

# Panasonic

## Air conditioner

### Installation Instruction

MODEL NO. :-  
CS-XZ20, XZ25, XZ35, XZ50XKE Series  
CS-Z20, Z25, Z35, Z42, Z50, Z71XKE Series

#### Required tools for Installation Works

- |  |               |                     |                   |                     |                   |
|--|---------------|---------------------|-------------------|---------------------|-------------------|
| 1 Phillips screw driver                    | 5 Spanner     | 9 Gas leak detector | 13 Multimeter     | 55 Nm (5.6 kgfcm)   | 16 Gauge manifold |
| 2 Level gauge                              | 6 Pipe cutter | 10 Measuring tape   | 14 Torque wrench  | 65 Nm (6.6 kgfcm)   |                   |
| 3 Electric drill, hole core drill (ø70 mm) | 7 Knife       | 11 Thermometer      | 18 Nm (1.8 kgfcm) | 100 Nm (10.2 kgfcm) |                   |
| 4 Hexagonal wrench (4 mm)                  | 8 Ruler       | 12 Megameter        | 42 Nm (4.3 kgfcm) | 15 Vacuum pump      |                   |

#### SAFETY PRECAUTIONS

- Read the following "SAFETY PRECAUTIONS" carefully before installation.
- This installation manual must be used together with another installation manual incorporated in applicable outdoor unit as complete full set of instructions.
- Confirm the type of gas used before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be installed.
- The caution items stated here must be followed because these important cautions are related to safety. The meaning of each indication used is as below. Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

<b>WARNING</b>	This indication shows the possibility of causing death or serious injury.
<b>CAUTION</b>	This indication shows the possibility of causing injury or damage to properties only.

The items to be followed are classified by the symbols:

Symbol with white background denotes item that is PROHIBITED.

Symbol with dark background denotes item that must be carried out.

- Carry out test running to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. Any unit method or using incompatible material may cause product damage, burst and serious injury.
- Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit on veranda of a high rise building, child may climb up to outdoor unit and cross over the handrail causing an accident.
- Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.
- Do not tie up the power supply cord into a bundle by hand. Abnormal temperature rise on power supply cord may happen.
- Do not sit or step on the unit, you may fall down accidentally.
- Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing.
- When installing or relocating air conditioner, do not let any substance other than the specified refrigerant, air, gas or oil mix into refrigeration cycle (piping). Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- Do not pierce or burn as the appliance is pressurized. Do not expose the appliance to heat, flame, sparks, or other sources of ignition. Else, it may explode and cause injury or death.
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc.

- For R32/R410A model, use piping, flare nut and tools which is specified for R32/R410A refrigerant. Using of existing (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury.
- For R32 and R410A, the same flare nut on the outdoor unit side and pipe can be used.
- Since the working pressure for R32/R410A is higher than that of refrigerant R22 model, replacing conventional piping and flare nuts on the outdoor unit side are recommended.
- If reuse piping is unavoidable, refer to instruction "IN CASE OF REUSING EXISTING REFRIGERANT PIPING".
- Thickness of copper pipes used with R32/R410A must be more than 0.8 mm. Never use copper pipes thinner than 0.8 mm.
- It is desirable that the amount of residual oil less than 40 mg/10 m.

- Engage authorized dealer or specialist for installation. If installation done by the user is incorrect, it will cause water leakage, electrical shock or fire.
- For refrigeration system work, install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire.
- Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fail, water leakage, fire or electrical shock.
- Install at a strong and firm location which is able to withstand weight of the set. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
- For electrical work, follow the national regulation, legislation and this installation instructions. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in the electrical work, it will cause electrical shock or fire.
- Do not use joint cable for indoor/outdoor connection. Use the specified indoor/outdoor connection cable, refer to instruction "3. CONNECT THE CABLE TO THE INDOOR UNIT and connect piping for indoor/outdoor connection. Check the cable so that external force will have impact on the terminal. If connection or fitting is not perfect, it will cause heat up or fire at the connection.
- Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause fire or electrical shock.
- This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD), with sensitivity of 30 mA at 0.1 sec or less. Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown.
- During installation, install the refrigerant piping properly before running the compressor. Operation of compressor without fixing refrigeration piping and valves at opened position will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- During pump down operation, stop the compressor before removing the refrigeration piping. Removal of refrigeration piping while compressor is operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.

- After completion of installation, confirm there is no leakage of refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.
- Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when the refrigerant contacts with fire.
- Be aware that refrigerants may not contain an odor.
- This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may cause electrical shock in case of equipment breakdown or insulation breakdown.

#### CAUTION

- Do not install the unit in a place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
- Prevent liquid or vapor from entering sumps or sewers since vapor is heavier than air and may form suffocating atmospheres.
- Do not release refrigerant during piping work for installation, re-installation and during repairing refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
- Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.
- Do not touch the sharp aluminum fin, sharp parts may cause injury.
- Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
- Select an installation location which is easy for maintenance. Incorrect installation, service or repair of this air conditioner may increase the risk of rupture and it may result in loss damage or injury and/or property.
- Power supply connection to the room air conditioner. Use power supply cord (ø 1.5 mm (2.0 - 2.5HP) type designation 60245 IEC 57 of heavier cord. Connect the power supply cord to the mains using any of the following method. Lower supply point should be easily accessible in case of emergency. In some countries, permanent connection of this air conditioner to the power supply is prohibited.
- Power supply connection to a terminal block for permanent connection. Use an approved 1516 A (3/4 - 1.75HP), 16 A (2.0HP), 20 A (2.5HP) power plug with earth pin for the connection to the socket.
- Use an approved 16 A (3/4 - 2.0HP), 20 A (2.5HP) circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0 mm contact gap.
- Installation work. Do not let two people to carry out the installation work.
- Keep any required ventilation openings clear of obstruction.

#### PRECAUTION FOR USING R32 REFRIGERANT

- Pay careful attention to the following precaution points and the installation work procedures.
- When connecting flare at indoor side, make sure that the flare connection is used only once, if torqued up and released, the flare must be remade. Once the flare connection was torqued up correctly and leak test was made, thoroughly clean and dry the surface to remove oil, dirt and grease for following instructions of silicone sealant. Apply neutral cure (Alkoxy type) & ammonia-free silicone sealant that is non-corrosive to copper and aluminum to the external of the flare and moisture on both the gas & liquid sides. (Moisture may cause freezing and premature failure of the connection).
- The appliance shall be installed and operated in a well ventilated room with indoor floor area larger than  $A_{min}$  (m<sup>2</sup>) (refer Table A) and without any continuously operating ignition source. Keep away from open flames, any operating gas appliances or any operating electric heater. Else, it may explode and cause injury or death.
- Refer to "PRECAUTION FOR USING R32 REFRIGERANT" in outdoor unit installation manual for other precautions that need to pay attention to.

#### Attached accessories

No.	Accessories part	Qty.	No.	Accessories part	Qty.	No.	Accessories part	Qty.
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1	Installation plate	1	3	Remote control	1	5	Remote control holder	1
2	Installation plate fixing screw	5	4	Battery	2	2	Remote control holder fixing screw	2

Piping size	
Gas	Liquid
CZ-SF5, 7BP	9.52 mm (3/8")
CZ-SF5, 10BP	12.7 mm (1/2")
CZ-SF5, 7, 10BP	15.88 mm (5/8")
CZ-SF5, 10BP	19.05 mm (3/4")

- Pipe Size Reducer (CZ-MA1P, CZ-MA3P) and Expander (CZ-MA2P) for Outdoor Multi Connection
- CS-Z21\*\*\*, CS-XZ50\*\*\*

Please refer to "CONNECT THE PIPING" section

#### SELECT THE BEST LOCATION

#### INDOOR UNIT

- Do not install the unit in excessive heat area such as kitchen, workshop and etc. There should not be any heat source or steam near the unit.
- A place where air circulation is good.
- A place where drainage is easy.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door.
- Ensure the space indicated by arrows from the wall, ceiling, fence or other obstacles. Indoor unit of this air conditioner shall be installed in a height of at least 1.5 m.

Table A	Capacity (W)	Max. Refrigerant Charge (kg)	Indoor Area (m <sup>2</sup> )
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$A_{min} = (m^2) / (2.5 \times (LFL)^{0.8} \times h_{ceiling})$  \*\* not less than safety factor margin

$A_{min} = (m^2) / (SF \times LFL \times h_{ceiling})$

(\*) Systems with refrigerant charge less than 1.84 kg are not subjected to any room air requirements.

Table A: only applicable for single split connection. In case of connection to outdoor multi inverter, refer to installation manual at outdoor unit.

This illustration is for (c) If holder at the rear of chassis expansion purposes only. (Refer column "4 Indoor Unit Installation") need to be used to group up the unit, this distance should be 65 mm.

The higher value shall be taken when determining the room area.

Do not over-tighten holder screw, as this may damage the holder.

Close grille door by tighten with screw and close the front panel.

Isolating Devices (Disconnecting means) should have minimum 3.0 mm contact gap.

Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.

Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires as shown in the figure for the electrical safety in case of the slipping out of the cord from the anchorage.

Note: Do not connect power supply to indoor and outdoor unit at the same time. Risk of fire if wrong connection of power supply.

Use complete wire without joining.

Use approved socket and plug with earth pin.

Wire connection in this area must follow to national wiring rules.

Do not connect power supply to indoor and outdoor unit at the same time. Risk of fire if wrong connection of power supply.

CAUTION

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CAUTION

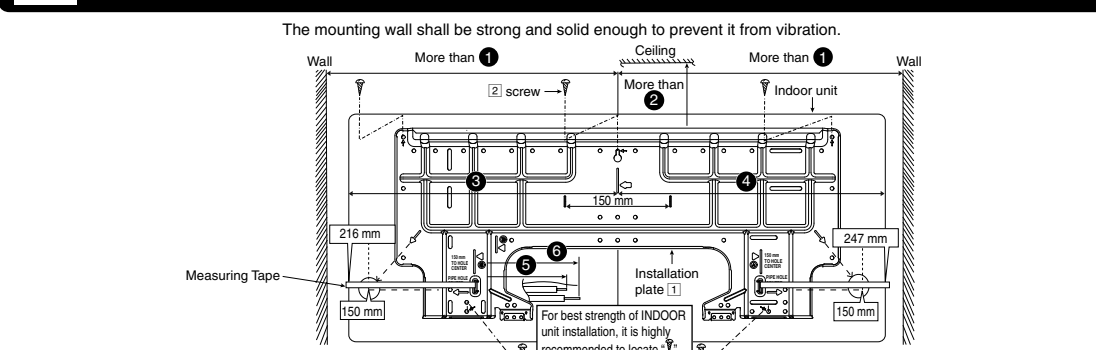
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# INDOOR UNIT

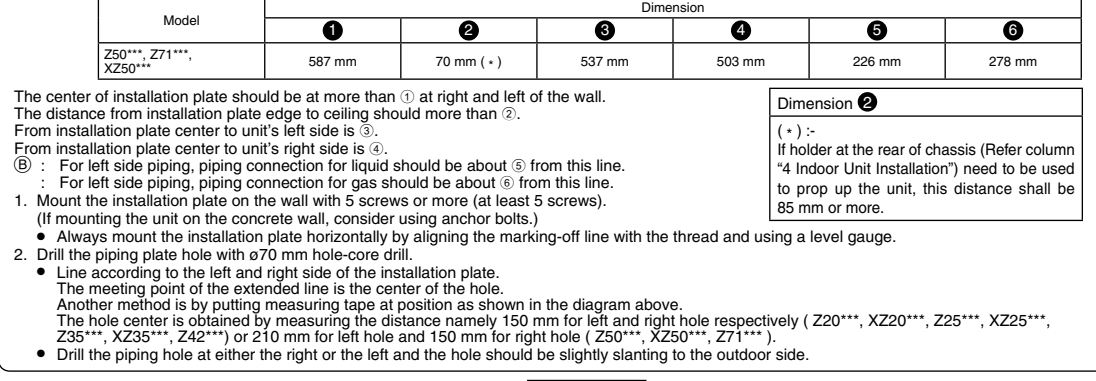
## 1 SELECT THE BEST LOCATION

(Refer to "Select the best location" section)

## 2 HOW TO FIX INSTALLATION PLATE



Model	1	2	3	4	5	6
Z20***, Z25***, Z35***, Z42***, Z50***, XZ25***, XZ35***, XZ50***	500 mm	70 mm (-)	420 mm	450 mm	113 mm	165 mm



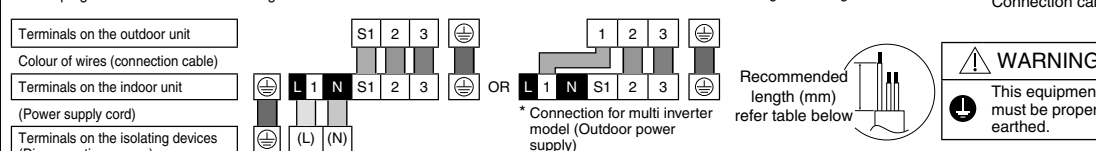
## 3 TO DRILL A HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING

- Insert the piping sleeve to the hole.
- Fix the bushing to the sleeve.
- Cut the sleeve until it extrudes about 15 mm from the wall.



## 5 CONNECT THE CABLE TO THE INDOOR UNIT

- Install the indoor unit on the installing holder that mounted on the wall.
- Open the front panel and grille door by loosening the screw.
- Connect the approved polythene sheathed power supply cord (ø 1.5 mm (3/4 - 1.75HP) or ø 2.0 mm (2.0 - 2.5HP) type designation 60245 IEC 57 of heavier cord to the terminal board, and connect the other end of the cable to Isolating Devices (Disconnecting means).
- Do not use joint power supply cord. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.
- In unavoidable case, joining of power supply cord between isolating devices and terminal board of air conditioner shall be approved polythene sheathed ø 1.5 mm (3/4 - 1.75HP) or ø 2.0 mm (2.0 - 2.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord.
- Remove the tapes and connect the power supply cord and connection cable between indoor unit and outdoor unit according to the diagram below.
- Bind all the power supply cord lead wire with tape and route the power supply cord via the left side escapement.
- Connection cable between indoor unit and outdoor unit shall be approved polythene sheathed ø 1.5 mm (3/4 - 1.75HP) or ø 2.0 mm (2.0 - 2.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord.
- Do not use joint power supply cord. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.
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- Remove the tapes and connect the power supply cord and connection cable between indoor unit and outdoor unit according to the diagram below.



Recommended length (mm) refer table below

Wire stripping, connecting requirement

Indoor/outdoor connection terminal board 5 mm or more (gap between)

Conductor fully inserted ACCEPT

Conductor not inserted PROHIBITED

Conductor not inserted PROHIBITED

Conductor not inserted PROHIBITED

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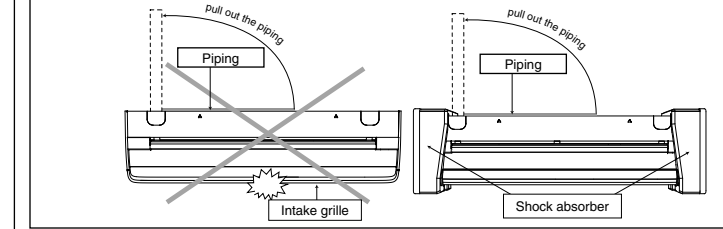
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## 4 INDOOR UNIT INSTALLATION

- Pull out the Indoor piping
- Do not turn over the unit without shock absorber during pull out of the piping. It may cause intake grille damage.
- Use shock absorber during pull out of the piping to protect the intake grille from damage.



### 1. FOR THE RIGHT REAR PIPING

Step-1 Pull out the Indoor piping

Step-2 Install the Indoor Unit

Step-3 Secure the Indoor Unit

Step-4 Insert the power supply cord and connection cable

Insert the cables from bottom of the unit through the control board hole until terminal board area.

2. FOR THE RIGHT AND RIGHT BOTTOM PIPING

Step-1 Pull out the indoor piping

Step-2 Install the Indoor Unit

Step-3 Insert the power supply cord and connection cable

Step-4 Secure the Indoor Unit

Insert the cables from bottom of the unit through the control board hole until terminal board area.

3. FOR THE EMBEDDED PIPING

Step-1 Change the drain hose position

Step-2 Bend the embedded piping

Use a spring rod or equivalent to bend the piping so that the piping is not crushed.

Step-3 Pull the connection cable into indoor unit

The power supply cord and indoor unit and outdoor unit connection cable can be connected without removing the front grille.

Step-4 Cut and flare the embedded piping

When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate.

Refer to the column "Cutting and flaring the piping".

Step-5 Install the Indoor Unit

Step-6 Connect the piping

Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation)

Step-7 Insulate and finish the piping

Please refer to "Insulation of piping" column in outdoor unit section.

Step-8 Secure the Indoor Unit

Fasten the chassis to the installation plate with screws (Self purchase). Screw size: Max. length 10 mm) to provide a neat appearance of indoor unit.

To take out the unit, push the "V" marking at the bottom unit, and pull it slightly towards you to disengage the hooks from the unit.

(This can be used for left rear piping also.)

Change the drain hose position

Rear view for left piping installation

Drain hose

Connection cable

Adjust the piping slightly downwards.

How to pull the piping and drain hose out in case of the embedded piping

Apply putty or caulking material to seal the wall opening.

More than 150 mm (ø4 - 1.75HP) or More than 115 mm (2.0 - 2.5HP)

PVC tube for drain hose (VP-20)

PVC tube for drain hose (VP-30)

Drain hose

Connection cable

Indoor unit

66 mm

For the right piping, follow the same procedure

# CONNECT THE PIPING

## Connecting The Piping to Indoor

For connection joint of all model

Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper pipe. (In case of using liquid piping)

Connect the piping

Align the center of piping and sufficiently tighten the flare nut with torque wrench in specified torque as stated in the table.

Align center of piping to valve and then tighten with torque wrench to the specified torque as stated in the table.

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