Panasonic

Air conditioner
Installation Instruction (Simplified Version)

ACXF60-59660

MODEL NO. :-
CS-XZ20, XZ25, XZ35, XZ42, XZ50CKE Series
CS-Z20, Z25, Z35, Z42, Z50, Z71CKE Series

Required tools for Installation Works

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

QR code for Web Manual
https://eu.dataravi.ac,smartcloud,panasonic,com/documents/index.htm?model=CS-Z20CKEW

- Please scan the above matrix two-dimensional (2D) barcode and read thoroughly for the detailed instruction. Panasonic will not be responsible for any accident or damage due to improper installation in anyway not described in the detailed manuals. Malfunction caused by incorrect installation is also not covered by product warranty.

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 contents 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.

⚠ WARNING	This indication shows the possibility of causing death or serious injury.
⚠ CAUTION	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.

⚠ WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. Any unfit 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 band. Abnormal temperature rise on power supply cord may happen.
- Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.
- 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, eg, air etc 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.
- Do not use joint cable for indoor / outdoor connection cable. Use the specified indoor/outdoor connection cable, refer to instruction **CONNECT THE CABLE TO THE INDOOR UNIT** and connect tightly for indoor/outdoor connection. Clamp the cable so that no external force will have impact on the terminal. If connection or fixing is not perfect, it will cause heat up or fire at the connection.
- 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 (3/4 - 2.0HP), 1.0 mm (2.5HP). Never use copper pipes thinner than 0.8 mm (3/4 - 2.0HP), 1.0 mm (2.5HP).
- 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 fall, 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.
- 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 might not contain an odour.
- 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

- Handle the unit surface with care to avoid scratching the surface by sharp or rough items (e.g. fingernails, tools, rings, etc). Wear hand gloves when performing installation work.
- 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 aluminium 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 this may result in loss damage or injury and/or property.
- Power supply connection to the room air conditioner. Use power supply cord 3 x 1.5 mm² (3/4 ~ 1.75HP), 3 x 2.5 mm² (2.0 ~ 2.5HP) type designation 60245 IEC 57 or heavier cord. Connect the power supply cord of the air conditioner to the mains using one of the following method. Power supply point should be in easily accessible place for power disconnection in case of emergency. In some countries, permanent connection of this air conditioner to the power supply is prohibited.
  1) Power supply connection to the receptacle using power plug. Use an approved 15/16 A (3/4 ~ 1.75HP), 16 A (2.0HP), 20 A (2.5HP) power plug with earth pin for the connection to the socket.
  2) Power supply connection to a circuit breaker for the permanent connection. 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. It may need 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 by following instructions of silicone sealant. Apply neutral cure (Alkoxy type) & ammonia-free silicone sealant that is non-corrosive to copper & brass to the external of the flared connection to prevent the ingress of moisture on both the gas & liquid sides. (Moisture may cause freezing and premature failure of the connection)
- The appliance shall be stored, installed and operated in a well ventilated room with indoor floor area larger than A_{min} (m²) [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.

Applicable piping kit	Piping size	
	Gas	Liquid
CZ-3F5, 7BP	9.52 mm (3/8")	6.35 mm (1/4")
CZ-4F5, 7, 10BP	12.7 mm (1/2")	6.35 mm (1/4")
CZ-52F5, 7, 10BP	15.88 mm (5/8")	6.35 mm (1/4")

- Pipe Size Reducer (CZ-MA1PA, CZ-MA3PA) and Expander (CZ-MA2PA) for Outdoor Multi Connection
  CS-Z42***, CS-XZ42***
  CS-Z50***, CS-XZ50***
  CS-Z71***
- Please refer to "CONNECT THE PIPING" section

SELECT THE BEST LOCATION

INDOOR UNIT

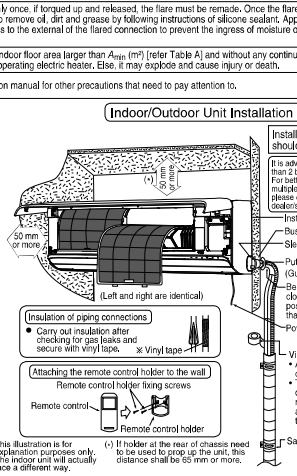
- ❑ Do not install the unit in excessive oil fume area such as kitchen, workshop and etc.
- ❑ There should not be any heat source or steam near the unit.
- ❑ There should not be any obstacles blocking the air circulation.
- ❑ A place where air circulation in the room is good.
- ❑ A place where drainage can be easily done.
- ❑ A place where noise prevention is taken into consideration.
- ❑ Do not install the unit near the door way.
- ❑ Ensure the spaces 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 1.8 m.

Table A

Model	Capacity W (HP)	Max. Refrigerant Charge (kg)	Indoor A_{min} (m²)
Z20***, XZ20***	3/4HP	0.78	Not applicable (*)
Z25***, XZ25***	1.0HP	0.78	Not applicable (*)
Z35***, XZ35***	1.5HP	0.89	Not applicable (*)
Z42***, XZ42***	1.75HP	0.91	Not applicable (*)
Z50***, XZ50***	2.0HP	1.47	Not applicable (*)
Z71***	2.5HP	1.85	4.46

(*) Systems with total refrigerant charge, m_c , lower than 1.84 kg are not subjected to any room area requirements.
* Table "A" only applicable for single split connection.
* In case of connection to outdoor multi inverter, refer to installation manual at outdoor unit.

Indoor/Outdoor Unit Installation Diagram



- This illustration is for explanation purposes only. The indoor unit will actually face a different way.
(*) If holder at the rear of chassis need to be used to prop up the unit, this distance shall be 65 mm or more.

$A_{min} = (m_c / (2{,}5 \times (LFL)^{(n/d)} \times h_0))^2$ ** not less than concentration factor margin

A_{min} = Required minimum room area, in m²
m_c = Refrigerant charge in appliance, in kg
LFL = Lower flammability limit (0,307 kg/m³)
h_0 = Installation height of the appliance (1.8 m for wall mounted)
CF = Concentration factor with a value of 0.75
** The required minimum room area, A_{min}, shall also be governed by the concentration factor margin formula below :

$A_{min} = m_c / (CF \times LFL \times h_0)$

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

INDOOR UNIT

1 INSTALL THE INDOOR UNIT

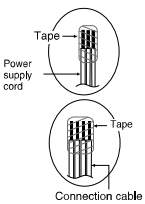
For indoor unit installation, please scan the matrix two-dimensional (2D) barcode and refer to the detailed manuals.

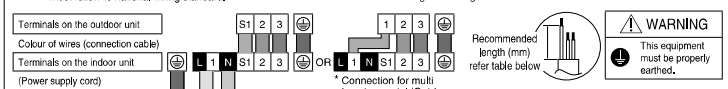
2 CONNECT THE CABLE TO THE INDOOR UNIT

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

① Install the indoor unit on the installing holder that mounted on the wall.
② Open the front panel and grille door by loosening the screw.
③ Cable connection to the power supply through Isolating Devices (Disconnecting means).
- Connect the approved polychloroprene sheathed **power supply cord** 3 x 1.5 mm² (3/4 ~ 1.75HP) or 3 x 2.5 mm² (2.0 ~ 2.5HP), type designation 60245 IEC 57 or 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 done socket and plug rated 15/16 A (3/4 ~ 1.75HP) or 16 A (2.0HP) or 20 A (2.5HP). Wiring work to both socket and plug must follow to national wiring standard.

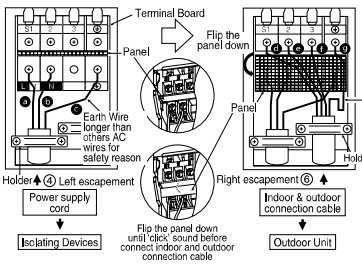
④ Bind all the **power supply cord** lead wire with tape and route the power supply cord via the left side escapement.
⑤ **Connection cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm² (3/4 ~ 1.75HP) or 4 x 2.5 mm² (2.0 ~ 2.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord.
⑥ Bind all the indoor and outdoor **Connection cable** with tape and route the connection cable via the right side escapement.
⑦ Remove the tapes and connect the power supply cord and connection cable between indoor unit and outdoor unit according to the diagram below.

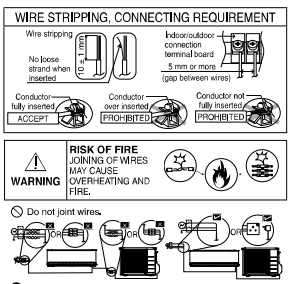




⚠ WARNING
This equipment must be properly earthed.

Recommended length (mm)	ⓐ	ⓑ	ⓒ	ⓓ	ⓔ	ⓕ	ⓖ
	30	30	60	45	40	35	55



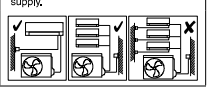


⑧ Secure firmly the power supply cord and connecting cable onto the control board with the holder.
Do not overtighten holder screw, as this may damage the holder.
⑨ Close grille door by tighten with screw and close the front panel.

Note:
- 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.

❗ Use complete wire without joining.
❗ Use approved socket and plug with earth pin.
❗ Wire connection in this area must follow to national wiring rules.

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



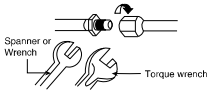
3 CONNECT THE PIPING

Connecting The Piping to Indoor

For connection joint of all models

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

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



Additional Precautions For R32 Models when connecting by flaring at indoor side

❗ Ensure to do the re-flaring of pipes before connecting to units to avoid leaking.

Seal sufficiently the flare nut (both gas and liquid sides) with neutral cure (Alkoxy type) & ammonia-free silicone sealant and insulation material to avoid the gas leak caused by freezing.

Neutral cure (Alkoxy type) & ammonia-free silicone sealant is only to be applied after pressure testing and cleaning up by following instructions of sealant, only to the outside of the connection. The aim is to prevent moisture from entering the connection joint and possible occurrence of freezing. Curing sealant will take some time. Make sure sealant will not peel off when wrapping the insulation.

Connecting The Piping to Outdoor

Decide piping length and then cut by using pipe cutter.
Remove burrs from cut edge.
Make flare after inserting the flare nut (locate at valve) onto the copper pipe.
Align center of piping to valve and then tighten with torque wrench to the specified torque as stated in the table.

⃠ Do not overtighten, overtightening may cause gas leakage.

Piping size	Torque
6.35 mm (1/4")	[18 N•m (1.8 kgf•m)]
9.52 mm (3/8")	[42 N•m (4.3 kgf•m)]
12.7 mm (1/2")	[55 N•m (5.6 kgf•m)]
15.88 mm (5/8")	[65 N•m (6.6 kgf•m)]
19.05 mm (3/4")	[100 N•m (10.2 kgf•m)]

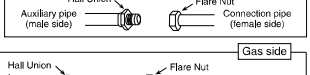
Connecting The Piping to Outdoor Multi

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge. Make flare after inserting the flare nut (locate at valve) onto the copper pipe. Align center of piping to valve and then tighten with torque wrench to the specified torque as stated in the table.

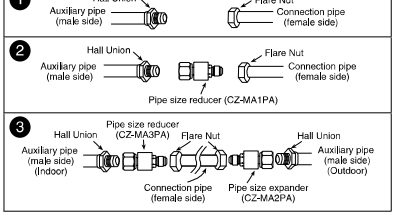
* For Gas side piping please refer table and diagram below

Outdoor Multi Combination Model		Pipe size (refer to diagram)
	R32 Model	
CS-Z20***, CS-XZ20***, CS-Z25***, CS-XZ25***, CS-Z35***, CS-XZ35***	CU-2Z35***, CU-2Z41***, CU-3Z50***, CU-3Z53***, CU-3Z68***, CU-4Z68***, CU-4Z80***, CU-5Z90***, CU-4WZ90***	❶
CS-Z42***, CS-XZ42***, CS-Z50***, CS-XZ50***	CU-2Z50***, CU-3Z53***, CU-3Z68***, CU-4Z68***, CU-4Z80***, CU-5Z90***, CU-4WZ90***	❷ (CZ-MA1PA)
CS-Z71***	CU-4Z80***, CU-5Z90***, CU-4WZ90***	❸ (CZ-MA2PA) & (CZ-MA3PA)

Liquid side

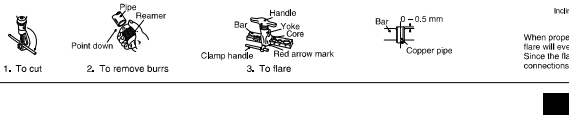


Gas side



Cutting and Flaring The Piping

1. Please cut using pipe cutter and then remove the burrs.
2. Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.
3. Please make flare after inserting the flare nut onto the copper pipes.



1. To cut
2. To remove burrs
3. To flare

When properly flared, the internal surface of the flare will evenly shine and be of even thickness. Since the flare part comes into contact with the connections, carefully check the flare finish.

ENGLISH

ACXF60-59660
PRINTED IN MALAYSIA