

# 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.

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

Feature	Benefit	Options
<p><b>Setpoint Logic</b></p>	Configure to either single or dual set points to customize system control complexity	<ul style="list-style-type: none"> <li>• Set Point Limit</li> <li>• Single Set Point Control</li> <li>• Dual Set Point Control</li> </ul>
<p><b>Auto Change Over</b></p>	Change between heating and cooling modes based on setpoint logic configuration	<ul style="list-style-type: none"> <li>• Auto Change Over</li> <li>• Fixed</li> <li>• Vote</li> <li>• Individual</li> </ul>
<p><b>Equipment Grouping</b></p>	Create IDU groupings to quickly set IDU parameters across multiple units	<ul style="list-style-type: none"> <li>• IDU Group Control</li> </ul>
<p><b>Controller Lockout</b></p>	Limits the number of operable functions on the Daikin remote controller for easier everyday use, and ensure only authorized personnel control system settings	<ul style="list-style-type: none"> <li>• Controller Lock Mode</li> <li>• Controller Lock Temperature</li> <li>• Controller Lock On/Off</li> <li>• Controller Lock All</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:**

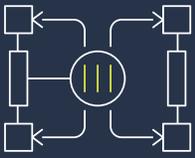
**Physical Site Name :**

**Applicable Systems / Other Notes:**

## Setpoint Logic

Item	What It Does	When to Use
 <p><b>Set Point Limit</b></p>	<p><b>When selected:</b> 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.</p> <p>Avoid costly setpoints outside of typical comfort limits and avoid unnecessary equipment runtime.</p>	<p>When the user is looking to implement setpoint logic within their systems.</p> <p>Recommended for most automation configurations.</p> <p>May not be recommended when primary interaction for an occupant is through the Daikin Remote Controller (seen in multi-tenant facilities).</p>
 <p><b>Single Set Point Control</b></p>	<p><b>When selected:</b> 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.</p>	<p>A simple option that works well in most situations, especially when the environment is user-controlled.</p> <p>Recommended for most automation configurations, especially when the Daikin Remote Controller Controller is the main point of control for the user.</p> <p><i>Example: Schools and offices where the occupant is given temperature control</i></p>
 <p><b>Dual Set Point Control</b></p>	<p><b>When selected:</b> This option will enable occupied and unoccupied heating and cooling setpoints. The Dual Set Point option will control the IDU to these set configurations.</p> <p>Allows the flexibility of temperature setback during unoccupied hours for savings</p>	<p>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.</p> <p>Recommended for buildings that have complex HVAC needs for different parts of the facility.</p> <p><i>Example: Supermarket in New York</i></p>

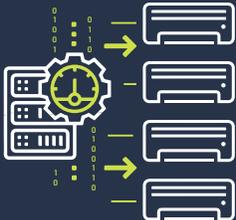
## Auto Change Over

Item	What It Does	When to Use
 <p style="text-align: center;"><b>Auto Changeover</b></p>	<p><b>When selected:</b> the IDU will automatically switch between heating &amp; cooling modes based on the setpoint logic configuration (Fixed, Vote or Individual). Turntide employs the fixed method of auto changeover.</p> <p>Options Available:</p> <p>Turntide offers 3 ways to provide heat/cool changeover on a heat pump system: <b>Fixed, Vote, Individual.</b></p> <p>Most also apply to heat recovery FCUs grouped on a single port of the a branch selector box.</p> <p>With ALL changeover options: when a system mode is changed, the indoor units on the system are not forced into heating or cooling. If there is no demand in the room for the mode that has been selected, the unit(s) will run in fan only mode.</p> <p>Changes are still allowed in the Turntide app with the benefit of audit history.</p> <p><b>If NOT selected:</b> the IDU will remain in its current mode of operation until the mode is manually changed or, if an iTM is present in the system, until the mode is changed by the iTM.</p>	<p>Recommended for users that want automatic transition between heating and cooling modes based on established temperatures and deadbands.</p>
 <p style="text-align: center;"><b>Fixed</b></p>	<p><b>When selected:</b> All IDU on the group will be set to match the mode of the master which is in full control. There are two potential set-ups:</p> <ul style="list-style-type: none"> <li>• <b>Turntide is deciding the mode of the master FCU</b> (similar to individual)</li> <li>• <b>The mode is controlled the user/field controller.</b> 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>	<p>Rarely used but applicable in certain situations with heat pumps.</p> <p>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 first indoor unit registered in the changeover group.</p>
 <p style="text-align: center;"><b>Vote</b></p>	<p><b>When selected:</b> 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.</p> <p>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.</p>	<p>Generally used for heat pumps</p>
 <p style="text-align: center;"><b>Individual</b></p>	<p><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.</p>	<p>Most common option for Auto-Changeover and applicable in many situations.</p> <p>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.</p>

## 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.

Item	What It Does	When to Use
 <p style="text-align: center;"><b>IDU Group Control</b></p>	<p><b>When selected:</b> Selecting this option will provide IDU Group Control, with the control group named the same as the equipment group.</p> <p>This option may be selected in lieu of, or in addition to, IDU All Control and provides a method to quickly set IDU parameters for multiple units with little effort.</p> <p>A virtual IDU will appear at the top of the equipment group which, when commanded, will modify the commanded variable in all IDUs within the equipment group.</p> <p>Commands of the virtual IDU will change the following parameters of all IDUs in the control group:</p> <ul style="list-style-type: none"> <li>• On/off Mode</li> <li>• Set temperature</li> <li>• Min/Max heating setpoint</li> <li>• Min/Max cooling setpoint</li> <li>• Fan speed</li> <li>• Controller locks</li> <li>• Swing</li> <li>• Occupied/Unoccupied Heating Setpoint (where applicable)</li> <li>• Occupied/Unoccupied Cooling Setpoint (where applicable)</li> </ul>	<p>When global adjustment capability is desired to affect an entire group instead of a single zone within a group.</p> <p>Recommended when multiple zones within the building serve one large space.</p> <p><i>Example: Open office spaces, warehouses, or gyms where multiple zones serve one large space.</i></p>

## 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.

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

If you need further information or have questions, please check out [Turntide Academy](https://www.turntide.com/academy) or contact us at [sales@turntide.com](mailto:sales@turntide.com).

### TURNTIDE TECHNOLOGY FOR SUSTAINABLE OPERATIONS

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