

Fan Coil Unit Application Guide

VTR8300/VT8300 Series Room Controllers

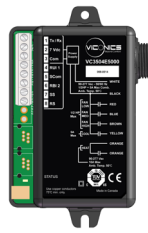


VTR8300 AND VC3000 | LINE-VOLTAGE FAN COIL ROOM CONTROLLERS AND RELAY PACKS

This new cost-effective solution for upgrading line-voltage fan coil unit thermostats requires only two components; the VTR8300 Room Controller and the VC3000 Relay Pack. This solution allows existing line voltage wiring between the fan coil unit and temperature controller to be re-used, thereby reducing overall costs and installation time.

The VC3000 Relay Pack features an onboard universal voltage power supply and line-voltage relays which directly drive fractional horsepower fan motors and valves. This eliminates the need to install and wire costly pilot relays and transformers. The Relay Pack is not required for the VT8300 Series models.

Commercial interface (local override)					
	Part Number	Description	Humidity	Onboard PIR	Communication
	VTR8300A5000B	BACnet® fan coil Room Controller	No	No	BACnet®
	VTR8300A5500B	BACnet® fan coil Room Controller	No	Yes	BACnet®
	VTR8350A5000B	BACnet® fan coil Room Controller	Yes	No	BACnet®
	VTR8350A5500B	BACnet® fan coil Room Controller	Yes	Yes	BACnet®
	VTR8350A5000BLTD	BACnet® fan coil Room Controller	Yes	No	BACnet®

Transformer Relay Packs for VTR8300 Series		
	Part Number	Description
	VC3500E5000	Transformer relay pack five relay fan outputs
	VC3504E5000	Transformer relay pack five relay fan outputs, and four inputs
	VC3514E5000	Transformer relay pack five relay outputs, smart VDC OCC output, and four inputs
	VC3400E5000	Transformer relay pack four relay outputs and smart VDC output
	VC3404E5000	Transformer relay pack four relay outputs, smart VDC output, and four inputs
	VC3300E5000	Transformer relay pack three relay fan outputs

ZigBee Pro Module for VT(R)8300 Series		
	Part Number	Description
	VCM8000V5000P	Optional ZigBee Pro module for VT8300 Series room controllers.

VT8300 LOW-VOLTAGE 24 VAC FAN COIL ROOM CONTROLLERS

This new cost-effective solution for upgrading low-voltage fan coil unit thermostats requires only the VT8300 Room Controller.

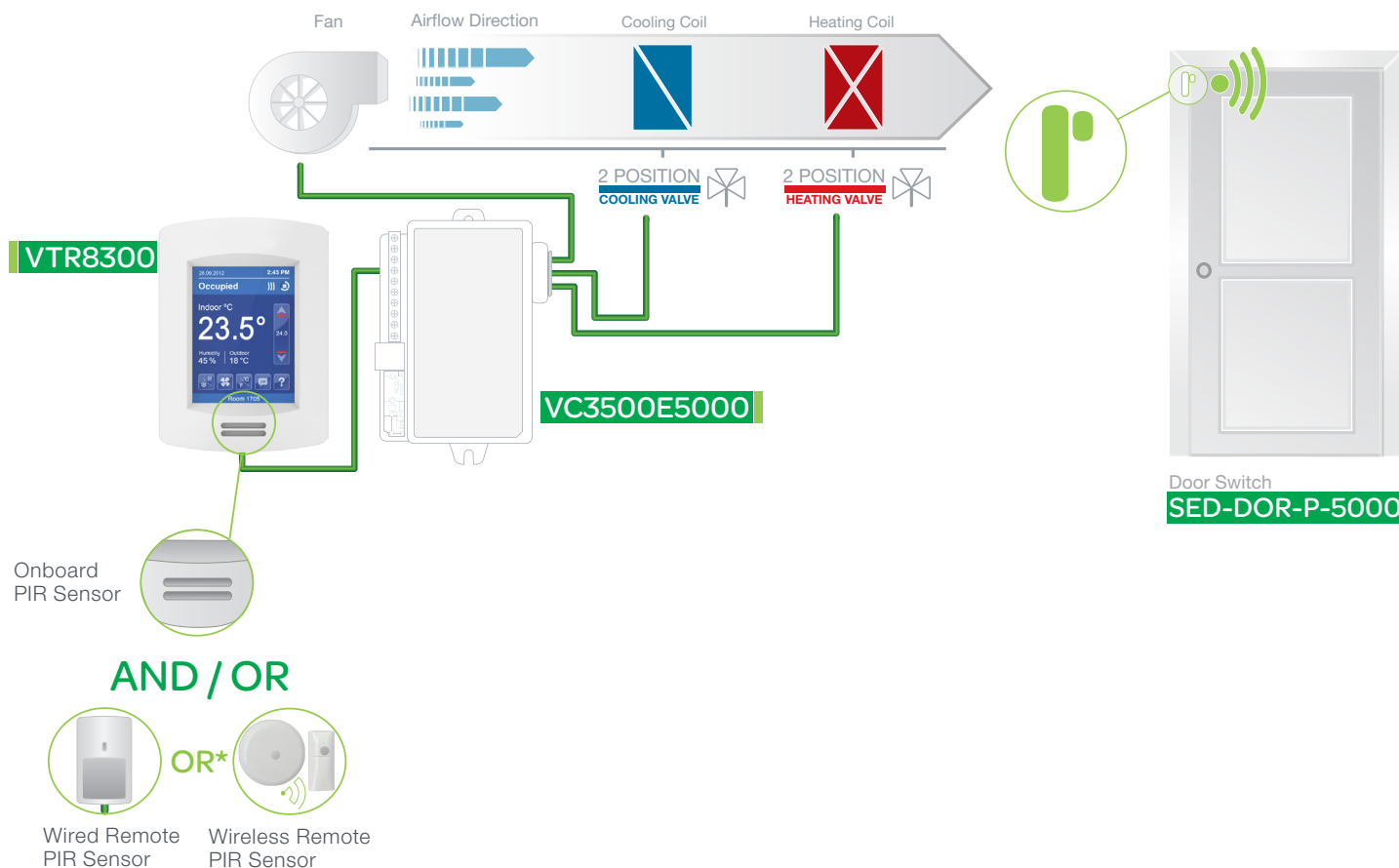
The VT8300 Room Controller can also be used along with a SC1300 or SC2300 Relay Pack for mixed-voltage solutions, when control of both line-voltage and low-voltage end devices is required.

Commercial and Hospitality Interface (Local Override and Degrees C/F Selection)					
	Part Number	Description	Humidity	PIR Sensor	Communication
	VT8300U5000B	BACnet® fan coil Room Controller	No	No	BACnet®
	VT8300U5500B	BACnet® fan coil Room Controller	No	Yes	BACnet®
	VT8350U5000B	BACnet® fan coil Room Controller	Yes	No	BACnet®
	VT8350U5500B	BACnet® fan coil Room Controller	Yes	Yes	BACnet®

Mixed-voltage Relay Packs for VT8300 Series		
	Part Number	Description
	VC1300E5000	3 on/off outputs, 110/130V 3 speed
	VC2300E5000	3 on/off outputs, 220/240V 3 speed

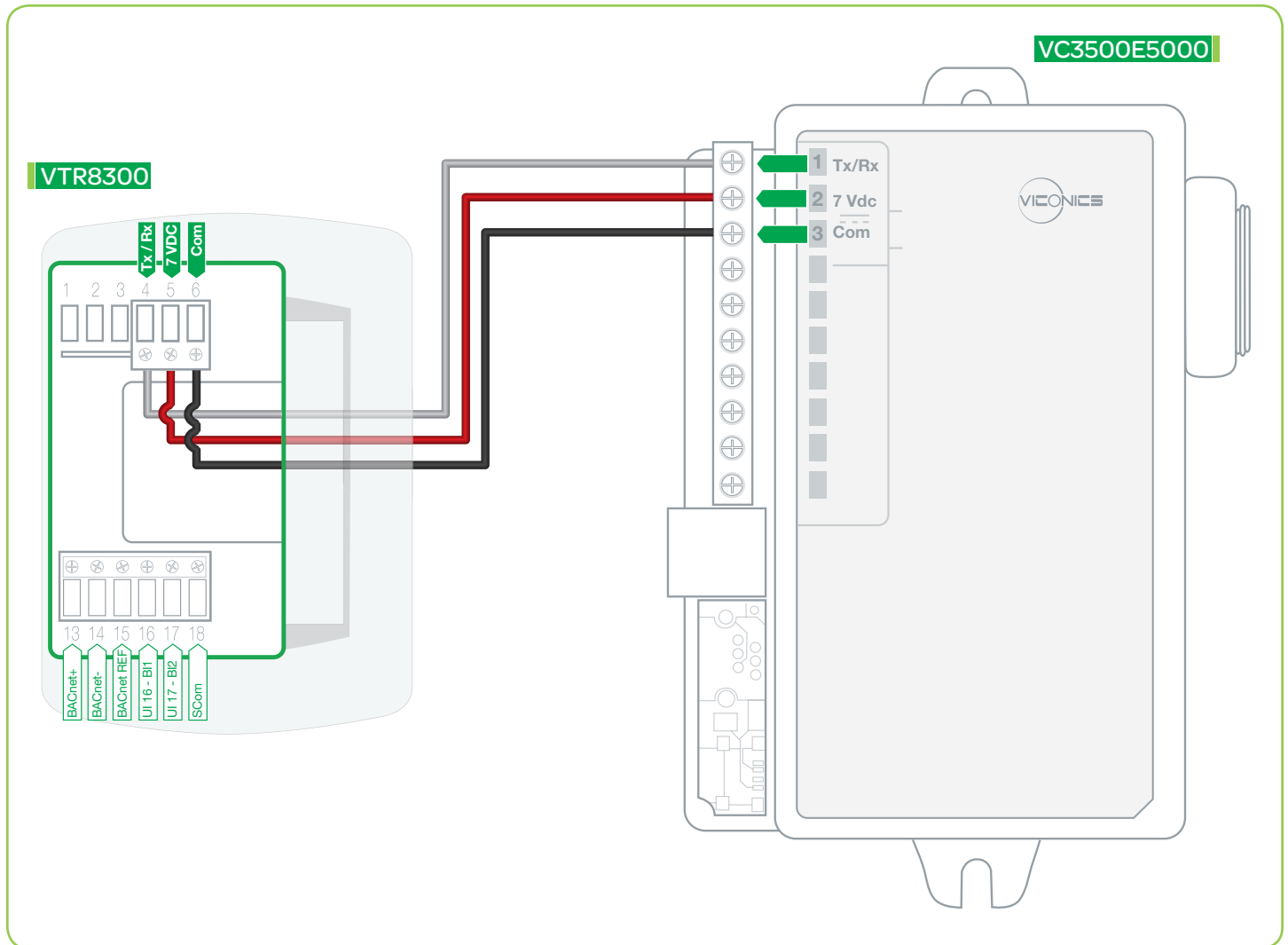
Wireless Accessories for VT(R)8300 Series		
	Part Number	Description
	SED-DOR-P-5000	Wireless door switch
	SED-WIN-P-5000	Wireless window switch
	SED-CMS-P-5045	Wireless ceiling mounted motion sensor
	SED-WDS-P-5045	Wireless window and door switch
	SED-WMS-P-5045	Wireless wall mounted motion sensor

VTR83X0A5X00B WITH VC3500E5000 RELAY AND VCM8000V5000P ZIGBEE PRO MODULE: HEATING/COOLING 4-PIPE FAN COIL UNIT WITH 3-SPEED FAN AND 2-POSITION VALVES WITH WIRELESS DOOR SWITCH



Configuration Parameter Name	Configuration Settings
Fan Menu	L-M-H-A
Fan cont. heat.	On
BI1	Motion NO or Motion NC (remote PIR sensor only)
BI2	Door Dry
Pulsed heating	Off
Pipe no.	4
Seq. operation	Ht - Cl

* Wired remote sensor cannot be used at the same time as wireless remote sensor(s).



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closed.

On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closed.

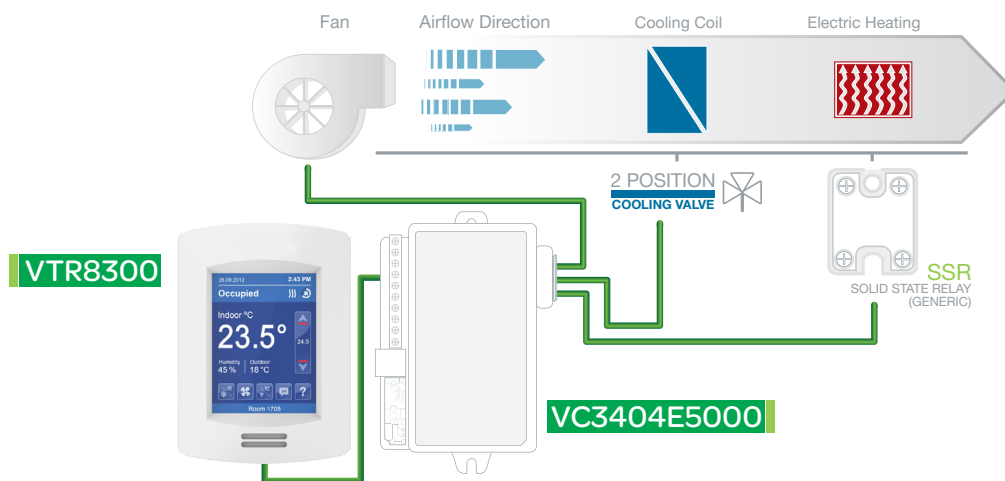
Wireless Door Switch

Wireless door switch automatically toggles occupancy.

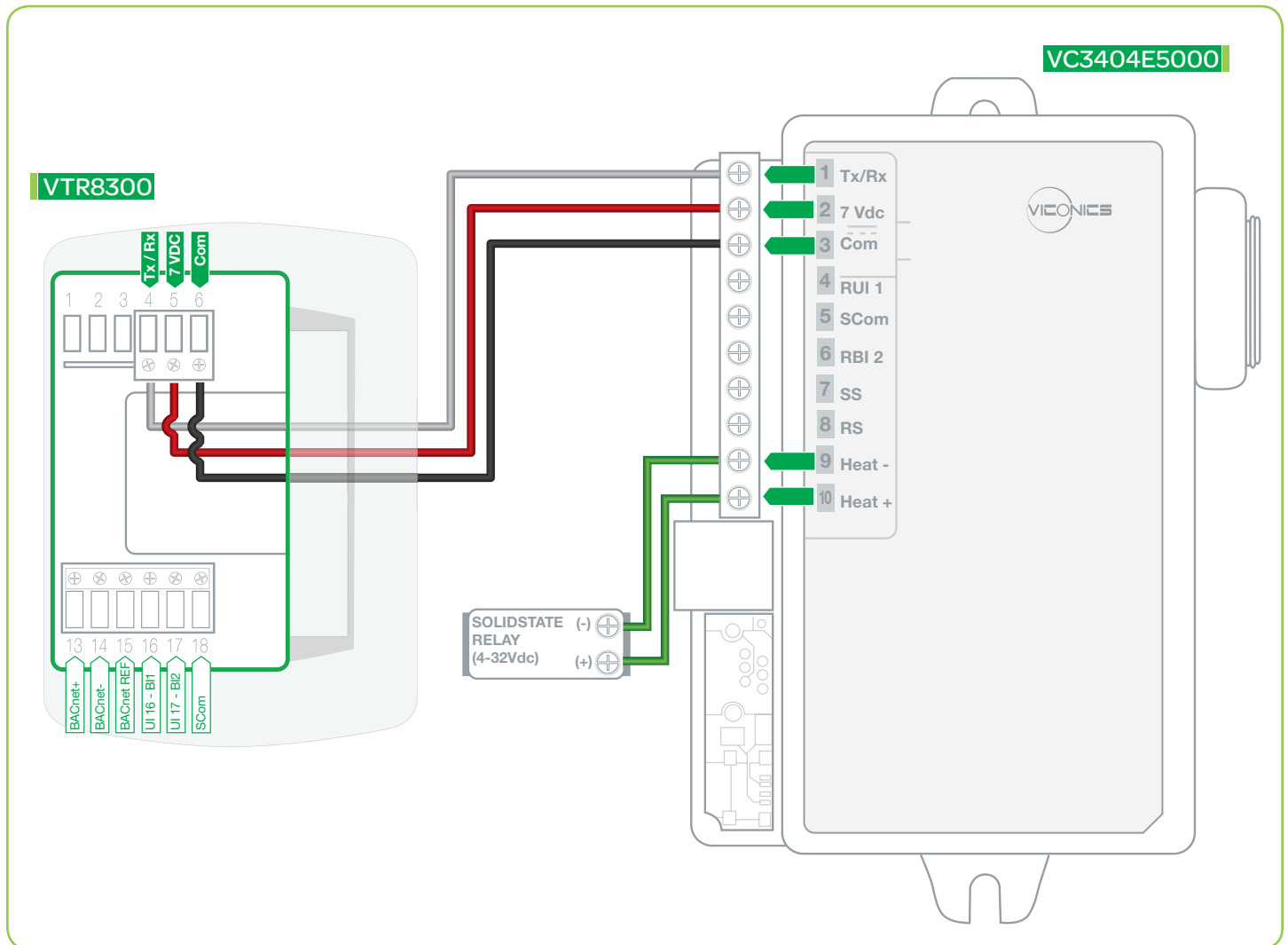
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Can be configured for 2-pipe systems (without changeover).
- Binary inputs can be configured to control occupancy via door or window contact, remote motion sensor, or remote night setback.

VTR83X0A5X00B WITH VC3404E5000 RELAY: COOLING AND ELECTRIC HEAT 2-PIPE FAN COIL UNIT WITH 3-SPEED FAN, DEHUMIDIFICATION AND 2-POSITION VALVES



Configuration parameter name	Configuration settings
Fan menu	L-M-H-A
Fan cont. heat	On
Pulsed heating	On
Pipe no.	2
Seq. operation	Ht-Cl



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature.

On Call for Heat

Electric heat operates to maintain room temperature. Cooling valve closes and dehumidification is disabled.

On a Demand for Dehumidification

Dehumidification achieved via cooling coil using reheat if necessary.

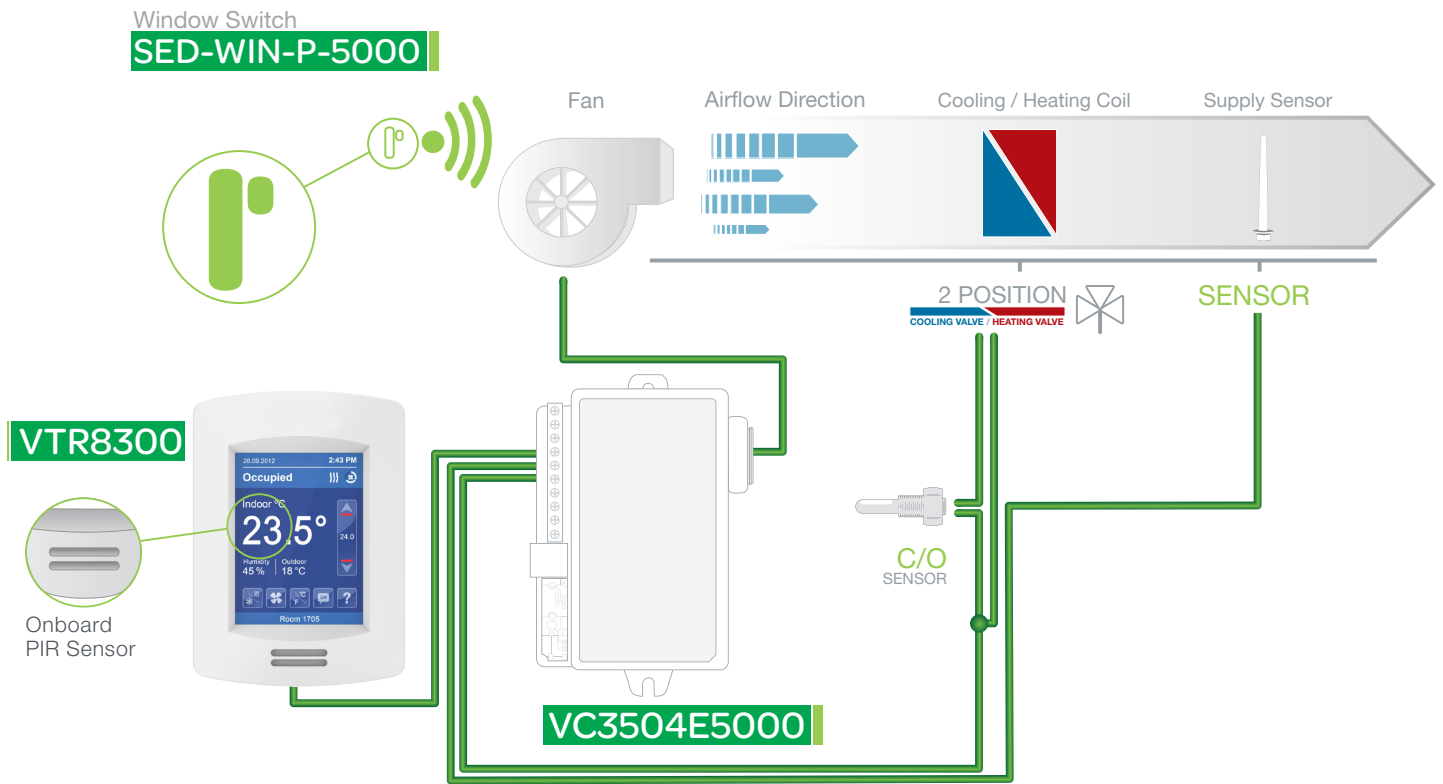
Dehumidification only allowed in COOL mode or if cooling is enabled in AUTO mode.

Dehumidification disabled if room temperature falls below low ambient lockout temperature, which is cooling setpoint minus configuration defined deadband value.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or return duct sensor ready.
- Can be configured for 2-pipe systems with changeover.
- Binary inputs can be configured to control occupancy via door or window contact, remote motion sensor, remote night setback, or provide alarms for service or filter monitoring.
- Universal input can be configured for changeover sensor.

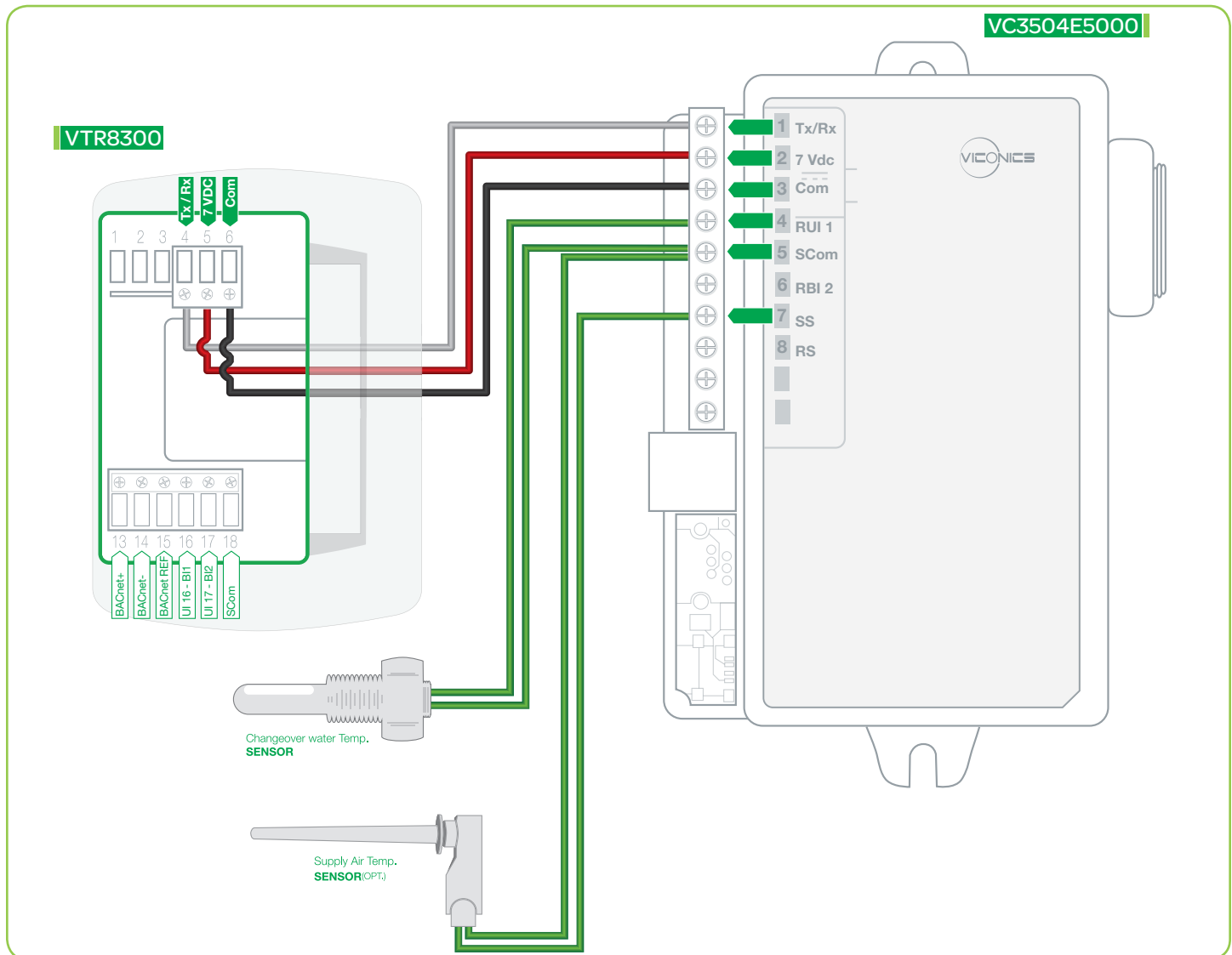
VTR83X0A5X00B WITH VC3504E5000 RELAY AND VCM8000V5000P ZIGBEE PRO MODULE: HEATING/COOLING WITH CHANGEOVER SENSOR 2-PIPE FAN COIL UNIT WITH 3-SPEED FAN AND WIRELESS WINDOW SWITCH



Changeover Sensor: 10K Ohm type 2

Supply Sensor: 10K Ohm type 2

Configuration Parameter Name	Configuration Settings
Fan Menu	L-M-H-A
Fan cont	On
BI1	Window
RUI1	COS
Pipe No	2
Seq. operation	Cool



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

If supply water temperature is less than 24°C (75F), valve opens to maintain room temperature, else valve closes.

On Call for Heat

If supply water temperature is greater than 25°C (77F), valve opens to maintain room temperature, else the valve closes.

Supply Air Sensor

Only used for monitoring. Shows automatically if sensor is connected.

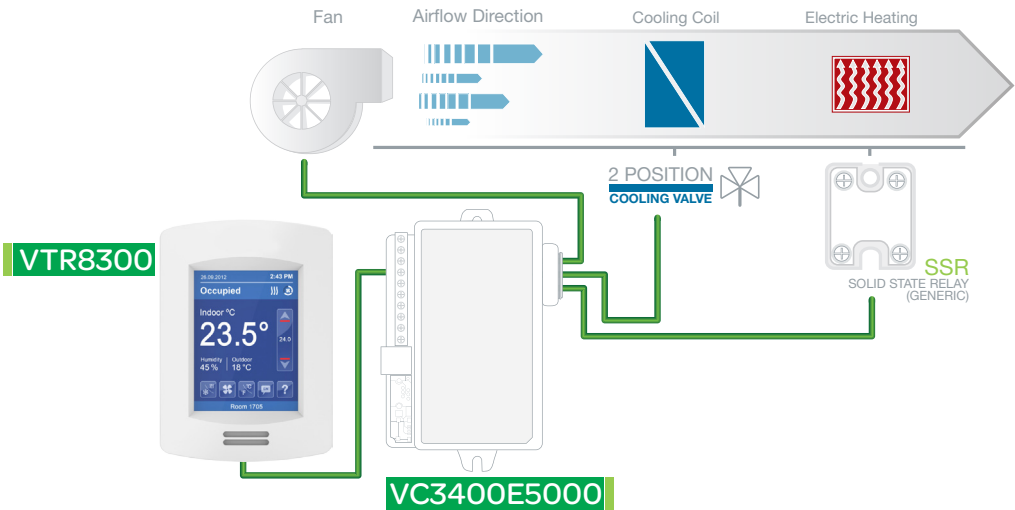
Wireless Window Switch

Wireless window switch automatically locks out heating/cooling when window is opened.

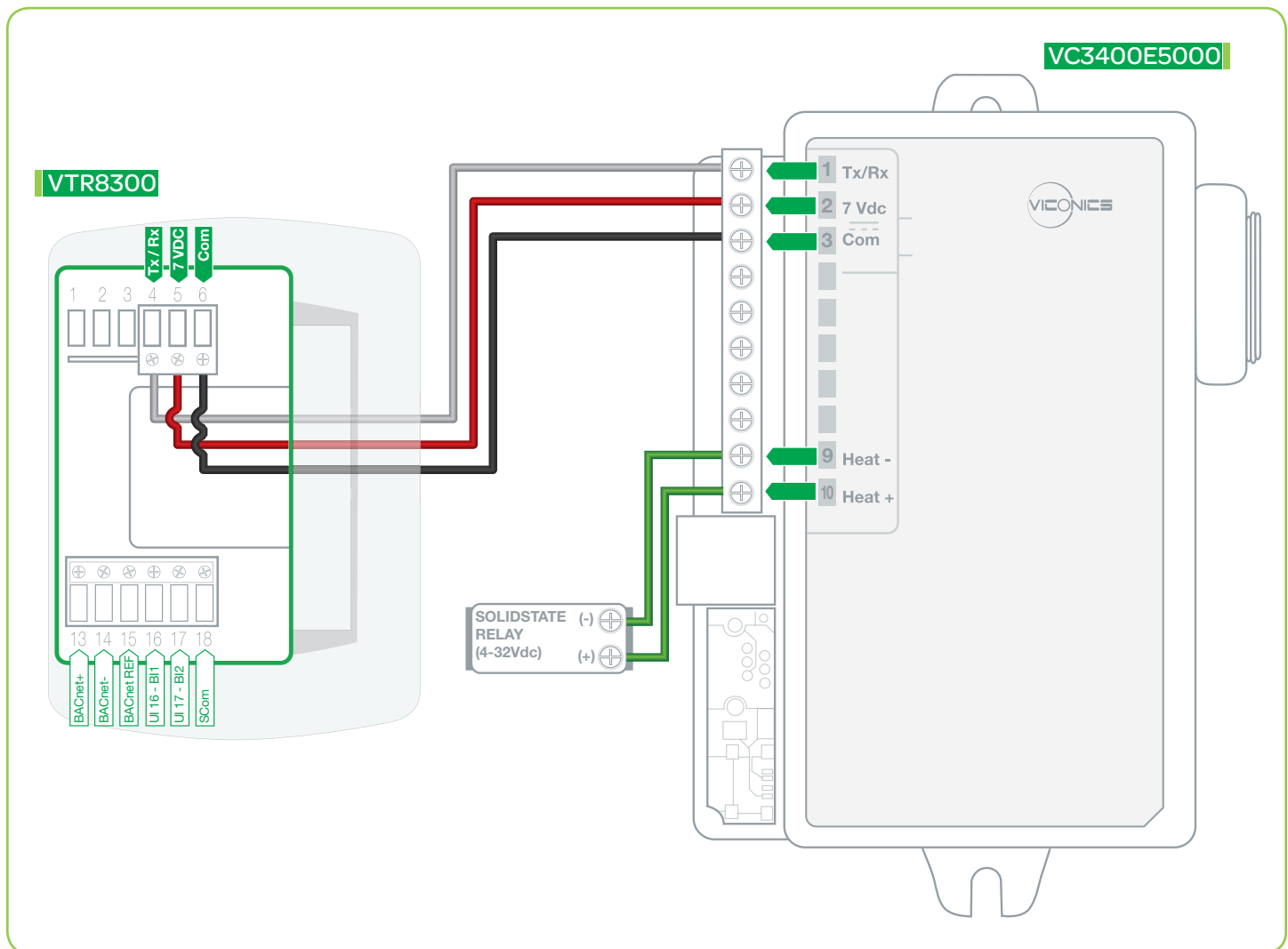
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or return duct sensor ready.
- Binary inputs can be configured to control occupancy via door or window contact, remote motion sensor, remote night setback, or provide alarms for service or filter monitoring.

VTR83X0A5X00B WITH VC3400E5000 RELAY: COOLING AND ELECTRIC HEAT 2-PIPE FAN COIL UNIT WITH 3-SPEED FAN, DEHUMIDIFICATION AND 2-POSITION VALVES



Configuration parameter name	Configuration settings
Fan menu	L-M-H-A
Fan cont. heat.	On
Pulsed Heating	On
Pipe No	2
Seq. operation	Cool-Rht



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature.

On Call for Heat

Electric heat operates to maintain room temperature. Cooling valve closed and dehumidification is disabled.

On a Demand for Dehumidification

Dehumidification achieved via cooling coil using reheat if necessary.

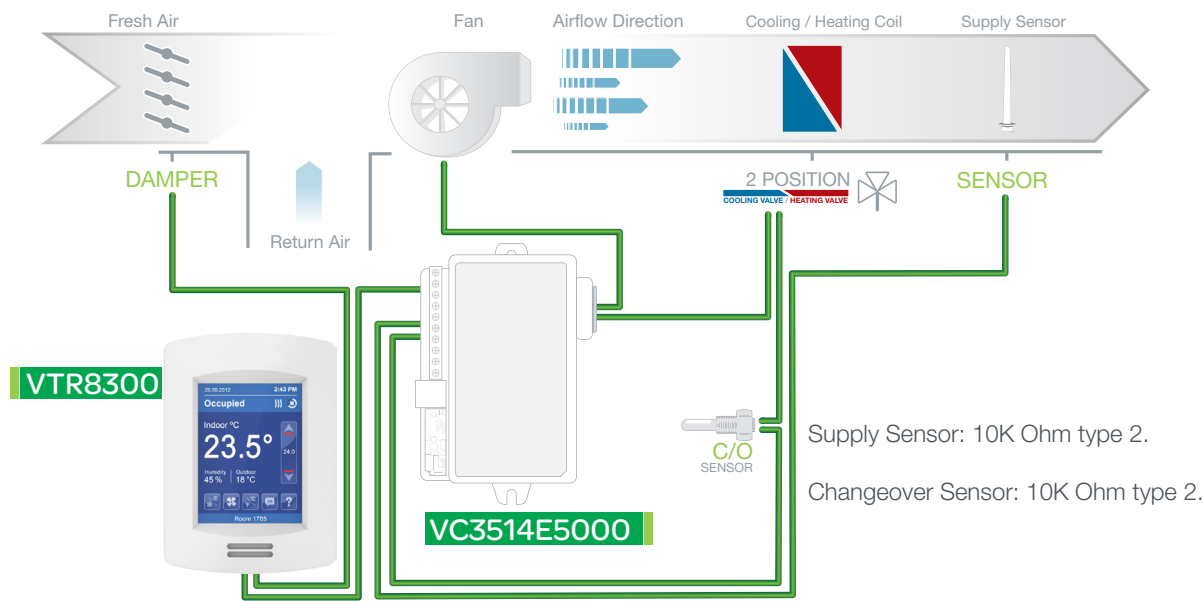
Dehumidification only allowed in COOL mode or if cooling is enabled in AUTO mode.

Dehumidification disabled if room temperature falls below low ambient lockout temperature, which is cooling setpoint minus configuration defined deadband value.

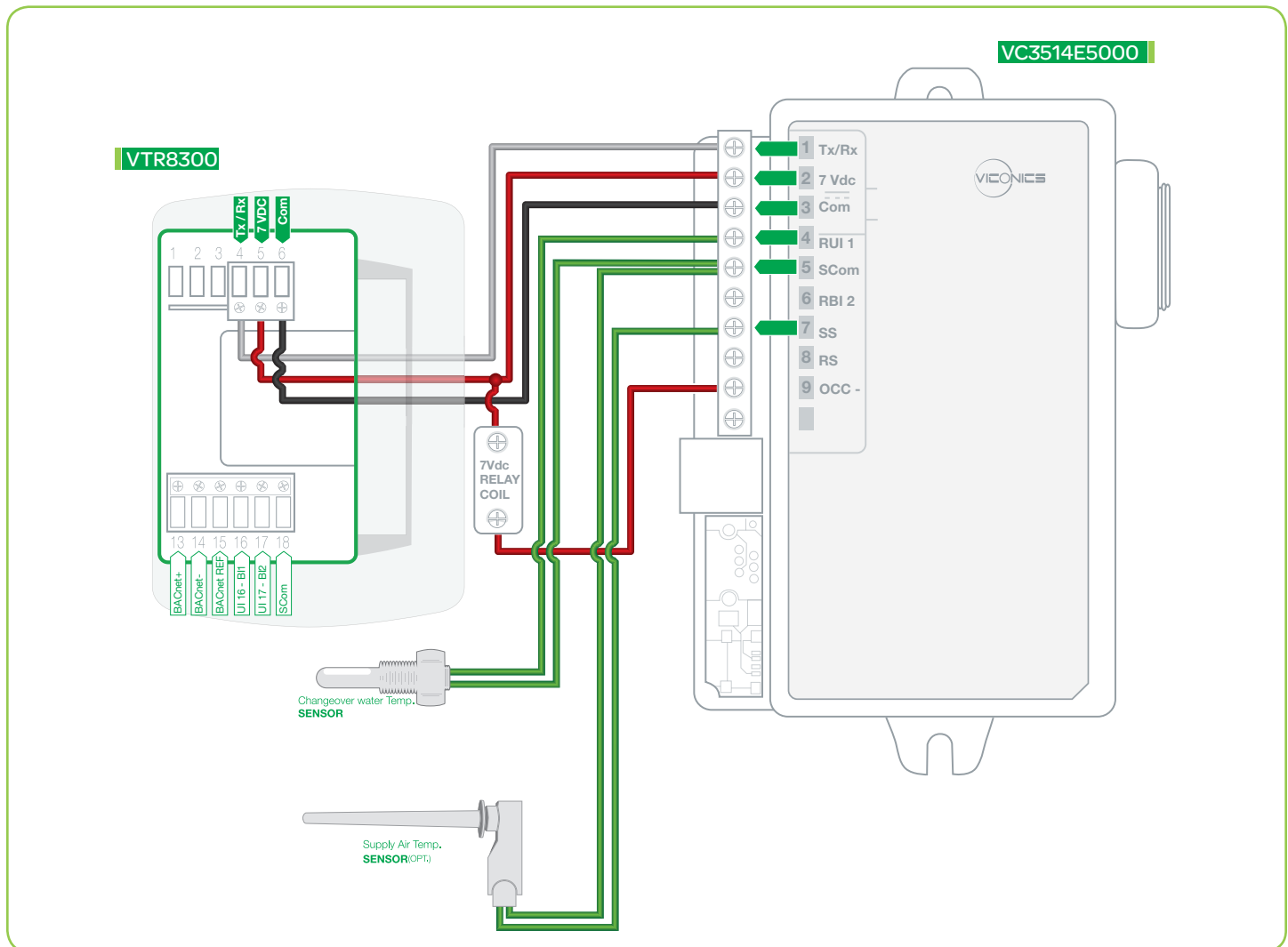
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Binary inputs can be configured to control occupancy via door or window contact, remote motion sensor, remote night setback, or provide alarms for service or filter monitoring.

VTR83X0A5X00B WITH VC3514E5000 RELAY: HEATING/COOLING 2-PIPE FAN COIL UNIT WITH 3-SPEED FAN, FRESH AIR DAMPER AND 2-POSITION VALVES



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Fan cont. heat	On
RUI1	COS
Pulsed Heating	Occ Out
Pipe no.	2
Seq. operation	Cool



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating. The occupancy output opens fresh air damper to minimum position.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling. The fresh air damper closes.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

If supply water temperature is less than 24°C (75F), cooling valve opens to maintain room temperature, else the valve closes.

On Call for Heat

If supply water temperature is greater than 25°C (77F), heating valve opens to maintain room temperature, else the valve closes.

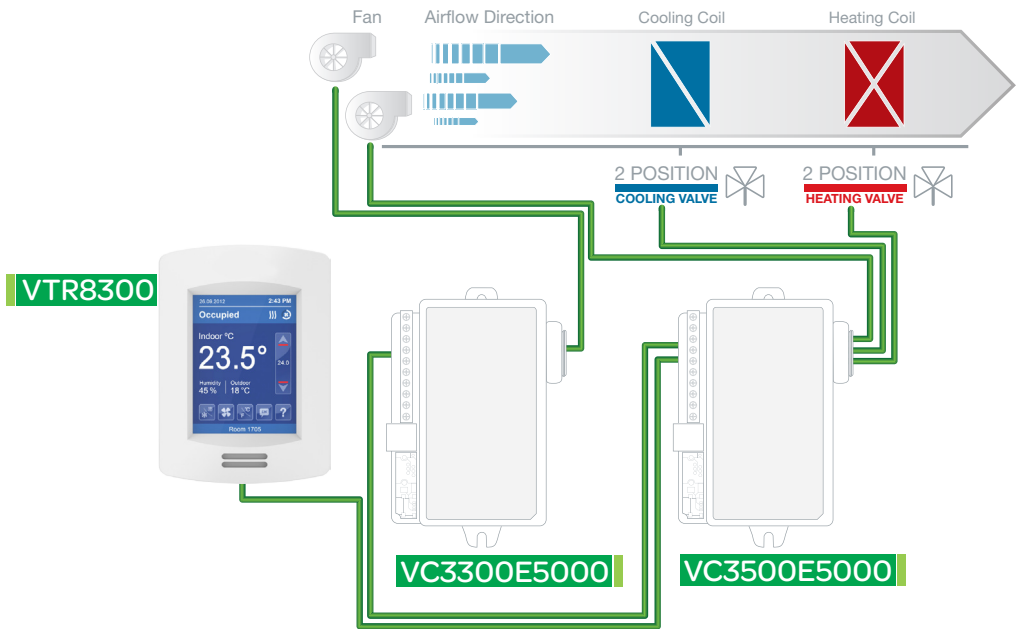
Supply Air Sensor

Only used for monitoring. Shows automatically if sensor is connected.

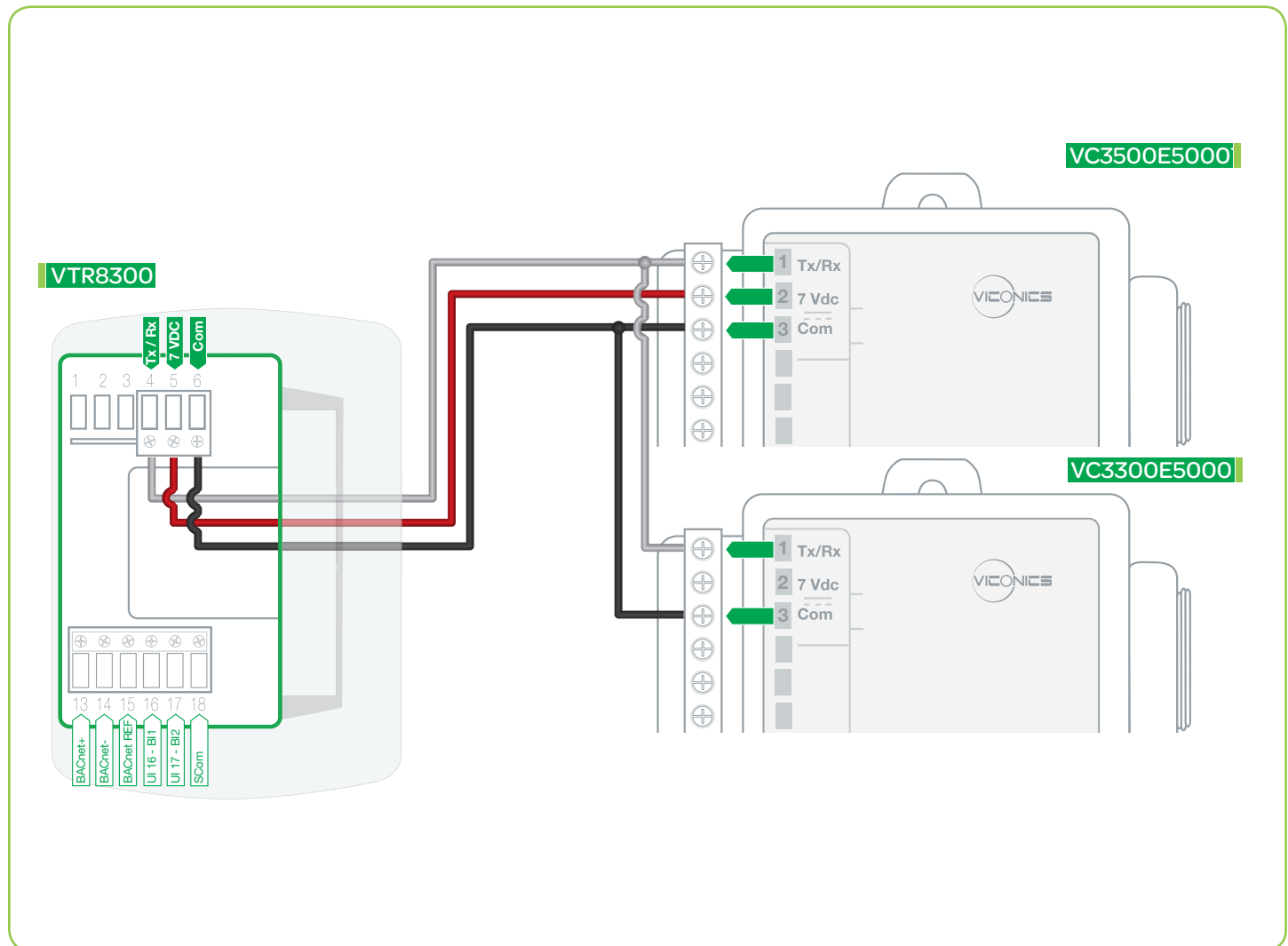
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or return duct sensor ready.
- Binary inputs can be configured to control occupancy via door or window contact, remote motion sensor, remote night setback, or provide alarms for service or filter monitoring.

VTR83X0A5X00B WITH VC3500E5000 AND VC3300E5000 RELAYS: HEATING/COOLING 4-PIPE FAN COIL UNIT WITH 3-SPEED FAN AND 2-POSITION VALVES WITH SLAVE RELAY PACK



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Fan cont. heat	On
Pipe No	4
Seq. operation	Ht-CI



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closes.

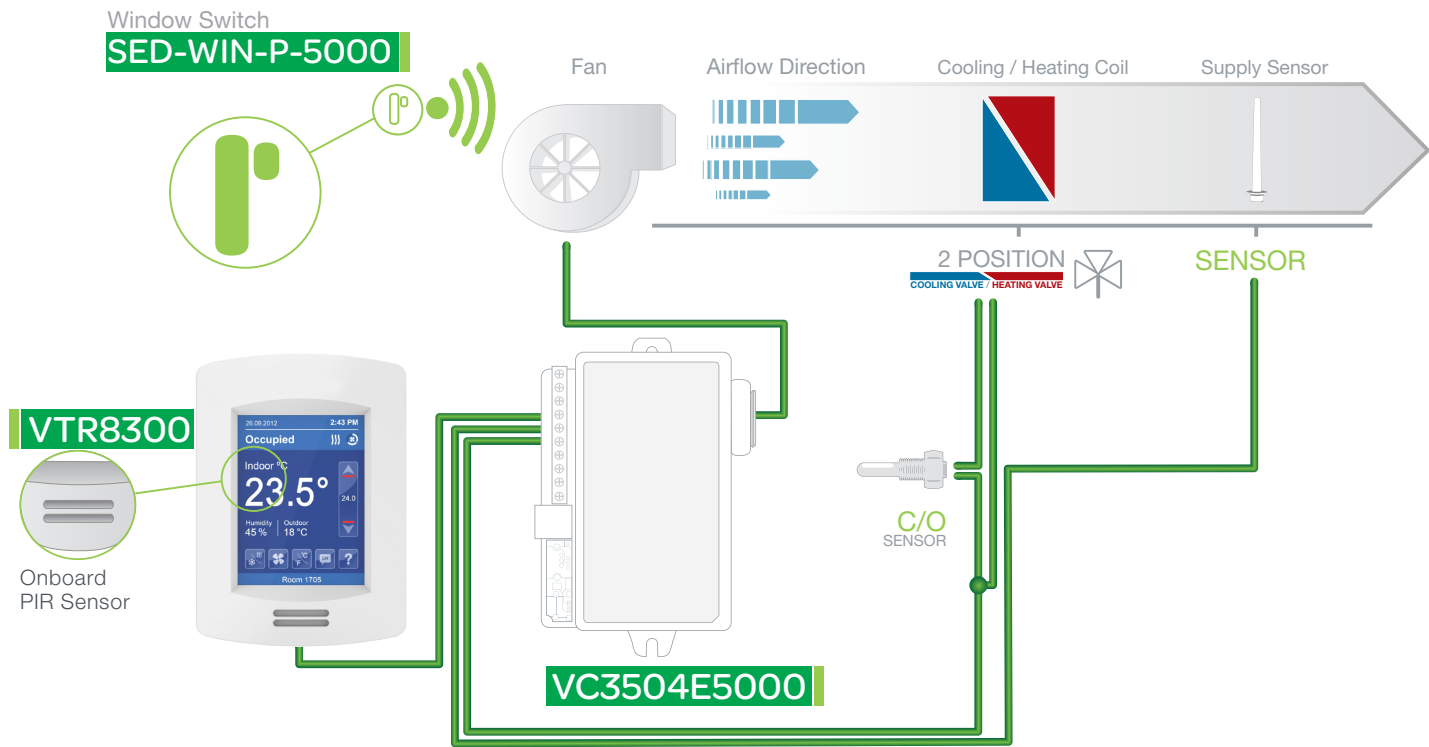
On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closes.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Can be configured for 2-pipe systems without changeover.
- Binary inputs can be configured to control occupancy via door or window contact, remote motion sensor, remote night setback, or provide alarms for service or filter monitoring.

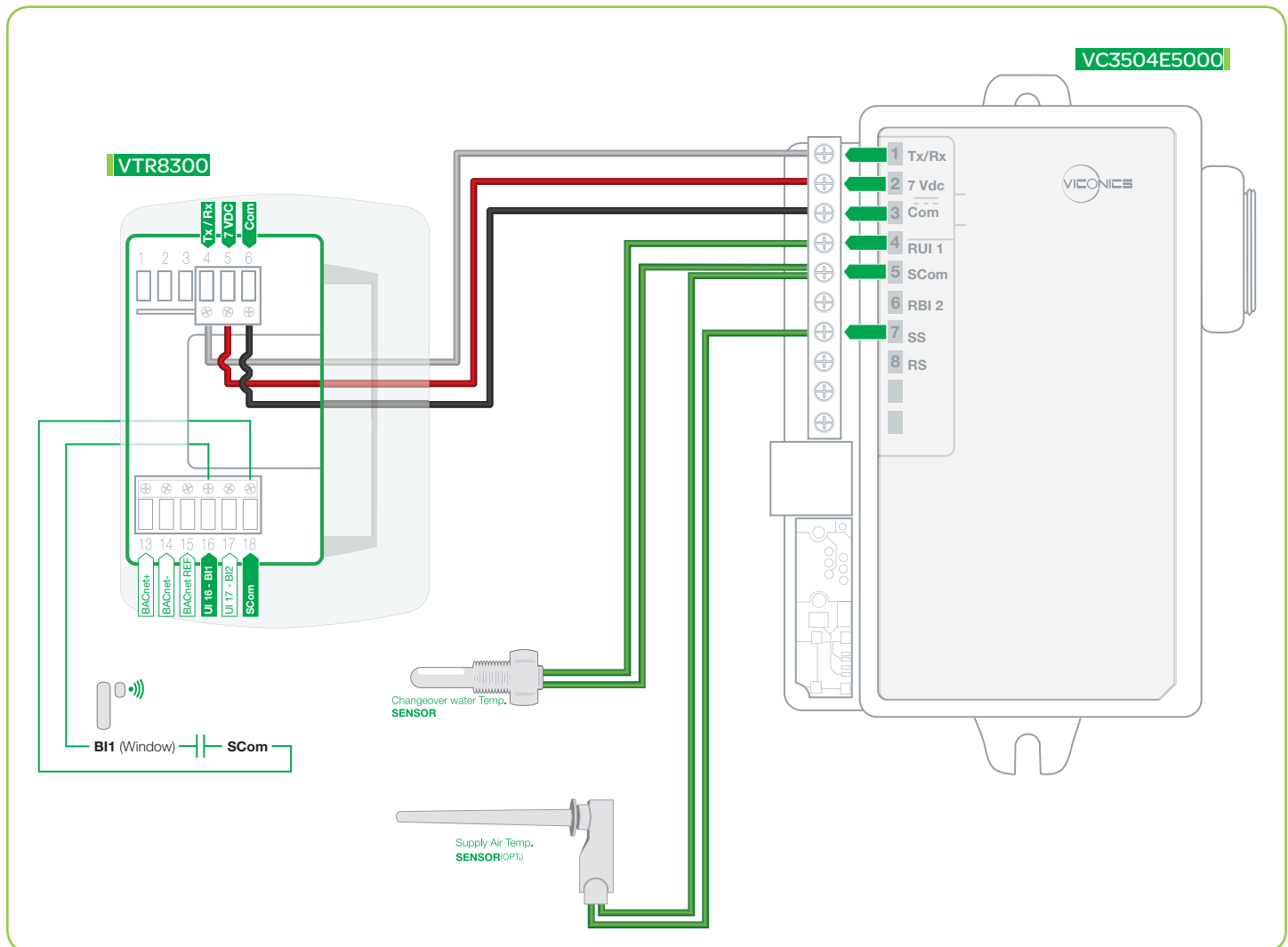
VTR83X0A5X00B WITH VC3504E5000 RELAY: COOLING AND ELECTRIC HEAT
2-PIPE FAN COIL UNIT WITH 3-SPEED FAN AND 2-POSITION VALVES WITH WIRED WINDOW SWITCH



Changeover Sensor: 10K Ohm type 2

Supply Sensor: 10K Ohm type 2

Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Fan cont. heat	On
BI1	Window
RUI1	COS
Pipe no.	2
Seq. operation	Cool



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

If supply water temperature is less than 24°C (75F), cooling valve opens to maintain room temperature, else the valve closes.

On Call for Heat

If supply water temperature is greater than 25°C (77F), heating valve opens to maintain room temperature, else the valve closes.

Supply Air Sensor

Only used for monitoring. Shows automatically if sensor is connected.

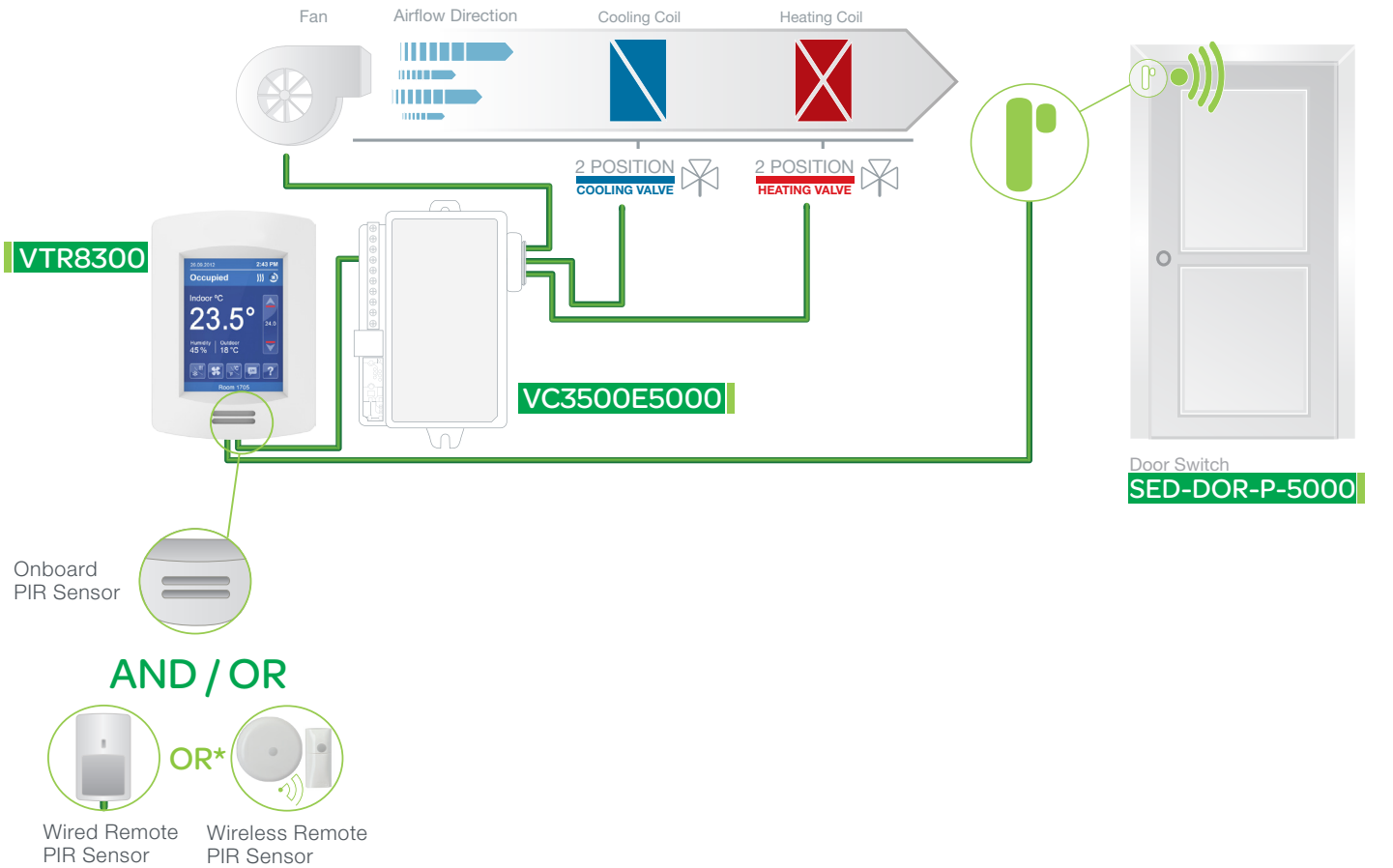
Wired Window Switch

The window switch automatically locks out heating/cooling when window opens.

Options

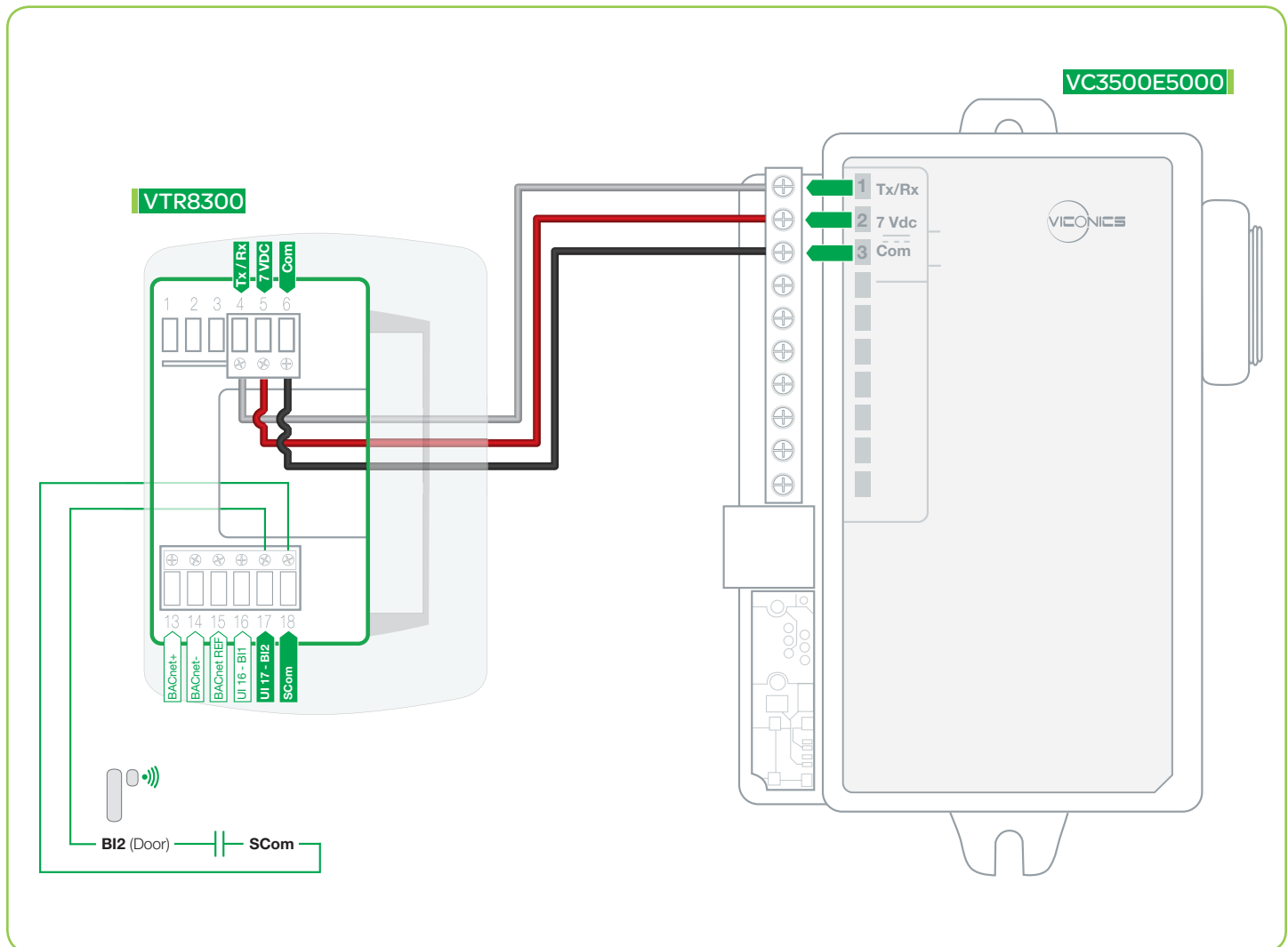
- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Models available with factory installed PIR sensor.
- Remote wall mount or duct sensor ready.
- Can be configured for 2-pipe systems with changeover.
- Binary inputs can be configured to control occupancy via door or window contact, remote night setback, or provide alarms for service or filter monitoring.
- Universal input can be configured for changeover sensor.

VTR83X0A5X00B WITH VC3500E5000 RELAY: HEATING/COOLING 4-PIPE FAN COIL UNIT WITH 3-SPEED FAN AND 2-POSITION VALVES WITH WIRED DOOR SWITCH



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Fan cont. heat	On
BI1	Motion NO or Motion NC (remote PIR sensor only)
BI2	Door Dry
Pipe No	4
Seq. Operat	Ht-CI

* Wired remote sensor cannot be used at the same time as wireless remote sensor(s).



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closes.

On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closes.

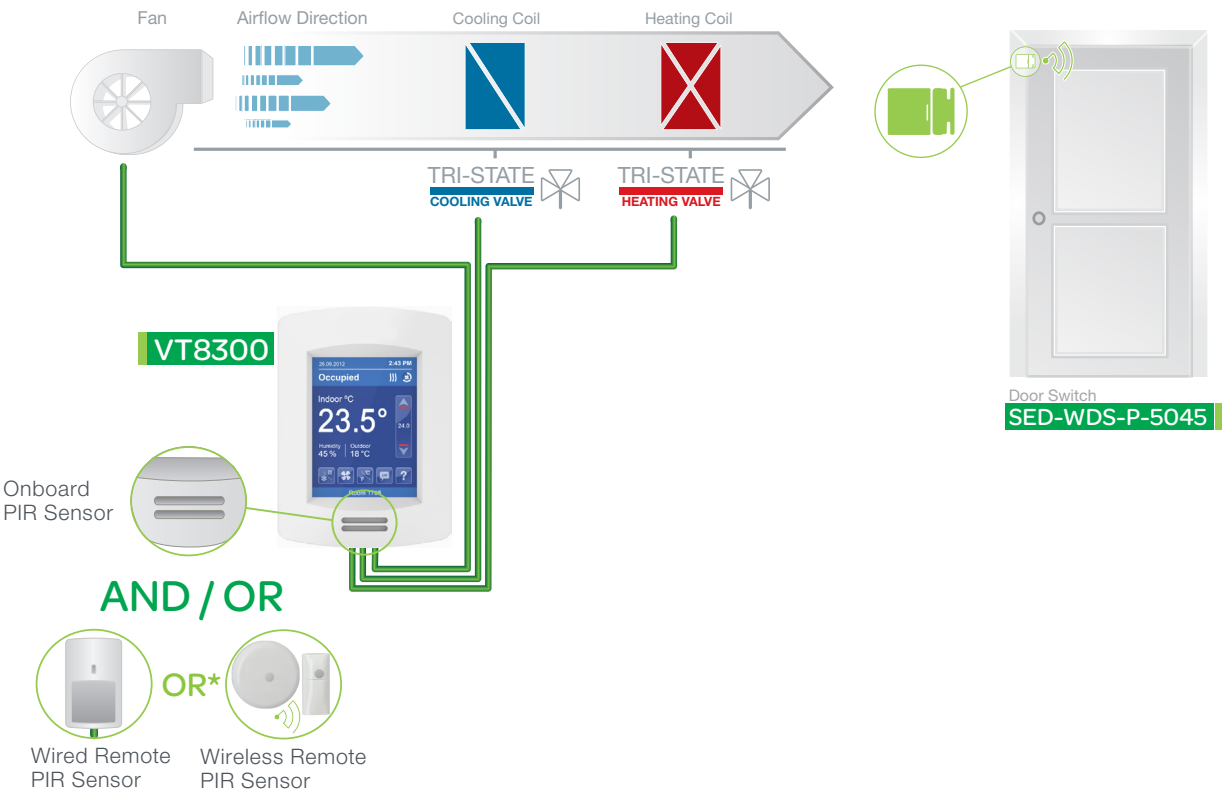
Door Switch

Door switch automatically toggles occupancy.

Options

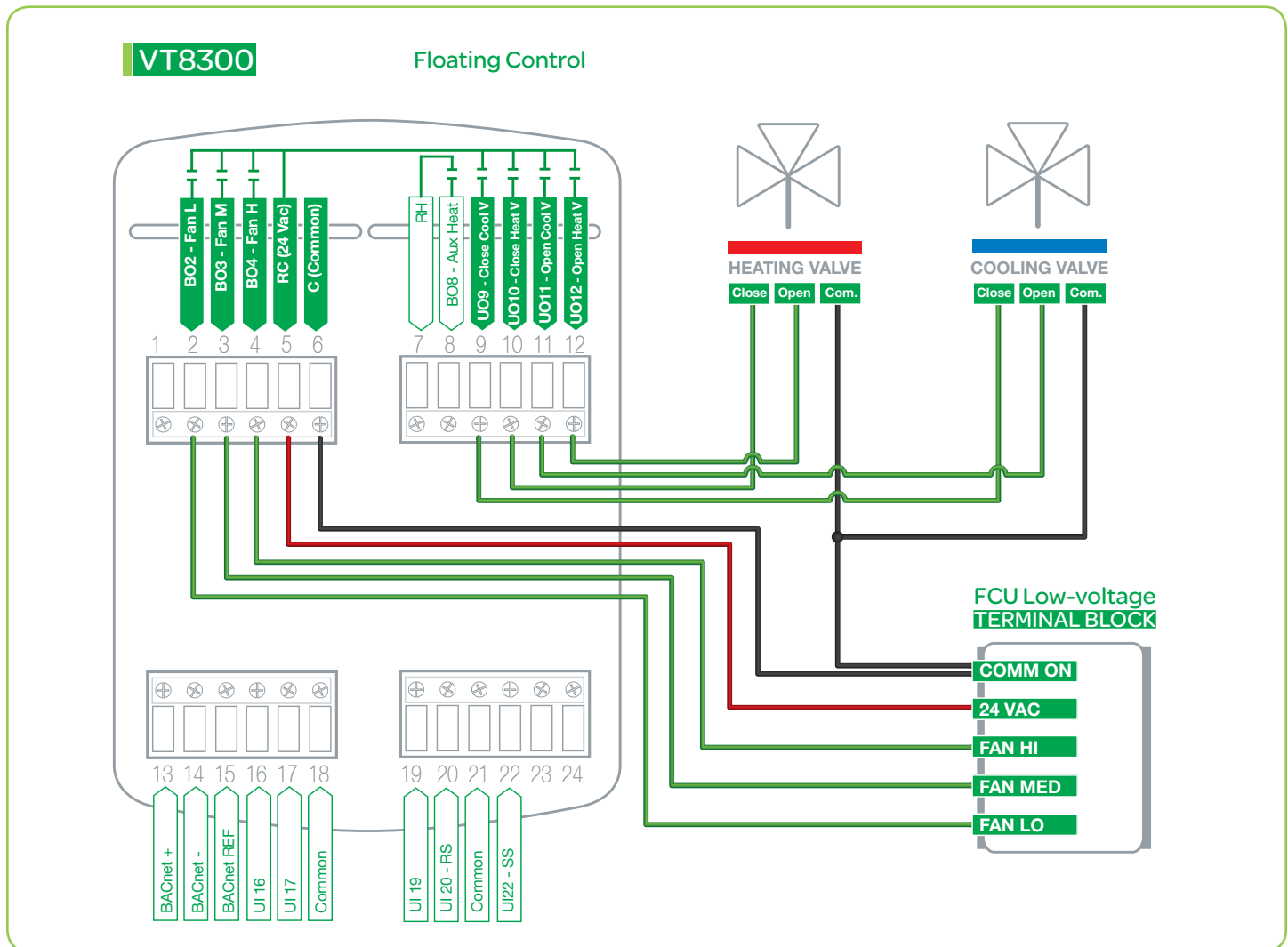
- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Models available with factory installed PIR sensor.
- Can be configured for 2-pipe systems without changeover.
- Binary inputs can be configured to control occupancy via door or window contact, remote motion sensor, remote night setback, or provide alarms for service or filter monitoring.

VT8350U5X00B HEATING/COOLING 4-PIPE FAN COIL UNIT WITH 3-SPEED FAN, TRI-STATE FLOATING VALVES AND DEHUMIDIFICATION SEQUENCE FOR LOW VOLTAGE WITH WIRELESS DOOR SWITCH



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Control Type	Floating
UI16	Motion NO or Motion NC (remote PIR sensor only)
UI17	Door Dry
Pipe no.	4
Seq. operation	Cool / Heat

* Wired remote sensor cannot be used at the same time as wireless remote sensor(s).



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closes.

On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closes.

On Demand for Dehumidification

Dehumidification is achieved via cooling coil using heating coil for reheat if necessary.

Dehumidification is only allowed in COOL mode, or if cooling is enabled in AUTO mode.

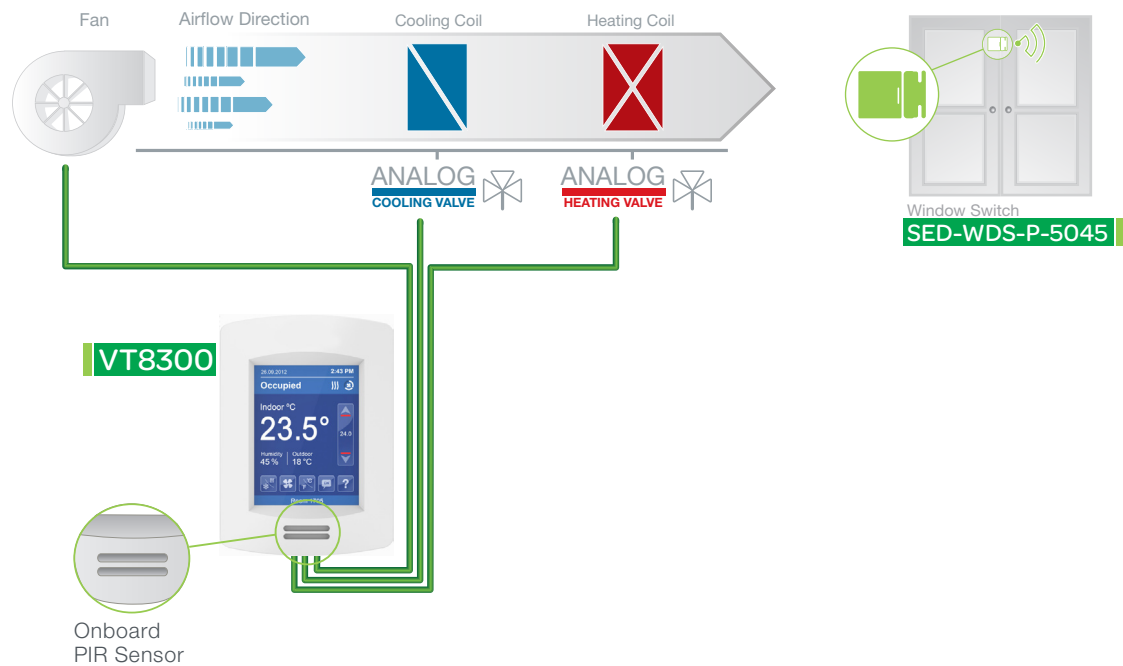
Dehumidification is disabled if room temperature falls below low ambient lockout temperature, which is the cooling setpoint minus the configuration defined deadband value.

Reheat disabled if cooling demand reaches 100%.

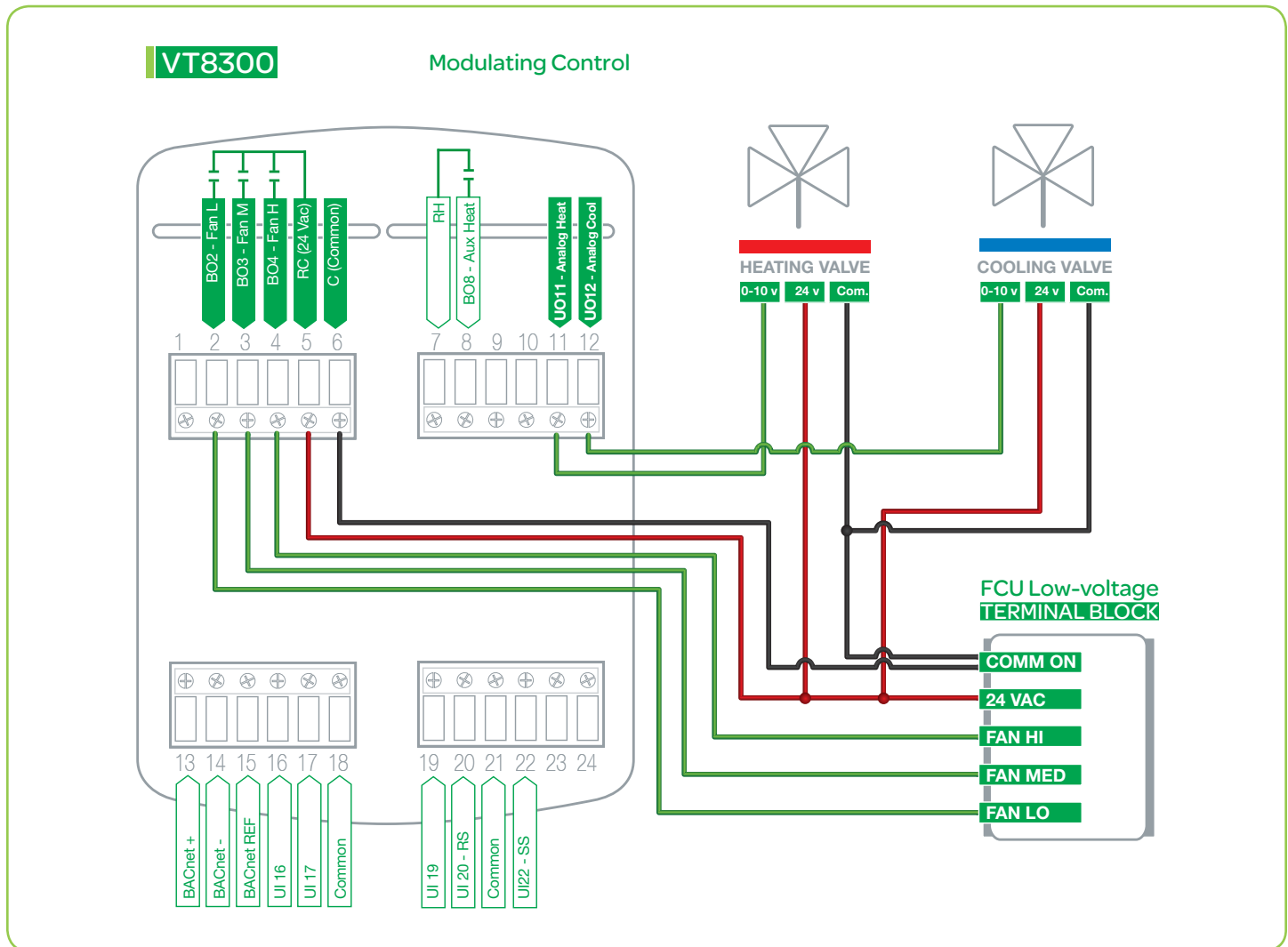
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 2-pipe systems with changeover.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Universal input can be configured for changeover sensor.

VT8350U5X00B HEATING/COOLING 4-PIPE FAN COIL UNIT WITH 3-SPEED FAN, 0-10 VDC ANALOG VALVES AND DEHUMIDIFICATION SEQUENCE FOR LOW VOLTAGE WITH WIRELESS WINDOW SWITCH



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Pipe no.	4
Seq. operation	Cool / Heat



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating. The changeover sensor sends supply air temperature to controller.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closes. Dehumidification enabled.

On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closes. Dehumidification disabled.

On Demand for Dehumidification

Dehumidification is achieved via cooling coil using heating coil for reheat if necessary.

Dehumidification only allowed in COOL mode, or if cooling is enabled in AUTO mode.

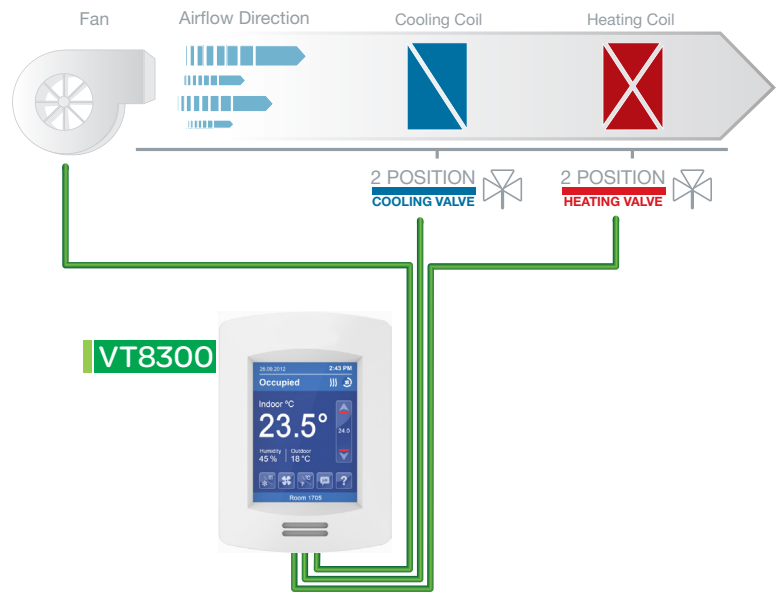
Dehumidification disabled if room temperature falls below low ambient lockout temperature, which is cooling setpoint minus configuration defined deadband value.

Reheat disabled if cooling demand reaches 100%.

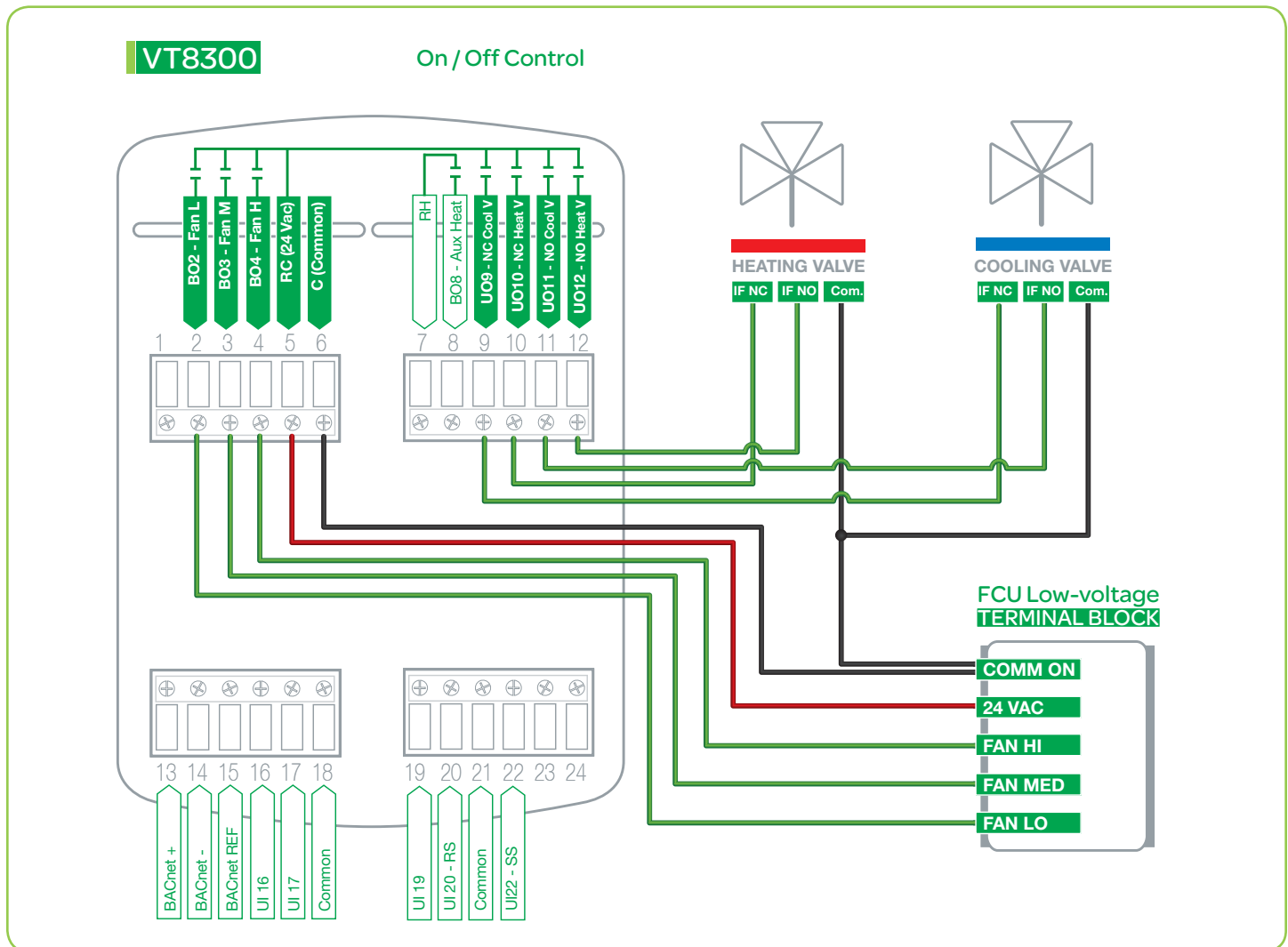
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 2-pipe systems.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Universal input can be configured for changeover sensor.

VT8350U5X00B HEATING/COOLING 4-PIPE FAN COIL UNIT WITH 3-SPEED FAN, 2-POSITION VALVES AND DEHUMIDIFICATION SEQUENCE FOR LOW VOLTAGE



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Control Type	On/Off
Pipe no.	4
Seq. operation	Cool/Heat



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closes. Dehumidification enabled.

On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closes. Dehumidification disabled.

On Demand for Dehumidification

Dehumidification is achieved via cooling coil using heating coil for reheat if necessary.

Dehumidification only allowed in COOL mode, or if cooling is enabled in AUTO mode.

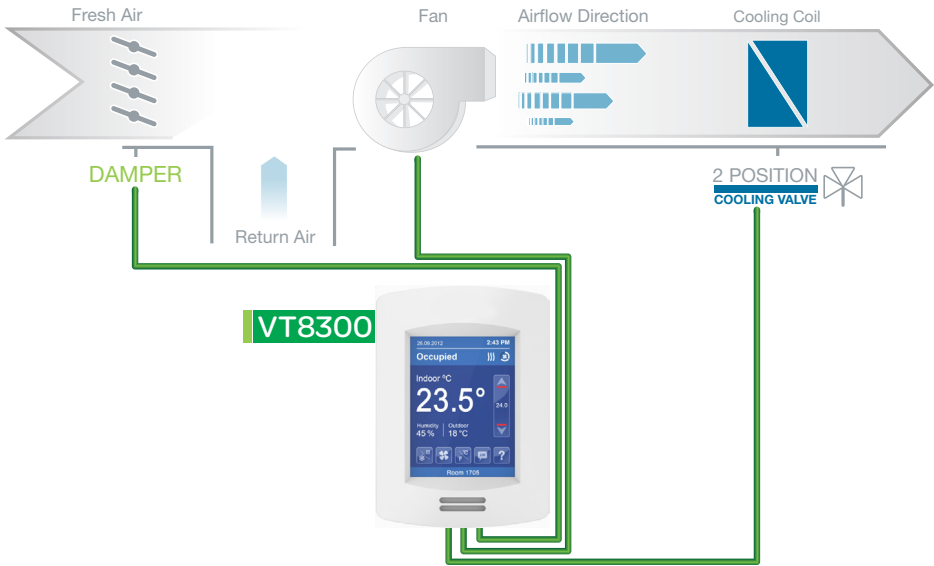
Dehumidification disabled if room temperature falls below low ambient lockout temperature, which is cooling setpoint minus configuration defined deadband value.

Reheat disabled if cooling demand reaches 100%.

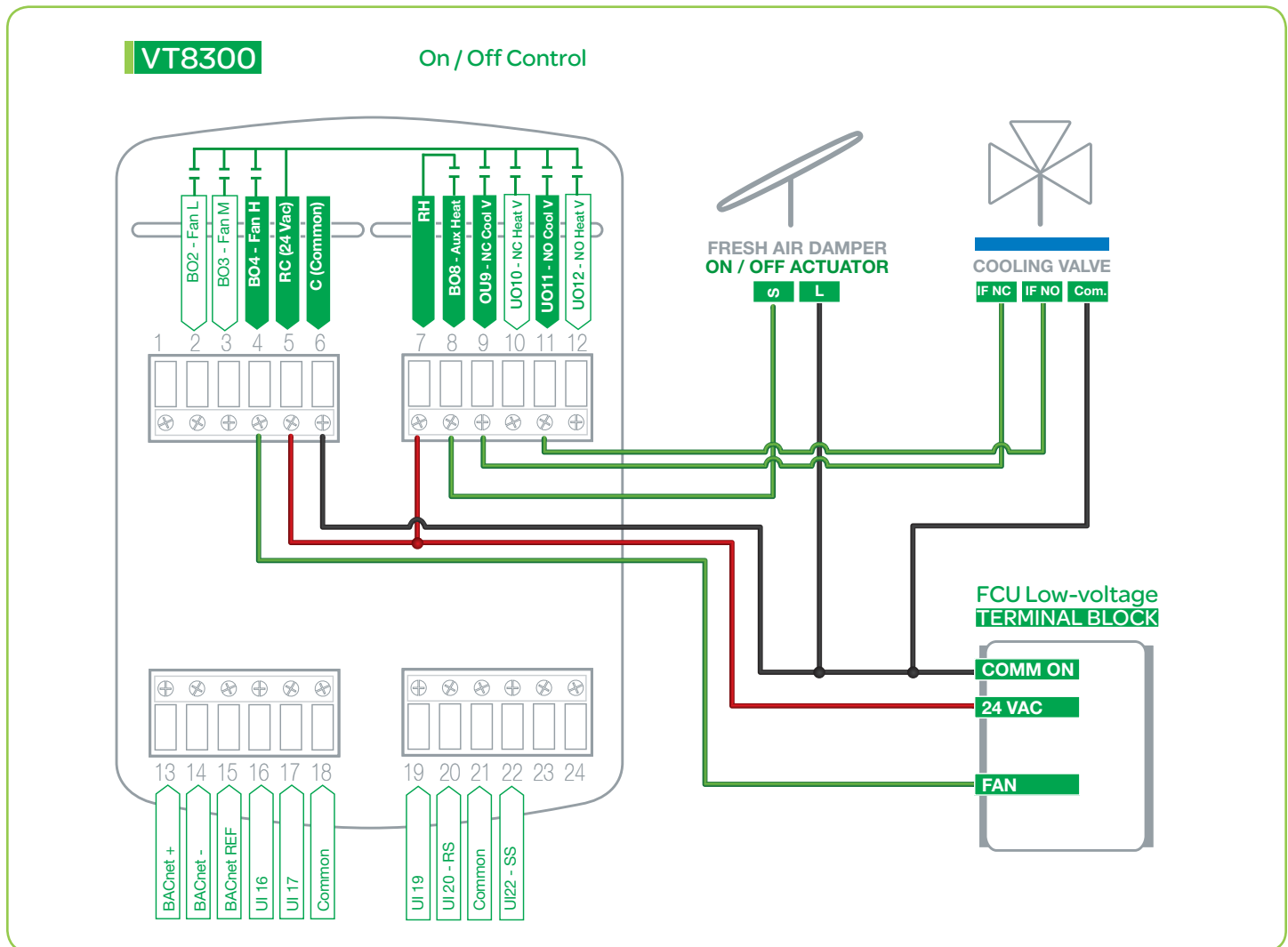
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Models available with factory installed PIR sensor.
- Remote wall mount or duct sensor ready.
- Can be configured for 2-pipe systems.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Universal input can be configured for changeover sensor.

VT83X0U5X00B COOLING ONLY 2-PIPE FAN COIL UNIT WITH SINGLE SPEED FAN, 2-POSITION COOLING VALVE AND FRESH AIR DAMPER FOR LOW VOLTAGE



Configuration Parameter Name	Configuration Settings
Fan menu	On-Auto
Control Type	On/Off
BO8 AuxOut	Aux NO
Pipe no.	2
Seq. operation	Cool only



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating. The auxiliary contact closes forcing fresh air damper to its minimum position.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling. The auxiliary contact opens causing fresh air damper to close completely.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter. The auxiliary contact closes forcing fresh air damper to its minimum position.

On Call for Cool

Cooling valve opens.

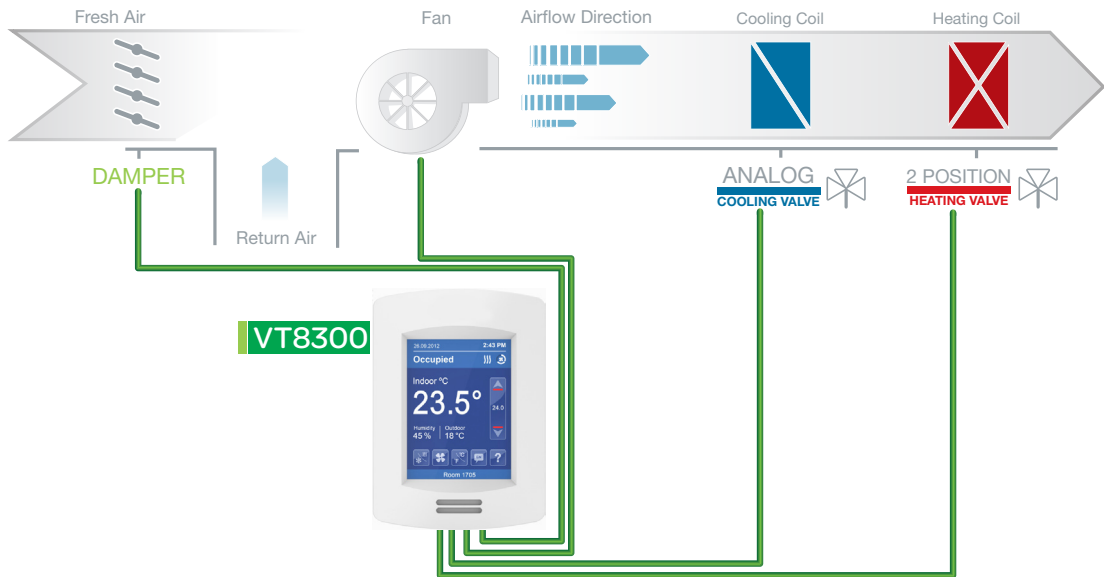
On Call for Heat

Cooling valve closes.

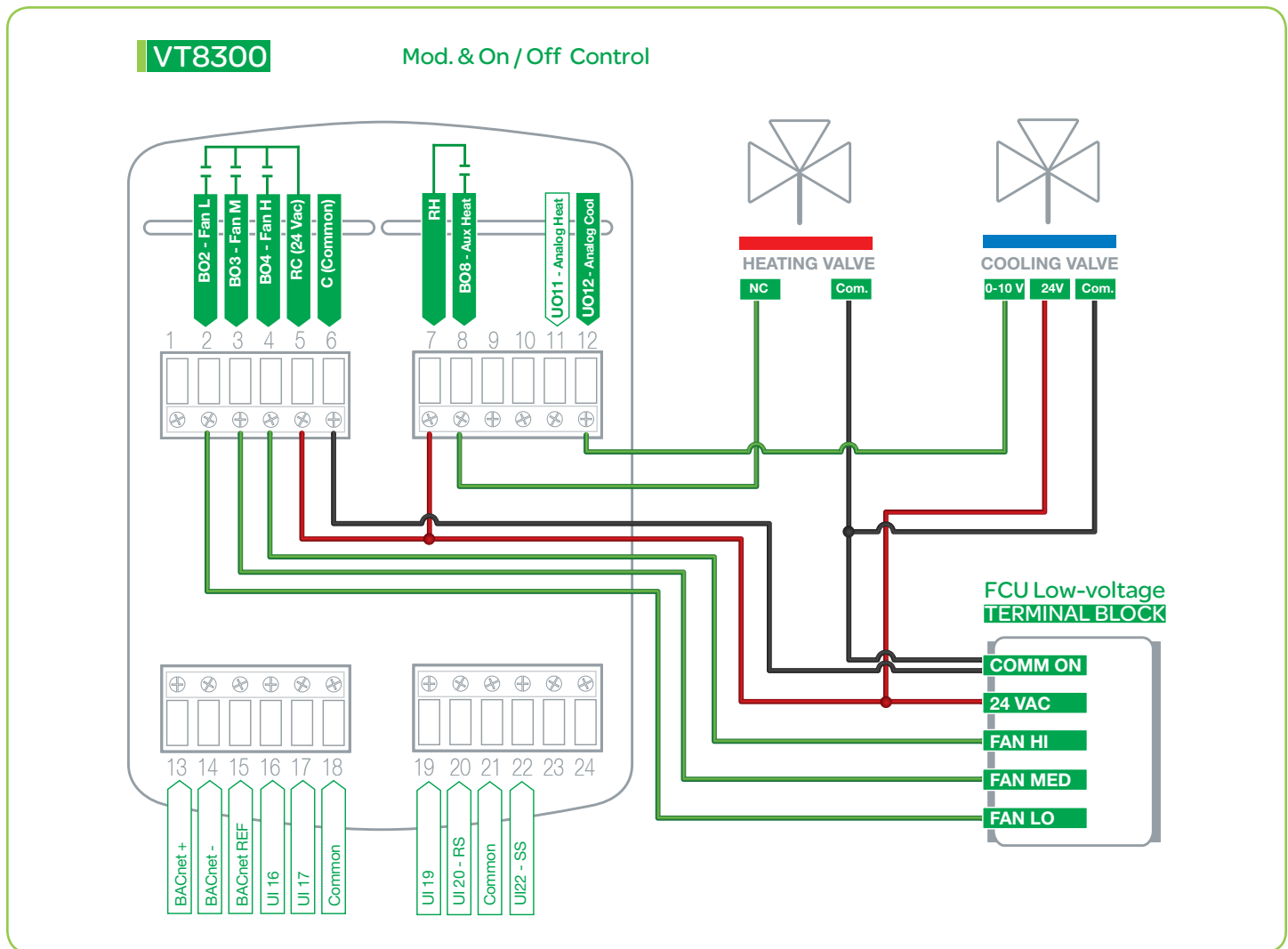
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 4-pipe systems.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Can be configured for two speed or three speed fan control.

VT83X0U5X00B COOLING WITH REHEAT 4-PIPE FAN COIL UNIT WITH 3-SPEED FAN, ANALOG COOLING VALVE AND N.C ON/OFF HEATING VALVE FOR LOW VOLTAGE



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
BO8 Out Time	0 = 15 Minute
BO8 AuxOut	0
Pipe no.	4
Seq. operation	Cool-rht



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Analog valve starts modulating based on cooling demand.

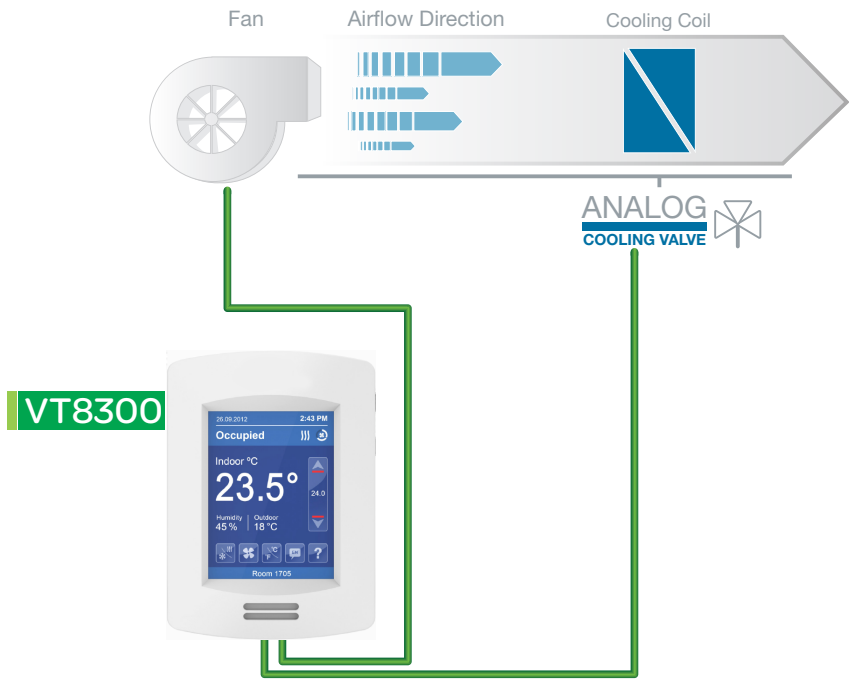
On Call for Heat

Heating valve opens.

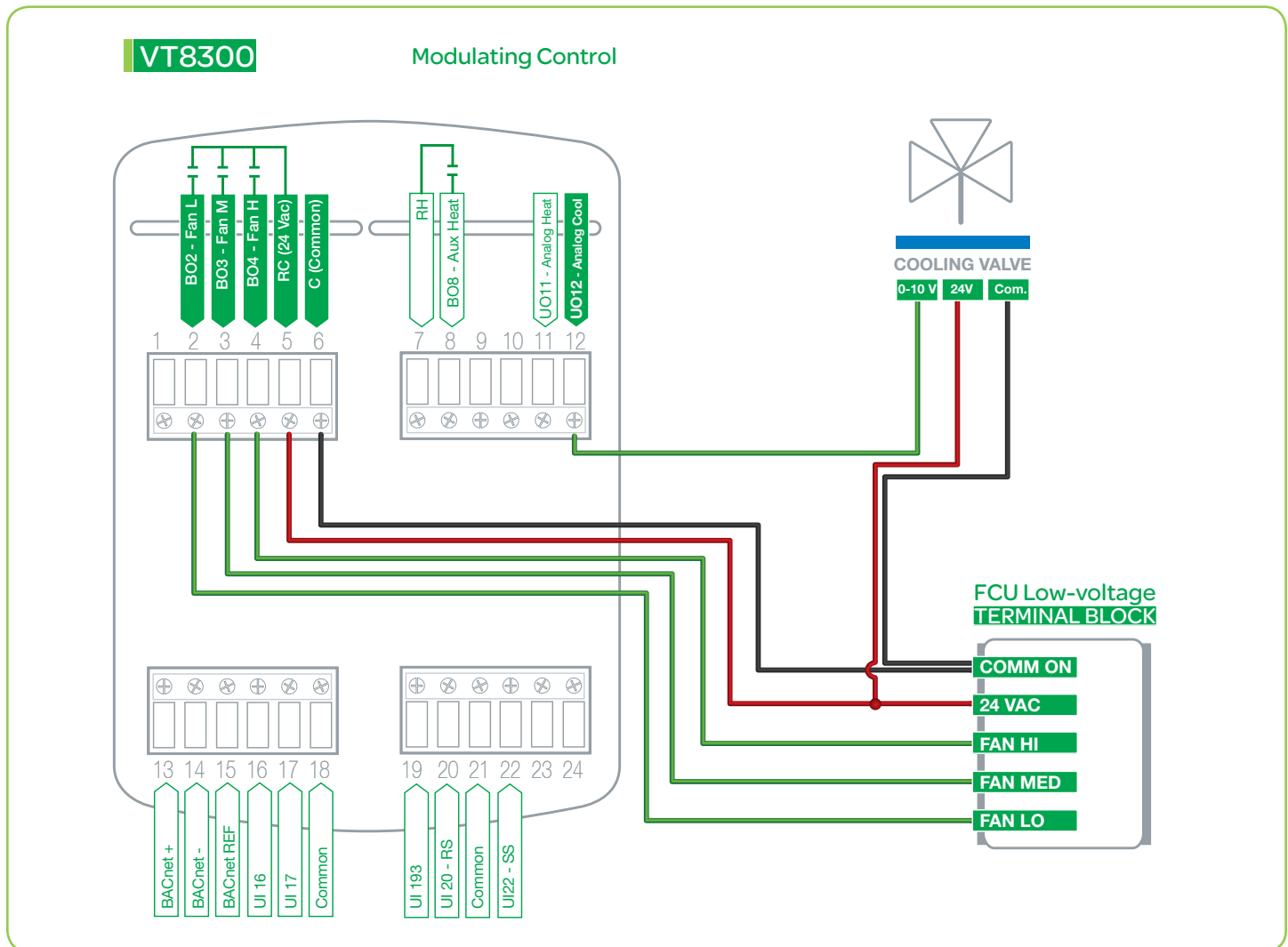
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 2-pipe systems.
- Can be configured to single or two speed fan.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.

VT83X0U5X00B COOLING ONLY 2-PIPE FAN COIL UNIT WITH 3-SPEED FAN AND 0-10VDC ANALOG COOLING VALVE FOR LOW VOLTAGE



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Pipe no.	2
Seq. operation	Cool only



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Analog valve modulates allowing cool air to flow to reach setpoint.

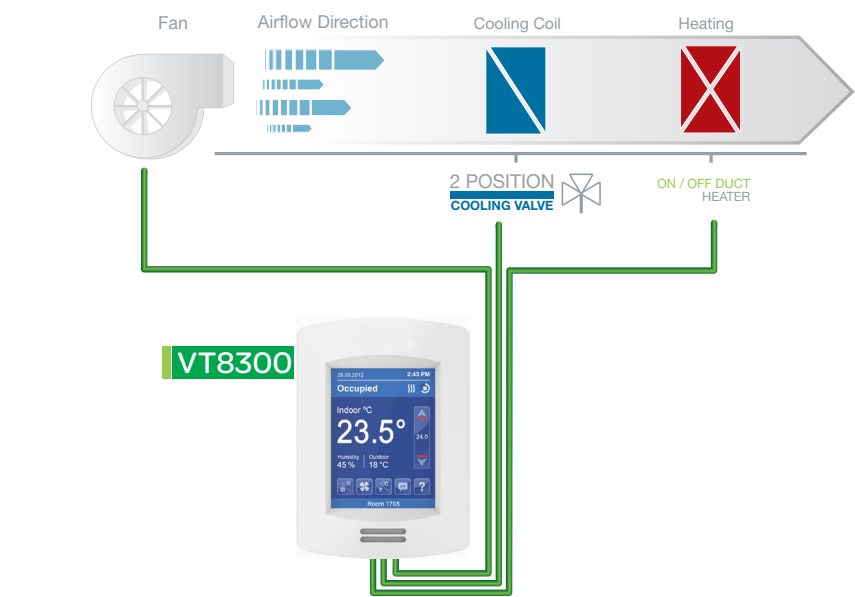
On Call for Heat

Valve closes.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 4-pipe systems.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Can be configured to two or three speed fan.

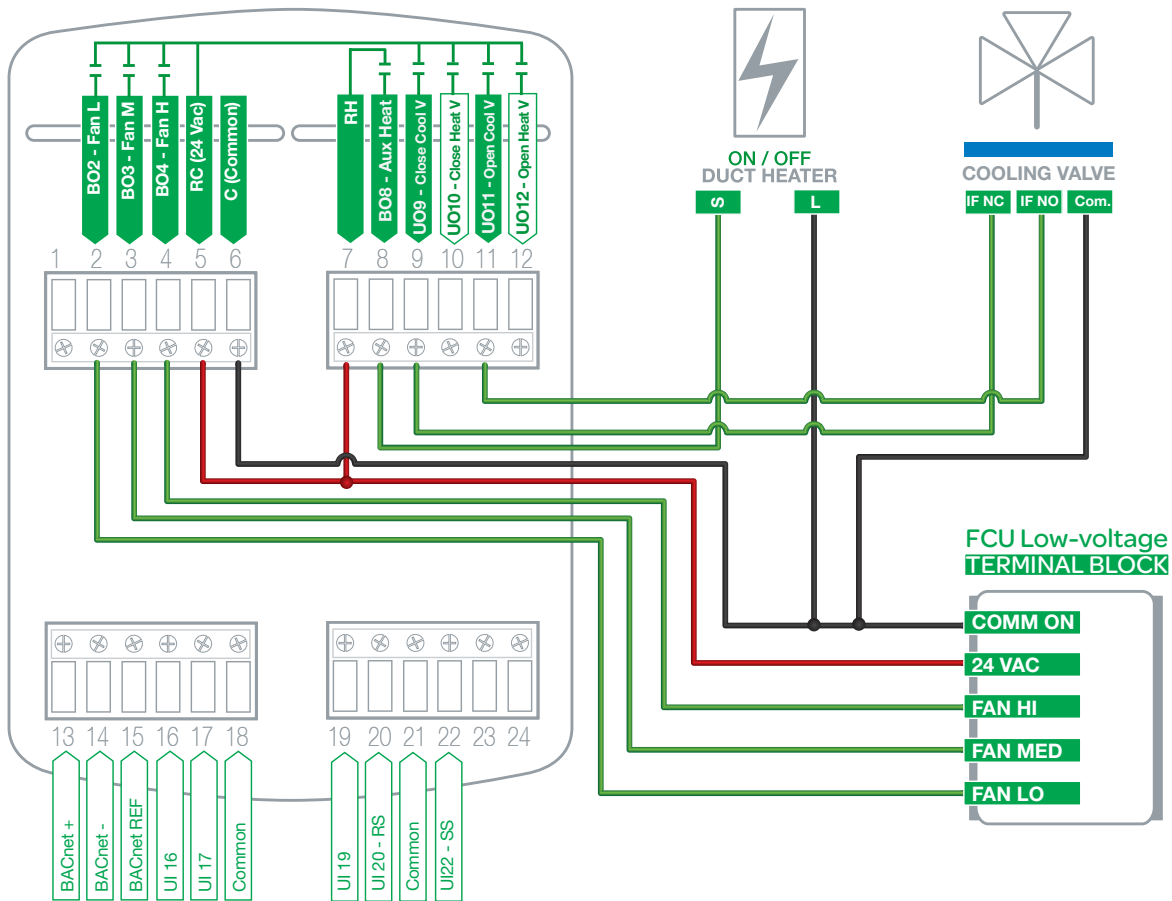
VT83X0U5X00B COOLING WITH REHEAT 2-PIPE FAN COIL UNIT WITH 3-SPEED FAN, 2-POSITION VALVE AND ELECTRIC REHEAT FOR LOW VOLTAGE



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Control Type	On/Off
BO8 Out Time	0 = 15 Minute
BO8 AuxOut	0
Pipe no.	2
Seq. operation	Cool-rht

VT8300

On / Off Control



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating. The changeover sensor sends supply air temperature to controller.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens. Electric heat stays Off.

On Call for Heat

Valve closes. Electric heat activates.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 4-pipe systems.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Can be configured to single or two speed fan.

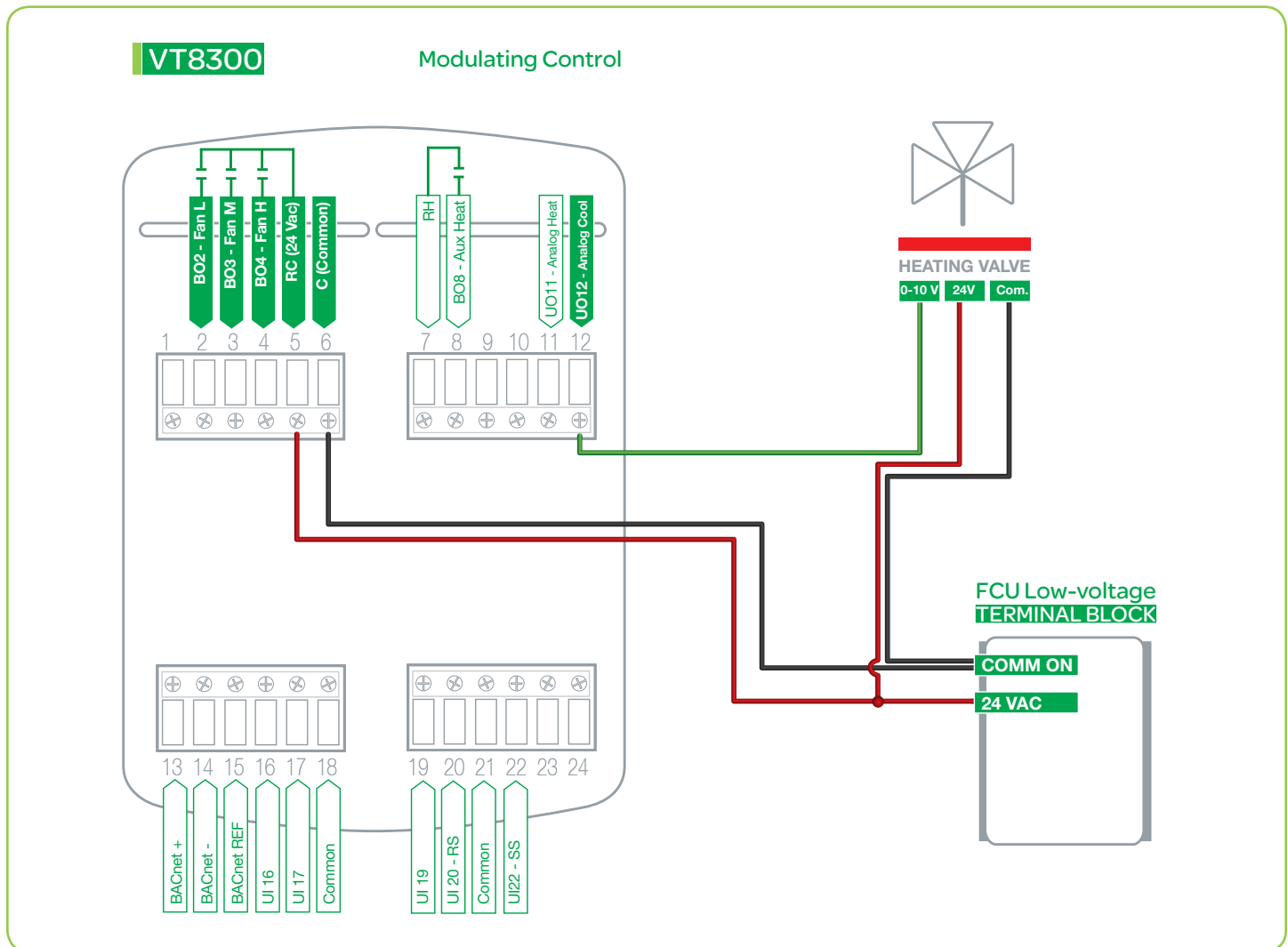
VT8300 as Zone Controllers

VT83X0U5X00B HEATING ONLY ANALOG VALVE ACTUATOR, 2 PIPE

This section shows how the VT8300 series Room Controllers are used as Zone Controllers.



Configuration Parameter Name	Configuration Settings
Fan menu	ON-AUTO
Pipe no.	2
Seq. operation	Heat only



Sequence of Operation and Wiring

Occupied Mode

During Occupied periods, the occupied heating and cooling setpoints are used.

Stand-by Mode (only available when PIR motion detector sensor is used)

When equipped with a PIR (Passive Infrared) accessory sensor the Controller provides advanced active occupancy logic, which automatically switches occupancy levels from Occupied to Stand-by to Unoccupied when no motion is detected in the room:

- During PIR activated Stand-by periods, Stand-by heating and cooling setpoints are used
- During PIR activated unoccupied periods, unoccupied-by heating and cooling setpoints are used.

Unoccupied Mode

During unoccupied periods, the unoccupied heating and cooling setpoints are used.

Occupied Override Mode

The Controller reverts back to Occupied mode as specified by a configuration timer when a local override is requested at Controller.

On Call for Heat

The heating valve modulates from closed to open according to demand.

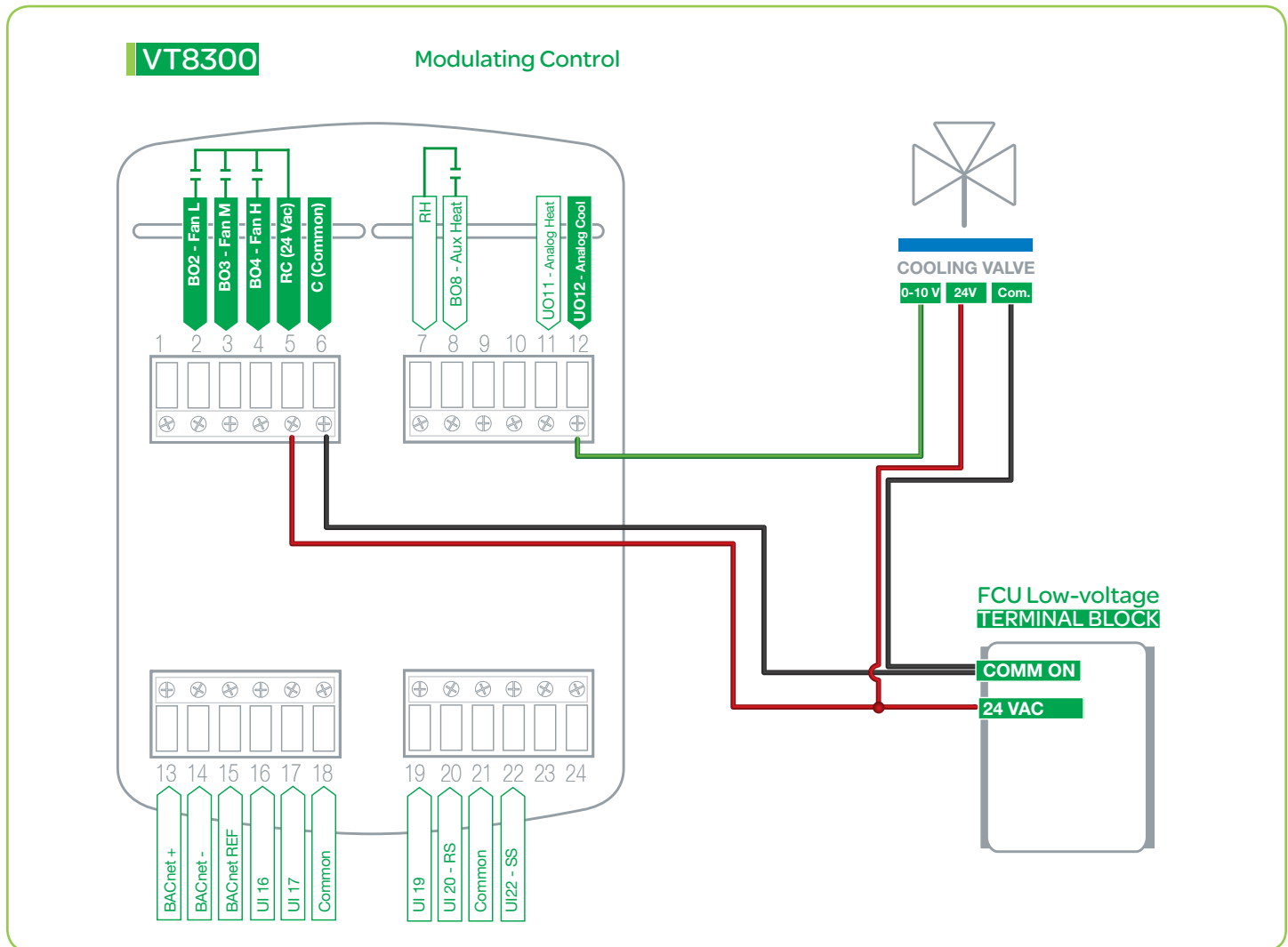
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mounted sensor or return air temperature sensor can be used instead of internal temperature sensor of Controller.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Auxiliary electric reheat can be added if required by application.

VT83X0U5X00B COOLING ONLY ANALOG VALVE ACTUATOR, 2 PIPE



Configuration Parameter Name	Configuration Settings
Fan menu	ON-AUTO
Pipe no.	2
Seq. operation	Cool only



Sequence of Operation and Wiring

Occupied Mode

During Occupied periods, the occupied heating and cooling setpoints are used.

Stand-by Mode (only available when PIR motion detector sensor is used)

When equipped with a PIR (Passive Infrared) accessory sensor the Controller provides advanced active occupancy logic, which automatically switches occupancy levels from Occupied to Stand-by to Unoccupied when no motion is detected in the room:

- During PIR activated Stand-by periods, Stand-by heating and cooling setpoints are used
- During PIR activated unoccupied periods, unoccupied-by heating and cooling setpoints are used.

Unoccupied Mode

During unoccupied periods, the unoccupied heating and cooling setpoints are used.

Occupied Override Mode

The Controller reverts back to Occupied mode as specified by a configuration timer when a local override is requested at Controller.

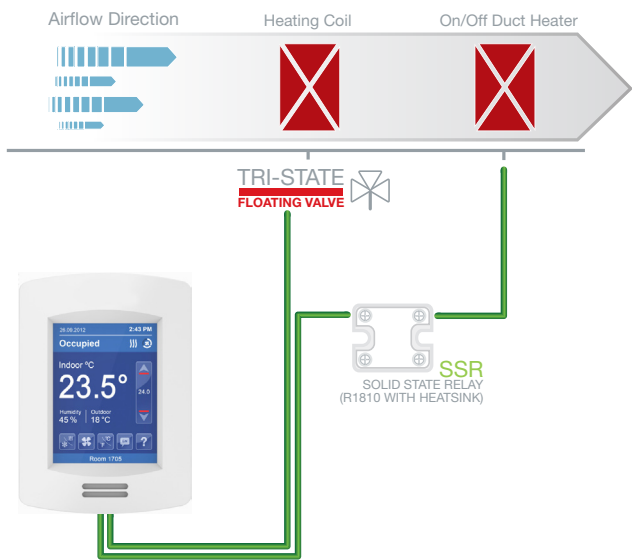
On Call for Heat

The heating valve modulates from closed to open according to demand.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mounted sensor or return air temperature sensor can be used instead of internal temperature sensor of Controller.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Auxiliary electric reheat can be added if required by application.

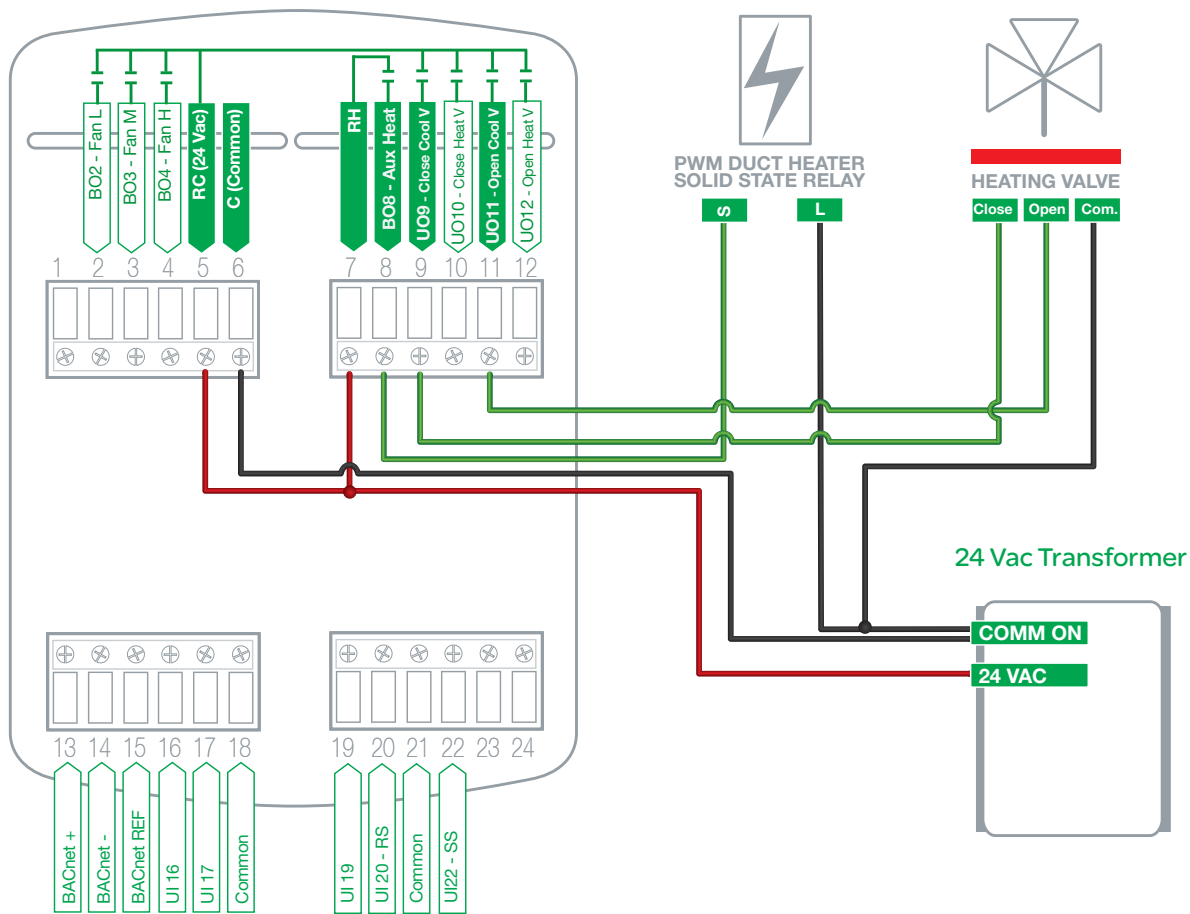
VT83X0U5X00B HEATING COIL WITH TRI-STATE FLOATING VALVE ACTUATOR AND PWM ELECTRIC DUCT HEATER



Configuration Parameter Name	Configuration Settings
Fan menu	ON-AUTO
Control Type	Floating
BO8 Out Time	1 = 10 Second
BO8 AuxOut	0-Heat
Pipe no.	2
Seq. operation	Heat-rht

VT8300

Floating & PWM Control



Sequence of Operation and Wiring

Occupied Mode

During Occupied periods, the occupied heating and cooling setpoints are used.

Stand-by Mode (only available when PIR motion detector sensor is used)

When equipped with a PIR (Passive Infrared) accessory sensor the Controller provides advanced active occupancy logic, which automatically switches occupancy levels from Occupied to Stand-by to Unoccupied when no motion is detected in the room:

- During PIR activated Stand-by periods, Stand-by heating and cooling setpoints are used
- During PIR activated unoccupied periods, unoccupied-by heating and cooling setpoints are used.

Unoccupied Mode

During unoccupied periods, the unoccupied heating and cooling setpoints are used.

Occupied Override Mode

The Controller reverts back to Occupied mode as specified by a configuration timer when a local override is requested at Controller.

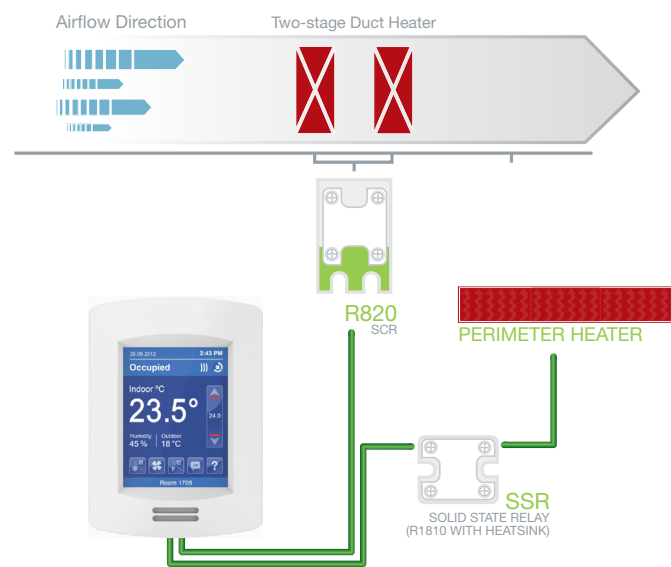
On Call for Heat

The proportional device will act as a first step and modulates from 0 to 100% capacity. The perimeter heater will operate as a second step.

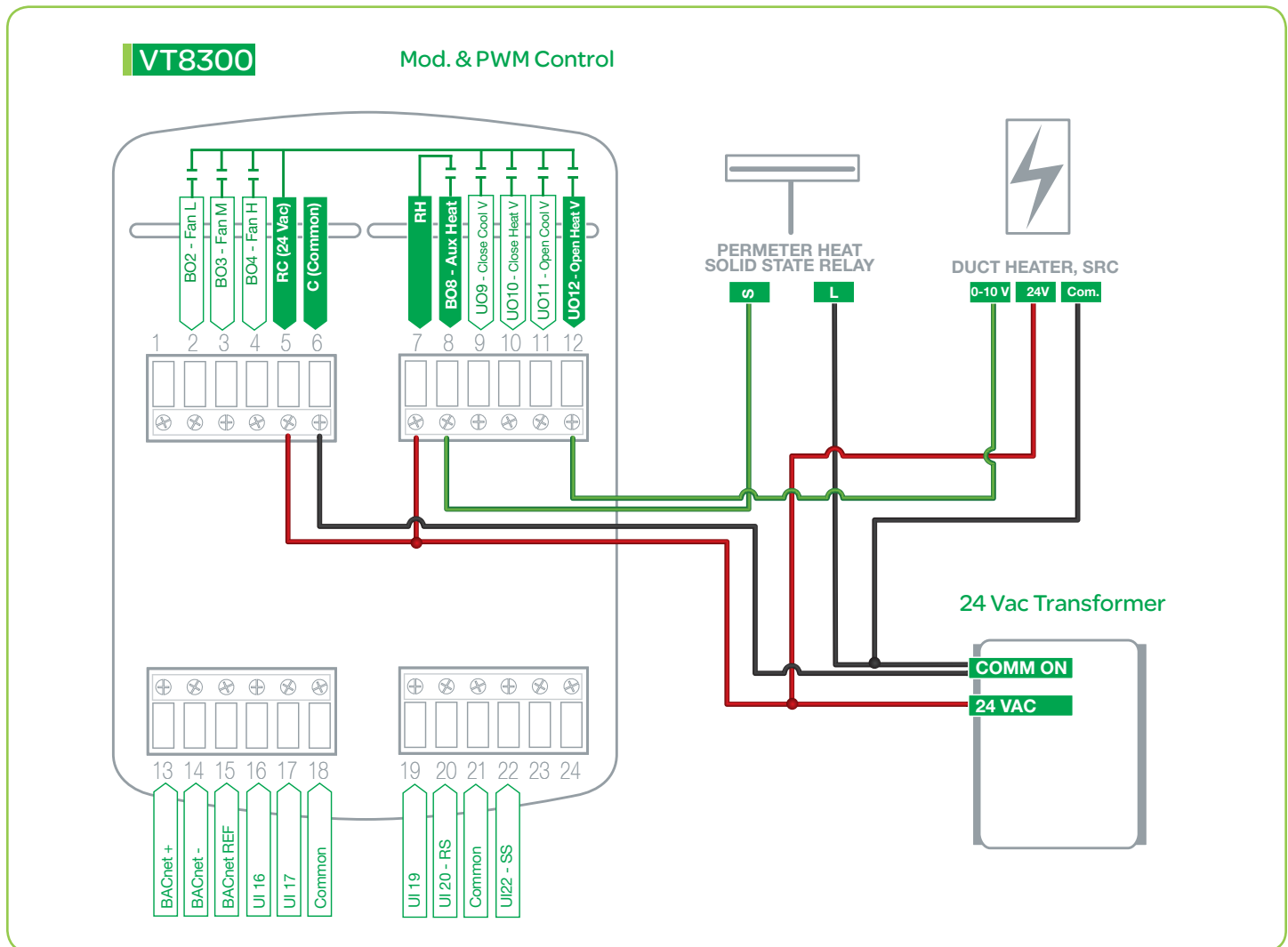
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mounted sensor or return air temperature sensor can be used instead of internal temperature sensor of Controller.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.

VT83X0U5X00B HEATING WITH REHEAT, MODULATING DUCT HEATER, ELECTRIC PERIMETER



Configuration Parameter Name	Configuration Settings
Fan menu	ON-AUTO
BO8 Out Time	1 = 10 Second
BO8 AuxOut	0-Heat
Pipe no.	2
Seq. operation	Heat-rht



Sequence of Operation and Wiring

Occupied Mode

During Occupied periods, the occupied heating and cooling setpoints are used.

Stand-by Mode (only available when PIR motion detector sensor is used)

When equipped with a PIR (Passive Infrared) accessory sensor the Controller provides advanced active occupancy logic, which automatically switches occupancy levels from Occupied to Stand-by to Unoccupied when no motion is detected in the room:

- During PIR activated Stand-by periods, Stand-by heating and cooling setpoints are used
- During PIR activated unoccupied periods, unoccupied-by heating and cooling setpoints are used.

Unoccupied Mode

During unoccupied periods, the unoccupied heating and cooling setpoints are used.

Occupied Override Mode

The Controller reverts back to Occupied mode as specified by a configuration timer when a local override is requested at Controller.

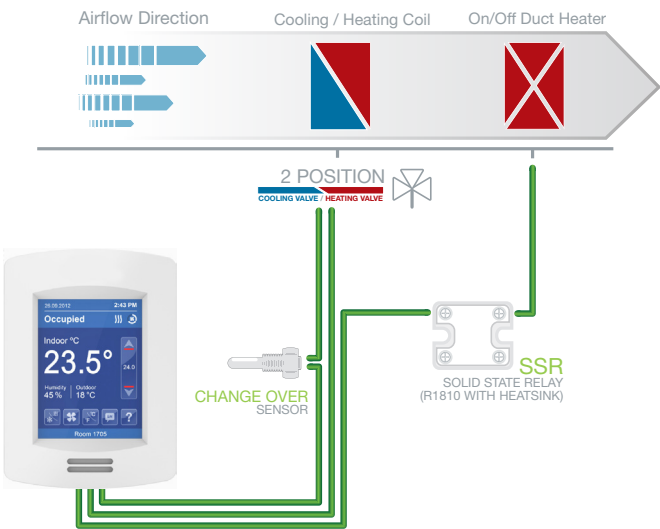
On Call for Heat

The proportional device acts as a first step and modulates from 0 to 100% capacity. The perimeter heater operates as a second step.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mounted sensor or return air temperature sensor can be used instead of internal temperature sensor of Controller.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.

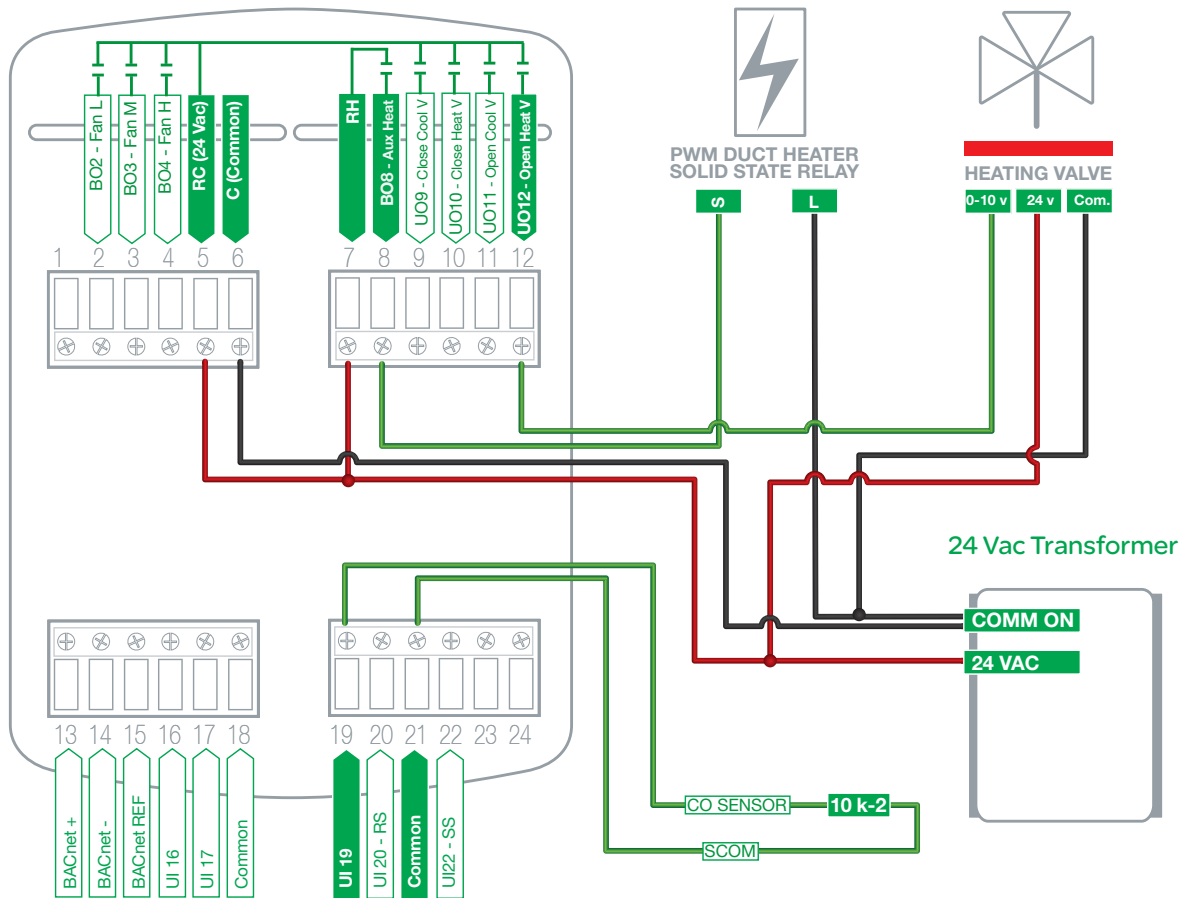
VT83X0U5X00B HEATING AND COOLING WITH CHANGEOVER SENSOR AND REHEAT, ANALOG VALVE ACTUATOR, PWM DUCT HEATER AND WATER SENSOR FOR CHANGEOVER, 2 PIPE



Configuration Parameter Name	Configuration Settings
UI19	COS
Fan menu	ON-AUTO
BO8 Out Time	1 = 10 Second
BO8 AuxOut	0-Heat
Pipe no.	2
Seq. operation	Cool-rht

VT8300

Mod. & PWM Control



Sequence of Operation and Wiring

Occupied Mode

During Occupied periods, the occupied heating and cooling setpoints are used.

Stand-by Mode (only available when PIR motion detector sensor is used)

When equipped with a PIR (Passive Infrared) accessory sensor the Controller provides advanced active occupancy logic, which automatically switches occupancy levels from Occupied to Stand-by to Unoccupied when no motion is detected in the room:

- During PIR activated stand-by periods, stand-by heating and cooling setpoints are used.
- During PIR activated unoccupied periods, unoccupied-by heating and cooling setpoints are used.

Unoccupied Mode

During unoccupied periods, unoccupied heating and cooling setpoints are used.

Occupied Override Mode

The Controller reverts back to Occupied mode as specified by a configuration timer when a local override is requested at Controller.

On Call for Heat

If supply water temperature is less than 75°F (23.9°C), the valve modulates from closed to open according to demand. If water supply temperature is greater than 77°F (25°C), valve remains closed.

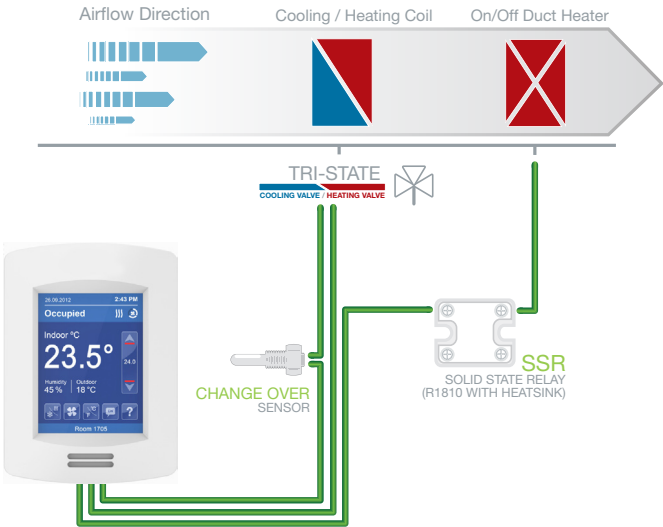
On Call for Cool

If supply water temperature is higher than 77°F (25°C), valve modulates from closed to open according to demand. If water supply temperature is less than 75°F (23.9°C), valve remains closed. The duct heater operates as a second step.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mounted sensor or return air temperature sensor can be used instead of internal temperature sensor of Controller.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.

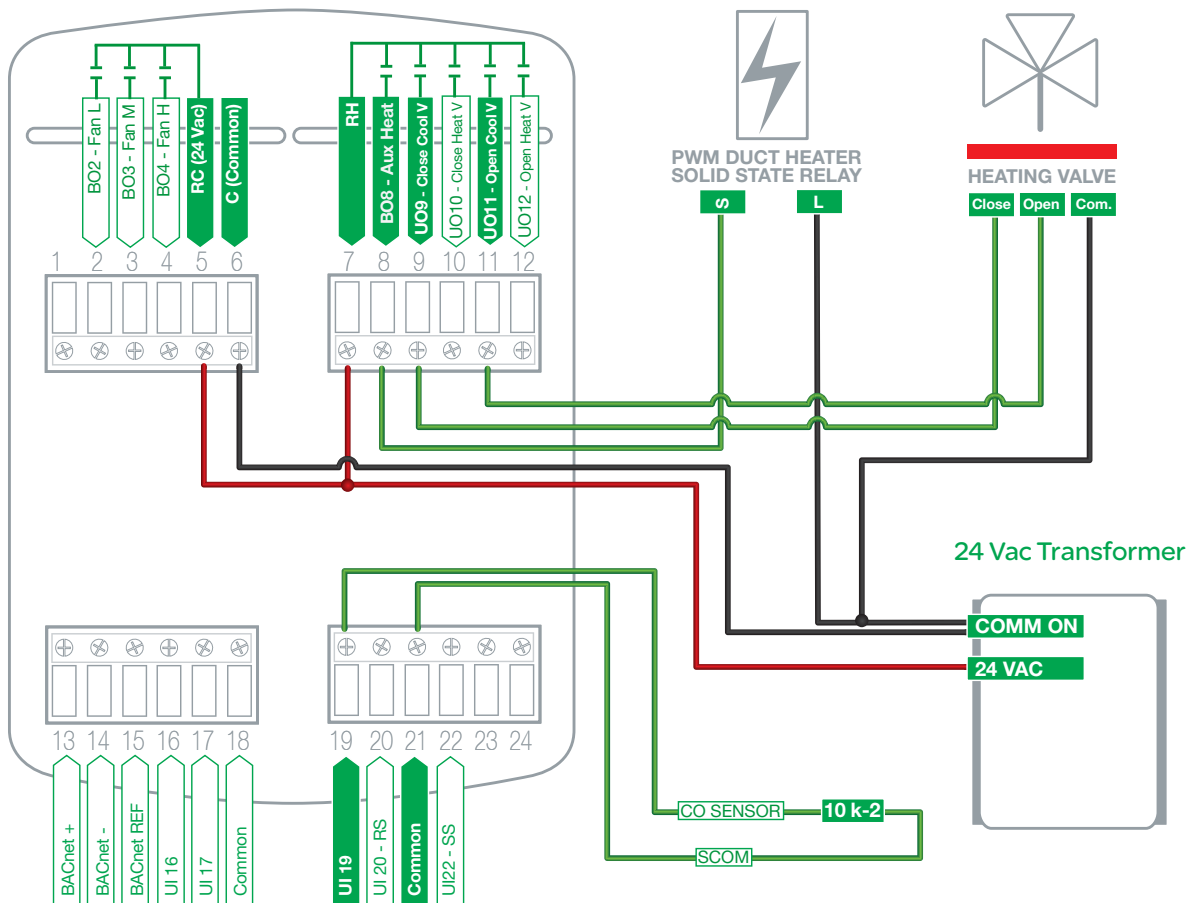
VT83X0U5X00B HEATING AND COOLING WITH CHANGEOVER SENSOR AND REHEAT, TRI-STATE FLOATING ACTUATOR, PWM DUCT HEATER AND WATER SENSOR FOR CHANGEOVER, 2 PIPE



Configuration Parameter Name	Configuration Settings
UI19	COS
Fan menu	ON-AUTO
Control Type	Floating
BO8 Out Time	1 = 10 Second
BO8 AuxOut	0-Heat
Pipe no.	2
Seq. operation	Cool-rht

VT8300

Floating & PWM Control



Sequence of Operation and Wiring

Occupied Mode

During Occupied periods, occupied heating and cooling setpoints are used.

Stand-by Mode (only available when PIR motion detector sensor is used)

When equipped with a PIR (Passive Infrared) accessory sensor the Controller provides advanced active occupancy logic, which automatically switches occupancy levels from occupied to stand-by to unoccupied when no motion is detected in the room:

- During PIR activated stand-by periods, stand-by heating and cooling setpoints are used.
- During PIR activated unoccupied periods, the unoccupied-by heating and cooling setpoints are used.

Unoccupied Mode

During Unoccupied periods, unoccupied heating and cooling setpoints are used.

Occupied Override Mode

The Controller reverts back to Occupied mode as specified by a configuration timer when a local override is requested at Controller.

On Call for Heat

If supply water temperature is less than 75°F (23.9°C), valve modulates from closed to open according to demand. If water supply temperature is greater than 77°F (25°C), valve remains closed.

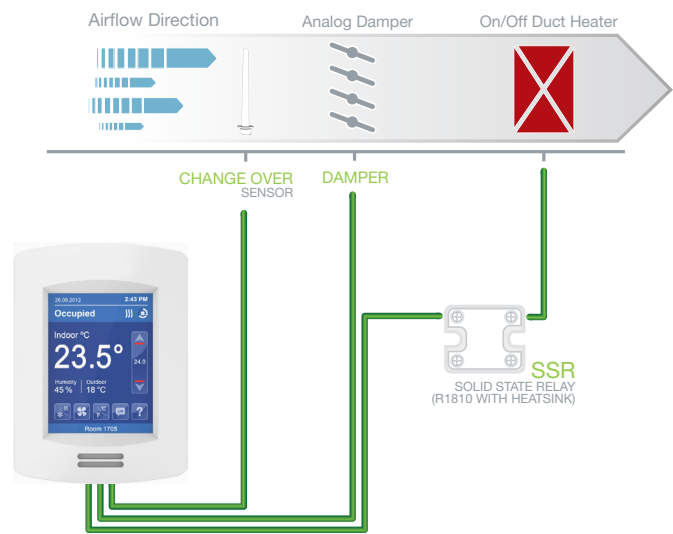
On Call for Cool

If supply water temperature is higher than 77°F (25°C), valve modulates from closed to open according to demand. If water supply temperature is less than 75°F (23.9°C), valve remains closed. The duct heater operates as a second step.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mounted sensor or return air temperature sensor can be used instead of internal temperature sensor of Controller.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.

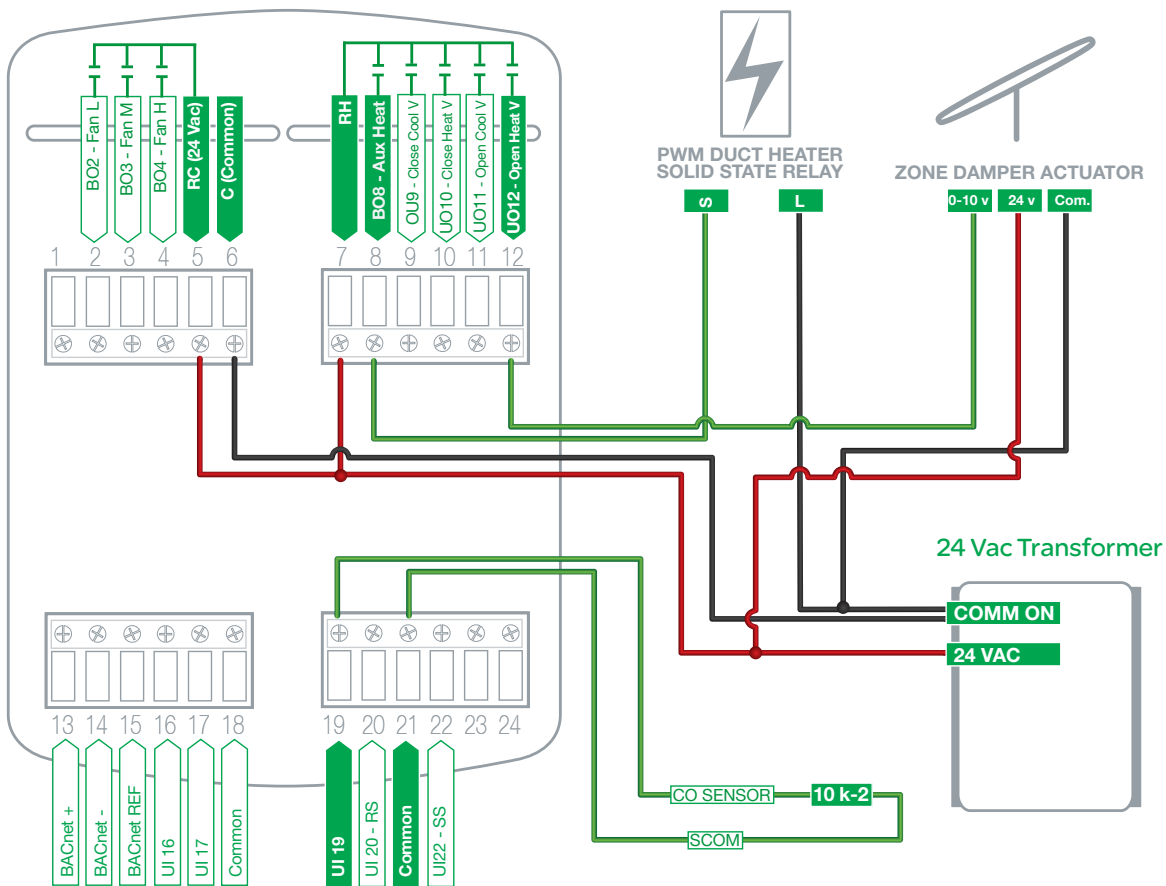
VT83X0U5X00B HEATING AND COOLING WITH CHANGEOVER SENSOR AND REHEAT, ANALOG 0-10 VDC AIR DAMPER ACTUATOR, PWM DUCT HEATER AND AIR SENSOR FOR CHANGEOVER, 2 PIPE



Configuration Parameter Name	Configuration Settings
UI19	COS
Fan menu	ON-AUTO
BO8 Out Time	1 = 10 Second
BO8 AuxOut	0-Heat
Prop. band	Default value 3.0. Range = 3.0 to 10.
Pipe no.	2
Seq. operation	Cool-rht

VT8300

Mod. & On / Off Control



Sequence of Operation and Wiring

Occupied Mode

During Occupied periods, occupied heating and cooling setpoints are used.

Stand-by Mode (only available when PIR motion detector sensor is used)

When equipped with a PIR (Passive Infrared) accessory sensor the Controller provides advanced active occupancy logic, which automatically switches occupancy levels from occupied to stand-by to unoccupied when no motion is detected in the room:

- During PIR activated stand-by periods, stand-by heating and cooling setpoints are used.
- During PIR activated unoccupied periods, the unoccupied-by heating and cooling setpoints are used.

Unoccupied Mode

During unoccupied periods, unoccupied heating and cooling setpoints are used.

Local Override

The controller reverts back to Occupied mode as specified by a configuration timer when a local override is requested at Controller.

On Call for Heat

If supply water temperature is higher than 77°F (25°C), valve modulates from closed to open according to demand. If water supply temperature is less than 75°F (23.9°C), valve remains closed. The duct heater operates as a second step.

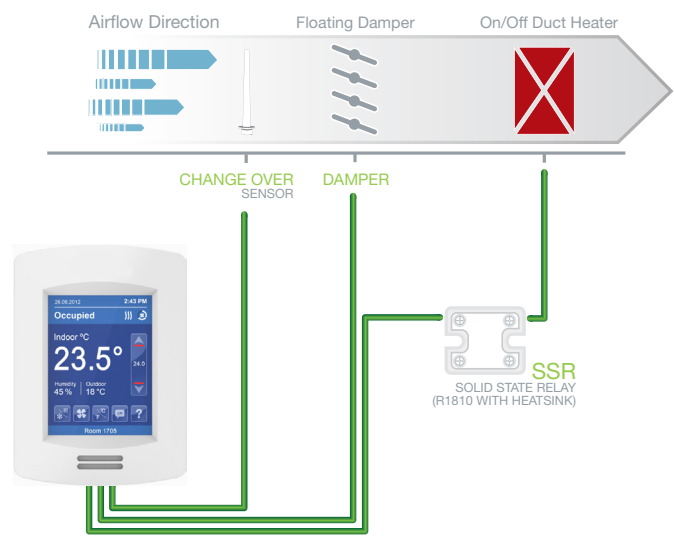
On Call for Cool

If supply air temperature is less than 75°F (23.9°C), damper modulates from closed to open according to demand. If water supply temperature is greater than 77°F (25°C), damper remains closed.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mounted sensor or return air temperature sensor can be used instead of internal temperature sensor of Controller.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.

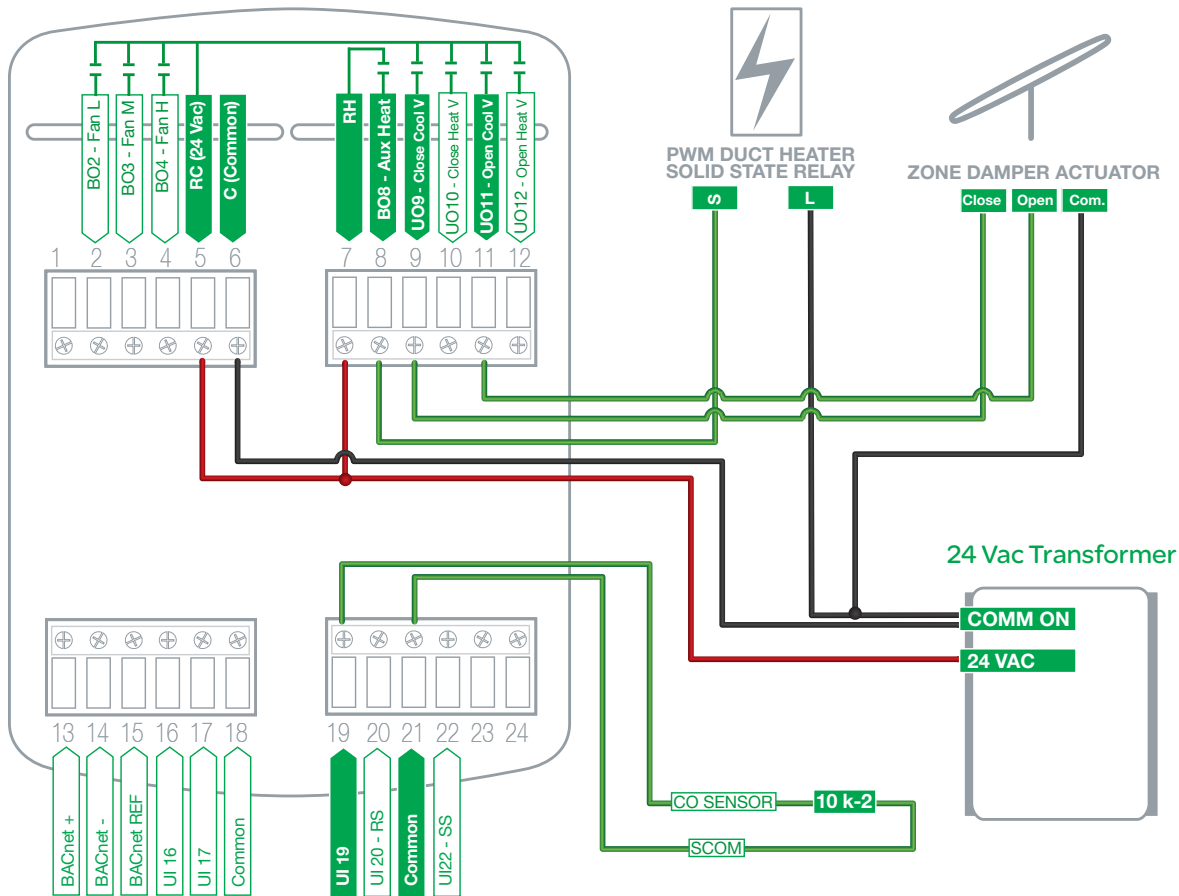
VT83X0U5X00B HEATING AND COOLING WITH CHANGEOVER SENSOR AND REHEAT, FLOATING AIR DAMPER ACTUATOR, PWM DUCT HEATER AND SUPPLY AIR SENSOR FOR CHANGEOVER, 2 PIPE



Configuration Parameter Name	Configuration Settings
UI19	COS
Fan menu	ON-AUTO
Control Type	Floating
BO8 Out Time	1 = 10 Second
BO8 AuxOut	0-Heat
Pipe no.	2
Seq. operation	Cool-rht

VT8300

Floating & PWM Control



Sequence of Operation and Wiring

Occupied Mode

During Occupied periods, occupied heating and cooling setpoints are used.

Stand-by Mode (only available when PIR motion detector sensor is used)

When equipped with a PIR (Passive Infrared) accessory sensor the Controller provides advanced active occupancy logic, which automatically switches occupancy levels from occupied to stand-by to unoccupied when no motion is detected in the room:

- During PIR activated stand-by periods, stand-by heating and cooling setpoints are used.
- During PIR activated unoccupied periods, the unoccupied-by heating and cooling setpoints are used.

Unoccupied Mode

During unoccupied periods, unoccupied heating and cooling setpoints are used.

Local Override

The Controller reverts back to the occupied mode as specified by a configuration timer when a local override is requested at Controller.

On Call for Heat

If supply water temperature is higher than 77°F (25°C), valve modulates from closed to open according to demand. If water supply temperature is less than 75°F (23.9°C), valve remains closed. The duct heater operates as a second step.

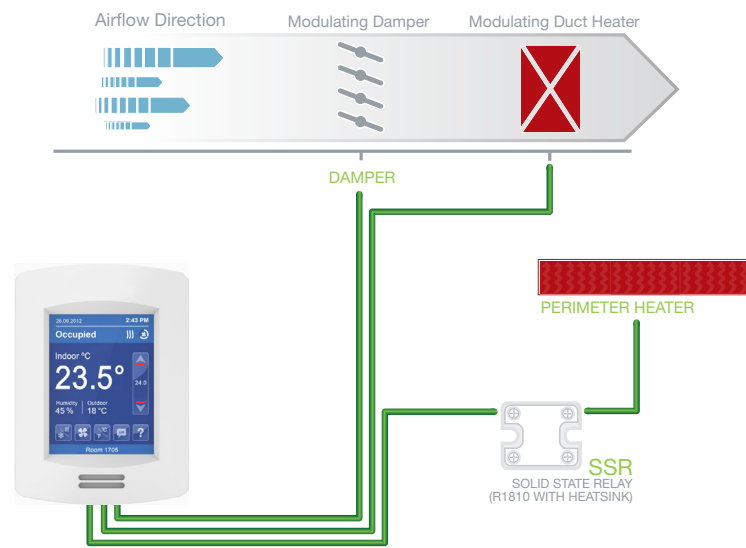
On Call for Cool

If supply air temperature is less than 75°F (23.9°C), damper modulates from closed to open according to demand. If water supply temperature is greater than 77°F (25°C), damper remains closed.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mounted sensor or return air temperature sensor can be used instead of internal temperature sensor of Controller.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.

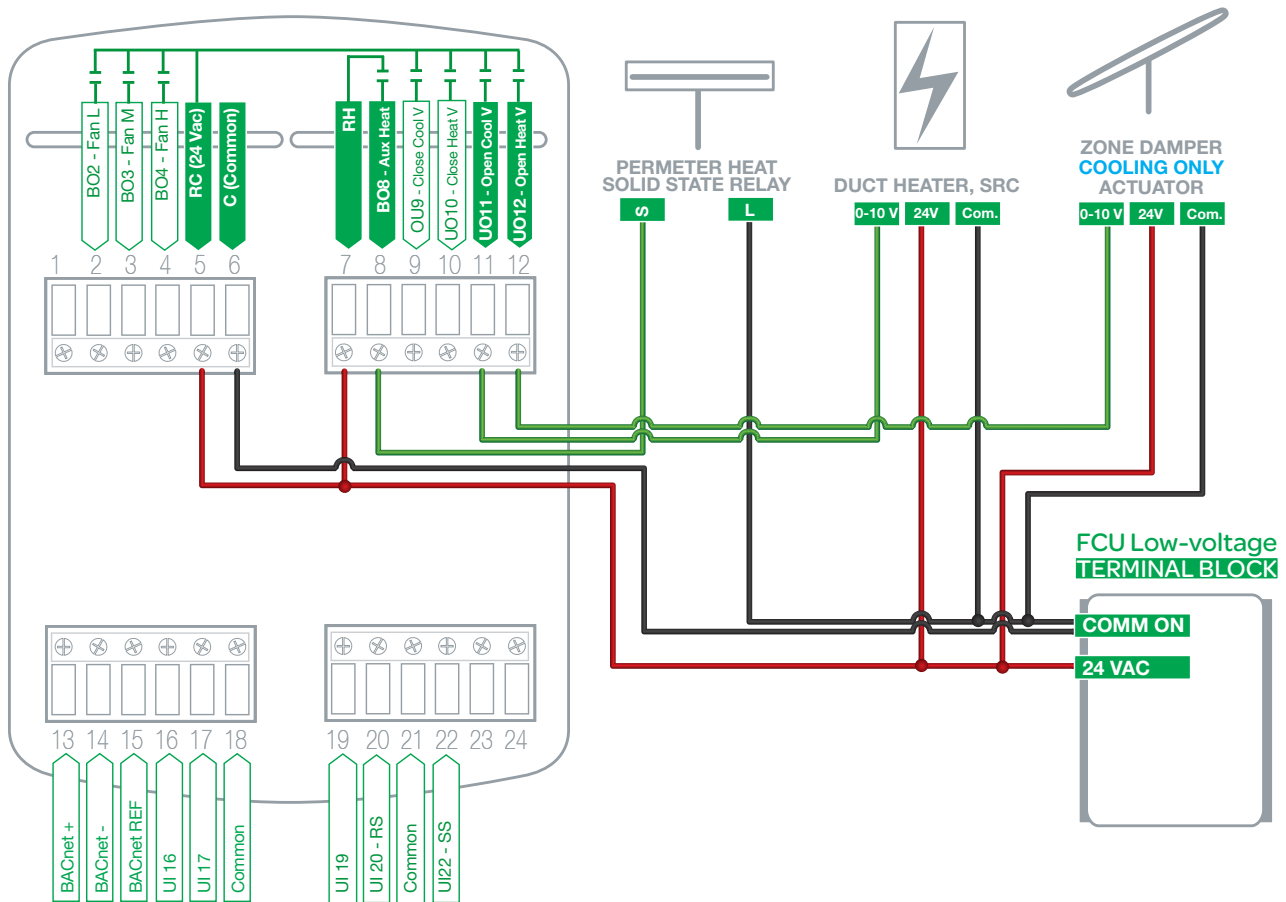
VT83X0U5X00B COOLING AND REHEAT, ANALOG 0-10 VDC AIR DAMPER ACTUATOR, ANALOG DUCT HEATER AND ELECTRIC PERIMETER



Configuration Parameter Name	Configuration Settings
Fan menu	ON-AUTO
BO8 Out Time	1 = 10 Second
BO8 AuxOut	0-Heat
Pipe no.	4
Seq. operation	Cl/ht-rht

VT8300

Modulating & PWM Control



Sequence of Operation and Wiring

Occupied Mode

During Occupied periods, occupied heating and cooling setpoints are used.

Stand-by Mode (only available when PIR motion detector sensor is used)

When equipped with a PIR (Passive Infrared) accessory sensor the Controller provides advanced active occupancy logic, which automatically switches occupancy levels from occupied to stand-by to unoccupied when no motion is detected in the room:

- During PIR activated stand-by periods, stand-by heating and cooling setpoints are used.
- During PIR activated unoccupied periods, the unoccupied-by heating and cooling setpoints are used.

Unoccupied Mode

During unoccupied periods, unoccupied heating and cooling setpoints are used.

Local Override

The Controller reverts back to Occupied mode as specified by a configuration timer when a local override is requested at Controller.

On Call for Heat

The damper remains closed. The proportional heater acts as a first step and modulate from 0 to 100% capacity. The perimeter heater operates as a second step.

On Call for Cool

The damper modulates from closed to open according to demand.

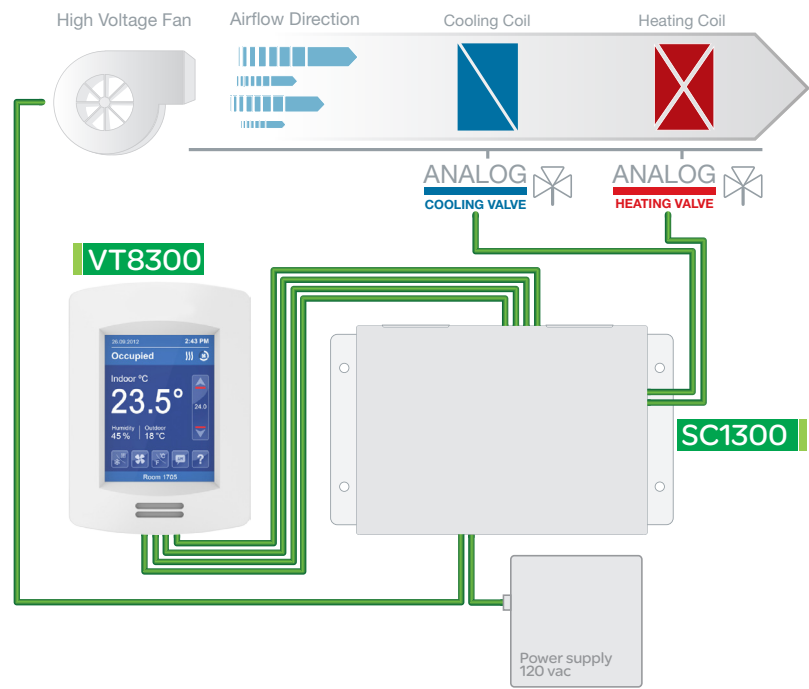
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mounted sensor or return air temperature sensor can be used instead of internal temperature sensor of Controller.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.

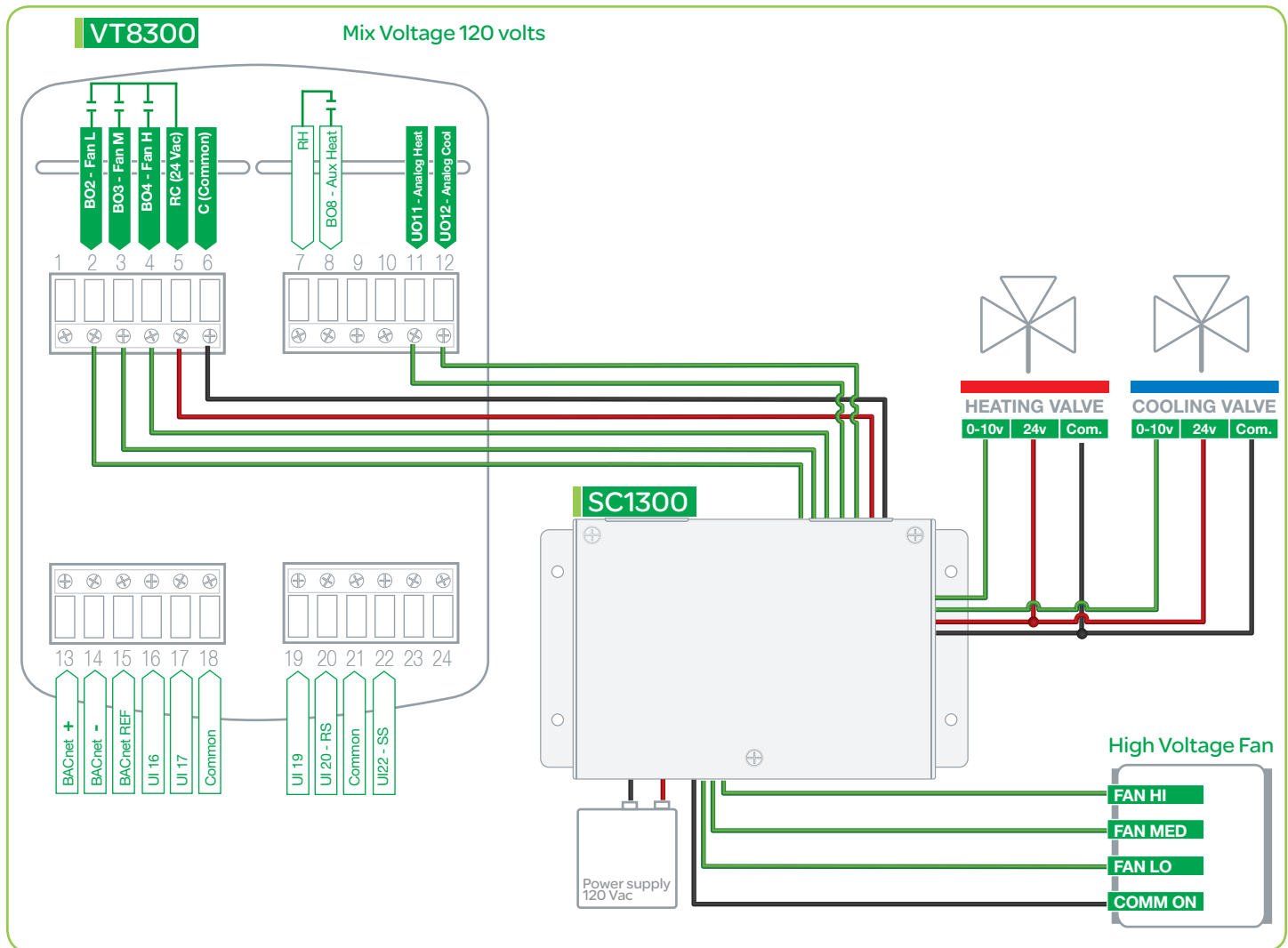
VT8300 Mixed-voltage Applications

Applications in this section make use of the SC1300 and SC2300 mixed-voltage relays.

VT8350U5X00B AND SC1300 120 VDC RELAY HEATING/COOLING 4-PIPE FAN COIL UNIT WITH HIGH VOLTAGE 3-SPEED FAN, AND 0-10 VDC ANALOG VALVES AND DEHUMIDIFICATION SEQUENCE FOR LOW VOLTAGE



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Pipe no.	4
Seq. operation	Cool / Heat



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating. The changeover sensor sends supply air temperature to controller.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closes. Dehumidification enabled.

On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closes. Dehumidification disabled.

On Demand for Dehumidification

Dehumidification is achieved via cooling coil using heating coil for reheat if necessary.

Dehumidification only allowed in COOL mode, or if cooling is enabled in AUTO mode.

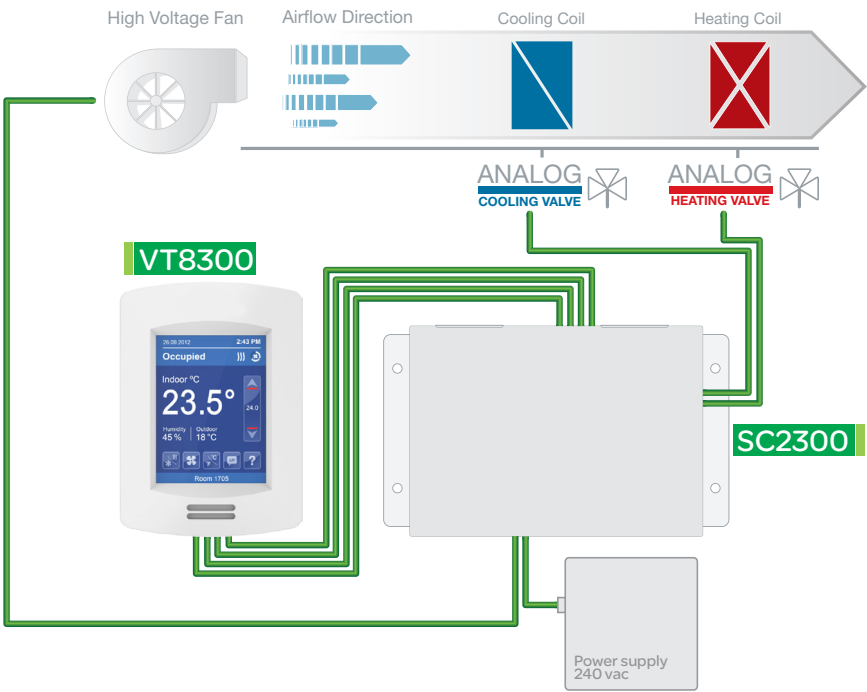
Dehumidification disabled if room temperature falls below low ambient lockout temperature, which is cooling setpoint minus configuration defined deadband value.

Reheat disabled if cooling demand reaches 100%.

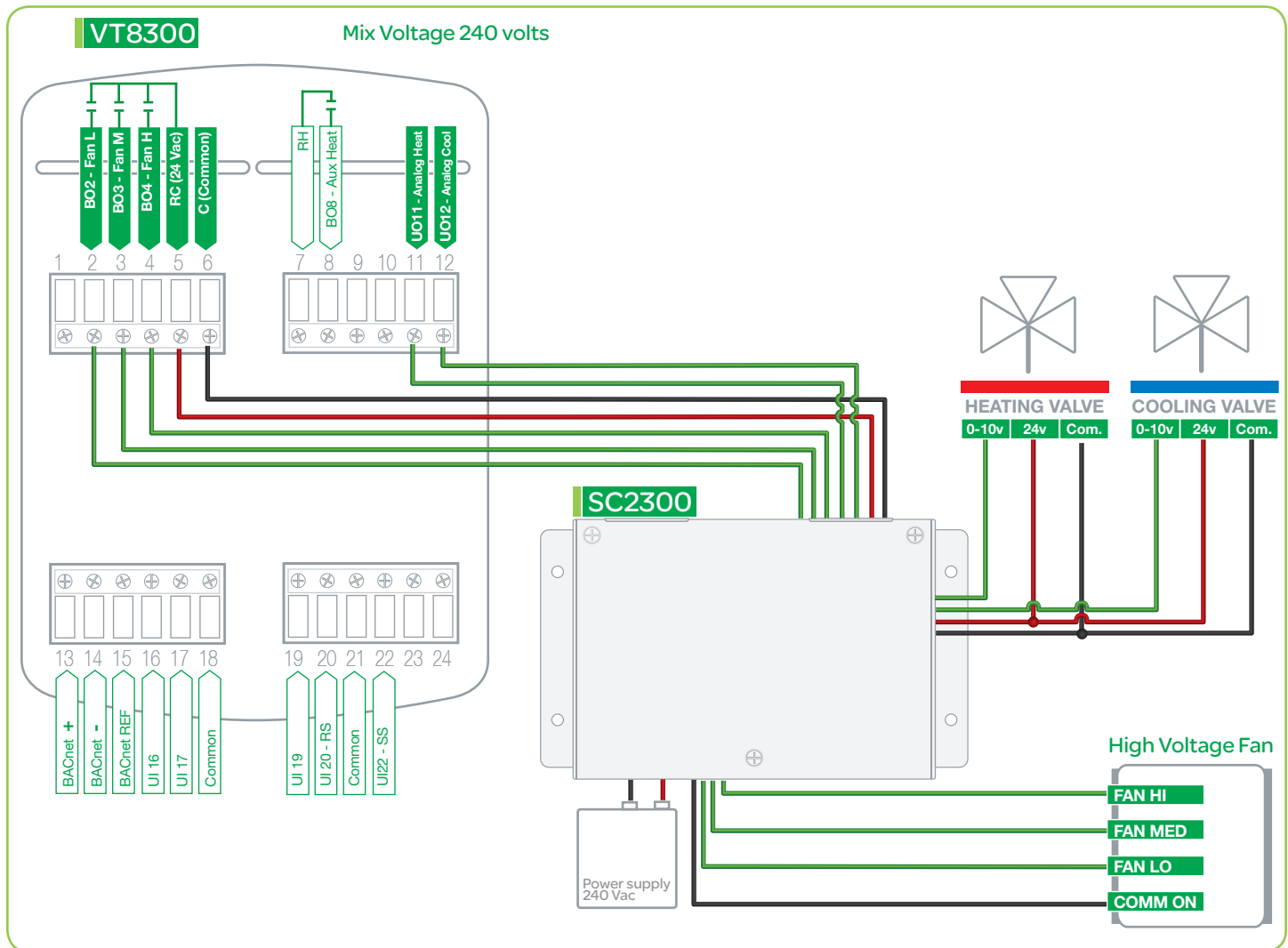
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 2-pipe systems.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Universal input can be configured for changeover sensor.

VT8350U5X00B AND SC2300 240 VDC RELAY HEATING/COOLING 4-PIPE FAN COIL UNIT WITH HIGH VOLTAGE 3-SPEED FAN, AND 0-10 VDC ANALOG VALVES AND DEHUMIDIFICATION SEQUENCE FOR LOW VOLTAGE



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Pipe no.	4
Seq. operation	Cool / Heat



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating. The changeover sensor sends supply air temperature to controller.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closes. Dehumidification enabled.

On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closes. Dehumidification disabled.

On Demand for Dehumidification

Dehumidification is achieved via cooling coil using heating coil for reheat if necessary.

Dehumidification only allowed in COOL mode, or if cooling is enabled in AUTO mode.

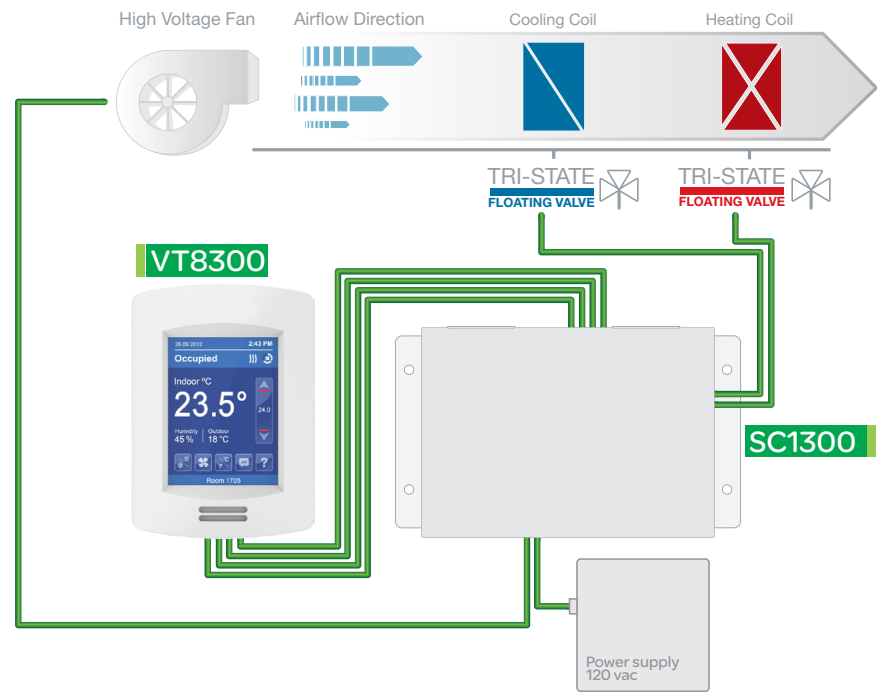
Dehumidification disabled if room temperature falls below low ambient lockout temperature, which is cooling setpoint minus configuration defined deadband value.

Reheat disabled if cooling demand reaches 100%.

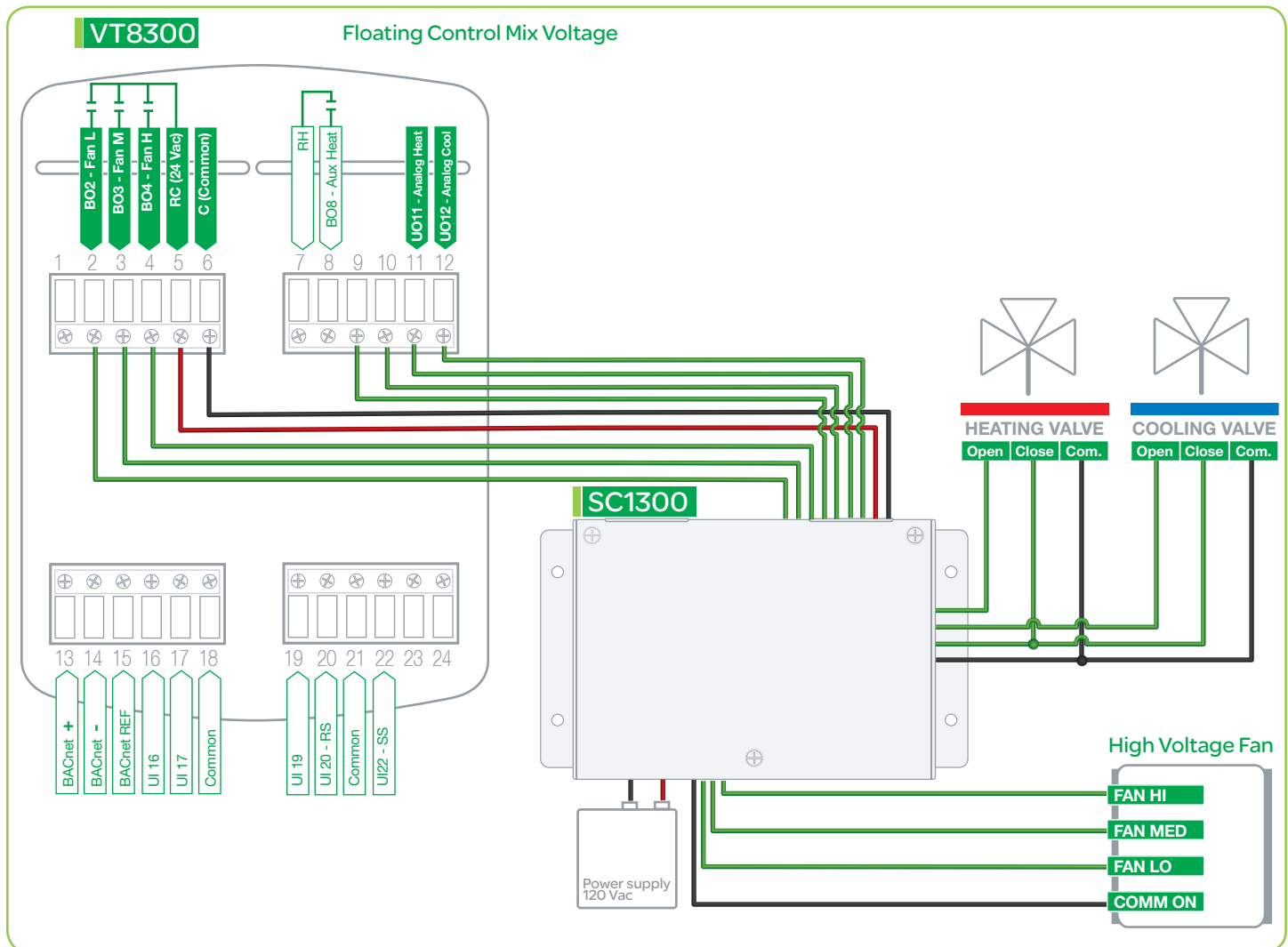
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 2-pipe systems.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Universal input can be configured for changeover sensor.

VT8350U5X00B AND SC1300 120 VDC RELAY HEATING/COOLING 4-PIPE FAN COIL UNIT WITH HIGH VOLTAGE 3-SPEED FAN, TRI-STATE FLOATING VALVES AND DEHUMIDIFICATION SEQUENCE FOR LOW VOLTAGE



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Control Type	Floating
Pipe no.	4
Seq. operation	Cool / Heat



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closes.

On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closes.

On Demand for Dehumidification

Dehumidification is achieved via cooling coil using heating coil for reheat if necessary.

Dehumidification is only allowed in COOL mode, or if cooling is enabled in AUTO mode.

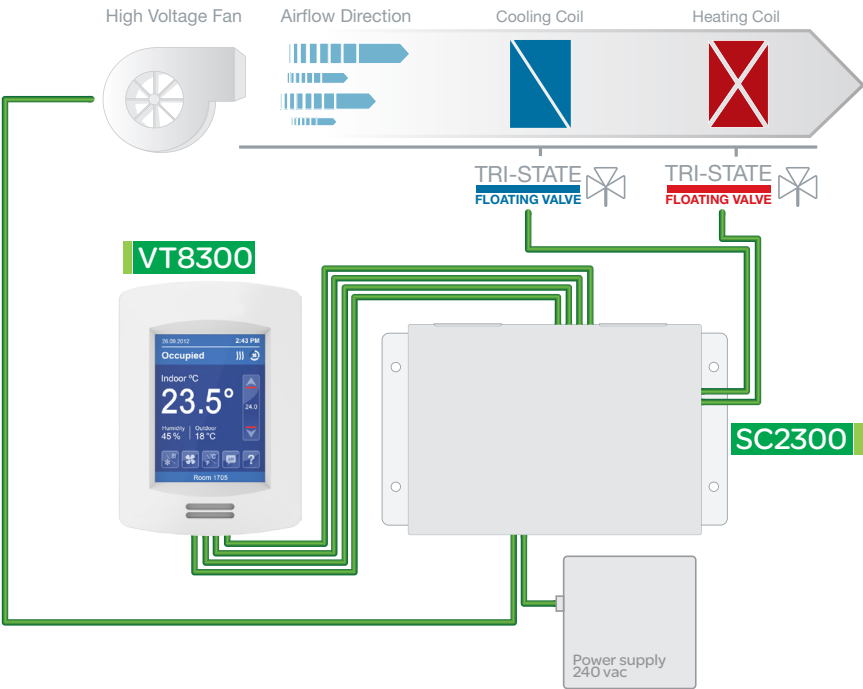
Dehumidification is disabled if room temperature falls below low ambient lockout temperature, which is the cooling setpoint minus the configuration defined deadband value.

Reheat disabled if cooling demand reaches 100%.

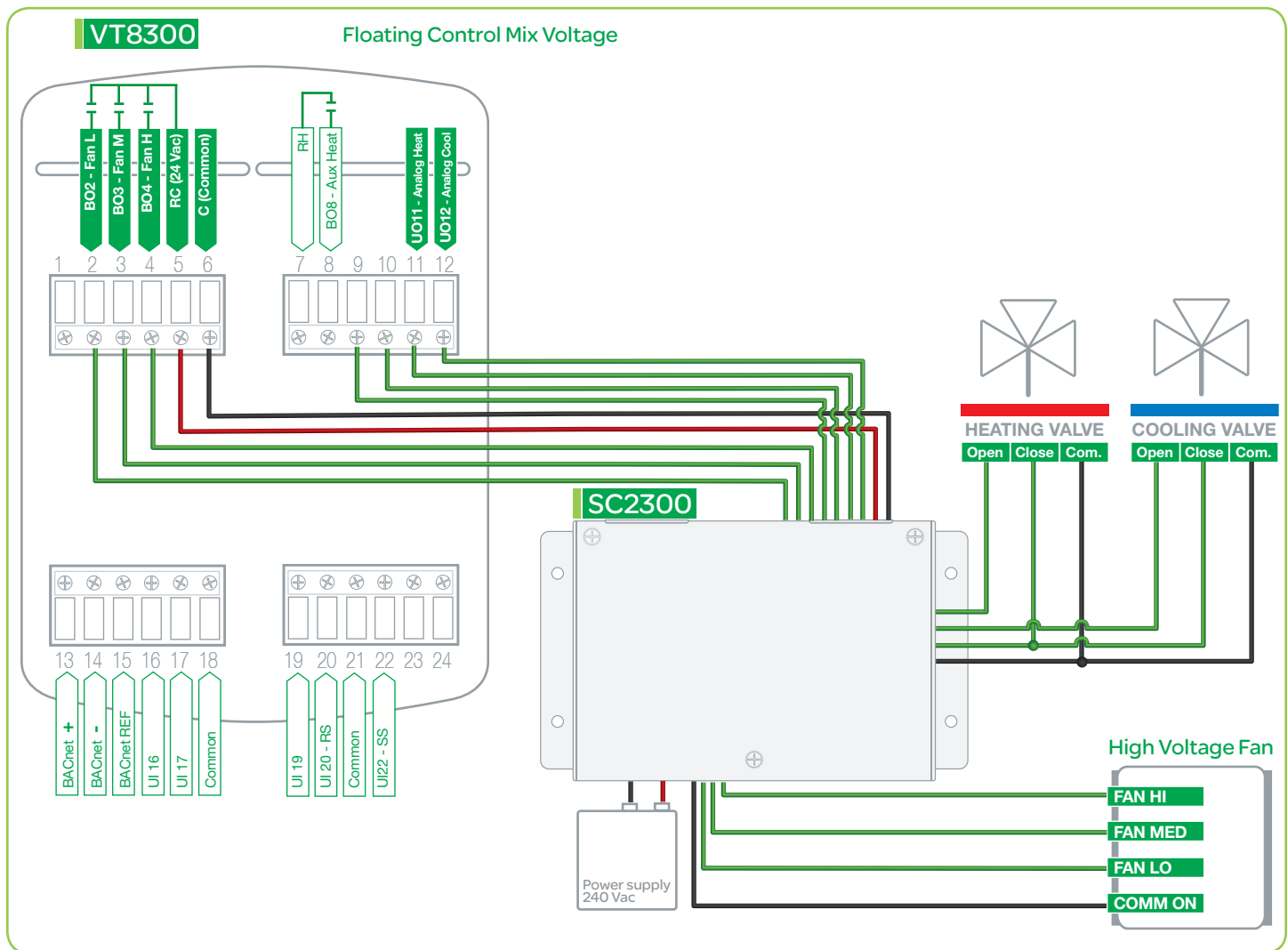
Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 2-pipe systems with changeover.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Universal input can be configured for changeover sensor.

VT8350U5X00B AND SC2300 240 VDC RELAY HEATING/COOLING 4-PIPE FAN COIL UNIT WITH HIGH VOLTAGE 3-SPEED FAN, TRI-STATE FLOATING VALVES AND DEHUMIDIFICATION SEQUENCE FOR LOW VOLTAGE



Configuration Parameter Name	Configuration Settings
Fan menu	L-M-H-A
Control Type	Floating
Pipe no.	4
Seq. operation	Cool / Heat



Sequence of Operation and Wiring

Occupied Mode

Setpoints revert to those defined by occupied cooling and heating.

Stand-by Mode (only available when PIR motion detector sensor is used)

Setpoints revert to those defined by stand-by cooling and heating.

Unoccupied Mode

Setpoints revert to those defined by unoccupied heating and cooling.

Occupied Override Mode

System reverts to occupied mode for duration determined by "ToccTime" parameter.

On Call for Cool

Cooling valve opens to maintain room temperature. Heating valve closes.

On Call for Heat

Heating valve opens to maintain room temperature. Cooling valve closes.

On Demand for Dehumidification

Dehumidification is achieved via cooling coil using heating coil for reheat if necessary.

Dehumidification is only allowed in COOL mode, or if cooling is enabled in AUTO mode.

Dehumidification is disabled if room temperature falls below low ambient lockout temperature, which is the cooling setpoint minus the configuration defined deadband value.

Reheat disabled if cooling demand reaches 100%.

Options

- Wireless adapter modules for BACnet models are available. (see Appendix B for network wiring).
- Remote wall mount or duct sensor ready.
- Can be configured for 2-pipe systems with changeover.
- 3 universal inputs can be used and configured for advanced functionality as required by the application.
- Universal input can be configured for changeover sensor.

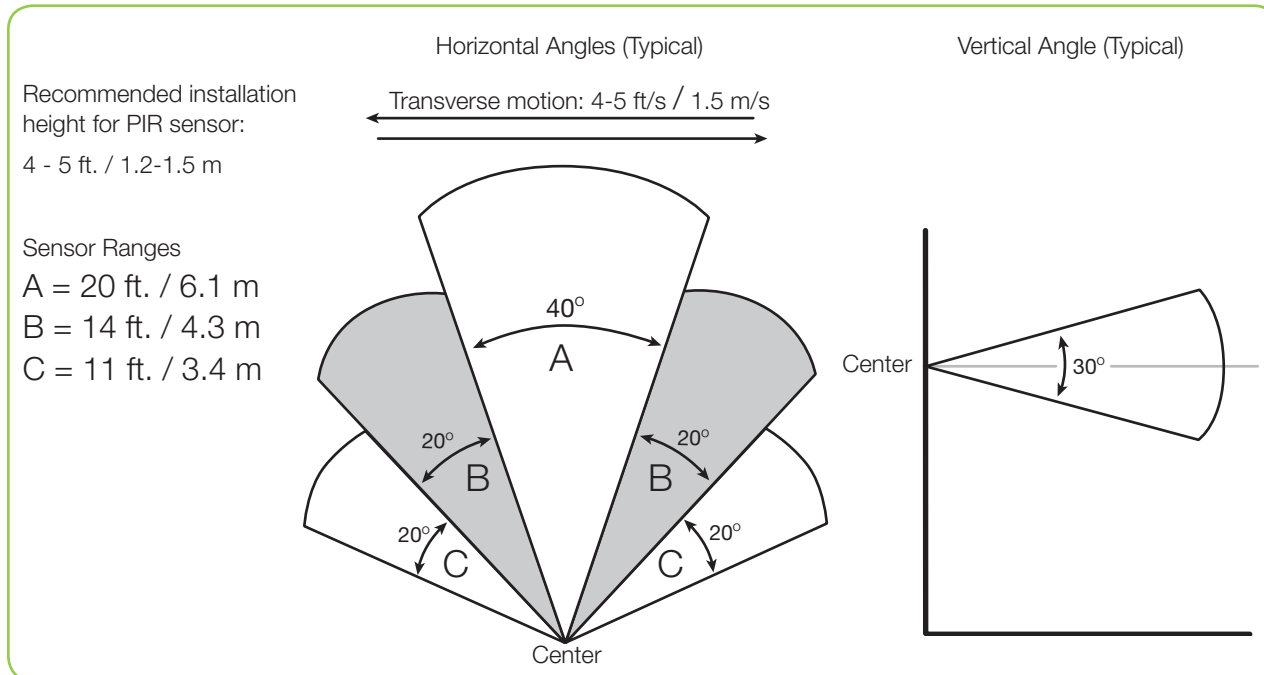
APPENDIX A - PASSIVE INFRA-RED SENSOR SPECIFICATIONS

Passive Infra-Red Sensor Sequence of Operation

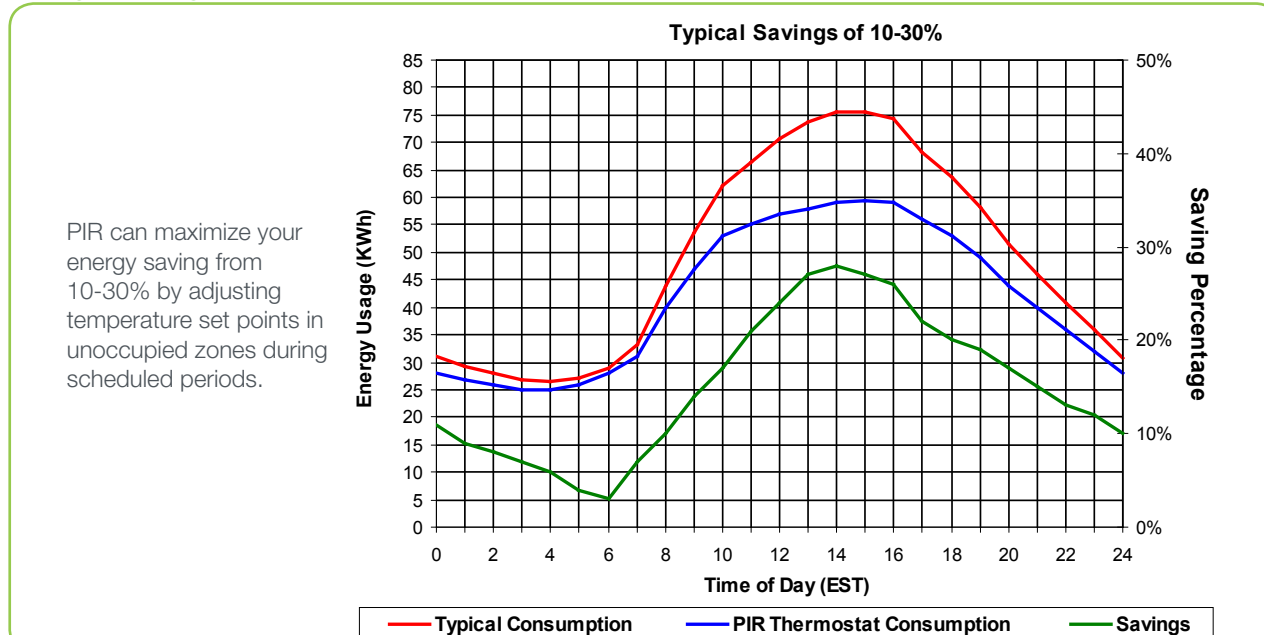
Initially, the Controller is in Stand-by mode and Stand-by setpoints are used for the Controller. When the Passive Infra-Red (PIR) sensor detects motion, the Occupancy status switches to Occupied and the Stand-By Time timer is reset. The Occupied setpoints are used for this operation.

If no motion is detected in the room for the entire Stand-By Time duration (adjustable parameter), the room switches to Stand-by mode and Stand-by setpoints are used. While in Stand-by mode, if no motion is detected for the entire Unoccupied Time period (adjustable parameter), the room switches to Unoccupied mode and uses its Unoccupied setpoints. While in Stand-By or Unoccupied mode, any motion switches the room back to Occupied mode.

Typical Detection Pattern for PIR Lens

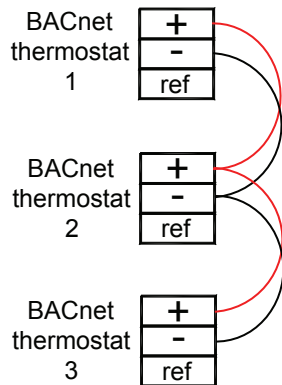


Energy Savings



APPENDIX B - OPTIONAL NETWORK SET-UP

BACnet® Communication Wiring



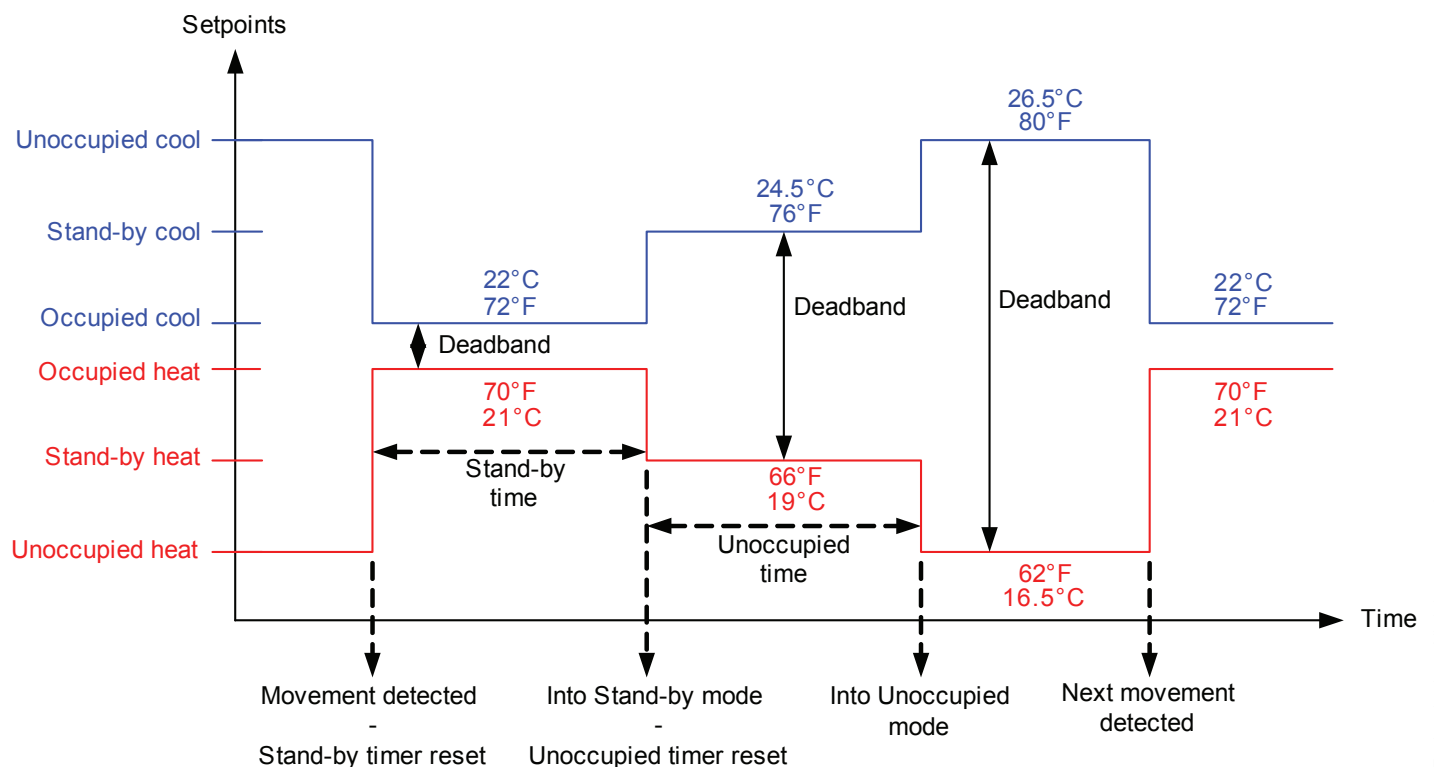
Notes:

- Wiring should be daisy chained
- Always respect polarity
- If using 2 conductors and shielded wires, connect shield of each feed together on back of Controller
- Only ground shield at one location. Do not connect shield to reference terminal

Wireless Communication



APPENDIX C - SCHEMATIC OF CONTROLLERS OCCUPANCY SEQUENCE OF OPERATION



APPENDIX D - VTR8300 CONTROLLER AND VC3000 RELAY PACK

Product Overview

The VTR8300 Fan Coil Controller offers a new cost-effective solution for upgrading line-voltage fan coil unit thermostats. The VTR8300 terminal Equipment Fan Coil Unit Controllers are available as BACnet® MSTP or wireless ZigBee® Pro networked models.

No previous building automation training is required for installation and commissioning process, and installation can be completed in approximately fifteen minutes.

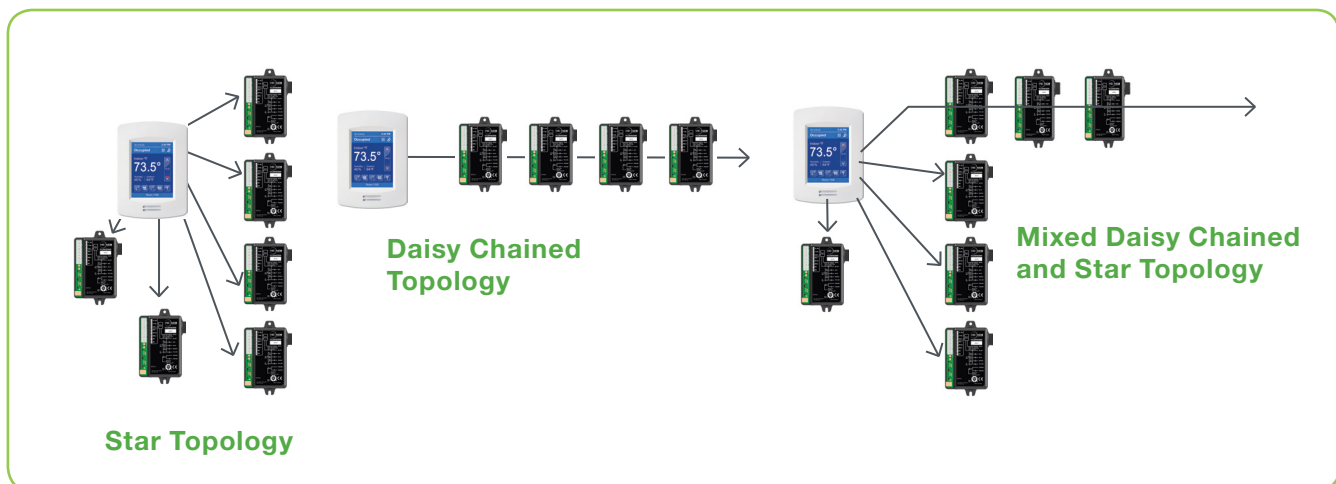
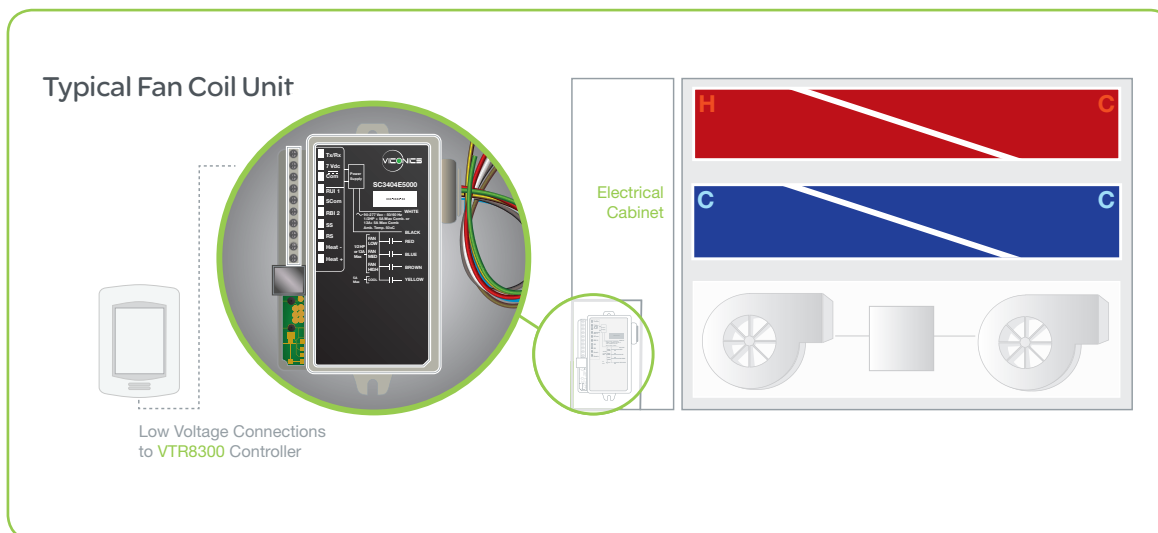
The VC3000 Series Line Voltage Switching Transformer Relay Pack Controllers are designed for silent control of typical high voltage fan coil device loads (90 - 277 VAC multi-voltages). It uses advanced microprocessor-based circuitry with a built-in transformer that eliminates all typical required peripheral components when automating a Fan Coil unit with traditional building automation systems.

The VC3000 Series Line Voltage Switching Transformer Relay Pack(s) operate as slave unit(s) under the control of a single master VTR83XX Room Controller.

A single VTR8300 or VT8300 Room Controller can control up to 10 x VC3000 Series Relay Packs as they are line-powered units.

The unit locally contains all relay outputs for fan switching and valve control, and models are also available for extra monitoring/control inputs of the Fan Coil Units.

Typical Fan Coil Unit Set-up



APPENDIX E - SED SERIES WIRELESS SENSORS

Wireless ZigBee® Pro Motion Sensors and Door/Window Switch

Wireless door switches used with an onboard or remote PIR sensor provide advanced local occupancy routines allowing for increased energy savings during occupied hours without sacrificing occupant comfort.

Wireless window switches are used to monitor exterior windows or patio/balcony doors when opened to prevent unnecessary energy consumption.

Fan Coil Room Controllers with SED Series ZigBee® Pro wireless switches can be used in stand-alone mode, or with integration to a central management system, to allow for advanced functions such as central reservation and occupancy functions.

Up to twenty SED-WIN or SED-DOR ZigBee wireless switches can be used with a VTR8300 or VT8300 Room Controller

Up to ten different ZigBee motion sensors and switches (SED-WMS, SED-CMS, or SED-WDS) can be used with a VTR8300 or VT8300 Room Controller

Note that if a ZigBee wireless window switch is used, the VT8300 Room Controller cannot also use a remote PIR motion sensor, whether wired or wireless. Using one or more wireless remote PIR motion sensors means that a wired PIR motion sensor cannot be used, and vice versa.

The SED Series sensors are factory delivered with batteries and are ready to be installed, configured, and used right out of the box. Due to the extremely small current consumption of the sensors, the expected battery life is approximately 10 years, which is equivalent to the battery shelf life.

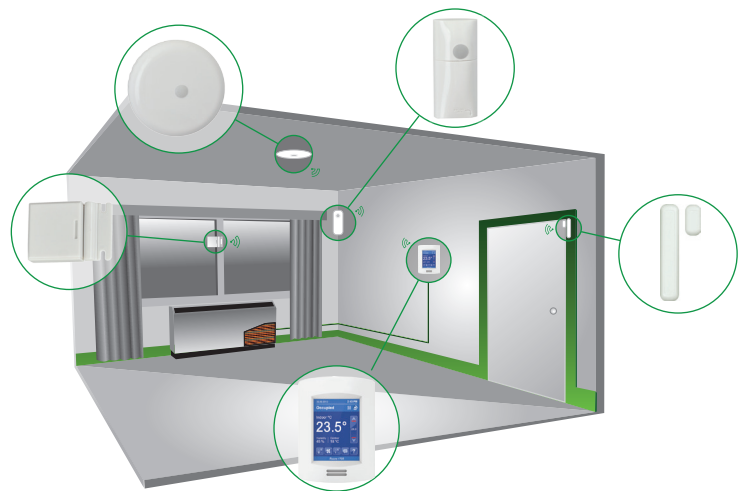
No tools are required for commissioning or servicing the ZigBee devices. A simple interface on the devices with an on-board LED and hidden switch provides all required functions for local interaction. The VT8300 user interface has screens used to pair and configure ZigBee devices (SED-WMS, SED-CMS, or SED-WDS only). Local information for battery life and connectivity (heartbeat) are also displayed through the ZigBee® Pro wireless network.

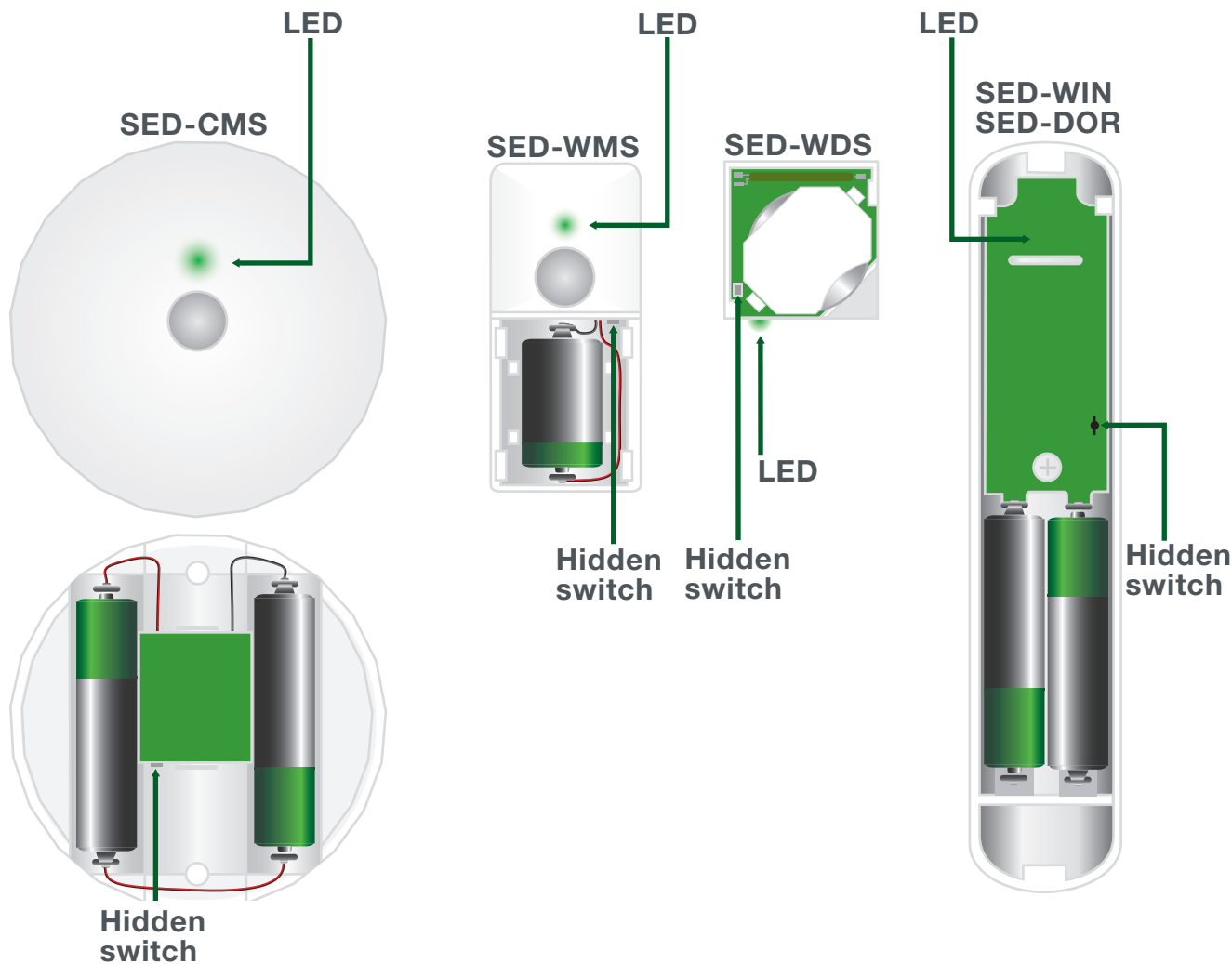
For more information about using the SED-WIN and SED-DOR switches, consult the **SED-WIN / SED-DOR Wireless Door and Window Switch Installation Guide**.

For more information about using the SED-WDS, SED-WMS and SED-CMS wireless switches and sensors, consult the **Pairing VT8000 Series Room Controllers with ZigBee Sensors Installation Guide and Procedure**.

Model Selection

Window Switch	Door Switch
Door switch	SED-DOR-P-5045
Window switch	SED-WIN-P-5045
Door/window switch	SED-WDS-P-5045
Wall mounted motion sensor	SED-WMS-P-5045
Ceiling mounted motion sensor	SED-CMS-P-5045





APPENDIX F: TERMINAL CORRESPONDENCE

The terminals of an VT8300 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 VT8300 series. Consult the table below to verify the appropriate terminal when replacing a VT7000 Room Controller with a VT8300 Room Controller.

VT7000		VT8300	
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