Furnace Twinning for R-32 Systems

Installation Instructions

ATTENTION INSTALLING PERSONNEL

As a professional installer, you have an obligation to know the product better than the customer. This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this Instruction Manual. Pay special attention to all safety warnings. Often during installation or repair, it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

Remember, it is your responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use.Safety is a matter of common sense...a matter of thinking before acting. Most dealers have a list of specific good safety practices, please follow them.

The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION.

DESCRIPTION

If one or both of the outdoor units in the installation have an A2L refrigerant such as R-32, the twinning process will be different than what is mentioned in previous 1-stage and 2-stage multi-speed furnace IO manuals.

The wiring of the thermostat to the furnaces will depend on various scenarios mentioned below. Please read through the following scenarios and refer to the wiring that fits your installation. It is very important to install the right solution for A2L mitigation based on the furnaces, evaporator coils and outdoor units being twinned. Please note that some scenarios will require additional accessories.

As always, furnaces must be identical (same model, same control board) and must be set up with the same blower speeds for heating, cooling and continuous fan operations. Only furnaces with multi-speed EEM or PSC blower motors can be twinned (no variable speed ECM blower motors).

WARNING

ONLY PERSONNEL THAT HAVE BEEN TRAINED TO INSTALL, ADJUST, SERVICE, MAINTENANCE OR REPAIR (HEREINAFTER, "SERVICE") THE EQUIPMENT SPECIFIED IN THIS MANUAL SHOULD SERVICE THE EQUIPMENT.

THIS EQUIPMENT IS NOT INTENDED FOR USE 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 USE OF THE APPLIANCE BY A PERSON RESPONSIBLE FOR THEIR SAFETY.

CHILDREN SHOULD BE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE EQUIPMENT.

THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SUPERVISION, SERVICE OR SERVICE PROCEDURES. IF YOU SERVICE THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. IN ADDITION, IN JURISDICTIONS THAT REQUIRE ONE OR MORE LICENSES TO SERVICE THE EQUIPMENT SPECIFIED IN THIS MANUAL, ONLY LICENSED PERSONNEL SHOULD SERVICE THE EQUIPMENT. IMPROPER SUPERVISION, INSTALLATION, ADJUSTMENT, SERVICING, MAINTENANCE OR REPAIR OF THE EQUIPMENT SPECIFIED IN THIS MANUAL, OR ATTEMPTING TO INSTALL, ADJUST, SERVICE OR REPAIR THE EQUIPMENT SPECIFIED IN THIS MANUAL WITHOUT PROPER SUPERVISION OR TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

Do not bypass safety devices.

Prior to performing this conversion refer to the National Fuel Gas Code (ANSI Z223.1) or in Canada, CAN/CGA-B149.2-M91 to ensure that the installation is in compliance with those and all local codes.

Please read and follow these instructions carefully.

NOTE: This unit should be installed in a manner so that it is not accessible to the public.

WARNING

FAILURE TO FOLLOW THE WIRING DIAGRAMS SHOWN IN THIS MANUAL MAY CAUSE ONE OR BOTH OF THE TWINNED FURNACES TO NOT GO INTO MITIGATION MODE IN CASE OF AN R-32 REFRIGERANT LEAK. PLEASE FOLLOW THE INSTRUCTIONS IN THIS MANUAL CAREFULLY.

IMPORTANT NOTE: Wire routing must not interfere with circulator blower operation, filter removal or routine maintenance.

WARNING

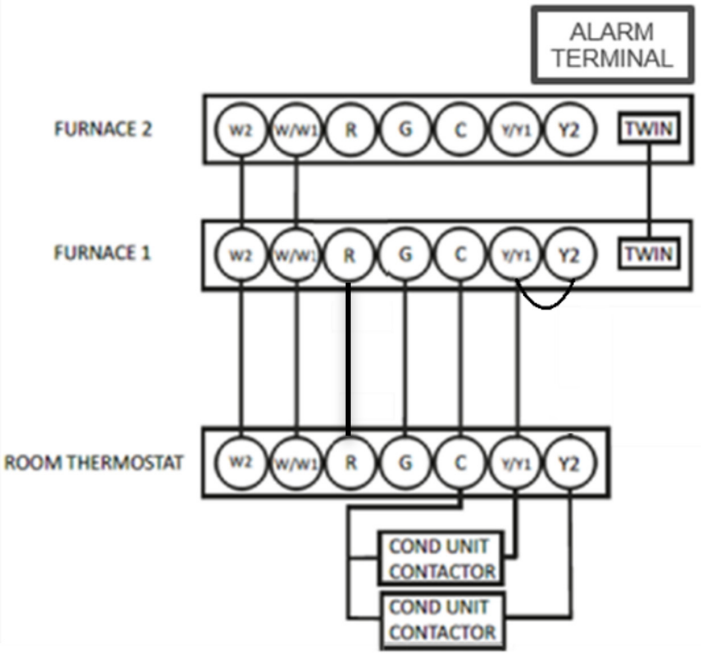
TO PREVENT PERSONAL INJURY OR DEATH DUE TO ELECTRIC SHOCK, DISCONNECT ELECTRICAL POWER BEFORE INSTALLING OR SERVICING THIS UNIT.

INSTALLATION

SCENARIO 1:

One R-410A System and One R-32 System – no accessories or zoning installed. Furnace 1 must be the R-32 system (24VAC R from Furnace 1 is connected directly to the thermostat). If Furnace 2 has built-in R-32 refrigerant detection, this feature must be disabled.

NOTE: If the R-32 system experiences a refrigerant leak and enters mitigation mode, this wiring will ensure all HVAC functions have been turned off to both systems and the blower is running as required. In this Scenario, use the A2L verification function to verify mitigation mode is operational in heating and cooling operations (see A2L furnace IO manual for A2L Verification).

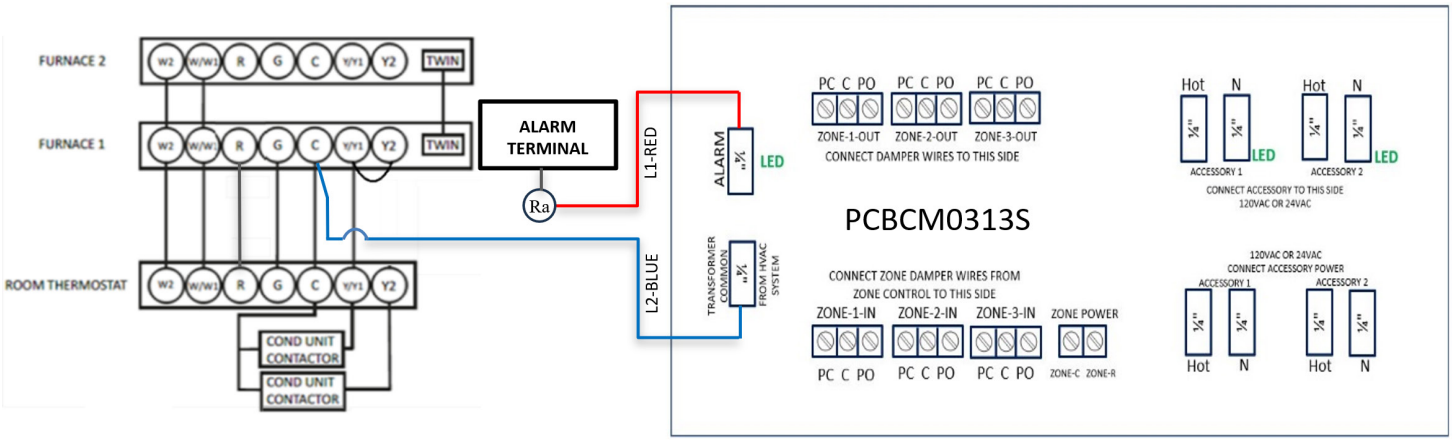


SCENARIO 1 WIRING

SCENARIO 2:

One R-410A System and One R-32 System – with accessories and/or zoning. Furnace 1 must be the R-32 system (24VAC R from Furnace 1 is connected directly to the thermostat or zone board). If Furnace 2 has built-in R-32 refrigerant detection, this feature must be disabled.

Parts Needed: PCBCM0313S – This part will cover up to 3 zones and 2 accessories.



SCENARIO 2 WIRING

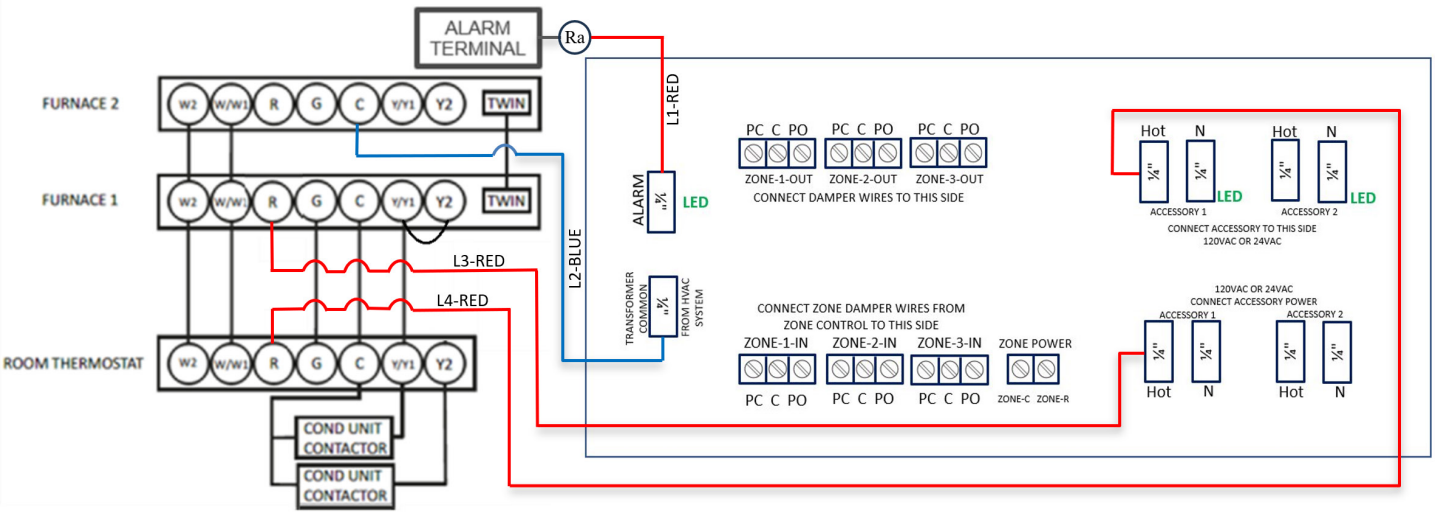
SCENARIO 3:
Two integrated R-32 Furnaces – no accessories or zoning installed. Furnace 1 R terminal is wired through the Accessory relay on the zone/accessory board. Furnace 2 will control the zone/accessory board via its on-board ALARM TERMINAL.

Parts needed: (1) PCBCM0313S.
Furnace 1 Enters Mitigation:

- Furnace control removes 24VAC from R terminal – Thermostat signals are removed (Zone / Accessory board status is unchanged).
- Through Twinning connection, Furnace 1 forces Furnace 2 to run the same mitigation airflow.
- After Mitigation, 24VAC from R is returned, system goes back to normal operation.

Furnace 2 Enters Mitigation:

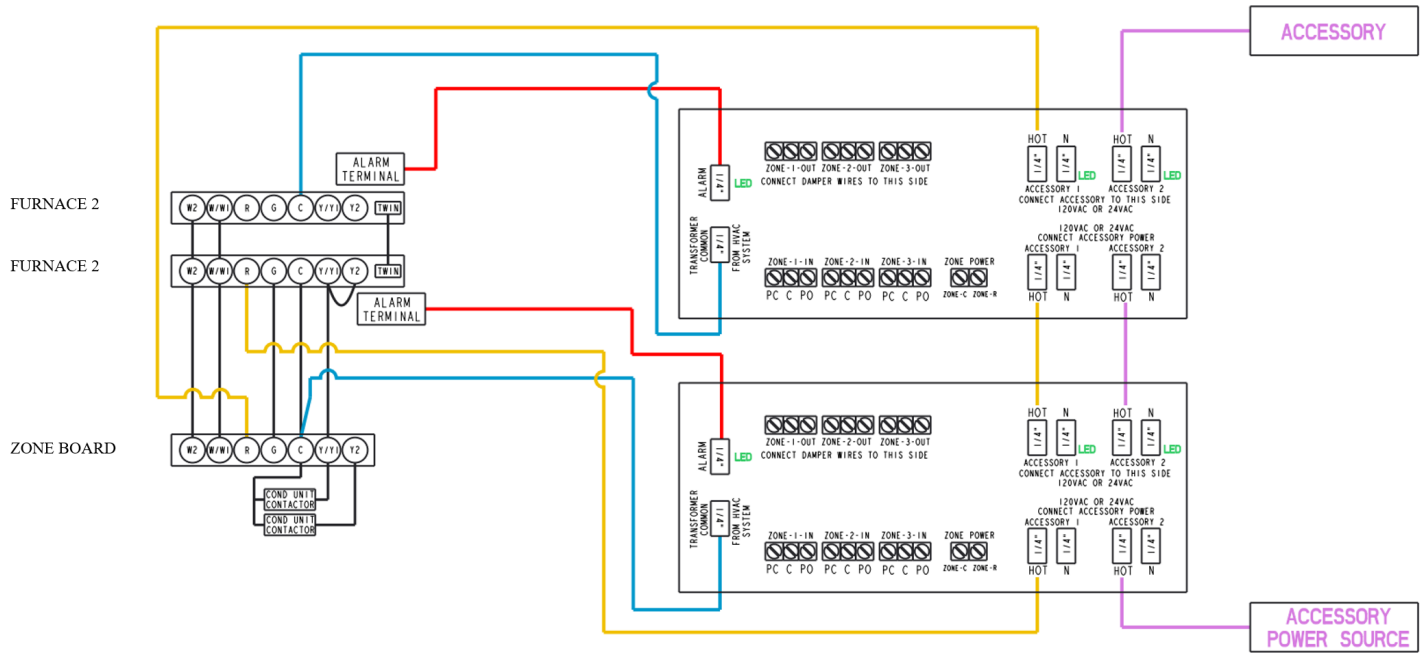
- Furnace 2 Energizes Alarm Terminal and opens the Normally Closed Relay on the zone / accessory board.
  - This disconnects the 24VAC signal from Furnace 1 to the thermostat – Thermostat signals are removed.
- Through Twinning connection, Furnace 2 forces Furnace 1 to run the same mitigation airflow.
- After Mitigation, the Alarm Terminal is turned off, zone/ accessory board returns to a normally closed status and system goes back to normal operation.



SCENARIO 3 WIRING

SCENARIO 4:
Two integrated R-32 Furnaces with 1 accessory.

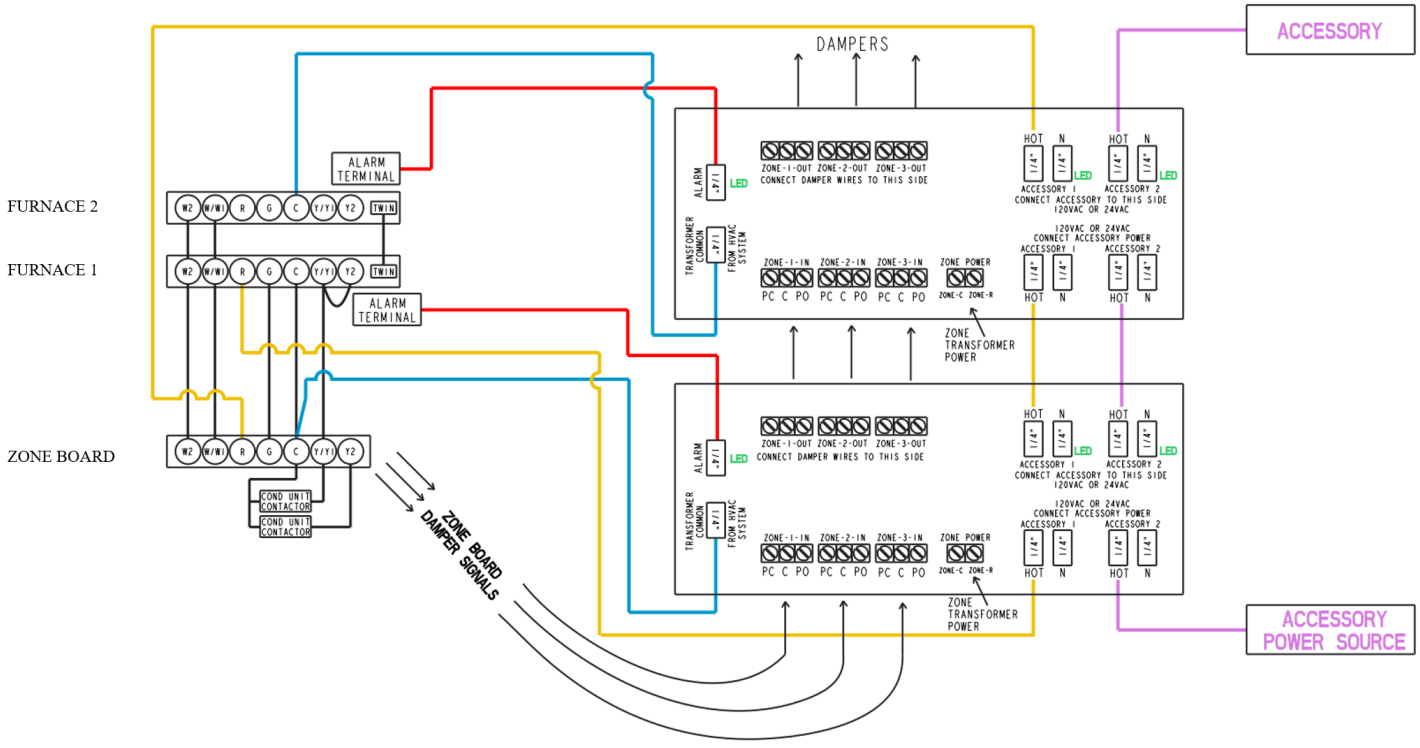
Parts needed: (2) PCBCM0313S.



SCENARIO 4 WIRING

SCENARIO 5:
Two integrated R-32 Furnaces with 1 accessory and zoning.

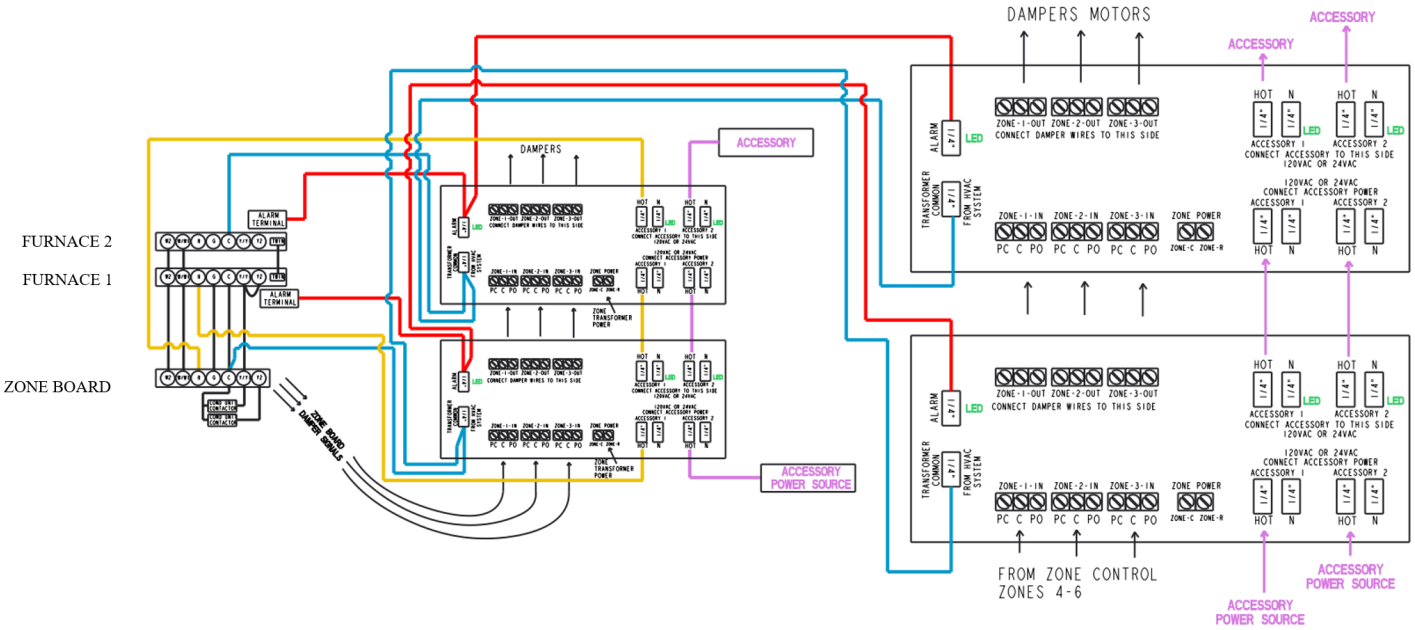
Parts needed: (2) PCBCM0313S



SCENARIO 5 WIRING

SCENARIO 6:
Two integrated R-32 Furnaces with 3 accessories and 4-6 zones.

Parts needed: (4) PCBCM0313S



SCENARIO 6 WIRING

SCENARIO 7:
Two R-410A furnaces paired with R-32 outdoor units - no accessories or zoning.

Parts needed: (2) Furnace Integration Kits and (1) PCBCM0313S.

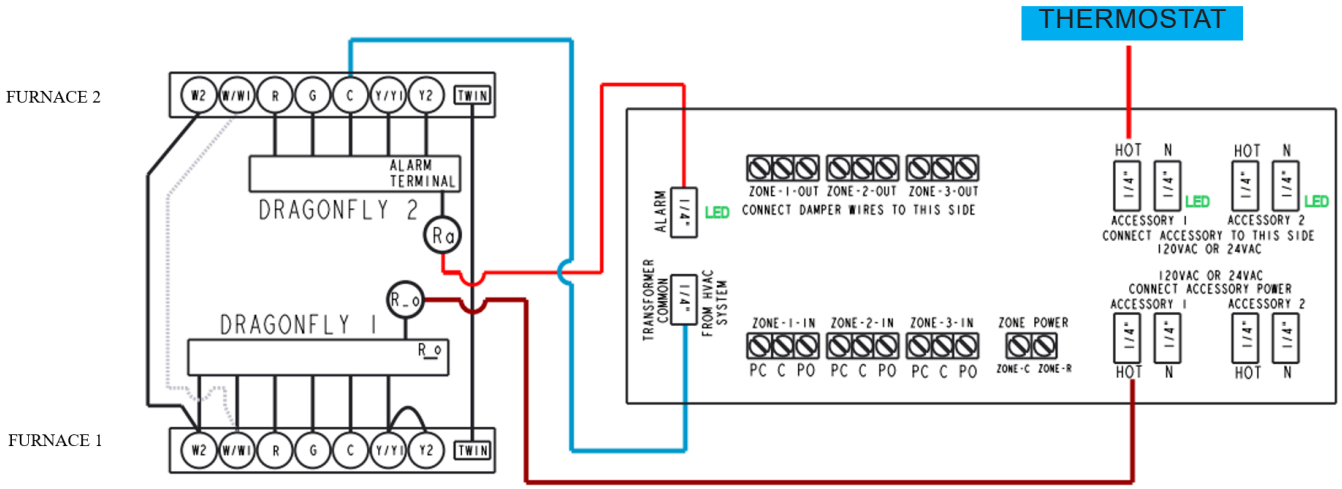
Furnace 1 (powers the thermostat): Ro Terminal from Furnace Integration Kit control board 1 is wired through the accessory relay on the zone/accessory board to the thermostat.

Furnace Integration Kit 1 Enters Mitigation:
- Furnace Integration Kit control board removes 24VAC from R of the thermostat connector – Thermostat signals are removed (zone/accessory board status is unchanged)
- Furnace 1 runs blower Tap associated with Y + Y2 + G inputs and tells Furnace 2 to do the same via twinning communications
- After Mitigation, 24VAC from Furnace Integration Kit control R is returned, system goes back to normal operation.

Furnace 2: Furnace Integration Kit control board 2 will control the zone/accessory board via it's on-board ALARM TERMINAL

Furnace Integration Kit control board 2 Enters Mitigation:
- Furnace Integration Kit control board 2 Energizes Alarm Terminal and opens the accessory relay
  - This disconnects the 24VAC signal between Furnace Integration Kit control board 1 to the thermostat – Thermostat signals are removed.
- Furnace 1 runs blower Tap associated with Y + Y2 + G inputs and tells Furnace 2 to do the same via twinning communications.
- After Mitigation, the Alarm Terminal is turned off, zone/accessory board returns to a normally closed status and system goes back to normal operation.

Only R wire connected to zone board.
Other wires can be connected as normal.

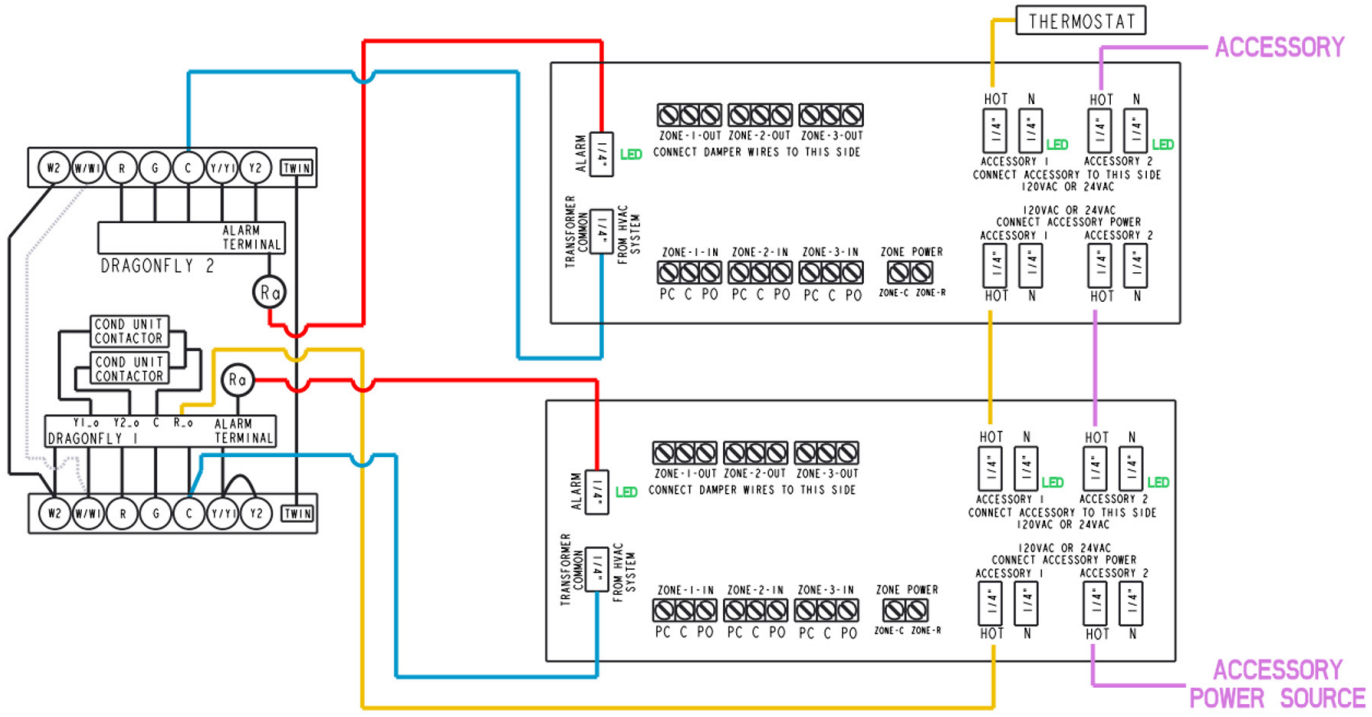


Scenario 7 Wiring

Scenario 8:
Two R-410A furnaces paired with R-32 outdoor units and 1 accessory.

Par**ts needed:** (2) Furnace Integration Kits and (2) PCBCM0313S.

Note: For options with more accessories and/or zones, see Scenario 6 for using (4) PCBCM0313S boards.

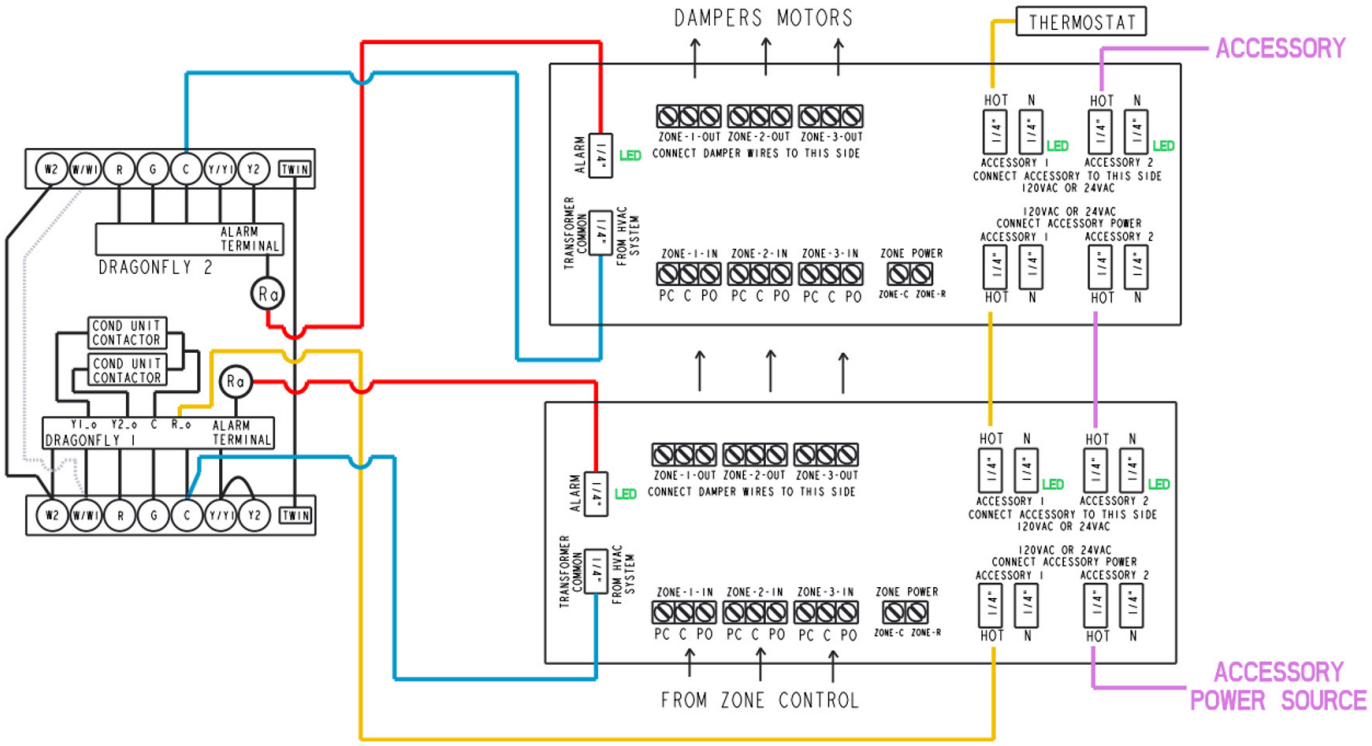


Scenario 8 Wiring

Scenario 9:
Two R-410A furnaces paired with R-32 outdoor units with 1 accessory and zoning.

Parts needed: (2) Furnace Integration Kits and (2) PCBCM0313S

Note: For options with more accessories and/or zones, see Scenario 6 for using (4) PCBCM0313S boards.



Scenario 9 Wiring

CUSTOMER FEEDBACK

We are very interested in all product comments.
Please fill out the feedback form on one of the following links:
Daikin Products: (https://daikincomfort.com/contact-us)
Goodman® Brand Products: (http://www.goodmanmfg.com/about/contact-us).
Amana® Brand Products: (http://www.amana-hac.com/about-us/contact-us).
You can also scan the QR code on the right for the product brand you purchased to be directed to the feedback page.

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