FILE NO. SVM-23087-4

TOSHIBA

SERVICE MANUAL

AIR-CONDITIONER
(OPTION KIT)

LC DX-COIL INTERFACE

Model name:

Dx-coil controller

TCB-IFDLR01UP-E (Terminal block with relay)

- For the outdoor unit, refer to the service manual.
- For the Air Handling Unit contact the manufacturer you made the purchase.
- TOSHIBA Carrier does not take any responsibility on the local design.

Revised on May, 2024

CONTENTS

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 to do them.
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 (*1)	• The qualified installer is a person who installs, maintains, relocates and removes the air conditioners. He or she has been trained to install, maintain, relocate and remove the air conditioners, 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, 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, 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, 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 (*1)	• The qualified service person is a person who installs, repairs, maintains, relocates and removes the air conditioners. He or she has been trained to install, repair, maintain, relocate and remove the air conditioners, 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, 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, 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, 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 Dx-coil interface 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 worn
All types of work	Protective gloves 'Safety' working clothing
Electrical-related work	Gloves to provide protection from electric shock Insulating shoes Clothing to provide protection from electric shock
Work done at heights (50 cm or more)	Helmets for use in industry
Transportation of heavy objects	Shoes with additional protective toecap
Repair	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.

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 to the OFF position. Otherwise, electric shocks may result.
	Before opening the electrical box cover, 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 electrical box cover
	When cleaning the filter (sold separately) 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 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 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.
	When checking the electric parts, removing the cover of the electric parts box of the Dx-coil interface inevitably to determine the failure, use gloves to provide protection for electricians, insulating shoes, clothing to provide protection from electric shock and insulating tools. Be careful not to touch the live part. Electric shock may result. Only “Qualified service person” is allowed to do this work.
 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.
	When checking the electric parts, removing the cover of the electric parts box of the Dx-coil interface inevitably to determine the failure, put a sign “Do not enter” around the site before the work. Failure to do this may result in third person getting electric shock.
	Before operating the air conditioner after having completed the work, check that the electrical parts box cover of the Dx-coil interface is 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 the Dx-coil interface 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.

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

⚠ WARNING

General	Before starting to repair the Dx-coil interface, 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 Dx-coil interface. Repair of the Dx-coil interface 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 Dx-coil interface. 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 the Dx-coil interface is to be transported, installed, maintained, repaired or removed, wear protective gloves and 'safety' work clothing.
	To connect the electrical wires, repair the electrical parts or undertake other electrical jobs, wear gloves to provide protection for electricians, 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.
	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.
	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.
	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.
	Before 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. While carrying out the work, wear a helmet for protection from falling objects.
	When executing address setting, test run, or troubleshooting on the electric parts box, put on insulated gloves to provide protection from electric shock. Otherwise you may receive an electric shock.
	Do not climb onto or place objects on top of the Dx-coil interface. You may fall or the objects may fall off of the Dx-coil interface and result in injury.
	When transporting the Dx-coil interface, wear shoes with protective toecaps, protective gloves and other protective clothing.
	When transporting the Dx-coil interface, do not take hold of the bands around the packing carton. You may injure yourself if the bands should break.
	A weight, such as the compressor unit (more than 10kg), please make sure to carry two persons.
	This Dx-coil interface has passed the pressure test as specified in IEC 60335-2-40 Annex EE.
	Do not add any other devices without factory advice.
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.

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

 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 Dx-coil interface 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 water-cut 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 in flammables close to the refrigerant cycle, otherwise fire of the welder may catch the in flammables.
 Refrigerant	The refrigerant used by this Dx-coil interface 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.
	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.
	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 Dx-coil interface 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.
	To add the refrigerant, follow the Installation Manual and Service Manual of the outdoor unit.
	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.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous.
	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 electrical box cover 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.
	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 generate.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cocking stove though the refrigerant gas itself is innocuous.
 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, reclaim 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 cocking stove though the refrigerant gas itself is innocuous. When installing equipment which includes a large amount of charged refrigerant in a sub-room, it is necessary that the concentration does not the limit even if the refrigerant leaks. If the refrigerant leaks and exceeds the limit concentration, 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 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 electrical box cover.
	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 Dx-coil interface. 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 reclaim 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 reputing, injury, etc.

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

 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 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 or service person is allowed to do installation work. Inappropriate installation may result in water leakage, electric shock or fire.
	Before starting to install the Dx-coil interface, read carefully through the Installation Manual, and follow its instructions to install the Dx-coil interface.
	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.
	Do not supply power from the power terminal block equipped on the outdoor unit to another outdoor unit. Capacity overflow may occur on the terminal block and may result in fire.
	Do not install the Dx-coil interface 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.
	Install the indoor unit at least 2.5 m above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the indoor unit while the air conditioner is running.
	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.

Relocation

- Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the Dx-coil interface. 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 reclaim 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 reputing, injury, etc.

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

1. Overview

LC Dx-coil interface is the product that is used with connecting the AHU with the DX COIL prepared on-site to the TOSHIBA LC outdoor unit.

* 1 DX COIL: Abbreviation of the Direct expansion coil (heat exchanger).
* 2 DDC: Abbreviation of the Direct Digital Controller.
* 3 AHU: Abbreviation of the Air Handling Unit.

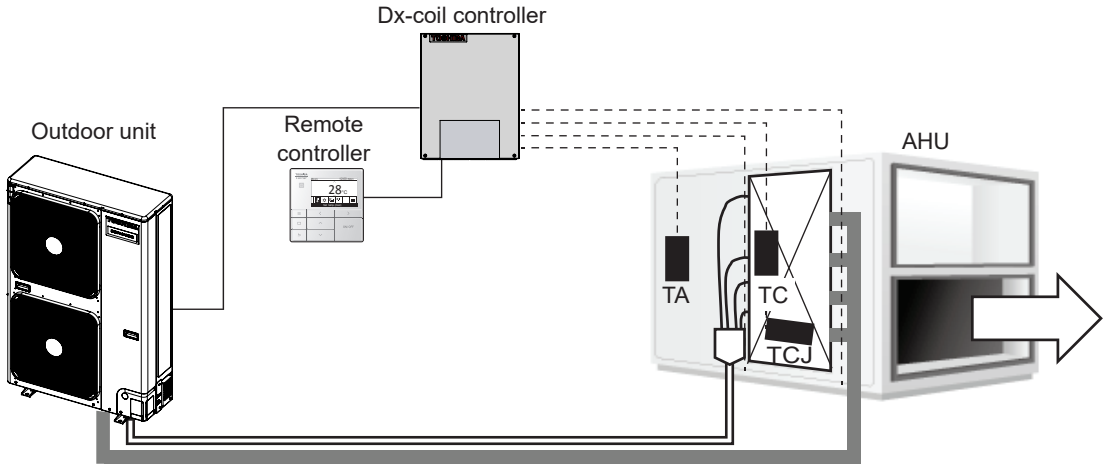
For the installation of the air handling unit, refer to the Installation Manual of the air handling unit.

- Dx-coil interface (DDC type use for Supply air temperature) cannot control the room temperature.

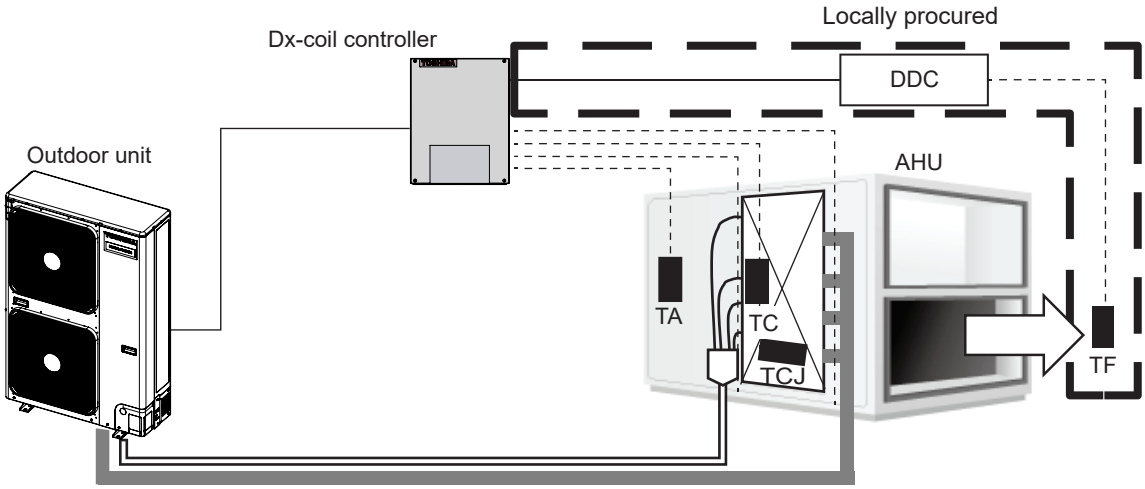
■ Example of the system configuration

LC Dx-coil interface can connect to SDI, DI, DI Big.
In one cycle the outdoor unit and Dx-coil interface shall be one each for the structure.
For the AHU prepared on-site, please design with referring to submittal of AHU.

TA type : Enables to connect 3rd party indoor unit or air handing unit as one of LC indoor unit.
(Return air temperature control by remote controller setting)
Main application target – Room temperature conditioning



DDC type : Direct capacity control of Toshiba Carrier LC outdoor unit by analogue input (0-10 V)
Mainly discharge air temperature control linked AHU system.



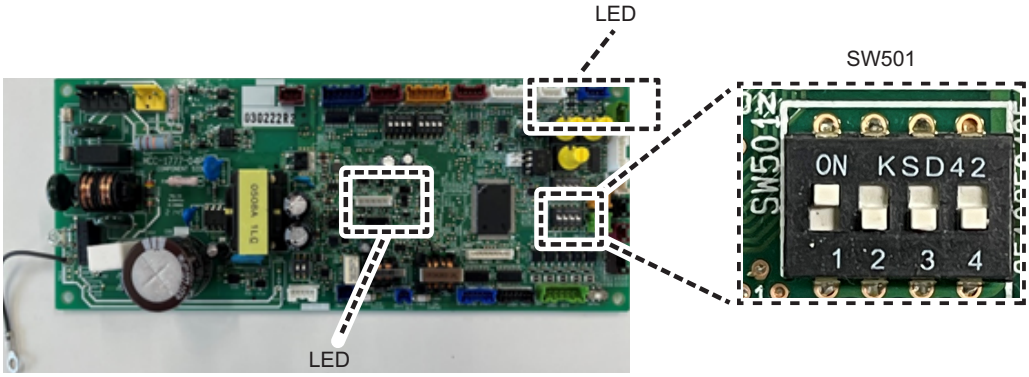
< Connectable CDU >

SDI	- Super Digital Inverter (SDI)	1ph/220-240V	RAV-GP***AT*-*	(2-3HP)
		1ph/220-240V	RAV-GP***AT-*	(4-6HP)
		3ph/400V	RAV-GP***AT8*-*	(4-6HP)
DI	- Digital Inverter (DI)	1ph/220-240V	RAV-GM***AT-*	(1-2HP)
		1ph/220-240V	RAV-GM***AT*-*	(3-6HP)
		3ph/400V	RAV-GM***AT8*-*	(4-6HP)
DI Big	- Digital Inverter Big (DI-Big)	3ph/400V	RAV-GM****AT8-*	(8-10HP)

Regarding system configuration, it allows only 1:1 systems

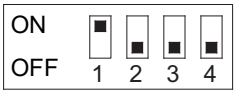
■ Settings for each type (TA, DDC)

Set with the SW501 switch on the control P.C. board MCC-1777.



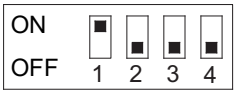
SW501 setting

Bit 1 : ON



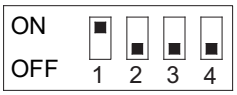
For LC model

Bit 2 : OFF



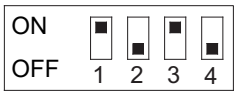
TA type

Bit 3 : OFF



*1

Bit 3 : ON

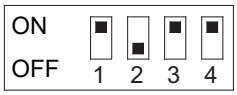


DDC type *2

Bit 4 : OFF

Stepped control

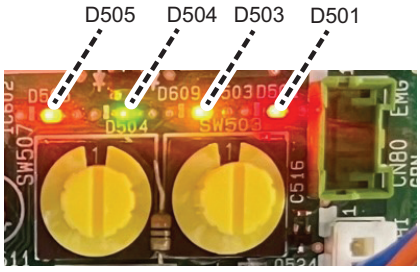
Bit 4 : ON



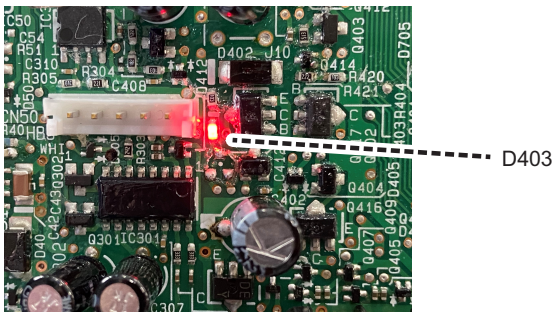
Linear control

*1 : When Bit 3 is OFF, type depends on the Bit 2 setting
*2 : When Bit 3 is ON, Bit 2 setting is invalid (Type is DDC type)

LED position and details

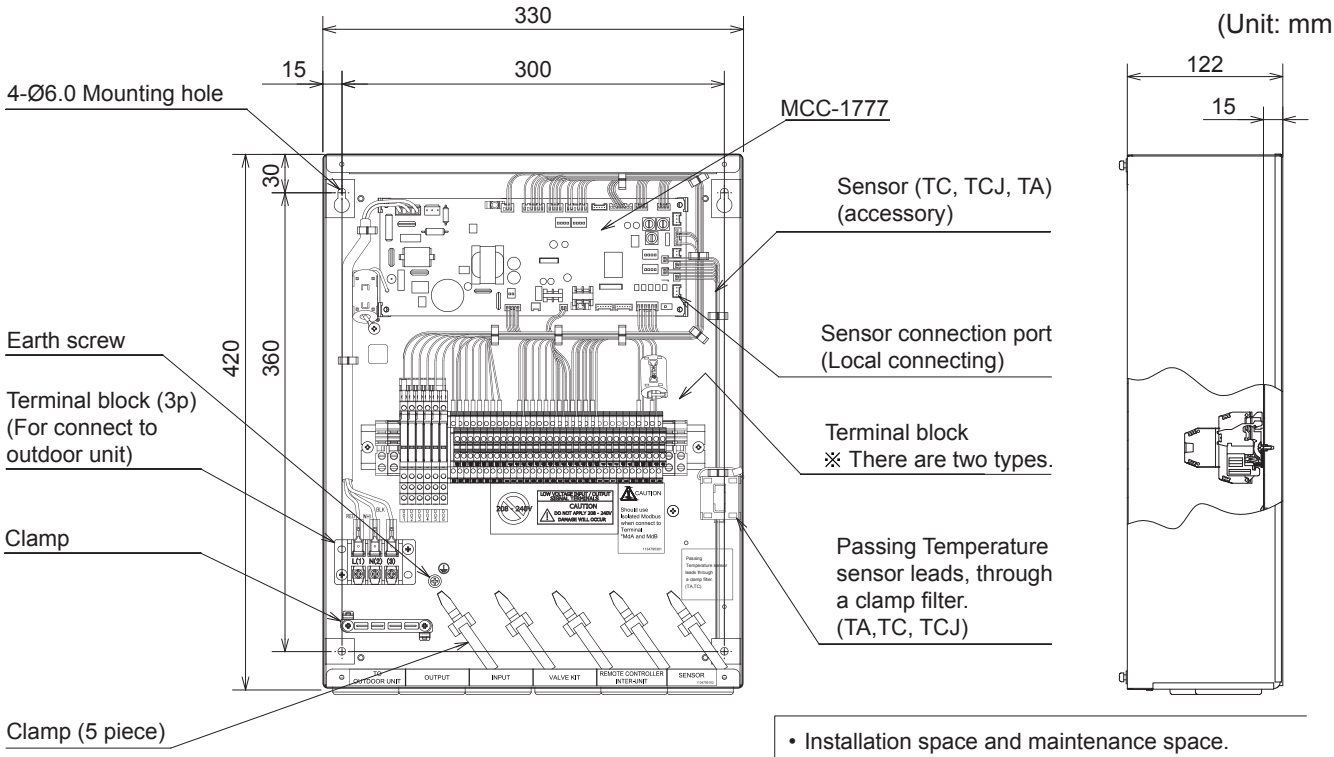


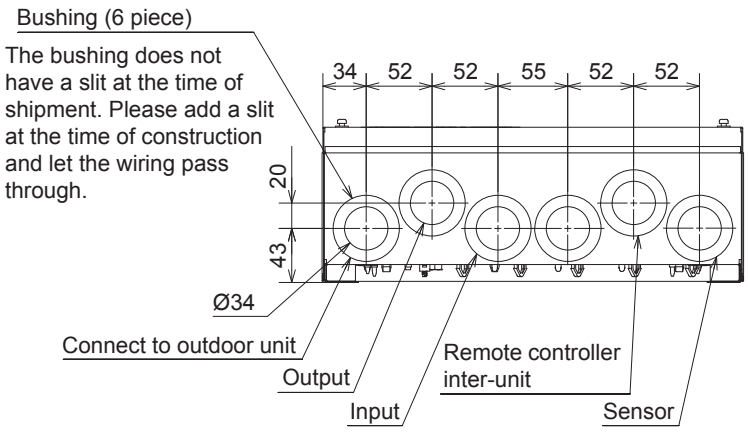
P.C. board LED		Meaning of lighting
D501	MCU power supply	Lights when the power is turned on
D503	Main bus communication	Flashes every 5 seconds. With central control: lighting and flashing every 5 seconds.
D504	Sub bus communication	Flashes every 5 seconds. Group: lighting and flashing every 5 seconds.
D505	Mod bus communication	When connected to Modbus, it lights up every 5 seconds.
D403	Sub bus power supply	Sub bus lights while power is being supplied.

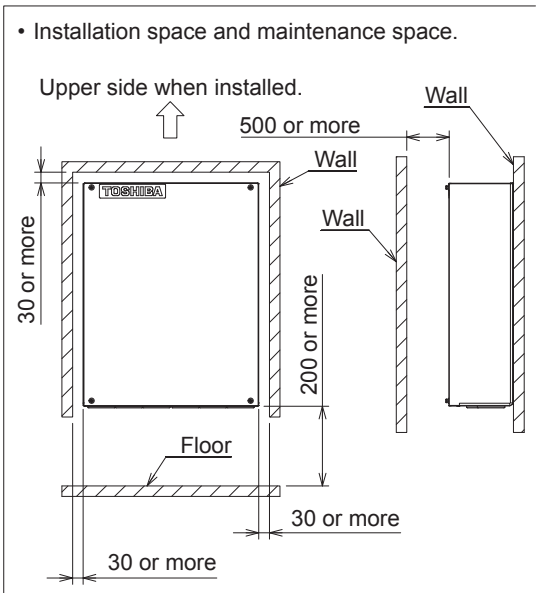


2. CONSTRUCTION VIEWS (EXTERNAL VIEWS)

(Unit: mm)

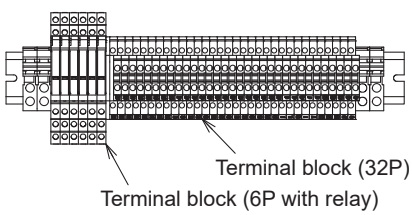




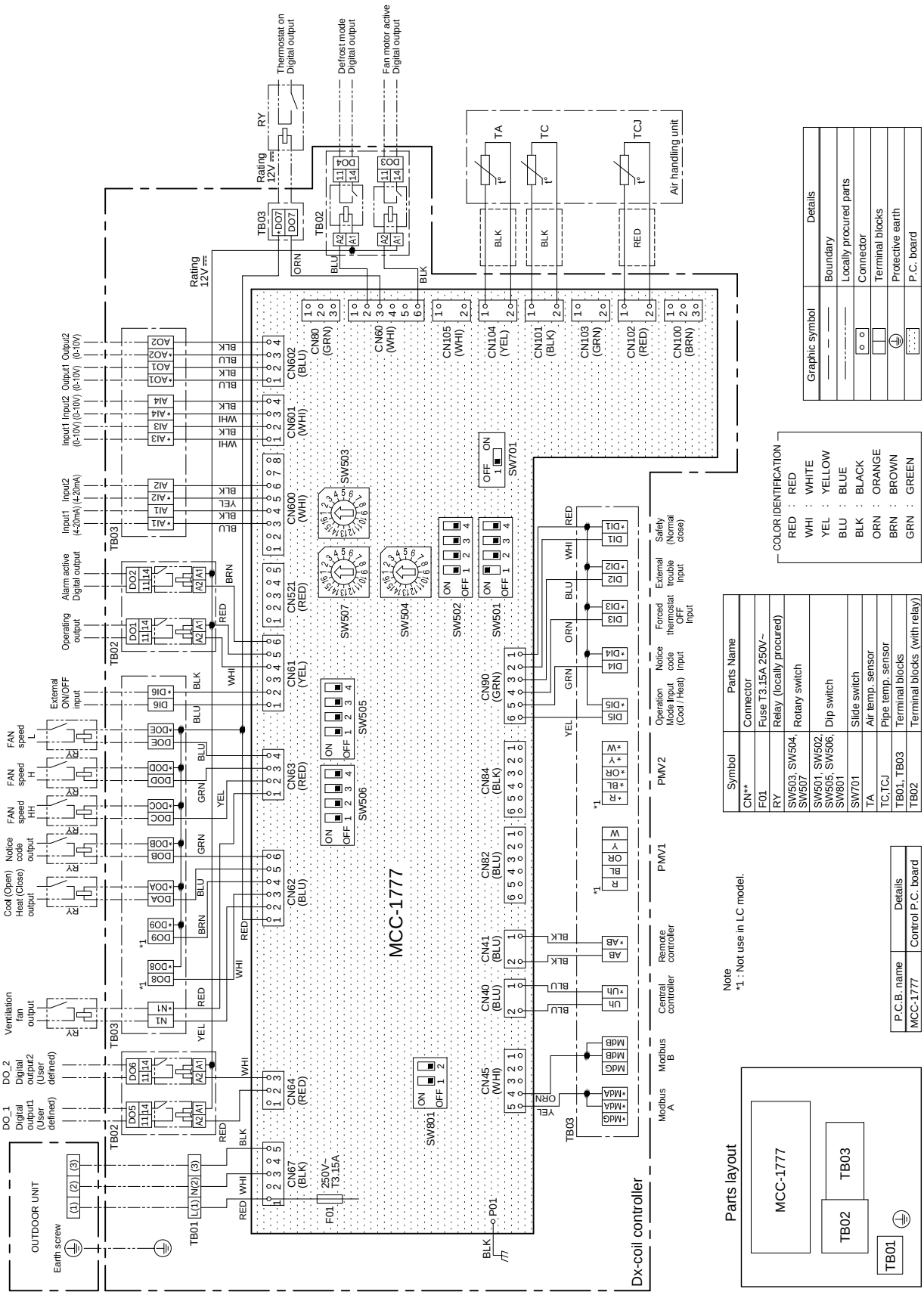


Note)
- This product is designed for the indoor installation.
- If the temperature sensor is short, use the Optional Sensor TCB-IFDES1001P-E. (Temperature sensor with 10 m wiring length)

※ Terminal block type classification table.

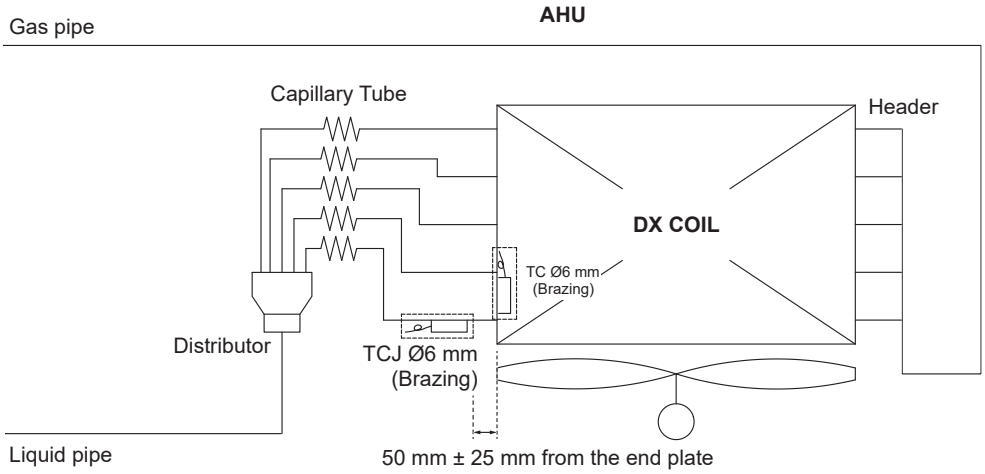
TCB-IFDLR01UP-E (Terminal block with relay)	

3. WIRING DIAGRAMS



4. REFRIGERANT CYCLE DIAGRAM

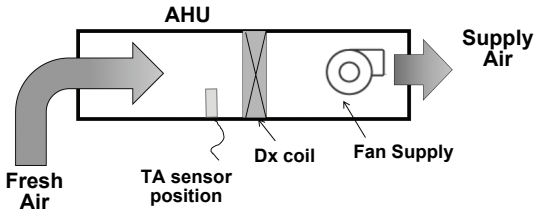
4-1. TC and TCJ sensor position on DX COIL



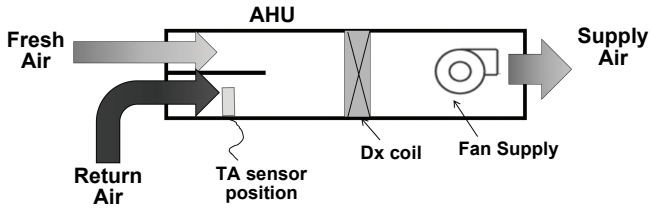
DX COIL type: Normal

Example TA sensor position

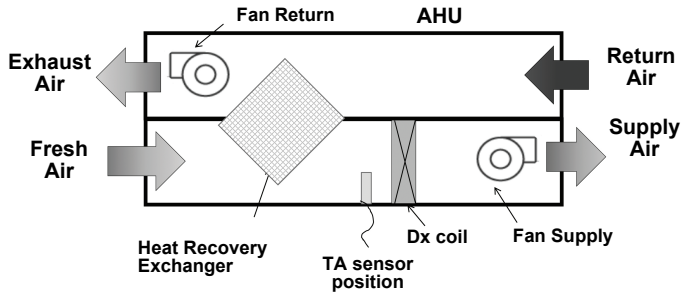
1. Fresh Air Only



2. Outdoor Air (Fresh Air) mixed with Return Air



3. Outdoor Air (Fresh Air) mixed with Return Air by Heat Recovery Exchanger



4-2. Installation temperature sensor

By the refrigerant circuit diagram, braze the sensor holder of TC, TCJ and the accessory.
Refer to the below table for the pipe diameter and the pipe length to use.

Sensor holders

- To ensure reliable operation, all Sensor holders must be fitted by brazing.
- Be careful of that the brazing material does not enter into the sensor holder when attaching the TC and TCJ sensor holder.

TC sensor

- Install in the Dx-coil piping where the temperature of the pipe is lowest.
  (TC sensor is attached to the refrigerant cycle of AHU.)

TCJ sensor

- Install it in the pass where the temperature of the capillary tube is the lowest.
- Keep a distance of 50 mm ± 25 mm from the end plate.

TA sensor

- Install the TA sensor where the better of air flow.
- The TA sensor must be located in the Return Air position, prior to mixing with any fresh air.

If the TC or TCJ sensor are easy to be subjected to the surrounding thermal effect, cover them with the heat insulator material, and fix them with the fixing band.
If the lead wires of various sensors are left over, protect them from the effects of external force, heat, and water, and fix them with a fixing band. If the lead wires of various sensors do not reach, use the Optional Sensor (10 m cable) TCB-IFDES1001P-E.

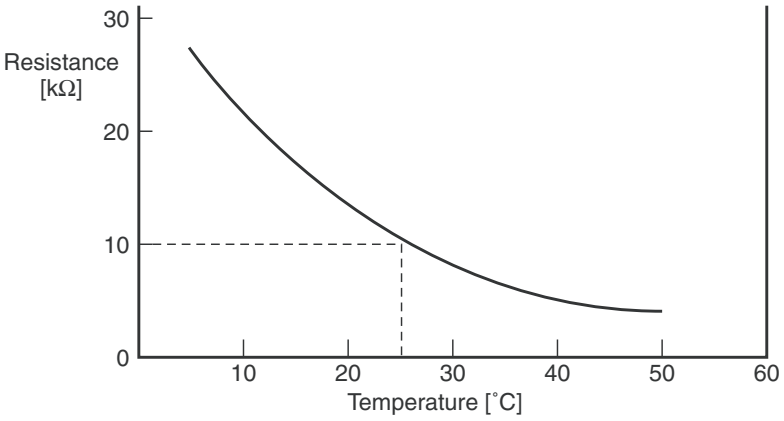
5. PARTS RATING

Dx-coil controller

No	part name	Model name or specification		Q'ty
				TCB-IFDLR01UP-E
1	P.C. board	MCC-1777		1
2	Terminal block (3P, for power supply)	JXO-3B, AC250V 20A		1
3	Terminal block (for signal lines)	PCKK2.5-01P-11-00A(H)		32
4	Terminal block with relay (for signal lines)	G2RV-SR700		6
		Relay model name	G2RV-SR700-12DC	
		Contact rating	250V max / 3A max (Minimum Current: 10 mA more)	
		Load conditions	Resistive load	
5	TA sensor	Length: 7.5 m, Connector color: Yellow		1
6	TC sensor	Length: 7.5 m, Connector color: Black		1
8	TCJ sensor	Length: 7.5 m, Connector color: Red		1

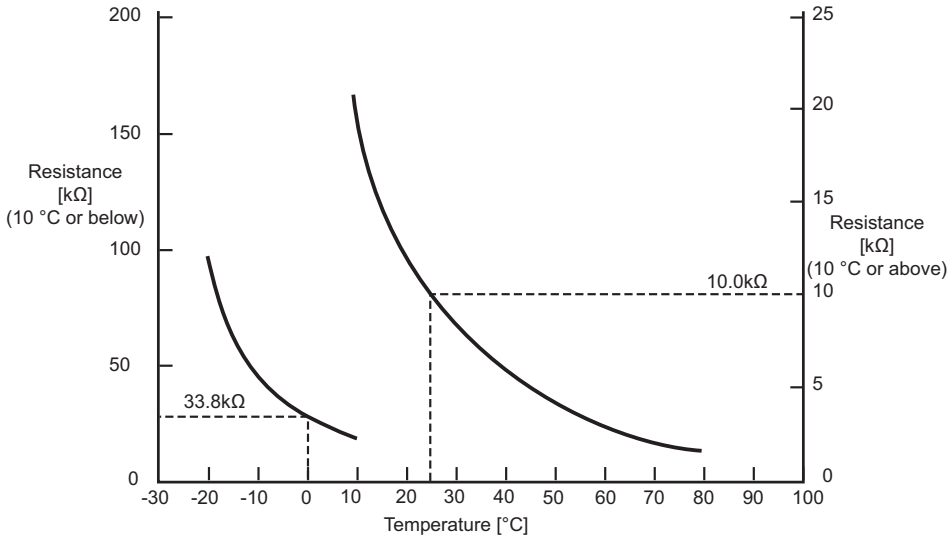
▼ Temperature sensor characteristics

TA sensor



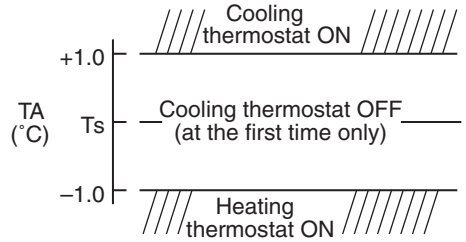
Temperature [˚C]	Resistance [kΩ]
0	33.9
5	26.1
10	20.3
15	15.9
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.6
60	2.4

TC and TCJ sensors



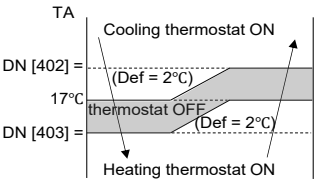
Temperature [°C]	Resistance [kΩ]
-20	101.7
-15	76.3
-10	57.7
-5	44.0
0	33.8
5	26.1
10	20.4
15	16.0
20	13.0
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3
65	1.9
70	1.6
75	1.4
80	1.1

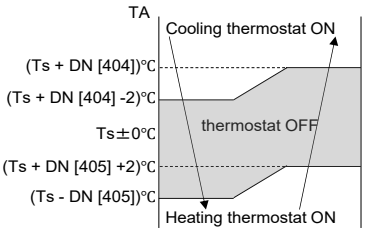
6. CONTROL OUTLINE

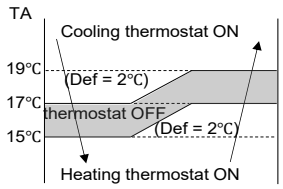
<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>1</td><td>Upon power supply reset</td><td>1) Distinction of outdoor unit
When the power supply is reset, the outdoors are distinguished and the control is selected according to the distinguished result.
2) If resetting the power supply during occurrence of a trouble, the check code is once cleared. After ON/OFF button of the remote controller was pushed and the operation was resumed, if the abnormal status continues, the check code is again displayed 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 stop</td></tr><tr><td>COOL</td><td>Cooling operation</td></tr><tr><td>HEAT</td><td>Heating operation</td></tr></table><table><tr><td>AUTO
Heat recovery system outdoor unit type
(TA type)</td><td>• TA and Ts automatically select COOL/HEAT operation mode for operation.
• The operation is performed as shown in the following figure according to TA value at the first time only.
(In the range of Ts – 1 < TA < Ts + 1, Cooling thermostat OFF (Fan) / Setup air volume operation continues.)
 
∗ Heat recovery system outdoor unit type can select automatic mode.</td></tr></table></td><td>Ts: Temperature setting
TA: Room temperature</td></tr>
</table>

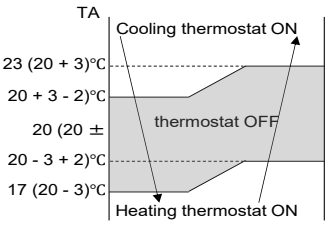
<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td></td><td></td><td>
AUTO
Heat recovery system outdoor unit type

The difference between the suction temperature and the discharge temperature and suction temperature set by the remote controller automatically switches between cooling and heating operations. If both conditions 1 and 2 are satisfied, the thermostat will be turned on.
※For TA = Suction air temperature.

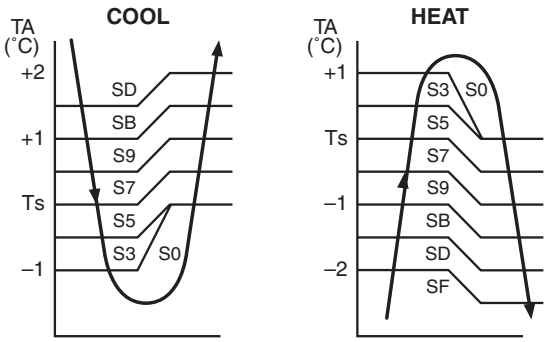
<Thermostat ON condition 1>
Judgment by suction air temperature (TA)


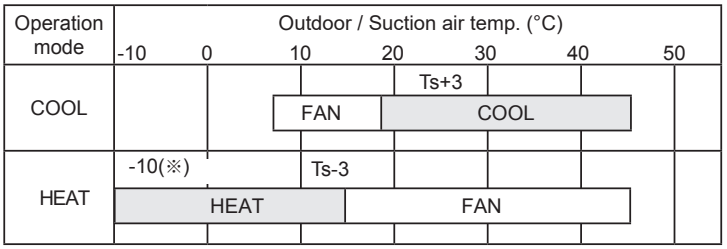
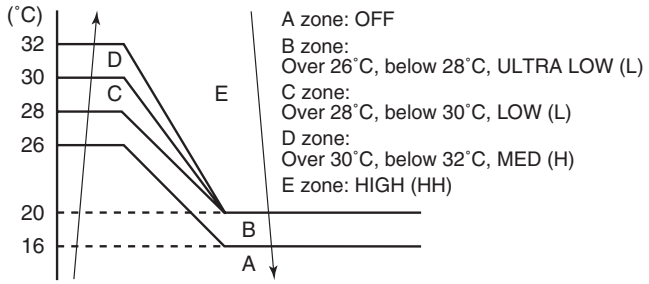
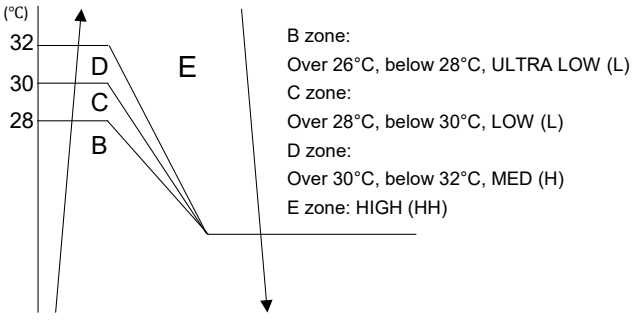
<Thermostat ON condition 2>
Judgment by Ts


Example: Ts = 20 ℃,
DN [402] = 19 / [403] = 15 / [404] = 0003 / [405] = 0003


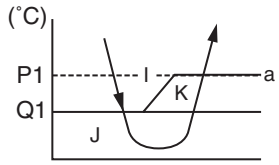


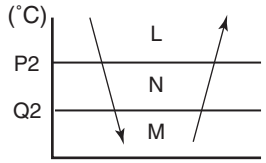
∗ Heat recovery system outdoor unit type can select automatic mode.
</td><td></td></tr>
<tr><td>3</td><td>Remote controller temperature setting (temperature of discharge air)</td><td>
1. Adjustment range - remote controller temperature setting (°C)
<table>
<tr><td>Type</td><td>COOL</td><td>HEAT</td><td>AUTO</td></tr>
<tr><td>TA</td><td>18~29</td><td>18~29</td><td>18~29</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><td></td><td>SET DATA</td></tr>
<tr><td>TA type</td><td>2</td></tr>
</table>
</td><td>DDC type : Shift in heating suction temperature. Since there is no function of the room temperature control, the room temperature and the outlet temperature are not controlled even if this setting is changed.</td></tr>
</table>

NO.	Item	Specification outline	Remarks
4	Automatic capacity control	(TA type) Based on the difference between TA and Ts, the operation capacity is determined by the outdoor unit.  	Ts: Temperature set by remote controller. TA: Room temperature.
5	Forced Thermo-OFF	The Forced thermostat OFF will be activated when conditions below are satisfied. (1) Outdoor / Suction air temp. (TA) ・COOL ・・・ When TA ≦ 19°C (T α c) ・HEAT ・・・ When TA ≧ 15°C (T α h) or when TA ≦ -10°C (2) Outdoor / Suction air temp. (TA) and temperature set by remote controller (Ts) ・COOL ・・・ When TA≦ Ts + 3°C (T β c) ・HEAT ・・・ When TA≧ Ts − 3°C (T β h)	CODE No. (DN) Tαc : (DN)「402」=0019 Tαh : (DN)「403」=0015 Tβc : (DN)「404」=0003 Tβh : (DN)「405」=0003 Tγc : (DN)「406」=0003 Tγh : (DN)「407」=0060

NO.	Item	Specification outline	Remarks
6	Forced Fan OFF	When the Outdoor / Suction air temp. is low, the following controls will be operated. (1) The fan is forcibly turned off according to the temperature of outdoor ambient (suction) (TA) ・COOL・FAN ・・・ When TA ≦ 5°C ・HEAT ・・・ When TA ≤ -10°C (2) After FAN OFF for 60 minutes, FAN will be ON for 1 minute. If the Forced Fan OFF will be continued or released depends on the Outdoor / Suction air temp. (TA) at that time. <Deactivate condition> ・COOL・FAN ・・・ When TA ≧ 7°C ・HEAT ・・・ When TA ≧ -8 °C (3) Other deactivate conditions of Forced Fan-OFF ・Turn off ・Mode setting ・Test run mode 	OPERATION STANDBY is displayed 
7	Prevention of cold air discharge (TA type) (DDC type)	1. In heating operation, the lowest temperature between TC sensor and the highest temperature between TCJ sensor is set as the upper bound of the fan speed mode control. • When B zone has been continuing for 6 minutes, the operation shifts to C zone. • For the defrosting operation, the control point is set to +6˚C.  	TCJ: Temperature of indoor heat exchanger sensor • In D and E zones, priority is given to remote control-ler fan speed setup. • In A zone “ ❁ ” is displayed.

<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>8</td><td>Freeze prevention control (low temp. release)</td><td>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) TC ≥ 12 °C, and TCJ ≥ 12 °C
 

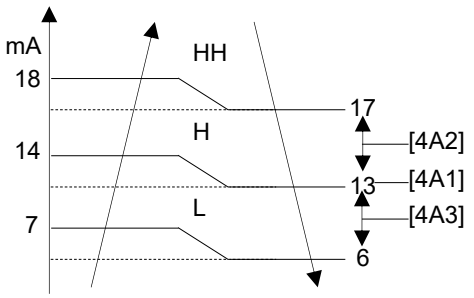
<table><tr><td></td><td>TC</td><td>TCJ</td></tr><tr><td>P1</td><td>10˚C (5˚C)</td><td>–10˚C</td></tr><tr><td>Q1</td><td>0˚C</td><td>–14˚C</td></tr></table>
2) Passage of 20 minutes after stoppage
2. During cooling, the air conditioner is operated in the manner described below according to the temperature readings of the TC 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.
 

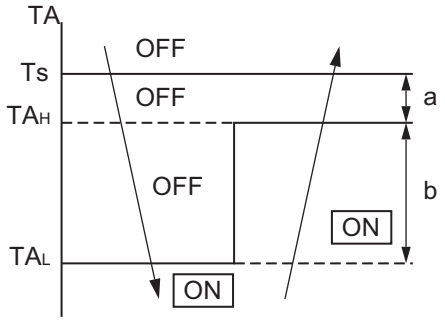
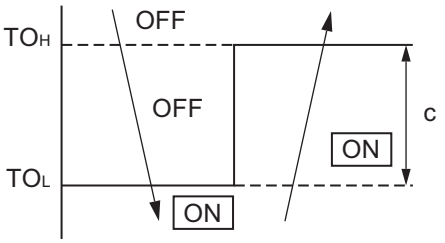
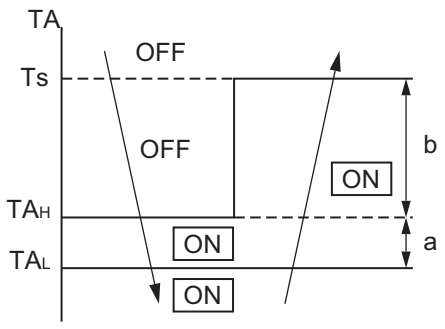
<table><tr><td></td><td>TC, TCJ</td></tr><tr><td>P2</td><td>5</td></tr><tr><td>Q2</td><td>–2.0</td></tr></table>
• If zone L operation is detected, the timer count is cleared, and the air conditioner returns to normal operation.
Reset conditions
1) TC ≥ 12 °C and TCJ ≥ 12 °C
2) Passage of 20 minutes after stoppage</td><td>• If this control occurs frequently, check the mounting position of the temperature sensor. The TC1 sensor position may be incorrect.</td></tr>
<tr><td>9</td><td>Refrigerant (Oil) recovery control in cooling operation</td><td>Indoor units during stop/thermostat OFF or FAN operation perform following controls when a refrigerant (compressor oil) recovery signal is received from outdoor unit at the cooling operation,

(1) Opening the indoor unit PMV at constant valve opening.
(For a maximum of about 4 minutes)</td><td>Control is performed per two hours or when the outdoor unit determines its need.(It varies depending on the indoor units connected.)</td></tr>
</table>

NO.	Item	Specification outline	Remarks
10	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. Note) For details, refer to the outdoor unit Service manual.	• 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.
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. (For TA and DDC type is 18 minutes) 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	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.	
13	Operation standby Heating standby	<Operation standby> ..... Displayed on remote controller 1. When any of the check codes listed below is displayed • "P05" - Detection of an open phase in the power supply wiring • "P10" - Detection of "Safety contact is open" in at least one indoor unit • "L30" - Detection of "External trouble Input (terminal DI2 / *DI2)" in at least one indoor unit 2. Forced thermostat OFF • "COOL / DRY" operation is unavailable because at least one indoor unit is operating in "HEAT" mode. • "HEAT" operation is unavailable because at least one indoor unit is operating in "COOL / DRY" mode under priority cooling setting (External trouble Input (terminal DI2 / *DI2)). 3. All indoor units not able to engage in any of the above operations stand by in thermostat OFF state. 4. 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 When stopping the fan to prevent the blowing of the cooled air when the heating operation is started or operated.	• "OPERATION STANDBY ⏻ " displayed No display provided on wireless remote controller • "HEATING STANDBY ⚙ " displayed

NO.	Item	Specification outline	Remarks
14	Frequency fixed operation (Test run)	**<In case of wired remote controller>** 1) When pushing [CHK] button for 4 seconds or more, [TEST] is displayed on the display screen and the mode enters in Test run mode. 2) Push [ON/OFF] button. 3) Using [MODE] button, set the mode to [COOL] or [HEAT]. • Do not use other mode than [COOL]/[HEAT] mode. • During test run operation, the temperature cannot be adjusted. • An trouble is detected as usual. • A frequency fixed operation is performed. 4) After the test run, push [ON/OFF] button to stop the operation. (Display in the display part is same as the procedure in Item 1.) 5) Push [CHK] button to clear the test run mode. ([TEST] display in the display part disappears and the status returns to the normal stop status.)	Command frequency is approximately [S7]
15	Safety contact (P10)	1. “P10” is displayed in the following cases. • If detection of “Safety contact is open” at least in one indoor unit. • During the cooling dry (automatic cooling) operation, if the open is detected, the thermostat is forcibly turned off and the check code is displayed. If the open is continued for 1 minute during the heating blowing operation, the thermostat is forcibly turned off and the check code is displayed after 5 minutes continuation.	If this contact is not used, a bridge connection should be installed on the terminals DI1 / *DI1.
16	External trouble Input (L30)	1. “L30” is displayed in the following cases. • Detection of “External trouble Input (terminal DI2 / *DI2)” at least in one indoor unit. • During the operation, if the short-circuit is detected, the thermostat is forcibly turned off, and the check code is displayed after 1 minute continuation. • If the check code is confirmed, only the target indoor unit stops.	Fan trouble input is opened at shipping.
17	Auxiliary temperature sensor (Tx)	The following functions can be used by connecting the Optional Sensor (TCB-IFDES1001P-E) (sold separately). ※Prepare an Optional Sensor according to the intended use and connect it to CN105. (1) Select the intended use of Tx. DN [4A7] = 0000: Not used / 0001: TA sensor (2) Select whether to use Tx as a substitute for the sensor selected in DN [4A7] or as an average. DN [4A8] = 0000: Use as an alternative. 0001: Example of averaging and using) TA'= (TA + TX) / 2 (3) The Tx sensor value is displayed on the DN [F5] of the remote controller.	Auxiliary temperature sensor trouble is notified as a Notice code.

<table>
<tr><th>NO.</th><th>Item</th><th>Specification outline</th><th>Remarks</th></tr>
<tr><td>18</td><td>FAN control by external input</td><td>Change the fan speed by inputting 4-20mA to the terminal ＊AI1 / AI1.
(1) 4- 20mA upload fan speed
DN [4A0] = 0000: No setting
= 0001: With control (FAN control from the outside is prioritized)
= 0002: With control (Priority is given to FAN control by 4 - 20mA input)
DN [4A1] = 0014: 14mA (default) applicable range 7mA to 16mA
DN [4A2] = 0004: [4A1] + 4mA (default) applicable range +1 to +11
DN [4A3] = 0007: [4A1] - 7mA (default) applicable range -1 to -12
 
</td><td></td></tr>
<tr><td>19</td><td>FAN output (0-10V)</td><td>The FAN speed is output at 0 - 10V from the terminal ＊AO1 / AO1.
Each output voltage value can be changed by the DN code.
＊The ripple voltage of 0 - 10 V is less than ± 30 mV of the set voltage. Connect equipment that is not affected by this ripple voltage. Terminal AO2 / AO2 cannot be used.
<table><tr><th>FAN speed</th><th>Output (Default)</th><th>DN code (Default)</th><th>Applicable range</th></tr><tr><td>HH</td><td>9V</td><td>4A4 (0009)</td><td>8V (0008) -10V (0010)</td></tr><tr><td>H</td><td>6V</td><td>4A5 (0006)</td><td>4V (0004) - 7V (0007)</td></tr><tr><td>L</td><td>2V</td><td>4A6 (0002)</td><td>1V (0001) - 3V (0003)</td></tr><tr><td>STOP</td><td>0V</td><td>-</td><td>-</td></tr></table></td><td></td></tr>
</table>

NO.	Item	Specification outline	Remarks
20	Secondary heating	Secondary heating can be used while heating operations are performed. <Control Outline (Normal Mode)> 1) If the difference between the indoor temperature and the outdoor temperature is large while the air conditioner is operating, turn ON the secondary heating. 2) This function is valid when the CODE No. (DN) [DC] is set to ”0001” (0.5ºC) to “0010” (5.0ºC) using the wired remote controller, and the output to the external heating source will turn ON if the room temperature satisfies the condition. 3) The output will always stay ON while defrosting operations are being performed.  4) The output can be turned on by the outdoor temperature when CODE No. (DN) [C7] is set to “0001” (1ºC) to “0010” (10ºC) using the wired remote controller.  <Control Outline (Flip Mode)> 1) If the difference between the room temperature and the set temperature is large while using secondary heating, run the air conditioner. 2) This function is valid when the CODE No. (DN) [C5] is set to ”0001” (Flip mode) or the CODE No. (DN) [C7] is set to “0001” (1ºC) to “0010” (10ºC) using the wired remote controller, and when the output is switched ON when the room temperature satisfies the conditions. * The outdoor temperature determination is invalid whilst this control is performed.  	TAH : Temp.set air high (= Ts - a) TAL : Temp.set air low (= TAH - b) TOH : Temp.set out high TOL : Temp.set out low (= TOH - c)

NO.	Item	Specification outline	Remarks
20	Secondary heating (Continued)		

DN [C5]

Data	Secondary heating mode
0000	Normal mode (Factory default)
0001	Flip mode

DN [C6]

Data	TO_H: Set temp. out (high) [ºC]
-0015 to 0015	"-0015": -15ºC to "0015": 15ºC "0000": 0ºC (Factory default)

DN [C7]

Data	c : TO_H - TO_L [ºC]
0000	Unavailable (Factory default)
0001 to 0010	0001: 1ºC to "0010": 10ºC

DN [DB]

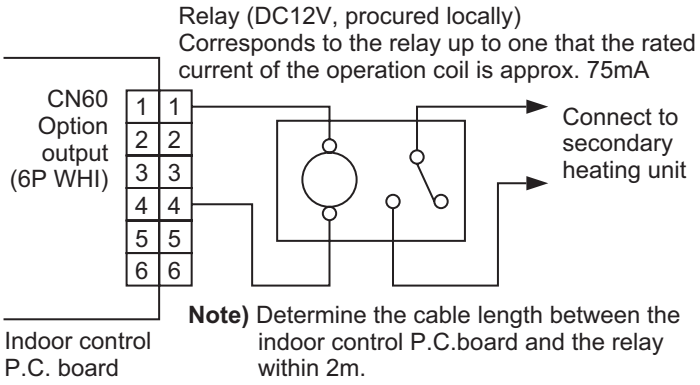
Data	b : TA_H - TA_L [ºC]
0001 to 0010	"0001": 0.5ºC to "0010": 5.0ºC "0006": 3ºC (Factory default)

DN [DC]

Data	a : Ts - TA_H (Normal mode)[ºC] TA_L - Ts (Flip mode)[ºC]
0000	Unavailable (Factory default)
0001 to 0010	0001: 1ºC to "0010": 10ºC

<Wiring>

1) Use ① - ④ pin (Cooling output, DC 12 V) of CN60 on indoor P.C. board for output.



Note) Determine the cable length between the indoor control P.C.board and the relay within 2m.

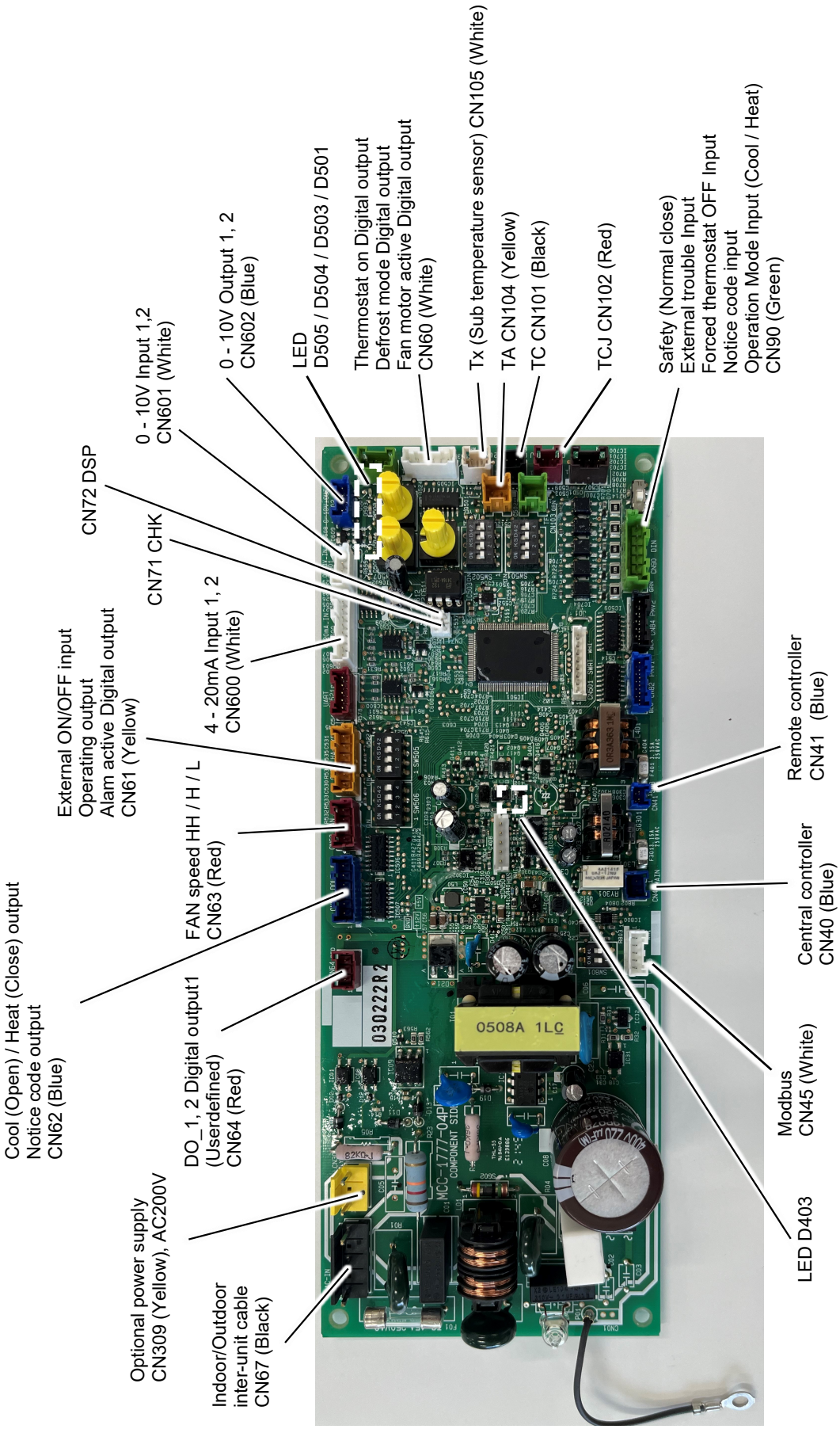
* The output state can be checked from “Monitor function” on the wired remote controller. The manual for the remote controller for operation methods of “Monitor function”.

Monitor CODE No.	Secondary heating output
E5	- - - -: Unavailable 0000: OFF 0001: ON

7. INPUT AND OUTPUT PORT

7-1. Dx-coil controller Print Circuit Board

■ MCC-1777



■MCC-1777

Function	Connector No. CN	Connector color	Pin No.	Wire color	Specification
TCJ	102	(RED)	1 2	(RED)	-
TC	101	(BLK)	1 2	(BLK)	-
TA	104	(YEL)	1 2	(BLK)	-
TX*1	105	(WHI)	1 2	-	-
Defrost mode Digital output	60	(WHI)	2	(BLU)	Output
Thermostat on Digital output	60 62	(WHI) (BLU)	3 1	(ORN) (RED)	Output 12V
Fan motor active Digital output	60	(WHI)	6	(BLK)	Output
Output 1 (0-10V)	602	(BLU)	1 2	(BLU) (BLK)	Output GND
Output 2 (0-10V) (No function)	602	(BLU)	3 4	(BLU) (BLK)	Output GND
Input 1 (0-10V)	601	(WHI)	1 2	(WHI) (BLK)	Input GND
Input 2 (0-10V) (No function)	601	(WHI)	3 4	(WHI) (BLK)	Input GND
Input 1 (4-20mA)	600	(WHI)	3 4	(BLU) (BLK)	Input GND
Input1(4-20mA) (No function)	600	(WHI)	5 6	(YEL) (BLK)	Input GND
External ON/OFF input	61	(YEL)	1 2	(BLU) (BLK)	5V GND
Operating output	61	(YEL)	4 5	(WHI) (RED)	Output 12V
Alarm active Digital output	61	(YEL)	6	(BRN)	Output
FAN speed HH	63	(RED)	2	(YEL)	Output
FAN speed H	63	(RED)	3	(GRN)	Output
FAN speed L	63	(RED)	4	(BLU)	Output
Cool (open) / Heat (close) output	62	(BLU)	5	(BLU)	Output
Notice output	62	(BLU)	6	(GRN)	Output
Ventilation Fan output	62	(BLU)	1	(YEL)	Output
	63	(RED)	1	(RED)	12 V
Safety (Normal close)	90	(GRN)	1 2	(RED) (WHI)	GND*2 Input
External trouble input	90	(GRN)	3	(BLU)	Input
Forced thermostat OFF Input	90	(GRN)	4	(ORN)	Input
Notice Input	90	(GRN)	5	(GRN)	Input
Operation Mode Input (Cool / Heat)	90	(GRN)	6	(YEL)	Input
Modbus A	45	(WHI)	5	(YEL)	-
Modbus B	45	(WHI)	4	(ORN)	-
Digital output 1 (user defined)	64	(RED)	2	(RED)	Output
Digital output 2 (user defined)	64	(RED)	3	(WHI)	Output

*1 : The TX sensor can be used by connecting an Optional sensor (TA) (sold separately).
*2 : For safety, the output will change depending on the combination with SW701. Refer to the Terminal DI1 / ＊ DI1 page for details.

LED position and details

P.C. board LED		Meaning of lighting
D501 (Red)	MCU power supply	Lights when the power is turned on
D503 (Yellow)	Communication line (Main bus communication)	Flashes every 5 seconds. With central control: lighting and flashing every 5 seconds.
D504 (Green)	Remote controller wiring (A, B) (Sup bus communication)	Flashes every 5 seconds. Group: lighting and flashing every 5 seconds.
D505 (Orange)	Mod bus communication	When connected to Modbus, it lights up every 5 seconds.
D403 (Red)	Sub bus power supply (Remote controller wiring (A, B))	Sub bus Lights while power is being supplied.

■ Interface P.C.board function setting exchange table

When operating the SW, turn off the power before setting.

<table>
<tr><th>SW</th><th>Bit</th><th>Function Name</th><th>OFF (Default)</th><th>ON</th><th>Detail</th></tr>
<tr><td rowspan="4">SW501</td><td>1</td><td>Communication</td><td>None</td><td>Enable</td><td>Error will occur, when turn off Bit1.</td></tr>
<tr><td>2</td><td>TA switching</td><td>TA type</td><td>None</td><td>The default is TA type. For TF type, turn on Bit2. If Bit3 is ON, the Bit2 setting is invalid.</td></tr>
<tr><td>3</td><td>DDC type switching</td><td>No function</td><td>DDC type</td><td>For DDC type, turn on Bit3.</td></tr>
<tr><td>4</td><td>DDC capacity control</td><td>Stepped</td><td>Linear</td><td>Change the capacity control method at 0 - 10 V. Refer to the functions of AI3.</td></tr>
<tr><td rowspan="4">SW502</td><td>1</td><td rowspan="3">No function</td><td rowspan="3">-</td><td rowspan="3">-</td><td rowspan="3">-</td></tr>
<tr><td>2</td></tr>
<tr><td>3</td></tr>
<tr><td>4</td><td>Forced capacity control</td><td>None</td><td>Controlled</td><td>Refer to the functions of DI2 / ∗DI2 ~ ∗DI4 / DI4.</td></tr>
<tr><td>SW503</td><td>-</td><td rowspan="2">Output signal selection (RSW)</td><td>-</td><td>-</td><td rowspan="2">Refer to the functions of DO5 / ∗DO5 and DO6 / ∗DO6.</td></tr>
<tr><td>SW504</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td rowspan="4">SW505</td><td>1</td><td>DI1 input inversion</td><td>Close</td><td>Open</td><td>Refer to the functions of DI1.</td></tr>
<tr><td>2</td><td rowspan="3">No function</td><td rowspan="3">-</td><td rowspan="3">-</td><td rowspan="3">-</td></tr>
<tr><td>3</td></tr>
<tr><td>4</td></tr>
<tr><td rowspan="4">SW506</td><td rowspan="2">1
2</td><td rowspan="2">Modbus baud rate</td><td colspan="2" rowspan="2">Refer to right table</td><td rowspan="2"><table><tr><th>Bit1</th><th>Bit2</th><th>Baud rate</th></tr><tr><td>OFF</td><td>OFF</td><td>9600</td></tr><tr><td>ON</td><td>OFF</td><td>19200</td></tr><tr><td>OFF</td><td>ON</td><td>38400</td></tr><tr><td>ON</td><td>ON</td><td>57600</td></tr></table></td></tr>
<tr><td>3</td><td>No function</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>4</td><td>No function</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>SW507</td><td>1</td><td>Modbus address setting (RSW)</td><td>-</td><td>-</td><td>Refer to “Modbus setting method” in this Installation Manual.</td></tr>
<tr><td>SW701</td><td>1</td><td>Voltage / non-voltage switching SW</td><td>Voltage</td><td>Non-voltage</td><td>Refer to the functions of DI1 / ∗DI1.</td></tr>
<tr><td rowspan="2">SW801</td><td>1</td><td>RS-485 terminating resistance setting</td><td>Open</td><td>120 ohm</td><td>Refer to “Modbus setting method” in this Installation Manual.</td></tr>
<tr><td>2</td><td>No function</td><td>-</td><td>-</td><td>-</td></tr>
</table>

7-2. Test run

Before test run

- Before turning on the power supply, carry out the following procedure.

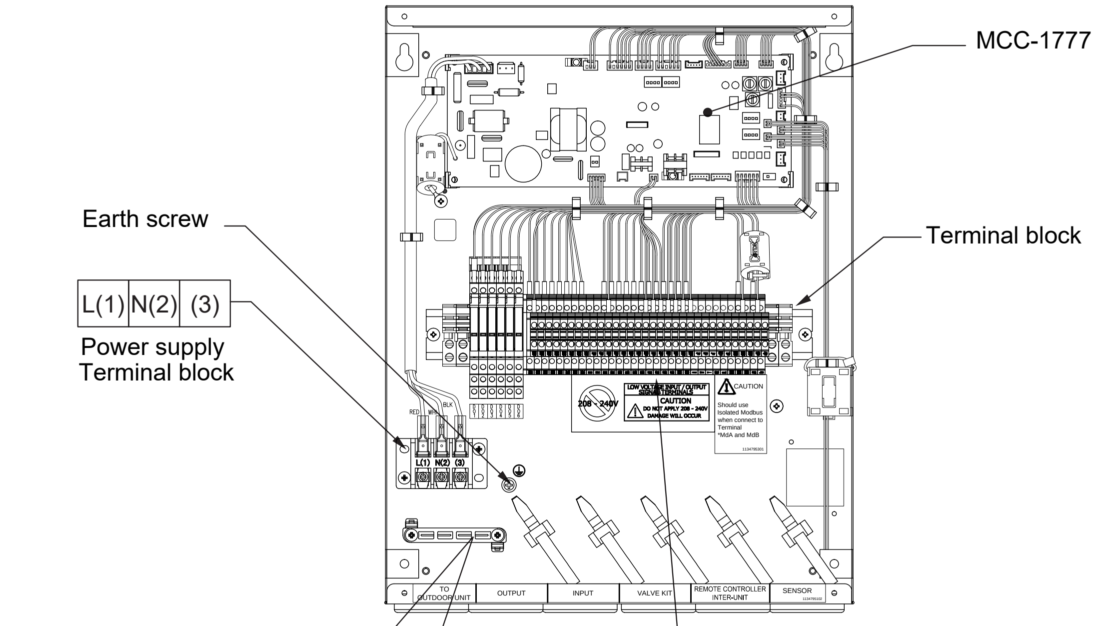
1. By using an insulation tester (500 VMΩ), check that resistance of 1 MΩ or more exists between the terminal block L to N and the earth (grounding). If resistance of less than 1 MΩ is detected, do not run the unit.
2. Check the valve of the outdoor unit being opened fully.
   - To protect the compressor at activation time, leave power-ON for 12 hours or more before operating.
   - Do not press the electromagnetic contactor to forcibly perform a test run. (This is very dangerous because the protective device does not work.)

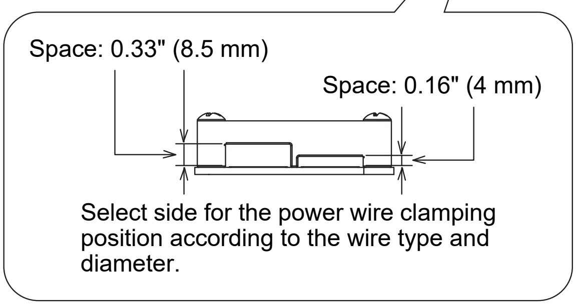
⚠ CAUTION

Be careful of the long - time forced operation because it may result in break.
Perform the test run check with cooling/heating, and check that it is satisfactory with the whole system.

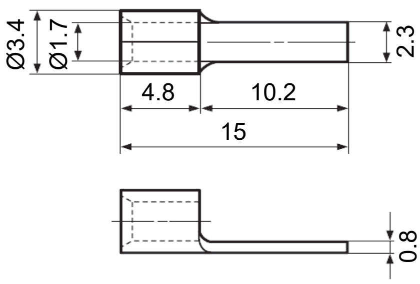
7-3. Input and Output specification

Dx-coil controller





Unit: mm



Details of the blade terminal for terminal block (38P)

TCB-IFDLR01UP-E (Terminal block with relay)

12	12	12	12	12	12
14	14	14	14	14	14
11	11	11	11	11	11
DO1	DO2	DO3	DO4	DO5	DO6

*DO7	*DO8	*DO9	*DOA	*DOB	*DOC	*DOD	*DOE	*N1	*N2	*DI1	*DI2	*DI3	*DI4	*DI5	*DI6	*AI1	*AI2	*AI3	*AI4	*AO1	*AO2	*R	*BL	*OR	*Y	*W	*MdG	*MdA	*MdA	*AB	*Uh
DO7	DO8	DO9	DOA	DOB	DOC	DOD	DOE	N1	N2	DI1	DI2	DI3	DI4	DI5	DI6	AI1	AI2	AI3	AI4	AO1	AO2	R	BL	OR	Y	W	MdG	MdB	MdB	AB	Uh

Terminal block with relay

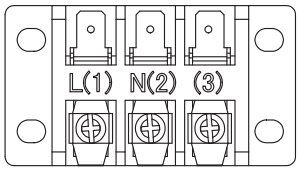
Terminal	Function
L(1), N(2), (3)	Connect to outdoor unit
AB	Remote Controller
Uh	Central Controller

Terminal	Function	Description	
DO1	Operating output	Digital output	DC12 V
DO2	Alarm active digital output	Digital output	DC12 V
DO3	Fan motor active digital output	Digital output	DC12 V
DO4	Defrost mode digital output	Digital output	DC12 V
DO5	DO1 Digital output 1 (User defined)	Digital output	DC12 V
DO6	DO2 Digital output 2 (User defined)	Digital output	DC12 V
DO7	Thermostat ON digital output	Digital output	DC12 V
DO8	Cooling / heating start up control signal output※	Digital output	DC12 V
DO9	Pre defrost signal output※	Digital output	DC12 V
DOA	Cooling OPEN / heating CLOSE output	Digital output	DC12 V
DOB	Notice code output	Digital output	DC12 V
DOC	Fan high speed output	Digital output	DC12 V
DOD	Fan medium speed output	Digital output	DC12 V
DOE	Fan low speed output	Digital output	DC12 V
N1	Ventilation Fan output	Digital output	DC12 V
N2	Blank	none	-
DI1	Safety (Normal close)	Digital input	DC12 V or Dry contact
DI2	External trouble input	Digital input	DC12 V or Dry contact
DI3	Forced thermostat OFF input	Digital input	DC12 V or Dry contact
DI4	Notice code input	Digital input	DC12 V or Dry contact
DI5	Operation mode input (cool / heat)	Digital input	DC12 V or Dry contact
DI6	External ON / OFF input	Digital input	Dry contact(*1)
AI1	Input 1 (4-20 mA)	Analog input	4 - 20 mA
AI2	Input 2 (4-20 mA)	Analog input	4 - 20 mA
AI3	Input 1 (0-10 V)	Analog input	0 - 10 V
AI4	Input 2 (0-10 V)	Analog input	0 - 10 V
AO1	Output 1 (0-10 V)	Analog output	0 - 10 V
AO2	Output 2 (0-10 V)	Analog output	0 - 10 V
MdG	Modbus G	-	-
MdA / MdB	Modbus A / Modbus B	-	-
AB	Remote Controller	-	-
Uh	Central Controller	-	-

※ VRF function

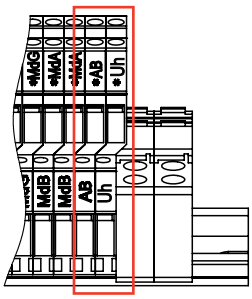
*1: DC5V is applied to the DI6 terminal.

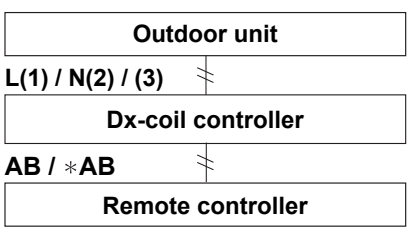
Terminal L(1) / N(2) / (3): Connect to Outdoor Unit



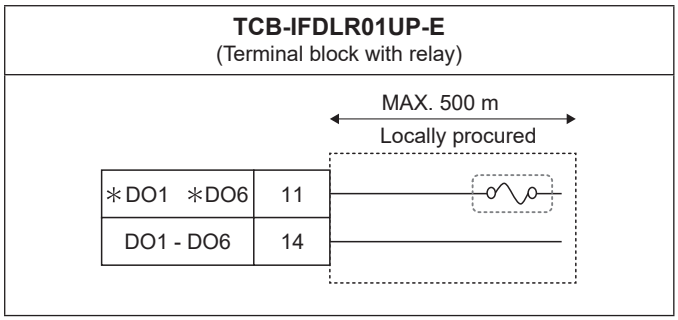
Terminal AB / ∗AB: Remote controller Wiring

- At these terminals an optional wired remote controller can be attached.
  (Useful for installation, maintenance and Group control)





■ The specifications of Terminal DO1 to DO6



- Use the contact side of the relay terminal used in TCB-IFDLR01UP-E according to the specifications shown in the table below.

Relay model name	Contact rating	Load conditions
G2RV-SR700-12DC	250 V max / 3 A max (Minimum Current: 10 mA more)	Resistive load

■ Function of each terminal blocks

Terminal DO1 / ∗DO1: Operating Output (DC12 V)
- The output is displayed when the system starts operation (output when the thermostat is on / off).

Terminal DO2 / ∗DO2: Alarm Active Digital Output (DC12 V)
- During Alarm operation, Alarm Active Digital Output is active.

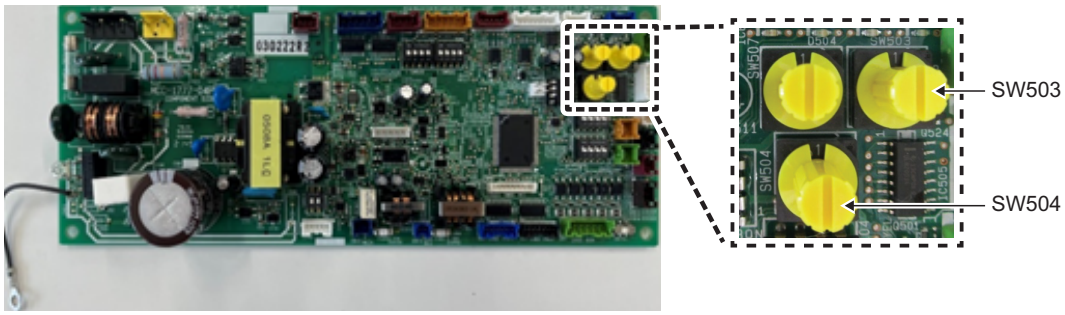
Terminal DO3 / ∗DO3: Fan Motor Active Digital Output (DC12 V)
- A fan control signal is output. It is usually the ON output at the time of operating, but it is the OFF output in defrosting.

Terminal DO4 / ∗DO4: Defrost Mode Digital Output (DC12 V)
- During Defrost operation, Defrost Mode Output is active.

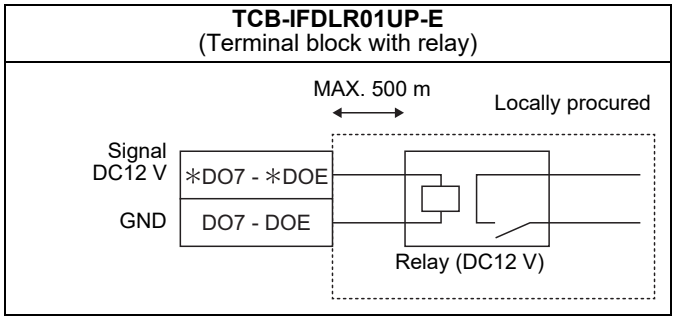
Terminal DO5 / ∗DO5: Digital Output 1 (DC12 V)
DO6 / ∗DO6: Digital Output 2 (DC12 V)
- Output function selected using rotary switches SW503 (DO5 / ∗DO5) & SW504 (DO6 / ∗DO6).

SW503, 504 Position	Output Function
1	Outdoor unit(s) operation level is lower than capacity command
2	Outdoor unit(s) operation level is higher than capacity command
3	No use
4	Cooling operation output or Secondary heating output*
5	Heating operation output
6-16	No use

Set with the SW503 or SW504 switch on the control P.C. board MCC-1777.



Terminal DO7 / ∗DO7: Thermostat on Digital output (DC12 V)
- When the thermostat of Dx-coil is ON, a signal comes out.



Terminal DO8 / ∗DO8: Cooling / heating start up control signal output
- Outputs the start control signal for cooling and heating operation.

Terminal DO9 / ∗DO9: Pre defrost signal
- Output just before defrosting (at least 5 minutes before).

Terminal DOA / ∗DOA: Cool open heat close output
- Heating mode is close, Cooling mode is open.

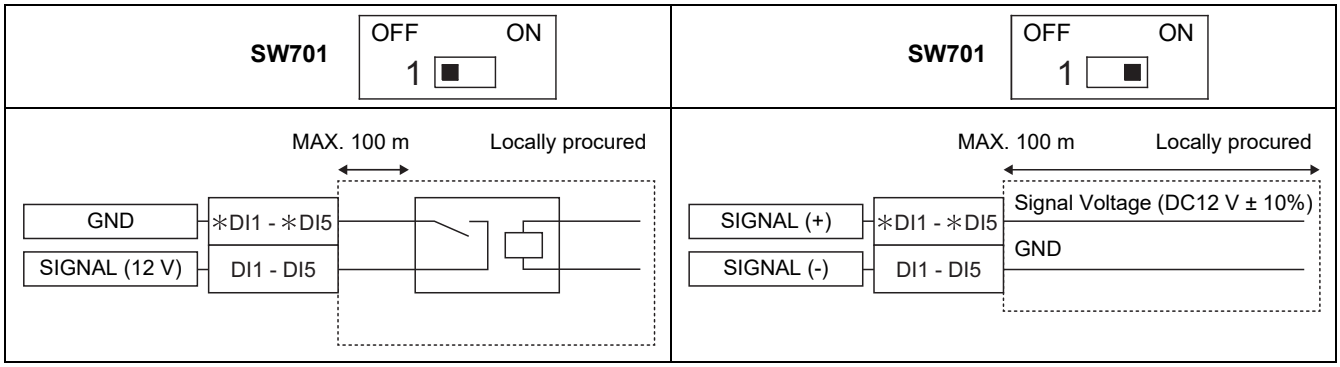
Terminal DOB / ∗DOB: Notice code output
- Issued when Notice code is output. For details, see the outdoor unit Service Manual.

Terminal DOC / ∗DOC, DOD / ∗DOD, DOE / ∗DOE: FAN speed output
- If select the fan output from interface, use this output. For TA types, the output changes by changing the fan speed from the remote controller.
  DOC = High / DOD = Mid. / DOE = Low

Terminal N1 / ∗N1: Ventilation fan output
- The signal operation setting by FAN button on remote controller is performed on the remote controller (DN = 31)

Terminal N2 / ∗N2: Nothing

The specifications of Terminal DI1 to DI5 are as follows.
- You can switch between voltage and non-voltage with SW701.



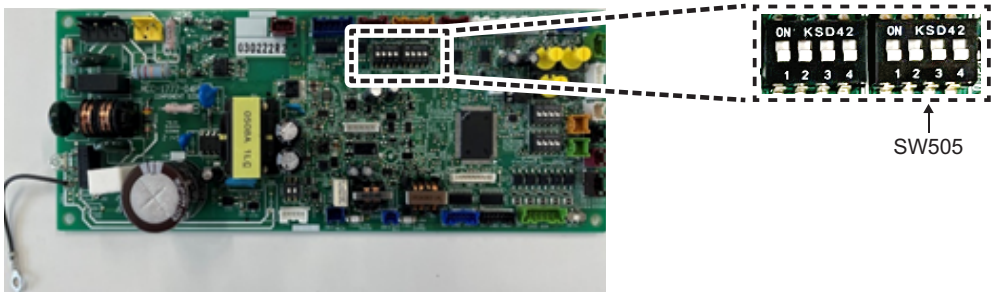
Terminal DI1 / ∗DI1: Safety contact (Normal close)

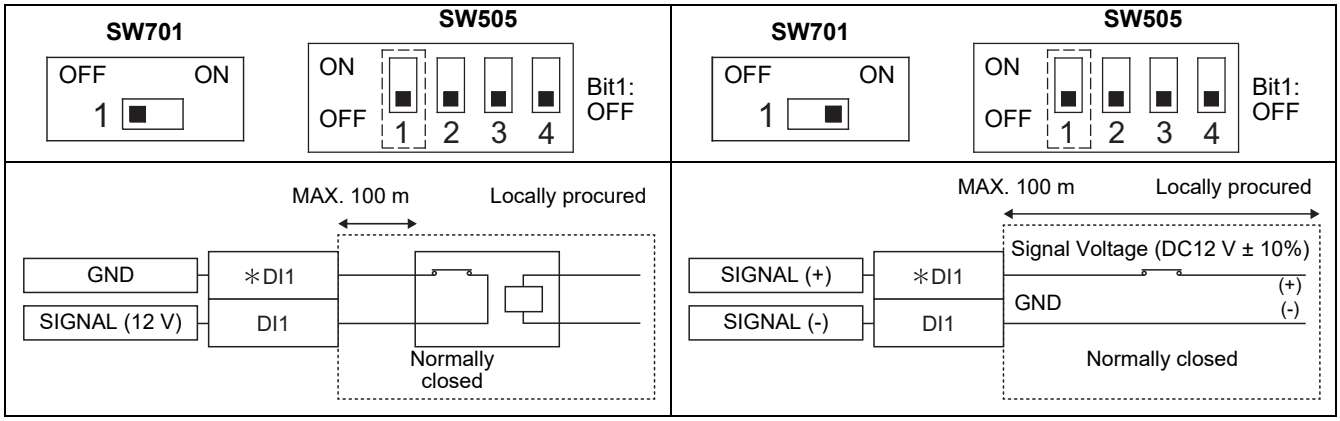
MODE 1 (Normally close, DC12 V) *When Bit1 of SW505 is OFF

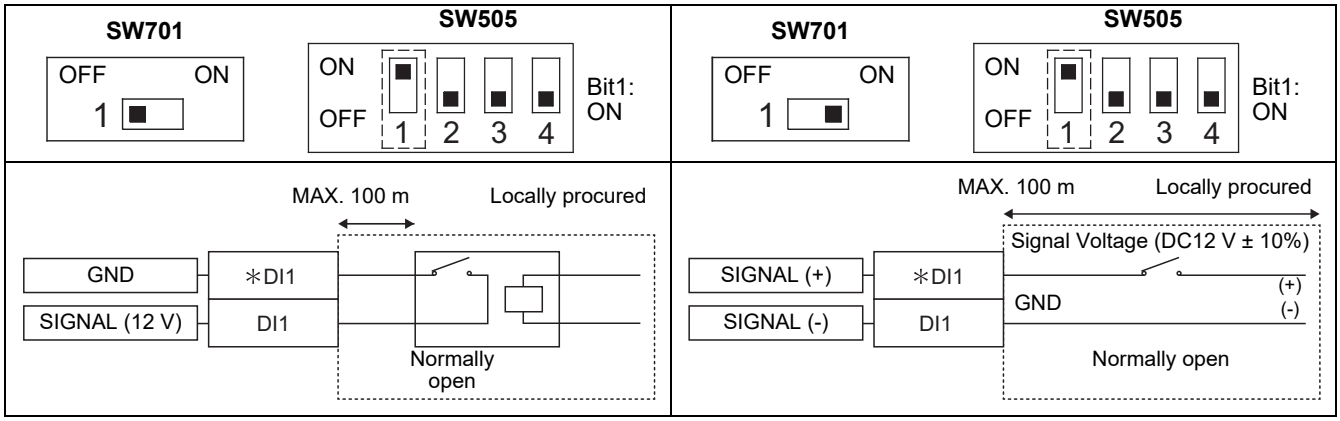
- If this contact is open for more than 1 minute, the check code P10 is generated and the Dx-coil controller switches off automatically.

MODE 2 (Normally open, DC12 V) *When Bit1 of SW505 is ON

- If this contact is short for more than 1 minute, the check code P10 is generated and the Dx-coil controller switches off automatically.







SW701	SW505	Function
OFF	OFF	The coil drive voltage is input to the relay arranged locally for DI1, and judge that the close is positive. (Default) Relay: Local arrangement
	ON	The coil drive voltage is not input to the relay arranged locally for DI1, and judge that the open is positive. Relay: Local arrangement
ON	OFF	For ∗DI1, short-circuit the (+) signal voltage and DI1 (-) GND with a SW or harness, and judge that the close is positive. Relay: Not required * The signal voltage is DC12 V ± 10%, and it is necessary to add a SW element to the signal line.
	ON	For ∗DI1, open the (+) signal voltage and DI1 (-) GND, and judge that the open is positive. Relay: Not required * The signal voltage is DC12 V ± 10%, and it is necessary to add a SW element to the signal line.

Terminal DI2 / ∗DI2: External trouble Input

- An AHU fan operation monitor (Field supply), could be attached at this dry contact terminal (For example, the abnormality of the fan motor). A closed contact generates the check code L30.

Terminal DI3 / ∗DI3: Forced thermostat OFF Input

- When signal input, AHU is in “thermostat-off” status forcibly.

Terminal DI4 / ∗DI4: Notice code Input

- If there is input, a spanner mark will be displayed on the remote controller. The system will not stop. Check “DN settings” for the setting method.

Terminal DI5 / ∗DI5: Operation Mode Input (Cool / Heat)

- Cool / Heat mode selection over a dry contact.

If the contact is short-circuited, system changes to heat mode.If the contact is open, system changes to cool mode.

- Only cool mode and heat mode are available.

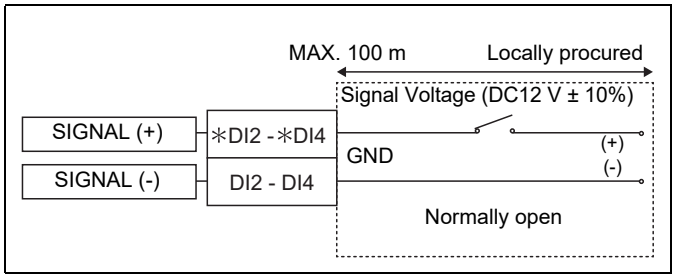
Function	Terminal	OPEN	SHORT
Mode Input Cool / Heat	DI5 / ∗DI5	COOL mode active	HEAT mode active

When Bit4 of SW502 is turned on in DDC type, capacity demand can be achieved by short-circuiting Terminals DI2 to DI4.

Short - circuit	Cooling	Heating
∗DI2 - DI2	STEP 2 (30%)	STEP 3 (25%)
∗DI3 - DI3	STEP 5 (60%)	STEP 9 (60%)
∗DI4 - DI4	STEP 11 (100%)	STEP 13 (100%)

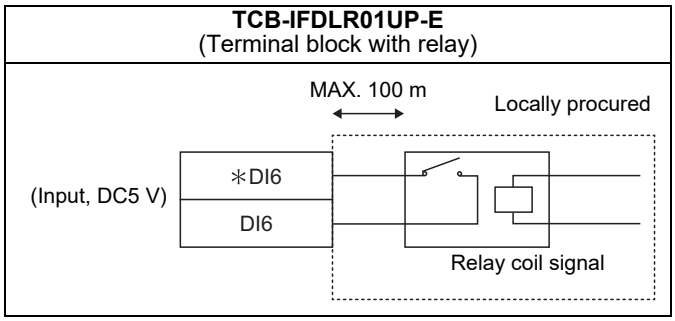
* If all are short-circuited, the DI3 function has priority.

When SW701 is ON (no voltage), apply a voltage of DC12 V ± 10% and wiring as follows.

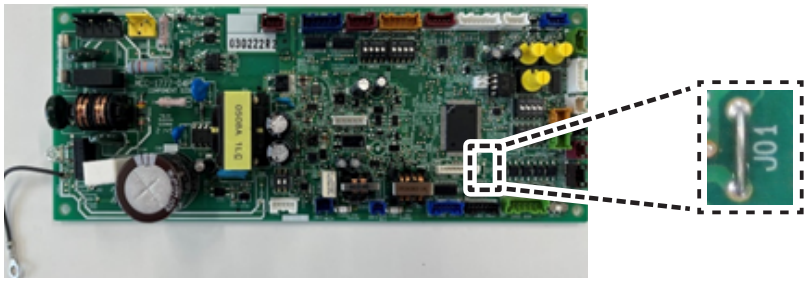


Terminal DI6 / ∗DI6: External ON/OFF Input

- When using with DDC, it starts by turning on this terminal.



The position of J01 (MCC-1777)



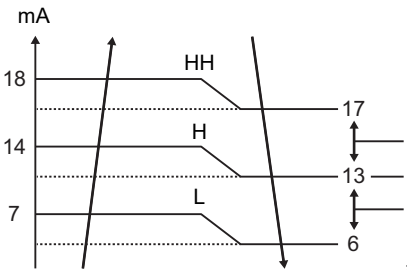
J01	Action
Connect	Pulse input (At factory setting) ON OFF Pulse width 200 to 300 ms Pulse interval 200 to 300 ms or more.
Cut	Static input ON OFF

Terminal AI1 / ∗AI1: 4 - 20 mA FAN interlocking control by external input

- FAN mode is switched by external 4 - 20 mA input.
- Both FAN control with 4 - 20 mA input and FAN mode change with remote controller are valid, but boost priority is given.
- The FAN priority control is switched by the DN setting of [4A0].
  0000: Default (no change in FAN mode by 4 - 20 mA input)
  0001: FAN control by 4 - 20 mA input, but priority is given to FAN control from the outdoor unit
  0002: FAN control 4 - 20 mA input with priority
- The FAN mode switching threshold value for 4 - 20 mA input can be changed in the DN setting (See the table as below).

* Terminal AI2 / ∗AI2 cannot be used.

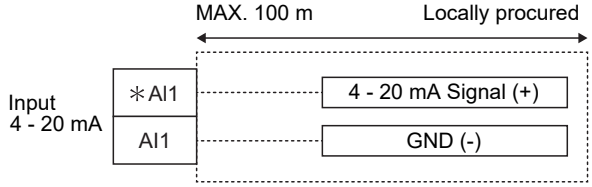
* The change in FAN speed with 4 - 20 mA input is also reflected in the 0 - 10 V output of AO1 / ∗AO1.



[DN]	Default	Details
[4A2]	0004 (4 mA)	[4A1] +4 mA Applicable range +1 to +11 *1
[4A1]	0013 (13 mA)	Applicable range 7 mA to 16 mA
[4A3]	0007 (7 mA)	[4A1] -7 mA Applicable range -1 to -12 *2

*1: Upper limit. DN [4A1] + DN [4A2] ≤ 18 mA
*2: Lower limit. DN [4A1] - DN [4A3] ≥ 4 mA

TCB-IFDLR01UP-E
(Terminal block with relay)

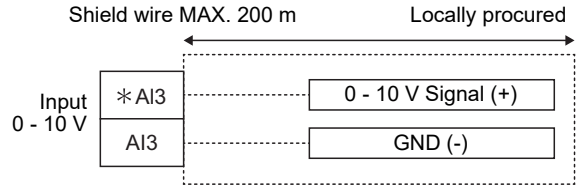


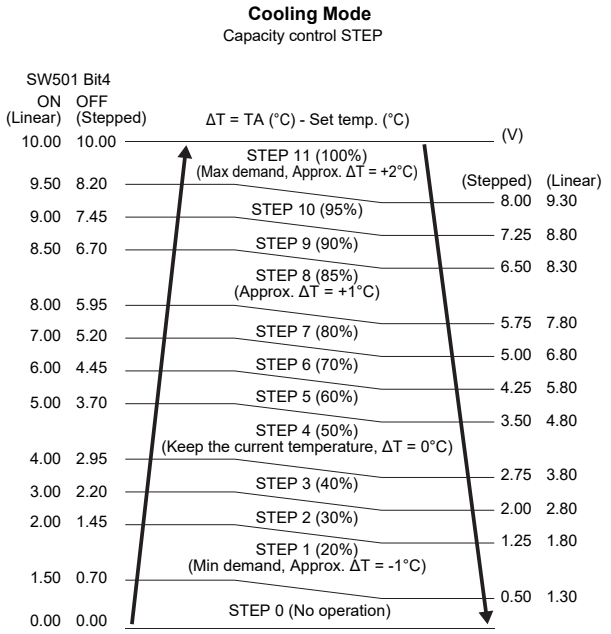
Terminal AI3 / ∗AI3: Analogue Input Capacity control

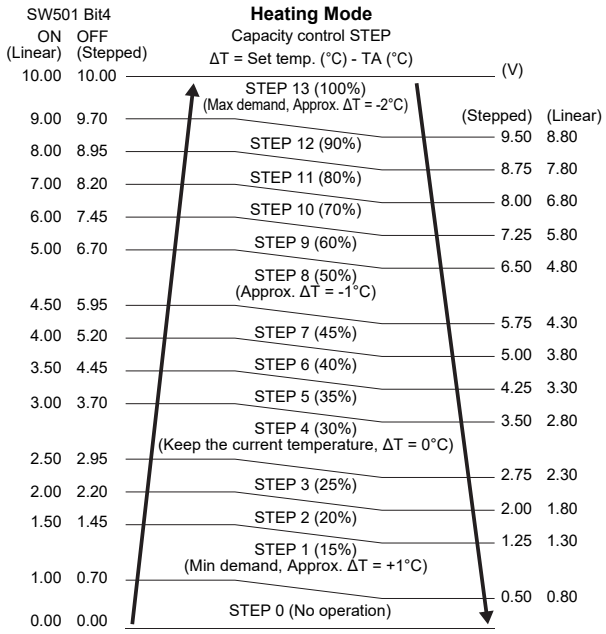
- Be sure not input more than DC10 V in analogue input terminal.
- To ease the integration of the DX COIL with the DDC the capacity control is able to operate with a STEPPED or LINEAR function from the analogue input.
- To select either a STEPPED (default) or LINEAR response, from the analogue input, use SW501 Bit4.
- Terminal AI4 / ∗AI4 cannot be used.

SW501 Bit4	Function
OFF	STEP response to analogue input
ON	LINEAR response to analogue input

TCB-IFDLR01UP-E
(Terminal block with relay)

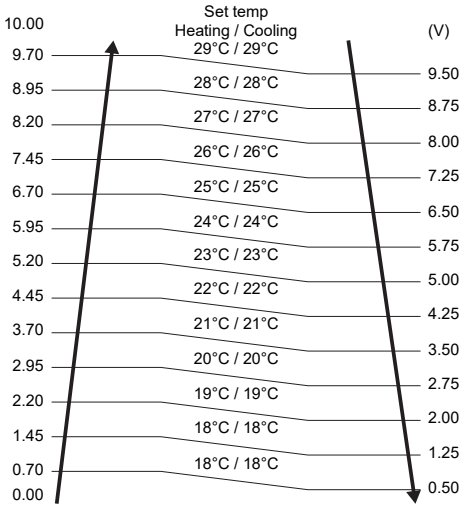






- For TA type, the set temperature can be changed according to the 0 - 10 V input of AI3.
- In the set temperature with the remote controller and this control, the post-setting is prioritized.
- The set temperature can be changed only for cooling and heating operations.
- To use this control, set DN [4A9] = 1.

▼ TA type



Terminal AO1 / ∗AO1: FAN speed 0 - 10 V output

- Each FAN speed is output at 0 - 10 V.
- The ripple voltage of 0 - 10 V is less than ± 30 mV of the set voltage. Connect equipment that is not affected by this ripple voltage.
- The output voltage can be changed by DN setting [4A4] to [4A6].

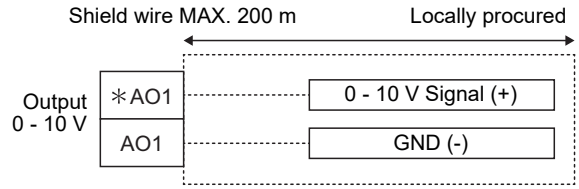
* Terminal AO2 / ∗AO2 cannot be used.

FAN speed	Output (Def)	Initial (Def)	Applicable range
HH	9 V	4A4 (0009)	8 V (0008) - 10 V (0010)
H	6 V	4A5 (0006)	4 V (0004) - 7 V (0007)
L	2 V	4A6 (0002)	1 V (0001) - 3 V (0003)
STOP	0 V	-	-

⚠ CAUTION

The impedance of the device that receives the 0 - 10 V output signal shall be 10 kΩ or more.

TCB-IFDLR01UP-E
(Terminal block with relay)



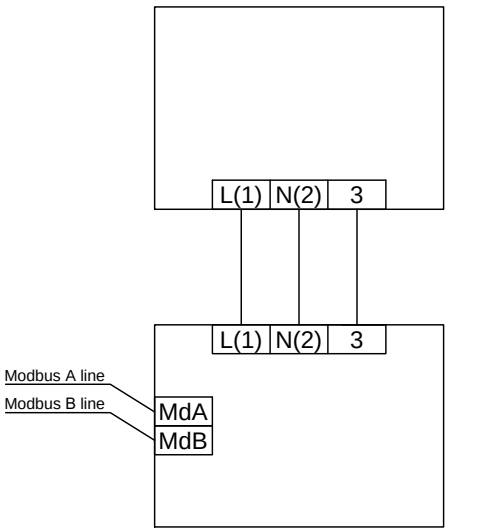
■ Modbus setting method

Modbus communication is available on this model. Follow the procedure below to set.

⚠ CAUTION

Use insulation type for Modbus devices to be connected.
If it is not an insulation type, it may affect the device due to noise, etc.

1. Wiring method



Note:
When connecting multiple communication line,
connect MdA and MdB to each other.
(There are polarity)

Baud Rate *1	SW506	Bit1: ON / Bit2: OFF (19200)	Bit1: ON / Bit2: OFF (19200)	...	Bit1: ON / Bit2: OFF (19200)
Address *2	SW507	1	2	...	16 (Up to 16)
Termination resistor *3	SW801	Bit1: ON	Bit1: OFF	...	Bit1: OFF

*1: Set the baud rate according to the communication device.
*2: Up to 16 addresses can be set with the rotary switch.
*3: Set the terminating resistor only for the unit with the latest address.

⚠ CAUTION

- RS-485 terminator resistor select switch SW801 (Bit1).
- For SW801 Bit1 (120 ohm), set only the Dx-interface with the latest address, and turn off Bit1 for other Dx-interfaces.

2. Function codes

Function code	Sub function code	Function name
0×03	None	Read holding register
0×04	None	Read Input register
0×06	None	White single holding register
0×08	0×00, 01, 02, 04, 0A, 0B, 0C, 0D, 0E, 0F, 11, 12, 14	Diagnostics
0×0B	None	Get Comm. Event Counter
0×0C	None	Get Comm. Event Log
0×10	None	Write multiple holding registers

3. Address assignment table

Register	address	Read / Write	Data	Byte
Holding Register	40001	R / W	Operation / stop setting	2
	40002		Operation mode setting	2
	40003		Set temperature setting	2
	40004		Automatic cooling set temperature (Dual set point) setting	2
	40005		Automatic heating set temperature (Dual set point) setting	2
	40006		Fan speed setting	2
	40007		Operation prohibition setting	2
	40008		Analogue Input Capacity Control	2
	40009 ~ 40019		Reserved	
	40020		CN90 DI1 (Safety contact input)	2
	40021		CN90 DI2 (External trouble input)	2
	40022		CN90 DI3 (Forced Thermo OFF input)	2
	40023		CN90 DI4 (Notice input)	2

Register	address	Read / Write	Data	Byte
Input Register	30001	R	Operation / stop setting	2
	30002		Operation mode setting	2
	30003		Set temperature setting	2
	30004		Automatic cooling set temperature (Dual set point) setting	2
	30005		Automatic heating set temperature (Dual set point) setting	2
	30006		Fan speed setting	2
	30007		Operation prohibition setting	2
	30008		Analogue Input Capacity Control	2
	30009 ~ 30019		Reserved	
	30020		CN90 DI1 (Safety contact input)	2
	30021		CN90 DI2 (External trouble input)	2
	30022		CN90 DI3 (Forced Thermo OFF input)	2
	30023		CN90 DI4 (Notice input)	2
	30024 ~ 30039		Reserved	
	30041		TC	2
	30042		TCJ	2
	30043		TA	2
	30044		TF	2
	30045		Tx (Auxiliary temperature sensor)	2
	30046		TO	2
	30047 ~ 30059		Reserved	
	30060		Alarm Code	2
	30061		Notice code 1	2
	30062		Notice code 2	2
	30063		Notice code 3	2
	30064		Notice code 4	2
	30065		Notice code 5	2
	30066		Thermostat On Digital Output	2
	30067		Cooling operation signal output / secondary heating signal output	2
	30068		Heating operation signal output	2
	30069		Fan Motor Digital Output	2
	30070		Operating output	2
	30071		Outdoor unit(s) operation level is lower than capacity command	2
	30072		Outdoor unit(s) operation level is higher than capacity command	2

Register	address	Read / Write	Data	Byte
Input Register	30073 ~ 30078	R	Reserved	
	30079		Under restriction of compressor speed due to heat sink overheating in outdoor unit(s)	2
	30080		Cooling / heating start control output	2
	30081		Defrost Mode Digital Output	2
	30082		Pre defrost signal output	2
	30083		Cooling oil recovery / Heating ref recovery	2
	30084 ~ 30099		Reserved	
	30100		Product type setting	2
	30101		Control type	2
	30102		Operation mode range	2
	30103		Fan speed range	2
	30104		Cooling upper limit set temperature	2
	30105		Cooling lower limit set temperature	2
	30106		Heating upper limit set temperature	2
	30107		Heating lower limit set temperature	2
	30108		Dry upper limit set temperature	2
	30109		Dry lower limit set temperature	2
	30110		Automatic mode upper limit set temperature	2
	30111		Automatic mode lower limit set temperature	2
	30112		Dual Set point Function Status	2
	30113		Setting capacity	2
	30114		Modbus band rate SW state	2
	30115		Modbus Slave Address SW state	2
	30116 ~ 30199		Reserved	
	30200		Model name	16
	30201		Model name	
	30202		Model name	
	30203		Model name	
	30204		Model name	
	30205		Model name	
	30206		Model name	
	30207		Model name	
	30208 ~ 30249		Reserved	
	30250		Serial number	16
	30251		Serial number	
	30252		Serial number	
	30253		Serial number	
	30254		Serial number	
	30255		Serial number	
	30256		Serial number	
	30257		Serial number	
	30258 ~ 30299		Reserved	
	30300		Firmware Definition (Firmware control number)	4
	30301		Firmware Definition (Firmware control number)	
	30302		Software Version	2

7-4. Method to set the AHU function DN code

(When performing this task, be sure to use a wired remote controller.)

■ DN setting

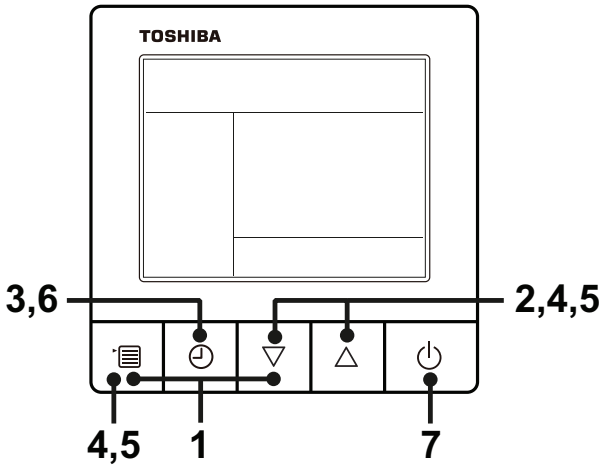
Remote controller model name: RBC-ASCU1∗-E (TR)

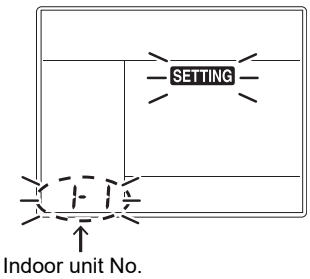
Basic procedure

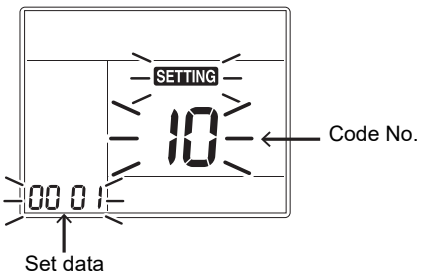
Be sure to stop the air conditioner before making settings.
(Change the setup while the air conditioner is not working.)

⚠ CAUTION

Set only the Code No. shown in the following table: Do NOT set any other Code No.
If a Code No. not listed is set, it may not be possible to operate the air conditioner or other trouble with the product may result.







1 **Push and hold menu button and [▽] setting button simultaneously for 10 seconds or more.**
- After a while, the display flashes as shown in the figure. “ALL” is displayed as indoor unit numbers during initial communication immediately after the power has been turned on.

2 **Each time [▽] [△] setting button is pushed, indoor unit numbers in the group control change cyclically. Select the indoor unit to change settings for.**
- The fan of the selected indoor unit runs and the louvers start swinging. The indoor unit can be confirmed for which to change settings.

3 **Push OFF timer button to confirm the selected indoor unit.**

4 **Push the menu button to make Code No. [∗∗] flash. Change Code No. [∗∗] with [▽] [△] setting button.**

5 **Push the menu button to make Set data [∗∗∗∗] flash. Change Set data [∗∗∗∗] with [▽] [△] setting button.**

6 **Push OFF timer button to complete the set up.**
- To change other settings of the selected indoor unit, repeat from Procedure ***4***.

7 **When all the settings have been completed, push ON/OFF button to finish the settings. (Return to the normal mode)**

" SETTING " flashes and then the display content disappears and the air conditioner enters the normal stop mode. (The remote controller is unavailable while " SETTING " is flashing.)

- To change settings of another indoor unit, repeat from Procedure ***1***.

NOTE

The following changes are settings to be configured by installation and service personnel.
If they are set incorrectly, trouble such as the product becoming inoperable may occur.

Set the following DN code according to the horsepower of the Dx-coil interface and the model name of the Valve kit.

1. Dx-coil interface horsepower (HP)

Dx-coil capacity	1HP	1.5HP	2HP	3HP	4HP	5HP	6HP	7HP	8HP	10HP
Capacity code (DN11)	0003	0006	0009	0012	0015	0017	0018	0019	0021	0023

Notice code signal setting (Terminal DI4 / ∗DI4: Notice code Input)

Notice code is a function dedicated to TU2C-Link communication.

[Function]

- Enter the Notice code when you want to report an abnormality that does not stop the air conditioner from the outside.
- Used by switching functions with settings of Code No. (DN Code).
- Notice code is continuously issued while input signal is ON.
- 201 is displayed in the Notice code history when there is input in DI4.

[Setup method]

* Set data corresponding to Notice code to be used to one of Code No. 180 to 189, in accordance with following table. In case where data other than 0000 is already set, set to other Code No. (DN Code).

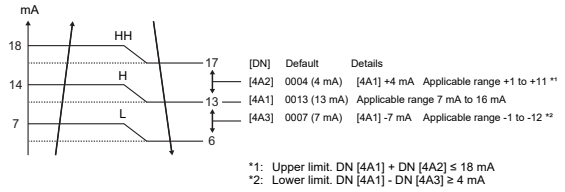
Code No. (DN)	Set data	Notice code display
0180 ~ 189	0000	None (Factory default)
	0129	201 (DI4 / ∗DI4 Notice input ON)
	0134	206 (Tx sensor*1 trouble)

*1: Refer to the Service Manual for support.

* It may take up to ten minutes to be displayed on remote controller after Notice code is issued.

Function CODE No. (DN Code) table (includes all functions needed to perform applied control on site)

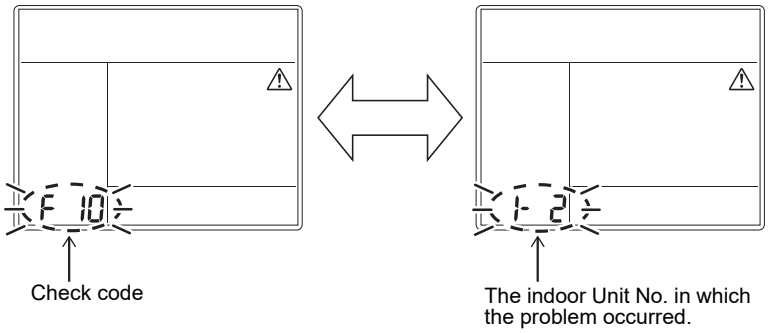
DN	Item	Setting allowed		Description	At shipment
		TA	DDC		
01	Filter display delay timer	Yes	Yes	0000: None 0001: 150H 0002: 2500H 0003: 5000H 0004: 10000H	0000: None
02	Dirty state of filter	Yes	Yes	0000: Standard 0001: High degree of dirt (Half of standard time)	0000: Standard
03	Central control address	Yes	Yes	0001: No.1 unit to 0064: No.64 unit … TCC-LINK 0001: No.1 unit to 0128: No.128 unit … TU2C-LINK 00Un: Unfixed (When using U series remote controller) 0099: Unfixed (Other than U series remote controller)	00Un/0099: Unfixed *1
04	Specific indoor unit priority	Yes	No	0000: No priority 0001: Priority	0000: No priority
0D	Existence of [AUTO] mode	Yes	No	0000: Provided 0001: Not provided 0001: Not provided (Automatic selection from connected outdoor unit	0001: Not provided
10	Type	Yes	Yes	It will switch automatically depending on the SW501bit2, 3 setting.	TA type: 0057 DDC type: 0059
11	Indoor unit capacity	Yes	Yes	0000: Unfixed 0001 to 0044 Refer to Indoor Unit Capacity DN code "11" list	0000: Unfixed
28	Automatic restart of power failure	Yes	Yes	0000: None 0001: Restart	0000: None
31	Ventilating fan control	Yes	Yes	0000: Unavailable 0001: Available	0000: Unavailable
33	Temperature unit select	Yes	Yes	0000: °C 0001: °F	0000: °C
60	Timer setting (wired remote controller)	Yes	Yes	0000: Available 0001: Unavailable (can be performed) (cannot be performed)	0000: Available
72	Fan Control during defrost	No	No	0000: Fan ON 0001: Fan OFF	TA:0000 DDC:0000
92	External interlock trouble input release condition	Yes	Yes	0000: Operation stopped 0001: Release signal received	0000: Operation stopped
D0	Whether the power saving mode can be set by the remote controller	Yes	No	0000: Invalid 0001: Valid	TA:0001 DDC:0000
180	Effective notice code number 01	Yes	Yes	0000:None 0129:DI4/*DI4 Notice input ON (code 201) 0134:Tx sensor error (code 206)	0000: None
181	Effective notice code number 02	Yes	Yes		0000: None
182	Effective notice code number 03	Yes	Yes		0000: None
183	Effective notice code number 04	Yes	Yes		0000: None
184	Effective notice code number 05	Yes	Yes		0000: None
185	Effective notice code number 06	Yes	Yes		0000: None
186	Effective notice code number 07	Yes	Yes		0000: None
187	Effective notice code number 08	Yes	Yes		0000: None
188	Effective notice code number 09	Yes	Yes		0000: None
189	Effective notice code number 10	Yes	Yes		0000: None
1FB	Central device control state	Yes	Yes	0000: No central device control (Remote controller use is possible) 0001: Central device control (Remote controller use is impossible)	0000: No central device control
1FC	Indoor Unit terminating resistance	Yes	Yes	0000: OFF 0001: ON	0000: OFF

DN	Item	Setting allowed		Description	At shipment
		TA	DDC		
402	Cooling forced thermostat OFF temp. Tαc (Minimum Outdoor/Suction air temp.)	No	No	0018: 18°C ~ 0025: 25°C	0019: 19°C
403	Heating forced thermostat OFF temp. Tαh (Maximum Outdoor/Suction air temp.)	No	No	0000: 0°C ~ 0017: 17°C	0015: 15°C
404	Cooling design thermostat ON/OFF temp. Tβc (Difference the setup temp. and Outdoor/Suction air temp.)	No	No	0000: 0°C ~ 0010: 10°C	0003: 3°C
405	Heating design thermostat ON/OFF temp. Tβh (Difference the setup temp. and Outdoor/Suction air temp.)	No	No	0000: 0°C ~ 0010: 10°C	0003: 3°C
406	Cooling forced thermostat OFF temp. Tγc (Minimum Discharge air temp.)	No	No	-15: -15°C ~ 0060: 60°C	0003: 3°C
407	Heating forced thermostat OFF temp. Tγh (Maximum Discharge air temp.)	No	No	0000: 0°C ~ 0060: 60°C	0060: 60°C
4A0	External input FAN control(4-20mA)	Yes	No	0000:None 0001:With FAN control by 4-20mA input (outdoor FAN control priority) 0002:With FAN control by 4-20mA input (priority is given to 4-20mA input)	0000: None
4A1	Analog input FAN (H) control value	Yes	No		0013: 13mA
4A2	Analog input FAN (HH) control value	Yes	No		0004: +4mA *1:Upper limit . DN[4A1] + DN[4A2] ≦18mA
4A3	Analog input FAN (L) control value	Yes	No		0007: -7mA *2:Lower limit. DN[4A1] - DN [4A3]≧4mA
4A4	FAN speed Analog output value (HH)	Yes	No	0008: 8V ~ 0010:10V	0009:9V
4A5	FAN speed Analog output value (H)	Yes	No	0004: 4V ~ 0007:7V	0006:6V
4A6	FAN speed Analog output value (L)	Yes	No	0001: 1V ~ 0003:3V	0002:2V
4A7	TX (auxiliary temperature sensor) function selection		Yes	0000:None 0001:TA 0003:TCJ 0004:TC2	0000:None
4A8	TX (auxiliary temperature sensor) control method selection		Yes	0000:Used in place of the temperature sensor selected in [4A7] 0001:Use the average value of the temperature sensor selected in [4A7] for control	0000
4A9	Set temperature change function by 0-10V	Yes	No	0000:OFF 0001:ON	0000:OFF
4AA	Heating set temperature shift by 0-10V input	Yes	No	-0010: -10℃ ~ 0010: 10℃	0000:0℃
4AB	Cooling set temperature shift by 0-10V input	Yes	No	-0010: -10℃ ~ 0010: 10℃	0000:0℃
4AC	Operation prohibited from centralized equipment	Yes	Yes	0000:approval 0001:NOT approval	0000:approval
4AD	TC1 miss-attachment detection control	Yes	Yes	0000:No control 0001:With control	0000:No control
4AF	Defrost signal output delay time	Yes	Yes	0000:No delay 0001:1 minute delay~ 0030:30 minute delay	0000:No delay

7-5. Troubleshooting based on information displayed on remote controller

■ Confirmation and check

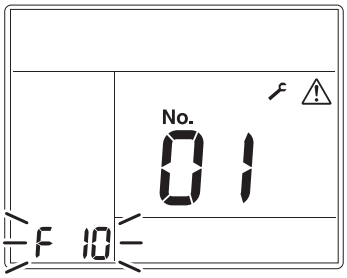
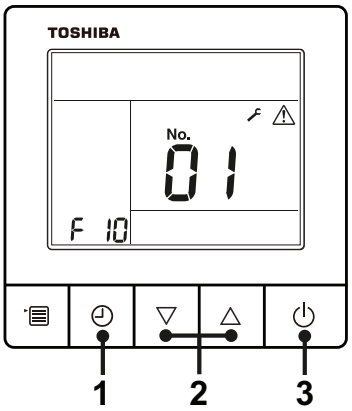
If a problem occurs with the air conditioner, the OFF timer indicator alternately shows the check code and the indoor Unit No. in which the problem occurred.



■ Troubleshooting history and confirmation

You can check the troubleshooting history with the following procedure if a problem occurs with the air conditioner. (The troubleshooting history records up to 4 incidents.)
You can check it during operation or when operation is stopped.

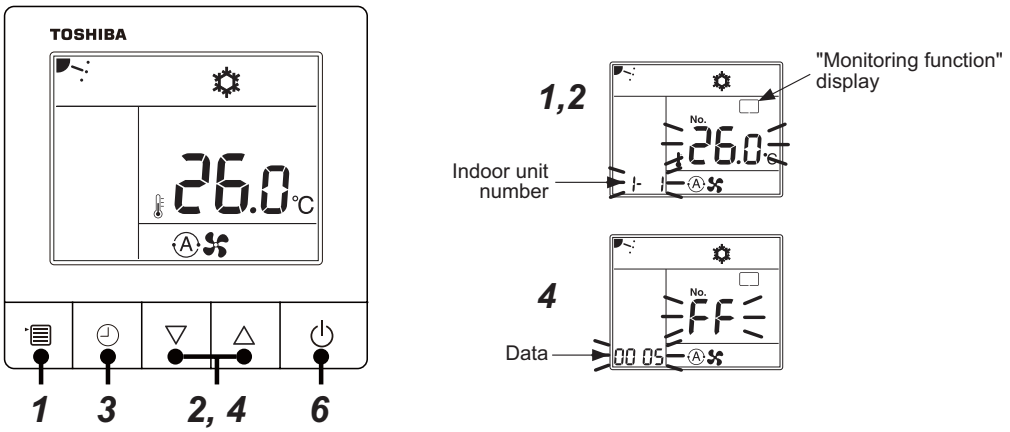
- If you check the troubleshooting history during OFF timer operation, the OFF timer will be cancelled.

Procedure	Description of operation
1	Push the OFF timer button for over 10 seconds and the indicators appear as an image indicating the troubleshooting history mode has been entered. If [Service check] is displayed, the mode enters in the troubleshooting history mode. • [01: Order of troubleshooting history] appears in the temperature indicator. • The OFF timer indicator alternately shows the [check code] and the [indoor Unit No.] in which the problem occurred. 
2	Each time the setting button is pushed, the recorded troubleshooting history is displayed in sequence. The troubleshooting history appears in order from [01] (newest) to [04] (oldest). **⚠ CAUTION** In the troubleshooting history mode, DO NOT push the Menu button for over 10 seconds, doing so deletes the entire troubleshooting history of the indoor unit. 
3	After you have finished checking, push the ON/OFF button to return to the regular mode. • If the air conditioner is operating, it remains operated even after the ON/OFF button has been pushed. To stop its operation, push the ON/OFF button again.

7-6. Check code clearing function

<RBC-ASCU11-∗>

▼ **Clearing a check code of the outdoor unit**
Clear the currently detected outdoor unit for each refrigerant line to which the indoor unit controlled by the remote controller is connected. (The indoor unit check code is not cleared.)
Use the service monitoring function of the remote controller.



1 **Push the [menu] button for over 10 seconds.**

2 **Every pushing [▽ or △] buttons, the indoor unit numbers in group control are displayed successively.**

3 **Push the [OFF timer] button to confirm the selected indoor unit.**

4 **Every pushing [▽ or △] buttons to set CODE No. to "FF"**

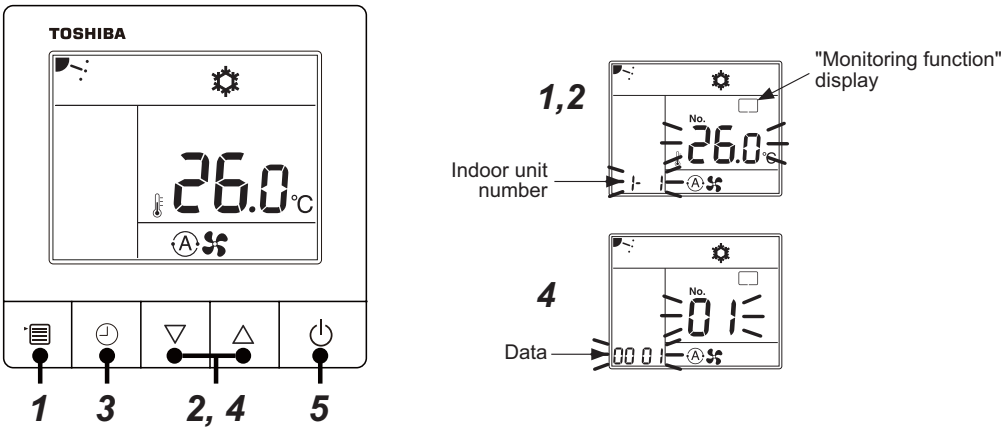
5 **The display in A of the following figure counts down as follows at 5-second intervals:**
"0005" → "0004" → "0003" → "0002" → "0001" → "0000"
The check code is cleared when "000" appears.
However, the display counts down from "005" again.

6 **After you have finished checking, push the [ON/OFF] button to return to normal mode.**

▼ **Clearing a check code of the indoor unit**
Push the ON / OFF button on the remote controller.
(Only the check code of the indoor unit controlled by the remote controller will be cleared.)

7-7. Monitoring function of wired remote controller

<RBC-ASCU11-✱>



1 **Push the [menu] button for over 10 seconds. "Monitoring function" is displayed on a screen.**

2 **Every pushing [▽ or △] buttons, the indoor unit numbers in group control are displayed successively.**

3 **Push the [OFF timer] button to confirm the selected indoor unit.**

4 **Every pushing [▽ or △] buttons, CODE No. of the item is changed successively.**

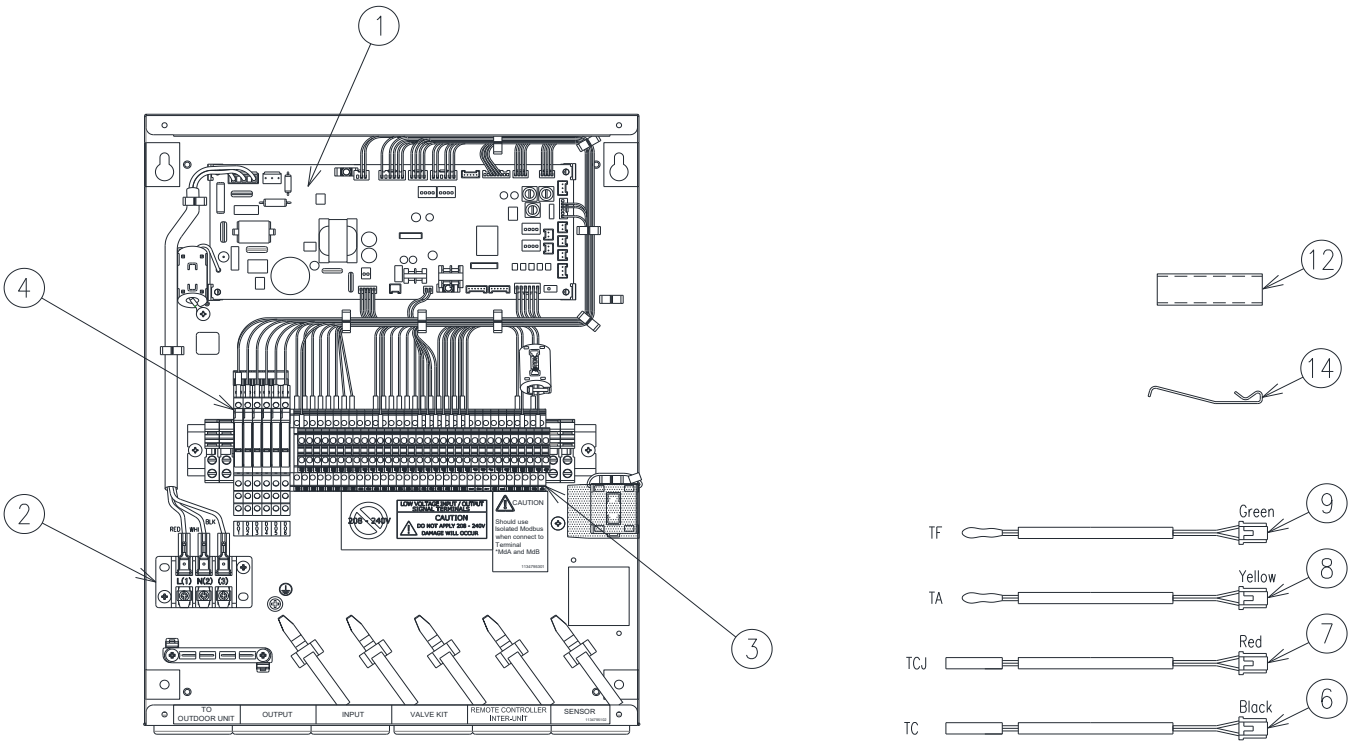
5 **After you have finished checking, push the [ON/OFF] button, return to normal mode.**

Indoor service monitor list

	Code No.	Data name	Display format	Unit	Remote controller display example
Indoor unit data	00	Room temperature (Use to control)	x1	℃	[0024]=24°C
	01	Room temperature (Remote controller)	x1	℃	
	02	Indoor suction air temperature (TA)	x1	℃	
	03	Indoor coil temperature (TCJ)	x1	℃	
	04	Indoor coil temperature (TC)	x1	℃	
	06	Indoor discharge air temperature (TF) **	x1	℃	
	08	Indoor PMV opening	x1/10	pls	[0150]=1500pls
	F9	Suction temperature of air to air heat exchanger (TSA) **	x1	℃	[0024] = 24°C
	FA	Outside air temperature (TOA) **	x1	℃	
	D0	Outdoor unit(s) operation level is lower than capacity command	0 or 1	-	0=No output 1=Output
	D1	Outdoor unit(s) operation level is higher than capacity command	0 or 1	-	
	D2	Cooling oil recovery / Heating refrigerant recovery control	0 or 1	-	
	D3	Cooling operation output	0 or 1	-	
	D4	Heating operation output	0 or 1	-	
	D5	The suction air temperature (TA) is in the thermostat OFF range (only TF type)	0 or 1	-	
	DF	Under restriction of compressor speed due to heat sink overheating in outdoor unit (s)	0 or 1	-	
	F5	Tx temperature	x1	℃	
System data	0A	No. of connected indoor units	x1	unit	[0048]=48 units
	0B	Total horsepower of connected indoor units	x10	HP	[0415]=41.5HP
	0C	No. of connected outdoor units	x1	unit	[0003]=3 units
	0D	Total horsepower of outdoor units	x10	HP	[0420]=42HP

8. EXPLODED VIEWS AND PARTS LIST

Dx-coil controller



Location No.	Part No.	Description	Q'ty / Set
			TCB-IFDLR01UP-E
1	43TNV347	PC BOARD ASSY, MCC-1777	1
2	43T60402	TERMINAL:3P	1
3	43T60591	TERMINAL, DEGSON	32
4	43T54326	TERMINAL, RELAY, OMRON	6
6	43T50426	SENSOR,TC	1
7	43T50427	SENSOR,TCJ	1
8	43T50428	SENSOR,TA	1
9	43T50429	SENSOR,TF	1
12	43T63397	HOLDER,SENSOR	2
14	43T19333	HOLDER, SENSOR	2

Dx-coil valve kit parts do not have a part No. set.

CARRIER AIR CONDITIONING (THAILAND) CO., LTD.

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AMPHUR MUANGPATHUMTHANI, PATHUMTHANI 12000, THAILAND