

CPO Room Controller



APPLICATION GUIDE

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About this Guide

This guide provides an overview of all new variants of CPO Room Controller and the standard application available which can be used and customized for meeting your site requirements.

Intended Audience

This document can be used by anyone who is responsible for customizing the RoomUp application.

Supported Documents

Document name	Document number
ComfortPoint Open Studio User Guide	EN2B-0001 IE10 Rxxx
CPO-Rxx Room Controllers Installation Guide	EN1B-0591 GE51 Rxxxx
CPO-Rxx Room Controllers Mounting Instructions	MU1B-0590 GE51 Rxxxx
CPO-Rxx Room Controllers Product Datasheet	EN0B-0732 GE51 Rxxxx
BACnet WiFi Adapter Mounting and Operating Instructions	MU1B-0592GE51 Rxxxx
BACnet WiFi Adapter Product Datasheet	EN0B-0733GE51 Rxxxx

Introduction

Controller Description

The CPO-Rxx family controllers provide flexible, configurable, demand-led control that delivers tangible benefits to reduce energy spends and drives new levels of functionality and efficiency in today's buildings. With scalable and free programmable BACnet MS/TP-based unitary controllers, smart engineering & commissioning tools, and SYLK technology, multiple and flexible configurations can be achieved to address specific applications.

Large housing: CPO-RL1, CPO-RL2, CPO-RL3, CPO-RL4, CPO-RL5, CPO-RL6, CPO-RL7U, CPO-RL8

Small housing: CPO-RS1, CPO-RS2, CPO-RS3, CPO-RS4, CPO-RS5, CPO-RS6

NOTE: The CPO-RS2, CPO-RS3 and CPO-RS6 variants have fixed/standard application and cannot be modified.

Standard Application

The standard application includes support for multiple functions which can be enabled or disabled by user configuration. The physical inputs and outputs available on the controller model selected will determine which functions can be selected. Multiple functions can be enabled at the same time up to the limit of the physical hardware inputs and outputs available in the controller model selected. The application running in the controller supports conventional (T7460) and Sylkbus wall modules (TR40 and TR42).

The standard functions available in the application are listed below:

Fan coil unit	Ceiling	Intake Air	Shared Inputs	Radiator Heating	Underfloor Heating
Chilled Water Cooling	Cooling	Temperature Control	Window Contact	Heating	Heating
DX Cooling	Heating	Air Quality Control	Occupancy Sensor		
Hot water Heating			Card Reader		
Electric Heating			Air flow contact		
Cascade Temperature Control			Wall Module		
Room Temperature Control	Room Temperature Control	Room Temperature Control		Room Temperature Control	Room Temperature Control
Room Temperature Control with low limits				Low Limit Radiation	Room Temperature Control with high limit
Multiple Speed Fan					
Variable Speed Fan					
		Air Quality Control With Low Limit Control			

CPO Room Controller Configurations

The configuration options provided in this section are described in detail in subsequent sections.

FCU Type

The FCU type is configured based on the heating and cooling sequences that are used. The configurations are any combination of hot water heating, chilled water cooling, electrical heating, and direct-expansion (DX) cooling.

Piping Configuration

For systems which are configured with both hot water heating and chilled water cooling, must have piping configuration configured as 4-pipe or 2-pipe changeover systems.

Temperature Control Type

The temperature control types available for configuration are dependent on the sensors selected. The selections for temperature control type are space temperature, space temperature as cascade control, space temperature with low limit cooling, space temperature with low limit heating and space temperature with low limit cooling & heating.

Fan Type

The FCU fan type is selected from no fan, 1-speed fan, 2-speed fan, 3-speed fan, and variable speed fan.

Fan Control Strategy

The fan control strategy can be configured so that the fan speed is sequenced as follows:

- in parallel with the cooling and heating sequence,
- fan speed sequencing as a separate sequence (fan cooling or fan heating),
- fan can be used as a sequence for cascade control (first SP shift, then fan speed increasing).

Occupancy Modes

Time Schedule

The unit occupancy is primarily being controlled by time schedule commands shared from the plant controller. The time schedule commands will switch between unoccupied, standby, and occupied modes.

Wall Module Bypass Command

The wall module bypass button can be used to temporarily switch the occupancy mode from unoccupied or standby to bypass for a configured period of time. At the end of bypass period, the occupancy mode returns to the current occupancy schedule.

The wall module bypass button can also be configured to switch the occupied mode to unoccupied mode until the next schedule change for situations where occupants leave the areas at unpredictable times.

A holiday occupancy mode is also configurable. The occupancy mode will be switched from occupied or standby to holiday mode via a long press on the wall module bypass button. The unit remains in holiday mode until released via another short press from the bypass button.

Card Reader

Card readers can be configured to switch the unit occupancy mode in the following ways:

1. Unoccupied/Standby to Occupied
2. Standby to Occupied
3. Occupied to Standby
4. Occupied to Unoccupied

Occupancy Sensor

Occupancy sensors can be configured to switch the unit occupancy in the following ways:

1. Unoccupied/Standby to Occupied
2. Standby to Occupied
3. Occupied to Standby
4. Occupied to Unoccupied

Control Modes and Space Temperature Setpoints

Effective Control Mode

Effective control mode switches between heating and cooling based on the space temperature in relation to the effective heating and cooling setpoints. When the space temperature is above the effective cooling setpoint, the effective control mode will change to cooling mode. If the space temperature is below the effective heating setpoint, the effective control mode will change to heating mode. When the space temperature is between the effective heating and cooling setpoints, the current effective control mode will be maintained. This provides a comfort zone between the heating and cooling setpoints where no heating or cooling will be provided.

When the control is disabled and during the transition between cooling and heating modes, the effective control mode will be set to Off. For 2-pipe systems, the transition between the effective control modes can be delayed via configuration to avoid water mixture. The effective control mode can be limited by the plant configuration, wall module overrides, and Night Purge operation.

Note that if there is no cooling sequence configured the control mode cannot be set to cooling. Similar, if there is no heating sequence configured the control mode cannot be set to heating.

Application Configuration Override

If the application configuration is for a cooling plant, then effective control mode for cooling is selected.

If the application configuration is for a heating plant, then effective control mode for heating is selected.

If the application configuration is for heating and cooling operation then both effective control modes can be selected based on the space conditions.

Central Plant Energy Override

- If the central plant HVAC mode is Off,
Heating and cooling energy is not available; effective control mode will be off.
- If the central plant HVAC mode is cooling,
only cooling energy is available; effective control mode will be limited only to cooling.
- If the central plant HVAC mode is heating,
only heating energy is available; effective control mode will be limited only to heating only.

- If the central plant HVAC mode is Auto, both heating and cooling energy is available; effective control mode will set by the application according to the current room temperature conditions.

Wall Module HVAC Mode Override

- If the wall module HVAC mode is cooling, the effective control mode will be limited only to cooling.
- If the wall module HVAC mode is heating, the effective control mode will be limited only to heating.
- If the wall module HVAC mode is Auto, effective control mode will set by the application according to the current room temperature conditions.
- If the wall module fan switch is Off, effective control mode is off. The Underfloor Heating, Radiator, Ceiling Heating and Ceiling Cooling can be configured to be enabled also when the fan switch is OFF.

Wall Module Fan Switch Override

- If the wall mode fan switch is Off, fan will be switched off.
- If the wall mode fan switch is Auto, fan will be controlled by the application according to the current room temperature conditions.
- If the wall module fan switch is Low/On, fan will run at low speed.
- If the wall module fan switch is Medium, fan will run at medium speed.
- If the wall module fan switch is High, fan will run at high speed.

Base Space Temperature Setpoints

Heating and cooling space temperature setpoints is configured for occupied/bypass modes, standby mode, and unoccupied/holiday modes. Setpoints are switched as the occupancy modes change.

Conventional Wall Modules

Relative Setpoint Adjustment – Conventional Wall Module

If configured as 'relative', the wall module setpoint adjustment resets the effective heating and cooling setpoints. The maximum amount the setpoints reset can be configured. The setpoint reset can be configured for parallel reset or unilateral energy-savings reset. If parallel

shift is selected, the effective heating and cooling setpoints will reset together. If energy-savings shift is selected, only the setpoint for the effective control mode will be reset.

Absolute Setpoint Adjustment – Conventional Wall Module

If configured as 'absolute', the wall module setpoint adjustment resets the effective setpoint midpoint as set by the setpoint adjustment. The effective setpoint dead band is calculated based on the base space temperature setpoints and the effective heating and cooling setpoints are determined based on this dead band.

Sylk Wall Modules

Relative Setpoint Adjustment – Sylk Wall Module

If configured as 'relative', the configured setpoint reset range is sent to the Sylk wall modules. Occupants can then adjust setpoint reset between these limits. The wall module displays the relative setpoint offset value. The wall module setpoint adjustment resets the effective heating or cooling setpoint depending on the effective control mode. The setpoint reset can be configured for parallel reset or unilateral energy-savings reset. If parallel shift is selected, the effective heating and cooling setpoints will reset together. If energy-savings shift is selected, only the setpoint for the effective control mode will reset.

Absolute Setpoint Adjustment – Sylk Wall Module

If configured as 'absolute', the configured setpoint high limit and low limit for the effective control mode is sent to the Sylk wall module. The wall module will display the actual setpoint for the effective control mode. Occupants can then adjust setpoint between the limits. The wall module setpoint adjustment resets the effective heating or cooling setpoint depending on the effective control mode. The setpoint reset can be configured for parallel reset or unilateral energy-savings reset. If parallel shift is selected, both effective heating and cooling setpoints reset together. If energy-savings shift is selected, only the setpoint for the effective control mode will reset.

Setpoint Adjustment Reset

For Sylk wall modules, the setpoint adjustments can be configured to reset when the occupancy schedule changes to unoccupied or occupancy mode is set to Holiday. This feature can be disabled.

Common Plant Functions

Space Temperature Overheat Protection

Cooling sequences are overridden as required to prevent overheating of the space. The overheating protection condition is activated when the space temperature exceeds a predefined setpoint, the cooling sequences will have their sequence signal set to a preconfigured value until the space temperature drops below the overheating setpoint with a preconfigured hysteresis value.

Space Temperature Frost Protection

Heating sequences are overridden as required to prevent frost condition in the space. The frost protection condition will be activated when the space temperature goes below a predefined setpoint. The heating sequences sequence signal is set to a preconfigured value until the space temperature rises above the frost protection setpoint with a preconfigured hysteresis value.

Night Purge

When active, the night purge mode uses cold outside air to reduce the space temperature during times where the space is unoccupied. The intake air damper is set to a preconfigured open position and the heating/cooling sequences are set to predefined positions. Night purge is initiated from the plant controller when outside air conditions are appropriate.

Overview

The Plant Night Purge Enable binary signal is shared from the plant controller to CPO-R controller. In the CPO-R controller, the point is called PltNiPurgEn.

PltNiPurgEn is used for calculating the value of the Night Purge Effective Mode point, called NiPurgEff that controls all night purge functions in the application.

Night Purge Enable

The night purge function in the application can be configured to operate based on the Occupancy mode, the wall module fan manual switch position, and the room temperature relative to the occupied cooling setpoint.

Occupancy Mode Configuration

Occupancy Mode operation is configured by using mapped parameter NiPrg_En_Occ_Md_A_Sel.

The available selections are as follows:

	Occupancy Mode				
Parameter Value	Unoccupied	Standby	Occupied	Bypass	Holiday
1	Enable	Enable	Enable	Enable	Enable
2	Enable	Enable	Disable	Disable	Enable
3	Enable	Disable	Disable	Disable	Enable

Fan Manual Switch Configuration

The wall module operation is configured by using mapped parameter NiPrg_En_Fan_Off_A_Sel.

The available selections are as follows:

	Wall Module Fan Manual Switch Position				
Parameter Value	Off	Auto	Low Speed	Medium Speed	High Speed
1	Disable	Enable	Enable	Enable	Enable
2	Enable	Enable	Enable	Enable	Enable

Disable Condition

Night purge will be disabled according to the following conditions. (NiPurgEff will display Disabled)

1. Plant Night Purge Enable; 'PltNiPurgEn' is Disabled.
2. Occupancy Mode 'OccMd' is not equal to one of the configured modes from above.
3. Fan Manual Switch 'WMFanManSwCmd' is not equal to one of the configured modes from above.
4. The Space Temperature 'WMRmTempDsp' is less than the Occupied Cooling Setpoint ('OccClgSp' - 0.5).

Enable Condition

Night Purge will be enabled when all of the following conditions are true. (NiPurgEff will be Enabled).

1. Plant Night Purge Enable; 'PltNiPurgEn' is Enabled
2. Occupancy Mode 'OccMd' is equal to one of the configured modes from above.
3. Fan Manual Switch 'WMFanManSwCmd' is equal to one of the configured modes from above.
4. The Space Temperature 'WMRmTempDsp' is greater than the Occupied Cooling Setpoint 'OccClgSp'.

Night Purge Operation

Night Purge will operate when NiPurgEff is set to the enable condition.

The application will operate as follows:

1. Plant Mode 'PltMd' is set to the night purge value (Mode 14, Priority 10).
2. Room Temperature PID functions will always remain enabled in Night Purge mode.
3. If the Control Mode 'CtrlMd' was off, it will be set to Cooling. Note that the final CtrlMd value depends on the configured cooling heating and cooling sequences and cooling / heating medium available if two pipe controls are configured.
4. FCU Electric Heating is off – There is no direct override, however, the night purge is only enabled if the room temperature is above occupied cooling setpoint.
5. FCU Heating will be off - There is no direct override however night purge is only enabled if the room temperature is occupied cooling setpoint.

6. If the effective control mode 'CtrlSpEffMd' is Cooling, FCU Cooling is set to the value configured by parameter FCU_Clg_NiPrg_Ovrd_Val (Priority 5) and will override the normal automatic sequence or cascade control signals. There is no low limit supply air temperature overriding in night purge mode. If the effective control mode is not cooling, then FCU Cooling will remain disabled. If parameter FCU_Clg_NiPrg_Ovrd_Val is equal to 999, then night purge override is disabled
7. If the effective control mode 'CtrlSpEffMd' is Cooling, FCU DX Cooling is set to the value configured by parameter FCU_DX-C_NiPrg_Ovrd_Val (Priority 5) and overrides the normal automatic sequence or cascade control signals. There is no low limit supply air temperature override in night purge mode. If the effective control mode is not cooling, then FCU DX Cooling will remain disabled. If parameter FCU_DX-C_NiPrg_Ovrd_Val is equal to 999, then night purge override is disabled
8. If the effective control mode 'CtrlSpEffMd' is Cooling, Ceiling Cooling is set to the value configured by parameter Ceil_Clg_NiPrg_Ovrd_Val (Priority 5) and will override the normal automatic sequence. If the effective control mode is not cooling, then Ceiling Cooling will remain disabled. If parameter Ceil_Clg_NiPrg_Ovrd_Val is equal to 999, then night purge override is disabled
9. Ceiling Heating will be off - There is no direct override however night purge is only enabled if the room temperature is above occupied cooling setpoint.
10. Radiator Heating will be off - There is no direct override however night purge is only enabled if the room temperature is above occupied cooling setpoint.
11. Under Floor Heating will be off - There is no direct override, however, night purge is only enabled if the room temperature is above occupied cooling setpoint.
12. Intake Air Damper will be set to the value configured by parameter Dm_NiPrg_Ovrd_Val (Priority 5) and will override the normal automatic temperature or air quality control values. If parameter Dm_NiPrg_Ovrd_Val is equal to 999, then night purge override is disabled
13. The supply air fan will operate in normal Auto control mode, and may start depending on the fan control configuration and the night purge cooling override values set.

Fire Mode

When active, the fire mode will by default shut-down the unit and close the intake-air damper. The unit can be configured to run at a defined fan speed.

Fire mode is initiated from the plant controller based on connections to smoke detectors and/or a contact from the fire alarm panel.

Temperature Control Type

Space Temperature

When the FCU is configured to control to space temperature, the heating and cooling demand signals are modulated to maintain the space temperature at the effective setpoint.

The effective space temperature setpoint will be determined based on the control mode.

Space Temperature as Cascade Control

When the FCU is configured to control as cascade control, the heating and cooling demand signals resets the supply air temperature setpoint between minimum and maximum values.

The heating and cooling control sequences are modulated to maintain the supply air temperature at the supply air temperature setpoint.

The effective space temperature setpoint is determined based on the control mode.

Space Temperature with Low Limit Cooling

When the FCU is configured to control to space temperature, the heating and cooling demand signals are modulated to maintain the space temperature at the effective setpoint.

The effective setpoint is determined based on the control mode.

In cooling mode, the low limit cooling decreases the cooling sequence signal to maintain the supply air temperature above a minimum setpoint.

Equipment Control

Chilled Water Cooling Coil

Whenever the cooling stage is selected from the application, the chilled water cooling coil modulates in series with other cooling sequences based on the cooling demand from the selected temperature control type. The chilled water cooling coil can be configured for 4-pipe or 2-pipe changeover control.

The chilled water cooling coil can be overridden in following ways:

1. If the unit is configured to have an airflow contact, the chilled water cooling coil is set to a fixed position when a fan command is active and airflow is not confirmed. The fixed position is maintained for a predefined time period after airflow has been established.
2. If the drip pan level alarm is activated, chilled water cooling coil is overridden to preconfigured position.
3. If the window contact input is in open state, then it overrides the chilled water cooling coil to a preconfigured position.
4. If night purge is active, the chilled water cooling coil is overridden to a preconfigured position.
5. If configured, the chilled water cooling coil is overridden to closed state based on manual unit switch off from the wall module.
6. If a space overheat condition exists, the chilled water cooling coil is overridden to a preconfigured position.
7. If a Frost condition exists the cooling coil will be closed.
8. If the effective control mode is not cooling the chilled water cooling coil will be closed.

Note: Balancing is triggered via RoomUp command. During balancing, the cooling coil is in a fully open state irrespective of other settings. During frost, cooling is closed for all cooling sequences and vice a versa for heating (over heat).

Heating

Whenever the heating stage is selected from the application, the hot water heating coil modulates in series with other heating sequences based on the heating demand from the selected temperature control type. The hot water heating coil is configured for 4-pipe or 2-pipe changeover control.

The hot water heating coil can be overridden in following ways:

1. If unit is configured to have an airflow contact, the hot water heating coil is set to a fixed position when a fan command is active and airflow is not confirmed. The fixed position is maintained for a predefined time period after airflow has been established.
2. If the window contact input is in open state, then it overrides the hot water heating coil to a preconfigured position.
3. If configured, the hot water heating coil is overridden to closed state based on manual unit switch off from the wall module.
4. If a space frost condition exists, the hot water heating coil is opened to a preconfigured position.

Note: Balancing is triggered via RoomUp command. During balancing, the heating coil is fully open state irrespective of other settings.

Direct-Expansion (DX) Cooling Coils

Whenever the DX cooling stage is selected from the application, the DX cooling coils runs in conjunction with other cooling sequences based on the cooling demand from the selected temperature control type. The DX cooling signal is represented as a percentage and the outputs is staged on this percentage via preconfigured thresholds, hysteresis and time delays.

The DX cooling signal can be overridden in following ways:

1. If unit is configured to have an airflow contact, the DX cooling signal will be set to a fixed level if a fan command is active and airflow is not confirmed. The fixed level is maintained for a predefined time period after airflow has been established.
2. If the drip pan level alarm is activated, the DX cooling signal will be overridden to a preconfigured level.
3. If the window contact input is in open state, then it overrides the DX cooling signal position to a preconfigured position.
4. If night purge is active, the DX cooling signal will be overridden to a preconfigured level.
5. If configured, the DX cooling signal is overridden based on manual unit switch off from the wall module.
6. If a space overheat condition exists, the DX cooling signal is overridden to a preconfigured position.

Electrical Heating Coils

Whenever the heating stage is selected from the application, the electrical heating coils runs in conjunction with other heating sequences based on the heating demand from the selected temperature control type. The electrical heating signal will be represented as a percentage and the outputs is staged on this percentage via preconfigured thresholds, hysteresis and time delays.

The electrical heating signal can be overridden in following ways:

1. If unit is configured to have an airflow contact, the electrical heating signal will be set to a fixed level if a fan command is active and airflow has not been confirmed. The fixed level is maintained for a predefined time period after airflow has been established.
2. If the window contact input is in open state, then it overrides the electrical heating signal position to a preconfigured position.
3. If configured to do so, the electrical heating signal is overridden off based on manual unit switch off from the wall module.
4. If the space temperature drops below a common frost protection setpoint, the electrical heating signal will be set to a preconfigured level.

Fan Control

Fans can be configured as 1-speed, 2-speed, 3-speed, or variable speed control. Fan speed and stages is controlled based on unit occupancy, cooling demand and/or heating demand depending on the configured temperature control type. During normal operation, fan stages are limited by on and off delays to prevent cycling of the equipment. The fan runs for a preconfigured time after heating and cooling sequences are disabled.

Multi-speed fans can be configured for either parallel or serial staging:

- When configured as parallel, lower stages are disabled when higher speed stages are enabled.
- When configured as serial, lower stages remain enabled when higher speed stages are enabled.

The fan control signal can be overridden in several ways:

1. Maximum fan speed/signal can be limited differently for the various occupancy modes.
2. The window contact input can be used to override the fan speed/signal to a preconfigured value.

3. If the space temperature drops below a common frost protection setpoint, the fan speed/signal will be set to a preconfigured value.
4. If the condensation switch is activated, the fan speed/signal is set to a preconfigured value.
5. If the plant fire switch is activated, the fan speed/signal is set to a preconfigured value.
6. The wall module fan speed control can be used to override the unit fan speed/signal. This can be configured to function in all occupancy modes, none or just occupied/bypass.

Intake Air

If configured as a stage of cooling, the intake air damper modulates in series with other cooling sequences based on the space temperature control setpoints. This stage is controlled by space temperature control and is not affected by cascade or limiting control.

The intake air damper can be overridden in following ways:

1. The window contact input overrides the intake air damper position to a preconfigured position when open.
2. If unit night purge is active, the intake air damper will be overridden to a preconfigured position.
3. If configured to do so, the intake air damper will be overridden closed based on manual unit switch off from the wall module.
4. If a space overheat condition exists, the intake air damper will be overridden to a preconfigured position.
5. If the plant fire mode is activated, the intake air damper is overridden to fully close position.
6. The intake air damper is overridden to prevent the CO2 value to reach the set point. When the CO2 measured value is equal to its set point then the damper is fully open.
7. The intake air damper is controlled to maintain intake air intake temperatures above a configured low limit setpoint.

The intake air damper can either be controlled as a modulating damper or a two-position damper.

Note: Balancing is triggered via RoomUp command. During balancing, the intake air damper will be overridden fully open.

Under floor Heating Valve

The underfloor heating valve modulates in conjunction with other heating sequences based on the space temperature control setpoints. This stage will only be controlled by space temperature control and will not be affected by cascade or limiting control.

The underfloor heating valve can be overridden in following ways:

1. If the window contact input is in open state, then it overrides the under floor heating value to a preconfigured position.
2. If configured to do so, the under floor heating valve is overridden closed based on manual unit switch off from the wall module.
3. If the space temperature drops below a common frost protection setpoint, the underfloor heating valve will be opened to a preconfigured position.
4. To prevent overheating, the underfloor heating valve will be modulated closed as the heating water temperature increases to approach the high limit setpoint.

Note: Balancing is triggered via RoomUp command. During balancing the heating valve is fully open state irrespective of other settings.

Radiator Heating Valve

The radiator heating valve will modulate in series with other heating sequences based on the space temperature control setpoints. This stage will only be controlled by space temperature control and will not be affected by cascade or limiting control.

The radiator heating valve can be overridden in following ways:

1. If the window contact input is in open state, then it overrides the radiator heating value to a preconfigured position.
2. If configured to do so, the radiator heating valve will be overridden closed based on manual unit switch off from the wall module.
3. If the space temperature drops below a common frost protection setpoint, the radiator heating valve will be opened to a preconfigured position.

Note: Balancing is triggered via RoomUp command. During balancing the radiator heating valve is fully open state irrespective of other settings.

Ceiling Heating & Cooling

The ceiling heating and cooling sequence will control valves in a 2-pipe, 4-pipe, 3-way valve or 6-way valve configuration. Changeover and sequencing will be arbitrated based on the heating/cooling demands and the effective control modes.

If configured as a stage of cooling, the ceiling cooling stage will modulate in series with other cooling sequences based on the space temperature control setpoints. This stage will only be controlled by space temperature control and will not be affected by cascade or limiting control.

The ceiling cooling stage can be overridden in following ways:

1. If the window contact input is in open state, then it overrides the ceiling cooling stage to a preconfigured position.
2. If night purge is active, the ceiling cooling stage is overridden to a preconfigured position.
3. If configured to do so, the ceiling cooling stage is overridden closed based on manual unit switch off from the wall module.
4. If a space overheat condition exists, the ceiling cooling stage is overridden to a preconfigured position.
5. To protect against condensation forming, the ceiling cooling stage will modulate closed as the ceiling chilled water temperature decreases to approach the ceiling dewpoint temperature.
6. If the condensation switch is activated, the ceiling cooling stage is overridden to preconfigured position.

Note: Balancing is triggered via RoomUp command. During balancing the ceiling cooling stage is fully open state irrespective of other settings.

If configured as a stage of heating, the ceiling heating stage modulates in conjunction with other heating sequences based on the space temperature control setpoints. This stage is controlled by space temperature control and is not affected by cascade or limiting control.

The ceiling heating stage can be overridden in following ways:

1. If the window contact input is in open state, then it overrides the ceiling heating stage to a preconfigured position.
2. If night purge is active, the ceiling heating stage is overridden to a preconfigured position.
3. If configured, the ceiling heating stage is overridden closed based on manual unit switch off from the wall module.
4. If the space temperature drops below a common frost protection setpoint, the ceiling heating stage is opened to a preconfigured position.

Note: Balancing is triggered via RoomUp command. During balancing the ceiling heating stage is fully open state irrespective of other settings.

Master/Slave Function

Shared Points

The master controller monitors the sensors, contacts and wall modules installed on the slave controllers. The master controller arbitrates the effective occupancy, setpoint, and control.

Equipment Sequence

The master controller determines the effective sequence for each stage of heating and cooling and broadcasts these to the slave controllers.

The master controller overrides the effective sequences prior to being shared with the slave controller in the event of:

- Window contact open
- Night Purge
- Frost Protection
- Space Overheating

Cascade control, limiting control and safeties such as airflow contacts, drip pan alarm, condensation alarm, plant fire and dew point control overrides the effective sequences locally on the slave controllers.

Wall Modules

At places where wall modules are connected to controllers configured in a master /slave relationship, the inputs from the wall modules connected to slave controllers can be aggregated by the master controller. The aggregated values are used by the master controller for the control sequences. Wherever TR42 wall modules are used, the aggregated values are then shared with the wall modules connected to all controllers that are included in the master/slave relationship. In case if only the master controller has a wall module installed, the Room Temperature data point aggregation must be set to Local, otherwise the displayed temperature will be aggregated with 0 value (Min, Max or Average).

Fan Speed Display: the wall module will not display the actual fan speed but only the wall module fan speed selection (which in case of a master/slave configuration will be transmitted to all wall modules). The fan speed selection can be overridden either from master wall module or slave wall module.

For conventional wall modules, the following information can be aggregated:

- Room Temperature
- Room Temperature Setpoint
- Bypass
- Manual Fan speed

For Sylk wall modules, the following information can be aggregated by the master controller:

- Room Temperature
- Room Temperature Setpoint
- Room CO2
- Room Relative Humidity
- Bypass
- Manual Fan Speed
- Manual HVAC mode

For TR42 Sylk wall modules, the following aggregated information can be displayed at each wall module:

- Room Temperature
- Room Temperature Setpoint
- Room CO2
- Room Relative Humidity
- Manual Fan speed
- Manual HVAC mode
- Occupancy Mode

Lighting Function

The light will be scheduled controlled and controlled by push button according a last wins mechanism. The user can override the schedule value by operating one of the push buttons, based on a last wins (except the override schedule values).

The schedule can have following states:

- 1 = "Override Off": Light Off and Push Buttons and future occupancy and light intensity logic are disabled.
- 2 = "Repeated Off": If the light is on, the light will be switched off. If the user switches on the light via one of the push buttons, the light will be switched off again after the defined time (parameter), has been elapsed. (not applicable, if light is switched by some other logic, than push buttons).
- 3 = "Off": If the light is on, the light will be switched off. The user is able to switch on again the light.
- 4 = "On": If the light is off, the light will be switched on. The user is able to switch on again the light.
- 5 = "Repeated On": If the light is off, the light will be switched on. If the user switches off the light via one of the push buttons, the light will be switched on again after the defined time (parameter), has been elapsed.
- 6 = "Override On": Light On and Push Buttons and future occupancy and light intensity logic are disabled.

Push buttons:

- On Button: When pressing the button, the light will be switched on.
- Off Button: When pressing the button, the light will be switched off.
- Toggle button: When the light is on and the button will be pressed, the light will be switched off. When the light is off and the button will be pressed, the light will be switched on.

NOTE: Only override buttons will work in real time.

Input and Output Point Details

Inputs

No	Name	Description	Type	Range	Units/State Text	Segment
1	CeilWtrTemp	Ceiling Water Temperature	AI	-50..150	Deg C	Ceiling
2	IntakeDmprTemp	Fan Damper Intake Temperature	AI	-50..150	Deg C	Damper
3	RadRadiTemp	Radiator Radiation Temperature	AI	-50..150	Deg C	Radiator
4	RmCO2	Room Carbon Dioxide	AI	0..2000	ppm	Control_Strategy
5	RmRH	Room Relative Humidity	AI	0..100	% RH	Control_Strategy
6	RmTemp	Room Temperature	AI	-50..150	Deg C	Control_Strategy
7	SaTemp	Supply Air Temperature	AI	-50..150	Deg C	Control_Strategy
8	UnFlrSupWtrTemp	UF Supply Water Temperature	AI	-50..150	Deg C	Underfloor_Heating
9	WMBypFanOvrd	Wall Module Bypass Fan Ovrđ	AI	0..5	No Units	Wall_Module
10	WMRmTempSp	WM Room Temperature Setpoint	AI	N/A	Deg C	Wall_Module
11	AirFlow	Air Flow Contact	BI	0..1	NoFlow;Flow	Plant_Strategy
12	CardRđ	Card Reader Contact	BI	0..1	UnOccupied;Occupied	Plant_Strategy
13	Cond	Condensation Contact	BI	0..1	Dry;Condense	Ceiling
14	DripPan	Drip Pan Contact	BI	0..1	Normal;Alarm	FCU_Cooling
15	OccSens	Occupancy Sensor Contact	BI	0..1	UnOccupied;Occupied	Plant_Strategy
16	Window	Window Contact	BI	0..1	Close;Open	Plant_Strategy

Outputs

No	Name	Description	Type	Range	Units/State Text	Segment
1	Ceil6WayVlvCtl	Ceiling 6 Way Valve Control	AO	0..100	%	Ceiling
2	CeilClgCtl	Ceiling Cooling	AO	0..100	%	Ceiling
3	CeilCngOvrVlvCtl	Ceiling Change Over Valve	AO	0..100	%	Ceiling
4	CeilHtgCtl	Ceiling Heating	AO	0..100	%	Ceiling
5	IntakeDmprCtl	Intake Air Damper	AO	0..100	%	Damper
6	FanSpdCtl	Fan Speed	AO	0..100	%	Fan
7	FCUClgCtl	Fan Coil Unit Cooling	AO	0..100	%	FCU_Cooling
8	FCUCngOvrVlvCtl	FCU Change Over Valve	AO	0..100	%	Common
9	FCUDxClgCtl	Fan Coil Unit Dx Cooling	AO	0..100	%	FCU_DX-Cooling
10	FCUEIHtgCtl	Fan Coil Unit Electrical Heating	AO	0..100	%	FCU_EI-Heating
11	FCUHtgCtl	Fan Coil Unit Heating	AO	0..100	%	FCU_Heating
12	RadHtgCtl	Radiator Heating	AO	0..100	%	Radiator
13	UnFlrHtgCtl	Under Floor Heating	AO	0..100	%	Underfloor_Heating
14	WMLedAO	Wall Module LED	AO	0..1	No Units	Wall_Module
15	CeilSwOvrClgVlvCmd	Ceil Switch Over Clg Vlv Cmd	BO	0..1	Off;On	Ceiling
16	CeilSwOvrHtgVlvCmd	Ceil Switch Over Htg Vlv Cmd	BO	0..1	Off;On	Ceiling
17	CeilSwOvrVlvCmd	Ceil Switch Over Vlv Cmd	BO	0..1	Off;On	Ceiling
18	IntakeDmprCmd	Intake Air Damper Command	BO	0..1	Off;On	Damper
19	FanStg1Cmd	Fan Stage 1 Cmd	BO	0..1	Off;On	Fan
20	FanStg2Cmd	Fan Stage 2 Cmd	BO	0..1	Off;On	Fan
21	FanStg3Cmd	Fan Stage 3 Cmd	BO	0..1	Off;On	Fan
22	FCUDxClgBO1	FCU Dx Clg BO1	BO	0..1	Off;On	FCU_DX-Cooling

No	Name	Description	Type	Range	Units/State Text	Segment
23	FCUDxClgBO2	FCU Dx Clg BO2	BO	0..1	Off;On	FCU_DX-Cooling
24	FCUEIHtgBO1	FCU EI Htg BO1	BO	0..1	Off;On	FCU_EI-Heating
25	FCUEIHtgBO2	FCU EI Htg BO2	BO	0..1	Off;On	FCU_EI-Heating
26	Light1Cmd	Light 1 Command	BO	0..1	Off;On	Light
26	WMLedBO	WM LED	BO	0..1	Off;On	Wall_Module

Interface to Building Automation System

No	Name	Description	Type	Values	Segment
1	NiPurgEn	Night Purge Effective	BV	0=No Night Purge 1=Night Purge	Plant_Strategy
2	OccSch	Occupancy Schedule	MV	1=Unoccupied 2=Standby 3=Occupied	Plant_Strategy
3	PltHVACMd	Plant HVAC Mode	MV	1=Off 2=Cooling 3=Heating 4=Auto	Plant_Strategy
4	PltCngOvrMed	Plant Heating / Cooling Medium Available	MV	1=Off 2=Cooling 3=Heating	Plant_Strategy
5	PltFire	Plant Fire	BV	0=No Fire 1=Fire	Plant_Strategy
6	OaExtComp	Outside Air External Comp	AV		Control_Strategy
7	Light1OccSch	Lighting Occupancy Schedule	MV	1=Override Off 2=Repeated Off 3=Off 4=On 5=Repeated On 6=Override On	

Software Points

No	Name	Description	Type	Default	Units/State Text	Segment
1	BypRemTim	Bypass Remaining Time	AV	0	minutes	Plant_Strategy
2	CeilClgMstrSlv	Ceiling Cooling Master Slave	AV	0	No Units	Ceiling
3	CeilHtgMstrSlv	Ceiling Heating Master Slave	AV	0	No Units	Ceiling
4	ComCasLimSeq	Com Cascade Limit Sequence	AV	0	No Units	Control_Strategy
5	DewPntTemp	Dew Point Temperature	AV	0	Deg C	Ceiling
6	IntakeDmprMstrSlv	Fa Damper Master Slave	AV	0	No Units	Damper
7	IntakeDmprOccLoTempSp	Fa Dmpr Temp Occ Low Lim Sp	AV	12	Deg C	Damper
8	IntakeDmprUnOccLoTempSp	Fa Dmpr Temp UnOcc LoLim Sp	AV	6	Deg C	Damper
9	FanRmCtrlSig	Fan Room Control Signal	AV	0	%	Fan
10	FCUClgMstrSlv	FCU Cooling Master Slave	AV	0	No Units	FCU_Cooling
11	FCUDxMstrSlv	FCU Dx Master Slave	AV	0	No Units	FCU_DX-Cooling
12	FCUElHtgMstrSlv	FCU Electrical Htg Master Slave	AV	0	No Units	FCU_El-Heating
13	FCUFanSigMstrSlv	FCU Fan Signal Master Slave	AV	0	No Units	Fan
14	FCUHtgLoLimSeq	FCU Heating Low Limit Sequence	AV	0	No Units	FCU_Heating
15	FCUHtgMstrSlv	FCU Heating Master Slave	AV	0	No Units	FCU_Heating
16	FCUSaClgLoLimSp	FCU Supply Clg Low Limit Sp	AV	0	Deg C	Control_Strategy
17	FCUSaHtgLoLimSp	FCU Supply Htg Low Limit Sp	AV	6	Deg C	Control_Strategy
18	OaExtComp	Outside Air External Comp	AV	0	Deg K	Control_Strategy
19	OccClgSp	Occupied Clg Sp	AV	22	Deg C	Control_Strategy
20	OccHtgSp	Occupied Htg Sp	AV	19	Deg C	Control_Strategy
21	PltCngOvrWtrTemp	Plant Change Over Water Temp	AV	0	Deg C	Control_Strategy

No	Name	Description	Type	Default	Units/State Text	Segment
22	PltPrty	Plant Priority	AV	0	No Units	Plant_Strategy
23	RadHtgMstrSlv	Radiator Heating Master Slave	AV	0	No Units	Radiator
24	RmFrostSp	Room Frost Setpoint	AV	6	Deg C	Plant_Strategy
25	RmOccCO2Sp	Rm Occ Carbon Dioxide Setpoint	AV	800	ppm	Control_Strategy
26	RmOvrHtgSp	Room Over Heat Setpoint	AV	40	Deg C	Plant_Strategy
27	RmTempEffSp	Room Temperature Sp Effective	AV	0	Deg C	Control_Strategy
28	RmUnOccCO2Sp	Rm UnOcc Carbon Dioxide Sp	AV	1100	ppm	Control_Strategy
29	SaMaxTempSp	Supply Air Max Temp Setpoint	AV	28	Deg C	Control_Strategy
30	SaMinTempSp	Supply Air Minimum Temp Setpoint	AV	14	Deg C	Control_Strategy
31	SaTempSp	Supply Temperature Setpoint	AV	0	Deg C	Control_Strategy
32	StbyClgSp	Standby Clg Sp	AV	24	Deg C	Control_Strategy
33	StbyHtgSp	Standby Htg Sp	AV	17	Deg C	Control_Strategy
34	UnFlrHtgMstrSlv	Under Floor Heating Master Slave	AV	0	No Units	Underfloor_Heating
35	UnOccClgSp	UnOccupied Clg Sp	AV	26	Deg C	Control_Strategy
36	UnOccHtgSp	UnOccupied Heating Setpoint	AV	15	Deg C	Control_Strategy
37	WMBypFanOvrDsp	Wall Module Bypass Fan Override Dsp	AV	0	No Units	Wall_Module
38	WMHiLimRmTempSpDsp	WM High Limit Setpoint Display	AV	0	Deg C	Wall_Module
39	WMLoLimRmTempSpDsp	WM Low Limit Setpoint Display	AV	0	Deg C	Wall_Module
40	WMRmCO2Dsp	WM Carbon Dioxide Display	AV	0	ppm	Wall_Module
41	WMRmRHDsp	WM Relative Humidity Display	AV	0	% RH	Wall_Module
42	WMRmTempDsp	WM Space Temperature Display	AV	0	Deg C	Wall_Module
43	WMRmTempSpDsp	WM Room Temp Setpoint Display	AV	0	Deg C	Wall_Module
44	NiPurgEff	Night Purge Effective	BV	0	Disable;Enable	Plant_Strategy
45	PltFire	Plant Fire	BV	0	Disable;Enable	Plant_Strategy

No	Name	Description	Type	Default	Units/State Text	Segment
46	PltNiPrgEn	Plant Night Purge Enable	BV	0	Disable;Enable	Plant_Strategy
47	WMBypDsp	Wall Module Bypass Display	BV	0	NoBypass;Bypass	Wall_Module
48	CtrlMd	Control Mode	MV	3	Off;Clg;Htg;Auto	Control_Strategy
49	CtrlSpEffMd	Control Setpoint Mode Effective	MV	0	Off; Clg; Htg	Control_Strategy
50	FCUFanStgCmd	FCU Fan Stage Command	MV	0	Off; Stg1Cmd; Stg2Cmd; Stg3Cmd	Fan
51	Light1OccSch	Light 1 Occupancy Schedule	MV	2	OffRepeat; Off; On	Light
52	OccMd	Occupancy Mode	MV	0	UnOccupied; Standby; Occupied; Bypass; Holiday	Plant_Strategy
53	OccSch	Occupancy Schedule	MV	2	UnOccupied; Standby; Occupied	Plant_Strategy
54	PltCngOvrMed	Plant Change Over Medium	MV	0	Off;Clg;Htg	Control_Strategy
55	PltHVACMd	Plant HVAC Mode	MV	3	Off;Clg;Htg;Auto	Control_Strategy
56	PltMd	Plant Mode	MV	0	1;2;UnOccupied; Standby; Occupied; Bypass; Holiday;8;9;10;11;12;13; NightPurge;15;16;17;18; 19;20;21;22;23;24; 25;26;27;28;Fire;30;31;32	Plant_Strategy
57	WMFanManSwCmd	WM Fan Manual Switch Command	MV	0	Off; Auto; Low/On;	Wall_Module

No	Name	Description	Type	Default	Units/State Text	Segment
					Medium; High	
58	WMFanTypeCfg	Wall Module Fan Type Cfg	MV	3	NoFan; OneSpeedFan; TwoSpeedFan; ThreeSpeedFan; VarSpeedFan	Wall_Module
59	WMHVACMd	Wall Module HVAC Mode	MV	3	NotUsed; Cool;Heat; Auto	Wall_Module
60	WMHVACMdDsp	Wall Module HVAC Mode Display	MV	3	NotUsed; Cool;Heat; Auto	Wall_Module
61	WMSpEffMd	WM Setpoint Mode Effective	MV	1	NotUsed; Cool; Heat	Wall_Module
62	WMType	Wall Module Type	MV	0	WMDetMd; InvInput; Sylk; Conv	Wall_Module

Flag Points

No	Name	Description	Type	Default	Units/State Text	Segment	Configuration Points
1	CeilFanManSwOffCtrl	Ceil Fan Man Switch Off Ctrl	AF	1	1 = Keep Ctrl On 2 = Switch Off	Ceiling	Yes
2	CeilPipeLLP	Ceiling Pipe LLP	AF	2	1 = 2-Pipe; 2 = 4-Pipe; 3 = 4-Pipe 6-Way Valve	Ceiling	Yes
3	CeilTypeLLP	Ceiling Type LLP	AF	1	1 = Not Used;	Ceiling	Yes

No	Name	Description	Type	Default	Units/State Text	Segment	Configuration Points
					2 = Clg; 3 = Htg; 4 = Clg & Htg		
4	ClgCtrlTypLLP	Cooling Control Type LLP	AF	0	1 = Not Used; 2 = Minimum Limitation; 3 = Maximum Limitation; 4 = Cascade	Common	No
5	ClgPosLLP	Cooling Position LLP	AF	0	No Units	Common	No
6	FCUCtrlTypLLP	FCU Control Type LLP	AF	1	1 = Space Control; 2 = Cascade Space Control; 3 = Space Control with Low Limit Cooling; 4 = Space Control with Low Limit Heating; 5 = Space Control with Low Limit Cooling & Heating	Common	Yes
7	FCUTypeLLP	FCU Type LLP	AF	1	1 = Not used; 2 = Clg; 3 = Htg; 4 = Dx - Clg; 5 = El Htg; 6 = Clg, Htg; 7 = Clg, Dx - Clg; 8 = Clg, El Htg; 9 = Clg, Htg, Dx - Clg; 10 = Htg, Dx - Clg, El Htg; 11 = Htg, Clg, El Htg; 12 = Htg, Dx-Clg; 13 = Htg, El Htg; 14 = Clg, Dx - Clg, El Htg; 15 = Dx - Clg, E-Htg; 16 = Clg, Htg, Dx - Clg + El Htg.	Common	Yes
8	HtgCtrlTypLLP	Heating Control Type LLP	AF	0	1 = Not Used; 2 = Minimum Limitation; 3 = Maximum Limitation;	Common	No

No	Name	Description	Type	Default	Units/State Text	Segment	Configuration Points
					4 = Cascade		
9	HtgPosLLP	Heating Position LLP	AF	0	No Units	Common	
10	FCUPipeLLP	FCU Pipe LLP	AF	2	1 = 2-Pipe; 2 = 4-Pipe	Control_Strategy	Yes
11	DmprFanManSwOffCtrl	Dmpr Fan Man Switch Off Ctrl	AF	1	1 = Keep Ctrl On; 2 = Switch Off	Damper	Yes
12	DmprTypCfgLLP	Damper Type Cfg LLP	AF	1	1 = Not Used; 2 = Clg; 3 = Air Qlty; 4 = Clg & Air Qlty	Damper	Yes
13	AirFIFanHoldOffDeLLP	Air Flow Fan Hold Off Delay LLP	AF	10	Seconds	Fan	Yes
14	FanCtrlEn	Fan Control Enable	AF	0	1 = Disable Control; 2 = Fan Run On Timer operating Disable Control; 3 = Enable Control	Fan	No
15	FanYSigClgStg1OnLLP	Fan y Sig Clg Stg1 On LLP	AF	5	%	Fan	Yes
16	FanYSigClgStg2OnLLP	Fan y Sig Clg Stg2 On LLP	AF	50	%	Fan	Yes
17	FanYSigClgStg3OnLLP	Fan y Sig Clg Stg3 On LLP	AF	75	%	Fan	Yes
18	FanYSigHtgStg1OnLLP	Fan y Sig Htg Stg1 On LLP	AF	30	%	Fan	Yes
19	FanYSigHtgStg2OnLLP	Fan y Sig Htg Stg2 On LLP	AF	60	%	Fan	Yes
20	FanYSigHtgStg3OnLLP	Fan y Sig Htg Stg3 On LLP	AF	90	%	Fan	Yes
21	FCUClgSeqPrty	FCU Cooling Sequence Priority	AF	0	No Units	FCU_Cooling	No
22	DxClgCtrlTypLLP	Dx Cooling Control Type LLP	AF	0	1 = Not Used; 2 = Minimum Limitation; 3 = Maximum Limitation;	FCU_DX-Cooling	No

No	Name	Description	Type	Default	Units/State Text	Segment	Configuration Points
					4 = Cascade		
23	DxClgPosLLP	Dx Cooling Position LLP	AF	0	No Units	FCU_DX-Cooling	No
24	FCUDxClgSeqPrty	FCU Dx Cooling Sequence Priority	AF	0	No Units	FCU_DX-Cooling	No
25	EIHtgCtrlTypLLP	Elec Heating Control Type LLP	AF	0	1 = Not Used; 2 = Minimum Limitation; 3 = Maximum Limitation; 4 = Cascade	FCU_EI-Heating	No
26	EIHtgPosLLP	Elec Heating Position LLP	AF	0	No Units	FCU_EI-Heating	No
27	FCUEIHtgSeqPrty	FCU EI Htg Sequence Priority	AF	0	No Units	FCU_EI-Heating	No
28	FanDelSwOffLLP	Fan Delayed Sw Off	AF	120	Seconds	FCU_Heating	Yes
29	FCUHtgSeqPrty	FCU Heating Sequence Priority	AF	0	No Units	FCU_Heating	No
30	WMOvrdRstDsp	Wall Module Override Reset Display	AF	0	1 = Disable; 2 = Enable Reset	Light	No
31	RmFrostHysLLP	Room Frost Hysteresis LLP	AF	2	Deg C	Plant_Strategy	Yes
32	RmOvrHtgHysLLP	Room Over Heating hysteresis LLP	AF	2	Deg C	Plant_Strategy	Yes
33	RadEnLLP	Radiator Enable LLP	AF	1	1 = Not Used; 2 = Enable Htg	Radiator	Yes
34	RadFanManSwOffCtrl	Rad Fan Man Switch Off Ctrl	AF	1	1 = Keep Ctrl On:2 = Switch Off	Radiator	Yes
35	UnFlrEnLLP	Under Floor Enable LLP	AF	1	1 = Not Used; 2 = Enable Htg	Underfloor_Heating	Yes
36	UnFlrFanManSwOffCtrl	Un Flr Fan Man Switch Off Ctrl	AF	1	1 = Keep Ctrl On:2 = Switch Off	Underfloor_Heating	Yes

No	Name	Description	Type	Default	Units/State Text	Segment	Configuration Points
37	WMHomeScrInfoCfg	Wall Module Home Screen Info Cfg	AF	1	0 = Temperature Setpoint; 1 = Temperature; 2 = Humidity; 3 = CO2; 4 = Blank Screen; 5 = Scrolling (Scroll between items 0, 1, 2 and 3)	Wall_Module	Yes
38	WMOvrdRst	Wall Module Override Reset Display	AF	0	1 = Disable; 2 = Enable Reset	Wall_Module	Yes
39	WMEnBypassCfg	WM Enable Bypass Cfg	BF	1	0 = Disable; 1 = Enable	Wall_Module	Yes
40	WMEnFanMnSwCfg	WM Enable Fan Manual Switch Cfg	BF	1	1 = Keep Ctrl On; 2 = Switch Off	Wall_Module	Yes
41	WMSpTypeCfg	WM Setpoint Type Configuration	BF	0	0 = Numeric; 1 = Graphic	Wall_Module	Yes
42	WMViewCO2Cfg	WM View Carbon Dioxide Cfg	BF	1	0 = Not Visible; 1 = Visible	Wall_Module	Yes
43	WMViewHVACMdCfg	WM View HVAC Mode Cfg	BF	1	0 = Not Visible; 1 = Visible	Wall_Module	Yes
44	WMViewIntSymbICfg	WM View International Symbol Cfg	BF	0	0 = English Text; 1 = International Icons	Wall_Module	Yes
45	WMViewOccStsCfg	WM View Occupancy Status Cfg	BF	1	0 = Not Visible; 1 = Visible	Wall_Module	Yes
46	WMViewRHCfg	WM View Relative Humidity Cfg	BF	1	0 = Not Visible; 1 = Visible	Wall_Module	Yes
47	WMViewRmTempCfg	WM View Room Temperature Cfg	BF	1	0 = Not Visible; 1 = Visible	Wall_Module	Yes
48	WMViewRmTempSpCfg	WM View Room Temperature Sp Cfg	BF	1	0 = Not Visible; 1 = Visible	Wall_Module	Yes

Parameters

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
1	Cas_Rm_Ctrl_TiClg	G_IRMPIDSPACECT RL	41324	TiClg	26	1200	Seconds	Control_Strategy
2	Cas_Rm_Ctrl_TiHtg	G_IRMPIDSPACECT RL	41324	TiHtg	27	1200	Seconds	Control_Strategy
3	Cas_Rm_Ctrl_XpClg	G_IRMPIDSPACECT RL	41324	XpClg	24	5	Deg C	Control_Strategy
4	Cas_Rm_Ctrl_XpHtg	G_IRMPIDSPACECT RL	41324	XpHtg	25	5	Deg C	Control_Strategy
5	Ceil_Chg_Ovr_Vlv_Seq_Direction	G_IRM6WAYVLVOU TPUT	41629	Seq_Direction	1	1	1 = Clg - Htg; 2 = Htg - Clg	Ceiling
6	Ceil_Chg_Ovr_Vlv_Seq1_End_V	G_IRM6WAYVLVOU TPUT	41629	Seq1_End_Volt	3	4.7	Volts	Ceiling
7	Ceil_Chg_Ovr_Vlv_Seq1_Start_V	G_IRM6WAYVLVOU TPUT	41629	Seq1_Start_Volt	2	2	Volts	Ceiling
8	Ceil_Chg_Ovr_Vlv_Seq2_End_V	G_IRM6WAYVLVOU TPUT	41629	Seq2_End_Volt	5	10	Volts	Ceiling
9	Ceil_Chg_Ovr_Vlv_Seq2_Start_V	G_IRM6WAYVLVOU TPUT	41629	Seq2_Start_Volt	4	7.3	Volts	Ceiling

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
10	Ceil_Clg_Cond_Prot_Xp	G_IRMSEQPRTYRAMP	40868	Xp	13	1	Deg C	Ceiling
11	Ceil_Clg_Cond_Swi_Ovrd_Val	G_IRMSEQPRTYOVERD	40999	Override_Value	13	0	%	Ceiling
12	Ceil_Clg_Dsp_Prtly	G_IRMDSPPRTY	42258	Dsp_Prtly	1	1	No Units	Ceiling
13	Ceil_Clg_NiPrg_Ovrd_Val	G_IRMSEQPRTYOVERD	40851	Override_Value	13	0	%	Ceiling
14	Ceil_Clg_Overh_Rm_Ovrd_Val	G_IRMSEQPRTYOVERD	41545	Override_Value	13	100	%	Ceiling
15	Ceil_Clg_Seq_In_Seq_Start	G_IRMSEQUENCER	40784	Input_Seq_Start	1	0	%	Ceiling
16	Ceil_Clg_Seq_In_Seq_Stop	G_IRMSEQUENCER	40784	Input_Seq_Stop	2	100	%	Ceiling
17	Ceil_Clg_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOVERD	40756	Override_Value	13	0	%	Ceiling
18	Ceil_Dew_Point_Calc_Safety_Offs	PAR	41847	P1	1	2	Deg C	Ceiling
19	Ceil_Dew_Point_Calc_Sp	PAR	41572	P1	1	35	Deg C	Ceiling
20	Ceil_Htg_Dsp_Prtly	G_IRMDSPPRTY	42260	Dsp_Prtly	1	1	No Units	Ceiling

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
21	Ceil_Htg_Rm_Frost_Ovrd_Val	G_IRMSEQPRTYOV RD	41552	Override_Value	13	0	%	Ceiling
22	Ceil_Htg_Seq_In_Seq_Start	G_IRMSEQUENCER	40859	Input_Seq_Start	1	0	%	Ceiling
23	Ceil_Htg_Seq_In_Seq_Stop	G_IRMSEQUENCER	40859	Input_Seq_Stop	2	100	%	Ceiling
24	Ceil_Htg_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOV RD	40873	Override_Value	13	0	%	Ceiling
25	Dm_Air_Qty_Ctrl_En_Ctrl_Md_A_Sel	G_IRMMDEN	42191	Array_Select	1	1	1 = Cooling, Heating; 2 = Cooling; 3 = Heating; 4 = Disabled;	Damper
26	Dm_Air_Qty_Ctrl_Xp	G_IRMSEQPRTYRAMP	41294	Xp	13	50	ppm	Damper
27	Dm_BO_Hys_Par	DECISION BOX	41931	Hys_Par	1	2	%	Damper
28	Dm_BO_Val	PAR	41934	P1	1	5	%	Damper
29	Dm_Dsp_Prtly	G_IRMDSPPARTY	42266	Dsp_Prtly	1	1	No Units	Damper

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
30	Dm_Lo_Lim_Ctrl_A_Sel	G_IRMMDEN	42038	Aray_Select	1	1	1 = Unoccupied, Standby, Occupied, Bypass, Holiday; 2 = Standby, Occupied, Bypass; 3 = Occupied, Bypass;	Damper
31	Dm_Lo_Lim_Ctrl_En	PAR	42175	P1	1	1	1 = Disable; 2 = Enable	Damper
32	Dm_Lo_Lim_Ctrl_Xp	G_IRMSEQPRTYRAM P	41083	Xp	13	1.5	Deg C	Damper
33	Dm_NiPrg_Ovrd_Val	G_IRMSEQPRTYOV RD	41064	Override_Value	13	0	%	Damper
34	Dm_Overh_Rm_Ovrd_Val	G_IRMSEQPRTYOV RD	42119	Override_Value	13	0	%	Damper
35	Dm_Seq_In_Seq_Start	G_IRMSEQUENCER	41055	Input_Seq_Start	1	0	%	Damper
36	Dm_Seq_In_Seq_Stop	G_IRMSEQUENCER	41055	Input_Seq_Stop	2	100	%	Damper
37	Dm_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOV RD	41069	Override_Value	13	0	%	Damper
38	Fan_Clg_Seq_In_Seq_Start	G_IRMSEQUENCER	41622	Input_Seq_Start	1	20	%	Fan

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
39	Fan_Clg_Seq_In_Seq_Stop	G_IRMSEQUENCER	41622	Input_Seq_Stop	2	60	%	Fan
40	Fan_Clg_Seq_Out_Seq_Start	G_IRMSEQUENCER	41622	Output_Seq_Start	3	0	%	Fan
41	Fan_Clg_Seq_Out_Seq_Stop	G_IRMSEQUENCER	41622	Output_Seq_Stop	4	100	%	Fan
42	Fan_Cond_Swi_Ovrd_Val	G_IRMSEQPRTYOV RD	41403	Override_Value	13	0	%	Fan
43	Fan_Dsp_Prt	G_IRMDSPPTY	42268	Dsp_Prt	1	1	No Units	Fan
44	Fan_Fire_Off_Ovrd_Val	G_IRMSEQPRTYOV RD	41439	Override_Value	13	0	%	Fan
45	Fan_Htg_Seq_In_Seq_Start	G_IRMSEQUENCER	41619	Input_Seq_Start	1	20	%	Fan
46	Fan_Htg_Seq_In_Seq_Stop	G_IRMSEQUENCER	41619	Input_Seq_Stop	2	60	%	Fan
47	Fan_Htg_Seq_Out_Seq_Start	G_IRMSEQUENCER	41619	Output_Seq_Start	3	0	%	Fan
48	Fan_Htg_Seq_Out_Seq_Stop	G_IRMSEQUENCER	41619	Output_Seq_Stop	4	100	%	Fan
49	Fan_Rm_Frost_Ovrd_Val	G_IRMSEQPRTYOV RD	41606	Override_Value	13	0	%	Fan

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
50	Fan_Sig_Sel_Fan_Ctrl_Sub_Type	G_IRMYSIGFAN	41359	Fan_Ctrl_Sub_Type	1	1	1=Parallel Sequence with Coils; 2=Independent Sequence	Fan
51	Fan_Sig_Sel_Max_Ysig_Occ	G_IRMYSIGFAN	41359	Max_Ysig_Occ	12	100	%	Fan
52	Fan_Sig_Sel_Max_YSig_Stby	G_IRMYSIGFAN	41359	Max_YSig_Stby	13	100	%	Fan
53	Fan_Sig_Sel_Max_YSig_UnOcc	G_IRMYSIGFAN	41359	Max_YSig_UnOcc	14	100	%	Fan
54	Fan_Sig_Sel_Min_YSig_Occ	G_IRMYSIGFAN	41359	Min_YSig_Occ	15	0	%	Fan
55	Fan_Sig_Sel_Min_YSig_Stby	G_IRMYSIGFAN	41359	Min_YSig_Stby	16	0	%	Fan
56	Fan_Stage_Off_Delay	G_IRMFANOUTPUT	41441	Stage_Dn_Delay	25	10	Seconds	Fan
57	Fan_Stage_On_Delay	G_IRMFANOUTPUT	41441	Stage_Up_Delay	24	10	Seconds	Fan
58	Fan_Stg_Clg_Fan_Start_YSig	G_IRMYSIGFAN	41359	Clg_Fan_Start_YSig	30	20	%	Fan

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
59	Fan_Stg_Clg_Fan_Stg1_Off_YSig	G_IRMYSIGFAN	41359	Clg_Fan_Stg1_Off_YSig	17	0	%	Fan
60	Fan_Stg_Clg_Fan_Stg2_Off_YSig	G_IRMYSIGFAN	41359	Clg_Fan_Stg2_Off_YSig	19	5	%	Fan
61	Fan_Stg_Clg_Fan_Stg3_Off_YSig	G_IRMYSIGFAN	41359	Clg_Fan_Stg3_Off_YSig	21	50	%	Fan
62	Fan_Stg_Clg_Fan_Stop_YSig	G_IRMYSIGFAN	41359	Clg_Fan_Stop_YSig	29	0	%	Fan
63	Fan_Stg_Clg_Max_YSig	G_IRMYSIGFAN	41359	Clg_Max_YSig	34	100	%	Fan
64	Fan_Stg_Clg_Min_YSig	G_IRMYSIGFAN	41359	Clg_Min_YSig	33	0	%	Fan
65	Fan_Stg_Fan_Type_Select	G_IRMFANOUTPUT	41441	Fan_Type_Select	1	4	1 = No Fan; 2 = 1-Speed Fan; 3 = 2-Speed Fan; 4 = 3-Speed Fan; 5 = Variable Speed Fan	Wall_Module

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
66	Fan_Stg_Htg_Fan_Start_YSig	G_IRMYSIGFAN	41359	Htg_Fan_Start_YSig	32	20	%	Fan
67	Fan_Stg_Htg_Fan_Stg1_Off_YSig	G_IRMYSIGFAN	41359	Htg_Fan_Stg1_Off_YSig	23	0	%	Fan
68	Fan_Stg_Htg_Fan_Stg2_Off_YSig	G_IRMYSIGFAN	41359	Htg_Fan_Stg2_Off_YSig	25	33	%	Fan
69	Fan_Stg_Htg_Fan_Stg3_Off_YSig	G_IRMYSIGFAN	41359	Htg_Fan_Stg3_Off_YSig	27	66	%	Fan
70	Fan_Stg_Htg_Fan_Stop_YSig	G_IRMYSIGFAN	41359	Htg_Fan_Stop_YSig	31	0	%	Fan
71	Fan_Stg_Htg_Max_YSig	G_IRMYSIGFAN	41359	Htg_Max_YSig	36	100	%	Fan
72	Fan_Stg_Htg_Min_YSig	G_IRMYSIGFAN	41359	Htg_Min_YSig	35	0	%	Fan
73	Fan_Stg_Serial_Parallel_Select	G_IRMFANOUTPUT	41441	Serial_Parallel_Select	2	2	1 = Serial;2 = Parallel	Fan
74	Fan_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOVRD	41365	Override_Value	13	0	%	Fan

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
75	Fan_WM_Swi_OccMd_En_Select	G_IRMFANMANSW	41386	OccMd_Enable_Select	7	4	1 = Disable Man Switch; 2 = Enable in Unoccupied, Holiday, Standby, Occupied, Bypass; 3 = Enable in Standby, Occupied, Bypass; 4 = Enable in Occupied, Bypass	Fan
76	FCU_Clg_Air_Fl_Ovrd_Val	G_IRMSEQPRTYAIRFLO	41115	Air_Flow_YSig_Ovrd_value	18	0	%	FCU_Cooling
77	FCU_Clg_Drip_Pan_Ovrd_Val	G_IRMSEQPRTYOVERD	40706	Override_Value	13	0	%	FCU_Cooling
78	FCU_Clg_Dsp_Prt	G_IRMDSPPARTY	42253	Dsp_Prt	1	1	No Units	FCU_Cooling
79	FCU_Clg_Lim_Ctrl_Ti	G_IRMPIDCASLIMITRL	41259	Ti	14	300	Seconds	FCU_Cooling
80	FCU_Clg_Lim_Ctrl_Xp	G_IRMPIDCASLIMITRL	41259	Xp	13	12	Deg C	FCU_Cooling

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
81	FCU_Clg_NiPrg_Ovrd_Val	G_IRMSEQPRTYOV RD	40815	Override_Value	13	0	%	FCU_Cooling
82	FCU_Clg_Overh_Rm_Ovrd_Val	G_IRMSEQPRTYOV RD	41539	Override_Value	13	100	%	FCU_Cooling
83	FCU_Clg_Seq_In_Seq_Start	G_IRMSEQUENCER	40903	Input_Seq_Start	1	0	%	FCU_Cooling
84	FCU_Clg_Seq_In_Seq_Stop	G_IRMSEQUENCER	40903	Input_Seq_Stop	2	50	%	FCU_Cooling
85	FCU_Clg_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOV RD	40700	Override_Value	13	0	%	FCU_Cooling
86	FCU_DX-C_Air_Fl_Ovrd_Val	G_IRMSEQPRTYAIRFLO	41315	Air_Flow_YSig_Ovrd_value	18	0	%	FCU_DX-Cooling
87	FCU_DX-C_Air_Fl_YSig_On_Del	G_IRMSEQPRTYAIRFLO	41315	YSig_On_Delay	10	10	Seconds	FCU_DX-Cooling
88	FCU_DX-C_BO_Min_On_Off_Del	G_IRMLOADAO2BO	42201	Min_On_Off_Delay	5	30	Seconds	FCU_DX-Cooling
89	FCU_DX-C_BO_Stg_Off_Hys	G_IRMLOADAO2BO	42201	Stg_Off_Hys	4	5	%	FCU_DX-Cooling
90	FCU_DX-C_BO_Stg1_On_YSig	G_IRMLOADAO2BO	42201	Stg1_On_YSig	1	999	%	FCU_DX-Cooling

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
91	FCU_DX-C_BO_Stg2_On_YSig	G_IRMLOADAO2BO	42201	Stg2_On_YSig	2	999	%	FCU_DX-Cooling
92	FCU_DX-C_BO_Stg3_On_YSig	G_IRMLOADAO2BO	42201	Stg3_On_YSig	3	999	%	FCU_DX-Cooling
93	FCU_DX-C_Drip_Pan_Ovrd_Val	G_IRMSEQPRTYOV RD	40841	Override_Value	13	0	%	FCU_DX-Cooling
94	FCU_DX-C_Dsp_Prt	G_IRMDSPPTY	42256	Dsp_Prt	1	1	No Units	FCU_DX-Cooling
95	FCU_DX-C_Lim_Ctrl_Ti	G_IRMPIDCASLIMC TRL	41270	Ti	14	300	Seconds	FCU_DX-Cooling
96	FCU_DX-C_Lim_Ctrl_Xp	G_IRMPIDCASLIMC TRL	41270	Xp	13	12	Deg C	FCU_DX-Cooling
97	FCU_DX-C_NiPrg_Ovrd_Val	G_IRMSEQPRTYOV RD	40744	Override_Value	13	0	%	FCU_DX-Cooling
98	FCU_DX-C_Overh_Rm_Ovrd_Val	G_IRMSEQPRTYOV RD	41543	Override_Value	13	100	%	FCU_DX-Cooling
99	FCU_DX-C_Seq_In_Seq_Start	G_IRMSEQUENCER	40752	Input_Seq_Start	1	50	%	FCU_DX-Cooling
100	FCU_DX-C_Seq_In_Seq_Stop	G_IRMSEQUENCER	40752	Input_Seq_Stop	2	100	%	FCU_DX-Cooling

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
101	FCU_DX-C_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOV RD	40742	Override_Value	13	0	%	FCU_DX-Cooling
102	FCU_EI-H_Air_FI_Ovrd_Val	G_IRMSEQPRTYAI RFLO	41307	Air_Flow_YSig_O vrd_value	18	0	%	FCU_EI-Heating
103	FCU_EI-H_Air_FI_YSig_On_Del	G_IRMSEQPRTYAI RFLO	41307	YSig_On_Delay	10	10	Seconds	FCU_EI-Heating
104	FCU_EI-H_BO_Min_On_Off_Del	G_IRMLOADAO2BO	42202	Min_On_Off_Del ay	5	30	Seconds	FCU_EI-Heating
105	FCU_EI-H_BO_Stg_Off_Hys	G_IRMLOADAO2BO	42202	Stg_Off_Hys	4	5	%	FCU_EI-Heating
106	FCU_EI-H_BO_Stg1_On_YSig	G_IRMLOADAO2BO	42202	Stg1_On_YSig	1	999	%	FCU_EI-Heating
107	FCU_EI-H_BO_Stg2_On_YSig	G_IRMLOADAO2BO	42202	Stg2_On_YSig	2	999	%	FCU_EI-Heating
108	FCU_EI-H_BO_Stg3_On_YSig	G_IRMLOADAO2BO	42202	Stg3_On_YSig	3	999	%	FCU_EI-Heating
109	FCU_EI-H_Dsp_Prty	G_IRMDSPPRTY	42247	Dsp_Prty	1	1	No Units	FCU_EI-Heating

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
110	FCU_EI-H_Lim_Ctrl_Ti	G_IRMPIDCASLIMC TRL	41266	Ti	14	300	Seconds	FCU_EI-Heating
111	FCU_EI-H_Lim_Ctrl_Xp	G_IRMPIDCASLIMC TRL	41266	Xp	13	12	Deg C	FCU_EI-Heating
112	FCU_EI- H_Rm_Frost_Ovrd_Val	G_IRMSEQPRTYOV RD	41527	Override_Value	13	0	%	FCU_EI-Heating
113	FCU_EI-H_Seq_In_Seq_Start	G_IRMSEQUENCER	40781	Input_Seq_Start	1	50	%	FCU_EI-Heating
114	FCU_EI-H_Seq_In_Seq_Stop	G_IRMSEQUENCER	40781	Input_Seq_Stop	2	100	%	FCU_EI-Heating
115	FCU_EI- H_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOV RD	40730	Override_Value	13	0	%	FCU_EI-Heating
116	FCU_Htg_Air_FI_Ovrd_Val	G_IRMSEQPRTYAI RFLO	41123	Air_Flow_YSig_O vrd_value	18	0	%	FCU_Heating
117	FCU_Htg_Dsp_Prt	G_IRMDSPPTY	42251	Dsp_Prt	1	1	No Units	FCU_Heating
118	FCU_Htg_Lim_Ctrl_Ti	G_IRMPIDCASLIMC TRL	41260	Ti	14	300	Seconds	FCU_Heating
119	FCU_Htg_Lim_Ctrl_Xp	G_IRMPIDCASLIMC TRL	41260	Xp	13	12	Deg C	FCU_Heating

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
120	FCU_Htg_Rm_Frost_Ovrd_Val	G_IRMSEQPRTYOV RD	41535	Override_Value	13	50	%	FCU_Heating
121	FCU_Htg_Seq_In_Seq_Start	G_IRMSEQUENCER	40816	Input_Seq_Start	1	0	%	FCU_Heating
122	FCU_Htg_Seq_In_Seq_Stop	G_IRMSEQUENCER	40816	Input_Seq_Stop	2	50	%	FCU_Heating
123	FCU_Htg_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOV RD	40716	Override_Value	13	50	%	FCU_Heating
124	Htg_Clg_Pos_HVAC_Md_Typ_Pip_Nipu	G_IRMCTRLMDCAL C	40665	Dsp_HVAC_Md_Type_Pipe_Nipu	19	1	1 = Off; 2 = Cooling; 3 = Heating; 4 = Auto	Control_Strategy
125	NiPrg_En_Fan_Off_A_Sel	G_IRMMDEN	42232	Array_Select	1	2	1 =Auto, Low/ON, Medium, High; 2 = Auto, Low/ON, Medium, High, OFF;	Common
126	NiPrg_En_Occ_Md_A_Sel	G_IRMMDEN	42231	Array_Select	1	1	1 = Unoccupied, Standby, Occupied, Bypass, Holiday; 2 = Unoccupied, Standby,	Common

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
							Holiday; 3 = Unoccupied, Holiday;	
127	Occ_Sens_CardReader_Off_Delay	G_IRMOCCSENS	41134	CardReader_Off_Delay	5	15	Seconds	Plant_Strategy
128	Occ_Sens_Occ_Sens_Off_Del	G_IRMOCCSENS	41134	Occupancy_Sensor_Off_Delay	3	600	Seconds	Plant_Strategy
129	Occ_Sens_Occ_Sens_On_Del	G_IRMOCCSENS	41134	Occupancy_Sensor_On_Delay	2	15	Seconds	Plant_Strategy

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
130	Occ_Sens_Schedule_Swi_State	G_IRMOCCSENS	41134	Schedule_Switch_State	1	2	1 = Not Used; 2 = Unoccupied/Standby to Occupied; 3 = Standby to Occupied; 4 = Occupied to Standby; 5 = Occupied to Unoccupied	Plant_Strategy
131	Rad_Htg_Dsp_Prt	G_IRMDSPPRTY	42262	Dsp_Prt	1	1	No Units	Radiator
132	Rad_Lo_Lim_Ctrl_En	PAR	42145	P1	1	1	1 = Disable; 2 = Enable	Radiator
133	Rad_Lo_Lim_Ctrl_En_Ctrl_Md_A_Sel	G_IRMMDEN	42142	Array_Select	1	1	1 = Heating; 2 = Cooling, Heating;	Radiator

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
134	Rad_Lo_Lim_Ctrl_En_Occ_Md_A_Sel	G_IRMMDEN	42113	Aray_Select	1	1	1 = Occupied, Bypass; 2 = Standby, Occupied, Bypass; 3 = Unoccupied, Standby, Occupied, Bypass, Holiday;	Radiator
135	Rad_Lo_Lim_Ctrl_Sp	PAR	42159	P1	1	25	Deg C	Radiator
136	Rad_Lo_Lim_Ctrl_Xp	G_IRMSEQPRTYRAM_P	42156	Xp	13	1.5	Deg C	Radiator
137	Rad_Rm_Frost_Ovrd_Val	G_IRMSEQPRTYOV_R	41564	Override_Value	13	0	%	Radiator
138	Rad_Seq_In_Seq_Start	G_IRMSEQUENCER	40787	Input_Seq_Start	1	0	%	Radiator
139	Rad_Seq_In_Seq_Stop	G_IRMSEQUENCER	40787	Input_Seq_Stop	2	100	%	Radiator
140	Rad_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOV_R	40766	Override_Value	13	0	%	Radiator
141	Rm_Ctrl_Dsp_YSig	#N/A	40818	#N/A	67	#N/A	%	Control_Strategy
142	Rm_Ctrl_TdClg	G_IRMPIDSPACECT_RL	40818	TdClg	49	0	Seconds	Control_Strategy

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
143	Rm_Ctrl_TdHtg	G_IRMPIDSPACECT RL	40818	TdHtg	50	0	Seconds	Control_Strategy
144	Rm_Ctrl_TiClg	G_IRMPIDSPACECT RL	40818	TiClg	26	300	Seconds	Control_Strategy
145	Rm_Ctrl_TiHtg	G_IRMPIDSPACECT RL	40818	TiHtg	27	300	Seconds	Control_Strategy
146	Rm_Ctrl_XpClg	G_IRMPIDSPACECT RL	40818	XpClg	24	1.5	Deg C	Control_Strategy
147	Rm_Ctrl_XpHtg	G_IRMPIDSPACECT RL	40818	XpHtg	25	1.5	Deg C	Control_Strategy
148	Sp_Ctrl_MD_Md_Swi_Del	G_IRMSPCTRLMD	40648	Md_Switch_Dela y	3	MdSwDelLP	Seconds	Control_Strategy
149	Sp_Ctrl_MD_Stabilize_Del	G_IRMSPCTRLMD	40648	Stabilize_Delay	2	60	Seconds	Control_Strategy
150	ST_Ctrl_Coo_CasLim_Clg_Ctrl_Prt y	G_IRMCASLIMPOS CTRLTYPALC	41652	CasLim_Clg_Ctrl_Prt y	2	1	1 = Disable Clg; 2 = Clg; 3 = Dx Clg; 4 = Clg - Dx Clg; 5 = Dx Cl - Clg	Control_Strategy

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
151	ST_Ctrl_Coo_CasLim_Htg_Ctrl_Prt	G_IRMCASLIMPOS CTRLTYPCALC	41652	CasLim_Htg_Ctrl_Prt	3	1	1 = Disable Htg; 2 = Htg; 3 = El Htg; 4 = Htg - El Htg; 5 = El Htg - Htg	Control_Strategy
152	SupT_Lim_Ctrl_Coo_Clg_En_Ctrl_Md	G_IRMCASLIMPOS CTRLTYPCALC	41652	Low_Lim_Clg_En_Ctrl_Md	4	1	1 = Clg Mode; 2 = Htg Mode; 3 = Clg & Htg Mode	Control_Strategy
153	SupT_Lim_Ctrl_Coo_Clg_En_Ctrl_Oc	G_IRMCASLIMPOS CTRLTYPCALC	41652	Low_Lim_Clg_En_Ctrl_Occ	5	2	2 = Enable in Unoccupied, Holiday, Standby, Occupied, Bypass; 3 = Enable in Standby, Occupied, Bypass; 4 = Enable in Occupied, Bypass	Control_Strategy

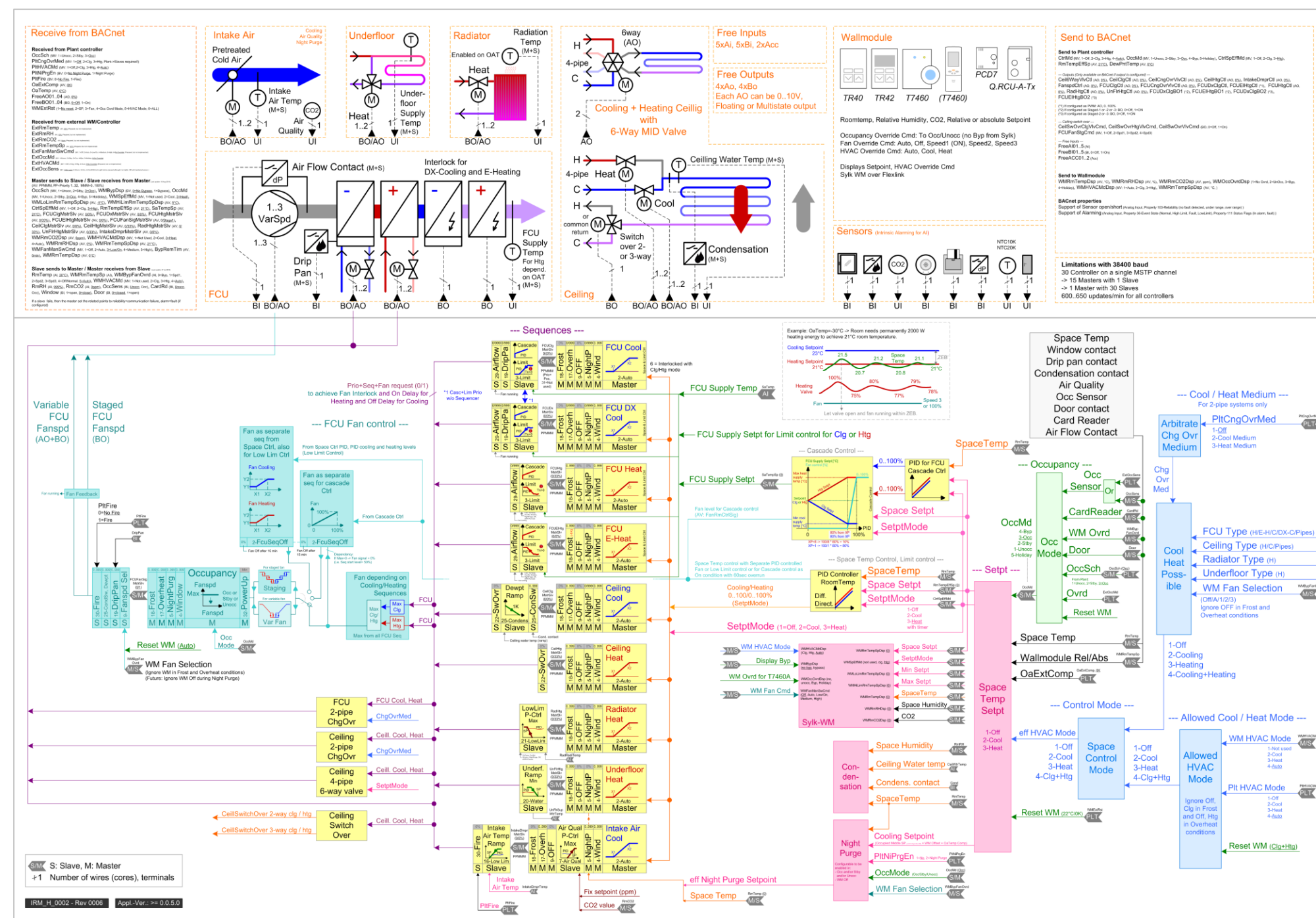
No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
154	SupT_Lim_Ctrl_Coo_Htg_En_Ctrl_Md	G_IRMCASLIMPOS CTRLTYPCALC	41652	Low_Lim_Htg_En_Ctrl_Md	6	1	1 = Clg Mode; 2 = Htg Mode; 3 = Clg & Htg Mode	Control_Strategy
155	SupT_Lim_Ctrl_Coo_Htg_En_Ctrl_Oc	G_IRMCASLIMPOS CTRLTYPCALC	41652	Low_Lim_Htg_En_Ctrl_Occ	7	2	2 = Enable in Unoccupied, Holiday, Standby, Occupied, Bypass; 3 = Enable in Standby, Occupied, Bypass; 4 = Enable in Occupied, Bypass	Control_Strategy
156	UnFlr_Htg_Dsp_Prty	G_IRMDSPPRTY	42264	Dsp_Prty	1	1	No Units	Underfloor_Heating
157	UnFlr_Htg_Hi_Lim_Ctrl_En	PAR	42165	P1	1	1	1 = Disable; 2 = Enable	Underfloor_Heating
158	UnFlr_Htg_Hi_Lim_Ctrl_Sp	PAR	41906	P1	1	35	Deg C	Underfloor_Heating
159	UnFlr_Htg_Hi_Lim_Ctrl_Xp	G_IRMSEQPRTYRAMP	40885	Xp	13	1.5	Deg C	Underfloor_Heating

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
160	UnFlr_Htg_Rm_Frost_Ovrd_Val	G_IRMSEQPRTYOV RD	41599	Override_Value	13	100	%	Underfloor_Heating
161	UnFlr_Htg_Seq_In_Seq_Start	G_IRMSEQUENCER	40824	Input_Seq_Start	1	0	%	Underfloor_Heating
162	UnFlr_Htg_Seq_In_Seq_Stop	G_IRMSEQUENCER	40824	Input_Seq_Stop	2	100	%	Underfloor_Heating
163	UnFlr_Htg_Wido_Cont_Ovrd_Val	G_IRMSEQPRTYOV RD	40822	Override_Value	13	0	%	Underfloor_Heating
164	WM_Detecti_WM_Conv_Sub_Type_Sel	G_IRMWMTYPDET	41250	WM_Conv_Sub_Type_Select	4	1	1=T74xx (Sensor only); 2=T74xx with LED+Button; 3=T74xx with LED+Button+Fan Selection; 4=T74xx with Fan Selection	Wall_Module
165	WM_Detection_Dsp_Btn_Press	G_IRMWMTYPDET	41250	Dsp_Btn_Press	5	0	0 = Not Bypass, 1 = Bypass	Wall_Module
166	WM_Detection_En_Long_Pulse	G_IRMWMTYPDET	41250	Enable_Long_Pulse	3	1	1 = Disable; 2 = Enable	Wall_Module

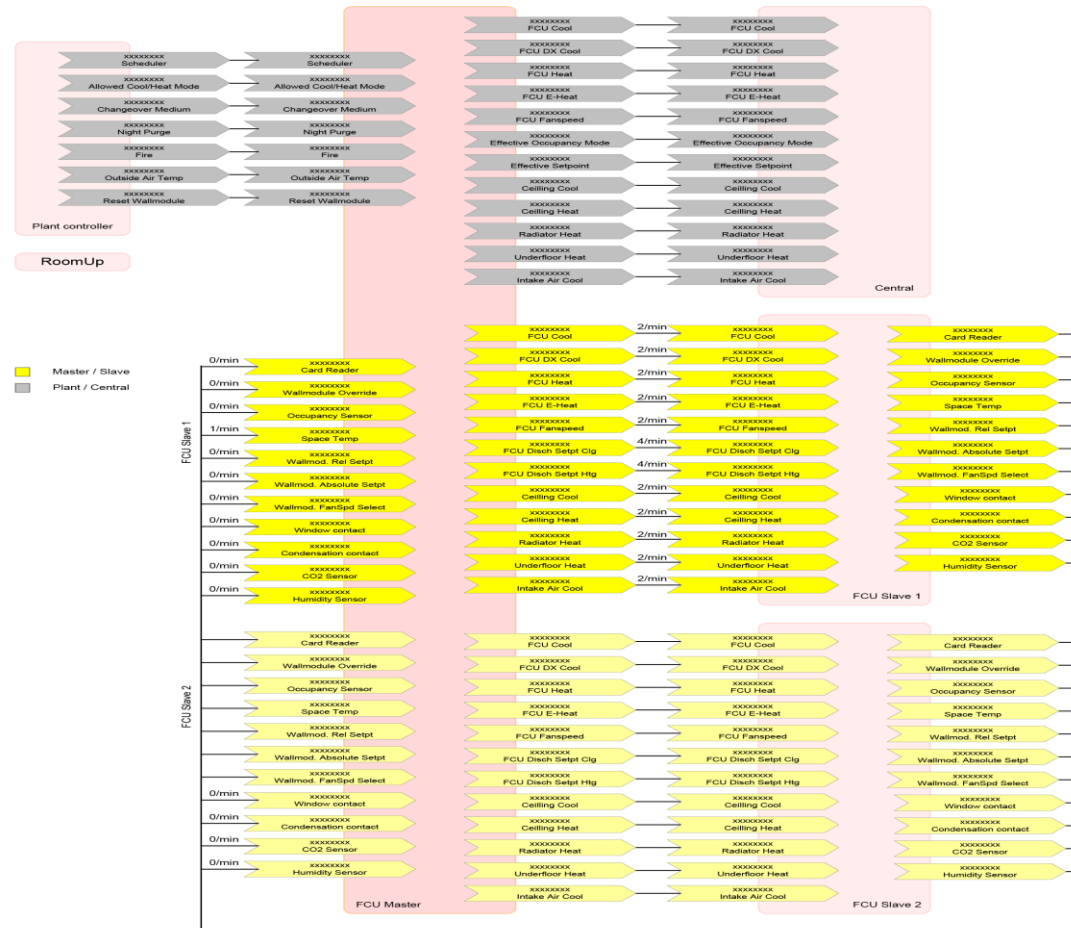
No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
167	WM_LED_WM_LED_Conf	G_IRMWMLLED	41593	WM_LED_Conf	1	2	1 = Not Used; 2 = Occupancy LED; 3 = Override LED	Wall_Module
168	WM_Push_Btn_Short_Press_UnOcc_Md	G_IRMOCCPSHBTN	41135	Short_Press_UnOcc_Md	5	1	1 = Disable; 2 = Enable	Plant_Strategy
169	WM_Push_Button_Bypass_Time	G_IRMOCCPSHBTN	41135	Bypass_Time	3	30	Minutes	Plant_Strategy
170	WM_Sp_Calc_Occ_Sp_Shift_Rng	G_IRMSPWMLIMCALC	41192	Occ_Sp_Shift_Rng	6	5	Deg C	Control_Strategy
171	WM_Sp_Calc_Sp_Shift_Md	G_IRMSPWMLIMCALC	41192	Sp_Shift_Md	16	1	1 = Energy; 2 = Parallel	Control_Strategy
172	WM_Sp_Calc_Stby_Sp_Shift_Rng	G_IRMSPWMLIMCALC	41192	Stby_Sp_Shift_Rng	7	2	Deg C	Control_Strategy
173	WM_Sp_Calc_UnOcc_Sp_Shift_Rng	G_IRMSPWMLIMCALC	41192	UnOcc_Sp_Shift_Rng	13	0	Deg C	Control_Strategy

No	Name	Function Block Name	Function Block Id	Parm Name	Param Id	Default	Units/State Text	Segment
174	WM_Sp_Calc_WM_Sp_Type_Select	G_IRMSPWMLIMCALC	41192	WM_Sp_Type_Select	15	1	1 = Absolute; 2 = Relative; 3 = No Setpoint	Wall_Module

Control Schematics of IRM



Datapoint Sharing Schematics



Limitations with 38400 baud MS/TP Channel:
 - Max 30 Controller on a single channel
 (i.e. 1 Master+29 Slaves OR 15 Master + 15 Slaves)
 - Max 600 updates/min
 Missing: Lights, RoomUp Monitor

TR42 Wall Module Configuration

TR42_C_IRM_GL__001

Forward

This configuration can be used with the following TR42 wall module model numbers

- TR42
- TR42-H
- TR42-CO2
- TR42-H-CO2

Where a wall module is used that does not include all the data points, user needs to set these to not visible in the wall module configuration.

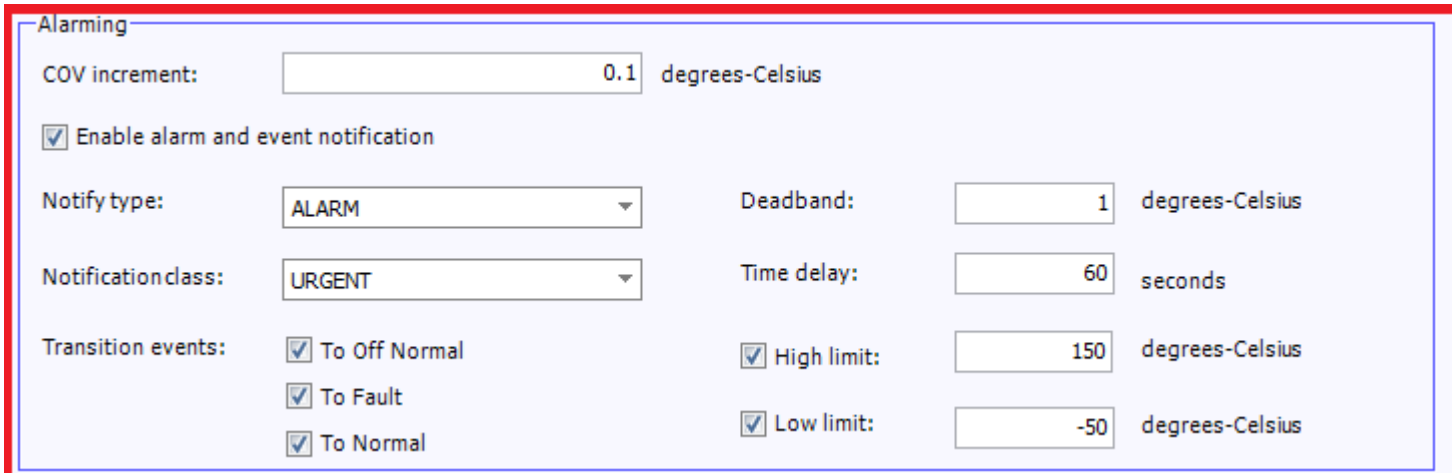
The configuration can be used with CPO-R applications.

Temperature units are in degrees Celsius.

ATTENTION: If a Sylkbus wall module is disconnected, the CPO-R controller takes some time (approximately 5-6 minutes) to report this incident as an alarm. This alarm is generated only if the user has configured the following settings for the datapoint from the ComfortPoint Open Studio tool:

- Enable the alarm and event notification
- **Notify type** is set to **Alarm**
- **To-Fault** transition event is enabled
- **Time delay** is less than 86400

The following figure shows the associated alarming screen in the ComfortPoint Open Studio tool.



The screenshot displays the 'Alarming' configuration window. It includes a title bar 'Alarming' and a light blue background. The settings are as follows:

Parameter	Value	Unit
COV increment:	0.1	degrees-Celsius
Enable alarm and event notification	☒	
Notify type:	ALARM	
Deadband:	1	degrees-Celsius
Notification class:	URGENT	
Time delay:	60	seconds
Transition events:	☒ To Off Normal, ☒ To Fault, ☒ To Normal	
High limit:	150	degrees-Celsius
Low limit:	-50	degrees-Celsius

Wall Module Interface

Studio Interface

Input	Offsets	Output 1	Output 2
01 SensorsOutput_Temperature	01 Temperature	01 OccStatus	01 Bypass
02 SensorsOutput_Humidity	02 Humidity	02 FanTypeConfig	02 FanSetpoint
03 SensorsOutput_CO2	03 CO2	03 TempSetpointHighLimit	03 TempSetpoint
04 InOutNciPVID_TempSetpoint		04 TempSetpointLowLimit	04 HVACMode
05 CompositePVID_FanStpt_By...		05 TempDisplay	
06 InOutNciPVID_HVACMode		06 HumidityDisplay	
		07 CO2Display	
		08 HVACModeDisplay	
		09 SetpointTypeConfig	
		10 ViewTempSetpointConfig	
		11 ViewTempConfig	
		12 ViewHumidityConfig	
		13 ViewCO2Config	
		14 ViewOccStatusConfig	
		15 ViewHVACModeConfig	
		16 UseIntSymbolsConfig	
		17 HomeScreenInfoConfig	
		18 EnableBypassConfig	
		19 EnableFanSetpointConfig	

Input

Input items are values sent from the Sylk wall module to the CPO-R controller. The values are updated at an interval of 5 seconds. For items 4 to 6 the values are also updated on demand when the value is changed by a user at the wall module. Each of the items should be mapped to a BACnet point in the CPO-R controller.

Note: If the wall module model used does not have a Humidity sensor or CO2 sensor, these items will still be displayed in the list. For these instances it is not necessary to map a BACnet point to the unused inputs.

No	Name	Description	Point Type	Application Note
1	Temperature	Room Temperature.	AV	
2	Humidity	Room Humidity	AV	
3	CO2	Room CO2	AV	
4	TempSetpoint	Room Setpoint Adjuster	AV	
5	FanStpt_Bypass	Coded Signal Fan Setpoint and Bypass. Data format = abc Where a = 1 b = Bypass status (0/1) c = Fan Setpoint (1/2/3/4/5)	AV/AI	
6	HVACMode	HVAC Mode Setpoint 1 = Not Used 2 = Cool 3 = Heat 4 = Auto	MV	

Offsets

Offset values are sensor calibration values sent from the CPO-R controller to the Sylk wall module. The offset values are added to the raw sensor value in the wall module and this calibrated value is then displayed in the PVID in the input list. These values are not used for CPO-R controllers, where the temperature, Relative Humidity or CO2 values from the wall module are bound to hardware AI points. For these controllers the points are calibrated by entering the offset value directly in the sensor offset parameter of the AI point.

No	Name	Description	Point Type	Application Note
1	Temperature	Room Temperature Calibration Offset – Not used for CPO-R	AI/AV/AF	1
2	Humidity	Room Humidity Calibration Offset– Not used for CPO-R	AI/AV/AF	1
3	CO2	Room CO2 Calibration Offset– Not used for IRM	AI/AV/AF	1

Output 1

Output 1 values are Input PVIDs in the wall module where the value is sent from the CPO-R controller to the Sylk wall module. The values are used for indication at the wall module or for configuration functions in the wall module.

Note: Each of these items must be mapped to a BACnet point in the CPO-R controller and the points must be set to valid values as detailed in the list below. If this is not correct the wall module will not function correctly.

No	PVID Number	Name	Description	Point Type	Application Note
1	100	OccStatus	Occupancy Status. 1 = Unoccupied 2 = Standby 3 = Occupied 4 = Bypass	MV	2
2	101	FanTypeConfig	Fan Type Configuration 1 = No Fan 2 = Single Speed Fan 3 = Two Speed Fan	MV	

No	PVID Number	Name	Description	Point Type	Application Note
			4 = Three Speed Fan 5 = Variable Speed Fan Connect to FanType configuration point in application		
3	102	TempSetpointHighLimit	Wall module temperature setpoint high limit For Absolute setpoint, set to High Absolute value For Relative setpoint set to High Deviation value	AV	
4	103	TempSetpointLowLimit	Wall moduleX_HomeScreenInfoConfig temperature setpoint low limit For Absolute setpoint, set to Low Absolute value For Relative setpoint set to Low Deviation value	AV	
5	104	TempDisplay	Temperature value to display on wall module	AV	
6	105	RHDisplay	Relative Humidity value to display on wall module	AV	
7	106	CO2Display	CO2 value to display on wall module	AV	
8	107	HVACModeDisplay	Effective HVAC Mode 1 = Not used 2 = Cool 3 = Heat	MV	3
9	108	SetpointTypeConfig	Select setpoint display type to be numeric or graphic 0 = Numeric, 1 = Graphic	BV	
10	109	ViewTempSetpointConfig	Select if Temperature setpoint value is visible	BV	

No	PVID Number	Name	Description	Point Type	Application Note
			0 = Not Visible, 1 = Visible		
11	110	ViewTempConfig	Select if Temperature value is visible 0 = Not Visible, 1 = Visible	BV	
12	111	ViewHumidityConfig	Select if Relative Humidity value is visible 0 = Not Visible, 1 = Visible	BV	
13	112	ViewCO2Config	Select if CO2 value is visible 0 = Not Visible, 1 = Visible	BV	
14	113	ViewOccStatusConfig	Select Occupancy Status is visible 0 = Not Visible, 1 = Visible	BV	
15	114	ViewHVACModeConfig	Select HVACMode is visible 0 = Not Visible, 1 = Visible	BV	
16	115	UseIntSymbolsConfig	Select English text labels or International Icons 0 = English Text, 1 = International Icons	BV	
17	116	HomescrInfoConfig	Select value to display on Home Screen 0 = Temperature Setpoint 1 = Temperature 2 = Humidity 3 = CO2 4 = Blank Screen 5 = Scrolling (Scroll between items 0, 1, 2 and 3)	AV	
18	117	EnableBypassConfig	Select to enable Bypass button 0 = Disable 1 = Enable	BV	
19	118	EnableFanStptConfig	Select to enable Fan Button on wall	BV	

No	PVID Number	Name	Description	Point Type	Application Note
			module 0 = Disable 1 = Enable		

Output 2

Output 2 items are Input/Output PVIDs in the wall module. These values are sent from the CPO-R controller to the Sylk wall module. The values in the wall module can also be updated in the wall module by operator commands via the wall module buttons. Where the updated values are also required to be shared back to the CPO-R controller, they will also be included in the wall module send table and be listed in the Input list above.

Note: Each of these items must be mapped to a BACnet point in the CPO-R controller and the points must be set to valid values as detailed in the list below. If this is not correct the wall module will not function correctly.

No	PVID Number	Name	Description	Point Type	Application Note
1	600	Bypass	Bypass state 0 = No Bypass, 1 = Bypass	BV	
2	601	FanSetpoint	Fan Setpoint 1 = Off 2 = Auto 3 = On (For single speed fan) / Low (For multi speed fan) 4 = Medium 5 = High	MV	4

No	PVID Number	Name	Description	Point Type	Application Note
3	602	TempSetpoint	Wall module temperature setpoint value	AV	
4	603	HVACMode	HVAC Mode Setpoint 1 = Not Used 2 = Cool 3 = Heat 4 = Auto	MV	5

Application Notes

Note 1:

With CPO-R controllers the Sylk wall module temperature, relative humidity and CO2 outputs connect directly to Analog input points. The calibration offset parameter in the Analog input point is used to calibrate the values from the wall module and a separate input PVID is provided in the wall module configuration to display the calibrated value. Therefore the Offset PVID values are not required when this template is used with a CPO-R controller.

Note 2:

OccStatus point states for the CPO-R applications and associated Icons displayed in the wall module are detailed below:

OccStatus Point State	Point Value	TR42 Icon Name	English Icon	International Icon
Unoccupied	1	Unoccupied		
Standby	2	HBSSStandby		
Occupied	3	Occupied		

OccStatus Point State	Point Value	TR42 Icon Name	English Icon	International Icon
Bypass	4	OccOverride		

Note 3:

HVACModeDisplay is used in wall module with setpoint display to indicate if heating or cooling setpoint is on display.

Note 4:

FanSetpoint point states for the CPO-R applications and associated Icons displayed in the wall module are detailed below. The icons displayed are the same for both English and International units selection.

FanSetpoint Point State	Point Value	TR42 Icon Name	Single Speed Fan	Multi Speed Fan Variable Speed Fan
Off	1	Fan Off		
Auto	2	Fan Auto		
On	3	Fan On		
Low	3	Fan Low		
Medium	4	Fan Med		
High	5	Fan High		

Note 5:

HVACMode point states for the CPO-R applications and associated Icons displayed in the wall module are detailed below. The icons displayed are the same for both English and International units selection.

HVACMode Point State	Point Value	TR42 Icon Name	Icon
Unused	1		
Cool	2	HBS-Cool	
Heat	3	HBS-Heat	
Auto	4	HBS-Auto	

Configuration Parameters

Changeable Configuration PVIDs

Name	Description	Default	Units	Range	Configuration Note
UnitSet	Wall module Temperature display units. (Does not change Sylk units) 0 = Metric, 1 = Imperial	0		0...1	
Backlight	Wall module LCD backlight	80			
Contrast	LCD Contrast	49			

Wall Module Configuration Parameters

Name	Description	Default	Units	Range	Configuration Note
LabelWidthChar	Engineering unit label width - pixels Internal Configuration – Do not change	3		NA	1
FanType	Fan Type Selection – Not used for VAV configuration 0 = No fan 1 = 2 position fan (Auto/On) 2 = 3 position fan (Auto/Off/On) 3 = 5 position fan (Auto/Off/Low/Medium/High)	0		0...3	1
LabelWidthPix	Internal Configuration – Do not change	26			1

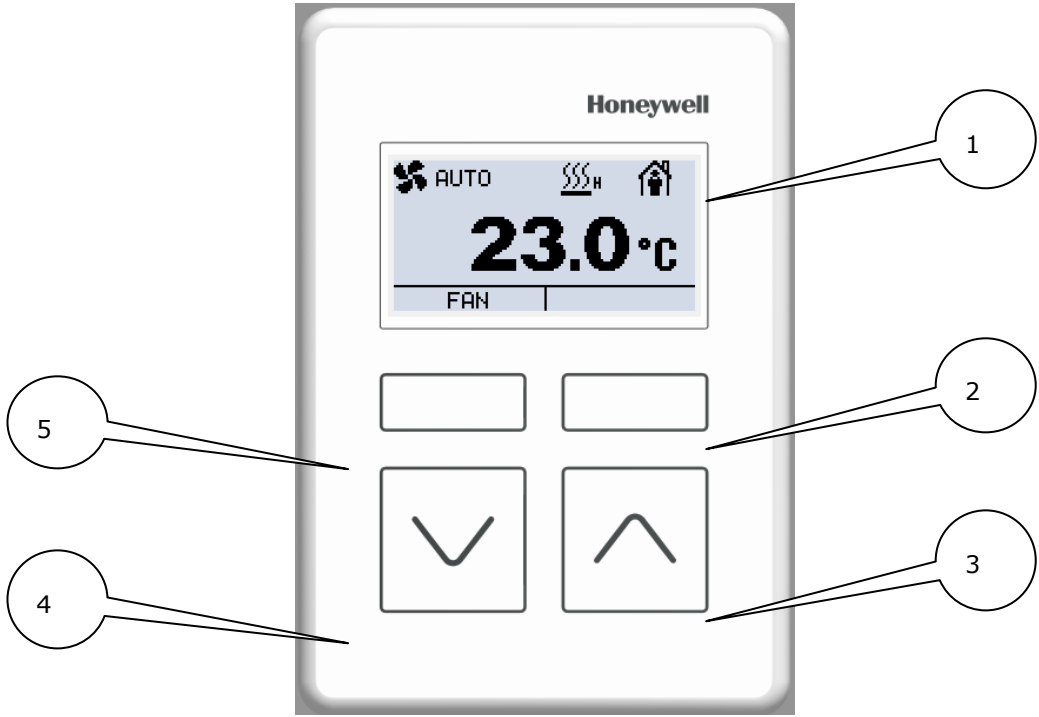
Name	Description	Default	Units	Range	Configuration Note
Scroll interval	Time between value changes when scrolling home page option is selected	5	sec	0...n	
Backlight Time	Time backlight will remain on after last button press	60	sec	0...n	
Cancel Override Value	Internal configuration – Do not change	0			1
Override Disabled Value	Internal configuration – Do not change	2			1
Use Network Bypass Time Value	Internal configuration – do not change	1			1
Slow slew delay	Time Up or Down button must be held for slow slew function to be triggered	30	1/10 sec	0...n	
Fast slew delay	Time Up or Down button must be held for fast slew function to be triggered	100	1/10 sec		
Slew event period	Time between successive slew increments / decrements when fast or slow slew is triggered	5	1/10 sec		
Contractor menu delay	Internal Configuration – Do not change	50			1

Configuration Notes

Note 1:

Internal configuration only. Do not change.

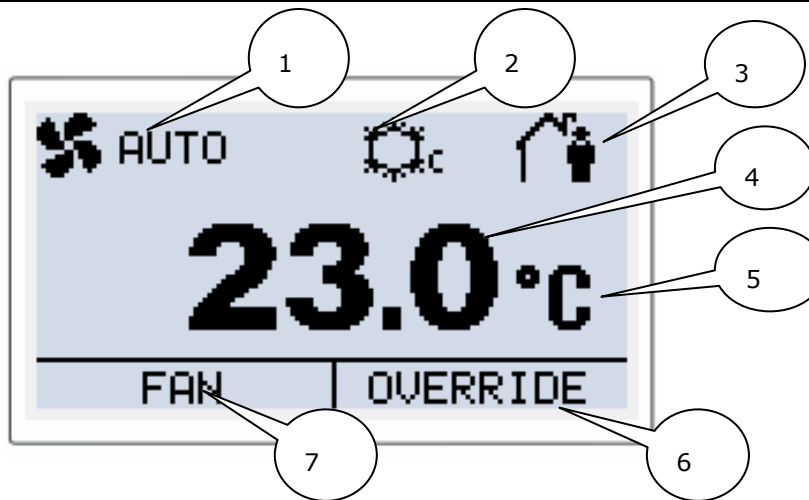
Wall Module Layout



Number	Feature	Comments
1	Display	
2	Right Soft Key	
3	Raise Button	
4	Lower Button	
5	Left Soft Key	

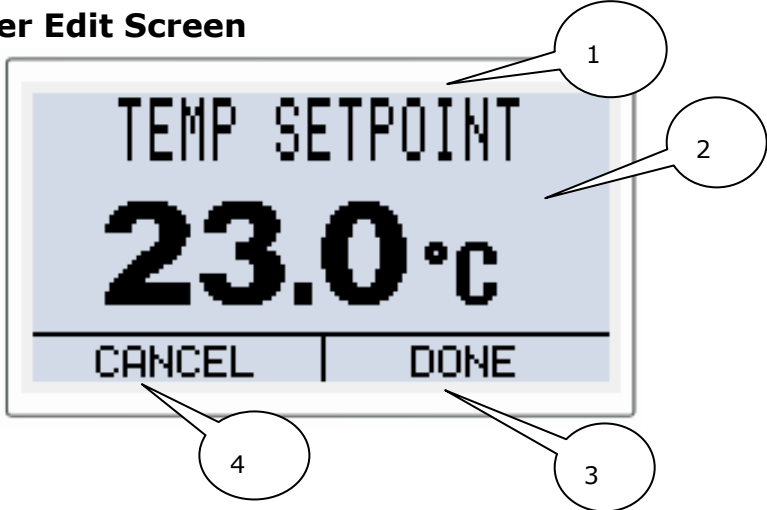
Wall Module Screens

Home Screen



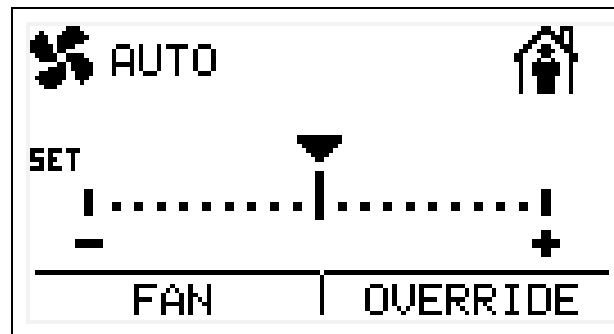
Number	Feature	Comments
1	Fan Setpoint Indication	If FanTypeConfig is set to No Fan, this icon is not visible
2	HVAC Mode Indication	
3	Occupancy Indication	Indicates Occupied, Unoccupied and Override. No standby icon available
4	Current Value	Value displayed depends on Home Screen Info configuration
5	Engineering Unit	
6	Right Soft Button Label	Defines function for Right Soft Key
7	Left Soft Button Label	Defines function for Left Soft Key

Parameter View Screen/ Parameter Edit Screen



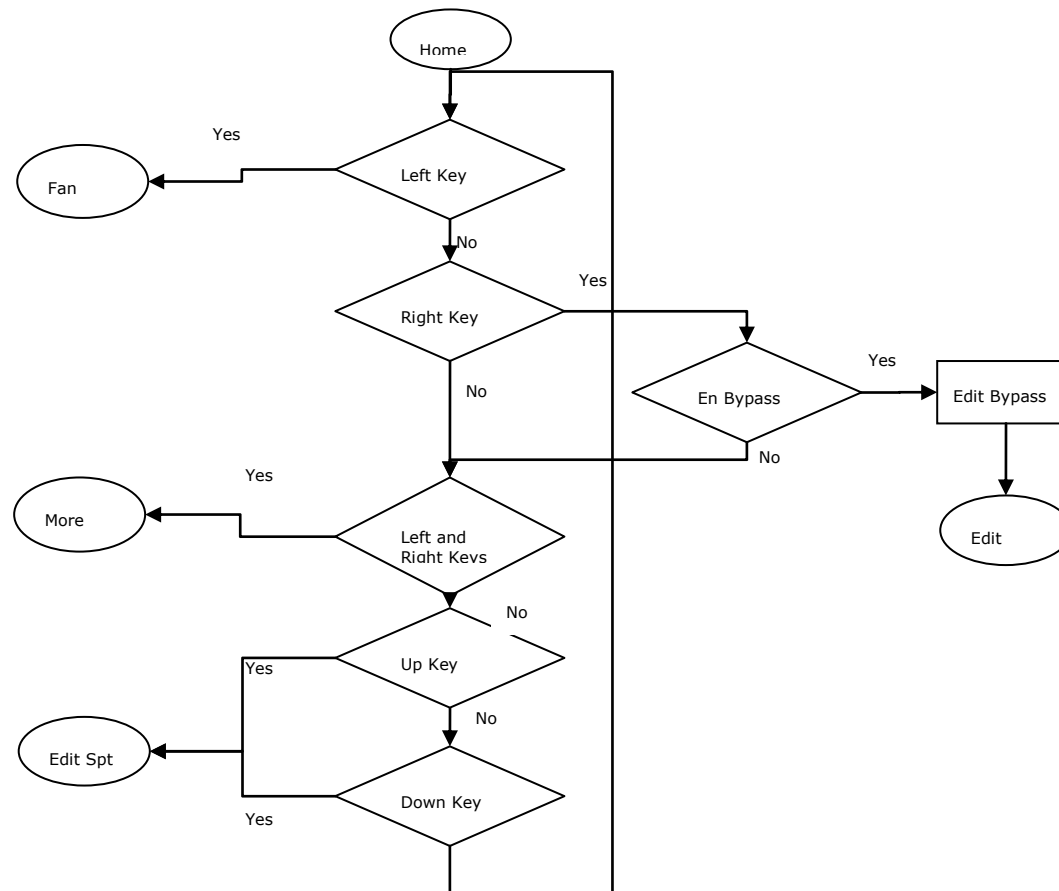
Number	Feature	Comments
1	Parameter Label	
2	Engineering Unit	
3	Right Soft Key Label	Defines function for Right Soft Key
4	Left Soft Key Label	Defines function for Left Soft Key

Graphical Setpoint Screen

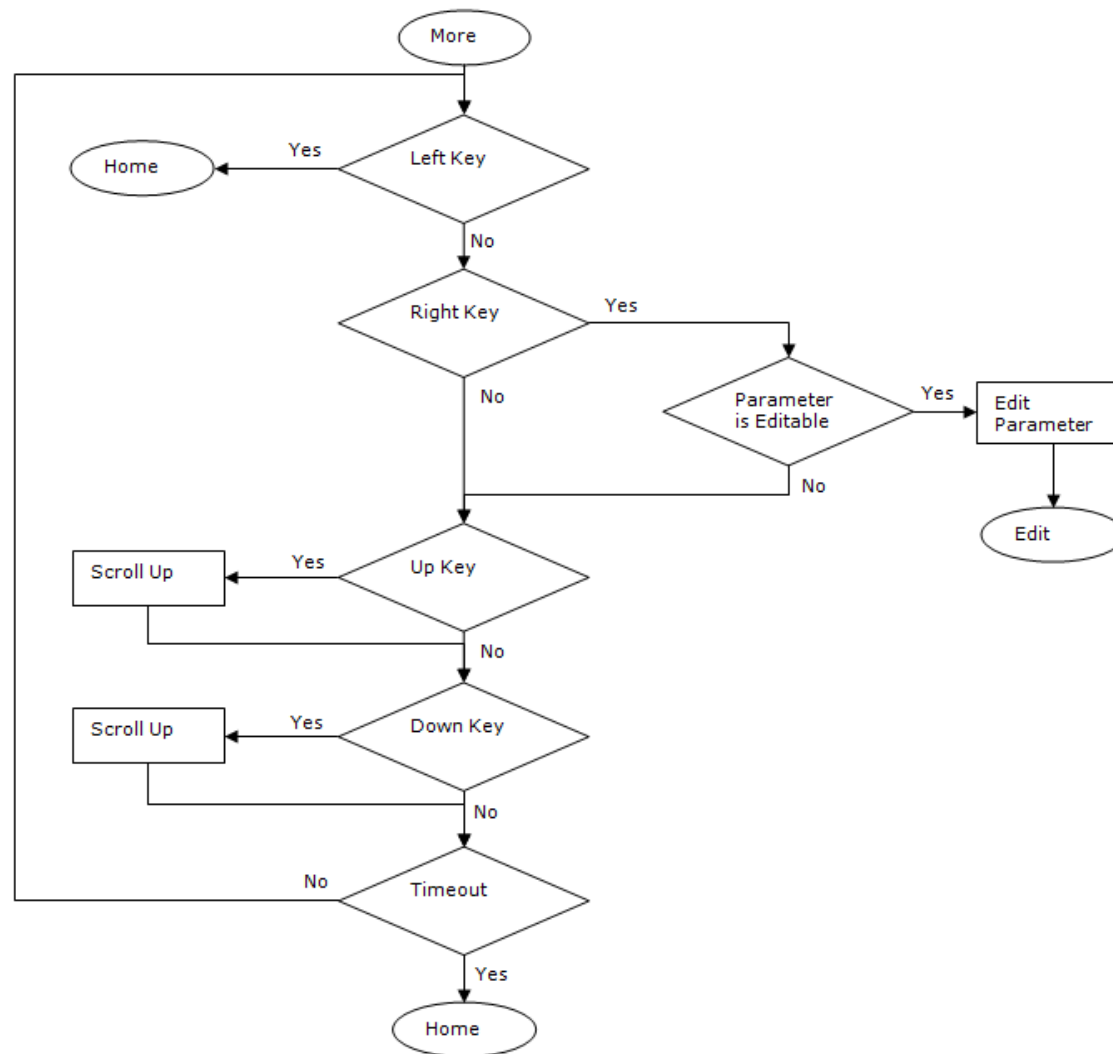


Wall Module Menus

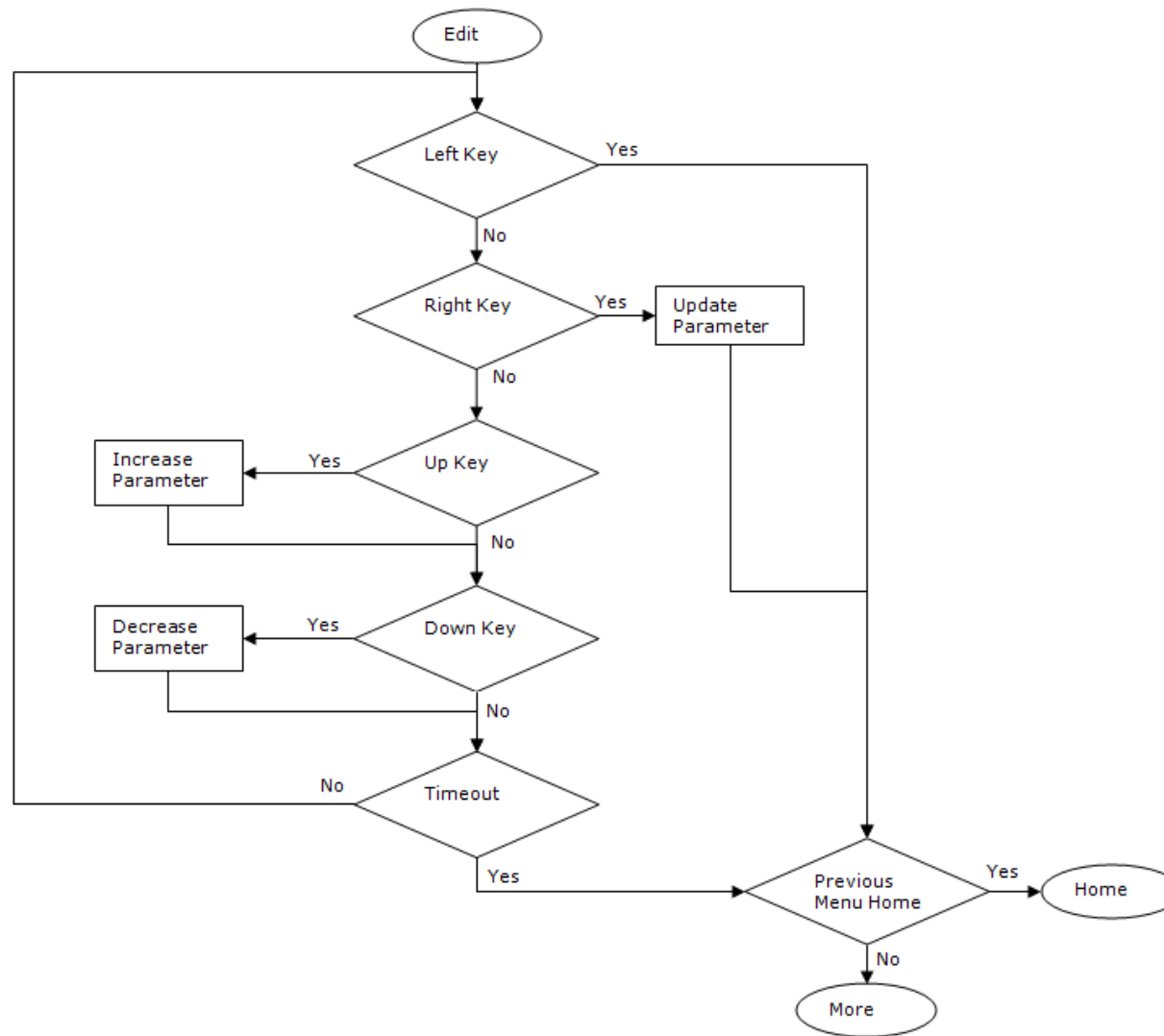
Home Screen



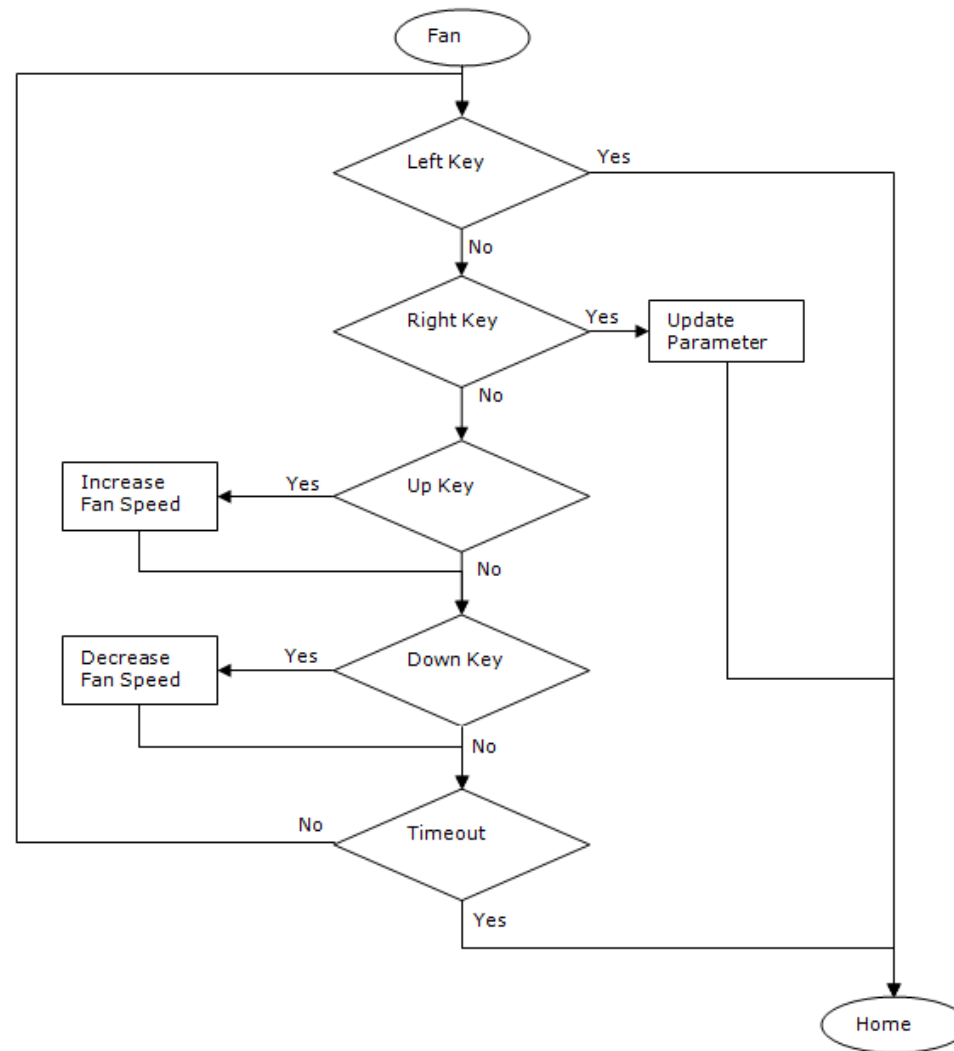
More Menu



Edit Menu



Fan Menu



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