requirement. (Refer to above tables)
 Use only R32 or R410A genuine branch pipe.
 Perform proper pump down for operated product before reuse piping.
 In the circumstances listed below, clean it thoroughly before reuse.

Pump down operation cannot be performed for the existing air conditioner

The compressor has a failure history. Oil color is darken. (ASTM 4.0 and above)

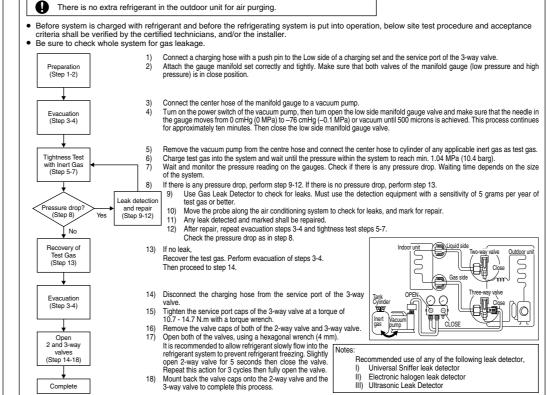
The existing air conditioner is gas/oil heat pump type. In ontreuse the flare to prevent gas leak. Make sure to install a new flare

If there is a welded part on the existing refrigerant piping, conduct a gas leak check on the welded part.
 Replace deteriorated heat insulating material with a new one. Heat insulating material is required for both liquid-side and gas-side piping.

(4. AIR TIGHTNESS TEST ON THE REFRIGERATING SYSTEM)

O not purge the air with refrigerants but use a vacuum pump to vacuum the installation.

AIR PURGING METHOD IS PROHIBITED FOR R32 SYSTEM



Universal Sniffer leak detector

Electronic halogen leak detector
 Ultrasonic Leak Detector

Precautions after the pipes' connection have completed

to compressor failure

Ensure to open the 3-way valve after completing the piping installation

leak test and vacuuming. If it is closed during operation, it can lead

# 5. REGARDING REFRIGERANT FILLING

Precautions during refrigerant filling

Rear direction

Use tools that are designed specifically for R32, for pressure resistance

and to prevent mixing impurities. Fill the refrigerant from the 3-way valve's service port on the gas-side.

For filling and replacing all refrigerant | (For refilling due to a leak) • For refilling refrigerant, first collect all residual refrigerant and after

vacuum dehydration using the vacuum pump. Refill the refrigerant according to the prescribed amount stated on the placard affixed

# 6. ELECTRICAL WIRING

This air conditioner must be installed in accordance with national wiring regulations. Cables connected to outdoor unit must be approved polychloroprene sheathed type 60245 IEC 57 or H05RN-F/H07RN-F or heavier. The units must be connected to the supply cables for fixed wiring by qualified technician. Circuit breaker must be incorporated in the fixed wiring in accordance with the national wiring regulations The circuit breaker must be approved, suitable for the voltage and current ratings of equipment and have a contact separation by 3mm in all poles. When the supply cable is damaged, it must be replaced by qualified technician. Be sure to install a current leakage breaker, main switch and fuse to the main power supply, otherwise electric shocks Be sure to connect the unit to secure earth connection. If the earthing work is not carried out properly, electric shocks may result. (1) Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.

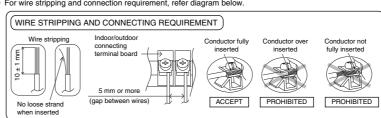
Wiring shall be connected securely by using specified cables and fix them securely so that external force of the cables

may not transfer to the terminal connection section. Imperfect connection and fixing leads to fire, etc Remove the control board cover and terminal board cover from the unit by loosening the screw.

. Ensure to connect the electrical cable connections and clamp the wires securely to the terminal connections using cord clamps so that no undue force is placed on the wires (power source cable, connection cable between indoor and outdoor unit, earth lead wire) Connect the power supply cord and connecting cable between indoor unit and outdoor unit according to the diagram below

L/1 N/2 3 Terminals on the indoor unit Colour of wires (Connecting cable) Terminals on the outdoor unit (Power supply cord) Terminals on the isolating device (Disconnecting means)

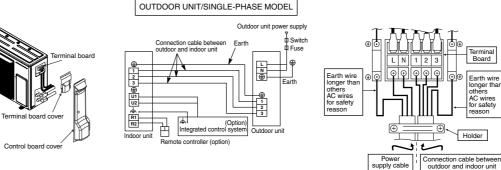
For wire stripping and connection requirement, refer diagram below



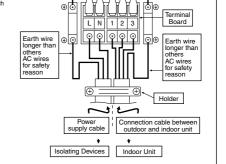
• Do not install a phase advance capacitor for power factor improvement. (It does not improve the power factor and will cause abnormal overheating.)

• Do not bind the excess cables together and place them inside this unit. Make sure that terminal board cover and control board cover mount correctly.

Use the appropriate screwdriver for tightening the terminal screws. Small sized screwdriver damages the head of the screw and cannot tighten it properly. • There is risk of damaging the screw if the terminal screw is over tightened. Tighten with the appropriate torque 1.57 N+m ~ 1.96 N+m (16 kgf+cm ~ 20 kgf+cm).



: functional earthing (for the shielded cable)



Outdoor unit

College of the Colleg									
	Power supply cable								
Model		Min. wire	vire Recommended Wire Length and Wire Diameter for Power Supply Cable						fuse or circuit
	Power supply size (mm²)		Wire size (mm²)	Max. length (m)	Wire size (mm²)	Max. length (m)	Wire size (mm²)	Max. length (m)	capacity (A)
U-18PZ***	220-240 V ~	2.5	2.5	24	4.0	39	6.0	58	15
U-21PZ***	220-240 V ~	2.5	2.5	19	4.0	31	6.0	47	20
U-24PZ***	220-240 V ~	2.5	2.5	17	4.0	27	6.0	41	20

Connection cable between outdoor and indoor unit

Max. length

Control wiring

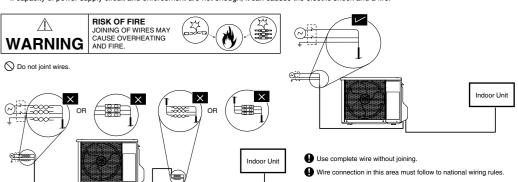
national wiring regulations.

Min. 1.5 mm²	U-18PZ***	30 m			
Will. 1.5 Hilli	U-21 ~ 24PZ***	40 m			
<ul> <li>Refer to the installation instruction manual provided with the indoor unit.</li> <li>Decide the length and size of the power supply cable based on the maximum ampere tabulated above in accordance with the national wiring regulations.</li> </ul>					

Outdoor unit

 Becommended maximum length indicates the value calculated with the 2% voltage drop of cable. Select the fuse(s) and/or circuit breaker(s) from the types and ratings suitable for the maximum ampere tabulated above in accordance with the

• An RCD suitable for use with inverters, resistant to high frequency noise, is most suitable. RCD's intended for protection to include high frequency currents are unnecessary and should be avoided, as potentially causing nuisance tripping, in this application. • If capacity of power supply circuit and enforcement are not enough, it can causes the electric shock and a fire.



# 7. PRECAUTIONS REGARDING TEST RUN

#### Check Before Test Run

	Content check
Outdoor unit	$ullet$ Check that the insulation resistant value is more than 1 M $\Omega$ .
	Use the 500 V mega-testers to measure the insulation.
	Check point : between power supply terminal block (L, N) to earth.
	Do not use the mega-tester for any other circuit except for voltage of 220-240 V ~.
Power supply cable	• Is the wire set up and connected as described in the instructions? Check for any phase sequence.
Connection cable between outdoor and indoor unit	Are the wire connection's screws loose?
Earth wire	• Is the open and close device / leakage breaker installed?
	• Is the power supply cable's thickness and length appropriately measured as described in the instruction
	• Is it earthed (grounded)?
	• Are the wire connections for the indoor/outdoor units connected as described in the instructions?
	Are there any looped wires?
Refrigerant pipe	Is the piping installed as described in the instructions?
	Are the pipes sizes appropriate?
	<ul> <li>Does the pipe's length adhere to the specifications?</li> </ul>
	• Is the branch pipe slant being appropriately done as described in the instructions?
	Was vacuum removal sufficiently carried out?
	<ul> <li>Was the leak tightness test carried out with nitrogen gas? Use the testing pressure of 4.15 MPa.</li> </ul>
	• Is the piping insulation material appropriately installed? (Insulation material is necessary for both
	and liquid piping.)
	• Is the 2/3-way valve for the liquid side and gas side open?

• Always be sure to use a properly insulated tool to operate the printed circuit board. (Do not use your finger.)

 Never switch the power supply ON until the installation has completed Supply electrical current through all indoor units and check the voltage

· Supply electrical current through all the outdoor units and check each inter-phase voltage

Before the test run, ensure to check that the 2/3-way valve is open. Operating while the valve is closed causes the compressor to fail.

#### Test Run Procedure

Refer to the installation instruction manual provided with the indoor unit.

#### 8. CHECKS AFTER INSTALLATION HAVE COMPLETED

Check the following items after completing installation

☐ Is there a short circuit with the intake air flow? ☐ Is the insulation secure? (Refrigerant piping)

☐ Are there any errors with the wiring?

☐ Are the terminal screws loose? Tightening torque (Unit: N•m {kgf•cm}) M4...1.57~1.96{16~20}, M5...1.96~2.45{20~25}

☐ Is the drain water flowing smoothly?

☐ Is the insulation material properly installed?

☐ Is the earth wire securely connected?

Are the terminal board cover, control board cover and the indoor unit air conditioner firmly fixed and was the installation completed without any leakage from the refrigerant? ☐ Are the indoor and outdoor units secured firmly installed with bolts at secured locations?

#### 9. REGARDING DELIVERY TO THE CUSTOMER

 Request the customer to review the operating instructions and explain the operating method for the product • In addition, it is also recommended that regular inspection checks are agreed upon for maintenance.

User inspection places ---- • Grill cleaning • Exterior cleaning Serviceman inspection — • Check the operating status - • Clean the drain pan or things related to the water discharge Heat exchanger cleaning

Refer to the installation instruction manual provided with the indoor unit for the specifications on the indoor unit installation.

# **ENGLISH**

The English text is the original instructions. Other languages are translation of original instructions. ACXF60-47060 ① PRINTED IN MALAYSIA