

# iO-TWIN and iO-TWIN-TR Universal Twinning and Paralleling Kit

## GENERAL

The iO-TWIN and iO-TWIN-TR Universal Twinning and Paralleling Kit™ is designed to allow a single thermostat to control two separate HVAC units. The iO-TWIN can also be expanded to control two additional HVAC units. The Universal Twinning and Paralleling Kit can be used with single stage (1 Heat / 1 Cool), multi-stage (2 Heat / 2 Cool) and heat pump (3 Heat / 2 Cool) equipment.

## SEQUENCE OF OPERATION

The iO-TWIN is designed to control multiple HVAC units from a single thermostat. For example, if the thermostat calls for first stage cooling, Y1 and G on both HVAC units will be energized at the same time.

## INSTALLATION

To install the panel, first slide the PC board out of its base and screw the base to a flat surface in a location that allows easy access to wiring. Reinstall the PC board by carefully centering it over the base and snapping it into the grooves.

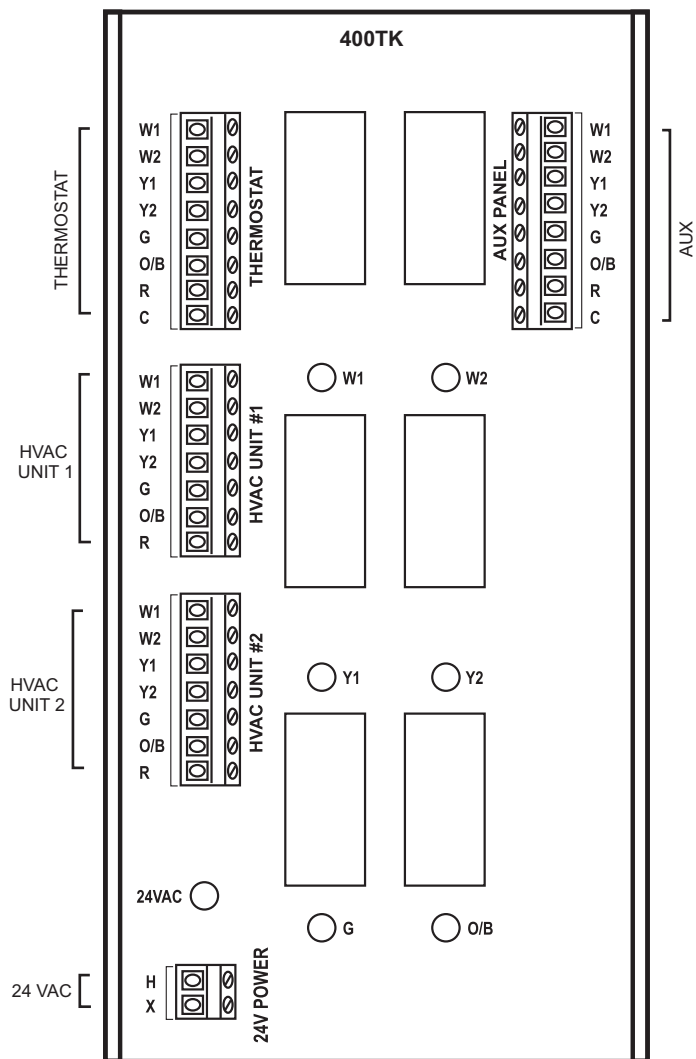
The iO-TWIN requires a separate 24VAC, 20VA transformer to be wired to the twinning terminals marked H and X. The iO-TWIN-TR comes packaged with the transformer.

Only standard 18-gauge thermostat wire is required. The thermostat and HVAC units can be located up to 300 feet from the twinning kit.

The thermostat must be equipment compatible. (heat / cool stats for heat / cool equipment and heat pump stats for heat pumps)

Wire the thermostat to the terminals marked THERMOSTAT.

Wire appropriate HVAC unit to terminals marked HVAC UNIT #1 and HVAC UNIT #2.



**Only identical furnaces should be twinned in order to help insure that both furnace fans start at the same time.**

**If furnaces are not identical, back draft dampers can be installed in either the supply or return duct.**

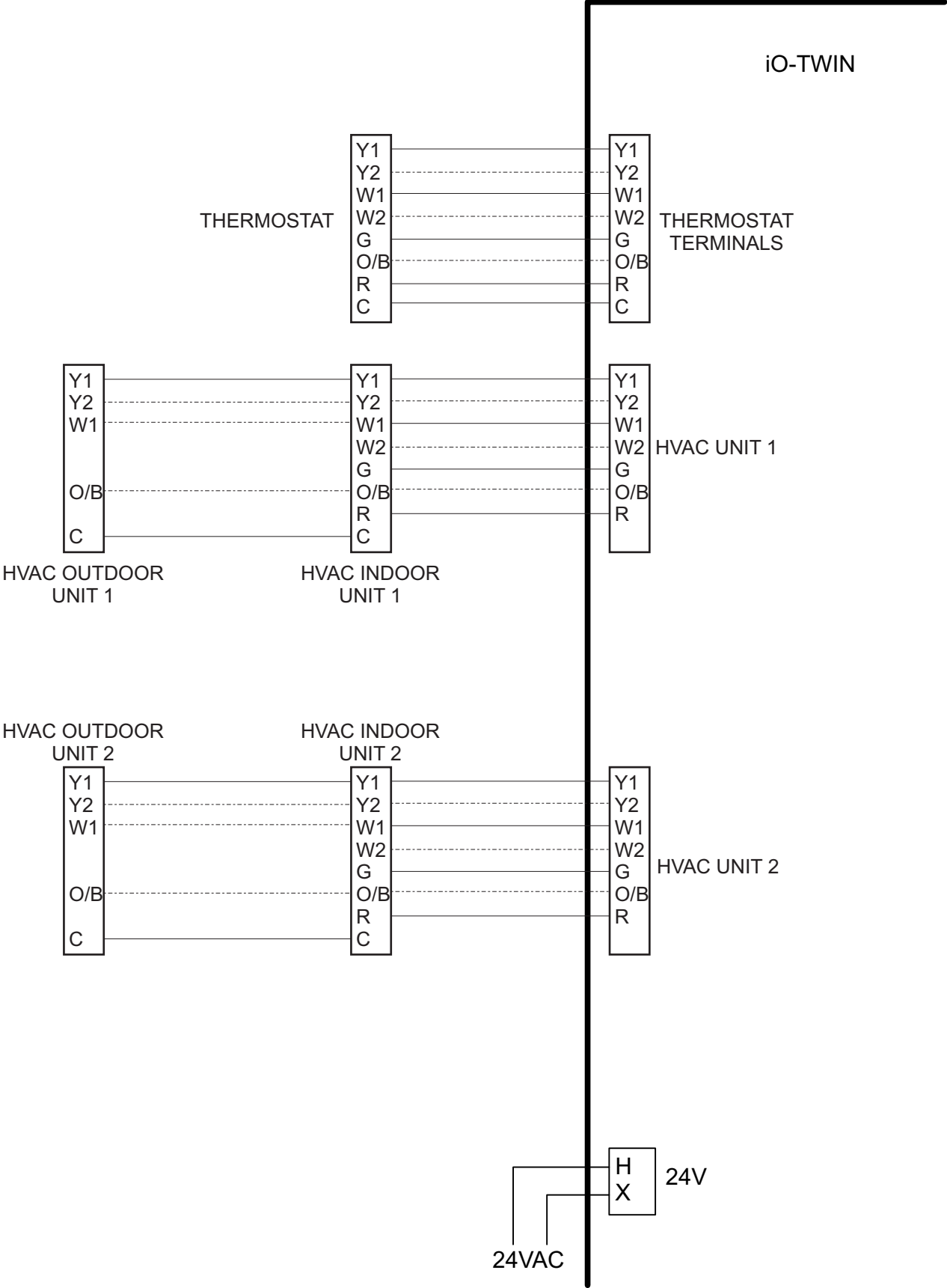
**Thermostat must be set to control fan.**

**Most furnaces with variable speed motors can be twinned. Contact Technical Support for additional information.**

**The iO-TWIN uses a separate 24V transformer and does *not* require a common wire from the equipment transformer.**

**NOTE: The iO-TWIN does not have a RC and RH terminal and should not be used on equipment using separate heating and cooling transformers.**

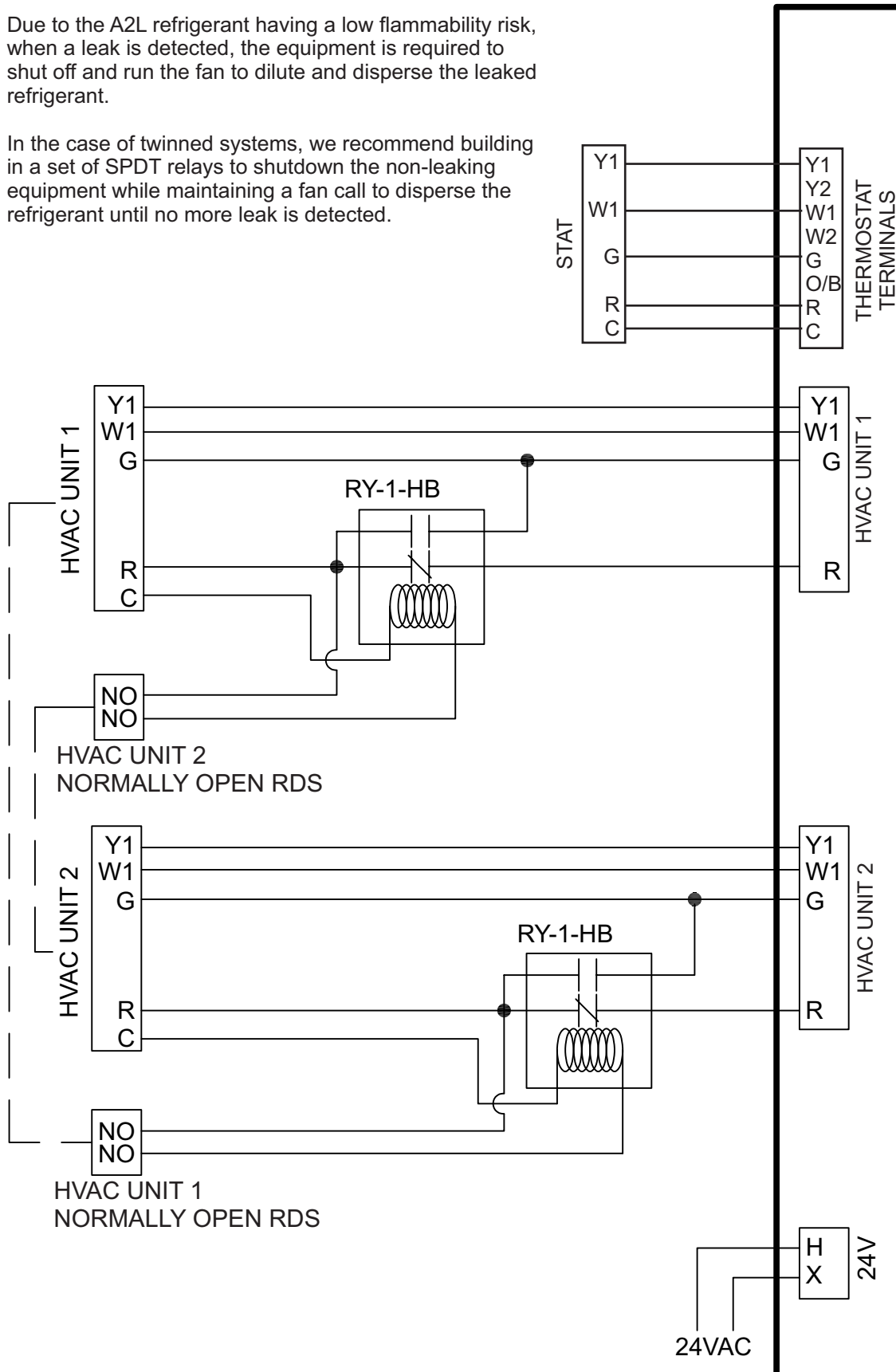
# Typical Wiring



# A2L Refrigerant Leak Detector Wiring

Due to the A2L refrigerant having a low flammability risk, when a leak is detected, the equipment is required to shut off and run the fan to dilute and disperse the leaked refrigerant.

In the case of twinned systems, we recommend building in a set of SPDT relays to shutdown the non-leaking equipment while maintaining a fan call to disperse the refrigerant until no more leak is detected.



# iO-TWIN and iO-TWIN-TR Universal Twinning and Paralleling Kit

## SPECIFICATIONS

Panel Dimensions:  
9.5" H x 6.75" W x 2.25" D

Mounting:  
2 back plate screws

Operating Ambient Temperature:  
-20° to 160° F

Power Supply:  
24VAC 20VA transformer

## 24 VAC POWER

|   |              |
|---|--------------|
| H | 24VAC Hot    |
| X | 24VAC Common |

## AUX PANEL

|    |                               |
|----|-------------------------------|
| W1 | To second panel THERMOSTAT W1 |
| W2 | To second panel THERMOSTAT W2 |
| Y1 | To second panel THERMOSTAT Y1 |
| Y2 | To second panel THERMOSTAT Y2 |
| G  | To second panel THERMOSTAT G  |
| OB | To second panel THERMOSTAT OB |
| R  | To second panel THERMOSTAT R  |
| C  | To second panel THERMOSTAT C  |

## TERMINAL DESIGNATIONS

### STAT (Heat / Cool)

|    |                   |
|----|-------------------|
| W1 | First Stage Heat  |
| W2 | Second Stage Heat |
| Y1 | First Stage Cool  |
| Y2 | Second Stage Cool |
| G  | Fan               |
| R  | 24VAC Hot         |
| C  | 24VAC Common      |

### STAT (Heat Pump)

|     |                          |
|-----|--------------------------|
| W1  | Auxiliary/Emergency Heat |
| Y1  | First Stage Compressor   |
| Y2  | Second Stage Compressor  |
| G   | Fan                      |
| O/B | Reversing Valve          |
| R   | 24VAC Hot                |
| C   | 24VAC Common             |

### HVAC UNIT (Heat / Cool)

|    |                   |
|----|-------------------|
| W1 | First Stage Heat  |
| W2 | Second Stage Heat |
| Y1 | First Stage Cool  |
| Y2 | Second Stage Cool |
| G  | Fan               |
| R  | 24VAC Hot         |

### HVAC UNIT (Heat Pump)

|    |                          |
|----|--------------------------|
| W1 | Auxiliary/Emergency Heat |
| Y1 | First Stage Compressor   |
| Y2 | Second Stage Compressor  |
| G  | Fan                      |
| OB | Reversing Valve          |
| R  | 24VAC Hot                |

## LED FUNCTIONS

|     |                                                                                                                                                    |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------|
| W1  | ON with call for first-stage heat or auxiliary/emergency heat                                                                                      |
| W2  | ON with call for second-stage heat                                                                                                                 |
| Y1  | On with call for first-stage cool or first-stage compressor                                                                                        |
| Y2  | ON with call for second-stage cool or second-stage compressor                                                                                      |
| G   | ON with call for fan                                                                                                                               |
| O/B | ON when reversing valve is energized<br>O = reversing valve energized on a call for cooling<br>B = reversing valve energized on a call for heating |

## AUXILIARY PANEL

Two iO-TWIN panels can be wired together to control up to four HVAC units. The auxiliary terminals on one panel wire to the thermostat terminals on the other. The auxiliary terminals 'R' and 'C' also provide power to the second panel. The sequence of operation remains the same whereby each HVAC unit's fan and stages of heating and cooling will be energized at the same time based on the thermostat input.