

SELECTION GUIDE

# Turntide Sequence of Operation Configuring the Turntide App for Use with Daikin VRV Systems

The Turntide Application enables facilities managers to manage their Daikin VRV systems remotely through a web application or mobile app, helping them maximize their Daikin VRV investment by automating the system exactly to their preferences.

The Turntide App comes with all of the same advanced control functions found in the Daikin iTM, including dual setpoints, setback control, auto-changeover, setpoint range limitation, and scheduling. By carefully considering factors such as building type, building usage patterns, and climate conditions, the Turntide App is

able to work optimally with Daikin VRV systems installed anywhere, such as an office or retail building, apartment complex, or distribution warehouse.

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This document is designed to help walk through the sequence of operation available to Turntide App users, to help configure their system to exactly what the facility manager needs.

Turntide Sequence of Operation Features	
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Feature		Benefit	Options
	Setpoint Logic	Configure to either single or dual set points to customize system control complexity	<ul><li>Set Point Limit</li><li>Single Set Point Control</li><li>Dual Set Point Control</li></ul>
	Auto Changeover	Change between heating and cooling modes based on setpoint logic configuration	<ul><li>Fixed</li><li>Vote</li><li>Individual</li></ul>
	Equipment Grouping	Create IDU groupings to quickly set IDU parameters across multiple units	• IDU Group Control
	Controller Lockout	Limits the number of operable functions on the Daikin remote controller for easier everyday use, and ensure only authorized personnel control system settings	<ul> <li>Controller Lock Mode</li> <li>Controller Lock Temperature</li> <li>Controller Lock On/Off</li> </ul>



## **Available Options Checklist**

This guide provides you with an understanding of all the options available for Sequence of Operation in a new Turntide Application deployment with Daikin VRV systems.

#### Project Name:

Physical Site Name :

Applicable Systems / Other Notes:

#### Setpoint Logic

	Item		What It Does	When to Use
		Set Point Limit	When selected: Virtual points will be installed in the system to set the min and max cooling and heating setpoints, as well as the logic necessary to constrain setpoints to specified limits. Avoid costly setpoints outside of typical comfort limits and avoid unnecessary equipment runtime.	When the user is looking to implement setpoint logic within their systems. Recommended for most automation configurations. May not be recommended when primary interaction for an occupant is through the Daikin Remote Controller (seen in multi- tenant facilities).
		Single Set Point Control	When selected: Turntide writes to the set temperature and the unit controls to that setpoint plus or minus the deadband control value field setting configured in the Daikin Remote Controller (typical default of 2°F). One setpoint works well for 24/7 and single mode operation (i,e., utility rooms). Consider the dual setpoint option for scheduled unoccupied night setback savings.	A simple option that works well in most situations, especially when the environment is user-controlled. Recommended for most automation configurations, especially when the Daikin Remote Controller Controller is the main point of control for the user. Example: Schools and offices where the occupant is given temperature control
Setpoint:		Setpoint:	(default 70)	
		Dual Set Point Control	When selected: This option will enable occupied and unoccupied heating and cooling setpoints. The Dual Set Point option will control the IDU to these set configurations. Allows the flexibility of temperature setback during unoccupied hours for savings	When users need more granular control of their space, whether due to different HVAC needs for different parts of their facility, or fluctuating weather conditions seasonally. Recommended for buildings that have complex HVAC needs for different parts of the facility. Example: Supermarket in New York
	Occupied Cool	ing Setpoint:	(default 72)	
Occupied Heating Setpoint:		ing Setpoint:	(default 68)	
	Unoccupied Cool	ing Setpoint:	(default 78)	
	Unoccupied Heat	ing Setpoint:	(default 62)	



#### Auto Changeover

Auto Change Over determines the setpoint logic configuration to switch between heating and cooling. Turntide supports 4 options: Fixed, Vote, Individual, and Manual Mode Control.

	ltem	What It Does	When to Use
1 or 2	Fixed method auto changeover	<ul> <li>When selected: All IDU on the group will be set to match the mode of the master which is in full control. There are two potential setups:</li> <li>1. Turntide decides the mode of the master FCU (similar to individual)</li> <li>2. The mode is controlled by the user or field controller (iTM). This setup is used in the heat pump/recovery as described and when a.) one unit serves a room of far more importance than other areas, i.e., the CEO's office or b.) all units serve one large common area.</li> </ul>	Rarely used but applicable in certain situations with heat pumps. Fixed method is typically used for heat pump systems and heat recovery systems with multiple indoor units connected to the same port of the Branch Selector Box and when a weighted setting is not required. This method allows an evaluation of the room temperature and setpoint for the master IDU as the first indoor unit registered in the changeover group or the master IDU as designated in onboarding.
	Vote method auto changeover	When selected: All units on the system are given a Vote. This value can be weighted (0-3) but by default all are set to 1. Used in the same heat pump/recovery setup as above, when all rooms are of equal importance. The system works on majority rule, where all units are set to the heat/cool mode that the majority are demanding. The user cannot control the mode from the wall thermostat.	Generally used for heat pumps
	Individual method auto changeover	<b>When selected:</b> The Turntide system sets the heat/cool mode for each unit individually, this is used in Heat Recovery. The mode is changed based on space temp deviation from setpoint. The user will not be able to control the mode from the wall thermostat.	Most common option for Auto- Changeover and applicable in many situations. Recommended in office spaces or general shared spaces, office buildings, rooms with frequent user turnover or anywhere the building admin is trying to maintain greater control.
	Manual Mode Control (No Auto Changeover)	<b>When selected:</b> Auto Changeover functionality is not installed.	Use when manual control is preferred and Auto Changeover is not needed.



### Equipment Grouping

Equipment is arranged in the Turntide User Interface in Equipment Groups (e.g. RTU, AHU, Level 1, Floor 27, VRV System 3). Equipment is then shown within the Group alphabetically by Equipment Name (typically the room or location served by the equipment).

The Equipment Tag is then placed as a descriptor (typically the FCU-123 tag from a mechanical equipment schedule) under the Equipment Name.

	ltem	What It Does	When to Use
		When selected: Selecting this option will provide IDU Group Control, with the control group named the same as the equipment group.	
		This provides a method to quickly set IDU parameters for all units in an equipment group with little effort.	
		An additional equipment group named VRV GROUP CONTROL will populate with individual virtual group control IDUs within.	When global adjustment capability
		Commands of the virtual IDU will change the following parameters of all IDUs in the control group:	is desired to affect an entire group instead of a single zone within a group.
		• On/off Mode	Recommended when multiple zones
		Set temperature	space.
		<ul> <li>Maximum Cooling Setpoint (default 80)</li> </ul>	'
	IDU Group Control	<ul> <li>Maximum Heating Setpoint (default 78)</li> </ul>	warehouses, or gyms where multiple
		<ul> <li>Minimum Cooling Setpoint (default 66)</li> </ul>	zones serve one large space.
		<ul> <li>Minimum Heating Setpoint (default 62)</li> </ul>	
		• Fan speed	
		Controller locks	
		• Swing	
		<ul> <li>Occupied/Unoccupied Heating Setpoint (where applicable)</li> </ul>	
		<ul> <li>Occupied/Unoccupied Cooling Setpoint (where applicable)</li> </ul>	



#### **Controller Lockout**

The locked options will only be adjustable from the Turntide UI. Fan speed control remains available at the wall mount Daikin Remote Controller controller irrespective of controller lock options selected.

No matter what selection is chosen, changes are still allowed in the Turntide Application with the added benefit of available audit history.

ltem		What It Does	When to Use
	Controller Lock Mode	<ul> <li>When selected: Selecting this configuration option will lock out local manual inputs from the wall mount Daikin Remote Controller for heating / cooling mode control.</li> <li>Restricts users from changing the operation mode at the thermostat. Changes are still allowed on the Turntide App with the added benefit of audit history.</li> </ul>	When tenants do not want occupants to manually adjust thermostat to HEAT and COOL.
	Controller Lock Temperature	When selected: Selecting this configuration option will lock out local manual inputs from the wall mount Daikin Remote Controller for temperature setpoint controlRestricts users from changing the room temperature setpoint at the thermostat. Changes are still allowed on the Turntide App with the added benefit of audit history.	When tenants do not want occupants to adjust temperature setpoints
	Controller Lock On/Off	When selected: Selecting this configuration option will lock out local manual inputs from the wall mount Daikin Remote Controller for on/off control. Restricts users from changing the indoor unit run state at the thermostat. Changes are still allowed on the Turntide App with the added benefit of audit history.	When tenants do not want occupants to turn the HVAC system on and off manually.

If you need further information or have questions, please check out <u>Turntide Academy</u> or contact us at <u>sales@turntide.com</u>.

#### **TURNTIDE TECHNOLOGIES**

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



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