WESTERN AIRCONDITIONING™

QUALITY ASSURED FIRM ISO 9001 MERT CERT BSI
MSZ EN ISO 9001:2001

USER AND INSTALLATION MANUAL

Unità esterna - Outdoor unit

SKOV2-18 SKOV2-18P
SKOV3-24 SKOV3-24P
SKOV4-28 SKOV4-28P
SKOV4-36 SKOV4-36P
SKOV5-42 SKOV5-42P

Versione R32

Content

If it needs to install, move or maintain the air conditioner, please contact dealer or local service center to conduct it at first. Air conditioner must be installed, moved or maintained by appointed unit. Otherwise, it may cause serious damage or personal injury or death.

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

R32:675

Precaution

Please read this operating manual carefully before operating the unit.


Appliance filled with flammable gas R32.


Before use the appliance, read the owner's manual first.


Befoer install the appliance,read the installation manual first.


Befoer repair the appliance ,read the service manual first.

The figures in this manual may be different with the material objects ,please refer to the material objects for reference.

The Refrigerant

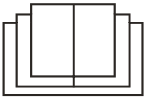
To realize the function of the air conditioner unit, a special refrigerant circulates in the system.The used refrigerant is the fluoride R32,which is specially cleaned.The refrigerant is flammable and inodorous. Furthermore,it can leads to explosion under certain condition. But the flammability of the refrigerant is very low. It can be ignited only by fire.

Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozonosphere.The influence upon the greenhouse effect is also lower. R32 has got very good thermodynamic features which lead to a really high energy efficiency. The units therefore need a less filling.

WARNING:

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacture.Should repair be necessary, contact your nearest authorized Service Center.
Any repairs carried out by unqualified personnel may be dangerous.
The appliance shall be stored in a room without continuously operating ignition sources.
(For example: open flames, an operating gas appliance or an operating electric heater.)
Do not pierce or burn.
Appliance shall be installed, operated and stored in a room with a floor area larger than "X"m^2 (see table 1).(only applies to appliances that are not fixed appliances)
Appliance filled with flammable gas R32. For repairs,strictly follow manufacturer's instructions only.
Be aware that refrigerants not contain odour.
Read specialist's manual.

Read specialist's manual.

Safety Precautions

Please read this manual carefully before using and operating correctly as instructed in this manual .

Please especially take notice of the following two symbols:

WARNING!

It indicates improper operation which will lead to human casualty or severe injury.

CAUTION!

It indicates improper operation which will lead to injury or property damage.

USER NOTICE

This appliance can be used by children aged of 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance.

Cleaning and user maintenance shall not be made by children without supervision.

The total capacity of the indoor units which runs at the same time can not exceed 150% of that of the outdoor units, otherwise, the cooling (heating) effect of each indoor unit would be poor.

Switch the main power on 8 hours before starting the unit, helpful for a successful startup.

It is a normal phenomenon that the indoor unit fan will still run for 20~70 seconds after the indoor unit receives the "stop" signal so as to make full use of after-heat for the next operation.

Safety Precautions

When the running modes of the indoor and outdoor units conflict, it will be indicated on the display of the wired controller in five seconds and then the indooor unit will stop. In this case, they can back to the normal condition by harmonizing their running modes: the cooling mode is compatible with the dehumidifying mode and the fan mode can go with any other mode except the heating mode. If the supply power fails when the unit is running, then the indoor unit will send the "start" signal to the outdoor unit three minutes later after power recovery.

Do not frequently power on/off the unit, otherwise it would cause the compressor, fan, mainboard, electrostatic expansion valve, or other important component damaged, and then make the unit fail.

During installation, the communication cable and the power cord must not be twisted together but instead separated with an interval of at least 2cm, otherwise the unit is likely to run abnormally.

Cautions for the Debugging and Maintenance Personnel: During debugging and maintenance, prior to the startup of the compressor make sure the heating belt of the compressor has been energized for at least eight hours! Once the compressor is started, it must be guaranteed that it works continuously for at least 30 minutes, otherwise it would be damaged!

The appliance shall be installed in accordance with national wiring regulations.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

Safety Precautions

⚠ WARNING!

The installation should be committed to the appointed service center, otherwise it will cause water leakage, electric shock or fire etc..

Please install the unit in a place where is strong enough to withstand the weight of the unit, otherwise, the unit would fall down and cause injury or death.

The drain pipe should be installed as instructed in the manual to guarantee the proper drainage, meanwhile it should be insulated to prevent condensing, Otherwise the improper installation would cause water leakage and then wet the household wares in the room.

Do not use or place any inflammable, combustible or any noxious substance next to the unit.

Under the occurrence of an error (like burning smell etc.), please cut off the main power supply of the unit.

Keep good ventilation in the room to avoid oxygen deficit.

Never insert your finger or any other object into the air outlet/ inlet grille.

Please take notice of the supporting frame of the unit to see if it is damaged over the long time period of use.

Never refit the unit and contact the sales agent or the professional installation personnel for the repair or relocation of the unit.

Non-professional personnel are prohibited to dismantle of the electric box owing to the high voltage of the outdoor unit.

An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

Safety Precautions

⚠ CAUTION!

Before installation, please check if the power supply corresponds with the requirement specified on the nameplate and also check its security.

Before using the unit, please check if the piping and wiring are correct to avoid water leakage, refrigerant leakage, electric shock, or fire etc..

The main power supply must be earthed to avoid the hazard of electric shock and never connect this earth wire to the gas pipe, running water pipe, lightening rod or phone cable's earth lead.

Turn off the unit after it runs at least five minutes, otherwise its service life will be shortened.

Do not allow children operate this unit.

Do not operate this unit wet hands.

Cut off the main power supply prior to the cleaning of the unit or the replacement of the air filter.

When the unit is not to be used for a long time, please cut off the main power supply of the unit.

Do not expose the unit to the moist or corrosive circumstances.

Never step on the unit or place any object on it.

It is suggested to have a power-on test annually.

Preparative for Installation

Standard Accessory Parts

The standard accessory parts listed below are furnished and should be used as required.

Table 1

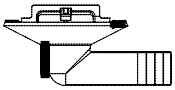
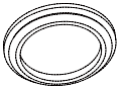
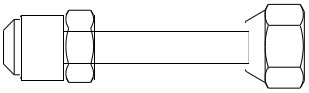
Name	Appearance	Q'ty	Usage
Drainage Connecter		1	To connect with the hard PVC drain pipe
Drain Plug		3	To plug the unused drain hole
Pipe Joint Subassembly		1 or 2 or 4	One for 18K unit, Two for 24K unit, Four for 28K unit
Others	Instructions , bar code		

Fig.1 Pipe Joint Subassembly

Table 2

NO.	Joined with the connection pipe connected with indoor Unit	Joined with the pipe joint of outdoor Unit	Usage
1	Φ12.7	Φ9.52	one for 18K unit, two for 24K/28K
2	Φ15.9	Φ9.52	one for 28K unit
3	Φ9.52	Φ6.35	one for 28K unit

Installation Instructions

Installation Location and Matters Needing Attention

The installation of the unit must comply with the national and local safety regulations. The installation quality directly affects the normal use, so the user should not carry out the installation personally, instead, the installation and debugging should be done by technician according to this manual. Only after that, can the unit be energized.

● How to select the installation location for the indoor unit

1. Where there is no direct sunlight.
2. Where the top hanger, ceiling and the building structure are strong enough to withstand the weight of the unit.
3. Where the drain pipe can be easily connected to outside.
4. Where the flow of the air inlet/outlet is not blocked.
5. Where the refrigerant pipe of the indoor unit can be easily led to outside.
6. Where there is no inflammable、explosive substances or their leakage.
7. Where there is no corrosive gas、heavy dust、salt mist、smog or moisture.

● How to select the installation location for the outdoor unit

1. The outdoor unit must be installed where the bearing surface is stable and secure enough.
2. The outdoor unit and indoor unit should be placed as close as possible to minimize the length and bends of the refrigerant pipe.
3. Do not install the outdoor unit under the window or between the buildings to prevent the normal running noise entering the room.
4. Where the flow of the air inlet/outlet is not blocked.
5. The outside unit should be installed where ventilation is in good condition so that the unit can take in and discharge enough air.
6. Do not install the unit where there are inflammable and explosive substances and where there is heavy dust、salt fog and other severely polluted air.

No air guiding pipe is allowed to be installed at the air inlet/outlet of the outdoor unit. Under the heating mode, the condensate water would drip down from the base frame and would be frozen when the outdoor ambient temperature is lower than 0°C (32°F). Besides, the installation of the outdoor unit should not affect the heat radiation of the unit.

CAUTION!

The unit installed in the following places is likely to run abnormally. If unavoidable, please contact the professional personnel at the Teknopoint appointed service center.

- Where is full of oil.
- Alkaline soil off the sea.
- Where there is sulfur gas (like sulfur hot spring).
- Where there are devices with high frequency (like wireless devices, electric welding devices, or medical equipment).
- Special circumstances.

Installation Instructions

● Electric wiring

1. The installation must be done in accordance with the national wiring regulations.
2. Only the power cord with the rated voltage and exclusive circuit for the air conditioning can be used.
3. Do not pull power cord by force.
4. The electric installation should be carried out by the professional personnel as instructed by the local laws, regulations and also this manual.
5. The diameter of the power cord should be large enough and once it is damaged it must be replaced by dedicated one.
6. The earthing should be reliable and the earth wire should be connected to the dedicated device of the building by the professional personnel. Besides, the air switch coupled with the leakage current protection switch must be equipped, which is of enough capacity and of both magnetic and thermal tripping functions in case of the short circuit and overload.

Table 3

Models	Power Supply	Capacity of the Air Switch	Recommended Cord (pieces×sectional area)
SKOV2-18	220-240V~,50Hz	16A	3×1.5mm^2
SKOV3-24 SKOV4-28	220-240V~,50Hz	25A	3×2.5mm^2

Notes:

1. The specifications of the breaker and power cable listed in the table above are determined based on the maximum power (maximum amps) of the unit.
2. The specifications of the power cable listed in the table above are applied to the conduit-guarded multi-wire copper cable (like, YJV copper cable, consisting of PE insulated wires and a PVC cable jacket) used at 40°C and resistible to 90°C (see IEC 60364-5-562). If the working condition changes, they should be modified according to the related national standard.
3. The specifications of the breaker listed in the table above are applied to the breaker with the working temperature at 40°C. If the working condition changes, they should be modified according to the related national standard.

● Earthing Requirements

1. The air conditioner is classified into the class I appliances, so its earthing must be reliable.
2. The yellow-green line of the air conditioner is the earth line and cannot be used for other purpose, cut off or fixed by the tapping screw, otherwise it would cause the hazard of the electric shock.
3. The reliable earth terminal should be provided and the earth wire cannot be connected to any of the following places.
   (1) Running water pipe
   (2) Coal gas pipe
   (3) Sewage pipe
   (4) Other places where the professional personnel think unreliable.

Installation Instructions

SKOV2-18

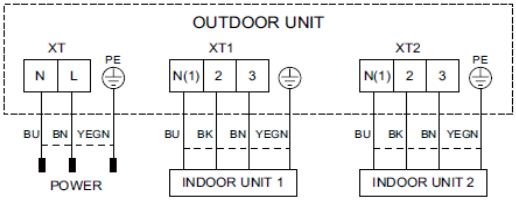


Fig.2

SKOV3-24

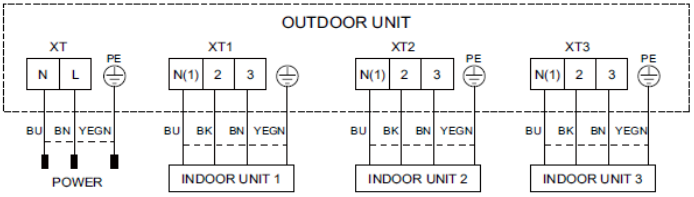


Fig.3

SKOV4-28

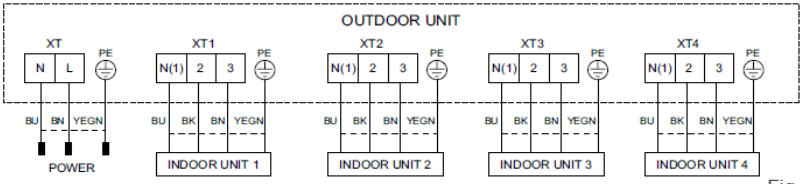


Fig.4

● Noise precautions

1. The air conditioning unit should be installed where ventilation is in good condition, otherwise the working capability of the unit would be reduced or working noise would be increased.
2. The air conditioning unit should be installed on the base frame which is stable and secure uncouth to withstand the weight of the unit, otherwise it would incur vibration and noise.
3. During the installation, a consideration should be taken that the produced hot air or noise should not affect neighbors or surroundings.
4. Do not stack obstacles near the air outlet of the outdoor unit, otherwise it would reduce the working capability of the unit or increase the working noise.
5. In the event of the occurrence of abnormal noise, please contact the sales agent as soon as possible.
6. Accessories for installation

Refer to the packing list for the accessories of the indoor and outdoor units respectively.

Installation Instructions

Installation of the Outdoor Unit

● Precautions for the installation of the outdoor unit

The following rules should be followed when the installation location is being considered so as to let the unit run well enough.

1. The discharged air from the outdoor unit won't return back and enough space should be left for maintenance around the unit.
2. The installation location should be in good condition so that the unit is able to take in and discharge enough air. Besides, make sure there is no obstacle at the air inlet/outlet of the unit. If there is, remove it.
3. The unit must be installed where it is secure enough to support the weight of the unit and capable of reducing to some extent noise and vibration to make sure they do not bother your neighbors.
4. The designated lifting hole must be used for lifting the unit and protect the unit carefully during lifting to prevent damaging the mental sheet which would result in rusting in future.
5. The unit should be installed where there is as little as direct sunlight.
6. The unit must be installed where the rain water and defrosting water can be drained.
7. The unit must be installed where the unit won't be covered by the snow and won't be affected by rubbish and oil fog.
8. Rubber or spring shock absorbers should be used during the installation of the outdoor unit to meet the noise and vibration requirements.
9. The installation dimensions should meet the requirement covered in this manual and the outdoor unit must be fixed securely.
10. The installation should be carried out by the professionally skilled personnel.

● Installation of the Outdoor Unit

1. Outline dimension of the outdoor unit.

SKOV2-18

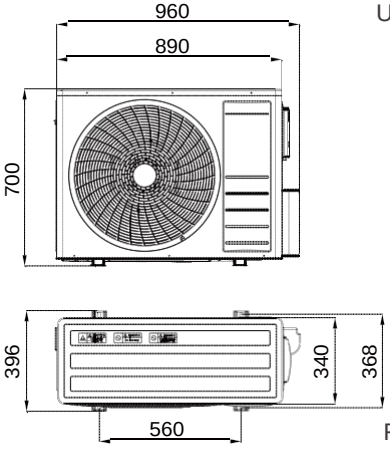


Fig.5

Units: mm

SKOV3-24、SKOV4-28

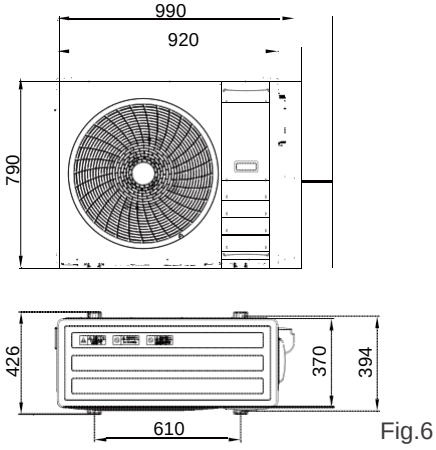


Fig.6

Installation Instructions

2. During the transportation of the outdoor unit, two lifting ropes long enough must be used in four directions and the separation included angle must be less than 40° prevent the center of unit deviating.
3. During the installation, M10 screws should be used to fix the support leg and base frame of the unit.
4. The unit should be installed on a concrete base frame with a height of 10cm.
5. The installation space of the unit should be as required in Fig.7.

Installation Space Requirements of the Outdoor Unit:

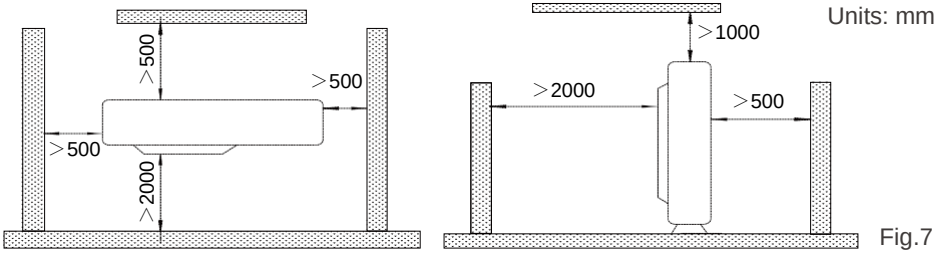


Fig.7

Connection between Indoor and Outdoor Units

● Wiring of the Power Cord

CAUTION!

A breaker must be installed, capable of cutting off the power supply for the whole system.

1. Open the side plate.
2. Connect the power card to the terminals " L ", " N " and also the earthing bolt, and then connect the wring terminals " N(1) , 2 , 3 "of the indoor unit to those of the outdoor unit correspondingly.
3. Fix the power cord with wire clips.

● Energy level and Capacity Code of the Indoor and Outdoor Units

Table 4

	Energy Level	Capacity Code
Indoor Unit	07	23
	09	26
	12	35
	18	52
	24	71
Outdoor Unit	18	52
	24	71
	28	82

Installation Instructions

1. The outdoor unit with capacity level 18 can drive up to two sets of indoor units, the outdoor unit 24 can drive up to three, while the outdoor unit 28 can drive up to four.
2. The sum of the capacity codes of the indoor units should be among 50%-150% of that of the outdoor unit.

● Allowable Length and Height Fall of the Refrigerant Pipe

Table 5

		Allowable Length			Refrigerant Pipe		
		18	24	28	18	24	28
Totlal Length(m)		30	60	70	L1+L2	L1+L2+L3	L1+L2+L3+L4
Max. Length for Single Unit(m)		15	20	20	LX		
Max. installation altitude	Outdoor unit and indoor unit	5	10	10	H1		
	Indoor unit and indoor unit	5	5	5	H2		

Table 6 Dimension of the Refrigerant Pipe of the Indoor Unit

Capacity Level of the Indoor Unit	Gas Pipe (mm)	Liquid pipe (mm)
07、09、12	Φ9.52	Φ6.35
18	Φ12.7	Φ6.35
24、28	Φ15.9	Φ9.52

● Piping between the Indoor and Outdoor units

1. Refer to Table 7 for the moments of torque for tightening screws.
2. Let the flare end of the copper pipe point at the screw and then tighten the screw by hand.
3. After that, tighten the screw by the torque wrench unit it clatters (as shown in Fig.8).
4. The bending degree of the pipe cannot be too small, otherwise it will crack. And please use a pipe tube bender to bend the pipe.
5. Wrap the exposed refrigerant pipe and the joints by sponge and then tighten them with the plastic tape.

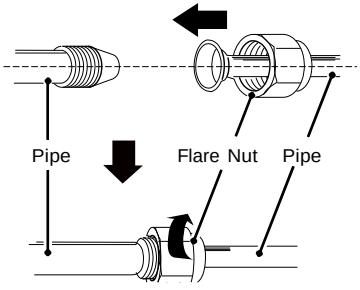
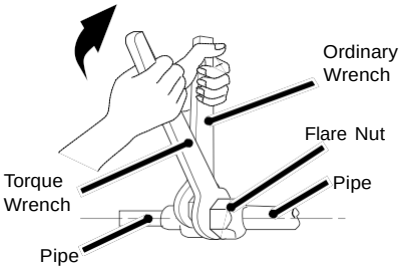


Fig.8



Installation Instructions

Table 7 Moments of Torque for Tightening Screws

Diameter (mm)	Wall Thickness (mm)	Moment of Torque (N·m)
Φ6.35	≥0.5	15-30
Φ9.52	≥0.71	30-40
Φ12.7	≥1	45-50
Φ15.9	≥1	60-65

CAUTION!

1. During the connection of the indoor unit and the refrigerant pipe, never pull any joints of the indoor unit by force, otherwise the capillary pipe or other pipe may crack, which then would result in leakage.
2. The refrigerant pipe should be supported by brackets, that is, don't let the unit withstand the weight of it.

CAUTION!

For the MULTI-S inverter air conditioner unit, each pipe should be labeled to tell which system it belongs to avoid mistaken inaccurate piping.

● Installation of the Protection Layer of the Refrigerant Pipe

1. The refrigerant pipe should be insulated by the insulating material and plastic tape in order to prevent condensation and water leakage.
2. The joints of the indoor unit should be wrapped with the insulating material and no gap is allowed on the joint of the indoor unit, as shown in Fig.9.

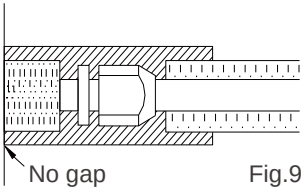


Fig.9

CAUTION!

After the pipe is protected well enough, never bend it to form a small angle, otherwise it would crack or break.

● Wrap the Pipe with Tape

1. Bundle the refrigerant pipe and electric wire together with tape, and separate them from the drain pipe to prevent the condensate water overflowing.
2. Wrap the pipe from the bottom of the outdoor unit to the top of the pipe where it enters the wall. During the wrapping, the later circle should cover half the former one.
3. Fix the wrapped pipe on the wall with clamps.

CAUTION!

1. Do not wrap the pipe too tightly, otherwise the insulation effect would be weakened. Additionally, make sure the drain hose is separated from the pipe.
2. After that, fill the hole on the wall with sealing material to prevent wind and rain coming into the room.

Installation Instructions

Refrigerant Charging and Trial Running

● Refrigerant Charging

1. The refrigerant has been charged into the outdoor unit before shipment, while additional refrigerant still need be charged into the refrigerant pipe during the field installation.
2. Check if the liquid valve and the gas valve of the outdoor unit are closed fully.
3. As shown in the following figure (Fig.10), expel the gas inside the indoor unit and refrigerant pipe out by the vacuum pump.
4. When the compressor is not running, charge the R410a refrigerant into the refrigerant pipe from the liquid valve of the outdoor unit (do not do it from the gas valve).

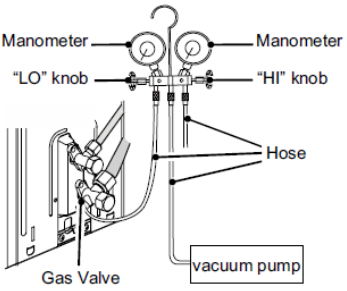


Fig.10

● Calculation of the Additional Refrigerant Charging

1. Refrigerant Charge in the Outdoor Unit before Shipment

Table 8

Model	SKOV2-18	SKOV3-24	SKOV4-28
Refrigerant Charge(kg)	1.4	1.9	2.4

Notes:

(1). The refrigerant charge mentioned in the table above is not include those charged additionally in the indoor unit and the refrigerant pipe.

(2). The amount of the additional refrigerant charge is dependent on the diameter and length of the liquid refrigerant pipe which is decided by the actual yield installation requirement.

(3). Record the additional refrigerant charge for future maintenance.

2. Calculation of the Additional Refrigerant Charge

If the total refrigerant pipe length (liquid pipe) is smaller than listed in the table below, no additional refrigerant will be charged.

Table 9

Model	Total Liquid Pipe Length (a+b+c+d)
SKOV2-18	≤10
SKOV3-24	≤30
SKOV4-28	≤40

Additional refrigerant charge= ∑ Extra Liquid Pipe Length×22g/m (liquid pipe Φ6.35mm)

Notes:

If the total refrigerant pipe length is larger than that listed in the table above, the additional refrigerant for the extra length of the pipe needs to be charged as per 22g/m.

Installation Instructions

3. Example: SKOV4-28

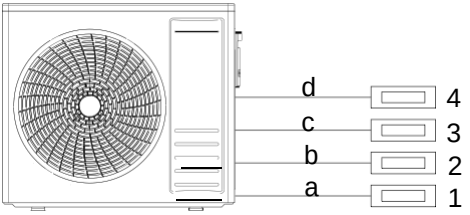


Fig.11

Table 10 Indoor Unit

Serial No.	Mod
Indoor Unit 1	SKIV-07
Indoor Unit 2	SKIV-07
Indoor Unit 3	SKIV-07
Indoor Unit 4	SKIV-07

Table 11 Liquid Refrigerant Pipe

Serial No.	a	b	c	d
Diameter	Φ6.35	Φ6.35	Φ6.35	Φ6.35
Length	20	15	15	15

The total length of each liquid refrigerant pipe is: a+b+c=20+15+15+15=65m
Thus, the minimum additional refrigerant charge=(65-40)×0.022=0.55kg
(Note: no additional refrigerant is needed for the liquid pipe within 40m)

4. Additional Refrigerant Charge Record

Table 12 Indoor Unit

N	Indoor Unit Model	Additional Refrigerant Refrigerant (kg)
1		
2		
..		
N		
Tot		

Table 13 Refrigerant Pipe

Diamete	Total Length (m)	Additional Refrigerant Refrigerant (kg)
Φ15.9		
Φ12.7		
Φ9.52		
Φ6.35		
Total		

Installation Instructions

● Items to be checked after the installation

Table 14

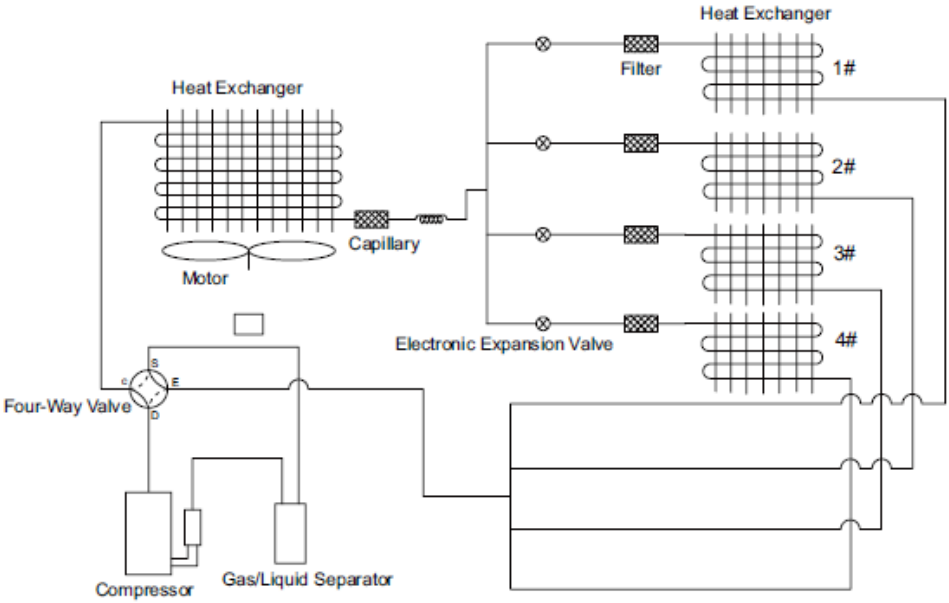
Items to be Checked	Possible Errors	Check Results
Has each part and component of the unit been installed securely?	The unit may fall off ,vibrate or generate noise.	
Has the gas leakage test been taken?	The cooling (heating) capacity may be poor.	
Is the thermal insulation sufficient?	Dews and water drops may be generated.	
Does the drainage go well?	Dews and water drops may be generated.	
Is the actual power voltage in line with the value marked on the nameplate?	The unit may break down or some components may be burnt out.	
Are the wiring and piping correct?	The unit may break down or some components may be burnt out.	
Has the unit been earthed reliably?	There may be a danger of electric shock.	
Does the wire meet the regulated requirement?	The unit may break down or the components may be burnt out.	
Is there any obstacle at the air inlet/ outlet of the indoor/outdoor unit?	The cooling (heating) capacity may be poor.	
Have the length of the refrigerant pipe and the refrigerant charge been recorded?	It may be hard to know the exact refrigerant charge.	

● Trial Running

1. Check before the Trial Running
   (1) Check if the appearance of the unit and the piping system are damaged during the transportation.
   (2) Check if the wiring terminals of the electronic component are secure.
   (3) Check if the rotation direction of the fan motor is right.
   (4) Check if all valves in the system are fully opened.
2. Trial Running
   (1) The trial running should be carried out by the professionally skilled personnel on the premise that all items above are in normal conditions.
   (2) Let the unit energized and switch the wired controller or the remoter controller to “ON”.
   (3) The fan motor and compressor of the outdoor unit will run automatically in one minute.
   (4) If there is some unusual sound after the compressor is started, turn off the unit for an immediate check.

Working Principles of the Unit

Fig.12 Schematic Diagram of MULTI-S Inverter Air Conditioner Unit's System



The outdoor and indoor units start to work once the power is switched on. During the cooling operation, the low temperature, low pressure refrigerant gas from the heat exchanger of each indoor unit gets together and then is taken into the compressor to be compressed into high temperature, high pressure gas, which will soon go to the heat exchanger of the outdoor unit to exchange heat with the outdoor air and then is turned into refrigerant liquid. After passing through the throttling device, the temperature and pressure of the refrigerant liquid will further decrease and then go the main valve. After that, it will be divided and go to the heat exchanger of each indoor unit to exchange heat with the air which needs to be conditioned. Consequently, the refrigerant liquid become low temperature, low pressure refrigerant gas again. Such a refrigerant cycle goes round and round to achieve the desired cooling purpose. During the heating operation, the four-way valve is involved to make the refrigerant cycle reversely. The refrigerant radiates heat in the heat exchanger of the indoor unit(so do the electric heating devices)and absorb heat in the heat exchanger of the outdoor unit for a heat pump heating cycle so as to achieve the desired heating purpose.

Parts and Components of the Unit

System Structure

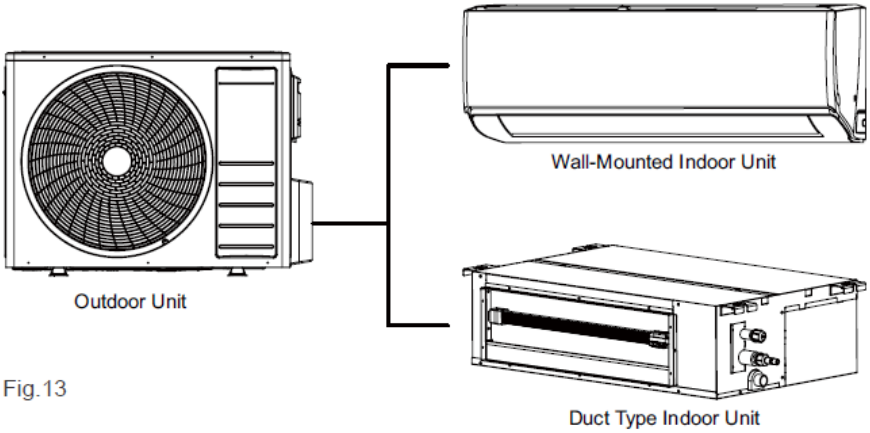


Fig.13

For the MULTI-S Inverter air conditioner unit, one outdoor unit is able to drive up to two or three indoor units which can be duct type or wall-mounted. Among them, the wall-mounted indoor units should be controlled by the remote controller, while the duct type can be controlled by either the remote controller or the wired controller. The outdoor unit will run as long as any one indoor unit receives the running command, and all indoor units stop once the outdoor unit is turned off.

Maintenance

WARNING!

1. The unit can only be cleaned after the unit is turned off and the main power is cut off, otherwise it would cause an electric shock hazard.
2. Do not dampen the air conditioner, as it would cause an electric shock hazard and never rinse the unit with water in any event.

CAUTION!

1. Volatile liquid, like thinner, gasoline etc. would damage the appearance of the air conditioning unit. (Only use the soft dry cloth or the wet cloth with neutral detergent clean the shell of the air conditioning unit)
2. Do not clean the outer shell of the air conditioning unit with more than 45°C hot water to prevent discoloration or deformation.
3. Do not dry the air filter screen of the indoor unit on the fire to prevent combustion or deformation.

Check before the Seasonal Use

1. Check if the inlet/outlet of the indoor/outdoor unit is clogged.
2. Check if the earth lead is earthed reliably.
3. Check if the batteries of the remote controller are replaced.
4. Check if the air filter screen is installed properly.
5. Check if the installation of the outdoor is secure. If there is something abnormal, please contact the Teknopoint appointed service center.
6. When restarting the unit which is not used for a long time, switch on the main power supply eight hours ahead, helpful for a successful startup.

Check after the Seasonal Use

1. Clean the filter screen and body of the indoor and outdoor units.
2. Cut off the main power supply of the air conditioning system.
3. Remove the dust and the foreign matters of the outdoor unit.
4. In the event of the rusting, use the anti-rust paint to stop spreading of rust.

Refer to the installation and operation manual of each indoor unit respectively for detailed maintenance.

Troubleshooting

WARNING!

1. In the event of abnormal conditions(like, stinky smell), please shut off the main power supply immediately and then contact the Teknopoint appointed service center, otherwise the continuous abnormal running would damage the air conditioning unit and also would cause electric shock or fire hazard etc..
2. Do not repair the air conditioning personally but instead contact the professionally skilled personnel at the Teknopoint appointed service center, as the incorrect repair would cause electric shock or fire hazard etc..

Check before Contacting Service Center

Please check the following items before contacting the maintenance serviceman.

Table 15

Conditions	Causes	Corrective Actions
The unit does not run	Broken fuse or opened breaker	Change the fuse or close the breaker
	Power off	Restart the unit when power on
	Power supply plug is loose	Plug the power supply properly
	Insufficient batteries voltage of the remote controller	Change new batteries
	Remote controller out of the control scope	Keep the control distance within 8 meters
The unit stops soon after it starts	Clogged inlet/outlet of the indoor/ outdoor unit	Clear the obstacle
Cooling/Heating is abnormal	Clogged inlet/outlet of the indoor/ outdoor unit	Clear the obstacle
	Improperly set temperature	Adjust the setting of the remote or wired controller
	Too low set fan speed	Adjust the setting of the remote or wired controller
	Improper airflow direction	Adjust the setting of the remote or wired controller
	Opened door and window	Close the door and window
	Direct sunlight	Hang a curtain or blinds over the window
	Too much people in the room	
	Too much heat sources in the	Reduce the heat sources
	Dirty filter screen	Clean the filter screen

Troubleshooting

Notes:
If the air conditioner still runs abnormally after the above check and handling, please contact the maintenance serviceman at the local appointed service center and also give a description of the error occurred as well as the model of the unit.

Problem handling

The conditions listed below are not classified into errors.

Table 16

Conditions		Causes
The unit does not run	When restart the unit soon after it is stopped.	The overload protection switch of the unit let the startup delayed for three minutes.
	As soon as power is on.	The unit will stand by for approximate one minute.
The unit blows out mist	When the cooling operation starts.	The hi-humidity air indoor is cooled quickly.
The unit generates noise	The unit "clatters" as soon as it starts running.	It is the sound generated during the initialization of the electronic expansion valve.
	The unit "swishes" during the cooling operation.	It is the sound when the refrigerant gas runs inside the unit.
	The unit "swishes" when it is started or stopped.	It is the sound when the refrigerant gas stops running.
	The unit "swishes" when it is in and after the running.	It is the sound when the draining system is operating.
	The unit "squeaks" when it is in and after the running.	It is the sound of frication generated by the skin plate etc which swells due to the temperature change.
The unit blows out dust	When the unit restarts after it is not used for a long time.	The dust inside the unit is blown out again.
The unit emits odors	When the unit is running.	The odors absorbed in are blown out again.

Troubleshooting

Error Description

If some error occurs when the unit is running, the error code will be displayed on the wired controller or the display board of the indoor unit. Check for more details about the meaning of each error, as shown in table17.

Table 17

No.	Error Item	Display Board	Wired Controller Display	Error Type
1	Oil return for cooling	b0	b0	Indoor
2	Anti-cold protection	b1	b1	Indoor
3	Refrigerant recovery mode	b2	b2	Indoor
4	Filter cleaning reminder	CL	CL	Indoor
5	Trail running	LL	LL	Indoor
6	Compressor rms phase current limit down	d0	d0	Outdoor
7	Rms machine current limit down	d1	d1	Outdoor
8	Exhaustgas temperature limit down	d2	d2	Outdoor
9	Anti-freeze limit down	d3	d3	Outdoor
10	Overload limit down	d4	d4	Outdoor
11	IPM temp limit down	d5	d5	Outdoor
12	Peak current limit down machine	d6	d6	Outdoor
13	Oil return for heating or defrosting	dF	dF	Indoor
14	High discharge temp protection	E0	E0	Outdoor
15	Overload protection	E1	E1	Outdoor
16	Comperssor overload protection	E2	E2	Outdoor
17	Shutdown for whole unit anti-freeze protection	E3	E3	Outdoor
18	Outdoor amibient temp abnormal protection	E8	E8	Outdoor
19	Compressor stalling	H0	H0	Outdoor

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20	Startup failure	H1	H1	Outdoor
21	Compressor phase current peak protection	H2	H2	Outdoor
22	Compressor phase current RMS protection	H3	H3	Outdoor
23	IPM protection	H4	H4	Outdoor
24	IPM overheat protection	H5	H5	Outdoor
25	Compressor phase circuit detection error	H6	H6	Outdoor
26	Phase loss	H7	H7	Outdoor
27	Outdoor DC fan motor error	H8	H8	Outdoor
28	Outdoor DC fan phase current detection circuit error	H9	H9	Outdoor
29	Jumper error	L0	L0	Indoor
30	Zero detection circuit error	L1	L1	Indoor
31	Indoor fan motor error	L2	L2	Indoor
32	Indoor display communication error between the indoorunit and outdoor unit	L3	L3	Indoor
33	Select the port level abnormal error	L4	L4	Indoor
34	Indoor EEPROM error	L5	L5	Indoor
35	Outdoor display communication error between the indoorunit and outdoor unit	L6	L6	Outdoor
36	Communication error between the indoor unit and wired controller	L7	L7	Indoor
37	Outdoor unit EEPROM error	P0	P0	Outdoor
38	Charging circuit error	P1	P1	Outdoor
39	Feedforward voltage protection	P2	P2	Outdoor
40	Over voltage protaction	P3	P3	Outdoor
41	Low voltage protaction	P4	P4	Outdoor
42	DC link voltage drop error	P5	P5	Outdoor

Troubleshooting

43	Machine current detection circuit error	P6	P6	Outdoor
44	Over-current protection	P7	P7	Outdoor
45	PFC error	P8	P8	Outdoor
46	PFC protection	P9	P9	Outdoor
47	Indoor and outdoor mismatch	PA	PA	Outdoor
48	Mode conflict	PC	PC	Outdoor
49	Select the outdoor port level abnormal error	Pd	Pd	Outdoor
50	Indoor amibient Temp Sensor short/open- circuit	U0	U0	Indoor
51	Indoor pipe midway temp sensor error	U1	U1	Indoor
52	Outdoor amibient temp sensor error	U2	U2	Outdoor
53	Outdoor mid-coil temp sensor error	U3	U3	Outdoor
54	Outdoor discharge temp sensor error	U4	U4	Outdoor
55	IPM temp sensor shotr/open-circuit	U5	U5	Outdoor
56	Pipe outlet temp sensor short/open-circuit	U6	U6	Outdoor
57	Pipe inlet temp sensor short/open-circuit	U7	U7	Outdoor
58	Discharge temp sensor error	U8	U8	Outdoor

Once errors are displayed on the controller or display board, please shut off the air conditioning unit and contact the professionally skilled personnel for troubleshooting.

After-Sales Service

If there is any quality or other issue, place contact the Teknopoint after-sales service center.

Function Descriptions

Refrigerant recovery

The refrigerant can be recovered from the indoor unit.

When the unit is powered on and run under the COOL mode and at 16°C, it is available within five minutes to go to refrigerant recovery mode by pressing six times the “turbo” button on the wireless controller in three second with “b2” display.

How to quit the refrigerant recovery:
When the refrigerant recovery has started, it will quit when there is a signal from the wireless controller or it has run for 25 minutes.

Forcible Defrosting

How to activate this function:
when indoor unit runs under the HEAT mode, it will activate the forcible defrosting by pressing the “FAN” and “MODE” buttons of the wireless controller alternately in three seconds.

How to quit this function: the function will quit when the mode of indoor units conflict.

Notes: The methods of the duct type indoor unit see the wired controller’s manual.

Performance Parameters

Rated working conditions of the air conditioning unit

Table 18 Working Temperature Range

	Indoor side DB/WB(°C)	Outdoor side DB/WB(°C)
Maximum cooling	32/23	55/-
Maximum heating	27/-	24/18

Notes:

The operating temperature range (outdoor temperature) for cooling is -15°C ~55°C ; Heating temperature range for the model without electric heating belt for chassis is -15°C ~ 24°C ; Heating temperature range for the model with electric heating belt for chassis is -20°C ~24°C.

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