TOSHIBA

FILE NO. SVM-16024-8

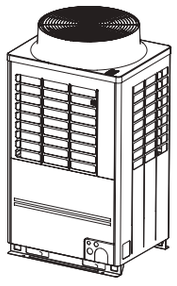
SERVICE MANUAL

AIR-CONDITIONER (MULTI TYPE)

<SUPER HEAT RECOVERY MULTI-e>

Outdoor Unit

Model name:



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MMY-MAP1606FT8(J)P-UK
MMY-MAP1806FT8(J)P-UK
MMY-MAP2006FT8(J)P-UK

Contents

This service manual provides relevant explanations about new outdoor unit (SHRM-e).
Please refer to the following service manuals for each indoor units.

Indoor unit	SVM FILE NO.
4-way Cassette Type (MMU-AP****4HP*) (Made in Thailand model)	SVM-13011
Compact 4-way Cassette Type (MMU-AP****7MH*)	A10-1615
2-way Cassette Type (MMU-AP****WH*)	A10-007
Concealed Duct Standard Type (MMD-AP****6BHP*) (Made in Thailand model)	SVM-14069
Slim Duct Type (MMD-AP2244SPH*, AP274SPH*)	A12-005
Concealed Duct High Static Pressure Type (MMD-AP018 to 056HP*) (Made in Thailand model)	SVM-15032
High-wall Compact Type (MMK-AP****MH*) (Made in Thailand model)	SVM-14078
High-wall Type (MMK-AP****H) (Made in Thailand model)	SVM-09059
Ceiling Type (MMC-AP****7HP*) (Made in Thailand model)	SVM-13085
Floor Standing Type (MMF-AP****6H*)	A10-1420
Console Type (MML-AP****NH*) (Made in Thailand model)	SVM-11012
Air to Air Heat Exchanger with DX Coil Unit Type (MMD-VN****HEXE*)	A10-022
Concealed Duct High Static Pressure Type (MMD-AP0726 to 0966HP) (Made in Thailand model)	SVM-16013
Other indoor units (MM*-AP****H*)	A10-033

SAFETY CAUTION

Please read carefully through these instructions that contain important information which complies with the "Machinery Directive" (Directive 2006/42/EC), and ensure that you understand them.
Some of the details provided in these instructions differ from the service manual, and the instructions provided here take precedence.

Generic Denomination: Air Conditioner

Definition of Qualified Installer or Qualified Service Person

The air conditioner must be installed, maintained, repaired and removed by a qualified installer or qualified service person. When any of these jobs is to be done, ask a qualified installer or qualified service person.
A qualified installer or qualified service person is an agent who has the qualifications and knowledge described in the table below.

Agent	Qualifications and knowledge which the agent must have
Qualified installer	• The qualified installer is a person who installs, maintains, relocates and removes the air conditioners made by Toshiba Carrier Corporation. He or she has been trained to install, maintain, relocate and remove the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such operations by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to these operations. • The qualified installer who is allowed to do the electrical work involved in installation, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified installer who is allowed to do the refrigerant handling and piping work involved in installation, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified installer who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.
Qualified service person	• The qualified service person is a person who installs, repairs, maintains, relocates and removes the air conditioners made by Toshiba Carrier Corporation. He or she has been trained to install, repair, maintain, relocate and remove the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such operations by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to these operations. • The qualified service person who is allowed to do the electrical work involved in installation, repair, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified service person who is allowed to do the refrigerant handling and piping work involved in installation, repair, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified service person who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.

Definition of Protective Gear

When the air conditioner is to be transported, installed, maintained, repaired or removed, wear protective gloves and 'safety' work clothing.
In addition to such normal protective gear, wear the protective gear described below when undertaking the special work detailed in the table below.
Failure to wear the proper protective gear is dangerous because you will be more susceptible to injury, burns, electric shocks and other injuries.

Work undertaken	Protective gear to wear
All types of work	Protective gloves 'Safety' working clothing
Electrical-related work	Gloves to provide protection for electricians Insulating shoes Clothing to provide protection from electric shock
Work at heights (50 cm or more)	Helmets for use in industry
Transportation of heavy objects	Shoes with additional protective toe cap
Repair of outdoor unit	Gloves to provide protection for electricians

The important contents concerned to the safety are described on the product itself and on this Service Manual.

Please read this Service Manual after understanding the described items thoroughly in the following contents (Indications / Illustrated marks), and keep them.

[Explanation of indications]

Indication	Explanation
⚠ DANGER	Indicates contents assumed that an imminent danger causing a death or serious injury of the repair engineers and the third parties when an incorrect work has been executed.
⚠ WARNING	Indicates possibilities assumed that a danger causing a death or serious injury of the repair engineers, the third parties, and the users due to troubles of the product after work when an incorrect work has been executed.
⚠ CAUTION	Indicates contents assumed that an injury or property damage (*) may be caused on the repair engineers, the third parties, and the users due to troubles of the product after work when an incorrect work has been executed.

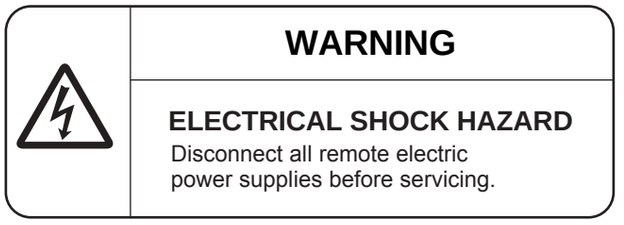
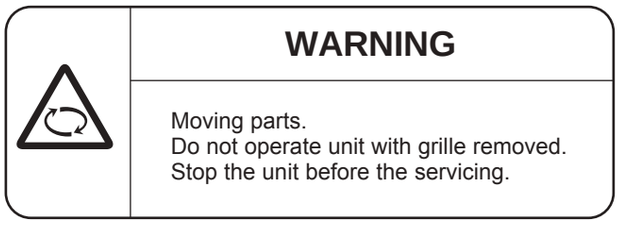
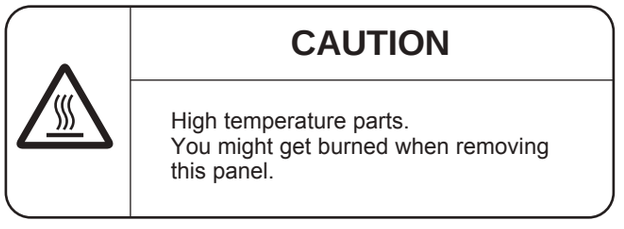
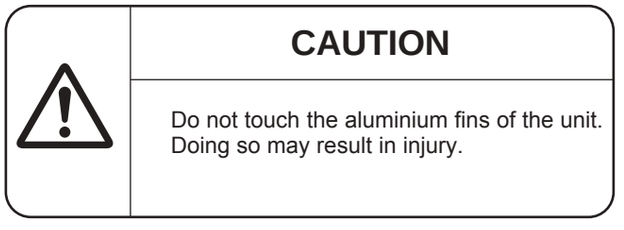
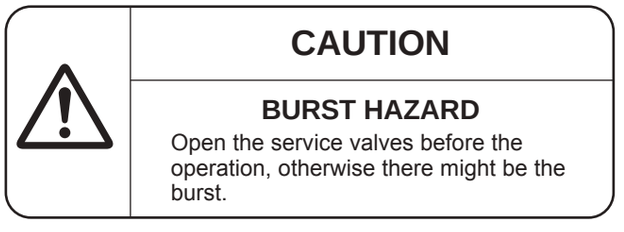
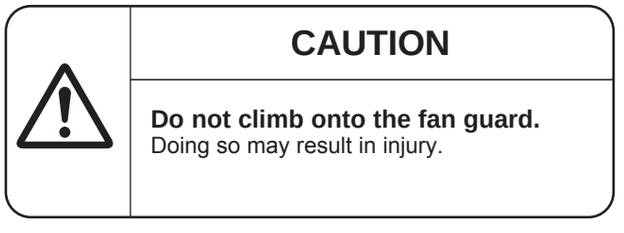
* Property damage: Enlarged damage concerned to property, furniture, and domestic animal / pet

[Explanation of illustrated marks]

Indication	Explanation
	Indicates prohibited items (Forbidden items to do) The sentences near an illustrated mark describe the concrete prohibited contents.
	Indicates mandatory items (Compulsory items to do) The sentences near an illustrated mark describe the concrete mandatory contents.
	Indicates cautions (Including danger / warning) The sentences or illustration near or in an illustrated mark describe the concrete cautious contents.

Warning Indications on the Air Conditioner Unit

[Confirmation of warning label on the main unit]
Confirm that labels are indicated on the specified positions
If removing the label during parts replace, stick it as the original.

Warning indication	Description
	**WARNING** **ELECTRICAL SHOCK HAZARD** Disconnect all remote electric power supplies before servicing.
	**WARNING** Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing.
	**CAUTION** High temperature parts. You might get burned when removing this panel.
	**CAUTION** Do not touch the aluminium fins of the unit. Doing so may result in injury.
	**CAUTION** **BURST HAZARD** Open the service valves before the operation, otherwise there might be the burst.
	**CAUTION** **Do not climb onto the fan guard.** Doing so may result in injury.

PRECAUTIONS FOR SAFETY

The manufacturer shall not assume any liability for the damage caused by not observing the description of this manual.

⚠ DANGER

 Turn off breaker	Before carrying out the installation, maintenance, repair or removal work, be sure to set the circuit breaker for both the indoor and outdoor units to the OFF position. Otherwise, electric shocks may result.
	Before opening the intake grille of the indoor unit or service panel of the outdoor unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the intake grille of the indoor unit or service panel of the outdoor unit and do the work required.
	Before starting to repair the outdoor unit fan or fan guard, be absolutely sure to set the circuit breaker to the OFF position, and place a “Work in progress” sign on the circuit breaker.
	When cleaning the filter or other parts of the indoor unit, set the circuit breaker to OFF without fail, and place a “Work in progress” sign near the circuit breaker before proceeding with the work.
	When you have noticed that some kind of trouble (such as when a check code display has appeared, there is a smell of burning, abnormal sounds are heard, the air conditioner fails to cool or heat or water is leaking) has occurred in the air conditioner, do not touch the air conditioner yourself but set the circuit breaker to the OFF position, and contact a qualified service person. Take steps to ensure that the power will not be turned on (by marking “out of service” near the circuit breaker, for instance) until qualified service person arrives. Continuing to use the air conditioner in the trouble status may cause mechanical problems to escalate or result in electric shocks or other failure.
 Electric shock hazard	When you access inside of the service panel to repair electric parts, wait for about five minutes after turning off the breaker. Do not start repairing immediately.Otherwise you may get electric shock by touching terminals of high-voltage capacitors. Natural discharge of the capacitor takes about five minutes.
 Prohibition	Place a “Work in progress” sign near the circuit breaker while the installation, maintenance, repair or removal work is being carried out. There is a danger of electric shocks if the circuit breaker is set to ON by mistake.
	Before operating the air conditioner after having completed the work, check that the electrical parts box cover of the indoor unit and service panel of the outdoor unit are closed, and set the circuit breaker to the ON position. You may receive an electric shock if the power is turned on without first conducting these checks.
 Stay on protection	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, wear insulated heat-resistant gloves, insulated boots and insulated work overalls, and take care to avoid touching any live parts. You may receive an electric shock if you fail to heed this warning. Only qualified service person (*1) is allowed to do this kind of work.

⚠ WARNING

General	Before starting to repair the air conditioner, read carefully through the Service Manual, and repair the air conditioner by following its instructions.
	Only qualified service person (*1) is allowed to repair the air conditioner. Repair of the air conditioner by unqualified person may give rise to a fire, electric shocks, injury, water leaks and / or other problems.
	Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body.
	Only a qualified installer (*1) or qualified service person (*1) is allowed to carry out the electrical work of the air conditioner. Under no circumstances must this work be done by an unqualified individual since failure to carry out the work properly may result in electric shocks and / or electrical leaks.
	When transporting the air conditioner, wear shoes with protective toe caps, protective gloves and other protective clothing.
	Wear protective gloves and safety work clothing during installation, servicing and removal.
	When connecting the electrical wires, repairing the electrical parts or undertaking other electrical jobs, wear gloves to provide protection for electricians and from heat, insulating shoes and clothing to provide protection from electric shocks. Failure to wear this protective gear may result in electric shocks.
	Electrical wiring work shall be conducted according to law and regulation in the community and installation manual. Failure to do so may result in electrocution or short circuit.
	Only a qualified installer (*1) or qualified service person (*1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the intake grille of the indoor unit to undertake work.
	When working at heights, use a ladder which complies with the ISO 14122 standard, and follow the procedure in the ladder's instructions. Also wear a helmet for use in industry as protective gear to undertake the work.
	When working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below.
	When executing address setting, test run, or troubleshooting through the checking window on the electric parts box, put on insulated gloves to provide protection from electric shock. Otherwise you may receive an electric shock.
	Do not touch the aluminum fin of the outdoor unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.
	Do not climb onto or place objects on top of the outdoor unit. You may fall or the objects may fall off of the outdoor unit and result in injury.
	When transporting the air conditioner, wear shoes with additional protective toe caps.
	When transporting the air conditioner, do not take hold of the bands around the packing carton. You may injure yourself if the bands should break.
	Be sure that a heavy unit (10 kg or heavier) such as a compressor is carried by two persons.
	This air conditioner has passed the pressure test as specified in IEC 60335-2-40 Annex EE.
Check earth wires.	Before troubleshooting or repair work, check the earth wire is connected to the earth terminals of the main unit, otherwise an electric shock is caused when a leak occurs. If the earth wire is not correctly connected, contact an electric engineer for rework.
	After completing the repair or relocation work, check that the ground wires are connected properly.
	Be sure to connect earth wire. (Grounding work) Incomplete grounding causes an electric shock. Do not connect ground wires to gas pipes, water pipes, and lightning rods or ground wires for telephone wires.
Prohibition of modification.	Do not modify the products. Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.
Use specified parts.	When any of the electrical parts are to be replaced, ensure that the replacement parts satisfy the specifications given in the Service Manual (or use the parts contained on the parts list in the Service Manual). Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and / or a fire.

Do not bring a child close to the equipment.	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, put a sign in place so that no-one will approach the work location before proceeding with the work. Third-party individuals may enter the work site and receive electric shocks if this warning is not heeded.
Insulating measures	Connect the cut-off lead wires with crimp contact, etc., put the closed end side upward and then apply a drain off method, otherwise a leak or production of fire is caused at the users' side.
No fire	When performing repairs using a gas burner, replace the refrigerant with nitrogen gas because the oil that coats the pipes may otherwise burn. When repairing the refrigerating cycle, take the following measures. 1) Be attentive to fire around the cycle. When using a gas stove, etc., be sure to put out fire before work; otherwise the oil mixed with refrigerant gas may catch fire. 2) Do not use a welder in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused. 3) Do not bring inflammables close to the refrigerant cycle, otherwise fire of the welder may catch the inflammables.
Refrigerant	The refrigerant used by this air conditioner is the R410A.
	Check the used refrigerant name and use tools and materials of the parts which match with it. For the products which use R410A refrigerant, the refrigerant name is indicated at a position on the outdoor unit where is easy to see. To prevent miss-charging, the route of the service port is changed from one of the former R22.
	For an air conditioner which uses R410A, never use other refrigerant than R410A. For an air conditioner which uses other refrigerant (R22, etc.), never use R410A. If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused.
	When the air conditioner has been installed or relocated, follow the instructions in the Installation Manual and purge the air completely so that no gases other than the refrigerant will be mixed in the refrigerating cycle. Failure to purge the air completely may cause the air conditioner to malfunction.
	Do not charge refrigerant additionally. If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury. Therefore if the refrigerant gas leaks, recover the refrigerant in the air conditioner, execute vacuuming, and then newly recharge the specified amount of liquid refrigerant. In this time, never charge the refrigerant over the specified amount.
	When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R410A into the specified refrigerant. If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle resulted in cause of injury due to breakage.
	Install the refrigerant pipe securely during the installation work before operating the air conditioner. If the compressor is operated with the valve open and without refrigerant pipe, the compressor sucks air and the refrigeration cycles is over pressurized, which may cause injury.
	After the installation work, confirm that refrigerant gas does not leak. If refrigerant gas leaks into the room and flows near a fire source, such as a cooking range, noxious gas may be generated.
	Never recover the refrigerant into the outdoor unit. When the equipment is moved or repaired, be sure to recover the refrigerant with recovering device. The refrigerant cannot be recovered in the outdoor unit; otherwise a serious accident such as breakage or injury is caused.
Assembly / Wiring	After repair work, surely assemble the disassembled parts, and connect and lead the removed wires as before. Perform the work so that the cabinet or panel does not catch the inner wires. If incorrect assembly or incorrect wire connection was done, a disaster such as a leak or fire is caused at user's side.
Insulator check	After the work has finished, be sure to use an insulation tester set (500 V Megger) to check the resistance is 1 MΩ or more between the charge section and the non-charge metal section (Earth position). If the resistance value is low, a disaster such as a leak or electric shock is caused at user's side.

 Ventilation	When the refrigerant gas leaks during work, execute ventilation. If the refrigerant gas touches to a fire, poisonous gas generates. A case of leakage of the refrigerant and the closed room full with gas is dangerous because a shortage of oxygen occurs. Be sure to execute ventilation.
 Compulsion	When the refrigerant gas leaks, find up the leaked position and repair it surely. If the leaked position cannot be found up and the repair work is interrupted, pump-down and tighten the service valve, otherwise the refrigerant gas may leak into the room. The poisonous gas generates when gas touches to fire such as fan heater, stove or cooking stove though the refrigerant gas itself is innocuous. When installing equipment which includes a large amount of charged refrigerant such as a multi air conditioner in a sub-room, it is necessary that the density does not exceed the limit even if the refrigerant leaks. If the refrigerant leaks and exceeds the limit density, an accident of shortage of oxygen is caused.
	Tighten the flare nut with a torque wrench in the specified manner. Excessive tighten of the flare nut may cause a crack in the flare nut after a long period, which may result in refrigerant leakage.
	Nitrogen gas must be used for the airtight test.
	The charge hose must be connected in such a way that it is not slack.
	For the installation / moving / reinstallation work, follow to the Installation Manual. If an incorrect installation is done, a trouble of the refrigerating cycle, water leak, electric shock or fire is caused.
 Check after repair	Once the repair work has been completed, check for refrigerant leaks, and check the insulation resistance and water drainage. Then perform a trial run to check that the air conditioner is running properly.
	After repair work has finished, check there is no trouble. If check is not executed, a fire, electric shock or injury may be caused. For a check, turn off the power breaker.
	After repair work (installation of front panel and cabinet) has finished, execute a test run to check there is no generation of smoke or abnormal sound. If check is not executed, a fire or an electric shock is caused. Before test run, install the front panel and cabinet.
	Be sure to fix the screws back which have been removed for installation or other purposes.
 Do not operate the unit with the valve closed.	Check the following matters before a test run after repairing piping. • Connect the pipes surely and there is no leak of refrigerant. • The valve is opened. Running the compressor under condition that the valve closes causes an abnormal high pressure resulted in damage of the parts of the compressor and etc. and moreover if there is leak of refrigerant at connecting section of pipes, the air is sucked and causes further abnormal high pressure resulted in burst or injury.
 Check after reinstallation	Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the air conditioner. It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
	Check the following items after reinstallation. 1) The earth wire is correctly connected. 2) The power cord is not caught in the product. 3) There is no inclination or unsteadiness and the installation is stable. If check is not executed, a fire, an electric shock or an injury is caused.
	When carrying out the pump-down work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air or other gas to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in rupture, injury or other trouble.
 Cooling check	When the service panel of the outdoor unit is to be opened in order for the compressor or the area around this part to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the compressor pipes and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.
	Take care not to get burned by compressor pipes or other parts when checking the cooling cycle while running the unit as they get heated while running. Be sure to put on gloves providing protection for electric shock and heat.
	When the service panel of the outdoor unit is to be opened in order for the fan motor, reactor, inverter or the areas around these parts to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the fan motor, reactor, inverter heat sink and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.

Installation	Only a qualified installer (*1) or qualified service person (*1) is allowed to install the air conditioner. If the air conditioner is installed by an unqualified individual, a fire, electric shocks, injury, water leakage, noise and/or vibration may result.
	Before starting to install the air conditioner, read carefully through the Installation Manual, and follow its instructions to install the air conditioner.
	Be sure to use the company-specified products for the separately purchased parts. Use of non-specified products may result in fire, electric shock, water leakage or other failure. Have the installation performed by a qualified installer.
	Use wiring that meets the specifications in the Installation Manual and the stipulations in the local regulations and laws. Use of wiring which does not meet the specifications may give rise to electric shocks, electrical leakage, smoking and/or a fire.
	Do not supply power from the power terminal block equipped on the outdoor unit to another outdoor unit. Capacity overload may occur on the terminal block and may result in fire.
	Do not install the air conditioner in a location that may be subject to a risk of expire to a combustible gas. If a combustible gas leaks and becomes concentrated around the unit, a fire may occur.
	If refrigerant gas has leaked during the installation work, ventilate the room immediately. If the leaked refrigerant gas comes in contact with fire, noxious gas may be generated.
	Install a circuit breaker that meets the specifications in the installation manual and the stipulations in the local regulations and laws.
	Install the circuit breaker where it can be easily accessed by the qualified service person (*1).
	If you install the unit in a small room, take appropriate measures to prevent the refrigerant from exceeding the limit concentration even if it leaks. Consult the dealer from whom you purchased the air conditioner when you implement the measures. Accumulation of highly concentrated refrigerant may cause an oxygen deficiency accident.
	Do not place any combustion appliance in a place where it is directly exposed to the wind of air conditioner, otherwise it may cause imperfect combustion.

Explanations given to user

If you have discovered that the fan grille is damaged, do not approach the outdoor unit but set the circuit breaker to the OFF position, and contact a qualified service person to have the repairs done.
Do not set the circuit breaker to the ON position until the repairs are completed.

Relocation

- Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the air conditioner. It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
- When carrying out the pump-down work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in rupture, injury, etc.

(*1) Refer to the “Definition of Qualified Installer or Qualified Service Person”

Declaration of Conformity

Manufacturer: TOSHIBA CARRIER (THAILAND) CO., LTD.
144 / 9 Moo 5, Bangkadi Industrial Park, Tivanon Road, Tambol Bangkadi,
Amphur Muang, Pathumthani 12000, Thailand

TCF holder: TOSHIBA CARRIER EUROPE S.A.S
Route de Thil
01120 Montluel FRANCE

Hereby declares that the machinery described below:

Generic Denomination: Air Conditioner

Model / type: Outdoor unit

MMY-MAP0806FT8(J)P-E
MMY-MAP1006FT8(J)P-E
MMY-MAP1206FT8(J)P-E
MMY-MAP1406FT8(J)P-E
MMY-MAP1606FT8(J)P-E
MMY-MAP1806FT8(J)P-E
MMY-MAP2006FT8(J)P-E

MMY-MAP0806FT8(J)P-TR
MMY-MAP1006FT8(J)P-TR
MMY-MAP1206FT8(J)P-TR
MMY-MAP1406FT8(J)P-TR
MMY-MAP1606FT8(J)P-TR
MMY-MAP1806FT8(J)P-TR
MMY-MAP2006FT8(J)P-TR

MMY-MAP0806FT8(J)P-UK
MMY-MAP1006FT8(J)P-UK
MMY-MAP1206FT8(J)P-UK
MMY-MAP1406FT8(J)P-UK
MMY-MAP1606FT8(J)P-UK
MMY-MAP1806FT8(J)P-UK
MMY-MAP2006FT8(J)P-UK

Commercial name: Super Heat Recovery Multi Air Conditioner

Complies with the provisions of the “Machinery” Directive (Directive 2006/42/EC) and the regulations transposing into national law

Complies with the provisions of the following harmonized standard:
EN 378-2: 2008+A2:2012

NOTE

This declaration becomes invalid if technical or operational modifications are introduced without the manufacturer’s consent.

Specifications

Model	Sound power level (dBA)		Weight (kg)
	Cooling	Heating	
MMY-MAP0806FT8P-E	80	82	263
MMY-MAP0806FT8JP-E			
MMY-MAP0806FT8P-TR			
MMY-MAP0806FT8JPTR			
MMY-MAP0806FT8P-UK			
MMY-MAP0806FT8JPUK			
MMY-MAP1006FT8P-E	80	82	263
MMY-MAP1006FT8JP-E			
MMY-MAP1006FT8P-TR			
MMY-MAP1006FT8JPTR			
MMY-MAP1006FT8P-UK			
MMY-MAP1006FT8JPUK			
MMY-MAP1206FT8P-E	80	82	316
MMY-MAP1206FT8JP-E			
MMY-MAP1206FT8P-TR			
MMY-MAP1206FT8JPTR			
MMY-MAP1206FT8P-UK			
MMY-MAP1206FT8JPUK			
MMY-MAP1406FT8P-E	81	83	316
MMY-MAP1406FT8JP-E			
MMY-MAP1406FT8P-TR			
MMY-MAP1406FT8JPTR			
MMY-MAP1406FT8P-UK			
MMY-MAP1406FT8JPUK			
MMY-MAP1606FT8P-E	83	84	377
MMY-MAP1606FT8JP-E			
MMY-MAP1606FT8P-TR			
MMY-MAP1606FT8JPTR			
MMY-MAP1606FT8P-UK			
MMY-MAP1606FT8JPUK			
MMY-MAP1806FT8P-E	83	84	377
MMY-MAP1806FT8JP-E			
MMY-MAP1806FT8P-TR			
MMY-MAP1806FT8JPTR			
MMY-MAP1806FT8P-UK			
MMY-MAP1806FT8JPUK			
MMY-MAP2006FT8P-E	83	84	377
MMY-MAP2006FT8JP-E			
MMY-MAP2006FT8P-TR			
MMY-MAP2006FT8JPTR			
MMY-MAP2006FT8P-UK			
MMY-MAP2006FT8JPUK			

Specifications

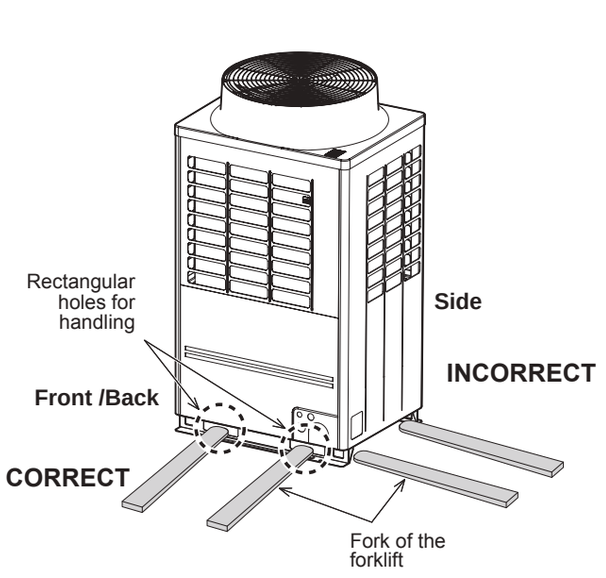
Model	Sound power level (dBA)		Weight (kg)
	Cooling	Heating	
MMY-MAP0806FT8P	80	82	262
MMY-MAP0806FT8JP			
MMY-MAP0806FT7P			
MMY-MAP0806FT7JP			
MMY-MAP0806FT8P-A			
MMY-MAP1006FT8P	80	82	262
MMY-MAP1006FT8JP			
MMY-MAP1006FT7P			
MMY-MAP1006FT7JP			
MMY-MAP1006FT8P-A			
MMY-MAP1206FT8P	80	82	315
MMY-MAP1206FT8JP			
MMY-MAP1206FT7P			
MMY-MAP1206FT7JP			
MMY-MAP1206FT8P-A			
MMY-MAP1406FT8P	81	83	315
MMY-MAP1406FT8JP			
MMY-MAP1406FT7P			
MMY-MAP1406FT7JP			
MMY-MAP1406FT8P-A			
MMY-MAP1606FT8P	83	84	376
MMY-MAP1606FT8JP			
MMY-MAP1606FT7P			
MMY-MAP1606FT7JP			
MMY-MAP1606FT8P-A			
MMY-MAP1806FT8P	83	84	376
MMY-MAP1806FT8JP			
MMY-MAP1806FT7P			
MMY-MAP1806FT7JP			
MMY-MAP1806FT8P-A			
MMY-MAP2006FT8P	83	84	376
MMY-MAP2006FT8JP			
MMY-MAP2006FT7P			
MMY-MAP2006FT7JP			
MMY-MAP2006FT8P-A			

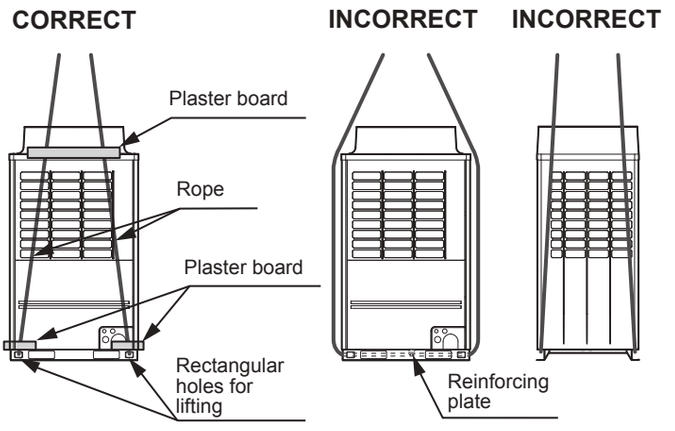
CARRYING IN THE OUTDOOR UNIT

⚠ CAUTION

Handle the outdoor unit carefully, observing the following items.

- When using a forklift or other machinery for loading/unloading in transportation, insert the fork of the forklift into the rectangular holes for handling as shown below.
- When lifting up the unit, insert a rope able to bear the unit's weight into the rectangular holes for handling, and tie the unit from 4 sides.
  (Apply padding in positions where the rope comes into contact with the outdoor unit so that no damage is caused to the outer surface of the outdoor unit.)
  (There are reinforcing plates on the side surfaces, so the rope cannot be passed through.)





MULTI PORT FS UNIT INSTALLATION SPACE

Models : RBM-Y1801F4PE/PE2 , RBM-Y1801F6PE/PE2

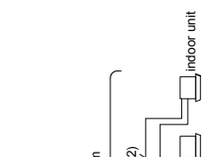
● Installation space

■Specifcations

■Connection pipe size of FS unit (default)

RBM-Y1801***	Outdoor unit side (Upstream) ①			Indoor unit side (Downstream) ②	
	Suction gas pipe	Discharge gas pipe	Liquid pipe	gas pipe	Liquid pipe
F4PE/F4PE2	Φ38.1	Φ28.6	Φ22.2	Φ15.9	Φ9.5
F6PE/F6PE2					

■Piping dimensions



One Indoor unit connection

Multi Indoor unit connection

Outdoor unit side pipe size (1)

Total capacity codes of indoor units at the downstream side		Pipe size ①		
Equivalent to capacity	Equivalent to HP	Suction gas pipe	Discharge gas pipe	Liquid pipe
Below 18.0	Below 6.4	Φ15.9	Φ12.7	Φ9.5
18.0 to below 34.0	6.4 to below 12.2	Φ22.2	Φ19.1	Φ12.7
34.0 to below 45.5	12.2 to below 16.2	Φ28.6	Φ22.2	Φ15.9
45.5 to below 56.5	16.2 to below 20.2	Φ28.6	Φ22.2	Φ19.1
56.5 to below 70.5	20.2 to below 25.2	Φ34.9	Φ28.6	Φ19.1
70.5 to below 98.5	25.2 to below 35.2	Φ34.9	Φ28.6	Φ22.2
98.5 or more	35.2 or more	Φ41.3	Φ34.9	Φ22.2

Indoor unit side pipe size (2)

Capacity rank	Equivalent to HP	Length of piping	Gas side	Liquid side
005 to 012	0.6 to 1.25	15m or less real length	Φ9.5	Φ6.4
		Exceeds 15m real length	Φ12.7	Φ9.5
015 to 018	1.7 to 2.0	15m or less real length	Φ12.7	Φ6.4
		Exceeds 15m real length	Φ15.9	Φ9.5
024 to 056	2.5 to 6.0	-	Φ15.9	Φ9.5

Indoor unit side pipe size (3)

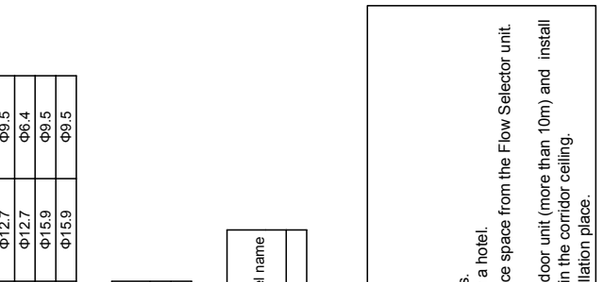
Total capacity codes of indoor units at the downstream side		Pipe size	
Equivalent to capacity	Equivalent to HP	Gas pipe	Liquid pipe
Below 18.0	Below 6.4	Φ15.9	Φ9.5

Y-shaped branching joint (4)

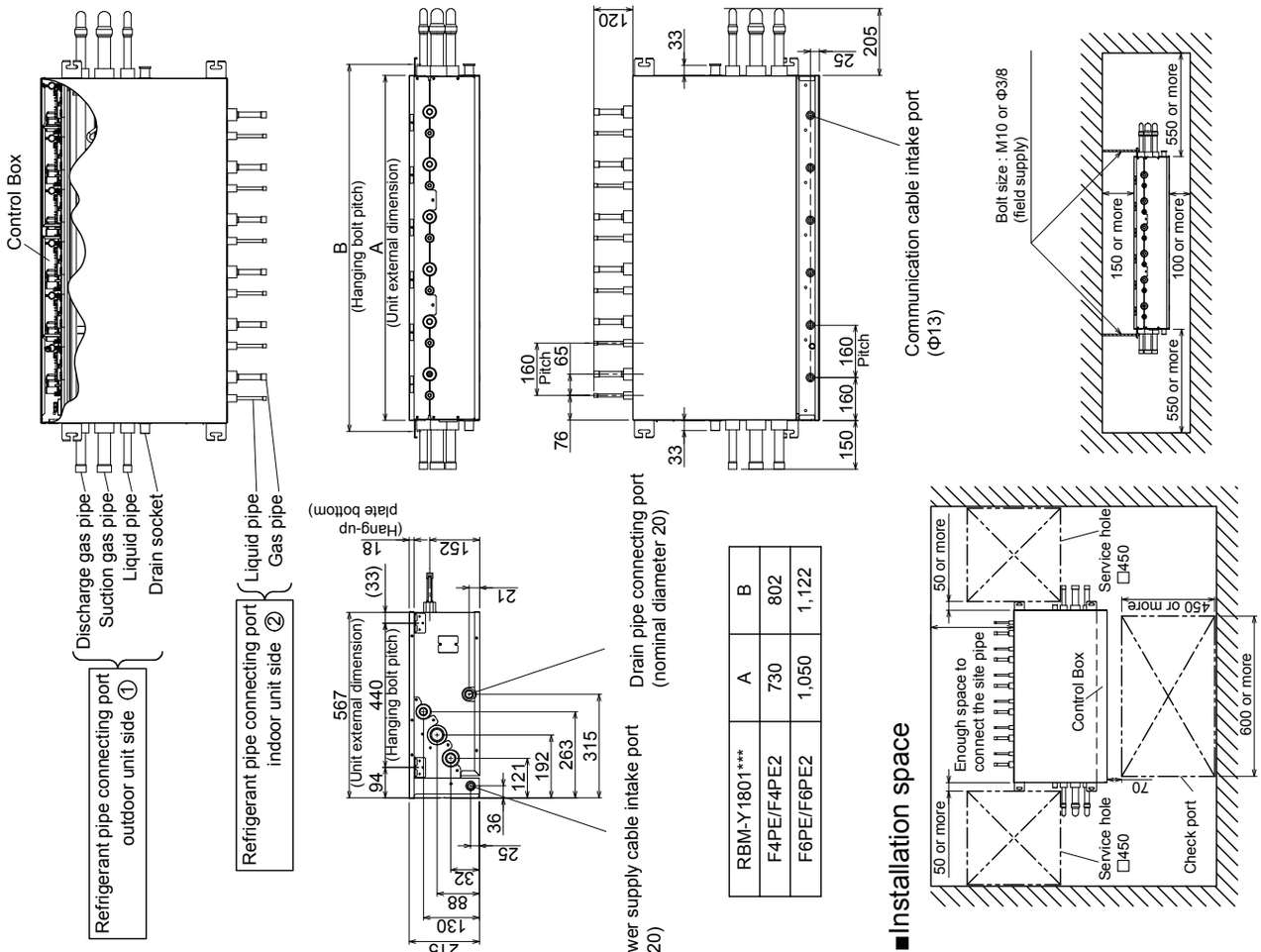
Total capacity codes of indoor units at the downstream side		Y-shaped branching joint Model name
Equivalent to capacity	Equivalent to HP	
Below 18.0	Below 6.4	RBM-BY55E

·Connectable indoor units of 1 port: 18.0kW or less and 10 units or less.

Installation constraints



Avoid installing the unit at a place with quiet background sound as follows.
(1)Rooms with quiet background such as bed room, hospital, or room in a hotel.
(2)Rooms which have no ceiling and a fabric does not block the residence space from the Flow Selector unit.
(3)Rooms which have opening port at the ceiling.
When installing the unit at the above places,separate the unit from the indoor unit (more than 10m) and install the unit at a place so that sound does not transmit into the room such as in the corridor ceiling.
Refer to the installation manual about other cautions for selection of installation place.



RBM-Y1801***	A	B
F4PE/F4PE2	730	802
F6PE/F6PE2	1,050	1,122

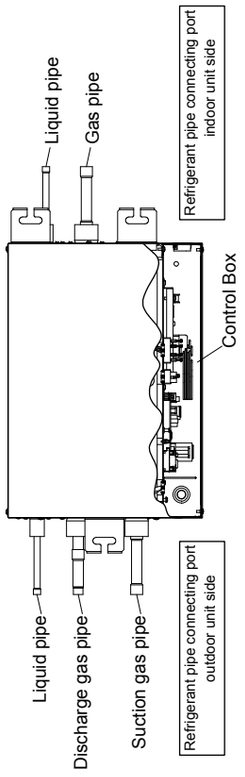
■Installation space

SINGLE PORT FS UNIT (LONG PIPING MODEL) INSTALLATION SPACE

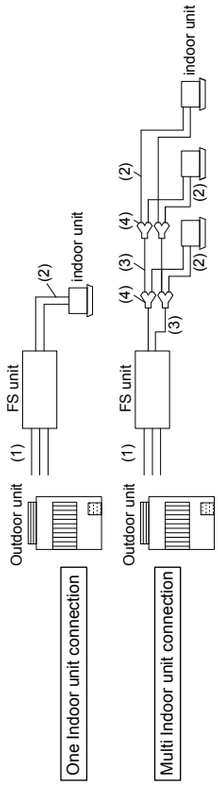
Models : RBM-Y1124FE/FE2 , RBM-Y1804FE/FE2, RBM-Y2804FE/FE2

●Installation space

■Specifcations



■Piping dimensions



Outdoor unit side pipe size (1)

Flow Selector unit		RBM-	Y1124FE/Y1124FE2	Y1804FE/Y1804FE2	Y2804FE/Y2804FE2
Total capacity codes of indoor units at the downstream side		kW	Below 11.2	11.2 to below 18.0	18.0 to 28.0 or less
		HP	Below 4.0	4.0 to below 6.4	6.4 to 10.0 or less
Outdoor unit side pipe size (mm)		Suction gas pipe	Φ15.9	Φ15.9	Φ22.2
		Discharge gas pipe	Φ12.7	Φ12.7	Φ19.1
		Liquid pipe	Φ9.5	Φ9.5	Φ12.7

Indoor unit side pipe size (2)

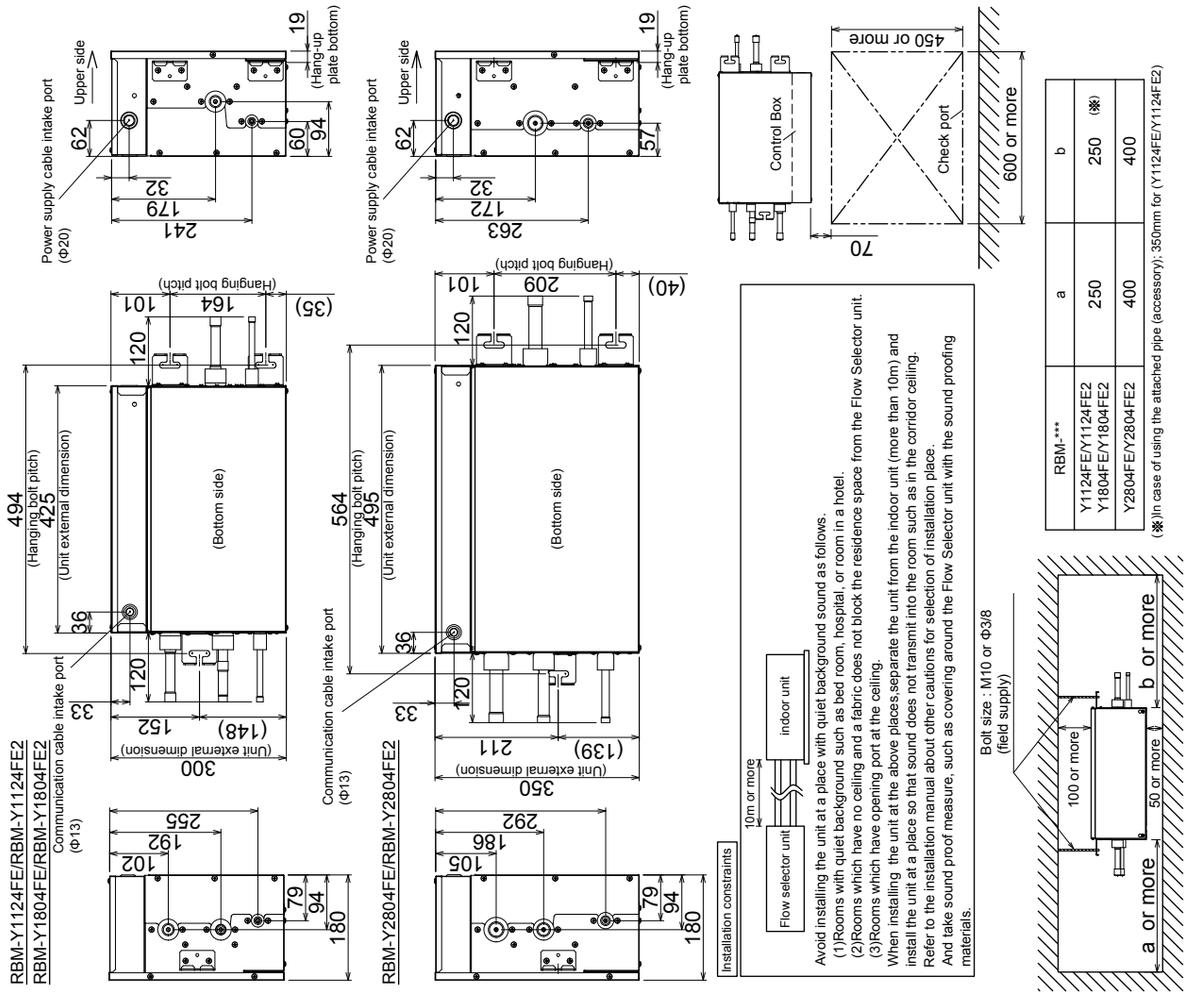
Capacity rank	Equivalent to HP	Length of piping	Gas side	Liquid side
005 to 012	0.6 to 1.25	15m or less real length	Φ9.5	Φ6.4
		Exceeds 15m real length	Φ12.7	Φ9.5
015 to 018	1.7 to 2.0	15m or less real length	Φ12.7	Φ6.4
		Exceeds 15m real length	Φ15.9	Φ9.5
024 to 056	2.5 to 6.0	-	Φ15.9	Φ9.5
072 to 096	8.0 to 10.0	-	Φ22.2	Φ12.7

Indoor unit side pipe size (3)

Total capacity codes of indoor units at the downstream side		Section gas side	Liquid side
Equivalent to capacity	Equivalent to HP		
Below 18.0	Below 6.4	Φ15.9	Φ9.5
18.0 to 28.0 or less	6.4 to 10.0 or less	Φ22.2	Φ12.7

Y-shaped branching joint (4)

Total capacity codes of indoor units at the downstream side		Y-shaped branching joint Model name
Equivalent to capacity	Equivalent to HP	
Below 18.0	Below 6.4	RBM-BY55E
18.0 to 28.0 or less	6.4 to 10.0 or less	RBM-BY105E



RBM-***	a	b
Y1124FE/Y1124FE2 Y1804FE/Y1804FE2	250	250 (※)
Y2804FE/Y2804FE2	400	400

(※)In case of using the attached pipe (accessory): 350mm for (Y1124FE/Y1124FE2)

■ Sound proof measure for Single port FS unit (Long piping model)

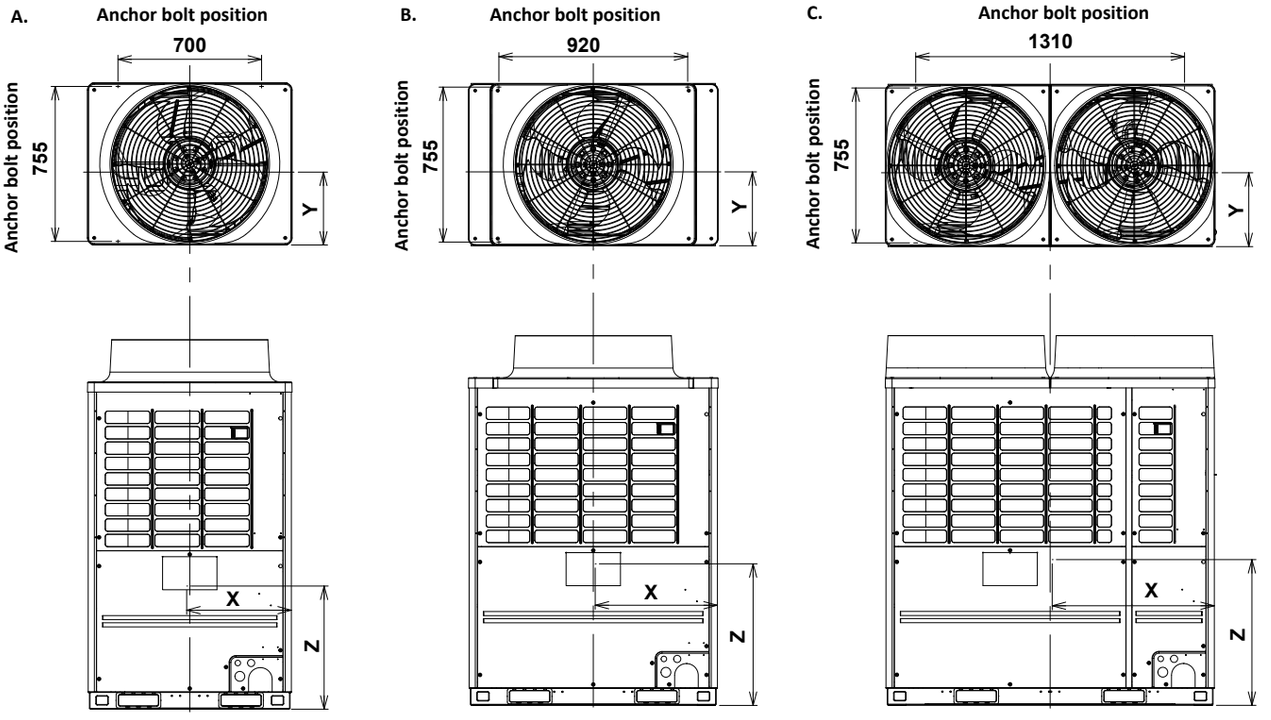
Only for Single port FS unit (Long piping model)
(RBM-Y1124FE/FE2, RBM-Y1804FE/FE2, RBM-Y2804FE/FE2)

For the customers who are disturbed by the noise of defrost operation, refrigerant flow or valve-2way, recommend the following.

Item	Outline	Remarks
Soundproofing material (Service part)	This is the kit of the soundproofing material which covers the product body and the connecting pipe part.	For the service part No., refer to the section “Parts List (for FS unit)” in this manual.
Outdoor unit Jumper-wire [J08]Cut	By cutting J08, the pressure fluctuations by Valve-4Way switching are inhibited. Therefore Valve-2way switching noise is reduced.	For the location of the J08, refer to the section “Switching of Jumper Wire/Function” in this manual.

■ Weight center

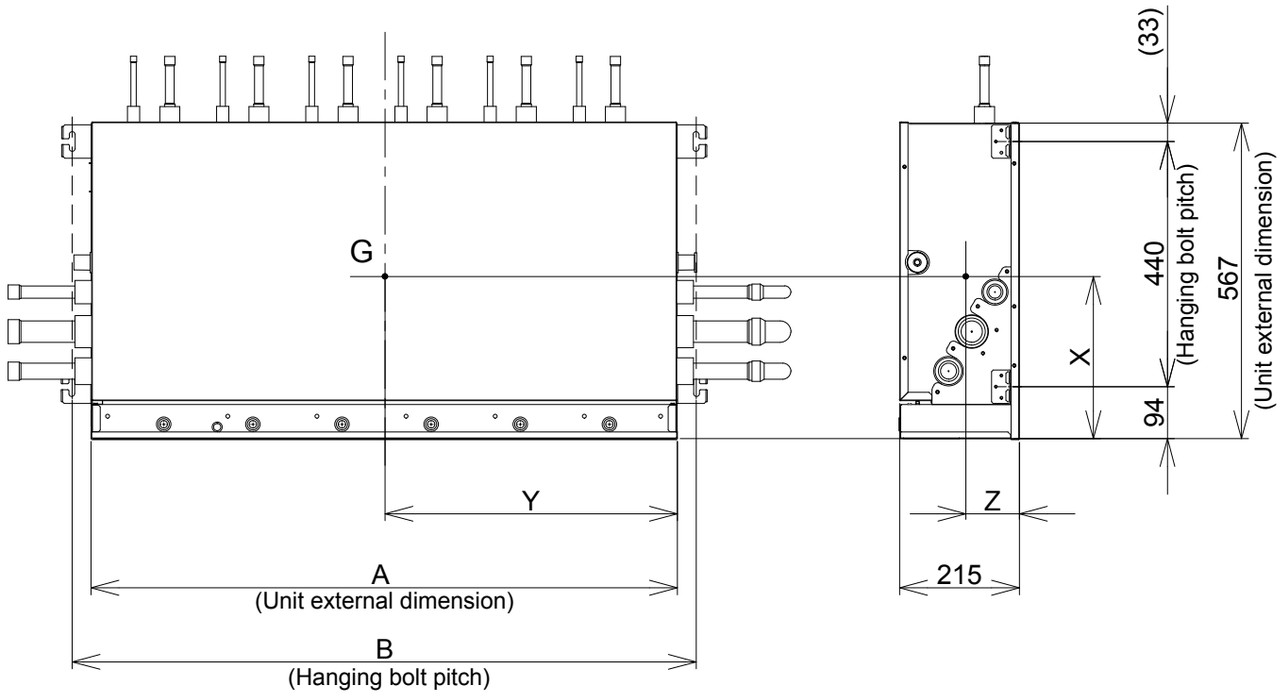
Outdoor unit



(Unit : mm)

No.	Model type	X (mm)	Y (mm)	Z (mm)
A	MMY-MAP0806*T**P*	500	385	635
	MMY-MAP1006*T**P*			
B	MMY-MAP1206*T**P*	605	370	630
	MMY-MAP1406*T**P*			
C	MMY-MAP1606*T**P*	780	365	650
	MMY-MAP1806*T**P*			
	MMY-MAP2006*T**P*			

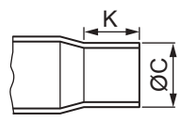
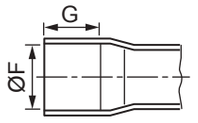
Multi port FS unit



RBM-Y1801***	A (mm)	B (mm)	X (mm)	Y (mm)	Z (mm)	Weight (kg)
F4PE/F4PE2	730	802	293	365	96	38
F6PE/F6PE2	1,050	1,122	293	525	96	53

SELECTION OF PIPE SIZE

Coupling size of brazed pipe

Connected section	
External size	Internal size
	

(Unit: mm)

Standard outer dia. of connected copper pipe	Connected section				Oval value	Min. thickness of coupling
	External size	Internal size	Min. depth of insertion			
	Standard outer dia. (Allowable difference)					
	C	F	K	G		
6.35	6.35 (±0.03)	6.45 ($^{+0.04}_{-0.02}$)	7	6	0.06 or less	0.50
9.52	9.52 (±0.03)	9.62 ($^{+0.04}_{-0.02}$)	8	7	0.08 or less	0.60
12.70	12.70 (±0.03)	12.81 ($^{+0.04}_{-0.02}$)	9	8	0.10 or less	0.70
15.88	15.88 (±0.03)	16.00 ($^{+0.04}_{-0.02}$)	9	8	0.13 or less	0.80
19.05	19.05 (±0.03)	19.19 ($^{+0.03}_{-0.03}$)	11	10	0.15 or less	0.80
22.22	22.22 (±0.03)	22.36 ($^{+0.03}_{-0.03}$)	11	10	0.16 or less	0.82
28.58	28.58 (±0.04)	28.75 ($^{+0.06}_{-0.02}$)	13	12	0.20 or less	1.00
34.92	34.90 (±0.04)	35.11 ($^{+0.04}_{-0.04}$)	14	13	0.25 or less	1.20
38.10	38.10 (±0.05)	38.31 ($^{+0.08}_{-0.02}$)	15	14	0.27 or less	1.26
41.28	41.28 (±0.05)	41.50 ($^{+0.08}_{-0.02}$)	15	14	0.28 or less	1.35

■ Screw size and tightening torque

	Screw size	Tightening torque (N•m)
Power supply terminal	M6	2.5 to 3.0
Earth screw	M8	5.5 to 6.6
Communication wire terminal	M4	1.2 to 1.4

■ Adding refrigerant

After finishing vacuuming, exchange the vacuum pump with a refrigerant canister and start additional charging of refrigerant.

Calculation of additional refrigerant charge amount

Refrigerant charge amount at shipment from the factory does not include the refrigerant for pipes at the local site. For refrigerant to be charged in pipes at the local site, calculate the amount and charge it additionally.

NOTE

If the additional refrigerant amount indicates minus as the result of calculation, use the air conditioner without additional refrigerant.

Outdoor unit type	MAP080	MAP100	MAP120	MAP140	MAP160	MAP180	MAP200
Charging amount (kg)	11.0						

Additional refrigerant charge amount at local site	=	Real length of liquid pipe	×	Additional refrigerant charge amount per 1 m liquid pipe (Table 1)	×	1.3	+	Corrective amount of refrigerant depending on HP of co-operating outdoor units (Table 2)

Table 1

Liquid pipe dia. (mm)	6.4	9.5	12.7	15.9	19.1	22.2
Additional refrigerant amount / 1 m liquid pipe (kg/m)	0.025	0.055	0.105	0.160	0.250	0.350

Table 2

Equivalent HP	Model name of outdoor unit MMY-	Combination of outdoor unit MMY-			Corrective of refrigerant (kg)
		Unit 1	Unit 2	Unit 3	
8HP	MAP0806*	MAP0806*	-	-	2
10HP	MAP1006*	MAP1006*	-	-	3
12HP	MAP1206*	MAP1206*	-	-	8
14HP	MAP1406*	MAP1406*	-	-	10
16HP	MAP1606*	MAP1606*	-	-	12
18HP	MAP1806*	MAP1806*	-	-	14
20HP	MAP2006*	MAP2006*	-	-	15
22HP	AP2216*	MAP1206*	MAP1006*	-	6
24HP	AP2416*	MAP1406*	MAP1006*	-	8
26HP	AP2616*	MAP1406*	MAP1206*	-	12
28HP	AP2816*	MAP1406*	MAP1406*	-	12
30HP	AP3016*	MAP1606*	MAP1406*	-	14
32HP	AP3216*	MAP1806*	MAP1406*	-	15
34HP	AP3416*	MAP1806*	MAP1606*	-	16
36HP	AP3616*	MAP1806*	MAP1806*	-	18
38HP	AP3816*	MAP2006*	MAP1806*	-	22
40HP	AP4016*	MAP2006*	MAP2006*	-	24
42HP	AP4216*	MAP1406*	MAP1406*	MAP1406*	14
44HP	AP4416*	MAP1606*	MAP1406*	MAP1406*	15
46HP	AP4616*	MAP1806*	MAP1406*	MAP1406*	16
48HP	AP4816*	MAP1806*	MAP1606*	MAP1406*	17
50HP	AP5016*	MAP1806*	MAP1806*	MAP1406*	18
52HP	AP5216*	MAP1806*	MAP1806*	MAP1606*	20
54HP	AP5416*	MAP1806*	MAP1806*	MAP1806*	22

* MMY-***FT8(J)P-UK capacity range is from 8HP to 42HP.

Charging of refrigerant

- Keeping the valve of the outdoor unit closed, be sure to charge the liquid refrigerant into the service port at the liquid side.
- If the specif ed amount of refrigerant cannot be charged, fully open the valves of the outdoor unit at liquid and gas sides, operate the air conditioner in COOL mode, and then charge refrigerant into service port at the gas side. In this time, choke the refrigerant slightly by operating the valve of the canister to charge liquid refrigerant.
- The liquid refrigerant may be charged suddenly, therefore be sure to charge refrigerant gradually.

Refrigerant (R410A)

This air conditioner adopts a HFC type refrigerant (R410A) which does not deplete the ozone layer.

1. Safety Caution Concerned to refrigerant (R410A)

The pressure of R410A is high 1.6 times of that of the former refrigerant (R22). Accompanied with change of refrigerant, the refrigerating oil has been also changed. Therefore, be sure that water, dust, the former refrigerant or the former refrigerating oil is not mixed into the refrigerating cycle of the air conditioner with new refrigerant during installation work or service work. If an incorrect work or incorrect service is performed, there is a possibility to cause a serious accident. Use the tools and materials exclusive to R410A to purpose a safe work.

2. Cautions on Installation/Service

(1) Do not mix the other refrigerant or refrigerating oil.
For the tools exclusive to R410A, shapes of all the joints including the service port differ from those of the former refrigerant in order to prevent mixture of them.

(2) As the use pressure of the refrigerant (R410A) is high, use material thickness of the pipe and tools which are specified for R410A.

(3) In the installation time, use clean pipe materials and work with great attention so that water and others do not mix in because pipes are affected by impurities such as water, oxide scales, oil, etc. Use the clean pipes.
Be sure to brazing with flowing nitrogen gas. (Never use gas other than nitrogen gas.)

(4) For the earth protection, use a vacuum pump for air purge.

(5) R410A refrigerant is azeotropic mixture type refrigerant. Therefore use liquid type to charge the refrigerant.
(If using gas for charging, composition of the refrigerant changes and then characteristics of the air conditioner change.)

3. Pipe Materials

For the refrigerant pipes, copper pipe and joints are mainly used. It is necessary to select the most appropriate pipes to conform to the standard. Use clean material in which impurities adhere inside of pipe or joint to a minimum.

(1) Copper pipe

<Piping>
The pipe thickness, flare finishing size, flare nut and others differ according to a refrigerant type.
When using a long copper pipe for R410A, it is recommended to select “Copper or copper-base pipe without seam” and one with bonded oil amount 40mg/10m or less. Also do not use crushed, deformed, discolored (especially inside) pipes. (Impurities cause clogging of expansion valves and capillary tubes.)

<Flare nut>
Use the flare nuts which are attached to the air conditioner unit.

(2) Joint
The flare joint and socket joint are used for joints of the copper pipe. The joints are rarely used for installation of the air conditioner. However clear impurities when using them.

4. Tools

(1) Required Tools for R410A

Mixing of different types of oil may cause a trouble such as generation of sludge, clogging of capillary, etc. Accordingly, the tools to be used are classified into the following three types.

1) Tools exclusive for R410A (Those which cannot be used for conventional refrigerant (R22))
2) Tools exclusive for R410A, but can be also used for conventional refrigerant (R22)
3) Tools commonly used for R410A and for conventional refrigerant (R22)

The table below shows the tools exclusive for R410A and their interchangeability.

Tools exclusive for R410A (The following tools for R410A are required.)

Explanation of symbols

△: Newly prepared (It is necessary to use it exclusively with R410A, separately from those for R22 or R407C.) ◎: Former tool is available.

Used tools	Usage	Proper use of tools/parts
Gauge manifold	Vacuuming, charging refrigerant and operation check	△ Exclusive to R410A
Charging hose		△ Exclusive to R410A
Charging cylinder	Charging refrigerant	Unusable (Use the Refrigerant charging balance.)
Gas leak detector	Checking gas leak	△ Exclusive to R410A
Vacuum pump	Vacuum drying	Usable if a counter-flow preventive adapter is attached
Vacuum pump with counterflow	Vacuum drying	◎ R22 (Existing article)
Flare tool	Flare processing of pipes	◎ Usable by adjusting size
Bender	Bending processing of pipes	◎ R22 (Existing article)
Refrigerant recovery device	Recovering refrigerant	△ Exclusive to R410A
Torque wrench	Tightening flare nut	△ Exclusive to Ø12.7mm and Ø15.9mm
Pipe cutter	Cutting pipes	◎ R22 (Existing article)
Refrigerant canister	Charging refrigerant	△ Exclusive to R410A Enter the refrigerate name for identification
Brazing machine/ Nitrogen gas cylinder	Brazing of pipes	◎ R22 (Existing article)
Refrigerant charging balance	Charging refrigerant	◎ R22 (Existing article)

(Note 1) When flaring is carried out for R410A using the conventional flare tools, adjustment of projection margin is necessary. For this adjustment, a copper pipe gauge, etc. are necessary.

(Note 2) Charging cylinder for R410A is being currently developed.

General tools (Conventional tools can be used.)

In addition to the above exclusive tools, the following equipments which serve also for R22 are necessary as the general tools.

(1) Vacuum pump
Use vacuum pump by attaching vacuum pump adapter.
(2) Torque wrench
(3) Pipe cutter
(4) Reamer
(5) Pipe bender
(6) Level vial
(7) Screwdriver (+, –)
(8) Spanner or Monkey wrench
(9) Hole core drill
(10) Hexagon wrench (Opposite side 4mm)
(11) Tape measure
(12) Metal saw

Also prepare the following equipments for other installation method and run check.

(1) Clamp meter
(2) Thermometer
(3) Insulation resistance tester
(4) Electroscope

1 Wiring Diagrams

1-1. Outdoor Unit

Models: MMY-MAP0806∗ and MAP1006∗

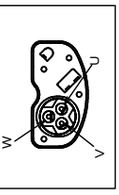
P.C.Board

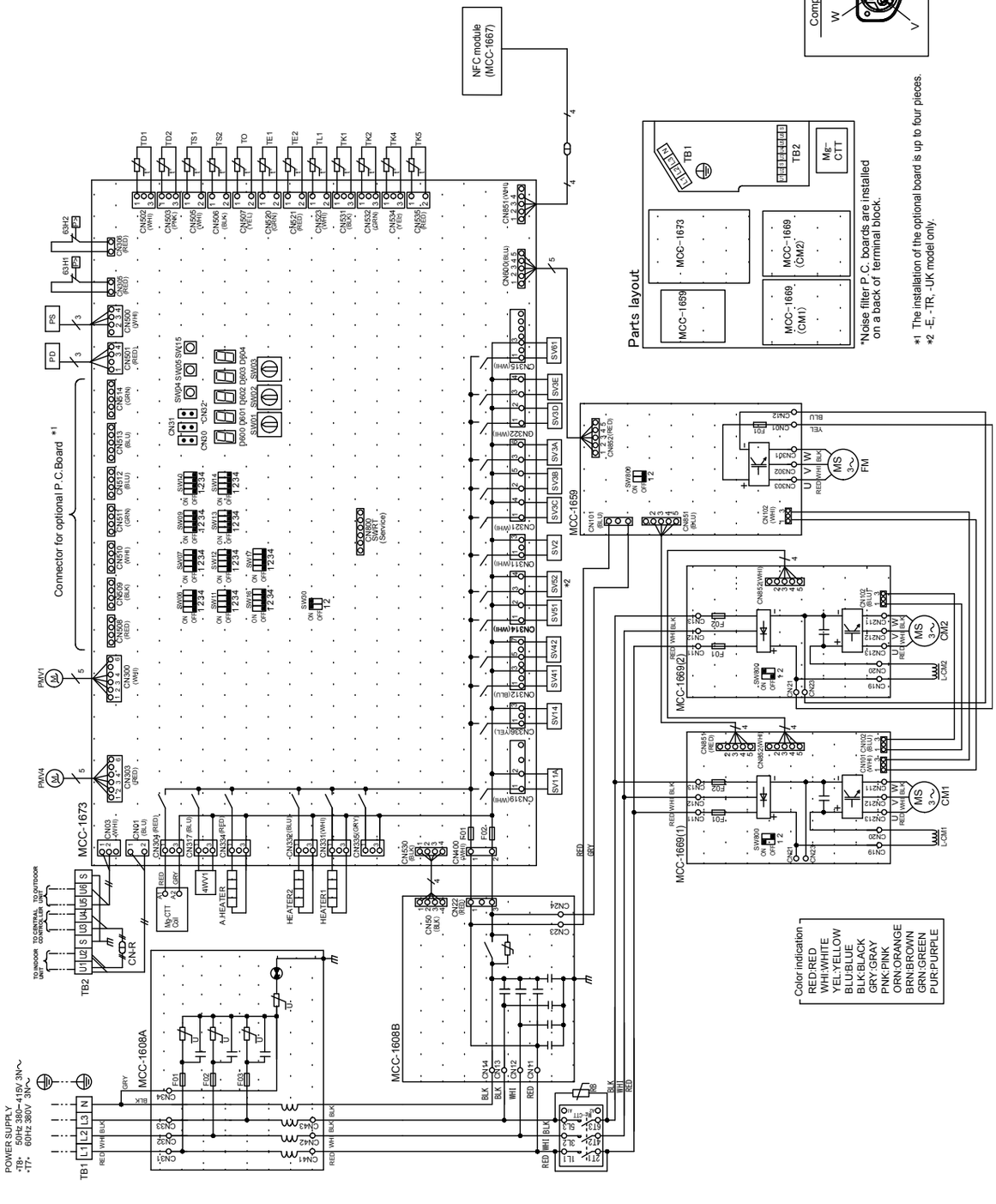
Symbol	Parts name
MCC-1669	Inverter P.C.Board (Compressor)
MCC-1673	Interface Control P.C.Board
MCC-1608A	Noise filter P.C.Board A
MCC-1608B	Noise filter P.C.Board B
MCC-1659	Inverter P.C.Board (Fan)

Symbol	Parts name
4WV1	4-way valve coil
63H1,63H2	High pressure switch
CM1,CM2	Compressor
CN-R	Relay connector
CN***	Connector
(MCC-1669) F01,F02	Fuse (Compressor) 31.5A 500V ~
(MCC-1673) F01,F02	Fuse (Interface) T6.3A 250V ~
(MCC-1608A) F01,F02,F03	Fuse (Noise filter) T6.3A 250V ~
(MCC-1659) F01	Fuse (Fan) 6.3A 750VDC
FM	Fan motor
HEATER1,HEATER2	Compressor case heater
A-HEATER	Accumulator case heater
L-CM1,L-CM2	Reactor for compressor
Mg-CTT	Magnet contactor
PD	Pressure sensor (High)
PS	Pressure sensor (Low)
PMV1	Pulse motor valve (Main)
PMV4	Pulse motor valve (Sub)
RB	Rush current protect resistor
SV2,SV3A,SV3B,SV3C SV3D,SV3E,SV41,SV42 SV51,SV52,SV11A,SV14 SV61	2-way valve coil
SW01,SW02,SW03	Rotary switch
SW04,SW05,SW15	Push button switch
SW06,SW07,SW09,SW10 SW11,SW12,SW13,SW14 SW16,SW17,SW30,SW800	Dip switch
TD1,TD2	Pipe temp. sensor (Discharge)
TE1,TE2	Heat exchange temp. sensor
TK1,TK2,TK4,TK5	Oil temp. sensor
TL1	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS2	Pipe temp. sensor (Suction)
TB1	Terminal block(power supply)
TB2	Terminal block(control wiring)

	Field wiring
	Protective earth
	Terminal block
	Terminal
	Connector
	P.C.board
	CN-R

Compressor terminal





Models: MMY-MAP1206* and MAP1406*

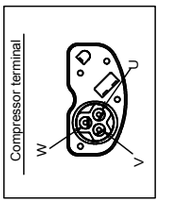
P.C.Board

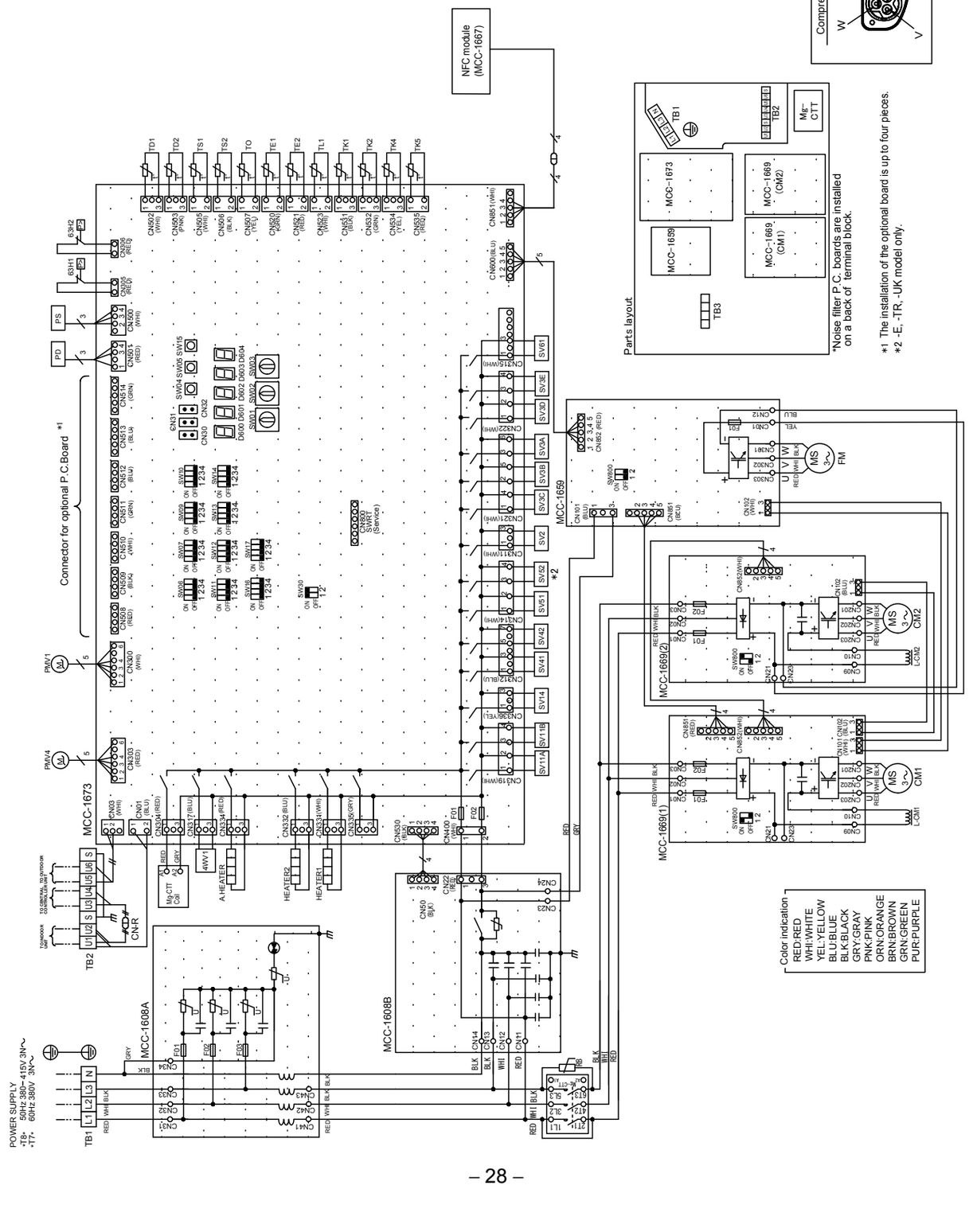
Symbol	Parts name
MCC-1669	Inverter P.C.Board (Compressor)
MCC-1673	Interface Control P.C.Board
MCC-1608A	Noise filter P.C.Board A
MCC-1608B	Noise filter P.C.Board B
MCC-1659	Inverter P.C.Board (Fan)

Symbol	Parts name
4WV1	4-way valve coil
63H1,63H2	High pressure switch
CM1,CM2	Compressor
CN-R	Relay connector
CN***	Connector
(MCC-1669)	Fuse (Compressor)
F01,F02	31.5A 500V ～
(MCC-1673)	Fuse (Interface)
F01,F02	T6.3A 250V ～
(MCC-1608A)	Fuse (Noise filter)
F01,F02,F03	T6.3A 250V ～
(MCC-1659)	Fuse (Fan)
F01	6.3A 750VDC
FM	Fan motor
HEATER1,HEATER2	Compressor case heater
A.HEATER	Accumulator case heater
L-CM1,L-CM2	Reactor for compressor
Mg-CTT	Magnet contactor
PD	Pressure sensor (High)
PS	Pressure sensor (Low)
PMV1	Pulse motor valve (Main)
PMV4	Pulse motor valve (Sub)
RB	Rush current protect resistor
SV2,SV3A,SV3B,SV3C SV3D,SV3E,SV41,SV42 SV51,SV52,SV11A SV11B,SV14,SV61	2-way valve coil
SW01,SW02,SW03	Rotary switch
SW04,SW05,SW15	Push button switch
SW06,SW07,SW09,SW10 SW11,SW12,SW13,SW14 SW16,SW17,SW30,SW800	Dip switch
TD1,TD2	Pipe temp. sensor (Discharge)
TE1,TE2	Heat exchange temp. sensor
TK1,TK2,TK4,TK5	Oil temp. sensor
TL1	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS2	Pipe temp. sensor (Suction)
TB1	Terminal block(power supply)
TB2	Terminal block(control wiring)
TB3	Terminal block(internal wiring connector)

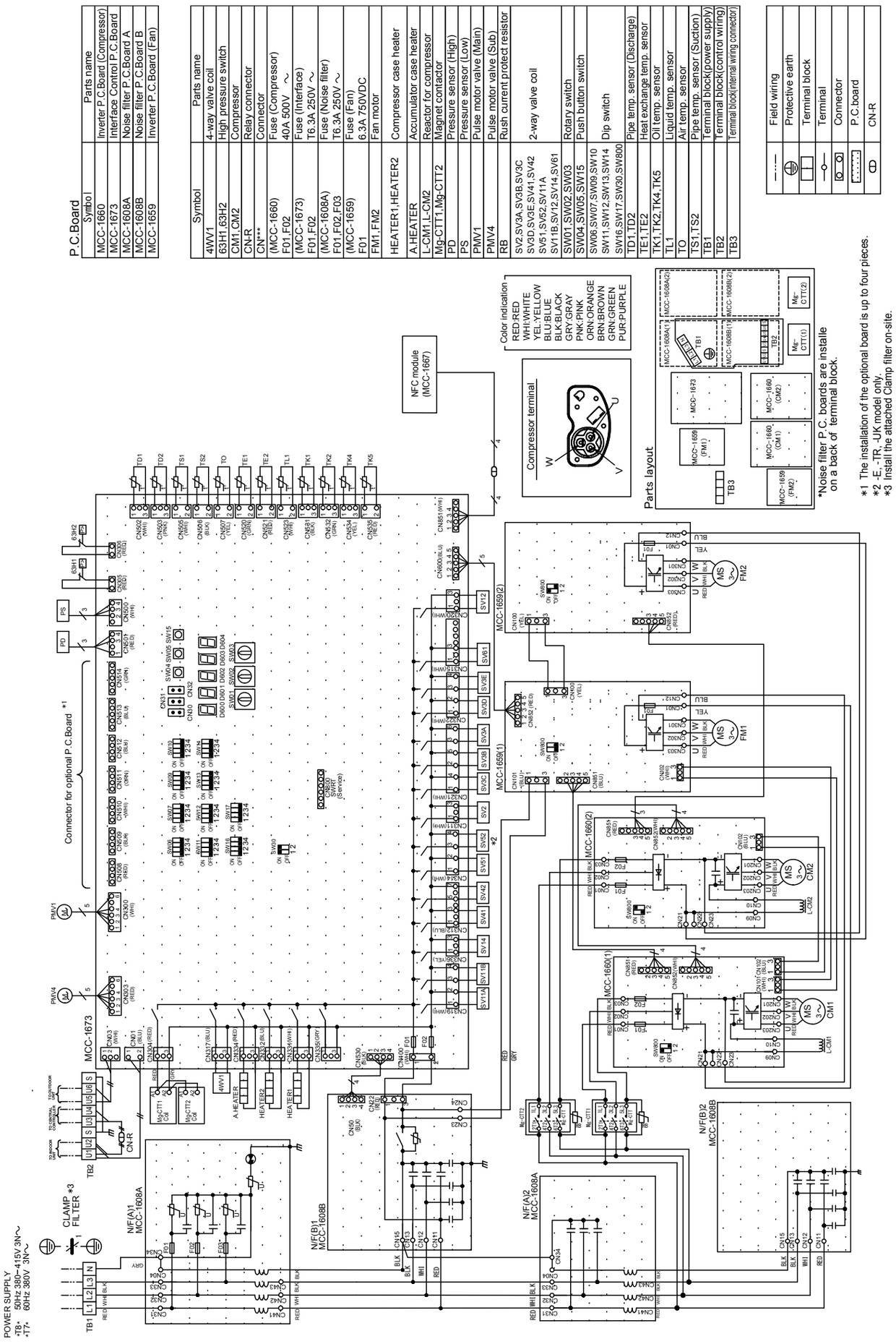
———	Field wiring
⏚	Protective earth
□	Terminal block
—○—	Terminal
○ ○	Connector
▭ ▭	P.C.board
⊖	CN-R

Compressor terminal





Models: MMY-MAP1606*, MAP1806*, and MAP2006*



P.C.Board

Symbol	Parts name
MCC-1660	Inverter P.C.Board (Compressor)
MCC-1673	Interface Control P.C.Board
MCC-1608A	Noise filter P.C.Board A
MCC-1608B	Noise filter P.C.Board B
MCC-1659	Inverter P.C.Board (Fan)

Symbol	Parts name
4WV1	4-way valve coil
63H1,63H2	High pressure switch
CM1,CM2	Compressor
CN-R	Relay connector
CN***	Connector
(MCC-1660) F01,F02	Fuse (Compressor) 40A 500V ～
(MCC-1673) F01,F02	Fuse (Interface) T6.3A 250V ～
(MCC-1608A) F01,F02,F03	Fuse (Noise filter) T6.3A 250V ～
(MCC-1659) F01	Fuse (Fan) 6.3A 750VDC
FM1,FM2	Fan motor
HEATER1,HEATER2	Compressor case heater
A.HEATER	Accumulator case heater
L-CM1,L-CM2	Reactor for compressor
Mg-CTT1,Mg-CTT2	Magnet contactor
PD	Pressure sensor (High)
PS	Pressure sensor (Low)
PMV1	Pulse motor valve (Main)
PMV4	Pulse motor valve (Sub)
RB	Rush current protect resistor
SV2,SV3A,SV3B,SV3C SV3D,SV3E,SV41,SV42 SV51,SV52,SV11A SV11B,SV12,SV14,SV61	2-way valve coil
SW01,SW02,SW03	Rotary switch
SW04,SW05,SW15	Push button switch
SW06,SW07,SW09,SW10 SW11,SW12,SW13,SW14 SW16,SW17,SW30,SW800	Dip switch
TD1,TD2	Pipe temp. sensor (Discharge)
TE1,TE2	Heat exchange temp. sensor
TK1,TK2,TK4,TK5	Oil temp. sensor
TL1	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS2	Pipe temp. sensor (Suction)
TB1	Terminal block(power supply)
TB2	Terminal block(control wiring)
TB3	Terminal block(internal wiring connector)

———	Field wiring
⏚	Protective earth
□	Terminal block
—○—	Terminal
○ ○	Connector
▭	P.C.board
⊏⊐	CN-R

Color indication
RED:RED
WHI:WHITE
YEL:YELLOW
BLU:BLUE
BLK:BLACK
GRY:GRAY
PNK:PINK
ORN:ORANGE
BRN:BROWN
GRN:GREEN
PUR:PURPLE

Compressor terminal

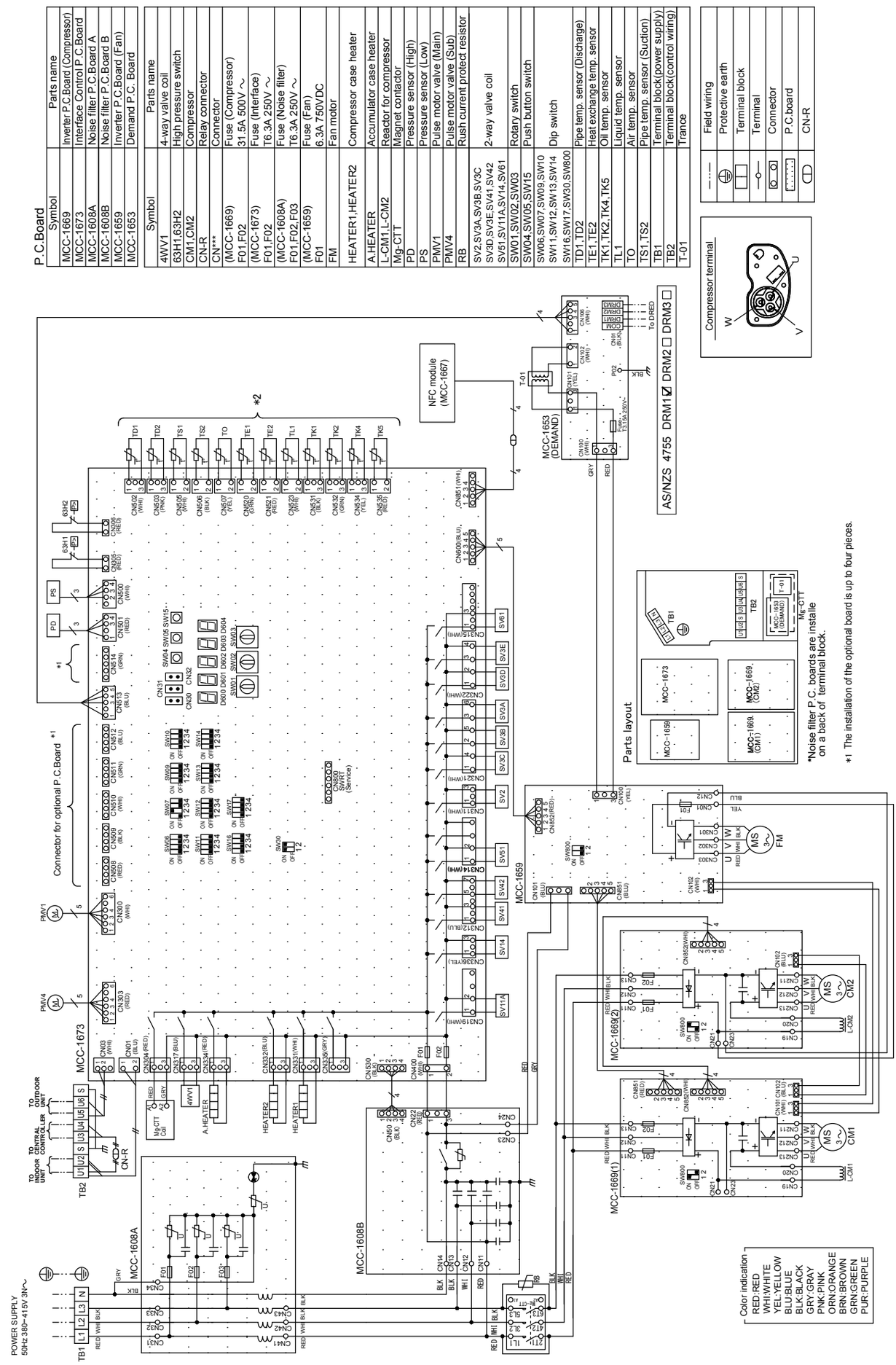
Parts layout

*Noise filter P.C. boards are installe on a back of terminal block.

*1 The installation of the optional board is up to four pieces.
*2 -E, -TR, -UK model only.
*3 Install the attached Clamp filter on-site.

POWER SUPPLY
•TB• 50Hz 380~415V 3N~
•T7• 60Hz 380V 3N~

Models: MMY-MAP0806FT8P-A and MAP1006FT8P-A



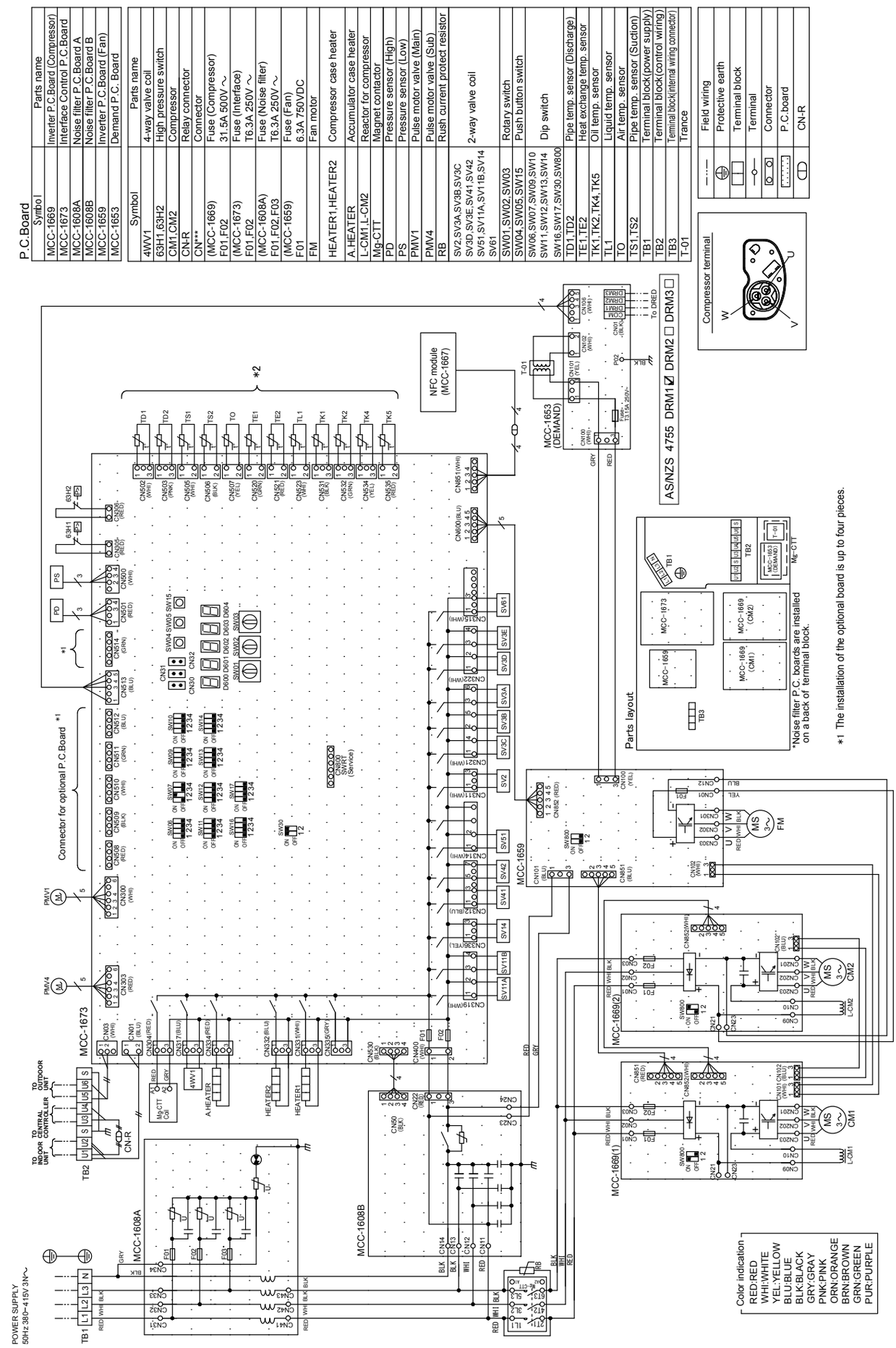
Models: MMY-MAP1206FT8P-A and MAP1406FT8P-A

P.C.Board

Symbol	Parts name
MCC-1669	Inverter P.C.Board (Compressor)
MCC-1673	Interface Control P.C.Board
MCC-1608A	Noise filter P.C.Board A
MCC-1608B	Noise filter P.C.Board B
MCC-1659	Inverter P.C.Board (Fan)
MCC-1653	Demand P.C. Board

Symbol	Parts name
4WV1	4-way valve coil
63H1,63H2	High pressure switch
CM1,CM2	Compressor
CN-R	Relay connector
CN***	Connector
(MCC-1669)	Fuse (Compressor)
F01,F02	31.5A 500V ~
(MCC-1673)	Fuse (Interface)
F01,F02	T6.3A 250V ~
(MCC-1608A)	Fuse (Noise filter)
F01,F02,F03	T6.3A 250V ~
(MCC-1659)	Fuse (Fan)
F01	6.3A 750VDC
FM	Fan motor
HEATER1,HEATER2	Compressor case heater
A.HEATER	Accumulator case heater
L-CM1,L-CM2	Reactor for compressor
Mg-CTT	Magnet contactor
PD	Pressure sensor (High)
PS	Pressure sensor (Low)
PMV1	Pulse motor valve (Main)
PMV4	Pulse motor valve (Sub)
RB	Rush current protect resistor
SV2,SV3A,SV3B,SV3C SV3D,SV3E,SV41,SV42 SV51,SV11A,SV11B,SV14 SV61	2-way valve coil
SW01,SW02,SW03	Rotary switch
SW04,SW05,SW15	Push button switch
SW06,SW07,SW09,SW10 SW11,SW12,SW13,SW14 SW16,SW17,SW30,SW800	Dip switch
TD1,TD2	Pipe temp. sensor (Discharge)
TE1,TE2	Heat exchange temp. sensor
TK1,TK2,TK4,TK5	Oil temp. sensor
TL1	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS2	Pipe temp. sensor (Suction)
TB1	Terminal block(power supply)
TB2	Terminal block(control wiring)
TB3	Terminal block(internal wiring connector)
T-01	Trance

	Field wiring
	Protective earth
	Terminal block
	Terminal
	Connector
	P.C.board
	CN-R



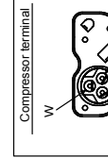
Models: MMY-MAP1606FT8P-A, MAP1806FT8P-A and MAP2006FT8P-A

P.C.Board

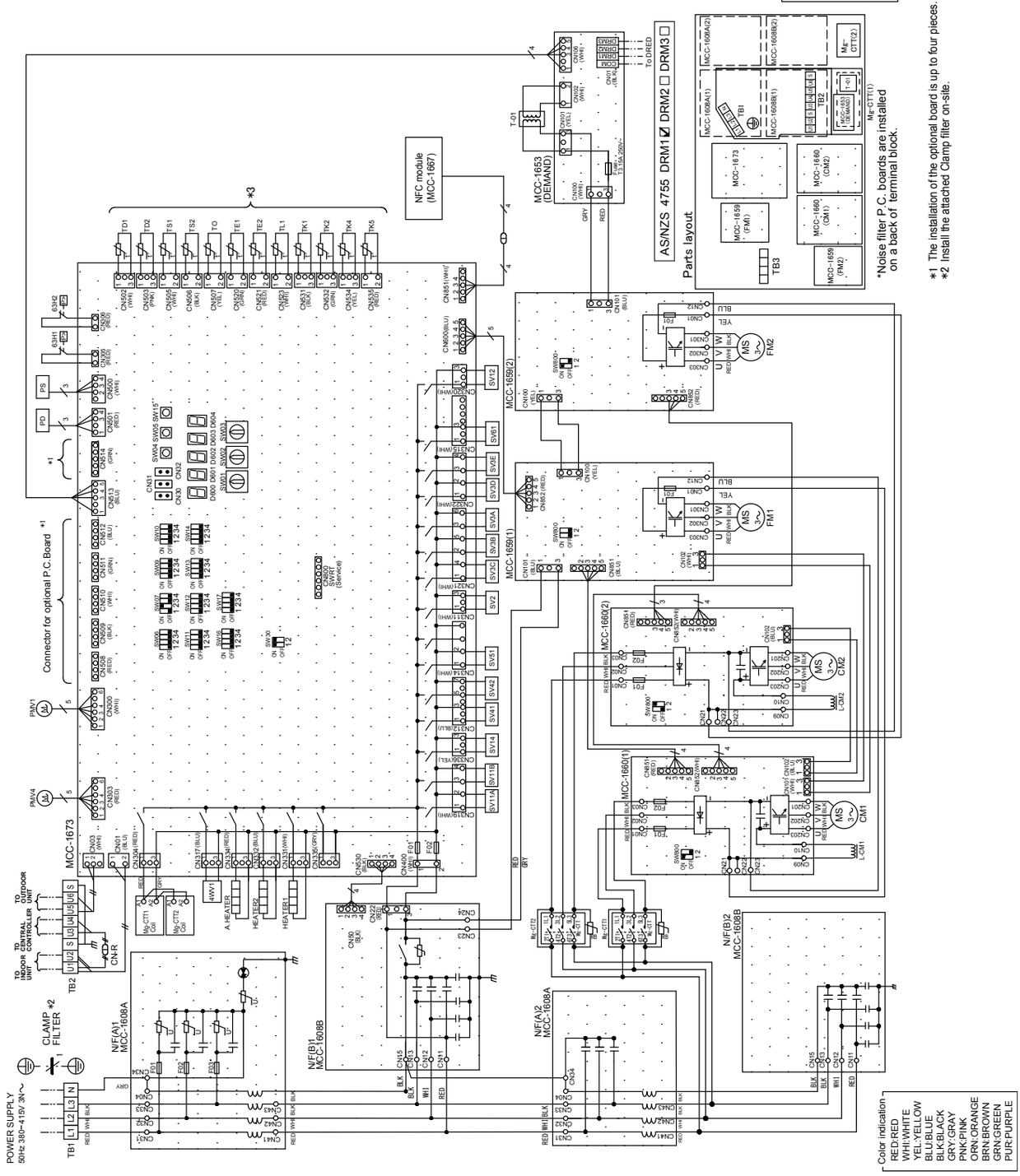
Symbol	Parts name
MCC-1660	Inverter P.C.Board (Compressor)
MCC-1673	Interface Control P.C.Board
MCC-1608A	Noise filter P.C.Board A
MCC-1608B	Noise filter P.C.Board B
MCC-1659	Inverter P.C.Board (Fan)
MCC-1653	Demand P.C. Board

Symbol	Parts name
4WV1	4-way valve coil
63H1,63H2	High pressure switch
CM1,CM2	Compressor
CN-R	Relay connector
CN***	Connector
(MCC-1660)	Fuse (Compressor)
F01,F02	40A 500V ～
(MCC-1673)	Fuse (Interface)
F01,F02	T6.3A 250V ～
(MCC-1608A)	Fuse (Noise filter)
F01,F02,F03	T6.3A 250V ～
(MCC-1659)	Fuse (Fan)
F01	6.3A 750VDC
FM1,FM2	Fan motor
HEATER1,HEATER2	Compressor case heater
A,HEATER	Accumulator case heater
L-CM1,L-CM2	Reactor for compressor
Mg-CTT1,Mg-CTT2	Magnet contactor
PD	Pressure sensor (High)
PS	Pressure sensor (Low)
PMV1	Pulse motor valve (Main)
PMV4	Pulse motor valve (Sub)
RB	Rush current protect resistor
SV2,SV3A,SV3B,SV3C SV3D,SV3E,SV41,SV42 SV61,SV11A,SV11B,SV12 SV14,SV61	2-way valve coil
SW01,SW02,SW03	Rotary switch
SW04,SW05,SW15	Push button switch
SW06,SW07,SW09,SW10 SW11,SW12,SW13,SW14 SW16,SW17,SW30,SW800	Dip switch
TD1,TD2	Pipe temp. sensor (Discharge)
TE1,TE2	Heat exchange temp. sensor
TK1,TK2,TK4,TK5	Oil temp. sensor
TL1	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS2	Pipe temp. sensor (Suction)
TB1	Terminal block(power supply)
TB2	Terminal block(control wiring)
TB3	Terminal block(interal wiring connector)
T-01	Trance

Compressor terminal

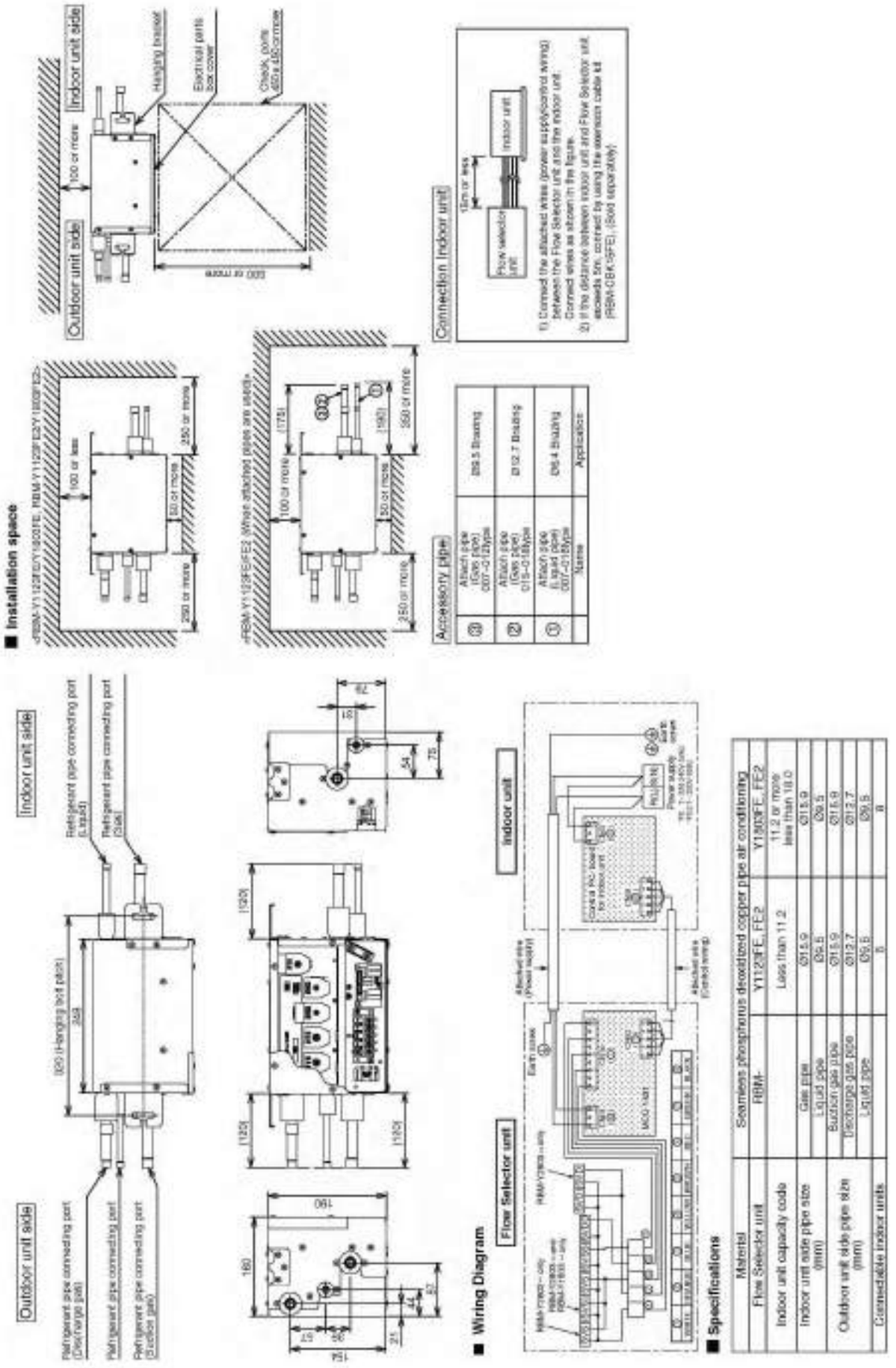


—·—	Field wiring
⏚	Protective earth
□□	Terminal block
—○—	Terminal
▯▯	Connector
▭▭	P.C.board
⊂⊃	CN-R

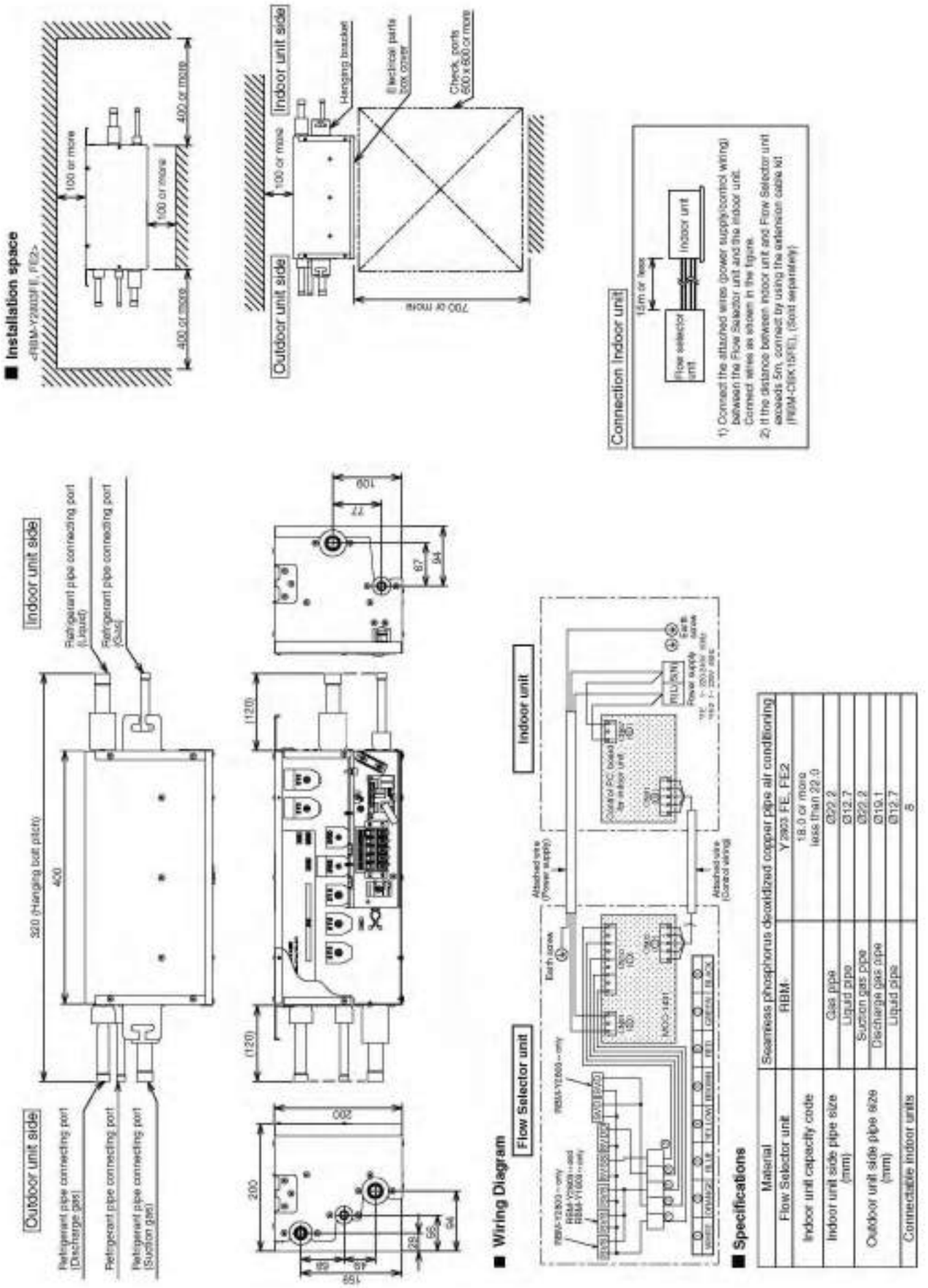


1-2. Single port FS Unit

RBM-Y1123FE/FE2, RBM-Y1803FE/FE2



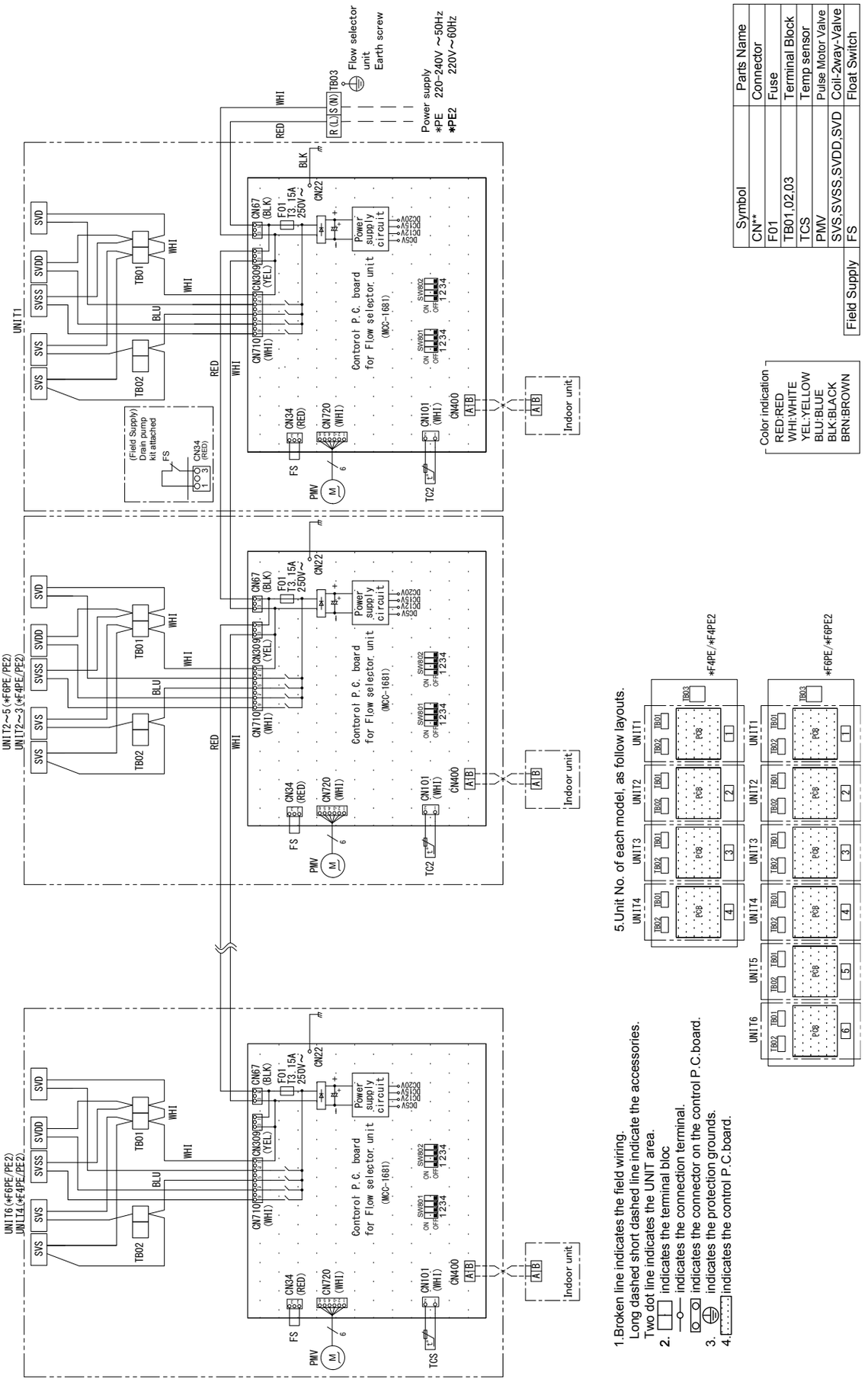
RBM-Y2803FE/FE2



Material	Seamless phosphorus deoxidized copper pipe air conditioning	
Flow Selector unit	RBM-	Y2803 FE, FE2
Indoor unit capacity code		18.0 or more less than 22.0
Indoor unit side pipe size (mm)	Gas pipe	Ø22.2
	Liquid pipe	Ø12.7
Outdoor unit side pipe size (mm)	Suction gas pipe	Ø22.2
	Discharge gas pipe	Ø19.1
	Liquid pipe	Ø12.7
Connectable indoor units		8

1-3 Multi port FS unit

Models : RBM-Y1801F4PE/PE2, RBM-Y1801F6PE/PE2



■In case of connecting Drain pump (locally produred)
Only for Multi port FS unit (RBM-Y0611F4PUL, RBM-Y0611F6PUL)

・Connecting specifiction

Connector specification		
Parts	Maker	Type
Hausing	J.S.T.	XAP-03V-1-R
Contact	J.S.T.	SXA-001T-P0.6

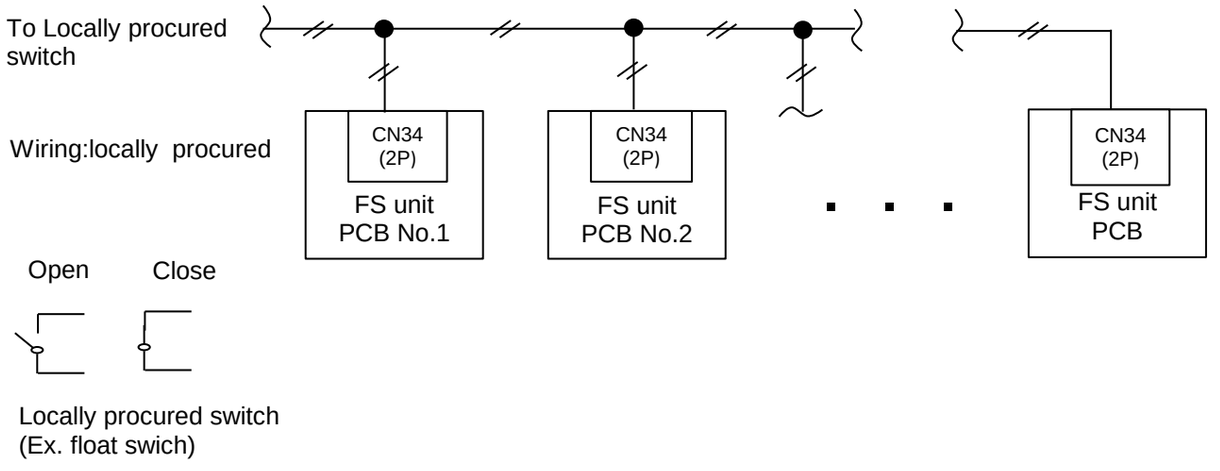
Wire specification		
Size	Type	Outside Diameter
0.08～0.33mm^2	AWG#28～22	0.8～1.9mm^2

CN34: External alarm input specification

Locally procured switch	Close	Open
Air conditioner system operation	Nomal System run	Alarm System stop

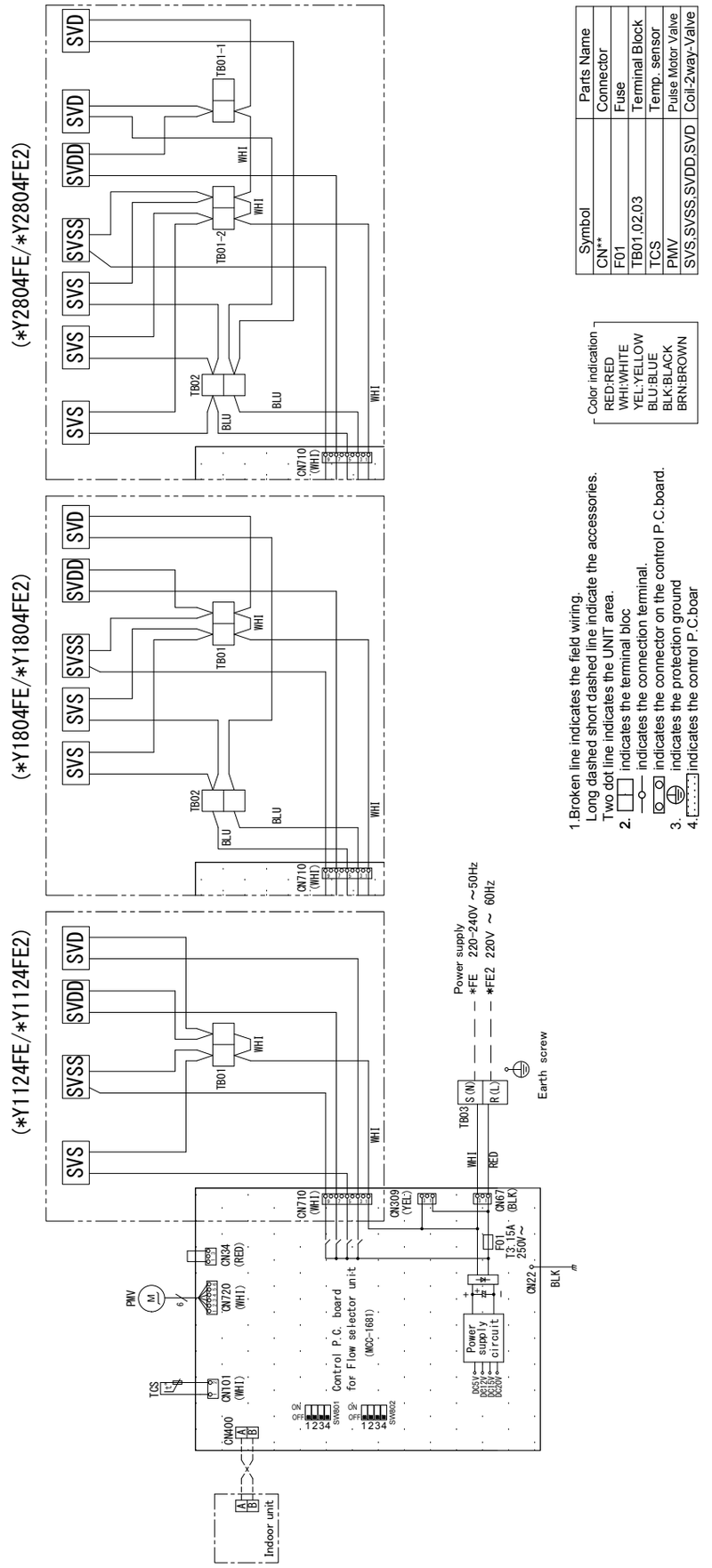
※Minimum application loads: 12 VDC and 7mA or less.
※Detect FS unit overflow and indicate "J10" error code
The Detail shows Troubleshooting item of this manual.

・Example for wiring



1-4. Single port FS unit (Long piping model)

Models : RBM-Y1124FE/FE2 , RBM-Y1804FE/FE2 , RBM-Y2804FE/FE2



2 Parts Rating

2-1. Outdoor Unit (50Hz model: MMY-MAP***6FT8*P*)

No.	Name	Model	Specification	MMY-MAP0806FT8(J)P*	MMY-MAP1006FT8(J)P*	MMY-MAP1206FT8(J)P*	MMY-MAP1406FT8(J)P*	MMY-MAP1606FT8(J)P*	MMY-MAP1806FT8(J)P*	MMY-MAP2006FT8(J)P*
1	Compressor	RA421A3TB-20MD	Output:2.1kW x2	○						
1	Compressor	RA421A3TB-20MD	Output:3.1kW x2		○					
1	Compressor	RA641A3TB-20M	Output:3.9kW x2			○				
1	Compressor	RA641A3TB-20M	Output:4.8kW x2				○			
1	Compressor	RA641A3TB-20M	Output:5.8kW x2					○		
1	Compressor	RA641A3TB-20M	Output:6.5kW x2						○	
1	Compressor	RA641A3TB-20M	Output:7.6kW x2							○
2	4-way valve coil	SHF	AC220-240V 50Hz	○	○	○	○	○	○	○
3	2-way valve coil	VPV	AC220-240V 50Hz SV3B, 11, 14	○	○	○	○	○	○	○
			AC220-240V 50Hz SV52			○*1	○*1	○*1	○*1	○*1
3	2-way valve coil	TEV	AC220-240V 50Hz SV2, 6, 3A, 3C, 3D, 3E	○	○	○	○	○	○	○
			AC220-240V 50Hz SV12					○	○	○
3	2-way valve coil	FQ-G593	AC220-240V 50Hz SV5, 41, 42	○	○	○	○	○	○	○
			AC220-240V 50Hz SV52	○*1	○*1					
4	Pulse motor valve coil	PAM, TF-1R	DC12V	○	○	○	○	○	○	○
4	Pulse motor valve coil	HAM, TCTH-1R	DC12V	○	○	○	○	○	○	○
5	High-presure SW	ACB-4UB32W	OFF:3.73MPa ON:2.9MPa	○	○	○	○	○	○	○
6	Pressure sensor (For high pressure)	NSK-BH038F-460	0.5～4.3V/0～3.73MPa	○	○	○	○	○	○	○
7	Pressure sensor (For low pressure)	NSK-BH010F-460	0.5～3.5V/0～0.98MPa	○	○	○	○	○	○	○
8	Fan motor	WDF-620A1000	DC530-620	○	○	○	○	○	○	○
9	Case heater (For comp.)		AC240V/29W	○	○	○	○	○	○	○
10	Case heater (For accum.)		AC240V/55W	○	○	○	○	○	○	○
11	Fusible plug		73℃	○	○	○	○	○	○	○

*1: -E, -TR, -UK model only.

2-2. Outdoor Unit (60Hz model: MMY-MAP***6FT7*P)

No.	Name	Model	Specification	MMY-MAP0806FT7(J)P	MMY-MAP1006FT7(J)P	MMY-MAP1206FT7(J)P	MMY-MAP1406FT7(J)P	MMY-MAP1606FT7(J)P	MMY-MAP1806FT7(J)P	MMY-MAP2006FT7(J)P
1	Compressor	RA421A3TB-20MD	Output:2.1kW x2	○						
1	Compressor	RA421A3TB-20MD	Output:3.1kW x2		○					
1	Compressor	RA641A3TB-20M	Output:3.9kW x2			○				
1	Compressor	RA641A3TB-20M	Output:4.8kW x2				○			
1	Compressor	RA641A3TB-20M	Output:5.8kW x2					○		
1	Compressor	RA641A3TB-20M	Output:6.5kW x2						○	
1	Compressor	RA641A3TB-20M	Output:7.6kW x2							○
2	4-way valve coil	SHF	AC208-230V 60Hz	○	○	○	○	○	○	○
3	2-way valve coil	VPV	AC208-230V 60Hz SV3B, 11, 14	○	○	○	○	○	○	○
3	2-way valve coil	TEV	AC208-230V 60Hz SV2, 6, 3A, 3C, 3D, 3E	○	○	○	○	○	○	○
			AC208-230V 60Hz SV12					○	○	○
3	2-way valve coil	FQ-D640	AC208-230V 60Hz SV5, 41, 42	○	○	○	○	○	○	○
4	Pulse motor valve coil	PAM, TF-1R	DC12V	○	○	○	○	○	○	○
4	Pulse motor valve coil	HAM, TCTH-1R	DC12V	○	○	○	○	○	○	○
5	High-presure SW	ACB-4UB32W	OFF:3.73MPa ON:2.9MPa	○	○	○	○	○	○	○
6	Pressure sensor (For high pressure)	NSK-BH038F-460	0.5～4.3V/0～3.73MPa	○	○	○	○	○	○	○
7	Pressure sensor (For low pressure)	NSK-BH010F-460	0.5～3.5V/0～0.98MPa	○	○	○	○	○	○	○
8	Fan motor	WDF-620A1000	DC530-620	○	○	○	○	○	○	○
9	Case heater (For comp.)		AC240V/29W	○	○	○	○	○	○	○
10	Case heater (For accum.)		AC240V/55W	○	○	○	○	○	○	○
11	Fusible plug		73℃	○	○	○	○	○	○	○

2-3. Outdoor Inverter (50/60Hz model: MMY-MAP***6FT8/7*P*)*

No	Name	Model	Specification	MMY-MAP0806FT*	MMY-MAP1006FT*	MMY-MAP1206FT*	MMY-MAP1406FT*	MMY-MAP1606FT*	MMY-MAP1806FT*	MMY-MAP2006FT*
1	Power supply terminal block	JXO-6004	AC600V/75A,4P	○	○	○	○	○	○	○
2	Relay terminal block for reactor	JXO-3004	AC600V/30A,4P	-	-	○	○	○	○	○
3	Communication terminal block	JXO-B2J	AC30V(or no more than DC42V)/1A,8P	○	○	○	○	○	○	○
4	Reactor(For comp. & fan)	CH-79	5.8mH/14A	○	○	-	-	-	-	-
5	Reactor(For comp. & fan)	CH-90	2.9mH/25A	-	-	○	○	-	-	-
6	Reactor(For comp. & fan)	CH-65	2.9mH/30A	-	-	-	-	○	○	○
7	P.C.board(Noise filter)	MCC-1608	-	○	○	○	○	○	○	○
8	Line filter	-	4.0mH/AC400V/35A	○	○	○	○	-	-	-
9	Line filter	-	0.77mH/AC480V/50A	-	-	-	-	○	○	○
10	P.C.board(I/F board)	MCC-1673	-	○	○	○	○	○	○	○
11	P.C.board(IPDU for comp.)	MCC-1669	-	○	○	○	○	-	-	-
12	P.C.board(IPDU for comp.)	MCC-1660	-	-	-	-	-	○	○	○
13	Fuse(MCC-1669)	GAC1 31.5A	31.5A/AC500V(P.C.board)	○	○	○	○	-	-	-
14	Fuse(MCC-1660)	GAC1 40A	40A/AC500V(P.C.board)	-	-	-	-	○	○	○
15	Comp.motor drive IPM	PSS25SA2FT	25A/DC1200V(P.C.board)	○	○	-	-	-	-	-
16	Comp.motor drive IPM	PSS50SA2FT	50A/DC1200V(P.C.board)	-	-	○	○	○	○	○
17	P.C.board(IPDU for fan)	MCC-1659	-	○	○	○	○	○	○	○
18	Fuse(MCC-1659)	HDL1 6.3A	6.3A/DC750V(P.C.board)	○	○	○	○	○	○	○
19	Fan motor drive IPM(MCC-1659)	PSS10S72FT	10A/DC1200V(P.C.board)	○	○	○	○	○	○	○
20	Magnet switch (MG-CTT) (50/60Hz)	FC-1S	AC220-240V	○	○	○	○	○	○	○
21	PTC thermistor	MZ32-101RMARD01E	13A/AC500V	○	○	○	○	○	○	○
22	Pipe temp. sensor(TD)	-	-30℃-135℃(Ambient temp. range)	○	○	○	○	○	○	○
23	Pipe temp. sensor(TS)	-	-20℃-80℃(Ambient temp. range)	○	○	○	○	○	○	○
24	Heatexchanger temp. sensor(TE)	-	-20℃-80℃(Ambient temp. range)	○	○	○	○	○	○	○
25	Outside temp. sensor(TO)	-	-20℃-80℃(Ambient temp. range)	○	○	○	○	○	○	○
26	Oil temp. sensor(TK)	-	-30℃-135℃(Ambient temp. range)	○	○	○	○	○	○	○
27	Liquid temp. sensor(TL)	-	-20℃-80℃(Ambient temp. range)	○	○	○	○	○	○	○

2-4. Multi port FS Unit (Model: RBM-Y1801F4PE/PE2 , RBM-Y1801F6PE/PE2)

No.	Parts Name	Model		Specification	RBM-Y1801	
					F4PE	F6PE
1	2-way valve coil	VPV-MOAJ510B0	SVS	AC220-240V 50Hz	○	○
			SVSS		○	○
			SVD		○	○
			SVDD		○	○
2	2-way valve	VPV-1204DQ55	SVS	—	○	○
			SVD		○	○
3	2-way valve	VPV-122DQ1	SVSS	—	○	○
			SVDD		○	○
4	PMV (Pulse motor valve) coil	CAM-MD12TF-17		DC12V	○	○
5	PMV (Pulse motor valve)	CAM-BD14TF-1		—	○	○
6	TCS sensor	—		ϕ6 size, lead wire length: 500mm Vinyl tube (Red)	○	○

No.	Parts Name	Model		Specification	RBM-Y1801	
					F4PE2	F6PE2
1	2-way valve coil	VPV-MOAQ1843A0	SVS	AC208-230V 60Hz	○	○
			SVSS		○	○
			SVD		○	○
			SVDD		○	○
2	2-way valve	VPV-1204DQ55	SVS	—	○	○
			SVD		○	○
3	2-way valve	VPV-122DQ1	SVSS	—	○	○
			SVDD		○	○
4	PMV (Pulse motor valve) coil	CAM-MD12TF-17		DC12V	○	○
5	PMV (Pulse motor valve)	CAM-BD14TF-1		—	○	○
6	TCS sensor	—		ϕ6 size, lead wire length: 500mm Vinyl tube (Red)	○	○

2-5. Single port FS unit (Long piping model) (Model: RBM-Y1124FE/FE2, RBM-Y1804FE/FE2, RBM-2804FE/FE2)

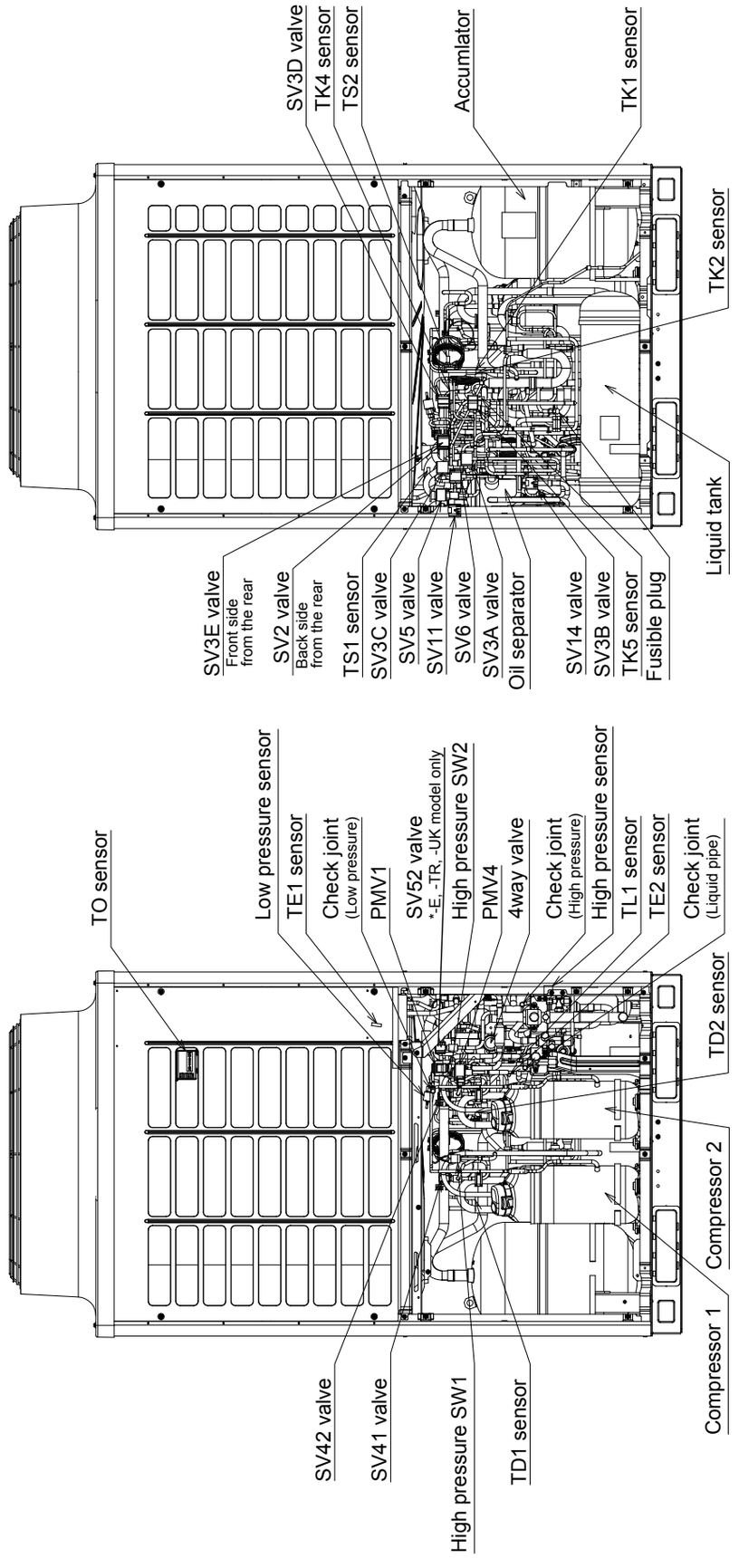
No.	Parts Name	Model		Specification	RBM-		
					Y1124FE	Y1804FE	Y2804FE
1	2-way valve coil	VPV-MOAJ510B0	SVS	AC220-240V 50Hz	○	○	○
			SVSS		○	○	○
			SVDD		○	○	○
			SVD		○	○	○
2	2-way valve	VPV-1204DQ55	SVS	—	○	○	○
			SVD		○	○	○
3	2-way valve	VPV-122DQ1	SVSS	—	○	○	○
			SVDD		○	○	○
4	PMV (Pulse motor valve) coil	CAM-MD12TF-17		DC12V	○	○	○
5	PMV (Pulse motor valve)	CAM-BD14TF-2		—	○	○	
		CAM-BD18TF-1		—			○
6	TCS sensor	—		ϕ6 size, lead wire length: 500mm, Vinyl tube (Red)	○	○	○

No.	Parts Name	Model		Specification	RBM-		
					Y1124FE2	Y1804FE2	Y2804FE2
1	2-way valve coil	VPV-MOAQ1843A0	SVS	AC208-230V 60Hz	○	○	○
			SVSS		○	○	○
			SVDD		○	○	○
			SVD		○	○	○
2	2-way valve	VPV-1204DQ55	SVS	—	○	○	○
			SVD		○	○	○
3	2-way valve	VPV-122DQ1	SVSS	—	○	○	○
			SVDD		○	○	○
4	PMV (Pulse motor valve) coil	CAM-MD12TF-17		DC12V	○	○	○
5	PMV (Pulse motor valve)	CAM-BD14TF-2		—	○	○	
		CAM-BD18TF-1		—			○
6	TCS sensor	—		ϕ6 size, lead wire length: 500mm, Vinyl tube (Red)	○	○	○

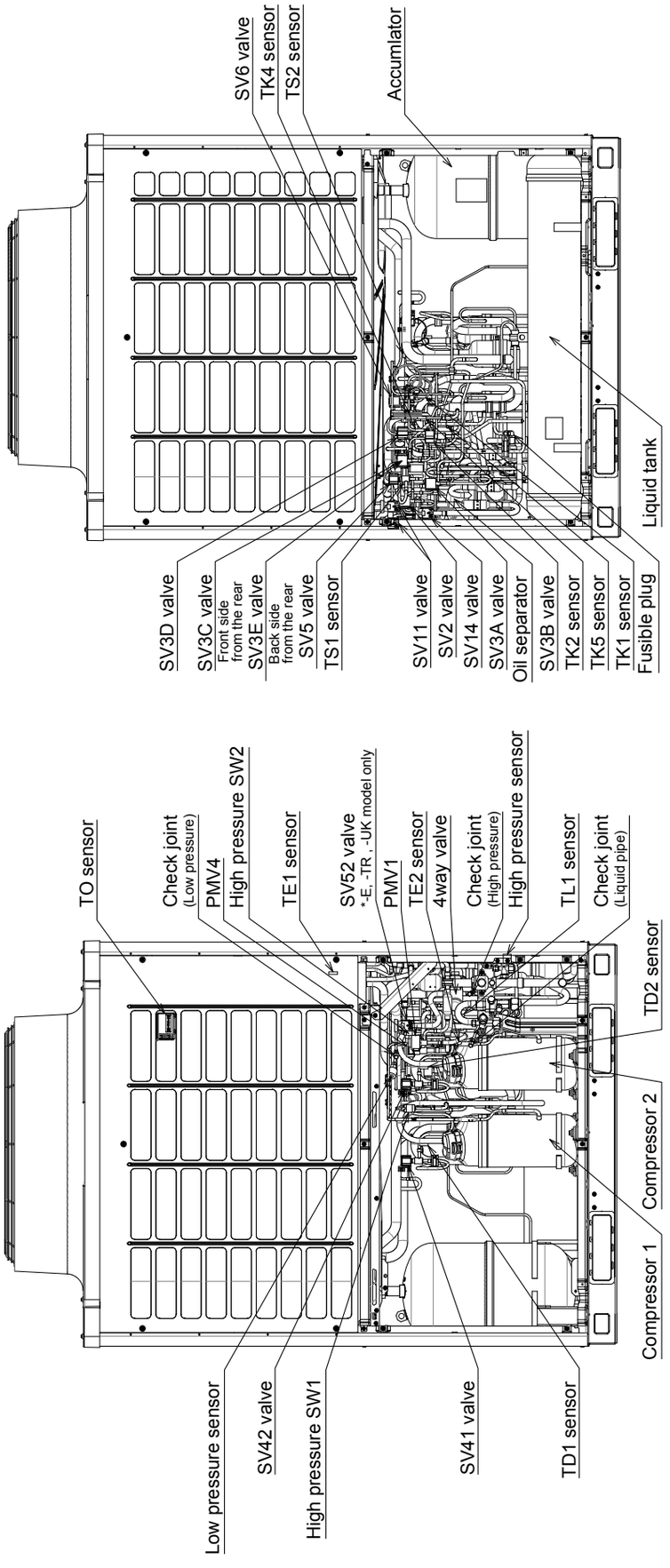
2-6. Parts Layout in Outdoor Unit

8, 10HP

Model: MMY-MAP0806*, MAP1006*

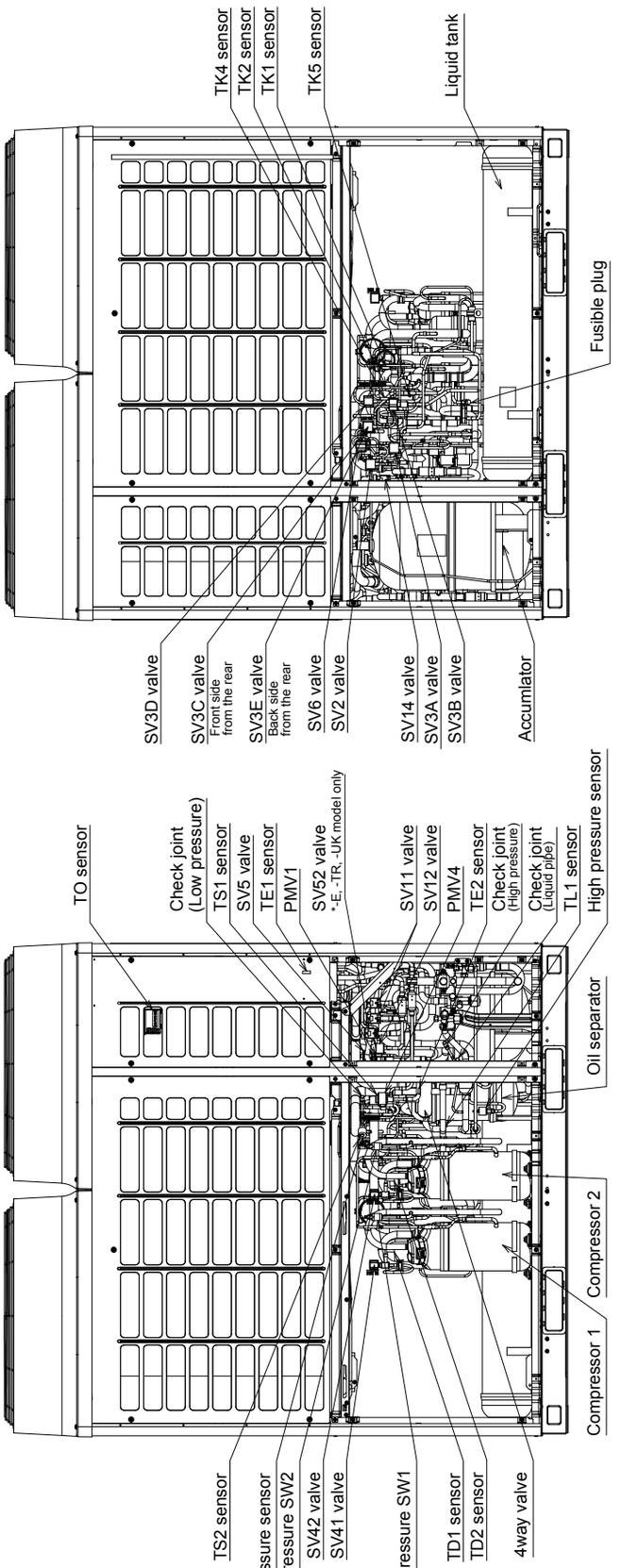


12, 14HP
Model: MMY-MAP1206*, MAP1406*



16, 18, 20HP

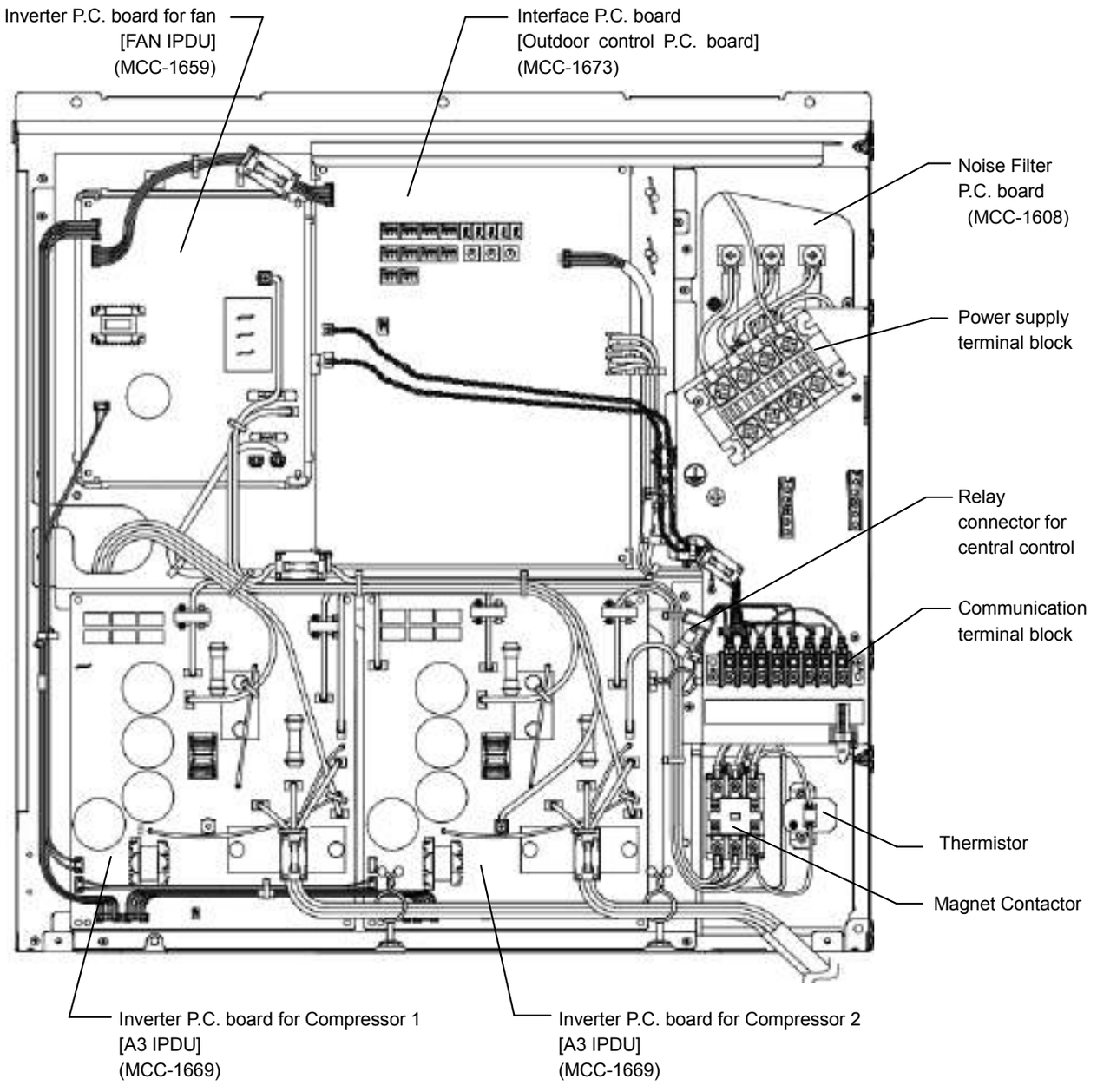
Model: MMY-MAP1606*, MAP1806*, MAP2006*



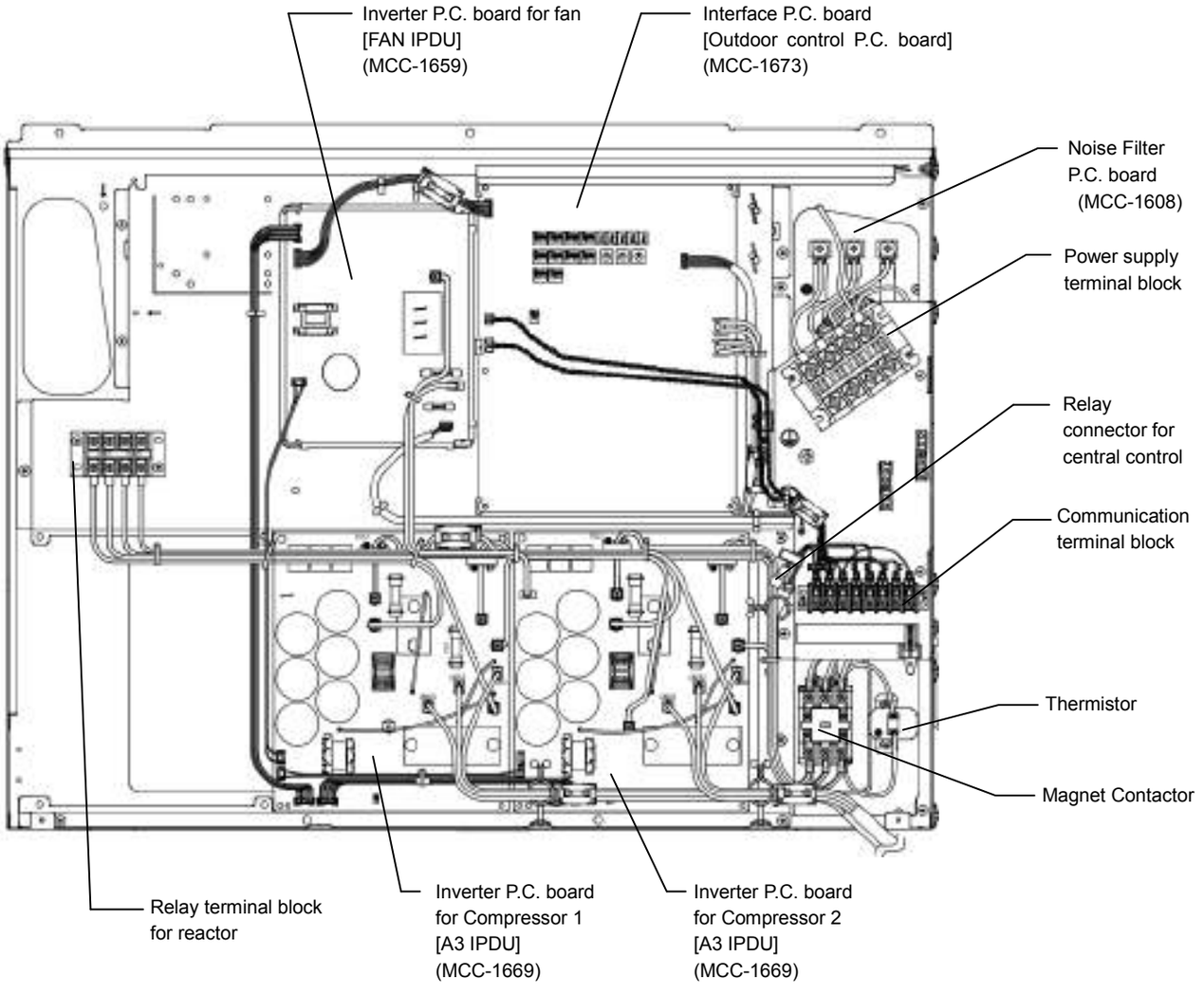
2-7. Parts Layout in Inverter Assembly

Outdoor Unit (8, 10HP)

Model: MMY-MAP0806*, MAP1006*

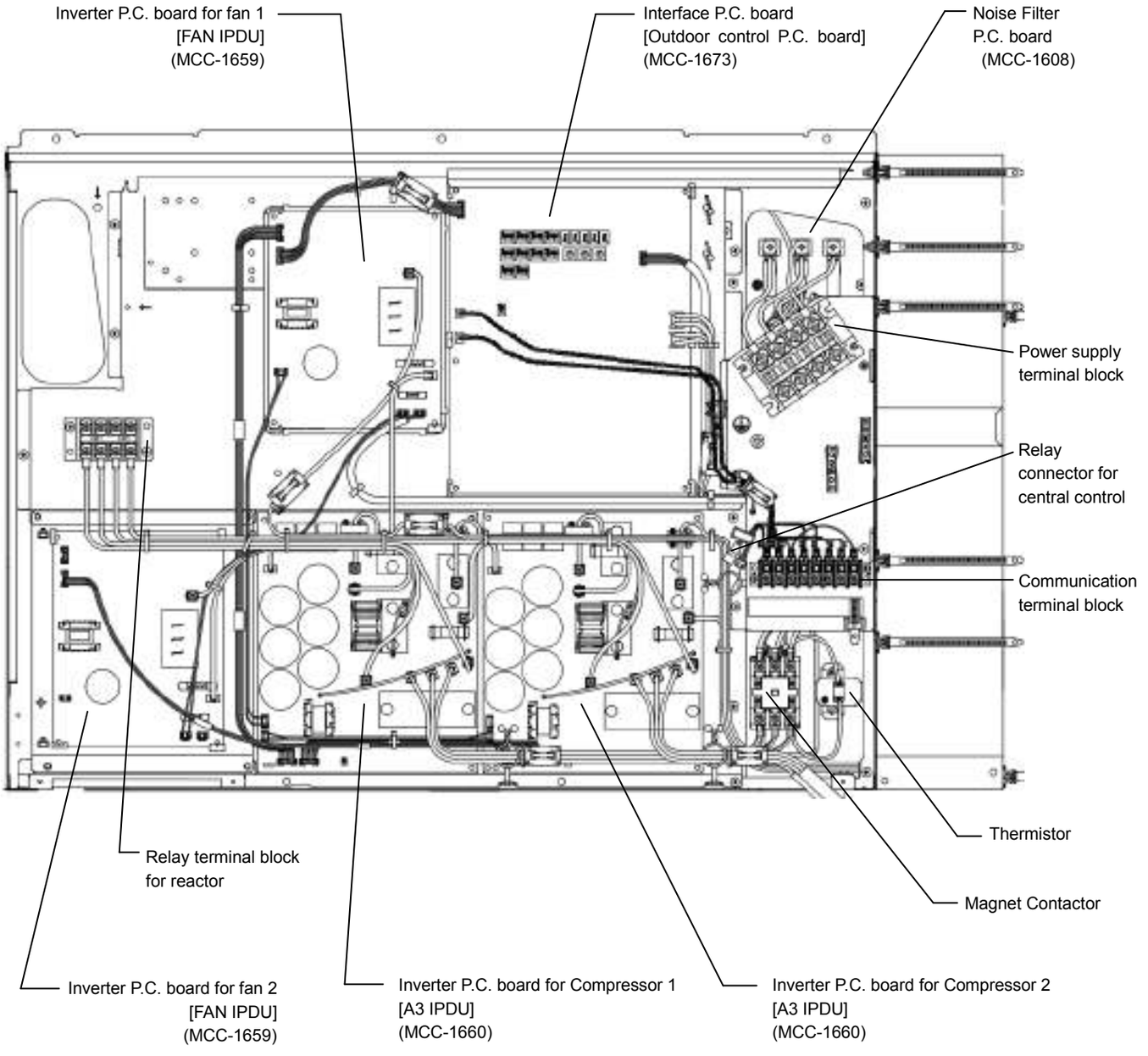


Outdoor Unit (12, 14HP)
Model: MMY-MAP1206*, MAP1406*



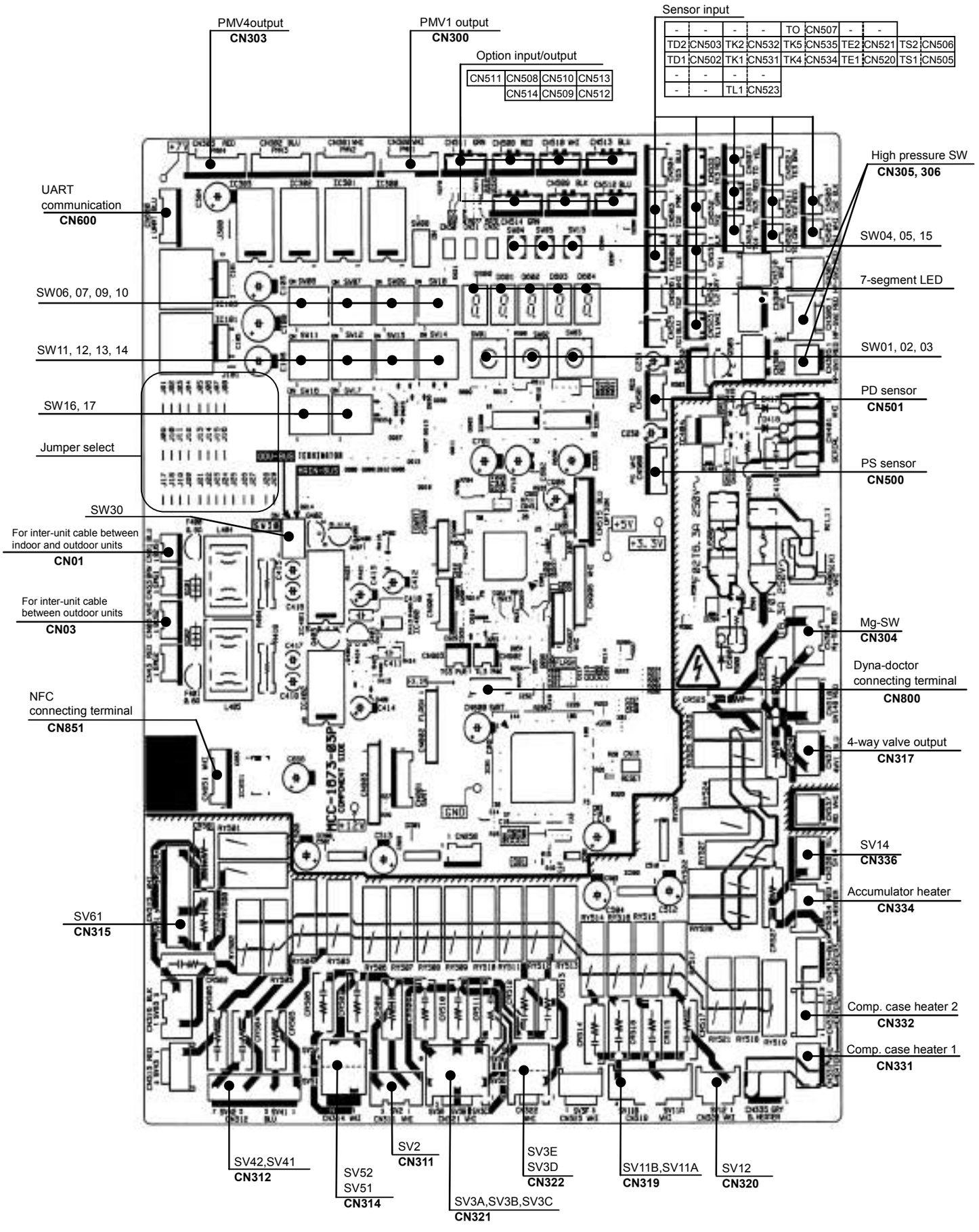
Outdoor Unit (16, 18, 20HP)

Model: MMY-MAP1606*, MAP1806*, MAP2006*

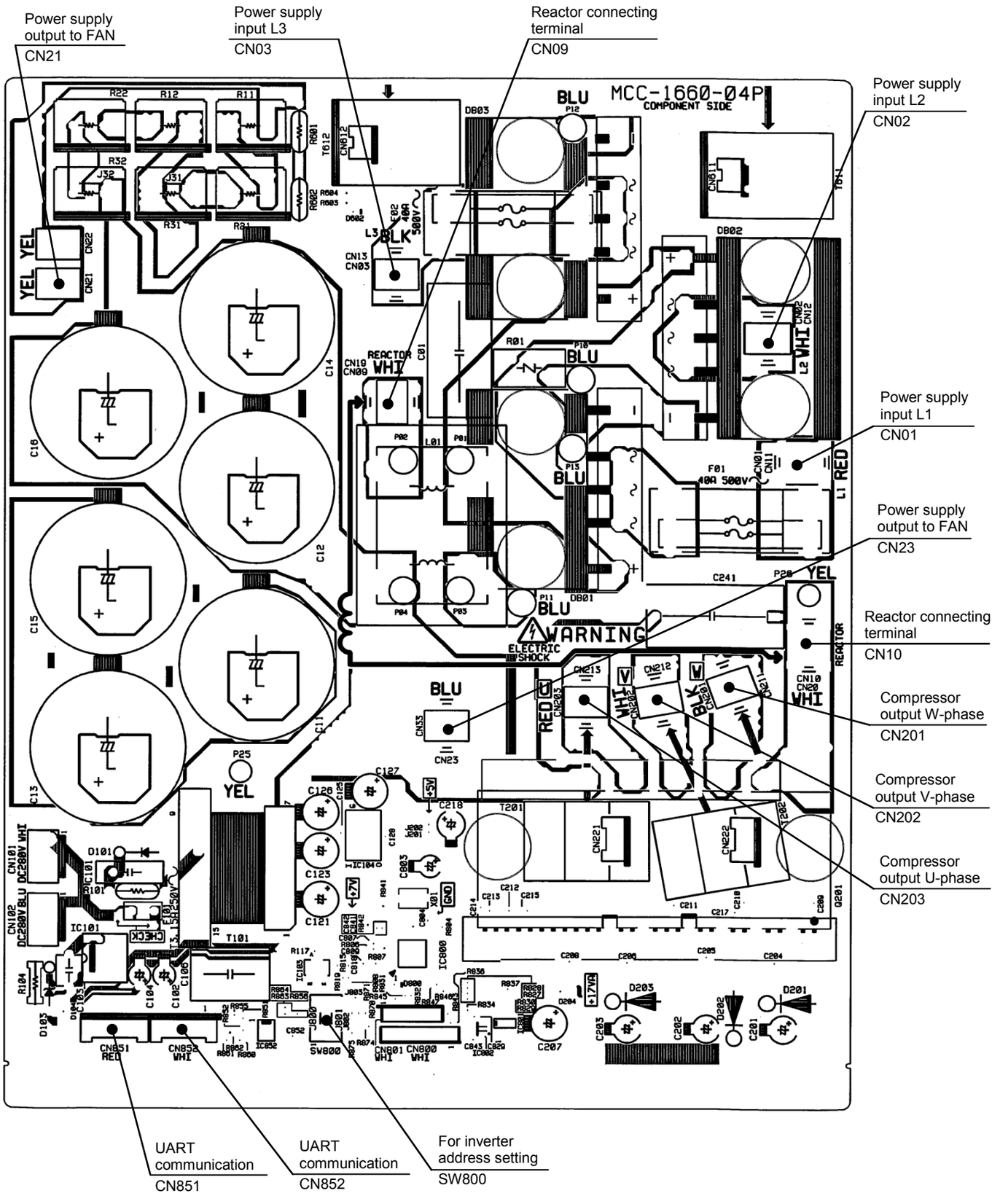


2-8. Outdoor (Inverter) Print Circuit Board

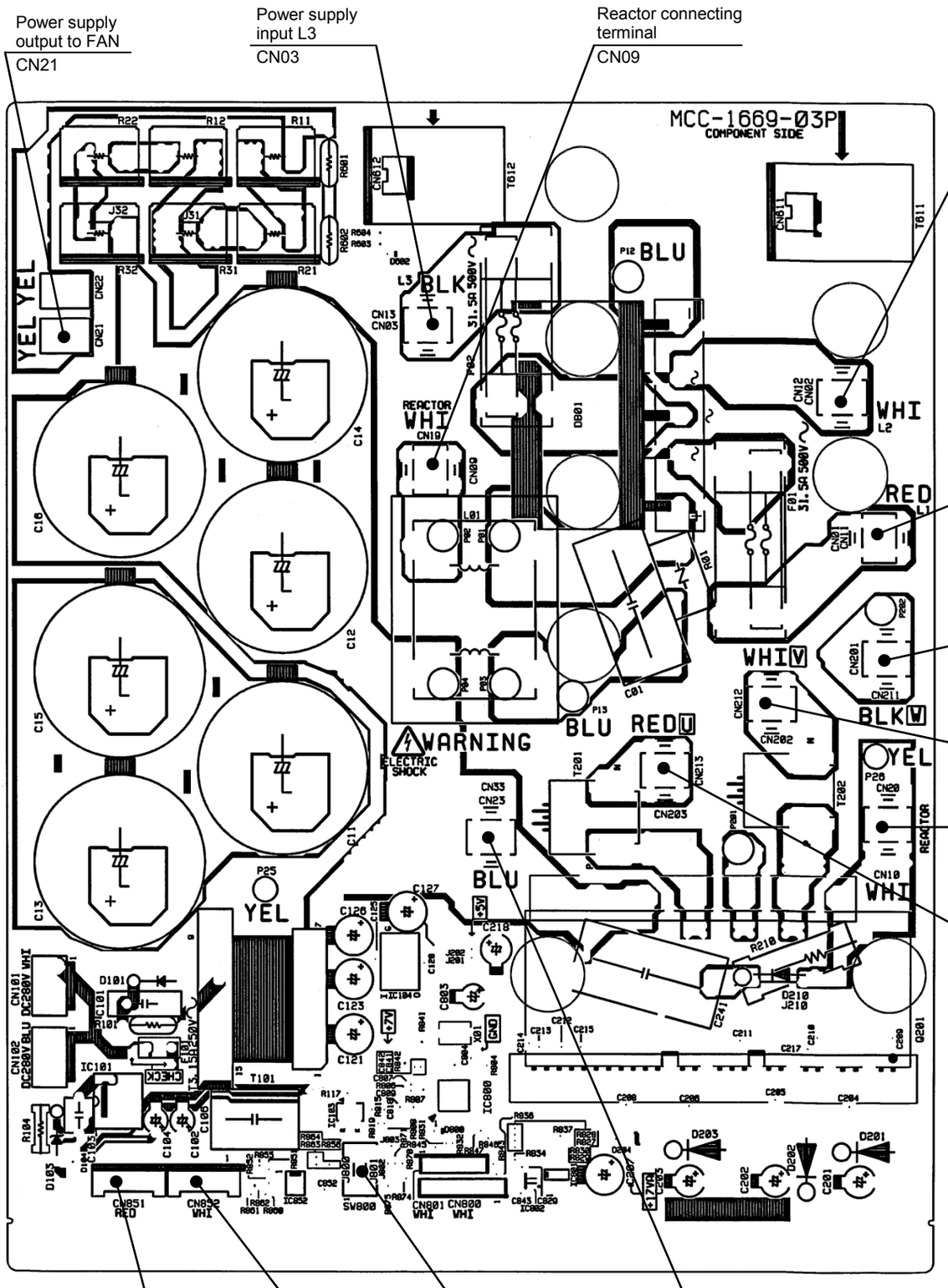
2-8-1. Interface P.C. board (MCC-1673)



2-8-2. Inverter P.C. board for compressor (MCC-1660) A3-IPDU



2-8-3. Inverter P.C. board for compressor (MCC-1669) A3-IPDU



Power supply output to FAN
CN21

Power supply input L3
CN03

Reactor connecting terminal
CN09

Power supply input L2
CN02

Power supply input L1
CN01

Compressor output W-phase
CN201

Compressor output V-phase
CN202

Reactor connecting terminal
CN10

Compressor output U-phase
CN203

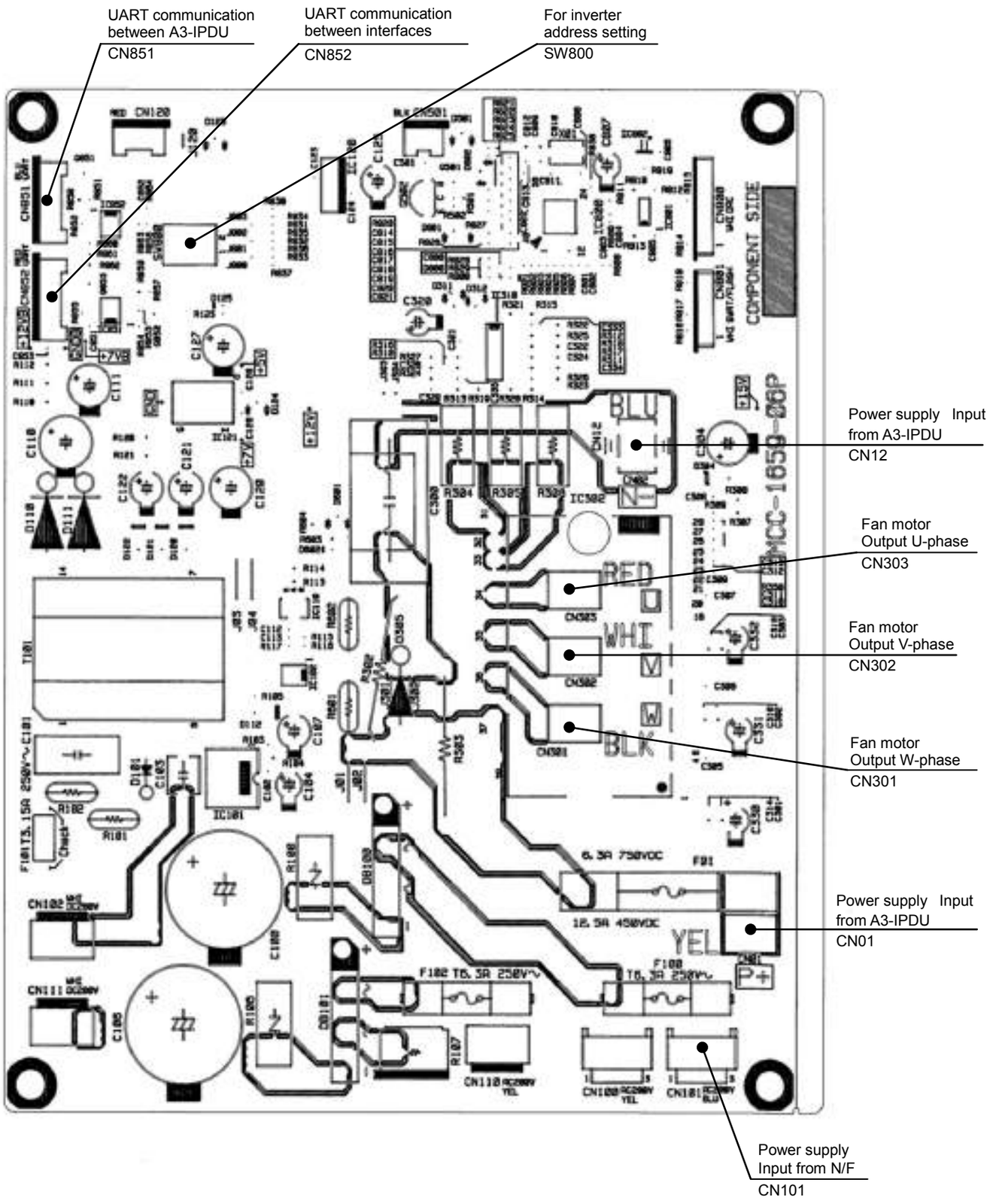
UART communication
CN851

UART communication
CN852

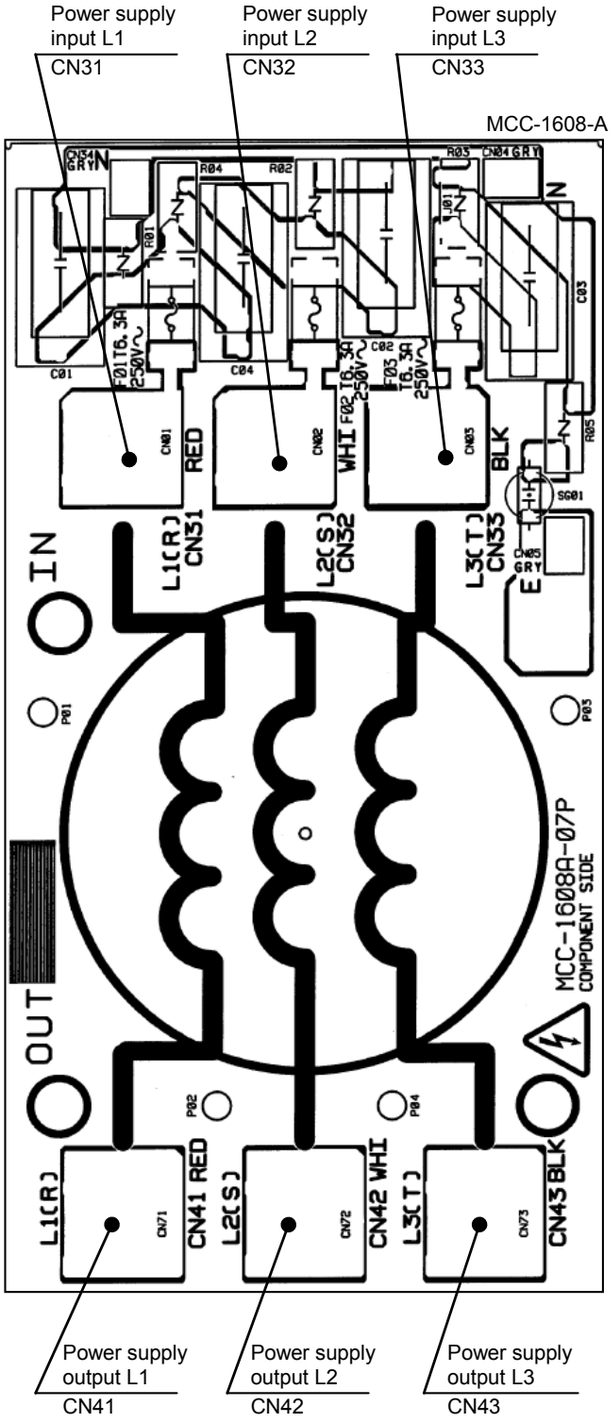
For inverter address setting
SW800

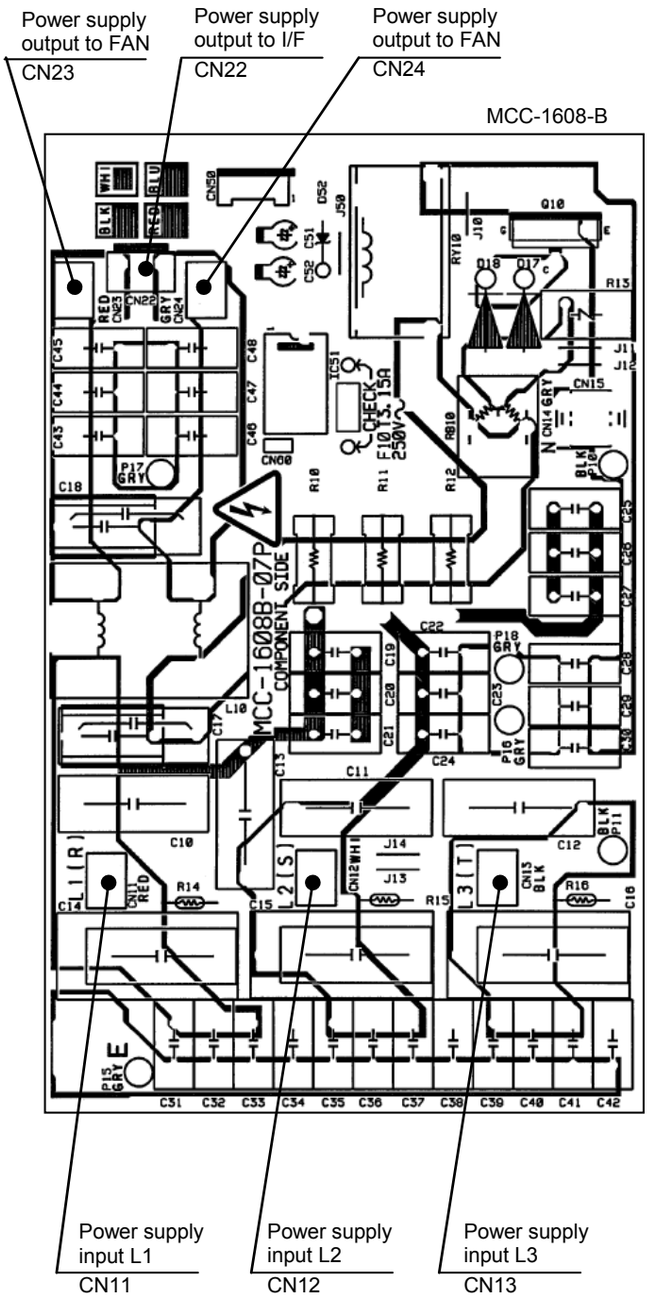
Power supply output to FAN
CN23

2-8-4. Inverter P.C. board for fan motor (MCC-1659) FAN-IPDU



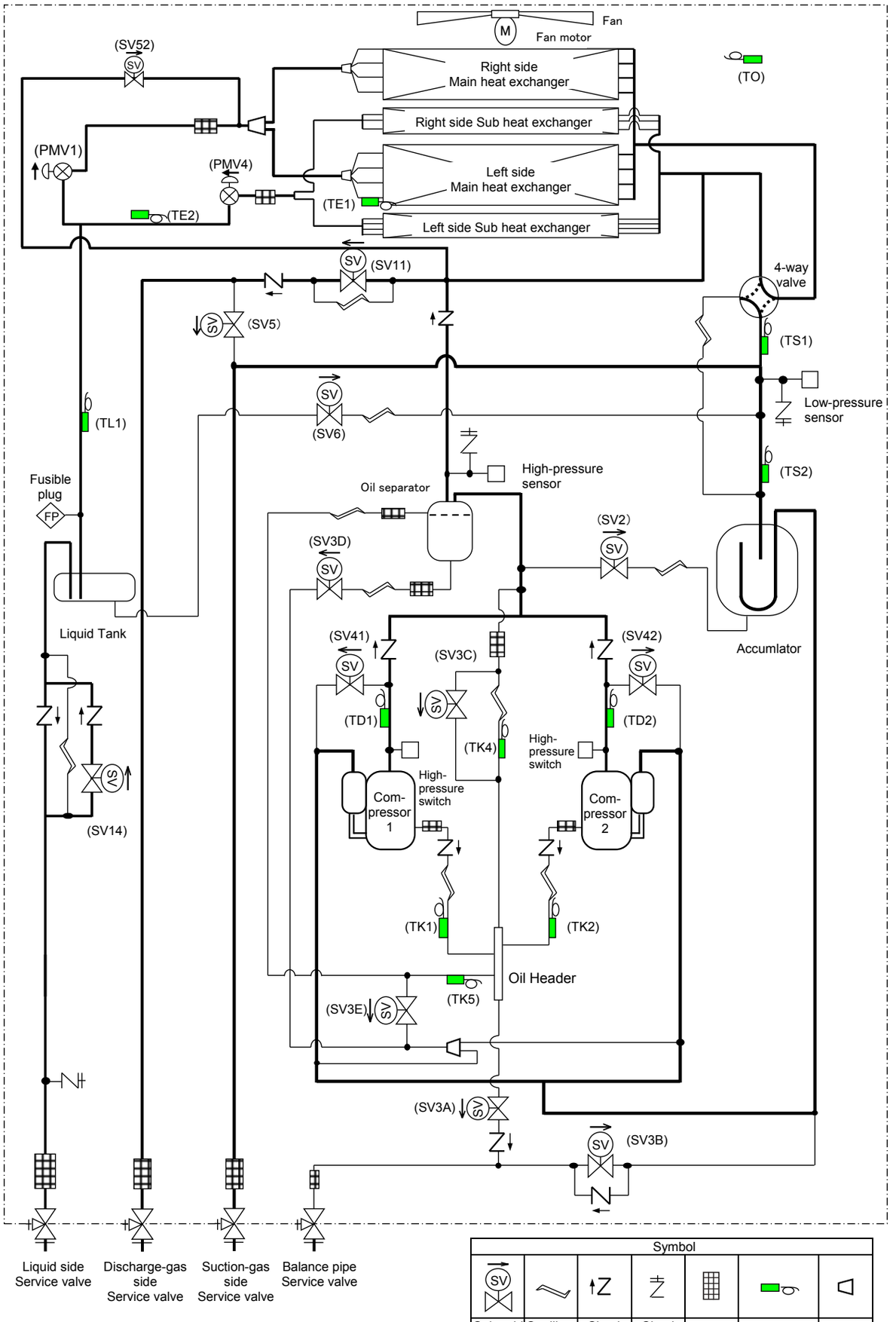
2-8-5. Noise Filter PC board (MCC-1608 -A, -B)





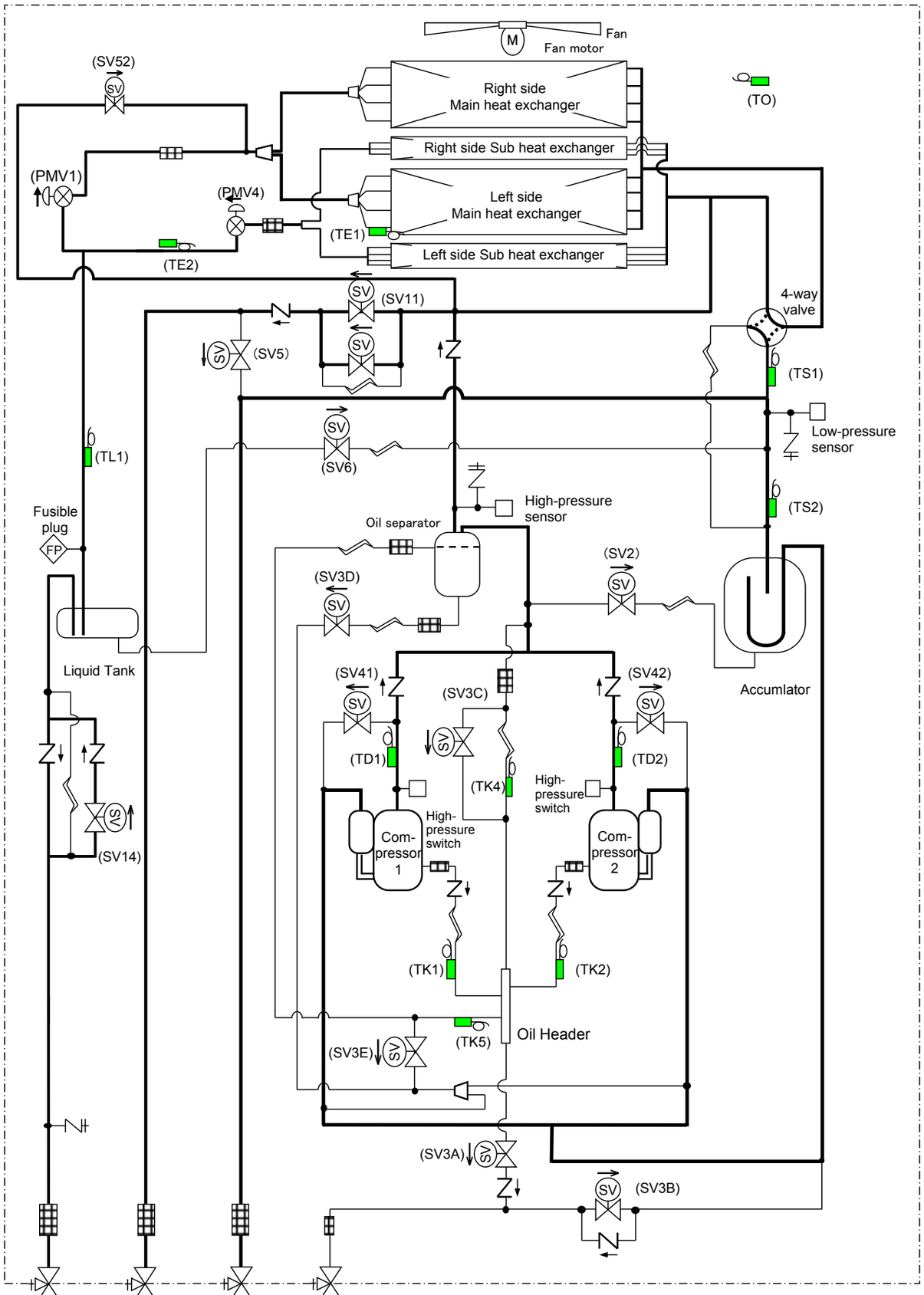
3 Refrigerant Piping Systematic Drawing

Outdoor Unit (8, 10HP)
Model: MMY-MAP0806*-E/TR/UK, MMY-MAP1006*-E/TR/UK



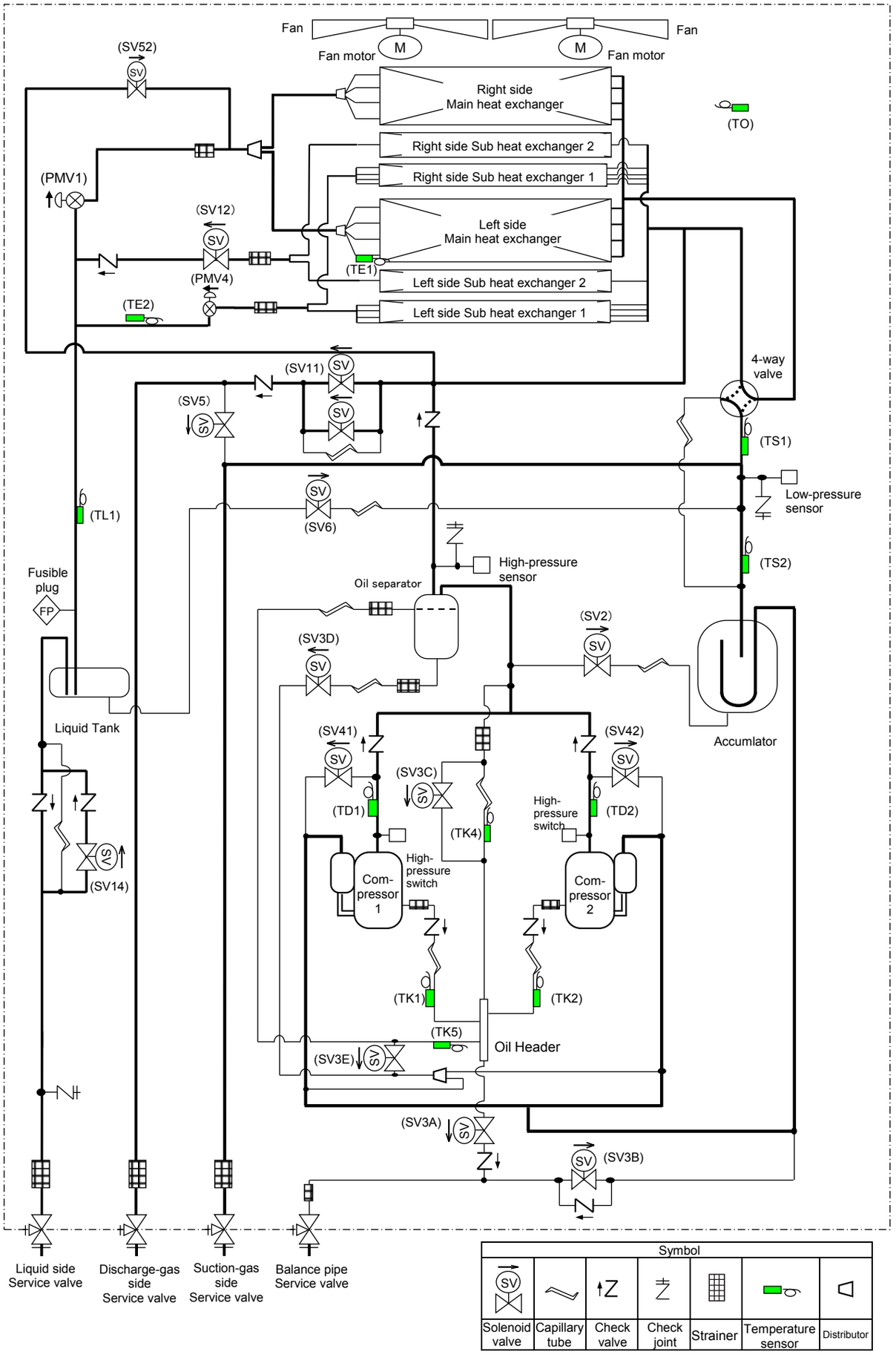
Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

Outdoor Unit (12, 14HP)
Model: MMY-MAP1206*-E/TR/UK, MMY-MAP1406*-E/TR/UK



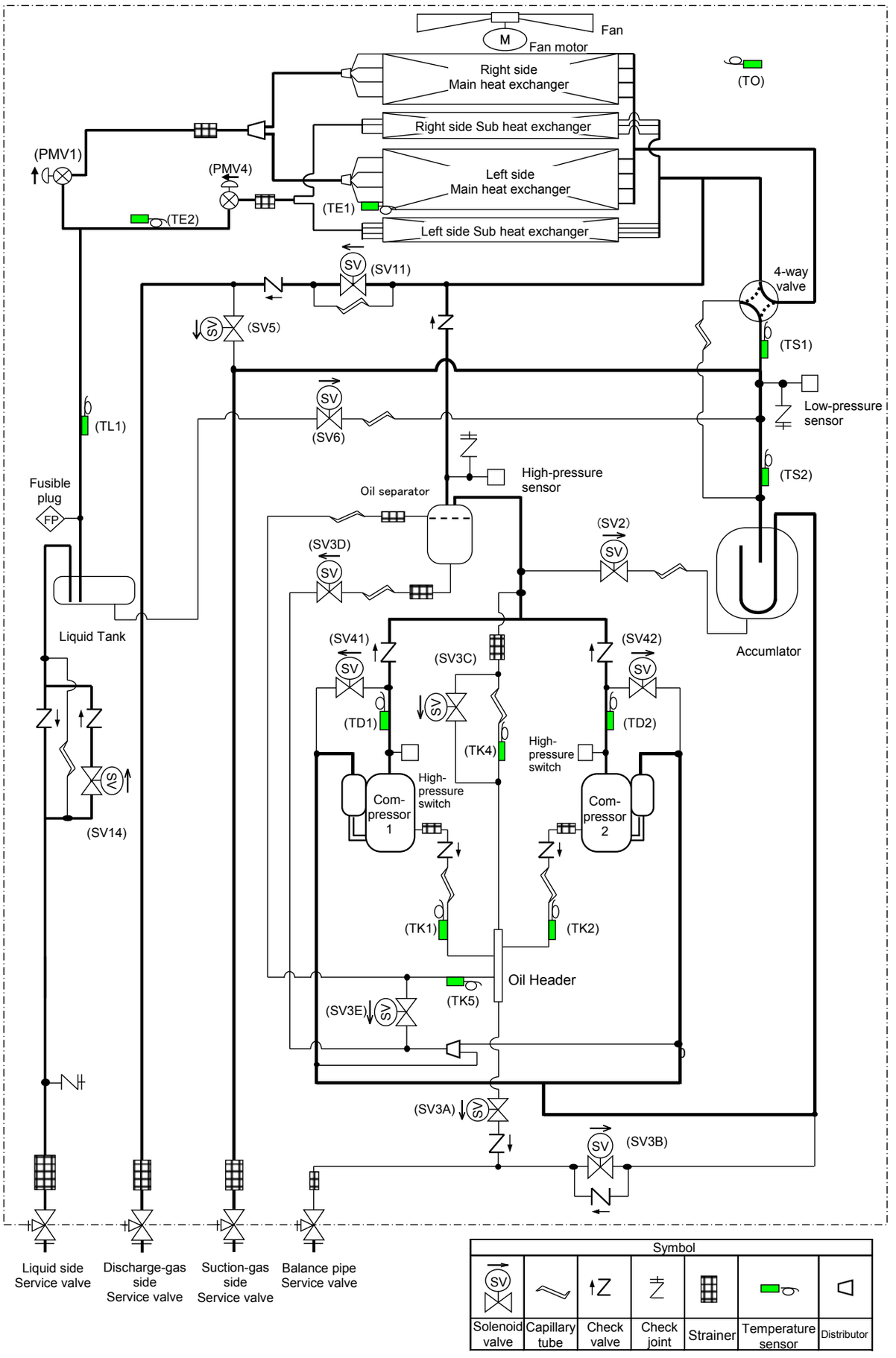
Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

Outdoor Unit (16, 18, 20HP)
Model: MMY-MAP1606*-E/TR/UK, MMY-MAP1806*-E/TR/UK, MMY-MAP2006*-E/TR/UK



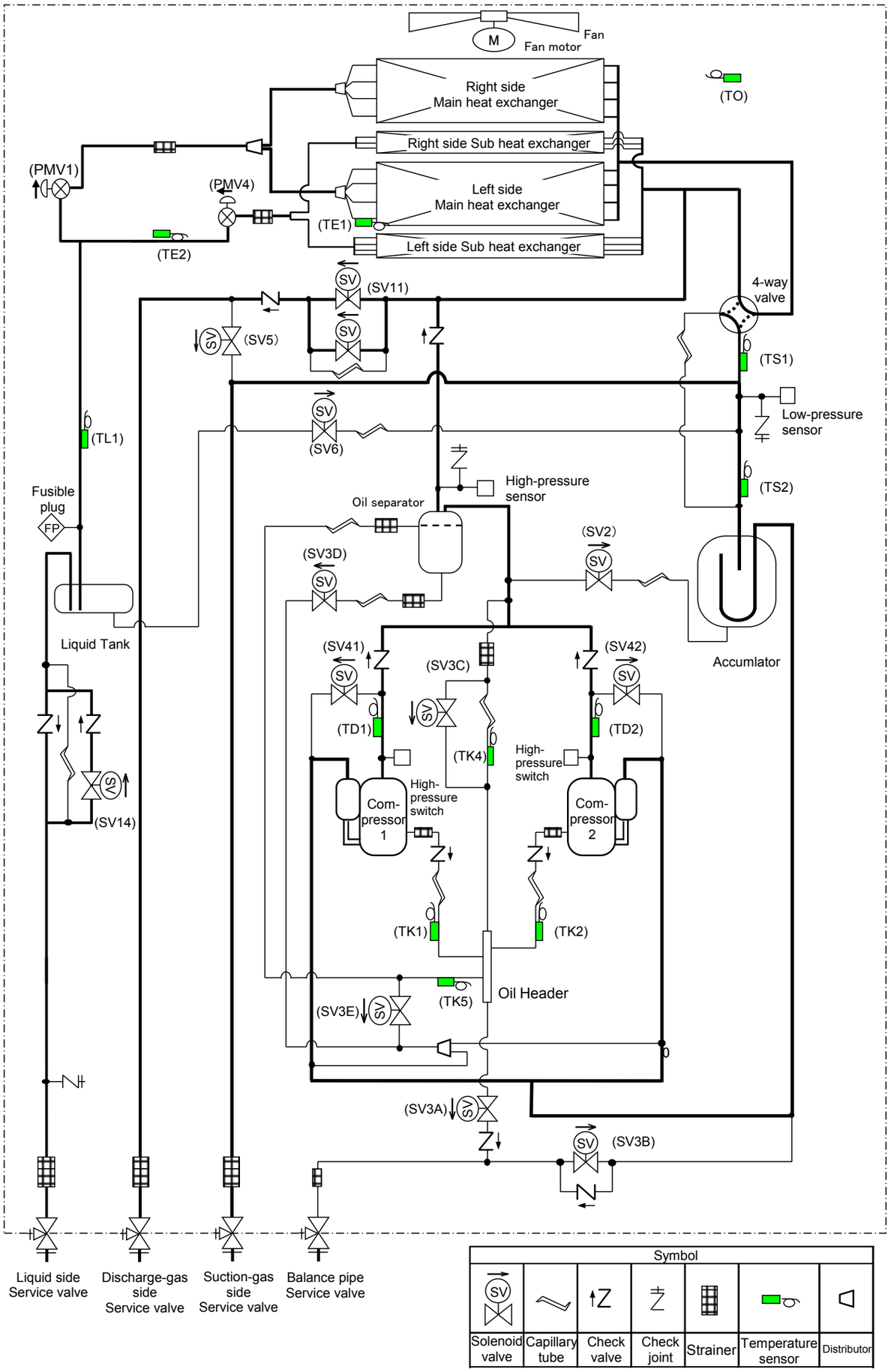
Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

Outdoor Unit (8, 10HP)
Model: MMY-MAP0806*, MAP1006*



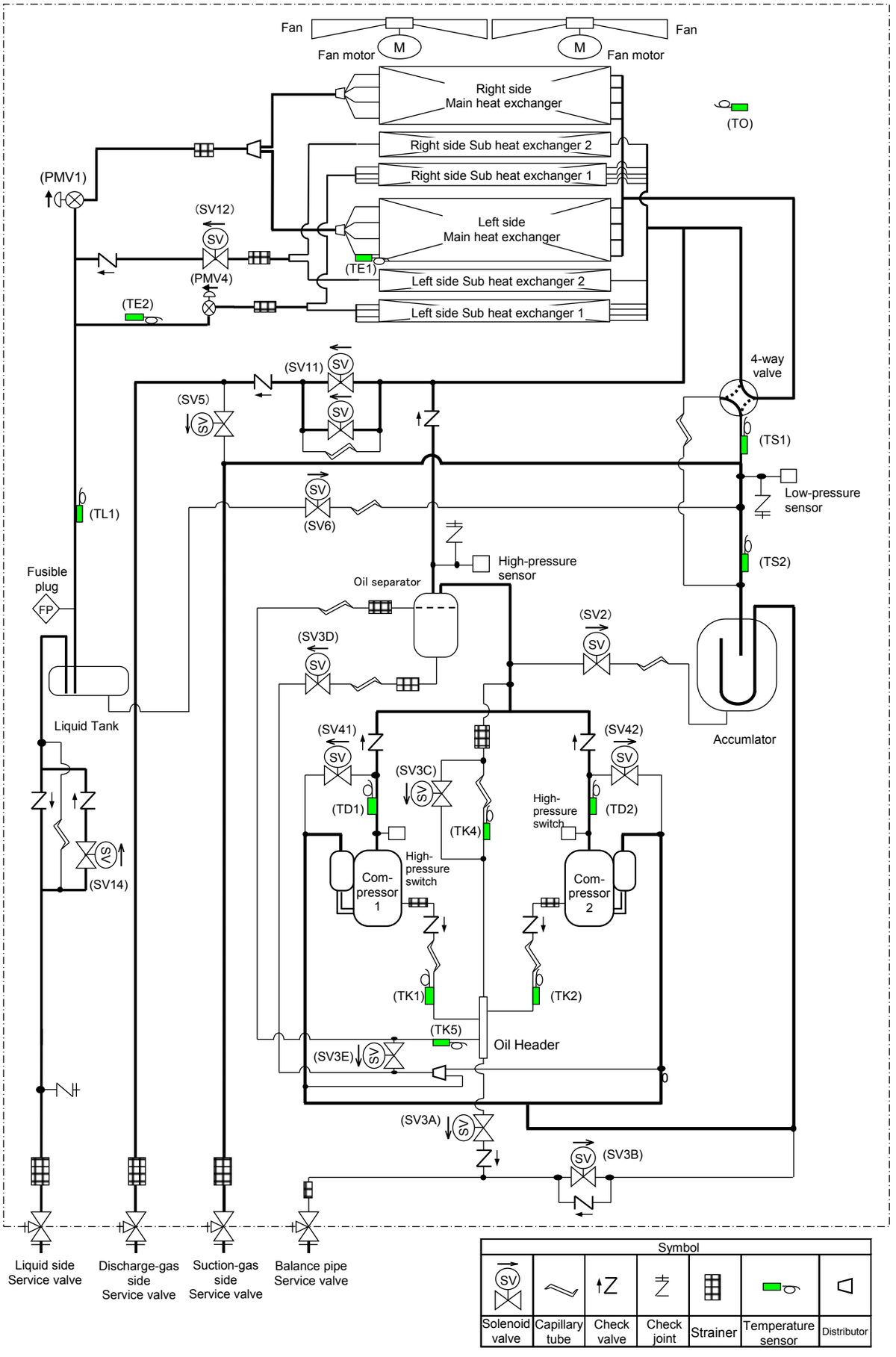
Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

Outdoor Unit (12, 14HP)
Model: MMY-MAP1206*, MAP1406*

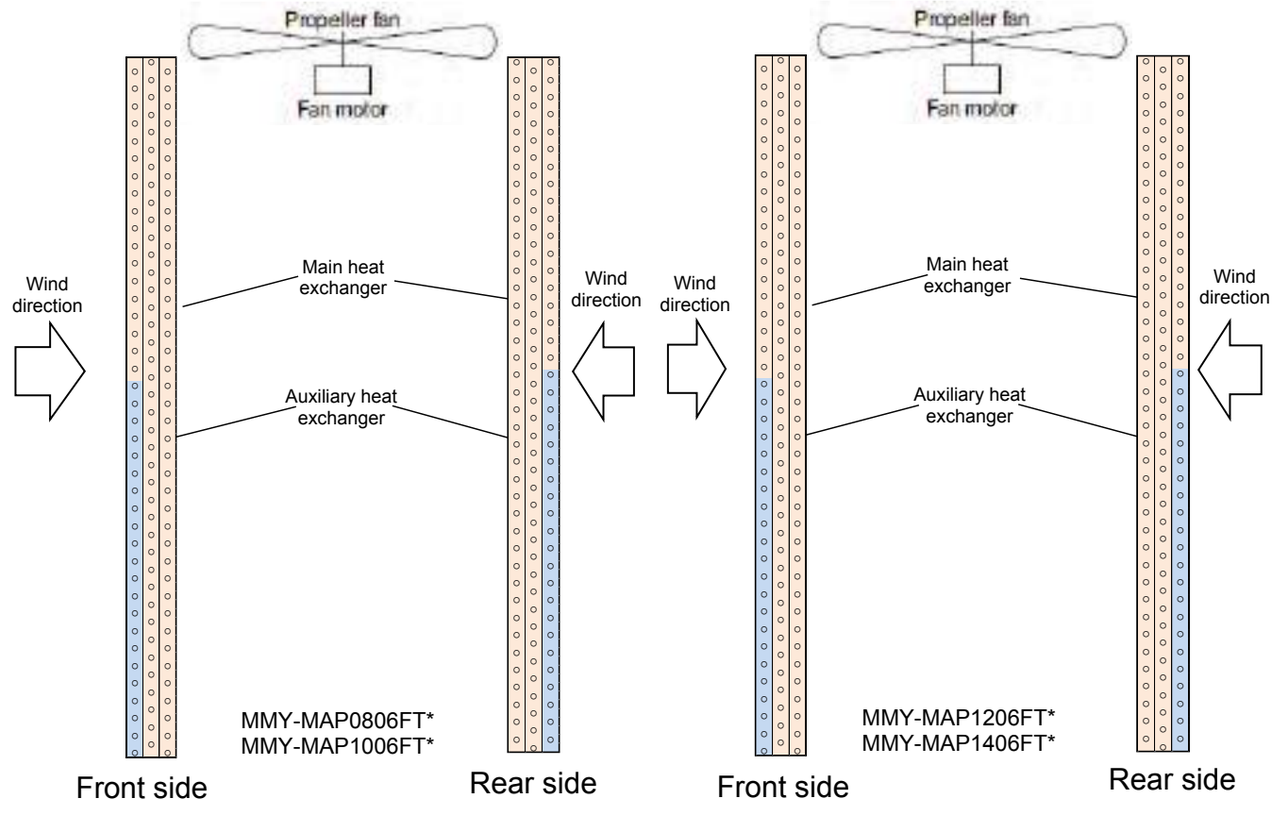


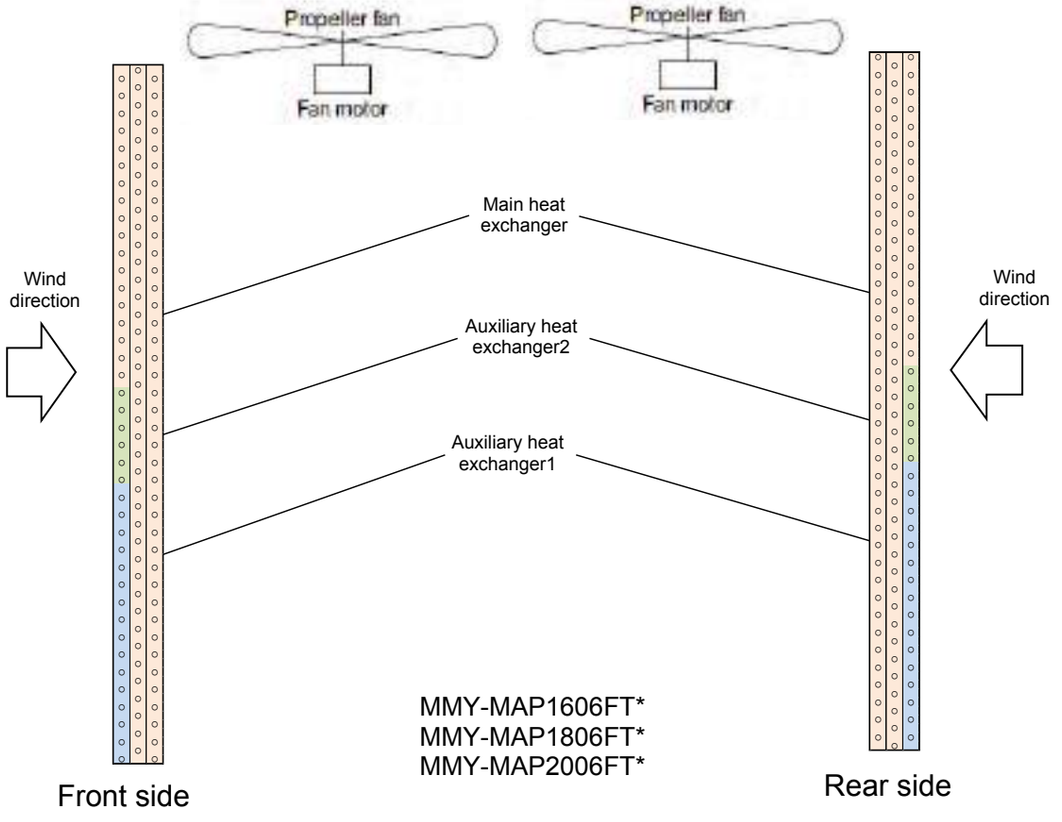
Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

Outdoor Unit (16, 18, 20HP)
Model: MMY-MAP1606*, MAP1806*, MAP2006*



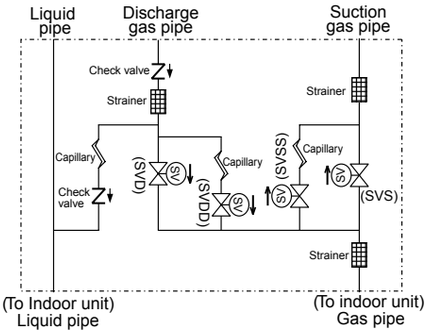
Configuration of outdoor unit heat exchanger



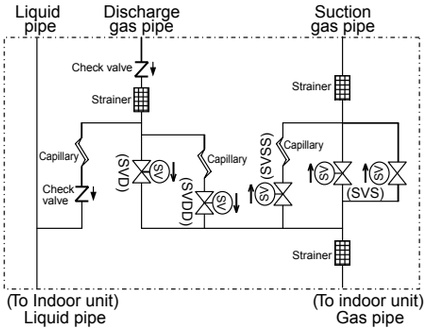


Flow Selector unit
Single port FS unit

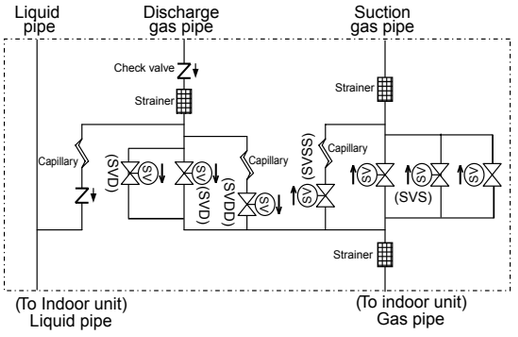
RBM-Y1123FE/FE2



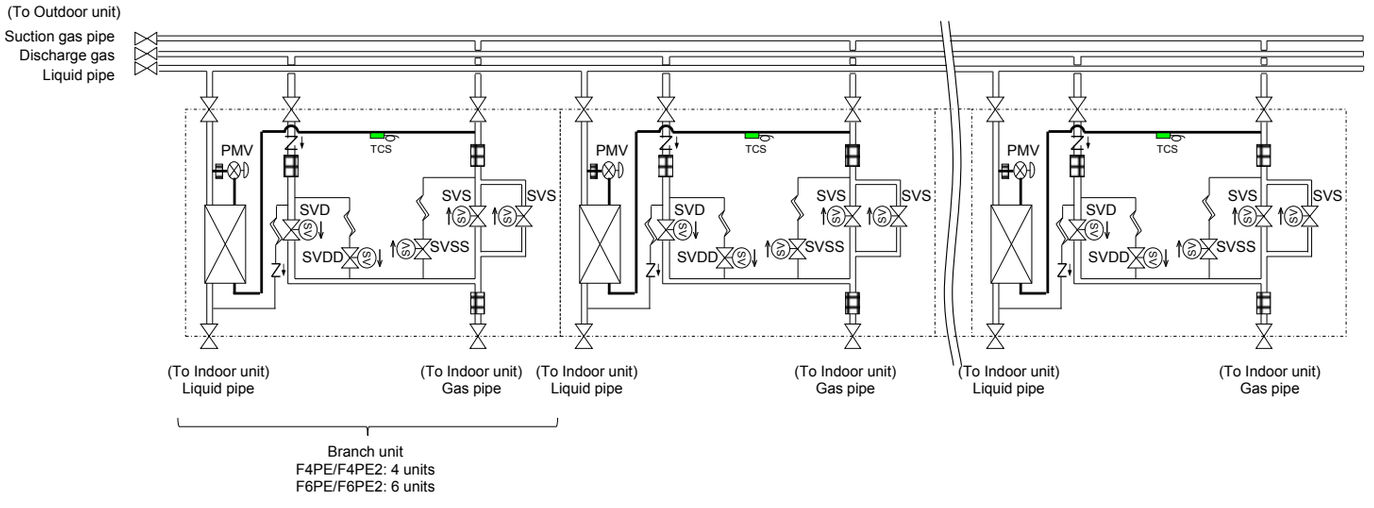
RBM-Y1803FE/FE2



RBM-Y2803FE/FE2

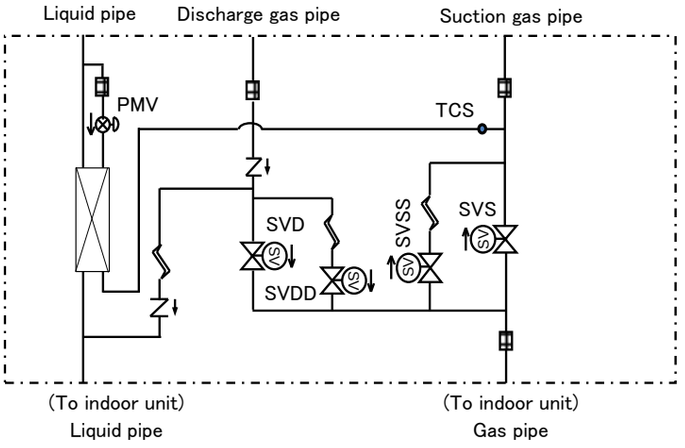


Multi port FS unit

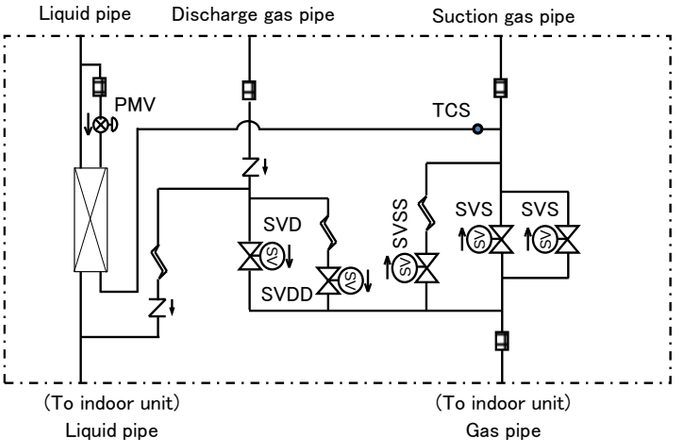


Single port FS unit (Long piping model)

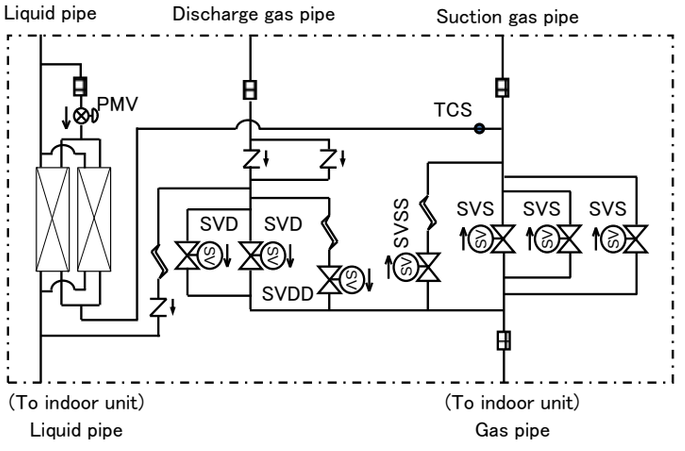
RBM-Y1124FE/FE2



RBM-Y1804FE/FE2

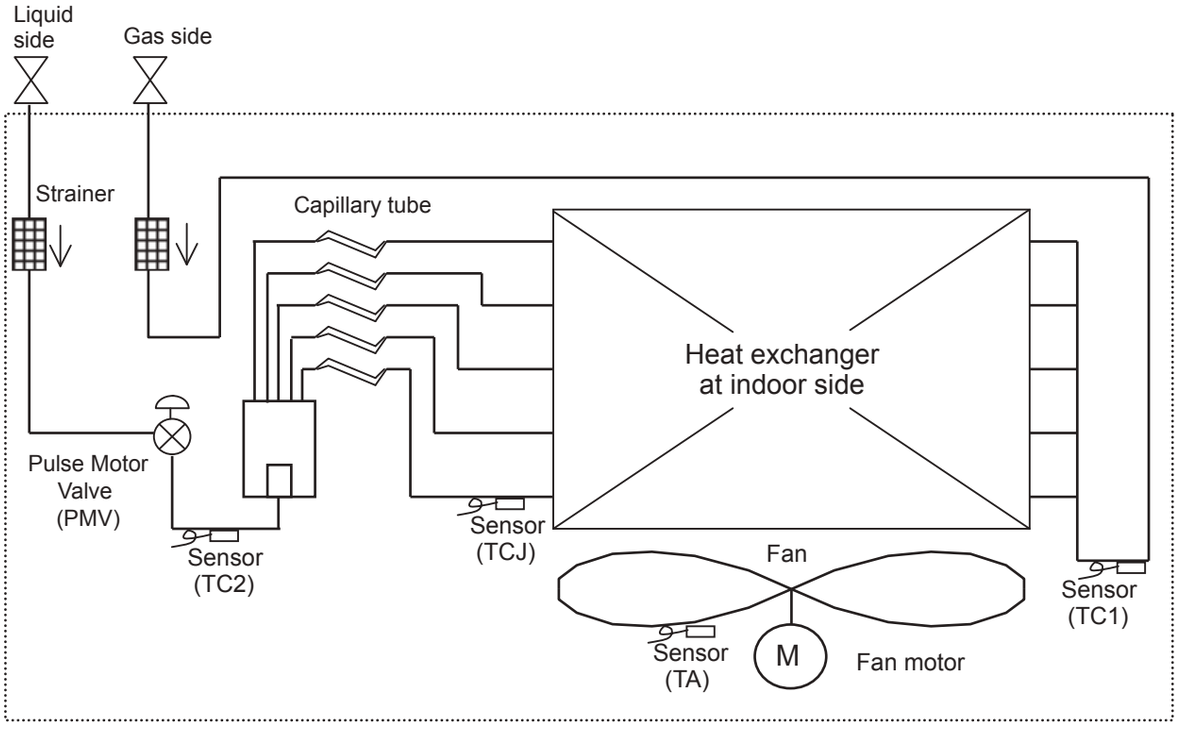


RBM-Y2804FE/FE2



Functional parts name		Function outline
Solenoid valve	**SVD**	(Discharge gas block valve) 1) High-pressure gas circuit at heating operation
	SVS	(Suction gas block valve) 1) Low-pressure gas circuit at cooling operation
	SVDD	(Pressure valve) 1) To increase pressure when No. of indoor heating units are increased
	SVSS	(Regulator valve) 1) To recover refrigerant in the stopped cooling thermostat-OFF indoor unit 2) To decrease pressure when No. of indoor heating units are decreased
Pulse motor valve	**PMV**	Multi port FS unit, Single port FS unit (Long piping model) 1) Controls flow volume of the double-pipes bypass circuit
Temp. sensor	**TCS**	Multi port FS unit, Single port FS unit (Long piping model) 1) Detects refrigerant temp. at outlet of the double-pipes bypass circuit to check an abnormality of PMV

Indoor Unit



⚠ CAUTION

MMU-AP007YH, AP012YH type air conditioners have no TC2 sensor.

Explanation of functional parts in indoor unit

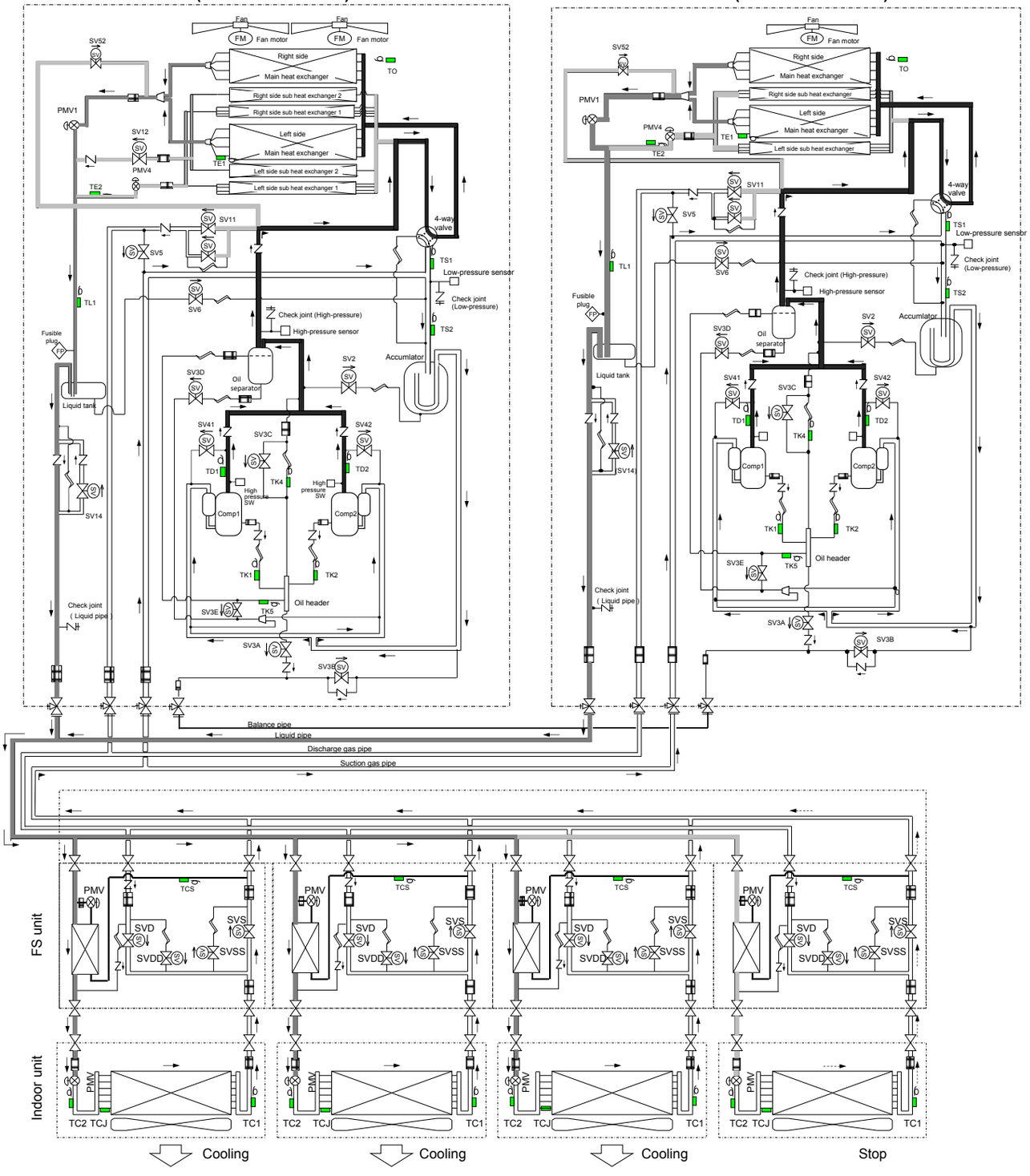
Functional part name		Functional outline
Pulse Motor Valve	PMV	(Connector CN082 (6P): Blue) 1) Controls super heat in cooling operation 2) Controls subcool in heating operation 3) Recovers refrigerant oil in cooling operation 4) Recovers refrigerant oil in heating operation
Temp. Sensor	TA	(Connector CN104 (2P): Yellow) 1) Detects indoor suction temperature
	TC1	(Connector CN100 (3P): Brown) 1) Controls PMV super heat in cooling operation
	TC2	(Connector CN101 (2P): Black) 1) Controls PMV subcool in heating operation
	TCJ	(Connector CN102 (2P): Red) 1) Controls PMV super heat in cooling operation 2) [MMU-AP007YH to AP012YH only] Controls PMV subcool in heating operation

4 Combined Refrigerant Piping System Schematic Diagrams

4-1. Single Cooling mode (Operation of cooling only) when outside temperature is high (Standard: 10°C or higher) / Defrost mode

Outdoor header unit (MMY-MAP1806FT*)

Outdoor follower unit (MMY-MAP1406FT*)



Outdoor unit			
4-Way valve	OFF	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	ON	SV3C	Control
SV52	OFF	SV3D	Control
SV6	Control	SV3E	ON
SV11	OFF	PMV1	Control
SV12	OFF(*2)	PMV4	Close(*3)
SV14	OFF	Outdoor Fan	Control

(*1) SV4(n) of stopped compressor (n) = ON
(*2) It may be controlled.
(*3) In defrost mode, PMV4 ,PMV FS and PMV indoor also open.

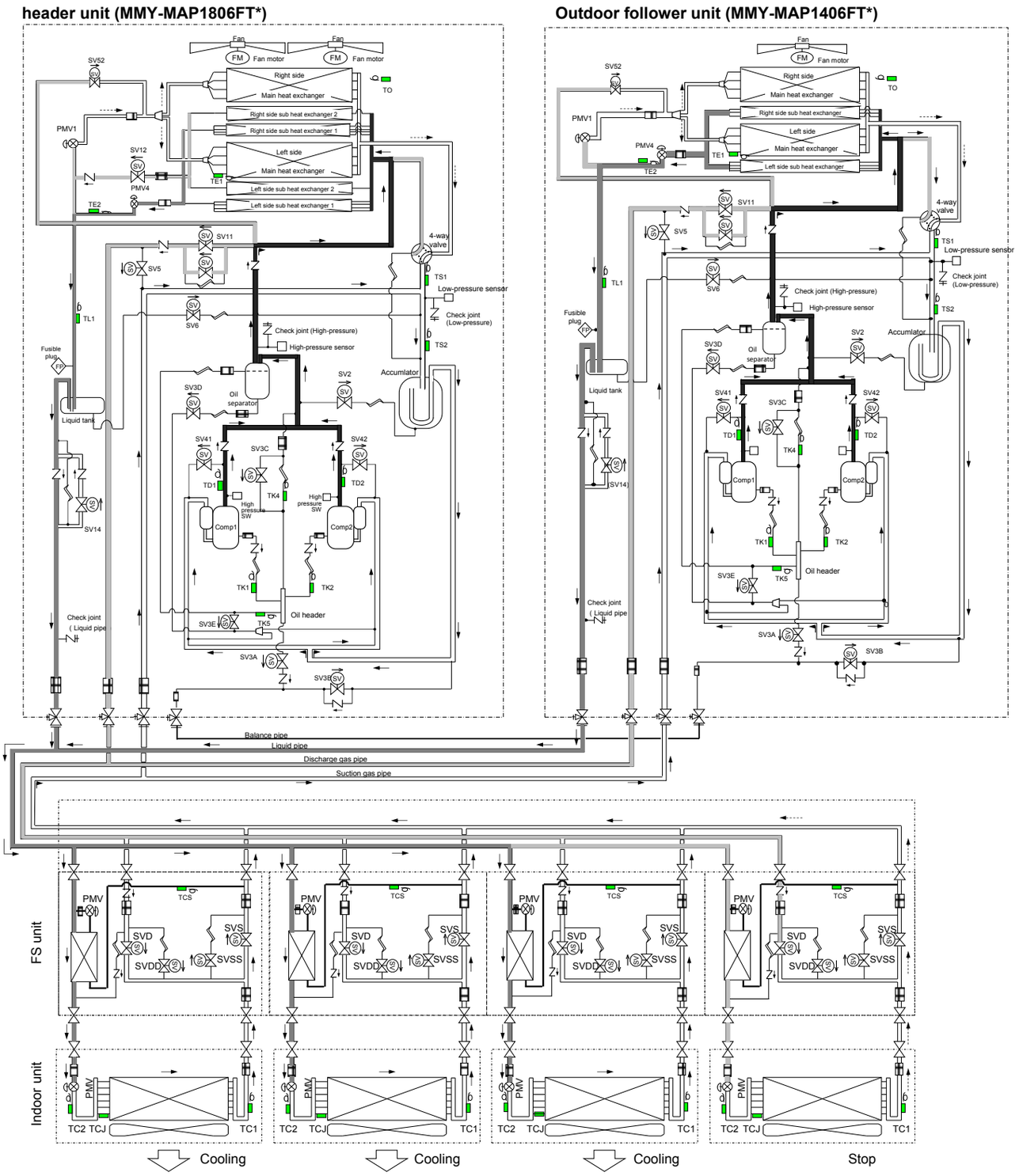
FS unit / Indoor unit					
Cooling thermo ON		Cooling thermo OFF		Stop	
SVD	OFF	SVD	OFF	SVD	OFF
SVS	ON	SVS	OFF	SVS	OFF
SVDD	OFF	SVDD	OFF	SVDD	OFF
SVSS	ON	SVSS	ON	SVSS	ON
PMV FS	Close(*3)	PMV FS	Close(*3)	PMV FS	Close(*3)
PMV indoor	Control(*3)	PMV indoor	Close(*3)	PMV indoor	Close(*3)

High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Pressure circuit (High-pressure refrigerant)
Low-pressure circuit (Refrigerant recovery line)

(32 HP system described in the example of (18HP + 14HP))

The outdoor unit which communication line between indoor and outdoor is connected is the “Header unit”. Other outdoor units are called “Follower units”.

4-2. Single Cooling mode (Operation of cooling only) when outside temperature is low (Standard: 10°C or lower) Outdoor



Outdoor unit			
4-Way valve	ON	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	OFF	SV3C	Control
SV52	OFF	SV3D	Control
SV6	Control	SV3E	ON
SV11	ON	PMV1	Close(*2)
SV12	OFF	PMV4	Control
SV14	OFF	Outdoor Fan	Control

FS unit / Indoor unit			
Cooling thermo ON		Stop	
SVD	OFF	SVD	OFF
SVS	ON	SVS	OFF
SVDD	ON	SVDD	OFF
SVSS	ON	SVSS	ON
PMV FS	Close	PMV FS	Close
PMV indoor	Control	PMV indoor	Close

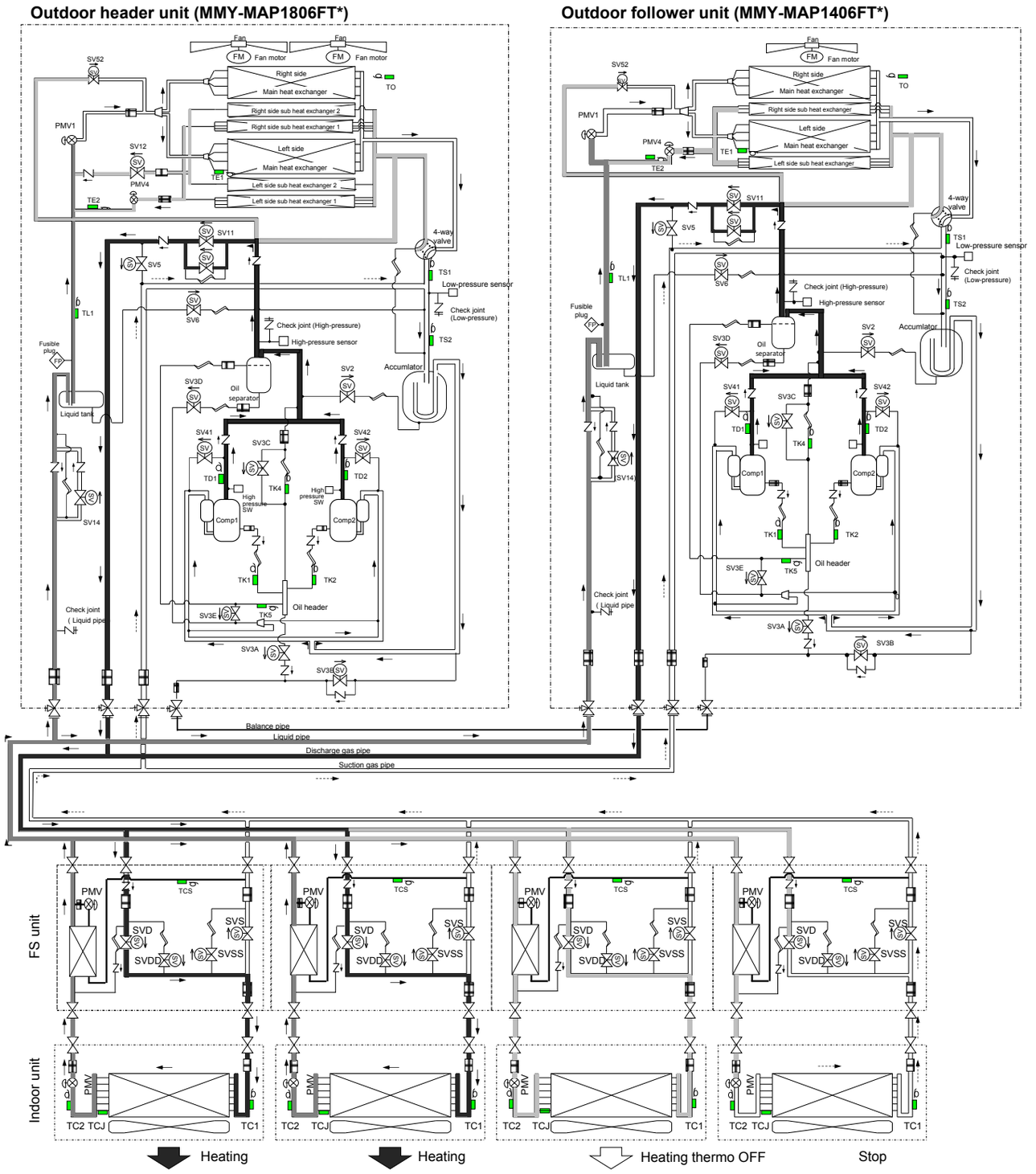
(*1) SV4(n) of stopped compressor (n) = ON
(*2) It may be controlled.

High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Pressure circuit (High-pressure refrigerant)
Low-pressure circuit (Refrigerant recovery line)

(32 HP system described in the example of (18HP + 14HP))

The outdoor unit which communication line between indoor and outdoor is connected is the “Header unit”. Other outdoor units are called “Follower units”.

4-3. Single Heating mode (Operation of heating only)



Outdoor unit			
4-Way valve	ON	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	OFF	SV3C	Control
SV52	OFF	SV3D	Control
SV6	Control	SV3E	ON
SV11	ON	PMV1	Control
SV12	OFF	PMV4	Close(*3)
SV14	ON(*2)	Outdoor Fan	Control

(*1) SV4(n) of stopped compressor (n) = ON
(*2) SV14 of stopped outdoor unit = OFF
(*3) In defrost mode, PMV4 ,PMV FS and PMV indoor also open.

FS unit / Indoor unit					
Heating thermo ON		Heating thermo OFF		Stop	
SVD	ON	SVD	ON	SVD	OFF
SVS	OFF	SVS	OFF	SVS	OFF
SVDD	OFF	SVDD	OFF	SVDD	OFF
SVSS	OFF	SVSS	OFF	SVSS	ON
PMV FS	Close(*3)	PMV FS	Close(*3)	PMV FS	Close(*3)
PMV indoor	Control	PMV indoor	Close(*3)	PMV indoor	Close(*3)

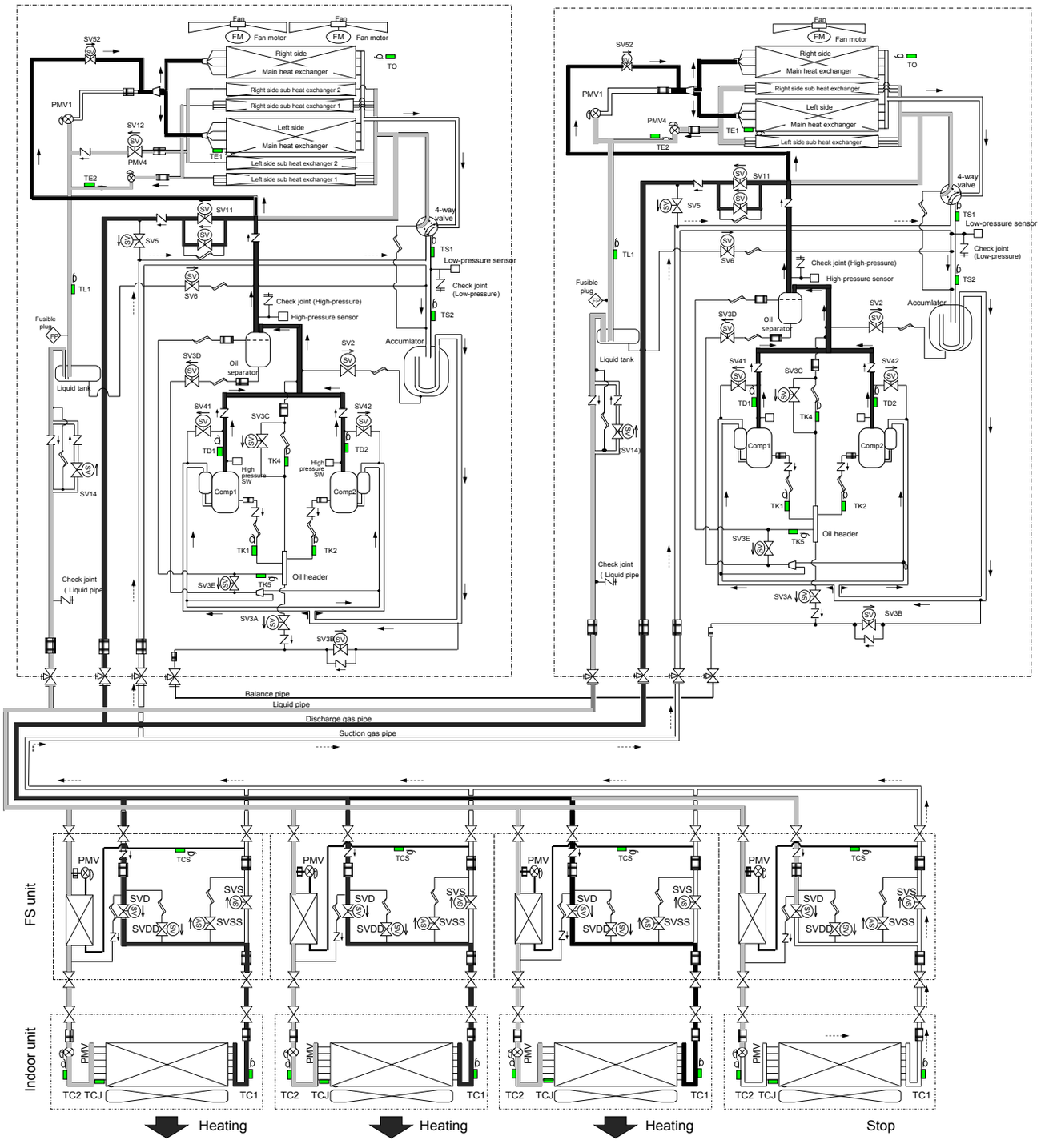
High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Pressure circuit (High-pressure refrigerant)
Low-pressure circuit (Refrigerant recovery line)

(32 HP system described in the example of (18HP + 14HP))

The outdoor unit which communication line between indoor and outdoor is connected is the “Header unit”. Other outdoor units are called “Follower units”.

4-4. Hot gas defrost mode (Operation of single heating only)
(* This mode operate with -E, -TR and -UK models only.)

Outdoor hrader unit (MMY-MAP1806FT*) **Outdoor follower unit (MMY-MAP1406FT*)**



Outdoor unit			
4-Way valve	ON	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	OFF	SV3C	Control
SV52	ON	SV3D	Control
SV6	Control	SV3E	ON
SV11	ON	PMV1	Close
SV12	OFF	PMV4	Close
SV14	ON	Outdoor Fan	OFF

(*1) SV4(n) of stopped compressor (n) = ON

FS unit / Indoor unit			
Heating thermo ON		Stop	
SVD	ON	SVD	OFF
SVS	OFF	SVS	OFF
SVDD	OFF	SVDD	OFF
SVSS	OFF	SVSS	ON
PMV FS	OFF	PMV FS	Close
PMV indoor	Control	PMV indoor	Close

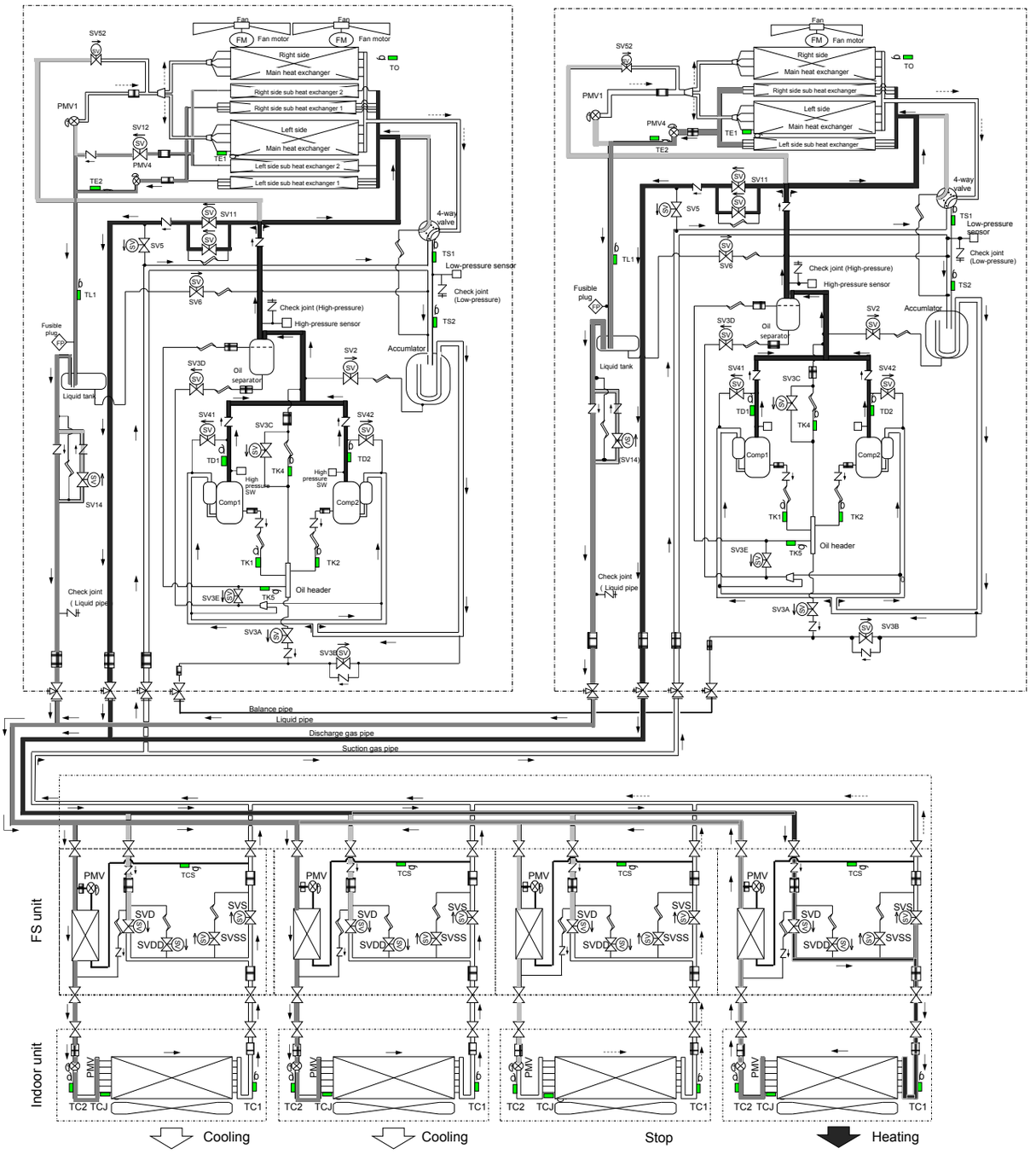
High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Pressure circuit (High-pressure refrigerant)
Low-pressure circuit (Refrigerant recovery line)

(32 HP system described in the example of (18HP + 14HP))

The outdoor unit which communication line between indoor and outdoor is connected is the “Header unit”.
Other outdoor units are called “Follower units”.

4-5. Collective cooling mode
(Operating cooling function mainly, collective operation of cooling and heating operation)

Outdoor header unit (MMY-MAP1806FT*) **Outdoor follower unit (MMY-MAP1406FT*)**



Outdoor unit			
4-Way valve	ON	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	OFF	SV3C	Control
SV52	OFF	SV3D	Control
SV6	Control	SV3E	ON
SV11	ON	PMV1	Close(*3)
SV12	ON	PMV4	Control
SV14	OFF(*2)	Outdoor Fan	Control

(*1) SV4(n) of stopped compressor (n) = ON
(*2) SV14 of stopped outdoor unit = OFF
(*3) It may be controlled.

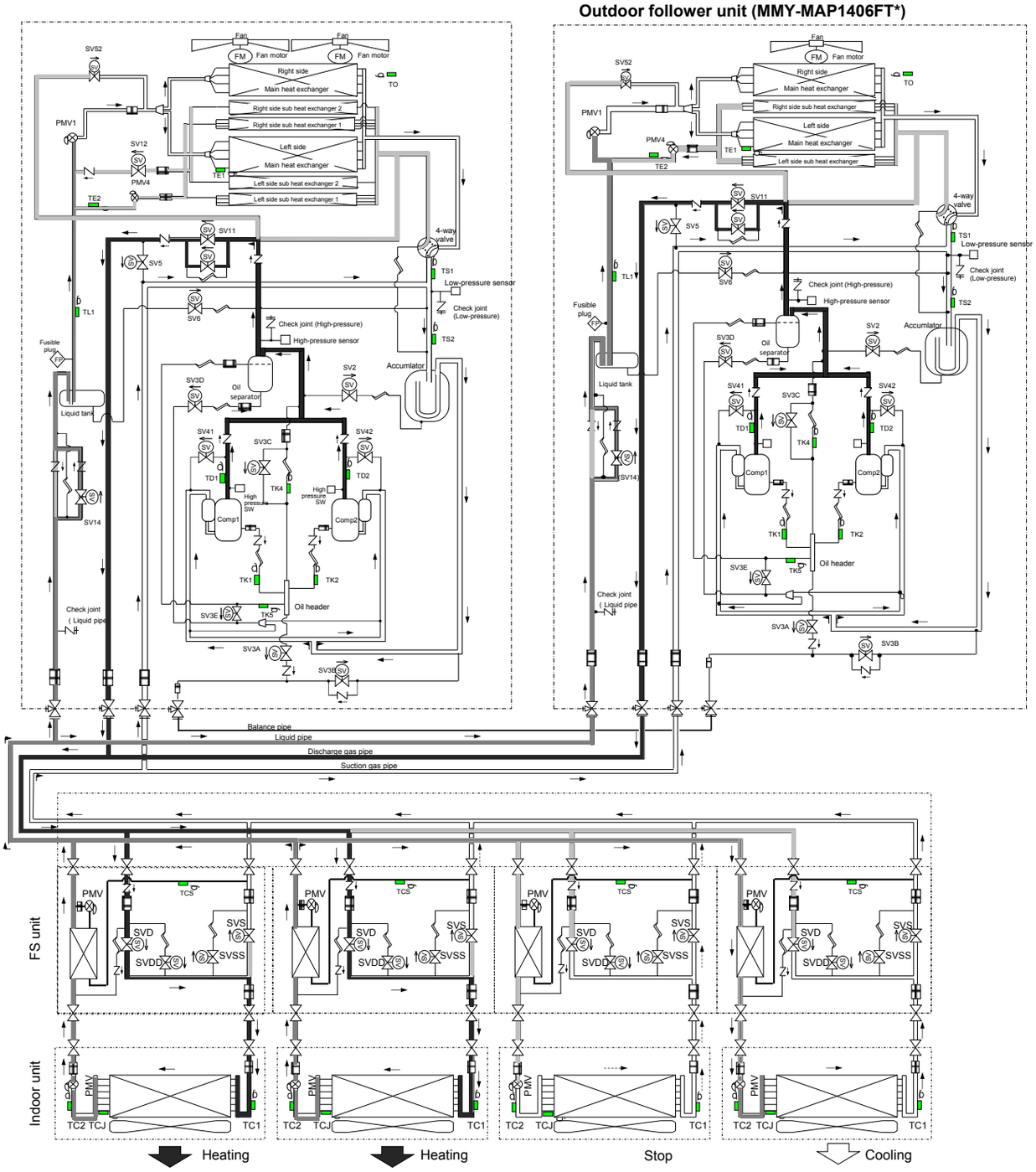
FS unit / Indoor unit					
Cooling thermo ON		Heating thermo ON		Stop	
SVD	OFF	SVD	ON	SVD	OFF
SVS	ON	SVS	OFF	SVS	OFF
SVDD	OFF	SVDD	OFF	SVDD	OFF
SVSS	ON	SVSS	OFF	SVSS	ON
PMV FS	Close	PMV FS	Close	PMV FS	Close
PMV indoor	Control	PMV indoor	Control	PMV indoor	Close

High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Pressure circuit (High-pressure refrigerant)
Low-pressure circuit (Refrigerant recovery line)

(32 HP system described in the example of (18HP + 14HP))

The outdoor unit which communication line between indoor and outdoor is connected is the “Header unit”.
Other outdoor units are called “Follower units”.

4-6. Collective heating mode
(Operating heating function mainly, collective operation of cooling and heating operation)



Outdoor unit			
4-Way valve	ON	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	OFF	SV3C	Control
SV52	OFF	SV3D	Control
SV6	Control	SV3E	ON
SV11	ON	PMV1	Control
SV12	OFF	PMV4	Close(*3)
SV14	ON(*2)	Outdoor Fan	Control

(*1) SV4(n) of stopped compressor (n) = ON
(*2) SV14 of stopped outdoor unit = OFF
(*3) It may be controlled.

FS unit / Indoor unit					
Cooling thermo ON		Heating thermo ON		Stop	
SVD	OFF	SVD	ON	SVD	OFF
SVS	ON	SVS	OFF	SVS	OFF
SVDD	OFF	SVDD	OFF	SVDD	OFF
SVSS	ON	SVSS	OFF	SVSS	ON
PMV FS	Close	PMV FS	Close	PMV FS	Close
PMV indoor	Control	PMV indoor	Control	PMV indoor	Close

High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Pressure circuit (High-pressure refrigerant)
Low-pressure circuit (Refrigerant recovery line)

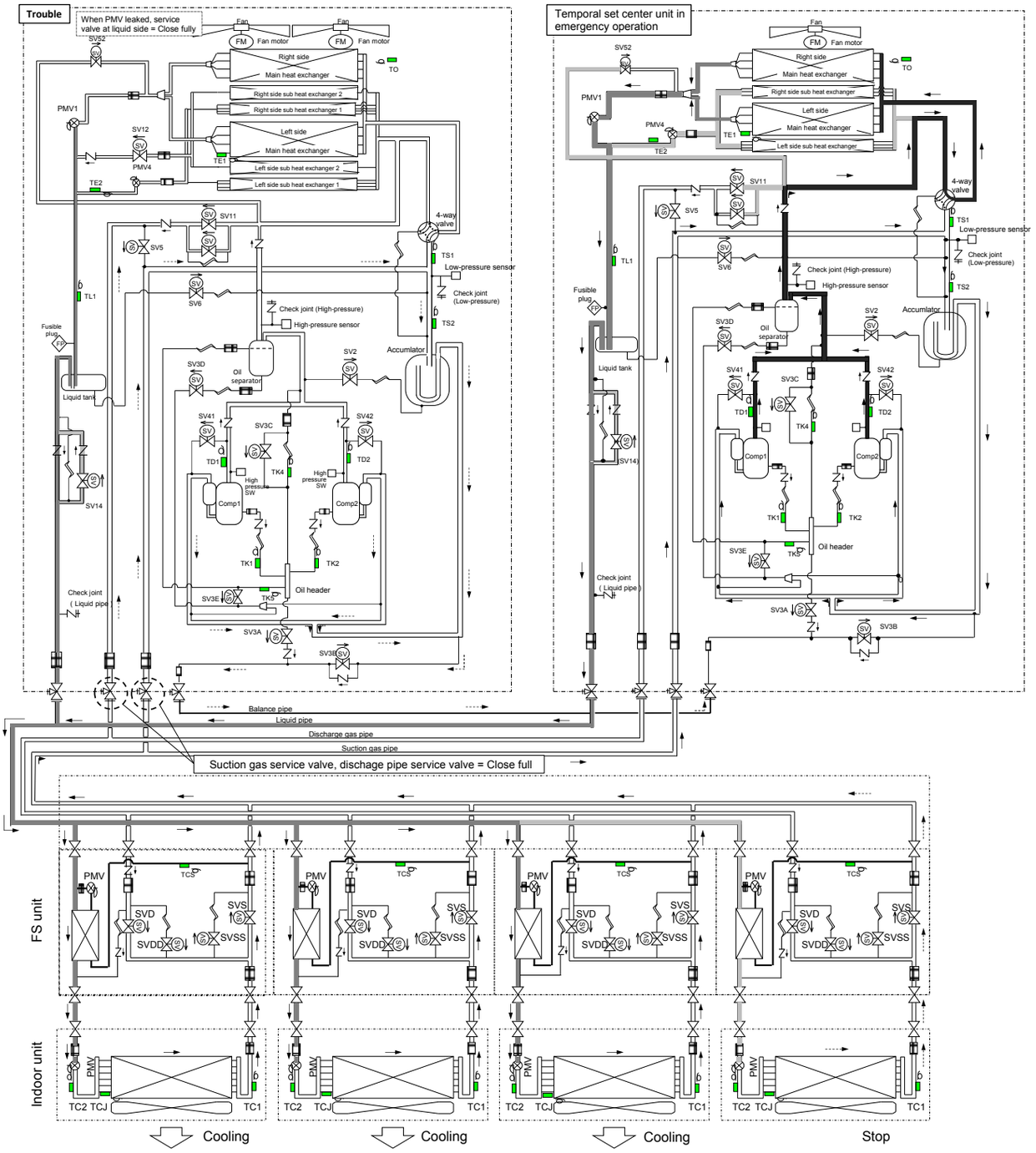
(32 HP system described in the example of (18HP + 14HP))

The outdoor unit which communication line between indoor and outdoor is connected is the “Header unit”.
Other outdoor units are called “Follower units”.

4-7. Emergency operation (Single cooling operation at backup of the header unit)

Outdoor header unit (MMY-MAP1806FT*)

Out door follower unit (MMY-MAP1406FT*)



Trouble header outdoor unit			
4-Way valve	OFF	SV3A	OFF
SV4(n)	ON	SV3B	OFF
SV51	ON	SV3C	OFF
SV52	OFF	SV3D	OFF
SV6	Control	SV3E	ON
SV11	OFF	PMV1	Close
SV12	OFF	PMV4	Close
SV14	OFF	Outdoor Fan	OFF

Temporal header outdoor unit			
4-Way valve	OFF	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	ON	SV3C	Control
SV52	OFF	SV3D	Control
SV6	Control	SV3E	ON
SV11	OFF	PMV1	Control
SV12	OFF	PMV4	Close(*2)
SV14	OFF	Outdoor Fan	Control

FS unit / Indoor unit	
Cooling thermo ON	
SVD	OFF
SVS	ON
SVDD	OFF
SVSS	ON
PMV FS	Close(*2)
PMV indoor	Control

(*1) SV4(n) of stopped compressor (n) = ON
(*2) In defrost mode, PMV4 and PMV FS also open.

High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Pressure circuit (High-pressure refrigerant)
Low-pressure circuit (Refrigerant recovery line)

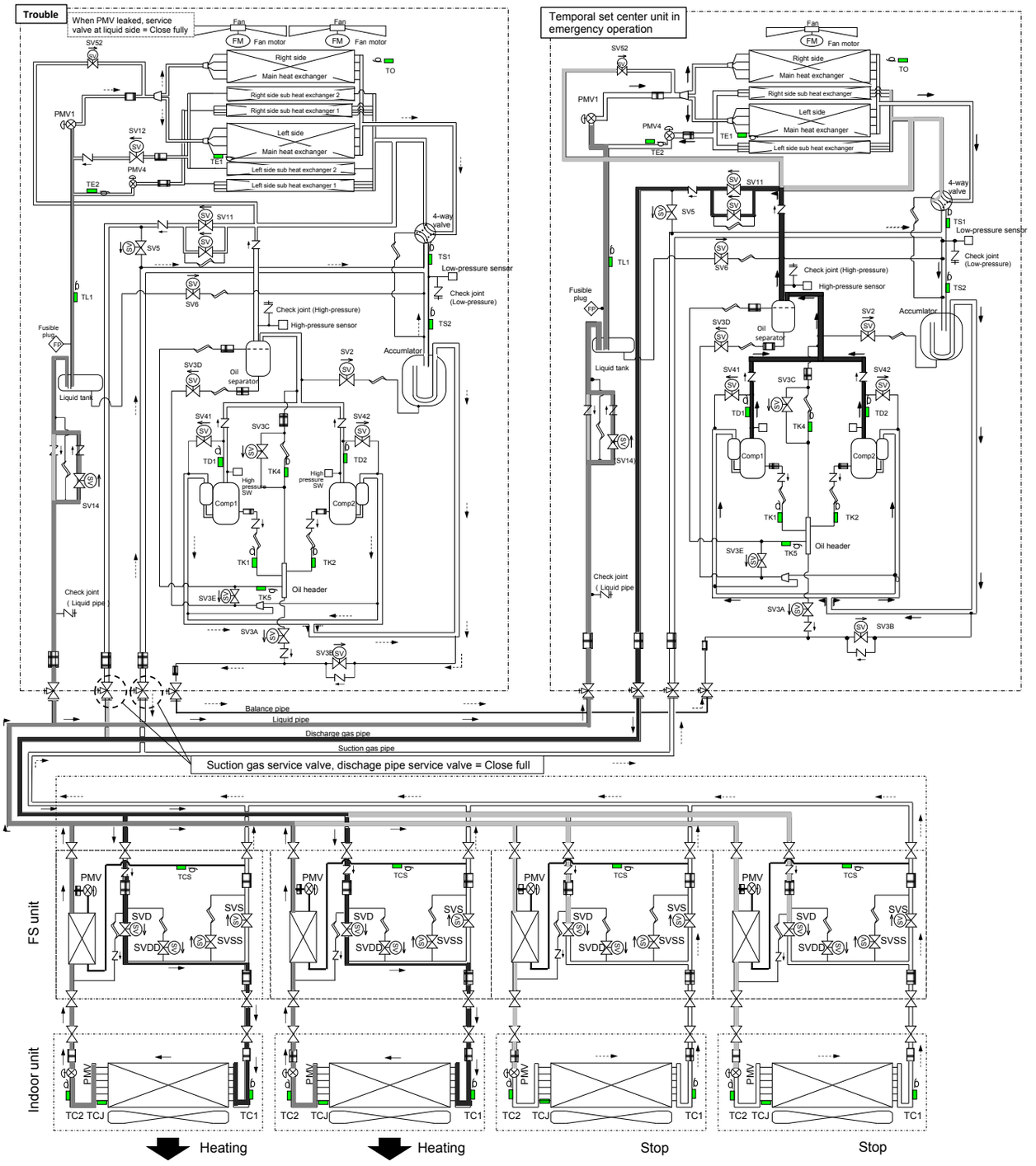
(32 HP system described in the example of (18HP + 14HP))

The outdoor unit which communication line between indoor and outdoor is connected is the “Header unit”.
Other outdoor units are called “Follower units”.

4-8. Emergency operation (Single heating operation at backup of the header unit)

Outdoor header unit (MMY-MAP1806FT*)

Outdoor follower unit (MMY-MAP1406FT*)



Trouble header outdoor unit			
4-Way valve	ON	SV3A	OFF
SV4(n)	ON	SV3B	ON
SV51	OFF	SV3C	OFF
SV52	OFF	SV3D	OFF
SV6	Control	SV3E	ON
SV11	ON	PMV1	Close
SV12	OFF	PMV4	Close
SV14	OFF	Outdoor Fan	OFF

Temporal header outdoor unit			
4-Way valve	ON	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	OFF	SV3C	Control
SV52	OFF	SV3D	Control
SV6	Control	SV3E	ON
SV11	ON	PMV1	Control
SV12	OFF	PMV4	Close(*3)
SV14	ON(*2)	Outdoor Fan	Control

FS unit / Indoor unit	
Heating thermo ON	
SVD	ON
SVS	OFF
SVDD	OFF
SVSS	OFF
PMV FS	Close(*3)
PMV indoor	Control

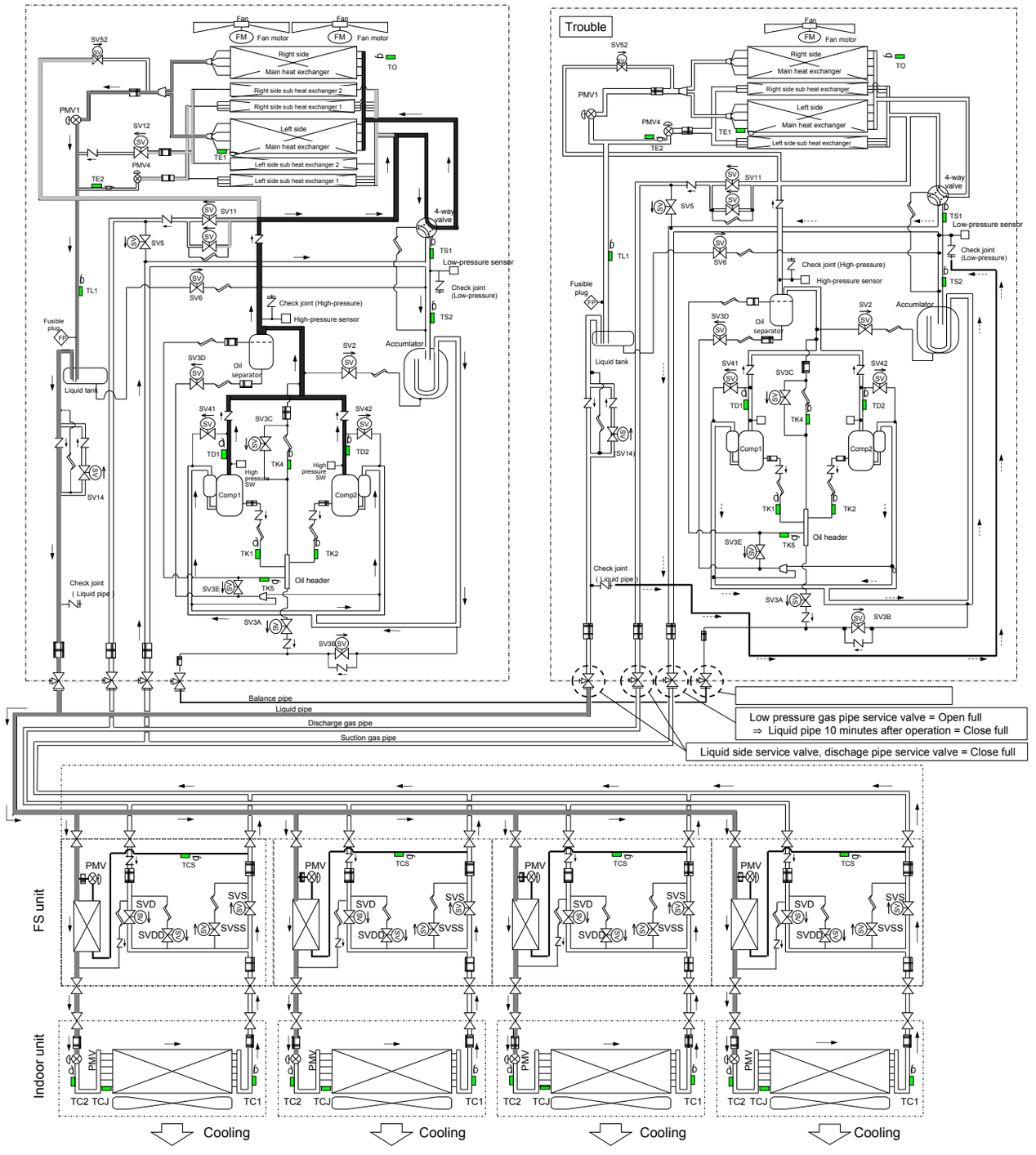
(*1) SV4(n) of stopped compressor (n) = ON
(*2) SV14 of stopped outdoor unit = OFF
(*3) In defrost mode, PMV4 and PMV FS also open.

(32 HP system described in the example of (18HP + 14HP))

The outdoor unit which communication line between indoor and outdoor is connected is the “Header unit”.
Other outdoor units are called “Follower units”.

4-9. Refrigerant recovery (during pump-down operation) of the troubled outdoor unit) (In case of trouble of follower unit)

Outdoor header unit (MMY-MAP1806FT*) **Outdoor follower unit (MMY-MAP1406FT*)**



Header outdoor unit			
4-Way valve	OFF	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	ON	SV3C	Control
SV52	OFF	SV3D	Control
SV6	Control	SV3E	ON
SV11	OFF	PMV1	Control
SV12	OFF(*2)	PMV4	Control
SV14	OFF	Outdoor Fan	Control

Trouble outdoor unit			
4-Way valve	OFF	SV3A	Control
SV4(n)	OFF(*1)	SV3B	Control
SV51	ON	SV3C	Control
SV52	OFF	SV3D	Control
SV6	Control	SV3E	ON
SV11	OFF	PMV1	Control
SV12	OFF	PMV4	Close(*3)
SV14	OFF	Outdoor Fan	Control

FS unit / Indoor unit	
Cooling thermo ON	
SVD	OFF
SVS	ON
SVDD	OFF
SVSS	ON
PMV FS	Close(*3)
PMV indoor	Control

(*1) SV4(n) of stopped compressor (n) = ON
(*2) It may be controlled.
(*3) In defrost mode, PMV4 and PMV FS also open.

High-pressure gas refrigerant
Condensed liquid refrigerant
Evaporative gas refrigerant (Low pressure)
Pressure circuit (High-pressure refrigerant)
Low-pressure circuit (Refrigerant recovery line)

(32 HP system described in the example of (18HP + 14HP))

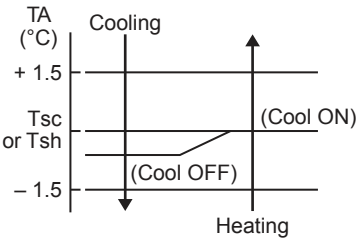
The outdoor unit which communication line between indoor and outdoor is connected is the “Header unit”. Other outdoor units are called “Follower units”.

5. CONTROL OUTLINE

5-1. Indoor Unit

Control Specifications

<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>1</td><td>Upon power supply reset</td><td>1. Identification of outdoor unit
When the power supply is reset, the outdoor unit is identified, and control is redirected according to the identification result.
2. Indoor fan speed and air flow direction control availability settings
Settings such as indoor fan speed and air flow direction control availability are replaced on the basis of EEPROM data.
3. If power supply reset is performed in the wake of a fault, the check code is cleared.
If the abnormality persists after the Start/Stop button on the remote controller is pushed to resume operation, the check code is redisplayed on the remote controller.</td><td></td></tr>
<tr><td>2</td><td>Operation selection</td><td>1. The operation mode changes in response to an operation selection command issued via the remote controller.
<table><tr><th>Remote controller command</th><th>Control outline</th></tr><tr><td>STOP</td><td>Air conditioner shutdown</td></tr><tr><td>FAN</td><td>Fan operation</td></tr><tr><td>COOL</td><td>Cooling operation (Note 2)</td></tr><tr><td>DRY</td><td>Drying operation</td></tr><tr><td>HEAT</td><td>Heating operation</td></tr><tr><td>AUTO</td><td>Automatic cooling/heating operation (Note 1)</td></tr></table>(Note 1) Selection of cooling or heating operation is automatically carried out by the difference between the set temperature and the room temperature.
(Note 2) When switching from the heating operation to the cooling operation, due to the reduction of the refrigerant noise at the opening-closing of the two-way valve in the FS unit, the cooling operation start time differs by the capacity of the indoor unit connected to one branch of the FS unit.

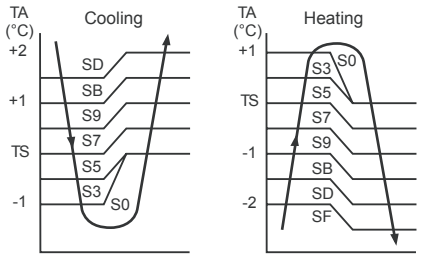
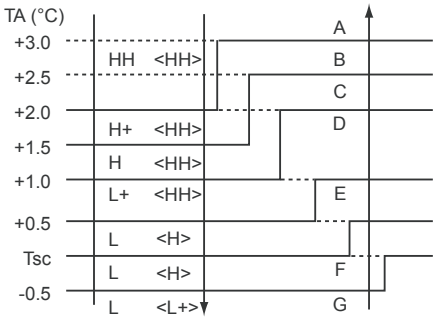
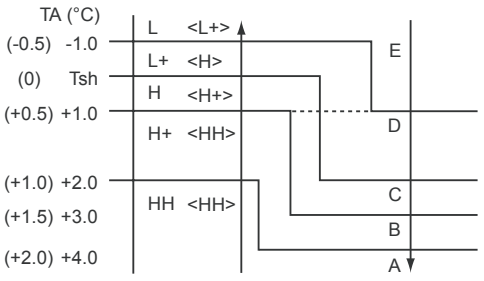
Automatic control of cooling/heating operation
a. For selection judgment of cooling / heating, see the figure below:
 
If the value exceeds +1.5 against Tsh when 10 minutes passed after thermostat-OFF, heating operation (thermostat-OFF) is exchanged to cooling operation.

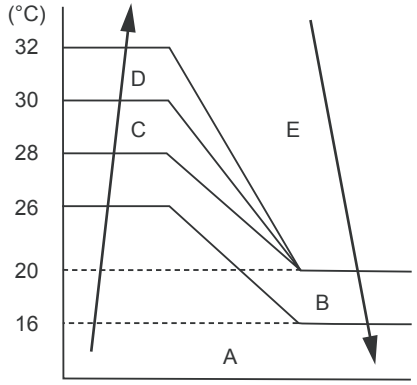
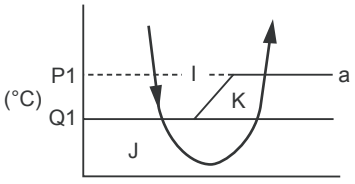
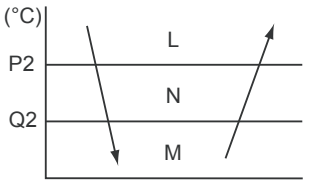
Description in the parentheses is an example of cooling ON/OFF.

If the value drops –1.5 against Tsc when 10 minutes passed after thermostat-OFF, cooling operation (thermostat-OFF) is exchanged to heating operation.

b. For automatic capacity control after judgment of cooling/heating, see item 4.
c. Correction of room temperature control in heating operation, see item 3</td><td>TS: Temperature setting
TA: Room temperature

Tdc: Cooling operation Temperature setting
Tsh: Heating operation Temperature setting + room temperature control temperature compensation</td></tr>
<tr><td>3</td><td>Room temp. control</td><td>1. Adjustment range - remote controller temperature setting (°C)
<table><tr><th></th><th>COOL/DRY</th><th>HEAT</th></tr><tr><td>Wired type</td><td>18~29</td><td>18~29</td></tr><tr><td>Wireless type</td><td>18~30</td><td>17~30</td></tr></table>2. In heating operation, the temperature setting may be fine-tuned via the DN code “06”.
<table><tr><td>SET DATA</td><td>0</td><td>2</td><td>4</td><td>6</td></tr><tr><td>Temperature setting adjustment</td><td>+0°C</td><td>+2°C</td><td>+4°C</td><td>+6°C</td></tr></table>Factory default
<table><tr><th>SET DATA</th></tr><tr><td>2</td></tr></table></td><td>Shift in heating suction temperature (not applicable to remote controller thermostat operation)</td></tr>
</table>

NO.	Item	Specification outline	Remarks
4	Automatic capacity control	1. The outdoor unit determines the operational capacities of indoor units according to the difference between TA and TS. 	TS: Temperature setting TA: Room temperature
5	Fan speed control	1. The fan operates in one of the four speed modes of “HIGH (HH)”, “MED (H)”, “LOW (L)” and “AUTO” on the basis of a command issued via the remote controller. (Concealed duct high static pressure type: HH only) 2. In AUTO fan speed mode, the air speed changes according to the difference between TA and TS. **<Cooling>** 	HH > H+ > H > L+ > L > UL or LL
		• Control is identical in remote controller thermostat and body thermostat operation. Speed modes shown in < > apply to cooling operation under AUTO air conditioner operation mode. • In AUTO fan speed mode, the fan speed remains the same for 3 minutes each time a speed change occurs. However, a speed change command issued via the remote controller can override this, and the fan speed changes accordingly. • At the beginning of cooling operation, a higher speed (steeper downward temperature gradient) is chosen. • As long as the temperature difference remains on a boundary line, the fan speed stays the same.	DN code “32” “0000”: Body thermoatat “0001”: Remote controller thermoatat
		<Heating>  Figures inside ( ) applies to remote controller thermostat operation. Figures outside ( ) applies to body thermostat operation. Speed modes shown in < > apply to heating operation under AUTO air conditioner operation mode. • In AUTO fan speed mode, the fan speed remains the same for 1 minute each time a speed change occurs. However, a speed change command issued via the remote controller can override this, and the fan speed changes accordingly. • At the beginning of heating operation, a higher speed (steeper upward temperature gradient) is chosen. • As long as the temperature difference remains on a boundary line, the fan speed stays the same. • When TC2 ≥ 60 °C, the fan speed is raised by one step.	TC2: Indoor heat exchanger sensor temperature

NO.	Item	Specification outline	Remarks
6	Cold air discharge prevention control	1. In heating operation, the upper limit of the fan tap is set according to the lower of whichever is the higher between TC2 sensor and TCJ sensor temperatures, on the one hand, and TC1 sensor temperature, on the other. • If the fan continuously operates in zone B for 6 minutes, it automatically moves into zone C. • During defrosting, the control point is shifted by +6°C.  Zone A: OFF Zone B: 26 °C or above and below 28 °C Breeze Zone C: 28 °C or above and below 30 °C Low Zone D: 30 °C or above and below 32 °C Medium Zone E: High	TCJ: Indoor heat exchanger sensor temperature • In zones D and E, priority is given to the remote controller fan speed setting. • In zone A, "HEATING STANDBY ❁ " is displayed.
7	Freeze prevention control (low temp. release)	1. During cooling, the air conditioner is operated in the manner described below according to the temperature readings of the TC1, TC2 and TCJ sensors. • If zone J operation is detected for 5 minutes, the air conditioner is forced into thermostat OFF. • In zone K, the timer is put on pause, with the current timer count retained. • If zone I operation is detected, the timer count is cleared, and the air conditioner returns to normal operation. • If continuous zone J operation forces the air conditioner into thermostat OFF, the indoor fan is operated in breeze mode until it moves into zone I. The control is terminated under the following conditions: Termination conditions 1) TC1 ≥ 12°C, TC2 ≥ 12°C, and TCJ ≥ 12°C 2) Passage of 20 minutes after stoppage  | | TC1 | TC2, TCJ | |---|---|---| | P1 | 10°C(5°C) | -10°C | | Q1 | 0°C | -14°C | Temperature in ( ): If the temperature is below this value when the power is turned on, the air conditioner is forced into thermostat OFF. 2. During cooling, the air conditioner is operated in the manner described below according to the temperature readings of the TC2 and TCJ sensors. • If zone M operation is detected for 45 minutes, the air conditioner is forced into thermostat OFF. • In zone N, the timer is put on pause, with the current timer count retained. • When the air conditioner goes back into zone M, timer count is resumed from the retained value. • If zone L operation is detected, the timer count is cleared, and the air conditioner returns to normal operation.  | | TC2, TCJ | |---|---| | P2 | 5 | | Q2 | -2.0 | Reset conditions 1) TC1 ≥ 12°C, TC2 ≥ 12°C and TCJ ≥ 12°C 2) Passage of 20 minutes after stoppage	TC1: Indoor heat exchanger sensor temperature * With models without TC2, TC2 is not part of the control parameters.

NO.	Item	Specification outline	Remarks
8	Cooling oil (refrigerant) recovery control	While the outdoor unit is recovering cooling oil (refrigerant), the indoor units perform the following control tasks: [common for operational (cooling thermostat ON / thermostat OFF / FAN), as well as nonoperational indoor units] 1) Open the indoor PMV to a certain degree. 2) Engage in recovery control for a specified period of time and return to normal cooling operation at the end of this period upon terminating the control. 3) Operate the drain pump throughout the recovery control period and for about 1 minute after it.	• Recovery operation normally takes place roughly every 2 hours. • The opening position of the indoor PMV depending on the type and capacity of the indoor unit.
9	Heating refrigerant (oil) recovery control	While the outdoor unit is recovering heating refrigerant (oil), the indoor units perform the following control tasks: 1) Open the indoor PMV to a certain degree. 2) Control the indoor fan according to the operation mode. [Indoor units operating in heating thermostat ON/OFF state] Let the indoor fan continue operating, but turn it off if the temperature of the indoor heat exchanger drops. [Indoor units operating in FAN mode] Turn off the indoor fan and display “HEATING STANDBY ” on the remote controller. [Non-operational indoor units] Keep the indoor fan turned off. 3) Terminate the recovery operation depending on the TC2 temperature reading. The timing of termination is determined by each indoor unit. 4) Operate the indoor fan and drain pump for about 1 minute after the termination of the recovery operation. (Applicable to 4-way cassette type, 2-way cassette type and 1-way cassette type)	• Recovery operation normally takes place roughly every hour. • The opening position of the indoor PMV depending on the type and capacity of the indoor unit.
10	Defrosting control	While the outdoor unit is engaged in defrosting control, the indoor units perform the following control tasks: 1) Open the indoor PMV to a certain degree. 2) Control the indoor fan according to the operation mode. [Indoor units operating in heating thermostat ON/OFF state] Let the indoor fan continue operating for a while, but turn it off as the temperature of the indoor heat exchanger drops. [Indoor units operating in FAN mode] Let the indoor fan continue operating. [Non-operational indoor units] Keep the indoor fan turned off. 3) As defrosting control comes to an end, it gives way to heating refrigerant (oil) recovery control. (For control details, see “9. Heating refrigerant (oil) recovery control” above.)	• For defrosting commencement conditions, see item of outdoor unit, “7. Defrosting control (reverse defrosting method)” above. • The opening position of the indoor PMV depending on the type and capacity
11	Short intermittent operation compensation control	1. For 5 minutes after startup, the system is forced to continue operating even if it reaches the thermostat OFF region. 2. However, priority is given to cooling/heating selection, operation standby, and protective control, so that there is no overriding of thermostat OFF in these cases.	
12	Drain pump control	1. During cooling (including DRY operation), the drain pump is operated at all times. 2. If the float switch is activated while the drain pump is in operation, the drain pump continues operating, with the relevant check code displayed. 3. If the float switch is activated while the drain pump is turned off, thermostat OFF is forced on the air conditioner, with the drain pump put into operation. If the float switch continues to be activated for about 5 minutes, the drain pump is turned off, with the relevant check code displayed.	Check code [P10]
13	Elimination of residual heat	1. When the air conditioner is turned off after engaging in heating operation, the indoor fan is operated for about 30 seconds in “breeze” mode.	

<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>14</td><td>Filter sign display
(not applicable to wireless type)
* Provided in the separately mounted type, TCB-AX21E.</td><td>1. The indoor fan's cumulative hours of operation are counted, and when these exceed the prescribed value (150H/2500H), a filter replacement signal is sent to the remote controller to display a filter sign on it.
2. When a filter reset signal is received from the remote controller, the timer measuring cumulative hours is cleared. If the prescribed hours have been exceeded, the hours count is reset, with the sign on the remote controller display erased.
<table><tr><th>Filter service life</th><th>2500H</th><th>150H</th></tr><tr><td>Type</td><td>4-way cassette type
1-way cassette type (SH, YH)
2-way cassette type ceiling type
Concealed duct standard type
Concealed duct high static pressure type
Slim duct type</td><td>High wall type
Floor standing type
Floor standing concealed type
Floor standing cabinet type</td></tr></table></td><td>"FILTER ▦ " displayed</td></tr>
<tr><td>15</td><td>Operation standby
Heating standby</td><td><Operation standby> ..... Displayed on remote controller
1. When any of the DN codes listed below is displayed
• "P05" - Detection of an open phase in the power supply wiring
• "P10" - Detection of indoor flooding in at least one indoor unit
• "L30" - Detection of an interlock alarm in at least one indoor unit
2. All indoor units not able to engage in any of the above operations stand by in thermostat OFF state.
3. The indoor fan has been turned off because the system is engaged in a heat refrigerant (oil) recovery operation.

<Heating standby> ..... Displayed on remote controller
1. Normal thermostat OFF
• During heating, the indoor unit goes thermostat OFF as the heating temperature setting is reached.
2. During heating, the fan rotates at a breeze speed (UL or lower) or remains stationary to prevent cold air from being discharged (including defrosting operation).
3. Forced thermostat OFF
• "HEAT" operation is unavailable because at least one indoor unit is operating in "COOL/DRY" mode under priority cooling setting (bit 1 of SW11 on outdoor I/F P.C. board ON).</td><td>• "OPERATION STANDBY ⏻ " displayed

No display provided on wireless remote controller

• "HEATING STANDBY ☼ " displayed</td></tr>
<tr><td>16</td><td>Selection of central control mode</td><td>1. The range of operations that can be performed via an indoor unit remote controller can be determined through the setting of the central controller.
2. Setting details

TCC-Link central control
<table><tr><th rowspan="2">Operation via TCC-Link central control</th><th colspan="6">Operation via RBC-AMT32E</th><th rowspan="2">RBC-AMT32E display</th></tr><tr><th>Start/stop selection</th><th>Operation mode selection</th><th>Timer setting</th><th>Temperature setting</th><th>Fan speed setting</th><th>Air flow direction setting</th></tr><tr><td>Individual</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td rowspan="5">"CENTRAL CONTROL IN PROGRESS"</td></tr><tr><td>Central 1</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td></tr><tr><td>Central 2</td><td>×</td><td>×</td><td>×</td><td>×</td><td>○</td><td>○</td></tr><tr><td>Central 3</td><td>○</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td></tr><tr><td>Central 4</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td><td>○</td></tr></table>(○: Accessible ×: Inaccessible)</td><td>• In the case of a wired remote controller, "CENTRAL CONTROL IN PROGRESS 🔒 " is displayed (lit up) while in central control mode.
• The display blinks when a control function inaccessible to a remote controller is chosen.
• A wireless remote controller has the same set of control functions, although there is no display. When a control operation is performed via a wireless remote controller while in central control mode, a peep sound alert (5 times) is provided.</td></tr>
</table>

<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>17</td><td>Louver control</td><td>
1. Louver position setting
• When the louver position is changed, the louver turns all the way down before settling in the set position.
• Louver position is adjustable in the range shown in the diagrams below.
During cooling/drying

During heating/fan-only operation

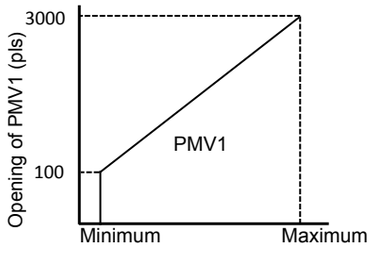
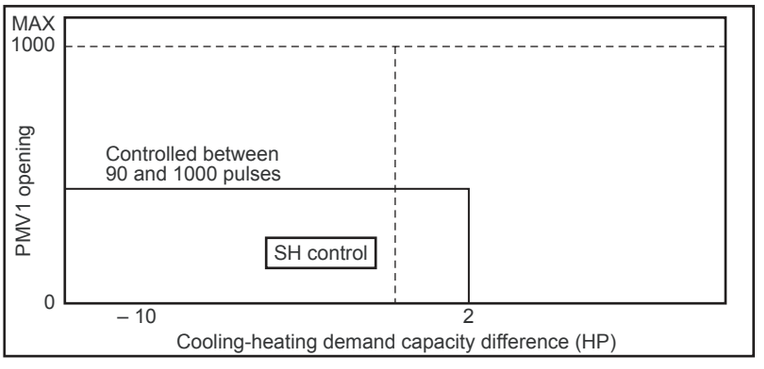
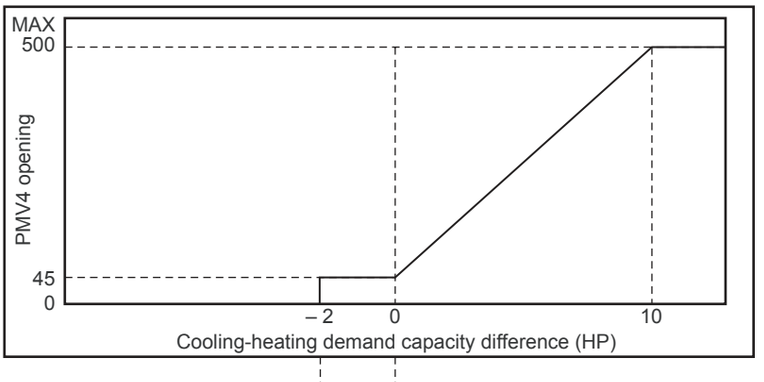
• During group operation, position setting can be performed individually or collectively.
2. Swing setting
• The “SWING” sign is displayed, along with alternating images as shown below.
In all operation modes

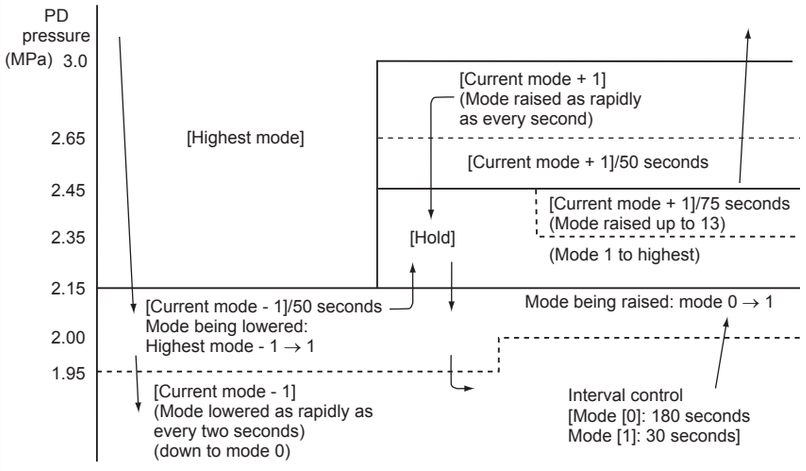
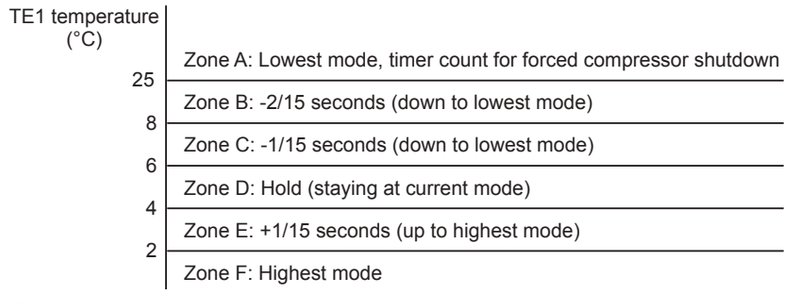

• During group operation, swing setting can be performed individually or collectively.
3. Set louver positions
<table>
<tr><th></th><th>4-way</th><th>1-way (SH)</th><th>2-way</th><th>Ceiling</th></tr>
<tr><td>Normal stop</td><td>Downward</td><td>Closed</td><td>Upward</td><td>Horizontal</td></tr>
<tr><td>Abnormal stop</td><td>Downward</td><td>No change</td><td>Upward</td><td>Horizontal</td></tr>
<tr><td>Heating standby</td><td>Upward</td><td>Upward</td><td>Upward</td><td>Horizontal</td></tr>
<tr><td>Oil/refrigerant recovery</td><td>Upward</td><td>Upward</td><td>No change</td><td>Horizontal</td></tr>
</table>
</td><td></td></tr>
<tr><td>18</td><td>DC motor</td><td>
1. When the fan is turned on, the positions of the stator and rotor are determined. (The motor turns in incremental steps.)
2. The fan operates in accordance with commands issued by the indoor controller.

Note:
If the fan is rotating while the air conditioner is turned off due to an inflow of outside air or some other reason, the indoor unit may operate without turning on the fan motor.

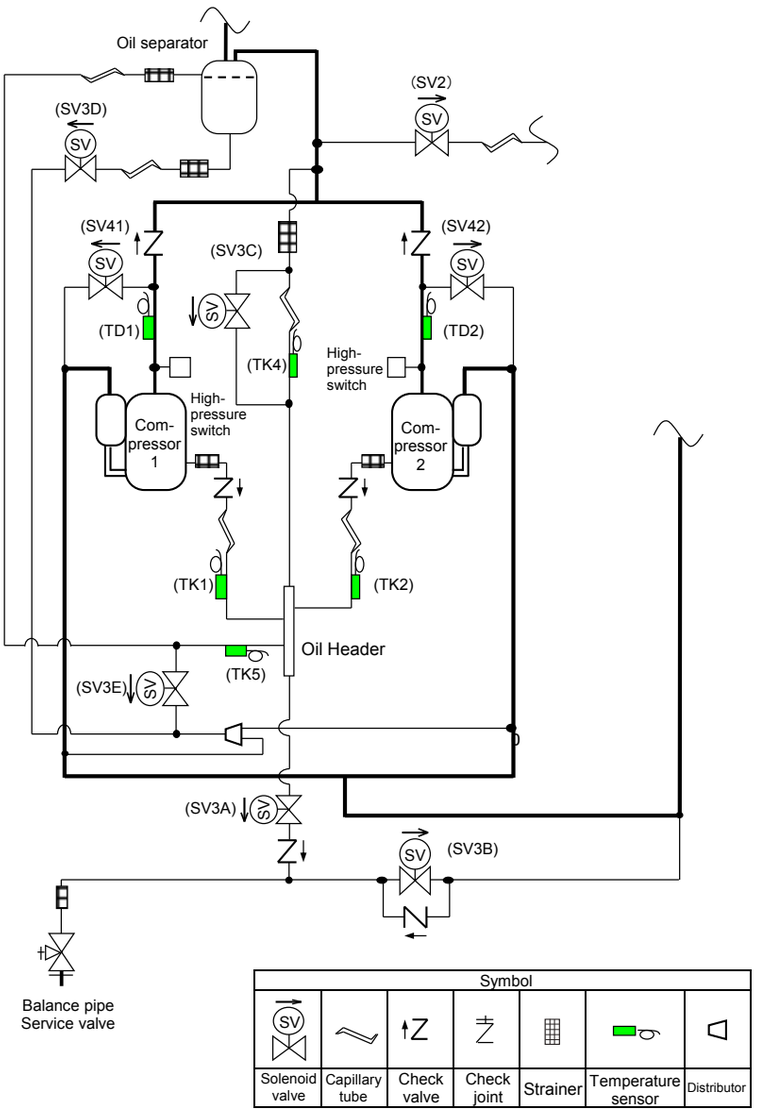
Note:
If fan motor lock is detected, the indoor unit is turned off, with a check code display provided.
</td><td>Check code “P12”</td></tr>
</table>

5-2. Outdoor Unit

Item	Description of operation, numerical data, and other information	Remarks
1. Pulse motor valve (PMV) control	1. PMV1 control (PMV1) 1) During air conditioner operation, the pulse count of a PMV1 (pulse motor valve 1) is controlled between 100pls and 3000pls. During air conditioner operation. 2) During cooling, the PMV opening is controlled on the basis of measurements provided by the TL temperature sensor and the PD pressure sensor (subcool control). 3) During heating, the PMV opening is controlled on the basis of measurements provided by the TS, TD and TG temperature sensors and the PS pressure sensor (super heat control). 4) PMV are fully closed when the air conditioner is in thermostat OFF state or upon being turned off normally or shut down due to an abnormality.  2. PMV4 control 1) PMV4 (Pulse Motor Valve) is controlled between 0 and 500 pulses at collective cooling / heating operation. 2) PMV4 opening is controlled according to the demand capacity difference (HP) between cooling and heating operation. 3) PMV are fully closed when the air conditioner is in thermostat OFF state or upon being turned off normally or shut down due to an abnormality.   	

Item	Description of operation, numerical data, and other information	Remarks
2. Outdoor fan control	1. Cooling fan control 1) Outdoor fan speed (mode) is controlled on the basis of measurements provided by the PD pressure sensor. 2) For a specified period after the start of cooling operation, the header outdoor unit controls outdoor fan speed (mode) on the basis of measurements provided by the PD pressure sensor. Follower units, on the other hand, control outdoor fan speed (mode) on the basis of measurements provided by the TE1 temperature sensor.  * Available control modes are 0 (at rest) to 63. 2. Heating fan control 1) Outdoor fan speed (mode) is controlled on the basis of measurements provided by the TE1 or TE2 temperature sensor. 2) If TE1 or TE2 > 25°C is continuously detected for 8 minutes, the fan may be turned off. However, this condition is the same as normal thermostat OFF, so that fan operation will be restarted. 3) For a specified period after air conditioner startup and during defrosting, this control is disabled. 4) When refrigerant is in extremely short supply, this control may cause the air conditioner to be repeatedly turned on and off.  3. Control while follower unit at rest The fan is operated at mode 1 to prevent the accumulation of refrigerant inside the outdoor heat exchanger.	• The fan speed corresponding to the highest mode varies with the HP capacity of the outdoor unit. • The fan speed corresponding to the highest mode varies with the HP capacity of the outdoor unit.
3. Capacity control	1) The compressors of the header and follower units are controlled on the basis of capacity demand issued by indoor controllers. 2) The two compressors featured in an outdoor unit operate on a rotational basis, so that, every time they come to a stop, their order of startup changes. 3) Where two follower units are connected, every time the system goes thermostat OFF or all the compressors featured in the follower units come to a stop, the priority startup order of the follower units changes, as they are also subject to rotational operation.	

Item	Description of operation, numerical data, and other information	Remarks
4. Oil level detection control	1) Judgment as to whether an optimum amount of oil is present in the compressor cases is made on the basis of the temperature readings of sensors TK1 to TK5. This control function is performed by the header unit and each follower unit individually. 2) In concrete terms, judgment is based on the relationship between the temperature measurements provided by TK1, TK2, on the one hand, and those provided by TK4 or TK5, on the other. If there is depletion, oil equalization control takes over. 3) This control function is performed whenever at least one compressor is in operation.	• Oil level detection takes place regardless of the number of compressors, whether one or two. • Rough guide for oil level judgment 1) If TK1 - TK4 ≧ 14 °C, oil level of compressor 1 is optimum. 2) If TK2 - TK4 ≧ 14 °C, oil level of compressor 2 is optimum.



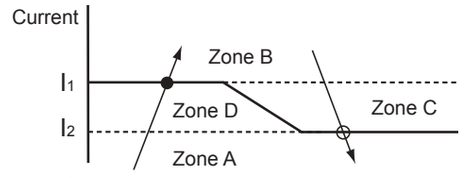
Item	Description of operation, numerical data, and other information	Remarks
5. Oil equation control	This control function is aimed at preventing compressors from running out of oil by evening out the oil supply to outdoor units, and is basically performed by opening/closing solenoid valves SV3A, SV3B, SV3C, SV3D. There are three control patterns as described below. (For a schematic diagram of oil equalization control, see page 57.)	
	1. Preparatory control If the oil level judgment result in the memory continues to be “low” for 30 seconds, SV3B is turned on, with SV3D turned on and off intermittently.	• Oil accumulated in the oil separator is returned to the compressor.
	2. Oil equation control This control function is performed to transfer oil to the outdoor unit whose oil level is low from other outdoor units. It takes place whenever the header unit registers a low oil level result while at least one of its compressors is turned on or at least one of the follower units issues an oil level equation request. This control function does not apply to a header unit-only system (no follower units connected).	• This is normal oil equalization control.
	3. Oil depletion protection control This control function is performed if oil equation control fails to achieve an optimum oil level. In concrete terms, if a low oil level situation continues for 30 minutes, the unit is brought to a protective shutdown, followed by a restart 2 minutes and 30 seconds later. If protective shutdown is repeated three times, the trouble is confirmed as final.(There will be no more restarts.) The check code is “H07”.	• This protective control is performed when a prolonged low oil level is detected.
6. Refrigerant/ oil recovery control	1. Cooling oil (refrigerant) recovery control Performed during cooling, this control function aims to: periodically collect any refrigerating oil condensate that has built up in inter-unit gas pipes and indoor units and return it to outdoor units when the compressor operation command is inadequate; and prevent the accumulation of refrigerant in outdoor heat exchangers while cooling operation is in progress under low outside air temperature conditions. It is managed by the header outdoor unit. 1) Control commencement conditions • When cooling operation has continued for at least 2 hours • When cooling operation has started (compressors have just been turned on, though this does not always happen depending on outside air temperature conditions). 2) Control details • All compressors currently in operation are operated at the minimum speed, with those currently not in operation turned on. • Indoor units are set to the cooling oil (refrigerant) recovery control mode, with their indoor PMVs opened to a certain degree. • Compressors are operated at the target speed. • After recovery control is performed for a specified period of time, it is terminated, and normal cooling operation resumes.	• Cooling oil recovery control takes place approximately every 2 hours. • Control duration is about 2 to 5 minutes, though it varies according to the operating conditions of the system.
	2. Heating refrigerant (oil) recovery control Performed during heating, this control function aims to recover any liquid refrigerant trapped inside indoor units that have been turned off. It also serves the additional purposes of recovering indoor/outdoor refrigerant after defrosting and recovering oil present in outdoor heat exchangers during heating overload operation. This control function is managed by the header outdoor unit. 1) Control commencement conditions • When heating operation has started (compressors have just been turned on) • When heating takes over upon completion of defrosting • When heating operation has continued for 60 minutes 2) Control details • All compressors currently in operation are operated at the minimum speed, with those currently not in operation turned on. • Indoor units are set to the heating refrigerant (oil) recovery control mode, with their indoor PMVs opened to a certain degree. • Compressors are operated at the target speed. • Upon completion of refrigerant recovery for all the indoor units, normal cooling operation resumes.	• Heating oil recovery control takes place approximately every hour. • Control duration is about 2 to 10 minutes, though it varies according to loading conditions. • Compressor rotational speed varies with control conditions, indoor unit capacity, and outdoor unit specification.

Item	Description of operation, numerical data, and other information	Remarks
7. Defrosting control (reverse defrosting method)	1. Defrosting commencement conditions • During heating operation, the cumulative duration of operation in which TE1 and TE2 sensor temperature falls below frost formation temperature is measured, and when this reaches 55 minutes, defrosting control is introduced. (Just after startup or upon changeover from cooling to heating, the target cumulative duration is 25 minutes.) * If the outdoor units are a combination of different models, all the units begin engaging in defrosting control as soon as one of them satisfies defrosting commencement conditions.	• Frost formation temperature is -1.5 °C. • If the outdoor units are a combination of different models, defrosting operation, once started, cannot be manually terminated for about 2 minutes.
	2. Details of defrosting control 1) All compressors currently in operation are operated at the minimum speed. 2) When a specified amount of time passes from the time the compressors reached the minimum speed, the outdoor fans are turned off by closing the 4-way valves. And the PMV4 opening operated at the target opening for defrosting control. 3) All compressors currently not in operation are turned on and operated at the target rotational speed for defrosting control.	• To protect the refrigerating cycle circuit, the fan mode may be controlled during defrosting.
	3. Defrosting termination conditions • Defrosting termination conditions are met when the TE1 and TE2 temperature sensor measurement reaches a specified value (roughly 12 °C) a certain period of time after the commencement of defrosting control. In that event, defrosting termination control takes over. * If the outdoor units are a combination of different models, defrosting termination control commences when all the units satisfy the defrosting termination conditions. As long as one or more outdoor units are yet to satisfy the defrosting termination conditions, those that have engage in standby operation.	• During defrosting control, compressors are controlled so that their speeds do not exceed 76.6 rps.
	4. Details of defrosting termination control 1) Compressors are operated at the standby operation speed. 2) When a specified amount of time passes, the 4-way valves are opened. 3) Indoor heating refrigerant recovery control is performed. For control details, see “ 6. Refrigerant/oil recovery control”.	• During standby operation, compressor speed is in the 24-33.5 rps range. (It varies from outdoor unit to outdoor unit.)
8.Hot gas defrosting control	1. Hot gas defrosting commencement conditions • During heating operation, the cumulative duration of operation in which the TE1 (or TE2) temperature sensor falls below the frost formation temperature is recorded. Once the time duration exceeds 30 minutes, the hot gas defrosting control begins. *If the outdoor units are in a combination (module), only the outdoor units that are operating their compressors, will perform the hot gas defrosting control.	・ Frost formation temperature is -1.5°C.
	2. Details of hot gas defrosting control 1) SV52 is opened. 2) PMV1 (and PMV4) are closed. 3) The outdoor fans are turned off. 4) Compressors are operated at the target rotational speed for hot gas defrosting control.	・ When outside temperature is –10°C or lower, hot gas defrosting control is disabled. (Only Reverse defrosting). This is due to insufficient capacity output, from the outdoor unit, resulting in potentially unacceptable performance
	3. Hot gas defrosting termination conditions 4. Hot gas defrosting termination conditions are met when the TS1 temperature sensor measurement reaches a value of 12°C for a specified value of time (within 4.5 minutes) after the commencement of hot gas defrosting control. In the event that these values are achieved the hot gas defrosting termination control will take over. *For module installations (multiple outdoor units). During Hot gas operation, ALL outdoor units must meet the termination conditionings for the hot gas control. If not the following defrost operation (25 minutes later if TE1 (or TE2) temperatures measurements continues below the frost formation temperature) will results in a standard reverse defrosting operation.	・ During hot gas defrosting control, compressors are controlled so that their speeds do not exceed 76.6 rps.
	4. Details of hot gas defrosting termination control 1) Open the PMV1 (and PMV4) to a certain degree. 2) SV52 is closed. 3) Normal heating operation resumes. (* This control operate with -E, -TR and -UK models only.)	

<table>
<tr><th>Item</th><th>Description of operation, numerical data, and other information</th><th>Remarks</th></tr>
<tr><td>9. Release valve control</td><td>
1. SV2 gas balance control
This control function is aimed at achieving gas balance by opening SV2 while compressors are turned off so as to reduce their startup load the next time they are turned on. It is individually performed by the header outdoor unit and each follower outdoor unit.
1) Control conditions
• In cooling, compressors have been turned off.
• In heating, the header unit has been shut down.
2) Control details
• The control point is changed according to ΔP (PD pressure - PS pressure) registered just before the compressors were turned off.
• When ΔP ≧ P1, SV2 is opened. When this results in ΔP < P2, SV2 is closed.
• When ΔP < P1, SV2 is closed.
(Unit: MPa)
<table>
<tr><td rowspan="4">Control points for PD pressure P1, P2</td><td colspan="2">Heating</td><td colspan="4">Cooling</td></tr>
<tr><td colspan="2">Header unit compressors</td><td colspan="2">Header unit compressors</td><td colspan="2">Header unit compressors</td></tr>
<tr><td colspan="2">OFF</td><td colspan="2">OFF</td><td colspan="2">ON</td></tr>
<tr><td>P1</td><td>P2</td><td>P1</td><td>P2</td><td>P1</td><td>P2</td></tr>
<tr><td>Header unit</td><td>1.3</td><td>1.1</td><td>1.3</td><td>1.1</td><td>—</td><td>—</td></tr>
<tr><td>Follower unit</td><td>1.3</td><td>1.1</td><td>1.3</td><td>1.1</td><td>0.5</td><td>0.4</td></tr>
</table>
2. SV2 high pressure release control
This control function is aimed at mitigating pressure rise while a compressor is in operation at low speeds.
1) Control conditions
• Heating operation is in progress (except periods of defrosting control).
• A lone compressor from the header unit is in operation at low speeds of up to 36 rps.
2) Control details
• When PD pressure becomes ≧ 3.4 MPa, SV2 is opened.
• When PD pressure becomes ≦ 2.8 MPa, SV2 is closed.
3) Termination conditions
• Shutdown, thermostat OFF, defrosting operation, or cooling operation.
• The number of header unit compressors in operation increases to two .
• At least one follower unit compressor is turned on.
• The speed of the compressor rises to 40 rps or more.
3. SV2 low pressure release control
This control function is aimed at preventing a rapid fall in pressure during transient operation. It is individually performed by the header outdoor unit and each follower outdoor unit.
The control is always provided except during periods of stoppage or thermostat OFF.
1) Control details
• When PS pressure becomes ≦ 0.16 MPa, SV2 is opened.
• When PS pressure becomes > 0.20 MPa, SV2 is closed.
</td><td></td></tr>
</table>

Item	Description of operation, numerical data, and other information	Remarks
9. Release valve control (cont'd)	4. SV41, 42 low pressure release control This control function is aimed at providing low pressure protection, and is individually performed by the header unit and each follower unit. The control takes place during defrost operation, heating startup pattern control operation, and cooling operation. 1) Control details (heating) When PS pressure becomes ≦ 0.1 MPa, SV41, 42 are opened; when PS pressure becomes ≧ 0.15 MPa, SV41, 42 are closed. 2) Control details (cooling) When PS pressure and PD pressure become≦ 0.14 MPa and≦ 1.8 MPa, respectively, SV41 and 42 are opened; when PS pressure and PD pressure become ≧ 0.19 MPa and ≧ 2.2 MPa, respectively, SV41 and 42 are closed. 5. SV6 valve cooling bypass control This control is provided for controlling liquid refrigerant bypass to control discharge temperature-up or temperature inside of the compressor. It works during single cooling, single heating, collective cooling, collective heating, collective heating and defrost operation. 1) Control contents (Single cooling) When TD temperature ≥ 95°C and compression ratio ≥ 3.0, turn SV6 to ON, and when TD temperature ≤ 83°C or compression ratio ≥ 2.0, turn SV6 to OFF. 2) Control contents (Other operation) When TD temperature ≥ 95°C and compression ratio ≥ 4.2, turn SV6 to ON, and when TD temperature ≤ 83°C or compression ratio≥ 3.2, turn SV6 to OFF.	
10. High pressure release compressor shutdown control	This control function is aimed at automatically shutting down a compressor in an outdoor unit depending on PD pressure. It is individually performed by the header unit and each follower unit. 1) Control details • Compressors are shut down when PD pressure reaches or exceeds P0. • The compressor restart prevention timer (2 minutes 30 seconds) is set, and the control terminated.	• When PD ≥ P0 = 3.45 MPa, compressor No. 2 (the last one of two compressors in terms of startup order in two compressor configuration) is shut down. • When PD ≥ P0 = 3.5 MPa, compressor No. 1 (the first compressor in terms of startup order) is shut down.
11. Case heater control	There are two types of case heaters: a compressor case heater and an accumulator case heater. This control function is aimed at preventing the accumulation of refrigerant in those cases, and is performed by all outdoor units. If the power supply has not been turned on for a specified period before a post-installation test run, compressor failure may occur. Similarly, when starting compressors after a long period of no power supply, it is recommended that the power supply be turned on for a while before operation is resumed, just like a post-installation test run. This control function is sometimes used alongside an electrical charging of the compressor motor windings. In this case, a charging sound may be heard, but this is normal. 1) Control details • The heaters are turned on while the compressors are turned off. • The heaters are turned off when T0 sensor temperature becomes ≧ 28 °C, and are turned back on when T0 sensor temperature becomes ≦ 25 °C. • When the compressors are turned on, the heaters are kept on for 10 minutes.	

Item	Description of operation, numerical data, and other information	Remarks
12. A3-IPDU control	IPDU controls inverter compressors by issuing commands relating to compressor speeds, speed increases/decreases, and current release control values via the interface P.C. board. The main control functions of the IPDU P.C. board are described below. 1. Current release control To prevent inverter input current from exceeding the specified value, output frequency is controlled with AC input current as detected by T02 mounted on the control P.C. board.	



Zone A: Compressors are operated normally.
Zone D: The current operating frequency is maintained.
Zone B: Operating frequency is lowered.
Zone C: The lowering of operating frequency is halted to maintain the current frequency.

Current control values for various outdoor units are shown below.

Outdoor unit HP capacity	I_1 (A)	I_2 (A)
20	23.7	23.2
18	21.6	21.1
16	19.5	19.0
14	17.5	17.0
12	15.2	14.7
10	12.7	12.2
8	10.5	10.0

2. Heat sink temperature detection control
   1) This control function is aimed at protecting IGBT from overheating via a thermistor (TH sensor) mounted in the compressor drive module (Q201) of A3-IPDU.
   2) When TH ≧ 85°C is detected, the fan operation mode is raised by one step, followed by a series of additional step-ups right up to the highest mode at a rate of one step/5 seconds.
   3) After step 2), the normal fan mode is restored when TH falls to < 85°C.
   4) When TH ≧ 105 °C, compressors are shut down.
   5) Compressors are restarted 2 minutes and 30 seconds later, with an failure count of 1 recorded. If this is repeated four times (failure count reaches 4), the check code is confirmed as final. The check code [P07] is displayed. (There will be no more restarts.)
      * Possible causes of the confirmed failure include a heat buildup in the outdoor unit, fan abnormality, blockage of the cooling duct, and IPDU P.C. board fault.
      * The TH temperature used in this control function is the highest registered by A3-IPDU1, A3-IPDU2.

- A3-IPDU1 and 2 are each provided with a TH sensor.

3. Overcurrent protection control
   1) When the overcurrent protection circuit on an IPDU P.C. board detects an abnormal current, the compressor is shut down.
   2) The compressor is restarted 2 minutes and 30 seconds later, with a failure count of 1 recorded. If the compressor successfully operates for at least 10 minutes after a restart, the failure count is cleared.
   3) If the failure count reaches 8, the check code is confirmed as final.

4. High pressure SW control
   1) When the high pressure SW of an inverter compressor is activated, the compressor is shut down with a failure count of 1 recorded.
   2) The compressor is restarted 2 minutes 30 seconds later, and, if it successfully operates for at least 10 minutes, the failure count is cleared.
   3) If the failure count reaches 4, the check code is confirmed as final. The check code “P04” is displayed.

- Connected to A3-IPDU, the high-pressure SW is normally closed.

<Other points to note>

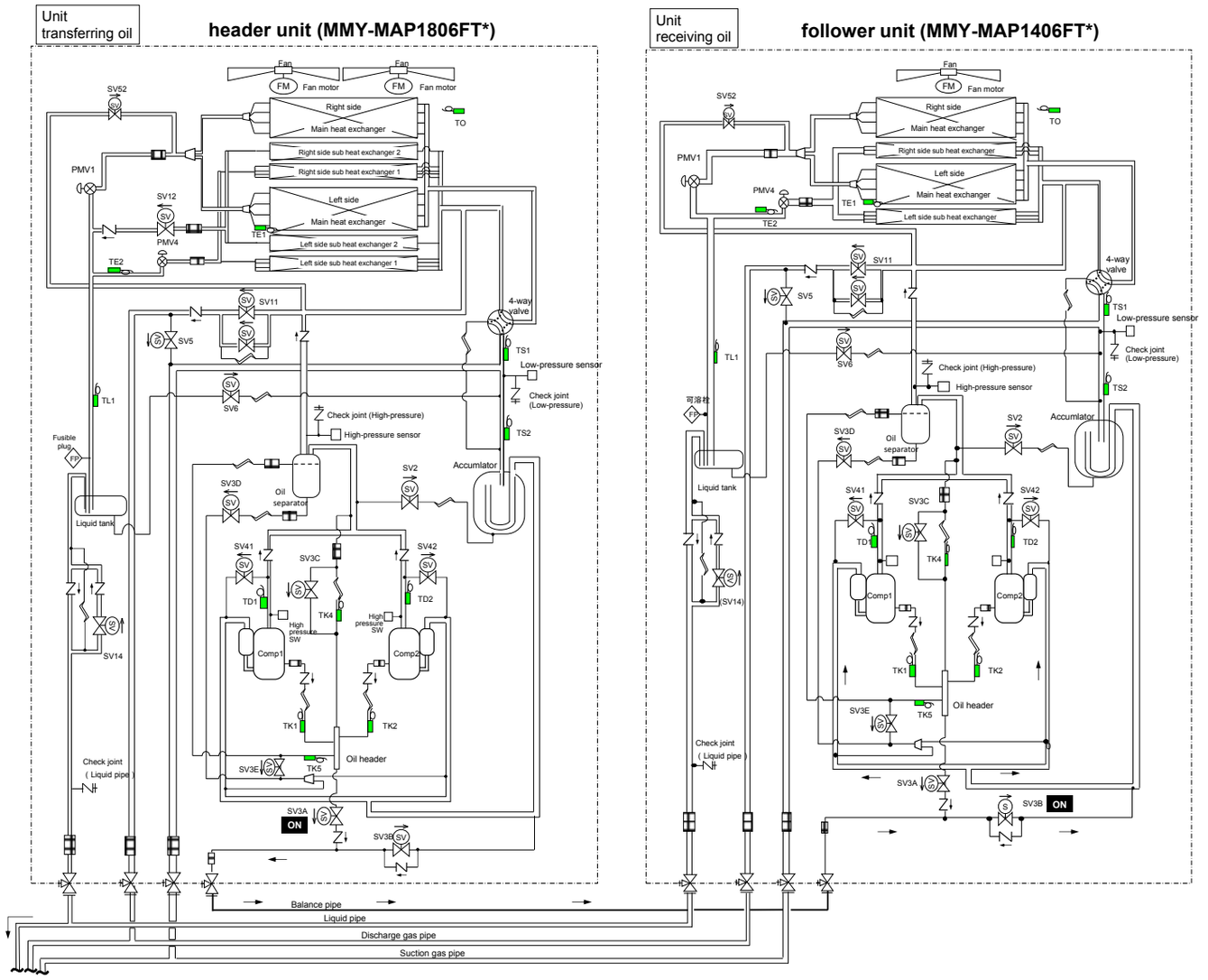
1 Cooling operation under low outside temperature conditions

1) If pressure falls to extremely low levels, indoor units may be shut down via freeze prevention control based on the indoor TC sensor.
2) If pressure falls to extremely low levels, frequency may be reduced via cooling capacity control.
3) When the discharge temperature sensor reading falls below 60°C, the frequency may be increased above the level called for by the command received from the indoor unit.

2 PMV (Pulse Motor Valve)

1) When the power is turned on, PMVs generate a tapping sound as they are initialized. If this sound is not heard, there is a possibility of faulty PMV operation. However, in a noisy environment, it may simply be drowned out by ambient noise.
2) Do not separate the actuator (head section) from any PMV during operation. It may result in an inaccurate opening.
3) When transporting (relocating) the set, do not, under any circumstances, keep the actuator separated. It may damage the valve by causing it to close and exposing it to pressure from sealed liquid.
4) When reattaching the actuator after its removal, push it in firmly until a click sound is heard. Then, turn the power off and back on again.

<Schematic diagram for oil equation control>



6. Applied control for Outdoor Unit

6-1. Applied Control for Outdoor Unit

The outdoor fan high static pressure support and priority operation mode setting (cooling / heating / number of units / or priority indoor unit) functions are available by setting relevant switches provided on the interface P.C. board of the outdoor unit.

6-1-1. Outdoor Fan High Static Pressure Shift

Purpose/characteristics

This function is used when connecting a duct to the discharge port of an outdoor unit (as part of, for example, unit installation on the floor by floor installation.)

Setup

Turn ON the DIP switch [SW10, Bit 2] provided on the interface P.C. board of the outdoor unit.

This function must be enabled with every discharge duct connected outdoor unit for both of the header and follower units.

Specification

Increase the speed of the propeller fan units on the outdoor fan to allow the installation of a duct with a maximum external static pressure not greater than specified in the table below. If a discharge duct with a resistance greater than 15 Pa (1.5 mmAq) is to be used, enable this function. The maximum external static pressures of single units are shown below (Table 1). In the case of combined use of multiple outdoor units, set all the units to the same maximum external static pressure as the one with the lowest maximum external static pressure (see table2).

Table 1: Maximum External Static Pressures of Single Outdoor Units

Model	MMY-MAP	0806*	1006*	1206*	1406*	1606*	1806*	2006*
Maximum external static pressure	Pa	60	50	50	40	40	40	40
(*) Outdoor unit air flow	m3/h	11000	11000	12200	12500	17900	17900	17900

(*) Calculate duct resistance from outdoor unit air flow.

Table 2: Maximum External Static Pressures for Combined Use of Single Units

Standard models

System	Combination			Maximum external static pressure
HP	HP	HP	HP	Pa
8	8			60
10	10			50
12	12			50
14	14			40
16	16			40
18	18			40
20	20			40
22	12	10		50
24	14	10		40
26	14	12		40
28	14	14		40
30	16	14		40
32	18	14		40
34	18	16		40
36	18	18		40
38	20	18		40
40	20	20		40
42	14	14	14	40
44	16	14	14	40
46	18	14	14	40
48	18	16	14	40
50	18	18	14	40
52	18	18	16	40
54	18	18	18	40

* MMY-***FT8(J)P-UK capacity range is from 8HP to 42HP.

6-1-2. Priority Operation Mode Setting

Purpose/characteristics

This function allows switching between priority cooling and priority heating.

Four patterns of priority operation mode setting are available as shown in the table below. Select a suitable priority mode according to the needs of the customer.

Setup

⚠ CAUTION

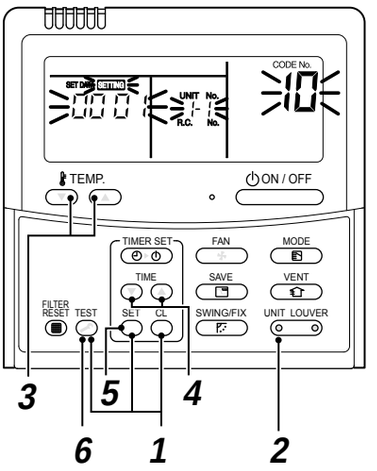
In the case of the priority indoor unit mode, it is necessary to set up the specific indoor unit chosen for priority operation (a single unit only).

(1) Outdoor unit setup method (header unit)

SW11		Operation
Bit 1	Bit 2	
OFF	OFF	Priority heating (factory default)
ON	OFF	Priority cooling
OFF	ON	Priority operation based on No. of units in operation (priority given to the operation mode with the largest share of units in operation)
ON	ON	Priority indoor unit (priority given to the operation mode of the specific indoor unit set up for priority operation)

(2) Indoor unit setup method for priority indoor unit mode

The setting can be changed only when the system is at rest. (Be sure to turn off the system prior to this operation.)



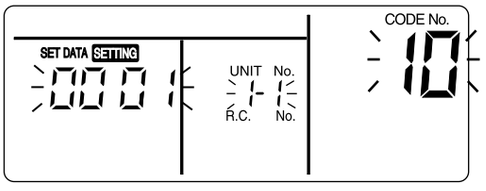
1 **Push the TEST + SET + CL buttons simultaneously and hold for at least 4 seconds. The display window will start flashing in a little while.**

Verify that the displayed CODE No. is 10.

ë If the displayed CODE No. is not 10, press the TEST button to erase the display and repeat the procedure from the beginning.

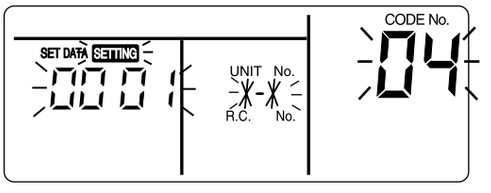
(Note that the system does not respond to remote controller operation for about 1 minute after the TEST button is pushed.)

(In the case of group control, the indoor unit No. displayed first indicates the header unit.)



2 **Each time the UNIT LOUVER button is pushed, one of the indoor unit Nos. under group control is displayed in turn. Select the indoor unit whose setting is to be changed.**

The fan and flap of the selected indoor unit then come on, so that the position of this unit can be confirmed.



3 **Use the TEMP. button to select the CODE No. 04.**

4 **Use the TIME button to select the SET DATA 0001.**

Priority set 0001 No priority set 0000

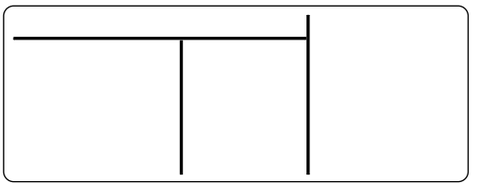
5 **Push the SET button.**

The setup is finished when the display changes from flashing to steady.

6 **Upon finishing the setup, push the TEST button. (This finalizes the setting.)**

When the TEST button is pushed, the display goes blank, and the system returns to normal off state.

(Note that the system does not respond to remote controller operation for about 1 minute after the TEST button is pushed.)



NOTE

Priority can be given to only one indoor unit. If more than one indoor unit is accidentally set to priority, a check code (L5 or L6: Duplicated indoor unit priority setting) will be displayed.

All units displaying L5 have been set to 0001 (priority). Keep the unit to which priority should be given as it is, and change the value back to 0000 (no priority) for all the rest.

Check code	Description
L5	Duplicated indoor unit priority setting (The unit is set to 0001.)
L6	Duplicated indoor unit priority setting (The unit is set to 0000.)

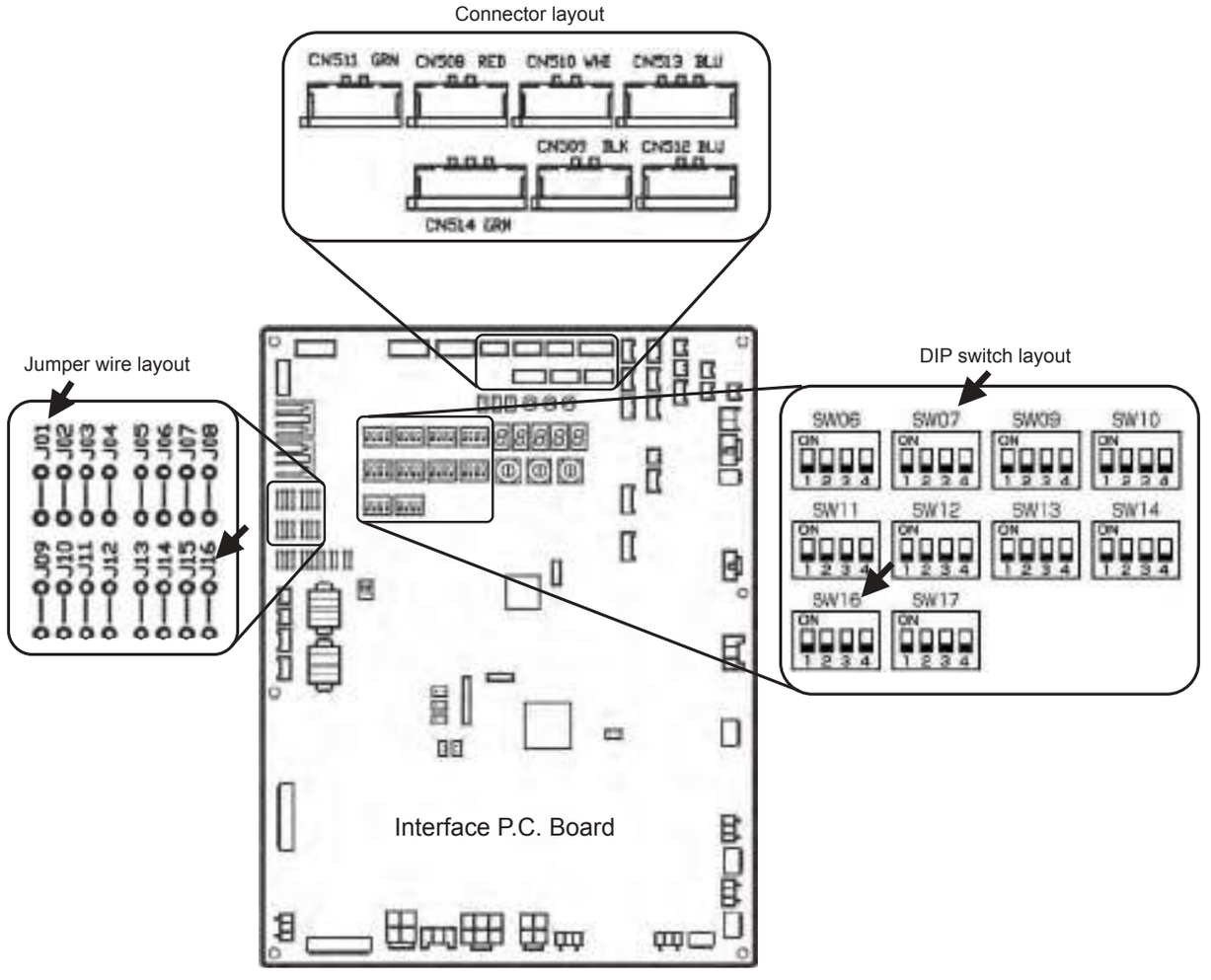
6-2. Applied Control of Outdoor Unit

Optional control P.C. boards provide access to a range of functions as listed below.

No.	Function	Outdoor unit for control P.C. board connection	Control P.C. board to be used			Outdoor unit interface P.C. board setting*			
			PCDM4E	PCMO4E	PCIN4E	Connector No.	DIP SW No.	Bit	Jumper to be removed
1	Power peak-cut Control (Standard)	Header unit	✓	–	–	CN513(blue)	SW07	1	–
	Power peak-cut Control (For one input function)	Header unit	✓	–	–	CN513(blue)	SW07	1	J16
2	Power peak-cut Control (Enhanced Functions)	Header unit	✓	–	–	CN513(blue)	SW07	1.2	–
3	Snowfall Fan Control	Header unit	–	✓	–	CN509(black)	–	–	–
4	External master ON/OFF Control	Header unit	–	✓	–	CN512(blue)	–	–	–
5	Night operation (sound reduction) Control	Header unit	–	✓	–	CN508(red)	–	–	–
6	Operation Mode Selection Control	Header unit	–	✓	–	CN510(white)	–	–	–
	Operation Mode Selection Control (forced choice)	Header unit	–	✓	–	CN510(white)	–	–	J01
7	Trouble/Operation output	Header unit	–	–	✓	CN511(green)	–	–	–
8	Compressor Operation Output	Individual outdoor unit	–	–	✓	CN514(green)	–	–	–
9	Operating Rate Output	Header unit	–	–	✓	CN514(green)	SW16	1	–

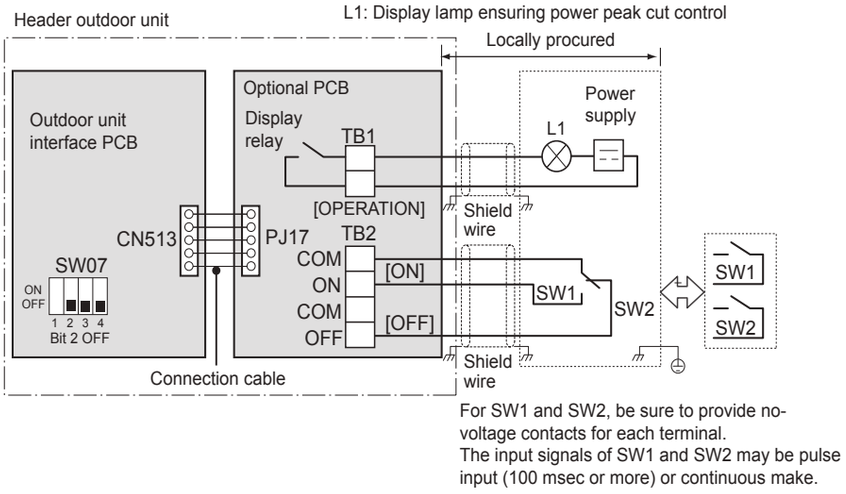
Layout of Outdoor Unit Interface P.C. Board

* DIP switch settings and jumper wire statuses vary from function to function.



6-2-1. Power peak-cut Control (Standard)
Model name : TCB-PCDM4E

(1) Four-core cable support



Operation

An external power peak-cut control signal limits the peak capacity of the outdoor unit.

L1: Power peak-cut control indication lamp

SW1: Power peak-cut control ON switch (ON as long as target power peak-cut control has been reached or exceeded, normally OFF)*1

SW2: Power peak-cut control OFF switch (OFF as long as target power peak-cut control has not been reached or exceeded, normally ON)*1

*1 The inputs of SW1 and SW2 can be either pulse (100 msec or longer) or step signals.
Do not turn on SW1 and SW2 simultaneously.

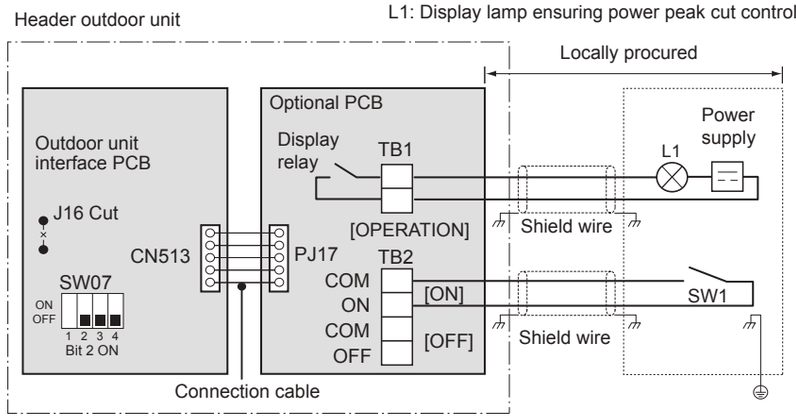
* Be sure to provide a contact for each terminal.

Power peak-cut control settings

Power peak-cut control P.C. board	SW1	SW2	L1	Interface P.C. board of header outdoor unit	
				SW07 Bit 1 OFF	SW07 Bit 1 ON
Power peak-cut control ON signal received	ON	OFF	ON	0% (forced stop)	60% capacity (upper limit regulated)
Power peak-cut control OFF signal received	OFF	ON	OFF	100% (normal operation)	100% (normal operation)

(2) Two-core cable support

SMMS-e models allows ON/OFF power peak-cut control to be implemented using a power peak-cut control ON input (SW1) alone, provided that the J16 jumper wire on the interface P.C. board of the header outdoor unit has been removed.



<SW07 Bit 2 OFF (two-step control)>

Power peak-cut control is enabled as long as SW1, as shown on the wiring diagram, is ON (continuously).

Jumper wire J16	Input SW1	SW07 Bit 1		Indicator relay
		Bit 1 OFF	Bit 1 ON	(L1)
Cut	OFF	100% (normal operation)	100% (normal operation)	OFF
	ON	0% (forced stop)	Approx. 60% (upper limit regulated)	ON

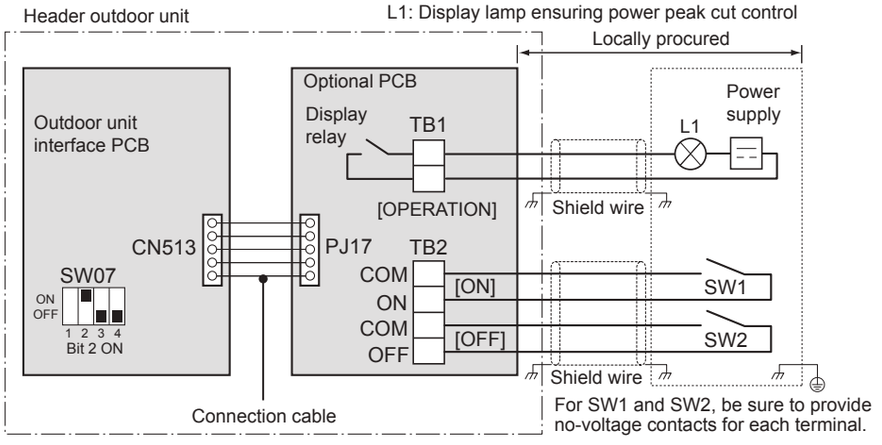
Note 1: Specifications of display relay contact

- The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit. The optional P.C. board should be connected to the header outdoor unit (U1).

6-2-2. Power peak-cut Control (Extended) Model name : TCB-PCDM4E



Operation

An external power peak-cut control signal limits the peak capacity of the outdoor unit.

L1: Power peak-cut control indication lamp

SW1: Power peak-cut control ON switch*1

SW2: Power peak-cut control OFF switch*1

*1 The inputs of SW1 and SW2 can be either pulse (100 msec or longer) or step signals.

* Be sure to provide a contact for each terminal.

Extended power peak-cut control settings

Specifications of display relay contact

Indication lamp	External power peak-cut control signals		Peak capacity	
			I/F SW07 Bit 1	
L1	SW1	SW2	OFF	ON
OFF	OFF	OFF	100% (normal operation)	100% (normal operation)
ON	ON	OFF	80% (upper limit regulated)	85% (upper limit regulated)
ON	OFF	ON	60% (upper limit regulated)	75% (upper limit regulated)
ON	ON	ON	0% (forced stop)	60% (upper limit regulated)

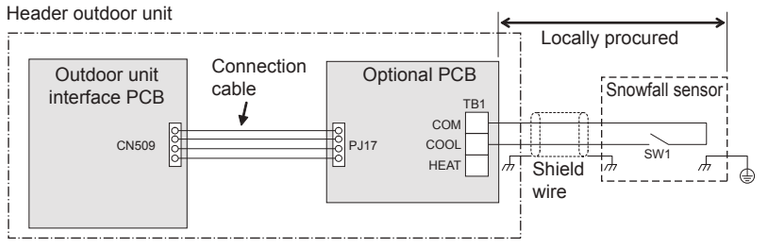
Note 1: Specifications of display relay contact

- The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit. The optional P.C. board should be connected to the header outdoor unit (U1).

6-2-3. Snowfall Fan Control
Model name : TCB-PCMO4E



SW1: Snowfall detection switch (snowfall sensor)

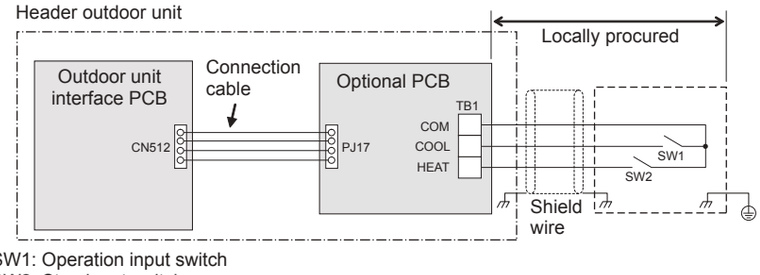
Operation

An external snowfall signal turns on the outdoor unit fan.

Terminal	Input signal	Operation
COOL (SW1)	ON → OFF	All indoor units operate together
	ON → OFF	All indoor units operate together

The input signal is recognized during its rising/falling phase.
(After reaching the top/bottom of the rising/falling edge, the signal must remain there for at least 100 ms.) The optional P.C. board should be connected to the header outdoor unit (U1).

6-2-4. External master ON/OFF Control
Model name : TCB-PCMO4E



SW1: Operation input switch
SW2: Stop input switch

Operation

The system is started/stopped from the outdoor unit.

Terminal	Input signal	Operation
COOL (SW1)	ON → OFF	Turns on all indoor units
HEAT (SW2)	ON → OFF	Turns off all indoor units

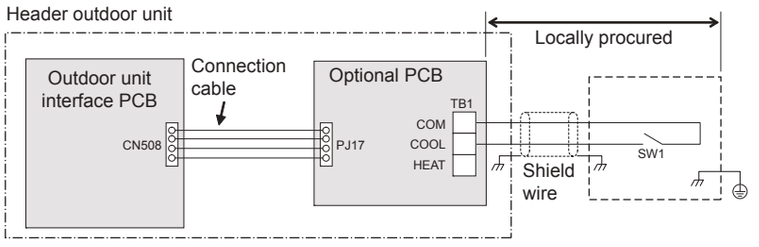
The input signal is recognized during its falling phase. (After reaching the bottom of the falling edge, the signal must remain there for at least 100 ms.)

⚠ CAUTION

(1) Do not turn on the COOL (SW1) and HEAT (SW2) terminals simultaneously.
(2) Be sure to provide a contact for each terminal.
External signal: No-voltage pulse contact

The optional P.C. board should be connected to the header outdoor unit (U1).

6-2-5. Night operation (sound reduction) Control
Model name : TCB-PCMO4E



SW1: Night time signal switch

Operation

This function decreases noise at night or other times as necessary.

Terminal	Input signal	Operation
COOL (SW1)	ON → OFF	Night time control
	ON → OFF	Normal operation

The input signal is recognized during its rising/falling phase.
(After reaching the top/bottom of the rising/falling edge, the signal must remain there for at least 100 ms.)
The optional P.C. board should be connected to the header outdoor unit (U1).

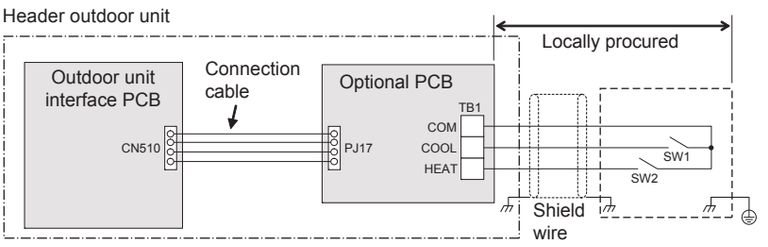
The system's capacity is reduced during low-noise operation.
The table below provides a rough guide to this capacity reduction.

Model MMY-	During low-noise mode* dB(A)	Capacity	
		Cooling	Heating
MAP0806*	50	approx. 85%	approx. 85%
MAP1006*	50	approx. 70%	approx. 70%
MAP1206*	53	approx. 80%	approx. 80%
MAP1406*	53	approx. 70%	approx. 70%
MAP1606*	54	approx. 65%	approx. 65%
MAP1806*	54	approx. 60%	approx. 60%
MAP2006*	54	approx. 55%	approx. 55%

Relative to maximum capacity

* Position of noise measuring device: 1 m from the front face of the set and 1.5 m above ground (in anechoic chambers)

6-2-6. Operation Mode Selection Control
Model name : TCB-PCMO4E



SW1: Cooling mode specified input switch
SW2: Heating mode specified input switch

NOTE

SW1: COOL mode selection switch
SW2: HEAT mode selection switch

Input signal		Operation	Remarks
COOL (SW1)	HEAT (SW2)		
ON	OFF	Only cooling operation allowed	*
OFF	ON	Only heating operation allowed	*
OFF	OFF	Normal operation	

* The display "(Operation mode selection control in progress)" appears on the remote controller

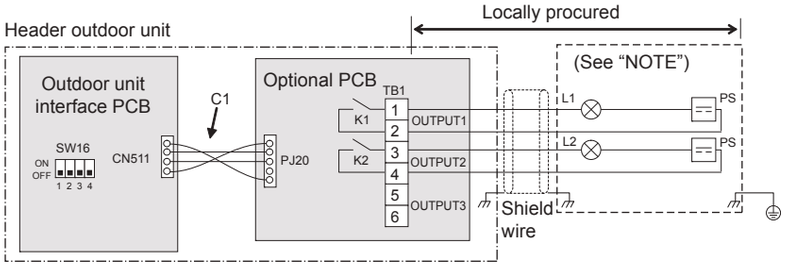
Indoor unit operation intervention function

The statuses of indoor units operating in a mode different from the selected operation mode can be changed by changing the status of a jumper wire (J01) provided on the interface P.C. board of the header outdoor unit.

<table>
<tr><th>Jumper lead</th><th>Details of Processing</th></tr>
<tr><td>J01 connected (factory default)</td><td>Unallowed indoor units in a mode other than the selected operation mode are not treated as priority (thermostat OFF state).
(Unallowed indoor units)
<table>
<tr><th>Operation Mode</th><th>Operation State</th><th>Remote control</th></tr>
<tr><td>Cooling</td><td>Air blow operation at fan speed set on remote control</td><td rowspan="3">, indicator is displayed.</td></tr>
<tr><td>Heating</td><td>Air blow operation at ultra-low fan speed</td></tr>
<tr><td>Fan</td><td>Regular air blow operation at fan speed set on remote control</td></tr>
</table></td></tr>
<tr><td>J01 cut</td><td>Indoor units in a mode other than the selected operation mode are forcibly switched to the selected operation mode.
<table>
<tr><th>PC board selection mode</th><th colspan="2">Remote control operation/display</th></tr>
<tr><td>Normal</td><td>, , , or can be selected</td><td rowspan="3">When using the remote control, (mode select control) indicator is displayed.</td></tr>
<tr><td>Cool</td><td>Only , , or can be selected</td></tr>
<tr><td>Heat</td><td>Only or can be selected</td></tr>
</table></td></tr>
</table>

The optional P.C. board should be connected to the header outdoor unit (U1).

6-2-7. Trouble/Operation Output
Model name : TCB-PCIN4E



Operation

In-operation output: An in-operation indication signal is output as long as at least one indoor unit is in operation in the line.

Failure output: A failure indication signal is output if check code occurs in at least one indoor/outdoor unit in the line.

Note 1: Output Relay (K1, K2) Contact Specifications

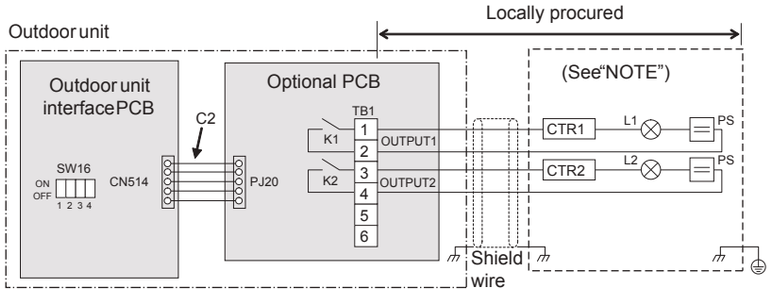
- Output terminals (OUTPUT1, 2) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1 and K2, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<Electrical Rating>
220-240 VAC, 10 mA or more, 1A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

C1	Attached connection cable 1 (4wires)
CN511	Connector on interface side (green)
K1, K2	Relays
L1	Failure indication Lamp
L2	Operation indication Lamp
OUTPUT1	Failure output
OUTPUT2	Operation output
PJ20	Connector on optional PCB side
PS	Power supply unit
TB1	Terminal block

The optional P.C. board should be connected to the header outdoor unit (U1).

6-2-8. Compressor Operation Output
Model name : TCB-PCIN4E



Operation

When a compressor is in operation, a relay connected to the output terminal assigned to it is turned on (closed). When it is at rest, the relay is turned off (open).

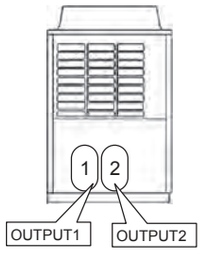
The output terminals are named OUTPUT1 and OUTPUT2 from left to right when facing the front of the outdoor unit, as shown in the diagram.

Note 1: Output Relay (K1, K2) Contact Specifications

- Output terminals (OUTPUT1, 2) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1and K2 insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

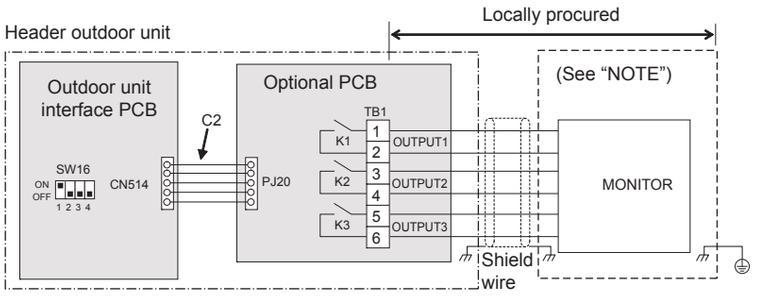
<Electrical Rating> 220-240 VAC, 10 mA or more, 1A or less 24 VAC, 10 mA or more, 1 A or less (non-conductive load)

Model featuring two compressors



C2	Connector cable 2 (2)
CN514	Connector on interface side (green)
CTR1	Elapsed operation counter 1
CTR2	Elapsed operation counter 2
K1, K2	Relays
L1, L2	Operation indication LEDs
OUTPUT1	Compressor 1 operation output terminal
OUTPUT2	Compressor 2 operation output terminal
PJ20	Connector on optional PCB side
PS	Power supply unit
TB1	Terminal block

6-2-9. Operating Rate Output
Model name : TCB-PCIN4E



Operation

At the output terminals, a signal is present (relay closed) or absent (relay open) in various combinations according to the system operation factor, as shown in the diagram.

The operation rate (FA) is the percentage ratio of the current output of the system to the maximum output (100%).

Function	SW16	OUTPUT1	OUTPUT2	OUTPUT3	Operation factor (FA)
System operation rate output	ON OFF 1 2 3 4 Bit 1: ON Bit 2: OFF	off	off	off	FA=0%
		on	off	off	0%<FA<20%
		off	on	off	20%≦FA<35%
		on	on	off	35%≦FA<50%
		off	off	on	50%≦FA<65%
		on	off	on	65%≦FA<80%
		off	on	on	80%≦FA<95%
		on	on	on	95%≦FA

off = Relay open
on = Relay closed

C2	Connector cable 2 (2)
CN514	Connector on interface side (green)
K1, K2, K3	Relays
MONITOR	Monitoring device
OUTPUT1	Output terminal for each function
OUTPUT2	Output terminal for each function
OUTPUT3	Output terminal for each function
PJ20	Connector on optional PCB side
TB1	Terminal block

* Connect the optional P.C. board to the header outdoor unit.

Note 1: Output Relay (K1, K2, K3) Contact Specifications

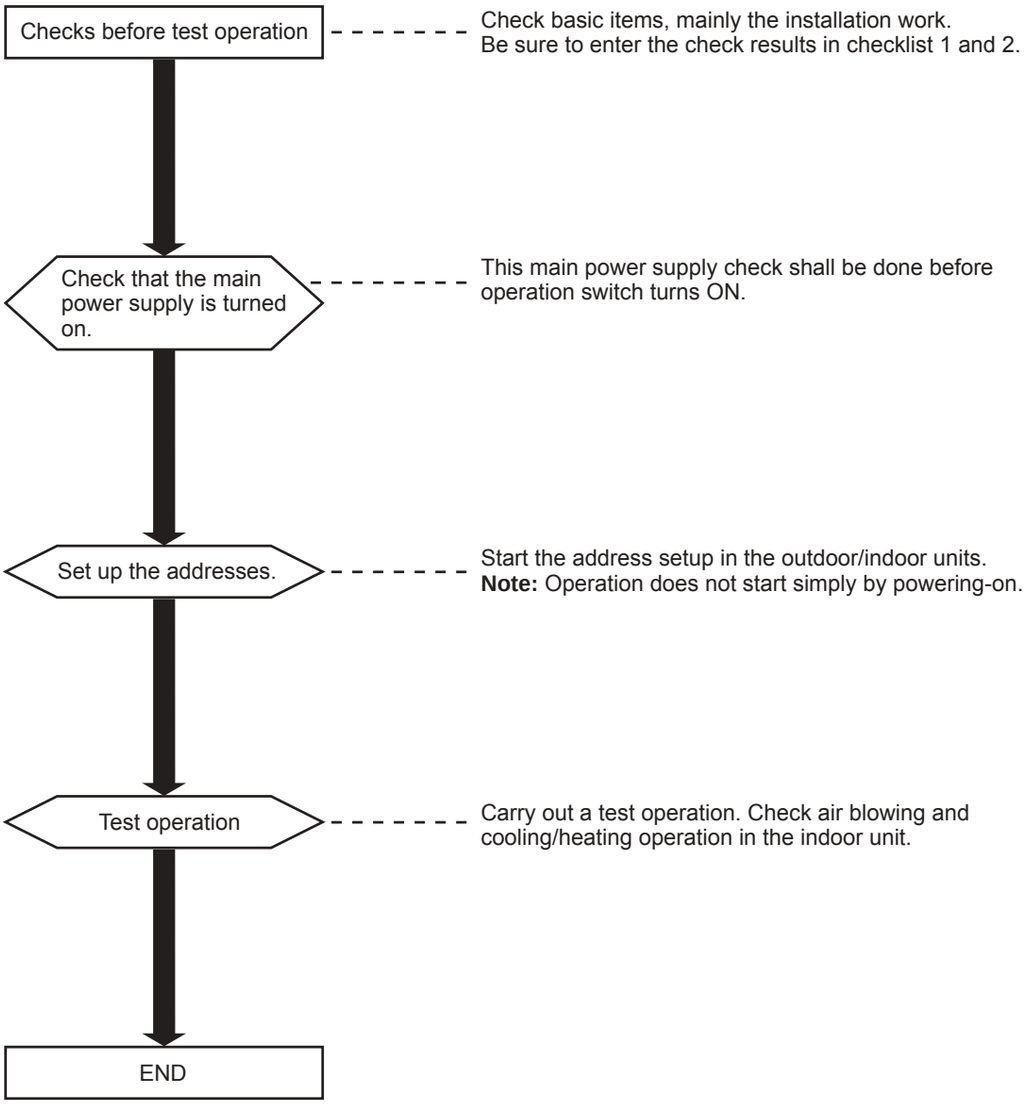
- Output terminals (OUTPUT1, 2, 3) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1, K2 and K3, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<Electrical Rating>
220-240 VAC, 10 mA or more, 1A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

7 TEST OPERATION

7-1. Procedure and Summary of Test Operation

A test operation is executed with the following procedure. When a problem occurs at any step, remove the causes of the problem referring to “8 TROUBLESHOOTING.”

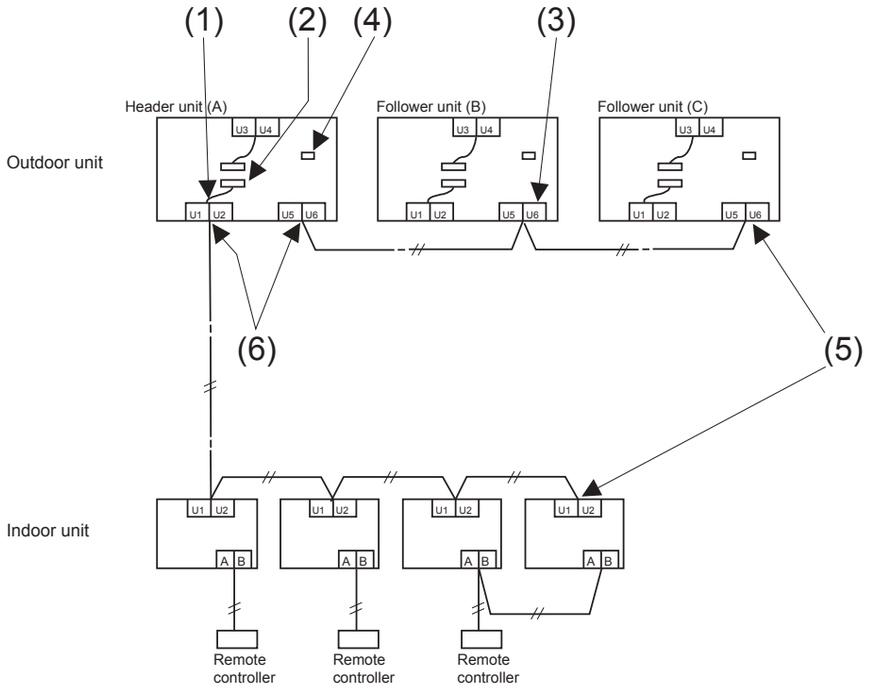


7-2. Check Items before Test Operation (before powering-on)

Prior to the test operation, check the following items to verify there are no problems with the installation work.

Main check items for electric wiring
The communication system differs from that of R22 or R407 refrigerant “Modular Multi System” air conditioners. Check wiring points again carefully.

(1) In the case that a central control system is not connected:

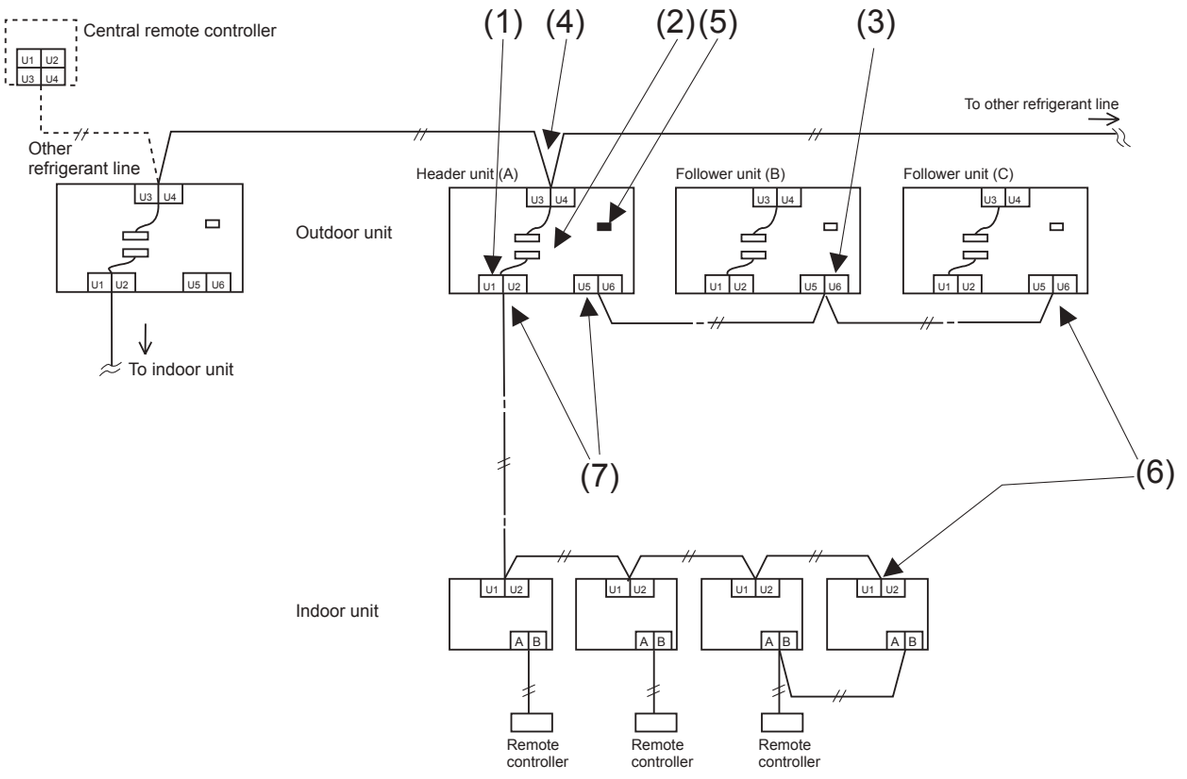


Main check items	Check
(1) Are the indoor and outdoor communication lines of the header unit connected to the U1/U2 terminals?	
(2) Is the relay connector between the U1/U2 terminal and the U3/U4 terminal disconnect? (Set up at shipment from the factory)	
(3) Is the communication line between outdoor units connected to the U5/U6 terminal?	
(4) Is the terminator resistor (SW30-bit 2) on the interface PC board of the header unit turned on? (Set up at shipment from the factory)	
(5) Is the end terminal of the shield wire open?	
(6) Is the end terminal of the shield wire earthed at the header unit side?	

NOTE

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

(2) In the case that a central control system is connected (before address setup)



Main check items	Check
(1) Are the indoor and outdoor communication lines of the header unit connected to the U1/U2 terminals?	
(2) Is the relay connector between the U1/U2 terminal and the U3/U4 terminal disconnect? (Set up at shipment from the factory) (Keep the relay connector disconnected before address setup.)	
(3) Is the communication line between outdoor units connected to the U5/U6 terminal?	
(4) Is the communication line of the central control system connected to the header unit U3/U4 terminals of each refrigerant line? (The communication line of the central control system may be connected to the communication lines of the indoor/outdoor communication lines.)	
(5) Is the terminator resistor (SW30-bit 2) on the interface PC board of the header unit turned on? (Set up at shipment from the factory) * After address setup and test operation check, turn on the SW30-bit 2 of the header unit for the smallest line address, and turn off SW30-bit 2 of the header unit for other refrigerant lines. (See “7-4-3. Address Setup Procedure”)	
(6) Is the end terminal of the shield wire open?	
(7) Is the end terminal of the shield wire earthed at the header unit side?	
(8) When the refrigerant line and the central control system of the DI-SDI series are connected: → Are Network adapter (TCB-PCNT30TLE2) correctly connected? → When the DI-SDI series operates with group, twin, or triple operation, are the adapters connected to the header unit of the indoor unit?	

NOTE

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

Checklist 1

- Using Checklist 1, check that there are no problems with the installation work.

Is the capacity of the circuit breaker (Earth leakage breaker) appropriate?	Outdoor total capacity	☐ A	Header unit (A)	☐ A	Indoor unit ☐ A
			Follower unit (B)	☐ A	
			Follower unit (C)	☐ A	
Is the gauge of the power cable correct?			Header unit (A)	☐ mm^2	Indoor unit ☐ mm^2
			Follower unit (B)	☐ mm^2	
			Follower unit (C)	☐ mm^2	
Is the control communication line correct?			Indoor-outdoor connection terminals (U1, U2)	☐	
			Outdoor-outdoor connection terminals (U5, U6)	☐	
			Central control system connection terminals (U3, U4)	☐	
Is the power of indoor units supplied collectively?					
Is it grounded to earth?					
Is the insulating resistance sufficient? (10M or higher)				☐ MΩ or higher	
Is the main power voltage sufficient? (within 380-415 V ±10%)				☐ V	
Is the diameter of connecting pipe correct?					
Is the branch kit correct?					
Is the water drain of the indoor unit arranged so that it flows without accumulation?					
Is the heat insulation of pipes sufficient? (connecting pipes, branch kit)					
Is there no short circuit of discharge air in the indoor/outdoor units?					
After an airtightness test of the pipes, are vacuuming and adding of refrigerant executed?					

Are the valves of all the outdoor units fully opened?

	Gas side	Liquid side	Balance side
Header unit (A)	☐	☐	☐
Follower unit (B)	☐	☐	☐
Follower unit (C)	☐	☐	☐

Checklist 2

- Check the additional amount of refrigerant.

Calculate the additional amount of refrigerant from the additional amount of refrigerant (A) by the pipe diameter on the liquid side, the pipe length to be connected, and the corrective amount of refrigerant (C) according to system horsepower.

Additional amount of refrigerant = (Actual liquid pipe length × Additional amount of refrigerant per 1 m of liquid pipe) (A) X 1.3 + (Corrective amount of refrigerant according to systemt horsepower) (C)

First, enter the total length for each liquid pipe diameter in the following table, and then calculate the additional amount of refrigerant by pipe length.

<Additional amount of refrigerant by pipe length>

Pipe diameter on the liquid side	Standard amount of refrigerant	Total pipe length on each liquid side m	Additional amount of refrigerant pipe diameter on each liquid side kg
φ6.4	0.025 ×	=	kg
φ9.5	0.055 ×	=	kg
φ12.7	0.105 ×	=	kg
φ15.9	0.160 ×	=	kg
φ19.0	0.250 ×	=	kg
φ22.2	0.350 ×	=	kg
		Additional amount of refrigerant by pipe length (A)	kg

Next, refer to the following table for the corrective amount of refrigerant (C) according to system horsepower.

<Corrective amount of refrigerant according to system horsepower>

System HP (HP)	Combined outdoor units (HP)			Compensation by system HP (kg)
8	8			2
10	10			3
12	12			8
14	14			10
16	16			12
18	18			14
20	20			15
22	12	10		6
24	14	10		8
26	14	12		12
28	14	14		12
30	16	14		14
32	18	14		15
34	18	16		16
36	18	18		18
38	20	18		22
40	20	20		24
42	14	14	14	14
44	16	14	14	15
46	18	14	14	16
48	18	16	14	17
50	18	18	14	18
52	18	18	16	20
54	18	18	18	22

* MMY-***FT8(J)P-UK capacity range is from 8HP to 42HP.

Lastly, add the additional amount of refrigerant by pipe length (A) to the corrective amount of refrigerant by combined horsepower (C). This is the final additional amount of refrigerant.
If a minus sign is indicated as the result, do not reduce or add the refrigerant (= 0 kg).

<Additional amount of refrigerant>

Additional amount of refrigerant by pipe length (A) kg	kg
Corrective amount of refrigerant according to combined horsepower (C) kg	kg
Additional amount of refrigerant kg	kg

7-3. Check at Main Power-on

After turning on the main power of the indoor units and outdoor unit in the refrigerant line to conduct a test operation, check the following items in each outdoor and indoor unit.
(After turning on the main power, be sure to check in order: indoor unit → outdoor unit.)

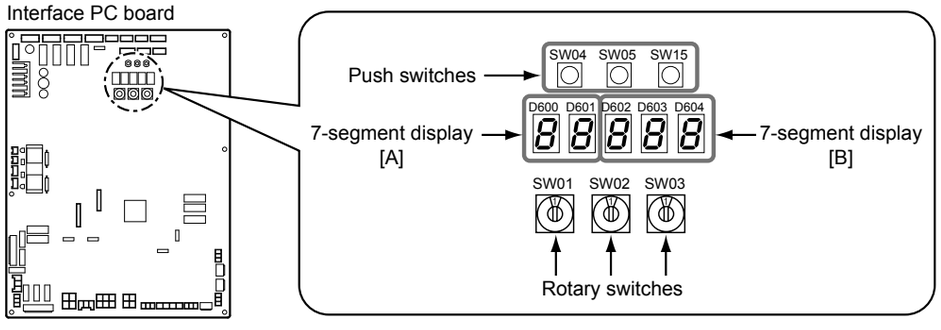
<Check on the outdoor unit>

(1) Check that all the rotary switches, SW01, SW02, and SW03, on the interface PC board of the header unit are set to "1."

(2) If another check code is displayed on the 7-segment display [B], remove the cause of the problem referring to Section, "8 TROUBLESHOOTING".

(3) Check that "L08" is displayed on the 7-segment display [B] on the interface PC board of the header unit. (L08: Indoor address not set up)

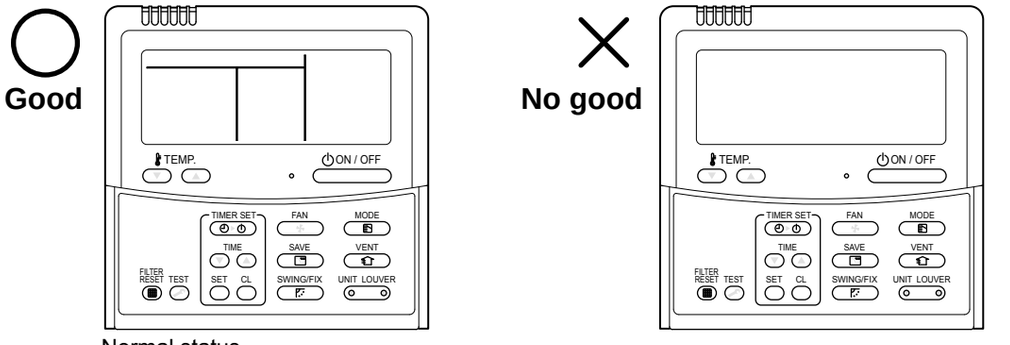
(If the address setup operation has already been completed during servicing, etc., the above check code is not displayed, and only "U1" is displayed on the 7-segment display [A].)



<Check on the indoor unit>

(1) Display check on the remote controller (in the case of a wired remote controller)

Check that a frame, as shown in the following figure at left, is displayed on the LC display section of the remote controller.



Normal status
(power supplied and operation stopped)

When power is not supplied normally

If no frame is displayed, as shown in the above figure at right, the remote controller does not have a normal supply of power; check the following items.

- ë Check the power supply of the indoor unit.
- ë Check the cabling between the indoor unit and the remote controller.
- ë Check whether there is a cutoff of wire around the indoor control PC board or not, and check for connection failures of the connectors.
- ë Check for failure of the transformer for the indoor electrical control box.
- ë Check for failure of the indoor control PC board.

7-4. Address Setup

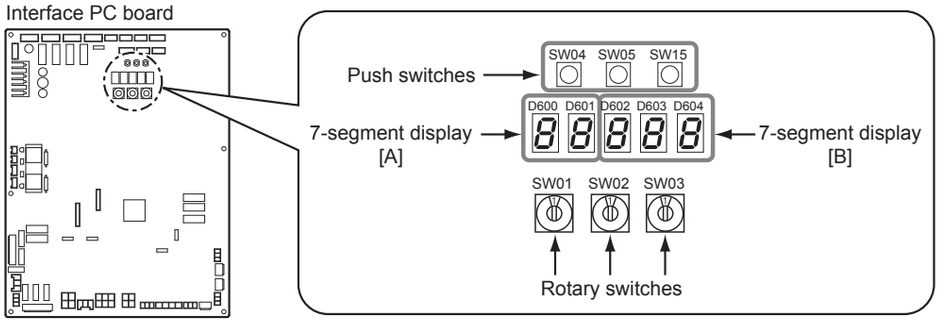
This product requires address setup before operation.
Follow this procedure for address setup.

7-4-1. Precautions

(1) Address setup is not performed simply by turning on the power supply.
(2) For indoor units, address setup can be done either by manual address setup or by automatic address setup:
Automatic address setup: Setup from SW15 on the interface PC board of the header unit
Manual address setup: Setup from the wired remote controller. (For details, refer to “7-4-3. Address Setup Procedure.”)
(3) Automatic setup usually takes about 5 minutes per line. In some cases, however, it may take up to 10 minutes.
(4) It is unnecessary to operate the air conditioner to achieve address setup.

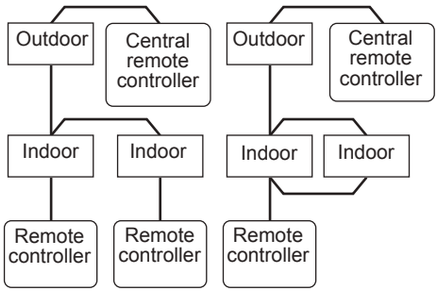
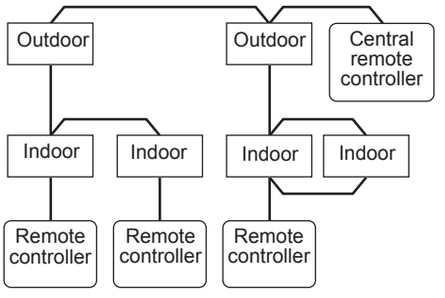
7-4-2. Address Setup and Check Procedure

<table>
<tr><th>Procedure</th><th>Item</th><th>Operation and check contents</th></tr>
<tr><td>1</td><td>Multi port FS unit power-on</td><td>Turn on the power of the FS unit in order to recognize the FS unit to indoor unit.</td></tr>
<tr><td>2</td><td>Indoor unit power-on</td><td>Turn on the power of the indoor unit for the refrigerant line for which the address is to be set up.</td></tr>
<tr><td>3</td><td>Outdoor unit power-on</td><td>Turn on the power of all the outdoor units for the refrigerant line for which the address is to be set up.</td></tr>
<tr><td>4</td><td>7-segment display check</td><td>Check that “L08” is displayed on the 7-segment display [B] on the interface PC board of the header unit in the system where the address is to be set up.</td></tr>
<tr><td>5</td><td>Address setup start</td><td>Confirm the items in “7-4-3. Address Setup Procedure,” and then set up the address according to the operation procedure.
(Be careful to note that the setup operation may differ in group control and central control systems.)
Note:
The address cannot be set up if switches are not operated.</td></tr>
<tr><td>6</td><td>Individual RC control setup</td><td>Sure must be set up in the case to be able to use the Individual RC control.
How to set up please refer to "Manual address setup from the remote controller"
Note: In the case of no setup, the indoor unit is not heating or not cooling</td></tr>
<tr><td>7</td><td>Display check after setup</td><td>• After address setup, “U1” “ ” is displayed on the 7-segment display.
• For follower outdoor units, “U2” to “U3” are displayed on the 7-segment display [A].
• If a check code is displayed on the 7-segment display [B], remove the cause of the problem referring to “8 TROUBLESHOOTING.”</td></tr>
<tr><td>8</td><td>System information check after setup</td><td>Using the 7-segment display function, check the system information of the scheduled system. (This check is executed on the interface PC board of the header unit.)
<table>
<tr><th></th><th colspan="3">Rotary switch setup</th><th colspan="2">7-segment display</th></tr>
<tr><th></th><th>SW01</th><th>SW02</th><th>SW03</th><th>[A]</th><th>[B]</th></tr>
<tr><td>System capacity</td><td>1</td><td>2</td><td>3</td><td>[Number of horsepower]</td><td>[H P]</td></tr>
<tr><td>Number of connected outdoor units</td><td>1</td><td>3</td><td>3</td><td>[Number of units]</td><td>[P]</td></tr>
<tr><td>Number of connected indoor units</td><td>1</td><td>4</td><td>3</td><td>[Number of connected units]</td><td></td></tr>
</table>
After the above checks, return rotary switches SW01, SW02, and SW03 to 1/1/1.</td></tr>
</table>



7-4-3. Address Setup Procedure

No central control: **go to Address setting procedure 1**
Central control of 2 or more refrigerant lines: **go to Address setting procedure 2**

(Example)	When controlling a single refrigerant line centrally	When controlling 2 or more refrigerant lines centrally
Address setting procedure	**To procedure 1**	**To procedure 2**
System wiring diagram		

◆Address setting procedure 1

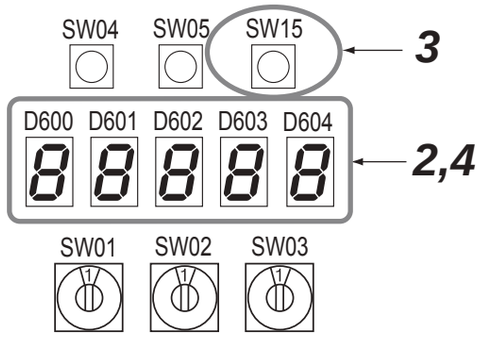
1 **Turn on indoor units first, and then turn on outdoor units.**

2 **About one minute after turning the power on, confirm that the 7-segment display on the interface P.C. board of the header outdoor unit indicates** **U. 1. L08 (U. 1. flash)** **.**

3 **Press SW 15 to start the automatic address setting.**
(It may take up to 10 minutes (normally about 5 minutes) to complete one line's setting.)

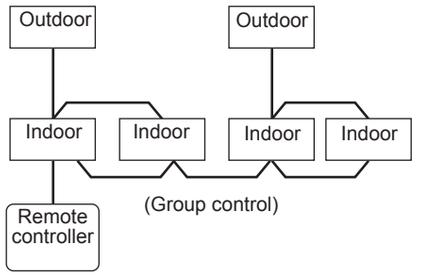
4 **The 7-segment display indicates** **Auto 1 → Auto 2 → Auto 3** **.**
After the indication, **U. 1. - - - (U. 1. flash)** **starts flashing on the display.**
When the flashing stops and **U. 1. - - - (U. 1. light)** **remain lit on the display, the setting is complete.**

Interface P.C. board on the header outdoor unit



REQUIREMENT

- When 2 or more refrigerant lines are controlled as a group, be sure to turn on all the indoor units in the group before setting addresses.
  (Note: The group control of more than two refrigerant systems is possible only when all the FS units are single port type.)
- If you set the unit addresses of each line separately, each line's header indoor unit is set separately. In that case, the CODE No. "L03" (Indoor header unit overlap) is indicated as running starts. Change the group address to make one unit the header unit using wired remote controller.

(Example)	Controlling 2 or more refrigerant lines as a group
System wiring diagram	

(Note: The group control of more than two refrigerant systems is possible only when all the FS units are single port type.)

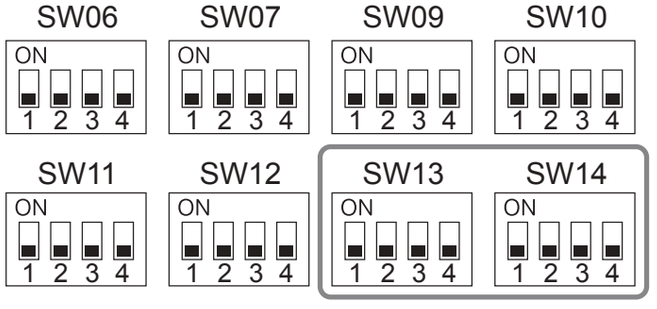
◆Address setting procedure 2

1 **Set a system address for each system using SW 13 and 14 on the interface P.C. board on the header outdoor unit of each system.**
(Factory default: Address 1)

NOTE

Be sure to set a unique address on each system. Do not use a same address as another system (refrigerant line) or a "Digital Inverter" side.

Interface P.C. board on the header outdoor unit



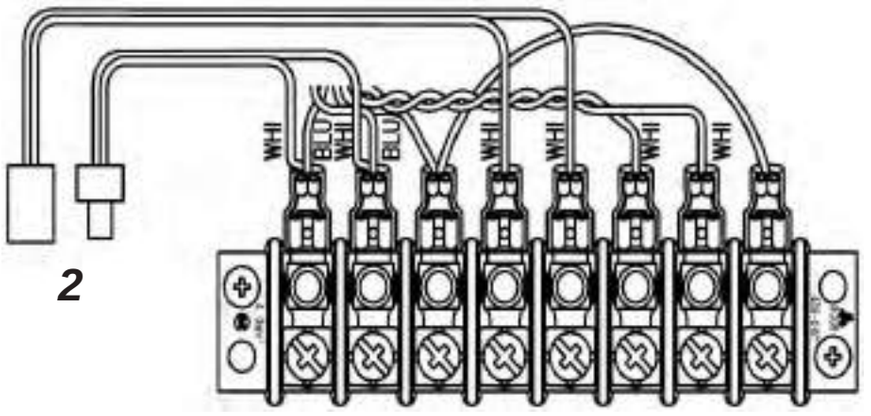
Line address switches on the outdoor interface PC board (○: switch on, ×: switch off)

Line address	SW13				SW14			
	1	2	3	4	1	2	3	4
1				×	×	×	×	×
2				×	○	×	×	×
3				×	×	○	×	×
4				×	○	○	×	×
5				×	×	×	○	×
6				×	○	×	○	×
7				×	×	○	○	×
8				×	○	○	○	×
9				×	×	×	×	○
10				×	○	×	×	○
11				×	×	○	×	○
12				×	○	○	×	○
13				×	×	×	○	○
14				×	○	×	○	○

Line address	SW13				SW14			
	1	2	3	4	1	2	3	4
15				×	×	○	○	○
16				×	○	○	○	○
17				○	×	×	×	×
18				○	○	×	×	×
19				○	×	○	×	×
20				○	○	○	×	×
21				○	×	×	○	×
22				○	○	×	○	×
23				○	×	○	○	×
24				○	○	○	○	×
25				○	×	×	×	○
26				○	○	×	×	○
27				○	×	○	×	○
28				○	○	○	×	○

Not used for setup of line address (do not change setup.)

2 **Be sure to disconnect the relay connectors between the [U1U2] and [U3U4] terminals on all the header outdoor units that will be connected to the central control. (Factory default: disconnected)**



3 **Turn on indoor units first, and then turn on outdoor units.**

4 **About 1 minute after turning the power on, confirm that the 7-segment display on the interface P.C. board of the header outdoor unit indicates** `U. 1. L08 (U. 1. flash)` **.**

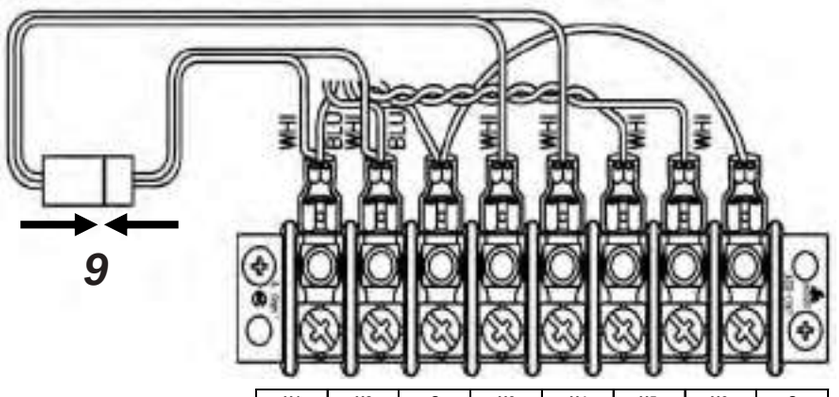
5 **Press SW 15 to start the automatic address setting.**
(It may take up to 10 minutes (normally about 5 minutes) to complete one line's setting.)

6 **The 7-segment display indicates** `Auto 1 → Auto 2 → Auto 3` **.**
After the indication, `U. 1. - - - (U. 1. flash)` **starts flashing on the display.**
When the flashing stops and `U. 1. - - - (U. 1. light)` **, remains lit on the display, the setting is complete.**

7 **Repeat steps *4* to *6* for other refrigerant lines.**

8 **After completing address setting of all systems, turn off DIP switch 2 of SW30 on the interface P.C. boards of all the header outdoor units connected to the same central control, except the unit that has the smallest address.**
(For unifying the termination of the wiring for the central control of indoor and outdoor units)

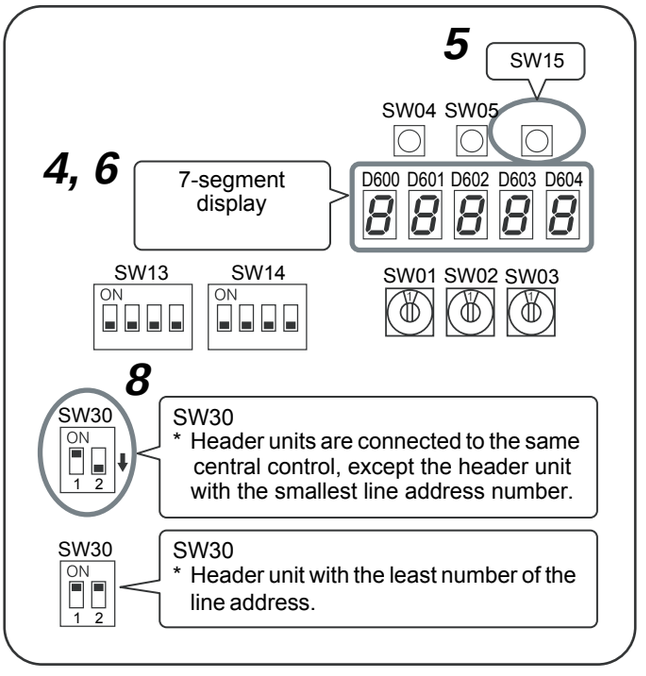
9 **Connect the relay connectors between the [U1, U2] and [U3, U4] terminals of the header outdoor unit of each refrigerant line.**



10 Set the central control address.

(For the setting of the central control address, refer to the installation manuals of the central control devices.)

Header unit interface P.C. board

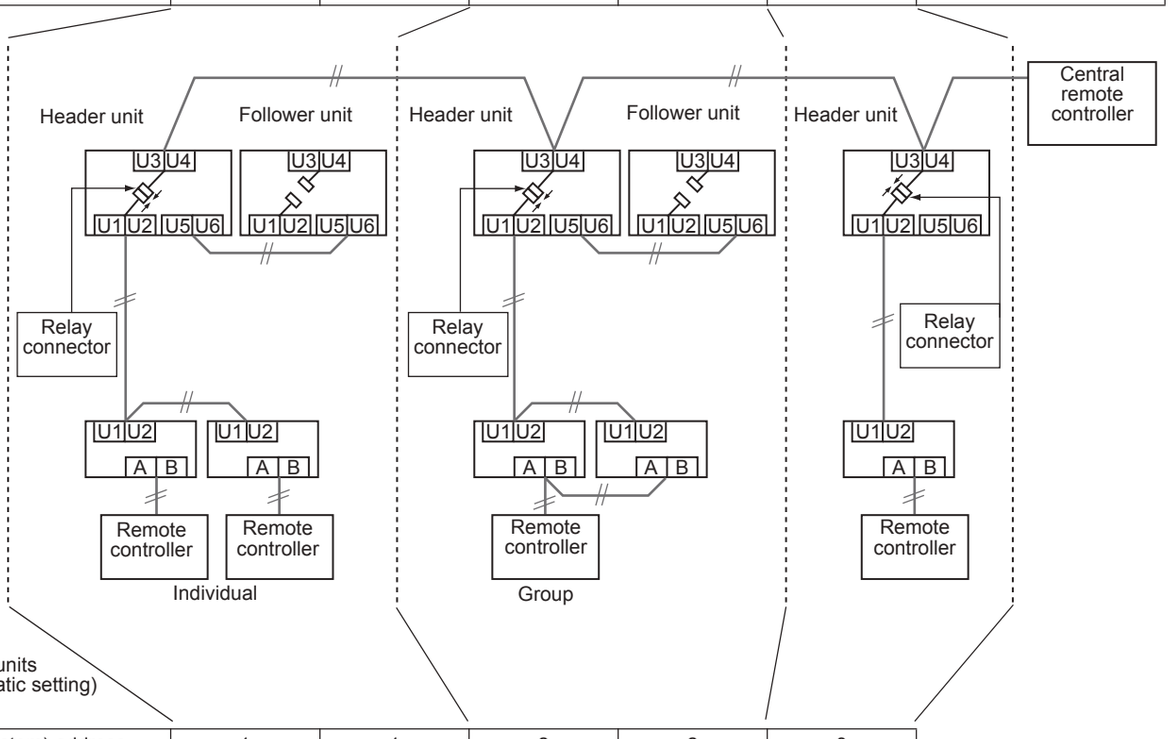


Switch setting (setting example when controlling 2 or more refrigerant lines centrally)

Outdoor units (setting manually)

*The items in bold font must be set manually.

Outdoor unit's interface P.C. board	**Header unit**	**Follower unit**	**Header unit**	**Follower unit**	**Header unit**	**Factory default**
SW13, 14 (Line (system) address)	1	(No setting required)	2	(No setting required)	3	1
DIP switch 2 of SW30 (Terminator of indoor/ outdoor communication line and central control line)	ON	(No setting required)	**Set to OFF after setting addresses.**	(No setting required)	**Set to OFF after setting addresses.**	ON
Relay connector	**Connect after setting addresses.**	Open	**Connect after setting addresses.**	Open	**Connect after setting addresses.**	Open



Indoor units (automatic setting)

Line (system) address	1	1	2	2	3
Indoor unit address	1	2	1	2	1
Group address	0	0	1	2	0

⚠ CAUTION

Relay connector connection

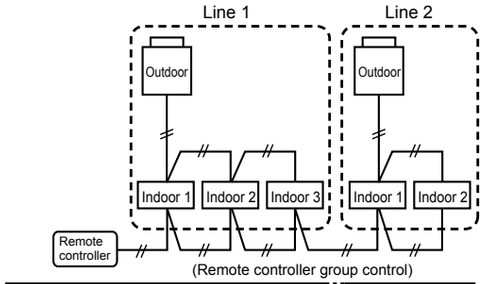
Never connect relay connectors between the [U1, U2] and [U3, U4] terminals before completing address setting of all the refrigerant lines. Otherwise, the addresses cannot be set correctly.

Manual address setup from the remote controller

With indoor wiring work completed and outdoor wiring work not done—in cases where indoor unit addresses are decided in advance from the wired remote controller, or in cases where addresses are change after address setup.

(Wiring example for 2 refrigerant lines)

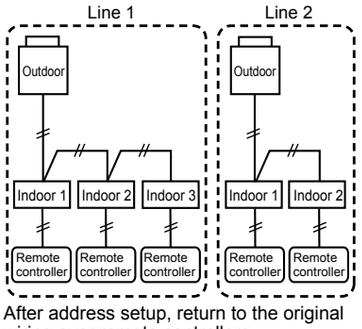
(Note: The group control of more than two refrigerant systems is possible only when all the FS units are single port type.)



Line address	1	1	1	2	2
Indoor address	1	2	3	1	2
Group address	1 Header	2 Follower	2 Follower	2 Follower	2 Follower

In the above example, where remote controllers are not yet wired, set the address manually after individually connecting the wired remote controller.

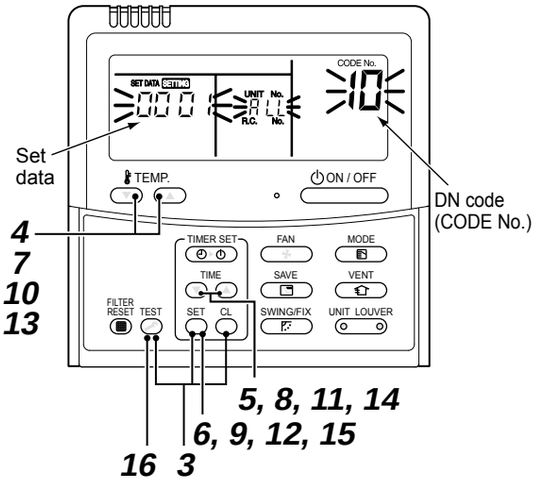
(Wiring during manual address setup)



After address setup, return to the original wiring over remote controllers.

Group address

Individual: 0000
Header unit: 0001
Follower unit: 0002
} In cases of remote controller group control



1 **Arrange one indoor unit and one remote controller set to 1 by 1.**

2 **Turn on the power.**

3 **Push the SET + CL + TEST buttons simultaneously for 4 seconds or more.**
LCD begins blinking.

▼(Refrigerant line address)

4 **Using the TEMP. buttons, set the DN code to 12.**

5 **Using the TIME buttons, set up the line address (match it with the line address on the interface PC board of the header unit on the same refrigerant line).**

6 **Push the SET button (OK when the display goes on).**

▼(Indoor address)

7 **Using the TEMP. buttons, set the DN code to 13.**

8 **Using the TIME buttons, set up the indoor address. (0001~0064)**

9 **Push the SET button (OK when the display goes on).**

▼(Group address)

10 **Using the TEMP. buttons, set the DN code to 14.**

11 **Using the TIME buttons, set Individual = 0000, Header unit = 0001, Follower unit = 0002.**

12 **Push the SET button (OK when the display goes on).**

▼(Central control address)

13 **Using the TEMP. buttons, set DN code to 03.**

14 **Using the TIME buttons, set up the central control address. (0001~0064)**

15 **Push SET button. (OK when display goes on).**

16 **Push the TEST button.**
Setup is finished (“Setting up” blinks; when “Setting up” goes off, operation is possible).

17 **Return to the original wiring over remote controllers.**

NOTE

(1) When setting the line address from the remote controller, do not use addresses 29 and 30.
Addresses 29 and 30 cannot be set up on the outdoor unit. If they are incorrectly used, the code “E04” (indoor/outdoor communication circuit trouble) is output.

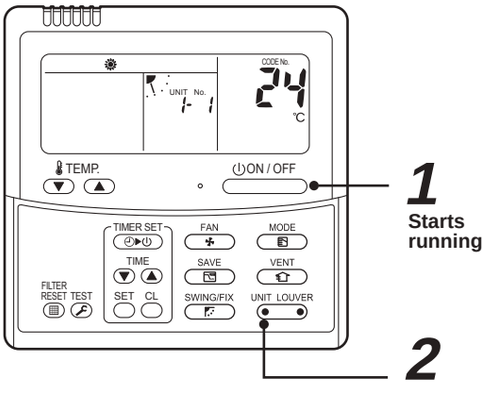
(2) When manual address setup has been done from a remote controller, and central control over refrigerant lines is to be done, setup the header unit of each line as follows:
- Using SW13 and SW14 on the interface PC board of the header unit of each line, setup the line address for each line.
- Except for the line with the smallest line address number, set SW03-bit 2 to “off” for the interface PC board of the header unit of lines connected to the same central control (put the terminator resistor of the central control line, indoors and outdoors, into one).
- Connect the relay connector between U1/U2 and U3/U4 of the header unit for each refrigerant line.
- After that, set up the central control address. (For central control address setup, refer to the installation manual of the central control devices.)

■ Confirming the indoor unit addresses and the position of an indoor unit using the remote controller

◆ Confirming the numbers and positions of indoor units

To see the indoor unit address of an indoor unit having location data

▼ When the unit is individual (the indoor unit is paired with a wired remote controller one-to-one), or it is a group-controlled one.



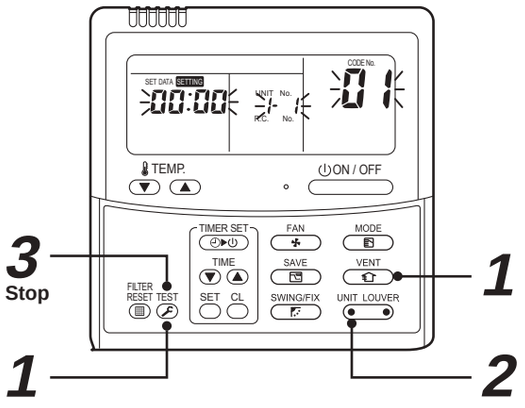
(Execute it while the units are running.)

1 **Push the ON / OFF button if the units stop.**

2 **Push the UNIT LOUVER button (left side of the button).**
A unit numbers 1-1 is indicated on the LCD (it will disappear after a few seconds). The indicated number shows the system address and indoor unit address of the unit.
When 2 or more indoor units are connected to the remote controller (group-controlled units), a number of other connected units appears each time you push the UNIT LOUVER button (left side of the button).

To find an indoor unit's position from its address

▼When checking unit numbers controlled as a group



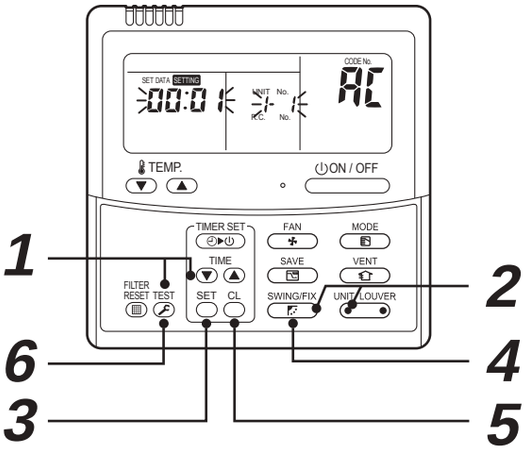
(Execute it while the units are stopped.)
The indoor unit numbers in a group are indicated one after another. The fan and louvers of the indicated units are activated.

1 **Push and hold the VENT and TEST buttons at the same time for more than 4 seconds.**
- ALL appears on UNIT No. on the LCD display.
- The fans and louvers of all the indoor units in the group are activated.

2 **Push the UNIT LOUVER button (left side of the button). Each time you push the button, the indoor unit numbers are indicated one after another.**
- The first-indicated unit number is the address of the header unit.
- Only the fan and louvers of the indicated indoor unit are activated.

3 **Push the TEST button to finish the procedure.**
All the indoor units in the group stop.

▼To check all the indoor unit addresses using an arbitrary wired remote controller. (When communication wirings of 2 or more refrigerant lines are interconnected for central control)



(Execute it while the units are stopped.)
You can check indoor unit addresses and positions of the indoor units in a single refrigerant line.
When an outdoor unit is selected, the indoor unit numbers of the refrigerant line of the selected unit are indicated one after another and the fan and louvers of the indicated indoor units are activated.

1 **Push and hold the TIME ▼ and TEST buttons at the same time for more than 4 seconds. At first, the line 1 and CODE No. RC (Address Change) are indicated on the LCD display. (Select an outdoor unit.)**

2 **Push the UNIT LOUVER (left side of the button) and SWING/FIX buttons repeatedly to select a system address.**

3 **Push the SET button to confirm the system address selection.**
- The address of an indoor unit connected to the selected refrigerant line is indicated on the LCD display and its fan and louvers are activated.

4 **Push the UNIT LOUVER button (left side of the button). Each time you push the button, the indoor unit numbers of the selected refrigerant line are indicated one after another.**
- Only the fan and louvers of the indicated indoor unit are activated.

◆To select another system address

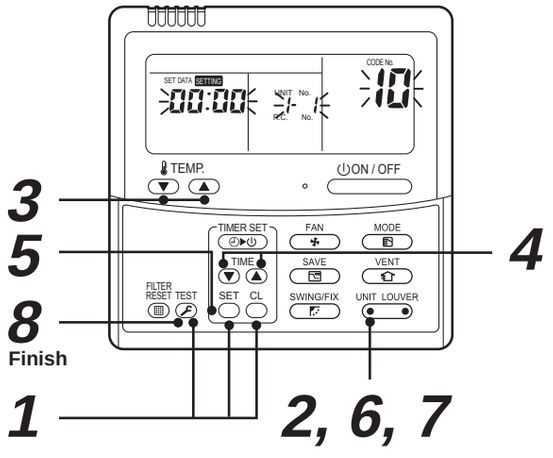
5 **Push the CL button to return to step *2*.**
- After returning to step ***2***, select another system address and check the indoor unit addresses of the line.

6 **Push the TEST button to finish the procedure.**

■Changing the indoor unit address using a remote controller

To change an indoor unit address using a wired remote controller.

▼The method to change the address of an individual indoor unit (the indoor unit is paired with a wired remote controller one-to-one), or an indoor unit in a group.
(The method is available when the addresses have already been set automatically.)



(Execute it while the units are stopped.)

1 **Push and hold the SET, CL, and TEST buttons at the same time for more than 4 seconds.**
(If 2 or more indoor units are controlled in a group, the first indicated UNIT No. is that of the head unit.)

2 **Push the UNIT LOUVER button (left side of the button) repeatedly to select an indoor unit number to change if 2 or more units are controlled in a group. (The fan and louvers of the selected indoor unit are activated.)**
(The fan of the selected indoor unit is turned on.)

3 **Push the TEMP. ▼ / ▲ buttons repeatedly to select 13 for CODE No..**

4 **Push the TIME ▼ / ▲ buttons repeatedly to change the value indicated in the SET DATA section to that you want.**

5 **Push the SET button.**

6 **Push the UNIT LOUVER button (left side of the button) repeatedly to select another indoor UNIT No. to change.**
Repeat steps ***4*** to ***6*** to change the indoor unit addresses so as to make each of them unique.

7 **Push the UNIT LOUVER button (left side of the button) to check the changed addresses.**

8 **If the addresses have been changed correctly, push the TEST button to finish the procedure.**

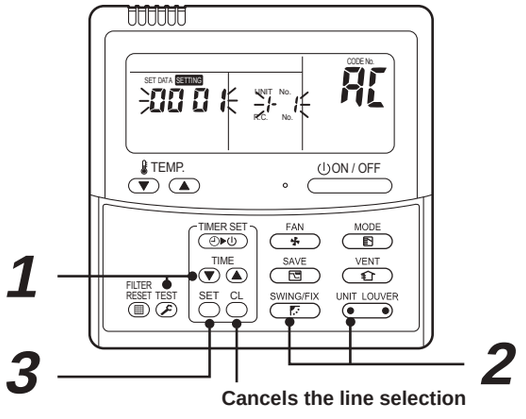
▼To change all the indoor unit addresses using an arbitrary wired remote controller. (The method is available when the addresses have already been set automatically.)

(When communication wirings of 2 or more refrigerant lines are interconnected for central control)

NOTE

You can change the addresses of indoor units in each refrigerant line using an arbitrary wired remote controller.

* Enter the address check/change mode and change the addresses.



If no number appears on UNIT No., no outdoor unit exists on the line. Push CL button and select another line following step ***2***.

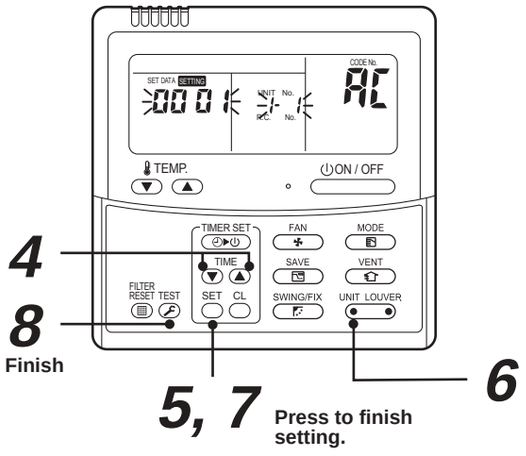
(Execute it while the units are stopped.)

1 **Push and hold the TIME ▼ and TEST buttons at the same time for more than 4 seconds. At first, the line 1 and CODE No. AC (Address Change) are indicated on the LCD display.**

2 **Push UNIT LOUVER (left side of the button) and SWING/FIX buttons repeatedly to select a system address.**

3 **Push the SET button.**

- The address of one of the indoor units connected to the selected refrigerant line is indicated on the LCD display and the fan and louvers of the unit are activated.
  At first, the current indoor unit address is displayed in SET DATA.
  (No system address is indicated.)



4 **Push the TIME ▼ / ▲ buttons repeatedly to change the value of the indoor unit address in SET DATA.**
Change the value in SET DATA to that of a new address.

5 **Push the SET button to confirm the new address on SET DATA.**

6 **Push the UNIT LOUVER button (left side of the button) repeatedly to select another address to change. Each time you push the button, the indoor unit numbers in a refrigerant line are indicated one after another. Only the fan and louvers of the selected indoor unit are activated.**
Repeat steps ***4*** to ***6*** to change the indoor unit addresses so as to make each of them unique.

7 **Push the SET button.**
(All the segments on the LCD display light up.)

8 **Push the TEST button to finish the procedure.**

■ Resetting the address (Resetting to the factory default (address undecided))

Method 1

Clearing each address separately using a wired remote controller.
Set the system address, indoor unit address and group address to “0099” using a wired remote controller.
(For the setting procedure, refer to the address setting procedures using the wired remote controller on the previous pages.)

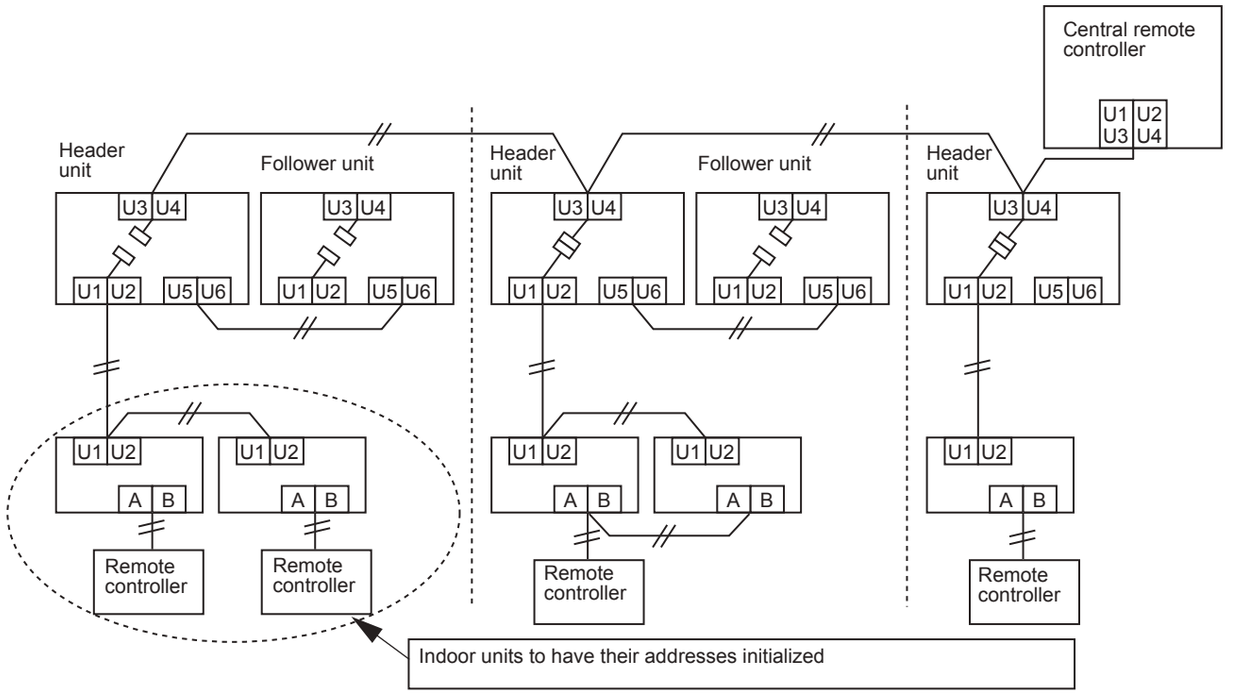
Method 2

Clearing all the indoor unit addresses on a refrigerate line at once from the outdoor unit.

1 **Turn off the refrigerant line to reset to the factory default and set the header outdoor unit of the line as below.**

1) Disconnect the relay connectors between the [U1, U2] and [U3, U4] terminals.
   (Leave them as they are if they have already been disconnected.)

2) Turn on DIP switch 2 of SW30 on the interface P.C. board of the header outdoor unit if the switch is OFF. (Leave it as it is if it has already been set to ON.)



2 **Turn on the indoor and outdoor units of the refrigerant line to be initialized in addresses. About one minute after turning on the power, confirm that the 7-segment display on the header outdoor unit indicates "U.1. - - -" and operate the interface P.C. board on the header outdoor unit of the refrigerant line as follows.**

SW01	SW02	SW03	SW04	Clearable addresses
2	1	2	Confirm that the 7-segment display indicates "A.d.buS" and turn SW04 ON for more than five seconds.	System/indoor unit/group address
2	2	2	Confirm that the 7-segment display indicates "A.d.nEt" and turn SW04 ON for more than five seconds.	Central control address

3 **Confirm that the 7-segment display indicates "A.d. c.L." and set SW01, SW02 and SW03 to 1, 1, 1 respectively.**

4 **After a time "U.1.L08" appears on the 7-segment display if the address clearing has been completed successfully.**
If the 7-segment display indicates "A.d. n.G.", the outdoor unit may still connected with other refrigerant lines. Check the connection of the relay connectors between [U1, U2] and [U3, U4].

NOTE

Take care to carry out the procedure above correctly; otherwise, addresses in other refrigerate lines may also be cleared.

5 **Set the addresses again after finishing the clearance.**

■ In the case of an increase in address-undefined indoor units (extension, etc.)

To set up the indoor address of a unit with an address that is undefined due to the extension of indoor units or replacement of PC board, etc., follow the methods below.

Method 1

Set up an address individually from a wired remote controller.
(Line address, Indoor address, Group address, Central address)
For the setup method, refer to “Manual address setup from the remote controller.” above.

Method 2

Set up an address from the outdoor unit.

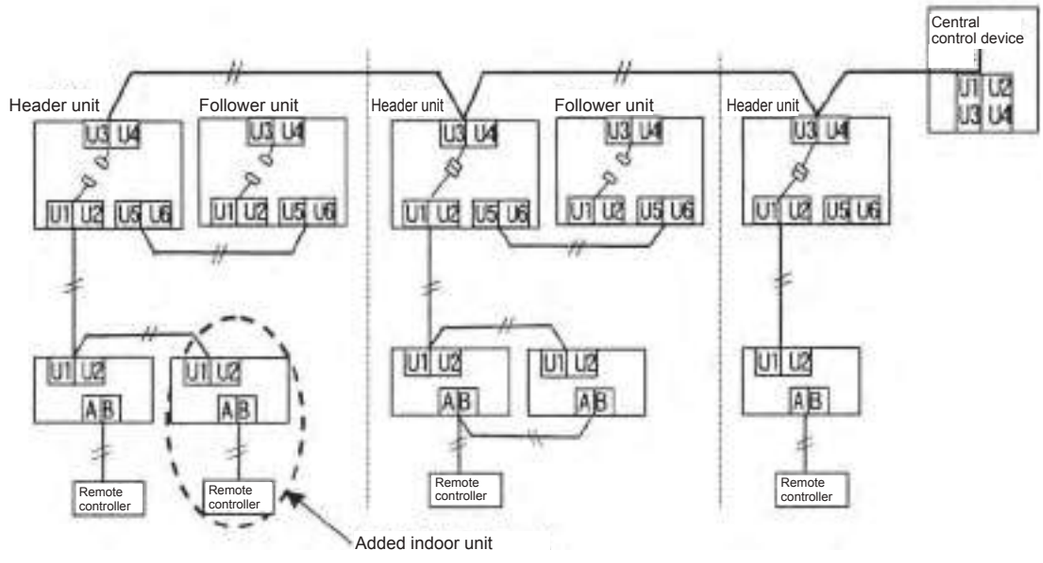
* Leave the addresses of the units for which addresses have already been set up as they are. Set up an address only for the unit where the address is undefined.
Addresses are allocated from lower numbers.

Setup procedure

Set up the outdoor header units in the refrigerant line to which indoor units have been added, as follows.

1 **Disconnect the relay connector between U1/U2 and U3/U4.**

2 **If it is off, turn on SW30-bit 2 on the interface PC board at outdoor header unit side.**
*Turn off the power, and then execute the operation.



3 **Turn on the indoor/outdoor power for the refrigerant line for which an address is to be set up. After approximately 1 minute, check that “U.1. - - -” is displayed on the 7-segment display.**

4 **Execute the following operation on the interface PC board of the header unit.**

SW01	SW02	SW03	SW04
2	14	2	After checking that “In.At” is displayed on the 7-segment display, push SW04 for 5 seconds or more.

“AUTO1” → “AUTO2” → “AUTO3” → ... → “AUTO9” ... is counted and displayed on the 7-segment display.

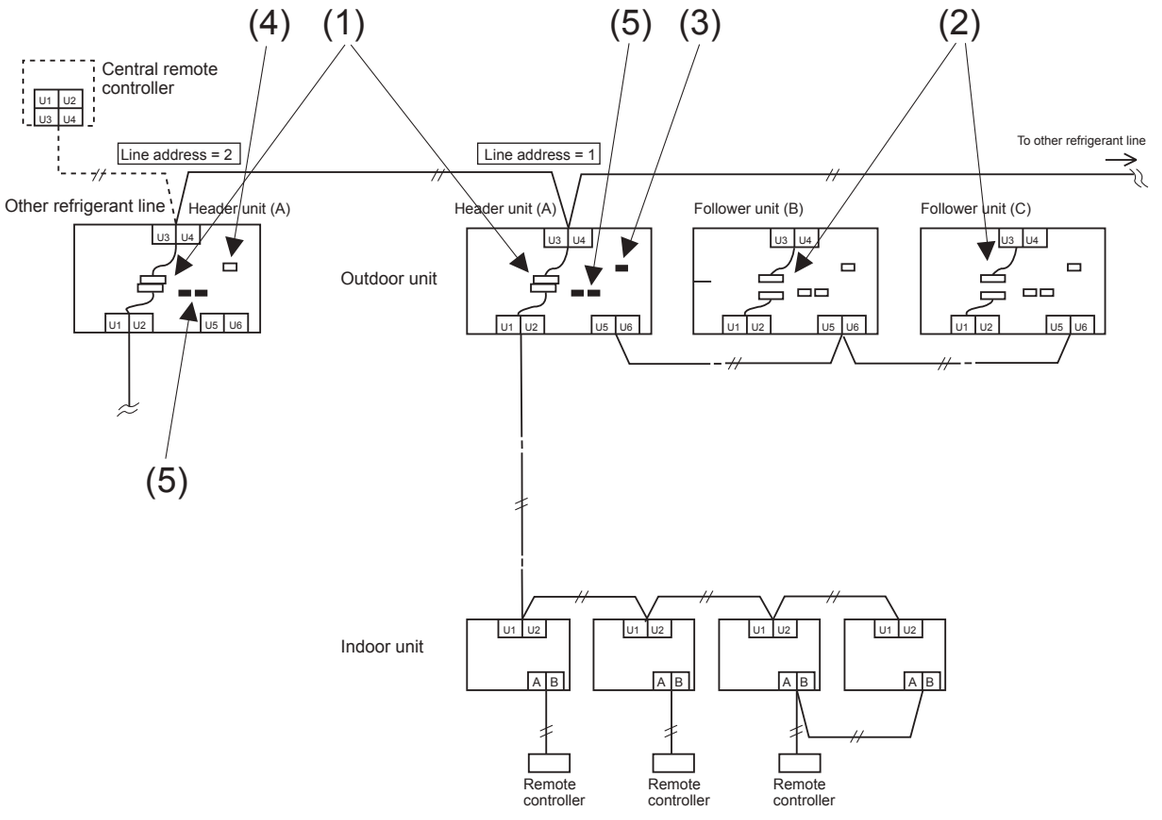
5 **When “U.1. - - -” is displayed on the 7-segment display, the setup operation finished.**
Turn off the indoor/outdoor power.

6 **Return to the following setup as before.**

- Relay connector
- SW30-bit 2
- SW01, SW02, SW03

7-4-4. Check after Address Setup when Central Control System Is Connected

When the central control system is connected, check that the following setup has finished after address setup.



	Main check items	Check
Relay connector	(1) Is the relay connector of the header unit connected after address setup?	
	(2) Is the relay connector of the follower unit disconnect?	
Terminator resistor	(3) Is the terminator resistor (SW30-bit 2) of the header unit with the smallest line address number in the central control turned on? (Setup is unnecessary for follower units.)	
	(4) Is the terminator resistor (SW30-bit 2) of the header units, except for the line with the smallest central control line address, turned off? (Setup is unnecessary for follower units.)	
Line address	(5) Are addresses in the line address (SW13, SW14) not duplicated in each refrigerant line?	

NOTE

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

7-4-5. Setting when connecting multiple indoor undoor units to a FS (Flow Selector) unit

◆ Cautions to connection of indoor unit

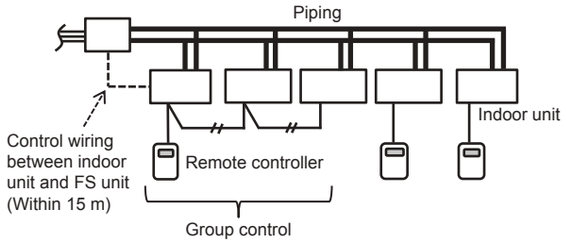
- When connecting the indoor units to each type of FS unit, it is necessary to set up the CODE No.. Be sure to set up the CODE No. after setup of address.
- When connecting the indoor units to FS unit, group control and individual control are available.

- The distance between Single port FS unit and the indoor unit must be within 15 m.

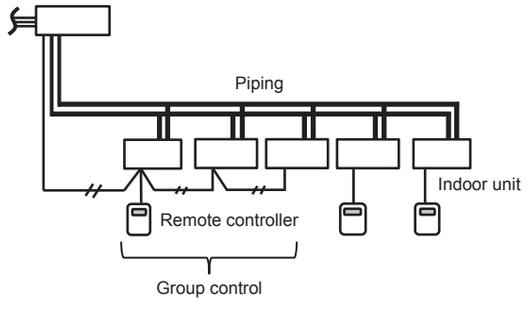
[0E] : Group setting
0 : Individual (Factory default)
1 : Group
[14] : Group Address
0 : Individual
1 : Header unit
2 : Follower unit
[FE] : Branching system address (1 ~ 64)
- Should not be duplicate in one system
- Factory default : 99

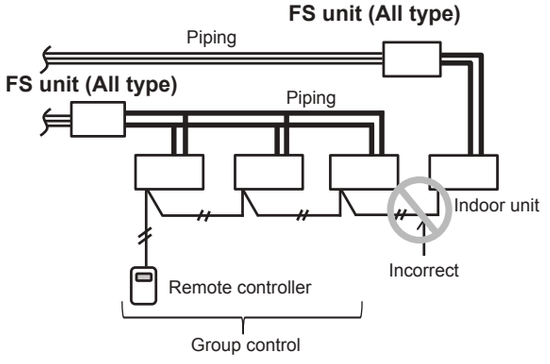
[FD] : Priority operation mode
0 : Heating prioritized (Factory default)
1 : Cooling prioritized (The cooling is prioritized even if setting only one unit in one branching)

Single port type FS unit



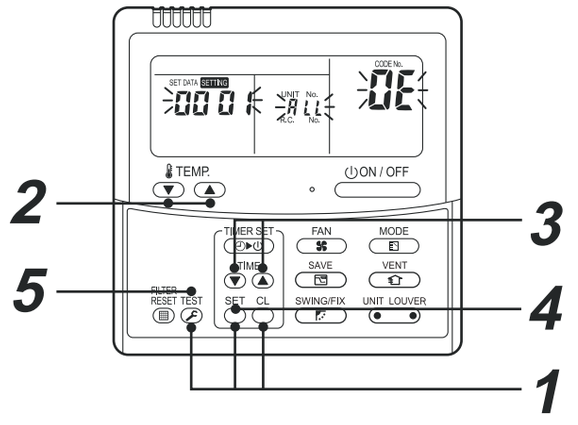
Multi port type FS unit, Single port type FS unit (Long piping model)





◆ How to set up CODE No. [0E]

It is necessary to set up in case of the group connection.



1 **Push and hold the SET, CL, and TEST buttons at the same time for more than 4 seconds.**
- "ALL" is displayed in the UNIT No. window.
- In this time, the fans of all the indoor units in the group control start the fan operation.

2 **Using the set temperature buttons ▼ / ▲, select the CODE No. "0E".**

3 **Change SET DATA to "01" by the timer buttons ▼ / ▲.**

4 **Push SET button.**

5 **Push TEST button. Then the setup finished.**

◆ How to set up CODE No. [FE]

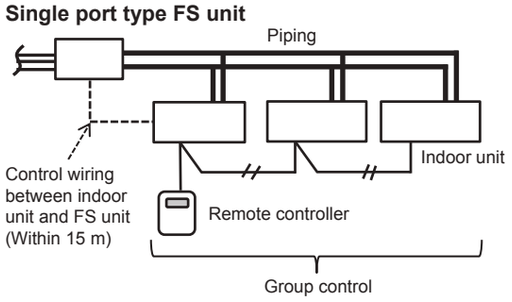
In cases other than connecting one branching in one branching, it is necessary to set up.
- As for both single port type and multi port type, set up CODE No. "FE" in one branching within the range of 1~64.
  This CODE No. should not be duplicate in one system.

◆ How to set up CODE No. [FD]

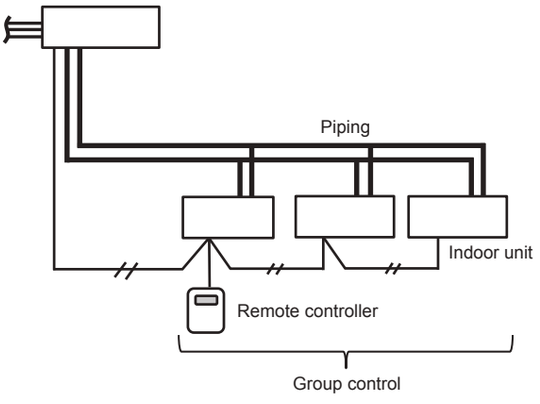
In cases other than connecting with one group in one branching, it is necessary to set up.
0 : Heating prioritized (Factory default)
1 : Cooling prioritized

▼ Case that FE/FD setting is not necessary

Single port type FS unit

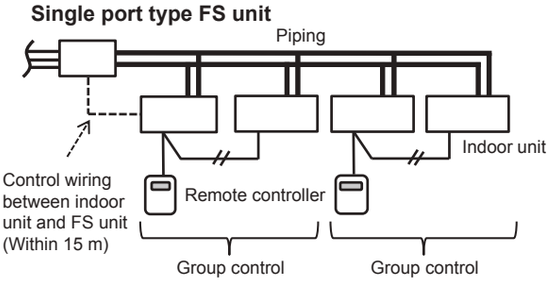


Multi port type FS unit, Single port type FS unit (Long piping model)

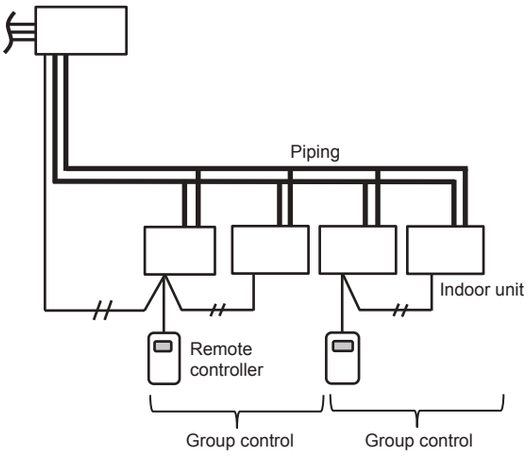


▼ Case that FE/FD setting is necessory

Single port type FS unit



Multi port type FS unit, Single port type FS unit (Long piping model)



◆ [Set up example]

[0E] : Group setting

0 : Individual (Factory default)
1 : Group

[14] : Group Address

0: Individual
1: Header unit
2: Follower unit

[FE] : Branching system address (1~64)

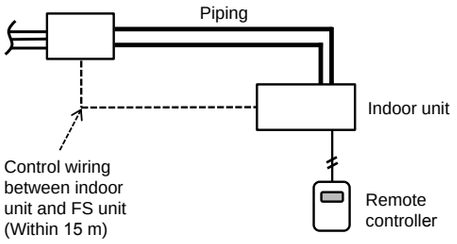
- Should not be duplicate in one system
- Factory default : 99

[FD] : Priority operation mode

0 : Heating prioritized (Factory default)
1 : Cooling prioritized (The cooling is prioritized even if setting only one unit in one branching)

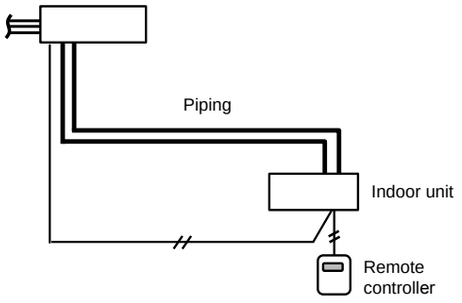
< In case of connecting one indoor unit>

Single port type FS unit



[0E] : It is not necessary to set up
[14] : It is not necessary to set up
[FE] : It is not necessary to set up
[FD] : It is not necessary to set up

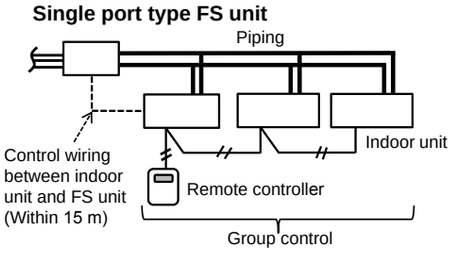
Multi port type FS unit, Single port type FS unit (Long piping model)



[0E] : It is not necessary to set up
[14] : It is not necessary to set up
[FE] : It is not necessary to set up
[FD] : It is not necessary to set up

<In case of connecting one group operation of indoor units>

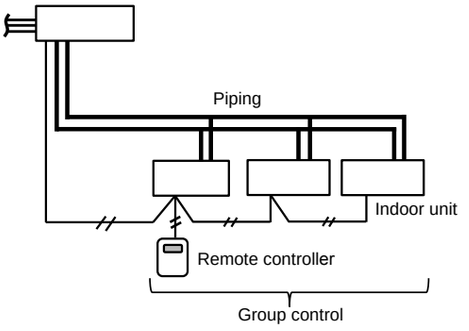
Single port type FS unit



[0E] :	1	1	1
[14] :	1	2	2

[FE] : It is not necessary to set up
[FD] : It is not necessary to set up

Multi port type FS unit, Single port type FS unit (Long piping model)

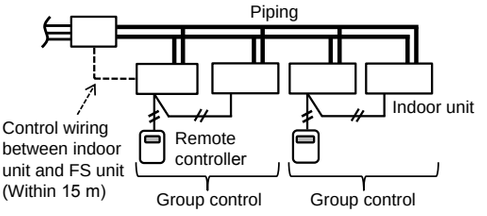


[0E] :	1	1	1
[14] :	1	2	2

[FE] : It is not necessary to set up
[FD] : It is not necessary to set up

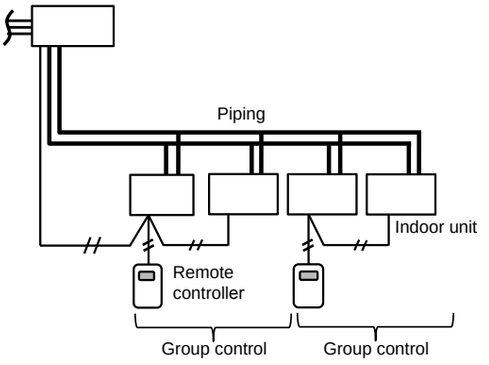
<In case of connecting two group operations of indoor units>

Single port type FS unit



[0E] :	1	1	1	1
[14] :	1	2	1	2
[FE] :	1	1	1	1
[FD] :	0	0	0	0

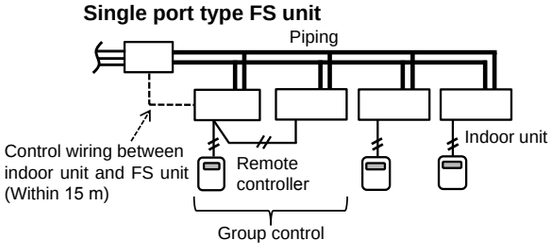
Multi port type FS unit, Single port type FS unit (Long piping model)



[0E] :	1	1	1	1
[14] :	1	2	1	2
[FE] :	1	1	1	1
[FD] :	0	0	0	0

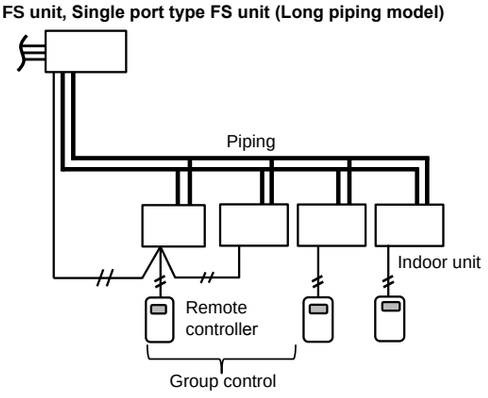
<In case of connecting one group operation of indoor units and two indoor units>

Single port type FS unit



[0E] :	1	1	0	0
[14] :	1	2	0	0
[FE] :	1	1	1	1
[FD] :	0	0	0	0

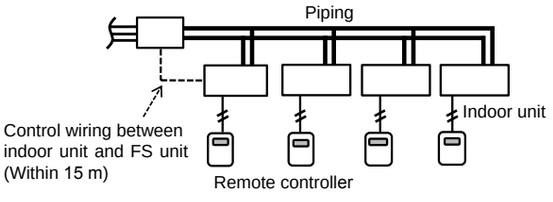
Multi port type FS unit, Single port type FS unit (Long piping model)



[0E] :	1	1	0	0
[14] :	1	2	0	0
[FE] :	1	1	1	1
[FD] :	0	0	0	0

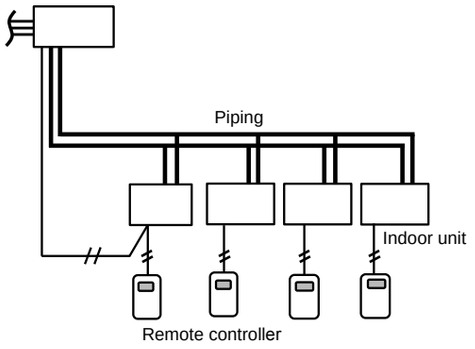
<In case of connecting four indoor units>

Single port type FS unit



[0E] :	0	0	0	0
[14] :	0	0	0	0
[FE] :	1	1	1	1
[FD] :	0	0	0	0

Multi port type FS unit, Single port type FS unit (Long piping model)

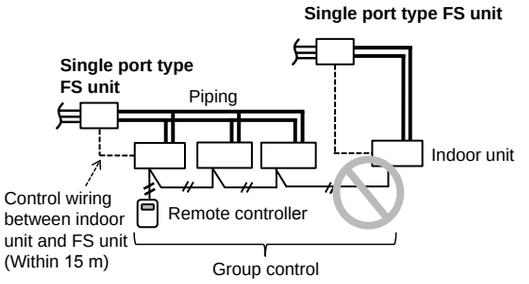


[0E] :	0	0	0	0
[14] :	0	0	0	0
[FE] :	1	1	1	1
[FD] :	0	0	0	0

<Incorrect connection examples>

Incorrect

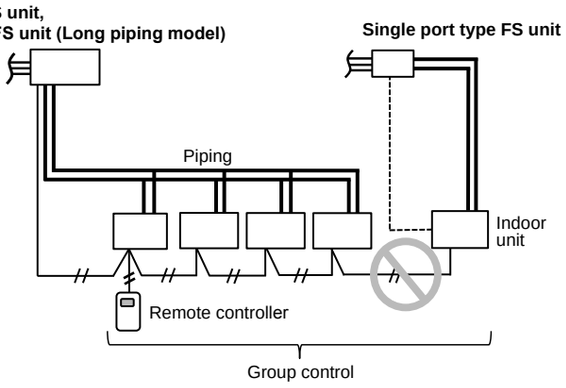
Single port type FS unit



Incorrect

Multi port type FS unit, Single port type FS unit (Long piping model)

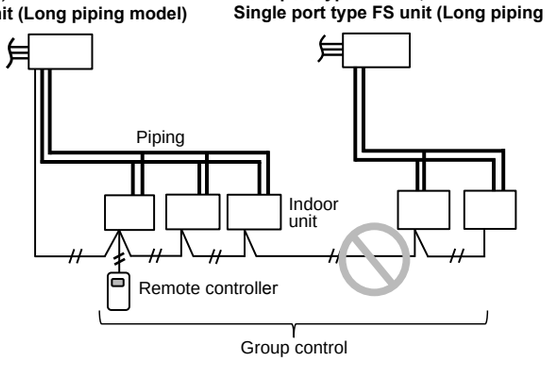
Single port type FS unit



Incorrect

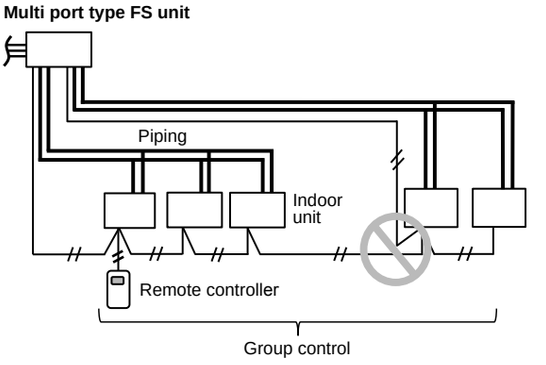
Multi port type FS unit, Single port type FS unit (Long piping model)

Multi port type FS unit, Single port type FS unit (Long piping model)

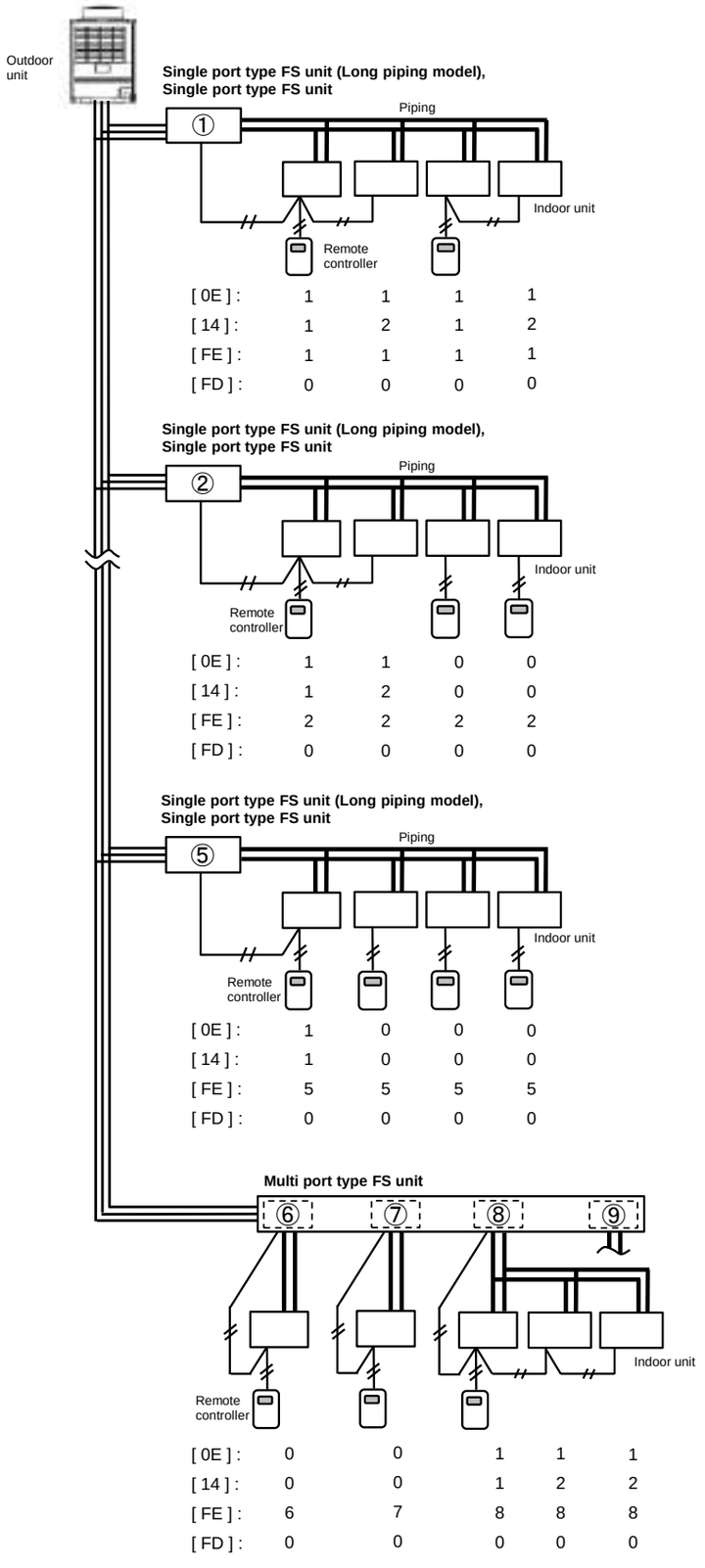


Incorrect

Multi port type FS unit



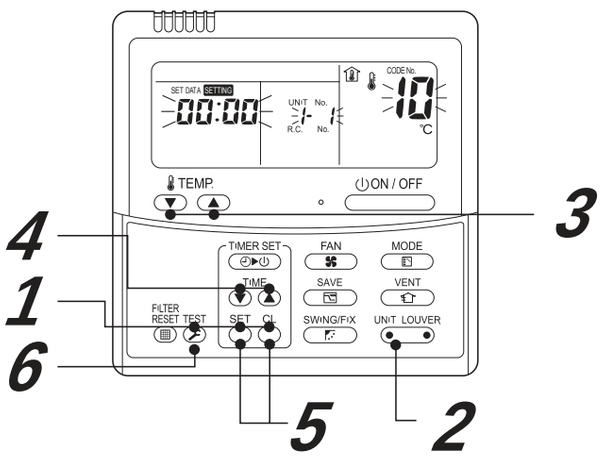
〈In case of two or more branching system of FS units〉



7-4-6. How to set up the cooling only indoor unit

When setting the specific indoor unit to Cooling Only unit without connecting to the flow selector unit, setup to the indoor unit to become the Cooling Only unit is necessary. Perform setup in the following procedure.

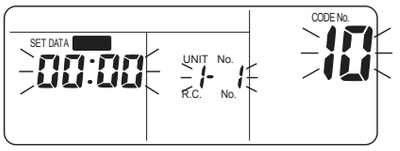
Setup to the indoor unit is performed by handling the wired remote controller.
Even if a wired remote controller is not used, attach a wired remote controller for setup.
Change the setup with the wired remote controller before using the air conditioner with a wireless remote controller.
Change the setup during stop of the operation.
(Be sure to stop operation of the air conditioner.)



1 When pushing SET + CL + TEST buttons simultaneously for 4 seconds or more, after a while, the display part flashes as shown in the figure.

Check that the displayed CODE No. is [10].

- If the CODE No. indicates one other than [10], push TEST button to erase the display, and then retry the operation from the first step.
  (After pushing TEST button, the operation of remote controller cannot be accepted after a while.)

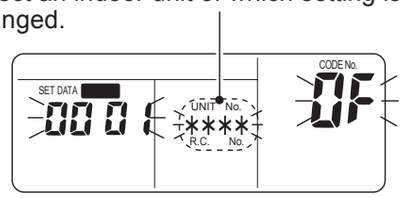


(* The display changes according to the indoor unit model.)

2 In a group control, the firstly displayed indoor unit No. becomes the header unit.

Every pushing UNIT LOUVER button (left side of the button), the indoor unit No. in the group control is displayed successively.

Select an indoor unit of which setting is to be changed.



In this time, the position of the indoor unit of which setup is to be changed can be confirmed because the fan and louver of the selected indoor unit work.

3 Use ▼ or ▲ buttons of the set temperature to specify the CODE No. [0F].

4 Use ▼ or ▲ buttons of the timer time to select the setup data [0001].

SET DATA	0000	0001
Cooling Only setup	Heat pump	Cooling Only

5 Push SET button. In this time, if the display changes from flashing to lighting, the setup completes.

- To change the setup of an indoor unit other than the selected one, start operation from Procedure **2**.
- In a group control, setup change of all the indoor units in a group is necessary.
  To change the setup of the set other than the selected one, start again operation from Procedure **2**.

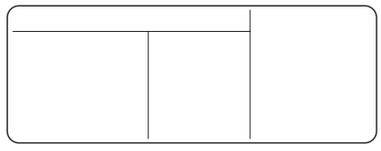
⚠ CAUTION

Cooling Only and Heat pump cannot exist in the same group.

- Pushing CL button clears the set up contents which have been already set.
  In this case, retry from Procedure **2**.

6 When the setup finished, push TEST button. (The setup is determined.)

Pushing TEST button deletes the display and returns to normal stop status.
(For some time after TEST button has been pushed, the operation of the remote controller cannot be accepted.)



7-5. Troubleshooting in Test Operation

If there are phenomena such as the output of a check code or the remote controller is not accepted when powered-on after wiring work or during address setup operation, the following causes are considered.

7-5-1. A Check Code is Displayed on the Remote Controller

Check the code displayed on the indoor remote controller	Header unit 7-segment display	Cause	Countermeasures
E04	–	When outdoor power is off	Check that the header outdoor unit power is on
	L08	Address setup trouble • Only line addresses of the connected indoor units are undefined. • The outdoor line address and the line addresses of all the indoor units do not match. • The indoor addresses are duplicated. (Units except those displaying E04 are duplicated.) • A header unit is not set up in group control (except groups displaying E04).	Set up the address again.
	E08 ⇔ -XX Alternate blinking	Duplication of indoor addresses (address number in the subcode of the check code are duplicated).	Set up the address again.
	E07	There is no outdoor terminator resistor or there are two or more terminator resistor. (After address setup, when terminator resistor setup is changed after powering-on) 	Check SW30 bit 2 of the header unit. No connection between multiple refrigerant lines: SW30 bit 2 is on. Connection between multiple refrigerant lines: SW30 bit 2 of the connected header unit is turned on only for one line.
		Transmission circuit trouble at the interface side (PC board failure)	Replace the interface PC board.
	E06	After address setup, communication from all the indoor units is interrupted under the condition that a normal operation can be performed.	Check and correct disconnection of the indoor/outdoor communication line (the communication line between the header unit and the leading indoor unit). Check for the influence of communication noise.
E16	E16 ⇔ -XX Alternate blinking	Exceeded the number or capacity of connected indoor units	Adjust the number or capacity of connected indoor units.
E17	–	Communication trouble between indoor unit(s) and FS unit(s).	• Check order in which power was turned on. • Check indoor unit(s)-FS unit(s) cable
E23	E23	Communication between outdoor units has stopped.	• Check order in which power was turned on. • Check indoor unit(s)-FS unit(s) cable
E25	E25	Duplication of outdoor addresses (only when an outdoor address was manually set up)	Do not use manual setup for outdoor addresses.
E26	E26 ⇔ -XX Alternate blinking	Number of connected outdoor units has decreased. • When installing an outdoor backup • The power of a follower unit is not turned on.	Correction of the cause of trouble occurrence • If it occurs when installing a backup, clear the trouble after setup finishes. • If the power of a follower unit is not turned on, turn on the power.
L04	L04	Duplication of outdoor line addresses • Line address setup trouble (occurred after connection between U1/U2 and U3/U4 connectors)	Modify the line address setup of the header unit between lines. (Set up SW13 and SW14 on the interface PC board.)
L05(*)	L06	Duplication of indoor units with priority	Set up priority only for one indoor unit.
L06(*)		There are two or more indoor units set up with priority.	Among indoor units indicating “L05,” set one unit with priority.
L08	L08	Address setup trouble • Only indoor addresses of all the connected indoor units are undefined.	Set up the addresses again. Modify the setup.
L12	L12	01:FS unit(s) installation trouble	Set up only Multi port type and single port type (Long piping model) FS unit(s) to 44HP or more system
L24	E24 ⇔ -XX Alternate blinking	01:Duplication of FS units address 02:Indoor units operation mode priority setting	• Check FS units address • Check indoor units operation mode priority seting

* “L05”: Displayed on the indoor unit set up with priority
“L06”: Displayed on the indoor units except the one set up with priority

7-5-2. Operation from the indoor remote controller is not accepted, and a check code is displayed on the 7-segment display of the interface PC board of the header unit.

Indoor remote controller status	Header unit 7-segment display	Cause	Countermeasures
No response	L08	Line addresses and indoor addresses of all the connected indoor units are not set.	Set up addresses.
		There is no header unit of group control.	Set up a group address.
	E19 ⇔ -00 Alternate blinking	Indoor unit power is not turned on.	Turn on the power again. (In the order: indoor → outdoor)
		Indoor/outdoor communication line is not correctly connected to the U1/U2 terminal of the header unit (Fig. 1). (Indoor/ outdoor cannot communicate before address setup.)	Correct wiring
		There is no of outdoor terminator resistor, or there are two or more resistances (before address setup).  SW30	Check SW30 bit 2 of the header unit. No connection between multiple refrigerant lines: SW30 bit 2 is on. Connection between multiple refrigerant lines: SW30 bit 2 of the connected header unit is turned on only for one line.
	E19 ⇔ -02 Alternate blinking	When connecting an indoor/outdoor communication line between outdoor units under the condition of a connected communication line between outdoor units (Fig. 2).	Correct wiring
		SW08 setup trouble	Turn all SW08 switches to “off.”
	E20 ⇔ -01 Alternate blinking	Address setup is performed with connecting an indoor/ outdoor communication line between outdoor units (Fig. 3).	Correct wiring
		Address setup is performed under the condition of connecting multiple refrigerant lines (Fig. 3).	Correct wiring

7-5-3. There is no display of a check code on the 7-segment display on the interface PC board of the header unit, although there is indoor unit that is not accepting operation from the indoor remote controller.

Indoor remote controller status	Header unit 7-segment display	Cause	Countermeasures
No response	None	The communication line is not connected between indoor and outdoor (the unit that does not respond to the indoor remote controller).	Improve the wiring.
		Line address and indoor address are not set (the unit that does not respond to the indoor remote controller).	Set up the address.
		The power of the header unit of the group is not turned on in indoor group control (the unit that does not respond to the indoor remote controller).	Turn on the power.
		Group address is set to the follower unit for individual control (the unit that does not respond to the indoor remote controller).	Set the group address to “0” in the case of individual control.
No display on the indoor remote controller (no line is output.)	None	The power is not turned on (the unit that is not displayed on the indoor remote controller).	Turn on the power.
		The indoor remote controller is not connected with a wire (the unit that is not displayed on the indoor remote controller).	Improve the wiring.
		Miswiring of the indoor remote controller (the unit that is not displayed on the indoor remote controller)	Improve the wiring.
		Indoor remote controller communication circuit trouble (the unit that is not displayed on the indoor remote controller) If 220-240 V is incorrectly applied to the indoor remote controller terminal, the remote controller communication circuit fails.	Remove the quick connect terminal connected to indoor remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to 18 V), replace the PC board.

7-5-4. In checking the number of connected outdoor units and connected indoor units after address setup, a lower number of connected units is displayed. (There are outdoor/indoor units that do not operate in a test operation.)

Status	Cause	Countermeasures
The number of connected outdoor units is too few.	Miswiring of communication lines between outdoor units or an unconnected wire (Fig. 4). (Address setup operation finished without recognizing a miswired follower unit.)	After improvement of wiring, set up the addresses again and check the number of connected outdoor units.
The number of connected indoor units is too few.	Miswiring of communication lines between indoor units or an unconnected wire (Fig. 5). (Address setup operation finished without recognizing a miswired indoor unit.)	After modification of wiring, set up the addresses again and check the number of connected indoor units.
The number of indoor units connected to a group is too few in group operation from an indoor remote controller.	The indoor remote controller is not connected with wire. Miswiring of the indoor remote controller	Using the main indoor remote controller connected to a group, start a test operation, specify the unit that is not operating (the unit not connected to the group), and then check the wiring.
	Indoor remote controller communication circuit trouble If 220-240 V is incorrectly applied to the remote controller terminal, the remote controller communication circuit fails.	Using the main indoor remote controller connected to a group, start a test operation and then specify the unit that is not operating (the unit not connected to the group). Remove the quick connect terminal connected to remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to18 V), replace the PC board.

Miswiring example

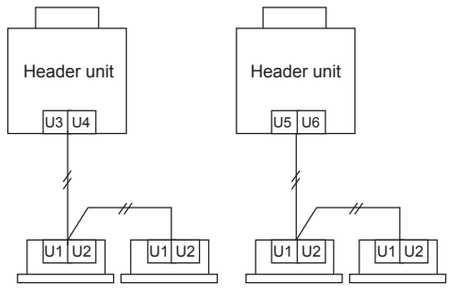
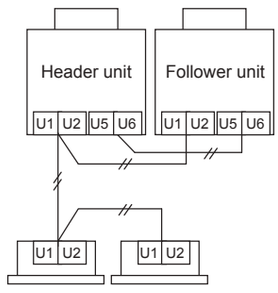
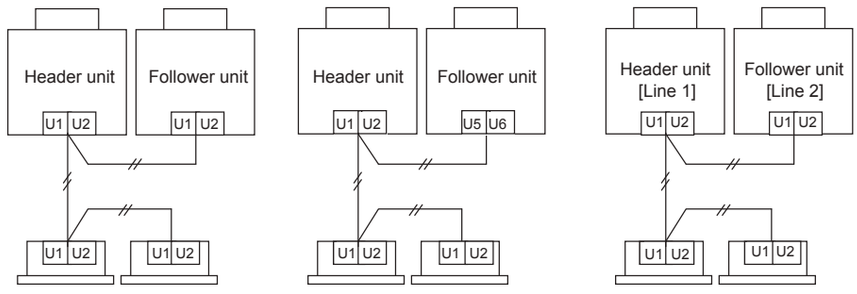
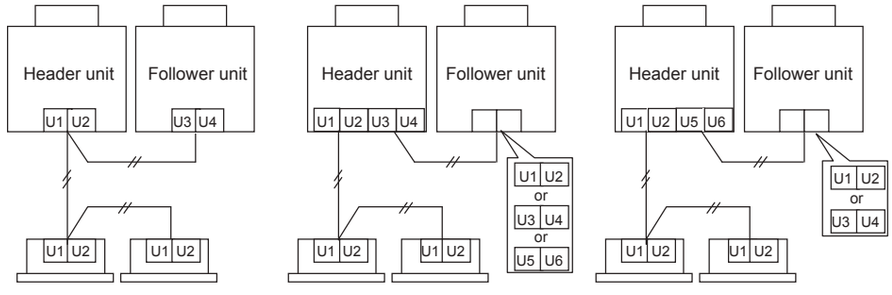
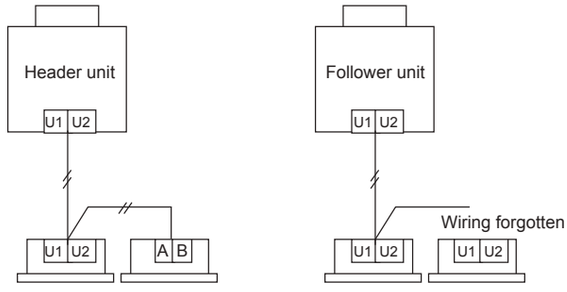
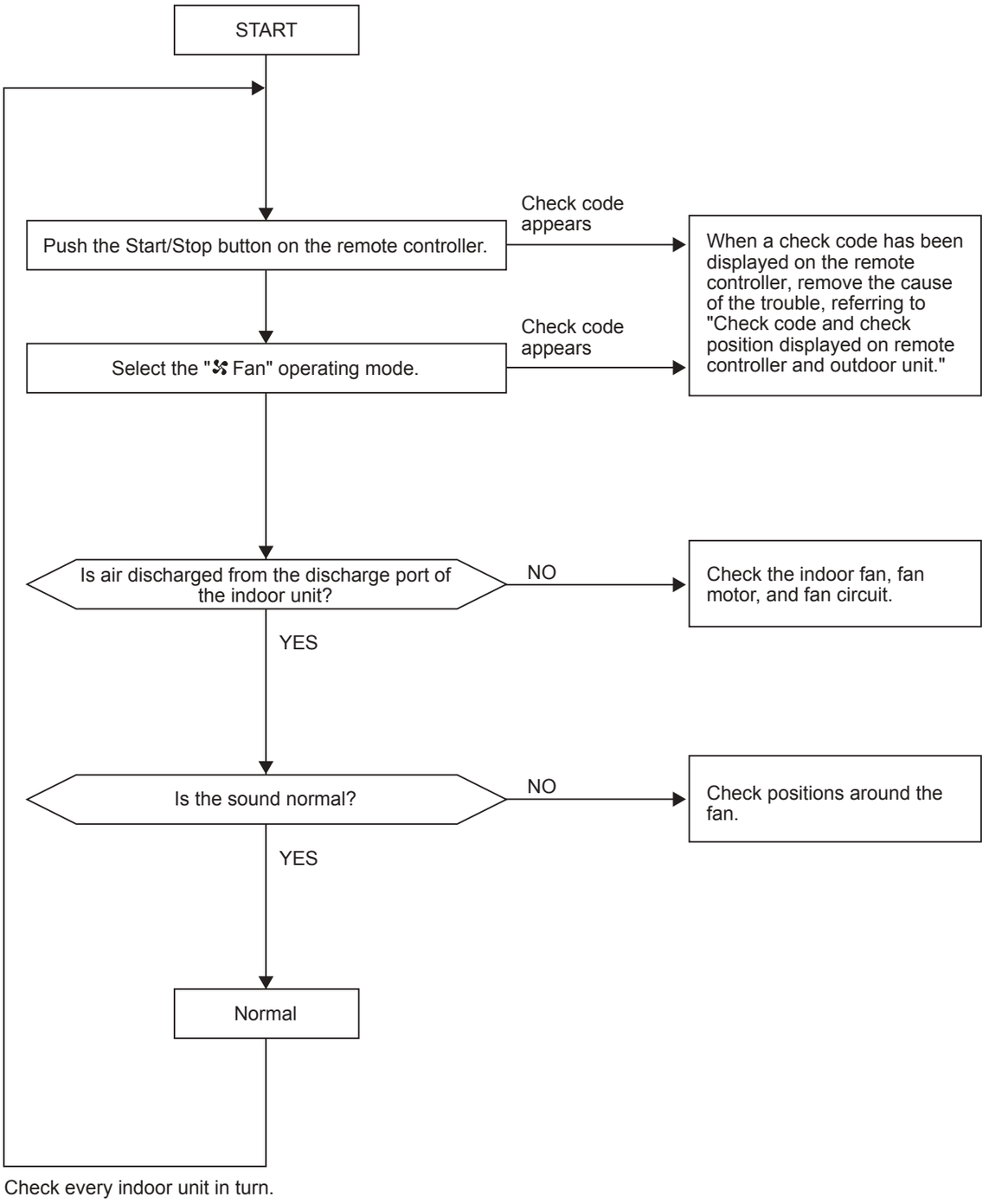
Figure	Remote controller status	Header unit 7-segment display	Miswiring example
Fig. 1	No response	E19-00	
Fig. 2	No response	E19-02	
Fig. 3	No response	E20-01	

Figure	Status	Miswiring example
Fig. 4	The number of connected outdoor units is too few.	
Fig. 5	The number of connected indoor units is too few.	

7-6. Test Operation Check

7-6-1. Fan Check



Check every indoor unit in turn.

7-6-2. Cooling/heating Test Operation Check

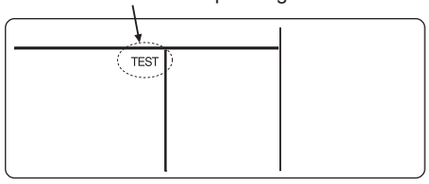
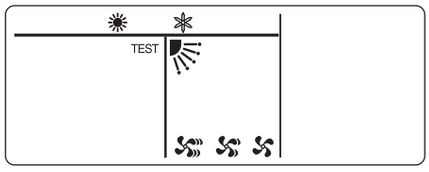
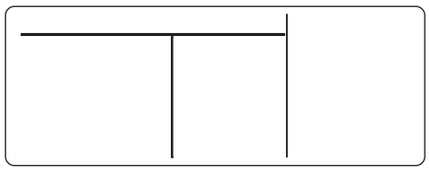
The cooling/heating test operation check can be performed on both the indoor remote controller and the outdoor header unit interface PC board.

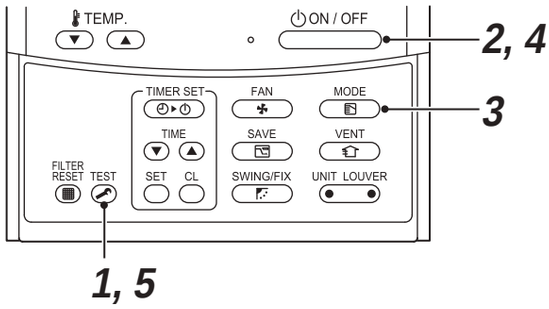
(1) Test operation start/stop operation

Test operation from the indoor remote controller

- Wired remote controller: Refer to the items below in “Test operation” of the wired remote controller.
- Wireless remote controller: Refer to the items below in “Test operation” of the wireless remote controller.
- Lite-Vision plus remote controller : Refer to the installation manual of RBC-AMS51E

▼ Wired remote controller

Procedure	Operation content
1	When the Test button is pushed for 4 seconds or more, “TEST” is displayed in the display section, and the unit enters test operating mode. 
2	Push the ⏻ON / OFF button.
3	Using the Select Mode button, select the “❄ COOL” or “☀ HEAT” operating mode. • Do not use an operating mode other than “❄ COOL” or “☀ HEAT”. • Temperature adjustment is unavailable during test operation. • Check code is detected as usual. 
4	When the test operation has finished, push the ⏻ON / OFF button to stop the operation. (The same display as in procedure 1 appears in the display section.)
5	Push the Test button to clear the test operating mode. (“TEST” disappears from the display section, and the status returns to the normal stopped status.) 



▼ Wireless remote controller (Except the 4-way Cassette type and the Ceiling type)

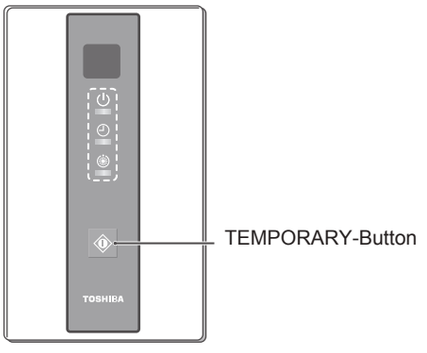
Test run (Forced cooling operation)

Requirement:

- Finish the forced cooling operation in a short time because it applies excessive strength to the air conditioner.

How to perform forced cooling operation

1. When TEMPORARY button is pushed for 10 seconds or more, “Pi!” sound is heard and the operation changes to a forced cooling operation. After approx. 3 minutes, a cooling operation starts forcedly.
   Check cool air starts blowing. If the operation does not start, check wiring again.
2. To stop a test operation, push TEMPORARY button once again (Approx. 1 second).
   - Check wiring / piping of the indoor and outdoor units after forced cooling operation.



▼ Wireless remote controller (4-way Cassette type)

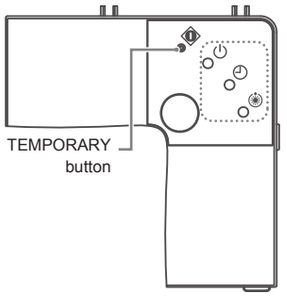
Test run (Forced cooling operation)

Requirement:

- Finish the forced cooling operation in a short time because it applies excessive strength to the air conditioner.

How to perform forced cooling operation

1. When TEMPORARY button is pushed for 10 seconds or more, “Pi!” sound is heard and the operation changes to a forced cooling operation. After approx. 3 minutes, a cooling operation starts forcedly.
   Check cool air starts blowing. If the operation does not start, check wiring again.
2. To stop a test operation, push TEMPORARY button once again (Approx. 1 second).
   - Check wiring / piping of the indoor and outdoor units in forced cooling operation.



▼ Wireless remote controller (Ceiling type)

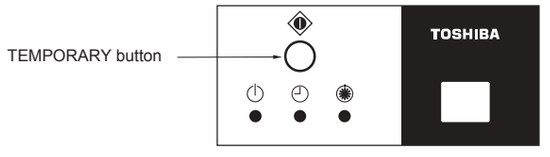
Test run (Forced cooling operation)

Requirement:

- Finish the forced cooling operation in a short time because it applies excessive strength to the air conditioner.

How to perform forced cooling operation

1. When TEMPORARY button is pushed for 10 seconds or more, “Pi!” sound is heard and the operation changes to a forced cooling operation. After approx. 3 minutes, a cooling operation starts forcedly.
   Check cool air starts blowing. If the operation does not start, check wiring again.
2. To stop a test operation, push TEMPORARY button once again (Approx. 1 second).
   - Check wiring / piping of the indoor and outdoor units in forced cooling operation.

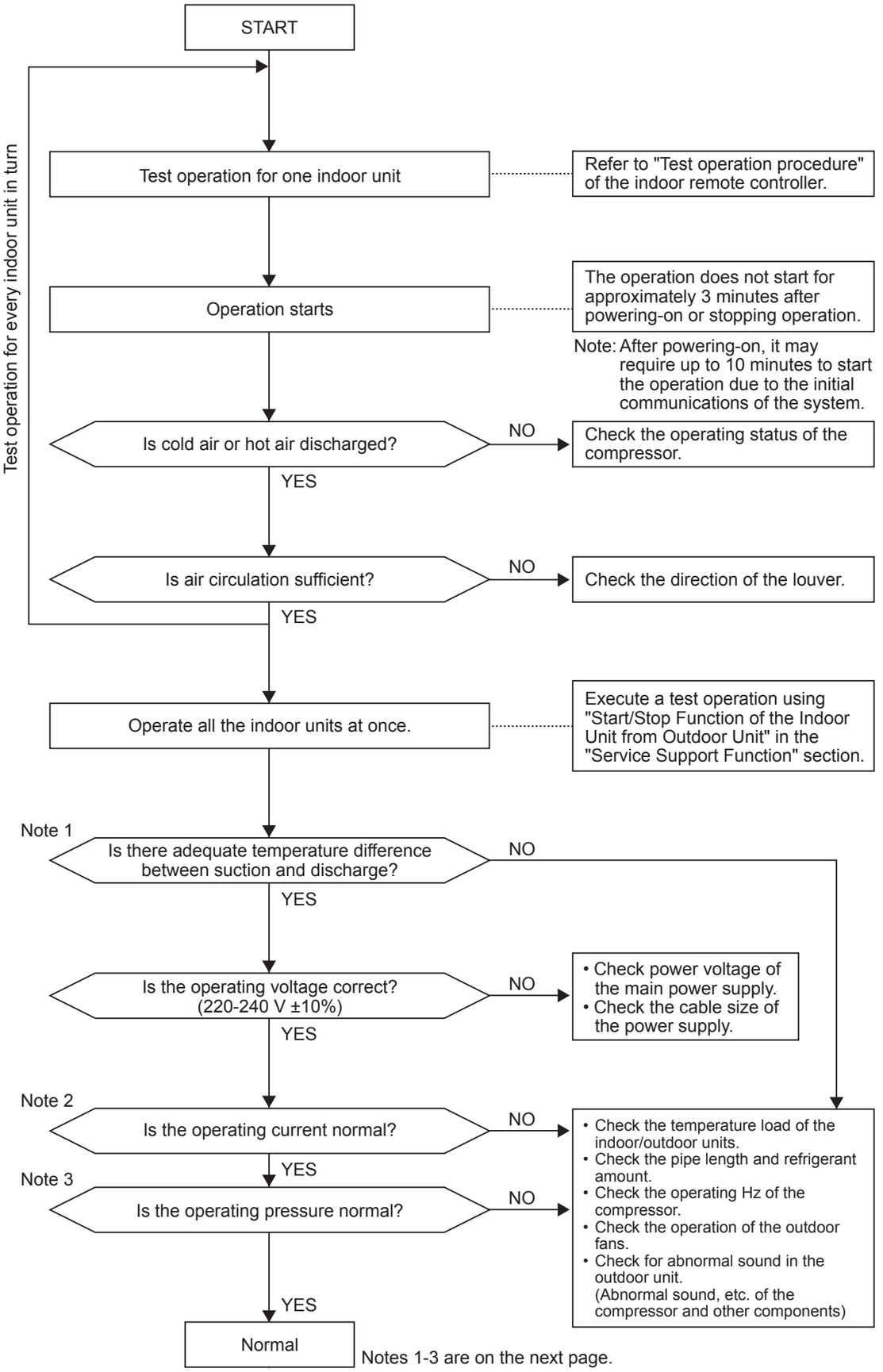


Test operation from the outdoor unit

- Refer to “7-7-2. Function to Start/Stop (ON/OFF) Indoor Unit from Outdoor Unit” in “7-7. Service Support Function.”

Note: The test operation returns to normal operating mode after 60 minutes.

(2) Test operation



Notes 1-3 are on the next page.

7-7. Service Support Function

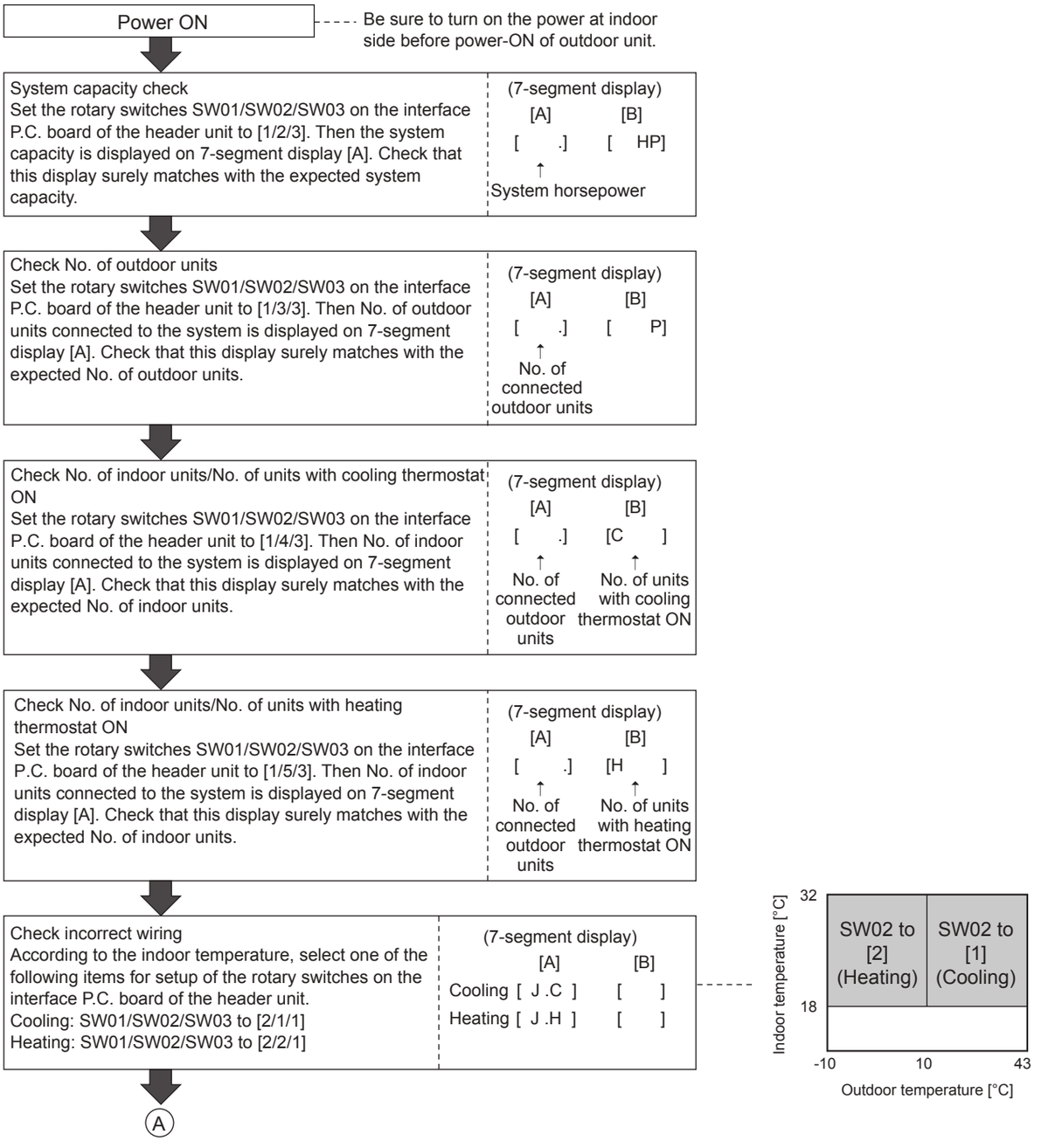
7-7-1. Check Function for Connecting of Refrigerant and Control Lines

This function is provided to check misconnection of the refrigerant pipes and the control transmission line (Wiring over lines) between indoor unit and outdoor unit by using the switch on the interface P.C. board of the header unit. However, be sure to check the following items prior to executing this check function.

1 **This check function does not work when a group operation by remote controller is performed and it is used over outdoor units.**

2 **When using this check system, be sure to check for each 1 line in the unit of outdoor unit. If checking the multiple lines at the same time, misjudgment may be caused.**

(Check procedure)



Note 1: Criteria for the difference between suction and discharge temperatures

(1) Cooling operation

After operating for a minimum of 30 minutes in “COOL” mode, if the ΔT dry bulb temperature difference between suction and discharge air of the indoor unit is 8°C or more, it is normal.

(2) Heating operation

After operating for a minimum of 30 minutes in “HEAT” mode, if the ΔT dry bulb temperature difference between suction and discharge air of the indoor unit is 15°C or more, it is normal.

* If demand from the indoor unit on the outdoor unit is low because the difference between the temperature set by the remote controller and the temperature of the room is small, then the ΔT temperature difference is small.
* Consider that ΔT temperature difference may diminish in cases of a system in which the connected indoor unit capacity exceeds the outdoor unit capacity, the pipe length is long, or a large difference exists among outdoor units.

Note 2: Criteria for operating power current

The table below shows the maximum current for each outdoor unit. Under standard conditions, operating current is about 80% of the value shown in the table below.

Outdoor unit	MMY-MAP	0806*	1006*	1206*	1406*	1606*	1806*	2006*
Current value	(A)	21.5	26.1	31.0	35.8	40.6	44.9	49.3

Note 3: Criteria for cycle status

(1) These data are based on operating a 4-way Air Discharge Cassette type air conditioner of 100% connection with standard piping length.

Data may vary depending on temperature conditions, installed pipe length, and room shape combinations, or indoor unit connection capacity.

For pressure criteria in different temperature conditions, refer to (2).

Outdoor unit MMY-MAP	Operating mode	Pressure (MPa)		Pipe surface temperature (℃)					Number of compessor rotations (rps)		Indoor fan	Air temperature condition (℃)	
		PD	PS	Discharge (TD)	Suction (TS)	Indoor heat exchanger (TC)	Outdoor heat exchanger (TE)	Liquid tempreture (TL3)	Compressor 1	Compressor 2		Indoor	outdoor
0806*	Cooling	2.9	0.9	80	16	10	40	30	50	50	High	27/19	35/-
	Heating	2.6	0.7	75	5	35	3	30	50	50	High	20/-	7/6
1006*	Cooling	3.1	0.9	85	16	11	40	30	60	60	High	27/19	35/-
	Heating	2.6	0.7	80	4	35	2	30	65	65	High	20/-	7/6
1206*	Cooling	3.2	0.9	90	16	11	40	30	70	70	High	27/19	35/-
	Heating	2.6	0.7	85	3	35	2	25	75	75	High	20/-	7/6
1406*	Cooling	3.2	0.9	90	16	10	40	35	60	60	High	27/19	35/-
	Heating	2.6	0.7	80	4	35	3	30	65	65	High	20/-	7/6
1606*	Cooling	3.2	0.9	90	16	10	40	35	70	70	High	27/19	35/-
	Heating	2.8	0.7	85	3	30	2	25	70	70	High	20/-	7/6
1806*	Cooling	3.1	0.9	80	15	11	40	35	70	70	High	27/19	35/-
	Heating	2.8	0.7	70	4	30	3	25	75	75	High	20/-	7/6
2006*	Cooling	3.1	0.9	85	15	11	40	35	80	80	High	27/19	35/-
	Heating	2.8	0.6	75	3	30	2	25	85	85	High	20/-	7/6

* This compressor is driven with a 4-pole motor. The value of the compressor frequency (rps) measured with a clamp meter at the compressor lead line is two times the rotation count (rps) of the compressor.
* Each compressor may have a different frequency as a measure against resonance.
* The temperature of the indoor heat exchanger (TC) indicates TCJ sensor temperature when cooling, and TC2 sensor temperature when heating, respectively.

(2) Criteria for operating pressure

Operating mode		Cooling	Heating
Indoor temperature (°C)		18~32	15~25
Outdoor temperature (°C)		25~35	5~10
Pressure	High pressure (MPa)	2.0~3.3	2.5~3.3
	Low pressure (MPa)	0.5~0.9	0.5~0.7

* Criteria after 15 minutes or more has passed since operating started

(3) On rotations of outdoor fans

Outdoor fans may rotate slowly to control pressure when cooling with low outer air temperature or heating with excessive load. For control content, also refer to items in Section 5, “Control Outline: Outdoor Unit, Outdoor Fan Control.”

Ⓐ

Operation start Press the push-switch SW04 on the interface P.C. board of the header unit for 2 seconds or more. The operation starts. Check that 7-segment display [B] shows [CC] for cooling and [HH] for heating.	(7-segment display) [A] [B] Cooling [C] [CC] Heating [H] [HH]

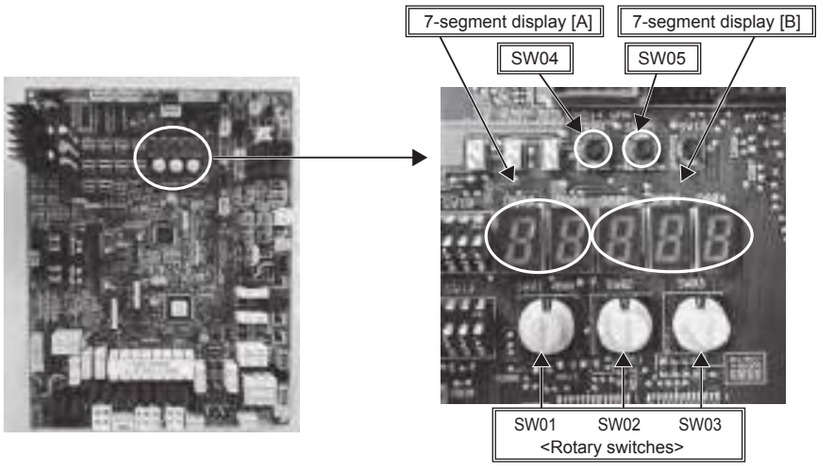
------ Operation

Confirmation of check results (1) Check that No. of misconnected indoor units is displayed on 7-segment display [B] after 15 minutes. (If there is no misconnection, [00P] is displayed.)	(7-segment display) [A] [B] [ ] [# # P] ↑ ↑ C or H No. of misconnected indoor units

------ This check operation requires 15 minutes even if there is no misconnection or there is any misconnection.

Confirmation of check results (2) Press the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more. The indoor address in which check code is being detected is displayed on 7-segment display [B]. If there are multiple indoor address in which check code is being detected, they are successively exchanged and displayed. (When SW05 is turned on again, the display returns to display of No. of units.)	(7-segment display) [A] [B] [ ] [# #] ↑ ↑ C or H Address display of misconnected indoor unit

After check, return the rotary switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1].	(7-segment display) [A] [B] [U1] [ ]



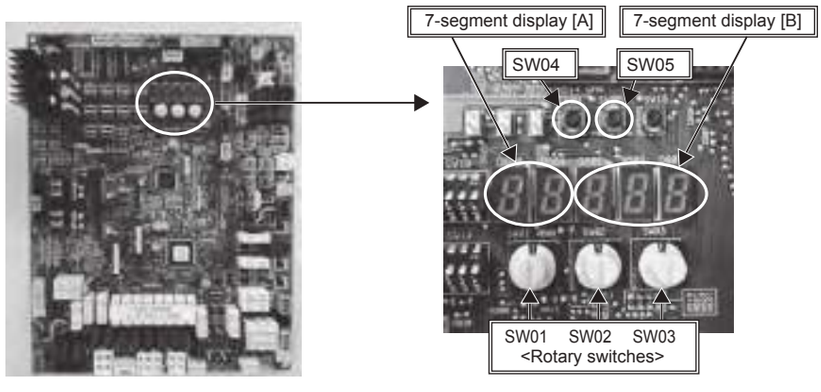
7-7-2. Function to Start/Stop (ON/OFF) Indoor Unit from Outdoor Unit

The following functions of the indoor unit can start or stop by the switches on the interface P.C. board of the header unit.

No	Function	Outline	Setup/Release	7-segment display
1	Cooling test operation	Changes the mode of all the connected indoor units collectively to cooling test operation. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/5/1], and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [C.] Section B [– C]
2	Heating test operation	Changes the mode of all the connected indoor units collectively to heating test operation. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/6/1], and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [H.] Section B [– H]
3	Fan test operation	Changes operation mode of all the connected indoor units collectively to test operation mode. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/9/1], and push SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [F.] Section B [– F]
4	Batch start	Starts all the connected indoor units collectively. Note) The contents follow to the setup of remote controller.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [11] [00] is displayed on Section B for 5 seconds.
	Batch stop	Stops all the connected indoor units collectively.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and press SW05 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [00] [00] is displayed on Section B for 5 seconds.
5	Individual start	Starts the specified indoor unit. Notes) • The contents follow to the setup of remote controller. • The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. (1 to 64) to be started, and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [ ] Section B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [11] for 5 seconds from operation-ON.
	Individual stop	Stops the specified indoor unit. Note) The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. (1 to 64) to be stopped, and press SW05 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [ ] Section B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [00] for 5 seconds from operation-OFF.
	Individual test operation	Operates the specified indoor unit. Note) The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. to be operated, and press SW04 for 10 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [ ] Section B [ ] Section A: Displays the corresponding indoor address. Section B: Displays [FF] for 5 seconds from test operation-ON.

NOTE 1) This start/stop function only sends the signals from the outdoor unit to the indoor unit, such as start, stop, operation mode, etc. It does not resend the signals even if the indoor unit does not follow the sent signals.

NOTE 2) The above controls are not used during abnormal stop.



(1) Cooling test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the cooling test operation mode, by using switches on the interface board of the header unit.

<Operation procedure>

Power ON ----- Be sure to turn on power at the indoor side before power-ON of outdoor unit.

↓

Set SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/5/1]. ([C.] is displayed on 7-segment display [A].)

↓

Press SW04 on the same board for 2 seconds or more. ---------- Start

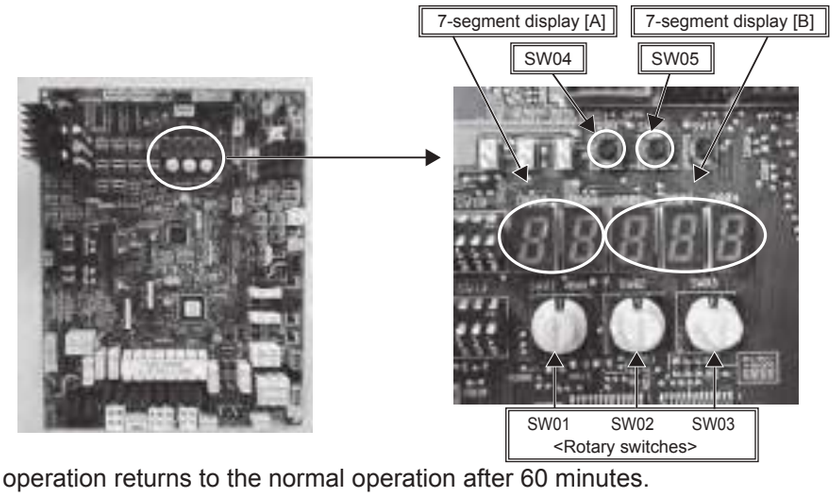
↓

[Test run] is displayed on the remote controller of the indoor unit to be operated.
Check that [– C] is displayed on 7-segment display [B] on the interface P.C. board of the header unit.

[A] [B]
[C.] [– C] ---------- Operation check

↓

Return SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1],
or press the push-switch SW05 for 2 seconds or more. ---------- Stop/End

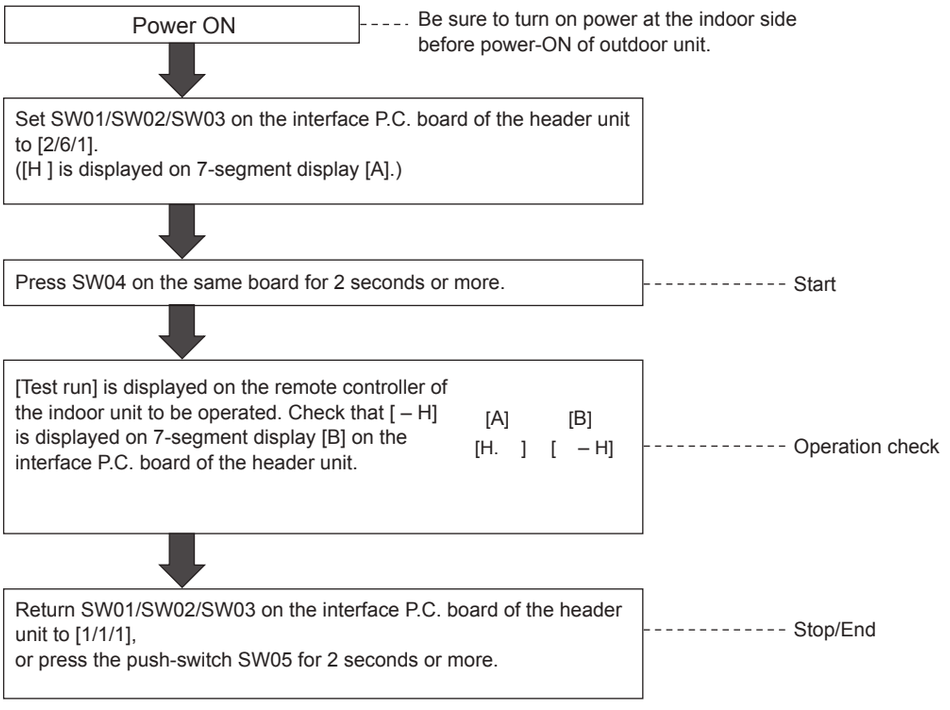


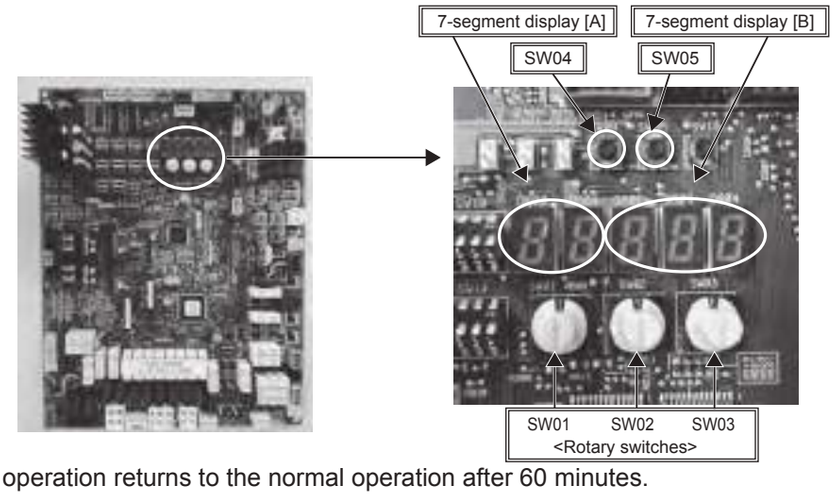
NOTE) The test operation returns to the normal operation after 60 minutes.

(2) Heating test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the heating test operation mode, by using switches on the interface board of the header unit.

<Operation procedure>



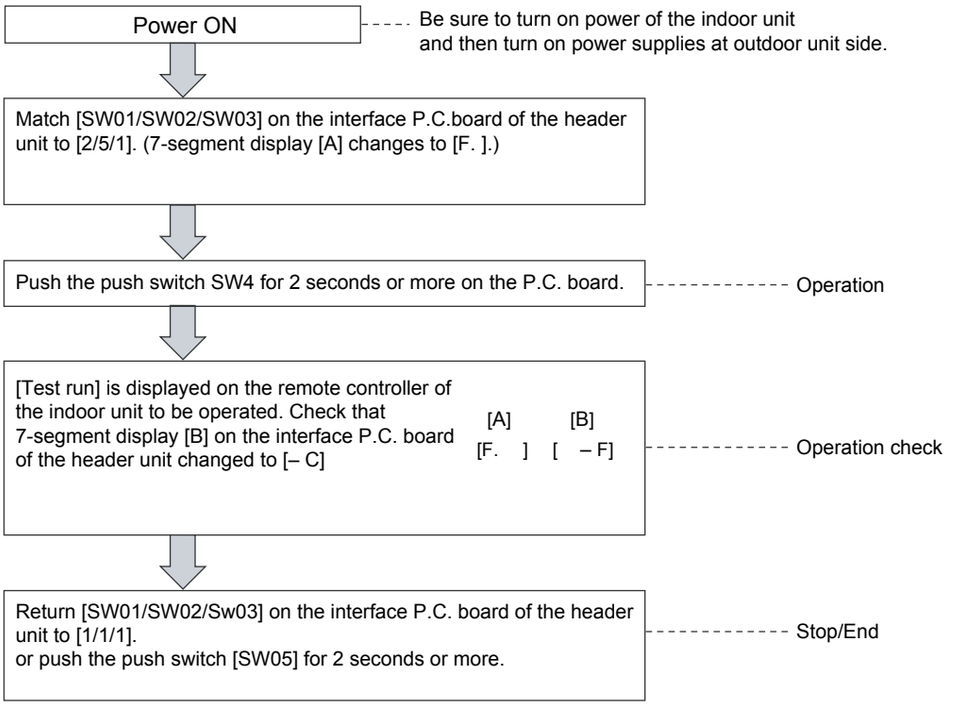


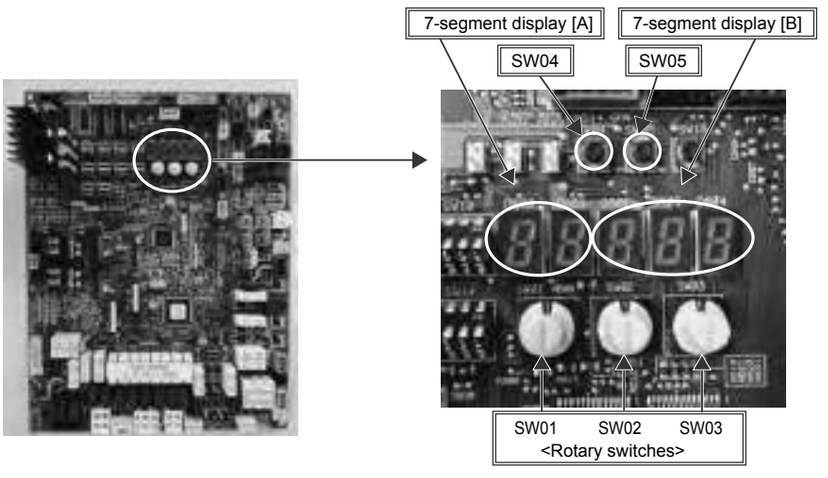
NOTE) The test operation returns to the normal operation after 60 minutes.

(3) Fan test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the fan test operation mode by using switches on the interface P.C. board of the header unit.

<Operation procedure>





NOTE) The test operation ends after 60 minutes and the operation returns to normal status.

(4) Batch start/stop (ON/OFF) function

This function is provided to start/stop collectively all the indoor units connected to the same system by using switches on the interface board of the header unit.

<Operation procedure>

Power ON

Be sure to turn on power at the indoor side before power-ON of outdoor unit.

If a check code is already displayed with SW01/SW02/SW03 being [1/1/1], return the status to normal one according to troubleshooting and then execute a test operation.

Set up the operation mode of the remote controller.
(If it is not set up, the operation continues with the current mode.)
(FAN/COOL/HEAT)

The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated.
In this case, "operation ready" or "operation mode controlled" is displayed on the remote controller.

Set SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/7/1].
([C.H] is displayed on 7-segment display [A].)

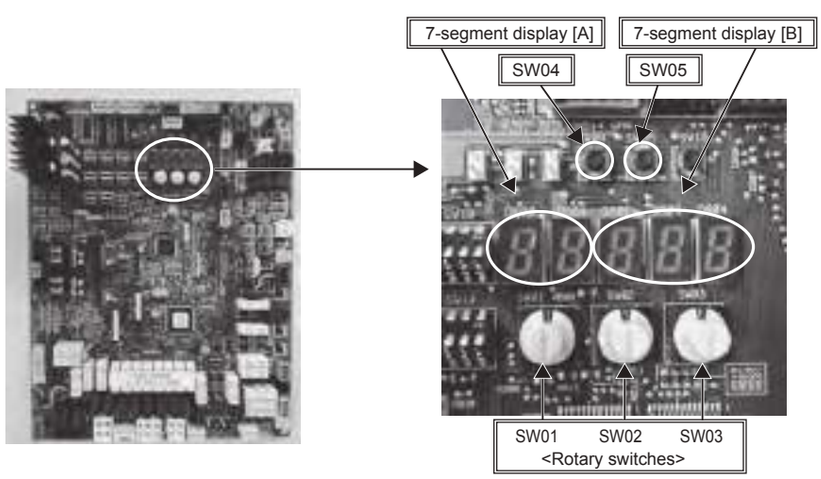
Press SW04 on the same board for 2 seconds or more. — Start

The indoor unit to be started operates. — Operation check

(If the discharge temperature does not change though COOL or HEAT has been set up from the remote controller, misconnection is considered.)

Press the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more. — Stop

After test operation, return the rotary switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1]. — End



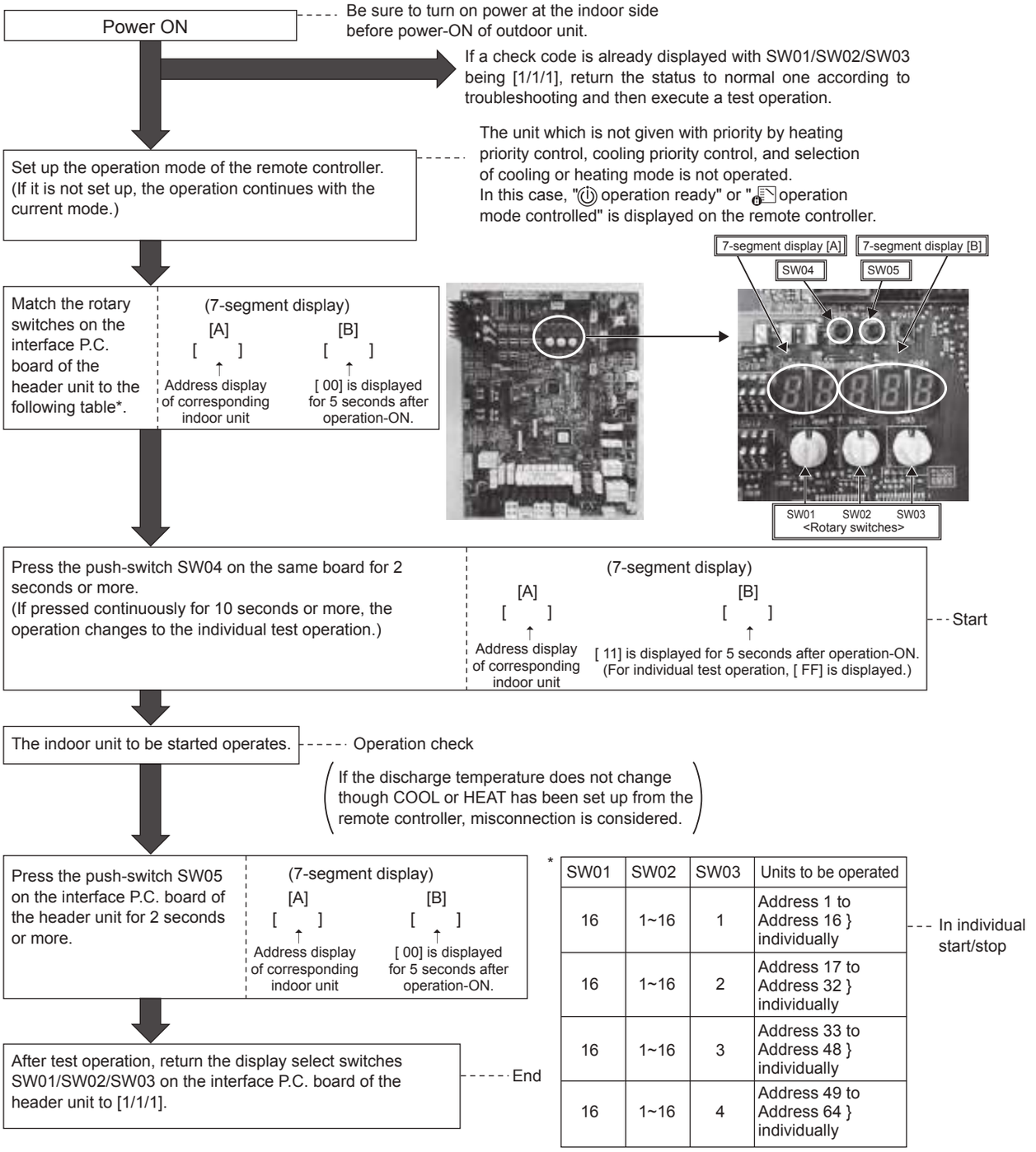
(5) Individual start/stop (ON/OFF) individual test operation function

This function is provided to start/stop (ON/OFF) individually each indoor unit connected to the same system by using switches on the interface board of the header unit.

Set SW01 [16] and set SW02, SW03 to indoor address No. (1 to 64) to be started (Refer to the following table*) - only the setup indoor unit starts operation.

(In the rotary switches of the indoor unit which operates in a group by the remote controller, the follower unit cannot be individually started or stopped. In this case, [- -] is displayed on 7-segment display [B] on the interface P.C. board of the header unit.)

<Operation procedure>



*

SW01	SW02	SW03	Units to be operated
16	1~16	1	Address 1 to Address 16 } individually
16	1~16	2	Address 17 to Address 32 } individually
16	1~16	3	Address 33 to Address 48 } individually
16	1~16	4	Address 49 to Address 64 } individually

In individual start/stop

NOTE) The individual test operation returns to the normal operation after 60 minutes.

7-7-3. Check code Clearing Function

(1) Clearing from the main remote controller

▼ Check code clearing in outdoor unit

Check code of the outdoor unit currently detected is cleared by the unit of one refrigerant circuit system to which the indoor units operated by the remote controller is connected. (Check code of the indoor unit is not cleared.)
For clearing check codes, the service monitor function of the remote controller is used.

<Method>

1 **Change the mode to service monitor mode by pushing CL + TEST buttons simultaneously for 4 seconds or more.**

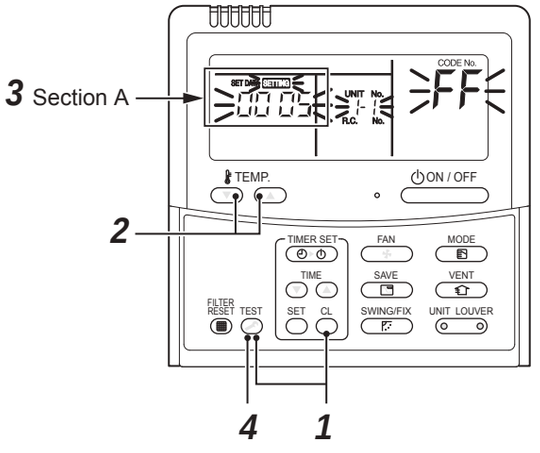
2 **Using TEMP. buttons, set CODE No. to "FF".**

3 **The display in Section A in the following figure is counted with interval of 5 seconds as "0005" --> "0004" --> "0003" --> "0002" --> "0001" --> "0000".**

When the count arrives "0000", the check code is cleared.

*However, counting from "0005" is repeated on the display.

4 **When TEST button is pushed, the status returns to the normal status.**



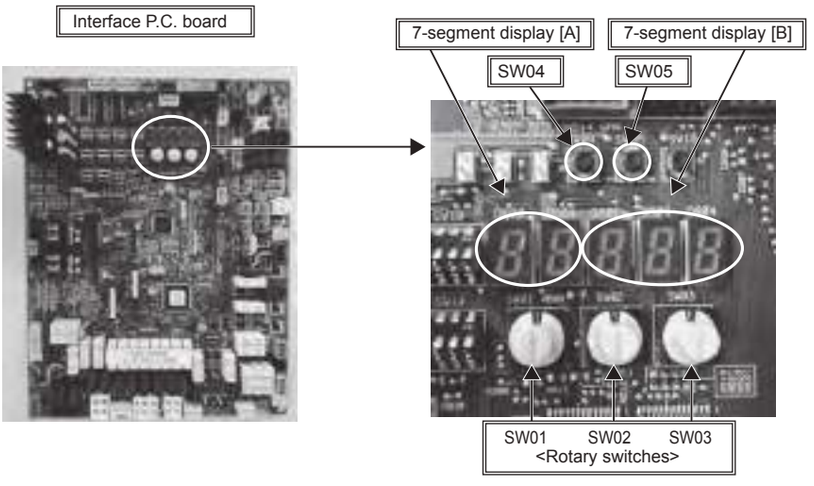
▼ Check code clearing in indoor unit

Check code in the indoor unit is cleared by ON / OFF button on the remote controller.
(Only check code of the indoor unit connected with operating remote controller is cleared.)

(2)Clearing check code by using switches on the interface board of the header unit

Using the switches on the interface P.C. board of the header unit, this function is to clear the currently detected check code for each refrigerant circuit system without resetting the power supply.
Check codes in both outdoor and indoor units are once cleared, and check code detection is performed again.

Set the rotary switches on the interface P.C. board of the header unit as follows. Set SW01/SW02/SW03 to [2/16/1]	7-segment display [A] [B] [E r] [ ]
↓	
Press the push-switch SW04 on the same board for 5 seconds or more.	
↓	
[C L] is displayed in 7-segment display [B] on the board (for 5 seconds), and Check code is completely cleared.	7-segment display [A] [B] [E r] [C L]



(3)Clearing check code by resetting power

This function is provided to clear check code in a system by resetting the power of all the outdoor and the indoor units. As same as the clearing method by the interface P.C. board, check codes of both the outdoor and the indoor units are once cleared, and check code detection is performed again.

<Method>

(1) Be sure to reset power of both the outdoor and the indoor units.

(2) Turn on the power of the indoor unit prior to the power of the outdoor unit.
(If the power is turned on in reverse order, a check code [E19] (No. of header unit trouble) is output.)

NOTE) After power reset, it requires usually 3 minutes to power-on due to the initial communication of the system. In some cases, it requires max. 10 minutes.

7-7-4. Remote Controller Distinction Function

This function is provided to distinguish the remote controller connected to the indoor unit from the outdoor unit for a refrigerant circuit system by using switches on the interface P.C. board of the header unit.

<Distinction procedure>

Power ON ------ Be sure to turn on the power of the indoor unit prior to the power of the outdoor unit.

↓

Set the display select switches on the interface P.C. board of the header unit as follows:
Set SW01/SW02/SW03 to [2/4/1]

7-segment display
[A] [B]
[A 1] [ ]

↓

Press the push-switch SW04 on the same board for 2 seconds or more.

7-segment display
[A] [B]
[A 1] [FF]

Operation

↓

"Checking" display of the connected remote controller flashes.

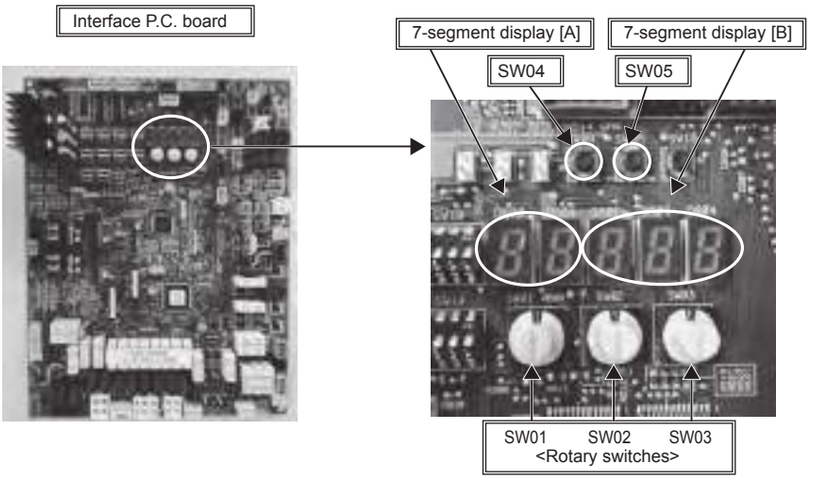
Check the connected remote controller

↓

Press the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more.

End

Other end conditions:
1. 10 minutes have passed
2. SW01, SW02, or SW03 changed to other position.



7-7-5. Pulse Motor Valve (PMV) Forced Open/Close Function in Indoor Unit

This function is provided to open or close forcedly PMV for 2 minutes in all the indoor units by the switch operation on the interface P.C. board of the header unit.
This function is also used to open PMV fully when turning off the power and executing an operation.

<Operation>

[Open fully]

Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and press SW04 for 2 seconds or more.
(Display appears on 7-segment display for 2 minutes as follows.) [P] [FF]

[Close fully]

Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and press SW05 for 2 seconds or more.
(Display appears on 7-segment display for one minute as follows.) [P] [00]

[Clear]

After 2 minutes (1 minutes for “Close fully”) after setting up, the opening automatically returns to the normal opening.

7-7-6. Pulse Motor Valve (PMV) Forced Open Fully/Close fully Function in Outdoor Unit

This function is provided to forcedly open or close fully P.M.V. (PMV1, PMV4) used in the outdoor unit for 2 minutes.

[PMV1 Open fully]

On the interface board of the outdoor unit, set the DIP switch [SW12·bit1] to [OFF], [SW12·bit2] to [OFF], and short-circuit CN30.

[PMV1 Close fully]

On the interface board of the outdoor unit, set the DIP switch [SW12·bit1] to [OFF], [SW12·bit2] to [OFF], and short-circuit CN31.

[PMV4 Open fully]

On the interface board of the outdoor unit, set the DIP switch [SW12·bit1] to [OFF], [SW12·bit2] to [ON], and short-circuit CN30.

[PMV4 Close fully]

On the interface board of the outdoor unit, set the DIP switch [SW12·bit1] to [OFF], [SW12·bit2] to [ON], and short-circuit CN31.

[Clear]

For both open fully and close fully, after 2 minutes, the opening returns to the normal opening.
Be sure to remove the cord used for short-circuit after confirmation, and set the DIP switch [SW12·bit1] to [OFF] and [SW12·bit2] to [OFF].

7-7-7. Solenoid Valve Forced Open/Close Function in Outdoor Unit

This function is provided to forcedly open each solenoid valve mounted in the outdoor unit by the switch operation on the interface P.C. board in the outdoor unit. Use this function to check there is no refrigerant clogging with ON/OFF operation of the solenoid valve.

[Operation]

(1) Set the switches SW01/SW02/SW03 on the interface P.C. board of the outdoor unit to [2/1/3].

(2) When [H. r] is displayed in 7-segment display [A], keep pressing the switch SW04 for 2 seconds or more.

(3) From when [2] is displayed in 7-segment display [B], SV2 is turned on.

(4) After then, ON and OFF of each solenoid valve are exchanged by changing the setup number of the switch SW02.

(ON/OFF output pattern of each solenoid valve is as shown below.)

NOTE 1) Display in 7-segment display [B] is exchanged just when the number of SW02 has been changed; on the other hand, the solenoid valve output is exchanged when SW02 has been kept with the same number for 5 seconds or more.

NOTE 2) The mark [O] in the table indicates that the corresponding solenoid valve is forcedly turned on.

NOTE 3) The mark [-] in the table indicates that ON/OFF of the solenoid valve is controlled based upon the specifications of the air conditioner.

NOTE 4) The mark [×] in the table indicates that the corresponding solenoid valve is forcedly turned off with this operation.

NOTE 5) The case heater output is for both the compressor and accumulator heaters.

SW02	7-segment display [B]	Operation pattern of solenoid valve														Case heater output relay
		SV2	SV5	SV41	SV42	SV3A	SV3B	SV3C	SV3D	SV3E	SV6	SV52	SV11	SV12	SV14	
1	[2]	O	-	-	-	-	-	-	-	O	-	-	-	-	-	O
2	[5]	-	O	-	-	-	-	-	-	O	-	-	-	-	-	O
3	[41]	-	-	O	-	-	-	-	-	O	-	-	-	-	-	O
4	[42]	-	-	-	O	-	-	-	-	O	-	-	-	-	-	O
6	[3A]	-	-	-	-	O	-	-	-	O	-	-	-	-	-	O
7	[3b]	-	-	-	-	-	O	-	-	O	-	-	-	-	-	O
8	[3C]	-	-	-	-	-	-	O	×	O	-	-	-	-	-	O
9	[3d]	-	-	-	-	-	-	-	O	×	-	-	-	-	-	O
10	[3-]	-	-	-	-	O	O	O	×	O	-	-	-	-	-	O
11	[6]	-	-	-	-	-	-	-	-	O	O	-	-	-	-	O
12	[52]	-	-	-	-	-	-	-	-	O	-	O	-	-	-	O
13	[11]	-	-	-	-	-	-	-	-	O	-	-	O	-	-	O
14	[12]	-	-	-	-	-	-	-	-	O	-	-	-	O	-	O
15	[14]	-	-	-	-	-	-	-	-	O	-	-	-	-	O	O
16	[ALL]	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

[Clear]

Return switches SW01/SW02/SW03 on the interface P.C. board to [1/1/1].

NOTE) As this function is not based on the specified general control, be sure to release this mode after checking.

7-7-8. Fan Operation Check in Outdoor Unit

This function is provided to check the fan operation of the outdoor unit by using switches on the interface P.C. board in the outdoor unit. The frequency of the fan speed can be controlled by setting of the switches. Use this function to check the operation or abnormal sound in the fan system. And, use this function while the system is stopped.

NOTE) Do not use this function during operation of the compressor. It may damage the compressor.

Two fans move synchronously in two fan model (MMY-MAP1606* to MAP2006*).

[Operation]

(1) Set the switches SW01/SW02/SW03 on the interface P.C. board of the outdoor unit to [2/1/4].

(2) When [F. d] is displayed in 7-segment display [A], keep pressing the switch SW04 for 2 seconds or more.

(3) When [63] is displayed in 7-segment display [B], the fan starts operation. (Max. mode operation)

(4) After that, by changing the setup number of the switches SW02 and SW03, 7-segment display [B] and the fan mode are changed.

(Mode output pattern of the fan is as follows.)

SW02	SW03	7-segment display [B]	Fan mode
1	4	[63]	63
2		[62]	62
3		[61]	61
4		[60]	60
5		[59]	59
6		[58]	58
7		[57]	57
8		[56]	56
9		[55]	55
10		[54]	54
11		[53]	53
12		[52]	52
13		[51]	51
14		[50]	50
15		[49]	49
16		[48]	48
1	5	[47]	47
2		[46]	46
3		[45]	45
4		[44]	44
5		[43]	43
6		[42]	42
7		[41]	41
8		[40]	40
9		[39]	39
10		[38]	38
11		[37]	37
12		[36]	36
13		[35]	35
14		[34]	34
15		[33]	33
16		[32]	32

SW02	SW03	7-segment display [B]	Fan mode
1	6	[31]	31
2		[30]	30
3		[29]	29
4		[28]	28
5		[27]	27
6		[26]	26
7		[25]	25
8		[24]	24
9		[23]	23
10		[22]	22
11		[21]	21
12		[20]	20
13		[19]	19
14		[18]	18
15		[17]	17
16		[16]	16
1	7	[15]	15
2		[14]	14
3		[13]	13
4		[12]	12
5		[11]	11
6		[10]	10
7		[9]	9
8		[8]	8
9		[7]	7
10		[6]	6
11		[5]	5
12		[4]	4
13		[3]	3
14		[2]	2
15		[1]	1
16		[0]	0

[Clear]

This function is cleared by one of the following operations.

(1) When SW01 setting number was changed to other number.

(2) Press-switch SW05 was pressed for 2 seconds or more.

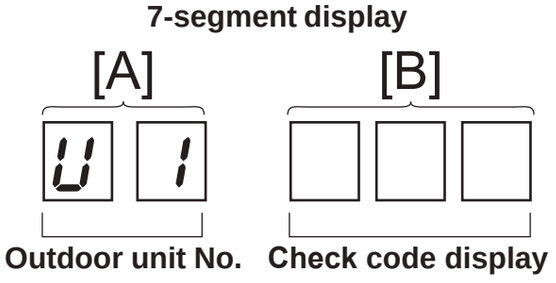
7-7-9. Abnormal Outdoor Unit Discrimination Method By Fan Operating Function

This function is provided to forcedly operate the fan of the outdoor unit in which a check code occurred or the fan of the normal outdoor unit by the switch operation on the interface P.C. board in the header unit.
To specify which one of the follower units connected to the system had problem, use this function for the system stop due to a follower unit problem (Check code [E28]).

[Operation]

<In case to operate the fan in the erroneous outdoor unit only>

(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].



(2) Press the push-switch SW04 for 2 seconds or more.
(3) [E 1] is displayed on 7-segment display [A].
(4) The fan of the outdoor unit in which problem occurred starts operation within approx. 10 seconds after [E 1] was displayed.

<In case to operate the fans in all the normal outdoor units>

(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].
(2) Press the push-switches SW04 and SW05 at the same time for 2 seconds or more.
(3) [E 0] is displayed on 7-segment display [A].
(4) The fans of all the normal outdoor units start operation with the Max. fan speed within approx. 10 seconds after [E 0] was displayed.

[Release]

Press the push-switch SW05 on the interface P.C. board in the header unit for 2 seconds or more.
The outdoor fan which was operated stops.
* Check that [U. 1] is displayed on 7-segment display [A], and then finish the work.

7-7-10. Manual Adjustment Function of Outside Temperature (TO) Sensor

This function is provided to fix TO sensor value manually by the switch operation on the interface P.C. board in the outdoor unit. When the unit stops abnormally due to TO sensor failure, etc, an emergent operation is available by setting up the value manually to position near the current outside temperature.

[Operation]

(1) Set the rotary switches on the interface P.C. board to numbers as follows:
- SW01/SW02/SW03 to [2/1/15]
- 7-segment display: [t o]

(2) Keep pressing the push-switch SW04 on the interface P.C. board for 1 second or more. The mode changes to the TO sensor value fix manual mode.

(3) As shown in the following table, TO sensor value can be fixed by setting the rotary switch SW02 on the interface P.C. board.

[Clear]

Return SW01/SW02/SW03 on the interface P.C. board in the outdoor unit to [1/1/1].

SW02	7-segment display [B]	TO sensor value
1	[10]	10°C
2	[15]	15°C
3	[20]	20°C
4	[25]	25°C
5	[30]	30°C
6	[35]	35°C
7	[40]	40°C
8	[43]	43°C
9	[45]	45°C
10	[–15]	-15°C
11	[–10]	-10°C
12	[– 5]	-5°C
13	[0]	0°C
14	[2]	2°C
15	[5]	5°C
16	[7]	7°C

NOTE) If operated with TO sensor fixed by this function, the system control operation of the air conditioner may not be based on the specification of the product. Therefore an emergent operation should be restricted to a day or so.

When the outside temperature is 45ºC or more, set to 45ºC (SW02="9")

<Service support function list>

SW01	SW02	SW03	7-segment display [A]	Function contents
2	1	1	[J . C]	Refrigerant circuit and control communication line check function (Cooling operation)
	2		[J . H]	Refrigerant circuit and control communication line check function (Heating operation)
	3		[P .]	Indoor PMV forced full open function
	4		[A . 1]	Indoor remote controller discriminating function
	5		[C .]	Cooling test operation function
	6		[H .]	Heating test operation function
	7		[C . H]	Indoor collective start/stop (ON/OFF) function
	9		[F .]	Fan test operation function
	11		[r . d]	Outdoor refrigerant recovery operation function (Pump down function)
	16		[E . r]	Check code clear function

2	1~16	3	[H . r]	Solenoid valve forced open/close function
2	1~16	4~7	[F . d]	Fan forced operation function
2	1~16	15	[t . o]	Outside temperature sensor manual adjustment function
2	13	14	[L . d]	Check of the refrigerant leakage detection
	14		[C . i]	Check of the cooling initial valve
	15		[H . i]	Check of the heating initial valve

16	1~16	1	[0 1]~[1 6]	Indoor No. 1 to 16 unit	Indoor individual start/stop (ON/OFF) function
		2	[1 7]~[3 2]	Indoor No. 17 to 32 unit	
		3	[3 3]~[4 8]	Indoor No. 33 to 48 unit	
		4	[4 9]~[6 4]	Indoor No. 49 to 64 unit	

SW01	SW02	SW03	7-segment display [A/B]	Function contents
1	1	1	[U 1] [E28]	Follower unit check code / Corresponding unit fan operation function

7-7-11. Refrigerant leakage detection

The refrigerant leakage can be confirmed by using the switches on Interface PCB of the outdoor unit.
If there is a leak, the location must be found in order to recover the refrigerant. After that, implement appropriate countermeasure and refill the refrigerant to its standard volume.

(Refrigerant leaks can be detected by comparing the Actual opening of PMV with the Calculated opening of PMV* during the operation.
* Calculated opening of PMV: calculated from the initial value(C.i/H.i), the pressure sensor value, the compressor's rotation speed, and the opening of PMV. The initial values are automatically saved when the specified conditions are met.
(A leak can be detected only when C.i/H.i = 1))

[Operation]

(1) Confirming the refrigerant leakage
Set SW01 to 03 as shown in the following table to confirm whether the leaks are being detected.
(It also can be confirmed by remote control monitor function. Refer to "8-7-12. Monitor function of remote controller switch.)

(2) Clearing the initial value
If the system is changed (e.g. indoor units are increased/replaced, outdoor units are moved, or refrigerant is refilled/increased) it is necessary to clear the initial value that had been saved.
Make sure that the compressor has stopped, and then press and hold SW04 for at least 5 seconds.

SW01	SW02	SW03	Display detail		
2	13	14	Refrigerant leakage detection	A	[L. d]
				B	Normal: [… … 0] Possibility of leakage: [… … 1] Clear the data: […C.L] (Only Display for 5 seconds)

(3) Checking the record of the initial value
Set SW01 to 03 as shown in the following table to confirm the record of the initial value.

SW01	SW02	SW03	Display detail		
2	14	14	Cooling initial value	A	[C. i]
				B	Incomplete: [… … 0] Completed: [… … 1]
2	15	14	Heating initial value	A	[H. i]
				B	Incomplete: [… … 0] Completed: [… … 1]

[Clear]
Return SW01/SW02/SW03 on the Interface PCB in the outdoor unit to [1/1/1] .

NOTE)
(a) During the operation, the slow leaks can be detected.
However, if the air-conditioner cannot cooling down / cannot warming up / make an unusual stop, the slow leaks might not be detectable. The fast leaks always cannot be detected.
(b) Poor refrigerant circulation may be detected as a refrigerant leaks.
(e.g. plugged strainers / capillaries, malfunction / clogging of the PMV / 2-way valve / 4-way valve)
(c) Due to the outside temperature, the initial value may not be recorded, or it may be impossible to determine the leakage.
(d) The initial value cannot be saved until the accumulated operating time has reached at least 20 hours.
(e) The initial value cannot be saved if the indoor unit's operating ratio is low.
(f) If the following indoor units are connected, leakage determination is not possible.
・Air to air heat exchanger with DX coil unit

7-7-12. Monitor Function of Remote Controller Switch

When using a remote controller with the model name RBC-AMT32E, the following monitor functions can be used.

Switching to the service monitor mode

<Content>

The sensor temperature or operation status of the remote controller, indoor unit, or the outdoor unit can be known by switching to the service monitor mode from the remote controller.

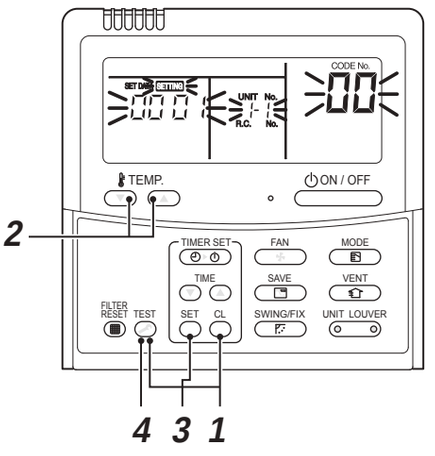
[Procedure]

1 **Push TEST + CL buttons simultaneously for 4 seconds or more to call up the service monitor mode.**
The service monitor goes on, and temperature of the CODE No. 00 is firstly displayed.

2 **Push the temperature setup TEMP. buttons to select the CODE No. to be monitored.**
For displayed codes, refer to the table next page.

3 **Push SET button to determine the item to be monitored.**
Then monitor the sensor temperature or operation status of indoor unit and the outdoor unit in the corresponding refrigerant line.

4 **Pushing TEST button returns the display to the normal display.**



	CODE No.	Data name	Display format	Unit	Remote controller display example
Indoor unit data *2	00	Room temperature (Use to control)	×1	°C	[0024]=24°C
	01	Room temperature (Remote controller)	×1	°C	
	02	Indoor suction air temperature (TA)	×1	°C	
	03	Indoor coil temperature (TCJ)	×1	°C	
	04	Indoor coil temperature (TC2)	×1	°C	
	05	Indoor coil temperature (TC1)	×1	°C	
	06	Indoor discharge air temperature (TF) *1	×1	°C	
	08	Indoor PMV opening	×1/10	pls	[0150]=1500pls
	F3	Filter sign time	×1	h	[2500] = 2500h
	F9	Suction temperature of air to air heat exchanger (TSA) *1	×1	℃	[0024] = 24℃
	FA	Outside air temperature (TOA) *1	×1	℃	
System data	0A	No. of connected indoor units	×1	unit	[0048]=48 units
	0B	Total horsepower of connected indoor units	×10	HP	[0415]=41.5HP
	0C	No. of connected outdoor units	×1	unit	[0003]=3 units
	0D	Total horsepower of outdoor units	×10	HP	[0420]=42HP
	E0	Refrigerant leakage detection	–	–	[- - - -]= Not valid [0000]= Normal [0001]= Possibility of leakage

	CODE No.			Data name	Display format	Unit	Remote controller display example
	U1	U2	U3				
Outdoor unit individual data 1 *3	10	20	30	High-pressure sensor detention pressure (PD)	×100	MPa	[0123] = 1.23MPa
	11	21	31	Low-pressure sensor detention pressure (PS)	×100	MPa	
	12	22	32	Compressor 1 discharge temperature (TD1)	×1	℃	[0024] = 24℃
	13	23	33	Compressor 2 discharge temperature (TD2)	×1	℃	
	15	25	35	Outdoor coil temperature (TE1)	×1	℃	
	16	26	36	Outdoor coil temperature (TE2)	×1	℃	
	19	29	39	Outside ambient temperature (TO)	×1	℃	
	1A	2A	3A	Suction temperature (TS1)	×1	℃	
	1B	2B	3B	Suction temperature (TS2)	×1	℃	
	1D	2D	3D	Temperature at liquid side (TL1)	×1	℃	

	CODE No.			Data name	Display format	Unit	Remote controller display example
	U1	U2	U3				
Outdoor unit individual data 2 *4	50	60	70	PMV1 opening	×1	pls	[0500] = 500pls
	51	61	71	PMV3 opening	×1	pls	
	52	62	72	PMV4 opening	×1	pls	
	53	63	73	1 fan model : Compressor 1 curent (I1) 2 fan model : Compressor 1 and Outdoor fan 1 current (I1)	×10	A	[0135] = 13.5A
	54	64	74	1 fan model : Compressor 2 and Outdoor fan 1 current (I2) 2 fan model : Compressor 2 and Outdoor fan 2 current (I2)	×10	A	
	56	66	76	Compressor 1 revolutions	×10	rps	[0642] = 64.2rps
	57	67	77	Compressor 2 revolutions	×10	rps	
	59	69	79	Outdoor fan mode	×1	mode	[0058] = 58 mode
	5A	6A	7A	Compressor IPDU 1 heat sink temperature	×1	℃	[0024] = 24℃
	5B	6B	7B	Compressor IPDU 2 heat sink temperature	×1	℃	
	5D	6D	7D	Outdoor fan IPDU 1 heat sink temperature	×1	℃	
	5E	6E	7E	Outdoor fan IPDU 2 heat sink temperature	×1	℃	
	5F	6F	7F	Outdoor unit horsepower	×1	HP	[0016] = 16HP

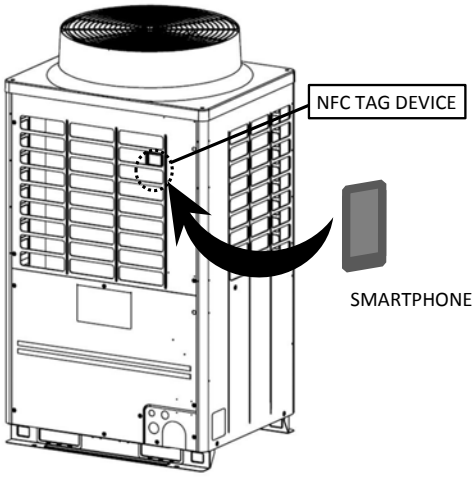
	CODE No.	Data name	Display format	Unit	Remote controller display example
Outdoor unit individual data 3 *5	90	Heating/cooling recovery controlled	0: Normal 1: Recovery controlled		[0010]=Heating recovery controlled [0001]=Cooling recovery controlled
	91	Pressure release	0: Normal 1: Release controlled		[0010]=Pressure release controlled
	92	Discharge temperature release			[0001]=Discharge temperature release controlled
	93	Follower unit release (U2/U3 outdoor units)			[0100]=U2 outdoor unit release controlled [0010]=U3 outdoor unit release controlled [0001]=U4 outdoor unit release controlled

*1 Only a part of indoor unit types is installed with the discharge air temperature sensor. This temperature is not displayed for other types.
*2 When the units are connected to a group, data of the header indoor unit only can be displayed.
*3 The first digit of an CODE No. indicates the outdoor unit number.
*4 The upper digit of an CODE No. -4 indicates the outdoor unit number.
1∗, 5∗ ... U1 outdoor unit (Header unit)
2∗, 6∗ ... U2 outdoor unit (Follower unit 1)
3∗, 7∗ ... U3 outdoor unit (Follower unit 2)
5 Only the CODE No. 9 of U1 outdoor unit (Header unit) is displayed.

7-8. SMMS WAVE TOOL FOR SMARTPHONE

The NFC TAG DEVICE of the Outdoor unit communicates with SMARTPHONE that simplifies the install, the test operation and the maintenance of the SMMS-e. *NFC (Near Field Communication)
As for the details, refer to the Operation Manual of "SMMS WAVE TOOL FOR SMARTPHONE"
●You can download the Application and the Operating Manual from the below URL or QR code.

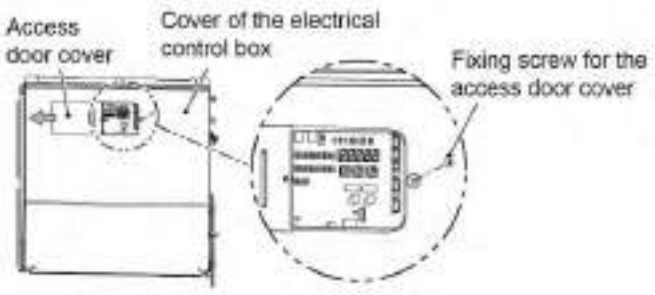
URL : http://www.toshiba-carrier.co.jp/global/appli/smms_wave_tool/

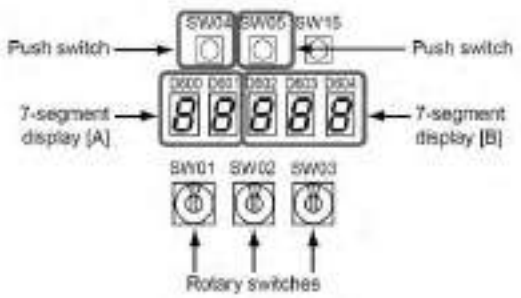


7-8-1. Prohibition/Permission of the NFC Setting

・This Application enables the functions of the auto-address setup and the test operation of the outdoor unit with Smartphone within 48 hours from the power input to the outdoor unit.
・You should decide whether to make use of the functions of the auto-address setup and test operation at its own responsibility and also be sure to confirm notices in the Operating Manual before performing the test operation.
・If you want to disable the functions of the auto-address setup and the test operation, perform the following operations.

■Switch setting of some functions prohibition





How to set the NFC operation all time prohibition

Follow the below procedure.

Step	Rotaly switch			Push switch	7-segment display	NFC operation setting
	SW01	**SW02**	**SW03**	**SW04**	**[A] [B]**	
(1)	2	1	14	-	[nF] [c.00]	(Default setting) After the power input, :below 48 hours [NFC operation permit] :more than 48 hours [NFC operation prohibit]
(2)	2	1	14	Press for more than 5 secs	[nF] [c.01]	NFC operation all time prohibition
(3)	1	1	1	-	[U.1.] [- - -]	Return the switch

How to set the NFC operation all time permission

Follow the below procedure.

Step	Rotaly switch			Push switch	7-segment display	NFC operation setting
	SW01	**SW02**	**SW03**	**SW04**	**[A] [B]**	
(1)	2	1	14	-	[nF] [c.00]	(Default setting) After the power input, :below 48 hours [NFC operation permit] :more than 48 hours [NFC operation prohibit]
	2	1	14	(Press 5 secs)	[nF] [c.01]	NFC operation all time prohibition
(2)	2	1	14	Press for more than 10 secs	[nF] [c.02]	NFC operation all time permission
(3)	1	1	1	-	[U.1.] [- - -]	Return the switch

*Do it again if the 7-segment display is different from the above.

*The functions other than the auto-address setup and test operation of this Application can work normally even if the functions of the auto-address setup and the test operation are disabled.

7-8-2. Confirmation for the generation of the trouble of the NFC

When you can not read out the information of the NFC Tag Device with your Smartphone, perform the following operations after restarting the power supply of the outdoor unit.

If there is no problem, refer to the Operation Manual of "SMMS WAVE TOOL FOR SMARTPHONE".

Step	Rotaly switch			Push switch	7-segment display	NFC-I/F board communication
	SW01	**SW02**	**SW03**	**SW04**	**[A] [B]**	
(1)	2	16	14	-	[nF] [c.Er]	Abnormal
					[nF] [c.00]	Normal
(2)	1	1	1	-	[U.1.] [- - -]	Return the switch

Trademark

Android is a trademark or registered trademark of Google Inc.

QR code is a trademark or registered trademark of DENSO WAVE Inc.

7-9. DRED (Demand response enabling device) (MMY-MAP***6FT8P-A)

This model supports only DRM1.

AS／NZS 4755	DRM1 ☑	DRM2 ☐	DRM3 ☐

■ Safety precautions

- Read these “Safety precautions” carefully before installation.
- Install in accordance with the wiring rules (AS/NZS 3000).
- The precautions described below include important items regarding safety.
  Observe them without fail.
- The manufacturer shall not assume any liability for the damage caused by not observing the description of this manual.

⚠ WARNING

- Turn off the main power supply switch or breaker before attempting installation.
  Make sure all power switches are off. Failure to do so may cause electric shock.
- Connect the connecting wire correctly.
  If the connecting wire is incorrect, electric parts may be damaged.
- Ensure that all terminals are securely fixed, so preventing any external forces having a negative effect on the terminals.
- Do not connect the DRED mains cable to the terminal block of the outdoor unit.
  Improper installation may result in fire.
- Connect the demand connecting wires so that they do not come into contact with the refrigerant cycle parts or refrigerant pipes.
  Wire breakage or water intrusion may cause electric shock or fire.
- Do not screw the DRED signal receiver directly to the outdoor unit.
  The screw may damage the internal parts and cause an electric shock, fire or refrigerant leak.

⚠ CAUTION

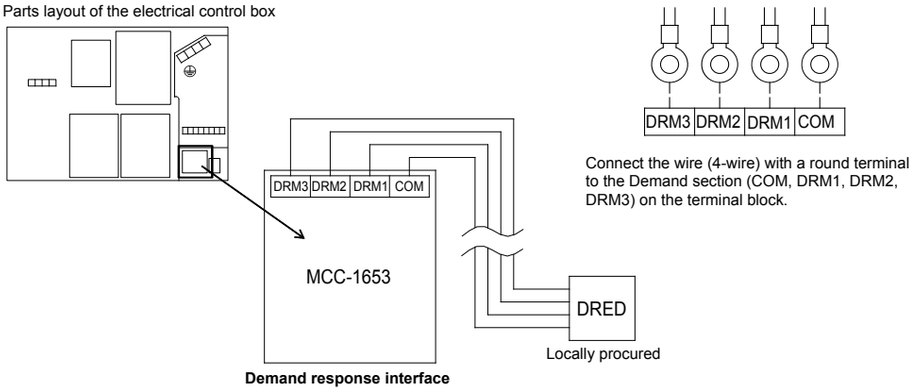
- **Wear heavy gloves during the installation work to avoid injury.**

■ Connection procedure

This air conditioner complies with AS/NZS 4755.3.1.
DRM available: DRM1
The terminal block meets ELV requirements.

Demand response mode	Description
DRM1	Compressor off
DRM2	Not available
DRM3	Not available

Parts layout of the electrical control box



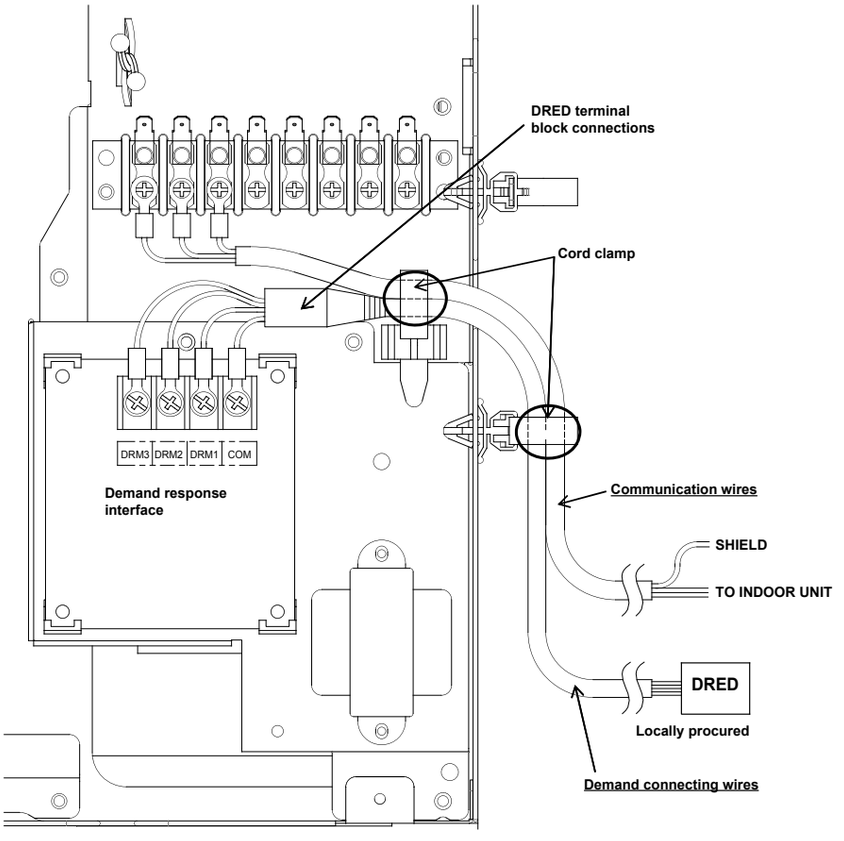
Connect the wire (4-wire) with a round terminal to the Demand section (COM, DRM1, DRM2, DRM3) on the terminal block.

⚠ WARNING

- Do not connect the DRED mains cable to the terminal block of the outdoor unit.
  Improper installation may result in fire.
- For the power supply of the DRED, prepare exclusive power supply separated from that of the outdoor unit.

■ Wiring procedure

- Bind securely together the communication wires and the demand connecting wires with the cord clamp to be not affected by external forces.
- If the demand connecting wires contain DRED terminal block connections, confirm to fix it so that DRED terminal block connections comes to the left side from the cord clamp.



8 TROUBLESHOOTING

8-1. Overview

(1) Before engaging in troubleshooting

(a) Applicable models

All Super Heat Recovery Multi (SHRM-e) models.
(Indoor units: MM*-AP***, Outdoor units: MMY-MAP***6*)

(b) Tools and measuring devices required

- Screwdrivers (Philips, flat head), spanners, long-nose pliers, nipper, pin to push reset switch, etc.
- Multimeter, thermometer, pressure gauge, etc.

(c) Things to check prior to troubleshooting (behaviors listed below are normal)

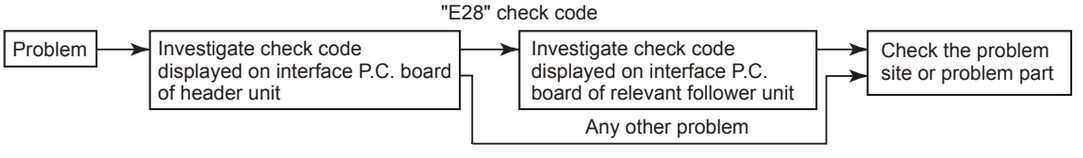
NO.	Behavior	Possible cause
1	A compressor would not start	• Could it just be the 3-minute delay period (3 minutes after compressor shutdown)? • Could it just be the air conditioner having gone thermostats OFF? • Could it just be the air conditioner operating in fan mode or put on the timer? • Could it just be the system going through initial communication?
2	An indoor fan would not start	• Could it just be cold air discharge prevention control, which is part of heating?
3	An outdoor fan would not start or would change speed for no reason	• Could it just be cooling operation under low outside temperature conditions? • Could it just be defrosting operation?
4	An indoor fan would not stop	• Could it just be the elimination of residual heat being performed as part of the air conditioner shutdown process after heating operation?
5	The air conditioner would not respond to a start/stop command from a remote controller	• Could it just be the air conditioner operation under external or remote control?

⚠ CAUTION

The cooling performance may decling considerably when total operating capacity of cooling indoor units is less than 4 HP WHILE AMBIENT TEMPERATURE IS BELOW 0°C.

(2) Troubleshooting procedure

When a problem occurs, proceed with troubleshooting in accordance with the procedure shown below.



NOTE

Rather than a product trouble (see the List of Check Codes below), the problem could have been caused by a microprocessor malfunction attributable to a poor quality of the power source or an external noise. Check for possible noise sources, and shield the remote controller wiring and signal wires as necessary.

8-2. Troubleshooting Method

The remote controllers (main remote controller and central control remote controller) and the interface P.C. board of an outdoor unit are provided with an LCD display (remote controller) or a 7-segment display (outdoor interface P.C. board) to display operational status. Using this self-diagnosis feature, the problem site/problem part may be identified in the event of a problem by following the method described below.

The list below summarizes check codes detected by various devices. Analyze the check code according to where it is displayed and work out the nature of the problem in consultation with the list.

- When investigating a problem on the basis of a display provided on the indoor remote controller or TCC-LINK central control remote controller - See the “TCC-LINK remote control or main remote controller display” section of the list.
- When investigating a problem on the basis of a display provided on an outdoor unit - See the “Outdoor 7-segment display” section of the list.
- When investigating a problem on the basis of a wireless remote controller-controlled indoor unit - See the “Light sensor indicator light block” section of the list.

List of Check Codes (Indoor Unit)

(Check code detected by indoor unit)

IPDU: Intelligent Power Drive Unit (Inverter P.C. board)
○ : Lighting, ◎ : Flashing, ● : Goes off
ALT.: Flashing is alternately when there are two flashing LED
SIM: Simultaneous flashing when there are two flashing LED

Check code			Display of receiving unit				Typical problem site	Description of Check code
TCC-LINK central control or main remote controller display	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Ready	Flash		
E03	–	–	◎	●	●		Indoor-remote controller periodic communication trouble	Communication from remote controller or network adaptor has been lost (so has central control communication).
E04	–	–	●	●	◎		Indoor-outdoor periodic communication trouble	Signals are not being received from outdoor unit.
E08	E08	Duplicated indoor address	◎	●	●		Duplicated indoor address	Indoor unit detects address identical to its own.
E10	–	–	◎	●	●		Indoor inter-MCU communication trouble	MCU communication between main controller and motor microcontroller is troubled.
E17	–	–	◎	●	●		Communication trouble between indoor unit(s) and FS unit(s)	There is no communication from FS unit(s)
E18	–	–	◎	●	●		Trouble in periodic communication between indoor header and follower unit	Periodic communication between indoor header and follower units cannot be maintained.
F01	–	–	◎	◎	●	ALT	Indoor heat exchanger temperature sensor (TCJ) trouble	Heat exchanger temperature sensor (TCJ) has been open/short-circuited.
F02	–	–	◎	◎	●	ALT	Indoor heat exchanger temperature sensor (TC2) trouble	Heat exchanger temperature sensor (TC2) has been open/short-circuited.
F03	–	–	◎	◎	●	ALT	Indoor heat exchanger temperature sensor (TC1) trouble	Heat exchanger temperature sensor (TC1) has been open/short-circuited.
F10	–	–	◎	◎	●	ALT	Room air temperature sensor (TA/TSA) trouble	Room air temperature sensor (TA) has been open/short-circuited.
F11	–	–	◎	◎	●	ALT	Discharge air temperature sensor (TF/TFA) trouble	Discharge air temperature sensor (TF) has been open/short-circuited.
F17	–	–	◎	◎	○	ALT	Outside air suction temperature sensor (TOA) trouble	Open/Short of outside air suction temperature sensor (TOA) was detected.
F18	–	–	◎	◎	○	ALT	Indoor air suction temperature sen sor (TRA)) trouble	Discharge air temperature sensor (TF) has been open/short-circuited.
F29	–	–	◎	◎	●	SIM	P.C. board or other indoor trouble	Open/Short of indoor air suction temperature sensor (TRA) was detected.
J03	–	–	●	◎	◎		Duplicated FS units	More than one FS units have been set up in one refrigirant line.
J10	J10	Detected indoor unit No.	●	◎	◎		FS unit overflow trouble	FS unit has been shutdown in one refrigerant line due to detection of overflow
J11	–	–	●	◎	◎		FS unit temperature sensor(TCS) trouble	FS unit temperature sensor(TCS) has been open/short-circuited.
L03	–	–	◎	●	◎	SIM	Duplicated indoor group header unit	There is more than one header unit in group.
L07	–	–	◎	●	◎	SIM	Connection of group control cable to stand-alone indoor unit	There is at least one stand-alone indoor unit to which group control cable is connected.
L08	L08	–	◎	●	◎	SIM	Indoor group address not set	Address setting has not been performed for one or more indoor units (also detected at outdoor unit end).
L09	–	–	◎	●	◎	SIM	Indoor capacity not set	Capacity setting has not been performed for indoor unit.
L18	L18	Detected indoor unit No.	◎	○	◎	SIM	Cooling/heating selection unit trouble	Cooling/heating cycle trouble resulting from piping trouble is detected
L20	–	–	◎	○	◎	SIM	Duplicated central control address	There is duplication in central control address setting.
L30	L30	Detected indoor unit No.	◎	○	◎	SIM	Indoor external trouble input (interlock)	Unit shutdown has been caused by external trouble input (CN80).

List of Check Codes (Indoor Unit)

(Check code detected by indoor unit)

Check code			Display of receiving unit				Typical problem site	Description of Check code
TCC-LINK central control or main remote controller display	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Ready	Flash		
P01	–	–	●	◎	◎	ALT	Indoor AC fan trouble	Indoor AC fan trouble is detected (activation of fan motor thermal relay).
P10	P10	Detected indoor unit No.	●	◎	◎	ALT	Indoor overflow trouble	Float switch has been activated.
P12	–	–	●	◎	◎	ALT	Indoor DC fan trouble	Indoor DC fan trouble (e.g. overcurrent or lock-up) is detected.
P31	–	–	◎	●	◎	ALT	Other indoor unit trouble	Follower unit cannot be operated due to header unit alarm (E03/L03/L07/L08).

(Check code detected by main remote controller)

Check code			Display of receiving unit				Typical problem site	Description of check code
Main remote controller	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Ready	Flash		
E01	–	–	◎	●	●		No master remote controller, troubled remote controller communication (reception)	Signals cannot be received from indoor unit; master remote controller has not been set (including two remote controller control).
E02	–	–	◎	●	●		Trouble remote controller communication (transmission)	Signals cannot be transmitted to indoor unit.
E09	–	–	◎	●	●		Duplicated master remote controller	Both remote controllers have been set as master remote controller in two remote controller control (alarm and shutdown for header unit and continued operation for follower unit)

(Check code detected by central control device)

Check code			Display of receiving unit				Typical problem site	Description of check code
TCC-LINK central control	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Ready	Flash		
C05	–	–	No indication (when main remote controller also in use)				Troubled central control communication (transmission)	Central control device is unable to transmit signal due to duplication of central control device.
C06	–	–					Troubled central control communication (reception)	Central control device is unable to receive signal.
–	–	–					Multiple network adapters	Multiple network adapters are connected to remote controller communication line.
C12	–	–	–				Blanket alarm for general-purpose device control interface	Device connected to general-purpose device control interface for TCC-LINK is faulty.
P30	–	–	As per alarm unit (see above)				Group control follower unit trouble	Group follower unit is troubled (unit No. and above detail [∗∗∗] displayed on main remote controller)

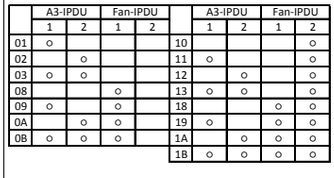
Note: The same trouble, e.g. a communication trouble, may result in the display of different check codes depending on the device that detects it. Moreover, check codes detected by the main remote controller/central control device do not necessarily have a direct impact on air conditioner operation.

List of Check Codes (Outdoor Unit)

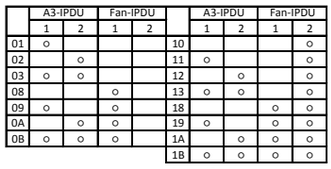
(Check code detected by SHRM-e outdoor interface - typical examples)

If "HELLO" is displayed on the oudoor 7-segment for 1 minute or more, turn off the power supply once and then turn on the power supply again after passage of 30 seconds or more. When the same symptom appears, it is considered there is a possibility of I/F board trouble.

IPDU: Intelligent Power Drive Unit (Inverter P.C. board)
○ : Lighting, ◎ : Flashing, ● : Goes off
ALT.: Flashing is alternately when there are two flashing LED
SIM: Simultaneous flashing when there are two flashing LED

Check code			Display of receiving unit				Typical problem site	Description of check code
Outdoor 7-segment display		TCC-LINK central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer 🕘	Ready	Flash		
E06	Number of indoor units from which signal is received normally	E06	●	●	◎		Signal lack of indoor unit	Indoor unit initially communicating normally fails to return signal (reduction in number of indoor units connected).
E07	–	(E04)	●	●	◎		Indoor-outdoor communication circuit trouble	Signal cannot be transmitted to indoor units (→ indoor units left without communication from outdoor unit).
E08	Duplicated indoor address	(E08)	◎	●	●		Duplicated indoor address	More than one indoor unit are assigned same address (also detected at indoor unit end).
E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	E12	◎	●	●		Automatic address starting trouble	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.
E15	–	E15	●	●	◎		Indoor unit not found during automatic address setting	Indoor unit fails to communicate while automatic address setting for indoor units is in progress.
E16	00: Overloading 01: Number of units connected	E16	●	●	◎		Too many indoor units connected/overloading	Combined capacity of indoor units is too large (more than 135% of combined capacity of outdoor units).
E19	00: No header unit 02: Two or more header units	E19	●	●	◎		Trouble in number of outdoor header units	There is no or more than one outdoor header unit in one refrigerant line.
E20	01: Connection of outdoor unit from other refrigerant line 02: Connection of indoor unit from other refrigerant line	E20	●	●	◎		Connection to other refrigerant line found during automatic address setting	Indoor unit from other refrigerant line is detected while indoor automatic address setting is in progress.
E23	–	E23	●	●	◎		Outdoor-outdoor communication transmission trouble	Signal cannot be transmitted to other outdoor units.
E25	–	E25	●	●	◎		Duplicated follower outdoor address	There is duplication in outdoor addresses set manually.
E26	Address of outdoor unit from which signal is not received normally	E26	●	●	◎		Signal lack of outdoor unit	Follower outdoor unit initially communicating normally fails to do so (reduction in number of follower outdoor units connected).
E28	Detected outdoor unit No.	E28	●	●	◎		Outdoor follower unit trouble	Outdoor header unit detects fault relating to follower outdoor unit (detail displayed on follower outdoor unit).
E31	 Circle (O): troubled IPDU 80 : Communication trouble between MCU and Sub MCU	E31	●	●	◎		IPDU communication trouble Sub MCU communication trouble	There is no communication between IPDUs (P.C. boards) in inverter box.
F04	–	F04	◎	◎	○	ALT	Outdoor discharge temperature sensor (TD1) trouble	Outdoor discharge temperature sensor (TD1) has been open/short-circuited.
F05	–	F05	◎	◎	○	ALT	Outdoor discharge temperature sensor (TD2) trouble	Outdoor discharge temperature sensor (TD2) has been open/short-circuited.
F06	01: TE1 02: TE2	F06	◎	◎	○	ALT	Outdoor heat exchanger liquid side temperature sensor (TE1, TE2) trouble	Outdoor heat exchanger liquid side temperature sensors (TE1, TE2) have been open/short-circuited.
F07	01: TL1 –	F07	◎	◎	○	ALT	Outdoor liquid temperature sensor (TL1) trouble	Outdoor liquid temperature sensor (TL1) has been open/short-circuited.
F08	–	F08	◎	◎	○	ALT	Outdoor outside air temperature sensor (TO) trouble	Outdoor outside air temperature sensor (TO) has been open/short-circuited.

Check code			Display of receiving unit				Typical problem site	Description of check code
Outdoor 7-segment display		TCC-LINK central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer ◴	Ready ❁	Flash		
F12	01: TS1 02: TS2	F12	◎	◎	○	ALT	Outdoor suction temperature sensor (TS1,TS2) trouble	Outdoor suction temperature sensor (TS1,TS2) has been open/short-circuited.
F15	–	F15	◎	◎	○	ALT	oor temperature sensor (TE1,TL1) wiring trouble	Wiring trouble in outdoor temperature sensors (TE1,TL1) has been detected.
F16	–	F16	◎	◎	○	ALT	Outdoor pressure sensor (PD, PS) wiring trouble	Wiring trouble in outdoor pressure sensors (PD, PS) has been detected.
F23	–	F23	◎	◎	○	ALT	Low pressure sensor (PS) trouble	Output voltage of low pressure sensor (PS) is zero.
F24	–	F24	◎	◎	○	ALT	High pressure sensor (PD) trouble	Output voltage of high pressure sensor (PD) is zero or provides abnormal readings when compressors have been turned off.
F31	–	F31	◎	◎	○	SIM	Outdoor EEPROM trouble	Outdoor EEPROM is troubled (alarm and shutdown for header unit and continued operation for follower unit)
H05	–	H05	●	◎	●		Outdoor discharge temperature sensor (TD1) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD1) has been detected.
H06	–	H06	●	◎	●		Activation of low-pressure protection	Low pressure (Ps) sensor detects abnormally low operating pressure.
H07	–	H07	●	◎	●		Low oil level protection	Temperature sensor for oil level detection (TK1,TK2,TK4,TK5) detects abnormally low oil level.
H08	01: TK1 sensor trouble 02: TK2 sensor trouble 04: TK4 sensor trouble 05: TK5 sensor trouble	H08	●	◎	●		Trouble in temperature sensor for oil level detection (TK1,TK2,TK4,TK5)	Temperature sensor for oil level detection (TK1,TK2,TK4,TK5) has been open/short-circuited.
H15	–	H15	●	◎	●		Outdoor discharge temperature sensor (TD2) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD2) has been detected.
H16	01: TK1 oil circuit trouble 02: TK2 oil circuit trouble 04: TK4 oil circuit trouble 05: TK5 oil circuit trouble	H16	●	◎	●		Oil level detection circuit trouble	No temperature change is detected by temperature sensor for oil level detection (TK1,TK2,TK4,TK5) despite compressor having been started.
J10	Detected indoor unit No.	J10	●	◎	◎		FS unit overflow trouble	FS unit has been shutdown in one refrigerant line due to detection of overflow
L04	–	L04	◎	○	◎	SIM	Duplicated outdoor refrigerant line address	Identical refrigerant line address has been assigned to outdoor units belonging to different refrigerant piping systems.
L06	Number of priority indoor units (check code L05 or L06 depending on individual unit)	L05	◎	●	◎	SIM	Duplicated priority indoor unit (as displayed on priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.
		L06	◎	●	◎	SIM	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.
L08	–	(L08)	◎	●	◎	SIM	Indoor group address not set	Address setting have not been performed for one or more indoor units (also detected at indoor end).
L10	–	L10	◎	○	◎	SIM	Outdoor capacity not set	Outdoor unit capacity has not been set (after P.C. board replacement).
L12	01 : FS unit (s) installation trouble	L12	◎	○	◎		FS unit(s) system trouble	FS unit(s) outside the application setting
L17	–	L17	◎	○	◎	SIM	Outdoor model incompatibility trouble	Old model outdoor unit (prior to 6 series) has been connected.
L18	Detected indoor unit No.	L18	◎	○	◎	SIM	Cooling/heating selection unit trouble	Cooling/heating cycle trouble resulting from piping trouble is detected
L23	–	L23	◎	○	◎	SIM	SW setting mistake	Bit 3 and 4 of SW17 are turning on.
L24	01: Duplication of FS units address 02: Indoor units operation mode priority setting	L24	◎	○	◎		FS unit(s) setting trouble	・FS unit(s) detects address identical to its own. ・Duplicated priority indoor units operation mode.
L28	–	L28	◎	○	◎	SIM	Too many outdoor units connected	More than three outdoor units have been connected.

Check code			Display of receiving unit				Typical problem site	Description of check code
Outdoor 7-segment display		TCC-LINK central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer 🕘	Ready ◎	Flash		
L29	 Circle (O): Troubled IPDU	L29	◎	○	◎	SIM	Trouble in number of IPDUs.	There are insufficient number of IPDUs (P.C. boards) in inverter box
L30	Detected indoor unit No.	(L30)	◎	○	◎	SIM	Indoor external trouble input (interlock)	Indoor unit has been shut down for external trouble input in one refrigerant line (detected by indoor unit).
P03	–	P03	◎	●	◎	ALT	Outdoor discharge (TD1) temperature trouble	Outdoor discharge temperature sensor (TD1) has detected abnormally high temperature.
P05	00: Open phase detected	P05	◎	●	◎	ALT	Open phase/power failure	Open phase is detected when power is turned on. Inverter DC voltage is too high (overvoltage) or too low (undervoltage).
	01: Compressor 1 02: Compressor 2						Inverter DC voltage (Vdc) trouble MG-CTT trouble	
P07	01: Compressor 1 02: Compressor 2	P07	◎	●	◎	ALT	Heat sink overheating trouble	Temperature sensor built into IPM (TH) detects overheating.
P10	Indoor unit No. detected	(P10)	●	◎	◎	ALT	Indoor unit overflow	Indoor unit has been shutdown in one refrigerant line due to detection of overflow (detected by indoor unit).
P13	–	P13	●	◎	◎	ALT	Outdoor liquid backflow detection trouble	State of refrigerant cycle circuit indicates liquid backflow operation.
P15	01: TS condition 02: TD condition	P15	◎	●	◎	ALT	Gas leak detection	Outdoor suction temperature sensor (TS1) detects sustained and repeated high temperatures that exceed standard value.
P17	–	P17	◎	●	◎	ALT	Outdoor discharge (TD2) temperature trouble	Outdoor discharge temperature sensor (TD2) detects abnormally high temperature.
P19	Outdoor unit No. detected	P19	◎	●	◎	ALT	4-way valve reversing trouble	Abnormality in refrigerating cycle is detected during heating operation.
P20	–	P20	◎	●	◎	ALT	Activation of high-pressure protection	High pressure (PD) sensor detects high pressure that exceeds standard value.

MG-CTT: Magnet contactor

(Check code detected by IPDU featuring in SHRM-e standard outdoor unit - typical examples)

Check code			Display of receiving unit				Typical problem site	Description of check code
Outdoor 7-segment display		TCC-LINK central control or main remote controller display	Indicator light block					
	Sub-code		Operation	Timer	Ready	Flash		
F13	01: Compressor 1 02: Compressor 2	F13	◎	◎	○	ALT	Trouble in temperature sensor built into indoor IPM (TH)	Temperature sensor built into indoor IPM (TH) has been open/short-circuited.
H01	01: Compressor 1 02: Compressor 2	H01	●	◎	●		Compressor breakdown	Inverter current (Idc) detection circuit detects overcurrent.
H02	01: Compressor 1 02: Compressor 2	H02	●	◎	●		Compressor trouble (lockup)	Compressor lockup is detected
H03	01: Compressor 1 02: Compressor 2	H03	●	◎	●		Current detection circuit trouble	Abnormal current is detected while inverter compressor is turned off.
P04	01: Compressor 1 02: Compressor 2	P04	◎	●	◎	ALT	Activation of high-pressure SW	High-pressure SW is activated.
P07	01: Compressor 1 02: Compressor 2	P07	◎	●	◎	ALT	Heat sink overheating trouble	Temperature sensor built into IPM (TH) detects overheating or has been short-circuited.
P22	#0:Element short circuit #1:Position detection circuit trouble #3:Motor lock trouble #4:Motor current trouble #C:TH Sensor temperature trouble #D:TH Sensor short circuit/release trouble #E:Vdc voltage trouble ∗Put in Fan IPDU No. in [#] mark	P22	◎	●	◎	ALT	Outdoor fan IPDU trouble	Outdoor fan IPDU detects trouble.
P26	01: Compressor 1 02: Compressor 2	P26	◎	●	◎	ALT	Activation of IPM short-circuit protection	Short-circuit protection for compressor motor driver circuit components is activated (momentary overcurrent).
P29	01: Compressor 1 02: Compressor 2	P29	◎	●	◎	ALT	Compressor position detection circuit trouble	Compressor motor position detection trouble is detected.

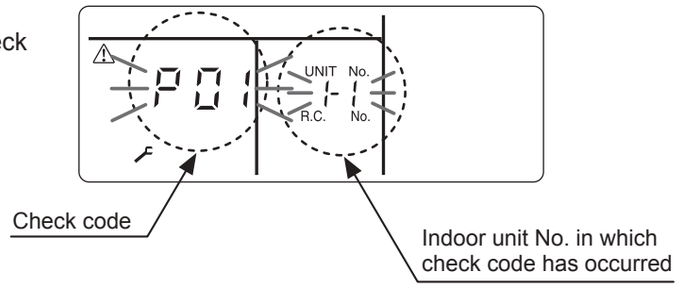
Note: The above check codes are examples only, and different check codes may be displayed depending on the outdoor unit configuration

8-3. Troubleshooting Based on Information Displayed on Remote Controller

Using main remote controller (RBC-AMT32E)

(1) Checking and testing

When a problem occurs to an air conditioner, a check code and indoor unit No. are displayed on the display window of the remote controller.
Check codes are only displayed while the air conditioner is in operation.
If the display has already disappeared, access check code history by following the procedure described below.



(2) Ckeck code history

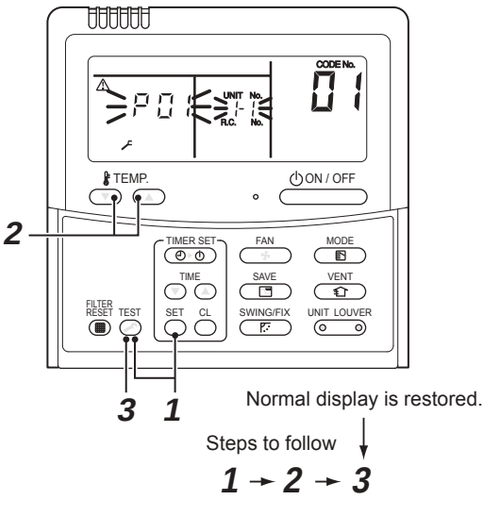
The check code history access procedure is described below (up to four check code stored in memory).
Check code history can be accessed regardless of whether the air conditioner is in operation or shut down.

<Procedure> To be performed when system at rest

1 **Invoke the SERVICE CHECK mode by pressing the TEST + SET buttons simultaneously and holding for at least 4 seconds.**
The letters " SERVICE CHECK" light up, and the check code "01" is displayed, indicating the check code history. This is accompanied by the indoor unit No. to which the check code history is related and a check code.

2 **To check other check code history items, press TEMP. button to select another check code.**
Check code "01" (latest) → Check code "04" (oldest)
Note: Check code history contains four items.

3 **When the TEST button is pushed, normal display is restored.**



REQUIREMENT

Do not push the CL button as it would erase the whole check code history of the indoor unit.

How to read displayed information

<7-segment display symbols>

0 1 2 3 4 5 6 7 8 9 A b C d E F H J L P

<Corresponding alphanumerical letters>

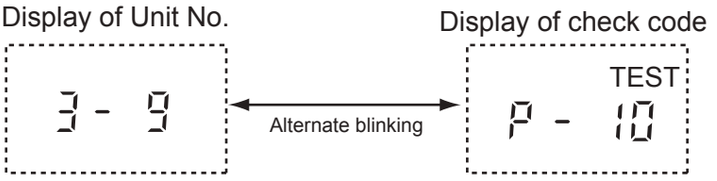
0 1 2 3 4 5 6 7 8 9 A b C d E F H J L P

Using TCC-LINK central remote controller (TCB-SC642TLE2)

(1) Checking and testing

When a problem occurs to an air conditioner, a check code and indoor unit No. are displayed on the display window of the remote controller. Check codes are only displayed while the air conditioner is in operation.

If the display has already disappeared, access check code history by following the procedure described below.



(2) Check code history

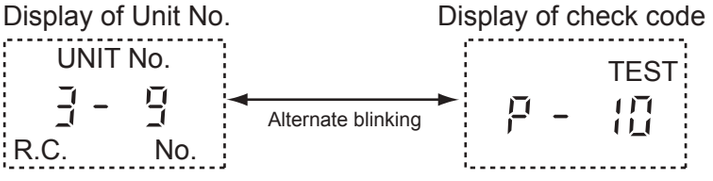
The check code history access procedure is described below (up to four check code stored in memory).
Check code history can be accessed regardless of whether the air conditioner is in operation or shut down.

1 **Push the TEST + SET buttons simultaneously and hold for at least 4 seconds.**

2 **The letters " SERVICE CHECK" light up, and the check code "01" is displayed.**

3 **When a group No. is selected (blinking), if there is a check code history, the UNIT No. and the latest check code history information are displayed alternately.**

*During this procedure, the temperature setting feature is unavailable.



4 **To check other check code history items, push the TEMP. button to select another check code (01-04.).**

5 **To check check code relating to another group, push (ZONE) and (GROUP) ◁ ▷ buttons to select a group No.**
Do not push the CL button as it would erase the whole check code history of the selected group.

6 **To finish off the service check, push the TEST button.**

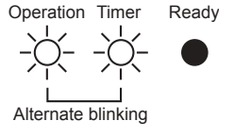
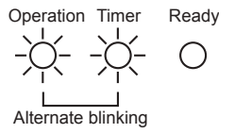
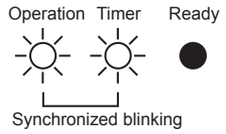
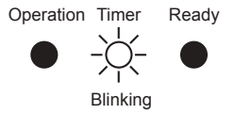
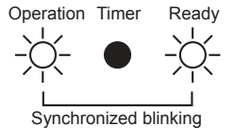
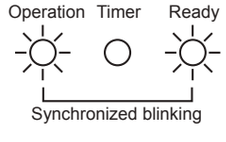
Using indoor unit indicators (receiving unit light block) (wireless type)

To identify the check code, check the 7-segment display on the header unit. To check for check codes not displayed on the 7-segment display, consult the “List of Check Codes (Indoor Unit)” in “8-2. Troubleshooting Method”.

●: Goes off ○: Lighting ☼: Blinking (0.5 seconds)

Light block	Check code	Cause of check code		
Operation ● Timer ● Ready ● All lights out	–	Power turned off or trouble in wiring between receiving and indoor units		
Operation ☼ Timer ● Ready ● Blinking	E01	Troubled reception	Receiving unit	Trouble or poor contact in wiring between receiving and indoor units
	E02	Troubled transmission		
	E03	Loss of communication		
	E08	Duplicated indoor unit No. (address)		Setting trouble
	E09	Duplicated master remote controller		
	E10	Indoor unit inter-MCU communication trouble		
	E12	Automatic address starting trouble		
	E17	Communication trouble between indoor unit(s) and FS unit(s)		
	E18	Trouble or poor contact in wiring between indoor units, indoor power turned off		
Operation ● Timer ● Ready ☼ Blinking	E04	Trouble or poor contact in wiring between indoor and outdoor units (loss of indoor-outdoor communication)		
	E06	Troubled reception in indoor-outdoor communication (Signal lack of indoor unit)		
	E07	Troubled transmission in indoor-outdoor communication		
	E15	Indoor unit not found during automatic address setting		
	E16	Too many indoor units connected/overloading		
	E19	Trouble in number of outdoor header units		
	E20	Detection of refrigerant piping communication trouble during automatic address setting		
	E23	Troubled transmission in outdoor-outdoor communication		
	E25	Duplicated follower outdoor address		
	E26	Troubled reception in outdoor-outdoor communication, Signal lack of outdoor unit		
	E28	Outdoor follower unit trouble		
	E31	IPDU communication trouble, sub MCU communication trouble		
Operation ● Timer ☼ Ready ☼ Alternate blinking	P01	Indoor AC fan trouble		
	P10	Indoor overflow trouble		
	P12	Indoor DC fan trouble		
	P13	Outdoor liquid backflow detection trouble		
Operation ☼ Timer ● Ready ☼ Alternate blinking	P03	Outdoor discharge (TD1) temperature trouble		
	P04	Activation of outdoor high-pressure SW		
	P05	Open phase/power failure Inverter DC voltage (Vdc) trouble MG-CTT trouble		
	P07	Outdoor heat sink overheating trouble - Poor cooling of electrical component (IPM) of outdoor unit		
	P15	Gas leak detection - insufficient refrigerant charging		
	P17	Outdoor discharge (TD2) temperature trouble		
	P19	Outdoor 4-way valve reversing trouble		
	P20	Activation of high-pressure protection		
	P22	Outdoor fan IPDU trouble		
	P26	Outdoor IPM short-circuit trouble		
	P29	Compressor position detection circuit trouble		
	P31	Shutdown of other indoor unit in group due to fault (group follower unit trouble)		

MG-CTT: Magnet contactor

Light block	Check code	Cause of check code	
	F01	Heat exchanger temperature sensor (TCJ) trouble	Indoor unit temperature sensor troubles
	F02	Heat exchanger temperature sensor (TC2) trouble	
	F03	Heat exchanger temperature sensor (TC1) trouble	
	F10	Ambient temperature sensor (TA/TSA) trouble	
	F11	Discharge temperature sensor (TF) trouble	
	F04	Discharge temperature sensor (TD1) trouble	Outdoor unit temperature sensor troubles
	F05	Discharge temperature sensor (TD2) trouble	
	F06	Heat exchanger temperature sensor (TE1, TE2) trouble	
	F07	Liquid temperature sensor (TL1) trouble	
	F08	Outside air temperature sensor (TO) trouble	
	F12	Suction temperature sensor (TS1,TS2) trouble	
	F13	Heat sink sensor (TH) trouble	
	F15	Wiring trouble in heat exchanger sensor (TE1) and liquid temperature sensor (TL1) Outdoor unit temperature sensor wiring/installation trouble	
	F16	Wiring trouble in outdoor high pressure sensor (PD) and low pressure sensor (PS) Outdoor pressure sensor wiring trouble	
	F17	Outside air suction temperature sensor (TOA) trouble	
	F18	Indoor air suction temperature sensor (TRA) trouble	
	F23	Low pressure sensor (PS) trouble	Outdoor unit pressure sensor troubles
	F24	High pressure sensor (PD) trouble	
	F29	Fault in indoor EEPROM	
	H01	Compressor breakdown	Outdoor unit compressor-related troubles
	H02	Compressor lockup	
	H03	Current detection circuit trouble	
	H05	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD1)	
	H06	Abnormal drop in low-pressure sensor (PS) reading	Protective shutdown of outdoor unit
	H07	Abnormal drop in oil level	
	H08	Trouble in temperature sensor for oil level detection circuit (TK1, TK2, TK4 or TK5)	
	H15	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD2)	
	H16	Oil level detection circuit trouble - Trouble in outdoor unit TK1, TK2, TK4 or TK5 circuit	
	L02	Outdoor unit model unmatched trouble	
	L03	Duplicated indoor group header unit	
	L05	Duplicated priority indoor unit (as displayed on priority indoor unit)	
	L06	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	
	L07	Connection of group control cable to stand-alone indoor unit	
	L08	Indoor group address not set	
	L09	Indoor capacity not set	
	L04	Duplicated outdoor refrigerant line address	
	L10	Outdoor capacity not set	
	L12	FS unit(s) system trouble	
	L17	Outdoor model incompatibility trouble	
	L18	Flow selector units trouble	
	L20	Duplicated central control address	
	L23	SW setting mistake	
	L24	FS unit(s) setting trouble	
	L28	Too many outdoor units connected	
	L29	Trouble in number of IPDUs	
	L30	Indoor external interlock trouble	