

# VX4 product profile

*The Verdant VX4 Series Thermostat delivers optimal comfort and energy efficiency by setting personalized temperature schedules in a sleek and modern design with fingerprint resistant glass.*



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# Overview

The field-proven Verdant VX4 thermostat is robust, reliable, and offers unparalleled value for property owners. Trusted by thousands of hotels and MDU properties throughout North America, Verdant VX4 comes with all the great features that made Verdant a preeminent leader in guestroom energy management technology.

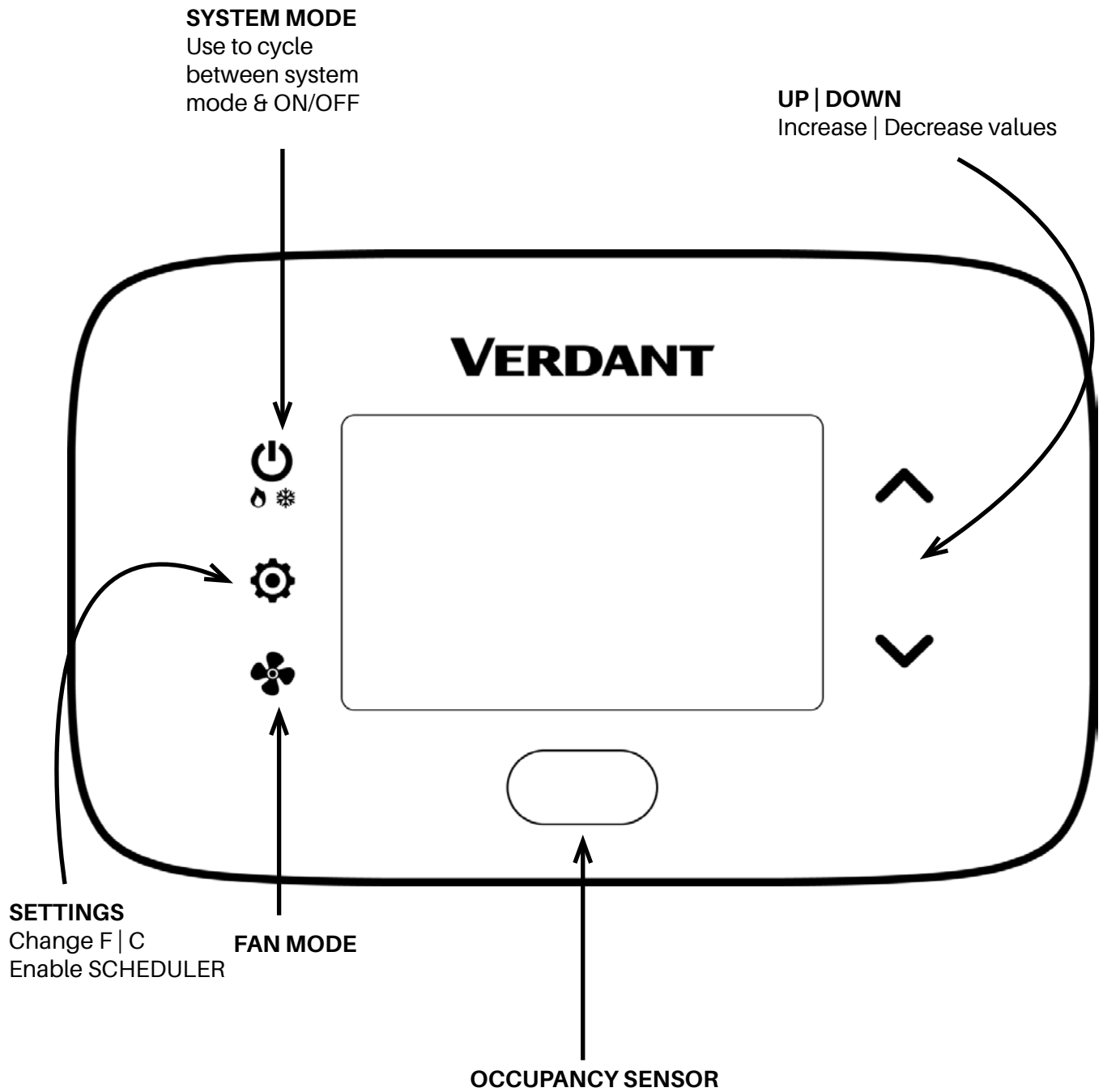
Verdant VX Series Energy Management Thermostats deliver unprecedented energy savings without compromising the comfort of occupants. An integrated occupancy sensor uses a combination of motion and thermal sensing technologies for accurate occupancy detection. Reliable occupancy detection allows for energy 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 settings to fit any situation. Comprehensive configuration options ensure full compatibility with virtually any existing or emerging HVAC system with up to 4 heat and 2 cool stages as well as compatibility with modulating and proprietary communications. Built-in wireless mesh-networking enables online management.

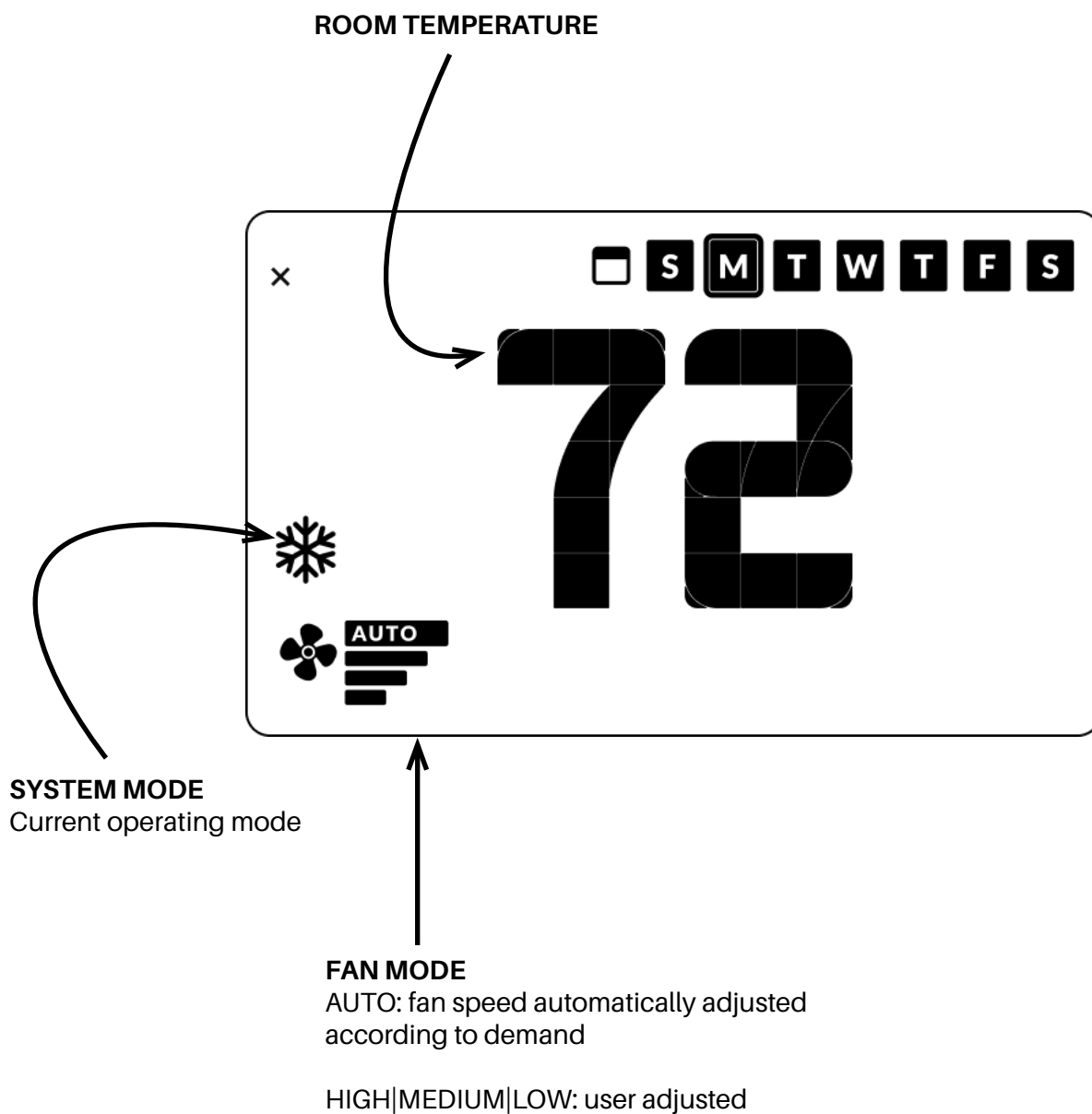


# Display

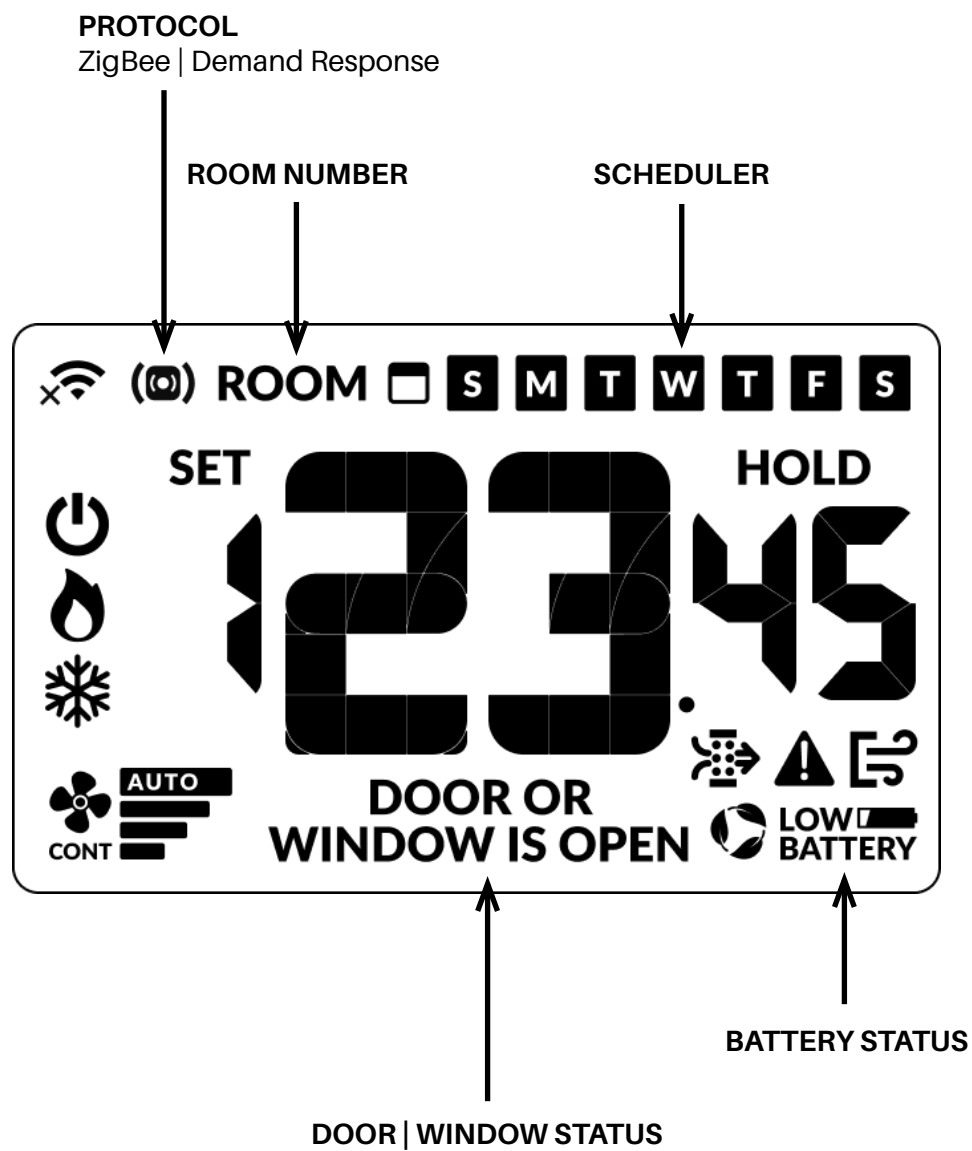
## Faceplate



## *Standard display (typical)*



## Screen icons

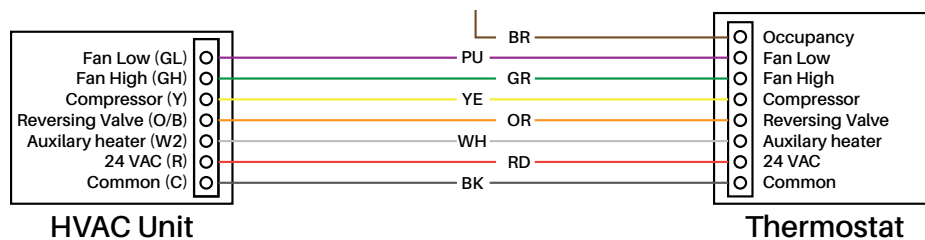


# HVAC equipment compatibility

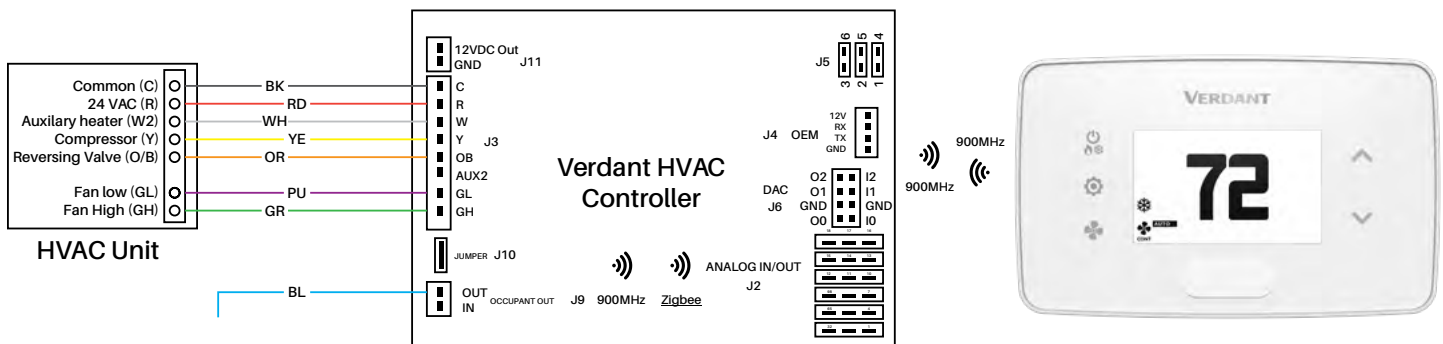
The VX4 line of thermostats is capable of natively integrating with a number of manufacturer's and equipment, allowing for unparalleled energy management with optimized controls with both standard and leading-edge HVAC systems.

The VX4 line offers both a wired and wireless solution for 24 VAC controlled systems including PTAC, PTHP, VTAC, FCU, and Unitary equipment. The platform is capable of handling multi-stage cooling and heating as well as providing an occupancy output for lighting relays, dampers, etc., and optional 10 V fan control (wireless only).

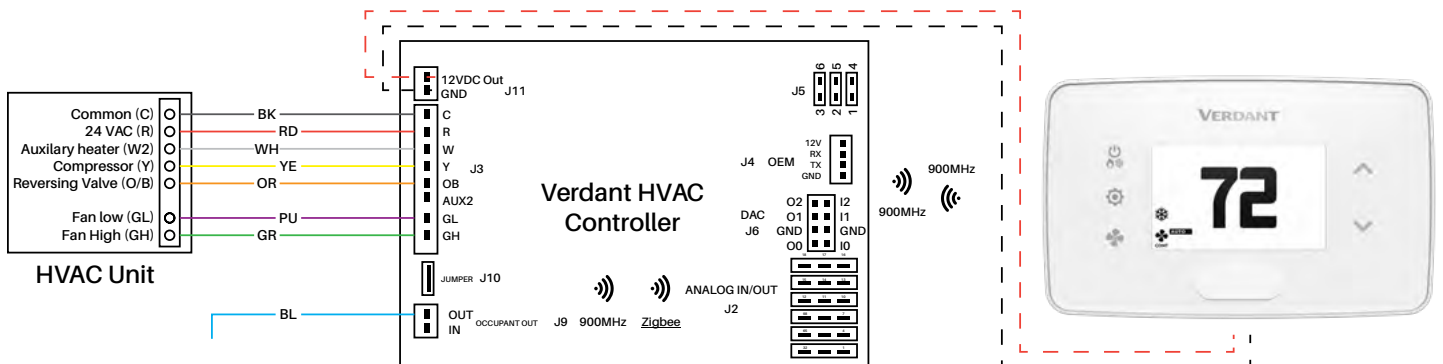
## Wired



## Wireless



## Wireless w/power



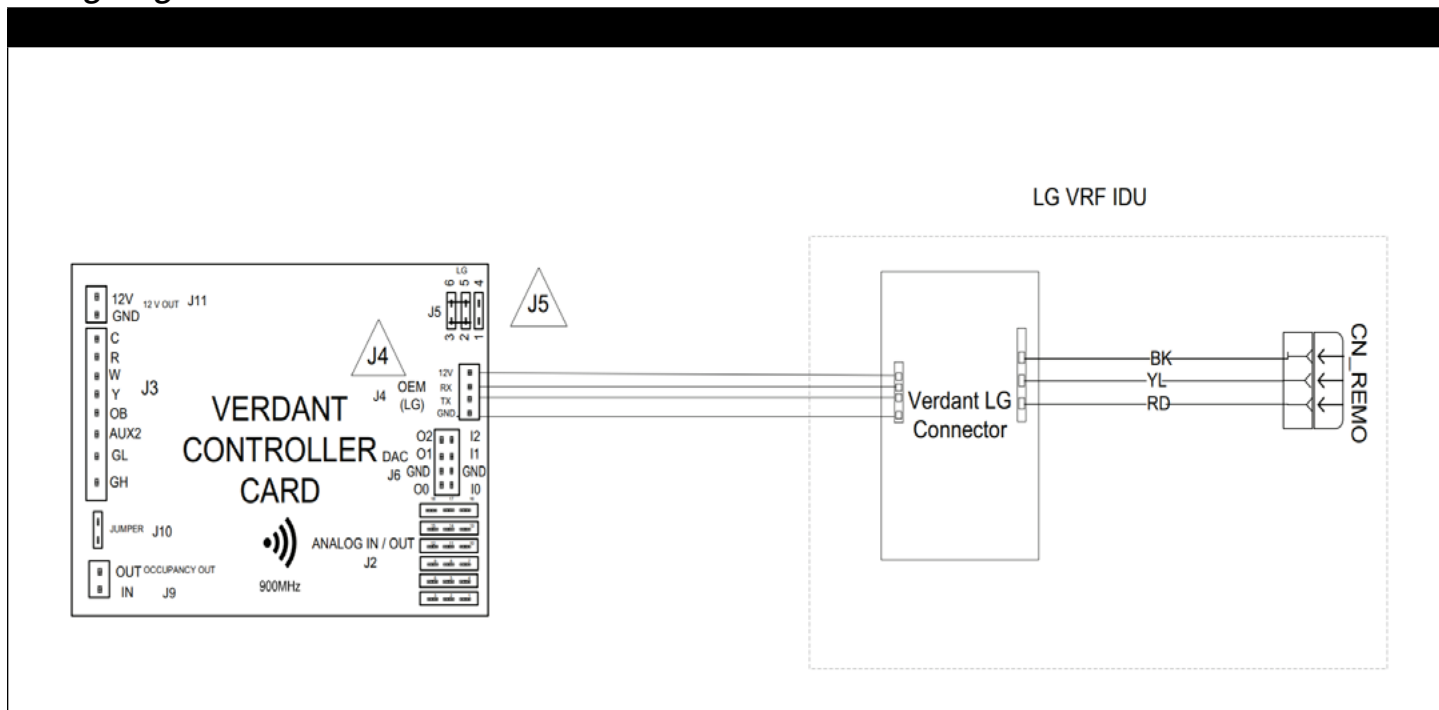
**NOTE:** In all wireless applications, the thermostat can be powered by the control card by via 12 VDC from the J11 port in lieu of batteries.





**LG**

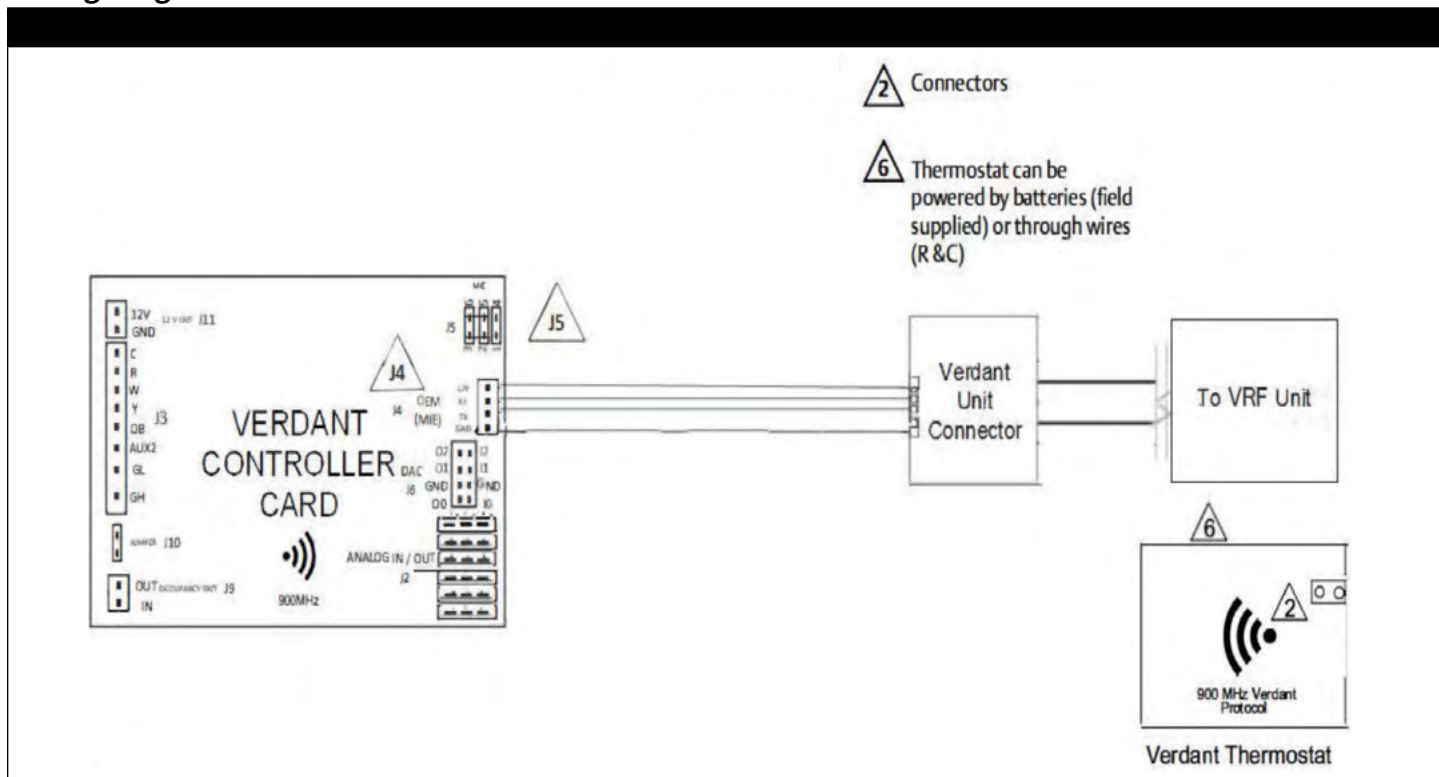
The LG thermostats incorporate native connectivity with all LG indoor VRF units, inverter PTACs, and mini-splits. The control card connects directly to the CN\_REMO port of the LG unit. The VX4 platform's communication with the indoor LG unit will not interfere with the existing communication and protocol between the indoor and outdoor units. The CN\_REMO port on the LG indoor unit is capable of providing power to the VX4 control card. Wireless thermostats can be powered with 12 VDC via the J11 port on the control card in lieu of AA batteries.

***Wiring diagram***

## Carrier

The CV12 thermostats incorporate native connectivity with Carrier 40VM\* indoor VRF units. The control card connects directly to the compatible Carrier unit. The control card is capable of being powered by the Carrier indoor unit via the HA/HB ports on the unit. Wireless thermostats can be powered with 12 VDC via the J11 port on the control card in lieu of AA batteries.

## Wiring diagram



## Compatibility table\*

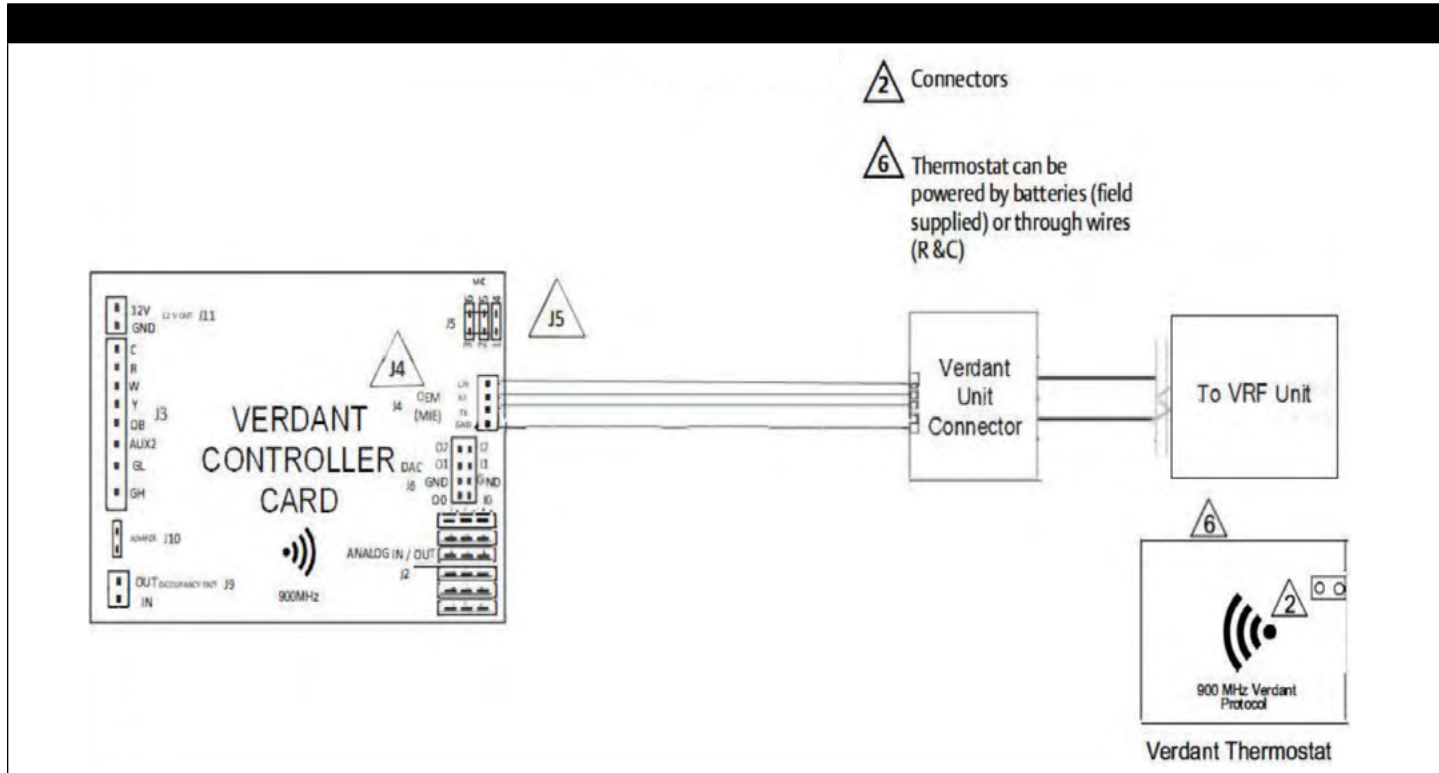
Indoor Unit Type													
	Outside air	Compact 4-way cassette	Medium static ducted	Vertical AHU	Multiport distribution controller	Floor console	4-way cassette	Under-ceiling IDU	High static ducted	Highwall IDU	One-way compact cassette	Low static ducted	Reheat unit
Model	40VMA	40VMC	40VMM	40VMV	40VMD	40VMR	40VMF	40VMU	40VMH	40VMW	40VMI	40VML	40VMZ

\* Recommended for use with Heat Recovery Systems. Verify compatibility if not listed above.

### **Toshiba Carrier**

The TCAB thermostats incorporate native connectivity with Toshiba Carrier indoor VRF and mini-split units. The control card connects directly to the compatible Carrier unit. The control card is capable of being powered by the Carrier indoor unit via the A/B ports on the unit. Wireless thermostats can be powered with 12 VDC via the J11 port on the control card in lieu of AA batteries.

### ***Wiring diagram***



### ***Compatibility table\****

TU2C-Link models (U series) can be combined with TCC-Link models (non-U series). For details of communication types, refer to the following table.

Communication type	TU2C-link (U series)	TCC-link (non-U series)
Outdoor unit	MMY-*UP*****UL	MMY-*AP*****UL MCY-MAP*****UL RAV-SP*****UL
Indoor unit	MM-*UP*****UL	MM-*AP*****UL RAV-SM*****UL

\* Recommended for use with Heat Recovery Systems. Verify compatibility if not listed above.

## GE Appliances

In addition to being compatible with standard GE PTAC and VTAC units with the standard VX4-TR and VX4-TW products, the VX4 platform is also capable of controlling the new V 12 (AZ9V\*) series VTAC and the make-up air PTACs with the VX4-GEA line of product.

## Compatibility table

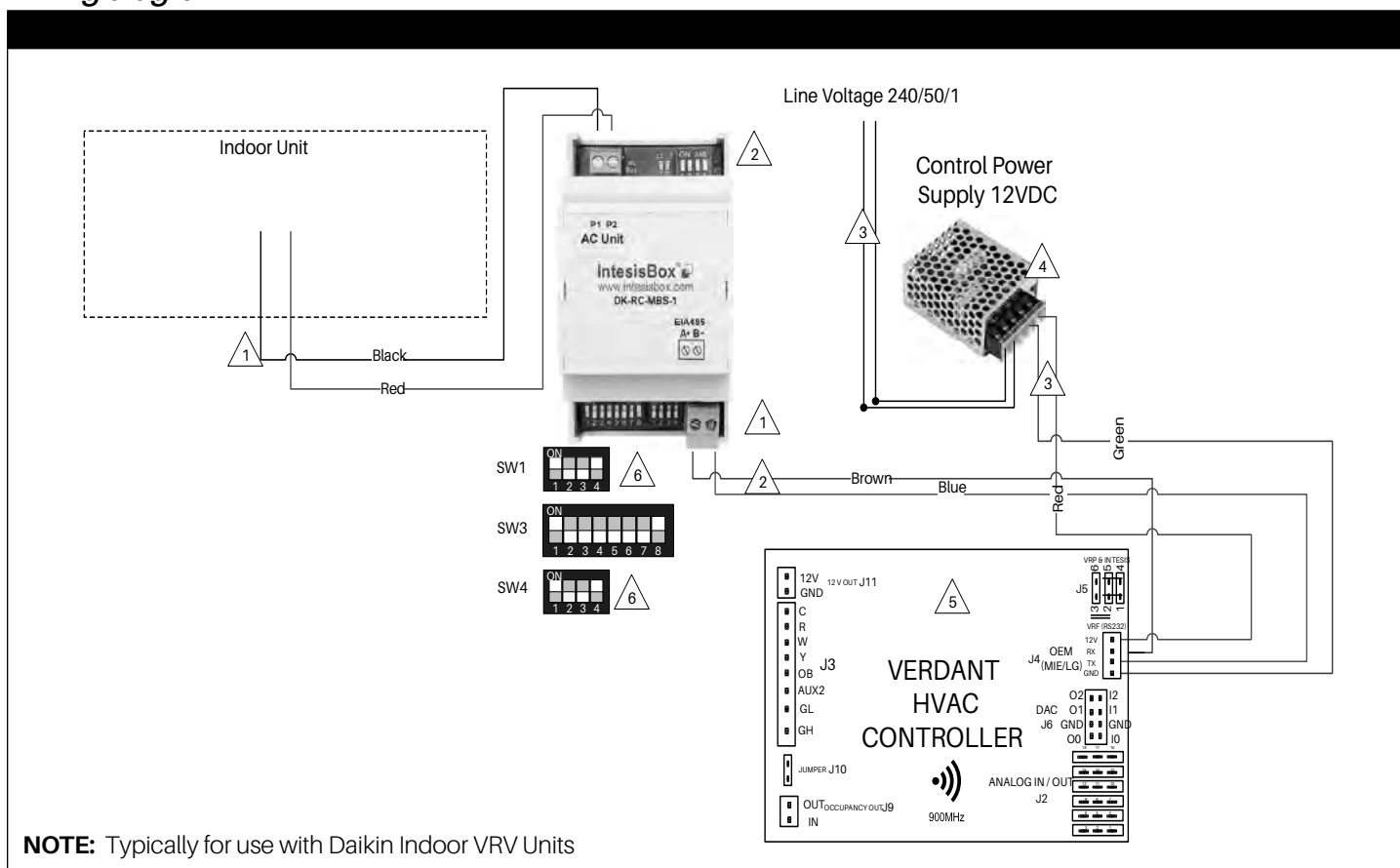
	Hotpoint & AZ45/65 PTAC w/o make-up air	AZ45/65 PTAC with make-up air	AZ90/91 % AZ95 VTAC w/o make-up air	AZ9V VTAC
VX4 model	VX4-TR/TW-*	VX4-GEA-*	VX4-TR/TW-*	VX4-GEA-*

**NOTE:** VX4 GEA models will include secondary wire harness for make-up air control input.

## Intensis Appliances

The VX4-RS\* thermostats are compatible with Intensis adaptors, allowing for use with VRF indoor units that are also compatible with Intensis.

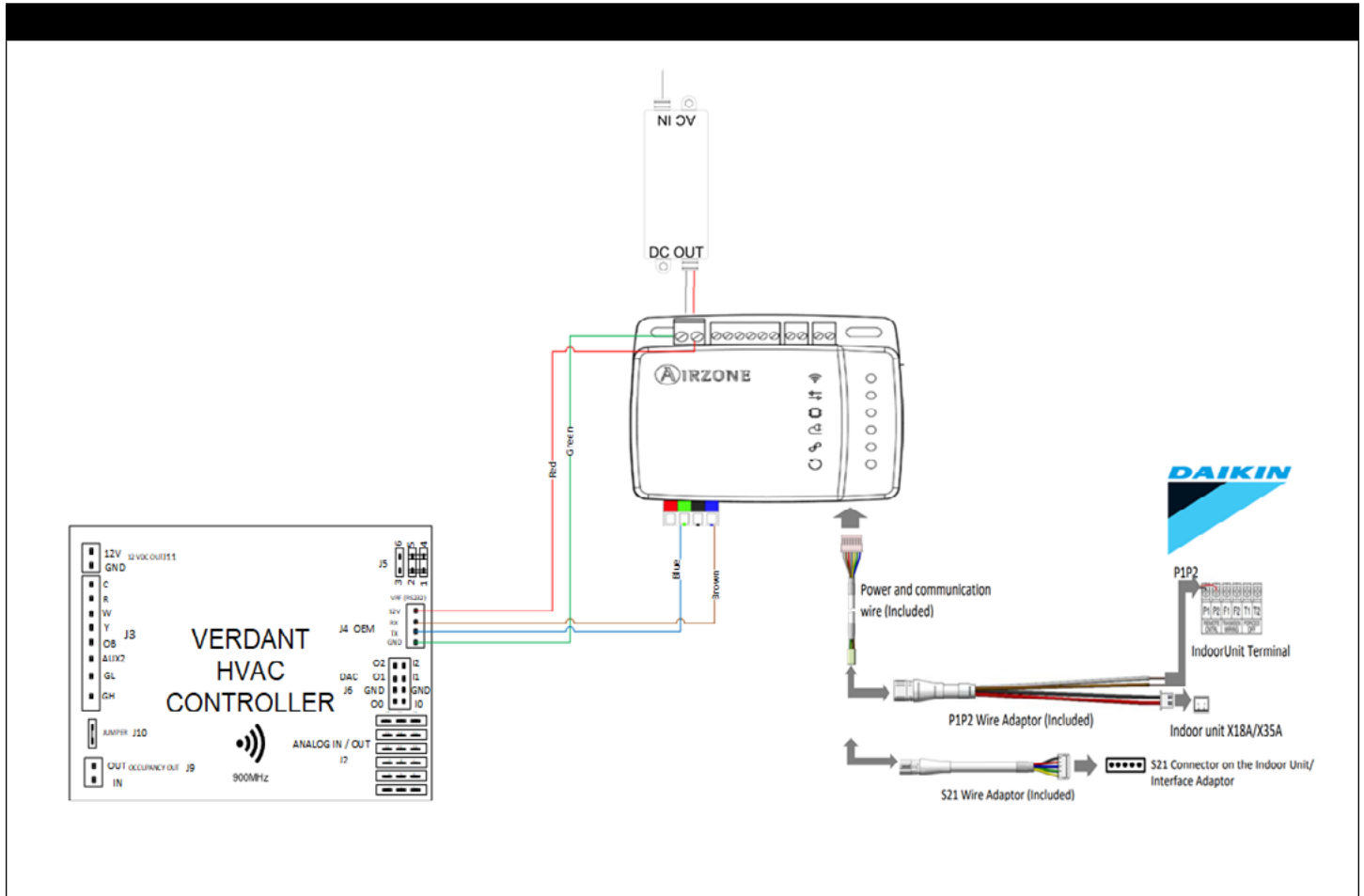
## Wiring diagram



## **Daikin & Airzone**

The AZA-\* accessories allow for integration with Daikin, Fujitsu, and Hitachi VRF systems. The control card connects directly to the Airzone adapter, which then connects directly to the HVAC unit. Wireless thermostats can be powered with 12 VDC via the J11 port on the control card in leui of AA batteries.

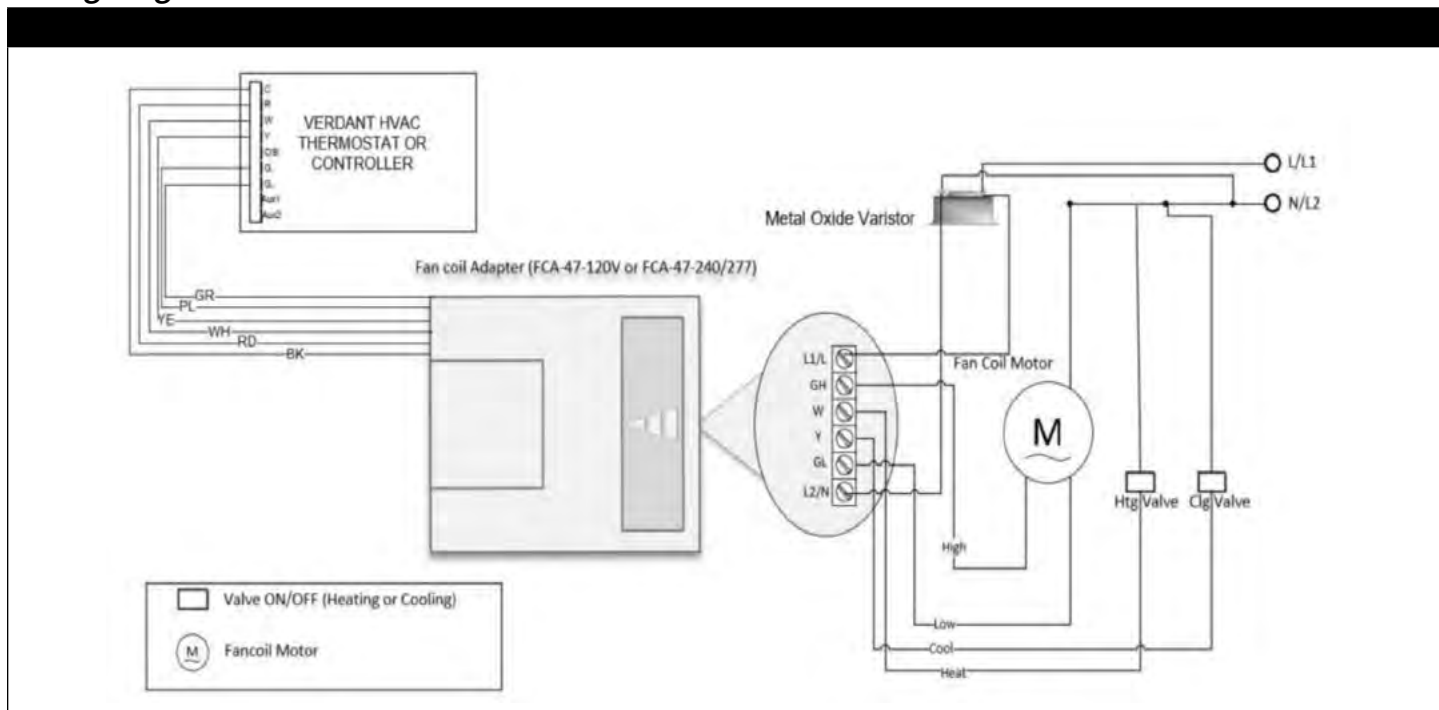
### ***Wiring diagram***



### **Fan coils and high-voltage**

The VX4 platform is capable of controlling high-voltage and/or modulating valve fan coils.

### ***Wiring diagram***



**NOTE:** Wireless VX4 only.

# Integrations and features

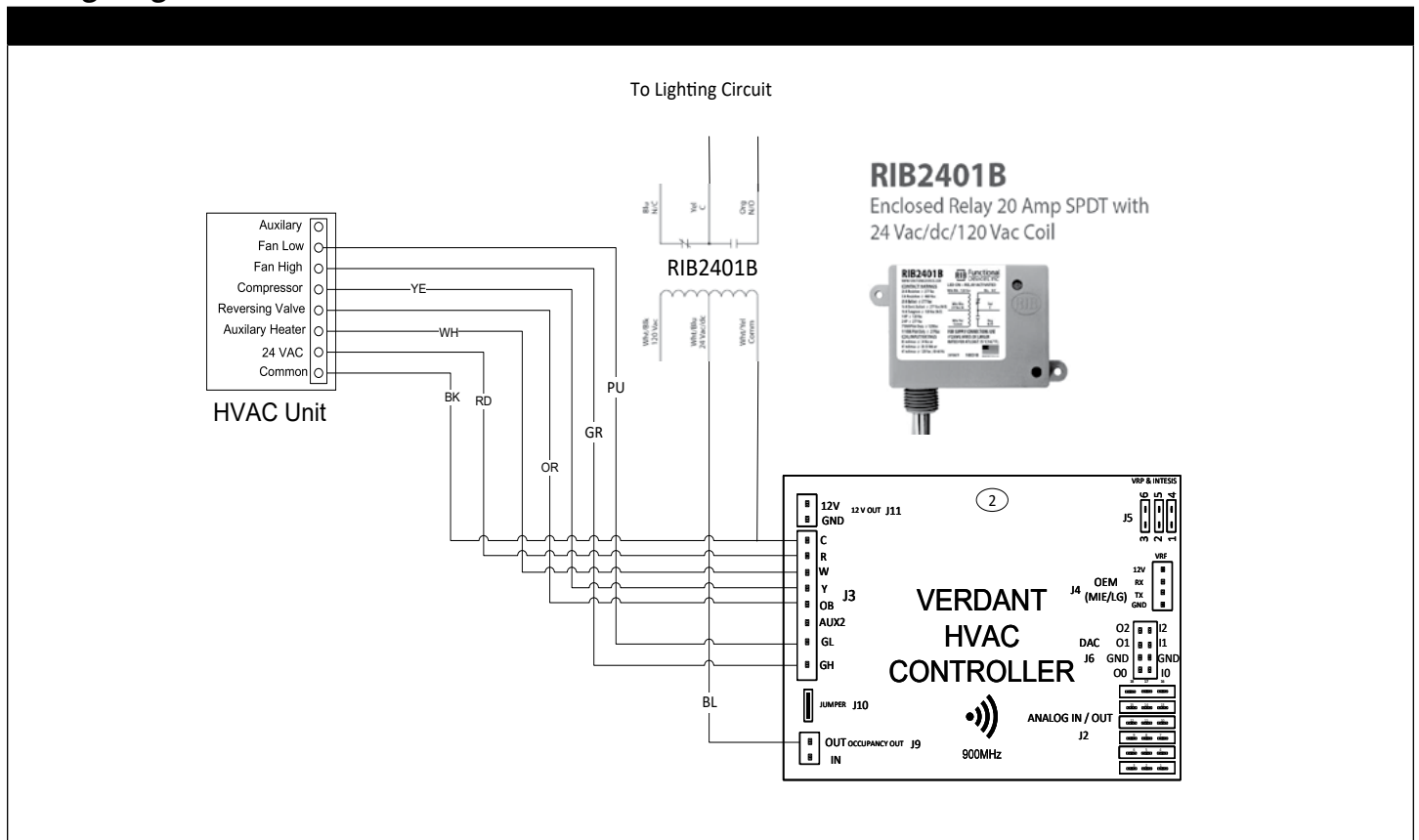
The VX4 platform is capable of integrating with a number of different technology stacks including door lock management systems (DLMS), property management systems (PMS), building automation systems (BAS/BMS), and lighting circuits.

The VX4 platform also offers 7-day scheduling capability at the physical thermostat or remotely. Demand response capability is also available.

## Lighting

The VX4 platform is capable of integrating with in-room lighting controls, preventing energy waste by turning lights OFF while the room is unoccupied. The platform uses built-in infrared motion sensors with the option to deploy a remote occupancy sensor or door lock integration to monitor entry to the room for occupancy, allowing for improved response time. Wireless example below:

## Wiring diagram

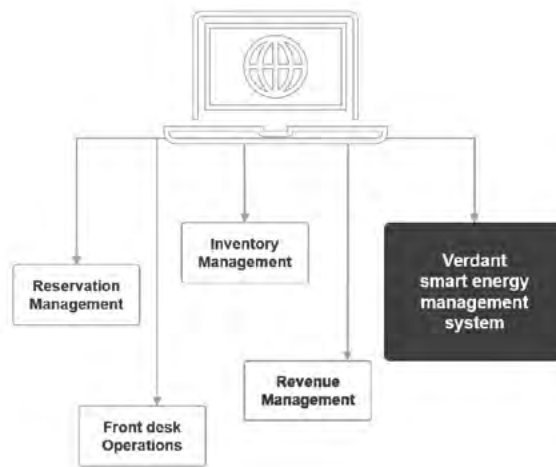


**NOTE:** Compatible with all wired and wireless VX4 thermostats. A RIB2401B relay is recommended. Wireless example pictured above.

### Property management systems

The VX4 platform is capable of integrating with a number property management systems, allowing property operators to seamlessly monitor and control multiple inputs and outputs of their HVAC system within the existing technology ecosystem of their property. Compatible PMS platforms below

Marriott	Hilton	IHG	Other
Fosse	OnQ	IHG edge	Hotel key
Lightspeed			Opera

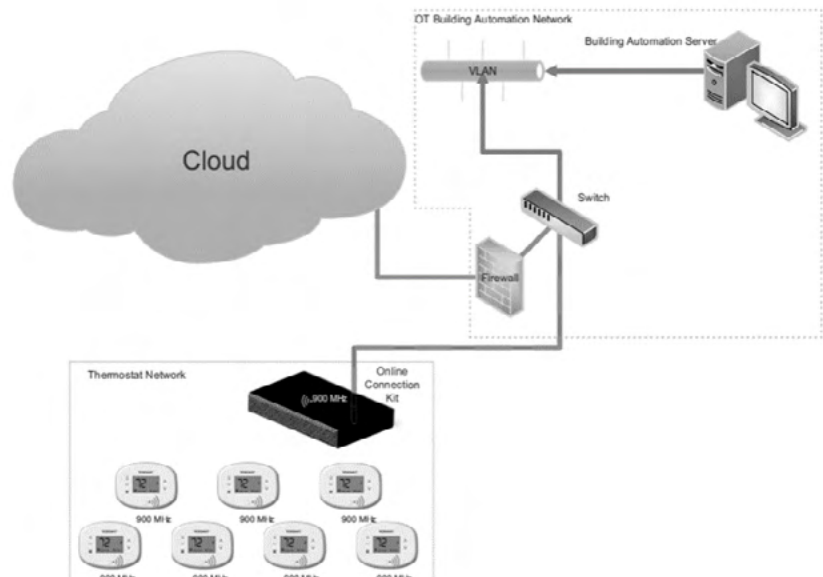


**NOTE:** Compatible with all wired and wireless VX4 thermostats. Thermostat must be networked (-XMF).

### BACnet

The VX4 platform is capable of acting as a BACnet device, providing a handful of I/O values to the BACnet platform via an IP interface. Available data points in table below.

Data	Read/write
Room temperature	Read
Room humidity	Read
Occupancy state	Read
ON/OFF	Read/write
Set point	Read/write

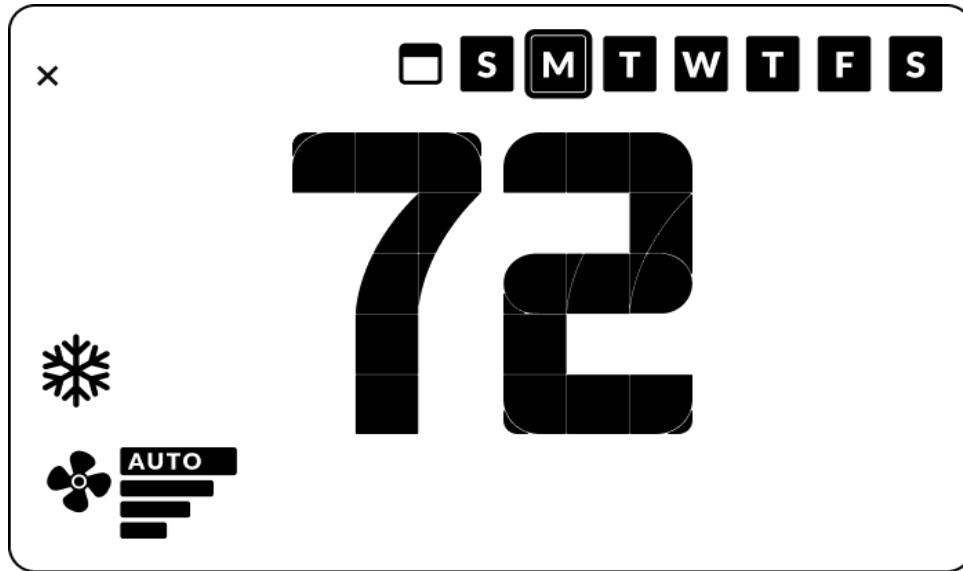


**NOTE:** Compatible with all wired and wireless VX4 thermostats. Thermostat must be networked (-XMF).



### **7-day scheduler**

All VX4 thermostats come equipped with a 7-day programmable schedule. The schedule is able to be set at the physical device or via an online app. Each day may have up to six distinct scheduling events.



### **Demand response**

All VX4 thermostats with firmware version 1130 or later are capable of receiving demand response events. Below are general details about the program.

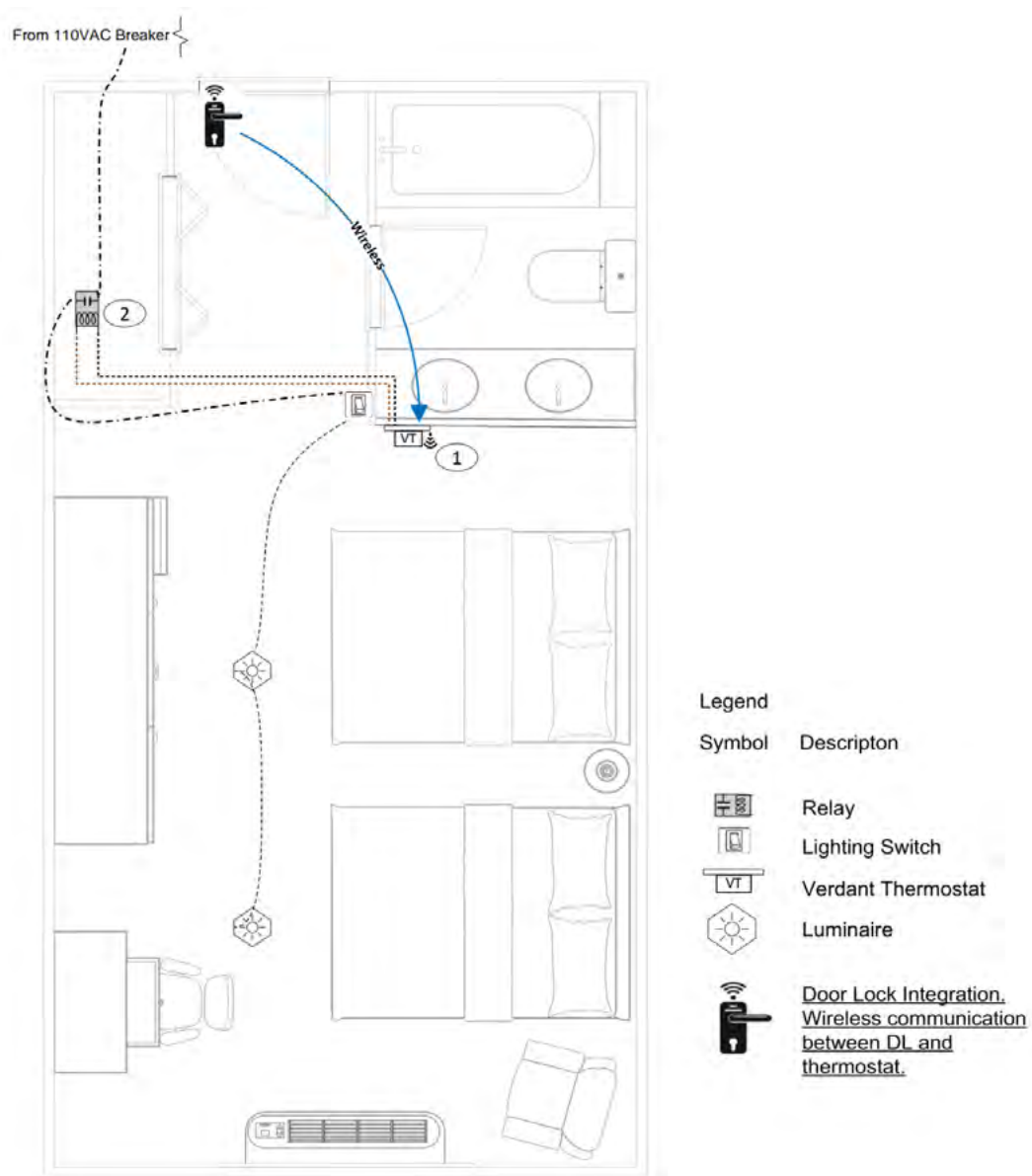
- Sign-up for demand response: Once the property has officially enrolled in Verdant's Demand Response program and its tenants have consented to participate in receiving Demand Response events, the process is set in motion.
- Integration with aggregators: Demand Response aggregators linked to the property's utility company can seamlessly integrate with Verdant's APIs. This integration allows automatic transmission of Demand Response events to our thermostats.
- Active DR event indicator: During an active Demand Response event, thermostats will display a distinctive icon, ensuring clear visibility and awareness for tenants and guests.
- Opt-out option: It's important to note that tenants and guests always retain the flexibility to opt out of medium criticality Demand Response events. This can be done by simply adjusting the setpoint directly from the thermostat.

**NOTE:** Compatible with all wired and wireless VX4 thermostats. Thermostat must be networked (-XMF).

### **Door lock management systems and smart locks**

The VX4 platform is capable of integrating with door lock management systems (DLMS) and smart locks, adding another layer of occupancy detection to an application. DLMS brand compatability and general application are shown in the table and diagram below. For more details on requirements and compatability, please reference the VX4 Installation and Operations manual or reach out to your Verdant sales representative.

	In room	Server-server
"1-way"	Onity	Dormakaba Assa Abloy
"2-way"	N/A	Dormakaba



# Networking overview

A mesh network is a group of connectivity devices that act as a single network, so there are multiple sources of connectivity instead of just a single router. Mesh networks broadcast from each point around the facility rather than from a single location, thereby providing better coverage over a wider space. Networking with the VX4 platform does not require Wi-Fi. The VX4 thermostat and ZX-OL-U connection kit utilize a proprietary sub-GHz protocol to mesh devices.

Benefits of a mesh network include:

- Flexible coverage: Additional points can be added to get better coverage in hard-to-cover areas like hallways and near walls.
- Self-healing: In a mesh network, if one point goes down, communication is rerouted through another point.







The online connection kit (ZX-OL-U) enables wireless mesh networking of up to 1,024 thermostats per device. Additional kits can be networked together for large properties, or where a property has multiple buildings spread over a large area.

The ZX-OL-U communicates with thermostats using Verdant's proprietary 900MHz communication protocol. Data collected from each thermostat is uploaded to the cloud at five minute intervals, allowing for remote management of all thermostats from any internet-connected device.

The ZX-OL-U plugs into an internet port with a static IP address with active DHCP and must be whitelisted using its MAC address with unrestricted internet access.

**NOTE:** Devices should be installed within 100ft of each other.  
Ports 80, 443, and 22 (optional) must be open to outbound communication.

# Optional accessories

	<p><b>ZX-OL-U: online connection kit/gateway</b></p> <p>Mesh network end-point device responsible for aggregating all thermostats connected for feedback, access, and control. Requires “-XMF” thermostats.</p>
	<p><b>ZX-AOS: remote occupancy sensor</b></p> <p>Remote occupancy sensor for multi-room application. Also used for entry occupation status for quicker feedback for lighting (in leui of door lock integration).</p>
	<p><b>ZX-TSW: remote temperature sensor</b></p> <p>Remote temperature sensor to replace or work in parallel with temperate sensor in the main thermostat.</p>
	<p><b>ZX-DWS: remote door and window sensor</b></p> <p>Remote, magnetized sensor for exterior door or window. If open, thermostat will shut the HVAC system OFF after a specified amount of time.</p>

# Best practices and general notes

## Location






- Do not install on an exterior wall.
- Do not install behind a door.
- Do not install in areas with a direct heat source or sunlight.
- Do not install near any air discharge grill.
- Do not install wireless adapter inside any closed metal container.
- Do not install near elevator shafts or solid metal plates.
- Ensure device has sufficient natural air circulation.
- Ensure the wall surface is flat and clean.
- Install approximately 60 inches (1.5m) above the floor or required height per local, state, or national code.

## Notes

- Batteries can power wireless thermostats for up to 18 months.
- Wireless thermostats can be powered with 12 VDC via 2-wires from the J11 port of the wireless control card in leui of batteries.
- Ensure correct network and wireless communication information gets entered to the thermostat.
- Each ZX-OL-U has a unique net ID (NID) that each thermostat needs to be paired to.
- Reccomended lightning integration is accomplished with ZX-AOS in leui of door-lock integration.

# General specifications

## Interface

- The simplified VX4 user interface provides ease-of-use for the occupant. The interface includes five physical buttons:
  -  cycles through system modes (COOL, HEAT, OFF, AUTO)
  -  changes temperature display between fahrenheit and celsius and/or enables or disables scheduler.
  -  cycles through available fan speeds and modes (high, medium, low, auto, continuous).
  -  increases system mode set point.
  -  decreases system mode set point.
- The VX4 thermostat operation screen includes the following icons and indicators: Set point, room temperature, system mode, fan mode/speed, schedule, door/window status, wireless connection status, protocol status (e.g. Zigbee & demand response), room number, and battery status.
- The VX4 thermostat provides a deep settings menu accessible via a CONFIG button with the faceplate removed. For a full list of configurable settings reference the VX4 Installation and Operations Manual.

## Sensors

- The VX4 thermostat platform is equipped with the following integrated sensors by default:
  1. Room temperature: Data provided and displayed in celsius or fahrenheit.
  2. Space relative humidity: Data provided as a percentage.
  3. Occupancy: Input provided by a passive infrared sensor integral to all thermostats (exception: "-NOS" models).
- The VX4 thermostat platform provides the following optional sensors as stand-alone accessories. Data from optional sensors is transmitted wirelessly to the primary thermostat:
  1. Remote occupancy sensor: Input provided by a passive infrared sensor. To be used in tandem with primary thermostat.
  2. Remote door or window switch: Input provided by magnetic contact. Will signal HVAC unit to power off after window or door is open/ajar for a specified amount of time.
  3. Remote temperature sensor: Provides primary or secondary room temperature feedback to thermostat.

## **Energy management routines, definitions, and settings**

### **Routines and definitions**

- Automatic temperature changeover (system mode): thermostat automatically activates heating or cooling to maintain the desired room temperature.
- Automatic fan control mode: fan runs only when there is an active demand for heating or cooling.
- Manual fan control mode: user can select between automatic or continuous fan operation and available speeds.
- Incidental occupancy: control state when the system initially recognizes occupancy in the space. If the space is occupied for longer than the “incidental occupancy threshold” the system will enter the “guest occupancy” state. If the room becomes physically unoccupied again within the threshold, the system will return to “setback mode”.
- Guest occupancy: the primary occupancy state. Occurs if “incidental occupancy” persists beyond the “incidental occupancy threshold”.
- Setback mode: state that occurs if the space is unoccupied beyond the “temperature setback delay”. The state will alter the operational parameters to the setback set points for energy savings.
- Night occupancy: the state where occupancy is determined at any time during the “night occupancy period”, “guest occupancy” will persist, at minimum, until the end of said period.
- Scheduler: the VX4 platform includes an optional 7-day scheduling program.

### **Settings**

- Minimum set point: operator can set the minimum set point a guest can select.
- Maximum set point: operator can set the maximum set point a guests can select.
- Auto changeover set point offset: operator can set the difference between the guest-selected set point and the heat and cool changeover temperatures in AUTO system mode.
- 1st stage differential heat: operator can set the temperature differential 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: operator can set the temperature differential between 1st stage heating temperature and room temperature before the 2nd stage heating is initiated.
- 1st stage differential cool: operator can set 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: operator can set the 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.
- Recovery temperature: operator can set the room temperature that needs to be restored after setback within the “temperature recovery time”.
- Temperature recovery time: operator can set the maximum period of time allowed for restoring the “recovery temperature”.
- Maximum setback temperature: operator can set the highest room temperature allowed when thermostat is in the setback mode.
- Minimum setback temperature: operator can set the lowest room temperature allowed when thermostat is in the setback mode.

**Settings cont...**

- Temperature setback delay: operator can set the length of time for which the room that is in the occupied mode needs to be unoccupied before setback mode is initiated.
- Incidental occupancy threshold: operator can set 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: operator can set 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: operator can set 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: operator can set whether or not the thermostat will restore the most recent guest settings when new occupancy is detected.

**Integrations and interoperability**

- The VX4 platform integrates with lighting circuits to allow lighting based on occupancy. A RIB relay is needed to handle circuit based on the occupancy signal.
- The VX4 platform integrates with property management systems (PMS) for interoperability between existing property platforms and the Verdant energy management platform.
- The VX4 platform integrates with BACnet systems via IP protocol.
- The VX4 platform integrates with smart locks and door lock management systems (DLMS)
  1. Onity: utilizes in-room BLE technology for "1-way" communication.
  2. Dormakaba: can utilize "1-way" communication via server to server protocols or "2-way" communication with server to server and in-room Zigbee tandem protocols.
  3. Assa Abloy: utilizes "1-way" communication via server to server protocols.

**Networking and connectivity**

- The VX4 platform utilizes sub-GHz (902-928MHz) frequency for wireless mesh communication between thermostat devices and the gateway.
- A single gateway (ZX-OL-U) on property is capable of connecting with up to 1024 thermostat devices based 100ft maximum distance between any two devices. Varies depending on building materials.
- The VX4 platform, when networked, connects to a Verdant energy management portal providing the following features:
  1. GUI of room states overlayed on property blueprint (optional).
  2. Visibility into each thermostat's readings on property: room temperature, humidity, and occupancy state.
  3. Visibility and control into each thermostat's operating parameters: system mode, fan mode/speed, set point(s), and on/off.
  4. Deep settings (refer to ["Settings" on page 23](#)).
- The VX4 platform is capable of providing over-the-air updates for connected applications (-XMF).



## Thermostat Specs

Mechanical		
Case dimensions	5.60" x 3.46" x 0.91" (142mm x 88mm x 23mm)	
Screen dimensions	2.60" x 1.65" (66mm x 42mm)	
Operating temperature	32-105°F (0 - 41°C)	
Display temperature range	32-99°F (0-41°C)	
Setpoint temperature range	64-85°F (18-29°C) adjustable	
Terminals*	Fan High (GH) Fan Low (GL) Compressor (Y)	Heat Pump (OB) Heat (W) AUX 1 (dry contact)

\*Standard configuration. All terminals are reconfigurable.

Sensors	
Temperature Accuracy	±1°F
Built In Occupancy Sensor	Yes
Built In Occupancy Sensor Specs	Passive InfraRed (PIR) with detection range of ±47° (94°)
Compatible with Verdant Window/Door Sensors	Yes
Compatible with Verdant Wireless Occupancy Sensors	Yes
Compatible with Verdant Wireless Temperature Sensors	Yes

## Verdant Accessories

Verdant Window/Door Sensor	<a href="#">ZX-DWS</a>
Verdant Wireless Occupancy Sensor	<a href="#">ZX-AOS</a>
Wireless Temperature Sensor	<a href="#">ZX-TWS</a>
Online Connection Kit	<a href="#">ZX-OL-U</a>
Wallplate	<a href="#">VX4-WPT</a>
Lighting Integration Accessories	<a href="#">ACC-LIT-XXX</a>

## Additional VX4 Assets

View Full Thermostat Profile	<a href="#">PROFILE</a>
Download Submittal Sheet	<a href="#">SUBMITTAL</a>

Electical	
Operating Voltage	Operating Range 12-27 VAC/VDC

Communications	
Wireless Frequency	902-928MHz (NA) 863-870MHz (EU)
Mesh Network	No provisioning needed. Proprietary Sub-GHz communication protocol
Bluetooth	2.4 GHz; used during commissioning, triangulation, and communication to wireless sensors
Zigbee	Module available for Zigbee based in room integrations

Integrations	
Lighting	Yes
PMS	Yes, requires networking
Door Lock	Yes, requires networking
BACNet	Yes, requires networking
API	Yes, requires networking
Demand Response	Yes, requires networking

Certifications	
North America Certifications	ENERGY STAR: 3555667 FCC ID: 2A4JN-VX4001 IC: 28229-VX4001
Europe Certifications	CE: Yes REACH: Yes ROHS: Yes WEEE: Yes



## Thermostat Specs

Mechanical	
Case dimensions	5.60" x 3.46" x 0.91" (142mm x 88mm x 23mm)
Screen dimensions	2.60" x 1.65" (66mm x 42mm)
Operating temperature	32-105°F (0 - 41°C)
Display temperature range	32-99°F (0-41°C)
Setpoint temperature range	64-85°F (18-29°C) adjustable

Sensors	
Temperature Accuracy	±1°F
Built In Occupancy Sensor	Yes
Built In Occupancy Sensor Specs	Passive InfraRed (PIR) with detection range of ±47° (94°)
Compatible with Verdant Window/Door Sensors	Yes
Compatible with Verdant Wireless Occupancy Sensors	Yes
Compatible with Verdant Wireless Temperature Sensors	Yes

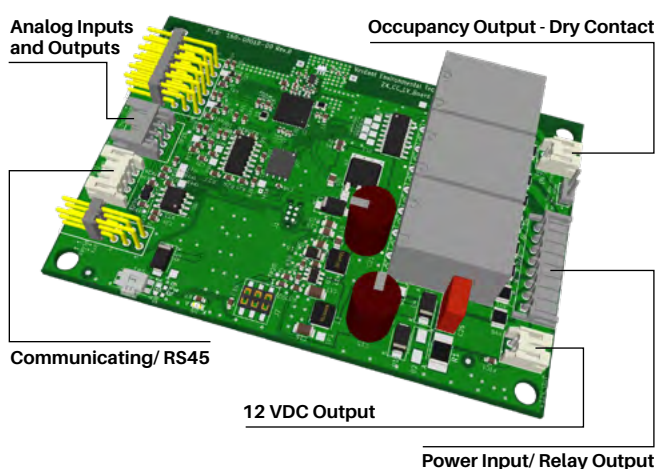
Electical	
Operating Voltage	2 x 1.5VDC AA Alkaline Non-rechargeable Batteries - Field Supplied 24VAC or 12VDC

Communications	
Wireless Frequency	902-928MHz (NA) 863-870MHz (EU)
Mesh Network	No provisioning needed. Proprietary Sub-GHz communication protocol
Bluetooth	2.4 GHz; used during commissioning, triangulation, and communication to wireless sensors
Zigbee	Module available for Zigbee based in room integrations

Integrations	
Lighting	Yes
PMS	Yes, requires networking
Door Lock	Yes, requires networking
BACNet	Yes, requires networking
API	Yes, requires networking
Demand Response	Yes, requires networking

## Wireless Control Card Specs

Mechanical	
Case dimensions	4.08" x 2.76" x 1.02" (123mm x 70mm x 26mm)
Inputs	(3) Analog 12VDC
Outputs	(5) Terminal Relays (2) Aux Relays (3) Analog (2) RS485 12VDC
Operating Voltage	12-27 VDC/VAC
Terminals	Fan High (GH) Heat Pump (OB) Fan Low (GL) Heat (W) Compressor (Y) AUX 1 AUX 2



Certifications	
North America Certifications	ENERGY STAR: 3543493 FCC ID: 2A4JN-VX4001 IC: 28229-VX4001

Europe Certifications

CE: Yes  
REACH: YesROHS: Yes  
WEEE: Yes

## Verdant Accessories

Verdant Window/Door Sensor

[ZX-DWS](#)

Verdant Wireless Occupancy Sensor

[ZX-AOS](#)

Wireless Temperature Sensor

[ZX-TWS](#)

Online Connection Kit

[ZX-OL-U](#)

Wireless Control Card

[AC-CC](#)

Wallplate

[VX4-WPT](#)

Lighting Integration Accessories

[ACC-LIT-XXX](#)

Door Lock Integration

[ACC-DK/AA/BLE](#)

## Additional VX4 Assets

View Full Thermostat Profile

[PROFILE](#)

Download Submittal Sheet

[SUBMITTAL](#)

## Thermostat Specs

Mechanical		
Case dimensions	5.60" x 3.46" x 0.91" (142mm x 88mm x 23mm)	
Screen dimensions	2.60" x 1.65" (66mm x 42mm)	
Operating temperature	32-105°F (0 - 41°C)	
Display temperature range	32-99°F (0-41°C)	
Setpoint temperature range	64-85°F (18-29°C) adjustable	
Terminals	Fan High (GH) Fan Low (GL) Compressor (Y)	Heat Pump (OB) Heat (W) AUX 1

Sensors	
Temperature Accuracy	± 1°F
Built In Occupancy Sensor	No
Compatible with Verdant Window/Door Sensors	Yes
Compatible with Verdant Wireless Occupancy Sensors	No
Compatible with Verdant Wireless Temperature Sensors	Yes

Electical	
Operating Voltage	2 x 1.5VDC AA Alkaline Non-rechargeable Batteries - Field Supplied 24VAC or 12VDC

Communications	
Wireless Frequency	902-928MHz (NA) 863-870MHz (EU)
Mesh Network	No provisioning needed. Proprietary Sub-GHz communication protocol
Bluetooth	2.4 GHz; used during commissioning, triangulation, and communication to wireless sensors
Zigbee	Module available for Zigbee based in room integrations

Integrations	
PMS	Yes, requires networking
Door Lock	Yes, requires networking
BACNet	Yes, requires networking
API	Yes, requires networking
Demand Response	Yes, requires networking

Certifications	
North America Certifications	ENERGY STAR: 3555667 FCC ID: 2A4JN-VX4001 IC: 28229-VX4001

Europe Certifications

CE: Yes  
REACH: YesROHS: Yes  
WEEE: Yes

## Verdant Accessories

Verdant Window/Door Sensor [ZX-DWS](#)Verdant Wireless Occupancy Sensor [ZX-AOS](#)Wireless Temperature Sensor [ZX-TWS](#)Online Connection Kit [ZX-OL-U](#)Wallplate [VX4-WPT](#)

## Additional VX4 Assets

View Full Thermostat Profile [PROFILE](#)Download Submittal Sheet [SUBMITTAL](#)

## Thermostat Specs

Mechanical	
Case dimensions	5.60" x 3.46" x 0.91" (142mm x 88mm x 23mm)
Screen dimensions	2.60" x 1.65" (66mm x 42mm)
Operating temperature	32-105°F (0 - 41°C)
Display temperature range	32-99°F (0-41°C)
Setpoint temperature range	64-85°F (18-29°C) adjustable

Sensors	
Temperature Accuracy	±1°F
Built In Occupancy Sensor	Yes
Built In Occupancy Sensor Specs	Passive InfraRed (PIR) with detection range of ±47° (94°)
Compatible with Verdant Window/Door Sensors	Yes
Compatible with Verdant Wireless Occupancy Sensors	Yes
Compatible with Verdant Wireless Temperature Sensors	Yes

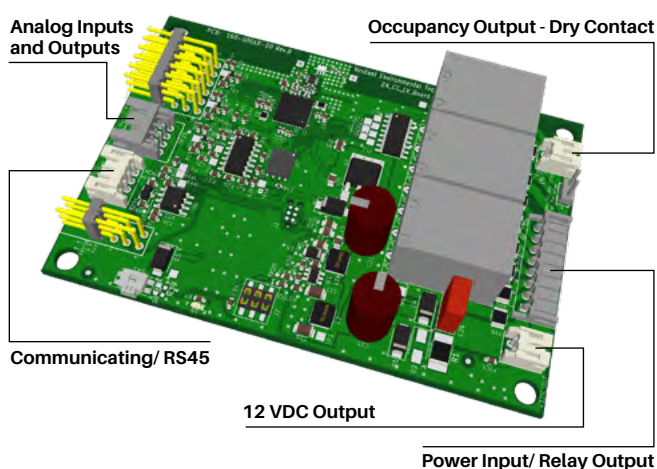
Electical	
Operating Voltage	2 x 1.5VDC AA Alkaline Non-rechargeable Batteries - Field Supplied 24VAC or 12VDC

Communications	
Wireless Frequency	902-928MHz (NA) 863-870MHz (EU)
Mesh Network	No provisioning needed. Proprietary Sub-GHz communication protocol
Bluetooth	2.4 GHz; used during commissioning, triangulation, and communication to wireless sensors
Zigbee	Module available for Zigbee based in room integrations

Integrations	
Lighting	Yes
PMS	Yes, requires networking
Door Lock	Yes, requires networking
BACNet	Yes, requires networking
API	Yes, requires networking
Demand Response	Yes, requires networking

## Wireless Control Card Specs

Mechanical	
Case dimensions	4.08" x 2.76" x 1.02" (123mm x 70mm x 26mm)
Inputs	(3) Analog 12VDC
Outputs	(5) Terminal Relays (2) Aux Relays (3) Analog (2) RS485 12VDC
Operating Voltage	12-27 VDC/VAC
Terminals	Fan High (GH) Heat Pump (OB) Fan Low (GL) Heat (W) Compressor (Y) AUX 1 AUX 2



Certifications	
North America Certifications	ENERGY STAR: 3543493 FCC ID: 2A4JN-VX4001 IC: 28229-VX4001

Europe Certifications

CE: Yes  
REACH: YesROHS: Yes  
WEEE: Yes

## Verdant Accessories

Verdant Window/Door Sensor

[ZX-DWS](#)

Verdant Wireless Occupancy Sensor

[ZX-AOS](#)

Wireless Temperature Sensor

[ZX-TWS](#)

Online Connection Kit

[ZX-OL-U](#)

Wireless Control Card

[AC-CC](#)

Wallplate

[VX4-WPT](#)

## Additional VX4 Assets

View Full Thermostat Profile

[PROFILE](#)

Download Submittal Sheet

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## Thermostat Specs

Mechanical		
Case dimensions	5.60" x 3.46" x 0.91" (142mm x 88mm x 23mm)	
Screen dimensions	2.60" x 1.65" (66mm x 42mm)	
Operating temperature	32-105°F (0 - 41°C)	
Display temperature range	32-99°F (0-41°C)	
Setpoint temperature range	64-85°F (18-29°C) adjustable	
Terminals*	Fan High (GH) Fan Low (GL) Compressor (Y)	Heat Pump (OB) Heat (W) AUX 1 (dry contact)

\*Standard configuration. All terminals are reconfigurable.

Sensors	
Temperature Accuracy	±1°F
Built In Occupancy Sensor	Yes
Built In Occupancy Sensor Specs	Passive InfraRed (PIR) with detection range of ±47° (94°)
Compatible with Verdant Window/Door Sensors	Yes
Compatible with Verdant Wireless Occupancy Sensors	Yes
Compatible with Verdant Wireless Temperature Sensors	Yes

## Verdant Accessories

Verdant Window/Door Sensor	<a href="#">ZX-DWS</a>
Verdant Wireless Occupancy Sensor	<a href="#">ZX-AOS</a>
Wireless Temperature Sensor	<a href="#">ZX-TWS</a>
Online Connection Kit	<a href="#">ZX-OL-U</a>
Wallplate	<a href="#">VX4-WPT</a>
Lighting Integration Accessories	<a href="#">ACC-LIT-XXX</a>
Add VRF Adapter for Daikin, Fujitsu, Hitachi	<a href="#">ACC-AZA-X</a>

## Additional VX4 Assets

View Full Thermostat Profile	<a href="#">PROFILE</a>
Download Submittal Sheet	<a href="#">SUBMITTAL</a>

Electical	
Operating Voltage	Operating Range 12-27 VAC/VDC

Communications	
Wireless Frequency	902-928MHz (NA) 863-870MHz (EU)
Mesh Network	No provisioning needed. Proprietary Sub-GHz communication protocol
Bluetooth	2.4 GHz; used during commissioning, triangulation, and communication to wireless sensors
Zigbee	Module available for Zigbee based in room integrations

Integrations	
Lighting	Yes
PMS	Yes, requires networking
Door Lock	Yes, requires networking
BACNet	Yes, requires networking
API	Yes, requires networking
Demand Response	Yes, requires networking

Certifications	
North America Certifications	FCC ID: 2A4JN-VX4001 IC: 28229-VX4001

Europe Certifications CE: Yes REACH: Yes ROHS: Yes WEEE: Yes



## Thermostat Specs

Mechanical		
Case dimensions	5.60" x 3.46" x 0.91" (142mm x 88mm x 23mm)	
Screen dimensions	2.60" x 1.65" (66mm x 42mm)	
Operating temperature	32-105°F (0 - 41°C)	
Display temperature range	32-99°F (0-41°C)	
Setpoint temperature range	64-85°F (18-29°C) adjustable	
Terminals	Fan High (GH) Fan Low (GL) Compressor (Y)	Heat Pump (OB) Heat (W) AUX 1

Sensors	
Temperature Accuracy	±1°F
Built In Occupancy Sensor	No
Compatible with Verdant Window/Door Sensors	Yes
Compatible with Verdant Wireless Occupancy Sensors	No
Compatible with Verdant Wireless Temperature Sensors	Yes

## Verdant Accessories

Verdant Window/Door Sensor	<a href="#">ZX-DWS</a>
Verdant Wireless Occupancy Sensor	<a href="#">ZX-AOS</a>
Wireless Temperature Sensor	<a href="#">ZX-TWS</a>
Online Connection Kit	<a href="#">ZX-OL-U</a>
Wallplate	<a href="#">VX4-WPT</a>
Lighting Integration Accessories	<a href="#">ACC-LIT-XXX</a>
Add VRF Adapter for Daikin, Fujitsu, Hitachi	<a href="#">ACC-AZA-X</a>

## Additional VX4 Assets

View Full Thermostat Profile	<a href="#">PROFILE</a>
Download Submittal Sheet	<a href="#">SUBMITTAL</a>

Electical	
Operating Voltage	2 x 1.5VDC AA Alkaline Non-rechargeable Batteries - Field Supplied 24VAC or 12VDC

Communications	
Wireless Frequency	902-928MHz (NA) 863-870MHz (EU)
Mesh Network	No provisioning needed. Proprietary Sub-GHz communication protocol
Bluetooth	2.4 GHz; used during commissioning, triangulation, and communication to wireless sensors
Zigbee	Module available for Zigbee based in room integrations

Integrations	
PMS	Yes, requires networking
Door Lock	Yes, requires networking
BACNet	Yes, requires networking
API	Yes, requires networking
Demand Response	Yes, requires networking

Certifications	
North America Certifications	FCC ID: 2A4JN-VX4001 IC: 28229-VX4001

Europe Certifications

CE: Yes  
REACH: Yes  
ROHS: Yes  
WEEE: Yes



# Warranty

Refer to [www.verdant.copeland.com/verdant-warranty](http://www.verdant.copeland.com/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.

US PATENTS: 8,369,994; 8,141,791; 7,918,406; 7,841,542; 7,838,803; RE40,437;  
7,232,075; 7,185,825; 7,156,318; 7,152,806; 7,145,110; 7,058,477; 7,050,026; 7,028,912; 6,902,117;  
6,789,739; 6,786,421; 6,619,555; 6,581,846; 6,578,770;  
CANADIAN PATENTS: CA2615065; CA2633113; CA2633121; CA2633200; OTHER PATENTS PENDING.

Verdant Environmental Technologies, Inc. reserves the right to make changes, without notice, in design or components as progress in engineering and manufacturing methods may warrant. Product appearance may vary.  
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# Submittal

Submitted by	Submitted type	Project ID	Project name	Date

Item #	Plan designation	Model	Quantity
1			
2			
3			
4			
5			

Example <b>VX4</b>	<b>-TVF</b>	<b>-W</b>	<b>-LG</b>	<b>-XMF</b>
Series	Connection type	Color	Control type	Networking
VX4		<b>W</b> - White <b>B</b> - Black	<b>[Empty]</b> - 24 VAC relays <b>GEA</b> - GE V12 & PTAC <b>LG</b> - LG VRF <b>MIE</b> - Mitsubishi VRF <b>CV12</b> - Carrier VRF <b>TCAB</b> - Toshiba VRF <b>AZA-D</b> - Daikin VRF via Airzone	<b>[Empty]</b> - Standalone <b>XMF</b> - Networked
<b>TR</b> - Wired 24 VAC <b>TW</b> - Wireless 24 VAC or 12 VDC <b>HW</b> - Wireless line voltage <b>RSR</b> - Wired RS485 <b>TVF</b> - Wired VRF <b>NTR</b> - Wired 24 VAC, no PIR occupancy <b>NTW</b> - Wireless 24 VAC/12 VDC no PIR <b>NHW</b> - Wireless line voltage, no PIR <b>NRSR</b> - Wired RS485, no PIR occupancy <b>NTVF</b> - Wired VRF, no PIR occupancy				

Item #	Plan designation	Model	Quantity
1			
2			
3			
4			
5			
6			
7			



***Stand-alone with embedded occupancy detection***

Part number	Description	QTY
VX4-TR-(B/W)	VX4 wired energy management thermostat PIR occupancy detection	
VX4-TW-(B/W)	VX4 wireless energy management thermostat PIR occupancy detection	
VX4-HW-(B/W)	VX4 wireless energy management thermostat PIR occupancy detection, line voltage	
VX4-TW-(B/W)-GEA	VX4 wireless energy management thermostat PIR occupancy detection, GE HVAC plug and play	
VX4-TW-(B/W)-AZA-D	VX4 wireless energy management thermostat PIR occupancy detection, Daikin VRF and ductless applications (ACC-AZA-D)	
VX4-RSR-(B/W)	VX4 wired energy management thermostat PIR occupancy detection, various VRF and ductless applications	
VX4-RSR-(B/W)-AZA-D	VX4 wired energy management thermostat PIR occupancy detection, Daikin VRF and ductless applications (ACC-AZA-D)	
VX4-TW-(B/W)-CV12	VX4 wireless energy management thermostat PIR occupancy detection, Carrier VRF	
VX4-TVF-(B/W)-CV12	VX4 wired energy management thermostat PIR occupancy detection, native VRF integration, Carrier VRF	
VX4-TW-(B/W)-MIE	VX4 wireless energy management thermostat PIR occupancy detection, Mitsubishi and Trane VRF	
VX4-TVF-(B/W)-MIE	VX4 wired energy management thermostat PIR occupancy detection, native VRF integration, black, Mitsubishi and Trane VRF	
VX4-TW-(B/W)-LG	VX4 wireless energy management thermostat PIR occupancy detection, black, LG VRF	
VX4-TVF-(B/W)-LG	VX4 wired energy management thermostat PIR occupancy detection, native VRF integration, black, LG VRF	
VX4-TW-(B/W)-TCAB	VX4 wireless energy management thermostat PIR occupancy detection, black, Toshiba Carrier VRF	
VX4-TVF-(B/W)-TCAB	VX4 wired energy management thermostat PIR occupancy detection, native VRF integration, black, Toshiba Carrier VRF	

***Embedded occupancy and networking***

Part number	Description	QTY
VX4-TR-(B/W)-XMF	VX4 wired energy management thermostat PIR occupancy detection, networked	
VX4-TW-(B/W)-XMF	VX4 wireless energy management thermostat PIR occupancy detection, networked	
VX4-HW-(B/W)-XMF	VX4 wireless energy management thermostat PIR occupancy detection, line voltage,	
VX4-TW-(B/W)-GEA-XMF	VX4 wireless energy management thermostat PIR occupancy detection, GE HVAC plug and play, networked	
VX4-TW-(B/W)-AZA-D-XMF	VX4 wireless energy management thermostat PIR occupancy detection, Daikin VRF and ductless applications (ACC-AZA-D), networked	
VX4-RSR-(B/W)-XMF	VX4 wired energy management thermostat PIR occupancy detection, various VRF and ductless applications	
VX4-RSR-(B/W)-AZA-D-XMF	VX4 wired energy management thermostat PIR occupancy detection, Daikin VRF and ductless applications (ACC-AZA-D), networked	
VX4-TW-(B/W)-CV12-XMF	VX4 wireless energy management thermostat PIR occupancy detection, Carrier VRF, networked	
VX4-TVF-(B/W)-CV12-XMF	VX4 wired energy management thermostat PIR occupancy detection, native VRF integration, Carrier VRF, networked	
VX4-TW-(B/W)-MIE-XMF	VX4 wireless energy management thermostat PIR occupancy detection, Mitsubishi and Trane VRF, networked	
VX4-TVF-(B/W)-MIE-XMF	VX4 wired energy management thermostat PIR occupancy detection, native VRF integration, black, Mitsubishi and Trane VRF, networked	
VX4-TW-(B/W)-LG-XMF	VX4 wireless energy management thermostat PIR occupancy detection, black, LG VRF, networked	
VX4-TVF-(B/W)-LG-XMF	VX4 wired energy management thermostat PIR occupancy detection, native VRF integration, black, LG VRF, networked	
VX4-TW-(B/W)-TCAB-XMF	VX4 wireless energy management thermostat PIR occupancy detection, black, Toshiba Carrier VRF, networked	
VX4-TVF-(B/W)-TCAB-XMF	VX4 wired energy management thermostat PIR occupancy detection, native VRF integration, black, Toshiba Carrier VRF, networked	

***Stand-alone smart, programmable thermostat***

Part number	Description	QTY
VX4-NTR-(B/W)	VX4 wired smart thermostat with 7-day schedule	
VX4-NTW-(B/W)	VX4 wireless smart thermostat with 7-day schedule	
VX4-NHW-(B/W)	VX4 wireless smart thermostat with 7-day schedule, line voltage	
VX4-NTW-(B/W)-GEA	VX4 wireless smart thermostat with 7-day schedule, GE HVAC plug and play	
VX4-NTW-(B/W)-AZA-D	VX4 wireless smart thermostat with 7-day schedule, Daikin VRF and ductless applications (ACC-AZA-D)	
VX4-NRSR-(B/W)	VX4 wired smart thermostat with 7-day schedule, various VRF and ductless applications	
VX4-NRSR-(B/W)-AZA-D	VX4 wired smart thermostat with 7-day schedule, Daikin VRF and ductless applications (ACC-AZA-D)	
VX4-NTW-(B/W)-CV12	VX4 wireless smart thermostat with 7-day schedule, Carrier VRF	
VX4-NTVF-(B/W)-CV12	VX4 wired smart thermostat with 7-day schedule, native VRF integration, Carrier VRF	
VX4-NTW-(B/W)-MIE	VX4 wireless smart thermostat with 7-day schedule, Mitsubishi and Trane VRF	
VX4-NTVF-(B/W)-MIE	VX4 wired smart thermostat with 7-day schedule, native VRF integration, black, Mitsubishi and Trane VRF	
VX4-NTW-(B/W)-LG	VX4 wireless smart thermostat with 7-day schedule, black, LG VRF	
VX4-NTVF-(B/W)-LG	VX4 wired smart thermostat with 7-day schedule, native VRF integration, black, LG VRF	
VX4-NTW-(B/W)-TCAB	VX4 wireless smart thermostat with 7-day schedule, black, Toshiba Carrier VRF	
VX4-NTVF-(B/W)-TCAB	VX4 wired smart thermostat with 7-day schedule, native VRF integration, black, Toshiba Carrier VRF	

***Smart, programmable thermostat with networking***

Part number	Description	QTY
VX4-NTR-(B/W)-XMF	VX4 wired smart thermostat with 7-day schedule, networked	
VX4-NTW-(B/W)-XMF	VX4 wireless smart thermostat with 7-day schedule, networked	
VX4-NHW-(B/W)-XMF	VX4 wireless smart thermostat with 7-day schedule, line voltage,	
VX4-NTW-(B/W)-GEA-XMF	VX4 wireless smart thermostat with 7-day schedule, GE HVAC plug and play, networked	
VX4-NTW-(B/W)-AZA-D-XMF	VX4 wireless smart thermostat with 7-day schedule, Daikin VRF and ductless applications (ACC-AZA-D), networked	
VX4-NRSR-(B/W)-XMF	VX4 wired smart thermostat with 7-day schedule, various VRF and ductless applications	
VX4-NRSR-(B/W)-AZA-D-XMF	VX4 wired smart thermostat with 7-day schedule, Daikin VRF and ductless applications (ACC-AZA-D), networked	
VX4-NTW-(B/W)-CV12-XMF	VX4 wireless smart thermostat with 7-day schedule, Carrier VRF, networked	
VX4-NTVF-(B/W)-CV12-XMF	VX4 wired smart thermostat with 7-day schedule, native VRF integration, Carrier VRF, networked	
VX4-NTW-(B/W)-MIE-XMF	VX4 wireless smart thermostat with 7-day schedule, Mitsubishi and Trane VRF, networked	
VX4-NTVF-(B/W)-MIE-XMF	VX4 wired smart thermostat with 7-day schedule, native VRF integration, black, Mitsubishi and Trane VRF, networked	
VX4-NTW-(B/W)-LG-XMF	VX4 wireless smart thermostat with 7-day schedule, black, LG VRF, networked	
VX4-NTVF-(B/W)-LG-XMF	VX4 wired smart thermostat with 7-day schedule, native VRF integration, black, LG VRF, networked	
VX4-NTW-(B/W)-TCAB-XMF	VX4 wireless smart thermostat with 7-day schedule, black, Toshiba Carrier VRF, networked	
VX4-NTVF-(B/W)-TCAB-XMF	VX4 wired smart thermostat with 7-day schedule, native VRF integration, black, Toshiba Carrier VRF, networked	

**Networking accessories**

Part number	Description	QTY
ZX-OL-U	VX3, VX4 and ZX online connection kit for wireless network access (requires -XMF thermostat)	
ZX-Y6-RR	VX3, VX4 and ZX network repeater	
XMF	Wireless network access fee	

**Integration setup**

Part number	Description	QTY
ZX-OL-DLI-COM	Door lock integration - one time property set-up and configuration	
ZX-OL-PMS-COM	PMS integration - one time property set-up and configuration	
ZX-OL-BAC-COM	BACNet integration - one time property set-up and configuration	

**Lighting/door lock integration**

Part number	Description	QTY
ACC- LIT- AOS-DC	Lighting integration with entryway occupancy sensor and RIBTE01B RIB relay included-12 VDC	
ACC- LIT- AOS-AC	Lighting integration with entryway occupancy sensor and RIB2401B RIB relay included-24 VAC	
ACC- LIT-DC	Lighting integration RIBTE01B RIB relay included-12 VDC	
ACC- LIT-AC	Lighting integration RIB2401B RIB relay included-24 VAC	
ACC- DK-1	Door lock integration - DormaKaba 1 way	
ACC- ZIG-DK-2	Door lock integration - DormaKaba 2 way	
ACC-AA-1	Door lock integration Assa Abloy- 1 way	
ACC-BLE-ONI	Door lock integration - Onity	

**Remote sensors**

Part number	Description	QTY
ZX-AOS	VX3, VX4 and ZX wireless occupancy sensor	
ZX-DWS	VX3, VX4 and ZX wireless exterior door / window sensor with magnet	
ZX-TWS	VX3, VX4 and ZX wireless temperature sensor	
\$166-00004-01	VX3, VX4 and ZX wireless exterior door / window sensor magnet pair	

**Wire harnesses**

Part number	Description	QTY
0092 111800	Wire harness and screw assembly kit for VX4 wireless thermostat white	
\$830-00029-00	Wire harness for VX3, VX4 and ZX low voltage controller	
0092 111700	Wire harness and screw assembly kit for VX4 wireless thermostat black	
0092 111400	Wire harness and screw assembly kit for VX4 wired thermostat white	
\$830-00027-00	Wire harness and screw assembly kit for LG wireless thermostat controller	
\$830-00028-00	Wire harness and screw assembly kit for MIE wireless thermostat controller	
0092 111500	Wire harness and screw assembly kit for CV12 wireless thermostat controller	
0092 111600	Wire harness and screw assembly kit for TCAB wireless thermostat controller	
0092 111300	Wire harness and screw assembly kit for VX4 wired thermostat black	

Miscellaneous

Part number	Description	QTY
ACC-AZA-D	Daikin integration - Verdant inverter/VRF	
ZX-WPT-ML	VX4 thermostat wall plate	
ZX-CC-WPC	VX3, VX4, ZX controller cover plate	
ZX-LV	VX3, VX4 and ZX HVAC controller with seven (7) relays and wire harness (24 V)	
ZX-HV	VX3, VX4 and ZX HVAC controller with seven (7) relays and wire harness (120-277 V)	
ZX-LV-SEC	VX3, VX4 and ZX slave HVAC controller with seven (7) relays and wire harness (24 V)	