KSAIC0801230

24V Ductless Interface

INSTALLATION INSTRUCTIONS

IMPORTANT: Read and become familiar with these instructions before beginning the installation.

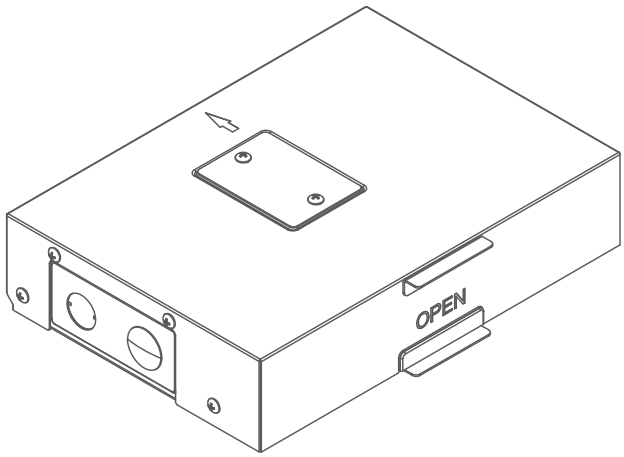


Fig. 1 — 24V Ductless Interface

NOTE: Images are for illustration purposes only. Actual models may differ slightly.

TABLE OF CONTENTS

PAGE

SAFETY CONSIDERATIONS....2
PREPARATION BEFORE INSTALLING....3
T1 Ambient Targeting Information....3
24 Volt Interface Adapter....3
ACCESSORIES....3
DIMENSIONS....4
CLEARANCES....4
INSTALLATION....5
Installation Location....5
SYSTEM CONFIGURATION....6
SPECIFICATIONS....8
Wiring Specifications....8
APPLICATION....8
Notice....8
DIP SWITCH DEFINITIONS....8
Dial Codes - Cooling/Heating Fan Speeds....8
Dial Codes - Switch Settings....9
COMPATIBILITY....10
INTERFACE INPUT DESCRIPTION....10
24V SIGNAL CHART 1....11
24V SIGNAL CHART 2....12

SAFETY CONSIDERATIONS

Read these instructions thoroughly and follow all warnings or cautions included in the literature and attached to the unit. Consult the local building codes and National Electrical Code (NEC) for special requirements. Recognize safety information.

This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words: **DANGER**, **WARNING**, and **CAUTION**. These words are used with the safety-alert symbol.

DANGER identifies the most serious hazards which may result in severe personal injury or death. **WARNING** signifies hazards which could also result in personal injury or death. **CAUTION** is used to identify unsafe practices which may result in minor personal injury or product and property damage. **NOTE** is used to highlight suggestions which result in enhanced installation, reliability, or operation.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before beginning any modification or installation of this kit, ensure the main electrical disconnect is in the **OFF** position.

Ensure the power is not connected to the fan coil unit. On some systems, both the fan coil and the outdoor unit may be on the same disconnect. Tag the disconnect switch with a suitable warning label. There may be more than one disconnect.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this warning may result in equipment damage.

DO NOT install the wired controller in an area subjected to excessive steam, oil or sulfide gas. Doing so may cause the controller to deform and/or fail.

⚠ CAUTION

INSTALLATION

Entrust a licensed contractor to install the unit. Installation by unskilled persons may lead to improper installation, electric shock, or fire. Re-installation must be performed by authorized professionals. Non-compliance may lead to electric shock or fire.

PREPARATION BEFORE INSTALLING

T1 Ambient Targeting Information

The T1 ambient sensor/connection at the interface can be utilized for relative targeting in the conditioned space. When connected, the interface T1 sensor will store the ambient temperature value when the thermostat demand is removed to provide a target for the next demand from the thermostat that the system will learn to operate efficiently. The indoor unit will display the acquired target during the next demand and will modulate to maintain this target. The temperature displayed will change as the indoor temperature changes for each subsequent target. If the end user changes the thermostat target temperature to increase demand the system will reset and raise the system capacity after the demand has been removed or after 30 minutes of continuous run time (see Table 3 Dial Codes for more information). The system will also reset if the mode of operation has been changed, or a power cycle has been initiated..

Installation pre-planning should be considered regarding the desired distance of the interface installation location to allow for the T1 sensor from the interface to be utilized within the conditioned space. If the T1 sensor from the 801 interface is not connected, the system will operate but will not utilize the relative targeting capability of the interface. A default target for cooling and heating will be used to allow for the system to operate if the interface T1 sensor is not used.

24 Volt Interface Adapter

This adapter is designed for controlling Ductless (DLS) products designed to use a 24V thermostat.

- Any installation of third-party Furnaces /Coil/IDU/ODU applications are not supported with R454b systems.
- Compatible with RS485 communication methods.

⚠ WARNING



EXPLOSION HAZARD

- Wires must be properly sized according to the NEC/NFPA 70, CEC and all prevailing codes, ordinances and standards.
- All conductors must be installed through conduit or with a strain relief eliminating stress on the wire following installation which may result in wire damage and/or overheating with a potential for fire.
- Installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.
- All wiring to be rated for the control box amperage rating.
- All wiring installed to meet general industry standards and practices.
- Do not install adapter near flammable liquids or gases.
- Installation, Maintenance or Repair must comply with all safety conditions

⚠ CAUTION

- When connecting with RS 485 communication to the outdoor unit, shielded wire must be used and grounded at one end only.
- When using shielded wire, the cable should be grounded at one end to reduce EMI.
- T1 sensor cable shall not exceed 23ft. (7 m).
- Read this manual carefully before installing or operating your new air conditioning unit. Make sure to save this manual for future reference.

ACCESSORIES

The system is shipped with the following accessories (see Table 1). Use all of the installation parts and accessories to install the system. Improper installation may result in, electrical shock and fire, or cause the equipment to fail.

Keep the installation manual in a safe place and do not discard any accessories until the installation has been completed.

Table 1 — Included Accessories

NO.	DESCRIPTION	QTY	REMARKS
1	Screws	3	M4*35 (For mounting on the wall)
2	Screws	4	M*16
3	Anchors	3	For mounting on the wall
4	Installation and Owners Manual	1	
5	Room Temperature Sensor (T1)	1	RCD part number 11201007006664
6	Display Label	1	For shading
7	CN 24 Connector Wire	1	
8	CN 40 Connector Wire	1	RCD part number 17401204000184
9	XYE Connector Wire	1	
10	19.5 ft. (5.9m) CN24 Extension	1	RCD part number 17401204000769
11	16ft. (5m) Return Air Thermistor Assembly Extension Wires	1	RCD part number 17401204010126
12	208/230v 40VA transformer	1	RCD part number 11203103000087

NOTE: For 115V Ductless applications, the 24V transformer (Part #11203103000393) must be replaced in the field.

NOTE: CN 24 can be extended up to 66 feet (20.1m) -use part number 17401204000769 or 17401204011789 to extend CN24.

Table 2 — Optional Accessories (not included)

NO.	DESCRIPTION	QTY
1	Conduit (insulating sleeve and tightening screw)	1

DIMENSIONS

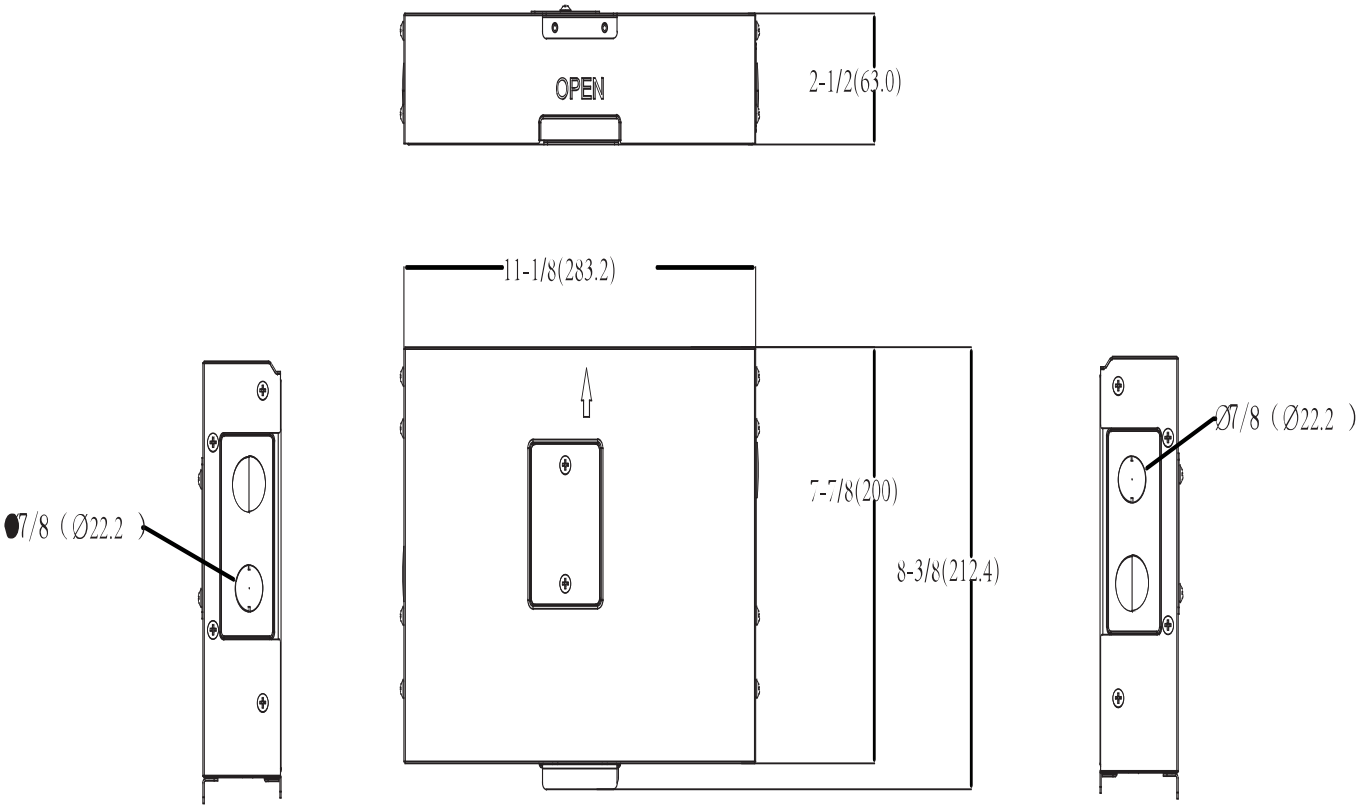


Fig. 2 — 24V Interface Structure Size

CLEARANCES

- Wires must be properly sized according to the NEC/NFPA 70, CEC and all prevailing codes, ordinances and standards.
- All conductors must be installed with a strain relief eliminating stress on the wire following installation which may result in wire damage and/or overheating with a potential for fire.
- Installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.
- All wiring to be rated for the control box amperage rating.
- All wiring installed to meet general industry standards and practices.
- Do not install adapter near flammable liquids or gases.
- Do not operate the unit with wet hands, as this could lead to electrical shock.

IMPORTANT: This interface must be installed indoors in an area free from drips and moisture. This 24V INTERFACE KIT must be installed indoors in a dry area away from moisture and condensation. Maintain at least 5.9"(150mm) spacing to walls and ensure it is elevated from areas that can retain water.

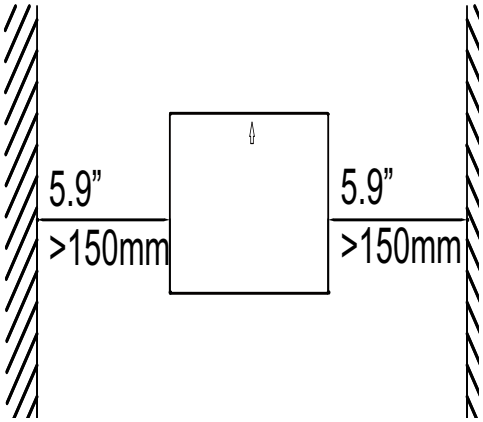


Fig. 3 — Clearances

INSTALLATION

Installation Location

⚠ WARNING

FIRE HAZARD
DO NOT install the 24V INTERFACE KIT near flammable liquids or gases such as gasoline or hydrogen sulfide. Doing so creates a fire hazard.

The 24V INTERFACE KIT is rated for indoor mounting only. It is recommended that the kit installation be as close as possible to the indoor unit and the thermostat.

STEP 1

Remove the cover of the 24V INTERFACE KIT by removing all 8 exposed screws with a Phillips head screwdriver. Next, remove the cover by rotating up (NOTE: this may be tight due to the foam gasket seal).

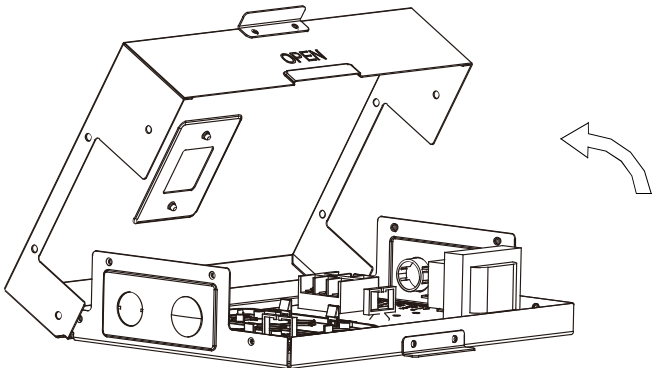


Fig. 4 — Remove Cover

NOTE: Minimum clearance required around the kit is 7"(180mm).

STEP 2

Mount the back plate of the 24V INTERFACE KIT. Mount 24V INTERFACE KIT vertically, fasten the back plate to the wall with 3 screws (M4*35) and anchors.

⚠ CAUTION

Place the unit on a flat surface. Be careful not to distort the back plate of the 24V INTERFACE KIT by over tightening the screws. When installed vertically, the direction of the arrow, must point up.

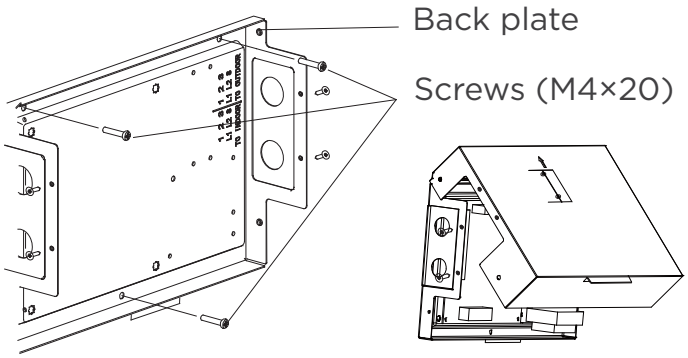


Fig. 5 — Installation Mount View

STEP 3

WIRING PRECAUTIONS

⚠ CAUTION

The power to the unit must be disconnected before any wiring. Make note to review the different application (scenarios) options for proper wiring. Make sure strain relief and proper conduit are used when connecting to the box.

POWER WIRING OPTIONS

208/230 VAC Factory Supplied Transformer

Power source, wiring, conduit and service disconnect to be supplied by field and conform to NEC and local codes.

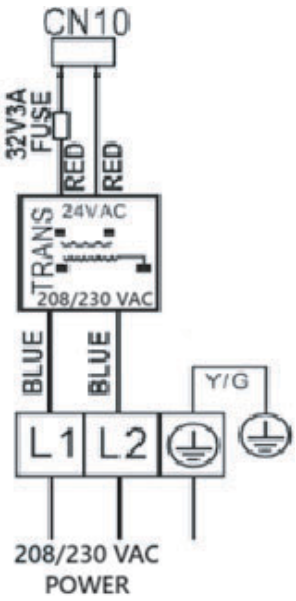


Fig. 6 —208/230 VAC Factory Supplied Transformer

STEP 4

After the wiring is complete, reattach the cover, being sure not to pinch any wiring and tightening the 6 attachment screws.

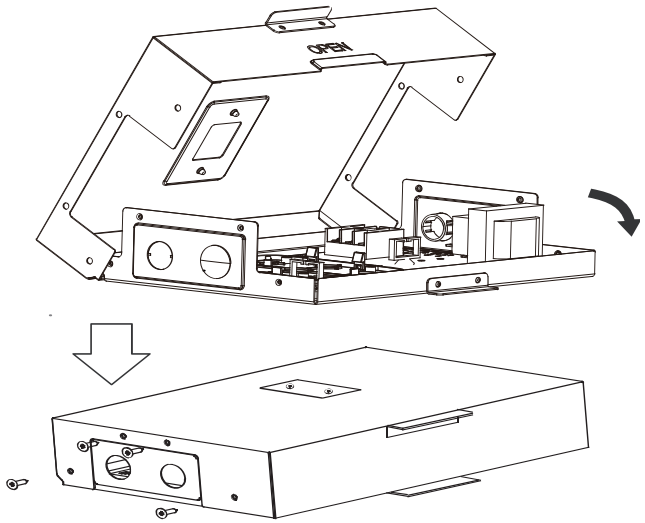


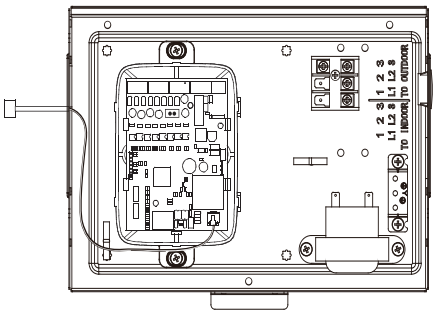
Fig. 7 — Reattach the Cover

SYSTEM CONFIGURATION

Once configured, only the 24V connected thermostat control should be used to operate the air conditioning system. If other controllers had been connected, please remove. However, the Swing and LED functions on some indoor units will remain functional.

STEP 5

Wire the indoor unit using the appropriate connection option.



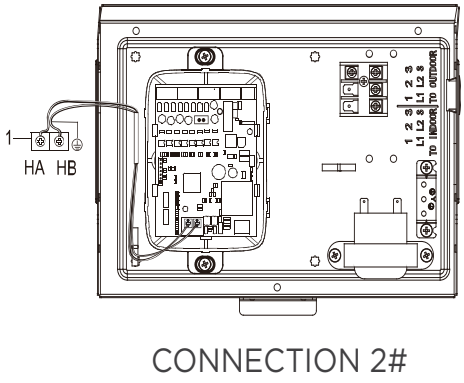


Fig. 8 —Connection Options

NOTE: Connection # 1 connects to a multi-function board via a 4-core wire X-Y-E (power supply).

Connection #1

For Connection #1, connect the CN24 cable (4 core XYE cable) to XYE on the indoor multi-function board, then connect the other side of the cable to CN24 on the interface. Indoor units (R-410A) with a main control board CN40 connection (slim ducts, cassettes, 18K and above consoles) can utilize connection #1 for R-410A indoor units via CN40. R-410A high walls are not compatible with this interface; R-454B high walls and 9-16K floor consoles are compatible through the X-Y-E connections on the multi-function board.

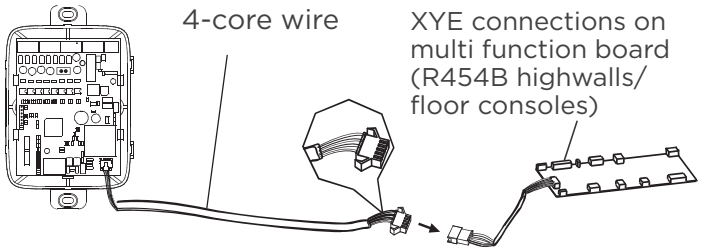


Fig. 9 —Connection #1, Indoor Unit

Connection #2

Notch the part for the wiring to pass through with nippers, etc.

Connect the terminals to CN2 on the 24V interface (HA, HB), and the terminals of the indoor unit (HA, HB). (HA and HB do not have polarity.)

The 24V interface connects to the unit through the HA and HB ports.

IMPORTANT:

- DO NOT allow water to enter the adapter plate.
- Use tape and putty to seal the wires.
- Connecting wires must be fixed reliably and cannot be pulled.

For some units, the adapter plate connects to the unit HA and HB ports through the HA and HB ports. There is no polarity between HA and HB. (16 AWG 2-conductor stranded/shielded cable is field supplied)

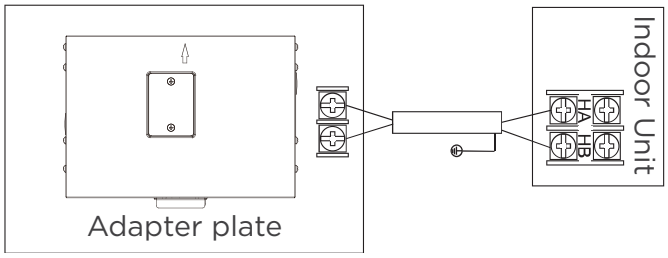


Fig. 10 —Adapter Plate

1. When the digital display is turned OFF when the 24V small box is used with the internal machine, the internal digital display will be turned OFF every 5 minutes and 15 seconds, or the digital display will be lit.
2. When the 24V Mini box is connected and used, send it to the air conditioner to set the temperature for the virtual simulation to ensure that the air conditioner can be switched ON and OFF according to the thermostat; When the user turns on the digital display, there will be a difference between the value displayed by the double 8 of the internal unit and the actual temperature value set by the thermostat.

Solution: Use a display sticker to cover the display board of the internal machine and paste it on the panel of the display area.

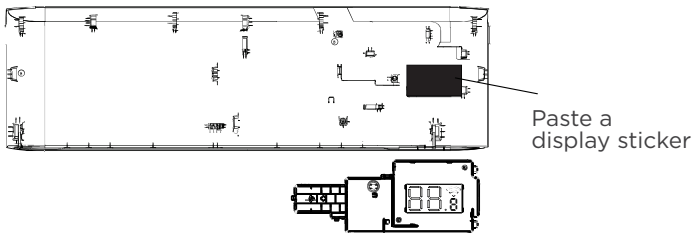


Fig. 11 —Paste a Display Sticker

Wiring Diagram

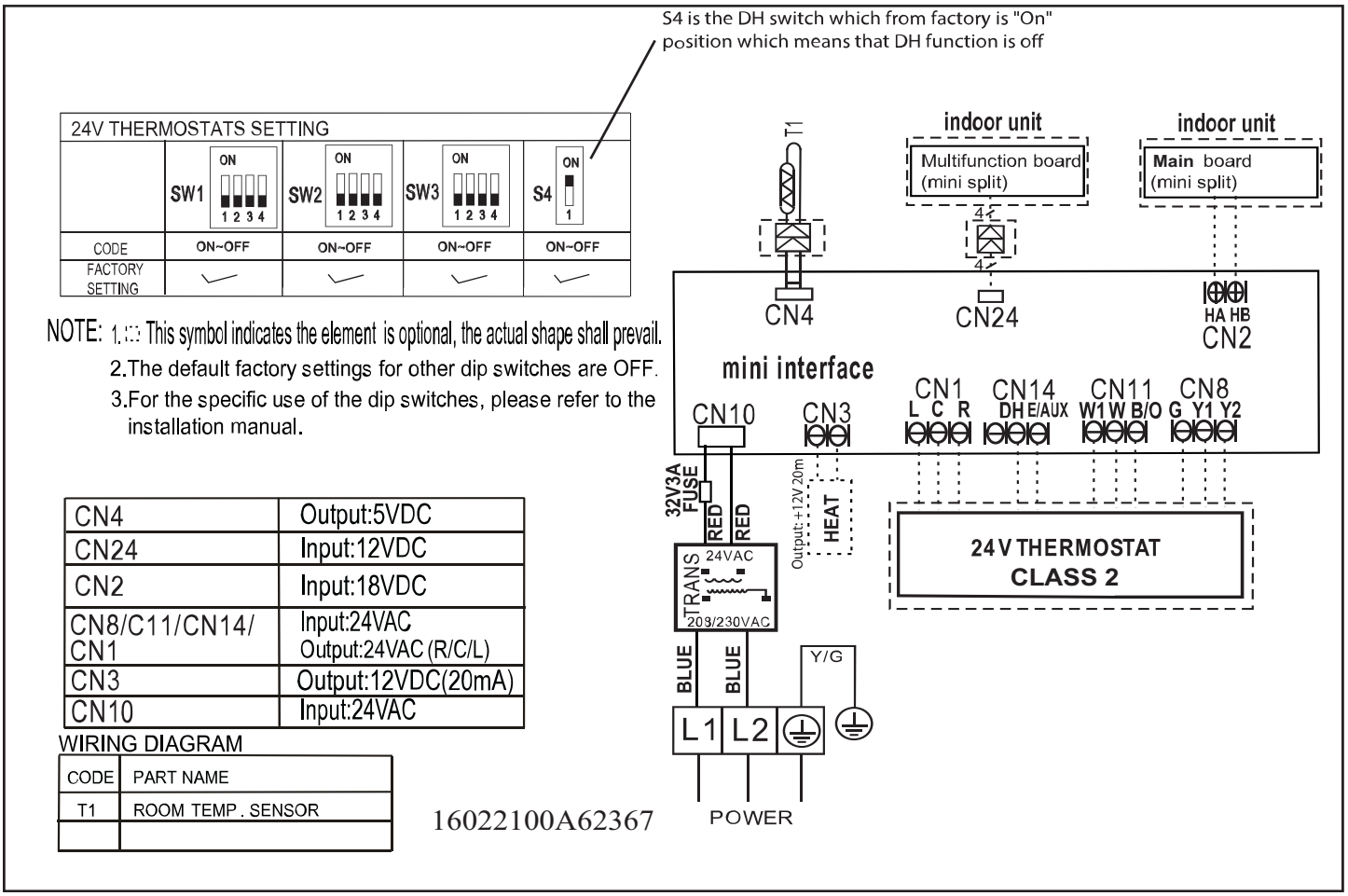
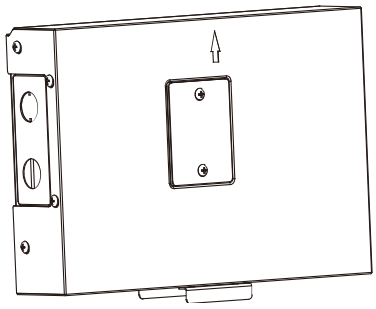


Fig. 12 —Wiring Diagram

STEP 7

Reattach the upper part of the adapter plate.

- After adjusting the upper case and then buckle the upper case, avoid clamping the wiring during installation.



SPECIFICATIONS

Wiring Specifications

IMPORTANT: It is recommended to use the provided low-voltage connection wire.

INPUT VOLTAGE	5~24V
INPUT VOLTAGE - THERMOSTAT TRANSFORMER	24VAC
AMBIENT TEMPERATURE	23~110°F (-5~43°C)
AMBIENT HUMIDITY	RH40~RH90%

APPLICATION

This system is designed for operation with standard 24 VAC HVAC thermostats. Wireless standard configuration HVAC thermostats such as the 1701 Wired Smart Controller is recommended. Other controllers may also be used such as Ecobee, and other Carrier thermostats.



Fig. 13 —1701 Wired Smart Controller

Notice

1. When the user uses the thermostat to control the split air conditioner, the fan of indoor unit may stop running fan of the indoor unit may be delayed from coming on during heat demands due to the Anti-Cold feature of the indoor unit. This design is to ensure that the Anti-cold Air function of the split air conditioner is still effective after heating to the setting temperature by the thermostat. The fan will stop when the evaporator temperature is low and the fan will not stop when the temperature of the evaporator is high.
2. When the thermostat to connect this product is used for controlling the air conditioner and when the thermostat is on, the remote control is only used for the wind swing function of the air conditioner, and the remote control for the air conditioner cannot be used for other functions.

DIP SWITCH DEFINITIONS

Dial Codes - Cooling/Heating Fan Speeds

COOLING FAN SPEED					
DIAL CODE	1	2	3	4	5
SW1-1	OFF	OFF	OFF	OFF	ON
SW1-2	OFF	OFF	ON	ON	OFF
SW1-3	OFF	ON	OFF	ON	OFF
FUNCTION	Auto Fan (Default)	Low	Middle	High	Turbo

HEATING FAN SPEED					
DIAL CODE	1	2	3	4	5
SW1-4	OFF	OFF	OFF	OFF	ON
SW2-1	OFF	OFF	ON	ON	OFF
SW2-2	OFF	ON	OFF	ON	OFF
FUNCTION	Auto Fan (Default)	Low	Middle	High	Turbo

NOTE: Do NOT use low speed setting for heat as damage to the compressor may occur.

Dial Codes - Switch Settings

Table 3 – Dial Codes

NO.	DIAL CODE	FUNCTION	ON	OFF	NOTE
1	SW2-3	Set type selection, multi-zone and single zone models selection	Multi-zone	Single zone	—
2	SW2-4	Single zone selective dialing code 1	See Table 4 for a description of the dialing code options for single zone model	See Table 4 for a description of the dialing code options for single zone model	Multi-zone do not have this function.
3	SW3-2	Compressor recovery time setting	30 minutes	90 minutes	—
4	SW3-3	Heat port on/off temperature difference	2F	4F	—
5	SW3-4	Single zone selective dialing code 2	See Table 4 for a description of the dialing code options for single zone model	See Table 4 for a description of the dialing code options for single zone model	This code is valid only when the SW2-4 dialing code is OFF.
6	S4	DH function selection	[Default] Dehumidification control not available	Dehumidification feature is enabled through thermostat	

Table 4 – Dip Switch Settings

DIP SWITCH SETTINGS WITH DIFFERENT COMBINATIONS				
COMBINATION	**SW2-3**	**SW2-4**	**SW3-4**	**NOTE**
Indoor unit type 1(GA) + split single-zone outdoor unit type 2 (Non GA)	OFF	OFF	OFF	Default
Indoor unit type 1(GA) + split single-zone outdoor unit type1(GA)	OFF	ON	*	-
Indoor unit type 2 (Non GA) + multi-zone outdoor unit type 1(GA) or; Indoor unit type 2 (Non GA) + single-zone outdoor unit type 2 (Non GA)	OFF	OFF	ON	-
Indoor unit type 1(GA) + multi-zone outdoor unit	ON	*	OFF	-
Indoor unit type 2(Non GA) + multi-zone outdoor unit	ON	*	ON	-
NOTE: Indoor unit type and outdoor unit type are queried according to the model code.				

1. Refer to Table 5 for applicable GA/Non GA units.
2. An * indicates the denoted Dip Switch is not applicable in this specific configuration.

Table 5: Applicable GA and Non-GA Units

R-454B PRODUCTS	
GA/Non GA	**Product Type**
Non-GA	Multi-zone Heat Pump
GA	All Units (not Multi-zone)

R-410A PRODUCTS	
GA/Non GA	**Product Type**
Non-GA	Cassette (9~18k)
	Console
	Slim Duct
	Multi-zone Heat Pump
GA	Cassette (24~48k)
	High Wall
	Single Zone Heat Pump
	Light Commercial Heat Pump
	All Units (not Multi-zone)

COMPATIBILITY

NOTE: Refer to the Compatibility Charts for the Indoor Model Pairing with the 24v Interface.

INTERFACE INPUT DESCRIPTION

CONNECTOR	PURPOSE
G	Fan Control
Y1	Low demand heating/cooling
Y2/Y	High demand heating/cooling or 1 stage only thermostat
B/O	Reversing valve
W	Heating control (heat pump heating with a conventional thermostat)
W1	Electric Heating
E/AUX	Emergency Heating
DH	Dehumidification * DH (S4) switch is factory set to the ON position indicating the DH function is OFF
L	Malfunction signal
R	24V Power Connection
C	Common

24V SIGNAL CHART 1

IMPORTANT: For R410A indoor units, and R454B indoor units produced before July 7, 2025, configure the Dip switches according to the table below.

24V Input Terminal											
MODE	**PRIORITY**	**G**	**Y1**	**Y2**	**B/O**	**W**	**W1**	**E/AUX**	**DH**	**FAN SPEED**	**NOTE**
OFF	/	0	0	0	0	0	0	0	*	OFF	
FAN	6	1	0	0	*	0	0	0	*	Low	NOTE 1
Cooling stage 1	5	*	1	0	0	0	0	0	*	Dialing code Fan Speed	
Cooling stage 2		*	*	1	0	0	0	0	*	Dialing code Fan Speed	
Heat pump stage 1	4	*	1	0	1	0	0	0	*	Dialing code Fan Speed	
Heat pump stage 2		*	*	1	1	0	0	0	*	Dialing code Fan Speed	
Heat pump stage 2		*	*	*	*	1	0	0	*	Dialing code Fan Speed	
Electric heater kit 1	2	*	0	0	*	0	1	0	*	Turbo	NOTE 2
Heat pump stage 1 + Electric heater kit 1	3	*	1	0	1	0	1	0	*	Turbo	NOTE 3
Heat pump stage 2 + Electric heater kit 1		*	*	1	1	0	1	0	*	Turbo	NOTE 3
Heat pump stage 2 + Electric heater kit 1		*	*	*	*	1	1	0	*	Turbo	NOTE 3
Emergency heat	1	*	*	*	*	*	*	1	*	Turbo	NOTE 2

NOTE 1:

(a) For a multi-zone indoor unit, when the heating mode is transferred to the fan mode, the fan of indoor unit will stop running.

(b) For a single zone indoor unit, when the heating mode is transferred to the fan mode, the anti-cold-air function is effective.

(c) When the OFF mode or cooling mode are transferred to the fan mode, the fan of indoor unit will run in low speed.

NOTE 2: When the indoor unit does not support auxiliary heating only mode, the indoor unit operates in heating mode.

NOTE 3: When the indoor unit does not have the electric auxiliary heating function, the indoor unit operates in heating mode.

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

24V SIGNAL CHART 2

IMPORTANT: For R454B indoor units produced after July 7, 2025, configure the Dip switches according to the table below.

24V Input Terminal											
MODE	**PRIORITY**	**G**	**Y1**	**Y2**	**B/O**	**W**	**W1**	**E/AUX**	**DH**	**FAN SPEED**	**NOTE**
OFF	/	0	0	0	0	0	0	0	*	OFF	
FAN	6	1	0	0	*	0	0	0	*	Low	NOTE 1
COOLING STAGE 1	5	*	1	0	0	0	0	0	*	Dialing code Fan Speed	
COOLING STAGE 2		*	*	1	0	0	0	0	*	Dialing code Fan Speed	
DEHUMIDI-FICATION 1		*	1	0	0	0	0	0	0	Auto	Set Dip switch S4 to enable the DH signal input function, then enter dehumidification mode based on the signal.
DEHUMIDI-FICATION 2		*	*	1	0	0	0	0	0	Auto	
HEAT PUMP STAGE 1	4	*	1	0	1	0	0	0	*	Dialing code Fan Speed	
HEAT PUMP STAGE 2		*	*	1	1	0	0	0	*	Dialing code Fan Speed	
HEAT PUMP STAGE 2		*	*	*	*	1	0	0	*	Dialing code Fan Speed	
ELECTRIC HEATER KIT 1	2	*	0	0	*	0	1	0	*	Turbo	NOTE 2
HEAT PUMP STAGE 1 + ELECTRIC HEATER KIT 1	3	*	1	0	1	0	1	0	*	Turbo	NOTE 3
HEAT PUMP STAGE 2 + ELECTRIC HEATER KIT 1		*	*	1	1	0	1	0	*	Turbo	NOTE 3
HEAT PUMP STAGE 2 + ELECTRIC HEATER KIT 1		*	*	*	*	1	1	0	*	Turbo	NOTE 3
EMERGENCY HEAT	1	*	*	*	*	*	*	1	*	Turbo	NOTE 2

NOTE 1:

(a) For a multi-zone indoor unit, when the heating mode is transferred to the fan mode, the fan of indoor unit will stop running.

(b) For a single zone indoor unit, when the heating mode is transferred to the fan mode, the anti-cold-air function is effective.

(c) When the OFF mode or cooling mode are transferred to the fan mode, the fan of indoor unit will run in low speed.

NOTE 2: When the indoor unit does not support auxiliary heating only mode, the indoor unit operates in heating mode.

NOTE 3: When the indoor unit does not have the electric auxiliary heating function, the indoor unit operates in heating mode.

© 2026 Carrier. All rights reserved.
Edition Date: 05/26

Catalog No: **IM-KSAIC08-01**

Replaces: New

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.