



R410A

SERVICE MANUAL

SKYAIR Inverter Single Split

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Inverter Skyair

1.1 Safety Cautions

Cautions and Warnings

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into “ **Warning**” and “ **Caution**”. The “ **Warning**” items are especially important since they can lead to death or serious injury if they are not followed closely. The “ **Caution**” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.
- About the pictograms
 -  This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
 -  This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.
 -  This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.
- After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer.

Caution in Repair

 Warning	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair. Working on the equipment that is connected to a power supply can cause an electrical shock. If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.	
If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas. The refrigerant gas can cause frostbite.	
When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first. If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.	
If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.	
The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work. A charged capacitor can cause an electrical shock.	
Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.	

 Caution	
Do not repair the electrical components with wet hands. Working on the equipment with wet hands can cause an electrical shock.	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	

Cautions Regarding Products after Repair

 Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only
Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.	
Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections can cause excessive heat generation or fire.	
When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.	
Do not mix air or gas other than the specified refrigerant (R-410A) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
When replacing the coin battery in the remote controller, be sure to dispose of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

 Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	For integral units only

Inspection after Repair

 Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it can cause an electrical shock, excessive heat generation or fire.	

 Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 Mohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.2 Product Line-Up

Nomenclature	Classification							
	Handset		PCB		Fan motor			Others
	APGS02	NETWARE 3C	VBA2A_R05	VBA2A_R05	AC motor	DG motor	DC motor	Auto restart
AHQ71AV1	x		x		x			x
AHQ100AV1	x		x		x			x
AHQ125AV1	x		x		x			x
AHQ140AV1	x		x		x			x
ABQ71AV1		x	x		x			x
ABQ100AV1		x	x		x			x
ABQ125AV1		x	x		x			x
ABQ140AV1		x	x		x			x
ACQ71AV1	x		x		x			x
ACQ100AV1	x		x		x			x
ACQ125AV1	x		x		x			x
ABQ71BV1		x	x			x		x
ACQ71BV1	x		x			x		x
ACQ100BV1	x		x			x		x
ACQ125BV1	x		x			x		x
AHQ71CV1	x			x			x	x
AHQ100CV1	x			x			x	x
AHQ125CV1	x			x			x	x
AHQ140CV1	x			x			x	x
ACQ71CV1	x			x			x	x
ACQ100CV1	x			x			x	x
ACQ125CV1	x			x			x	x
ABQ71CV1		x		x			x	x
ABQ100CV1		x		x			x	x
ABQ125CV1		x		x			x	x
ABQ140CV1		x		x			x	x

Remark:

AHQ: Ceiling Mounted unit

ACQ: Ceiling Cassette unit

ABQ: Ceiling Concealed unit

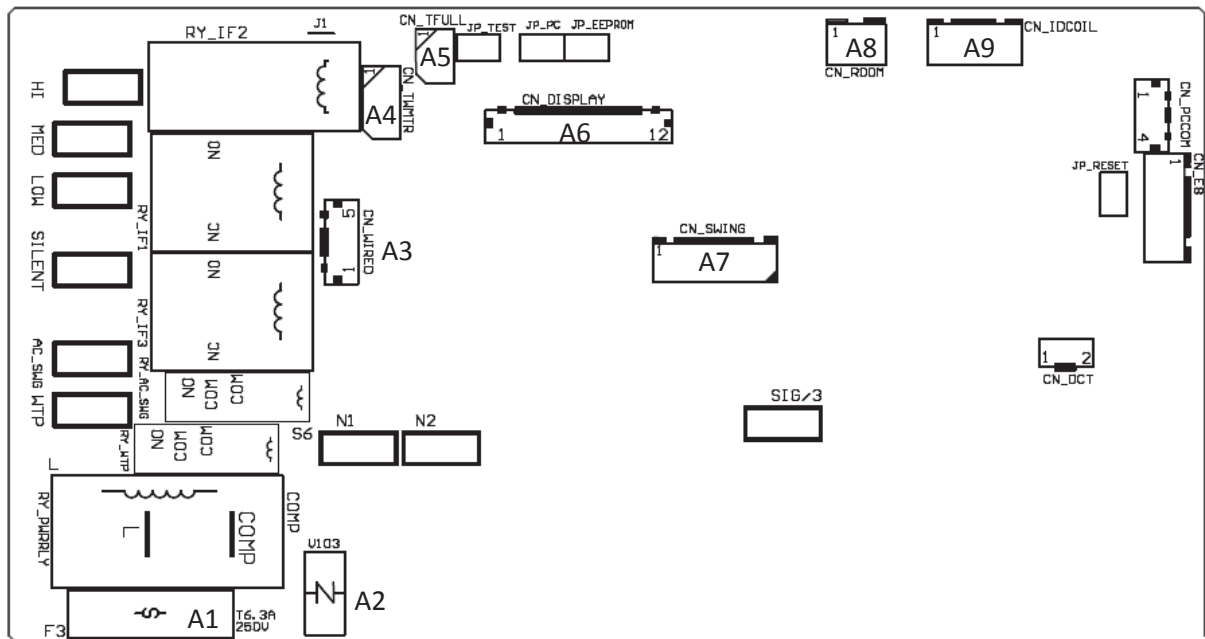
1.3 Printed Circuit Board (PCB) Connector Wiring Diagram

1.3.1 Main Board

1.3.1.1 Main Board (AC fan motor)

Indoor: AHQ_AV1, ABQ_AV1 and ACQ_AV1

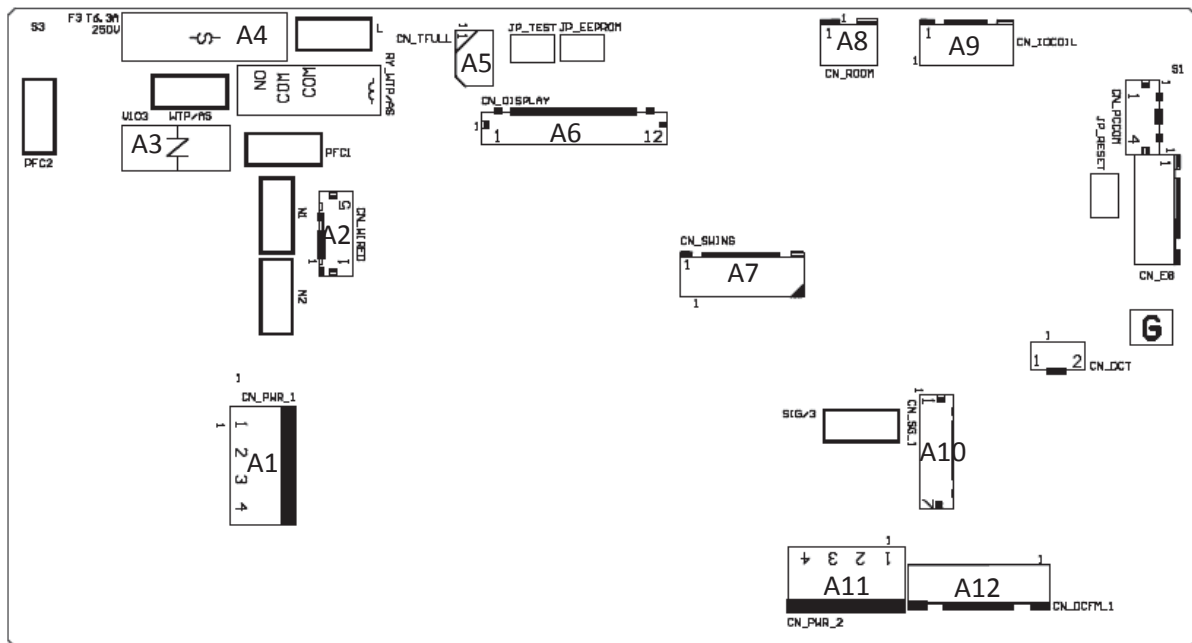
Item	Indication on PCB	Description
1	A1	Fuse
2	A2	Varistor
3	A3	Connector to Wired Panel
4	A4	Connector to AC Twin Fan Signal
5	A5	Connector to Float Switch
6	A6	Connector to Display and IR Receiver board
7	A7	Connector to Swing motor
8	A8	Connector to Room Sensor
9	A9	Connector to Indoor Coil Sensor



1.3.1.2 Main Board (DC fan motor)

Indoor: AHQ_CV1, ABQ_CV1 and ACQ_CV1

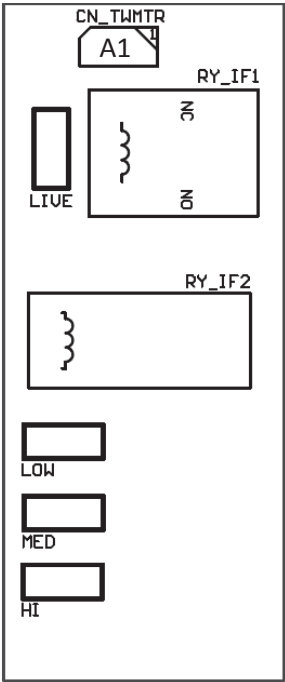
Item	Indication on PCB	Description
1	A1	Connector to DC Bus 1
2	A2	Connector to Wired Panel
3	A3	Varistor
4	A4	Fuse
5	A5	Connector to Float Switch
6	A6	Connector to Display and IR Receiver board
7	A7	Connector to Swing motor
8	A8	Connector to Room Sensor
9	A9	Connector to Indoor Coil Sensor
10	A10	Connector to DC Twin Fan Signal
11	A11	Connector to DC Bus 2
12	A12	Connector to DC Fan Motor 1



1.3.2 Fan Motor Board

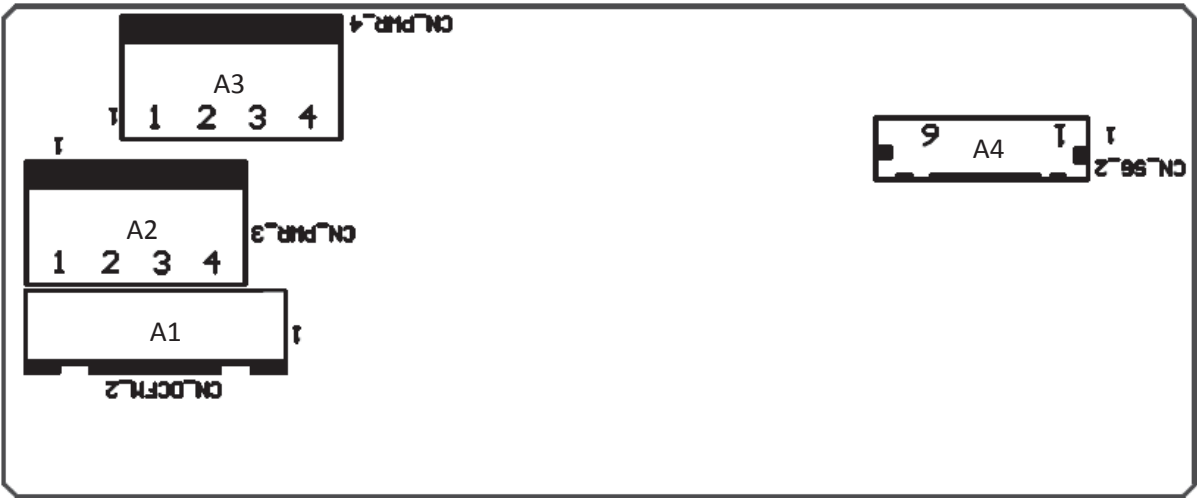
1.3.2.1 AC Fan motor Board

Item	Indication on PCB	Description
1	A1	Connector to AC Twin Fan Signal



1.3.2.2 DC Fan motor Board

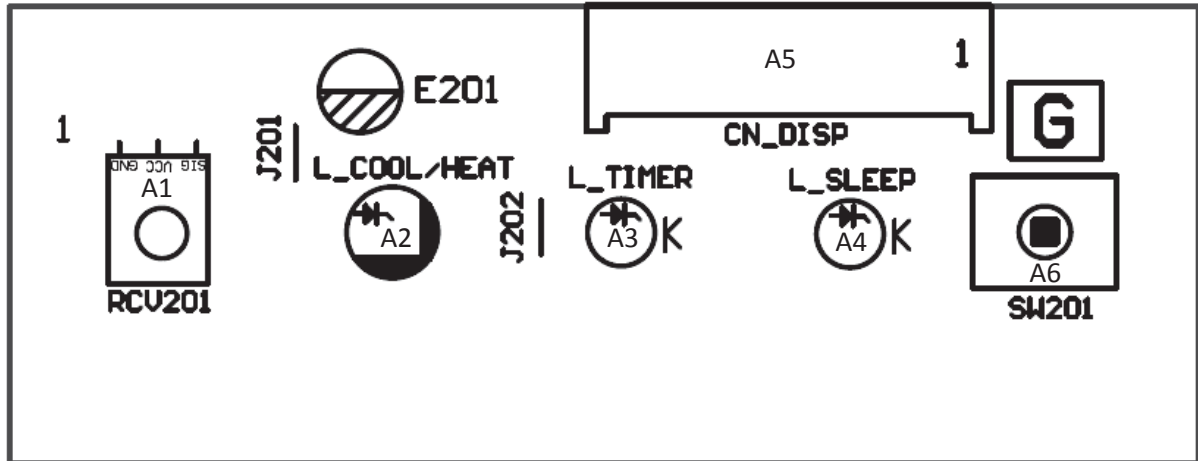
Item	Indication on PCB	Description
1	A1	Connector to DC Fan 2
2	A2	Connector to DC Bus Power 3
3	A3	Connector to DC Bus Power 4
4	A4	Connector to DC Twin Fan Signal



1.3.3 Signal Receiver Board

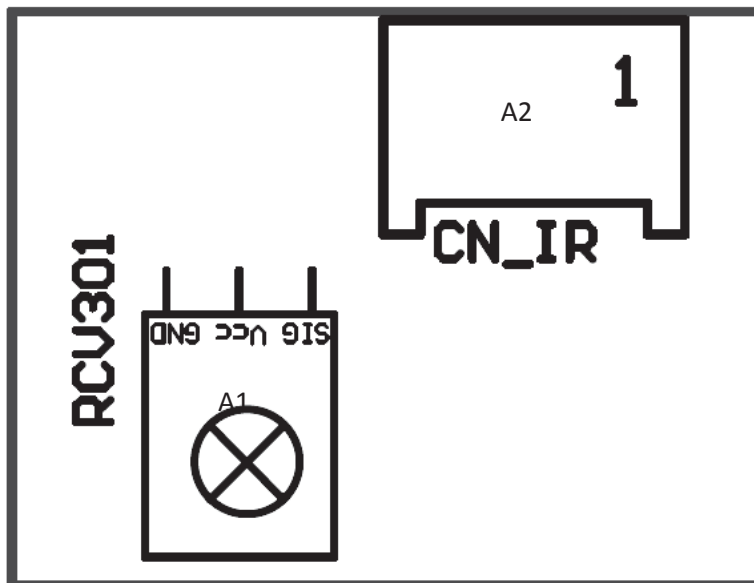
1.3.3.1 ACQ71/100/125/140 (common for all models)

Item	Indication on PCB	Description
1	A1	IR Receiver
2	A2	Operation LED
3	A3	Timer LED
4	A4	Sleep LED
5	A5	Display connector
6	A6	Emergency switch



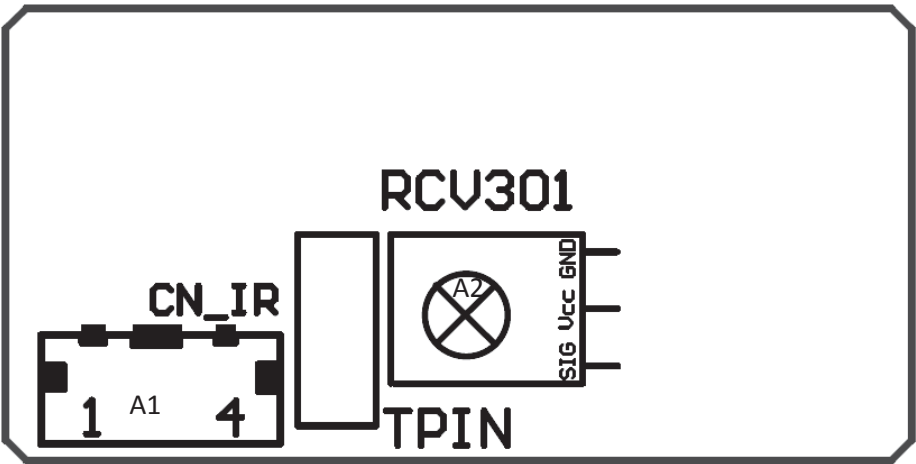
1.3.3.2 AHQ71/100/125 (common for all models)

Item	Indication on PCB	Description
1	A1	IR Receiver
2	A2	Receiver connector



1.3.3.3 AHQ140 (common for all models)

Item	Indication on PCB	Description
1	A1	Receiver connector
2	A2	IR Receiver



1.3.4 Signal Display Board

1.3.4.1 AHQ71/100/125 (common for all models)

Item	Indication on PCB	Description
1	A1	Emergency switch
2	A2	Sleep LED
3	A3	Timer LED
4	A4	Operation LED
5	A5	Display connector



1.3.4.2 AHQ140 (common for all models)

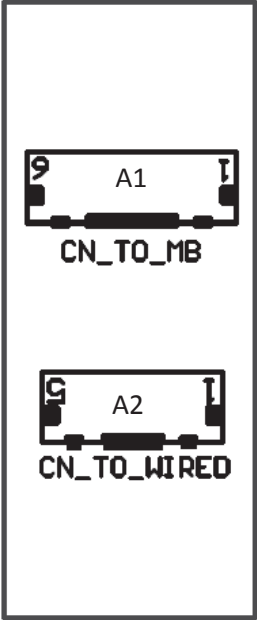
Item	Indication on PCB	Description
1	A1	Operation LED
2	A2	Timer LED
3	A3	Sleep LED
4	A4	Display connector



1.3.5 Wired Extension Board

1.3.5.1 AHQ140 (common for all models)

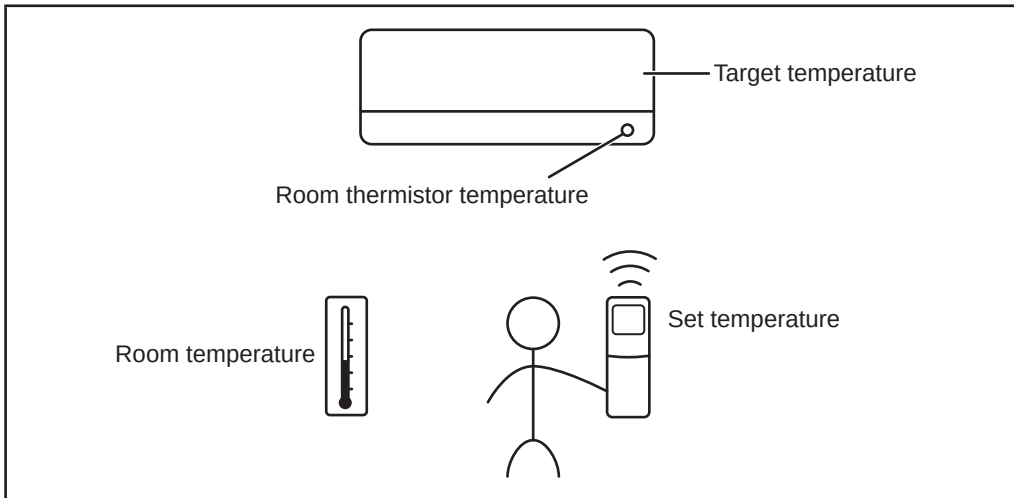
Item	Indication on PCB	Description
1	A1	Connector to Control PCB
2	A2	Wired panel connector



2.0 Function & Control

2.1 Temperature Control

Temperature detected by room temperature thermistor (either on the unit or on wired panel). Set temperature is selected by user using wireless handset or wired handset.



2.2 Cooling and Heating Mode Operation

The system has 5 operating modes. The mode selection is done from indoor using handset. The operating modes are:

- Cool
- Heat
- Fan
- Auto
- Dry

2.2.1 Cooling Mode

When $Tr \geq Ts + 1.5^{\circ}\text{C}$

- Compressor, Indoor Fan and Outdoor Fan ON.

When $Tr \leq Ts + 2^{\circ}\text{C}$

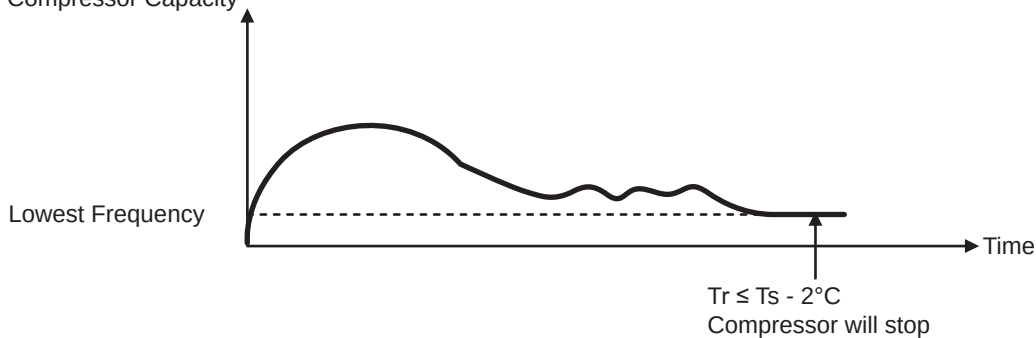
- Compressor and Outdoor Fan OFF. Indoor Fan remain ON.

Tr = Room Temperature

Ts = Set Temperature

When cooling load is too small and the room temperature still falling below compressor cut off point, compressor will stop.

Compressor Capacity



2.2.2 Heating Mode:

When $T_s > T_r - 1.0^\circ\text{C}$

- Compressor, Indoor Fan and Outdoor Fan ON.

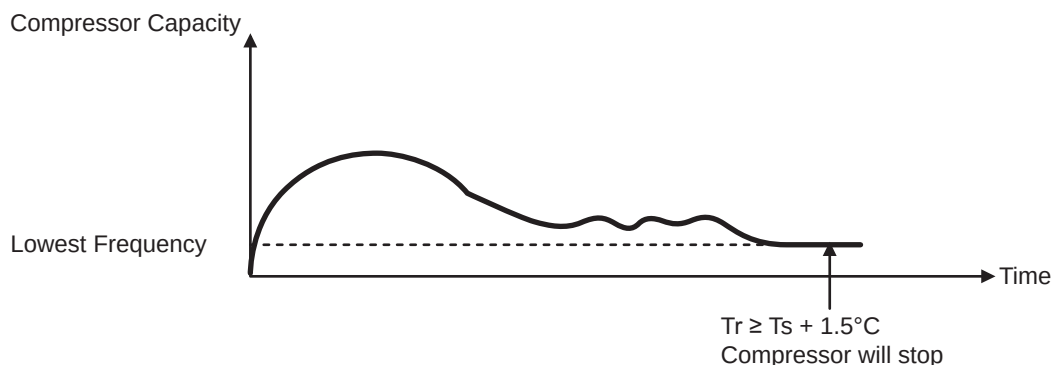
When $T_s \leq T_r - 1.5^\circ\text{C}$

- Compressor and Outdoor Fan OFF.
- Indoor Fan off if indoor coil $\leq 20^\circ\text{C}$.

T_r = Room Temperature

T_s = Set Temperature

When heating load is too small, and the room temperature still rising above compressor cut off point, compressor will stop.



2.3 Air Flow Direction Control

The louver will move to the maximum opening position / maximum closing position*, to reposition the louver every time the unit is turned on.

The louver will only swing when the indoor fan runs.

The louver will be set at the maximum closing position when the unit is turned off.

* Model dependent

2.4 Fan Speed Control for Indoor Unit

The indoor speeds are HIGH, MEDIUM, LOW or AUTO FAN in COOL, HEAT & AUTO modes.

In FAN mode, only HIGH, MEDIUM and LOW speeds are allowed.

2.5 Automatic Operation

During AUTO mode (Automatic Operation), the model can be selected automatically between HEAT & COOL mode, depending on the room temperature and user set temperature.

For heat pump only

Mode switching point:

- Heating to Cooling
 $T_r \geq T_s + 2.5$
- Cooling to Heating
 $T_r < T_s - 2.5$

During initial operation

- Cooling operation: $T_r > T_s$
- Heating operation: $T_r < T_s$

2.6 Cold Draft Prevention

During each thermal cut in cycle, the indoor fan speed will modulate according to the indoor coil temperature.

1. If indoor coil temperature $> 36^\circ\text{C}$, indoor fan will run at user set fan speed.
2. If indoor coil temperature $< 15^\circ\text{C}$, indoor fan will stop.
3. If indoor coil temperature $15^\circ\text{C} < X < 36^\circ\text{C}$, the indoor fan will run at low speed.

2.7 ON/OFF Function on Indoor Unit

ON/OFF button on the Indoor unit can be used to trigger the unit to ON or OFF. When the button is pressed, the system mode setting will rotate in the following sequence,

OFF -> COOL -> HEAT -> OFF

2.8 Water Pump Control

Water pump* will on when the compressor start during Cooling cycle. The water pump will remain on for at least 5 minutes after the compressor is off.

During change of mode from cooling modes to Non-Cooling modes, the water pump will remain on for at least 5 minutes.

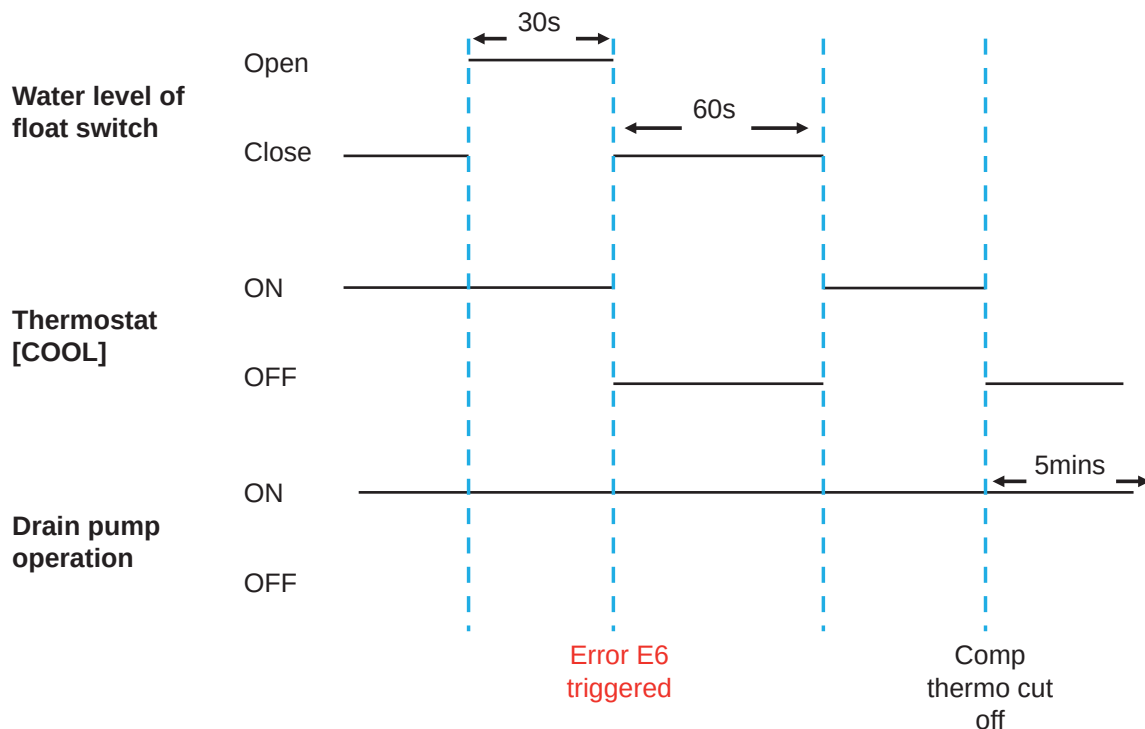
During Defrost cycle, the water pump will continue ON. Once the Defrost cycle is terminated, the water pump will run at least 5 minutes.

2.9 Water Level Switch Detection

The switch is a Normally Closed switch. The switch is used to detect fault in water pump system. It will need 30 seconds to confirm the switch is "OPEN" and 60 seconds to confirm the switch is "CLOSE".

- If the switch confirms OPEN, it will force compressor to cut off.
- If the switch is closed for 5 minutes, the compressor will be allowed to cut in.
- If the switch remains open for more than 5 minutes, the system will trigger error and the compressor is not allowed to cut in.

Refer chart below for the overall water pump and water level switch mechanism.



2.10 Indoor Coil Freeze Prevention

Only available in cooling mode.

When the indoor coil temperature $< 2^{\circ}\text{C}$, the compressor starts to drop the frequency.

This protection will cut in when:

- Indoor coil temperature $< 0^{\circ}\text{C}$ for more than 180s.
Compressor will stop, Outdoor fan stop after 30s and indoor fan can only run at lowest fan speed.

The unit can only be restarted after 3 minutes.

When the indoor coil temperature $> 13^{\circ}\text{C}$, the compressor frequency will be reset based on the Outdoor ambient, room and set temperature.

3.0 Service Diagnosis

3.1 Error Indication from Indoor

When any error occurs, indoor LED display will keep blinking (green light).

The blinking pattern does not indicate error details.

Table below shows the meaning of different pattern of indication light.

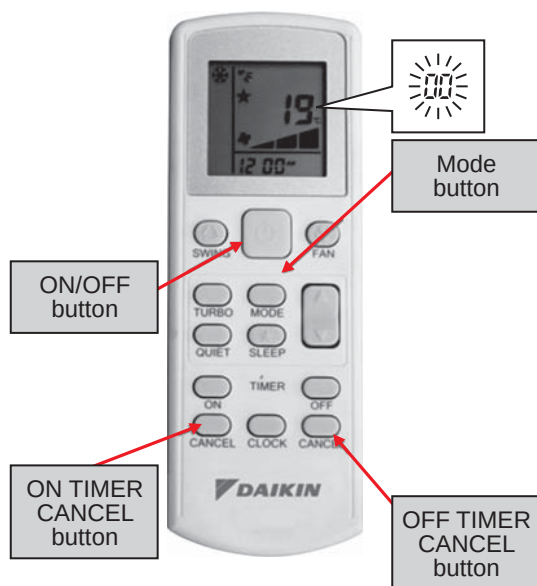
Indicator Light

 SLEEP (RED)	 COOL/HEAT (GREEN/RED)	 TIMER (YELLOW)	Operation / Faulty Indication
	 Green		• Cooling mode
	 Red		• Heating mode
	 Red		• Auto mode in heating operation
	 Green		• Auto mode in cooling operation
			• Time Off (when unit is on)
			• Time On (when unit is off)
			• Sleep mode on
	 Green		• Fan mode on
	 Green		• Dry mode on
	 Red		• Defrost operation
	 Green		• Error indication

 ON

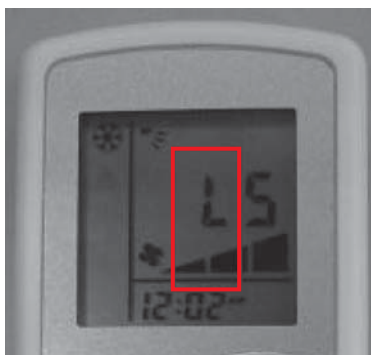
 BLINKING

3.2 Error Code Retrieved by Wireless Handset



Operating Guide

1. Hold down ON TIMER CANCEL or OFF TIMER CANCEL for 5 seconds until "L5" indication flashes on the handset temperature display section.
2. Then, press the same button repeatedly. A series of error code will appear until ID buzzer produces a long beep. The corresponding error code is indicated on the handset temperature display section.



3. Indoor unit buzzer will produce a long beep if the handset error code matched with unit error.
4. A short and two consecutive beeps is not the real unit error. It indicates either the alphabet or number is correct.
5. The code display will cancel itself if the button is not pressed for 1 minute.

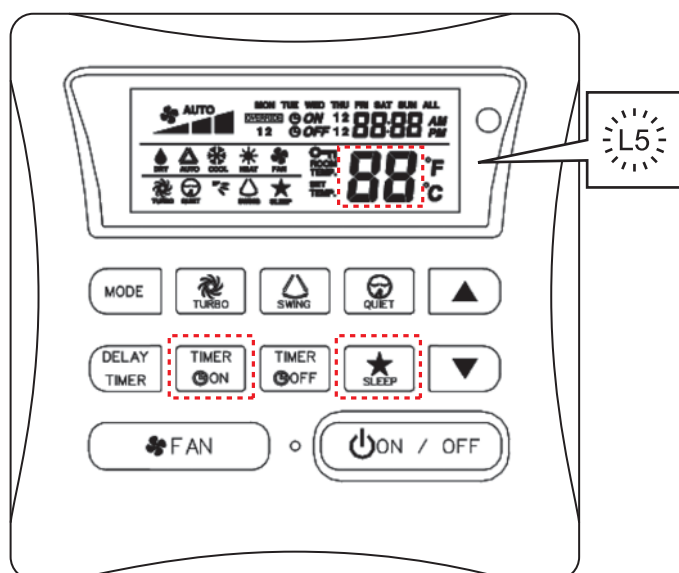
3.3 Last State Error Retrieved by Wireless Handset

Operating Guide

1. Remove battery from remote controller.
2. Replace battery again into remote controller.
3. Press Mode & ON/OFF buttons together.
4. The "L5" will show at temperature section.
5. Press Mode button to 5:00.
6. Press Power On toward the indoor unit. Unit LED blinks two times indicate received signal.
7. ON hold fan button till screen become normal display.
8. Repeat the normal step to retrieve error. (by using remote controller step. Holding TIMER CANCEL...)
9. By using this method, the error shown will be Last State Error. (Previous error in this unit)

3.4 Error Code Retrieved by Wired Handset

- The error will show at the LCD display.
- BRC51A61 can retrieved last state memory by:
- Press SLEEP & TIMER ACTIVE simultaneously for 5 seconds and the error will be flashed.



3.5 Error Code Description for Inverter

NO.	ERROR CODE	ERROR DESCRIPTION	ACQ	AHQ	ABQ
1	00	NORMAL	O	O	O
2	A1	INDOOR PCB ABNORMALITY	O	O	O
3	A3	DRAIN PUMP ABNORMALITY	O	-	-
4	A5	ANTIFREEZE PROTECTION/HIGH PRESSURE CONTROL	O	O	O
5	A6	INDOOR FAN MOTOR ABNORMALITY	O	O	O
6	C4	INDOOR HEAT EXCHANGER THERMISTOR ABNORMALITY	O	O	O
7	C9	INDOOR ROOM THERMISTOR ABNORMALITY	O	O	O
8	F6	HEAT EXCHANGER OVERHEAT	O	O	O
9	U0	INSUFFICIENT GAS	O	O	O
10	U4	COMMUNICATION ABNORMALITY	O	O	O
11	UA	INSTALLATION ERROR	O	O	O

Note:

O : Function

- : No function

A1	
Description	Indoor PCB abnormality
Supposed Cause	1. Faulty indoor PCB. 2. Faulty connector connection at indoor.
Troubleshooting	<pre> graph TD A([Turn off unit.]) --> B([Check indoor PCB connector conditions (including PCB to terminal block and all PCB wire connector).]) B --> C{Any sign of loose or abnormal.} C -- Yes --> D([Connect correctly and operate again.]) C -- No --> E([Replace indoor PCB and operate again.]) </pre>

A3	
Description	Drain Pump Abnormality
Supposed Cause	1. Malfunctioning drain pump. 2. Improper drain piping work. 3. Drain piping clogging. 4. Malfunctioning float switch. 5. Malfunctioning indoor unit PC board.
Troubleshooting	<pre> graph TD Begin([Begin]) --> Q1{Is a drain pump connected to the indoor unit PCB?} Q1 -- No --> A1[Connect the drain pump.] Q1 -- Yes --> Q2{Does the drain pump work after restarting operation?} Q2 -- No --> A2[Set to "emergency" and check the voltage of X25A.] Q2 -- Yes --> Q3{Is the drain water level abnormally high?} Q3 -- Yes --> A3[There is a malfunction of the drain system.] Q3 -- No --> Q4{Is the float switch connected to A5?} Q4 -- No --> A4[Connect float switch.] Q4 -- Yes --> A5[Remove the float switch from A5, short-circuit A5, and restart operation.] A2 --> Q5{220-240 VAC?} Q5 -- No --> A6[Replace indoor unit PC board.] Q5 -- Yes --> A7[Replace the drain pump.] A5 --> Q6{Does "A3" appear on the remote controller display?} Q6 -- No --> A8[Replace float switch.] Q6 -- Yes --> A9[Replace indoor unit PC board.] </pre> The flowchart outlines the troubleshooting steps for a drain pump abnormality. It begins by checking if the drain pump is connected to the indoor unit PCB. If not, it instructs to connect the pump. If connected, it checks if the pump works after restarting. If not, it suggests setting to "emergency" and checking the voltage of X25A. If it works, it checks if the drain water level is abnormally high. If yes, it indicates a malfunction of the drain system. If no, it checks if the float switch is connected to A5. If not, it instructs to connect the float switch. If yes, it instructs to remove the float switch from A5, short-circuit A5, and restart operation. After setting to "emergency" and checking voltage, it checks if the voltage is 220-240 VAC. If not, it instructs to replace the indoor unit PC board. If yes, it instructs to replace the drain pump. After removing the float switch and short-circuiting A5, it checks if "A3" appears on the remote controller display. If not, it instructs to replace the float switch. If yes, it instructs to replace the indoor unit PC board.

A5	
Description	Anti-freeze protection or High Pressure Control
Supposed Cause	1. Indoor air filter, heat exchanger block due to dust accumulation. 2. Indoor air short circuit. 3. Indoor coil thermistor faulty. 4. Indoor PCB faulty. 5. Fan blower dirty.
Troubleshooting	<pre> graph TD A[Check indoor air flow.] --> B{Any air short circuit?} B -- Yes --> C[Provide sufficient air passage.] B -- No --> D[Check intake air filter.] D --> E{Is it very dirty?} E -- Yes --> F[Clean the air filter.] E -- No --> G[Check the dust accumulate indoor coil.] G --> H{Is it very dirty?} H -- Yes --> I[Clean the indoor coil.] H -- No --> J[Check fan blower condition.] J --> K{Is it very dirty?} K -- Yes --> L[Clean fan blower.] K -- No --> M[Check indoor coil thermistor resistance.] M -- "# Refer to thermistor resistance table." --> N{Does it confirm to the thermistor accuracy table?} N -- Yes --> O[Change indoor PCB.] N -- No --> P[Change indoor thermistor.] </pre>

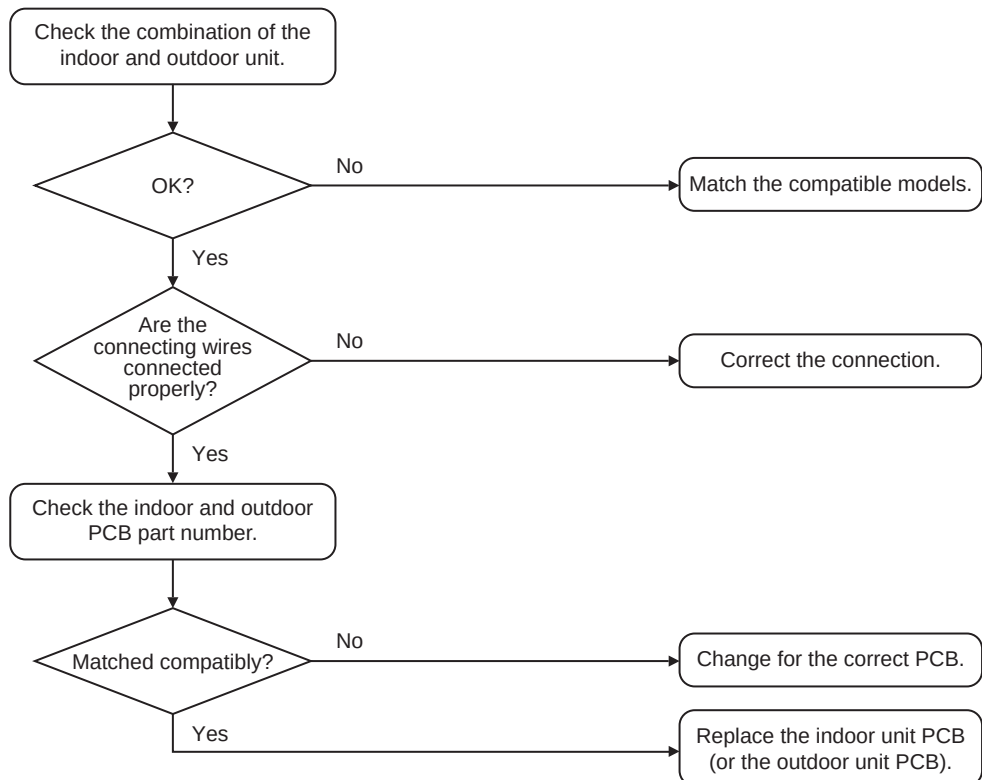
A6	
Description	Indoor Fan Motor Abnormality
Supposed Cause	1. Indoor fan motor winding short, or the motor lead wire broken. 2. Indoor PCB faulty.
Troubleshooting	<pre> graph TD A[Turn off power supply and rotate fan by hand.] --> B{Does it rotate?} B -- No --> C[Change fan motor.] B -- Yes --> D[Check fan motor connector condition.] D --> E{Does it connect properly?} E -- No --> F[Connect correctly.] E -- Yes --> G[Change PCB and turn on power.] G -- No --> H[Change fan motor.] </pre>

C4/C9	
Description	Indoor Heat Exchanger Thermistor Abnormality Indoor Room Thermistor Abnormality
Supposed Cause	1. Thermistor, connector faulty. 2. Indoor PCB faulty.
Troubleshooting	<pre> graph TD A[Check the thermistor connector condition.] --> B{Normal?} B -- No --> C[Correct the connection.] B -- Yes --> D[Check thermistor resistance value.] D --> E{Normal?} E -- No --> F[Replace indoor thermistor.] E -- Yes --> G[Replace indoor PCB.] </pre> # Refer thermistor resistance table. *Remark: Refer Thermistor resistance check procedure in Appendix A (Item 1, page 32).

F6	
Description	Heat exchanger overheat
Supposed Cause	1. The installation space is not large enough. 2. Faulty outdoor fan motor. 3. Faulty EXV. 4. Faulty outdoor heat exchanger thermistor. 5. Faulty stop valve. 6. Dirty heat exchanger. 7. Unit overcharge. 8. Defective outdoor unit PCB.
Troubleshooting	<pre> graph TD Start([Check the installation space.]) --> D1{Check the installation condition.} D1 -- Malfunction --> A1[Change the installation location or direction. Clean the outdoor heat exchanger.] D1 -- OK --> D2{Check the outdoor fan.} D2 -- Malfunction --> A2[Replace the outdoor fan motor. Reconnect the connector or fan motor lead wires.] D2 -- OK --> D3{Check the electronic expansion valve.} D3 -- Malfunction --> A3[Replace the electronic expansion valve or the coil. Replace the outdoor unit PCB.] D3 -- OK --> D4{Check the outdoor heat exchanger thermistor.} D4 -- Malfunction --> A4[Replace the outdoor heat exchanger thermistor.] D4 -- OK --> A5[Replace the outdoor unit PCB.] </pre> *Remark: Refer to Appendix A for thermistor resistance checking procedures (Item 1, page 32). Refer to Appendix A for Inverter unit refrigerant check procedures (Item 2, page 33). Refer to Appendix A for Installation condition check (Item 3, page 33). For electronic expansion device checking procedures, please refer to Daikin procedures.

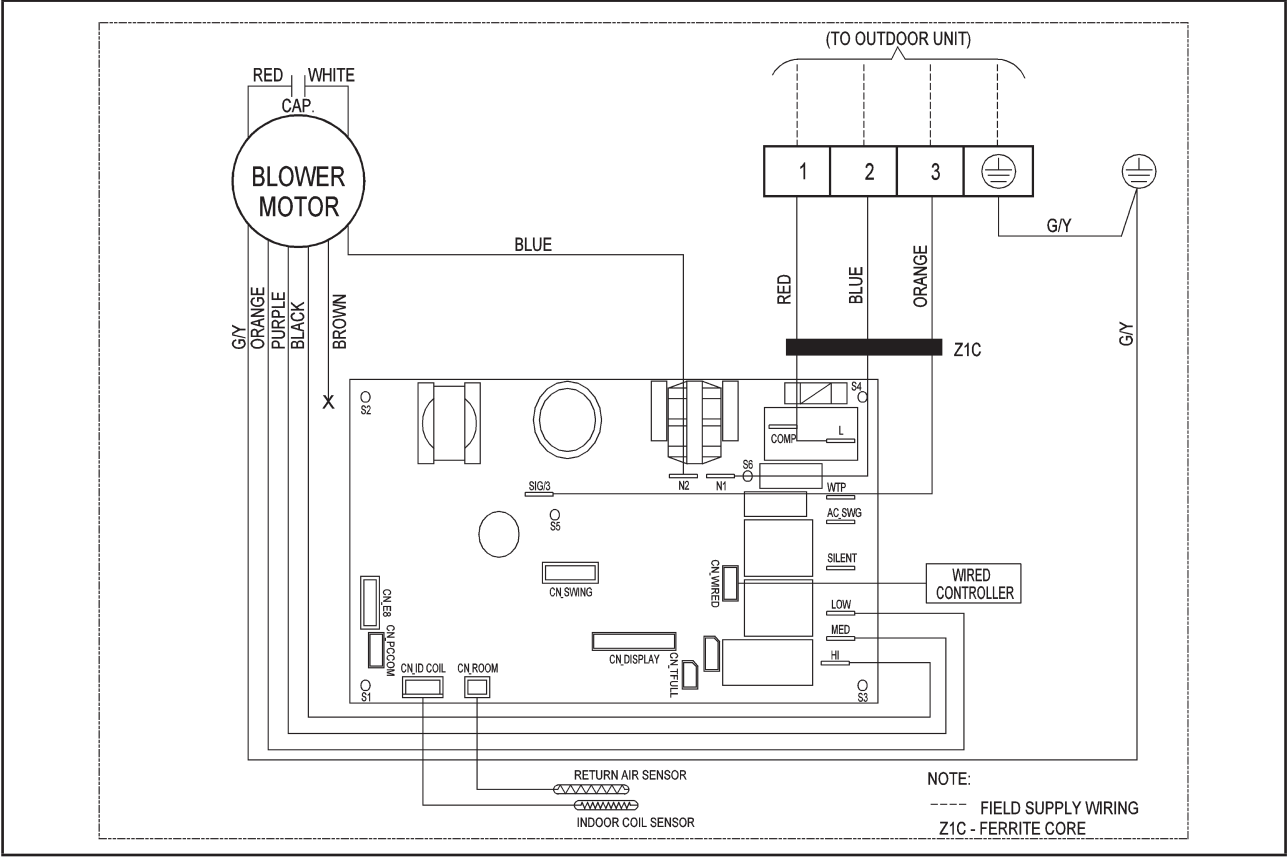
U0	
Description	Insufficient gas
Supposed Cause	1. Disconnection of the discharge pipe thermistor, indoor or outdoor heat exchanger thermistor, room or outdoor temperature thermistor. 2. Closed stop valve. 3. Refrigerant shortage (refrigerant leakage). 4. Poor compression performance of compressor. 5. Defective electronic expansion valve.
Troubleshooting	<pre> graph TD A[Check stop valve.] --> B{Stop valve closed?} B -- Yes --> C[Fully open stop valve.] B -- No --> D[Check indoor and outdoor coil thermistor.] D --> E{Thermistor in actual position?} E -- No --> F[Put the thermistor back to actual position.] E -- Yes --> G[Check the indoor coil, outdoor coil and discharge pipe thermistor resistance.] G --> H{Resistance normal?} H -- No --> I[Change thermistor.] H -- Yes --> J[Check EXV.] J --> K{EXV functioning?} K -- No --> L[Change EXV.] K -- Yes --> M[Check refrigerant charge level.] M --> N{Refrigerant charge sufficient?} N -- Yes --> O[Change outdoor PCB.] N -- No --> P[Check for leakage.] P --> Q{Any leakage?} Q -- Yes --> R[Repair the leak point.] Q -- No --> S[Add in refrigerant charge.] </pre> *Remark: Refer to Appendix A for thermistor resistance checking procedures (Item 1, page 32). For electronic expansion device checking procedures, please refer to Daikin Procedures.

U4	
Description	Communication Abnormality
Supposed Cause	1. Faulty outdoor unit PCB. 2. Faulty indoor unit PCB. 3. Indoor unit – outdoor unit signal transmission error due to wiring error. 4. Indoor unit – outdoor unit signal transmission error due to disturbed power supply waveform. 5. Indoor unit – Outdoor unit signal transmission error due to breaking of wire in the connection wires between the indoor and outdoor units.
Troubleshooting	<pre> graph TD A[Check the power supply voltage.] --> B{Is the voltage fluctuation within ±10% from the rated value?} B -- No --> C[Correct the power supply.] B -- Yes --> D[Check the indoor unit - outdoor unit connection wires.] D --> E{Is there any wiring error?} E -- Yes --> F[Correct the indoor unit - outdoor unit connection wires.] E -- No --> G[Check the voltage of the connection wires on the indoor terminal board between No. 1 and SIG, and between No. 2 and SIG.] G --> H{Properly insulated?} H -- Yes --> I[Replace the connection wires between the indoor unit and outdoor unit.] H -- No --> J[Check the LED A on the outdoor unit PCB.] J --> K{Is LED A blinking?} K -- No --> L[Diagnose the outdoor unit PCB.] K -- Yes --> M{Rotate the outdoor fan by hand. Does the outdoor fan rotate smoothly?} M -- No --> N[Replace the outdoor fan motor and the outdoor unit PCB.] M -- Yes --> O[Check the power supply waveform.] O --> P{Is there any disturbance?} P -- No --> Q[Replace the indoor unit PCB.] P -- Yes --> R[Locate the cause of the disturbance of the power supply waveform, and correct it.] </pre> *Remark: Refer to Appendix A for power supply waveform check procedures (Item 4, page 34).

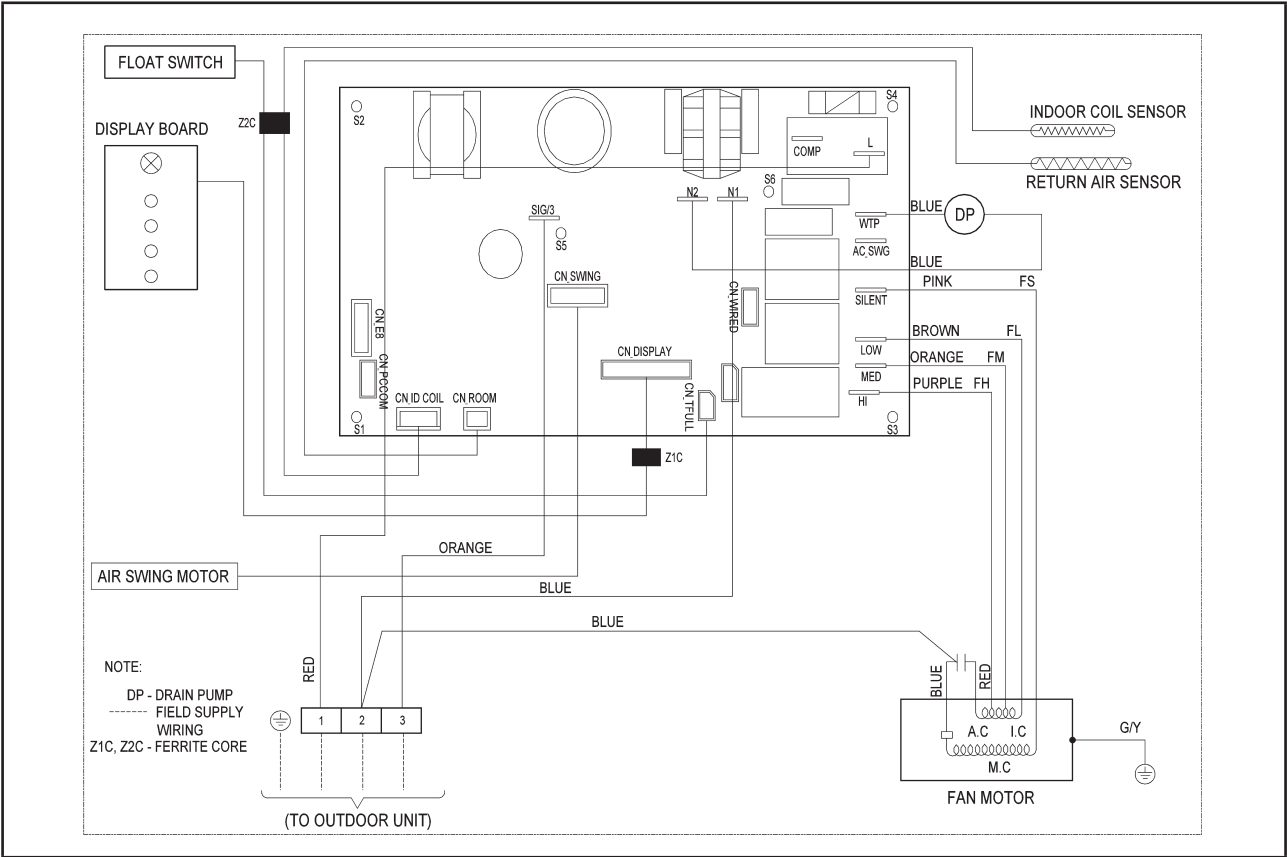
UA	
Description	Installation error
Supposed Cause	1. Wrong models interconnected. 2. Wrong indoor unit PCB mounted. 3. Indoor unit PCB defective. 4. Wrong outdoor unit PCB mounted or defective.
Troubleshooting	 <pre> graph TD A[Check the combination of the indoor and outdoor unit.] --> B{OK?} B -- No --> C[Match the compatible models.] B -- Yes --> D{Are the connecting wires connected properly?} D -- No --> E[Correct the connection.] D -- Yes --> F[Check the indoor and outdoor PCB part number.] F --> G{Matched compatibly?} G -- No --> H[Change for the correct PCB.] G -- Yes --> I[Replace the indoor unit PCB (or the outdoor unit PCB).] </pre>

Wiring Diagram

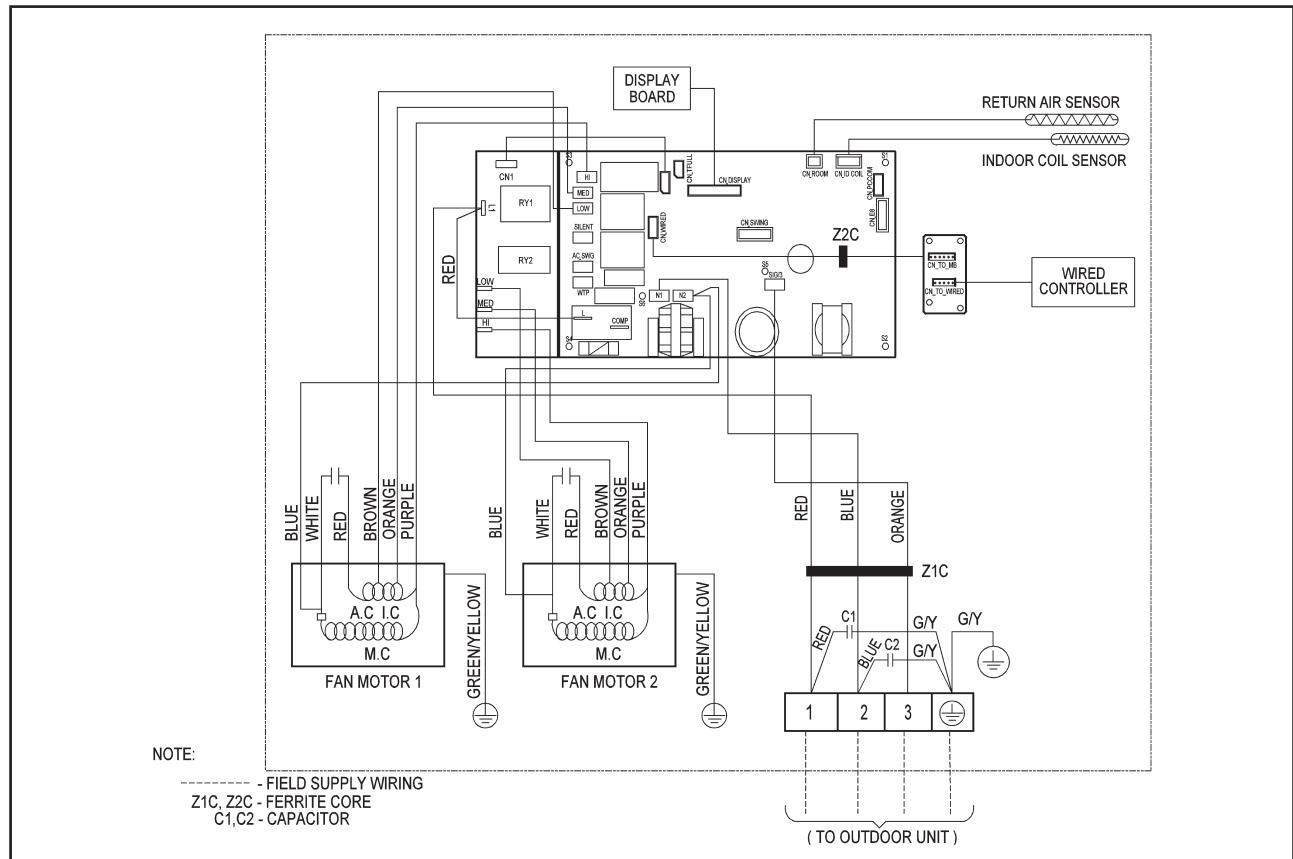
Model: ABQ71/100/125/140AV1



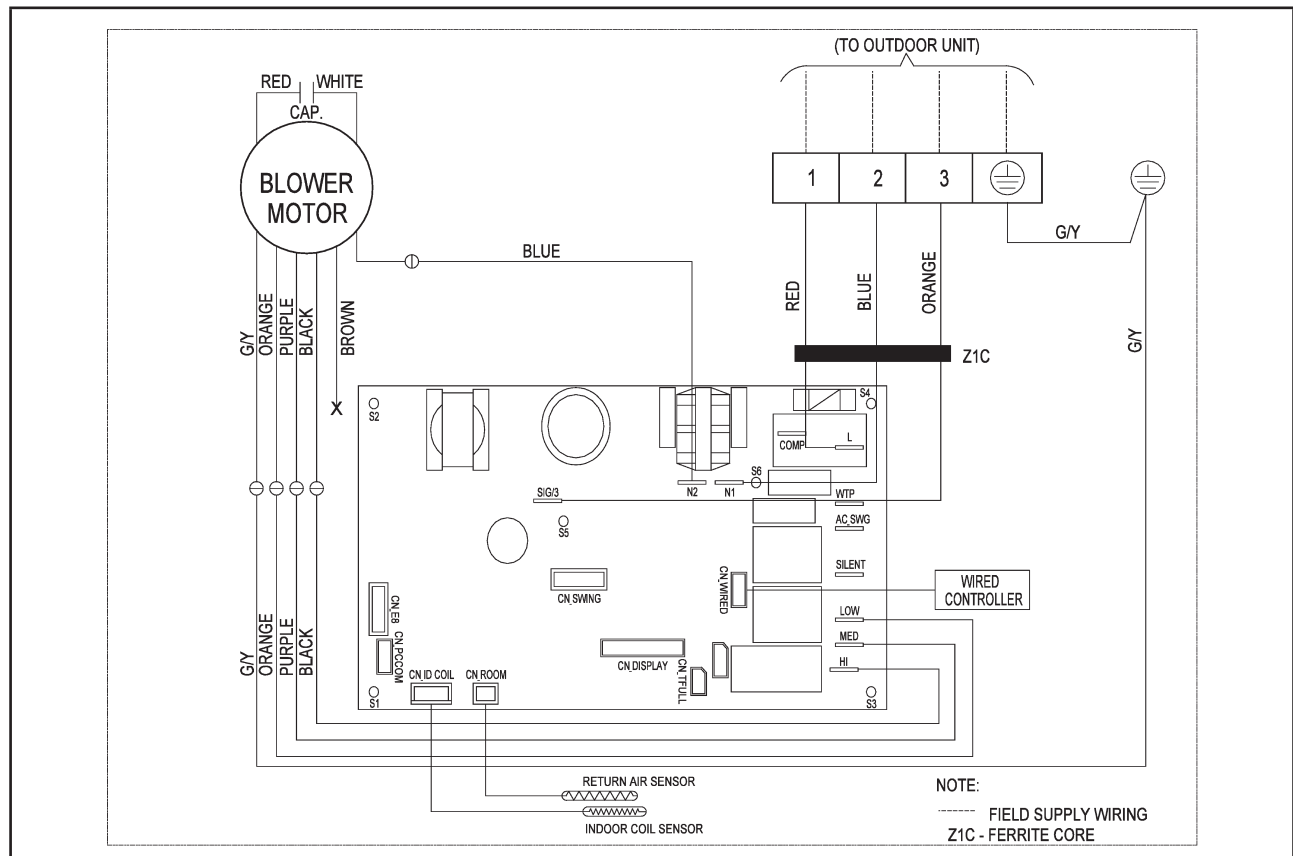
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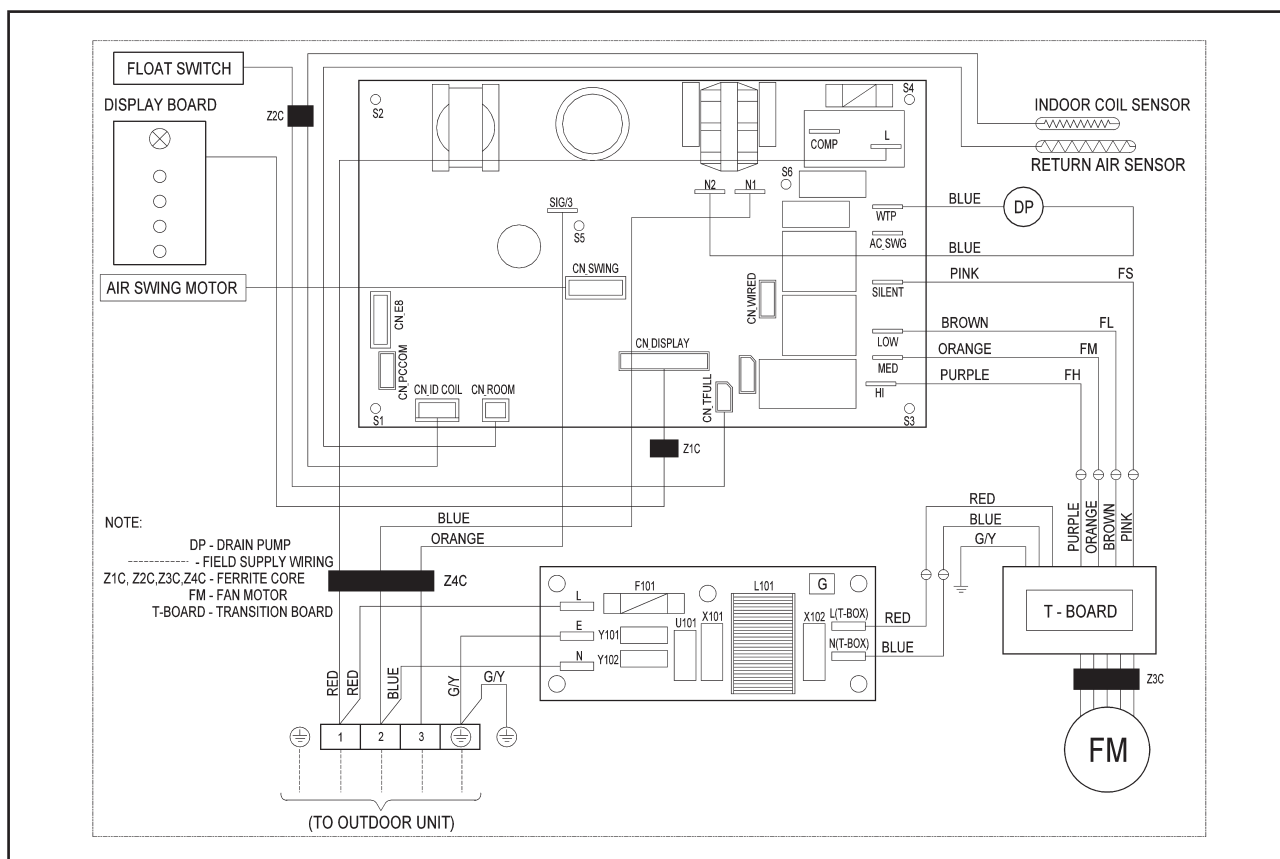
Model: AHQ140AV1



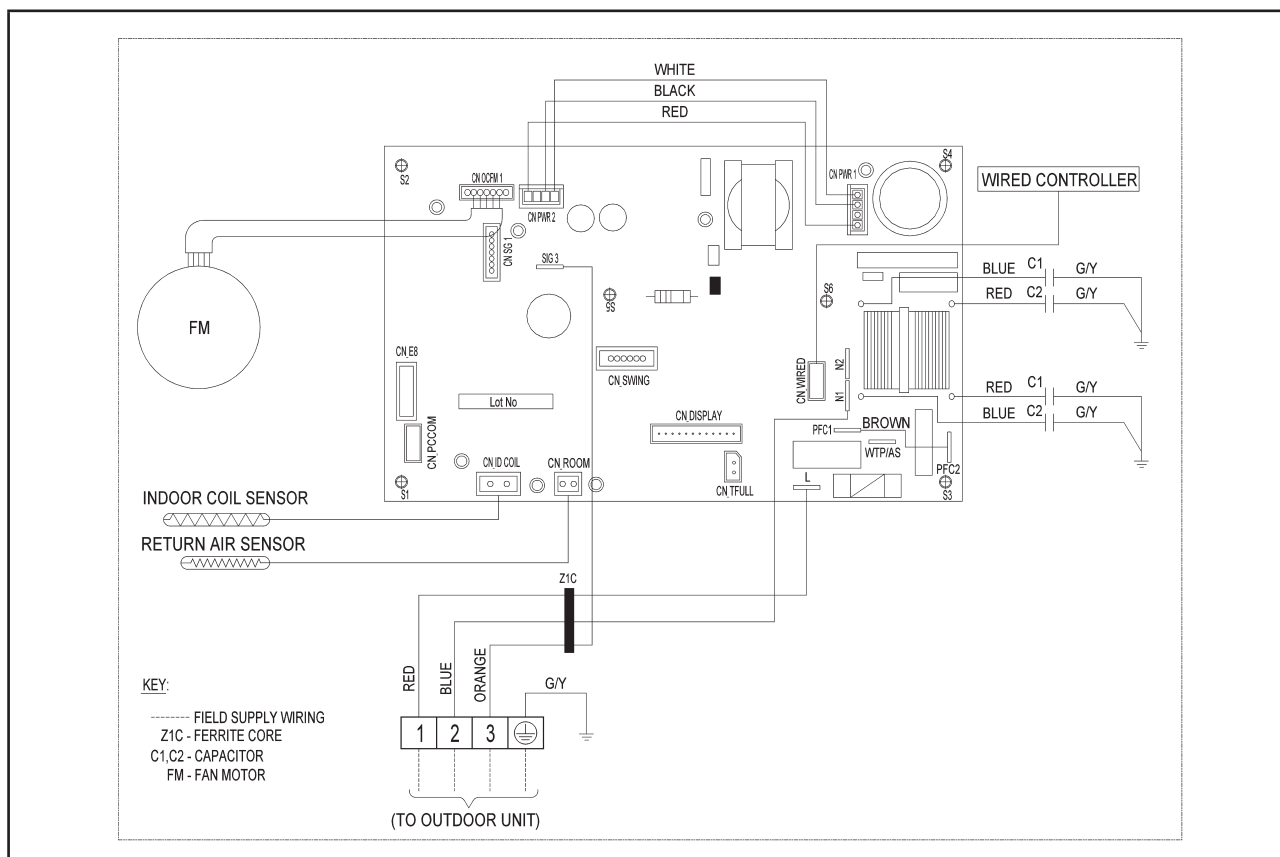
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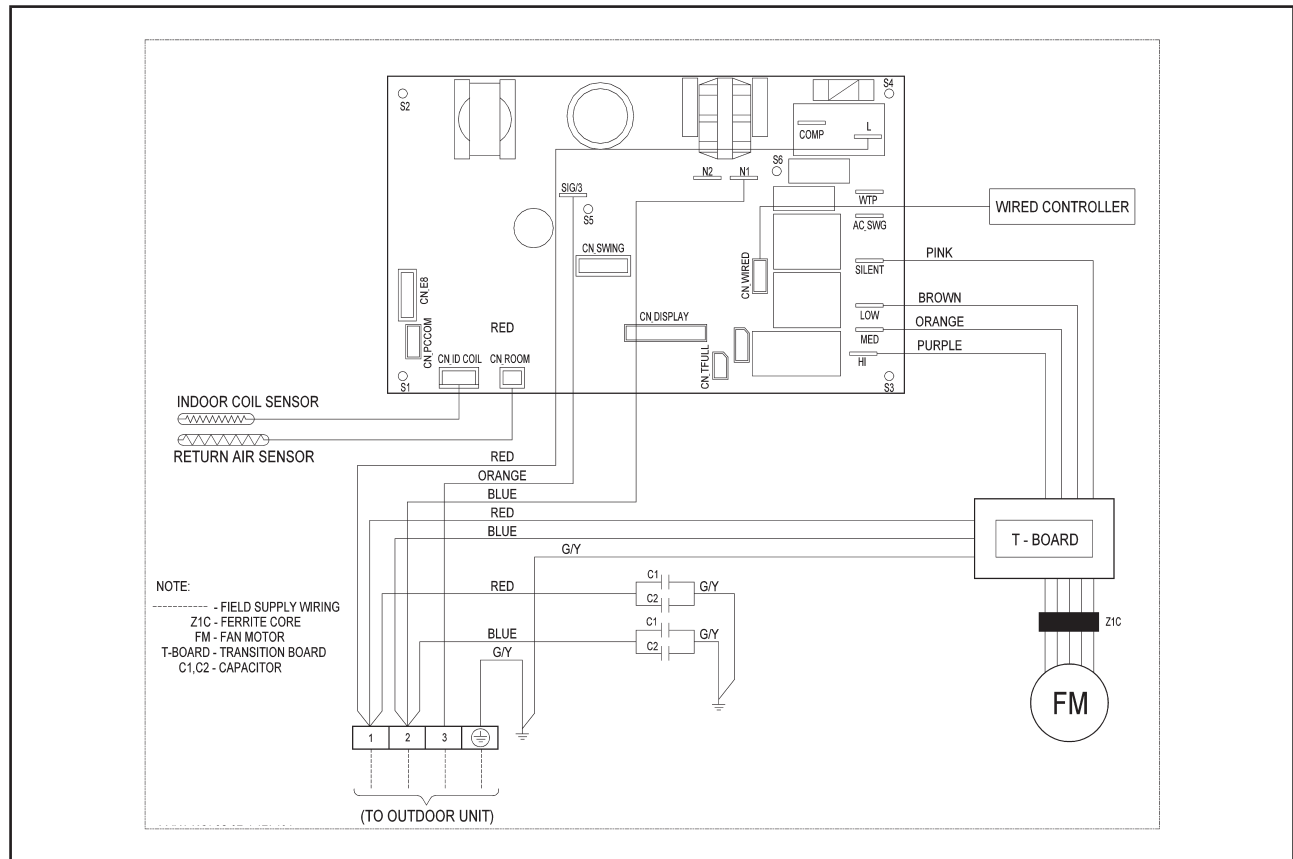
Model: ACQ100/125BV1



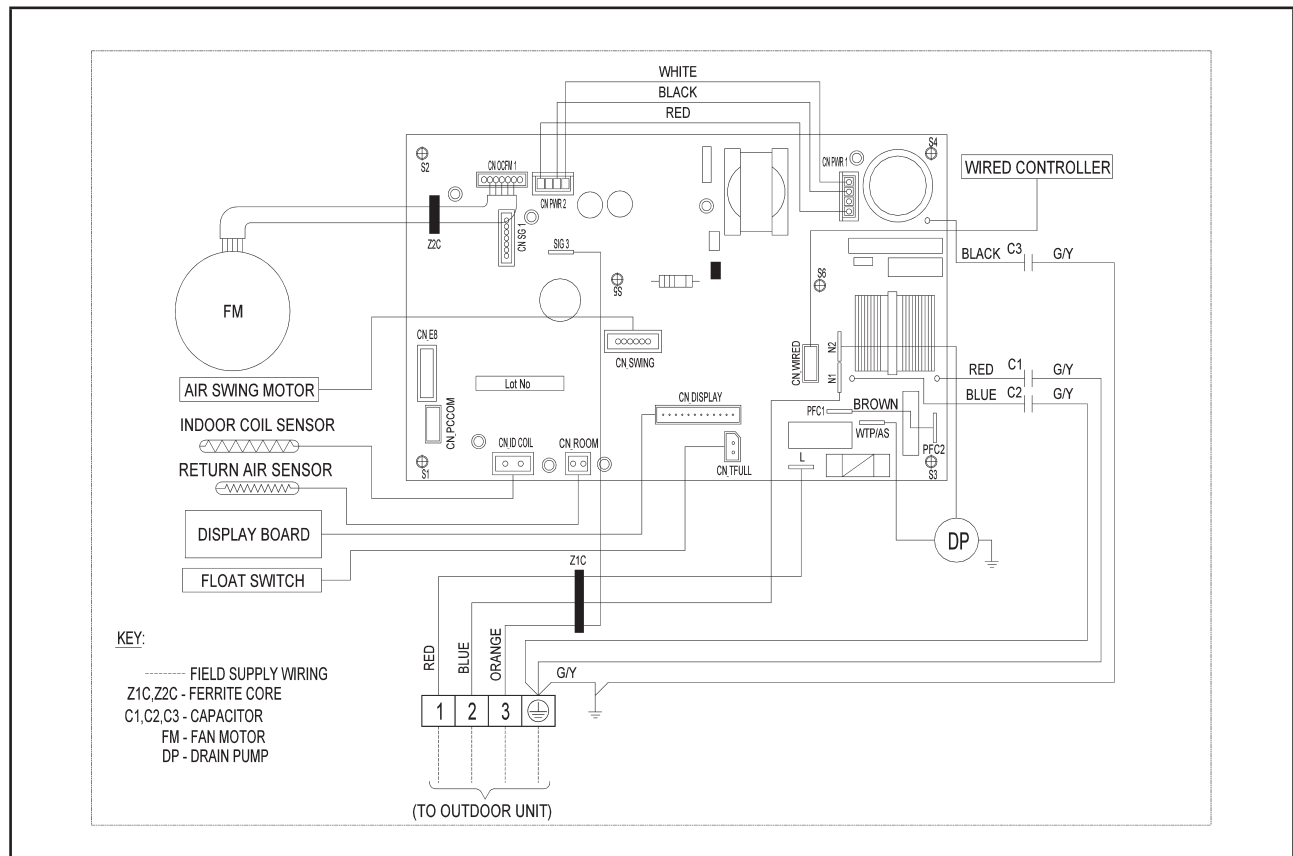
Model: ABQ71/100CV1



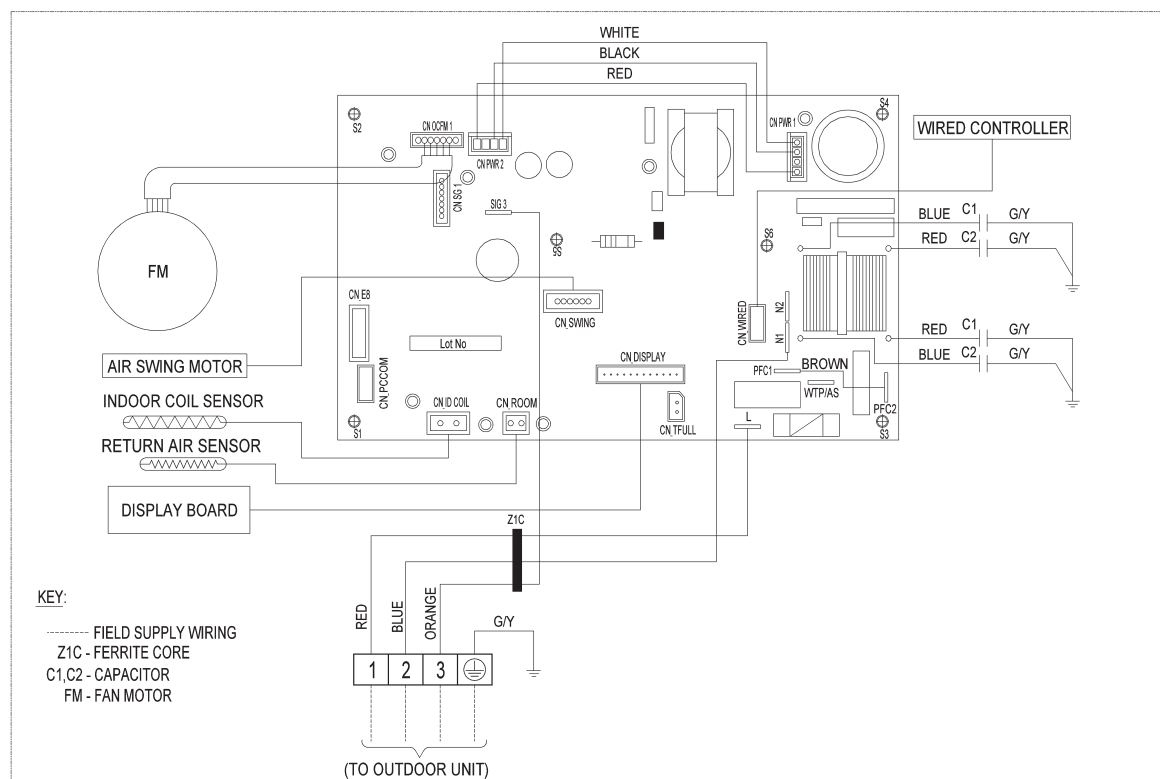
Model: ABQ125/140CV1



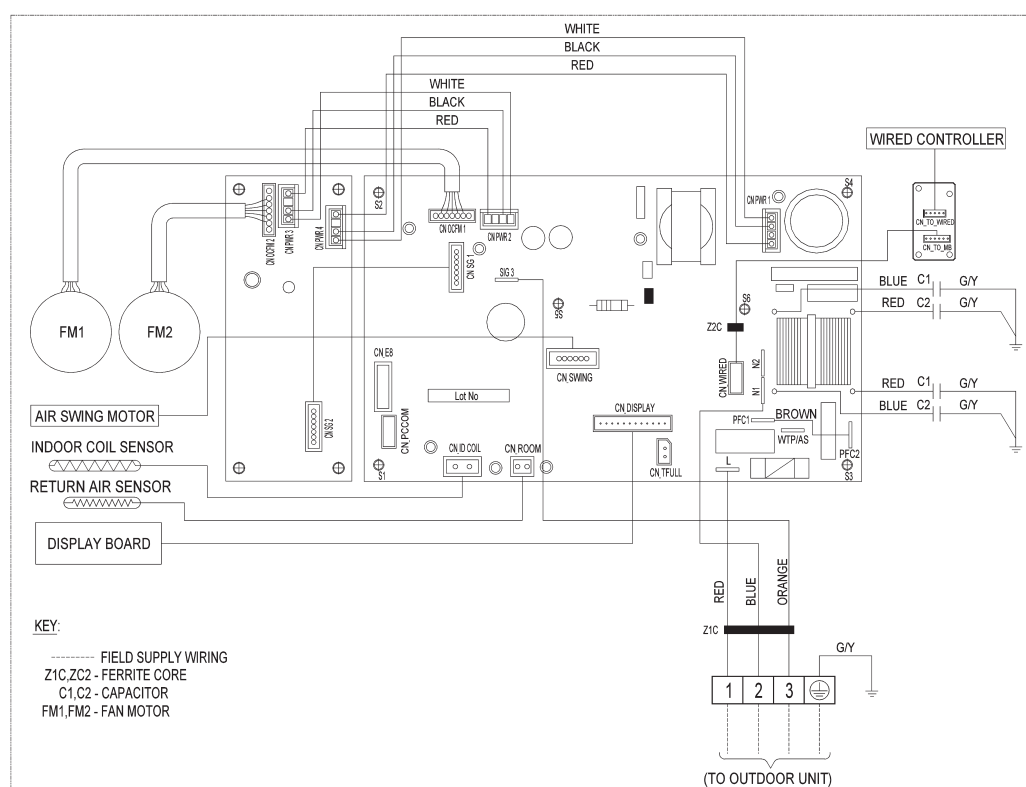
Model: ACQ71/100/125CV1



Model: AHQ71/100/125CV1



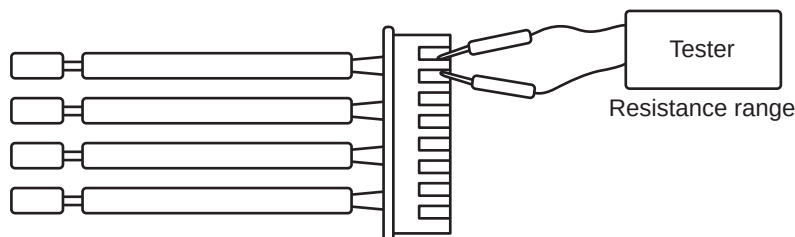
Model: AHQ140CV1



5.0 Appendix A

1 Thermistor resistance checking procedures

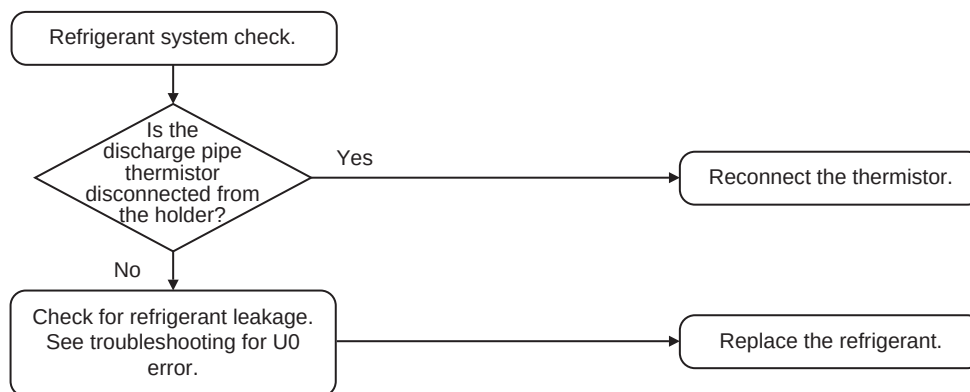
Remove the connectors of thermistors at PCB and measure resistance of each thermistor using tester as shown below.



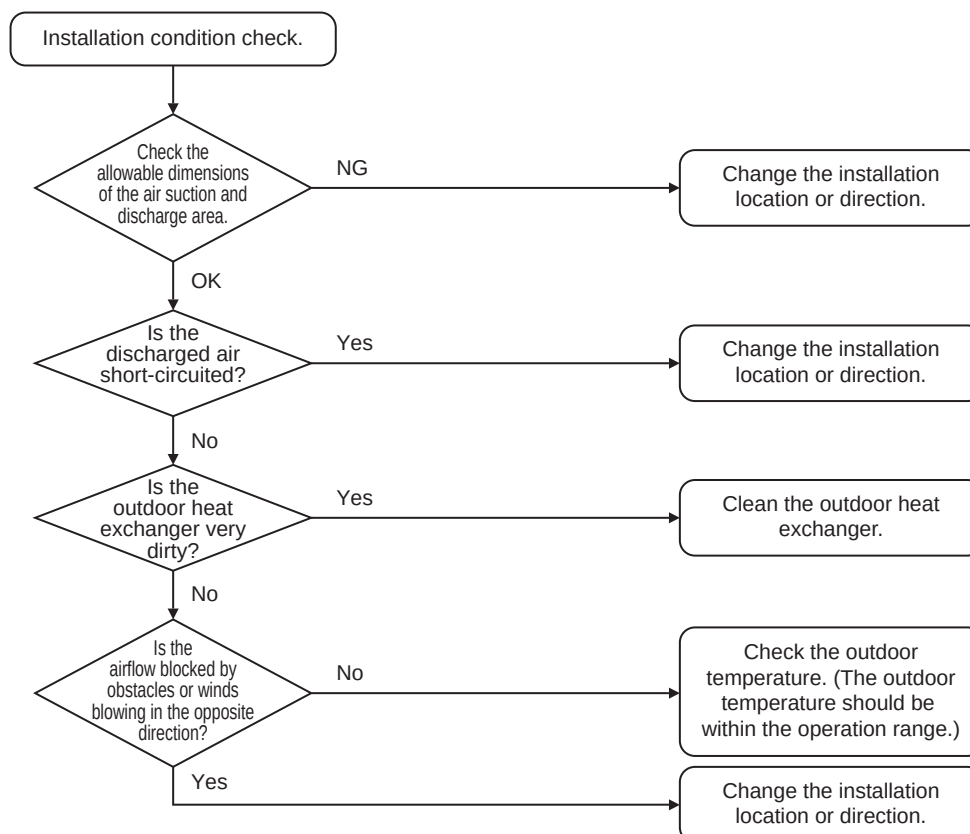
Resistance value when 25°C is 10K Ω for all Skyair Inverter Indoor models

t°C	Rmin (k Ω)	Rnom (k Ω)	Rmax (k Ω)	t°C	Rmin (k Ω)	Rnom (k Ω)	Rmax (k Ω)
-10	4.42E+01	4.53E+01	4.65E+01	41	5.47E+00	5.56E+00	5.64E+00
-9	4.21E+01	4.32E+01	4.43E+01	42	5.28E+00	5.37E+00	5.45E+00
-8	4.02E+01	4.12E+01	4.22E+01	43	5.10E+00	5.18E+00	5.27E+00
-7	3.83E+01	3.92E+01	4.02E+01	44	4.92E+00	5.01E+00	5.09E+00
-6	3.66E+01	3.74E+01	3.83E+01	45	4.75E+00	4.84E+00	4.92E+00
-5	3.49E+01	3.57E+01	3.65E+01	46	4.59E+00	4.67E+00	4.76E+00
-4	3.33E+01	3.41E+01	3.49E+01	47	4.44E+00	4.52E+00	4.60E+00
-3	3.18E+01	3.26E+01	3.33E+01	48	4.29E+00	4.37E+00	4.42E+00
-2	3.04E+01	3.11E+01	3.18E+01	49	4.15E+00	4.22E+00	4.30E+00
-1	2.90E+01	2.97E+01	3.03E+01	50	4.01E+00	4.09E+00	4.16E+00
0	2.78E+01	2.84E+01	2.90E+01	51	3.88E+00	3.95E+00	4.03E+00
1	2.66E+01	2.71E+01	2.77E+01	52	3.75E+00	3.82E+00	3.90E+00
2	2.54E+01	2.59E+01	2.65E+01	53	3.63E+00	3.70E+00	3.77E+00
3	2.43E+01	2.48E+01	2.53E+01	54	3.51E+00	3.58E+00	3.65E+00
4	2.33E+01	2.37E+01	2.42E+01	55	3.40E+00	3.47E+00	3.54E+00
5	2.23E+01	2.27E+01	2.31E+01	56	3.29E+00	3.36E+00	3.43E+00
6	2.14E+01	2.18E+01	2.21E+01	57	3.18E+00	3.25E+00	3.32E+00
7	2.05E+01	2.08E+01	2.12E+01	58	3.08E+00	3.15E+00	3.22E+00
8	1.96E+01	2.00E+01	2.03E+01	59	2.98E+00	3.05E+00	3.12E+00
9	1.88E+01	1.91E+01	1.94E+01	60	2.89E+00	2.96E+00	3.01E+00
10	1.80E+01	1.83E+01	1.86E+01	61	2.80E+00	2.86E+00	2.93E+00
11	1.73E+01	1.76E+01	1.78E+01	62	2.71E+00	2.78E+00	2.84E+00
12	1.66E+01	1.69E+01	1.71E+01	63	2.63E+00	2.69E+00	2.75E+00
13	1.59E+01	1.62E+01	1.64E+01	64	2.55E+00	2.61E+00	2.67E+00
14	1.53E+01	1.55E+01	1.57E+01	65	2.47E+00	2.53E+00	2.59E+00
15	1.47E+01	1.49E+01	1.51E+01	66	2.40E+00	2.45E+00	2.51E+00
16	1.41E+01	1.43E+01	1.45E+01	67	2.32E+00	2.38E+00	2.44E+00
17	1.35E+01	1.37E+01	1.39E+01	68	2.25E+00	2.31E+00	2.37E+00
18	1.30E+01	1.32E+01	1.33E+01	69	2.19E+00	2.24E+00	2.30E+00
19	1.25E+01	1.27E+01	1.28E+01	70	2.12E+00	2.17E+00	2.23E+00
20	1.20E+01	1.22E+01	1.23E+01	71	2.06E+00	2.11E+00	2.17E+00
21	1.16E+01	1.17E+01	1.18E+01	72	2.00E+00	2.05E+00	2.10E+00
22	1.11E+01	1.12E+01	1.14E+01	73	1.94E+00	1.99E+00	2.04E+00
23	1.07E+01	1.08E+01	1.09E+01	74	1.88E+00	1.93E+00	1.98E+00
24	1.03E+01	1.04E+01	1.05E+01	75	1.83E+00	1.88E+00	1.93E+00
25	9.90E+00	1.00E+01	1.01E+01	76	1.77E+00	1.82E+00	1.87E+00
26	9.52E+00	9.62E+00	9.72E+00	77	1.72E+00	1.77E+00	1.82E+00
27	9.16E+00	9.26E+00	9.36E+00	78	1.67E+00	1.72E+00	1.77E+00
28	8.82E+00	8.92E+00	9.02E+00	79	1.63E+00	1.67E+00	1.72E+00
29	8.49E+00	8.59E+00	8.69E+00	80	1.58E+00	1.62E+00	1.67E+00
30	8.17E+00	8.27E+00	8.37E+00	81	1.53E+00	1.58E+00	1.62E+00
31	7.87E+00	7.97E+00	8.07E+00	82	1.49E+00	1.53E+00	1.58E+00
32	7.58E+00	7.68E+00	7.78E+00	83	1.45E+00	1.49E+00	1.54E+00
33	7.31E+00	7.40E+00	7.50E+00	84	1.41E+00	1.45E+00	1.49E+00
34	7.04E+00	7.14E+00	7.23E+00	85	1.37E+00	1.41E+00	1.45E+00
35	6.79E+00	6.88E+00	6.98E+00	86	1.33E+00	1.37E+00	1.41E+00
36	6.54E+00	6.64E+00	6.73E+00	87	1.30E+00	1.33E+00	1.38E+00
37	6.31E+00	6.40E+00	6.50E+00	88	1.26E+00	1.30E+00	1.34E+00
38	6.09E+00	6.18E+00	6.27E+00	89	1.23E+00	1.26E+00	1.30E+00
39	5.87E+00	5.96E+00	6.05E+00	90	1.19E+00	1.23E+00	1.27E+00
40	5.67E+00	5.75E+00	5.84E+00				

2. Inverter unit refrigerant check procedures



3. Installation condition check

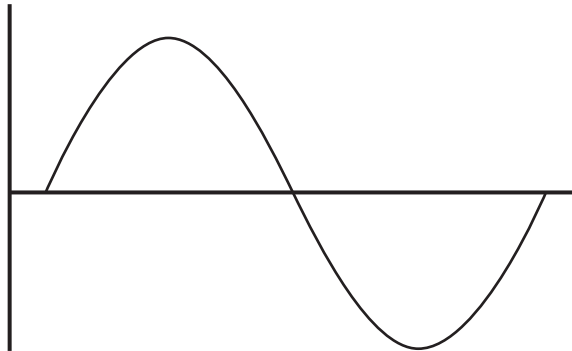


4. Power supply waveforms check procedures

Measure the power supply waveform between Live and Neutral on the terminal board, and check the waveform disturbance. (using oscilloscope)

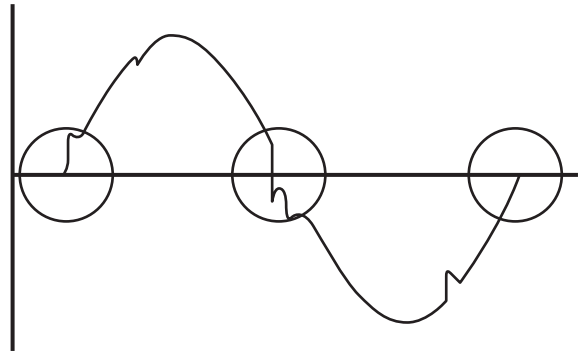
- Check if the power supply waveform is a sine wave (Fig. 1).
- Check if there is waveform disturbance near the zero cross (sections circled in Fig. 2).

Fig. 1



(R1726)

Fig. 2



(R1444)

Product manufactured in an ISO certified facility.
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For the most up to date product information, please go to www.daikin-oyl.com.my