VT8600 Series User Interface Guide

Rooftop Unit, Heat Pump and Indoor Air Quality Controller

CONTENTS

VICONICS
Beyond Comfort

HMI Display

The below shows a typical user interface for the hospitality industry. The User HMI is configurable and allows display functions such as Date, Time, Outdoor Temperature, and Setpoint to be enabled or disabled by setting various parameters.

General Notes

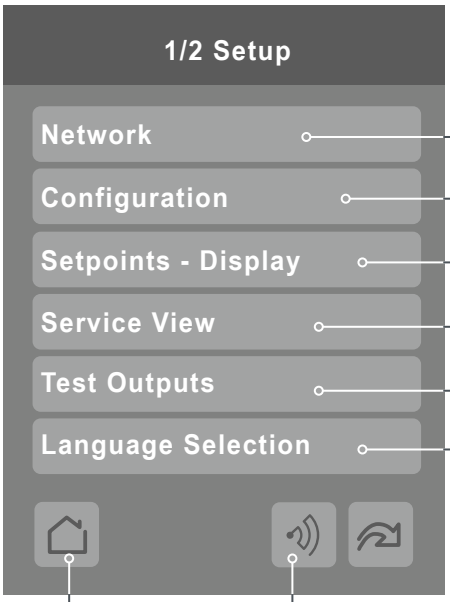
1. When any change is made to a parameter, the value is automatically saved in memory when the next parameter is selected or another page is opened.
2. Arrows auto-increment/decrement at higher speed when holding button for more than 2.5 seconds.

Enter Set-up Screen

Touch and hold this point
for 3 seconds to enter setup mode

Note: If a configuration/installer password is activated to prevent unauthorised access to the configuration menu parameters, a password entry prompt shows to prevent access to device configuration components.

SET-UP SCREEN DISPLAY 1/2



Enter BACnet® & ZigBee® network settings (only if ZigBee is detected)

Enter parameter configuration menu

Enter setpoint and display settings

Enter status and service view

Enter output testing mode

Enter language selection

Return to home screen

Discover Mode The Controller becomes discoverable on the wireless ZigBee® network for 1 minute (this button is hidden if ZigBee® settings are not configured)

Note: The following menus show according to context:
- ZigBee menu shows if ZigBee card detected.
- Network choice inside does not show if no network is available

General Note:

Adjustable parameter

Nonadjustable parameter

Indicates invisible conditional field. Appears based only on model, presence of a ZigBee® wireless adapter module or presence of a Lua script, depending on the field.

SET-UP SCREEN DISPLAY 2/2

Enter Schedule menu screen

Enter Wireless Ecosystem menu screen (ZigBee wireless adapter module required)

Enter Lua script settings (Lua script required)

SCHEDULE MENU SCREEN

Enter Clock settings

Enter Schedule settings

Enter Occupancy settings

Touch and hold this point for 3 seconds to enter the Schedule Menu screen.

Note: The Schedule menu screen is directly accessible from the main display if the Schedule Menu configuration parameter is enabled. See Configuration Parameters Screen 2/10 on page 19 for more information.

CLOCK SETTINGS

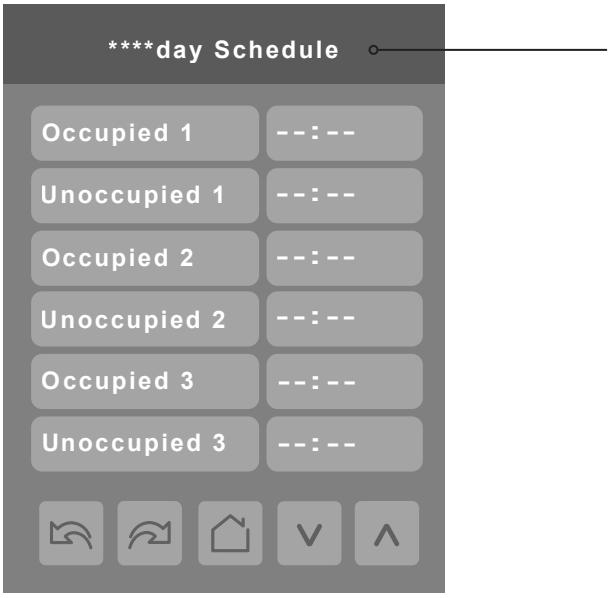
The Clock settings screen allows the device's internal time settings to be changed, including current time, standard day, month, year and weekday options, as well as choice between a 12 hour AM / PM display or a 24 hour display.

PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Time Format Current time display format Default value: **AM-PM**	Choice between 12 hour AM - PM time format or 24 hour time format. **AM-PM** **24 Hours** Note: Changing the value of this parameter automatically changes the format of the displayed value of the Time parameter directly below.
Time Current time display setting Default value: Begins at **12:00 AM** at initial power up.	Standard time display, 12 hour AM-PM or 24 hour; format is determined by the **Time Format** parameter value.
Year Default value: **2000**	Current year
Month Default value: **Jan.**	Current month
Day Default value: **01**	Current day
Weekday Default value: **Sunday**	Current day of the week

SCHEDULE SETTINGS

There are 7 different schedule setting screens, one for each day of the week, titled accordingly. Each day can have different scheduled events where the room controller is set to Occupied status or back to Unoccupied status and use the appropriate setpoints, back and forth up to 3 times per day.



Screen title is identified by day of the week (Sunday through Saturday)

PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Occupied Default value: **None**	Defines a time when the room controller is automatically set to use the Occupied setpoint. Note: There are 3 separate Occupied parameter entries
Unoccupied Default value: **None**	Defines a time when the room controller is automatically set to use the Unoccupied setpoint. Note: There are 3 separate Unoccupied parameter entries

OCCUPANCY SETTINGS

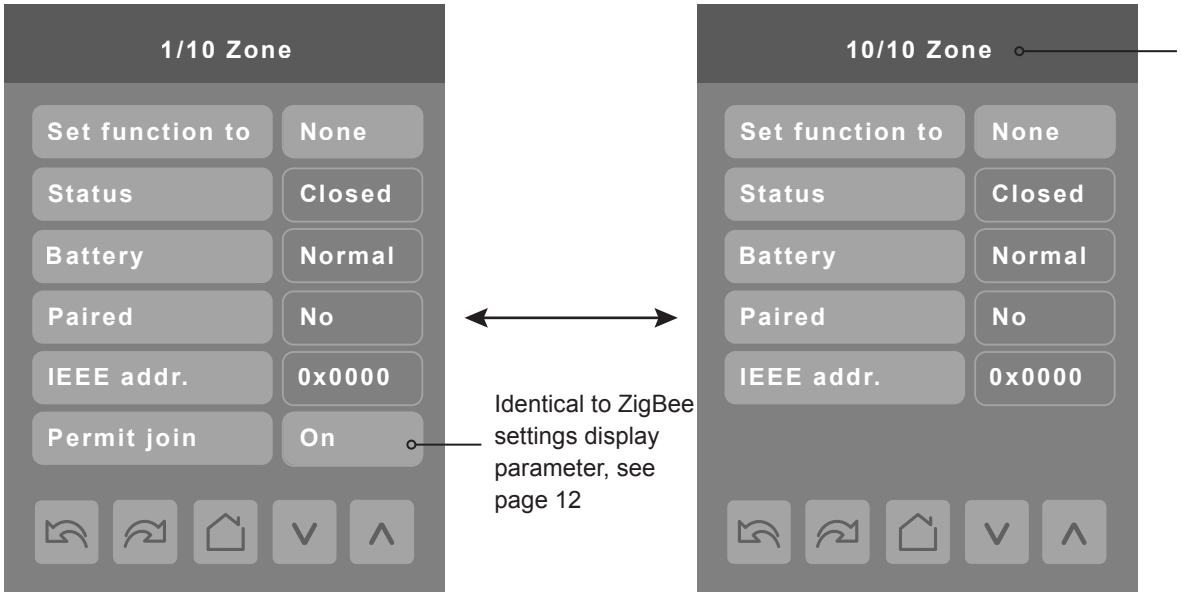
The occupancy settings screen allows you to determine how the Room Controller will determine whether it is functioning in Occupied or Unoccupied mode.

PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Occupancy cmd Default value: Local occ	**Occupancy Command** **Loc occ:** occupancy is determined by local sequences (PIR or Schedule as configured under Occ. source). **Occupied:** force occupied mode. **Unoccup:** force unoccupied mode.

WIRELESS ECOSYSTEM

When wireless sensors are set up to communicate with a room controller, the functioning of each such sensor is described in a separate Zone screen, up to a maximum of 10 Zones. Select the appropriate type of sensor based on the required functioning using the up and down arrow keys.

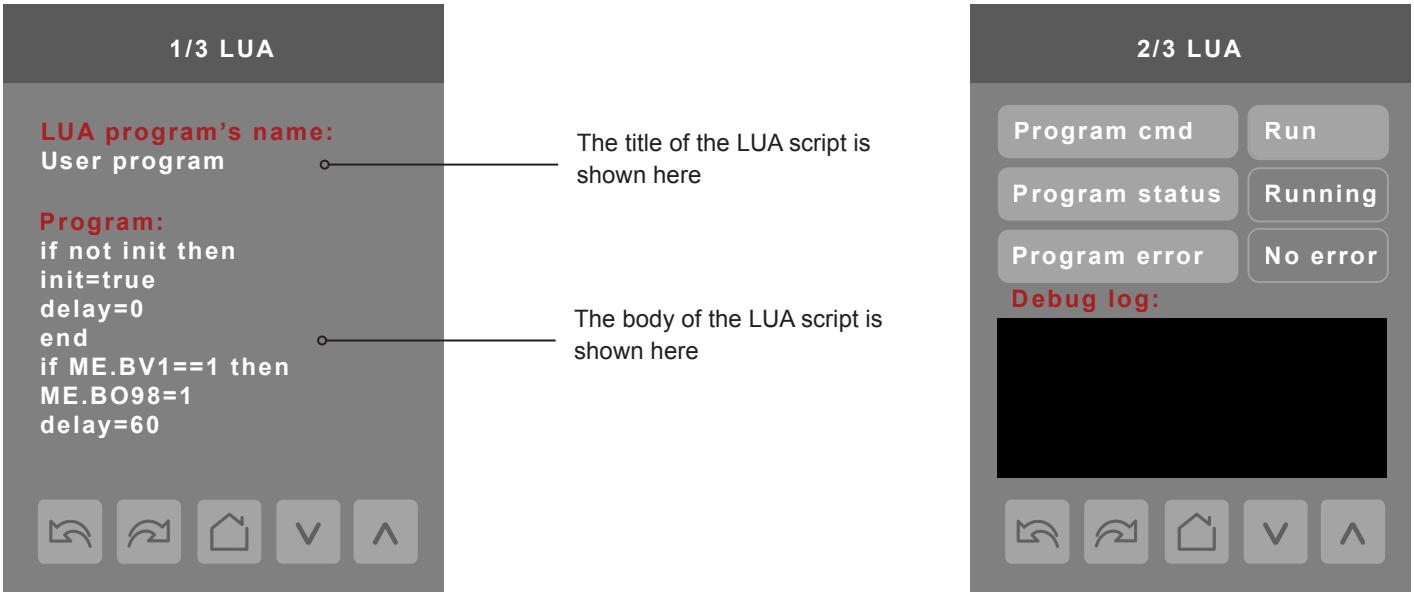


PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Set function to Describe function of specified wireless sensor Default value: **None**	**None**: No sensor function configured for this zone **Door**: Sensor is a door contact switch **Window**: Sensor is a window contact switch **Motion**: Sensor is a motion sensor **Status**: Updates the BACnet status of the sensor, but no action is taken by the internal logic of the controller. **Remove**: Selecting this function clears the zone of the settings for the attached sensor. However, the sensor will automatically try to reconnect with the room controller unless it is manually reset as well.
Status Current status of information received from the sensor Read only	**Close**: Sensor in closed state (door/window only) **Open**: Sensor in opened state (door/window only) **No motion**: Sensor detects no motion (motion sensor only) **Motion**: Sensor detects motion (motion sensor only) **None**: No status information received from sensor.
Battery Current status of sensor battery, if any. Read only	**Low**: Battery power level is low, replacement or recharge will be needed soon **Normal**: Battery power level is in the normal range, replacement or recharge is not currently needed. **None**: Sensor does not use a battery
Paired Sensor pairing state Read only	**No**: Sensor is not paired with the room controller **Yes**: Sensor is paired with the room controller **Invalid**: Sensor cannot be paired.

LUA SETTINGS

The LUA settings screens show information about any custom LUA script uploaded to the controller. LUA scripts are not programmable on the controllers, and so must be uploaded to the controllers.

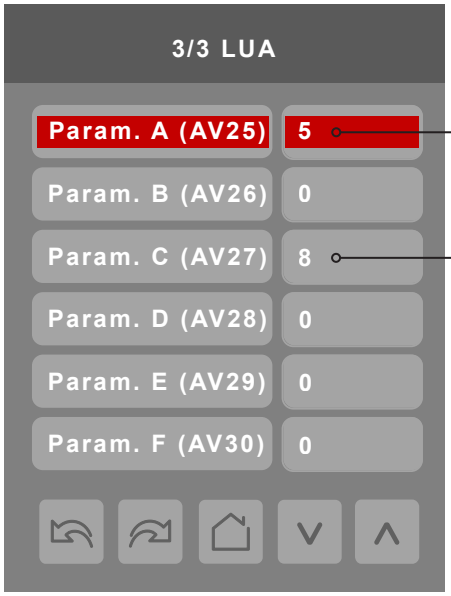


PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Program cmd Default value: **Run**	**Run**: The LUA script is activated and will run continuously until deactivated. **Stop**: The LUA script is deactivated
Program status Read only	**Running**: The LUA script is current active **Halted**: The LUA script has been stopped and is not active. **Idle**: The LUA script is running but is not currently taking any actions **Waiting**: The LUA script is running and waiting for a response.
Program error Read only	**No error**: No errors in the LUA script are detected. **Syntax**: A syntax error in the LUA script is detected **Runtime**: A runtime error has occurred while running the LUA script. **Memory**: The device has run out of memory for the script

LUA GENERIC PARAMETERS

The LUA settings include six generic parameters that do not have predefined values. These can be used to represent LUA script variables. They are user configurable in their default state, but when they are assigned a value by a LUA script they become read only, and the display colour of the parameter changes to red. These parameters are also modifiable through BACnet as Analog Values (AVs). These parameters can be configured to receive information from ZigBee sensors.



A parameter defined by a LUA script displays in red text.

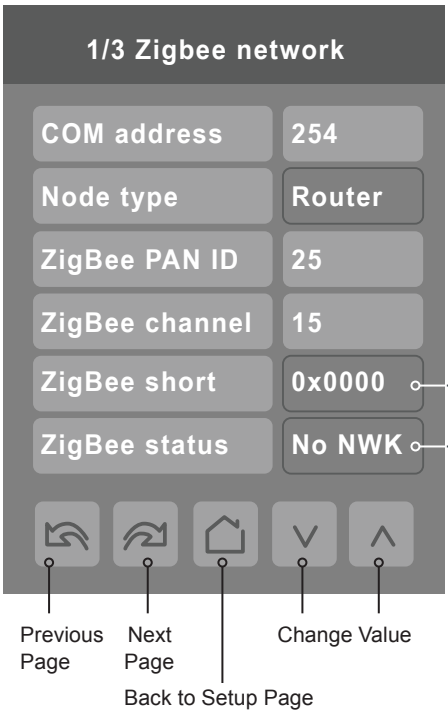
The default value is normally 0, but it can be user-configured to use a different default value.

PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Parameter A Default value: **0** Default value can be changed by user	**AV25** The value(s) of this parameter depends on what is assigned to it using the LUA script function
Parameter B Default value: **0** Default value can be changed by user	**AV26** The value(s) of this parameter depends on what is assigned to it using the LUA script function
Parameter C Default value: **0** Default value can be changed by user	**AV27** The value(s) of this parameter depends on what is assigned to it using the LUA script function
Parameter D Default value: **0** Default value can be changed by user	**AV28** The value(s) of this parameter depends on what is assigned to it using the LUA script function
Parameter E Default value: **0** Default value can be changed by user	**AV29** The value(s) of this parameter depends on what is assigned to it using the LUA script function
Parameter F Default value: **0** Default value can be changed by user	**AV30** The value(s) of this parameter depends on what is assigned to it using the LUA script function

ZIGBEE PRO NETWORK SETTINGS

The ZigBee Pro set-up screen shows when a ZigBee card is detected in the model. Select the desired parameter and use up or down arrows to set the parameter to the desired value.



ZigBee® Pro short address. The address is generated once the device joins a ZigBee® network.

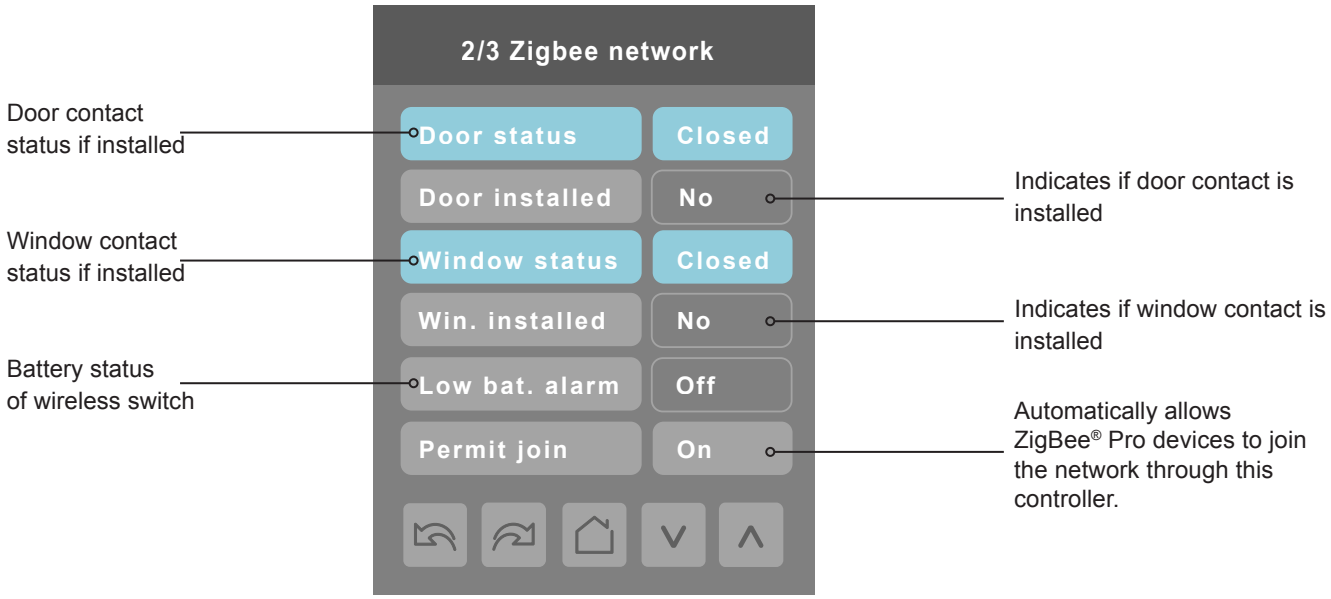
Status of controller detecting a ZigBee® network. Will display Online when connected successfully to network.

PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Com address Terminal Equipment Controller networking address Default value: **254** Range value: **0 - 254**	**Communication Address** For wireless models, the use of COM address is not mandatory. The COM address is an optional way to identify a device on the network.

PARAMETER DETAILS

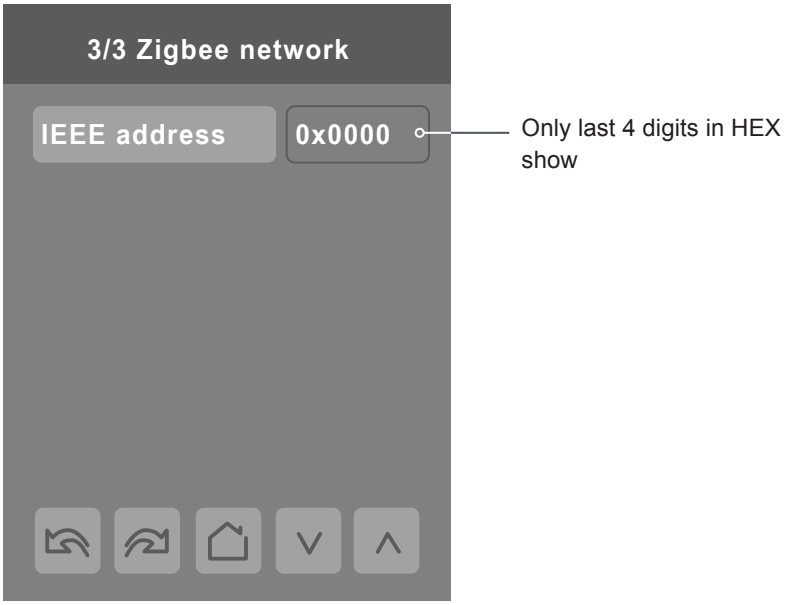
Configuration parameters default value	Significance and adjustments
ZigBee Pan ID Personal Area Network Identification Default value: **0** Range value: **1 - 1000**	**ZigBee Pro PAN ID** Links specific Terminal Equipment Controllers to specific ZigBee® Pro coordinators. For every Terminal Equipment Controller reporting to a coordinator. Ensure set the SAME channel value both on the coordinator and the Terminal Equipment Controller(s). Default value of 0 is NOT a valid PAN ID. The valid range of available PAN ID is from 1 to 1000. Range 1 to 500 for centralized networked applications using a ZigBee® Pro Coordinator. Range 501 to 1000 is for stand-alone applications where each controller is its own coordinator for stand alone installation of wireless door and window switches.
ZigBee channel Channel selection Default value: **10** Range value: **11 - 25**	**ZigBee channel** This parameter links specific Terminal Equipment Controllers to specific ZigBee® Pro coordinators. For every Terminal Equipment Controller reporting to a coordinator, ensure you set the SAME channel value both on the coordinator and the Terminal Equipment Controller(s). **Using channels 15 and 25 is recommended.** The default value of 10 is NOT a valid channel. The valid range of available channel is from 11 to 25.
ZigBee status Read only	**ZigBee status** The following read only messages show in this field: • (Not Det): ZigBee® Pro module not detected • (Pwr On): ZigBee® Pro module detected but not configured • (No NWK): ZigBee® Pro configured but no network joined • (Joined): ZigBee® Pro network joined • (Online): Communicating



Note: Display returns to home screen when no activity is detected for 1 minute.

PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Permit join Default value: **On**	**Permit Join** Changing this value to Off prevents any new ZigBee® Pro devices from joining network through this controller.



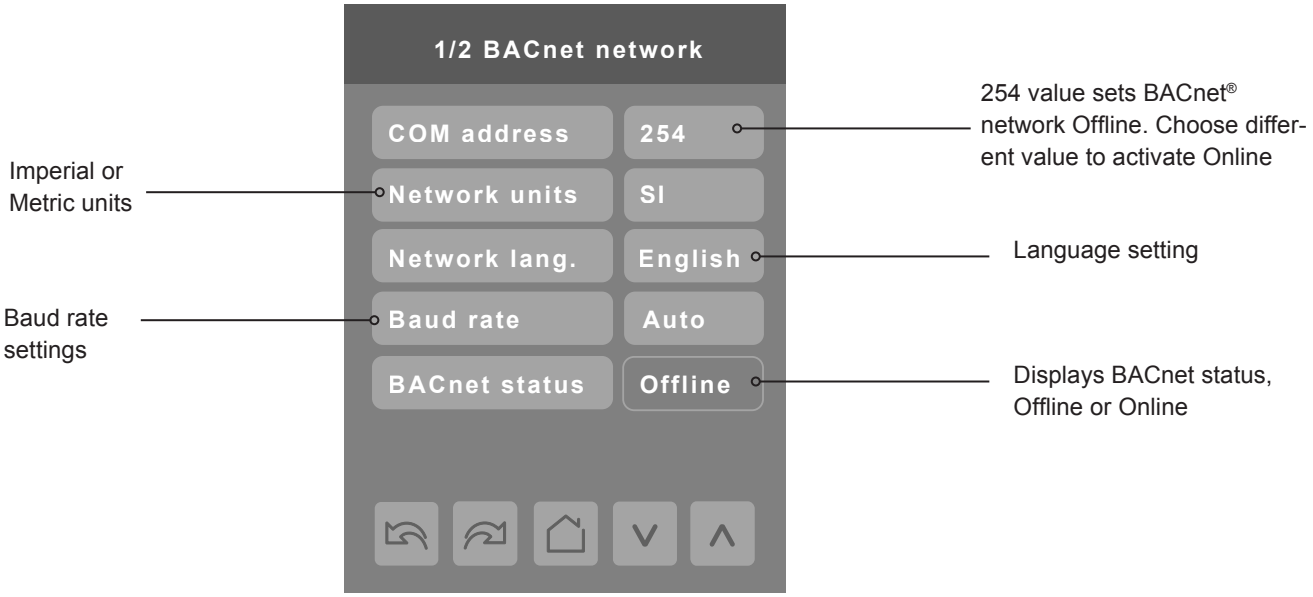
Note: The display will return to the home screen when no activity is detected for 1 minute.

PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
IEEE address Default value = 0x0000	The extended IEEE ZigBee® node address is used to identify the device on the network.

BACNET NETWORK SETTINGS

BACnet network set-up screen shows when BACnet is detected in model. Select desired parameter and use up or down arrow to set parameter to desired value.



PARAMETER DETAILS

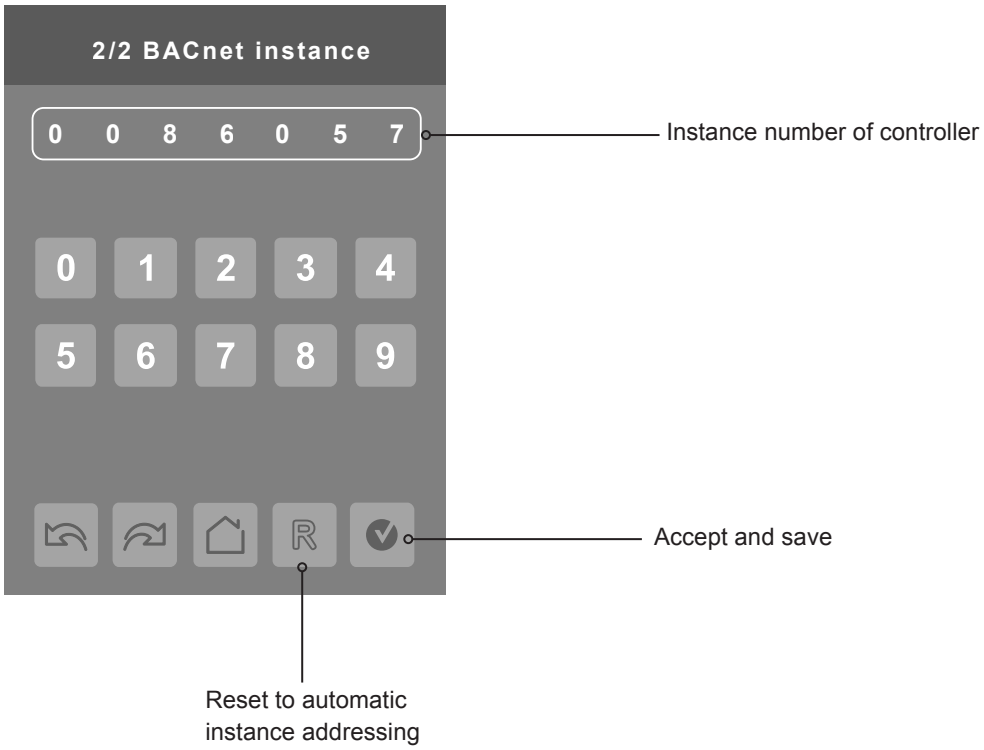
Configuration parameters default value	Significance and adjustments
Comm address Terminal Equipment Controller networking address Default value: **254** Range: **0 to 254**	**Communication Address** For BACnet® MS-TP models, the valid range is from 1 to 127. Default value of 254 disables BACnet® communication for the Terminal Equipment Controller.
Network units Default value: **Imperial**	**Measurement Units** (**Imperial**): network units shown as Imperial units. (**SI**): network units shown as International Metric units.
Network lang Default value: **English** **EN, FR, SP for BACnet models only**	**Language Settings** Choices: English, French, Spanish, Chinese, Russian, Arabic, Bulgarian, Czech, Danish, Dutch, Finnish, German, Hungarian, Indonesian, Italian, Norwegian, Polish, Portuguese, Slovak, Swedish, Turkish
Baud rate Default value: **Auto**	**Baud Rate** (**Auto**): automatically detects BACnet® MS/TP baud rate. Other choices: (115200, 76800, 57600, 38400, 19200, and 9600). Leave the value at auto unless instructed otherwise.

BACNET INSTANCE NUMBER

The default BACnet® instance number is generated by the model number and COM address of the controller. For example, the instance number of a VT8600A5500B with a COM address of 57 is generated as “86057”.

The default instance number appears first. To change the instance number, use number pad and press **Accept and save.**

Press Reset to automatic instance addressing to reset to automatic instance addressing.



CONFIGURATION PARAMETERS SCREEN 1/10

PARAMETER DETAILS SCREEN 1/10

Configuration parameters default value	Significance and adjustments
UI 16 Universal input no.1 configuration Default value: **None**	**Universal Input No. 1** **None**: No function will be associated with the input. Input can be used for remote network monitoring. **Rem NSB**: remote NSB timer clock input. The scheduling will now be set as per the binary input. It provides low cost setback operation via a dry contact • Contact opened = Occupied • Contact closed = Unoccupied **Window**: Forces the system to disable any current heating or cooling action by the Terminal Equipment Controller. The mode stays the same and the current setpoints are the same occupied setpoints. Only the outputs are disabled. There is a Door/Window alarm displayed on the Terminal Equipment Controller to indicate to the local tenant that the door/window needs to be closed for cooling or heating to resume. Use NC contact. • Contact opened = System disabled with local Window alarm • Contact closed = System enabled **Service:** a service alarm shows on the Terminal Equipment Controller LCD screen when input is energized. **Fan lock:** a fan lock alarm will be displayed on the Terminal Equipment Controller LCD screen when the input is not energized. • Open contact = no airflow • Closed contacts = airflow present

PARAMETER DETAILS SCREEN 1/10

Configuration parameters default value	Significance and adjustments
UI 17 Universal input no.2 configuration Default value: **None**	**Universal Input No. 2** **None**: No function will be associated with the input. Input can be used for remote network monitoring. **Door Dry**: This configuration is only functional if universal input 16 is set to Motion NO or Motion NC or an onboard PIR sensor is used. With this sequence enabled, the occupancy is now dictated through those 2 inputs. Any motion detected will set the zone to occupied status. The zone will remain permanently in occupied mode until the door contact switch opens momentarily. The Terminal Equipment Controller will then go in stand-by mode. If more movements are detected, the occupied mode will resume. While the door is opened, any movements detected by the remote PIR sensor or the onboard PIR sensor will be ignored. Use a Normally Closed contact switching device. • Contact opened = Door opened • Contact closed = Door closed **Override:** temporary occupancy remote override contact. **Filter:** a filter alarm shows on the Terminal Equipment Controller LCD screen when the input is energized. **Service:** a service alarm shows on the Terminal Equipment Controller LCD screen when input is energized.
UI 19 Universal input no.3 configuration Default value: **None**	**Universal Input No. 3** **None:** no function associated with input though input can be used for remote network monitoring. **CO2:** the 0-10VDC input value is used as a 0-2000ppm CO2 level: 0 VDC = 0ppm 10VDC = 2000ppm
Prog recovery Progressive recovery enabled Default value: **Off** Progressive recovery is automatically disabled if UI 16 and / or UI 17 are configured remote NSB	**Off** = no progressive recovery The occupied schedule time is the time at which the system will restart. **On** = progressive recovery active. The occupied schedule time is the time at which the desired occupied temperature will be attained. The controller will automatically optimize the equipment start time. In any case, the latest a system will restart is 10 minutes prior to the occupied period time.
Setpoint func. Local setpoint settings Default value = **Dual Stp**	Set the local setpoint interface for the user **Dual SP** (Dual Occupied Setpoints Adjustment) **Attach SP** (Single Occupied Setpoint Adjustment)
Mode button Default value: Normal	**Mode button** Determines whether all HVAC functions are available to user control. **Normal:** All HVAC functions available based on current application can be accessed through cycling Mode button functions **Off-Auto:** Only Auto and Off settings are available by cycling the Mode button.

CONFIGURATION PARAMETERS SCREEN 2/10

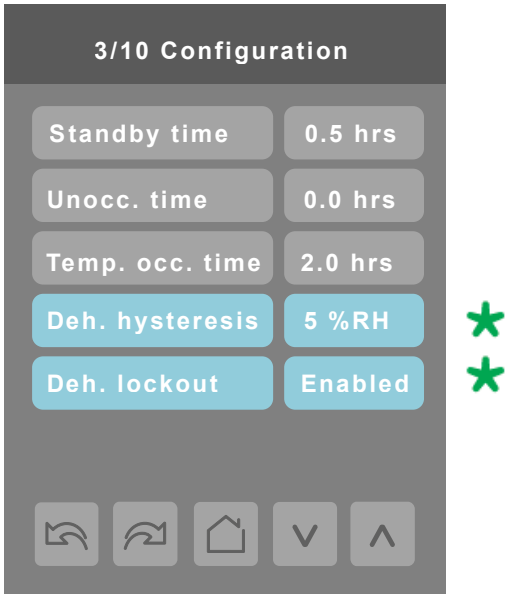
PARAMETER DETAILS SCREEN 2/10

Configuration parameters default value	Significance and adjustments
Fan cont. heat Fan control Default value: **On**	Fan control in heating mode. When selecting **On**; the Terminal Equipment Controller in all cases will always control the fan (terminal G). Valid for **On** or **Auto** fan mode When selecting **Off**; the fan (terminal G), when heating stages (terminals W1 & W2) are solicited, will not be energized. The fan in this case will be controlled by the equipment fan limit control. Valid only for **Auto** fan mode. **On** fan mode will leave the fan always on. ON OR OFF **For multi stage models, fan control applies to W1 & W2**
Fan delay Default value: **Off**	Fan delay extends fan operation by 60 seconds after the call for heating or cooling ends. Valid only for **Auto** fan mode. **On** fan mode will leave the fan always on. **Off** or **On**
Standby mode Default value: **Absolute**	**Standby Mode** Choose which standby setpoints are used for control. **Absolute:** Standby entered values are used for standby mode. **Offset:** Occupied setpoints +/- Standby diff. used for standby mode.

PARAMETER DETAILS SCREEN 2/10

Configuration parameters default value	Significance and adjustments
Standby diff. Default value: **2 °C (3 °F)**	**Standby Difference** When Standby mode is Offset, standby setpoints are calculated as: Standby cool = Cool setpoint + Standby diff. Standby heat = Heat setpoint - Standby diff. Adjustable from 0.5 a 2.5 °C (1 - 5 °F)
Power-up delay Default value: **10 seconds**	On initial power up of the Terminal Equipment Controller (each time 24 Vac power supply is removed & re-applied) there is a delay before any operation is authorized (fan, cooling or heating). This can be used to sequence start up multiple units / Terminal Equipment Controller in one location. **10 to 120 seconds**
Occupancy src Default value: Motion	**Occupancy Source** **Motion:** occupancy status is received from a motion sensor. **Schedule:** occupancy status is determined by the schedule.

CONFIGURATION PARAMETERS SCREEN 3/10



* These parameters are only displayed on models with built in humidity sensor

PARAMETER DETAILS SCREEN 3/10

Configuration parameters default value	Significance and adjustments
Standby time Default value: **0.5 hours**	**Standby Time** Time delay between the moment where the PIR cover detects last movement in the area, and the time which the Terminal Equipment Controller stand-by setpoints become active. Range: 0.5 to 24.0 hours in 0.5 hours increments.
Unocc. time Default value: **0.0 hours**	**Unoccupied Time** Time delay between the moment where the Terminal Equipment Controller toggles to stand-by mode, and the time which the Terminal Equipment Controller unoccupied mode and setpoints become active. Factory value 0.0 hours: Setting this parameter to its default value of 0.0 hours disables the unoccupied timer. This prevents the Terminal Equipment Controller from drifting from stand-by mode to unoccupied mode when PIR functions are used. Range: 0.0 to 24.0 hours in 0.5 hours increments.
Temp. occ. time Default value: **2 hours**	**Temporary Occupancy Time** Temporary occupancy time with occupied mode setpoints when override function is enabled. When Terminal Equipment Controller is in unoccupied mode, function is enabled with either the menu or UI2 configured as remote override input. Range: 0 - 24 hours.

PARAMETER DETAILS SCREEN 3/10

Configuration parameters default value	Significance and adjustments
Deh. hysteresis Default value: 5% RH	**Humidity Control Hysteresis** Used only if dehumidification sequence is enabled: Range: 2 to 20% RH **Models with humidity sensor only.**
Deh. lockout Default value: Enabled	**Dehumidification Lockout** Typically toggled through the network. This variable enables or disables dehumidification based on central network requirements from the BAS front end. **Enabled**: Dehumidification Authorized **Disabled**: Dehumidification Not Authorized **Models with humidity sensor only.**

CONFIGURATION PARAMETERS SCREEN 4/10

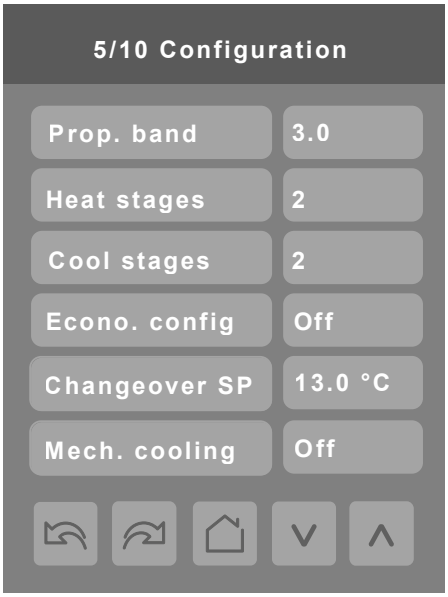
PARAMETER DETAILS SCREEN 4/10

Configuration parameters default value	Significance and adjustments
Cooling CPH Cooling stages cycles per hour. Default value: **4 CPH**	Sets the maximum number of cooling stage cycles per hour under normal control operation. It represents the maximum number of cycles that the equipment will turned on and off in one hour. Note that a higher CPH will represent a higher accuracy of control at the expense of wearing mechanical components faster. **3 or 4 CPH** **For multi stage models, cool CPH applies to Y1 & Y2**
Heating CPH Heating stages cycles per hour. Default value: **4 CPH**	Will set the maximum number of heating stage cycles per hour under normal control operation. It represents the maximum number of cycles that the equipment will turn ON and OFF in one hour. Note that a higher CPH will represent a higher accuracy of control at the expense of wearing mechanical components faster. **3, 4, 5, 6,7 & 8 CPH** **For multi stage models, heat cph applies to W1 & W2**
Frost protec Frost protection enabled Default value: **Off**	**Off:** no room frost protection **On**: room frost protection enabled in all system mode at: 42 °F (5.6 °C) Frost protection is enabled even in system Off mode **Off or On**

PARAMETER DETAILS SCREEN 4/10

Configuration parameters default value	Significance and adjustments
BO1 aux config Default value: **NO**	**Binary Output Terminal** Output directly follows occupancy of the Terminal Equipment Controller. **1) NO:** Occ or St-By = Contact Closed / Unoccupied = Contact Opened **2) NC:** Occ or St-By = Contact Opened / Unoccupied = Contact Closed. Output to follow directly main occupancy and Fan on command.
Anti short cycle Minimum On-Off operation time for stages Default value: **2 minutes**	Minimum On-Off operation time of cooling & heating stages. **IMPORTANT**, anti-short cycling can be set to 0 minutes for equipment that posses their own anti cycling timer. Do not use this value unless the equipment is equipped with such internal timer. Failure to do so can damage the equipment. **0, 1, 2, 3, 4 & 5 minutes**
Min. sup. heat Only valid if HT Type is set to Analog Minimum supply heat temperature setpoint Default value: **18.0 °C (64 °F)**	Sets the minimum supply heat to be maintained by the controller during occupied periods (Occupied or Temporary Override). **From 50 °F up to 72 °F (10 °C up to 22 °C)** (increments: 0.5° or 5°)

CONFIGURATION PARAMETERS SCREEN 5/10



PARAMETER DETAILS SCREEN 5/10

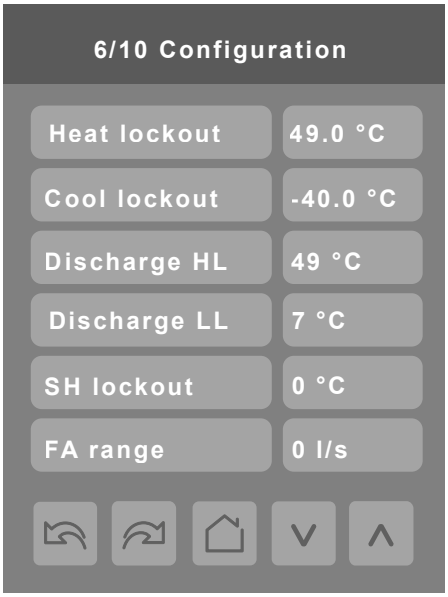
Configuration parameters default value	Significance and adjustments
Prop. band Default value: **3.0**	**Proportional Band Setting** Adjusts proportional band used by the Terminal Equipment Controller PI control loop. **Note:** default value of 3.0 gives satisfactory operation in most normal installation cases. The use of a superior proportional band different than the factory one is normally warranted in applications where Terminal Equipment Controller location is problematic and leads to unwanted cycling of the unit. A typical example is a wall mounted unit where Terminal Equipment Controller is installed between return and supply air feeds and is directly influenced by the supply air stream of unit.

Value	Effective Proportional Band	
	Fahrenheit	Celsius
3	3	1.2
4	4	1.7
5	5	2.2
6	6	2.8
7	7	3.3
8	8	3.9
9	9	5.0
10	10	5.6

PARAMETER DETAILS SCREEN 5/10

Configuration parameters default value	Significance and adjustments
Heat stages Number of heating stages. Applicable to 2 stage models only Default value: **2 stages**	Will revert the operation of 2 stages Terminal Equipment Controller to single stage operation only when the second heating step is not needed. **1 or 2 stages**
Cool stages Number of cooling stages Default value: **2 stages**	Will revert the operation of 2 stage Terminal Equipment Controller to single stage operation only when the second cooling step is not needed. **1 or 2 stages**
Econo. config Economizer configuration Default value: **Off**	Controls the activity of the economizer functionality **On** Economizer is activated **Off** Economizer is deactivated
Changeover SP Changeover setpoint Default value: **55 °F (13.0 °C)**	In *Cooling* mode. The outside air temperature value at which the cooling will be switched over from mechanical (compressor) to free cooling (economizer) **14 to 70 °F (-10.0 to 21.0 °C)**
Mech. cooling Mechanical cooling allowed Default value: **Off**	In *Cooling* mode. Allows the operation of the mechanical cooling if the free cooling (economizer) cannot maintain the cooling setpoint. **Off** Typically applies when the MS (mixed air temperature sensor) is installed after the mechanical cooling refrigeration coils. In this case, mechanical cooling will never operate at the same time as free cooling. **On** Typically applies when the MS (mixed air temperature sensor) is installed before the mechanical cooling refrigeration coils in the mixing plenum. In this case, mechanical cooling is allowed when the free cooling (economizer operation) cannot maintain the cooling setpoint. **Off or On**

CONFIGURATION PARAMETERS SCREEN 6/10



PARAMETER DETAILS SCREEN 6/10

Configuration parameters default value	Significance and adjustments
Heat lockout Outside air temperature heating lockout Default value: **120 °F (49 °C)**	Disables heating stage operation based on outdoor air temperature. Function will only be enabled if OS (outside air temperature sensor) is connected. **From -15 °F up to 120 °F (-26 °C up to 49 °C)**
Cool lockout Outside air temperature mechanical cooling lockout. Default value: **-40 °F (-40 °C)**	Disables cooling stage operation based on outdoor air temperature. On economizer model, free cooling will not be disabled by this function. Function will only be enabled if OS (outside air temperature sensor) is connected. **From -40 °F up to 95 °F (-40 °C up to 35 °C)**
Discharge HL Discharge air temperature high limit Default value: **120 °F (49 °C)**	Discharge air high temperature value at which the heating stages will be locked out. **70°F to 150°F (21°C to 65°C)** (increments: 0.5° or 5°)
Discharge LL Discharge air temperature low limit Default value: **45°F (7 °C)**	Discharge air low temperature value at which the cooling stages will be locked out. **35 to 65°F (2.0°C to 19.0°C)** (increments: 0.5° or 5°)
SH lockout Only valid if HT Type is set to Analog Outside air temperature supply heat lockout Default value = **32 °F (0 °C)**	Disables heating operation based on outdoor air temperature. **From –15 °F up to 120 °F (-26 °C up to 49 °C)** (increments: 5° or 50°)
FA Range FA range upper limit value Default value: **0 CFM**	Sets the upper limit of the CFM range. This parameter should be set based on the rooftop unit size. If set to 0 CFM, the fresh air damper control will be based on the Min/Max CO2 and Min/Max Pos values. See Damper Position section for more details. **0 to 20 000 CFM (0 to 9438 L/s), 10 or 100 increments**

CONFIGURATION PARAMETERS SCREEN 7/10

PARAMETER DETAILS SCREEN 7/10

Configuration parameters default value	Significance and adjustments
Econo min pos Minimum Fresh Air Damper/Economizer Position Default value**: 0%**	Minimum fresh air damper position. Effective only in Occupied mode (Fan is ON). This value is also used to determine the fresh air damper position based on the Min/Max CO2 and Min/Max Pos values set. See Fresh Air Damper Position section for more details. **0% to 100%, +/- 1% increments**
Econo max pos Maximum Fresh Air Damper/Economizer Position Default value: **100%**	Maximum fresh air damper position. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO2 and Min/Max Pos values set. See Fresh Air Damper Position section for more details. **0% to 100%, +/- 1% increments**

Note: Viconics RTU HP IAQ Room Controller products and documentation for air damper position and output is based on 0-10 VDC analog actuators. Many installations utilize 2-10 VDC actuators, which cannot be switched to 0-10 VDC control logic. The following chart indicates the appropriate equivalent damper positions for use with 2-10 Vdc actuators.

Outside air percentage	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Setting for 0-10 Vdc Actuator	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Setting for 2-10 Vdc Actuator	20%	24%	28%	32%	36%	40%	44%	48%	52%	56%	60%

Outside air percentage	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
Setting for 0-10 Vdc Actuator	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
Setting for 2-10 Vdc Actuator	64%	68%	72%	76%	80%	84%	88%	92%	96%	100%

PARAMETER DETAILS SCREEN 7/10

Configuration parameters default value	Significance and adjustments
Min fresh air Minimum Fresh Air Value Default value: **0 CFM**	Minimum fresh air required. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO2 and Min/Max FA values (if FA Range is set to other than 0 CFM). See Fresh Air Damper Position section for more details. **0 to 20 000 CFM (0 to 9438 l/s, the value set cannot exceed the value of FA Range parameter), 1 = increments**
Max fresh air Maximum Fresh Air Value Default value: **0 CFM**	Maximum fresh air allowed. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO2 and Min/Max FA values set (if FA Range is set to other than 0 CFM). See Fresh Air Damper Position section for more details. **0 to 20 000 CFM (0 to 9438 l/s, the value set cannot exceed the value of FA Range parameter), 1 = increments**
Min CO2 Minimum CO2 Level Default value: **800 ppm**	Minimum CO2 Level required. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO2 and Min/Max Pos values set. See Fresh Air Damper Position section for more details. **0 to 2000 ppm, 10 ppm increments**
Max CO2 Maximum CO2 Level Default value: **1200 ppm**	Maximum CO2 Level allowed. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO2 and Min/Max Pos values set. See Fresh Air Damper Position section for more details. **0 to 2000 ppm, 10 ppm increments**

CONFIGURATION PARAMETERS SCREEN 8/10

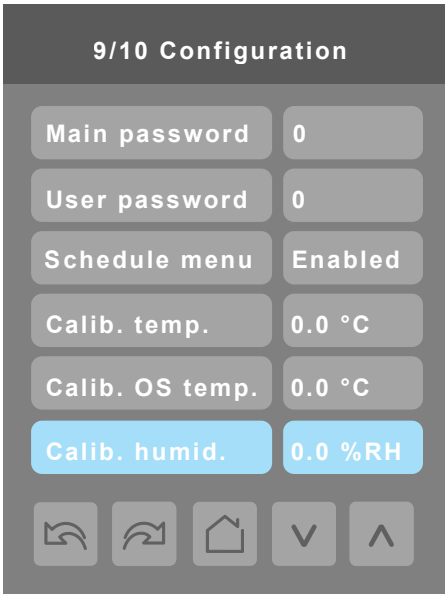
PARAMETER DETAILS SCREEN 8/10

Configuration parameters default value	Significance and adjustments
Application Type of application Default value = **Rooftop**	Controls whether the operating logic for a rooftop application or a heat pump application is used. **Rooftop or Heatpump**
High BP High balance point Default value = **90 °F (32.0 °C)** Function will only be enabled if OS (outside air temperature sensor) is connected.	In *Heating* or *Auto* mode, it is the outside air temperature value at which the auxiliary heat will be cut off. Above that value, only the heat pump will be used to maintain the heating setpoint **34 to 90 °F (1.0 to 32.0 °C)**
Low bp Low balance point Default value = **-12 °F (-24.5 °C)**	In *Heating*, *Cooling* or *Auto* mode, it is the outside air temperature value at which the heat pump operation will be cut off. Below that value, only the auxiliary heat will be used to maintain the heating setpoint -40 to 30 °F (-40 to -1.0 °C)

PARAMETER DETAILS SCREEN 8/10

Configuration parameters default value	Significance and adjustments
Comfort/eco Comfort or economy mode Default value = **Comfort**	Sets the operation and interaction mode of the heat pump with the auxiliary heat. **Comfort mode**: In Heating mode. If the heat pump is not able to satisfy the heating setpoint, the auxiliary heat will be energized to satisfy the same heating setpoint. **Economy mode**: In Heating mode. If the heat pump is not able to satisfy the heating setpoint, the auxiliary heat will be energized to satisfy only when the temperature has dropped 2.0 °F (1.1 °C) below the heating setpoint. Selecting economy mode will add a deadband between the heatpump & auxiliary heat in heating mode. The actual temperature maintained will be lower than the true heating setpoint to maximize the heat pump operation. When the outdoor air temperature drops below the low balance point, the deadband will be eliminated and the auxiliary heat will maintain the true heating setpoint alone.
Rev. valve Reversing valve operation O/B Default value = **O**	Heat pump reversing valve operation **O**: will energize the valve in cooling operation. **B**: will energize the valve in heating operation **O or B**
Comp. interlock Compressor/auxiliary interlock Default value = **Off**	Sets the operation and interaction mode of the heat pump with the auxiliary heat. Interlock Off: In Heating mode, if the heat pump is not able to satisfy the heating setpoint, the auxiliary heat will be energized at the same time as the heat pump stage. Typically applies when the air handler heat pump coil is installed before the auxiliary heat. (all electric systems) Interlock On: In Heating mode, if the heat pump is not able to satisfy the heating setpoint, the auxiliary heat will be energized and the heat pump will be cut off. Typically applies when the air handler heat pump coil is installed after the auxiliary heat. (add on systems) There is a 2 minute delay to restart the heat pump, when the auxiliary heat is shut down **Off or On**

CONFIGURATION PARAMETERS SCREEN 9/10

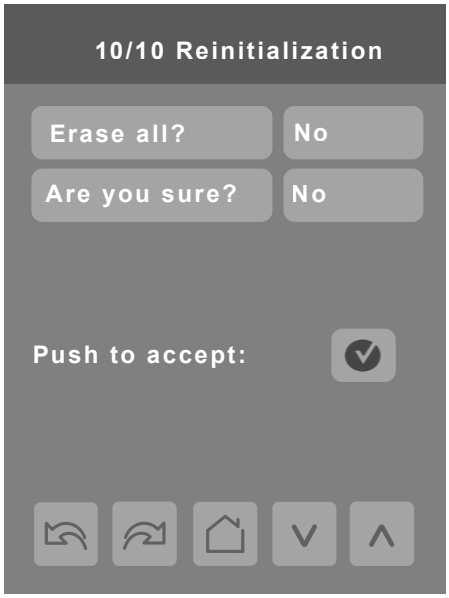


★ These parameters are only displayed on models with built in humidity sensor

PARAMETER DETAILS SCREEN 9/10

Configuration parameters default value	Significance and adjustments
Main password Default value: **0**	**Main Password** Installer password. This parameter sets a protective access password to prevent unauthorized access to configuration menu parameters. Default value of 0 does not prompt a password or lock access configuration menu. **Range: 0 - 9999.**
User Password Default value: **0**	**User Password** User password. This parameter sets a protective access password to prevent user unauthorized access to main screen adjustments. Default value of 0 does not prompt a password. **Range: 0 - 9999.**
Schedule menu Default value: **Enabled** **Toggles activation of schedule menu direct access**	**Enabled** The Schedule Menu is directly accessible from the main screen via a touch in the upper corner (see page 4). **Disabled** The Schedule Menu can only be accessed through the Setup Menu screens
Calib. temp. Default value: **0.0 °C or °F**	**Calibration Temperature** Room temperature sensor calibration. Offset can be added or subtracted to actual displayed room temperature. **Range: ± 2.5 °C, 0.5 °C increments (± 5.0 °F, 1.0 °F increments).**
Calib. OS temp. Default value: **0.0 °C or °F**	**Calibration Outside Temperature** Outside air temperature sensor calibration. Offset that can be added/subtracted to the actual displayed outdoor temperature. **Range: ± 2.5 °C, 0.5 °C increments (± 5.0 °F, 1.0 °F increments).**

CONFIGURATION PARAMETERS SCREEN 10/10



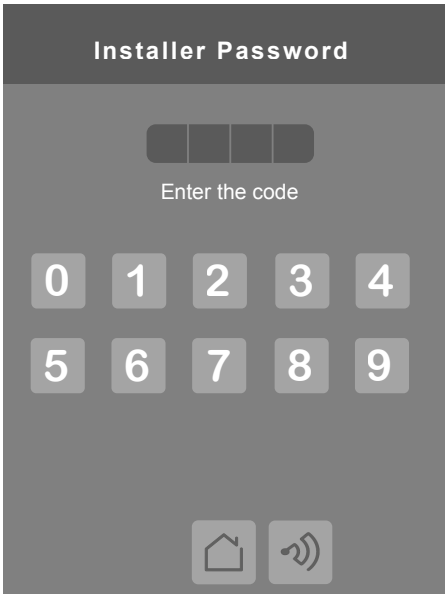
PARAMETER DETAILS SCREEN 10/10

Configuration parameters default value	Significance and adjustments
Erase all? Default value: **No**	**Erase All** Answering Yes on both and pressing the Accept button erases all values and changes to factory default values everything except the following network related values: • COM address • ZigBee® Pro Pan ID • ZigBee® Pro channel • Network units • Network language • Baud rate • BACnet® instance • Device name • Screen contrast
Are you sure? Default value: **No**	

PASSWORD SETTINGS

The following shows you how to set-up the password for the Installer and User

Installer Password

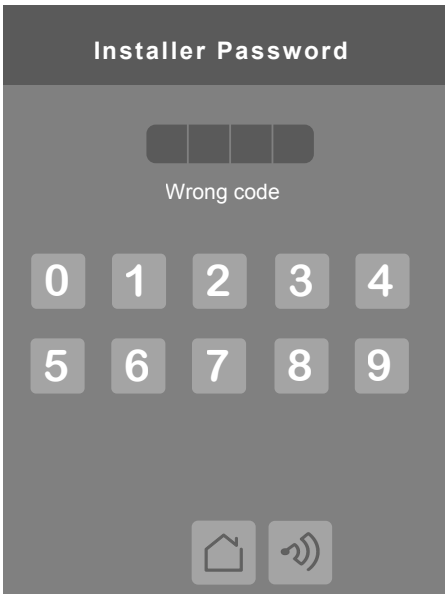


1. Installer password prompt shows only if password value is greater than 0000. A password value of 0000 disables installer password but does not restrict access to configuration options.
2. Installer password prompt automatically disappears after 10 seconds if no value is entered.
3. An error code is automatically generated if incorrect password is entered.
4. Installer is permitted access to all Installer functions and menus when correct password is entered.

NOTE: When the schedule menu is enabled OR when the 5th button is set to schedule or custom, the clock, occupancy command, schedule or custom pages are NOT password-protected. Always use a system password when the Room Controller is in regular use to avoid inadvertent changes of the Room Controller logic.

User Password

1. User password prompt shows only if password value is greater than 0000. A password value of 0000 disables user password but does not restrict access to local user functions.
2. User password prompt automatically disappears after 10 seconds if no value is entered.
3. User is permitted access to controller interface to change any allowed settings when correct password is entered.
4. Password lock resumes after 1 minute of non activity.



PASSWORD PARAMETER DETAILS

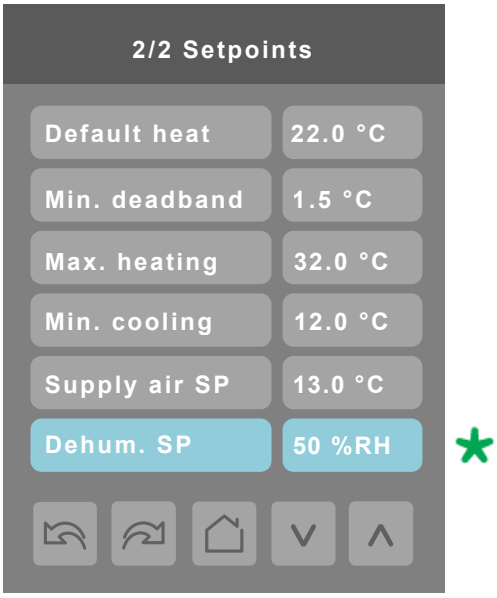
Configuration parameters default value	Significance and adjustments
Main password Default value: 0	**Installers Password** Parameter sets a protective access password to prevent unauthorized access to the configuration menu parameters. A default value of 0 does not prompt a password or lock access to configuration menu. Range: 0 to 9999.
User password Default value: 0	**User Password** Parameter sets a protective access password to prevent User unauthorized access to main screen adjustments. A default value of 0 does not prompt for a password. Range: 0 to 9999.

SETPOINT SETTINGS 1/2

SETPOINT PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Unocc. cool Default value: **26.5 °C (80 °F)**	**Unoccupied Cooling** Unoccupied cooling setpoint range: 2.0 to 37.5 °C (54 to 100 °F).
Standby cool Default value: **25.5 °C (78 °**F)	**Standby Cooling** The value of this parameter should be set between occupied and unoccupied cooling setpoints. Ensure difference between standby and occupied value can be recovered in a timely fashion when movement is detected in the zone. Stand-by cooling setpoint range: 12.0 to 37.5 °C (54 to 100 °F).
Occ. cool Default value: **24.0 °C (74 °F)**	**Occupied Cooling** Cooling setpoint range: 12.0 to 37.5 °C (54 to 100 °F).
Occ. heat Default value: **22.0 °C (72 °F)**	**Occupied Heating** Heating setpoint range: 12.0 to 37.5 °C (54 to 100 °F).
Standby heat Default value: **20.5 °C (69 °F)**	**Standby Heating** The value of this parameter should be set between occupied and unoccupied heating setpoints. Ensure difference between standby and occupied value can be recovered in a timely fashion when movement is detected in the zone. Stand-by heating setpoint range: 4.5 to 32.0 °C (40 to 90 °F).
Unocc. heat Default value: **16.5 °C (62 °F)**	**Unoccupied Heating** Unoccupied heating setpoint range: 4.5 to 32.0 °C (40 to 90 °F).

SETPOINT SETTINGS 2/2

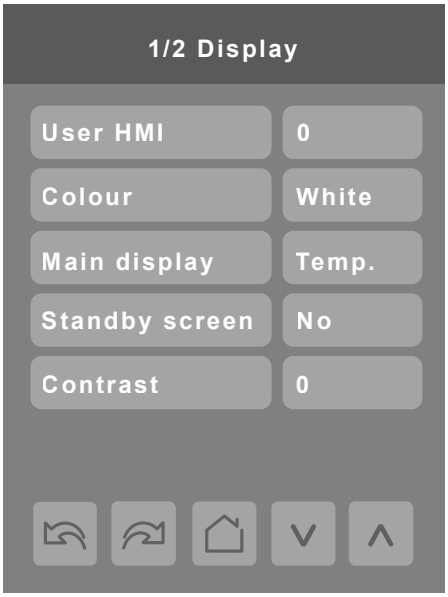


★ Parameter only displayed on models with built in humidity sensor.

SETPOINT PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
Default heat Default value: **22.0 °C (73 °F)**	**Default Heat** Used for hospitality applications in stand-alone mode only. When devices are in deep unoccupied mode, any movement detected by PIR resets actual occupied set points to fresh room default setting. Default setpoint is used to write to Heating setpoint when thermostat goes to Unoccupied mode. Cooling setpoint is set according to Min. deadband; 18.0 to 26.5 °C (65 to 80 °F). Parameter is only used when Stand-by mode = Rel.
Min. deadband Default value: **1.5 °C (3 °F)**	**Minimum Deadband** Minimum deadband value between heating and cooling setpoints applied only when any setpoints are modified. Range: 1.0 to 2.5 °C, 0.5 °C increments (2, 3, 4 or 5 °F, 1.0 °F increments).
Max heating Default value: **32 °C (90 °F)**	**Maximum Heating** Maximum occupied and unoccupied heating setpoint adjustment. Range: 4.5 to 32.0 °C (40 to 90 °F).
Min. cooling Default value: **12.0 °C (54 °F)**	**Minimum Cooling** Minimum occupied and unoccupied cooling setpoint adjustment. Range: 12.0 to 37.5 °C (54 to 100 °F).
Supply air SP Default value: **13.0 °C (55 °F)**	Free cooling supply air setpoint when economizer mode is enabled. **50 to 90 °F (10.0 to 32.0 °C)**
Dehum. SP Default value: 50% RH	**Dehumidification Setpoint** Used only if dehumidification sequence is enabled: Range is: 30-95% RH (models with humidity sensor only).

DISPLAY SETTINGS 1/2



DISPLAY PARAMETER DETAILS

Configuration parameters default value	Significance and adjustments
User HMI Default value: **0**	**User HMI** Select user HMI type. Range: **0 to 11**.
Colour Default value: **White**	**White** Change text colors according to set font colors.
Main display Default value: **Temp**.	**Main Display** Shows temperature setpoint
Standby screen Default value: **No**	**Standby Screen** When the device is left unattended for 2 minutes background backlight dims. Installers can load a custom image for brand identification.
Contrast Default value: **0**	Controls the screen contrast and brightness. 0 is least bright, most contrast; 5 is most bright, least contrast. Range: **-5 to 5**

User HMI

Hospitality 0

- Setpoint adjustment
- System mode setting
- Fan mode setting
- Local unit scale adjustment
- Local user language
- User help menu

Hospitality 1

- Setpoint adjustment
- System mode setting
- Fan mode setting
- User help menu

Hospitality 2

- Local unit scale adjustment
- Local user language
- User help menu

Hospitality 3

- Setpoint adjustment
- User help menu

Parameters are model dependent and may not appear on certain models.

Hospitality 4

- Fully locked interface with no user settings

Hospitality 5

- Setpoint adjustment
- System mode setting
- User help menu

Hospitality 6

- Setpoint adjustment
- System mode setting
- Fan mode setting
- Local unit scale adjustment
- User help menu

Commercial 7

- Setpoint adjustment
- System mode setting
- Fan mode setting
- unoccupied mode overdrive
- User help menu

Commercial 8

- Setpoint adjustment
- Unoccupied mode override
- Local user language
- User help menu

Commercial 9

- Setpoint adjustment
- Unoccupied mode override
- User help menu

Commercial 10

- Setpoint adjustment
- Unoccupied mode override
- User help menu

Commercial 11

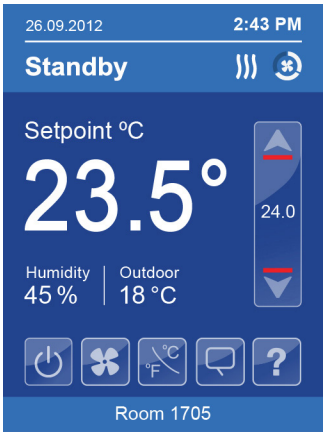
- Setpoint adjustment
- System mode setting
- Unoccupied mode override
- User help menu

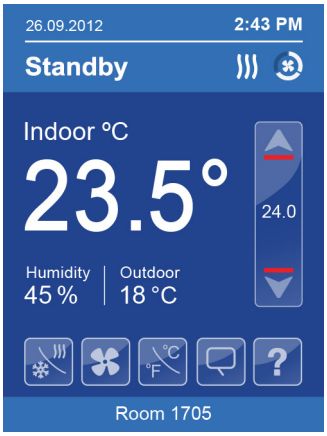
Note:

The day/night setback button appears only in unoccupied mode in the Commercial HMIs 7 to 11. If UI17 input is configured as “override”, the day/night setback button does not show.

Parameters are model dependent and may not appear on certain models.

Other functions





Local humidity only shows on models with the humidity sensor present and when enabled by configuration property RH Display.

Outdoor temperature display is dependent on receiving a valid networked outdoor temperature value.

Heating only configuration

Time and Date show only when a network time synchronisation command is received.

Setpoint value shows if main display parameter is set to Setpoint.

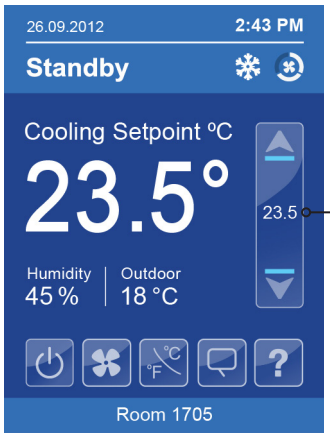
On/Off icon is used instead of system mode icon when sequence of operation is set to either heating on or cooling only.

Setpoint adjustment for cooling mode

In Cooling mode, the setpoint displayed in the bar is the current occupied cooling setpoint.

During occupied setpoint adjustment, the large digits are temporarily used to show occupied cooling setpoint while it is adjusted.

Normal temperature display resumes after setpoint is adjusted and actual occupied cooling setpoint shows in setpoint bar.



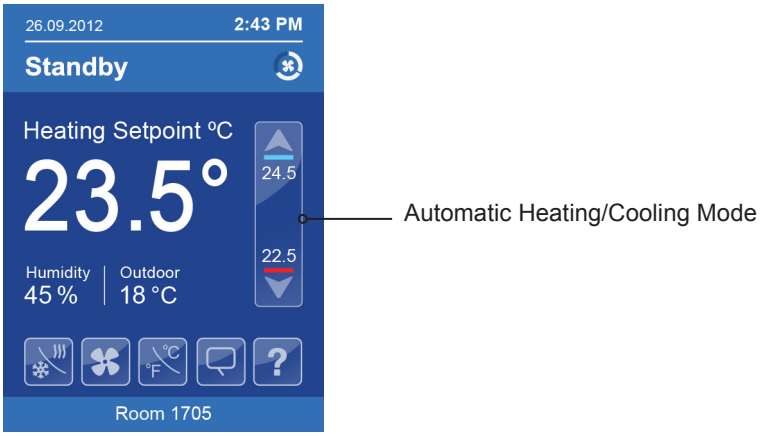
Cooling mode or cooling only sequence of operation.

Setpoint adjustment for heating mode

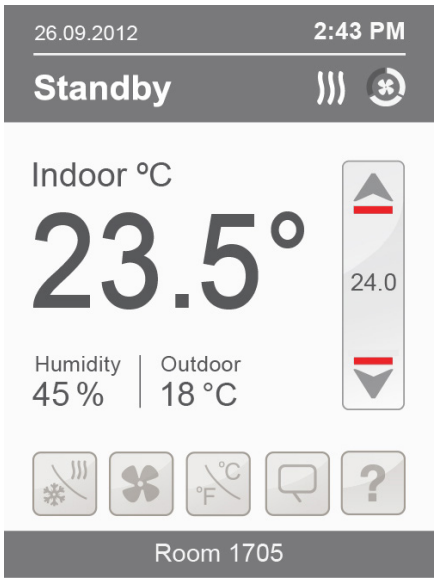
In automatic mode, setpoint showing at the top of the set point bar located directly under the blue line represents the actual occupied cooling setpoint.

During occupied setpoints adjustment, large digits are temporarily used to display the occupied Cooling Setpoint or occupied Heating Setpoint. The actual setpoint is dependent on the last effective demand (heating or cooling). The setpoint on top of the red line represents the actual occupied heating setpoint. The differential between the occupied heating and cooling set-point is defined by the minimum deadband configuration parameter.

Normal temperature display resumes after setpoints are adjusted and the actual occupied heating and cooling setpoints show in the setpoint bar.

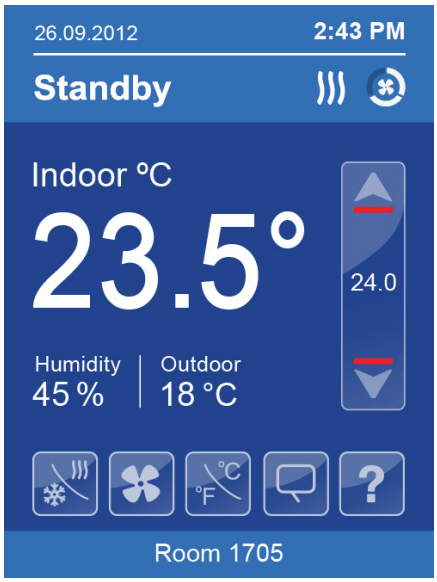


CUSTOMIZABLE COLOR OPTIONS



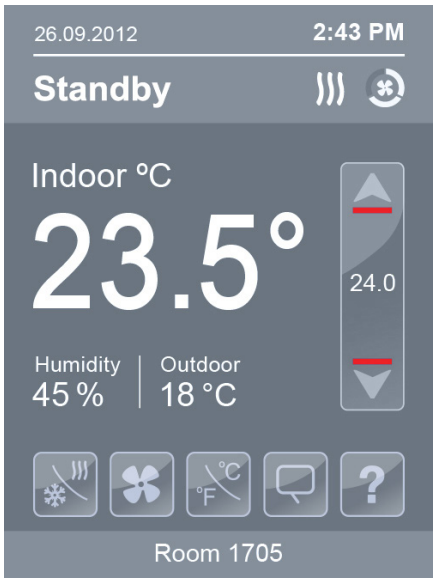
White

Green



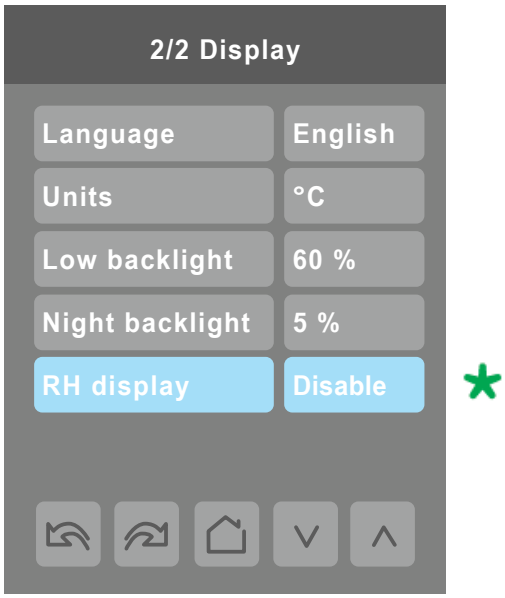
Blue

Dark Grey



Grey

DISPLAY SETTINGS 2/2



★ These parameters are only displayed on models with built in humidity sensor

DISPLAY PARAMETER DETAILS

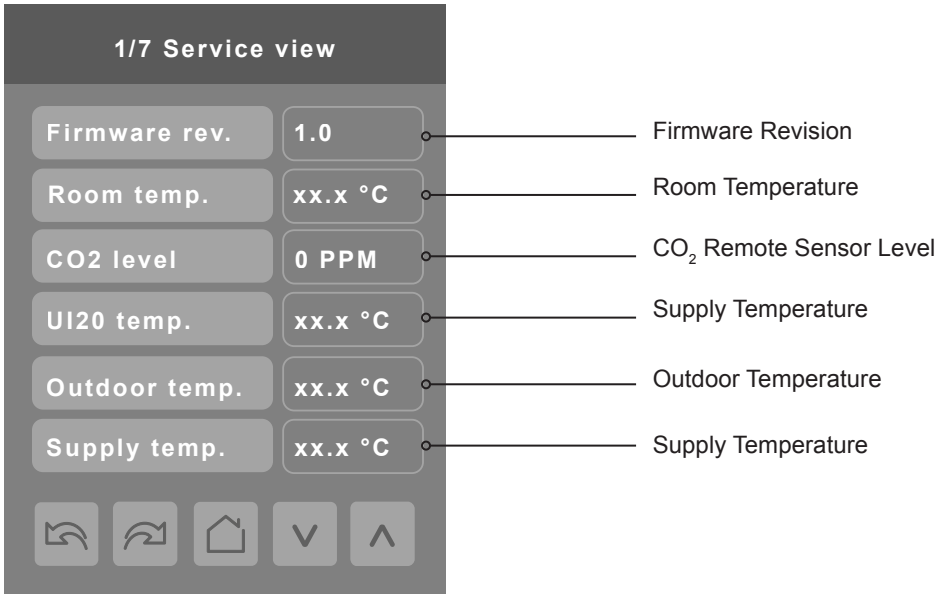
Configuration parameters default value	Significance and adjustments
Language Default value: English	**Language** Select language for main display. Choices: English, French, Spanish, Chinese, Russian, Arabic, Bulgarian, Czech, Danish, Dutch, Finnish, German, Hungarian, Indonesian, Italian, Norwegian, Polish, Portuguese, Slovak, Swedish, Turkish
Units Default value: **°C**	**Temperature Units** Sets default local scale value when Terminal Equipment Controller powers up. °C for Celsius. °F for Fahrenheit.
Low backlight Default value: 60%	**Backlight Display** Set display backlight intensity after 2 minutes of keyboard inactivity. Adjustable: 0 to 100%.

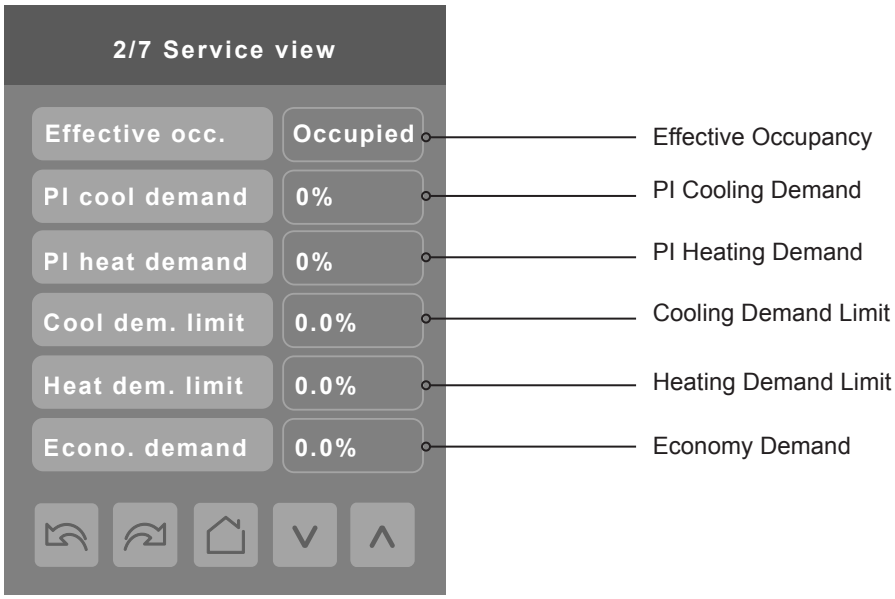
DISPLAY PARAMETER DETAILS

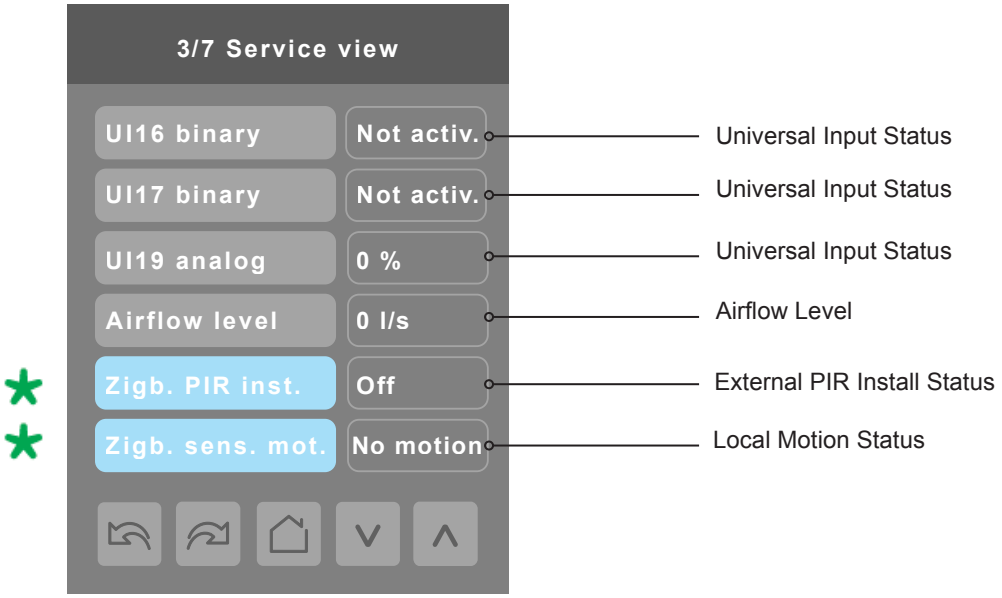
Configuration parameters default value	Significance and adjustments
Night backlight Default value: 5%	**Night Backlight Display** Set display backlight intensity after 2 minutes of keyboard inactivity. Adjustable: 0 to 100%. Parameter only available for models with motion/light detectors. The screen backlight progressively decreases down to this setting when room is dark. This feature is used mostly in hospitality applications when a darker non obtrusive lighting level is desired when room is dark.
RH display Default value: Disabled	**Relative Humidity Display** Enables display of humidity below room temperature on the display (On): Display %RH. (Off): Do not display %RH. **Models with humidity sensor only**

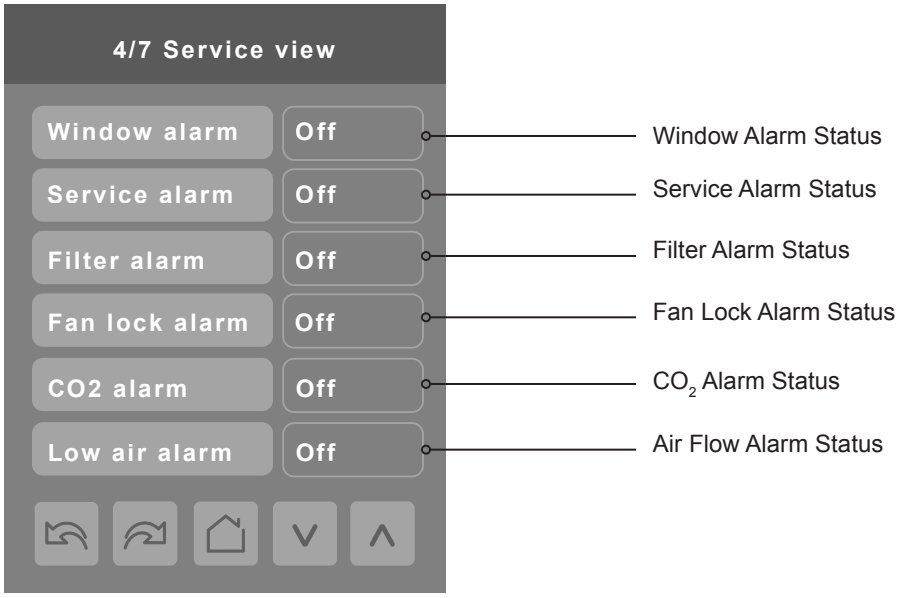
SERVICE SCREEN VIEWS

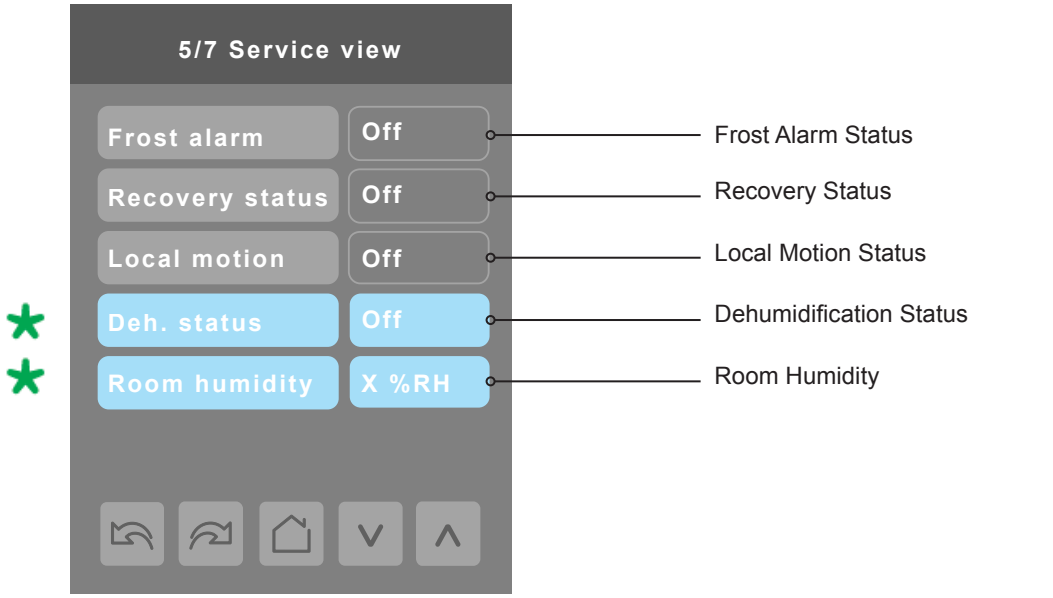
The service view screens show the current status of certain points locally at the controller. These points can also be viewed through the network. Service view allows service contractor to visualize the status of key functionality to correctly diagnose operational system issues.

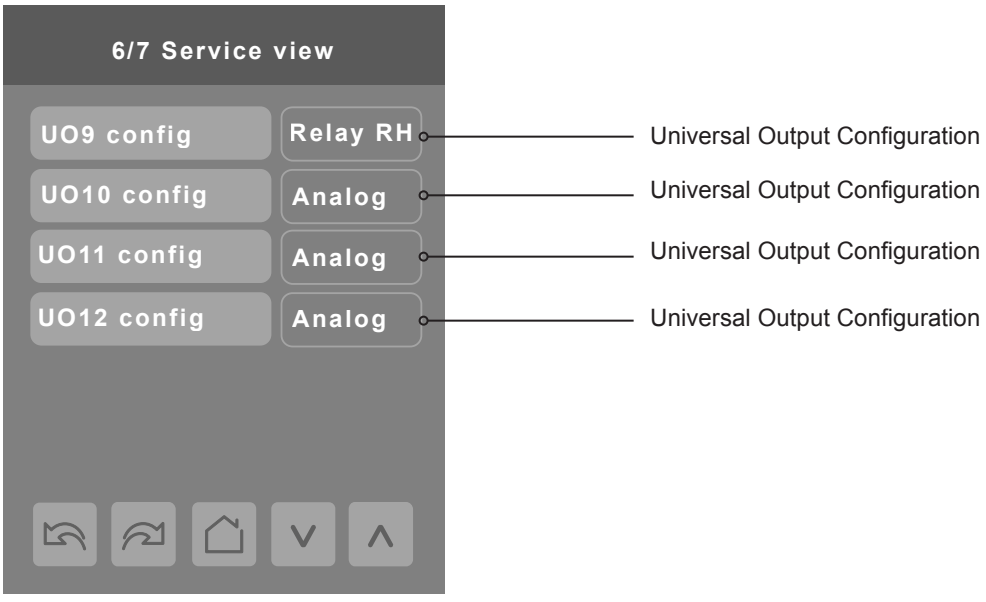




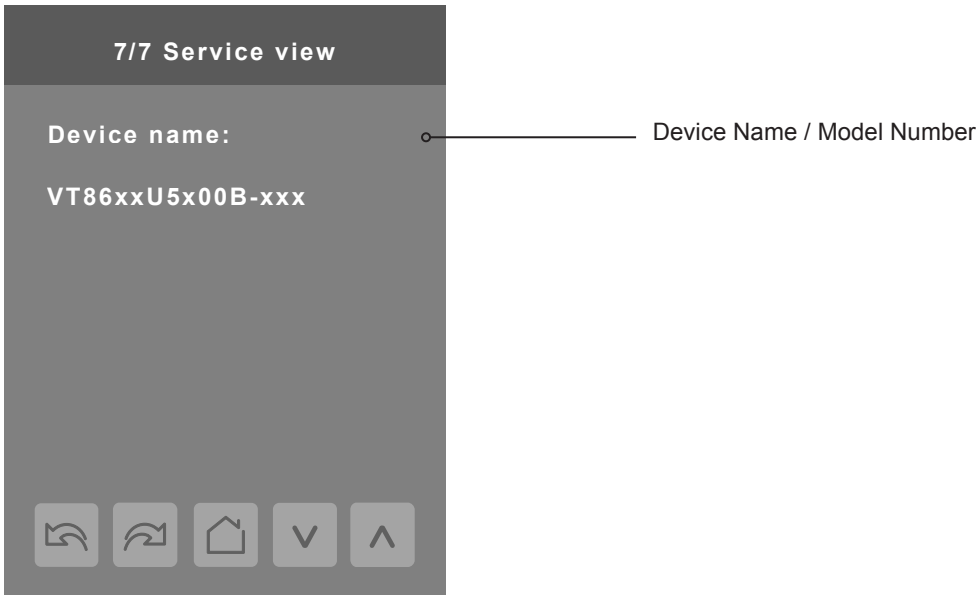








★ These parameters are only displayed on models with built in humidity sensor



The Model Number is the BACnet® device name automatically assigned when using the current BACnet® addressing scheme based on the MAC address. The network can update and change the device BACnet® name. If changed, the new updated BACnet® device name shows on the screen.

For example, when a VT8600U5500B thermostat with a MAC address of 41 is connected to a network, its default Device Name is VT8600U5x00B-41 and its default BACnet Device ID is 83041.

TEST OUTPUTS

Note 1: The test output screen allows manual override of specified outputs. When any BACnet® network priority array includes a value, the status background shows in red. After any output state is overridden, the command is cancelled after 1 minute of screen inactivity (auto exit to main screen) or when page is exited. Refer to the BACnet® integration guide for more details.

Note 2: Use high caution when manually enabling outputs so as to not cause damage to equipment. It is the responsibility of the Installer or Service Contractor to insure safe operation during usage.

TEST OUTPUTS

Note: screen Test outputs are LIVE. Any output gets displayed immediately for any value change according to the following:

1. If any BACnet priority array (1 - 16) includes a value, the displayed state background shows in red.
2. When toggling a value on the screen, the output directly energizes according to the selected value.
3. You can override any output if you bypass the Bacnet array (1 - 16).
4. It is not possible to modify the set Bacnet array values.
5. After any output state gets modified, all overrides get cancelled after 1 minute of button inactivity, or if you scroll from one screen to another screen.

CASE A: screen 2/2 display is dependent on Control type configuration. If mode is set to On/Off, binary options show.

CASE B: screen 2/2 display is dependent on Control type configuration. If mode is set to Analog, analog options show.

LANGUAGE SELECTION

Only English, French, Spanish, Chinese and Russian are enabled by default, which means that they will be accessible to users cycling through languages on the display settings menu screen. To change the language selection settings, touch a language on the screen and then use the arrow buttons to disable or enable it. The English language is always enabled.

APPENDIX A: TERMINAL CORRESPONDENCE

The terminals of an VT8600 are identified differently and have a wider range of possible functions compared to those of any of the VT7000 series Room Controllers. Nonetheless, there is a direct correspondence of functions between the terminals of the VT7000 series and the VT8600 series. Consult the table below to verify the appropriate terminal when replacing a VT7000 Room Controller with a VT8600 Room Controller.

VT7000		VT8600	
Terminal name	**Terminal ID**	**Terminal name**	**Terminal ID**
Binary Input 1	BI1	Universal Input 16	UI16
Binary Input 2	BI2	Universal Input 17	UI17
Universal Input 3	UI3	Universal Input 19	UI19
Sensor Common	Scom	Terminal 18 Common	COM
Remote Sensor	RS	Universal Input 20	UI20 - RS
Sensor Common	Scom	Terminal 21 Common	COM
Mix/Supply Sensor	MS	Universal Input 22	UI22 - SS