Ductless Split Heat Pump

GE APPLIANCES
a Haier *company*

Indoor	Outdoor
AW24TL2HFA	1U24TL2HFA
AW30TL2HFA	1U3036TL2HFA
AW36TL2HFA	ASH124TRDFA
ASYW24TRDFA	ASH3036TRDFA
ASYW30TRDFA	
ASYW36TRDFA	

Service Manual

Design may vary by model number.

- Please read this manual before installing this product.
- **Keep this user manual for future reference.**

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Safety Precautions

- Read these Safety Precautions carefully to ensure correct installation.
- This manual classifies the precautions into WARNING and CAUTION.
- Be sure to follow all the precautions bellow: they are all important for ensuring safety.

⚠ **WARNING:** Failure to follow any of **WARNING** is likely to result in grave consequences such as death or serious injury.

⚠ **CAUTION:** Failure to follow any of **CAUTION** may in some cases result in grave consequences.

- The following safety symbols are used throughout this manual:

Be sure to observe this instruction	Be sure to establish an earth connection	Never attempt

- After completing installation, test the unit to check for installation errors. Give the user adequate instructions concerning the use and cleaning of the unit according to the Operation Manual.

⚠ WARNING
• Installation should be left to the dealer or another professional. Improper installation may cause water leakage, electrical shock, or fire.
• Install the heat pump according to the instructions given in this manual. Incomplete installation may cause water leakage, electrical shock, or fire.
• Be sure to use the supplied or specified installation parts. Use of other parts may cause the unit to come lose, water leakage, electrical shock, or fire.
• Install the heat pump on a solid base that can support the unit's weight. An inadequate base or incomplete installation may cause injury in the event the unit falls off the base.
• Electrical work should be carried out in accordance with the installation manual and the national electrical wiring rules or code of practice. Insufficient capacity or incomplete electrical work may cause electrical shock or fire.
• Be sure to use a dedicated power circuit. Never use a power supply shared by another appliance.
• For wiring, use a cable long enough to cover the entire distance with no connection. Do not use an extension cord. Do not put other loads on the power supply, use a dedicated power circuit. (Failure to do so may cause abnormal heat, electric shock or fire.)
• Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the interconnecting wires so their receive no external stresses. Incomplete connections or clamping may cause terminal over-heating or fire.
• After connecting interconnecting and supply wiring be sure to shape the cables so that they do not put undue force on the electrical covers or panels. Install covers over the wires. Incomplete cover installation may cause terminal overheating, electrical shock, or fire.
• If any refrigerant has leaked out during the installation work, ventilate the room. (The refrigerant produces a toxic gas if exposed to flames.)
• After all installation is complete, check to make sure that no refrigerant is leaking out. (The refrigerant produces a toxic gas if exposed to flames.)
•When installing or relocating the system, be sure to keep the refrigerant circuit free from substances other than the specified refrigerant(R410A), such as air or moisture. (Any presence of air or other foreign substance in the refrigerant circuit causes an abnormal pressure rise or rupture, resulting in injury.)
• Be sure to establish a ground. Do not ground the unit to a utility pipe, arrester, or telephone earth. In complete earth may cause electrical shock, or fire. A high surge current from lightning or other sources may cause damage.

⚠ CAUTION
• Do not install this system in a place where there is danger of exposure to inflammable gas leakage. If the gas leaks and builds up around the unit, it may catch fire.
• Establish drain piping according to the instructions of this manual. Inadequate piping may cause flooding.
•Tighten the flare nut according to the specified method such as with a torque wrench. If the flare nut is tightened too hard, the flare nut may crack after a long time and cause refrigerant leakage.
• Maintain proper clearances around unit per this manual.

Introduction to the System

Single Zone Ductless Split System Heat Pumps feature a wall mounted indoor fan/evaporator unit that receives refrigerant from an inverter driven variable speed outdoor condensing unit. The system operation is controlled with a remote control.

The outdoor unit features a variable speed rotary compressor, EEV metering device and DC fan motor. These systems use R410A refrigerant and PVE oil. The outdoor units are 208/230 volt rated systems. They come factory charged for up to 25 ft. of interconnecting piping.

The indoor units are wall mounted. They feature a DC blower motor and a DC louver motor. The unit has a room temperature sensor and an evaporator tube temperature sensor. The wall unit is powered by voltage from the outdoor unit.

Specifications for Proper Operation

- The systems are designed to operate in temperature ranges of 60°F to 86°F in cooling mode and 60°F to 86°F in heat mode.
- PVE oil is non-reactive to water and will not go into hydrolysis. There is no need to add a refrigeration drier when servicing or installing this system.
- The indoor wall mounted unit receives operating voltage and communication data signals on #14 AWG wire that connects between the indoor and outdoor units. There should not be any splices in the field wiring that goes between terminals 1, 2, 3 and 4. A splice in these wires may cause the system to lose communication between the indoor and outdoor units. The system will then display an error code E7.
- The field-supplied refrigerant tubing connects using flare type fittings at both the indoor and outdoor units. Tubing must be sized per the specifications. Both lines must be insulated. The only method of checking charge or adjusting charge is by weight method explained in this manual (no exceptions).
- The condensate system is a gravity type. A field installed condensate pump may be added to the system. Always follow the manufacturer's installation instructions when installing a condensate pump.
- Proper clearances at both indoor and outdoor units must be maintained. Improper clearances cause incorrect refrigerant pressures and coil freezing.

System Fundamentals

The indoor unit will sense room temperature at the point where the wall unit is installed. The indoor fan will run continuously when placed in heating or cooling mode and will not cycle on and off with the outdoor unit. If it did, room temperature could not be sensed or maintained.

The inverter compressor system in the outdoor unit will vary the refrigerant flow and indoor air volume levels to match the comfort requirement inside the conditioned space. If an abnormal condition is detected by the system's sensors, the system has the ability to take reactive measures.

The amount of refrigerant flow and associated capacity generated by the system will be determined by how fast the system's variable speed rotary compressor is pumping. The compressor operating speed is determined by the difference between the conditioned space temperature and the set point.

If a large amount of capacity is needed, the compressor will operate at a high speed. As the need for capacity reduces and the temperature of the room nears set point, the compressor will slow down. When set point has been reached, the compressor will shut off while the fan continues to operate. When a difference in temperature is sensed between the set point and room, the compressor will restart at a new calculated speed.

If a system sensor determines there is a need to adjust the frequency signal to prevent a system malfunction, the compressor frequency may be over ridden and a new frequency established. It should be noted that the frequency signal level that is sent to the compressor cannot be determined by a servicing technician.

In this manual, system components, operation, sensor functions, and diagnostic procedures will be explained in greater detail.

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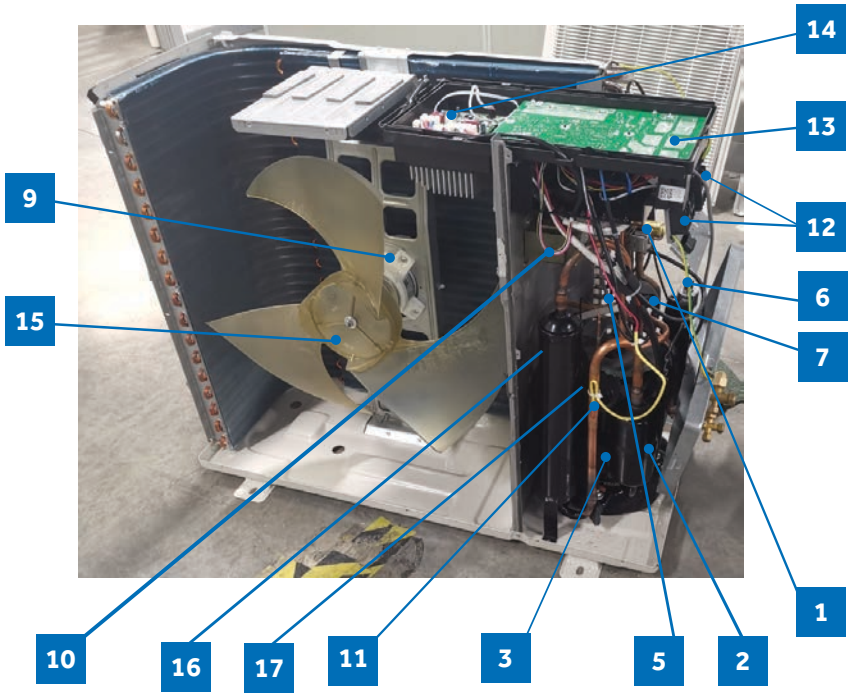
Outdoor Unit Introduction

The outdoor unit has two circuit boards, an Inverter Power Module (IPM) that drives the compressor and main control board (PCB) that manages system functions and inverter calculations.
Sensors monitor key temperatures throughout the system to manage operational decisions.

Outdoor Component Identification



1. 4-Way Valve
2. Accumulator
3. Compressor
4. Defrost Temperature Sensor
5. Discharge Temperature Sensor
6. Electronic Expansion Valve
7. Refrigerant Strainers
8. Ambient Temperature Sensor
9. Fan Motor
10. Power Factor Reactor
11. Suction Line Temperature Sensor
12. Terminal Block
13. Main Control Board (PCB)
14. Module Control Board (IPM)
15. Fan Blade
16. GAS Liquid Segregator
17. Oil Separator

PCB (1) (Outdoor Control PCB)

1 CN1 and CN2 - 230 VAC power from terminal block connections 1(N) and 2(L), CN6-connector for COM-N

2 CN3 - Connector for ground

3 CN4 -Communication connection between the indoor board and the outdoor board

4 CNS and CN9 - 230 VAC power to the IPM connections CN8 (or CN1) and CN9 (or CN2)

5 CN21- Connector for fan motor

6 CN10 - Connector for four way valve coil

7 CN18, CN20, CN31 - connections for temperature sensors

8 CN28, CN25 - 310VDC power from the IPM connections CN1 and CN3

9 CN22 - Connector for DC POWER 15V and 5V to the IPM

10 CN23 - 5VDC and 15VDC pulsing communication connection between the PCB and the IPM

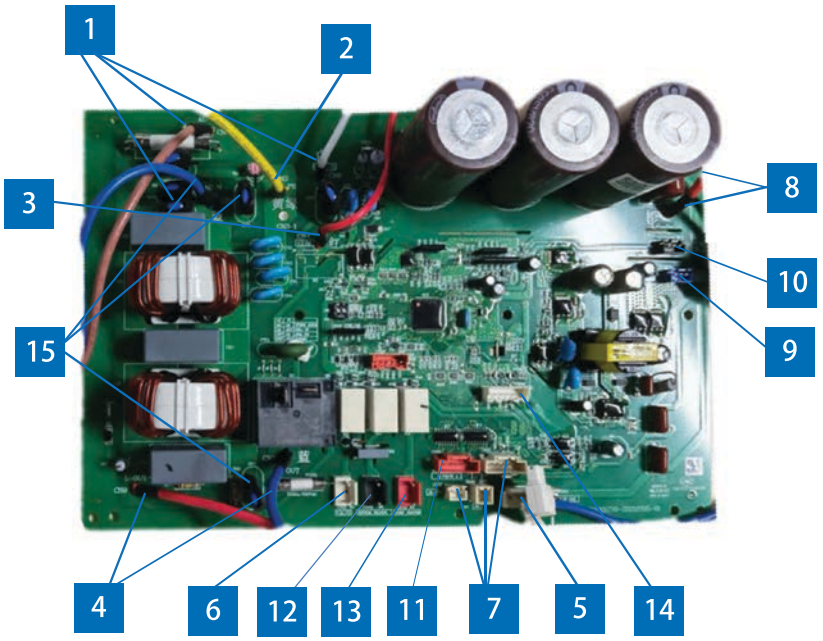
11 CN16 - Connector for the electronic expansion valve

12 CN48 - Connector for the base pan heater

13 CN49 - Connector for COMP heater

14 CN38 - Connector for diagnostic port

15 RV1, RV2, RV3 Varistor



PCB (2) (Module PCB for 09K)

16 CN10 - 5 VDC and 15 VDC power signal from PCB connection CN22

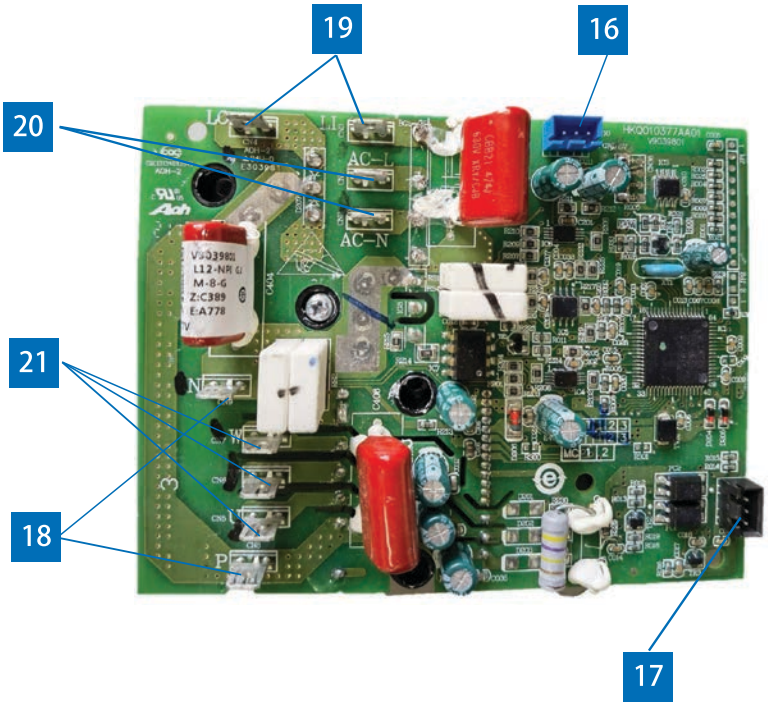
17 CN11 - Connector for communication between the control board and the module board

18 CN8, CN9 - 310 VDC single to PCB connections CN28 and CN25

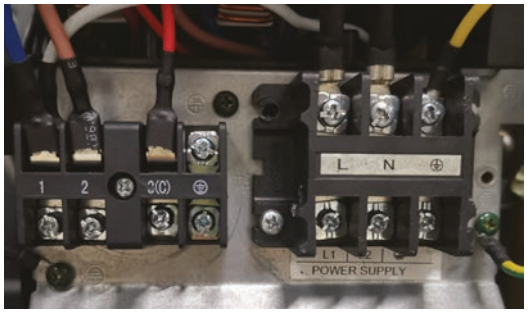
19 LI (CN3), LO (CN4) - Connector for reactor

20 CN1, CN2 - 230VAC signal from PCB connections CN8 and CN9

21 CN5, CN6, CN7 - Compressor U, V, and W connections



Terminal Block



The outdoor unit is powered by 208/230 volt single phase electricity connected at the terminal block. Terminals 1 L (L1) and 2 N(L2) connect this voltage to the system.

The number 3 terminal is communication that connects wiring between the indoor and outdoor units. A ground terminal connects the outdoor unit to the line voltage power source.

Condensate safety switches should break the wire on terminal 2.

The indoor unit is also powered by the same electrical supply as the outdoor unit. 14/4 stranded copper wire is connected to the wiring terminal block at the outdoor unit and is run to the same terminals on the indoor terminal block.

When installing the field supplied wiring, make certain the wire gauge is correct. There should not be any electrical wiring splices between the indoor unit and outdoor unit wire connection 3. This wire is used to carry communication data between the indoor and outdoor units. A wiring splice where wires are twisted in a wire nut may cause deformation of the communication signal. If communication is lost between the indoor and outdoor units, an ERROR CODE E7 will occur. (See Page 36.)

Power Factor Reactor

The Reactor is a power filter. It is unlikely to ever have an electrical failure of this component.

The Reactor of 24K, 30K and 36K is electrically connected to the IPM on terminal connections CN3 and CN4.

Compressor

The compressor is a three phase DC inverter driven rotary type, capable of variable speed operation. The compressor operating frequency will be determined by the temperature difference between set point and room temperature.

The compressor of 24K, 30K and 36K is electrically connected to the IPM on terminal connections CNS, CN6 and CN7.

Protection of the compressor will be provided by the discharge temperature sensor, the suction line temperature sensor, and the overcurrent protection parameter in the PCB.

Outdoor Fan Motor

The fan motor is a variable speed motor. The required speed is calculated by the PCB. The motor is electrically connected to the PCB via PLUG CN-21.

In COOL MODE, the motor will slow down as outdoor air temperature falls. In HEAT MODE, the motor will increase speed as the outdoor air temperature falls.

Discharge Temperature Sensor

The Discharge Temperature Sensor is a negative coefficient thermistor that senses the temperature of the compressor hot gas. The PCB monitors the temperature of the compressor hot gas and will make inverter speed changes in response to input from this device.

This sensor connects to the Main Control Board at PLUG CN-20.

Defrost Temperature Sensor A

The Defrost Temperature Sensor A is a negative coefficient thermistor that will change resistance in response to outdoor coil temperature changes. The PCB monitors the temperature of the outdoor coil to determine when the system should perform a defrost cycle. The sensor also monitors coil temperature during defrost cycles to determine termination conditions.

This sensor connects to the Main Control Board at PLUG CN-31.

Defrost Temperature Sensor B

The Defrost Temperature Sensor B is a negative coefficient thermistor that will change resistance in response to outdoor coil temperature changes. The PCB monitors the temperature of the outdoor coil to determine when the system should perform a defrost cycle. The sensor also monitors coil temperature during defrost cycles to determine termination conditions.

This sensor connects to the Main Control Board at PLUG CN-20.

Ambient Temperature Sensor

The Ambient Temperature Sensor is a negative coefficient thermistor that will change resistance in response to outdoor air temperature changes. The PCB monitors the temperature of the outdoor air to determine fan speed requirements and inverter speed. The sensor also plays a role in calculation of required defrost conditions.

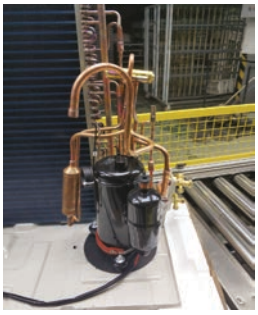
This sensor connects to the Main Control Board at PLUG CN-20.

Suction Line Temperature Sensor

The Suction Line Temperature Sensor is a negative coefficient thermistor that senses the temperature of the suction line. The PCB monitors the temperature of the suction line and the EEV operation to maintain an acceptable superheat.

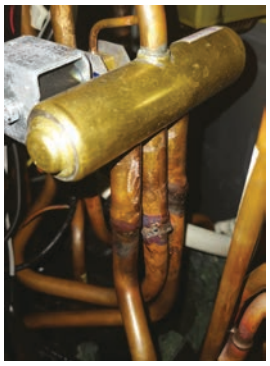
This sensor connects to the Main Control Board at PLUG CN-18.

Oil Separator



The oil separator is integrated on the exhaust pipe. When the compressor oil passes through the exhaust pipe, it is separated by the oil separator, then returns to the air return pipe through the oil return capillary,and then returns to the compressor.

4-Way Valve



The 4-Way Valve redirects the flow of refrigerant in the piping circuit to allow the system to reverse the functions of the indoor and outdoor coils. When de-energized in COOL MODE, the valve will direct the refrigerant hot gas to the outdoor coil. When energized in HEAT MODE, the valve will direct the hot gas to the indoor coil.

The valve flow direction capability is controlled by an electrical solenoid. When energized with 230 VAC, the solenoid will magnetically move an internal slide within the 4-Way Valve to change the direction of refrigerant flow.

The 4-Way Valve is electrically connected to the Main Control Board at PLUG CN-10.

Electronic Expansion Valve

The metering device is an electronic expansion valve. The valve consists of an electrical operator and a valve body with internal variable size orifice. When operating, the PCB will send pulses of voltage to the electrical operator. The operator will then magnetically move the position of the metering orifice pin to vary refrigerant flow.

The metering device position is determined by input from a Suction Line Temperature Sensor. The EEV will change the internal orifice size to maintain an acceptable level of superheat.

During COOL MODE the valve meters low pressure refrigerant to the indoor coil. During HEAT MODE the valve meters low pressure refrigerant to the outdoor coil.

The electrical expansion valve is electrically connected to the Main Control Board at PLUG CN-16.

Accumulator

The Accumulator is located in the suction line circuit at the entrance to the compressor. The accumulator helps prevent liquid refrigerant from entering the compressor during run operation.

Refrigerant Strainers

The system has debris-catching strainers that protect internal system components from contaminants in the refrigerant. The strainer is a permanent part that is not typically replaced.

GAS Liquid Segregator

The liquid and gas seperator is located on the suction line circuit before accumulator. It can help prevent the liquid refrigerant entering the compressor during the operation.

Indoor Unit Controls and Components

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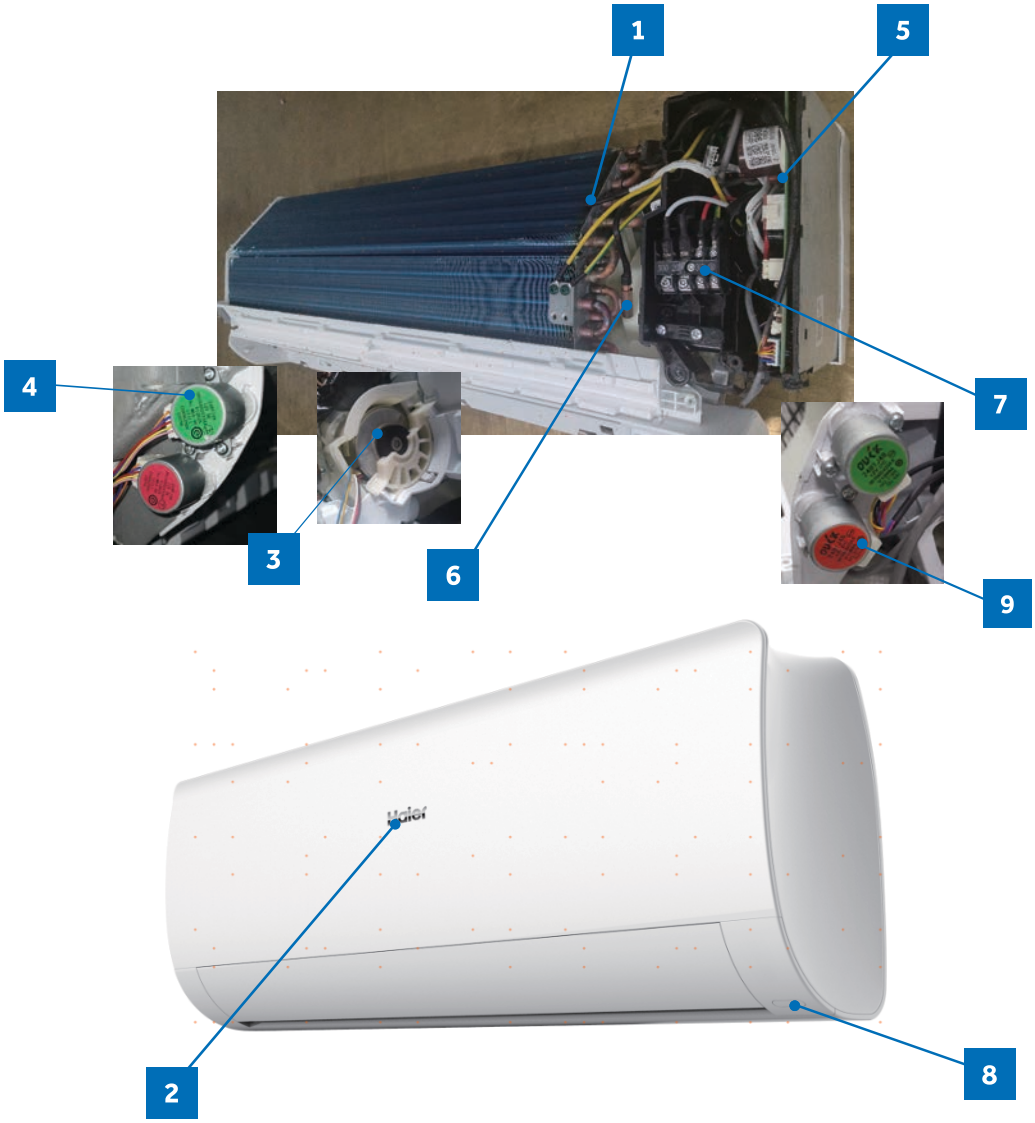
Indoor Unit Introduction

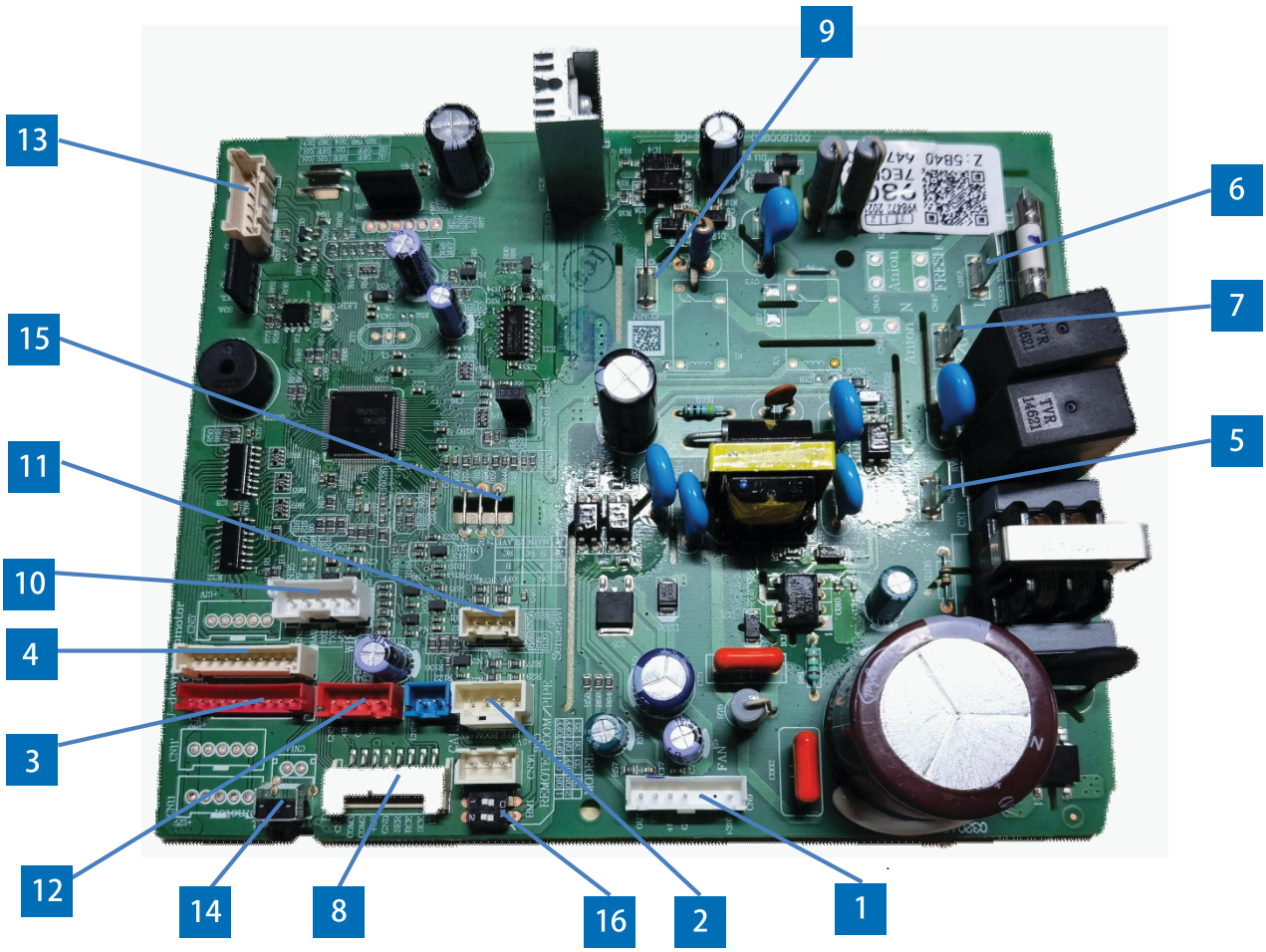
The indoor unit is mounted high on the wall to provide comfort and air movement within the conditioned space. Features of the system include: Variable speed blower operation that speeds up and slows down with changes in demand, moving louvers to direct air, indoor air temperature sensing, evaporator coil temperature sensing, a status display, evaporator coil with metering device located in outdoor unit, and an emergency ope ration button.

Indoor Component Identification

1. Ambient Temperature Sensor
2. Display
3. Fan Motor
4. Louver Motor
5. PCB
6. Piping Temperature Sensor
7. Terminal Block
8. Emergency Button
9. Louver Motor

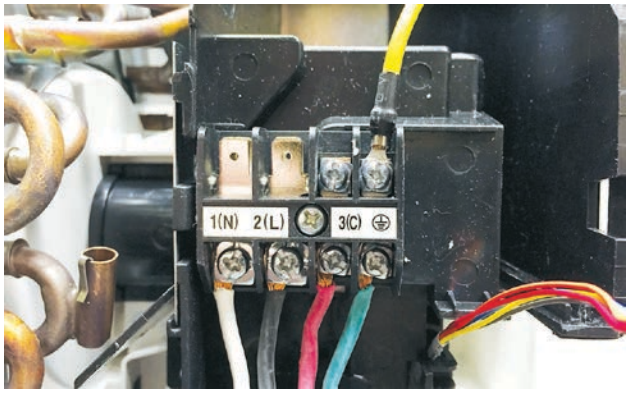


Indoor Control Board



1	CN9-Connector for fan motor
2	CN6 - Connector for pipe temperature sensor and room temperature sensor
3	CN5-1 - Connector for UP/DOWN STEP motor 1
4	CN5 - Connector for UP/DOWN STEP motor 2
5	CN21 - Connector for power N
6	CN17 - Connector for power L
7	CN27 - Connector for GND
8	CN7 - Connector for display board
9	CN23 - Communication connection between the PCB and the outdoor unit
10	CN35-Connector for WiFi module
11	CN56-Connector for occupancy sensor
12	CN34-Connector for wired controller interface
13	CN38-Connector for diagnostic port
14	CN14-Connector for forced operation ON/ OFF switch
15	JS-Select remote code A or B J6-Select room card able or disable
16	BMI 1-2 Select 23, 26, 33, or 35

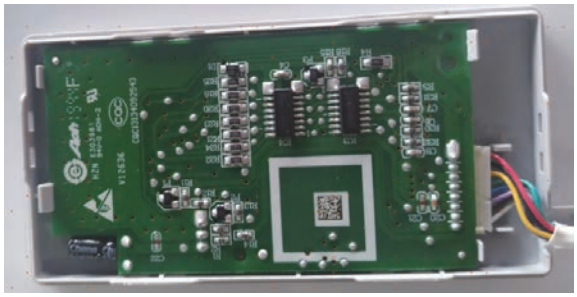
Terminal Block



The unit terminal block receives electrical power from the outdoor unit. There are 4 connections for electrical wires. Terminals 1 and 2 are connected to terminals 1 and 2 of the outdoor unit. This wiring supplies power to the indoor unit.

Terminal 3 is a communication wire. The indoor unit sends indoor air temperature, coil temperature and temperature setpoint information to the outdoor unit on this wire. If a splice or break in this wire is present, the indoor unit will not be able to communicate with the outdoor unit. The ERROR CODE will be an E7.

Display



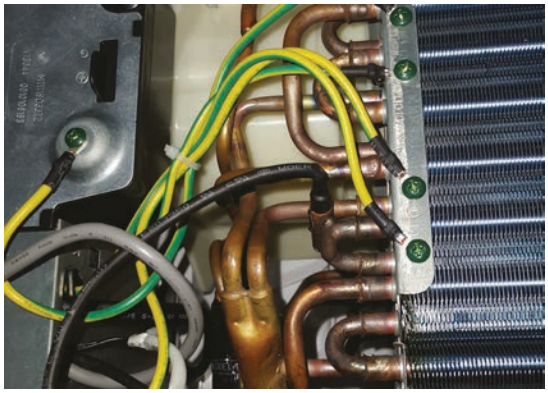
The indoor display has an infrared communication circuit that receives operating commands from the remote control. This display will indicate operating modes, error codes, indoor air temperature, timer status, and power status.

Ambient Temperature Sensor

The Ambient (room) Temperature Sensor is a negative coefficient thermistor that will decrease in resistance with increases in room air temperature. The sensor is located on a clip mounted in the return air stream.

The sensor connects to the control board at Plug CN-6.

Piping Temperature Sensor



The Piping Temperature Sensor is a negative coefficient thermistor that will decrease in resistance with increases in coil temperature. The sensor is located in a socket soldered to the surface of the indoor coil.

This sensor will monitor the temperature of the indoor coil in both cooling and heating modes of operation. Should abnormally cold or hot coil temperature be detected by this sensor, the system will take functional corrective steps to correct the condition or report an ERROR CODE.

The sensor connects to the control board at Plug CN-6.

Stepper Motor Louver

The STEPPER MOTOR 1 and 2 moves the louver up or down, depending upon selections made at the remote control.

The motor is connected to the indoor control board at CN5 and CN5-1

Fan Motor

The Fan Motor is a variable speed motor. The air volume will vary with the speed of the compressor, or it can be set at the remote control to maintain a single speed.

The Fan Motor is connected to the indoor control board via PLUG CN-9.

Emergency Button

If the remote control is non-functional, the Emergency Button can be used. 73F -78F degrees will be maintained, until commands are received via the remote control.

DIP Switch

DIP Switch Settings

The PCB has a set of DIP switches that must be set when replacing the PCB.

The replacement PCB is shipped with all switches set to the OFF position.

Switch settings:

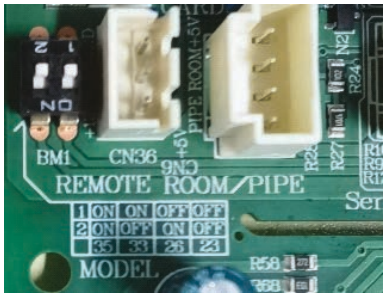
J5 Selects remote code A or B. Normally set to connection state for code A operation. If two indoor units are used in the same area and the user wishes to control them separately, switch J5 of the second unit is set to the disconnected state for code B operation. The wireless remote for the second unit is also set to code B.

J6 Selects room card able or disable. Normally set to connected state. Set to the disconnected state when used in conjunction with a room card interface utilized in hotel rooms.

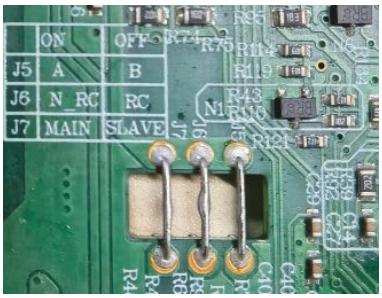
SW-1 and SW-2 Selects EEPROM codes 23, 26, 33 and 35.
Set to identify the tonnage of the unit.

Settings:

1	ON	ON	OFF	OFF
2	ON	OFF	ON	OFF
	35	33	26	23



	ON	OFF
J5	A	B
J6	N-RC	RC
J7	MAIN	SLAVE



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System Power

The 240 Volt AC power for the system connects to terminals 1(N), 2(L), and ground of the outdoor unit terminal block. This terminal block also has terminals to connect power to the indoor unit.
The voltage readings between terminals 1(N) and ground, and terminals 2(L) and ground should be 120 VAC. The voltage reading between terminals 1(N) and 2(L) should be 240 VAC.

One additional connection on the terminal block (3) is for the communication wire between the indoor and outdoor units.

NOTE: Mis-wiring of these connections may cause improper operation or damage to system components.

Cool Mode

Overview

The temperature control range in cooling mode is 60°F - 86°F. The temperature set by the remote control and the indoor unit ambient temperature sensor will determine if a call for cooling is needed. If a call for cooling is justified, the call is communicated from the indoor unit to the outdoor unit. The indoor unit louver will open using a stepper motor, and the indoor fan will operate at the speed last set. The outdoor unit will determine the position of the EEV and speed frequency of the compressor. There can be a delay of up to 3 minutes before the outdoor unit fan and compressor start.

The speed of the indoor fan can be controlled manually by the user or automatically by the system. The speed can be changed between LOW, MEDIUM, and HIGH.

The predetermined conditions for automatic control are as follows:
(Tr = room temperature Ts = set temperature)
High Speed: Tr ≤ Ts + 5.4°F
Medium Speed: Ts + 1.8°F ≤ Tr < Ts + 5.4°F
Low Speed: Tr ≤ Ts + 1.8°F or when the sensor is off.

There will be a 2 second delay when manually controlling the speed.

The outdoor unit temperature sensors: outdoor ambient, defrost, suction line, and compressor discharge, used in conjunction with the indoor temperature sensors, indoor ambient and coil, provide information to the outdoor control board to monitor the system and regulate the frequency of the compressor, the EEV, and outdoor fan speed, to achieve the desired room temperature.

When the call for cooling has been satisfied, the outdoor unit compressor will turn off, followed by the outdoor fan. The indoor unit fan will continue to run.

If the system detects a malfunction, it may shut down or show an error code. This code will be shown on the indoor display board or a flashing LED will appear on the outdoor PCB.

Indoor Unit

The signals received by the infrared receiver are relayed to the main board of the indoor unit to turn the system on and set it to cool mode.

The indoor unit PCB will illuminate the display, indicating the set temperature and current status of the unit. The PCB will signal the stepper motor to open the louver to either a stationary position, or one of several oscillating modes.

As the louver opens, the indoor unit main board will power up the indoor fan motor, operating the fan at the speed last set. The indoor fan motor has a feedback circuit which provides the indoor unit main board with information for controlling the speed of the fan motor.

Indoor Temperature sensors

The indoor unit has two sensors that provide temperature information to the main board. An indoor ambient temperature sensor and pipe temperature sensor are used for controlling the system during cool mode.

The resistance values of the sensors will vary with temperature. The resistance to temperature values can be found using a temperature / resistance chart specific to the sensor being checked.

Communication

The indoor and outdoor unit main boards communicate via a digital signal on the wire connected to terminal 3 of each unit. A splice or break in this wire will cause a communication error.

When a command is received from the remote control, the indoor unit main board communicates with the outdoor unit main board to perform the requested function.

Outdoor Unit

Upon a request for cooling, the outdoor unit main board applies power to the outdoor fan motor and compressor. Depending on system cycling, there may be up to a 3 minute wait period before the compressor and outdoor fan start.

WARNING: Do not measure compressor voltages as damage to the meter may result.

If the room temperature is less than the set temperature, yet higher than 2°F below the set temperature, the system will adjust the speed of the compressor automatically.

The outdoor unit main board also controls the position of the EEV (Electronic Expansion Valve) to regulate the flow of refrigerant to the indoor unit evaporator coil.

Outdoor Temperature Sensors

Five temperature sensors located in the outdoor unit provide temperature information to the outdoor unit main board for control of the system during cool mode.

The outdoor ambient temperature sensor provides the temperature of the air drawn into the condenser coil.

The defrost temperature sensor A provides the temperature sensed at the output of the condenser coil.

The defrost temperature sensor B provides the temperature sensed at the middle of the condenser coil.

The suction line temperature sensor provides the temperature sensed at the incoming suction line pipe.

The compressor discharge sensor provides the temperature sensed at the discharge pipe of the compressor.

Call to Terminate Cooling

The system will terminate cooling when the indoor ambient temperature sensor is equal to or lower than 2°F of the room set temperature. The indoor control board will communicate to the outdoor control board to de-energize the compressor. The outdoor fan will run for 60 seconds before stopping.

The indoor fan motor and louver will continue operating after cooling has been terminated.

To stop cool mode, press the power button to turn the system off, or change to another mode.

Freeze Protection Function

When the compressor operates continuously for 10 seconds and the temperature of the indoor coil has been below 32°F for 10 seconds, the compressor will stop. The indoor unit fan will continue to operate. When the temperature of the indoor coil rises to 45°F for more than 3 minutes the compressor will restart and the system will continue functioning.

Heat Mode

Overview

The temperature control range in heating mode is 60°F - 86°F. The temperature set by the remote control and the indoor unit ambient temperature sensor will determine if a call for heat is needed. If a call for heat is justified, a temperature compensation adjustment is automatically added to the operating parameter and the call is communicated from the indoor unit to the outdoor unit.

The indoor unit louver will open using a stepper motor. The indoor fan will not operate at this time.

The outdoor unit will shift the 4-way valve to the heat mode position and determine the position of the EEV and speed (frequency) of the compressor. There can be a delay of up to 3 minutes before the outdoor unit fan and compressor start.

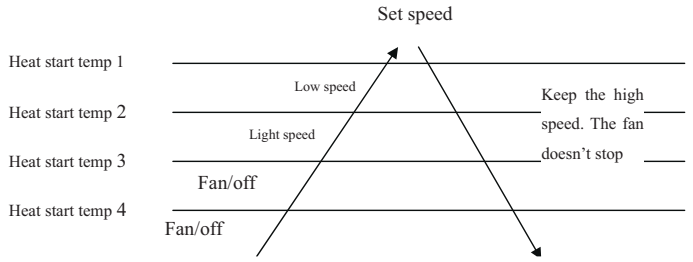
(Tr = room temperature Ts = set temperature)
If Tr ≤ Ts, the outdoor unit will operate and the indoor fan operates in cold air prevention function
If Tr > Ts, the outdoor unit turns off and the indoor fan operates at heat residue sending mode.
If Tr < Ts, the outdoor unit will restart and the indoor fan operates in cold air proof mode.

The speed of the indoor fan can be controlled manually by the user or automatically by the system. The speed can be changed between HIGH, MEDIUM, and LOW. The predetermined conditions for automatic control are as follows:
High Speed: Tr < Ts
Medium Speed: Ts ≤ Tr ≤ Ts + 4°F
Low Speed: Tr > Ts + 4°F

When the indoor fan is running in automatic mode when the speed switches from high to low, the indoor fan will maintain high speed for a period of 3 minutes before switching to low speed.

Cold Air Proof Operation

At initial start of heat mode, indoor blower will not be turned on immediately until indoor coil temperature senses a minimum temperature. This period usually takes 30 seconds to 3 minutes depending on the outdoor ambient temperature.



4 minutes after the indoor fan starts, the light or low speed will switch to the set speed.

Residual heat sending: the indoor fan will operate on low speed until coil temperature reaches 73°F.

The outdoor unit temperature sensors, including outdoor ambient, defrost, suction line, and compressor discharge, used in conjunction with the indoor coil and room temperature sensors, provide information to the outdoor control board to monitor the system and regulate the speed of the compressor, the EEV, and outdoor fan speed to achieve the desired room temperature.

When heating has been satisfied, the outdoor unit compressor will turn off first and followed by the outdoor fan. The 4-way valve will de-energize 2 minutes after compressor stops.

The indoor unit fan will continue to run at minimum speed until indoor coil temperature reaches a minimum temperature, when it will turn off.

If the system detects a malfunction, it may shut down or show an error code on the indoor unit display board and/or outdoor unit main board LED.

Defrost

When the system initiates a call for defrost, the indoor fan motor stops. The indoor unit display will not change. Any indoor unit malfunctions will be ignored at this time. The system will cycle through the defrost operation. Any indoor unit malfunctions will be ignored until the compressor restarts and has been operating for 30 seconds. At the conclusion of the defrost cycle, the indoor fan will enter the cold air proof operation. Heat mode resumes.

Automatic Heating Temperature Compensation

When the system enters heating mode, a temperature compensation adjustment is added to the operating parameter. This adjustment is canceled when exiting heat mode.

Indoor Unit

To enter the heat mode, point the infrared remote controller at the indoor unit and press the power button, then press the HEAT mode button if not already set to heat mode.

The signals received by the infrared receiver are relayed to the main board of the indoor unit to turn the system on and set it to heat mode.

The indoor unit PCB will activate the display of the indoor unit, illuminating the display and indicating the set temperature and current status of the unit.

The indoor unit PCB will signal the stepper motor to open the louver to a stationary position.

The PCB will power up the indoor fan motor after the outdoor unit has started and heating of the indoor coil has taken place (see cold air proof operation). The motor has a feedback circuit which provides information for controlling the speed of the fan motor.

Indoor Temperature Sensors

The indoor unit has two sensors that provide temperature information to the indoor unit main board. The sensors: a room temperature sensor, and pipe temperature sensor, are used for controlling the system during heat mode.

The resistance values of the sensors will vary with temperature. The resistance to temperature values can be found using a temperature /resistance chart specific to the sensor being checked.

Communication

The indoor and outdoor unit main boards communicate via a digital signal on the wire connected to terminal 3 of each unit. A splice or break in this wire will cause a communication error.

When a command is received from the remote control, the indoor unit main board communicates with the outdoor unit to perform the requested function.

Outdoor Unit

Upon a request for heat, the outdoor unit PCB applies power to the 4-way valve, outdoor fan motor, and compressor. Depending on system cycling, there may be up to a 3 minute wait period before the compressor and outdoor fan start.

NOTE: Do not measure compressor voltages as damage to the meter may result.

If the room temperature is above the set temperature, yet lower than 2°F above the set temperature, the system will adjust the running frequency of the compressor automatically.

The outdoor unit main board also controls the position of the EEV (Electronic Expansion Valve) to regulate the flow of refrigerant to the outdoor unit evaporator coil.

Outdoor Temperature sensors

Five temperature sensors located in the outdoor unit provide temperature information to the PCB for control of the system during heat mode.

The ambient temperature sensor provides the temperature of the air drawn into the condenser coil.

The defrost temperature sensor A provides the temperature sensed at the output of the condenser coil.

The defrost temperature sensor B provides the temperature sensed at the middle of the condenser coil.

The suction line temperature sensor provides the temperature sensed at the incoming suction line pipe.

The compressor discharge sensor provides the temperature sensed at the discharge pipe of the compressor.

Call to Terminate Heating

The system will call to terminate heating when the indoor temperature is equal to or higher than 2°F above the room set temperature. The indoor control board will communicate to the outdoor control board to de-energize the compressor. The outdoor fan will run for 60 seconds before stopping. The 4-way valve will de-energize 2 minutes after the compressor stops.

To stop heat mode, press the power button to turn the system off, or change to another mode.

Auto Mode

With the system turned on, press the AUTO button on the remote control. The system will change to the auto mode of operation.

As the room is cooled or heated, the system will automatically switch between cool mode, fan mode, and heat mode. There is a minimum 15 minute operating time between mode changes.

Dry Mode

Overview

The temperature control range is 60°F - 86°F. This mode is used for dehumidification.

(Tr= room temperature Ts= set temperature)
When Tr> Ts+ 4°F, the compressor will turn on and the indoor fan will operate at the set speed.

When Ts ≥ Tr ≥ Ts+ 4°F, the compressor will operate at the high dry frequency for 10 minutes, then at the low dry mode for 6 minutes. The indoor fan will operate at low speed.

When Tr< Ts, the outdoor unit will stop, and the indoor fan will stop for 3 minutes, then operate at the low speed option.

Automatic fan speed:
When Tr>= Ts+ 9°F, High speed
When Ts+ 5.4°F ≥ Tr< Ts+ 9°F, Medium speed
When Ts+ 3.6°F ≥ Tr< Ts+ 5.4°F, Low speed
When Tr< Ts+ 3.6°F, Light speed
Note: TURBO and QUIET mode must be set using the remote controller.

If the outdoor fan is stopped, the indoor fan will pause for 3 minutes. If the outdoor fan is stopped for more than 3 minutes, and the compressor is still operating, the system will change to light speed mode.

Indoor Unit

To enter the dry mode, point the infrared remote control at the indoor unit and press the power button, then press the DRY mode button if not already set to dry mode.

The signals received by the infrared receiver are relayed to the main board of the indoor unit to turn the system on and set it to dry mode.

The indoor unit main board will illuminate the display, indicating the set temperature and current status of the unit.

The PCB will then signal the louver stepper motor to open the louver to either a stationary position, or one of several oscillating modes.

As the louver opens, the indoor fan motor will operate at the speed last set. The fan motor has a feedback circuit which provides the main board with information for controlling the speed of the fan motor.

Indoor Temperature Sensors

The indoor unit has two sensors that provide temperature information to the PCB. An ambient temperature sensor and pipe temperature sensor are used for controlling the system during dry mode. The resistance values of the sensors will vary with temperature. The resistance to temperature values can be found using a temperature /resistance chart specific to the sensor being checked.

Communication

The indoor and outdoor unit main boards communicate via a digital signal on the wire connected to terminal 3 of each unit. A splice or break in this wire will cause a communication error.

When a command is received from the remote control, the indoor unit main board communicates with the outdoor unit main board via the terminal 3 wire to perform the requested function.

Outdoor Unit

Upon a request for dry mode, the outdoor unit main board applies power to the fan motor and compressor. Depending on system cycling, there may be up to a 3 minute wait period before the compressor and outdoor fan start.

WARNING: Do not measure compressor voltages, damage to the meter may result.

The outdoor unit PCB also controls the position of the EEV (Electronic Expansion Valve) to regulate the flow of refrigerant to the indoor unit evaporator coil.

Outdoor Temperature Sensors

Five temperature sensors located in the outdoor unit provide information to the outdoor unit PCB for control of the system during dry mode.

The outdoor ambient temperature sensor provides the temperature of the air drawn into the condenser coil.

The defrost temperature sensor A provides the temperature sensed at the output of the condenser coil.

The defrost temperature sensor B provides the temperature sensed at the middle of the condenser coil.

The suction line temperature sensor provides the temperature sensed at the incoming suction line pipe.

The compressor discharge sensor provides the temperature sensed at the discharge pipe of the compressor.

To stop dry mode, press the power button to turn the system off, or change to another mode.

Defrost Operation

Defrost cycle will initiate if any of three conditions are met:

Te = Defrost temperature sensor
Tao = Outdoor ambient temperature sensor
Tes = Condensation point temperature

1) Tes >= 23°F, and Te ≤ 23°F
2) 5°F ≤ Tes < 23°F, and Te ≤ Tes
3) Tes < 5°F and Te ≤ 5°F

Tes = C X Tao-a
Tao < 32°F, C = .08
Tao > or = 32°F, C = .06
a = 6

To enter the defrost mode, the compressor must have accumulated 10 minutes of run time, and 45 minutes of accumulated run time since the last defrost cycle.

When the defrost cycle begins, the following conditions take place:
1. The compressor will stop for 1 minute
2. The outdoor fan will continue to operate at high speed.
3. After 50 seconds, the 4-way valve will shift to the cool mode position.
4. 5 seconds later the outdoor fan will stop.
5. After 1 minute, the compressor will start.

The outdoor unit will now defrost. The defrost cycle runs continuously for approximately 10 minutes.

The system will exit the defrost cycle if any of the following conditions are met:
1. The condenser maintains a temperature above 45°F for 80 seconds.
2. The condenser maintains a temperature above 54°F for 5 seconds.

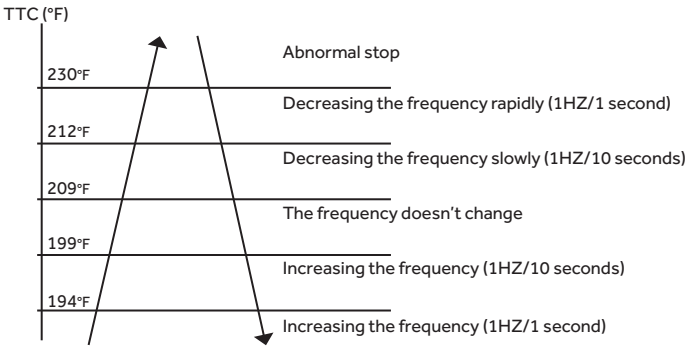
Upon exiting the defrost cycle, the following conditions will take place:
1. The compressor will stop.
2. The outdoor fan will operate at high speed.
3. 50 seconds later the 4-way valve will shift to the heat mode position.
4. 60 seconds later the compressor will start. The system resumes normal operation.

The system resumes normal operation.

Protection Functions

Compressor High Temperature

The compressor discharge pipe sensor (exhaust temp) senses the temperature of the refrigerant exiting the compressor. The sensed temperature received from the sensor by the control circuitry will cause the compressor frequency to increase or decrease. (see chart below). If a temperature of >= 230°F is sensed for 20 seconds, an exhaust overheating protection error code will be indicated at the outdoor unit.



Overheating Protection for Indoor Unit

A sensor monitors coil temperature in both heating and cooling modes, and causes the compressor to speed up, slow down, or stop, according to the chart below.

Overheating Protection for Indoor Unit					
Model	Increasing Slowly	Holds Value	Decreasing Slowly	Decreasing Rapidly	Compressor Stops
24K	40°C/104°F	52°C/126°F	57°C/135°F	60°C/140°F	63°C/145°F
30K	40°C/104°F	52°C/126°F	57°C/135°F	60°C/140°F	63°C/145°F
36K	40°C/104°F	52°C/126°F	57°C/135°F	60°C/140°F	63°C/145°F

Compressor Over-Current Protection

If the current draw of the compressor at start-up is greater than the values listed on the chart below for approximately 3 seconds, the compressor will stop. After 3 minutes the compressor will restart. If the over-current condition occurs 3 times in 20 minutes, the system will lock-out, and a code will be indicated at the outdoor unit. It will be necessary to remove power to the system to reset the lock-out condition.

Model	Holds Value	Decrease 1Hz/10s	Decrease 1Hz/s	Over-Current Point
24K	16A	17A	18A	19A
30K	16A	17A	18A	19A
36K	16A	17A	18A	19A

Anti-Freeze Protection of the Indoor Coil

The temperature sensed by the coil sensor is used to determine at what speed the compressor is to run to avoid the coil temperature being too cold.

Tpg_indoor: indoor unit pipe sensor temperature
When the outdoor ambient temperature is greater than 12°C,
Ts: outdoor unit Suction Line sensor temperature

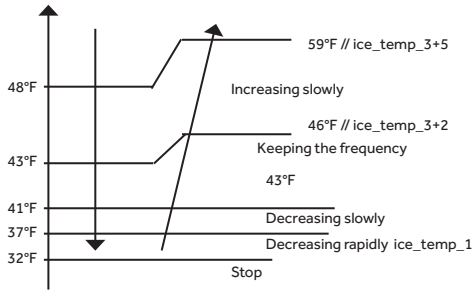
- When Min(Tpg_indoor, Tpg_indoor+Ts)/2) < Tpg1, the frequency of the compressor decreases at the rate of 1HZ/1 second.
- When Min(Tpg_indoor, Tpg_indoor+Ts)/2) < Tpg2, the frequency of the compressor decreases at the rate of 1HZ/10 second.
- When Tpg_indoor begins to rise again, and Tpg2 ≤ Min(Tpg_indoor, Tpg_indoor+Ts)/2)≤ Tpg3, the frequency of the compressor does not change.
- When Tpg3 < Min(Tpg_indoor, Tpg_indoor+Ts)/2) <Tpg4, the frequency of the compressor increases at the rate of 1HZ/10 second.

Example: if Min(Tpg_indoor, Tpg_indoor+Ts)/2) ≤ 32°F sustains for 2 minutes, the outdoor unit will stop and indicate an underload malfunction code at the outdoor unit. The compressor stops for a minimum of 3 minutes. When Min(Tpg_ indoor , Tpg_indoor+Ts)/2)>Tpg4, the compressor will restart.

When the outdoor ambient temperature is less than 12°C,
Ts: outdoor unit Suction Line sensor temperature

- When Min(Tpg_indoor) < Tpg1, the frequency of the compressor decreases at the rate of 1HZ/1 second.
- When Min(Tpg_indoor) < Tpg2, the frequency of the compressor decreases at the rate of 1HZ/10 second.
- When Tpg_indoor begins to rise again, and Tpg2 ≤ Min(Tpg_ indoor)≤ Tpg3, the frequency of the compressor does not change.
- When Tpg3 < Min(Tpg_indoor) <Tpg4, the frequency of the compressor increases at the rate of 1HZ/10 second.

Example: if Min(Tpg_indoor) ≤ 32°F sustains for 2 minutes, the outdoor unit will stop and indicate an underload malfunction code at the outdoor unit. The compressor stops for a minimum of 3 minutes. When Min(Tpg_indoor >Tpg4, the compressor will restart.



Special Functions

Auto Restart

When this is enabled, the following functions will automatically resumes after a power loss:

- ON/OFF State, Mode of Operation, Fan Speed, Temperature Setpoint, Louver Swing settings.
- If there was a timer set or the system was in Sleep mode, they will be canceled upon restart

Wired Controller:

- Auto Restart is Enabled by Default Wireless Controller:
- Enable: Press the Sleep button 10 times within 7 seconds. You will hear 4 beeps as confirmation.
- Disable: Press the Sleep button 10 times within 7 seconds. You will hear 2 beeps as confirmation.

Timed Defrost

Timed Defrost via Remote Controller (YR-HG)
(Same as dip switch 1 and 2 OFF):
Setting method:

1. Set to HEAT Mode.
2. Set to 30°C/86°F.
3. Set High Fan Speed.
4. Press Temperature + Button 10 times within 7 seconds.
5. Hear Unit will Beep 7 times to Confirm.

Cancel method:
Same process as Setting Method. Hear Unit Beep 5 times to confirm of cancel function.

Demand Defrost

Force defrost via Remote Controller (YR-HG):
Setting method:

1. Set to HEAT Mode.
2. Set to 30°C/86°F.
3. Set High Fan Speed.
4. Press Health Button 10 times within 5 seconds.
5. Hear Unit will Beep 4 times to Confirm, System will enter Force Defrost mode.

Indoor Temperature Display

This function will allow you to set the display to show either the Ambient temperature or the setpoint.

Set temperature: Press the Light button 10 times within 5 second,Hear Unit will Beep 4 times to confirm.

Ambient temperature: Press the Light button 10 times within 5 second, Hear Unit will Beep 2 times to confirm.

Temperature Compensation

This function allows you the capability to adjust the temperature compensation offset of any indoor unit. The adjusted value is programmed into the EEPROM.
Logic: The Actual Ambient Temperature = The Display Ambient Temperature + Temperature Compensation.

Guide:
1. Apply power to the unit.
2. Set to Cooling Mode or Heating Mode.
3. Set the temperature to 75°F.
4. Press the SLEEP button 7 times within 5 seconds. Indoor PCB will Beep 2 times to confirm.
5. 75°F will be the starting/reference point for the Temperature Compensation. Temperature Compensation can be adjusted from -8° to +6° . Example: if you want to set the Temperature Compensation value by 4°, then set the temperature to 79°F.
6. Once the desired value has been selected, turn OFF the unit via the YR-HG controller to save the compensation settings.

SmartHQ

The Bluetooth module will connect to the unit physically via RJ45 (Service Port), and connect to the laptop via USB.
We can use it to achieve the following SmartHQ functions:
1. Software Updates
2. Real Time Sensor Readings / Load Control
3. View Alerts, Fault Data, Cycle History, Graphs
4. Automated Diagnostic Tests
5. Data Collection

Estar6.1

1. Energy Star self-inspection mode entry mode Use remote control is to use remote control to enter arbitrary fixed frequency mode.
Fixed frequency mode:
- 1) Remote control refrigeration high wind, set to 60°F, press the sleep button 4 times continuously within 7 seconds, the inner machine will echo 5 times.
- 2) Remote control heating high wind, set to 86°F, press the sleep button 4 times continuously within 7 seconds, the inner machine echoes 5 times

2. Skip once Indoor unit (trigger controller includes remote controller and wire controller):
The internal machine receives any Skip trigger signal:
- 1) Set the air supply mode and then change the current wind speed;
- 2) If no trigger signal is received within 10 minutes after the power-on enters the self-test mode, it will automatically trigger and skip once; Symptom: The internal machine displays JP and enters standby mode after 5S.

3. Permanently skip the Bypass function Indoor unit (trigger controller includes remote controller and wire controller):
Internal machine receives Bypass signal:
- 1) Set dehumidification to 20 ° C (68 ° F) Symptom: The internal machine displays BP and enters standby mode after 5S.

After the product is installed and powered on for the first time, confirm e-star by following instructions.

Part 1:
Determine whether the e-star installation program is required:
- 1. If CC is displayed alternately on the dual-8 display boards of the indoor unit during the initial power-on, it indicates that the machine can be used normally only after confirmation of the e-STAR installation program.
- 2. If CC is not displayed alternately on the dual-8 display boards of the indoor unit during the initial power-on, the e-STAR installation program does not need to be confirmed.

Part 2:
How to enter the self-test procedure:

When the indoor unit double 8 display board alternately displays CC. Perform the following steps to enter the self-test procedure.

Remote control Settings: In cooling or heating mode, set the temperature to 25 degrees Celsius or 77 degrees Fahrenheit. The machine will enter the following operation mode:
- A. When outdoor ambient temperature Tao > 75F, the air supply mode of indoor unit at n1 stage (running "Start, air supply, high wind") runs for 3min; N2 stage; N3 stage cooling mode (run "start up, cool, high wind, 16 degrees") Run for 15min N3 (blink once every 1 second).
- B. When the outdoor ring temperature is 14F≤Tao≤75F, the air supply mode of the indoor unit at n1 stage (running "Start, air supply, high air") runs for 3min; N2 heating mode (heating, high wind, 30 degrees) runs for 10min, N2 (flashing once every 1 second), indoor to outdoor send "start, heating, high wind, 30 degrees"; N3 stage refrigeration mode (running "refrigeration, high wind, 16 degrees") for 10min, N3 (flashing once every 1 second), indoor to outdoor send "startup, refrigeration, high wind, 16 degrees".
- C. When outdoor ambient temperature Tao < 14F, the indoor unit air supply mode (running "start, air supply, high wind") at n1 stage runs for 3min; N2 stage heating mode operation (running "heating, high wind, 30 degrees") 15min N2 (flashing once every second), no in N3 stage.

Note: Air supply mode, run for 3 minutes, display FN-N1 alternately on hanging panel; After the test is completed, the internal machine panel shows PS, proving that the machine has passed the self-test operation. The user can press any button to exit the selftest and use the function normally.

Part 3:
How to skip the self-test procedure:
- 1. When CC is displayed on the internal machine, set by remote control: press dehumidification mode when the temperature is set to 20 degrees Celsius or 68 degrees Fahrenheit. After setting, the hanging panel will display bP, indicating that the machine has skipped the self-check

procedure and the user can use it normally.

- 2. If you have entered the self-check program, you need to power off the machine, power on again, wait for the internal machine CC display, then skip the self-check program operation.

Part 4:
Test mode for manual measurements

- 1. Run refrigeration through NewFI according to the following table parameters.

Full Parameters	Compressor Setting (Hz)	Fan Speed Setting (RPM)	Exhaust Temp Setting (°C)
AW24TL2HFA*	40	900	62
AW30TL2HFA*	59	900	70
AW36TL2HFA*	72	900	73

- 2. After the machine runs for 20 minutes, judge whether the operating parameters of the machine are in the normal range according to the parameters in the following table.
- A. The outer ring temperature is less than 10 degrees.

Check Parameters	Suction Temp.	Exhaust Temp.	IDU Coil Temp.	IDU Outlet Temp.
AW24TL2HFA*	<10°C	55°C~70°C	4°C~10°C	6°C~14°C
AW30TL2HFA*	<10°C	65°C~75°C	4°C~10°C	6°C~14°C
AW36TL2HFA*	<10°C	68°C~78°C	4°C~10°C	6°C~14°C

- B. The outer ring temperature is greater than 10 degrees and less than 30 degrees.

Check Parameters	Suction Temp.	Exhaust Temp.	IDU Coil Temp.	IDU Outlet Temp.
AW24TL2HFA*	2°C~10°C	55°C~70°C	8°C~14°C	10°C~15°C
AW30TL2HFA*	2°C~10°C	65°C~75°C	8°C~14°C	10°C~15°C
AW36TL2HFA*	2°C~10°C	68°C~78°C	8°C~14°C	10°C~15°C

- C. The outer ring temperature is greater than 30 degrees

Check Parameters	Suction Temp.	Exhaust Temp.	IDU Coil Temp.	IDU Outlet Temp.
AW24TL2HFA*	4°C~15°C	55°C~70°C	8°C~18°C	10°C~20°C
AW30TL2HFA*	4°C~15°C	65°C~75°C	8°C~18°C	10°C~20°C
AW36TL2HFA*	4°C~15°C	68°C~78°C	8°C~18°C	10°C~20°C

- NOTE: The actual temperature parameters in the United States are for reference only.

SYSTEM SPECIFICATIONS

Model Number	System	TE*	TE*	TE*
	Haier Brand Outdoor	**1U24TL2HFA**	**1U3036TL2HFA**	**1U3036TL2HFA**
	Haier Brand Indoor	**AW24TL2HFA**	**AW30TL2HFA**	**AW36TL2HFA**
Cooling	Rated Capacity Btu/hr	23,000	30,000	33,000
	Capacity Range Btu/hr	6,000~25,000	7,000~32,000	8,000~36,000
	23°F Cooling Without Wind Baffle	18,400	24,000	26,400
	-4°F Cooling with Wind Baffle	23,000	30,000	33,000
	-40°F Cooling w/dip switch + Wind Baffle and Snow Hood	23,000	30,000	33,000
	Rated Power Input W	1,900	3,000	3,900
	SEER/EER	20.0/11.0	18.0/9.5	17.5/8.0
	SEER2/EER2	19.1/11.0	18.0/9.5	17.5/8.0
	Moisture Removal Pt./hr	3.60	5.20	7.30
Heating	Heating Capacity Range Btu/hr	6,000~28,000	7,000~34,000	8,000~39,000
	Rated Heating Capacity 47°F Btu/hr	26,000	31,000	35,000
	COP @ 5°F	2.00	1.75	1.75
	Rated Heating Capacity 17°F Btu/hr	16,500	19,000	22,000
	Max. Heating Capacity 17°F Btu/hr	19,000	22,000	25,000
	Max. Heating Capacity 5°F Btu/hr	15,500	21,700	24,500
	Max. Heating Capacity -4°F Btu/hr	12,900	18,600	21,000
	H11, Low Capacity @ 47°F	6,400	6,800	6,800
	Rated Power Input W	2,200	2,900	3,600
	HSPF	10.0	9.5	9.5
	HSPF2 (IV)	8.6	8.5	8.5
Operating Range	Cooling w/o Wind Baffle °F(°C)	23~115°F (-5~46°C)	23~115°F (-5~46°C)	23~115°F (-5~46°C)
	Cooling w/Wind Baffle °F(°C)	-4~115°F (-20~46°C)	-4~115°F (-20~46°C)	-4~115°F (-20~46°C)
	Cooling w/dip switch + Wind Baffle and Snow Hood °F(°C)	-40~115°F (-40~46°C)	-40~115°F (-40~46°C)	-40~115°F (-40~46°C)
	Heating °F (°C)	-4~75°F (-20~24°C)	-4~75°F (-20~24°C)	-4~75°F (-20~24°C)
Power Supply	Voltage - Cycle - Phase (V/Hz/-)	208/230 - 60 - 1	208/230 - 60 - 1	208/230 - 60 - 1
Outdoor Unit	Compressor Type	DC Inverter Driven Rotary	DC Inverter Driven Rotary	DC Inverter Driven Rotary
	Maximum Fuse Size A	30	30	30
	Minimum Circuit Amp A	27	27	27
	Outdoor Noise Level dB	68	68	68
	Dimension: H x W x D in (mm)	30 (762) x 36 1/4 (920) x 15 1/8 (385)	30 (762) x 36 1/4 (920) x 15 1/8 (385)	30 (762) x 36 1/4 (920) x 15 1/8 (385)
	Weight Ship/Net - lbs (kg)	165/145 (75/65.5)	165/145 (75/65.5)	165/145 (75/65.5)
Indoor Unit	Fan Speed Stages	5	5	5
	Indoor Motor Speed (Turbo/High/Med/Low/Quiet)	1150/1100/950/800/700	1200/1150/975/800/700	1250/1200/1000/800/700
	Airflow CFM (Turbo/High/Med/Low/Quiet)	810/750/635/520/440	875/810/660/520/440	920/875/700/520/440
	Indoor Sound Level dB (Turbo/High/Med/Low/Quiet)	62/59/52/48/42	62/59/52/48/42	62/59/52/48/42
	Dimension: H x W x D in (mm)	14.4 (365) x 51.8 (1316) x 10.8 (275)	14.4 (365) x 51.8 (1316) x 10.8 (275)	14.4 (365) x 51.8 (1316) x 10.8 (275)
	Weight Ship/Net - lbs (kg)	56.2/46.3(25.5/21)	56.2/46.3(25.5/21)	56.2/46.3(25.5/21)
Refrigerant Lines	Connections	Flare	Flare	Flare
	Liquid O.D. / Suction O.D. in.	3/8" / 5/8"	3/8" / 5/8"	3/8" / 5/8"
	Factory Charge Oz	84.7	84.7	84.7
	Maximum Line Length Ft / m	165/50	165/50	165/50
	Maximum Height Ft / m	100/30	100/30	100/30
Accessories	Ships with Remote Controller	YR-HG (Haier or GE logo)	YR-HG (Haier or GE logo)	YR-HG (Haier or GE logo)
	Compatible with Remote Controller	Cool Only (No logo)	Cool Only (No logo)	Cool Only (No logo)
	Compatible with Wired Controller	YR-E16B, QACT17A*, ACT17CWA*	YR-E16B, QACT17A*, ACT17CWA*	YR-E16B, QACT17A*, ACT17CWA*
	WiFi/App	Built-In	Built-In	Built-In
	Wind Baffle	UAWB46A	UAWB46A	UAWB46A
	Snow Hood	UAWB82A	UAWB82A	UAWB82A
Important Features	Self-Clean	Indoor and Outdoor via App	Indoor and Outdoor via App	Indoor and Outdoor via App
	Data Connection	RJ45 Standard / GE3	RJ45 Standard / GE3	RJ45 Standard / GE3
Features and Benefits	Dual System Auto Switch	Yes, via Central Controller	Yes, via Central Controller	Yes, via Central Controller
	Cool Only Lock	Yes, via Indoor DIP Switch	Yes, via Indoor DIP Switch	Yes, via Indoor DIP Switch

*REQUIRES ADAPTER WK-B

ENGLISH

Table of Contents

Check This First

Outdoor Unit

Models:

1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

Conditions Needed for Basic Operation

3-minutes of time delay from the call for heating or cooling

Line voltage available at:
1. TERMINAL STRIP - 1(N) & 2 (L)
2. AC-L & AC-N at the PCB - CN2 & CN1
3. AC-L OUT & AC-N OUT at the PCB - CN8 & CN9
4. AC-L & AC-N at the IPM - CN1 & CN2 (24K/30K/36K)

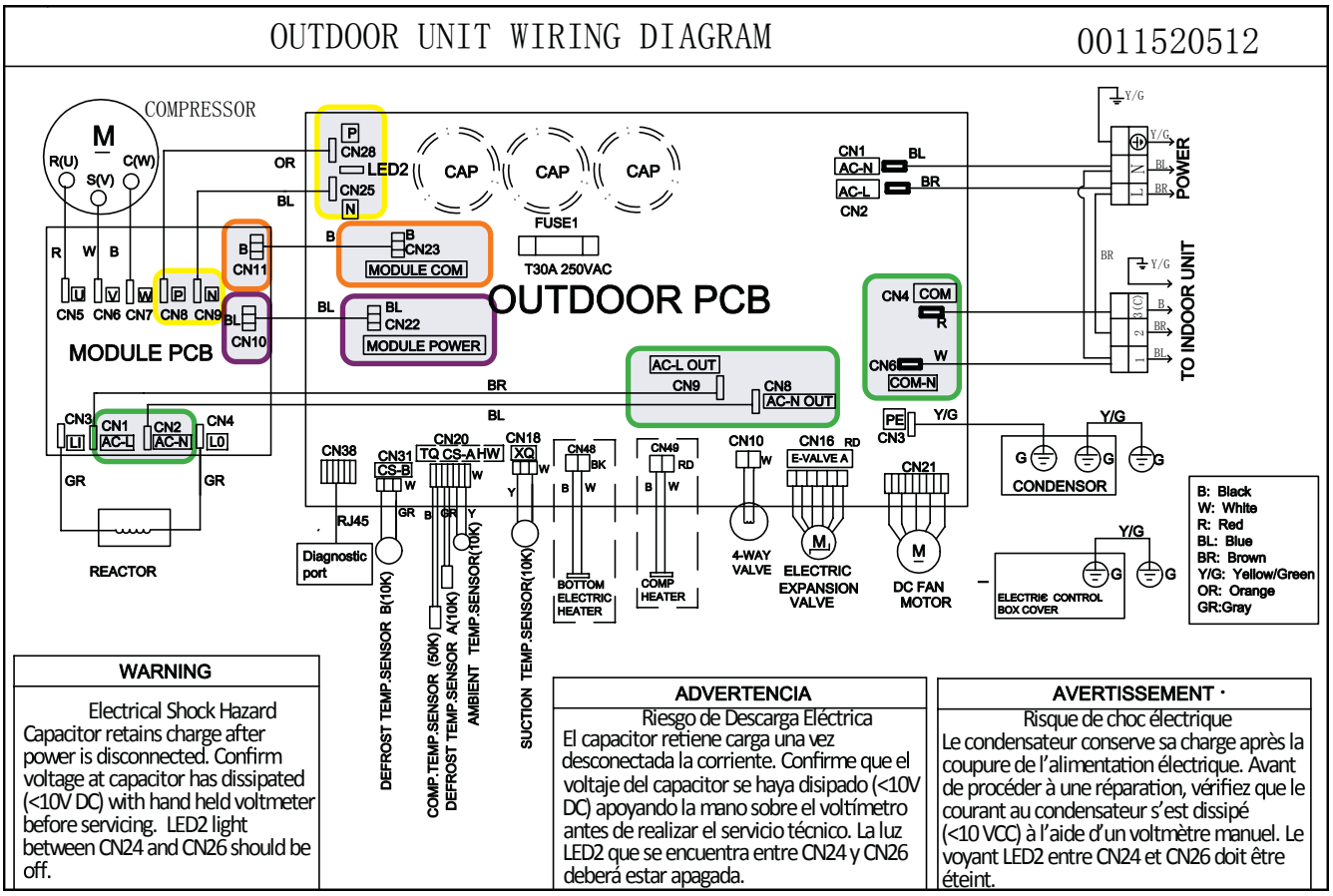
- 1 (N) and 3 (C): 0-80 VAC fluctuating
- 2 (L) and 3 (C): 0-140 VAC fluctuating

310+ VDC available at:
1. P & N at the IPM - CN8 & CN9 (24K/30K/36K)
2. P & N at the PCB - CN24 & CN26

Module power 5-G-15 VDC available at:
1. CN23 at the PCB
2. CN11 at the IPM

Module COM 5-G-15 VDC available at:
1. CN22 AT THE PCB
2. CN10 AT THE IPM

Wiring Diagram Reference



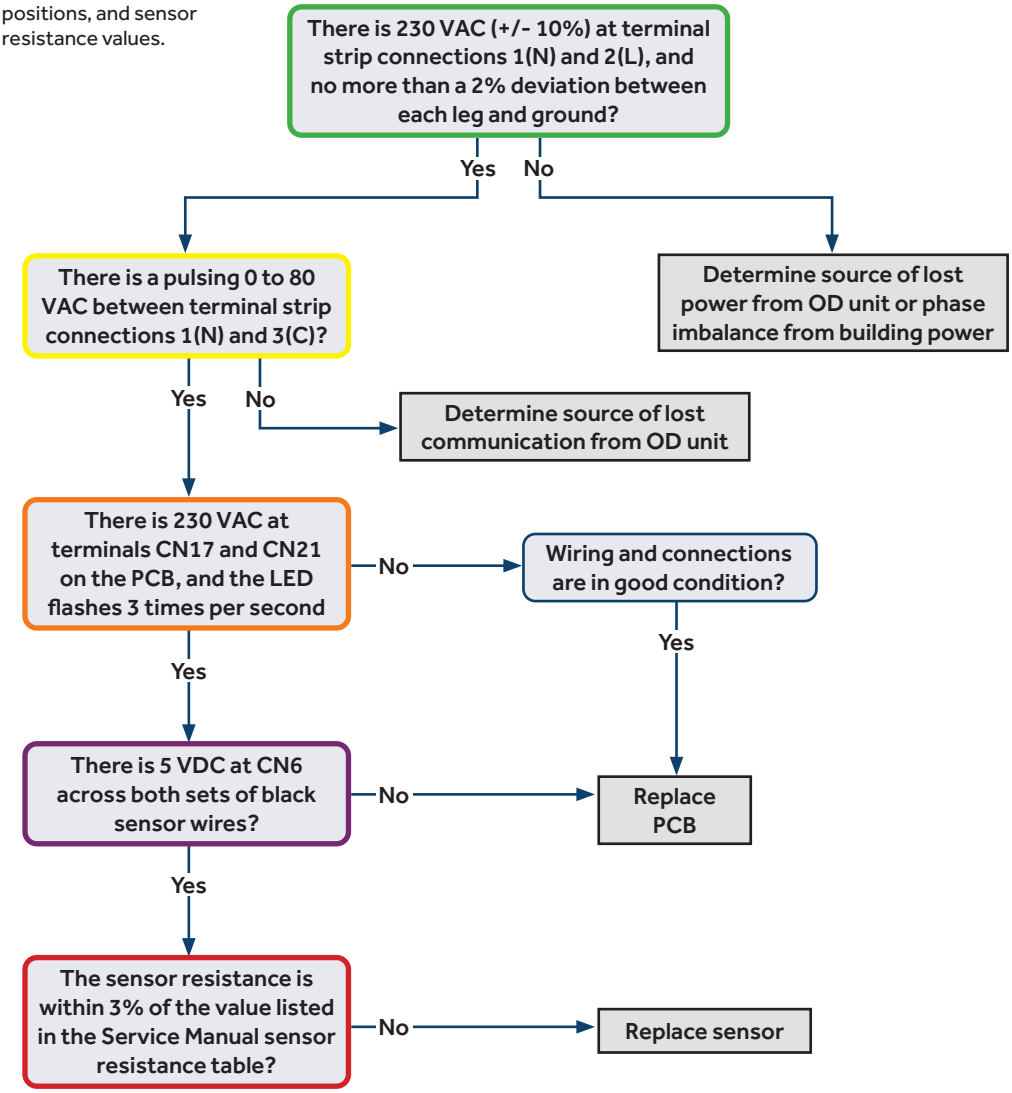
Check This First

Indoor Unit

Models:

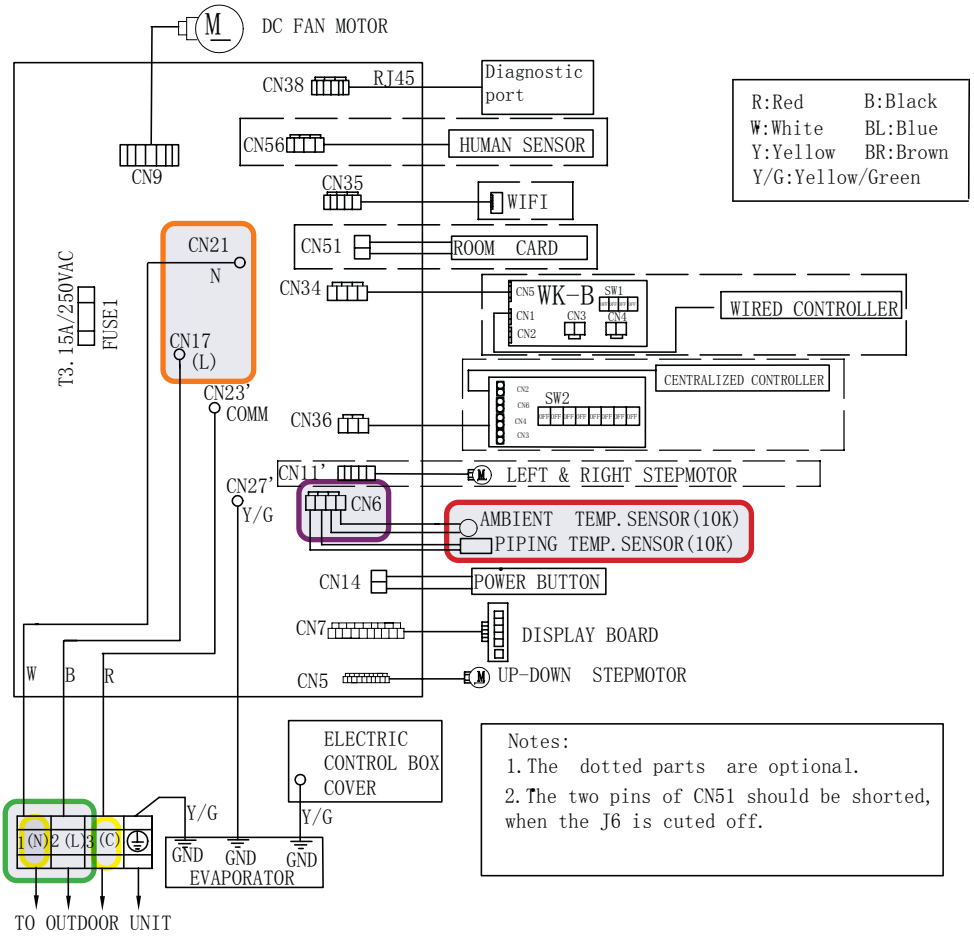
AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

See following page for wiring diagram, relevant color-coded test positions, and sensor resistance values.



Check This First - Indoor Unit

Wiring Diagram Reference

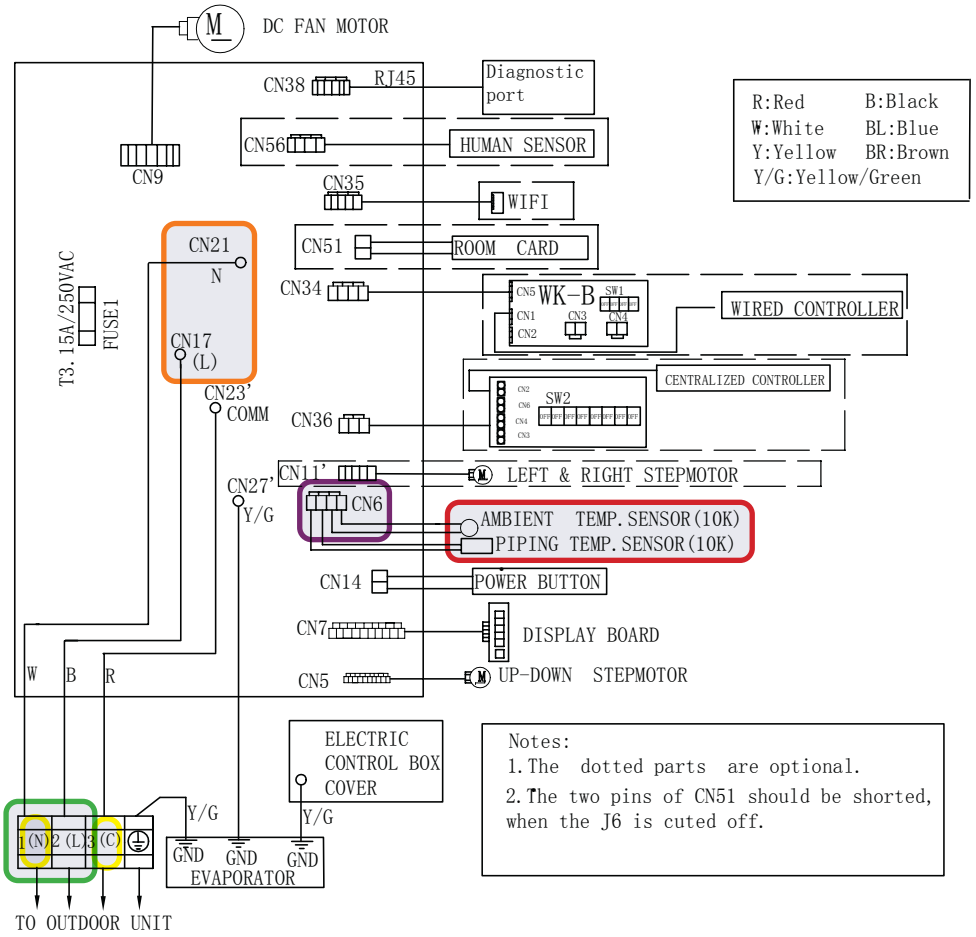


Sensor Resistance Table

°F	°C	Normal (KΩ)		
		10K SENSORS	23K SENSORS	50K SENSORS
-0.4	-18	75.44	235.90	5494.21
5.0	-15	64.30	196.61	4558.19
10.4	-12	54.99	164.40	3795.39
14.0	-10	49.62	146.15	3365.73
21.2	-6	40.58	115.95	2658.81
24.8	-4	36.77	103.46	2368.32
32.0	0	30.30	82.69	1887.00
35.6	2	27.55	74.07	1687.81
41.0	5	23.95	62.94	1431.28
44.6	7	21.84	56.57	1284.36
50.0	10	19.06	48.31	1094.32
55.4	13	16.68	41.40	934.94
59.0	15	15.28	37.41	843.05
64.4	18	13.42	32.22	723.41
69.8	21	11.81	27.83	622.32
75.2	24	10.42	24.11	536.65
77.0	25	10.00	23.00	511.08
80.6	27	9.21	20.95	464.05
86.0	30	8.16	18.25	402.24
89.6	32	7.54	16.67	366.13
95.0	35	6.70	14.59	318.52
100.4	38	5.97	12.79	277.70

Check This First - Indoor Unit

Wiring Diagram Reference



Sensor Resistance Table

°F	°C	Normal (KΩ) 10K SENSORS	23K SENSORS	50K SENSORS
-0.4	-18	75.44	235.90	5494.21
5.0	-15	64.30	196.61	4558.19
10.4	-12	54.99	164.40	3795.39
14.0	-10	49.62	146.15	3365.73
21.2	-6	40.58	115.95	2658.81
24.8	-4	36.77	103.46	2368.32
32.0	0	30.30	82.69	1887.00
35.6	2	27.55	74.07	1687.81
41.0	5	23.95	62.94	1431.28
44.6	7	21.84	56.57	1284.36
50.0	10	19.06	48.31	1094.32
55.4	13	16.68	41.40	934.94
59.0	15	15.28	37.41	843.05
64.4	18	13.42	32.22	723.41
69.8	21	11.81	27.83	622.32
75.2	24	10.42	24.11	536.65
77.0	25	10.00	23.00	511.08
80.6	27	9.21	20.95	464.05
86.0	30	8.16	18.25	402.24
89.6	32	7.54	16.67	366.13
95.0	35	6.70	14.59	318.52
100.4	38	5.97	12.79	277.70

Error Codes and Troubleshooting

Error Code (Indoor/Outdoor)

F1/LED1: 2 Flash

IPM Power Module Fail
(IPM power module protection)

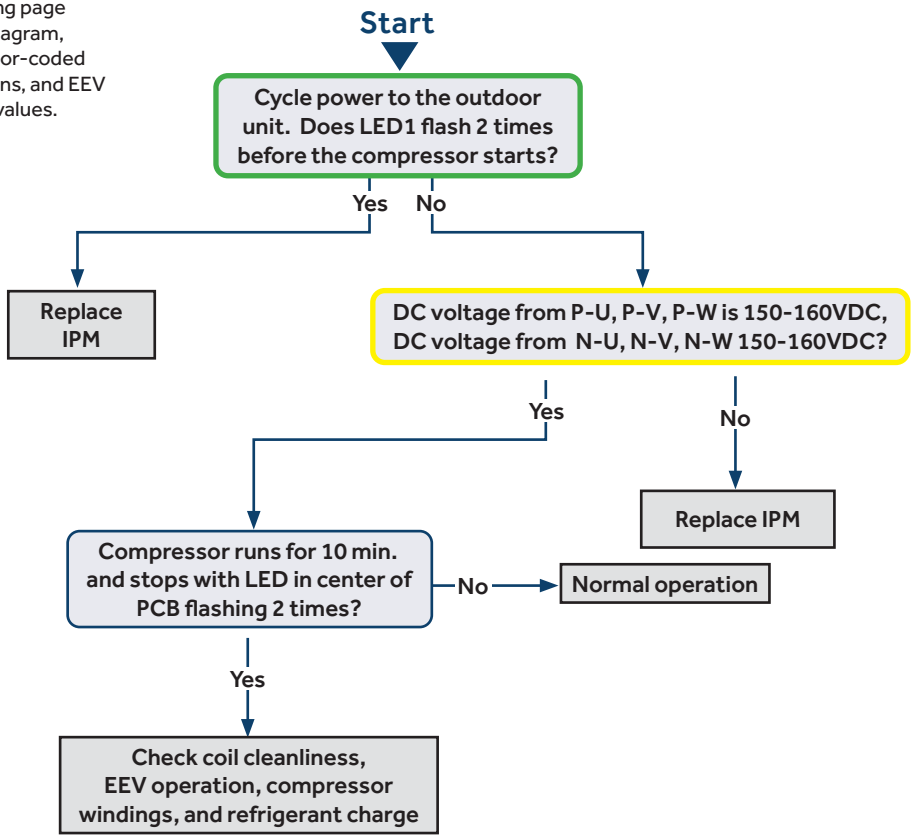
Complete the "Check This First" Flow Chart before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

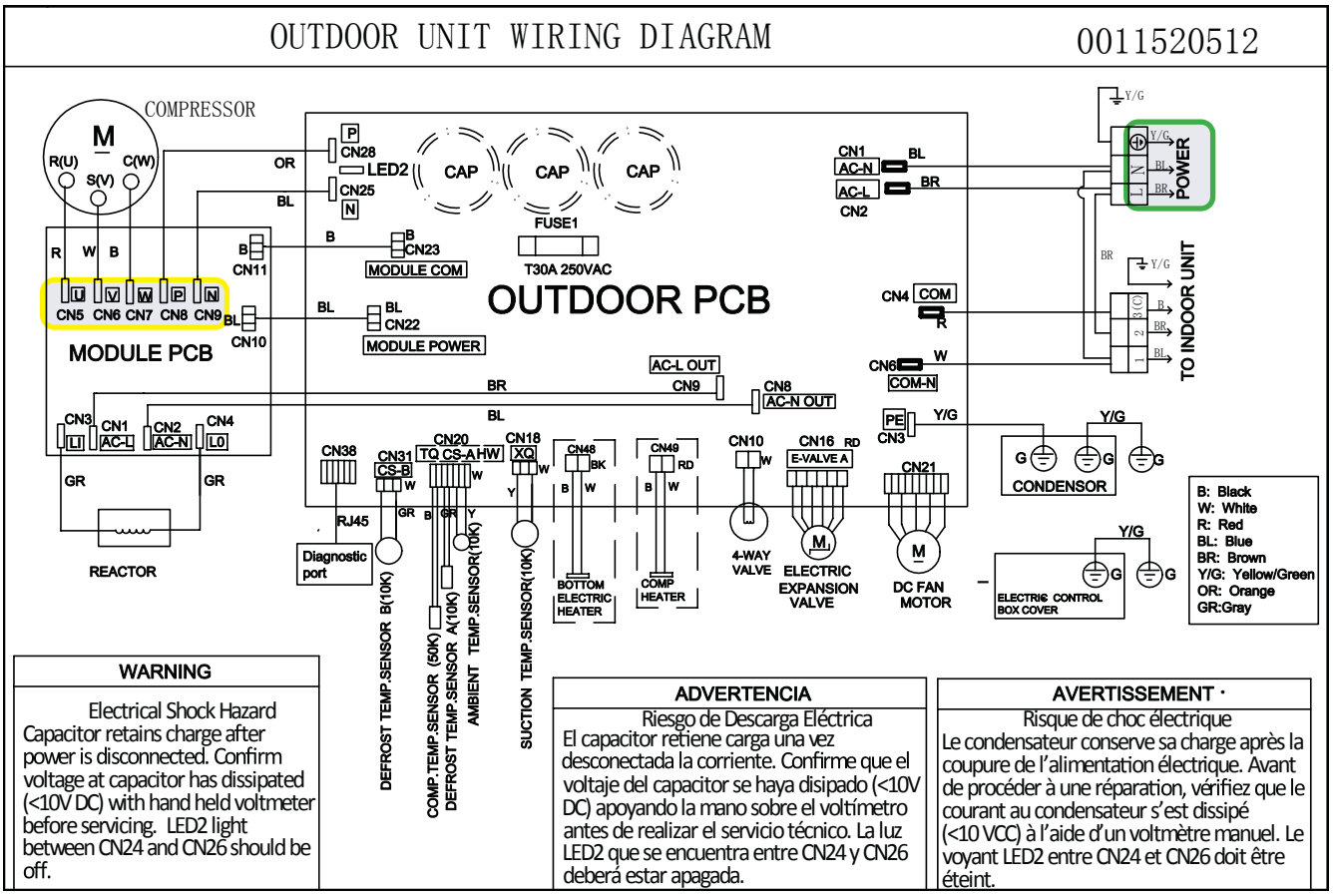
1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

See following page for wiring diagram, relevant color-coded test positions, and EEV resistance values.



Error Code: F1/LED1: 2 Flash

Wiring Diagram Reference



EEV Resistance Values

EEV (6-pin, 5 wire)

	Yellow	Blue	White	Black		Red
Yellow	-	92 Ω	92 Ω	92 Ω	-	46 Ω
Blue	-	-	92 Ω	92 Ω	-	46 Ω
White	-	-	-	92 Ω	-	46 Ω
Black	-	-	-	-	-	46 Ω
	-	-	-	-	-	-
Red	-	-	-	-	-	-

EEV (6-pin, 6 wire)

	Yellow	Blue	White	Black		Red
Yellow	-	OL	92 Ω	OL	46 Ω	OL
Blue	-	-	OL	92 Ω	OL	46 Ω
White	-	-	-	OL	46 Ω	OL
Black	-	-	-	-	OL	46 Ω
	-	-	-	-	-	OL
Red	-	-	-	-	-	-

Error Codes and Troubleshooting

Error Code (Indoor/Outdoor)

F2/LED1: 24 Flash

Overcurrent of the Compressor

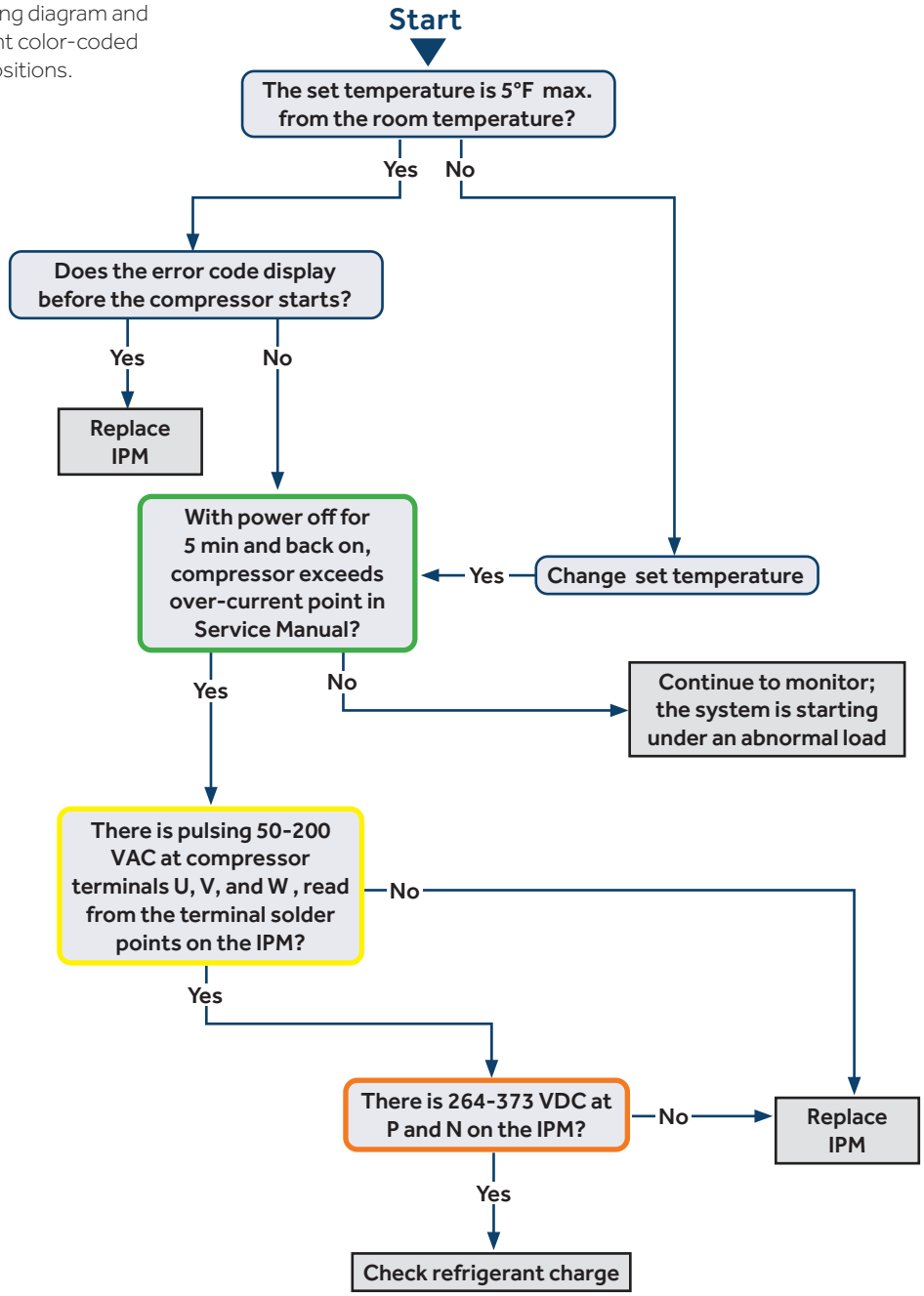
Complete the "Check This First" Flow Chart before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

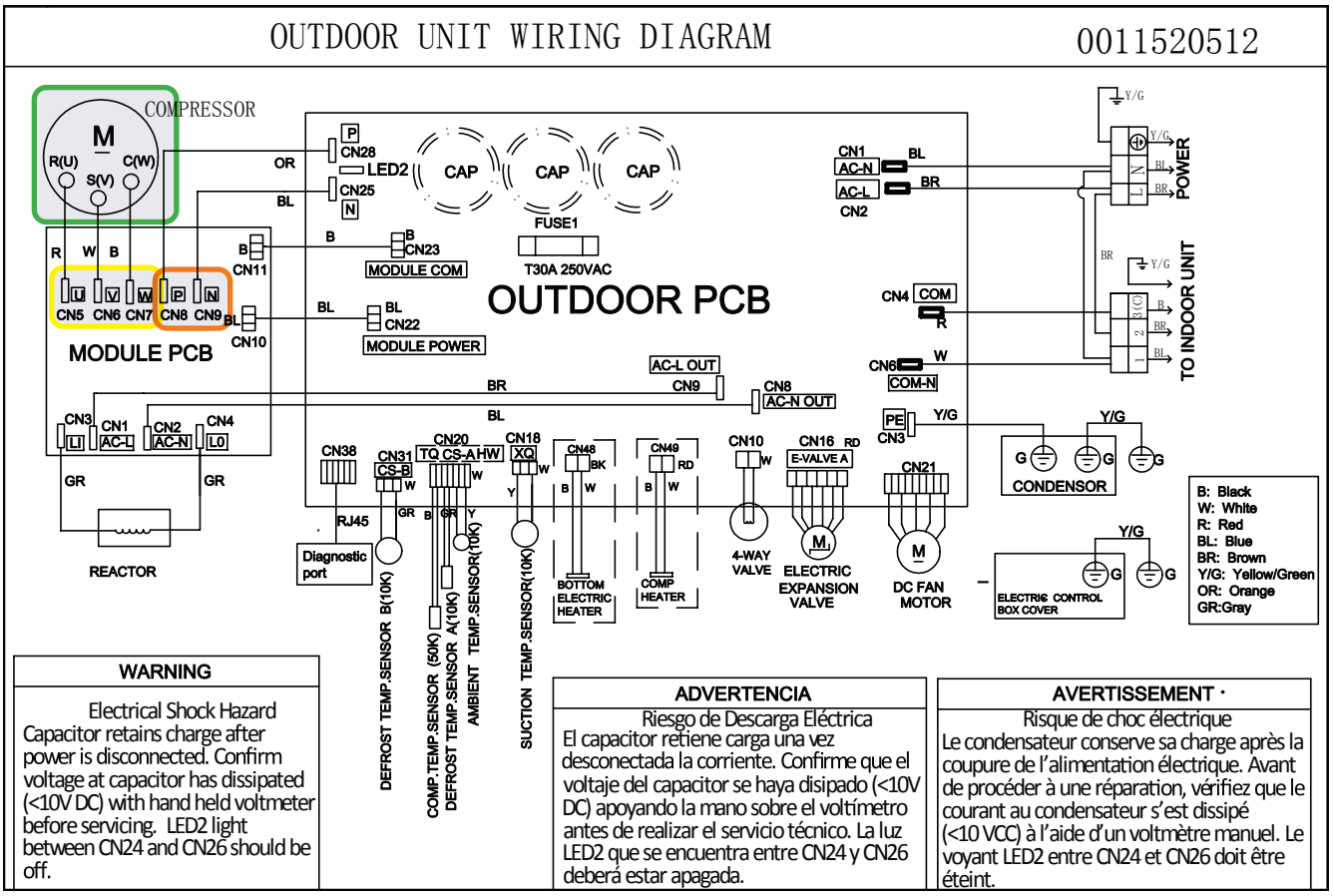
1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

See following page for wiring diagram and relevant color-coded test positions.



Error Code: F2/LED1: 24 Flash

Wiring Diagram Reference



Error Codes and Troubleshooting

Error Code (Indoor/Outdoor)

F3/LED1: 4 Flash

Communication Fault Between IPM and Outdoor PCB

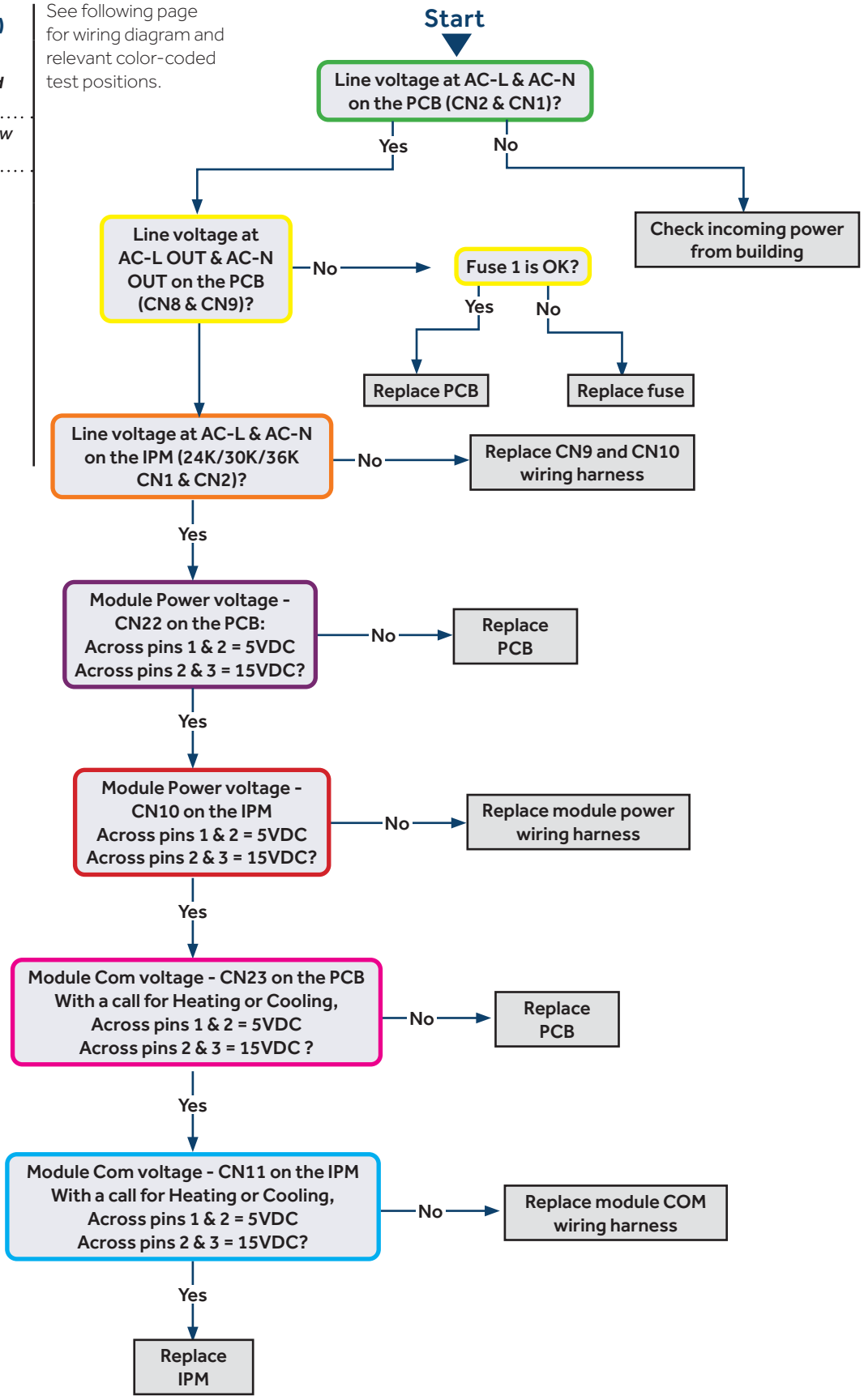
Complete the "Check This First" Flow Chart before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

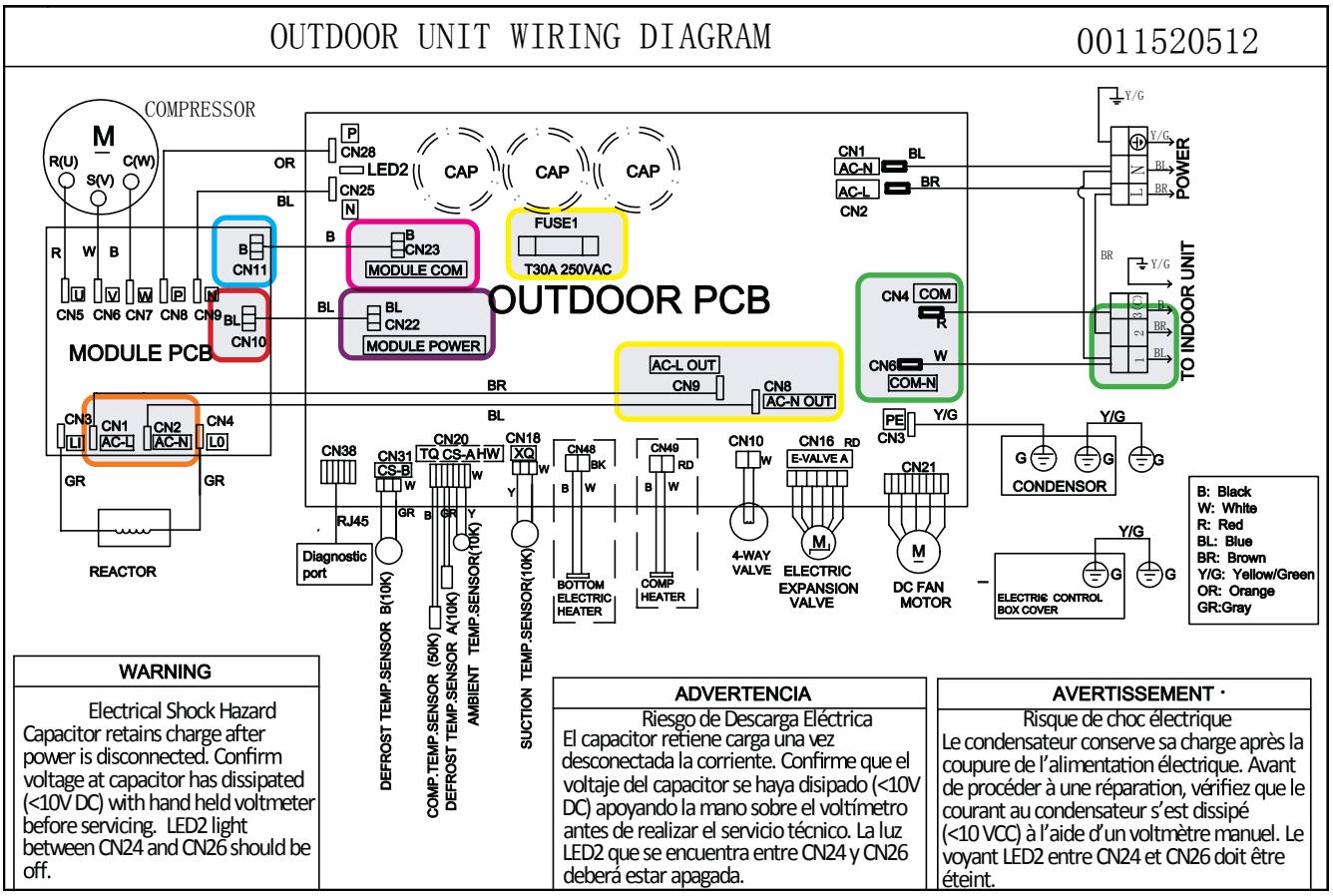
1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

See following page for wiring diagram and relevant color-coded test positions.



Error Code: F3/LED1: 4 Flash

Wiring Diagram Reference



Error Codes and Troubleshooting

Error Code (Indoor/Outdoor)

F4/LED1: 8 Flash

Overheat Protection For Discharge Temperature

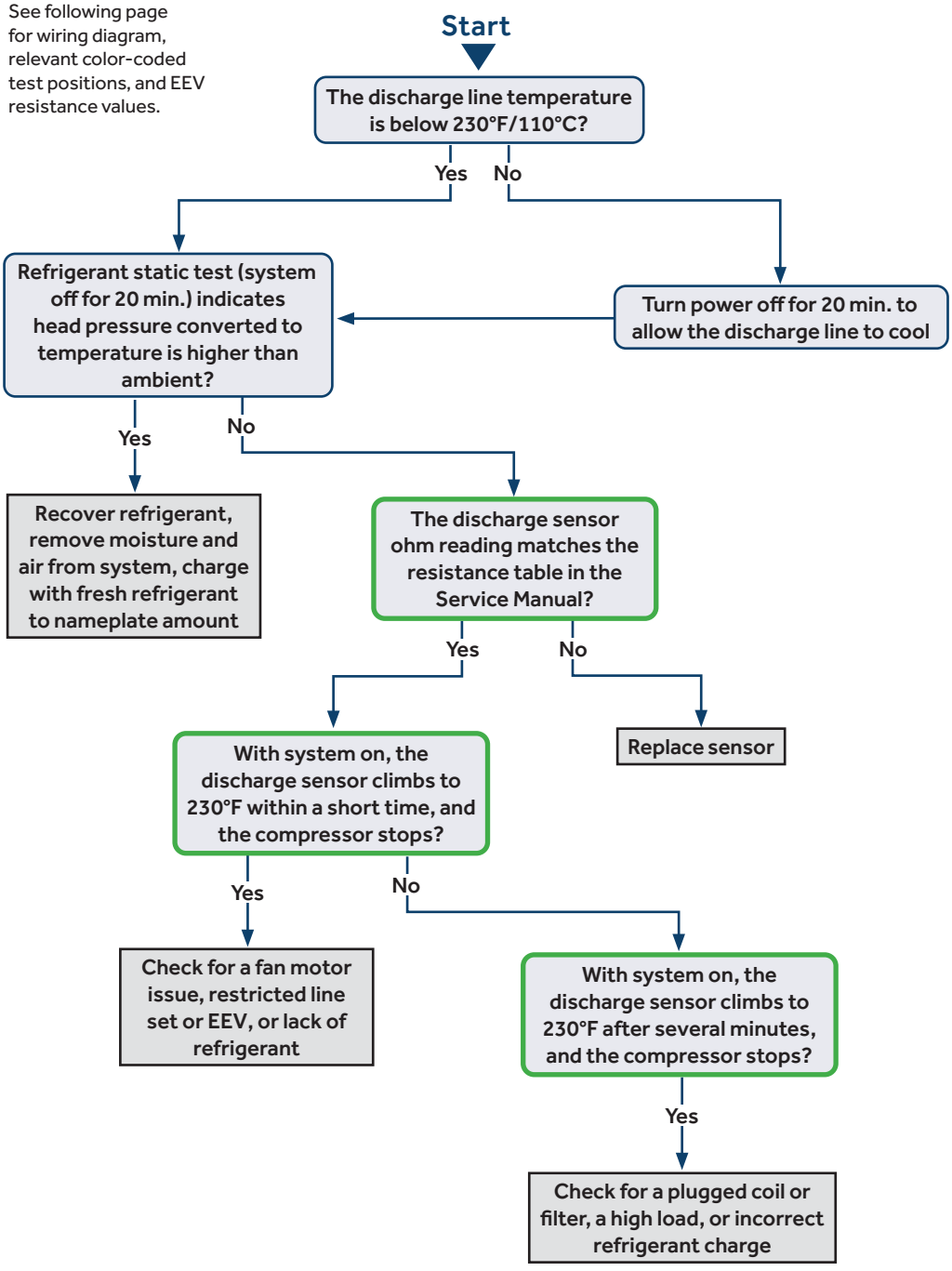
Complete the "Check This First" Flow Chart before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

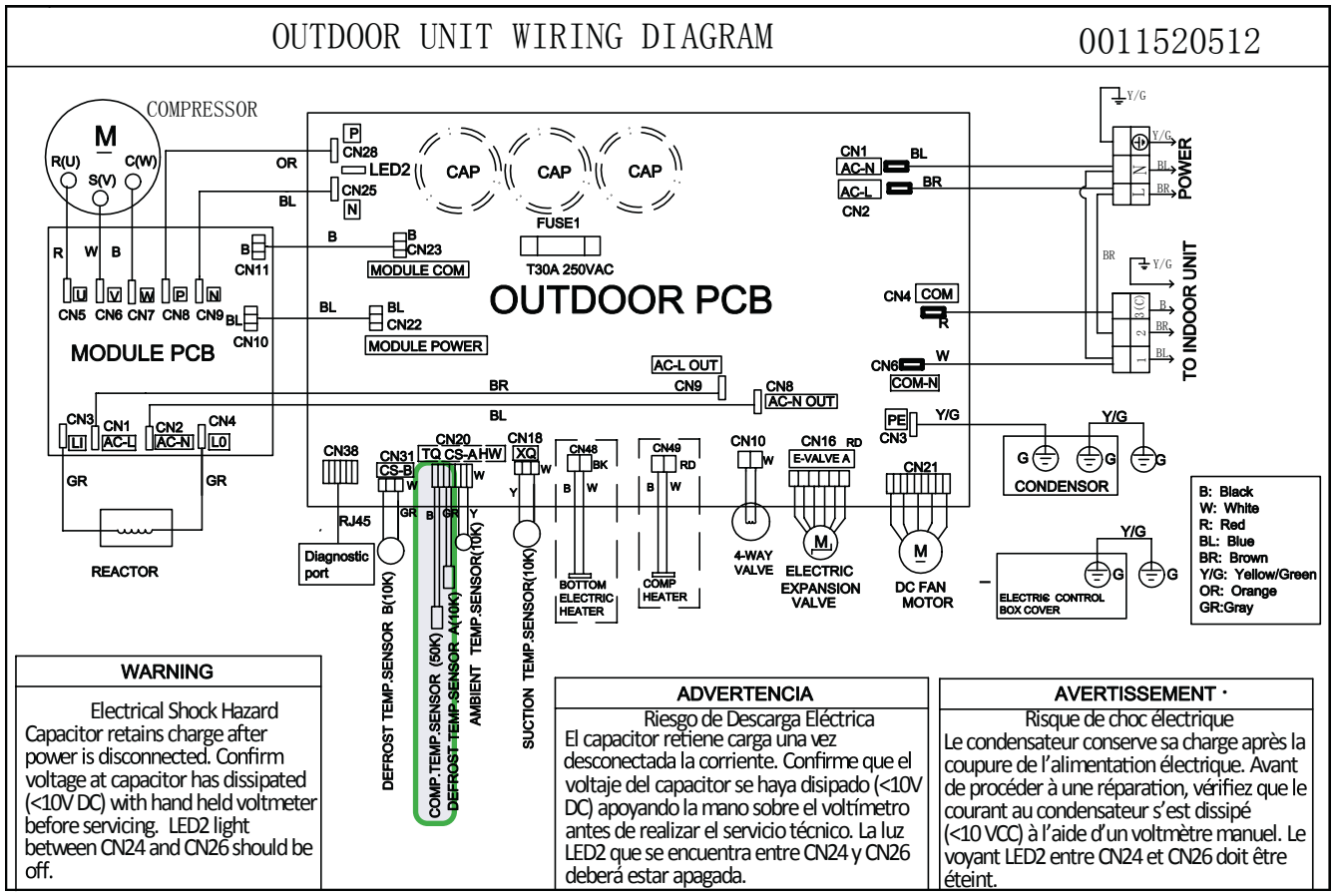
1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

See following page for wiring diagram, relevant color-coded test positions, and EEV resistance values.



Error Code: F4/LED1: 8 Flash

Wiring Diagram Reference



EEV Resistance Values

EEV (6-pin, 5 wire)

	Yellow	Blue	White	Black		Red
Yellow	-	92 Ω	92 Ω	92 Ω	-	46 Ω
Blue	-	-	92 Ω	92 Ω	-	46 Ω
White	-	-	-	92 Ω	-	46 Ω
Black	-	-	-	-	-	46 Ω
	-	-	-	-	-	-
Red	-	-	-	-	-	-

EEV (6-pin, 6 wire)

	Yellow	Blue	White	Black		Red
Yellow	-	OL	92 Ω	OL	46 Ω	OL
Blue	-	-	OL	92 Ω	OL	46 Ω
White	-	-	-	OL	46 Ω	OL
Black	-	-	-	-	OL	46 Ω
	-	-	-	-	-	OL
Red	-	-	-	-	-	-

Error Codes and Troubleshooting

Error Codes (Indoor/Outdoor)

F6/LED1: 12 Flash
Ambient Temperature Sensor Failure

F7/LED1: 11 Flash
Suction Temperature Sensor Failure

F21/LED1: 10 Flash
Defrost Temperature Sensor Failure

F25/LED1: 13 Flash
Discharge Temperature Sensor Failure

E1/LED1: No Flash
Room Temperature Sensor Failure

E2/LED1: No Flash
Indoor Coil Temperature Sensor Failure

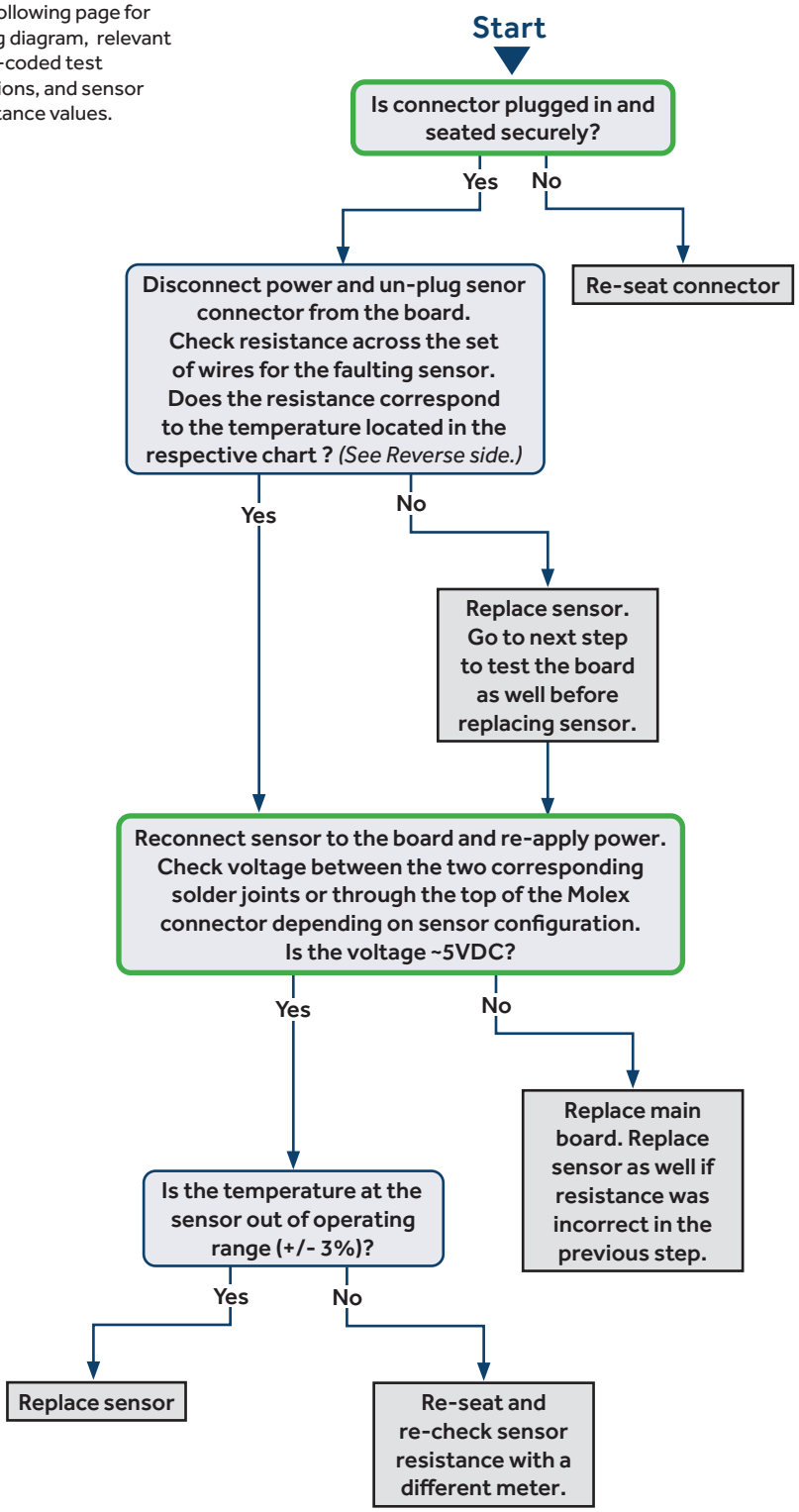
Complete the "Check This First" Flow Chart before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

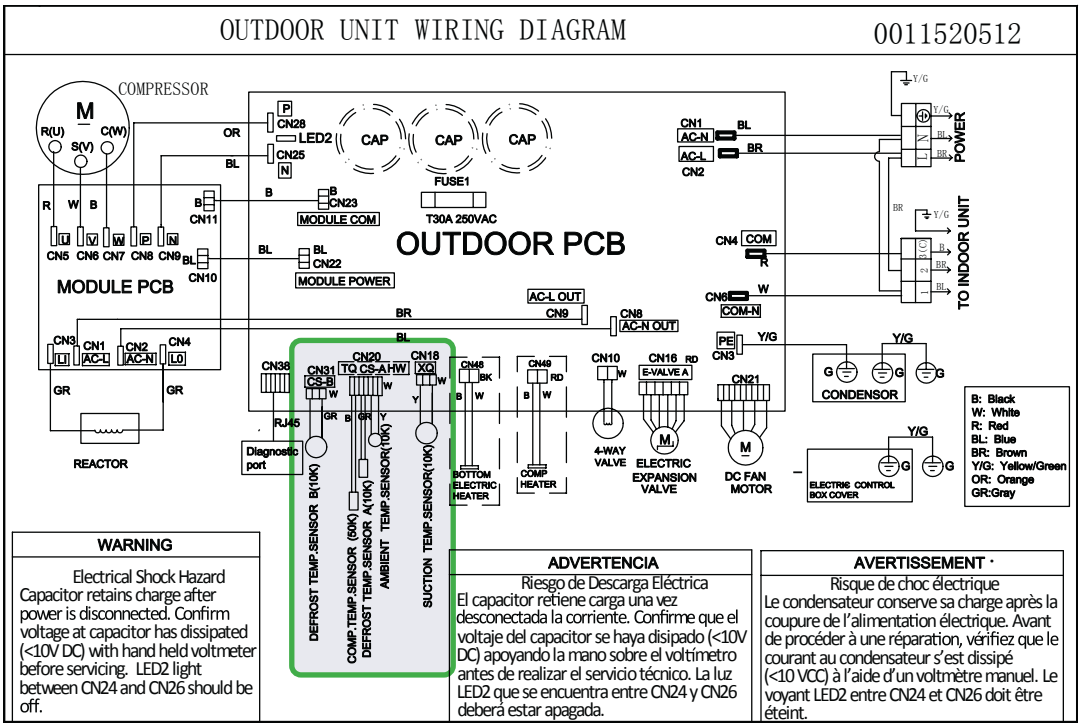
1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

See following page for wiring diagram, relevant color-coded test positions, and sensor resistance values.



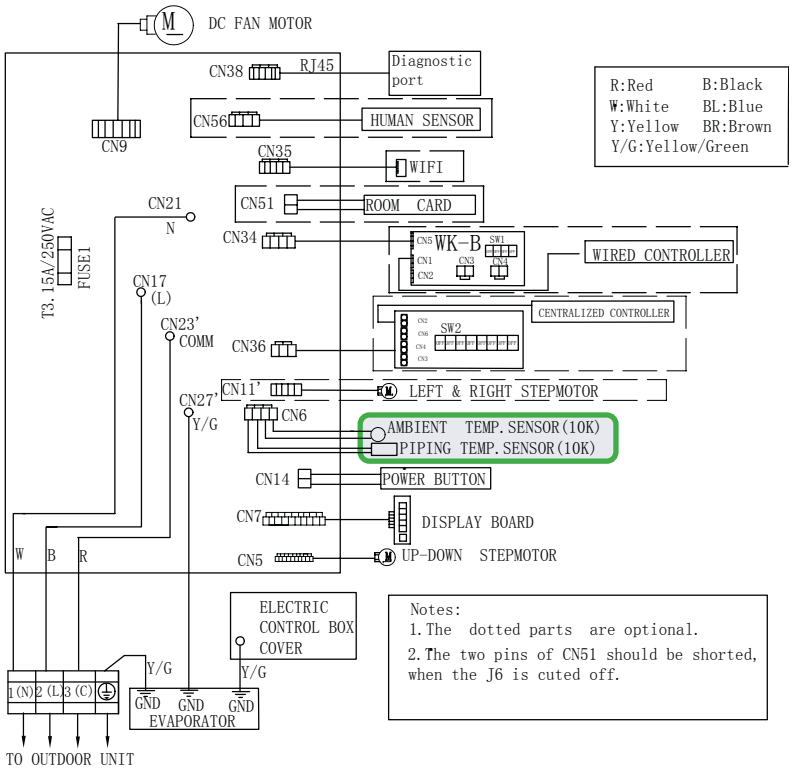
Error Code: F6/LED1: 12 Flash, F7/LED1: 11 Flash, F21/LED1: 10 Flash, F25/LED1: 13 Flash, E1/LED1: No Flash, E2/LED1: No Flash

Wiring Diagram Reference



Sensor Resistance Table

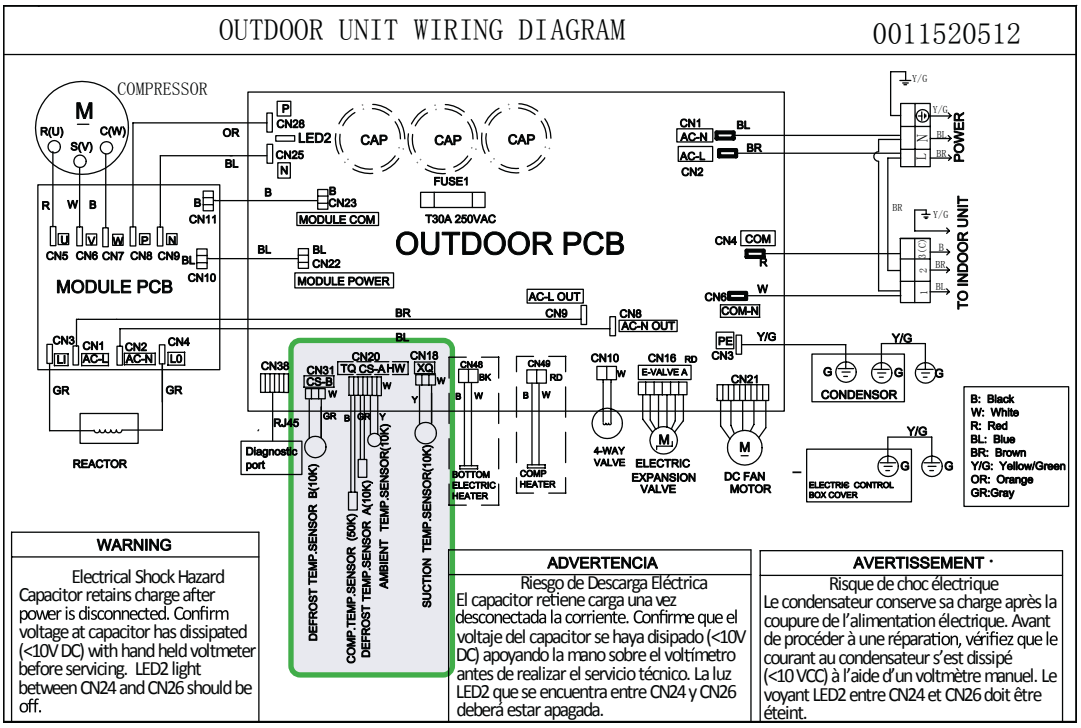
°F	°C	Normal (KΩ)		
		10K SENSORS	23K SENSORS	50K SENSORS
-0.4	-18	75.44	235.90	5494.21
5.0	-15	64.30	196.61	4558.19
10.4	-12	54.99	164.40	3795.39
14.0	-10	49.62	146.15	3365.73
21.2	-6	40.58	115.95	2658.81
24.8	-4	36.77	103.46	2368.32
32.0	0	30.30	82.69	1887.00
35.6	2	27.55	74.07	1687.81
41.0	5	23.95	62.94	1431.28
44.6	7	21.84	56.57	1284.36
50.0	10	19.06	48.31	1094.32
55.4	13	16.68	41.40	934.94
59.0	15	15.28	37.41	843.05
64.4	18	13.42	32.22	723.41
69.8	21	11.81	27.83	622.32
75.2	24	10.42	24.11	536.65
77.0	25	10.00	23.00	511.08
80.6	27	9.21	20.95	464.05
86.0	30	8.16	18.25	402.24
89.6	32	7.54	16.67	366.13
95.0	35	6.70	14.59	318.52
100.4	38	5.97	12.79	277.70



Error Codes and Troubleshooting

Error Code: F6/LED1: 12 Flash, F7/LED1: 11 Flash, F21/LED1: 10 Flash, F25/LED1: 13 Flash, E1/LED1: No Flash, E2/LED1: No Flash

Wiring Diagram Reference



Sensor Resistance Table

°F	°C	Normal (KΩ)		
		10K SENSORS	23K SENSORS	50K SENSORS
-0.4	-18	75.44	235.90	5494.21
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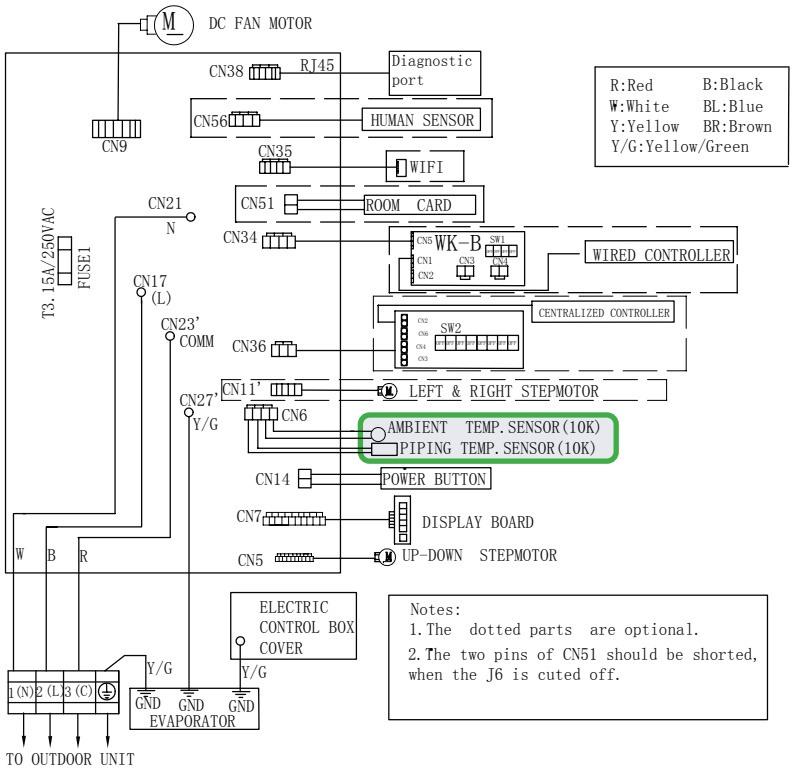
10.4	-12	54.99	164.40	3795.39
14.0	-10	49.62	146.15	3365.73
21.2	-6	40.58	115.95	2658.81
24.8	-4	36.77	103.46	2368.32
32.0	0	30.30	82.69	1887.00
35.6	2	27.55	74.07	1687.81
41.0	5	23.95	62.94	1431.28
44.6	7	21.84	56.57	1284.36
50.0	10	19.06	48.31	1094.32
55.4	13	16.68	41.40	934.94
59.0	15	15.28	37.41	843.05
64.4	18	13.42	32.22	723.41
69.8	21	11.81	27.83	622.32
75.2	24	10.42	24.11	536.65
77.0	25	10.00	23.00	511.08
80.6	27	9.21	20.95	464.05
86.0	30	8.16	18.25	402.24
89.6	32	7.54	16.67	366.13
95.0	35	6.70	14.59	318.52
100.4	38	5.97	12.79	277.70



Model selection:

30K	model-23 code -	BM1	- 1 off	2 off
30K	model-26 code -	BM1	- 1 off	2 on
36K	model-33 code -	BM1	- 1 on	2 off
36K	model-35 code -	BM1	- 1 on	2 on

Notes:Before replacing the board, it is necessary to ensure that the machine is matched with the board code

Error Code (Indoor/Outdoor)

F8/LED1: 9 Flash

Outdoor DC Fan Motor Fault

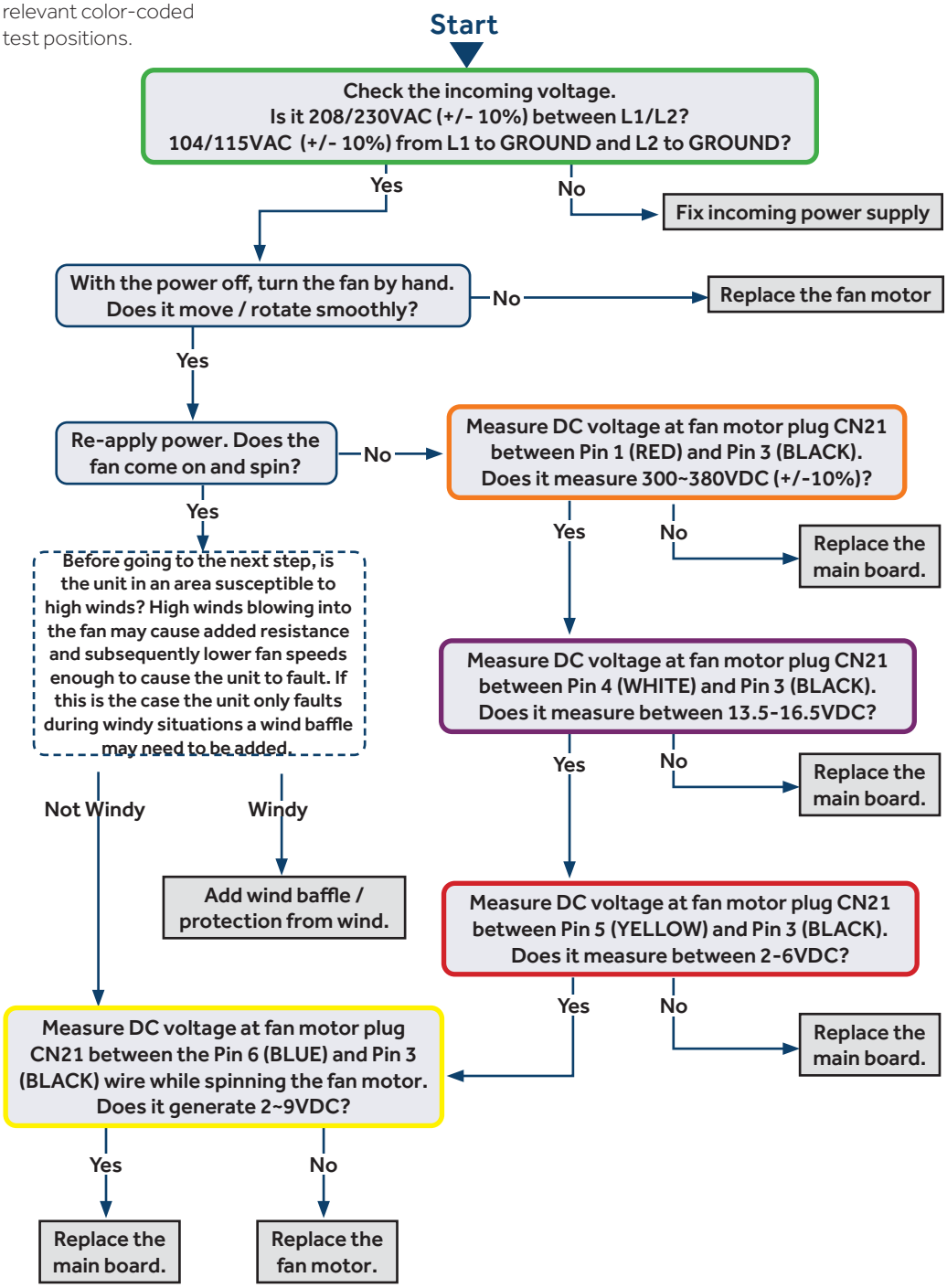
Complete the "Check This First" Flow Chart before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

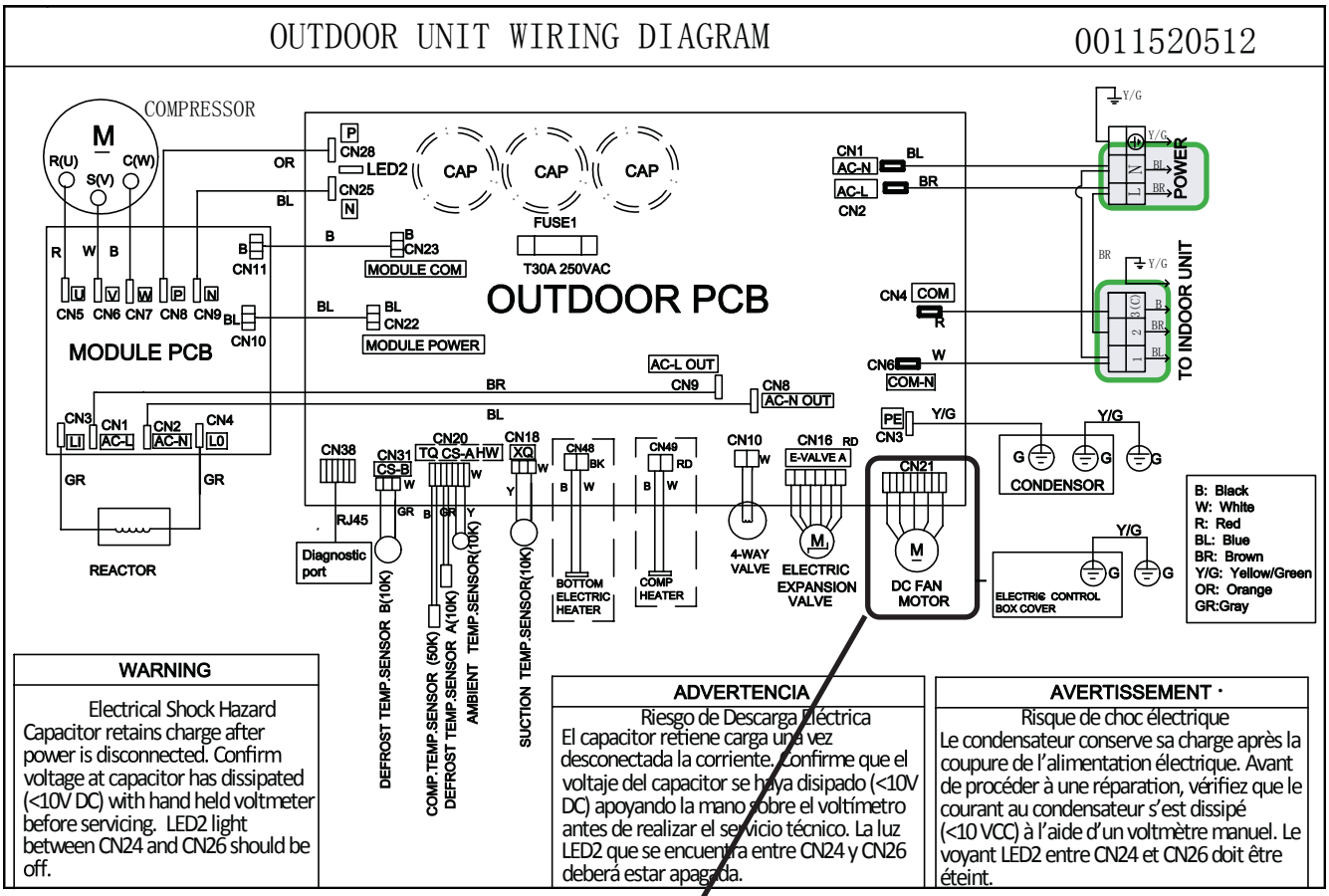
1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

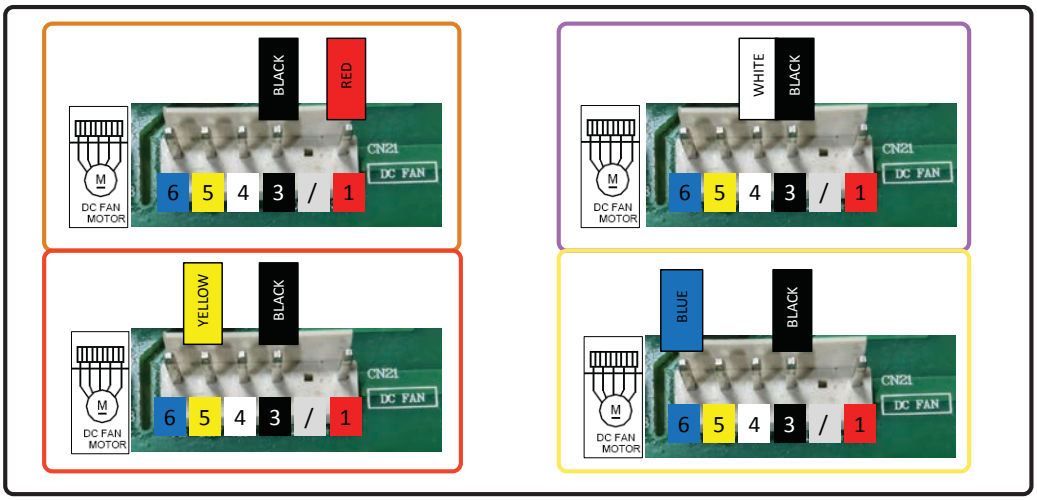
See following page for wiring diagram and relevant color-coded test positions.



Error Code: F8/LED1: 9 Flash

Wiring Diagram Reference





Error Code (Indoor/Outdoor)

F11/LED1: 18 Flash

Loss of Compressor Synchronization

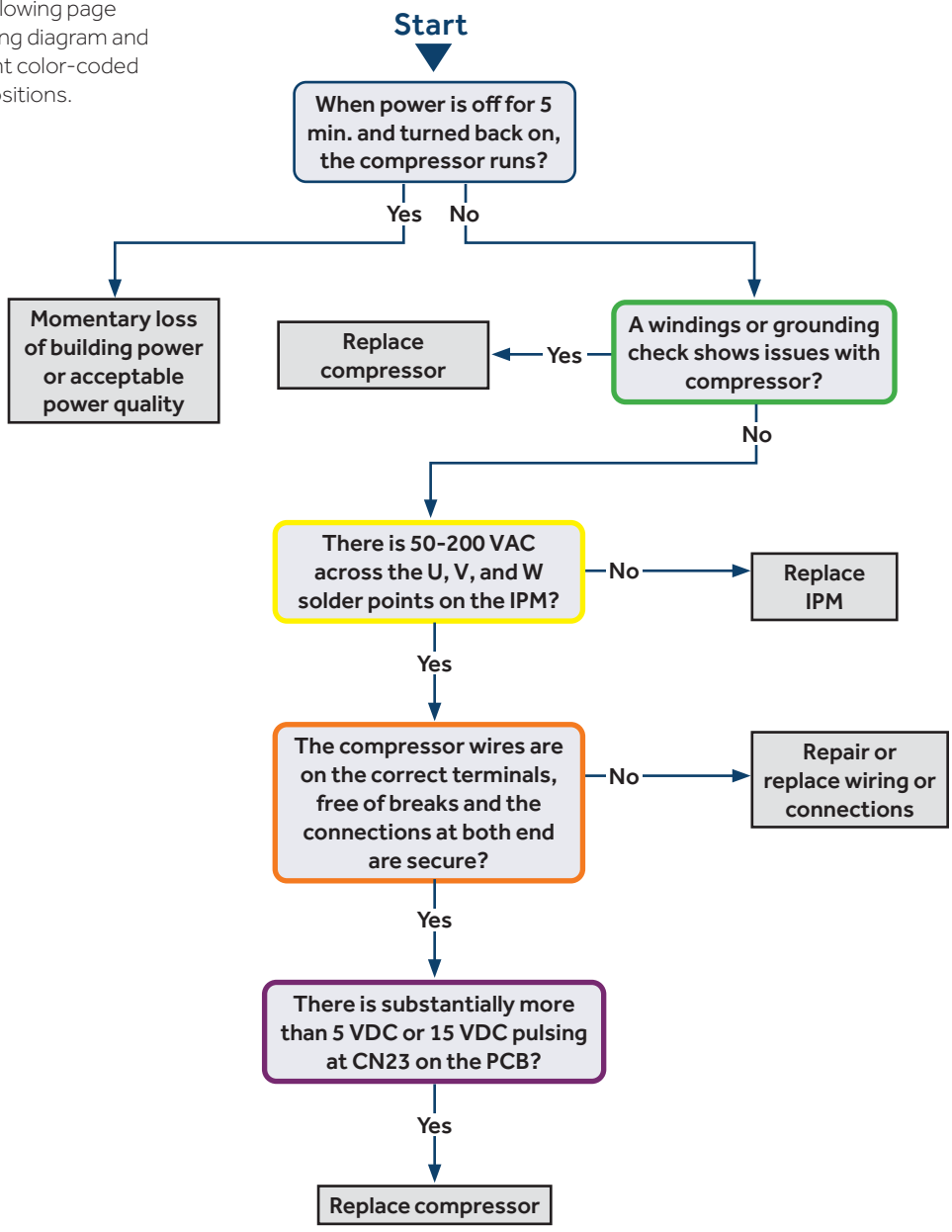
Complete the "Check This First" Flow Chart before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

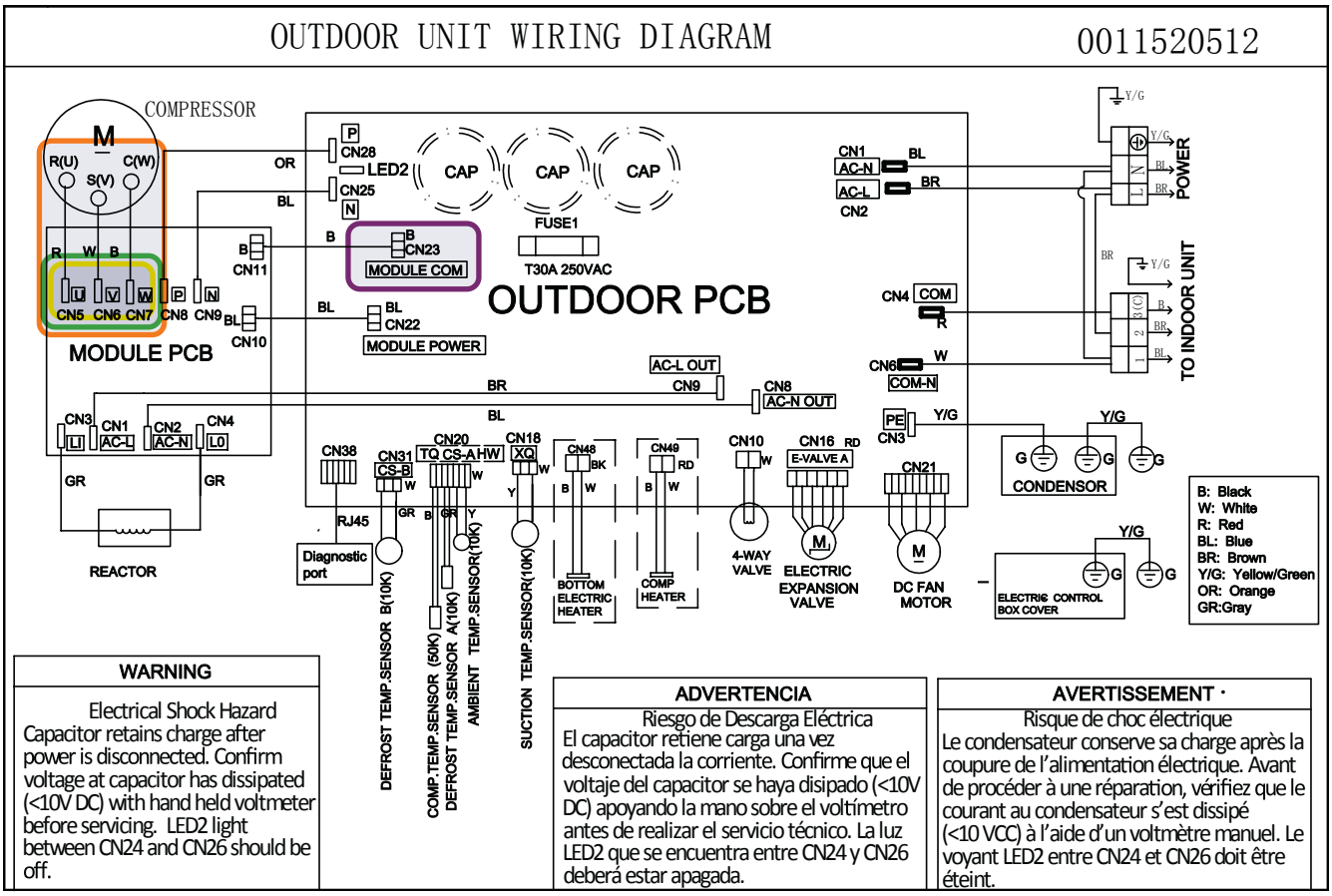
1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

See following page for wiring diagram and relevant color-coded test positions.



Error Code: F11/LED1: 18 Flash

Wiring Diagram Reference



Error Code (Indoor/Outdoor)

F12/LED1: 1 Flash

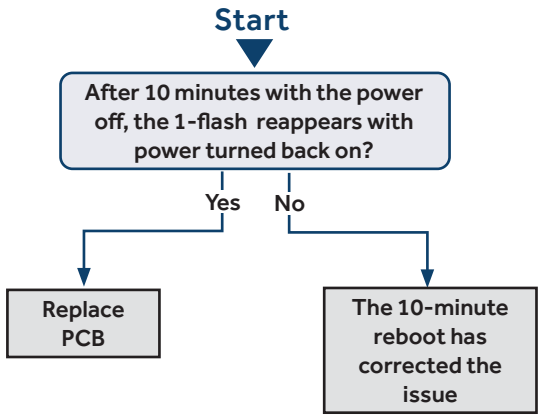
EEPROM Error

Complete the "Check This First" Flow Chart before continuing.

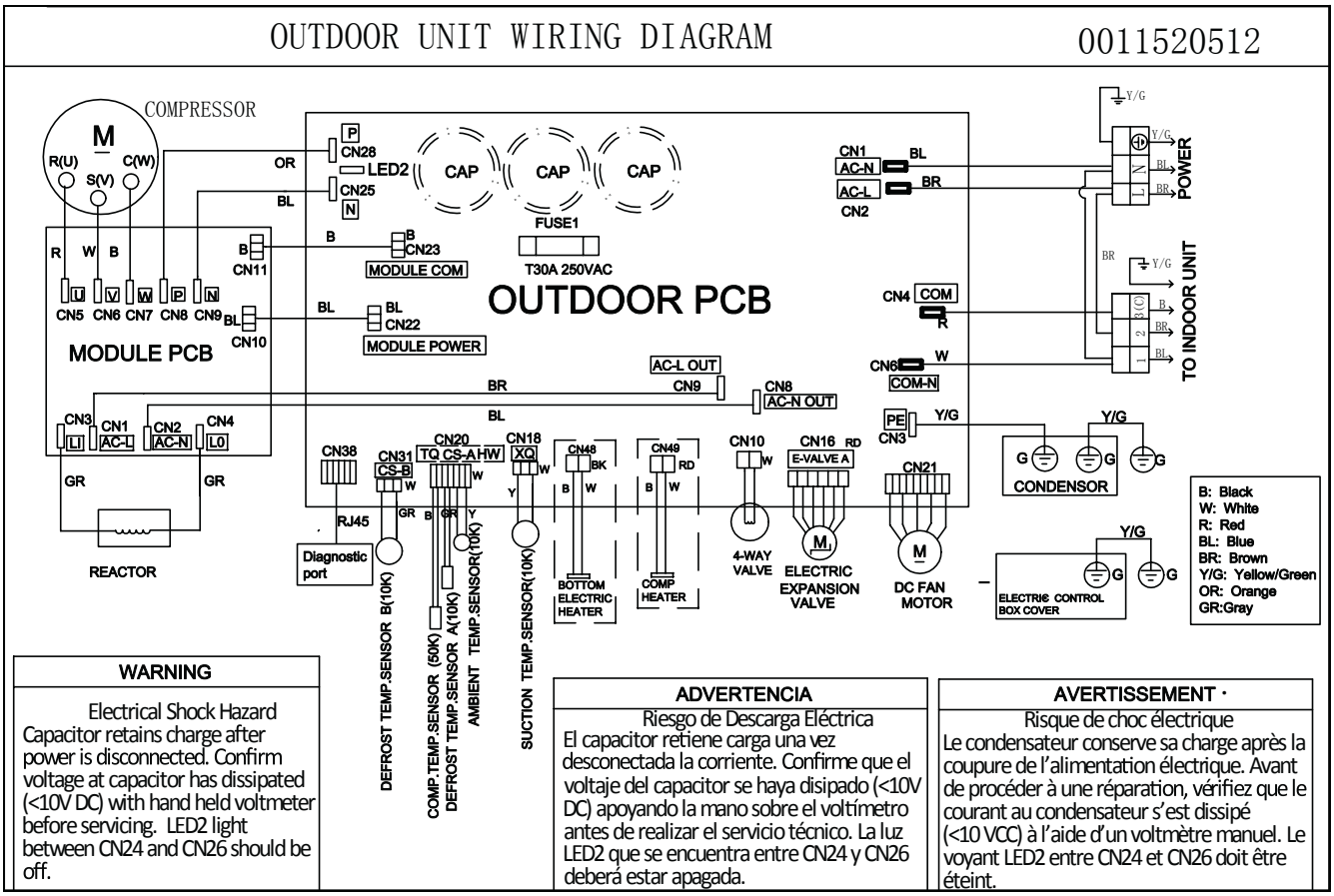
Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA



Wiring Diagram Reference



Error Codes and Troubleshooting

Error Code (Indoor/Outdoor)

E5/LED1: 22 Flash

Coil Frost Protection

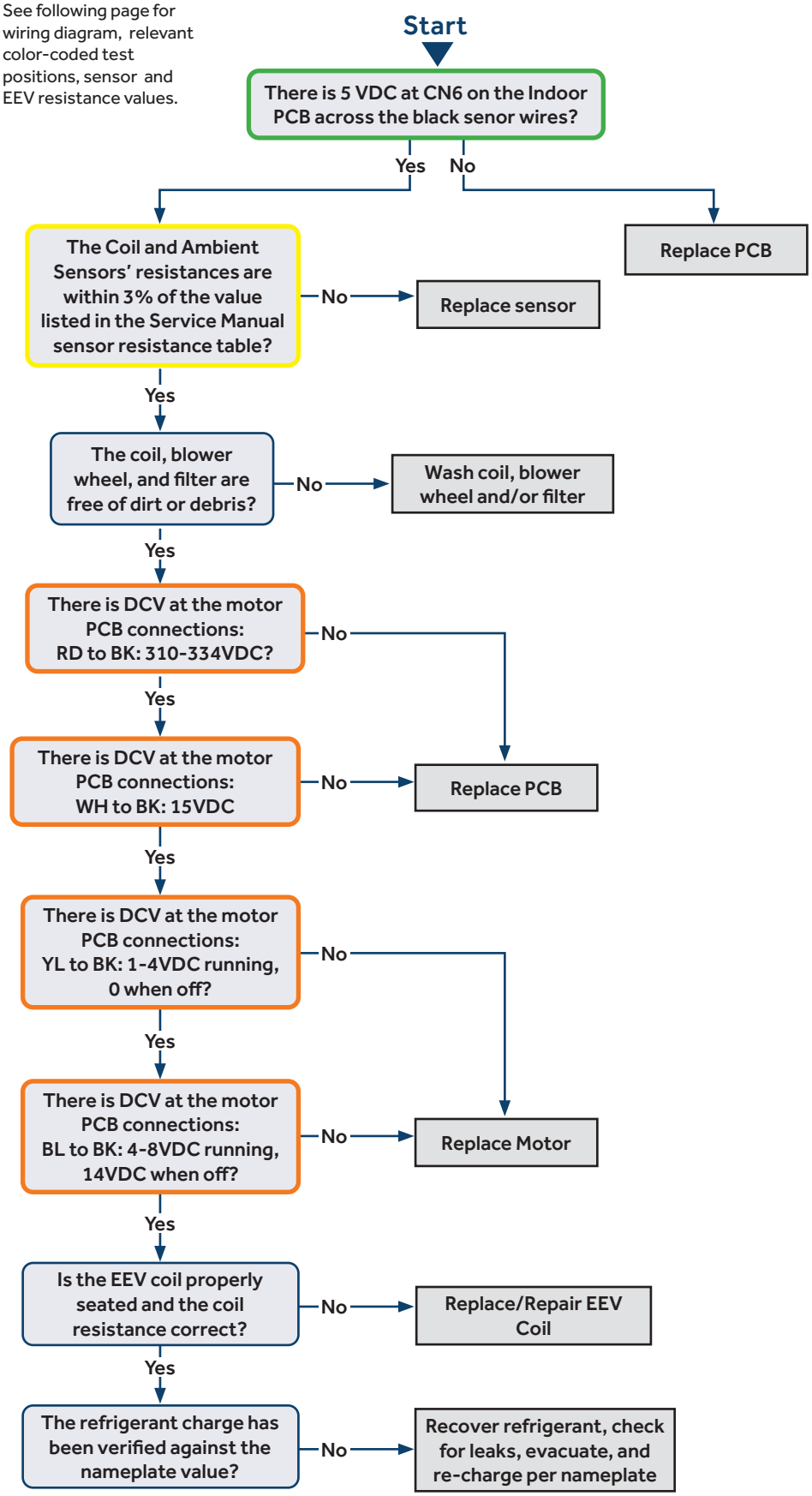
Complete the "Check This First" Flow Chart before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

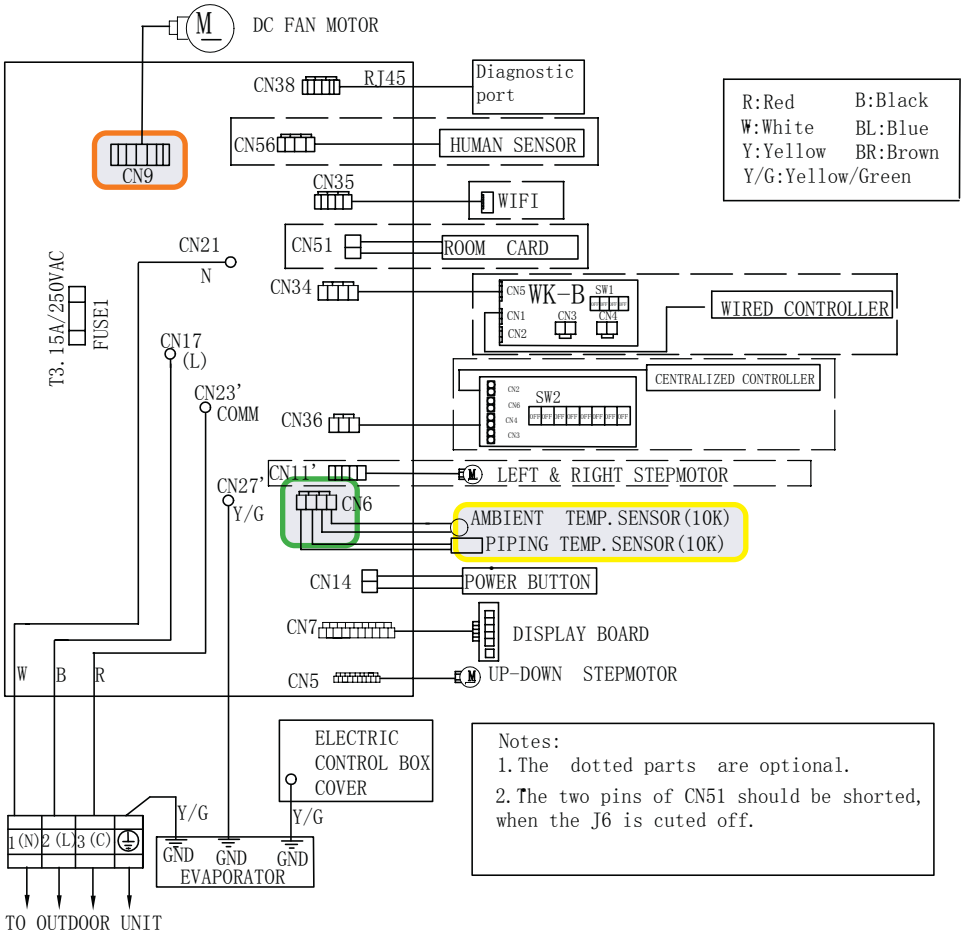
1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

See following page for wiring diagram, relevant color-coded test positions, sensor and EEV resistance values.



Error Code: E5/LED1: 22 Flash

Wiring Diagram Reference



Sensor Resistance Table

°F	°C	Normal (KΩ) 10K SENSORS	23K SENSORS	50K SENSORS
-0.4	-18	75.44	235.90	5494.21
5.0	-15	64.30	196.61	4558.19
10.4	-12	54.99	164.40	3795.39
14.0	-10	49.62	146.15	3365.73
21.2	-6	40.58	115.95	2658.81
24.8	-4	36.77	103.46	2368.32
32.0	0	30.30	82.69	1887.00
35.6	2	27.55	74.07	1687.81
41.0	5	23.95	62.94	1431.28
44.6	7	21.84	56.57	1284.36
50.0	10	19.06	48.31	1094.32
55.4	13	16.68	41.40	934.94
59.0	15	15.28	37.41	843.05
64.4	18	13.42	32.22	723.41
69.8	21	11.81	27.83	622.32
75.2	24	10.42	24.11	536.65
77.0	25	10.00	23.00	511.08
80.6	27	9.21	20.95	464.05
86.0	30	8.16	18.25	402.24
89.6	32	7.54	16.67	366.13
95.0	35	6.70	14.59	318.52
100.4	38	5.97	12.79	277.70

EEV Resistance Values

EEV (6-pin, 5 wire)

	Yellow	Blue	White	Black		Red
Yellow	-	92 Ω	92 Ω	92 Ω	-	46 Ω
Blue	-	-	92 Ω	92 Ω	-	46 Ω
White	-	-	-	92 Ω	-	46 Ω
Black	-	-	-	-	-	46 Ω
	-	-	-	-	-	-
Red	-	-	-	-	-	-

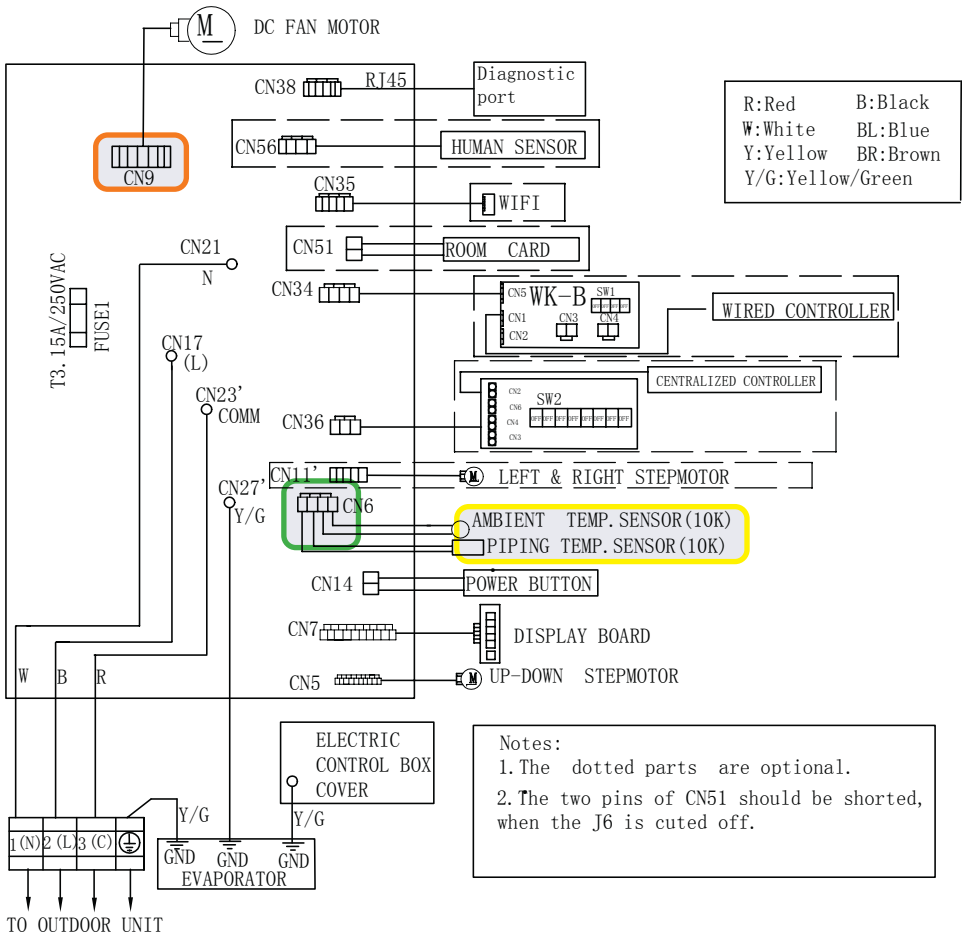
EEV (6-pin, 6 wire)

	Yellow	Blue	White	Black		Red
Yellow	-	0L	92 Ω	0L	46 Ω	0L
Blue	-	-	0L	92 Ω	0L	46 Ω
White	-	-	-	0L	46 Ω	0L
Black	-	-	-	-	0L	46 Ω
	-	-	-	-	-	0L
Red	-	-	-	-	-	-

Error Codes and Troubleshooting

Error Code: E5/LED1: 22 Flash

Wiring Diagram Reference



Sensor Resistance Table

°F	°C	Normal (KΩ) 10K SENSORS	23K SENSORS	50K SENSORS
-0.4	-18	75.44	235.90	5494.21
5.0	-15	64.30	196.61	4558.19
10.4	-12	54.99	164.40	3795.39
14.0	-10	49.62	146.15	3365.73
21.2	-6	40.58	115.95	2658.81
24.8	-4	36.77	103.46	2368.32
32.0	0	30.30	82.69	1887.00
35.6	2	27.55	74.07	1687.81
41.0	5	23.95	62.94	1431.28
44.6	7	21.84	56.57	1284.36
50.0	10	19.06	48.31	1094.32
55.4	13	16.68	41.40	934.94
59.0	15	15.28	37.41	843.05
64.4	18	13.42	32.22	723.41
69.8	21	11.81	27.83	622.32
75.2	24	10.42	24.11	536.65
77.0	25	10.00	23.00	511.08
80.6	27	9.21	20.95	464.05
86.0	30	8.16	18.25	402.24
89.6	32	7.54	16.67	366.13
95.0	35	6.70	14.59	318.52
100.4	38	5.97	12.79	277.70

Model selection:

30K model-23 code - BM1 - 1 off 2 off
30K model-26 code - BM1 - 1 off 2 on
36K model-33 code - BM1 - 1 on 2 off
36K model-35 code - BM1 - 1 on 2 on

Notes:Before replacing the board, it is necessary to ensure that the machine is matched with the board code

EEV Resistance Values

EEV (6-pin, 5 wire)

	Yellow	Blue	White	Black		Red
Yellow	-	92 Ω	92 Ω	92 Ω	-	46 Ω
Blue	-	-	92 Ω	92 Ω	-	46 Ω
White	-	-	-	92 Ω	-	46 Ω
Black	-	-	-	-	-	46 Ω
	-	-	-	-	-	-
Red	-	-	-	-	-	-

EEV (6-pin, 6 wire)

	Yellow	Blue	White	Black		Red
Yellow	-	0L	92 Ω	0L	46 Ω	0L
Blue	-	-	0L	92 Ω	0L	46 Ω
White	-	-	-	0L	46 Ω	0L
Black	-	-	-	-	0L	46 Ω
	-	-	-	-	-	0L
Red	-	-	-	-	-	-

Error Code (Indoor/Outdoor)

E7/LED1: 15 Flash

ID and OD Loss of Communication

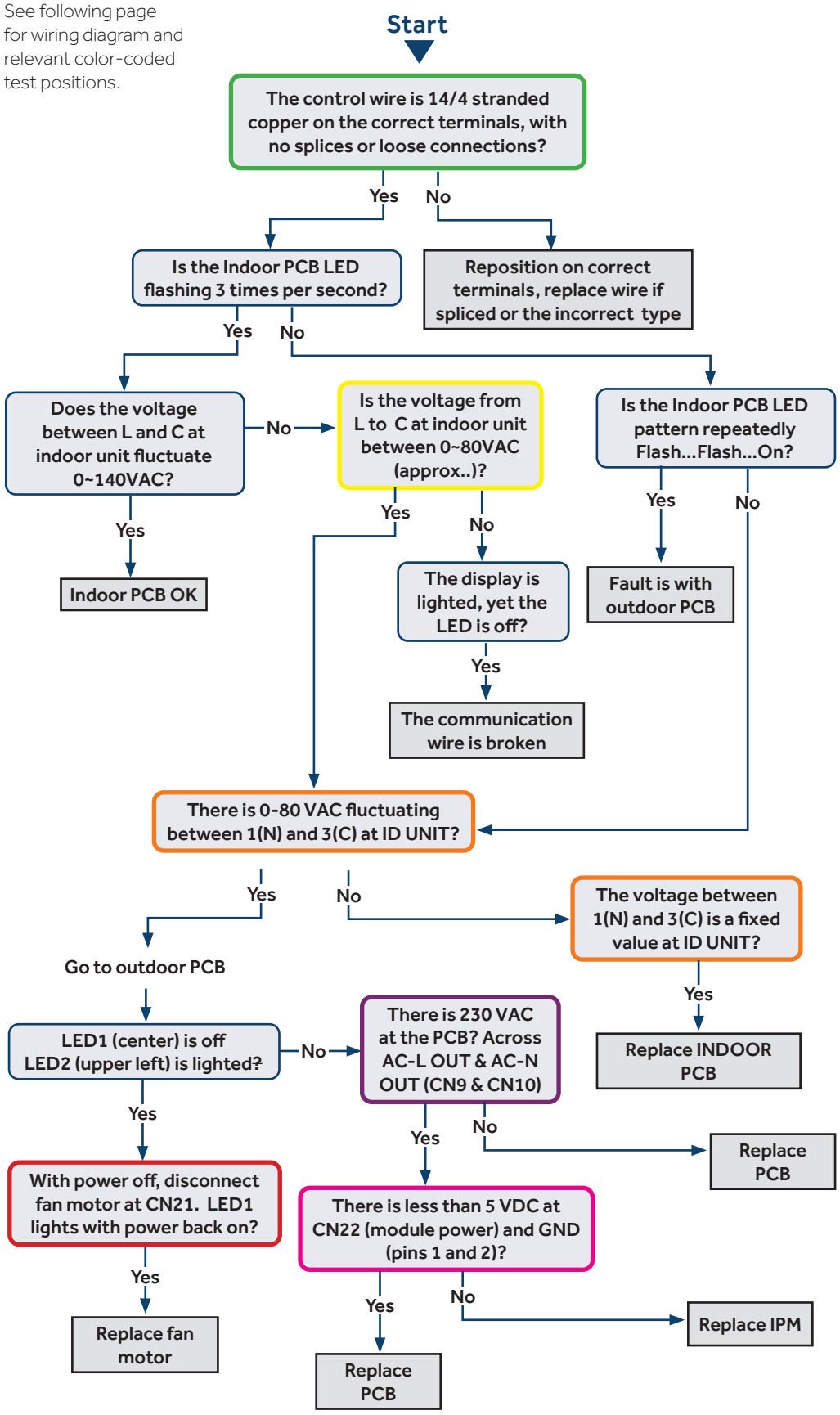
Complete the "Check This First" Flow Chart for both ID and OD units before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

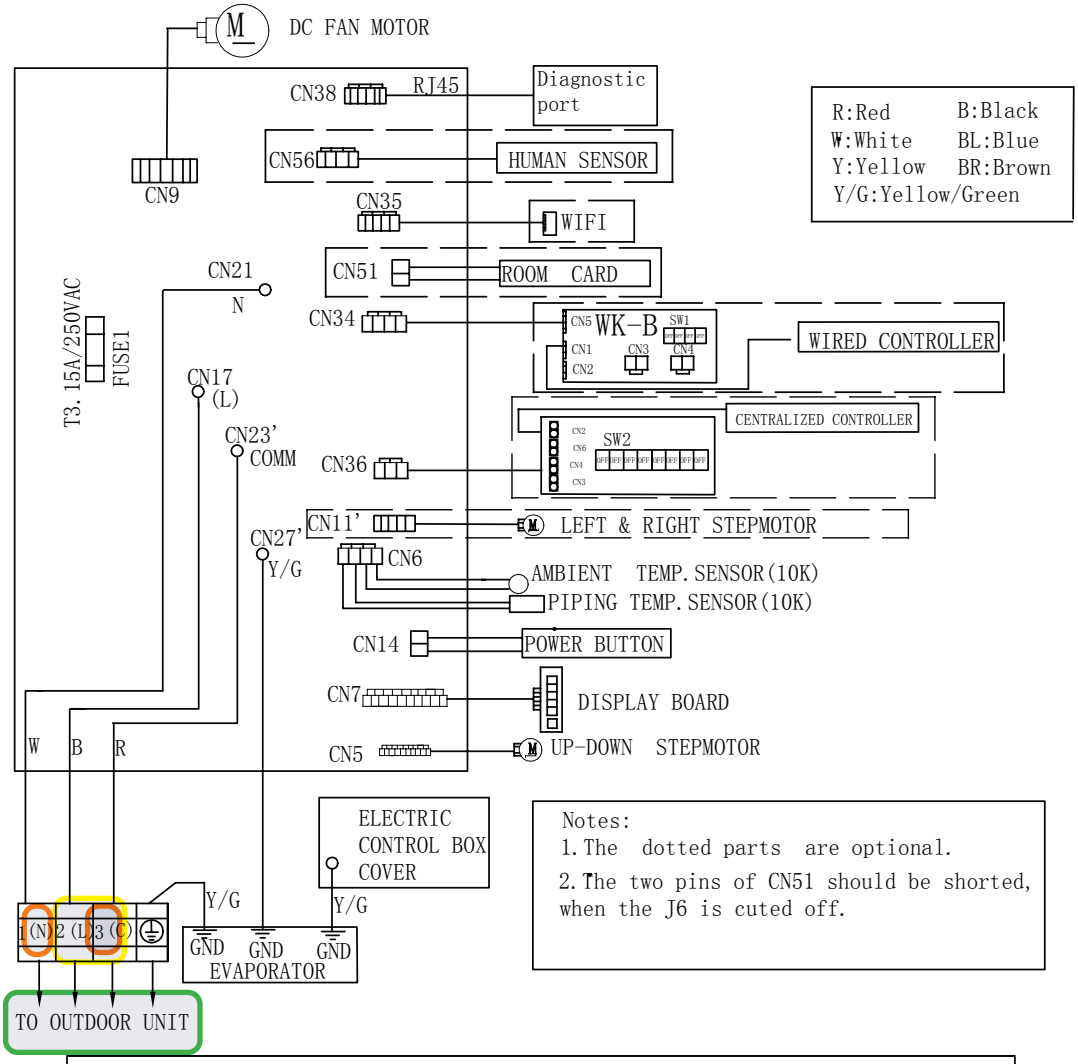
1U24TL2HFA
1U3036TL2HFA
ASH124TRDFA
ASH3036TRDFA

See following page for wiring diagram and relevant color-coded test positions.



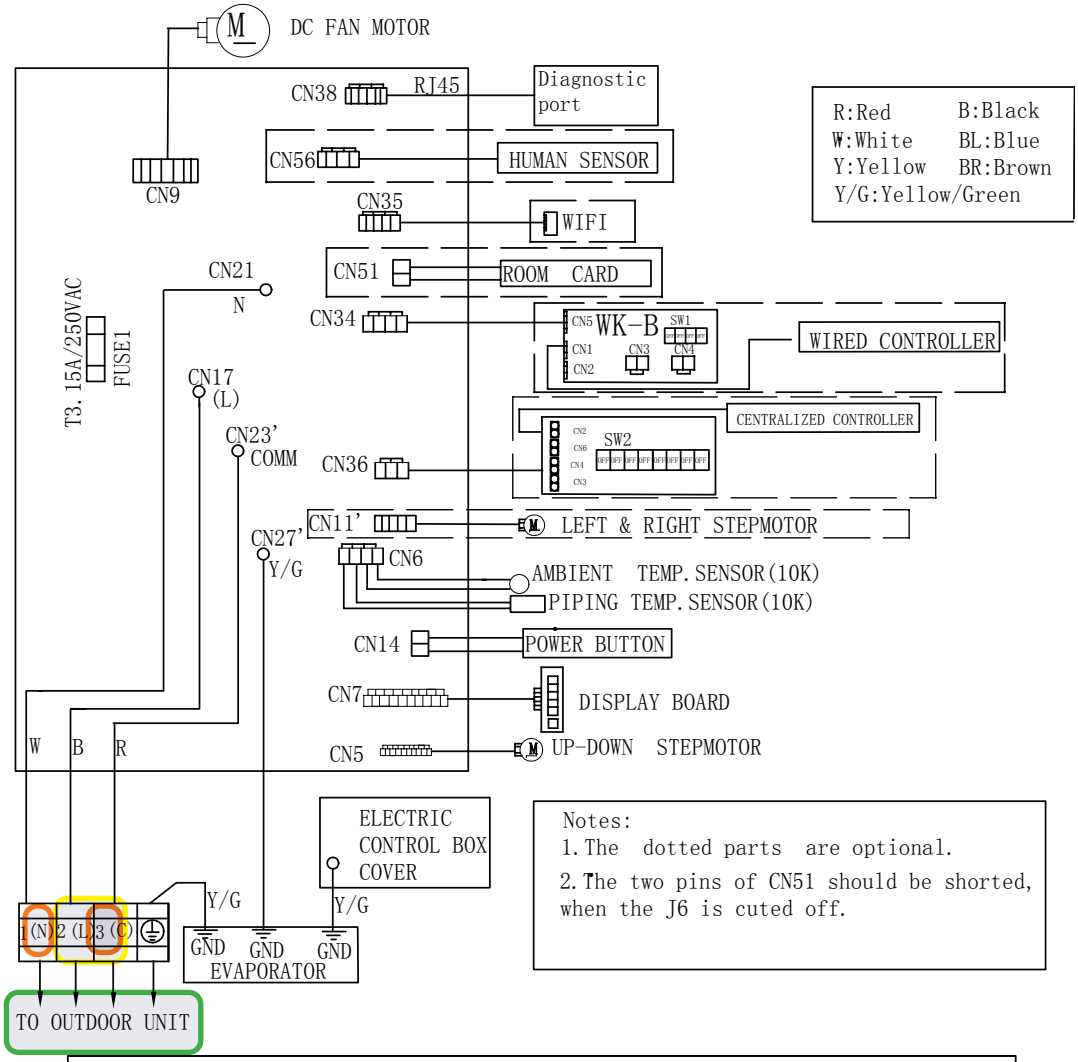
Error Code: E7/LED1: 15 Flash

Wiring Diagram Reference



Error Code: E7/LED1: 15 Flash

Wiring Diagram Reference

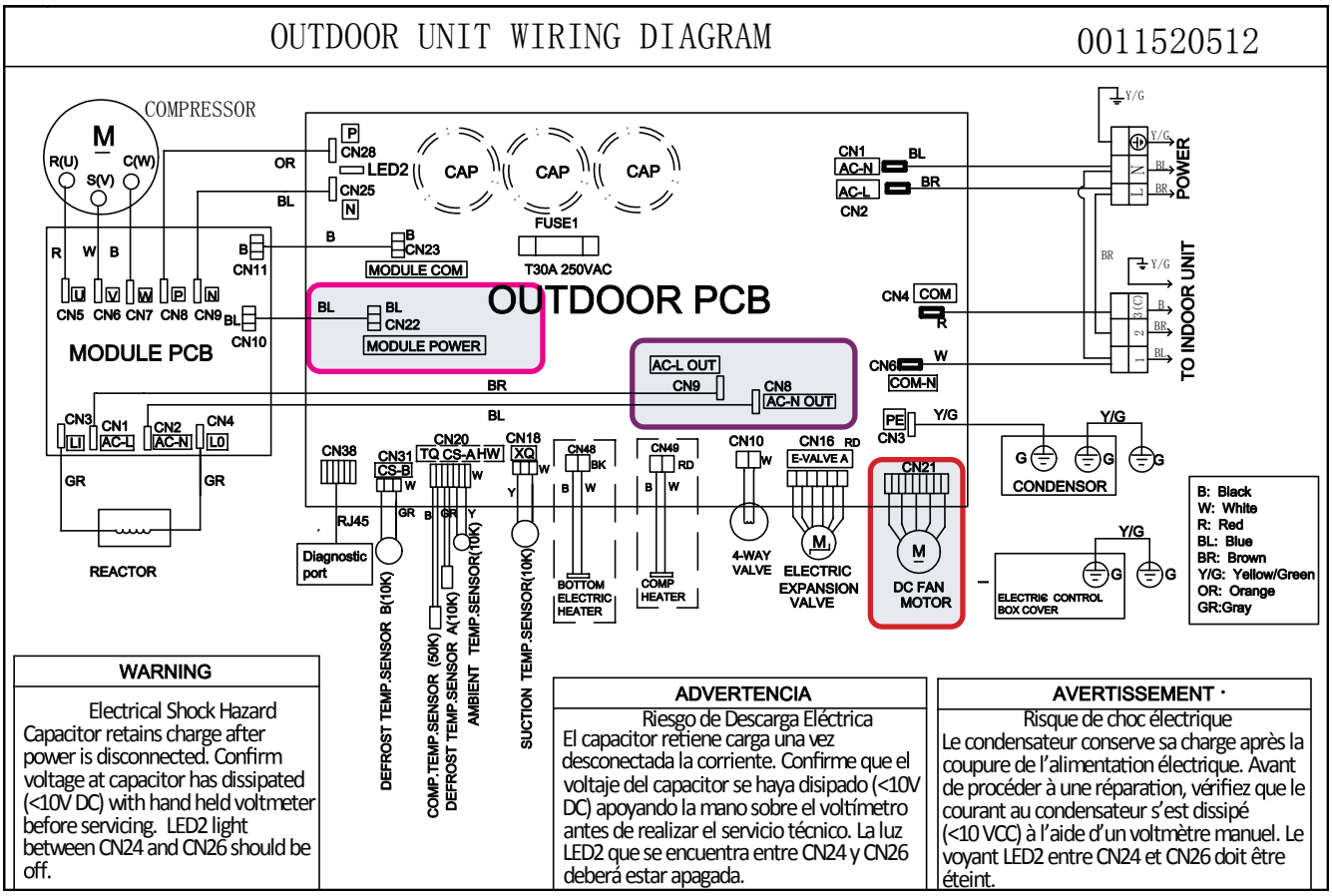


Model selection:

30K	model-23 code - BM1	- 1 off	2 off	Notes:Before replacing the board, it is necessary to ensure that the machine is matched with the board code
30K	model-26 code - BM1	- 1 off	2 on	
36K	model-33 code - BM1	- 1 on	2 off	
36K	model-35 code - BM1	- 1 on	2 on	

Error Code: E7/LED1: 15 Flash

Wiring Diagram Reference



Error Code (Indoor)

E14

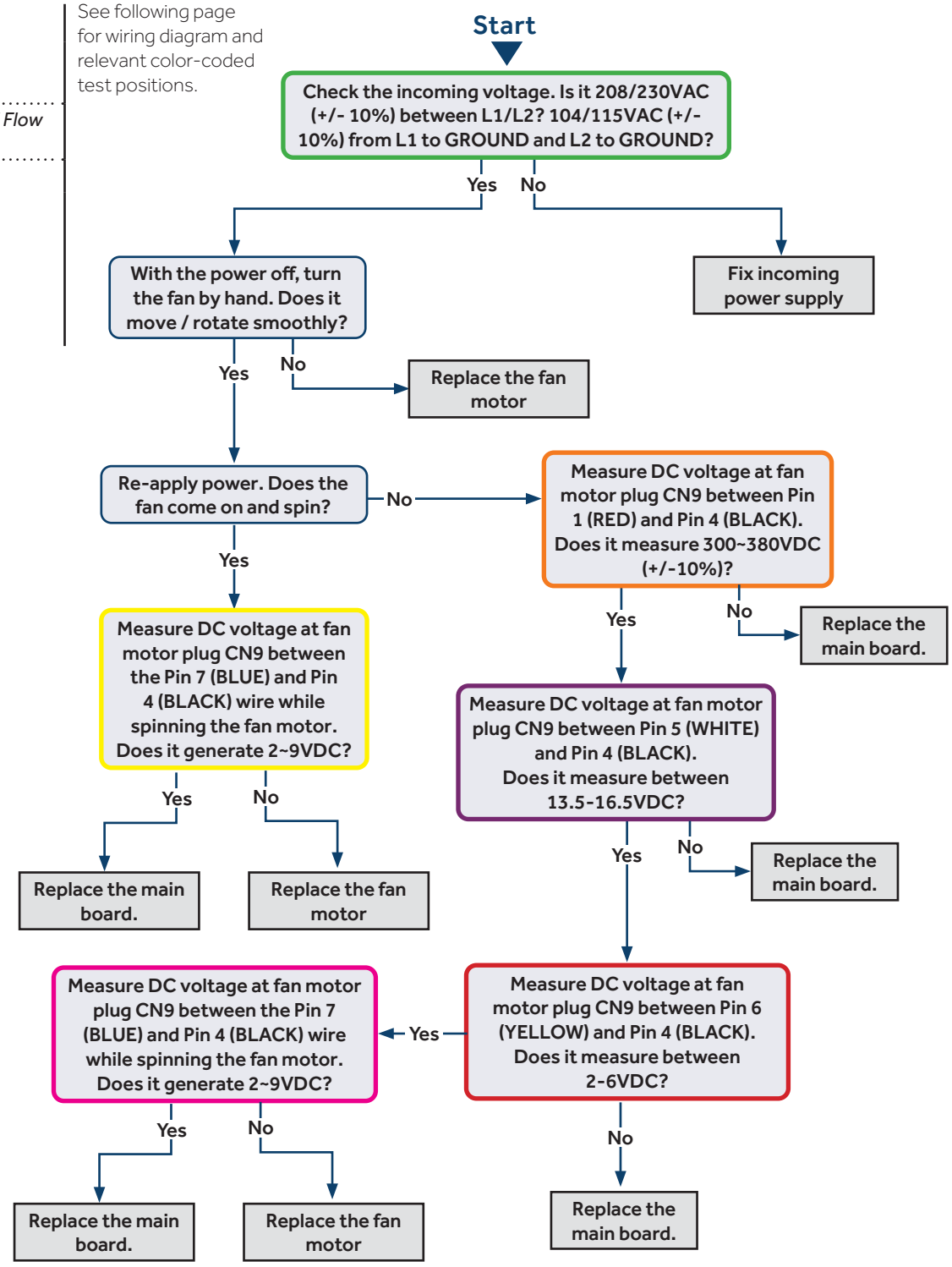
Indoor Fan Motor Failure

Complete the "Check This First" Flow Chart before continuing.

Models:

AW24TL2HFA
AW30TL2HFA
AW36TL2HFA
ASYW24TRDFA
ASYW30TRDFA
ASYW36TRDFA

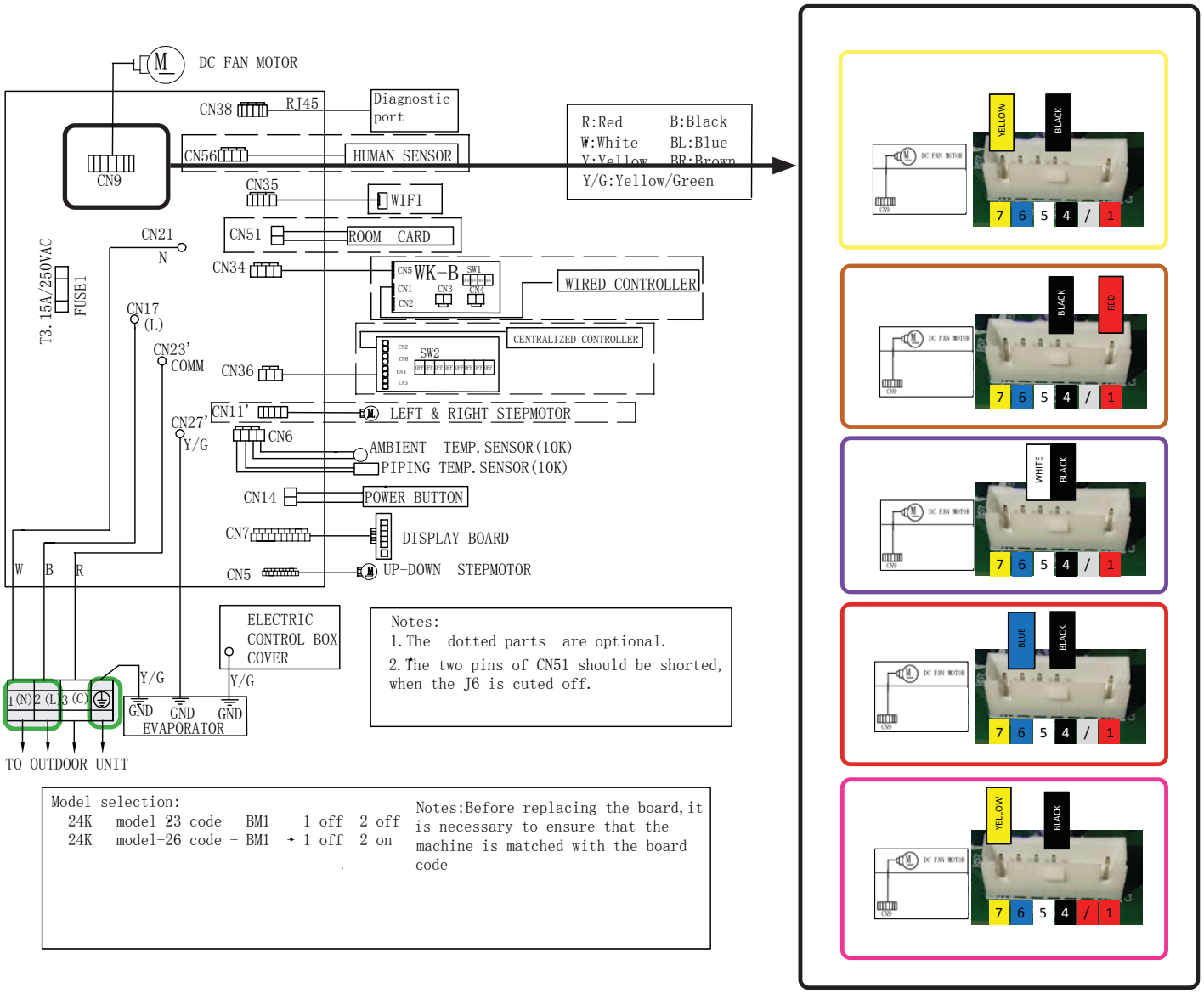
See following page for wiring diagram and relevant color-coded test positions.



Error Codes and Troubleshooting

Error Code: E14

Wiring Diagram Reference



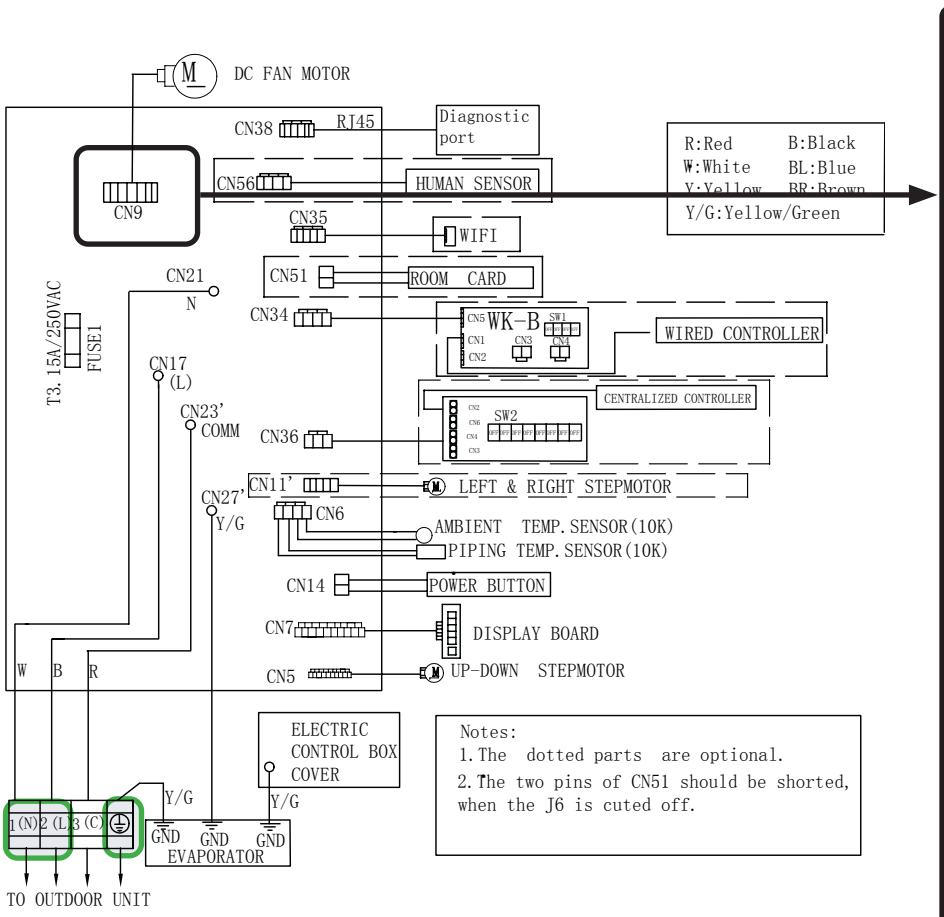
Notes:
1. The dotted parts are optional.
2. The two pins of CN51 should be shorted, when the J6 is cuted off.

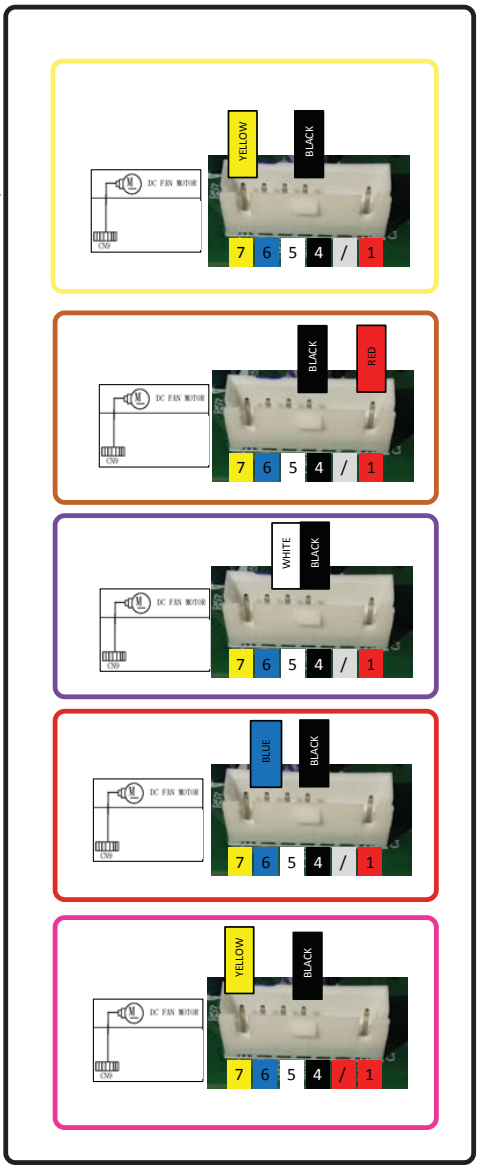
Model selection:
24K model-23 code - BM1 - 1 off 2 off
24K model-26 code - BM1 - 1 off 2 on

Notes:Before replacing the board, it is necessary to ensure that the machine is matched with the board code

Error Code: E14

Wiring Diagram Reference





Model selection:

30K	model-23	code - BM1	- 1 off	2 off
30K	model-26	code - BM1	- 1 off	2 on
36K	model-33	code - BM1	- 1 on	2 off
36K	model-35	code - BM1	- 1 on	2 on

Notes:Before replacing the board, it is necessary to ensure that the machine is matched with the board code

Error Codes and Troubleshooting

Checking System Components

NOTE: Component resistance readings shown in this section are for reference only. Actual resistance values may differ based on model being tested.
Component readings shown below are based on a model 1U*EH2VHD outdoor unit.

Checking Outdoor Unit Components

Testing of the following components requires the use of needle probes. Avoid testing the connector end of the plug, as damage to the internal sections of the plug can occur.

Checking the Outdoor Unit Sensors

NOTE: Use respective temperature / sensor chart for sensor type being tested.

Compressor discharge sensor
Suction sensor
Defrost temperature sensor A
Defrost temperature sensor B
Ambient sensor

Step 1
Disconnect the sensor plug from the control board for this test. Failure to do so may provide inaccurate readings.

Step 2
Using K-type temperature probe, determine the temperature of the sensor being tested.

Step 3
Using an Ohmmeter, check the resistance value of the sensor.

Step 4
Referring to the temperature / resistance table for the sensor being checked, verify the resistance value corresponds to the temperature checked in step 2.
Replace the sensor if the reading is open, shorted, or outside the specifications of the temperature / resistance table.

Step 5
Re-seat the plug on the connector at the conclusion of the test.

Checking the Reversing Valve Coil

Step 1
Disconnect the reversing valve plug from the PCB for this test. Failure to do so may provide inaccurate readings.

Step 2
Using an Ohmmeter, check the resistance value of the coil. The resistance value of the coil should be 1.2 kilo ohms to 1.8 kilo ohms. Replace the valve coil if the reading is significantly different, or if the coil shows open or shorted.

Step 3
Re-seat the plug on the connector at the conclusion of the test.

Checking the DC Fan Motor

Step 1
Using needle probes, check the VDC at the back of the fan plug on the PCB. The values are:

Red to black: +310 VDC
White to black: +15 VDC
Yellow to black: 1-4 VDC when running; 0 VDC when there is no call for heating or cooling.
Blue to black: pulsing 0-8 VDC when running; 14 VDC when there is no call for heating or cooling.

Checking the EEV Coil

Step 1
Disconnect the EEV Coil from the PCB for this test. Failure to do so may provide inaccurate readings.

Step 2
Please refer to the tables for 5-wire and 6-wire with 6-pin on Page 40 for resistance values

Step 3
Re-seat the plug on the connector at the conclusion of the test.

Checking the Compressor Windings

Step 1
Disconnect wiring from terminals U, V and W of the IPM.

Step 2
Using an Ohmmeter, check the resistance value of the compressor windings. Measure between wires U and V, U and W, and V, and W.

The resistance value of the windings should be balanced (equal). If the resistance values are not equal, verify the wiring and connections to the compressor as well as the compressor itself. Repair or replace as needed.

Step 3
Reconnect the wiring to the IPM at the conclusion of the test.

NOTE: Resistance readings shown in this section are for reference only.

Model	Winding Resistance
24K	0.53 Ω
30K	0.53 Ω
36K	0.53 Ω

Checking Indoor Unit Components

Testing of the following components requires the use of an ohmmeter and K-type temperature probe.

NOTE: When using the test probes, probe the back or side contacts of the plug to obtain the reading. Do not try to probe the connector end of the plug, as this may damage the contacts.

Checking the Indoor Unit Sensors

NOTE: Use respective temperature / sensor chart for sensor type being tested.

Coil sensor
Ambient sensor

Step 1
Disconnect the sensor plug from PCB for this test. Failure to do so may provide inaccurate readings.

Step 2
Determine the temperature of the sensor being tested.

Step 3
Check the resistance value of the sensor.

Step 4
Referring to the temperature / resistance table for the sensor being checked, verify the resistance value corresponds to the temperature checked in step 2.
Replace the sensor if the reading is open, shorted, or outside the specifications of the temperature / resistance table.

Step 5
Re-seat the plug on the connector at the conclusion of the test.

Checking the Up/Down Stepper Motor

Step 1
Disconnect the Up/Down Stepper Motor plug from the PCB for this test. Failure to do so may provide inaccurate readings.

Step 2
Refer to the chart shown below for plug pin combinations and resistance values.

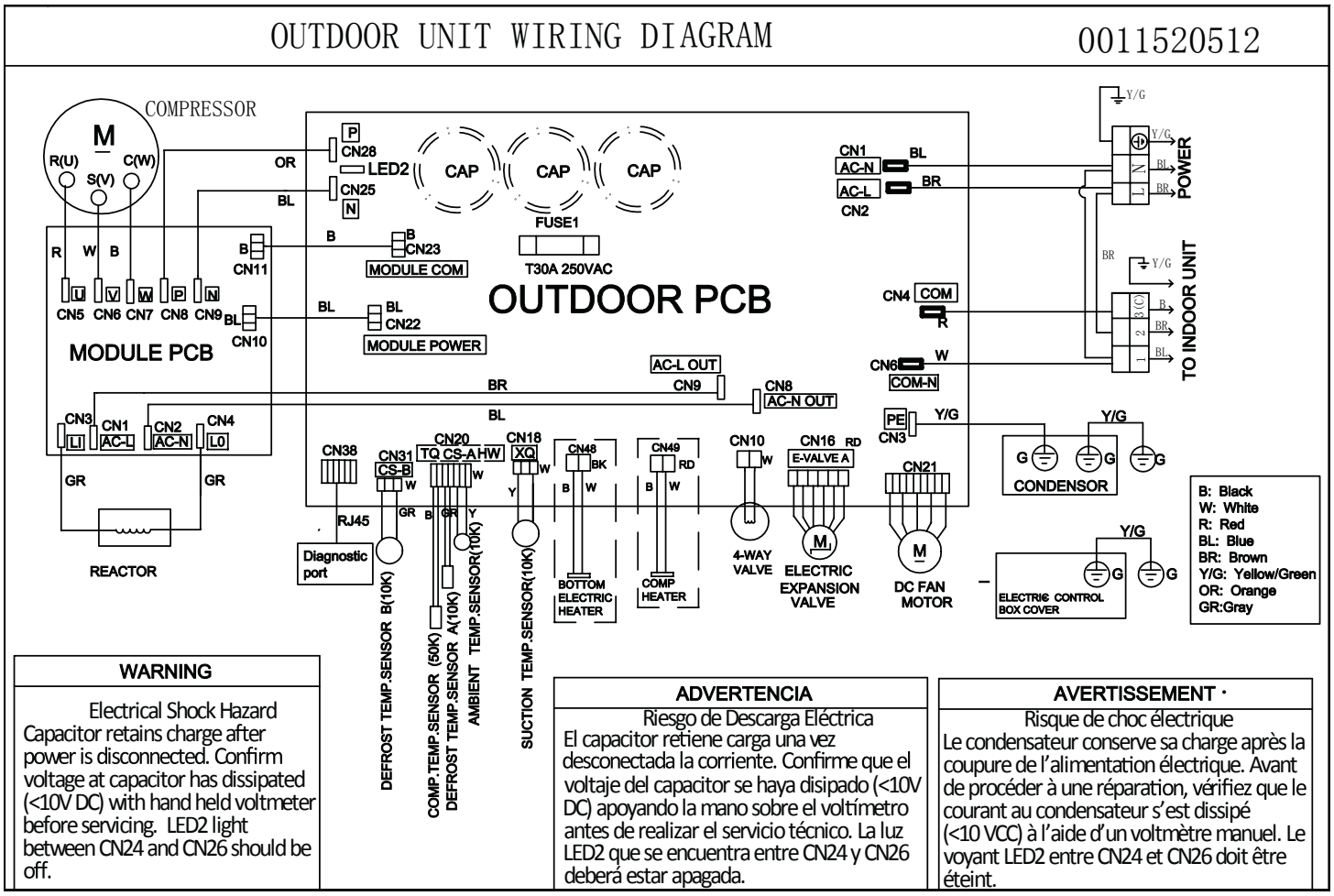
	White	Yellow	Orange	Blue	Red	Grey
White		---	92.6Ohm	---	47.0 Ohm	---
Yellow			---	93.1 Ohm	---	47.0 Ohm
Orange					46.5 Ohm	---
Blue						46.8 Ohm
Red						---
Grey						

Step 3
Re-seat the plug on the connector at the conclusion of the test

Reference Information

Table of Contents

24K-36K



WARNING

Electrical Shock Hazard
Capacitor retains charge after power is disconnected. Confirm voltage at capacitor has dissipated (<10V DC) with hand held voltmeter before servicing. LED2 light between CN24 and CN26 should be off.

ADVERTENCIA

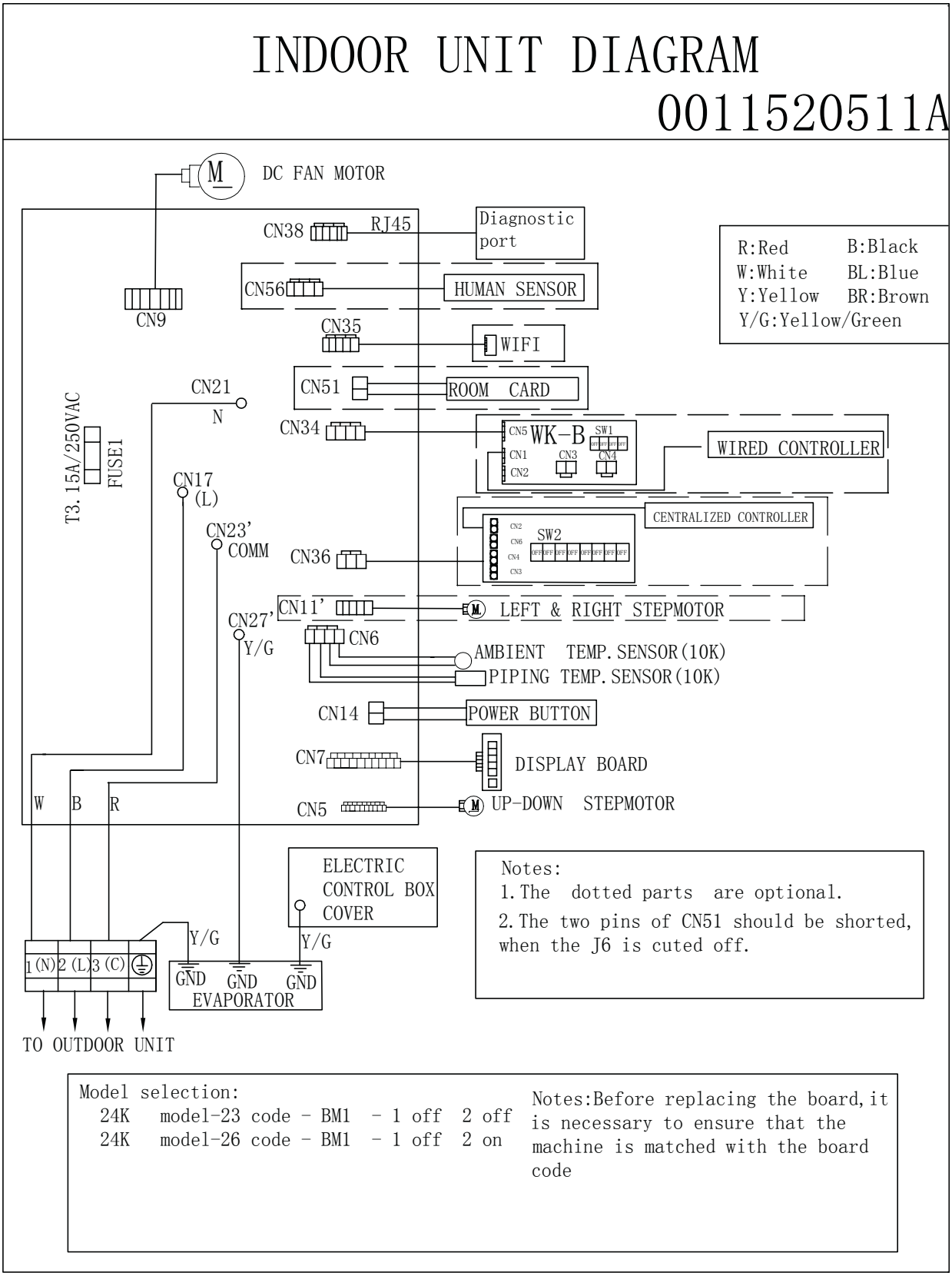
Riesgo de Descarga Eléctrica
El capacitor retiene carga una vez desconectada la corriente. Confirme que el voltaje del capacitor se haya disipado (<10V DC) apoyando la mano sobre el voltímetro antes de realizar el servicio técnico. La luz LED2 que se encuentra entre CN24 y CN26 deberá estar apagada.

AVERTISSEMENT ·

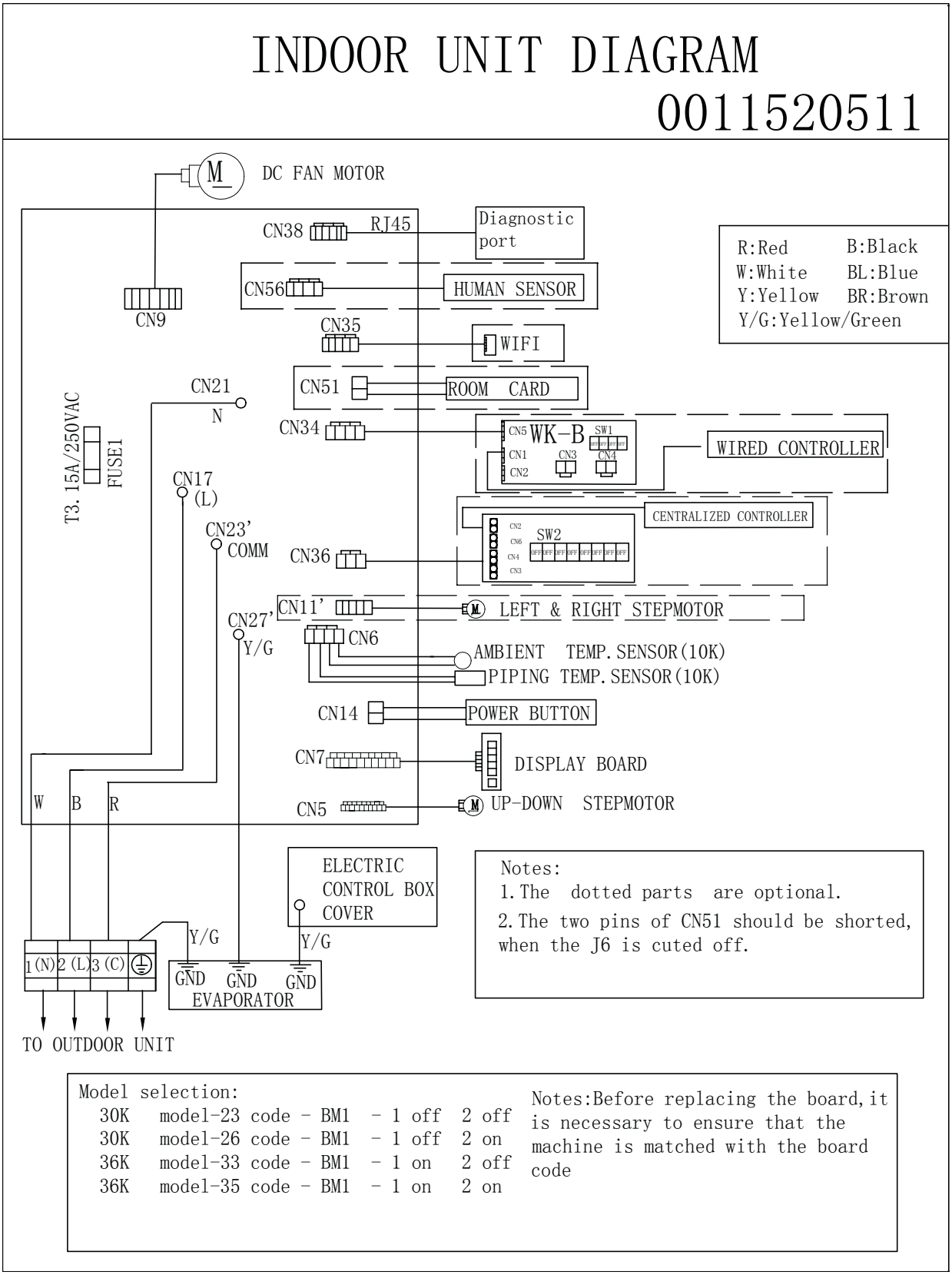
Risque de choc électrique
Le condensateur conserve sa charge après la coupure de l'alimentation électrique. Avant de procéder à une réparation, vérifiez que le courant au condensateur s'est dissipé (<10 VCC) à l'aide d'un voltmètre manuel. Le voyant LED2 entre CN24 et CN26 doit être éteint.

Indoor Board Diagram

24K



30K-36K


INDOOR UNIT DIAGRAM
0011520511
M
DC FAN MOTOR
CN38
RJ45
Diagnostic port
CN56
HUMAN SENSOR
CN9
CN35
WIFI
CN51
ROOM CARD
CN21
N
CN34
WK-B
SW1
CN1
CN2
CN3
CN4
CN5
WIRED CONTROLLER
T3. 15A/250VAC
FUSE1
CN17
(L)
CENTRALIZED CONTROLLER
CN23'
COMM
CN36
SW2
CN11'
LEFT & RIGHT STEPMOTOR
CN27'
Y/G
CN6
AMBIENT TEMP.SENSOR(10K)
PIPING TEMP.SENSOR(10K)
CN14
POWER BUTTON
CN7
DISPLAY BOARD
W
B
R
CN5
UP-DOWN STEPMOTOR
ELECTRIC CONTROL BOX COVER
Y/G
Y/G
1(N) 2 (L) 3 (C)
GND GND GND
EVAPORATOR
TO OUTDOOR UNIT
R:Red B:Black
W:White BL:Blue
Y:Yellow BR:Brown
Y/G:Yellow/Green
Notes:
1. The dotted parts are optional.
2. The two pins of CN51 should be shorted, when the J6 is cuted off.
Model selection:
30K model-23 code - BM1 - 1 off 2 off
30K model-26 code - BM1 - 1 off 2 on
36K model-33 code - BM1 - 1 on 2 off
36K model-35 code - BM1 - 1 on 2 on
Notes:Before replacing the board, it is necessary to ensure that the machine is matched with the board code

Room and Coil Sensor Tables

R77° = 10KΩ±3%
B77°/122° = 3700K±3%

Temp. °F	Temp. °C	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance (°C)	
-22	-30	165.217	147.9497	132.3678	-1.94	1.75
-20.2	-29	155.5754	139.56	125.0806	-1.93	1.74
-18.4	-28	146.5609	131.7022	118.2434	-1.91	1.73
-16.6	-27	138.1285	124.3392	111.8256	-1.89	1.71
-14.8	-26	130.2371	117.4366	105.7989	-1.87	1.7
-13	-25	122.8484	110.9627	100.1367	-1.85	1.69
-11.2	-24	115.9272	104.8882	94.8149	-1.83	1.67
-9.4	-23	109.441	99.1858	89.8106	-1.81	1.66
-7.6	-22	103.3598	93.8305	85.1031	-1.8	1.64
-5.8	-21	97.6556	88.7989	80.6728	-1.78	1.63
-4	-20	92.3028	84.0695	76.5017	-1.76	1.62
-2.2	-19	87.2775	79.6222	72.5729	-1.74	1.6
-0.4	-18	82.5577	75.4384	68.871	-1.72	1.59
1.4	-17	78.123	71.501	65.3815	-1.7	1.57
3.2	-16	73.9543	67.7939	62.0907	-1.68	1.55
5	-15	70.0342	64.3023	58.9863	-1.66	1.54
6.8	-14	66.3463	61.0123	56.0565	-1.64	1.52
8.6	-13	62.8755	57.911	53.2905	-1.62	1.51
10.4	-12	59.6076	54.9866	50.6781	-1.6	1.49
12.2	-11	56.5296	52.2278	48.2099	-1.58	1.47
14	-10	53.6294	49.6244	45.8771	-1.56	1.46
15.8	-9	50.8956	47.1666	43.6714	-1.54	1.44
17.6	-8	48.3178	44.8454	41.5851	-1.51	1.42
19.4	-7	45.886	42.6525	39.6112	-1.49	1.4
21.2	-6	43.5912	40.58	37.7429	-1.47	1.39
23	-5	41.4249	38.6207	35.9739	-1.45	1.37
24.8	-4	39.3792	36.7676	34.2983	-1.43	1.35
26.6	-3	37.4465	35.0144	32.7108	-1.41	1.33
28.4	-2	35.6202	33.3552	31.2062	-1.38	1.31
30.2	-1	33.8936	31.7844	29.7796	-1.36	1.29
32	0	32.2608	30.2968	28.4267	-1.34	1.28
33.8	1	30.7162	28.8875	27.1431	-1.32	1.26
35.6	2	29.2545	27.5519	25.925	-1.29	1.24
37.4	3	27.8708	26.2858	24.7686	-1.27	1.22
39.2	4	26.5605	25.0851	23.6704	-1.25	1.2
41	5	25.3193	23.9462	22.6273	-1.23	1.18
42.8	6	24.1432	22.8656	21.6361	-1.2	1.16
44.6	7	23.0284	21.8398	20.6939	-1.18	1.14
46.4	8	21.9714	20.8659	19.7982	-1.15	1.12
48.2	9	20.9688	19.9409	18.9463	-1.13	1.09
50	10	20.0176	19.0621	18.1358	-1.11	1.07
51.8	11	19.1149	18.227	17.3646	-1.08	1.05
53.6	12	18.258	17.4331	16.6305	-1.06	1.03
55.4	13	17.4442	16.6782	15.9315	-1.03	1.01
57.2	14	16.6711	15.9601	15.2657	-1.01	0.99
59	15	15.9366	15.277	14.6315	-0.98	0.96
60.8	16	15.2385	14.6268	14.0271	-0.96	0.94

Room and Coil Sensor Tables

Temp. °F	Temp. °C	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance (°C)	
62.6	17	14.5748	14.0079	13.451	-0.93	0.92
64.4	18	13.9436	13.4185	12.9017	-0.91	0.9
66.2	19	13.3431	12.8572	12.3778	-0.88	0.87
68	20	12.7718	12.3223	11.878	-0.86	0.85
69.8	21	12.228	11.8126	11.4011	-0.83	0.83
71.6	22	11.7102	11.3267	10.9459	-0.81	0.8
73.4	23	11.2172	10.8634	10.5114	-0.78	0.78
75.2	24	10.7475	10.4216	10.0964	-0.75	0.75
77	25	10.3	10.0	9.7	-0.75	0.75
78.8	26	9.8975	9.5974	9.298	-0.76	0.76
80.6	27	9.5129	9.2132	8.9148	-0.8	0.8
82.4	28	9.1454	8.8465	8.5496	-0.84	0.83
84.2	29	8.7942	8.4964	8.2013	-0.87	0.86
86	30	8.4583	8.1621	7.8691	-0.91	0.9
87.8	31	8.1371	7.8428	7.5522	-0.95	0.93
89.6	32	7.8299	7.5377	7.2498	-0.98	0.97
91.4	33	7.5359	7.2461	6.9611	-1.02	1
93.2	34	7.2546	6.9673	6.6854	-1.06	1.04
95	35	6.9852	6.7008	6.4222	-1.1	1.07
96.8	36	6.7273	6.4459	6.1707	-1.13	1.11
98.6	37	6.4803	6.2021	5.9304	-1.17	1.14
100.4	38	6.2437	5.9687	5.7007	-1.21	1.18
102.2	39	6.017	5.7454	5.4812	-1.25	1.22
104	40	5.7997	5.5316	5.2712	-1.29	1.25
105.8	41	5.5914	5.3269	5.0704	-1.33	1.29
107.6	42	5.3916	5.1308	4.8783	-1.37	1.33
109.4	43	5.2001	4.943	4.6944	-1.41	1.36
111.2	44	5.0163	4.763	4.5185	-1.45	1.4
113	45	4.84	4.5905	4.35	-1.49	1.44
114.8	46	4.6708	4.4252	4.1887	-1.53	1.47
116.6	47	4.5083	4.2666	4.0342	-1.57	1.51
118.4	48	4.3524	4.1145	3.8862	-1.61	1.55
120.2	49	4.2026	3.9686	3.7443	-1.65	1.59
122	50	4.0588	3.8287	3.6084	-1.7	1.62
123.8	51	3.9206	3.6943	3.478	-1.74	1.66
125.6	52	3.7878	3.5654	3.3531	-1.78	1.7
127.4	53	3.6601	3.4416	3.2332	-1.82	1.74
129.2	54	3.5374	3.3227	3.1183	-1.87	1.78
131	55	3.4195	3.2085	3.0079	-1.91	1.82
132.8	56	3.306	3.0989	2.9021	-1.95	1.85
134.6	57	3.1969	2.9935	2.8005	-2	1.89
136.4	58	3.0919	2.8922	2.7029	-2.04	1.93
138.2	59	2.9909	2.7948	2.6092	-2.08	1.97
140	60	2.8936	2.7012	2.5193	-2.13	2.01
141.8	61	2.8	2.6112	2.4328	-2.17	2.05
143.6	62	2.7099	2.5246	2.3498	-2.22	2.09
145.4	63	2.6232	2.4413	2.27	-2.26	2.13
147.2	64	2.5396	2.3611	2.1932	-2.31	2.17

Room and Coil Sensor Tables

Temp. °F	Temp. °C	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance (°C)	
149	65	2.4591	2.284	2.1195	-2.36	2.21
150.8	66	2.3815	2.2098	2.0486	-2.4	2.25
152.6	67	2.3068	2.1383	1.9803	-2.45	2.29
154.4	68	2.2347	2.0695	1.9147	-2.49	2.34
156.2	69	2.1652	2.0032	1.8516	-2.54	2.38
158	70	2.0983	1.9393	1.7908	-2.59	2.42
159.8	71	2.0337	1.8778	1.7324	-2.63	2.46
161.6	72	1.9714	1.8186	1.6761	-2.68	2.5
163.4	73	1.9113	1.7614	1.6219	-2.73	2.54
165.2	74	1.8533	1.7064	1.5697	-2.78	2.58
167	75	1.7974	1.6533	1.5194	-2.83	2.63
168.8	76	1.7434	1.6021	1.471	-2.88	2.67
170.6	77	1.6913	1.5528	1.4243	-2.92	2.71
172.4	78	1.6409	1.5051	1.3794	-2.97	2.75
174.2	79	1.5923	1.4592	1.336	-3.02	2.8
176	80	1.5454	1.4149	1.2942	-3.07	2.84
177.8	81	1.5	1.3721	1.254	-3.12	2.88
179.6	82	1.4562	1.3308	1.2151	-3.17	2.93
181.4	83	1.4139	1.291	1.1776	-3.22	2.97
183.2	84	1.373	1.2525	1.1415	-3.27	3.01
185	85	1.3335	1.2153	1.1066	-3.32	3.06
186.8	86	1.2953	1.1794	1.073	-3.38	3.1
188.6	87	1.2583	1.1448	1.0405	-3.43	3.15
190.4	88	1.2226	1.1113	1.0092	-3.48	3.19
192.2	89	1.188	1.0789	0.9789	-3.53	3.24
194	90	1.1546	1.0476	0.9497	-3.58	3.28
195.8	91	1.1223	1.0174	0.9215	-3.64	3.33
197.6	92	1.091	0.9882	0.8942	-3.69	3.37
199.4	93	1.0607	0.9599	0.8679	-3.74	3.42
201.2	94	1.0314	0.9326	0.8424	-3.8	3.46
203	95	1.003	0.9061	0.8179	-3.85	3.51
204.8	96	0.9756	0.8806	0.7941	-3.9	3.55
206.6	97	0.949	0.8558	0.7711	-3.96	3.6
208.4	98	0.9232	0.8319	0.7489	-4.01	3.64
210.2	99	0.8983	0.8088	0.7275	-4.07	3.69
212	100	0.8741	0.7863	0.7067	-4.12	3.74
213.8	101	0.8507	0.7646	0.6867	-4.18	3.78
215.6	102	0.8281	0.7436	0.6672	-4.23	3.83
217.4	103	0.8061	0.7233	0.6484	-4.29	3.88
219.2	104	0.7848	0.7036	0.6303	-4.34	3.92
221	105	0.7641	0.6845	0.6127	-4.4	3.97
222.8	106	0.7441	0.6661	0.5957	-4.46	4.02
224.6	107	0.7247	0.6482	0.5792	-4.51	4.07
226.4	108	0.7059	0.6308	0.5632	-4.57	4.12
228.2	109	0.6877	0.614	0.5478	-4.63	4.16
230	110	0.67	0.5977	0.5328	-4.69	4.21
231.8	111	0.6528	0.582	0.5183	-4.74	4.26
233.6	112	0.6361	0.5667	0.5043	-4.8	4.31

Room and Coil Sensor Tables

Temp. °F	Temp. °C	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance (°C)	
235.4	113	0.62	0.5518	0.4907	-4.86	4.36
237.2	114	0.6043	0.5374	0.4775	-4.92	4.41
239	115	0.5891	0.5235	0.4648	-4.98	4.45
240.8	116	0.5743	0.51	0.4524	-5.04	4.5
242.6	117	0.56	0.4968	0.4404	-5.1	4.55
244.4	118	0.546	0.4841	0.4288	-5.16	4.6
246.2	119	0.5325	0.4717	0.4175	-5.22	4.65
248	120	0.5194	0.4597	0.4066	-5.28	4.7

Ambient, Defrost, Pipe Sensor Tables

Temp. °F	Temp. °C	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance (°C)	
-22	-30	165.2170	147.9497	132.3678	-1.94	1.75
-20	-29	155.5754	139.5600	125.0806	-1.93	1.74
-18	-28	146.5609	131.7022	118.2434	-1.91	1.73
-17	-27	138.1285	124.3392	111.8256	-1.89	1.71
-15	-26	130.2371	117.4366	105.7989	-1.87	1.70
-13	-25	122.8484	110.9627	100.1367	-1.85	1.69
-11	-24	115.9272	104.8882	94.8149	-1.83	1.67
-9	-23	109.4410	99.1858	89.8106	-1.81	1.66
-8	-22	103.3598	93.8305	85.1031	-1.80	1.64
-6	-21	97.6556	88.7989	80.6728	-1.78	1.63
-4	-20	92.3028	84.0695	76.5017	-1.76	1.62
-2	-19	87.2775	79.6222	72.5729	-1.74	1.60
0	-18	82.5577	75.4384	68.8710	-1.72	1.59
1	-17	78.1230	71.5010	65.3815	-1.70	1.57
3	-16	73.9543	67.7939	62.0907	-1.68	1.55
5	-15	70.0342	64.3023	58.9863	-1.66	1.54
7	-14	66.3463	61.0123	56.0565	-1.64	1.52
9	-13	62.8755	57.9110	53.2905	-1.62	1.51
10	-12	59.6076	54.9866	50.6781	-1.60	1.49
12	-11	56.5296	52.2278	48.2099	-1.58	1.47
14	-10	53.6294	49.6244	45.8771	-1.56	1.46
16	-9	50.8956	47.1666	43.6714	-1.54	1.44
18	-8	48.3178	44.8454	41.5851	-1.51	1.42
19	-7	45.8860	42.6525	39.6112	-1.49	1.40
21	-6	43.5912	40.5800	37.7429	-1.47	1.39
23	-5	41.4249	38.6207	35.9739	-1.45	1.37
25	-4	39.3792	36.7676	34.2983	-1.43	1.35
27	-3	37.4465	35.0144	32.7108	-1.41	1.33
28	-2	35.6202	33.3552	31.2062	-1.38	1.31
30	-1	33.8936	31.7844	29.7796	-1.36	1.29
32	0	32.2608	30.2968	28.4267	-1.34	1.28
34	1	30.7162	28.8875	27.1431	-1.32	1.26
36	2	29.2545	27.5519	25.9250	-1.29	1.24
37	3	27.8708	26.2858	24.7686	-1.27	1.22
39	4	26.5605	25.0851	23.6704	-1.25	1.20
41	5	25.3193	23.9462	22.6273	-1.23	1.18
43	6	24.1432	22.8656	21.6361	-1.20	1.16

Ambient, Defrost, Pipe Sensor Tables

Temp. °F	Temp. °C	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance (°C)	
45	7	23.0284	21.8398	20.6939	-1.18	1.14
46	8	21.9714	20.8659	19.7982	-1.15	1.12
48	9	20.9688	19.9409	18.9463	-1.13	1.09
50	10	20.0176	19.0621	18.1358	-1.11	1.07
52	11	19.1149	18.2270	17.3646	-1.08	1.05
54	12	18.2580	17.4331	16.6305	-1.06	1.03
55	13	17.4442	16.6782	15.9315	-1.03	1.01
57	14	16.6711	15.9601	15.2657	-1.01	0.99
59	15	15.9366	15.2770	14.6315	-0.98	0.96
61	16	15.2385	14.6268	14.0271	-0.96	0.94
63	17	14.5748	14.0079	13.4510	-0.93	0.92
64	18	13.9436	13.4185	12.9017	-0.91	0.90
66	19	13.3431	12.8572	12.3778	-0.88	0.87
68	20	12.7718	12.3223	11.8780	-0.86	0.85
70	21	12.2280	11.8126	11.4011	-0.83	0.83
72	22	11.7102	11.3267	10.9459	-0.81	0.80
73	23	11.2172	10.8634	10.5114	-0.78	0.78
75	24	10.7475	10.4216	10.0964	-0.75	0.75
77	25	10.3000	10.0000	9.7000	-0.75	0.75
79	26	9.8975	9.5974	9.2980	-0.76	0.76
81	27	9.5129	9.2132	8.9148	-0.80	0.80
82	28	9.1454	8.8465	8.5496	-0.84	0.83
84	29	8.7942	8.4964	8.2013	-0.87	0.86
86	30	8.4583	8.1621	7.8691	-0.91	0.90
88	31	8.1371	7.8428	7.5522	-0.95	0.93
90	32	7.8299	7.5377	7.2498	-0.98	0.97
91	33	7.5359	7.2461	6.9611	-1.02	1.00
93	34	7.2546	6.9673	6.6854	-1.06	1.04
95	35	6.9852	6.7008	6.4222	-1.10	1.07
97	36	6.7273	6.4459	6.1707	-1.13	1.11
99	37	6.4803	6.2021	5.9304	-1.17	1.14
100	38	6.2437	5.9687	5.7007	-1.21	1.18
102	39	6.0170	5.7454	5.4812	-1.25	1.22
104	40	5.7997	5.5316	5.2712	-1.29	1.25
106	41	5.5914	5.3269	5.0704	-1.33	1.29
108	42	5.3916	5.1308	4.8783	-1.37	1.33
109	43	5.2001	4.9430	4.6944	-1.41	1.36
111	44	5.0163	4.7630	4.5185	-1.45	1.40
113	45	4.8400	4.5905	4.3500	-1.49	1.44
115	46	4.6708	4.4252	4.1887	-1.53	1.47
117	47	4.5083	4.2666	4.0342	-1.57	1.51
118	48	4.3524	4.1145	3.8862	-1.61	1.55
120	49	4.2026	3.9686	3.7443	-1.65	1.59
122	50	4.0588	3.8287	3.6084	-1.70	1.62
124	51	3.9206	3.6943	3.4780	-1.74	1.66
126	52	3.7878	3.5654	3.3531	-1.78	1.70
127	53	3.6601	3.4416	3.2332	-1.82	1.74
129	54	3.5374	3.3227	3.1183	-1.87	1.78

Ambient, Defrost, Pipe Sensor Tables

Temp. °F	Temp. °C	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance (°C)	
131	55	3.4195	3.2085	3.0079	-1.91	1.82
133	56	3.3060	3.0989	2.9021	-1.95	1.85
135	57	3.1969	2.9935	2.8005	-2.00	1.89
136	58	3.0919	2.8922	2.7029	-2.04	1.93
138	59	2.9909	2.7948	2.6092	-2.08	1.97
140	60	2.8936	2.7012	2.5193	-2.13	2.01
142	61	2.8000	2.6112	2.4328	-2.17	2.05
144	62	2.7099	2.5246	2.3498	-2.22	2.09
145	63	2.6232	2.4413	2.2700	-2.26	2.13
147	64	2.5396	2.3611	2.1932	-2.31	2.17
149	65	2.4591	2.2840	2.1195	-2.36	2.21
151	66	2.3815	2.2098	2.0486	-2.40	2.25
153	67	2.3068	2.1383	1.9803	-2.45	2.29
154	68	2.2347	2.0695	1.9147	-2.49	2.34
156	69	2.1652	2.0032	1.8516	-2.54	2.38
158	70	2.0983	1.9393	1.7908	-2.59	2.42
160	71	2.0337	1.8778	1.7324	-2.63	2.46
162	72	1.9714	1.8186	1.6761	-2.68	2.50
163	73	1.9113	1.7614	1.6219	-2.73	2.54
165	74	1.8533	1.7064	1.5697	-2.78	2.58
167	75	1.7974	1.6533	1.5194	-2.83	2.63
169	76	1.7434	1.6021	1.4710	-2.88	2.67
171	77	1.6913	1.5528	1.4243	-2.92	2.71
172	78	1.6409	1.5051	1.3794	-2.97	2.75
174	79	1.5923	1.4592	1.3360	-3.02	2.80
176	80	1.5454	1.4149	1.2942	-3.07	2.84
178	81	1.5000	1.3721	1.2540	-3.12	2.88
180	82	1.4562	1.3308	1.2151	-3.17	2.93
181	83	1.4139	1.2910	1.1776	-3.22	2.97
183	84	1.3730	1.2525	1.1415	-3.27	3.01
185	85	1.3335	1.2153	1.1066	-3.32	3.06
187	86	1.2953	1.1794	1.0730	-3.38	3.10
189	87	1.2583	1.1448	1.0405	-3.43	3.15
190	88	1.2226	1.1113	1.0092	-3.48	3.19
192	89	1.1880	1.0789	0.9789	-3.53	3.24
194	90	1.1546	1.0476	0.9497	-3.58	3.28
196	91	1.1223	1.0174	0.9215	-3.64	3.33
198	92	1.0910	0.9882	0.8942	-3.69	3.37
199	93	1.0607	0.9599	0.8679	-3.74	3.42
201	94	1.0314	0.9326	0.8424	-3.80	3.46
203	95	1.0030	0.9061	0.8179	-3.85	3.51
205	96	0.9756	0.8806	0.7941	-3.90	3.55
207	97	0.9490	0.8558	0.7711	-3.96	3.60
208	98	0.9232	0.8319	0.7489	-4.01	3.64
210	99	0.8983	0.8088	0.7275	-4.07	3.69
212	100	0.8741	0.7863	0.7067	-4.12	3.74
214	101	0.8507	0.7646	0.6867	-4.18	3.78
216	102	0.8281	0.7436	0.6672	-4.23	3.83

Ambient, Defrost, Pipe Sensor Tables

Temp. °F	Temp. °C	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance (°C)	
217	103	0.8061	0.7233	0.6484	-4.29	3.88
219	104	0.7848	0.7036	0.6303	-4.34	3.92
221	105	0.7641	0.6845	0.6127	-4.40	3.97
223	106	0.7441	0.6661	0.5957	-4.46	4.02
225	107	0.7247	0.6482	0.5792	-4.51	4.07
226	108	0.7059	0.6308	0.5632	-4.57	4.12
228	109	0.6877	0.6140	0.5478	-4.63	4.16
230	110	0.6700	0.5977	0.5328	-4.69	4.21
232	111	0.6528	0.5820	0.5183	-4.74	4.26
234	112	0.6361	0.5667	0.5043	-4.80	4.31
235	113	0.6200	0.5518	0.4907	-4.86	4.36
237	114	0.6043	0.5374	0.4775	-4.92	4.41
239	115	0.5891	0.5235	0.4648	-4.98	4.45
241	116	0.5743	0.5100	0.4524	-5.04	4.50
243	117	0.5600	0.4968	0.4404	-5.10	4.55
244	118	0.5460	0.4841	0.4288	-5.16	4.60
246	119	0.5325	0.4717	0.4175	-5.22	4.65
248	120	0.5194	0.4597	0.4066	-5.28	4.70

Discharge Sensor Tables

R176° = 50KΩ±3%
B77°/176° = 4450K±3%

Temp.(°F)	Temp.(°C)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance	
-22	-30	14646.0505	12061.7438	9924.4999	-2.96	2.45
-20.2	-29	13654.1707	11267.873	9290.2526	-2.95	2.44
-18.4	-28	12735.8378	10531.3695	8700.6388	-2.93	2.44
-16.6	-27	11885.1336	9847.724	8152.2338	-2.92	2.43
-14.8	-26	11096.6531	9212.8101	7641.8972	-2.91	2.42
-13	-25	10365.4565	8622.8491	7166.7474	-2.9	2.42
-11.2	-24	9687.027	8074.3787	6724.1389	-2.88	2.41
-9.4	-23	9057.2314	7564.2244	6311.6413	-2.87	2.41
-7.6	-22	8472.2852	7089.4741	5927.0206	-2.86	2.4
-5.8	-21	7928.7217	6647.4547	5568.2222	-2.84	2.39
-4	-20	7423.3626	6235.7109	5233.3554	-2.83	2.39
-2.2	-19	6953.293	5851.9864	4920.6791	-2.82	2.38
-0.4	-18	6515.8375	5494.2064	4628.5894	-2.8	2.37
1.4	-17	6108.5393	5160.4621	4355.6078	-2.79	2.37
3.2	-16	5729.1413	4848.9963	4100.3708	-2.77	2.36
5	-15	5375.5683	4558.1906	3861.6201	-2.76	2.35
6.8	-14	5045.9114	4286.5535	3638.1938	-2.75	2.34
8.6	-13	4738.4141	4032.7098	3429.0191	-2.73	2.34
10.4	-12	4451.4586	3795.391	3233.1039	-2.72	2.33
12.2	-11	4183.5548	3573.426	3049.5312	-2.7	2.32
14	-10	3933.3289	3365.7336	2877.4527	-2.69	2.31
15.8	-9	3699.5139	3171.3148	2716.0828	-2.67	2.3
17.6	-8	3480.9407	2989.246	2564.6945	-2.66	2.29
19.4	-7	3276.5302	2818.6731	2422.6139	-2.64	2.28
21.2	-6	3085.2854	2658.8058	2289.2164	-2.63	2.28
23	-5	2906.2851	2508.9126	2163.923	-2.61	2.27

Discharge Sensor Tables

Temp.(°F)	Temp.(°C)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance	
24.8	-4	2738.6777	2368.3158	2046.1961	-2.6	2.26
26.6	-3	2581.6752	2236.3876	1935.5371	-2.58	2.25
28.4	-2	2434.5487	2112.5459	1831.4826	-2.56	2.24
30.2	-1	2296.623	1996.2509	1733.6024	-2.55	2.23
32	0	2167.273	1887.0018	1641.4966	-2.53	2.22
33.8	1	2045.9191	1784.3336	1554.7931	-2.52	2.21
35.6	2	1932.0242	1687.8144	1473.146	-2.5	2.2
37.4	3	1825.0899	1597.0431	1396.2333	-2.48	2.19
39.2	4	1724.654	1511.6468	1323.7551	-2.47	2.17
41	5	1630.287	1431.2787	1255.4324	-2.45	2.16
42.8	6	1541.5904	1355.6163	1191.0048	-2.43	2.15
44.6	7	1458.1938	1284.3593	1130.2298	-2.41	2.14
46.4	8	1379.7528	1217.2282	1072.8813	-2.4	2.13
48.2	9	1305.9472	1153.9626	1018.7481	-2.38	2.12
50	10	1236.4792	1094.32	967.6334	-2.36	2.11
51.8	11	1171.0715	1038.0743	919.3533	-2.35	2.09
53.6	12	1109.4661	985.0146	873.7359	-2.33	2.08
55.4	13	1051.4226	934.944	830.621	-2.31	2.07
57.2	14	996.7169	887.6792	789.8583	-2.29	2.06
59	15	945.1404	843.0486	751.3077	-2.27	2.04
60.8	16	896.4981	800.8922	714.838	-2.26	2.03
62.6	17	850.6086	761.0603	680.3265	-2.24	2.02
64.4	18	807.3024	723.4134	647.658	-2.22	2
66.2	19	766.4212	687.8205	616.7252	-2.2	1.99
68	20	727.8172	654.1596	587.4271	-2.18	1.98
69.8	21	691.3524	622.3161	559.6694	-2.16	1.96
71.6	22	656.8979	592.1831	533.3634	-2.14	1.95
73.4	23	624.3328	563.6604	508.4261	-2.12	1.93
75.2	24	593.5446	536.654	484.7796	-2.1	1.92
77	25	564.4275	511.076	462.351	-2.09	1.9
78.8	26	536.9865	486.9352	441.1516	-2.07	1.89
80.6	27	511.0105	464.05	421.0258	-2.05	1.87
82.4	28	486.4151	442.3499	401.9146	-2.03	1.86
84.2	29	463.1208	421.7683	383.7626	-2.01	1.84
86	30	441.0535	402.243	366.5175	-1.99	1.83
87.8	31	420.1431	383.7151	350.1301	-1.97	1.81
89.6	32	400.3242	366.1295	334.5542	-1.95	1.8
91.4	33	381.535	349.4341	319.746	-1.93	1.78
93.2	34	363.7176	333.5801	305.6645	-1.9	1.76
95	35	346.8176	318.5216	292.2709	-1.88	1.75
96.8	36	330.7839	304.2151	279.5286	-1.86	1.73
98.6	37	315.5682	290.6199	267.4031	-1.84	1.71
100.4	38	301.1254	277.6976	255.862	-1.82	1.7
102.2	39	287.4128	265.4119	244.8745	-1.8	1.68
104	40	274.3905	253.7288	234.4118	-1.78	1.66
105.8	41	262.0206	242.6161	224.4465	-1.76	1.64
107.6	42	250.2676	232.0436	214.9529	-1.74	1.63
109.4	43	239.0983	221.9825	205.9065	-1.71	1.61
111.2	44	228.4809	212.406	197.2844	-1.69	1.59

Discharge Sensor Tables

Temp.(°F)	Temp.(°C)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance	
113	45	218.386	203.2887	189.0648	-1.67	1.57
114.8	46	208.7855	194.6066	181.2273	-1.65	1.55
116.6	47	199.6531	186.3369	173.7524	-1.63	1.54
118.4	48	190.9639	178.4584	166.6217	-1.6	1.52
120.2	49	182.6945	170.9508	159.8181	-1.58	1.5
122	50	174.8228	163.7951	153.3249	-1.56	1.48
123.8	51	167.328	156.9733	147.1268	-1.53	1.46
125.6	52	160.1904	150.4683	141.209	-1.51	1.44
127.4	53	153.3914	144.2641	135.5577	-1.49	1.42
129.2	54	146.9136	138.3454	130.1598	-1.47	1.4
131	55	140.7403	132.698	125.0027	-1.44	1.38
132.8	56	134.8559	127.3081	120.0746	-1.42	1.36
134.6	57	129.2457	122.163	115.3645	-1.4	1.34
136.4	58	123.8956	117.2504	110.8618	-1.37	1.32
138.2	59	118.7926	112.5589	106.5564	-1.35	1.3
140	60	113.9241	108.0776	102.4388	-1.32	1.28
141.8	61	109.2784	103.7961	98.5	-1.3	1.26
143.6	62	104.8443	99.7046	94.7315	-1.28	1.23
145.4	63	100.6112	95.7939	91.1253	-1.25	1.21
147.2	64	96.5692	92.0553	87.6735	-1.23	1.19
149	65	92.7088	88.4805	84.369	-1.2	1.17
150.8	66	89.0211	85.0614	81.2048	-1.18	1.15
152.6	67	85.4976	81.7908	78.1744	-1.15	1.12
154.4	68	82.1303	78.6615	75.2715	-1.13	1.1
156.2	69	78.9116	75.6668	72.4902	-1.1	1.08
158	70	75.8343	72.8004	69.8249	-1.08	1.06
159.8	71	72.8916	70.0561	67.2703	-1.05	1.03
161.6	72	70.077	67.4283	64.8213	-1.03	1.01
163.4	73	67.3844	64.9115	62.4731	-1	0.99
165.2	74	64.808	62.5006	60.2211	-0.98	0.96
167	75	62.3423	60.1906	58.0609	-0.95	0.94
168.8	76	59.9821	57.977	55.9885	-0.92	0.92
170.6	77	57.7223	55.8552	53.9998	-0.9	0.89
172.4	78	55.5583	53.821	52.0912	-0.87	0.87
174.2	79	53.4856	51.8706	50.2591	-0.85	0.84
176	80	51.5	50.0	48.5	-0.85	0.84
177.8	81	49.7063	48.2057	46.7083	-0.85	0.85
179.6	82	47.9835	46.4842	44.9911	-0.89	0.89
181.4	83	46.3286	44.8323	43.3452	-0.93	0.92
183.2	84	44.7385	43.2468	41.7672	-0.96	0.95
185	85	43.2105	41.7248	40.254	-1	0.99
186.8	86	41.7386	40.2604	38.7996	-1.03	1.02
188.6	87	40.3241	38.8545	37.4048	-1.07	1.06
190.4	88	38.9643	37.5045	36.0668	-1.11	1.09
192.2	89	37.6569	36.2078	34.7831	-1.14	1.13
194	90	36.3996	34.9622	33.5513	-1.18	1.16
195.8	91	35.1903	33.7653	32.3689	-1.22	1.19
197.6	92	34.0269	32.6151	31.2338	-1.26	1.23
199.4	93	32.9075	31.5096	30.1438	-1.3	1.27

Discharge Sensor Tables

Temp.(°F)	Temp.(°C)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance	
201.2	94	31.8302	30.4467	29.097	-1.33	1.3
203	95	30.7933	29.4246	28.0915	-1.37	1.34
204.8	96	29.795	28.4417	27.1254	-1.41	1.37
206.6	97	28.8337	27.4961	26.197	-1.45	1.41
208.4	98	27.9078	26.5864	25.3048	-1.49	1.44
210.2	99	27.016	25.711	24.447	-1.53	1.48
212	100	26.1569	24.8685	23.6222	-1.57	1.52
213.8	101	25.329	24.0574	22.8291	-1.61	1.55
215.6	102	24.5311	23.2765	22.0662	-1.65	1.59
217.4	103	23.762	22.5245	21.3323	-1.69	1.63
219.2	104	23.0205	21.8002	20.6261	-1.73	1.66
221	105	22.3055	21.1025	19.9465	-1.77	1.7
222.8	106	21.6159	20.4303	19.2924	-1.81	1.74
224.6	107	20.9508	19.7825	18.6626	-1.85	1.77
226.4	108	20.3091	19.1582	18.0563	-1.89	1.81
228.2	109	19.6899	18.5564	17.4723	-1.93	1.85
230	110	19.0924	17.9761	16.9098	-1.98	1.89
231.8	111	18.5157	17.4166	16.368	-2.02	1.93
233.6	112	17.959	16.8769	15.8458	-2.06	1.96
235.4	113	17.4214	16.3564	15.3427	-2.1	2
237.2	114	16.9023	15.8542	14.8577	-2.15	2.04
239	115	16.401	15.3696	14.3902	-2.19	2.08
240.8	116	15.9167	14.902	13.9394	-2.23	2.12
242.6	117	15.4489	14.4506	13.5047	-2.27	2.16
244.4	118	14.9968	14.0149	13.0855	-2.32	2.19
246.2	119	14.5599	13.5942	12.6811	-2.36	2.23
248	120	14.1376	13.1879	12.2909	-2.41	2.27
249.8	121	13.7294	12.7955	11.9144	-2.45	2.31
251.6	122	13.3347	12.4165	11.551	-2.5	2.35
253.4	123	12.9531	12.0503	11.2003	-2.54	2.39
255.2	124	12.584	11.6965	10.8617	-2.58	2.43
257	125	12.227	11.3545	10.5348	-2.63	2.47
258.8	126	11.8817	11.024	10.2191	-2.68	2.51
260.6	127	11.5475	10.7046	9.9142	-2.72	2.55
262.4	128	11.2242	10.3957	9.6197	-2.77	2.59
264.2	129	10.9112	10.097	9.3352	-2.81	2.63
266	130	10.6084	9.8082	9.0602	-2.86	2.67
267.8	131	10.3151	9.5288	8.7945	-2.91	2.71
269.6	132	10.0312	9.2586	8.5378	-2.95	2.75
271.4	133	9.7563	8.9971	8.2895	-3	2.8
273.2	134	9.4901	8.7441	8.0495	-3.05	2.84
275	135	9.2322	8.4993	7.8175	-3.09	2.88
276.8	136	8.9824	8.2623	7.5931	-3.14	2.92
278.6	137	8.7404	8.0329	7.376	-3.19	2.96
280.4	138	8.5059	7.8108	7.166	-3.24	3
282.2	139	8.2787	7.5958	6.9629	-3.29	3.04
284	140	8.0584	7.3875	6.7664	-3.33	3.09

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GE APPLIANCES
a Haier *company*

Model #:

AW24TL2HFA	1U24TL2HFA
AW30TL2HFA	1U3036TL2HFA
AW36TL2HFA	ASH124TRDFA
ASYW24TRDFA	ASH3036TRDFA
ASYW30TRDFA	
ASYW36TRDFA	

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