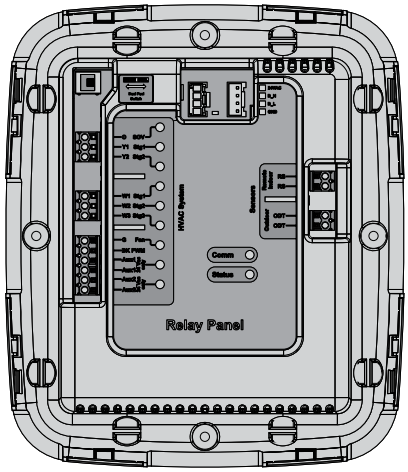
Installer’s Guide

Relay Panel

For use with Link Communicating Control and 24V Indoor Systems



BAC24VRPA252UB

⚠ 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.

November 2026 **CNTR-SVN006A-EN**

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.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ 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.**

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⚠ WARNING

Follow EHS Policies!

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

- **All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. 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.

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Table of Contents

Overview 5
Specifications 6
Installation 7
Wiring 9
Terminal Locations and ID 11
Field Wiring Diagrams 12
LED Indicators 27
Relay Panel Configuration 28
Troubleshooting 30

Overview

The Relay Panel is a wall mounted low voltage panel that enables Link Communicating Controls to operate with 24VAC indoor and/or outdoor HVAC equipment and up to two pieces of auxiliary equipment. Four wires are required from the control to the Relay Panel. For specific wiring applications, see Field Wiring Diagrams.

Table 1. BAC24VRPA252UA: parts list

Qty	Description
1	Relay Panel
4	Mounting screws/anchors
4	Wire ties
1	Installation guide
1	CAN wire harness
2	CAN connector pack
1	Cover

Figure 1. Relay Panel parts

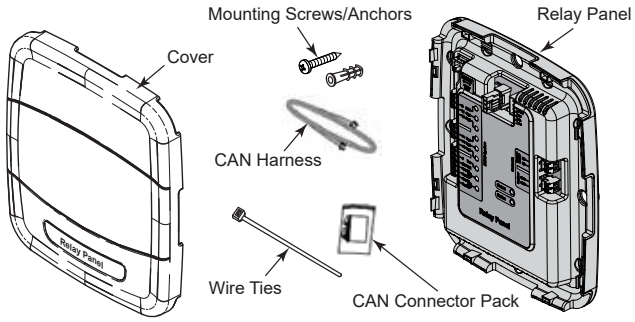


Table 2. Optional Accessories

Sensor	Description
ZZSENSAL0400AA	Indoor temperature sensor
BAYSEN01ATEMPA	Outdoor temperature sensor

Specifications

Specification	Description
Product model	BAC24VRPA252UB
Product	Relay Panel for use with 24VAC indoor and or outdoor HVAC equipment
Size	8.0 inch. width x 9.3 inch. height x 1.9 inch depth
Storage temperature	-40° to 175°F, 5% - 95% RH non-condensing
Operating temperature	-40° to 150°F, 5% - 95% RH non-condensing
Input power	24 VAC from HVAC system (range: 18-32 VAC)
Power consumption	4VA* (see the following table for system transformer sizing guidelines)
Wire usage	Minimum 18 gauge NEC approved control wiring
HVAC system type compatible	Standard (gas/electric), heat pump, dual fuel
Multistage system compatible	Standard HVAC systems: 3-stage heating, 2-stage cooling heat pump systems: 5-stage heating (2-compressor, 3 aux heat), 2-stage cooling (future)

Specification	Description
LEDs	10 green, 1 amber
Communications	Controller Area Network (CAN) bus
AUX contacts	Dry contacts, 18–30 VAC, 2A max

Table 3. System transformer sizing guidelines

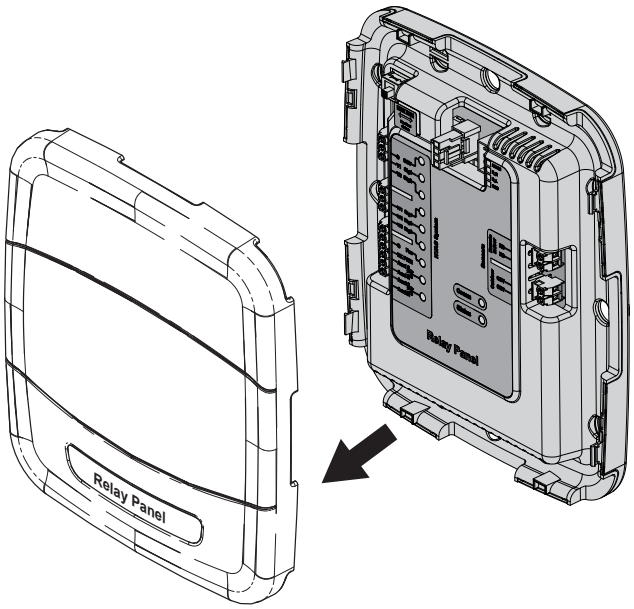
Outdoor unit type	Indoor unit type			
	Comm furnace	Comm air handler	24V furnace	24V air handler
	Minimum indoor 24V control power transformer size, (VA*)			
Communicating heat pump	40	40	40	40
Communicating air conditioner	35	40	35	40

Installation

The unit's design allows installation in closet, attic, or other non-condensing locations free from obstructions or other hazards.

1. Grasp the cover at the edges and pull it straight outward to remove it. The cover should disengage with minimal force.

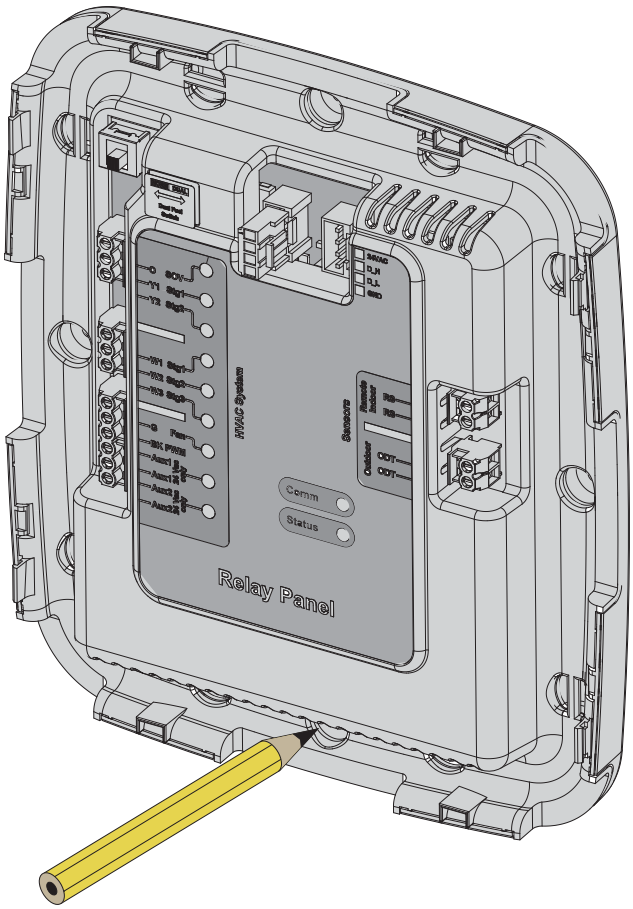
Figure 2. Remove cover



2. Use the base as a template to mark the locations of the four mounting holes on the wall.

Note: *Use a level for accuracy.*

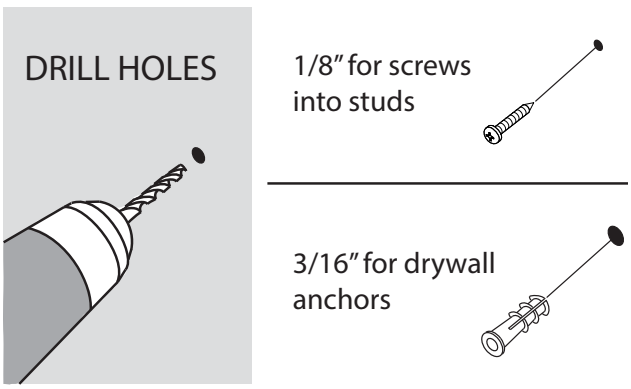
Figure 3. Mark mounting locations



3. Mount the panel:

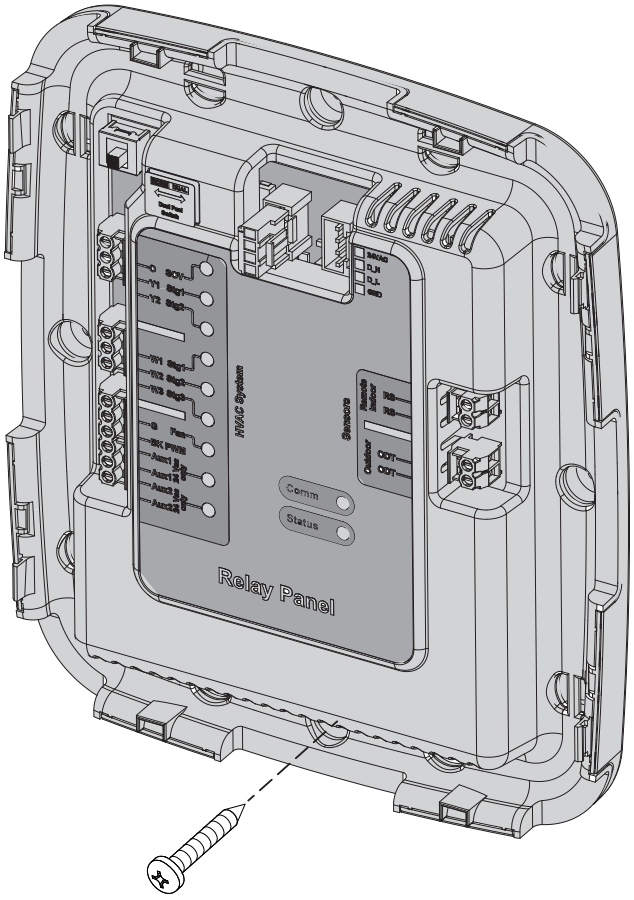
- **Mounting to studs:** drill 1/8–inch pilot holes in the four locations marked above.
- **Mounting to drywall:** if mounting to drywall with no studs behind it, enlarge pilot holes to 3/16–inch for anchors (included with relay panel). Gently, tap the anchors into the four holes.

Figure 4. Drill holes



4. Attach the base to the wall using the four provided screws. Do not over tighten.

Figure 5. Attach base



Wiring

⚠ WARNING

Live Electrical Components!

Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

When it is necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks.

NOTICE

Equipment Damage!

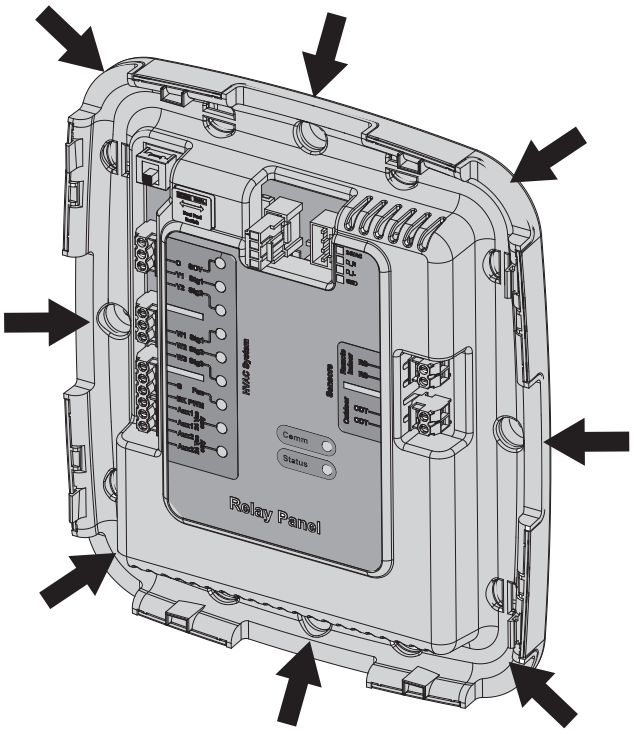
Failure to follow instructions below could result in improper wiring and equipment damage.

Follow the terminal connection information carefully to verify the control is wired properly. After wires are secure, bare wires MUST NOT touch each other. See the field wiring diagrams for specific system applications.

1. Wires may enter at any of the eight locations. See Figure 6, p. 9.

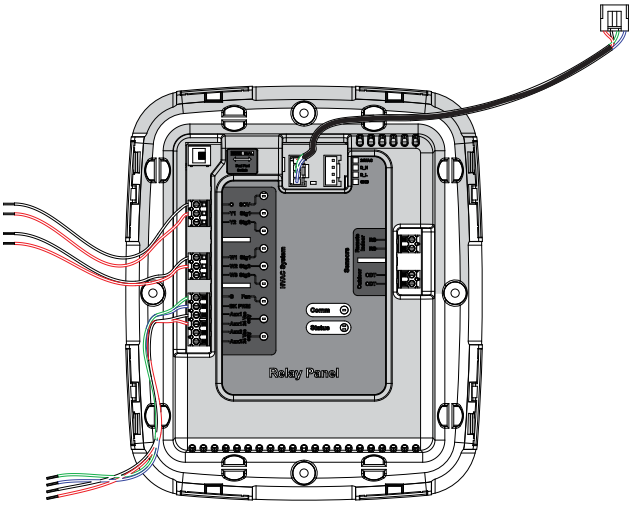
Note: *Necessary wire lengths should be considered when determining wire routing.*

Figure 6. Wire locations



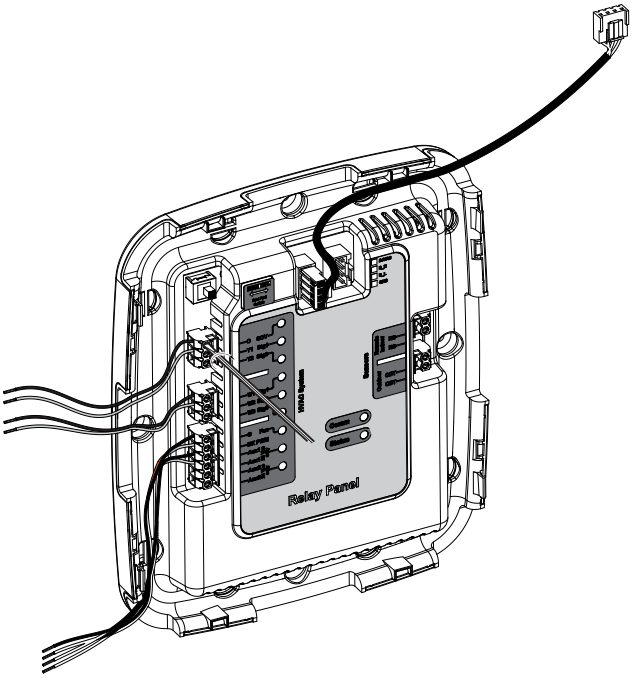
2. Route the wires through the recessed wire raceway. Confirm sufficient wire length is available to reach the connectors.

Figure 7. Routing wires



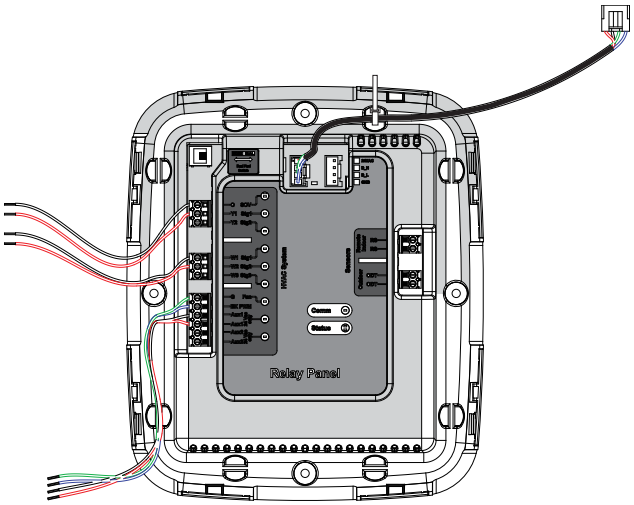
3. Using a 1/8–inch blade screwdriver, attach all wires securely to the proper terminals on the Rely Panel.

Figure 8. Attaching wires



4. Secure all wires with the supplied wire ties. Confirm all wires are kept in place and not strained.

Figure 9. Securing wires



Terminal Locations and ID

Figure 10. Terminal locations

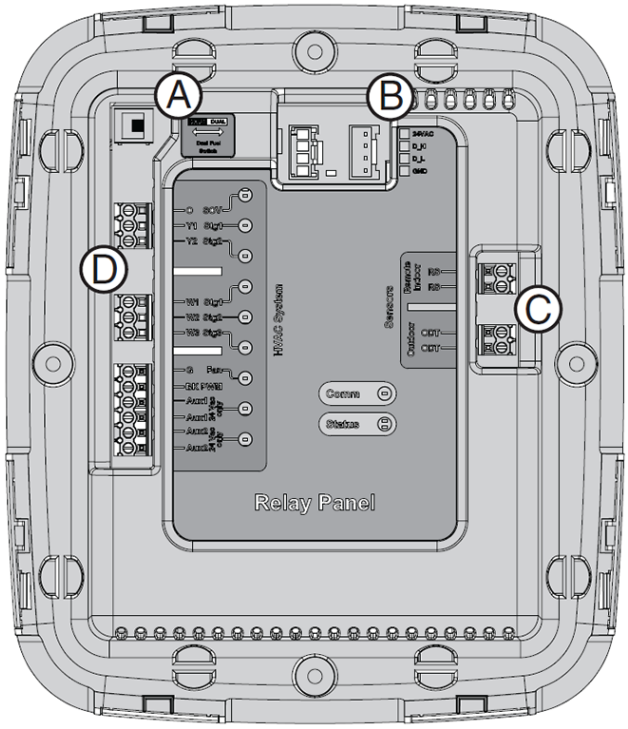


Table 4. Terminal identification

Key	Terminal identification
A	Dual fuel switch
B	Link CAN bus + 24VAC input
C	Optional sensors
D	HVAC system

Table 5. Dual fuel switch

Switch position	Description
NORM	HP or conventional heat/cool systems
DUAL	Dual fuel systems

Note: The switch ships in the NORM position by default. Refer to the following section for Field Wiring Diagrams.

Table 6. Thermostat and indoor unit connections

Terminal name	Description	Color used
R - Hot	24V hot	
DH - Data	Data high	
DL - Data	Data low	
B - Com	24V common	

Notes:
1. Record the color of each wire used in the blanks provided.
2. R and B must receive 24 volts from the indoor unit transformer.

Table 7. Optional remote sensor connections

Terminal name		Description	Color used
Remote indoor	RS	Remote indoor temp sensor ZZENSA-L0400AA	
	RS		
Outdoor	ODT	Outdoor temp sensor BAYSEN01A-TEMPA	
	ODT		

Note: The Relay Panel uses 5 VDC to obtain temperature feedback from the remote sensors. Do not run these sensors in a wiring bundle that contains 24 volts AC. See remote temperature sensor literature for troubleshooting.

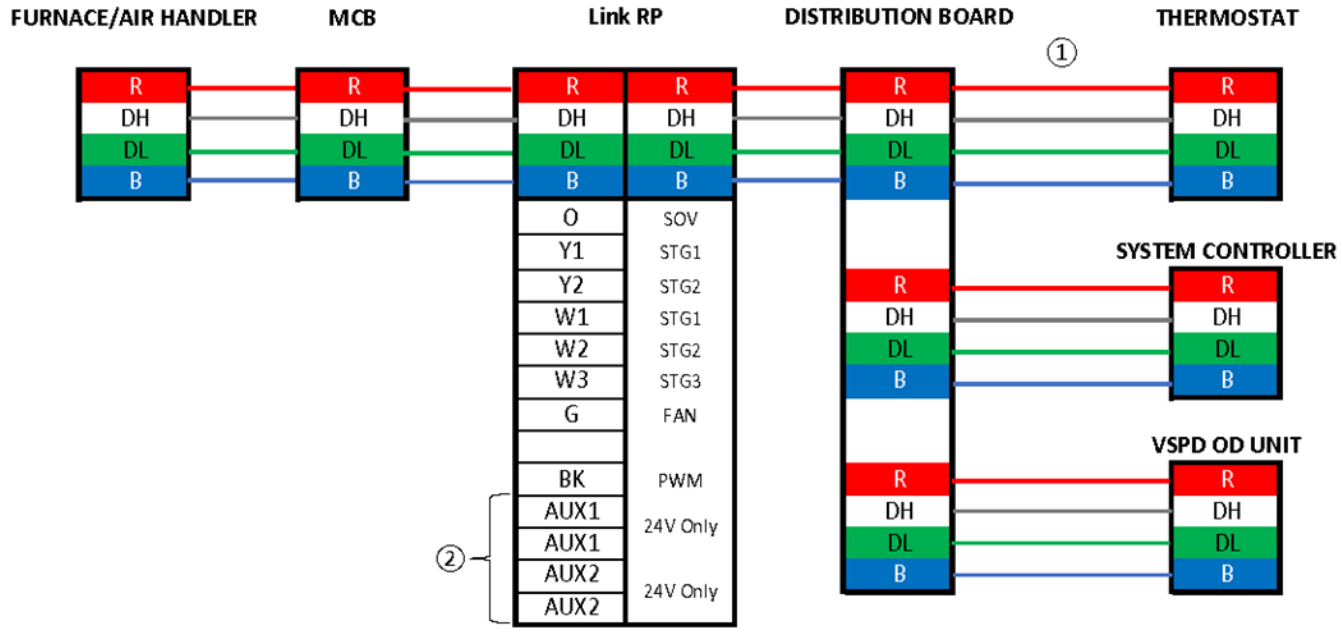
Table 8. HVAC system connections

Terminal name	Description	Color used
O - SOV	Switch over valve	
Y1 – Stg1	First stage compressor	
Y2 – Stg2	Second stage compressor	
W1 – Stg1	First stage ID heating	
W2 – Stg2	Second stage ID heating	
W3 – Stg3	Third stage ID heating	
G - Fan	Indoor blower	
BK - PWM	PWM signal for indoor blower modulation	
Aux 1[1]	Dehumidifier/ ventilation	—
Aux 2[1]	Dehumidifier/ ventilation	—
Aux 3[1]	Dehumidifier/ ventilation	—
Aux 4[1]	Dehumidifier/ ventilation	—

1. *Aux terminals are dry contacts only. Input voltage will need to be supplied. Refer to the Auxiliary Equipment's Installer's guide . If the output of these contacts is being used as an input to a non-electromechanical device, a field supplied 10K Ohm resistor should be placed between the top terminal of each pair of contacts and the common (B) terminal of the Relay Panel.*

Field Wiring Diagrams

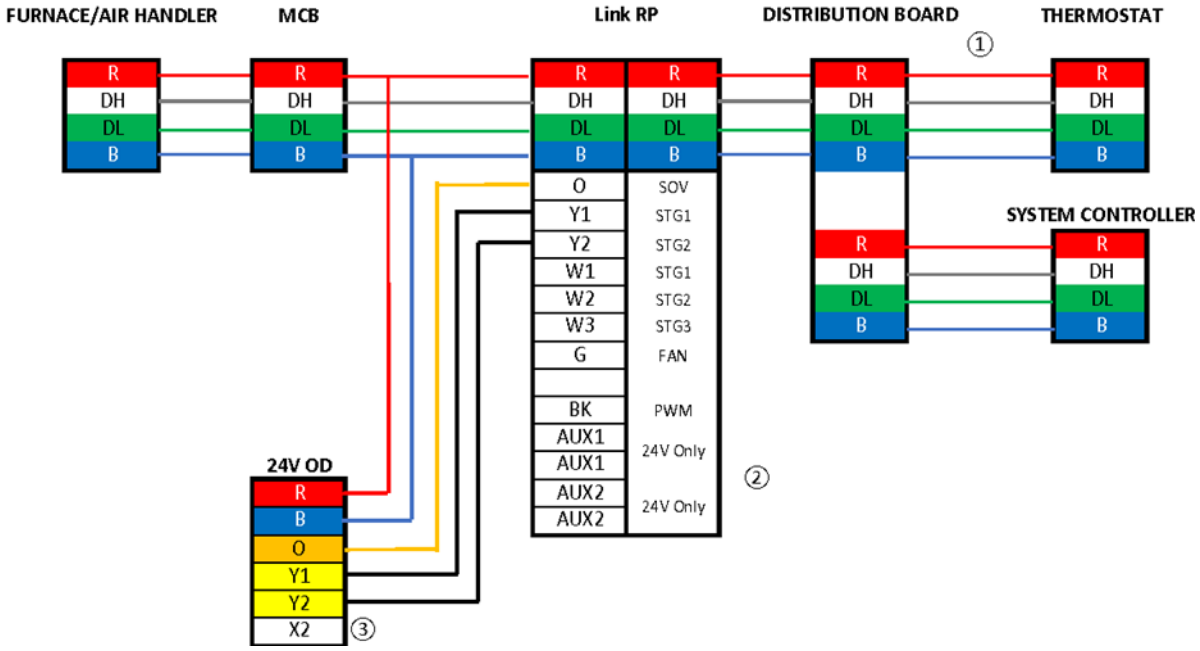
Figure 11. R–454B link communicating VS heat pump or AC with communicating furnace or air handler relay panel used for additional auxiliary contacts



Notes:

1. *Condensate switch should be connected to one of the external switches. Setup must be done using the Technician App or UX360 thermostat.*
2. *See note in Terminal Locations and ID for aux terminals.*

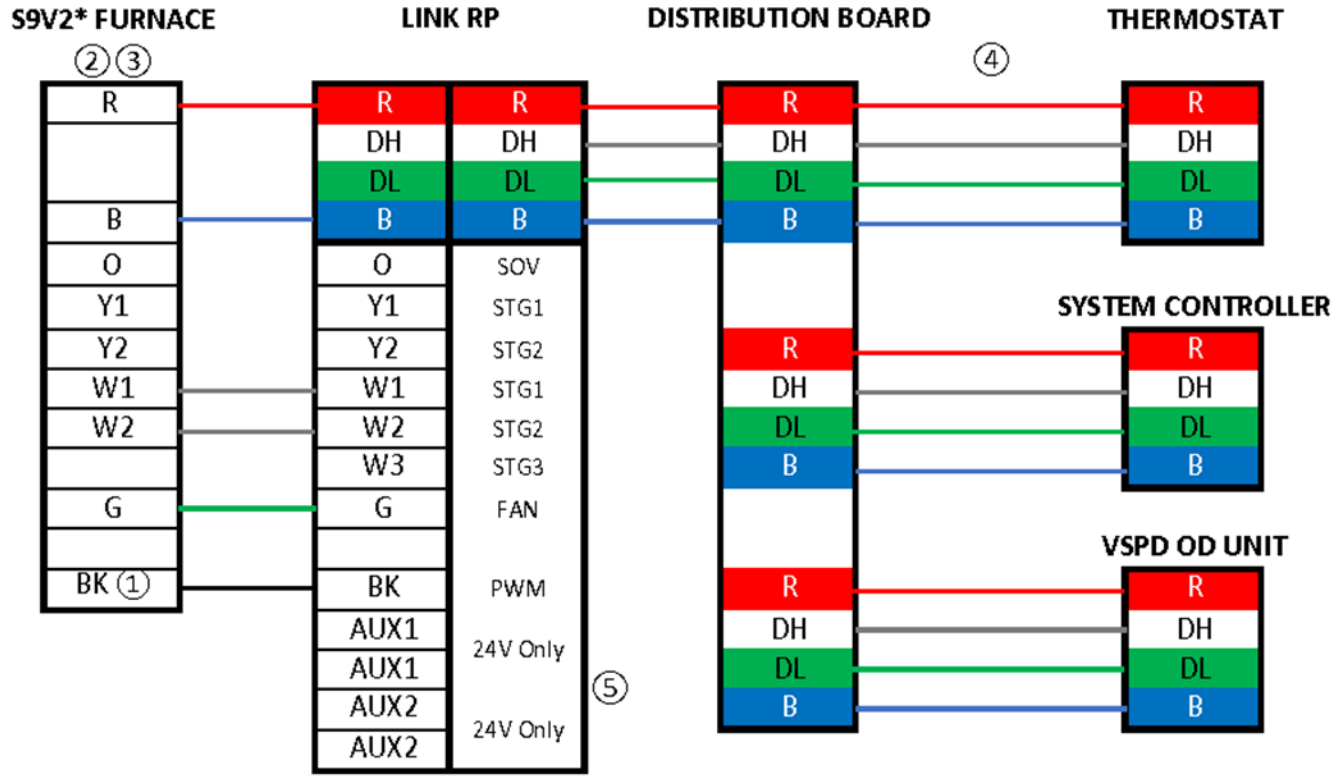
Figure 12. R–454B link thermostat and relay panel with 24V heat pump or AC with communicating furnace or air handler



Notes:

1. *Condensate switch should be connected to one of the external switches. Setup must be done using the Technician App or UX360 thermostat.*
2. *See note in Terminal Locations and ID for aux terminals.*
3. *X2 not required.*

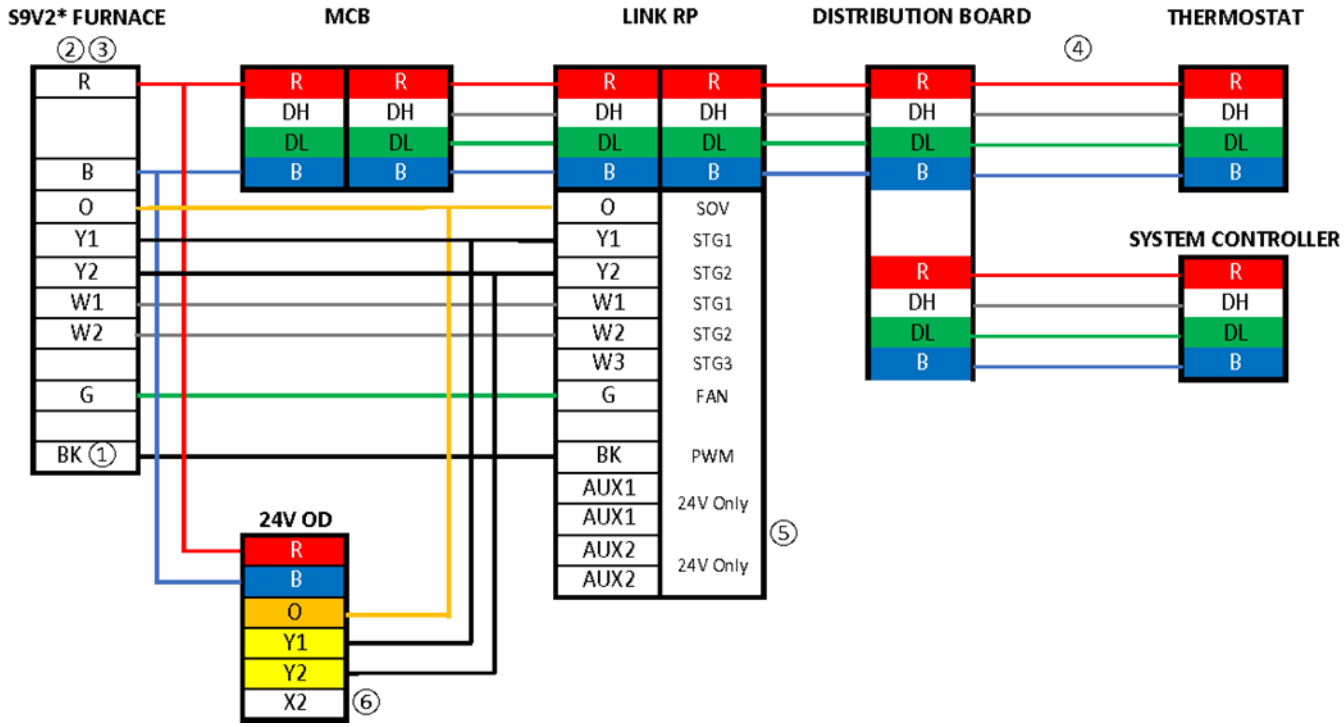
Figure 13. R–410A link communicating VS heat pump or AC with non-communicating S9V2* furnace



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Furnace LED's will display "CoF", continuous airflow during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*

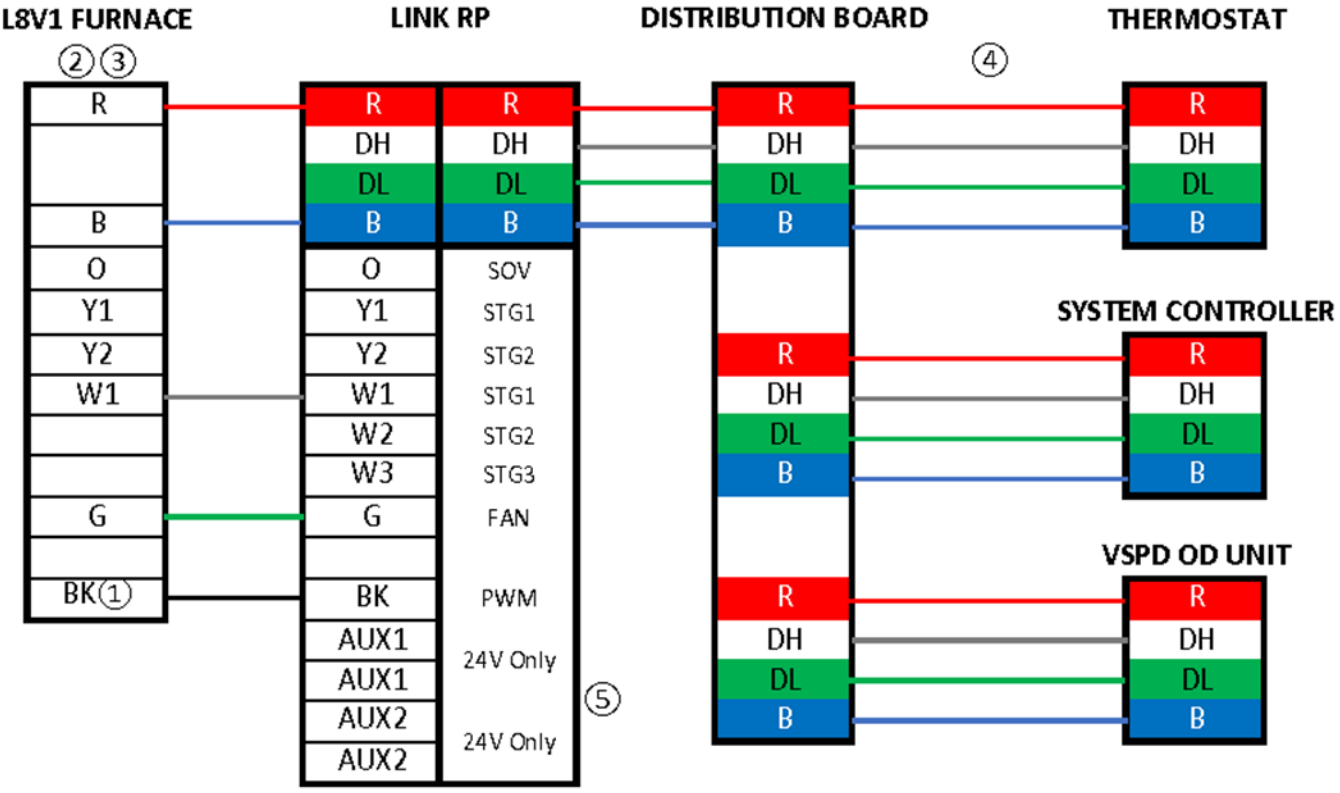
Figure 14. R–454B link thermostat and relay panel with 24V heat pump or AC with S9V2* furnance



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Furnace LED's will display "CoF", continuous airflow during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*
6. *X2 not required.*

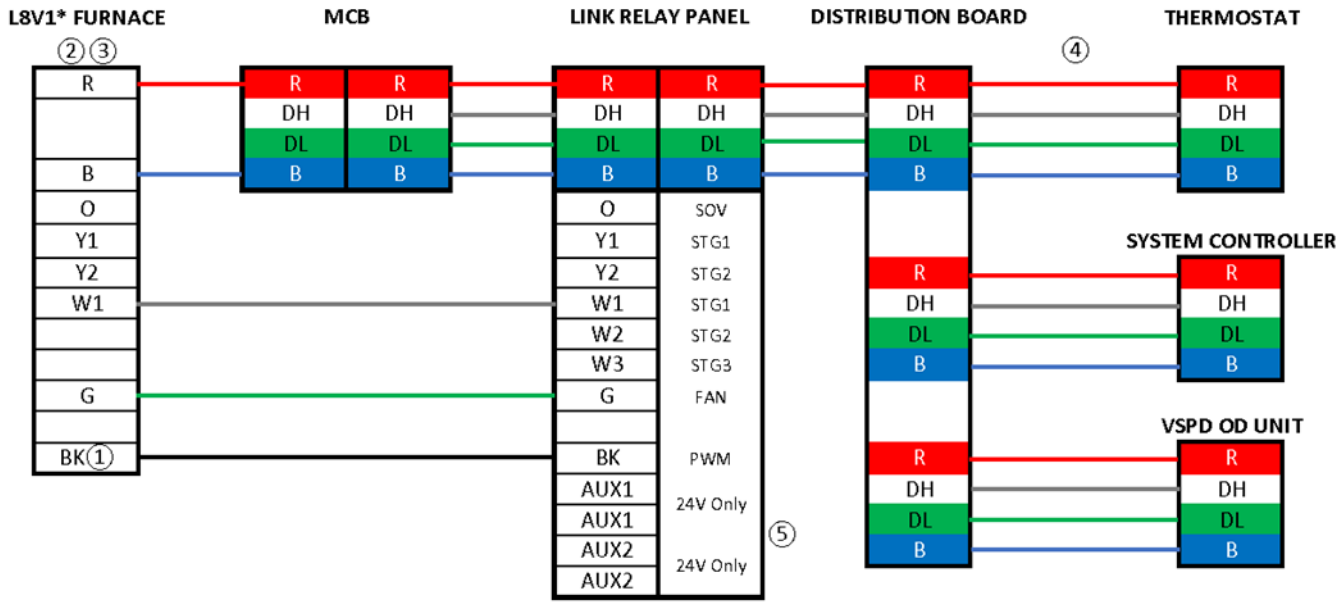
Figure 15. R–410A link communicating VS heat pump or AC with non-communicating L8V1 furnance



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Furnace LED's will display "CoF", continuous airflow during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*

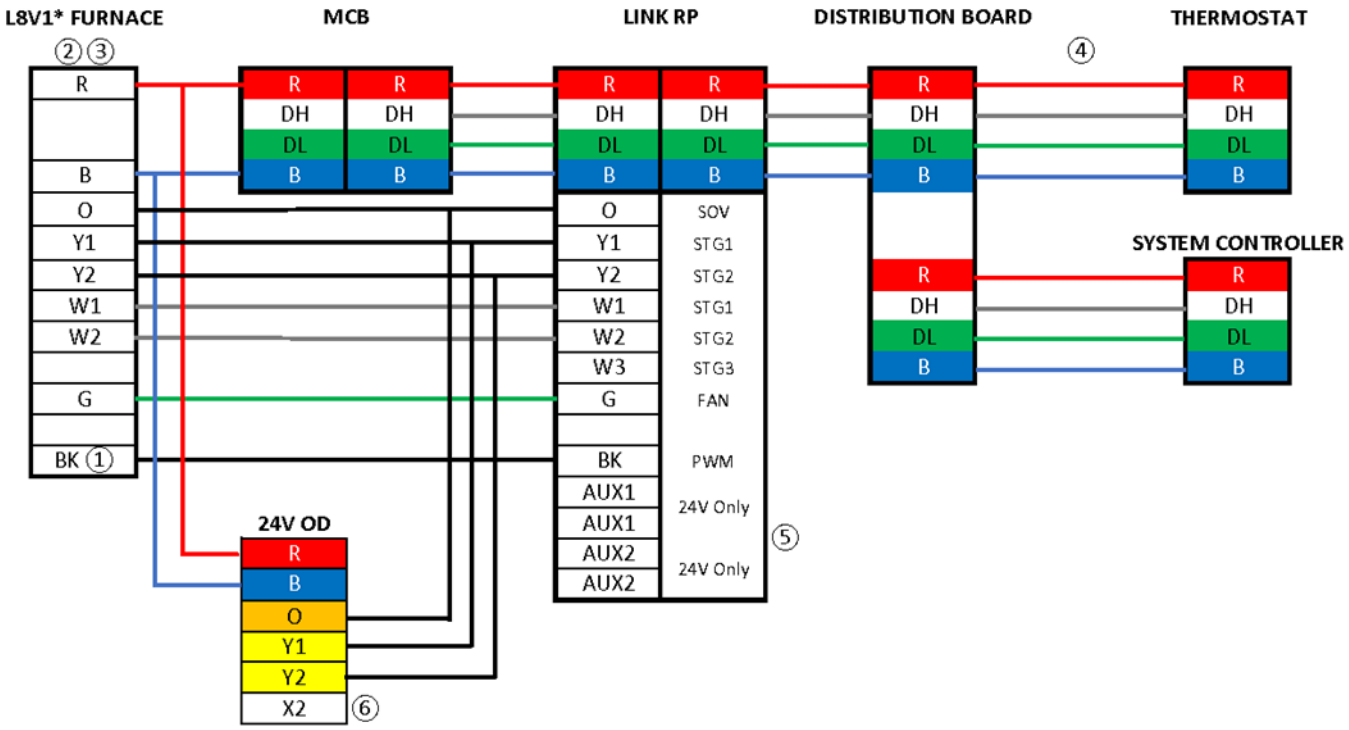
Figure 16. R–454B link communicating VS heat pump or AC with non-communicating L8V1 furnance



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Furnace LED's will display "CoF", continuous airflow during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*

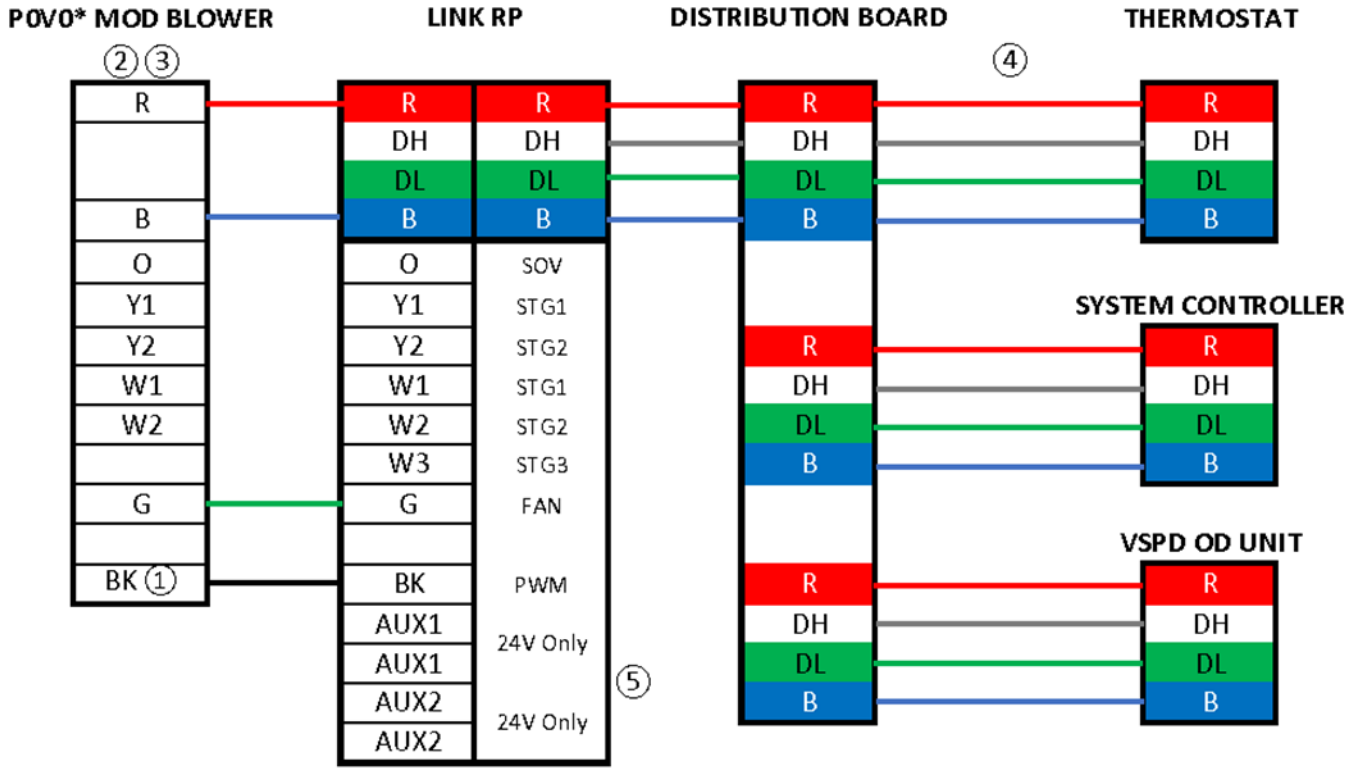
Figure 17. R–454B link thermostat and relay panel with 24V heat pump or AC with non-communicating L8V1 furnace



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Furnace LED's will display "CoF", continuous airflow during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*
6. *X2 not required.*

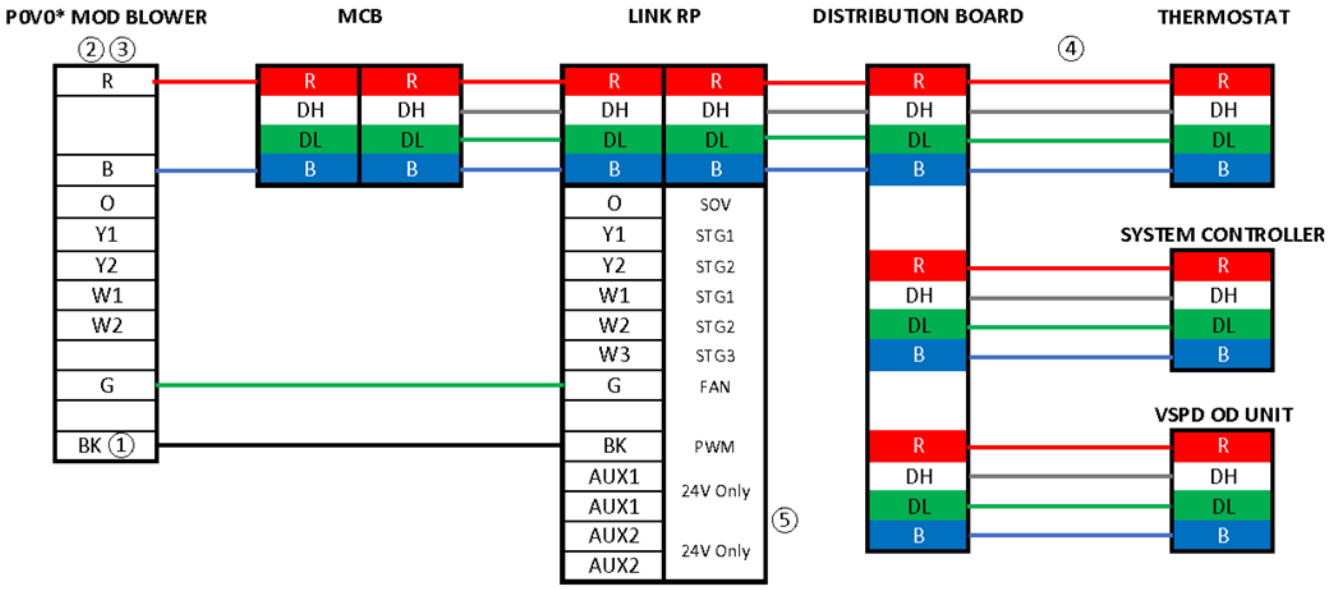
Figure 18. R–410A link communicating VS heat pump or AC with non-communicating P0V0* modular blower



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Modular blower LED's will display "CoF", continuous airflow during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*

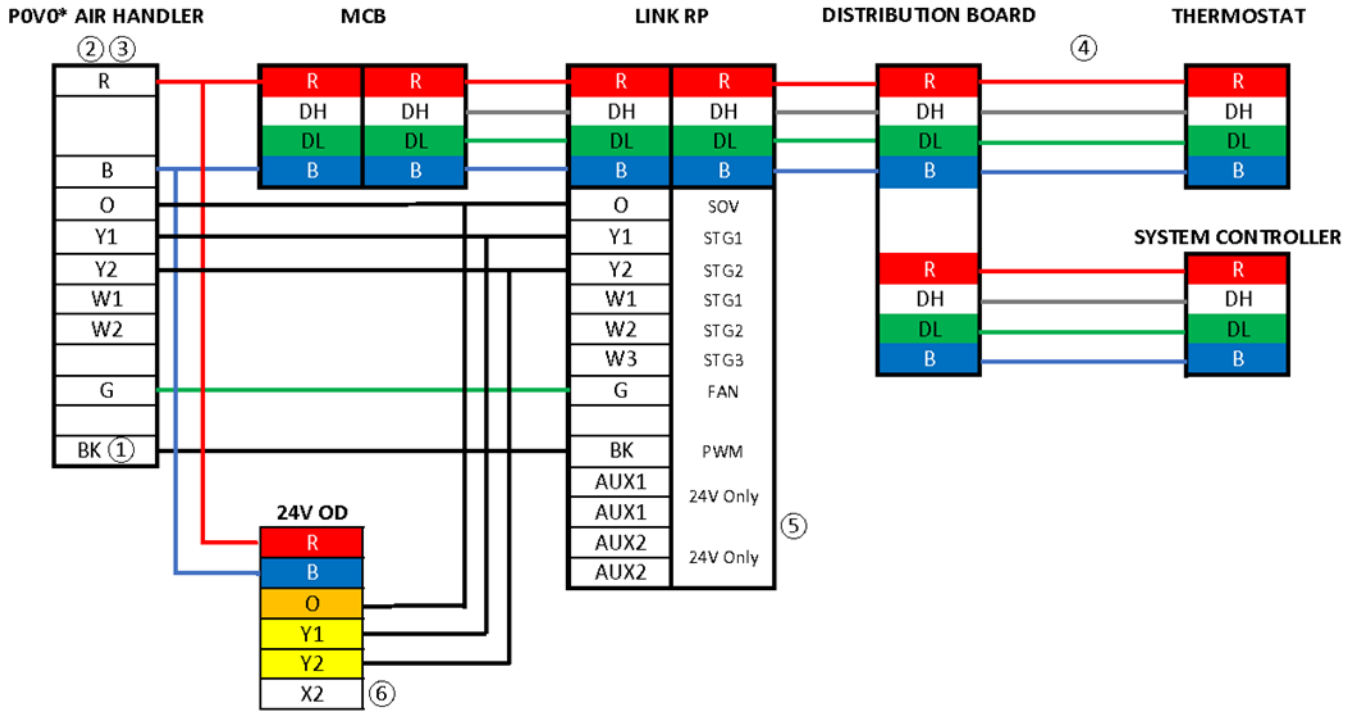
Figure 19. R–454B link communicating VS heat pump or AC with non-communicating P0V0* modular blower



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Modular blower LED's will display "CoF", continuous airflow during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*

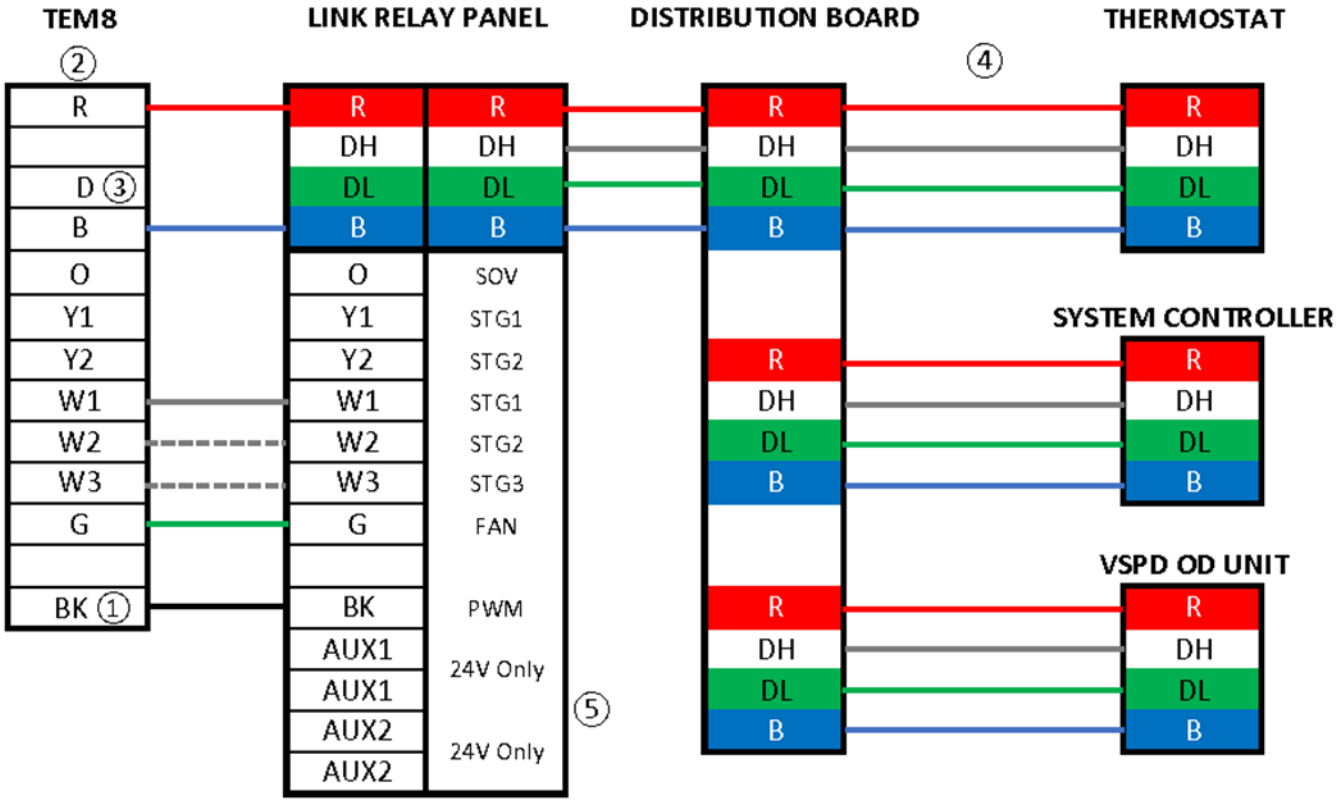
Figure 20. R–454B link communicating and relay panel with 24V heat pump or AC with non-communicating P0V0* modular blower



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Modular blower LED's will display "CoF", continuous airflow during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*
6. *X2 is not required.*

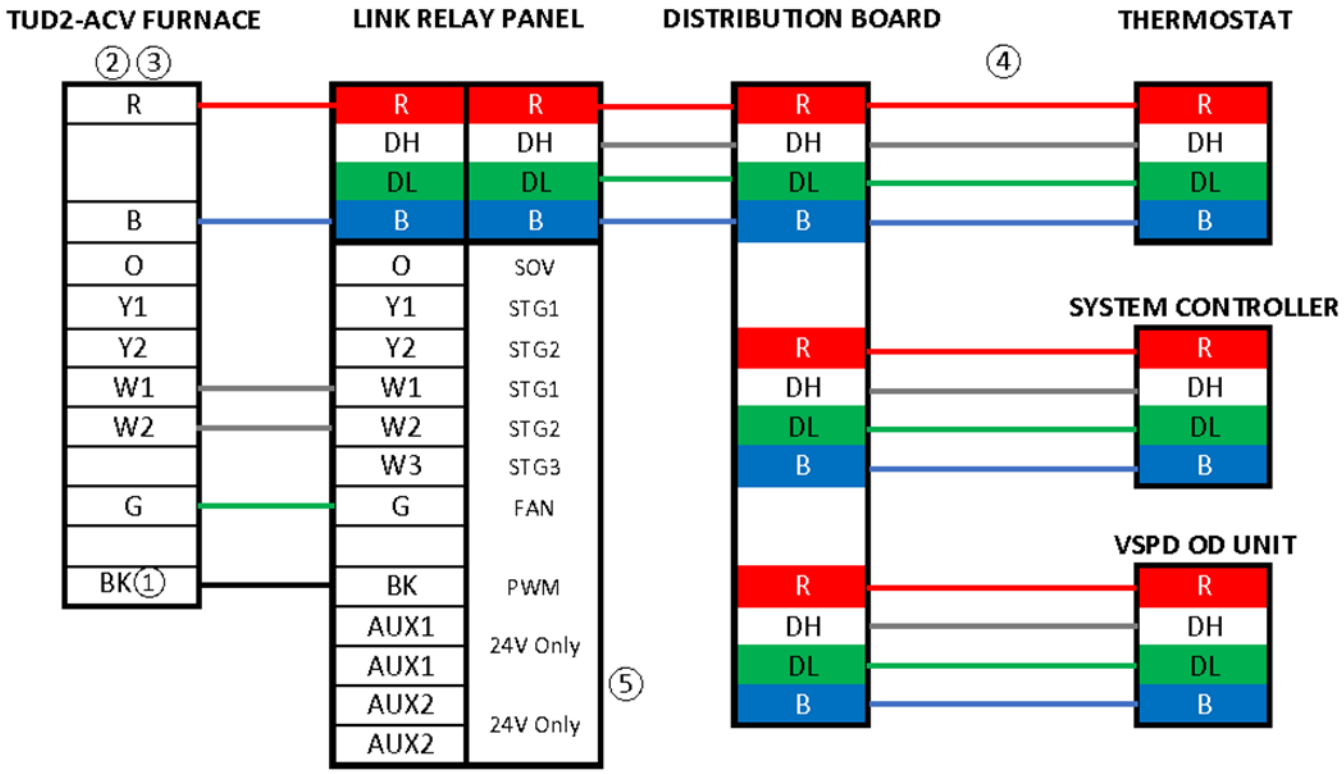
Figure 21. R–410A link communicating VS heat pump or AC with TEM8 in 24V mode



Notes:

1. *Cut the BK jumper on the air handler and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH) or closest available setting.*
3. *D wiring is on TEM8 only (do not use).*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*

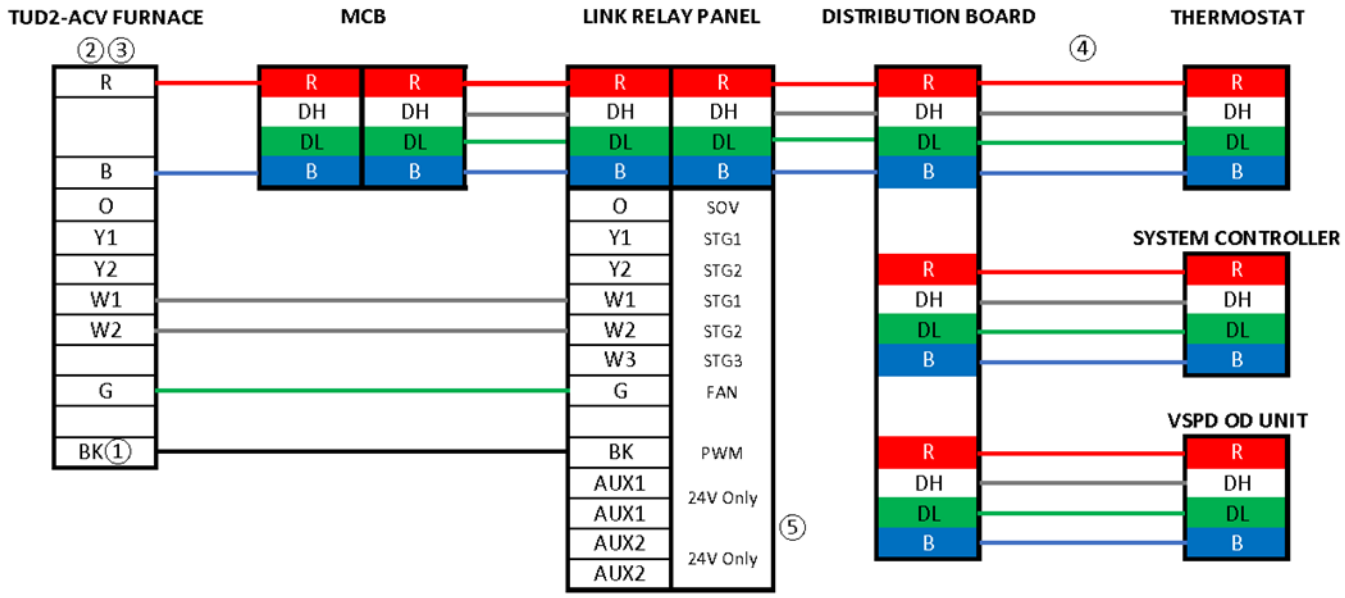
Figure 22. R–410A link communicating VS heat pump or AC with *UD2*-*DD2*-ACV furnace in 24V mode



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Display will read continuous fan during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*

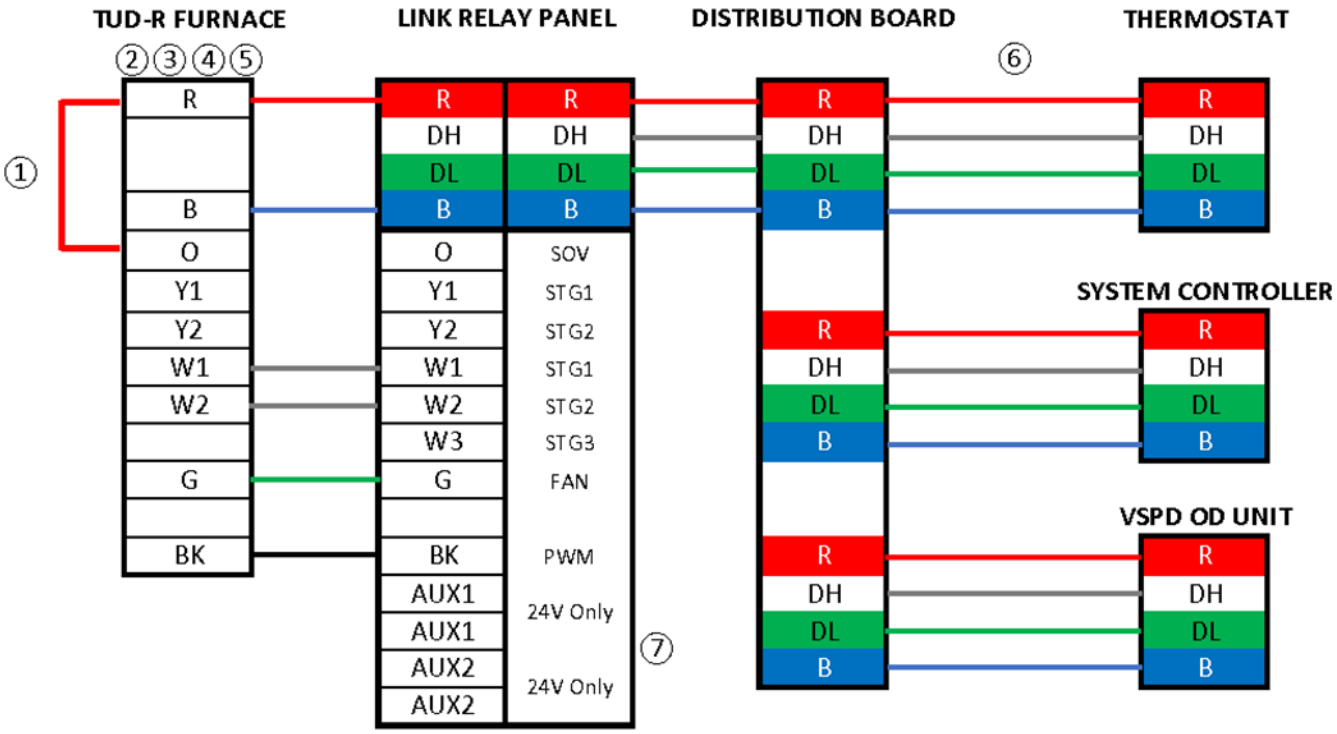
Figure 23. R–454B link communicating VS heat pump or AC with *UD2*-*DD2*-ACV furnace in 24V mode



Notes:

1. *Cut the BK jumper on the IFC and connect the wiring per the diagram.*
2. *CFM/ton must be set to 400 (CPC and CPH).*
3. *Display will read continuous fan during compressor operation.*
4. *Wire condensate switch in series with R to the thermostat.*
5. *See note in Terminal Locations and ID for aux terminals.*

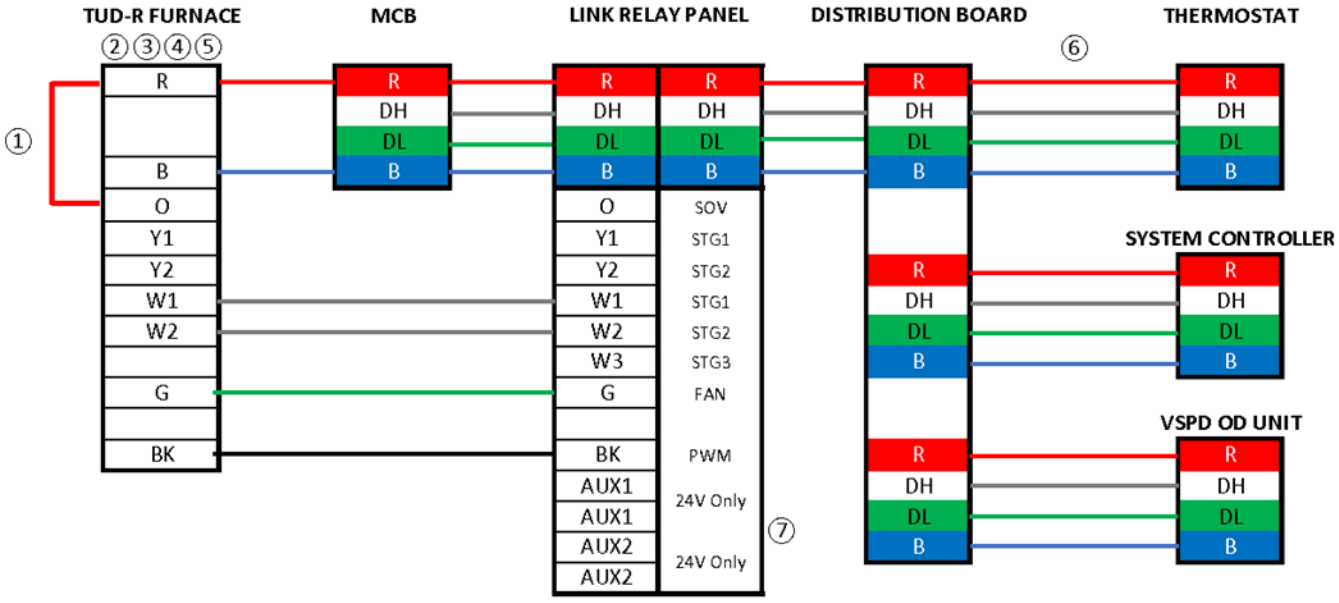
Figure 24. R–410A link communicating VS heat pump or AC with *UD2*-*DD2* furnace



Notes:

1. *Install the field supplied jumper from R-O and connect the wiring as shown.*
2. *Set dip switches S3, 1–4 to match the OD Tonnage.*
3. *Set dip switch S5–1 to on.*
4. *Set dip switch S5–2 to off.*
5. *CFM/ton must be set to 400 (CPC and CPH).*
6. *Wire condensate switch in series with R to the thermostat.*
7. *See note in Terminal Locations and ID for aux terminals.*

Figure 25. R–454B link communicating VS heat pump or AC with *UD2*-*DD2* furnace

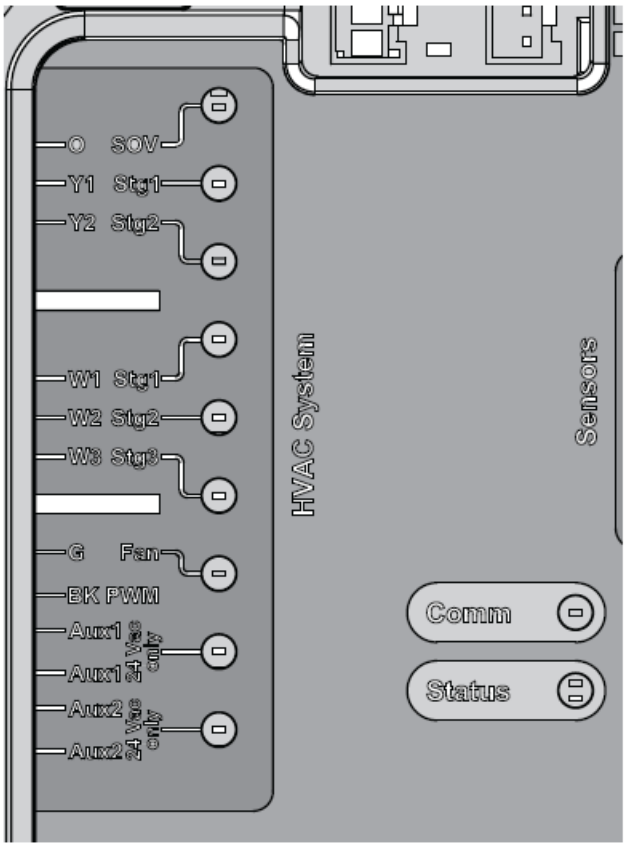


Notes:

1. *Install the field supplied jumper from R-O and connect the wiring as shown.*
2. *Set dip switches S3, 1–4 to match the OD Tonnage.*
3. *Set dip switch S5–1 to on.*
4. *Set dip switch S5–2 to off.*
5. *CFM/ton must be set to 400 (CPC and CPH).*
6. *Wire condensate switch in series with R to the thermostat.*
7. *See note in Terminal Locations and ID for aux terminals.*

LED Indicators

Figure 26. LED indicators



Comm

Communication LED-amber

- LED on when first powering up
- LED flashes number of communicating components in the system (example: communicating control with the Relay Panel will equal two flashes)

HVAC system

HVAC systems LEDs-green

A green LED will illuminate when the relay is energized.

Relay Panel Configuration

Relay Panel pre-configuration checklist

- All Link system components have CAN bus harness connectors. Verify all parts of the system are connected and powered.
- Verify the Relay Panel is properly wired and powered.
- Relay Panel configuration can be done from the Diagnostic Mobile app or from the Link system thermostat, ComfortSite, or ASDealerNet credentials are required to configure via the app.
- The Diagnostic Mobile app can be downloaded and installed on your mobile device scanning the below QR codes:

Figure 27. American standard



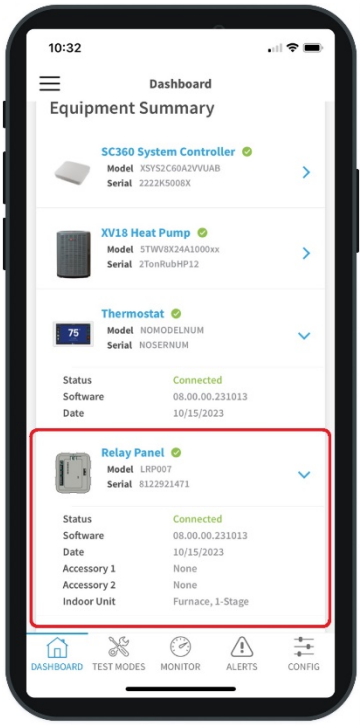
Figure 28. Trane



Connecting the Link system with the Mobile Diagnostic app

- ComfortSite or ASDealerNet credential are required to connect to a Link system via the Diagnostic Mobile app.
- Connect to the Link system and verify the Relay Panel is displayed in the Equipment Summary.

Figure 29. Diagnostic Mobile app

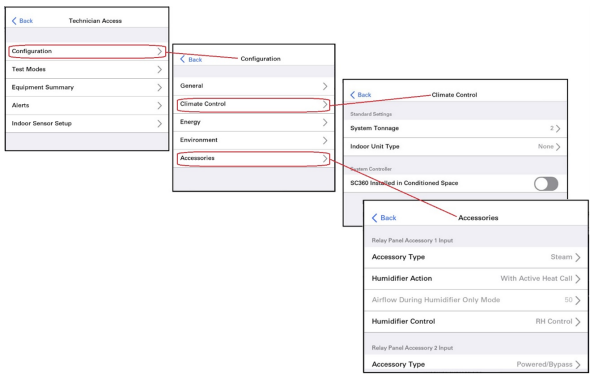


Relay Panel configuration

Relay Panel configuration can be accomplished using the Link UX360 Thermostat or the Mobile Diagnostic app.

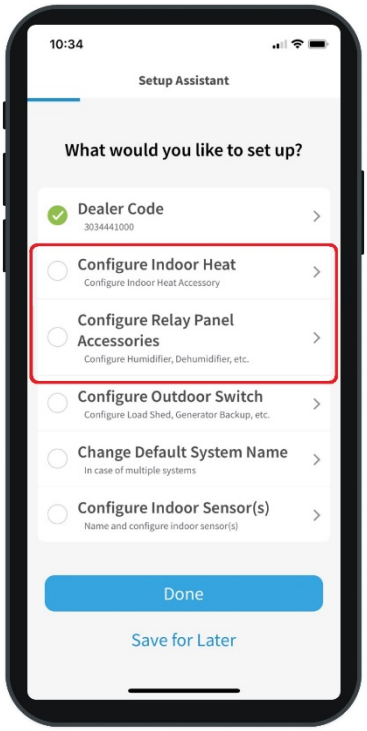
- Using the Link UX360 Thermostat, enter the configuration and technician access menu. Follow the on-screen guide to setup and configure all equipment associated with the Relay Panel.

Figure 30. Configuration Link UX360 Thermostat



- Using the Diagnostic Mobile app, enter the configuration section. Using the Setup Assistant, follow the on-screen instructions to setup and configure all equipment associated with the Relay Panel.

Figure 31. Configuration Diagnostic Mobile app



Troubleshooting

The table below lists the meaning of the LED light indicators.

Table 9. Relay Panel LED light descriptions

Condition	COM LED (Amber)	Status LED's (Green)
Idle/off	Off	Off
Start-up	On (solid)	On (solid)
Active demand	N/A	Slow blink
Communication established (CAN)	Node count	N/A
Communication lost (CAN)	Fast blink	N/A

Additional low voltage wiring support

For additional information and support for troubleshooting the low voltage wiring for the Link Relay Panel, follow the link by scanning the QR code below with your mobile device.

Figure 32. Link control wire troubleshooting



About Trane and American Standard Heating and Air Conditioning

Trane and American Standard create comfortable, energy efficient indoor environments for residential applications. For more information, please visit www.trane.com or www.americanstandardair.com.

The manufacturer has a policy of continuous data improvement and it reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

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