

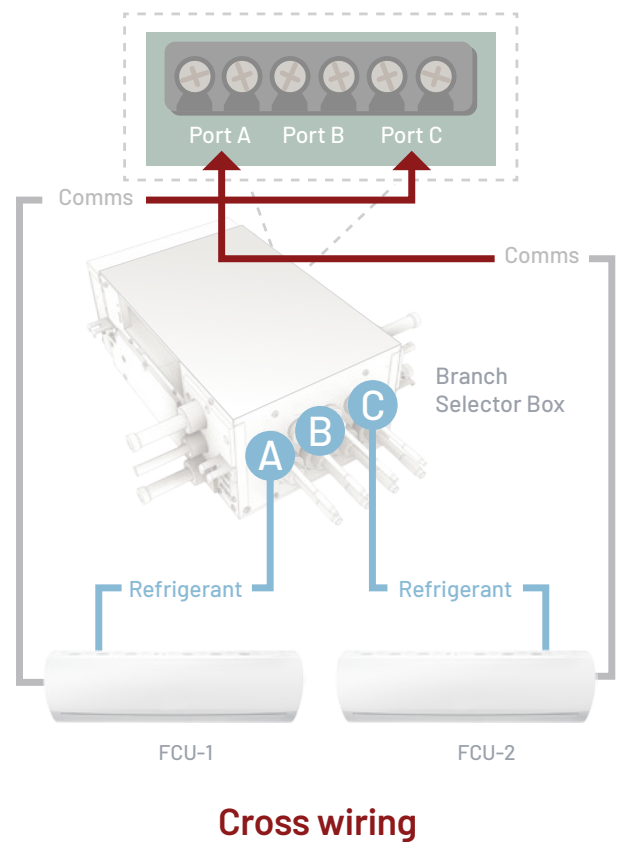
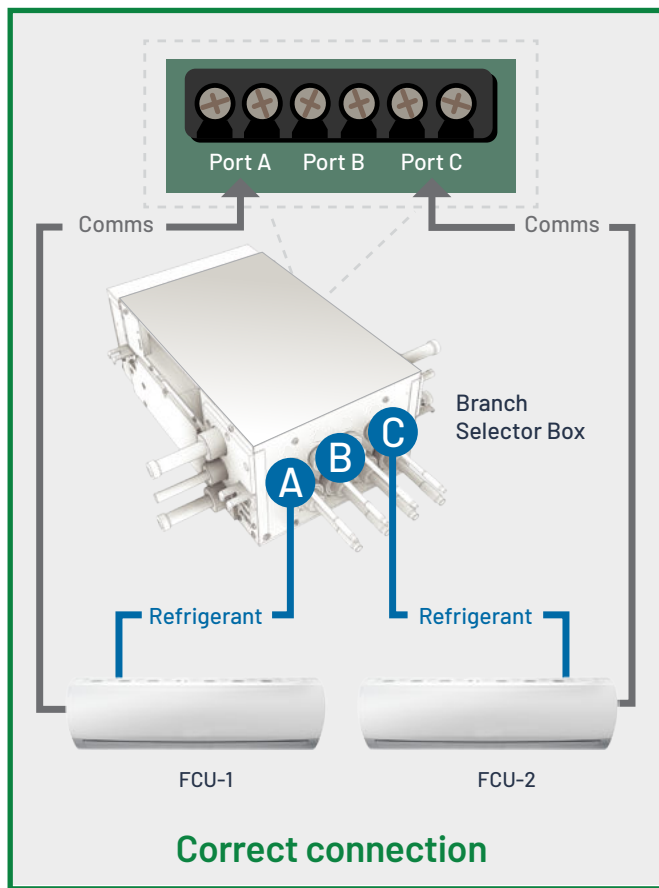
Cross Wiring Testing

Reduce Costly HVAC Repairs

A high-quality commissioning process is critical to a well-functioning Daikin VRV system. While many installation mistakes can be easily corrected without disruption, some mistakes can be extremely costly on all fronts: occupants get uncomfortable, which disrupts business, and requires an expensive truck roll to fix the problem.

The Problem:

Cross Wiring Between the Branch Selector Box and Indoor Units

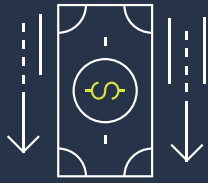


Cross wiring occurs when refrigerant and communications are connected differently than intended: units heat when they should cool, and cool when they should heat. With the complexity in wiring and piping VRV systems, it happens more often than you'd expect.

Often, it's not detected until spring or fall, when the error is more observable. And when it happens, it results in thousands of dollars in maintenance costs and lost revenue from business disruption.

The Solution:

Cross Wiring Testing (Equipment Diagnostics) in the Turntide App



Reduce Warranty Costs

Take care of cross wiring issues before they become more expensive to fix



Provide Higher Quality Projects

Confidently turn over the project to the customer knowing there are no crossed wires

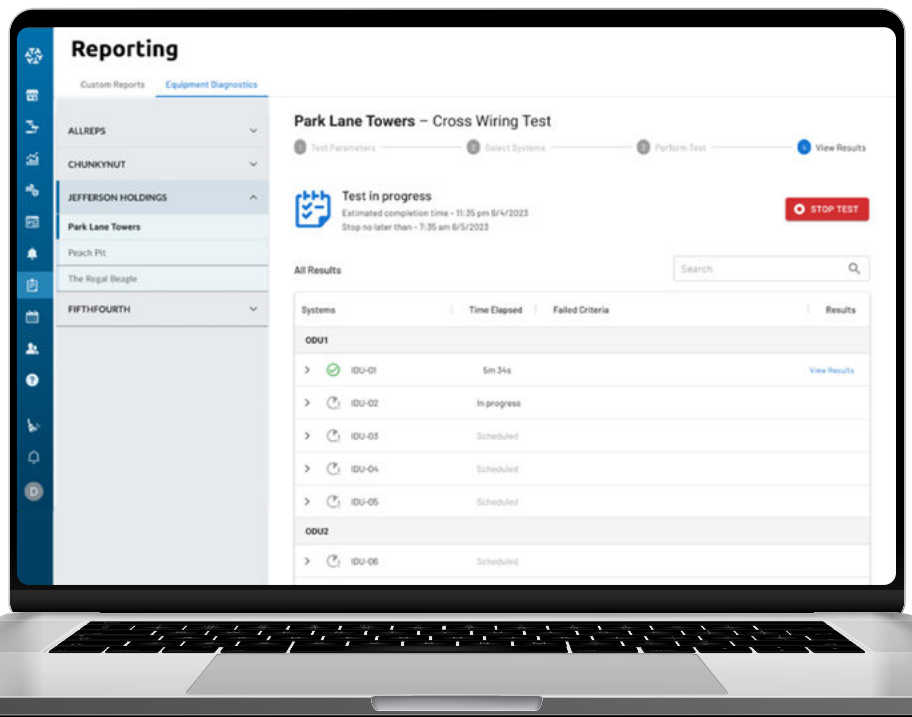
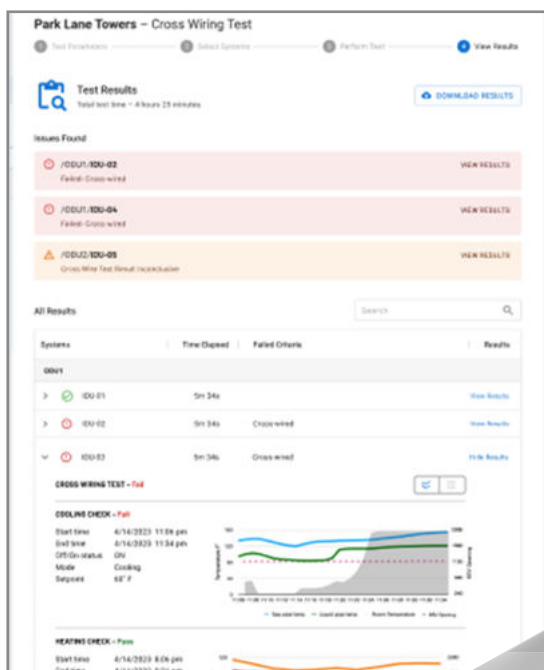


Differentiate Your Solution

Provide the most robust solution for equipment diagnostics available today

The Turntide App now is built with equipment diagnostics, including automated **Cross Wiring Testing**.

- Users can run pre-defined tests that check and report on equipment conditions related to possible cross wiring. The Turntide App will run selected FCUs through a predefined series of operations that identify if the wires are crossed.
- Compared to existing solutions, Turntide's solution costs less to implement, while being more efficient and user-friendly. Testing is fully automated in the app, with no need for user input during testing. Users can conveniently schedule testing to run overnight and return to analyze the test results the next day.



How is Turntide Cross Wiring Testing Better Than Other Test Solutions?



Less Complicated

All testing is automated within the Turntide App



Less Costly

All testing happens during the construction process, with no need for costly truck roll fixes later



Less Disruptive

Users can custom schedule time of testing, ensuring testing happens during afterhours

How It Works:

Step 1: Heating Check

All FCUs are put into heating mode



Pass Conditions
Gas Pipe > 100°F
EEV > 100



Mode: **Heat**
SP: 90



Mode: **Heat**
SP: 90



Mode: **Heat**
SP: 90



Mode: **Heat**
SP: 90

Step 2: Cooling Check

FCUS are put into cool mode – one unit, per a system at a time



Pass Conditions
Liquid Pipe < 55°F
EEV > 100



Mode: **Cool**
SP: 60



Mode: **Heat**
SP: 90



Mode: **Heat**
SP: 90



Mode: **Heat**
SP: 90

Step 3: Determine Results

Results from the Heating and Cooling Checks are used to determine condition of wiring

Heating Check		Cooling Check		Result
Pass	+	Pass	→	Correct Wiring
Pass	+	Fail	→	Cross Wire
Fail	+	Pass	→	Inconclusive
Fail	+	Fail	→	Inconclusive



How to Get Started

The Cross Wiring Testing feature is available in the Turntide App now.

If you'd like to learn more, reach out to automationsales@turntide.com

TURNTIDE TECHNOLOGIES

Our breakthrough technologies accelerate electrification and sustainable operations for energy-intensive industries

Turntide Technologies | 1295 ForgeWood Avenue, Sunnyvale, CA 94089
turntide.com | automationsales@turntide.com