

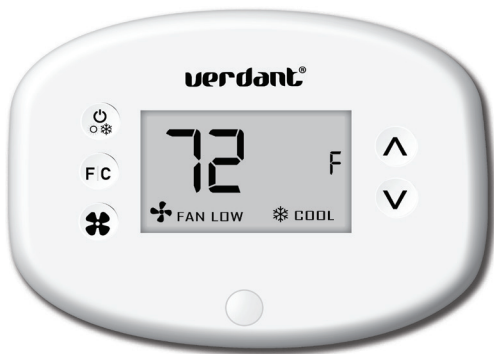
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VX-TR-KT

VX Series Wired Energy
Management Thermostat with
an Occupancy Sensor

INSTALLATION MANUAL

JULY 2021



VERDANT


EMERSON™

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Introduction

Verdant VX Series Energy Management Thermostats deliver unprecedented energy savings without compromising the comfort of occupants.

An integrated occupancy sensor uses a combination of motion and thermal sensing technologies for accurate occupancy detection. Reliable occupancy detection allows for energy savings when rooms are unoccupied.

Energy saving presets eliminate the guesswork and make it easy to adjust the energy saving settings.

Fully configurable energy saving settings allow for customization of the thermostat energy saving settings to fit any situation.

Comprehensive configuration options ensure full compatibility with virtually any existing or emerging HVAC system with up to 2 heat and 1 cool stages.

Built-in wireless mesh-networking enables online management.

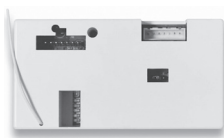
Before You Begin

Equipment Nomenclature

Before you begin installing Verdant equipment, we recommend familiarizing yourself with the various components that may be included in your shipment.



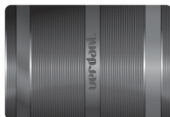
VX Thermostat



HVAC Controller



Occupancy Sensor
(Optional)



Online Connection Kit
(Optional)

Network Installation

NOTICE

TO ENABLE NETWORKING CAPABILITIES OF THE VX THERMOSTAT, REFER TO THE “NETWORK INSTALLATION” SECTION OF THIS MANUAL.

BEFORE STARTING THE INSTALLATION OF THE NETWORKED THERMOSTATS, ENSURE THAT THE ONLINE CONNECTION KIT IS CONNECTED TO THE INTERNET.

THE ONLINE CONNECTION KIT MUST BE PLUGGED INTO AN INTERNET PORT WITH A STATIC IP ADDRESS WITH DHCP ACTIVE. THE ONLINE CONNECTION KIT MUST BE WHITELISTED USING ITS MAC ADDRESS WITH UNRESTRICTED INTERNET ACCESS. INBOUND/OUTBOUND COMMUNICATION PORTS ARE 80,443, AND 22.

PLEASE CONFIRM WITH A VERDANT TECHNICAL SUPPORT AGENT THAT THE ONLINE CONNECTION KIT IS COMMUNICATING PROPERLY WITH THE CLOUD SERVICE BY CALLING OUR TECHNICAL SUPPORT TEAM AT 1 877 318 1823.

Network Installation

Connecting the Antenna Module



- Screw the Antenna onto the Wireless Receiver;
- Connect the Wireless Receiver to the Server using the supplied USB cable;
- Affix the Wireless Receiver to the wall with double sided adhesive tape (not supplied);
- Orient the antenna to be parallel to the closest room in which a Verdant thermostat will be installed.

THE WIRELESS RECEIVER AND THE ANTENNA MUST NOT BE INSTALLED NEAR METAL STRUCTURES OR SURFACES.

METAL STRUCTURES AND SURFACES SIGNIFICANTLY REDUCE THE RANGE OF THE WIRELESS SIGNAL.

Network Installation

Connecting the Ethernet Cable



- Connect the Server to the LAN port with the supplied RJ-45 cable.

Network Installation

Powering on the Server



- Plug the Server into an electrical outlet with the supplied power cord.

TO PREVENT POWER RELATED ISSUES, PLUG THE SERVER INTO A UPS (UNINTERRUPTED POWER SUPPLY) UNIT.

Network Installation

Configuring the Online Connection Kit

- Ensure the Online Connection Kit is receiving a Static IP address via DHCP Server. A public IP will not work;
- Ensure that the MAC address is properly Whitelisted if it needs to bypass a login (splash) page to be able to reach the internet. The MAC address is printed on a white sticker on the bottom of the Online Connection Kit.
- The Online Connection Kit's open TCP ports are 22, 80, and 443.

Thermostat Installation

Mounting the Thermostat to the Wall

- Select the appropriate installation location for the thermostat, taking into account the following;

THE THERMOSTAT'S OCCUPANCY SENSOR SHOULD FACE THE BED AREA OF THE ROOM OR THE AREA WHERE THE OCCUPANT WILL SPEND THE MOST TIME.

THE THERMOSTAT MUST NOT BE INSTALLED IN THE VICINITY OF METAL STRUCTURES OR SURFACES INCLUDING METAL AIR DUCTING THAT MAY BE IN THE WALL.

METAL STRUCTURES AND SURFACES SIGNIFICANTLY REDUCE THE RANGE OF THE WIRELESS SIGNAL.

- With the faceplate removed, place the thermostat on the wall in the installation location and mark location for drilling holes for the two (2) mounting screws;
- Drill two (2) 3/16" holes in the wall and insert the two (2) supplied wall anchors;

DO NOT OVER TIGHTEN THE BACK PLATE TO THE WALL. FOR UNEVEN SURFACES, CONSIDER INSTALLING A WALL PLATE.

- Use the two (2) supplied screws to securely mount the thermostat to the wall;
- Insert two (2) AA-cell batteries (not supplied) into the thermostat battery compartment;
- Follow the "Thermostat Configuration" instructions;

Occupancy Sensor Installation

Mounting the Occupancy Sensor (Optional)

- Select the appropriate installation location for the external occupancy sensor, taking into account the following;

THE OCCUPANCY SENSOR SHOULD FACE THE DESIRED OCCUPANCY DETECTION AREA.

- With the faceplate removed, place the sensor on the wall in the installation location and mark location for drilling holes for the two (2) mounting screws;
- Drill two (2) 3/16" holes in the wall and insert the two (2) supplied wall anchors;
- Use the two (2) supplied screws to securely mount the sensor to the wall;
- Insert (2) AA batteries into the compartment (not supplied - wireless sensors only)

Occupancy Sensor Installation

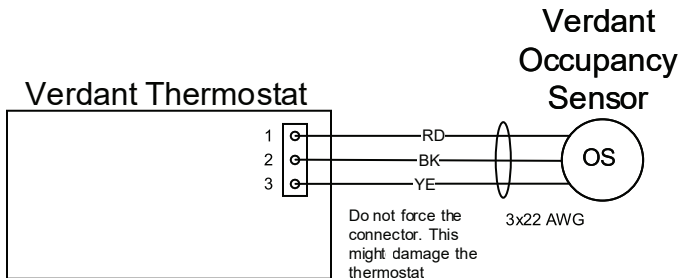
Installing the Wireless Sensor Receiver (Optional - Wireless Sensors Only)

- Plug the Sensor Receiver and plug it into the thermostat;
- With the faceplate removed, place the sensor on the wall in the installation location and mark location for drilling holes for the two (2) mounting screws;
- Drill two (2) 3/16" holes in the wall and insert the two (2) supplied wall anchors;
- Use the two (2) supplied screws to securely mount the sensor to the wall;
- Insert (2) AAA batteries into the compartment (wireless sensors only)

Occupancy Sensor Wiring

Wiring the Occupancy Sensor (Optional - Wired Sensors Only)

- Fish the wire from the back of the occupancy sensor to the thermostat location.
- Connect the wiring from the sensor to the wire harness already plugged into the thermostat port. Extra wire and wire nuts are not supplied.



Thermostat Configuration

Configuring the Thermostat

With the thermostat and HVAC unit powered, follow the configuration instructions to correctly configure the thermostat.

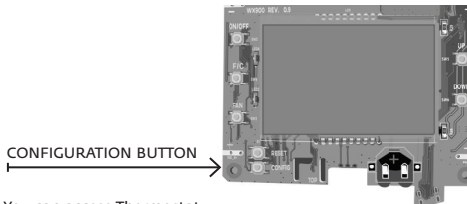
To ensure proper operation of the HVAC unit, complete the following steps.

- Enter the room number;
- Enter the equipment code;
- Configure the energy saving settings;
- Set the thermostat clock

Thermostat Configuration

Accessing the Configuration Screen

- Ensure the thermostat is powered and faceplate removed;
- Press the config button;



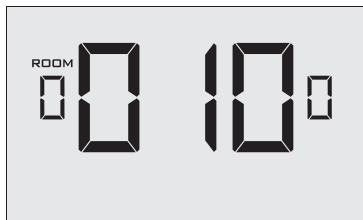
NOTE: You can access Thermostat Configuration settings at any time by pressing the "Configuration" button.

The thermostat configuration screens have a 30-second time-out. If no action is taken within (30) seconds, the thermostat will exit configuration settings.

NOTE: When the thermostat is connected to a network, the equipment and the energy saving settings configured on the thermostat will be overridden by settings configured online.

Thermostat Configuration

Entering the Room Number



Enter the room number by changing the digits on the screen. Leading zeros “0” preceding other digits will be ignored, i.e. Room number “123” should be entered as “00123”.

- Press the FAN button to advance to the next digit;
- Press the UP and DOWN buttons to increase or decrease the digit;
- Press the F|C button to advance to the next menu.

Entering the room number correctly is crucial for proper operation of networked thermostats.

Thermostat Configuration

Configuring the Equipment Settings



Enter the equipment code by changing the digits on the screen. Use the table below to determine the correct equipment codes based on your specific HVAC unit.

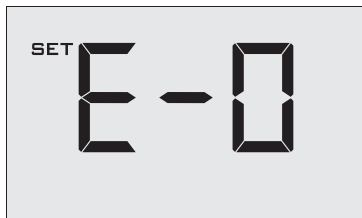
- Press the FAN button to advance to the next equipment setting.
- Press the UP and DOWN buttons to increase or decrease the value;
- Press the F|C button to advance to the next menu.

Digit	Setting #1 Compressor Type	Setting #2 Electric Heat	Setting #3 Reversing Valve	Setting #4 Fan Speed
0	No Compressor	No Electric Heat	O/B Contact is energized to cool	N/A
1	Heat Pump	Electric Heat *	O/B Contact is energized to heat *	One Fan Speed
2	Air Conditioner *	N/A	N/A	Two Fan Speeds *
3	N/A			Three Fan Speeds

- * Indicates default setting.

Thermostat Configuration

Configuring the Energy Saving Settings



- Press the UP and DOWN buttons to increase or decrease the energy savings preset.
- Press the F|C button to advance to the next menu.

Preset	Energy Savings Presets
E-0*	Energy Savings Off - No Temperature Setback
E-1	Lowest Energy Savings
E-2	Lower Energy Savings
E-3	Standard Energy Savings
E-4	Higher Energy Savings
E-5	Highest Energy Savings

*Indicates default setting.

Thermostat Configuration

Setting the thermostat clock



Set the thermostat clock to current time in 24h (Military Time) format.

- Press the FAN button to advance to the next digit;
- Press the UP and DOWN buttons to increase or decrease the digits
- Press the F|C button to advance to the next menu.

SETTING THE CORRECT TIME IS CRUCIAL FOR PROPER OPERATION OF THE THERMOSTAT.

Thermostat Configuration

Testing the Thermostat

Following the thermostat configuration, test if the thermostat is controlling the HVAC unit.

- Ensure the thermostat is powered and the faceplate is on.
- Press the DOWN button to change the temperature set point below the current room temperature to confirm that the thermostat initiates air conditioning;
- Press the UP button to change the temperature set point above the current room temperature to confirm that the thermostat initiates heating;
- Change the fan speed by touching the FAN button to test if the thermostat is controlling the fan speed.

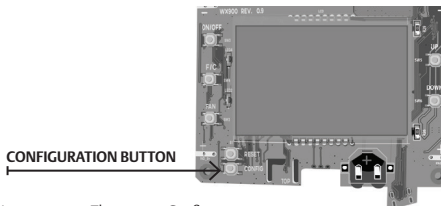
Custom Energy Savings Settings

If you don't want to use the one of the energy saving presets listed on page 17 and detailed in the Appendix 1, you can enter the custom energy savings settings.

Accessing the Thermostat Settings

- Press and hold the “Configuration” button until the first thermostat settings screen appears.

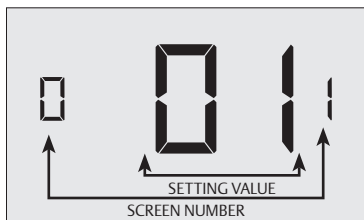
The thermostat must be turned on to access the thermostat settings.



NOTE: You can access Thermostat Configuration settings at any time by pressing the “Configuration” button.

Custom Energy Savings Settings

Using the Thermostat Settings Screens



- Use the “Up” and “Down” buttons to change the setting;
- Press the “F/C” button to advance to the next setting;
- Press the “Fan” button to return to the previous setting;
- Press the “Power” button to save and exit thermostat settings;

Custom Energy Savings Settings

01 – FAN CONTROL MODE



Select Fan Control Mode:

00

MANUAL - guest can select automatic or continuous fan mode;

01 *

AUTOMATIC - fan runs only when there is a demand for heating or air conditioning;

*

Indicates default setting;

Custom Energy Savings Settings

02 – 1ST STAGE DIFFERENTIAL - HEAT



02-30 (0.2°F - 3.0°F; 0.5°F* default setting) Select the number of degrees the thermostat has to sense between the automatic changeover temperature for heat and the room temperature before a call for the 1st stage heating is initiated.

Custom Energy Savings Settings

03 – 2ND STAGE DIFFERENTIAL - HEAT



10-20 (1.0°F - 2.0°F*; 2.0°F* default setting) Select the difference between 1st stage heating and 2nd stage heating initiation.

Custom Energy Savings Settings

04 – 1ST STAGE DIFFERENTIAL - COOL



02-30 (0.2°F - 3.0°F; 0.5°F* default setting) Select the number of degrees the thermostat has to sense between the automatic changeover temperature for cool and the room temperature before a call for the 1st stage cooling is initiated.

Custom Energy Savings Settings

05 – INCIDENTAL OCCUPANCY THRESHOLD



00-60 (05* default setting) Select the minimum period of time (in minutes) for which occupancy needs to be detected to enter the guest occupancy mode.

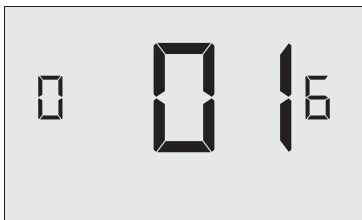
When occupancy is detected, thermostat will switch to occupied mode for a duration of “Incidental Occupancy Threshold” selected here.

If occupancy is detected for a period of time shorter than the “Incidental Occupancy Threshold” selected here, the thermostat will automatically revert to unoccupied mode at the end of the “Incidental Occupancy Threshold” period and continue to observe energy saving functions that were in effect before the room became occupied. This setting allows ignoring incidental room visits.

If occupancy is detected for a period of time longer than the “Incidental Occupancy Threshold” selected here, the thermostat will enter the guest occupancy mode. When the thermostat is in the guest occupancy mode, it will revert to unoccupied mode and initiate the setback temperature only when occupancy is not detected for the duration of the setback delay (Heat or Cool) period.

Custom Energy Savings Settings

06 – NIGHT OCCUPANCY THRESHOLD



00-60 (01* default setting) Select the minimum period of time (in minutes) for which occupancy needs to be detected in order to consider the room occupied during the “Night Occupancy” period.

When occupancy is detected during the “Night Occupancy Period” for longer than the “Night Occupancy Threshold” selected here, the thermostat will instantaneously switch to occupied mode.

If occupancy is detected for a period of time shorter than the “Night Occupancy Threshold” selected here, the thermostat will automatically revert to unoccupied mode and continue to observe energy saving functions that were in effect before the room became occupied.

If occupancy is detected for a period of time longer than the “Night Occupancy Threshold” selected here, the thermostat will disable the occupancy sensor and consider the room occupied until the end of the “Night Occupancy” period.

This feature ensures that energy saving functions that may affect guest comfort will not come in effect during the “Night Occupancy” period.

Custom Energy Savings Settings

07 – FORCED 2ND STAGE HEATING



00-60 (30* default setting) Select a number of minutes 1st stage heating will run before 2nd stage heating is automatically initiated if the guest set point is not reached and the 2nd stage heating is not initiated through differential settings.

This feature allows automatically turning on 2nd stage heating to avoid excessive compressor use.

Set to **00** to disable the feature.

Custom Energy Savings Settings

08 – NIGHT OCCUPANCY START



00-23 (21* default setting) Select the start time (in hours - 24-hour clock) for “Night Occupancy”

If occupancy is detected for a period of time longer than the “Night Occupancy Threshold” during “Night Occupancy” period, the thermostat will disable the occupancy sensor and consider the room occupied until the end of the “Night Occupancy” period.

This feature ensures that energy saving functions that may affect guest comfort will not come in effect during the “Night Occupancy” period if room was occupied for a period of time longer than “Night Occupancy Threshold”.

Custom Energy Savings Settings

09 – NIGHT OCCUPANCY END



00-23 (09* default setting) Select the time (in hours - 24-hour clock) for “Night Occupancy” to end.

The time of day the “Night Occupancy” ends and the thermostat switches back to the room sensing settings chosen in the other occupancy modes.

Custom Energy Savings Settings

10 – TEMPERATURE RECOVERY TIME



00-60 (25* default setting) Select the maximum time allowed for a PTAC unit to attain temperature as defined by Heat and Cool “Recovery Temperature”;

“Temperature Recovery Time” selected here and the actual temperature recovery ability of the PTAC unit are used to calculate setback temperatures. Calculated setback temperatures maximize energy savings and at the same time ensure that a comfortable room temperature (defined as Heat and Cool “Recovery Temperature”) will be restored within the selected “Temperature Recovery Time”.

Setting the “Temperature Recovery Time” to “00”, disables temperature recovery. When temperature recovery is disabled, thermostat will use the Minimum and Maximum Setback Temperatures as setback set points.

Custom Energy Savings Settings

11 – RECOVERY TEMPERATURE - HEAT



62-82 (67°F* default setting) Select the room temperature in °F that a PTAC unit will have to attain within the selected “Temperature Recovery Time” when there is a need for heating.

Custom Energy Savings Settings

12 – TEMPERATURE SETBACK DELAY - HEAT



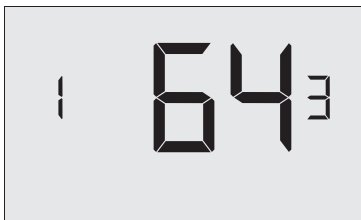
00-120 (20* default setting) Select the time delay (in minutes) for which the room that is in the guest occupancy mode needs to be unoccupied before the temperature setback is initiated.

This feature prevents initiating temperature setback prematurely while the guest is still in the room but in an area where occupancy cannot be detected by the occupancy sensor.

Setting the “Temperature Setback Delay - Heat” to “00”, disables the setback in the heat mode. Set to “00” to disable EMS.

Custom Energy Savings Settings

13 – MINIMUM SETBACK TEMPERATURE



52-72 (64°F* default setting) Select the “Minimum Setback Temperature” in °F.

Setback temperature is calculated by measuring PTAC unit’s ability to attain “Recovery Temperature - Heat” within “Temperature Recovery Time”.

If recovery is disabled (“Temperature Recovery Time” is set to “0”) or if setback temperatures have not yet been calculated, the “Minimum Setback Temperature” value will be used as the setback temperature for heating.

If calculated setback temperature for heating is lower than “Minimum Setback Temperature”, then the “Minimum Setback Temperature” will be used as setback temperature for heating.

This feature allows defining the minimum temperature in a room when room is unoccupied and the thermostat is in the setback mode.

Custom Energy Savings Settings

14 – TEMPERATURE SETBACK DELAY - COOL



00-120

(20* default setting) Select the time delay (in minutes) for which the room that is in the guest occupancy mode needs to be unoccupied before the temperature setback is initiated.

This feature prevents initiating temperature setback prematurely while the guest is still in the room but in an area where occupancy cannot be detected by the occupancy sensor.

Setting the “Temperature Setback Delay - Cool” to “00”, disables the setback in the cool mode. Set to “00” to disable EMS.

Custom Energy Savings Settings

15 – MAXIMUM SETBACK TEMPERATURE



72-92 (78°F* default setting) Select the “Maximum Setback Temperature” in °F.

Setback temperature is calculated by measuring PTAC unit's ability to attain “Recovery Temperature - Cool” within “Temperature Recovery Time”.

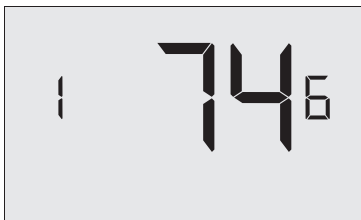
If recovery is disabled (“Temperature Recovery Time” is set to “0”) or if setback temperatures have not yet been calculated, the “Maximum Setback Temperature” value will be used as the setback temperature for cooling.

If calculated setback temperature for air conditioning is higher than “Maximum Setback Temperature”, then the “Maximum Setback Temperature” will be used as setback temperature for air conditioning.

This feature allows defining the maximum temperature in a room when room is unoccupied and the thermostat is in the setback mode.

Custom Energy Savings Settings

16 – RECOVERY TEMPERATURE - COOL



62-82 (74°F* default setting) Select the room temperature in °F that a PTAC unit will have to attain within the selected “Temperature Recovery Time” when there is a need for air conditioning.

Custom Energy Savings Settings

17 – MINIMUM SET POINT



64-84 (66°F* default setting) Select the minimum set point in °F that a guest can select.

Custom Energy Savings Settings

18 – MAXIMUM SET POINT



60-82 (78°F* default setting) Select the maximum set point in °F that a guest can select.

Custom Energy Savings Settings

19 – TEMPERATURE CONTROL MODE



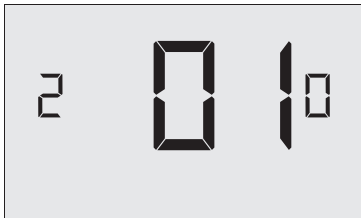
Select Temperature Control Mode:

- 00 MANUAL - Allows users to select HEAT only or COOL only temperature control mode to maintain the room temperature;
- 01^{*} AUTOMATIC - Thermostat automatically turns on heating or air conditioning to maintain the room temperature at the selected temperature set point;

* Indicates default setting;

Custom Energy Savings Settings

20 – AUTO CHANGEOVER SET POINT OFFSET



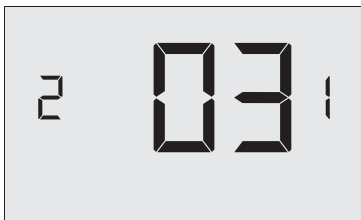
00-04 (01°F* default setting) Select the difference between the guest-selected set point and the heat and the cool set point when the thermostat is in the automatic temperature control mode.

This value plus the 1st stage differential defined in steps 02 and 04, defines the temperature at which the thermostat would automatically change heating/cooling modes.

This feature allows adjusting the deadband between the heat and the cool set points in automatic changeover mode in order to avoid the system from bouncing back and forth between heating and cooling under normal operating conditions.

Custom Energy Savings Settings

21 – SETBACK SET POINTS / AUTO-RESTORE



00

When room is unoccupied and the thermostat is in the setback mode or turned off, it will NOT maintain the temperature between heat and cool setback set points;

When guest enters the room, the thermostat will be turned off - it will not automatically restore the most recent guest settings;

01

When room is unoccupied and the thermostat is in the setback mode or turned off, it will maintain the temperature between heat and cool setback set points;

When guest enters the room, the thermostat will be turned off - it will not automatically restore the most recent guest settings;

02

When room is unoccupied and the thermostat is in the setback mode or turned off, it will NOT maintain the temperature between heat and cool setback set points;

When guest enters the room, the thermostat will automatically restore the most recent guest settings;

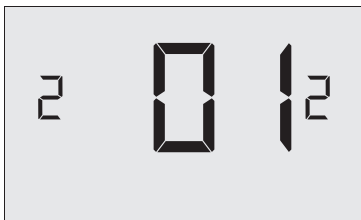
03 *

When room is unoccupied and the thermostat is in the setback mode or turned off, it will maintain the temperature between heat and cool setback set points;

When guest enters the room, the thermostat will automatically restore the most recent guest settings.

Custom Energy Savings Settings

22 – AUTOMATIC HUMIDITY CONTROL†



00

01 *

Disable automatic humidity control;

Enable automatic humidity control;

When “Automatic Humidity Control” is enabled, thermostat will turn on air conditioning in an unoccupied room when humidity raises above 60% and room temperature is above 72°F until either room humidity is below 55% or room temperature is below 72°F;

*

Indicates default setting;

†

This setting is active only on thermostats with enabled humidity features. Changing this setting on a non-humidity thermostat will have no effect on thermostat operation.

Humidity features can be enabled on compatible thermostats via online management.

Certain models only. Additional fees apply.

Custom Energy Savings Settings

23 – TEMPERATURE CALIBRATION



-5.0 – 5.0 (0.0°F* default setting) Calibrate the temperature
display : -5.0°F - 5.0°F.

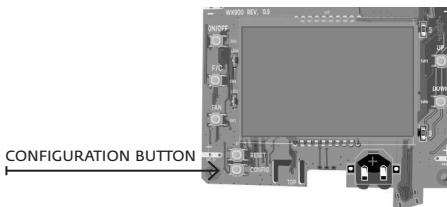
Configuring & Managing Accessories

Accessing the Sensor Configuration Screen



With the thermostat and HVAC unit powered, follow the sensor configuration instructions to correctly configure the sensor.

- Remove the faceplate from the thermostat
- Press and hold the CONFIG button until 0011 appears on the screen.



Configuring & Managing Accessories

Configuring a Wired Sensor



- Press the CONFIG button once. The screen will show CCC.
- Press the F|C button four (4) times or until you arrive at a screen that shows J0
- Press the UP button on the thermostat to make sure the screen reads J1
- Press the ON/OFF button to save the settings.
- Press the RESET button on the front of thermostat

The thermostat is now configured for use with the Wired Auxiliary Occupancy sensor for lighting applications.

Preset	Connected Devices Preset
J-0*	No device connected to the JKT port
J-1	Wired Occupancy Sensor connected to JKT port
J-2	Wired Door/Window Switch connected to JKT port

*Indicates default setting.

Configuring & Managing Accessories

Changing the Sensor Configuration between Normally Open & Normally Closed

To change the Lighting signal between Normally Open or Normally closed:

- Turn thermostat ON;
- Press & hold the CONFIG button for 5 seconds, the screen will show 0011;
- Press CONFIG button, the screen will show CCC;
- Press the F/C button three (3) times;
- Press the UP / DOWN button to set the setting to 1;
- Press the FAN button to switch the control value to the O / C.;
- Press Up / Down button to set the value to O/C;
 - O – Energized when room is empty
 - C – Energized when room is Occupied
- Press the OFF button to save the settings.
- Press the RESET button on the front of thermostat.

Troubleshooting

Error Codes

ERR1 Thermostat Temperature Sensor Hardware Defect

ERR2 Thermostat Radio Hardware Defect

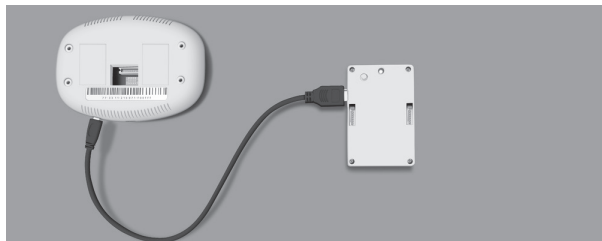
ERR3 Thermostat Radio Software Defect

ERR5 Thermostat Memory Defect

Troubleshooting

Pairing the thermostat

In the case of a networked installation with online management, the thermostat must be paired with a Network Programmer specific to the property before the installation.



The thermostat must not be powered during the pairing procedure.

- Plug the HDMI cable into the mini HDMI port on the thermostat;
- Press the black button on the programmer. The red light on the programmer should turn on and remain steadily lit;
- If the red light on the programmer is blinking or is not steadily lit, unplug the programmer from the thermostat and repeat the steps above.
- Unplug the programmer from the thermostat.

Troubleshooting

Restoring Factory Settings

If there are reported errors or configuration issues, the user may restore factory settings to return the thermostat to its default parameters.

Procedure

- Remove the faceplate of the thermostat;
- With the thermostat on, press the CONFIG button located on the control board inside the thermostat.
- Press the F|C button twice, or until you reach the equipment code configuration screen.
- Press and hold the CONFIG button. The screen wil display “RST”
- Press the F|C button.

If the master reset was successful, the thermostat will display “VRD” and then “SETUP” on the screen. The thermostat must now be re-configured. Please refer to pages thermostat configuration section of this manual.

Contact Verdant technical support if the issues are not resolved.

APPENDIX 1 - Energy Saving Presets

	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
Fan Control Mode	AUTO	AUTO	AUTO	AUTO	AUTO	AUTO
1st Stage Differential Heat	0.5	0.5	0.5	0.5	0.5	0.5
2nd Stage Differential Heat	1	1	1	2	2	2
1st Stage Differential Cool	0.5	0.5	0.5	0.5	0.5	0.5
Guest Occupancy Threshold	0	5	5	5	5	5
Night Occupancy Threshold	1	1	1	1	1	1
Force 2nd Stage Heating After	30	30	30	30	30	30
Night Occupancy Start	18	19	20	21	22	23
Night Occupancy End	12	11	10	9	8	7
Recovery Time	0	15	20	25	30	0
Recovery Temperature Heat	70	69	68	67	66	65
Setback Delay - Heat	0	30	25	20	15	10
Minimum Setback Temperature	67	66	65	64	63	62
Setback Delay - Cool	0	30	25	20	15	10
Maximum Setback Temperature	72	74	76	78	80	82
Recovery Temperature Cool	71	72	73	74	75	76
Minimum Set point	64	64	65	66	67	68
Maximum Set point	82	82	80	78	76	74
Temperature Control Mode	AUTO	AUTO	AUTO	AUTO	AUTO	AUTO
Auto Changeover Set Point Offset (Dead Band)	1	1	1	1	1	1
Auto Restore	OFF	ON	ON	ON	ON	ON
Setback Set Points	OFF	ON	ON	ON	ON	ON
Automatic Humidity Control	ON	ON	ON	ON	ON	ON
Temperature Calibration	0	0	0	0	0	0

APPENDIX 2 - Glossary

"Automatic Fan Control Mode" - fan runs only when there is a demand for heating or cooling;

"Manual Fan Control Mode" - guest can select between automatic or continuous fan operation;

"Minimum Set point" - minimum temperature that a guest can request;

"Maximum Set point" - maximum temperature that a guest can request;

"Auto Changeover Set Point Offset" - the difference between the guest-selected set point and the heat and cool changeover temperatures;

"1st Stage Differential - Heat" - the temperature that the thermostat has to sense between the automatic changeover temperature for heat and the room temperature before a call for the 1st stage heating is initiated;

"2nd Stage Differential - Heat" - difference between 1st stage heating temperature and room temperature before the 2nd stage heating is initiated;

"1st Stage Differential - Cool" - the temperature that the thermostat has to sense between the automatic changeover temperature for cool and the room temperature before a call for the 1st stage cooling is initiated;

"Forced 2nd Stage Heating" - number of minutes 1st stage heating will run before 2nd stage heating is automatically initiated if the guest set point is not reached and the 2nd stage heating is not initiated through differential settings

"Temperature Recovery Time" - the maximum period of time allowed for restoring the "Recovery Temperature";

"Recovery Temperature" - the room temperature that needs to be restored within the "Temperature Recovery Time";

"Maximum Setback Temperature" - the highest room temperature allowed when thermostat is in the setback mode;

"Minimum Setback Temperature" - the lowest room temperature allowed when thermostat is in the setback mode;

"Temperature Setback Delay" - the length of time for which the room that is in the guest occupancy mode needs to be unoccupied before the temperature setback is initiated;

"Incidental Occupancy Threshold" - the minimum period

of time (in minutes) for which occupancy needs to be detected in order to enter the "Guest Occupancy" mode;

"Night Occupancy Threshold" - the minimum period of time during the "Night Occupancy" period for which occupancy needs to be detected in order to enter the "Night Occupancy" mode;

"Night Occupancy Period" - The period of time during the day during which the "Night Occupancy" mode can be activated if occupancy longer than the "Night Occupancy Threshold" is detected;

"Auto Restore On" - thermostat will restore the most recent guest settings when new occupancy is detected;

"Auto Restore Off" - thermostat will NOT restore the most recent guest and will remain turned off settings when new occupancy is detected;

"Setback Set points On" - thermostat will maintain setback temperatures when room is unoccupied;

"Setback Set points Off" - thermostat will NOT maintain setback temperatures when room is unoccupied;

"Incidental Occupancy" - occupancy shorter than the "Incidental Occupancy Threshold";

"Guest Occupancy" - occupancy longer than the "Incidental Occupancy Threshold";

"Temperature Setback" - thermostat maintains setback temperatures and not the guest set point temperature in order to save energy;

"Night Occupancy Mode" - thermostat status during which setback mode is disabled if occupancy longer than "Night Occupancy Threshold" is detected within the "Night Occupancy" period;

"Automatic Temperature Changeover" - thermostat automatically activates heating or cooling to maintain the desired room temperature;

"External Thermostat" (Class 2) mode - HVAC unit setting allowing it to be controlled by a remote thermostat;

Warranty Information

For details on Verdant's warranty policy, please visit www.verdant.co/verdant-warranty.



THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radio électrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Technical Specifications

Thermostat	
Case Dimensions (Imperial)	4.02 x 5.51" x 0.93"
Case Dimensions (Metric)	102mm x 140mm x 23.5mm
Screen Dimensions (Imperial)	3.63" x 2.13"
Screen Dimensions (Metric)	92mm x 54mm
Operating Voltage	24VAC
Control Outputs	Fan High (GH)
	Fan Low (GL)
	Compressor (Y)
	Heat Pump (OB)
	Heat (W)
Occupancy Sensor Beam Width (Angular degrees)	±47° (94°)
Wireless Frequency	902-928MHz
Temperature Accuracy (Fahrenheit)	±1°F
FCC ID	XEYWX
IC	8410A-WX

COVERED BY ONE OR MORE OF THE FOLLOWING PATENTS, US PATENTS: 8,369,994; 8,141,791; 7,918,406; 7,232,075; 7,185,825; 7,156,318; 7,152,806; 7,145,110; 7,050,026; 7,028,912; 6,902,117; 6,789,739; 6,786,421; 6,619,555; 6,581,846; 6,578,770; 7,838,803; 7,841,542; D556,061; D518,744; RE40,437; CANADIAN PATENTS: 2,633,113; 2,633,200; OTHER PATENTS PENDING.

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