

Installer's Guide

Twining Kit S-Series CTM Furnaces

BAYTWIN5AM22DA

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

Introduction

Read this manual thoroughly before operating or servicing this unit.

This document is customer property and is to remain with this unit. Return to the service information pack upon completion of work.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

 WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
NOTICE	Indicates a situation that could result in equipment or property-damage only accidents.

WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER** **PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING**Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, and lockout/tagout. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

⚠ WARNING**Cancer and Reproductive Harm!**

This product can expose you to chemicals, including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

⚠ WARNING**Safety Hazard!**

Failure to follow instructions below could result in death or serious injury or property damage.

This unit is not to be used by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.

Do not allow children to play or climb on the unit or to clean or maintain the unit without supervision.

⚠ WARNING**Safety Hazard!**

Failure to follow instructions below could result in death or serious injury.

All phases of the installation must conform to NATIONAL, STATE, AND LOCAL CODES. For additional information, please contact your local distributor.

⚠ WARNING**Safety Hazard!**

Failure to follow instructions below could result in death or serious injury or property damage.

Only qualified, trained, and experienced personnel should use the installation instructions. They must be skilled in installing furnaces, related accessories, and comfort conditioning components.

⚠ WARNING**Risk of Fire!**

Failure to follow instructions below could result in death or serious injury, or property damage.

When installing the kit, follow these requirements:

- Use MCB 9.1 or later.
- Cut the MCB JP1 jumper.
- Install D677198P01 and D677198P02 sensors.

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General Information

Instructions in this manual do not address all system variations or every possible contingency. Additional information may be required, or conditions may occur that

are not fully covered in this manual. In such cases, contact your local distributor or the manufacturer identified on the furnace nameplate.

Inspection

1. Unpack all components of the kit.
2. Check carefully for any shipping damage. If any damage is found, this must be reported immediately and a claim made against the transportation company.
3. Check to be sure all components are in the package. Any missing components should be reported to your supplier at once and replaced with authorized components only.

Qty	Part Number	Replacement PN	Description
1	D677198P02	SEN03602	A2L twinning sensor
1	D808289P02	WIR13812	Harness-MCB To A2L sensor
1	D161897G02 or D161899G02	CNT10287 or CNT10288	PB ASSY-A2L mitigation version 9.1 or later
1	D808232P01	RLY04038	Relay
1	A138030P01	TIE00026	Tie-cable
3	D347179P01	-	Terminals - TE 9-520182-2 (0.187 X 0.020)
1	FNR-SVN002	-	Installation guide

WARNING

Electrical Shock Hazard!

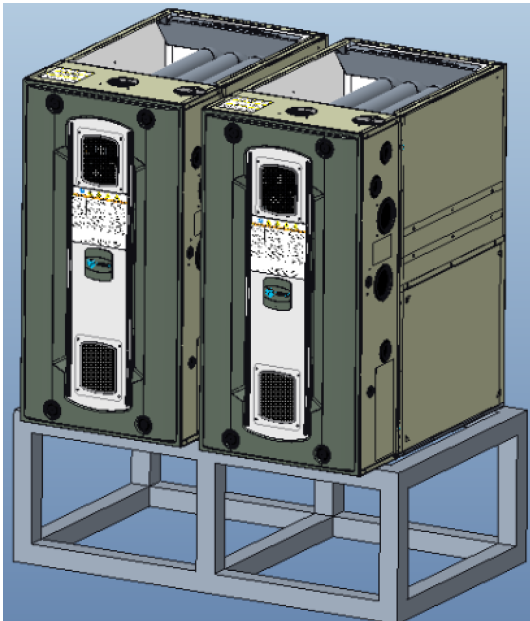
Failure to follow instructions below could result in death or serious injury or property damage.

Open and lock out all unit disconnects before accessory installation or unit maintenance.

Installation

1. Use the kit BAYTWIN5AM22DA only for twinning A801X, S8B1, S8X1, S8X2, S9B1, S9X1, and S9X2 furnaces. Both furnaces must have identical model numbers through the 14th digit (same gas input and airflow). Install them on a field-fabricated pedestal strong and sized to support both furnaces, coils, and return ductwork. Size the return duct for required cooling airflow. Return air must enter only through the furnace bottoms and never returned into the back or side of the furnaces. After attaching the return duct to the pedestal, enclose the remaining pedestal opening.
2. Position both furnaces on the pedestal (see [Figure 1, p. 7](#)). Refer to the gas pipes extending from the outside panels of the furnaces.

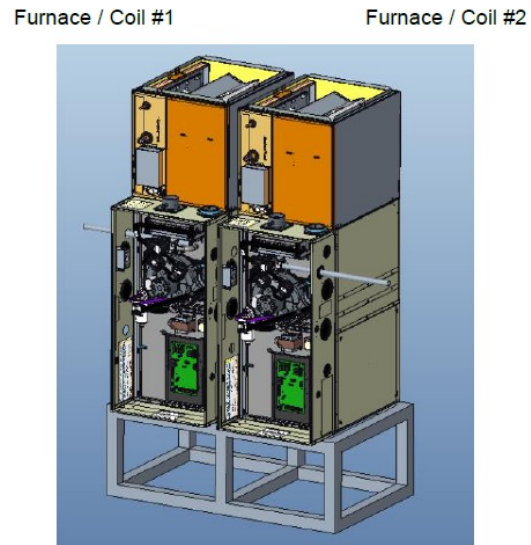
Figure 1. Furnaces installed on pedestal



3. Secure the furnaces to the top of the pedestal to maintain alignment and stability during and after installation.
4. Complete the installation of the coils to the twinned furnaces.

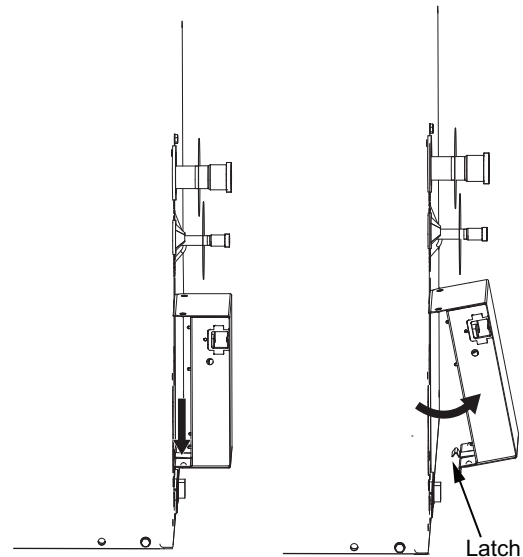
Important: All joints between the coil and furnaces **MUST** be sealed airtight.

Figure 2. Coils installed on pedestal



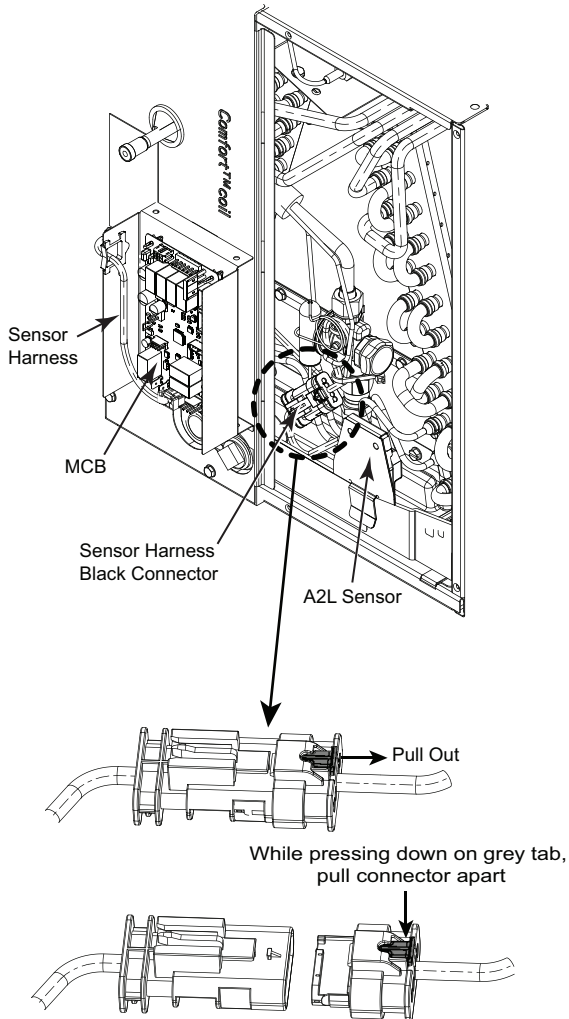
5. Remove the MCB control box from Coil 2 by pressing the bottom latch, rotating it off the lineset panel, and lifting it out of the coil cabinet (see [Figure 3, p. 7](#)).

Figure 3. Coil 2 MCB control box removal



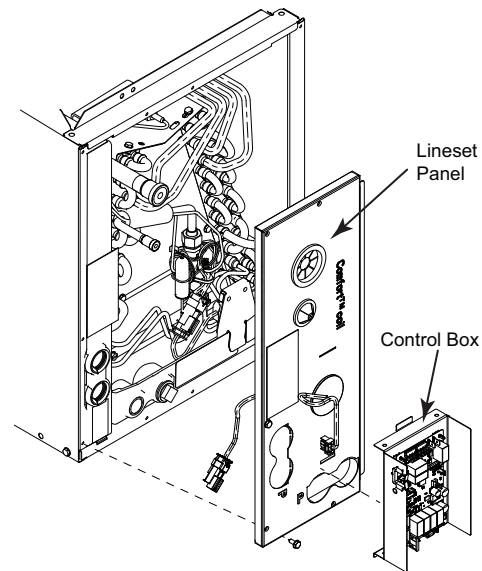
6. Disconnect the existing sensor harness black connector from the connector on the coil sensor harness and disconnect the other end of the sensor harness that connects to the MCB: to disconnect the black connector, first pull out the grey tab, and then push the tab while simultaneously pulling the connection apart to get it loose (see [Figure 4, p. 8](#)).

Figure 4. Coil 2 A2L sensor removal



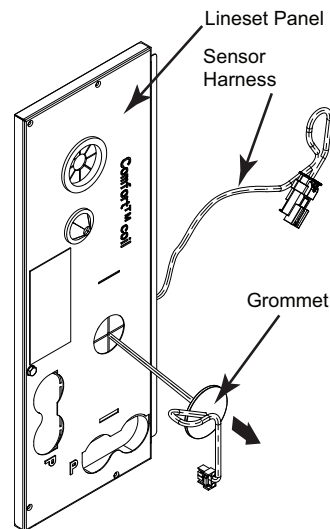
7. Set the control box aside.
8. Remove the lineset panel from the coil cabinet (see [Figure 5, p. 8](#)).

Figure 5. Coil 2 lineset panel removal



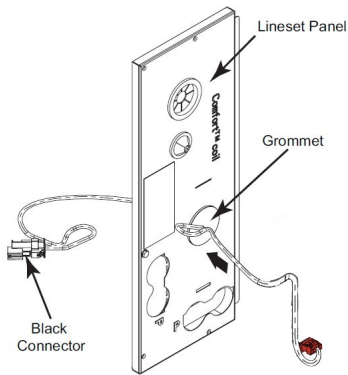
9. Remove the sensor harness from the lineset panel by pushing out the grommet from the lineset panel and sliding out the sensor harness (see [Figure 6, p. 8](#)).

Figure 6. Sensor harness removal



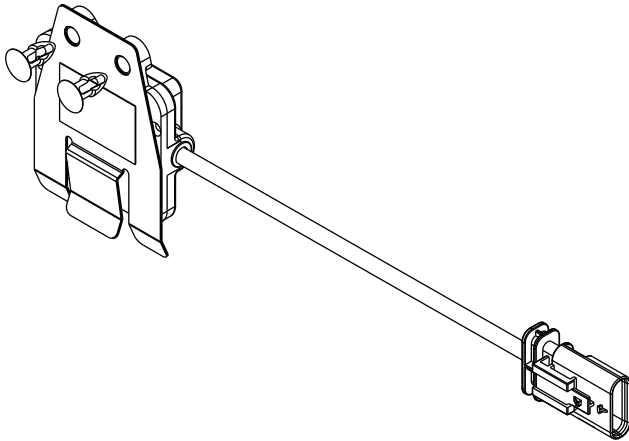
10. Set the sensor harness aside.
11. Take out the new longer sensor harness supplied with this kit.
12. Carefully, put the black connector through the sensor hole in the lineset panel. Press molded on grommet into the hole until fully seated (see [Figure 7, p. 9](#)).

Figure 7. Sensor harness installed on lineset panel



13. Reinstall the lineset panel.
14. Remove the A2L sensor and the bracket from the drain pan
15. Remove the A2L sensor from the bracket by disengaging the plastic push pins and set the A2L sensor aside.
16. Mount the new A2L sensor provided in the kit to the bracket with plastic push pins. Push-in rivets must be installed from the flat side of the bracket through the sensor body (see [Figure 8, p. 9](#)).

Figure 8. A2L sensor assembled to a bracket



17. Confirm the A2L Sensor assembly is attached to the primary pan as shown in [Figure 9, p. 9](#). The sensor should face inward toward the coil and may be positioned anywhere on the front lip of the pan. The mounting bracket must be seated as far down on the pan as possible.

Figure 9. A2L sensor location in upflow downflow orientation

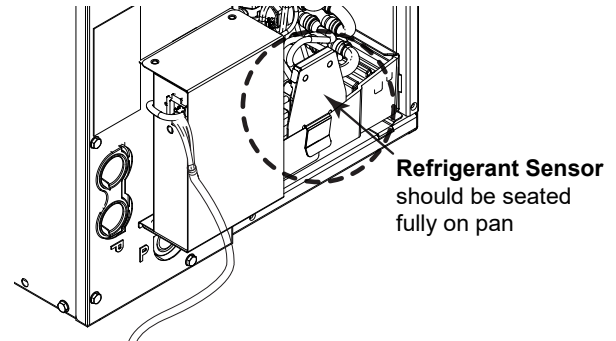
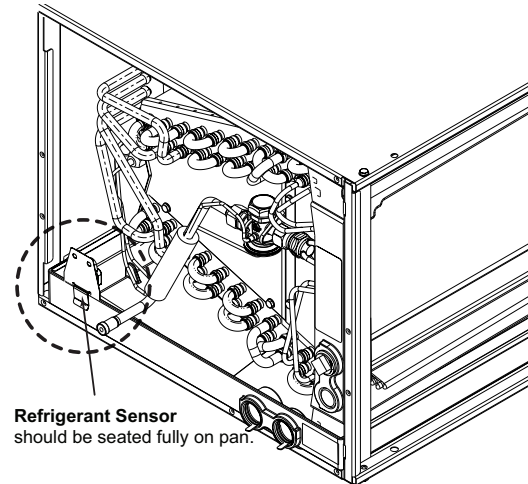
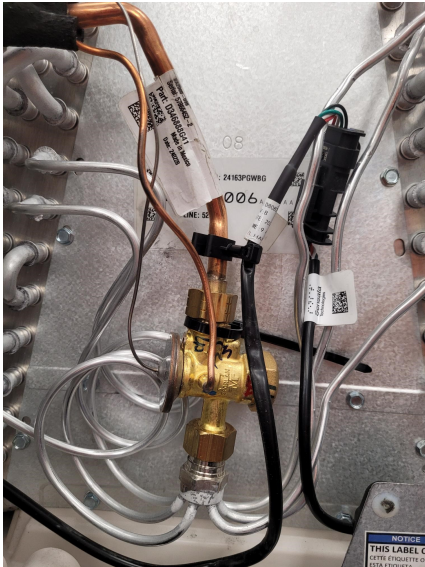


Figure 10. A2L sensor location in horizontal orientation



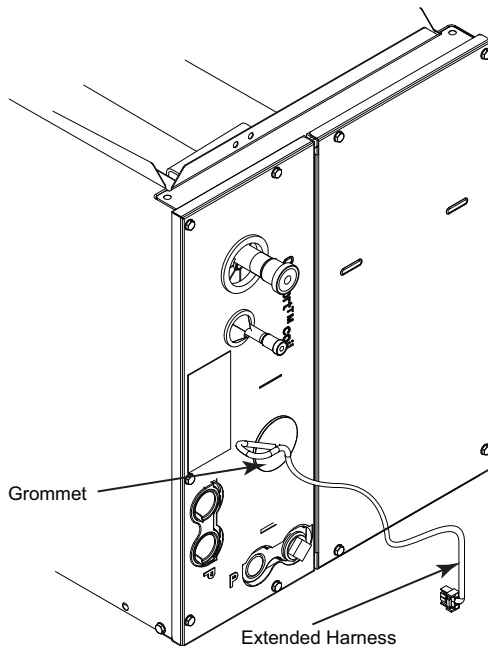
18. Connect the A2L sensor black connector to the mating connector on the sensor harness. (see [Figure 11, p. 10](#)).
19. Clip the sensor harness to the top of the valve to keep the connections out of the drain pan.

Figure 11. Sensor harness clipped above valve



20. Reinstall the outer casing door to the coil casing (see [Figure 12, p. 10](#)).

Figure 12. Coil 2 outer casing door installed



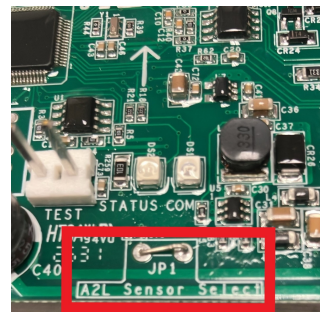
21. **Coil 1 preparation:** rotate the cover on the MCB control box out of the way exposing the MCB control.
22. Disconnect all wiring from the MCB control.
23. Remove the MCB control and set aside.
24. Install the new MCB control (software revision 9.1 or higher) provided in the kit.
25. Connect all wiring to the new MCB control.

Figure 13. Coil 1 MCB control box (cover open)



26. Locate the A2L sensor select jumper – JP1 and cut the jumper wire (see [Figure 14, p. 10](#)).

Figure 14. JP1 location on new MCB control



27. Connect the sensor harness from Coil 2 to the MCB control on Coil 1. Verify the sensor harness is routed clear of other components such as refrigerant, condensate, and furnace flue pipes.
 28. Use the arrowhead wire tie provided with the kit and 0.25 inch diameter hole on the side of the control box to verify the sensor harness and other 24 VAC or communicating harnesses are properly strain relieved per instructions in the coil's Installer Guide provided with the twinned coils.
 29. Install grommets in Furnace 1 and 2 vestibule compartments as needed (see [Figure 2, p. 7](#)).
 30. Attach the relay in a convenient location. This will generally be in the vestibule compartment of furnace number two.
- Important:** Verify the 24-volt transformers in the furnaces are in phase.
31. Verify transformer phase by measuring voltage between the two furnace R terminals. If it exceeds 10 volts, reverse the transformer secondary connectors on one furnace.
 32. Complete furnace wiring per the appropriate system wiring diagram. An isolating relay on W is required to

prevent overloading or potential problems with the thermostat.

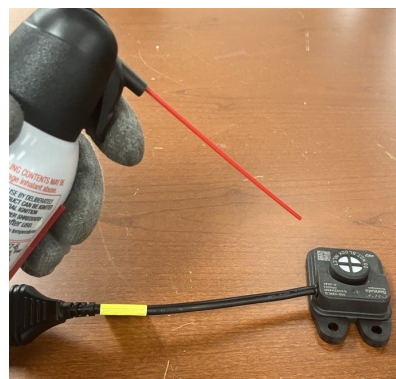
33. Complete the outdoor unit wiring.

Important: If the outdoor unit has a 24 volt transformer, then a field supplied 24-VAC isolation relay must be used as shown in Figure 5, p. 8. If there are no transformers, then no isolation is needed, as shown in Figure 4, p. 8 and Figure 6, p. 8.

Checkout Procedure

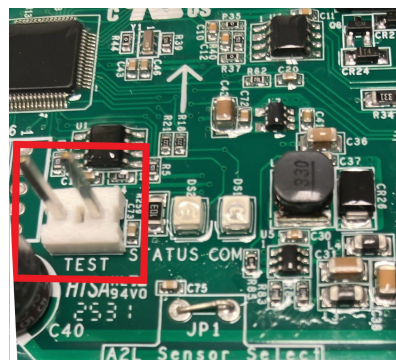
1. Confirm both furnaces have identical model numbers through the 14th digit and matching blower speed taps for heating and cooling. For two-stage cooling ODUs, make sure the ODU is set to 2-1 (see IFC system menu in the Installation, Operations and Maintenance manual provided with the twinned furnaces).
2. Set the thermostat to heating and increase temperature 10°F above room temperature (energize R to W1 at room thermostat). Verify both furnaces ignite and both blowers start simultaneously with matching speed taps. For two-stage furnaces, repeat with W1 + W2.
3. Lower temperature selection by 15°F on the room thermostat (de-energize W) and verify the furnace blowers turn off together.
4. Position the room thermostat switch in the cooling mode and make sure that the temperature selection is 10°F below room temperature (energize R to Y/Y1 + G). Verify identical blower taps and simultaneous blower startup. For two-stage systems, repeat with Y/Y1 + Y2 + G.
5. With the system switch OFF, switch the fan ON (energize R to G). Verify identical continuous-fan taps and simultaneous blower start.
6. De-energize G and verify both blowers turn off together.
7. Perform MCB checkout:
 - a. Locate A2L sensor within Coil 1 confirming the sensing area is accessible.
 - b. Verify both the A2L sensors are installed in the two coils and connected to the MCB per the instructions above with the A2L Sensor Select Jumper cut.
 - c. Position the nozzle of a compressed CO₂ keyboard dusting spray containing hydrofluorocarbon such as 1,1-difluoroethane, 1,1,1-trifluoroethane, or 1,1,1,2-tetrafluoroethane 2 - 6 inches away from the sensing area (white filter membrane) being careful not to push, puncture, or obstruct the filter membrane of the sensor.
 - d. Apply a controlled burst of gas for approximately 3 - 4 seconds directly toward the sensing area.

Figure 15. Nozzle spray distance



- e. Observe the response indicator on MCB control board:
 - Status Green LED flashes three times indicating a refrigerant leak.
 - Blower 1 and Blower 2 starts in the cooling first stage airflow setting.
 - IFCs display the same tap number.
- f. When the A2L Sensor no longer senses a leak (after (approximately 6 minutes):
 - Status Green LED flashes four times indicating past leak alarm.
 - Blower 1 and blower 2 stops.
- g. Repeat steps c through f with the replaced A2L sensor in Coil 2.
- h. Clear the test sequence faults.
- i. De-energize the MCB control board.
- j. Short the test pins on the MCB control board with a jumper and energize the MCB.
- k. After the control fully boots up, remove the jumper and verify the following LED sequences on the MCB below:
 - COM LED (Amber) – ON
 - Status LED (Green) - Slow

Figure 16. MCB control board test pin location



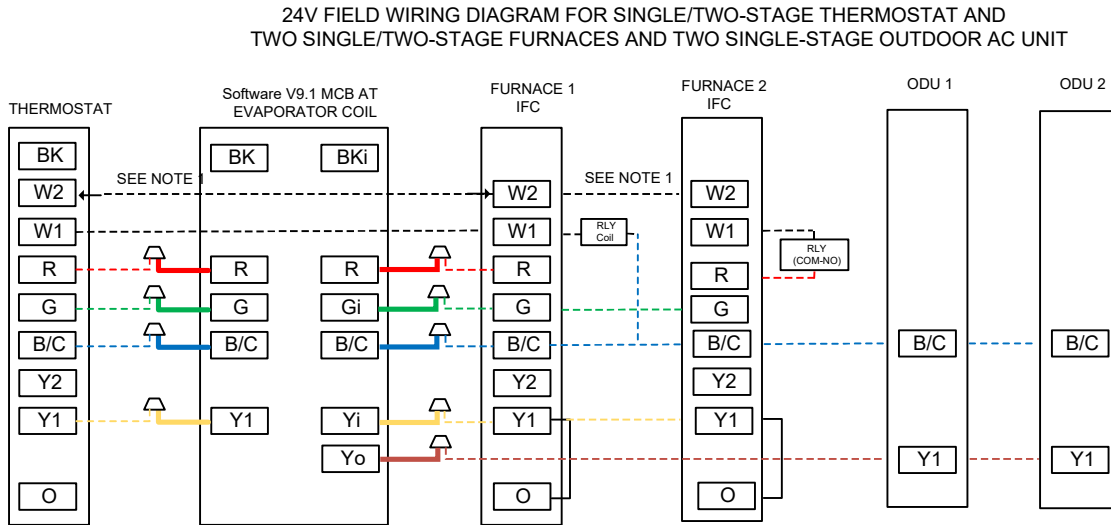
Airflow Adjustment

Check the inlet and outlet temperatures to make sure they are within the ranges specified on the furnace rating plate.

If airflow needs to be increased or decreased, see the furnace wiring diagram for information on changing the speed of the blower motor.

Field Wiring

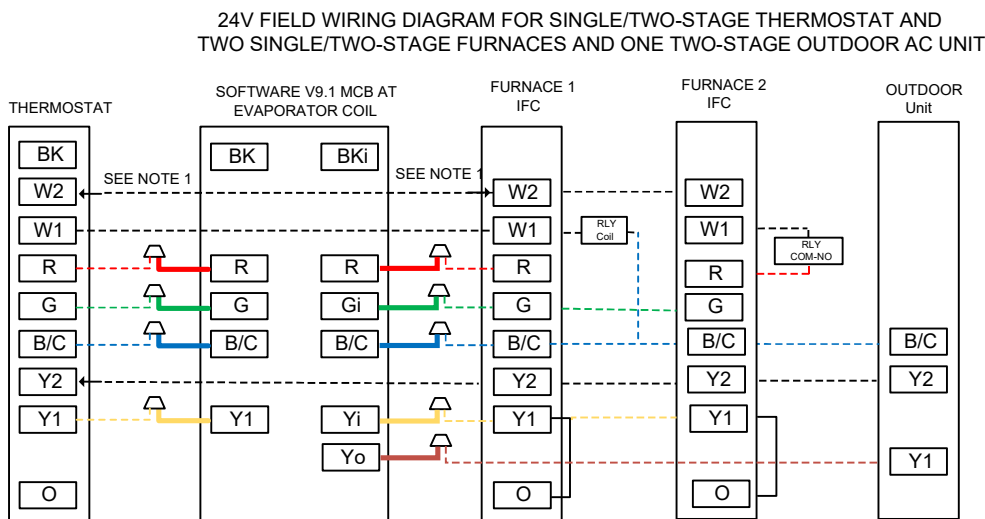
Figure 17. 24V field wiring diagram for single/two-stage thermostat and two single/two-stage furnaces and two single/two-stage outdoor ac unit



NOTES:

1. FOR SINGLE-STAGE THERMOSTAT OR FURNACE, W2 IS NOT AVAILABLE.
2. FOR SINGLE STAGE OUTDOOR UNIT, SET FURNACE MENU ODU TO 1-1. FOR TWO STAGE, SET ODU TO 2-1.
3. ALL FURNACE AIRFLOW SETTINGS MUST BE THE SAME.
4. 24 VOLT TRANSFORMERS ON FURNACES MUST BE PHASED PROPERLY.

Figure 18. 24V field wiring diagram for single/two-stage thermostat and two single/two-stage furnaces and one single/two-stage outdoor AC unit

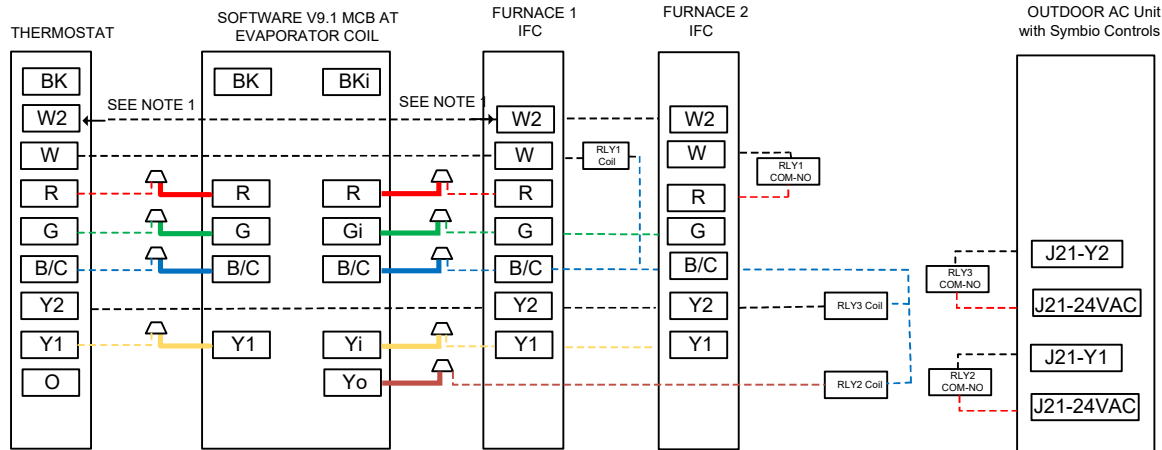


NOTES:

1. FOR SINGLE-STAGE THERMOSTAT OR FURNACE, W2 IS NOT AVAILABLE.
2. FOR SINGLE STAGE OUTDOOR UNIT, SET FURNACE MENU ODU TO 1-1. FOR TWO STAGE, SET ODU TO 2-1.
3. ALL FURNACE AIRFLOW SETTINGS MUST BE THE SAME.
4. 24 VOLT TRANSFORMERS ON FURNACES MUST BE PHASED PROPERLY.

Figure 19. 24V field wiring diagram for single/two-stage thermostat and two single/two-stage furnaces and one two-stage outdoor AC unit with Symbio controls

24V FIELD WIRING DIAGRAM FOR SINGLE/TWO-STAGE THERMOSTAT AND
TWO SINGLE/TWO-STAGE FURNACES AND ONE TWO-STAGE OUTDOOR AC UNIT WITH SYMBIO CONTROLS



NOTES:

1. FOR SINGLE-STAGE THERMOSTAT OR FURNACE, W2 IS NOT AVAILABLE.
2. FOR SINGLE STAGE OUTDOOR UNIT, SET FURNACE MENU ODU TO 1-1. FOR TWO STAGE, SET ODU TO 2-1.
3. ALL FURNACE AIRFLOW SETTINGS MUST BE THE SAME.
4. 24 VOLT TRANSFORMERS ON FURNACES MUST BE PHASED PROPERLY.

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