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| FLŌ ENERGY SOLUTIONS | Sequence Of Operations | CN-IC2-13 |
| **Title:** | i-Controller 2.0 Thermostat Style Control Sequence Of Operation REV.300 | |

## Overview

Flō offers a control option on the i-Controller 2.0 platform to operate the unit with "thermostat" style inputs. The following document outlines what inputs to use, how the control is performed and what alarms are available under thermostat control.

## Input/Output Connections

The thermostat inputs, shown in Figure 1, are available on a low voltage terminal strip located in the unit that allows for ease of field connections.

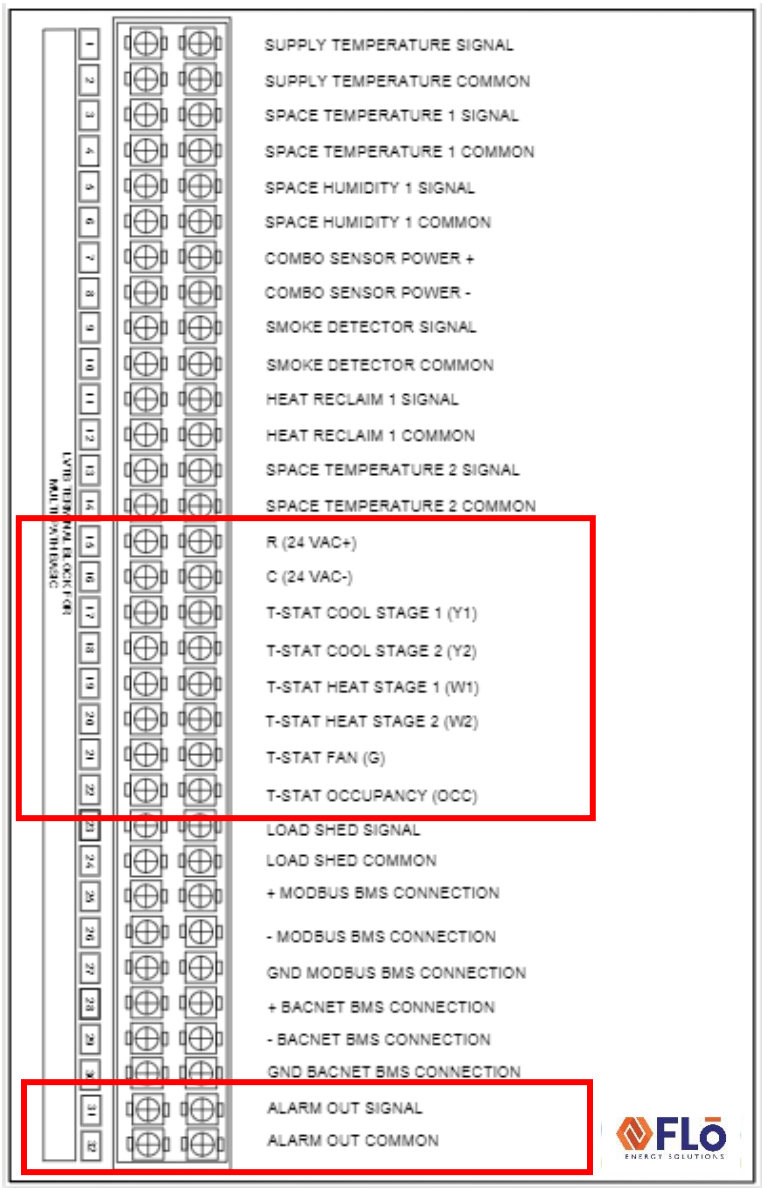


Figure 1: Thermostat LVTB Points

## Thermostat Control 2-Stage

The MPU may be configured to operate using a 2-stage zone thermostat wired to the i-Controller 2.0. This configuration will allow for the control of:

- 2-stages of cooling (Y1, Y2)
- 2-stages of heat (W1, W2)
- Fan (G)
- Occupancy (OCC)

Dehumidification control will be based off the field installed zone temperature and humidity sensor that is wired to the i-Controller and controlled according to the standard MPU sequence of operation. Reheat, if equipped, will be enabled upon Dehumidification demand.

**NOTE: Occupancy can be determined by either an internal schedule configured on the display or by a physical input (OCC) on the i-Controller. This input can be from an external time clock, or an occupancy output from the thermostat.**
***The external or internal schedule option can be selected in the i-Controller 2.0 schedule quick menu.***

## Comfort Cooling

Comfort cooling is enabled based on zone thermostat and its space temperature setpoint.

During Occupied and Unoccupied Mode, the suction pressure setpoint is reset based on the inputs from the zone thermostat. The suction pressure setpoint will be set to the maximum [140psig] of the scale upon initiation of cool mode call from the thermostat (Y1) and a thermostat (Y2) demand will set the suction pressure to the minimum of [120psig] as the space temperature increases. If a Dehum + Cool mode occurs, the (Y1) demand will disable Reheat if equipped, the return air damper position will increase to allow for more cooling of return air, and the suction pressure set point will remain in the dehumidification setting.

## Heating

Heating is enabled based on zone thermostat and its space temperature setpoint. During Occupied and Unoccupied Mode, the demand from (W1 &W2) will enable / disable heating. W1, will enable 50% of the units heating capacity. W2, will enable 100% of the units heating capacity. Standard MPU heating safeties will apply and if supply temperature is > [130˚F], no additional heating capacity will be enabled.

## Fan

**NOTE:** The fan (G) demand is required alongside a cool (Y1) or heat (W2) call.

Fan is controlled with the zone thermostat (G) demand. During Occupied or Unoccupied times when there is a (G) demand, the unit will operate according to the standard MPU sequence of operations. Upon losing the (G) demand, the fan will continue to run for one minute and then the unit will go to standby mode and the fan will be shutoff. A dehum mode activation will automatically turn the unit on during standby mode.

## Alarm Output

A normally open contact (dry-contact) is provided to monitor unit critical alarms. The alarm contact will close in the event of: Compressor fault, Heating fault, Fan failure, Emergency shutdown, Phase loss, Space and Return temperature sensor failure, and supply temperature failure.

## Alarm Out Description

"Alarm Out" on the LVTB will trigger if any of the following occur:

- **Emergency Shutdown Alarm:** Alarm activated when a smoke detection or drain pan overflow occurs. This alarm will cause the unit to shut down. Alarm is activated via an opening of the normal closed smoke detector input or the opening of the normally closed drain pan float switch and is automatically reset upon closure of both inputs.
- **Phase Loss Alarm:** Alarm activated when the digital phase monitor detects a fluctuation in the main unit power outside of the acceptable limits. This alarm will cause the unit to shut down after a 30-second delay. Alarm is activated via an opening of the normal closed phase loss input and is automatically reset upon closure of the input.
- **Fan Fail Alarm:** Alarm activated when the fan proof has not been made for more than 10-minutes. This alarm will cause a unit shutdown and must be manually reset in the display.
- **Heat Alarm:** Alarm is activated if the supply temperature has not increased at least 5˚F with at least 2-heat stages activated for [15]-minutes. Alarm is automatically reset upon heat mode disable.
- **Compressor Fault:** This alarm will occur if the compressor is not running when called for, a high discharge pressure event has occurred, or a low suction pressure event has occurred.
- **High and Low Supply Temperature Alarm:** When the supply air temperature rises above the supply air high temperature cutoff, 150°F, the unit will immediately shut down and an alarm will be generated. Alarm will clear and unit will restart once the supply air temperature is 5 degrees below the supply air high temperature cutoff. When the supply air temperature drops below the supply air low temperature cutoff, 40°F, for 10 minutes, the unit will completely shut down and an alarm will be generated. Alarm will clear and unit will restart once the supply air temperature is 5 degrees above the supply air low temperature cutoff.
- **Supply Temperature Failure:** Upon detection of an open or shorted supply temperature sensor the unit will be completely shut down and an alarm will be generated. Alarm will automatically reset once the sensor failure is repaired.