VICONICS
Beyond Comfort

Product Catalog

Small Building Systems

Table of Contents

VBZS - Viconics BACnet Zoning System VZ1

VZ7200F5000B Bacnet Zone Thermostat **VZ5**
VZ7656B1000B Bacnet Rooftop Unit Thermostat **VZ6**

Digital Stand-Alone And Communicating Thermostats VT1

VWG-40 Wireless Gateway **VT5**
VT7xxxX5000/VT7xxxX5500 Series PIR Thermostats **VT7**
VT7200C5000 Series Zoning Thermostats **VT9**
VT7200F5000 Series Zoning Thermostats **VT11**
VT73xxC5000 Series Fancoil Thermostats **VT13**
VT73xxF5000 Series Fancoil Thermostats **VT15**
VT76xxA5000 And VT7600B5000 Series Roof Top Unit Thermostats **VT17**
VT76x5B5000 Series RoofTop Unit Thermostats With Econimizer Function **VT19**
VT76xxH5000 Series Heat Pump Thermostats **VT21**
VT76x7B5000 Series Roof Top Unit Thermostats with Humidiy Control **VT23**

Analog Microcontroller Based Room Thermostats T1

T901 Series Electronic Thermostats **T3**
T920 Series Electronic Thermostats **T4**
T921 Series Electronic Thermostats **T5**
T926 Series Electronic Thermostats **T6**
T950 Series Electronic Thermostats **T7**
T951 Series Electronic Thermostats **T8**

Digital Microcontroller Based Humidity Controls H1

VH7200 Humidistat Series **H3**
VH20 Series Electronic Humidity Transmitters **H5**

Electric Heat Controllers R1

R810 Series Solid State Relays **R3**
R820 Series SCR Power Controllers **R5**
R850V Series Step Controllers **R7**
R851V Series Step Controllers **R9**
021-0247 Multi-Signal Input Electric Board **R11**
C24 Ac/Dc Converter / C25 Pulse Repeater For R810 Series **R12**

Sensors S1

Remote Temperature Sensors For VT7000 Series Thermostats **S3**
S3000 series wall analog sensors for DDC application **S6**
Remote Temperature Sensors For T900 Series Thermostats **S7**

VBZS - Viconics BACnet Zoning System

The Viconics VBZS BACnet® Zoning System has been specifically designed to bring a simple scalable BACnet® solution to the commercial mid-market without the cost associated with typical DDC type zoning systems.

The system is comprised of 2 main components: the VZ7200 pressure dependent VAV controller and the VZ7656, which serves as a master-scheduler, rooftop unit controller, static pressure bypass controller, and status display via the local LCD user interface. Unique to the zoning market, is the VZ7200's ability to be ordered with an on-board PIR occupancy sensor, which provides incremental energy savings during occupied periods.

Together, these components work to provide exceptional comfort and system performance rivalling more costly and complex programmable automation at a fraction of the total installed cost.

System set-up, installation and commissioning are simplified with the elimination of separate commissioning equipment or tools. All configuration, addressing, zone-weighting etc., are accomplished via the local LCD interface. BACnet® object mapping is seamlessly accomplished without the need for complex programming tools.

The scalability of the entire zoning package is it's most unique feature. The VBZS offers owners un-paralleled "future-proof" flexibility through the use of an open BACnet® protocol. The entire system can be complimented with your choice of BACnet® controllers, graphical workstation software available on the open market without being locked into a specific vendor at any time. Moreover, since no other programming tools are required, mechanical service technicians can quickly and easily service the system without support from other controls vendors.

System Features Include:

- Utilizes BACnet® protocol for data exchange enabling addition of other brands of BACnet® type components to compliment system.
- Real DDC type control functionality and accuracy.
- LCD interface on both zoning and rooftop controllers.
- Embedded configuration utility using simple real text configuration parameters.
- Rooftop unit controller features onboard scheduling eliminating need for separate time clock or panel.
- Rooftop unit controller features onboard static pressure controller, discharge and return sensors, and additional monitoring input for most-used applications.
- Zoning controller features PIR motion detector capability for energy saving strategies.

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RoomTemp
72.5 °F
OVERRIDE
VICONICS
RoomTemp
72.5 °F
YES
NO
MENU
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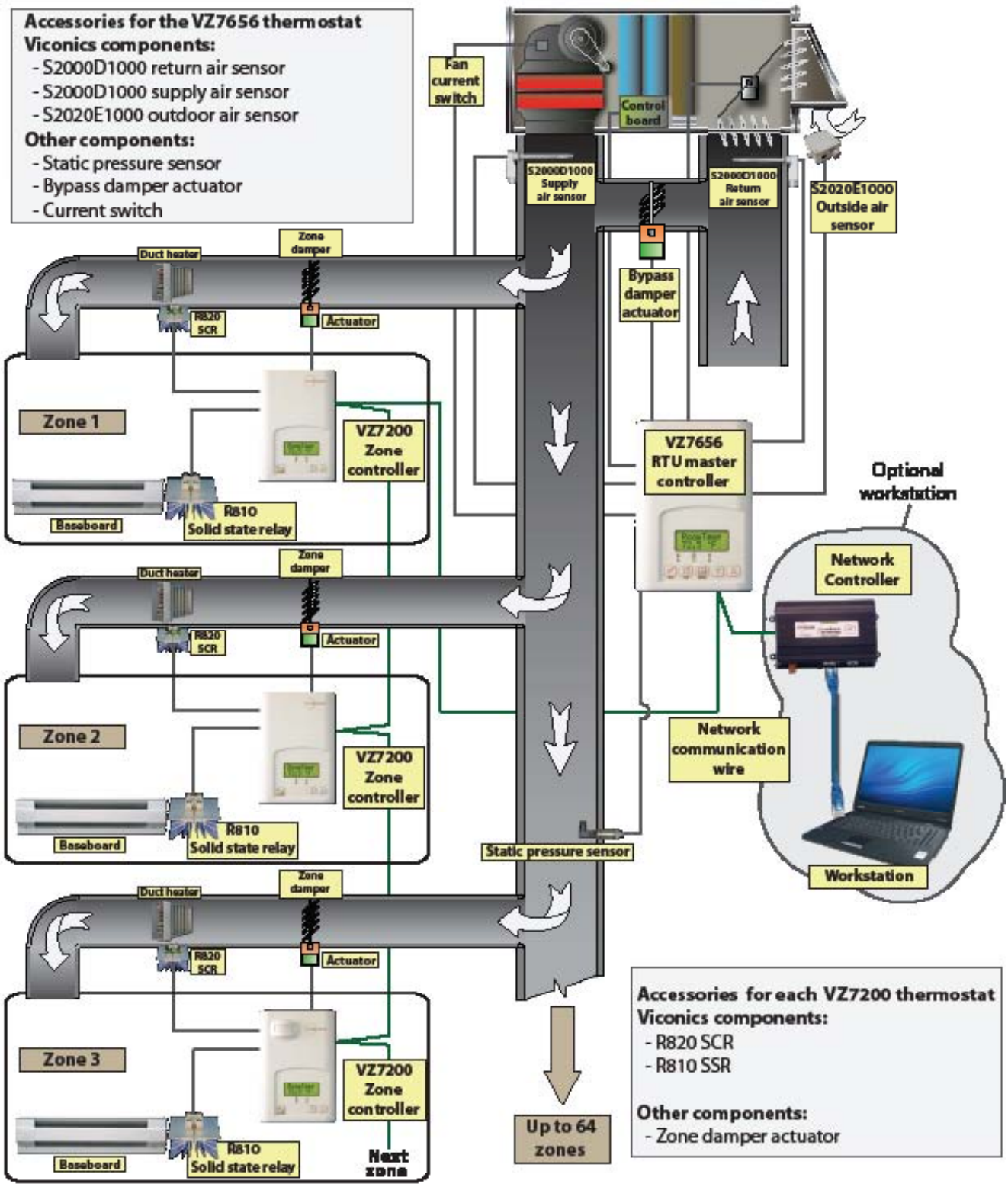
RoomTemp
72.5 °F
OVERRIDE

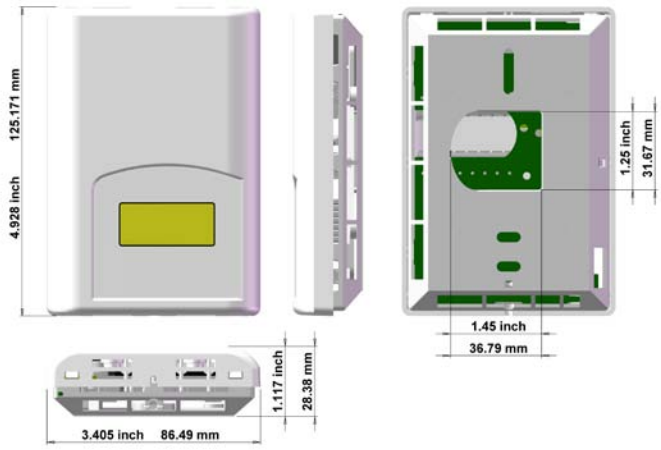
System Architecture



Specifications

Thermostat power requirements:	19-30 Vac 50 or 60 Hz; 2 VA Class 2
Operating conditions:	0 °C to 50 °C (32 °F to 122 °F) 0% to 95% R.H. non-condensing
Storage conditions:	-30 °C to 50 °C (-22 °F to 122 °F) 0% to 95% R.H. non-condensing
Temperature sensor:	Local 10 K NTC thermistor
Resolution:	± 0.1 °C (± 0.2 °F)
Temperature control accuracy:	± 0.5 ° C (± 0.9 °F) @ 21 °C (70 °F) typical calibrated
Occupied and unoccupied setpoint range cooling:	12.0 to 37.5 °C (54 to 100 °F)
Occupied and unoccupied setpoint range heating:	4.5 °C to 32 °C (40 °F to 90 °F)
Room and outdoor air temperature display	-40 °C to 50 °C (-40 °F to 122 °F)
Proportional band for room temperature range control:	Cooling & Heating: 1.8°C (3.2°F)
Binary inputs:	Dry contact across terminal BI1, BI2 & UI3 to Scom
Outputs rating:	Triac output: 30 Vac, 1 Amp. Maximum, 3 Amp. in-rush Analog: 0 to 10 Vdc into 2KΩ resistance min.
Wire gauge:	18 gauge maximum, 22 gauge recommended
Dimensions:	4.94” x 3.38” x 1.13”
Approximate shipping weight:	0.75 lb (0.34 kg)
Agency Approvals:	
UL	UL 873 (US) and CSA C22.2 No. 24 (Canada), File E27734 with CCN XAPX (US) and XAPX7 (Canada)
FCC	Compliant to CFR 47, Part 15, Subpart B, Class A (US)
Industry Canada	ICES-003 (Canada)
CE	EMC Directive 89/336/EEC (Europe Union)
C-Tick	AS/NZS CISPR 22 Compliant (Australia / New Zealand)
	Supplier Code Number N10696
BACnet network adapter	1/4 load transceiver optically isolated

Dimensions



Important Notice

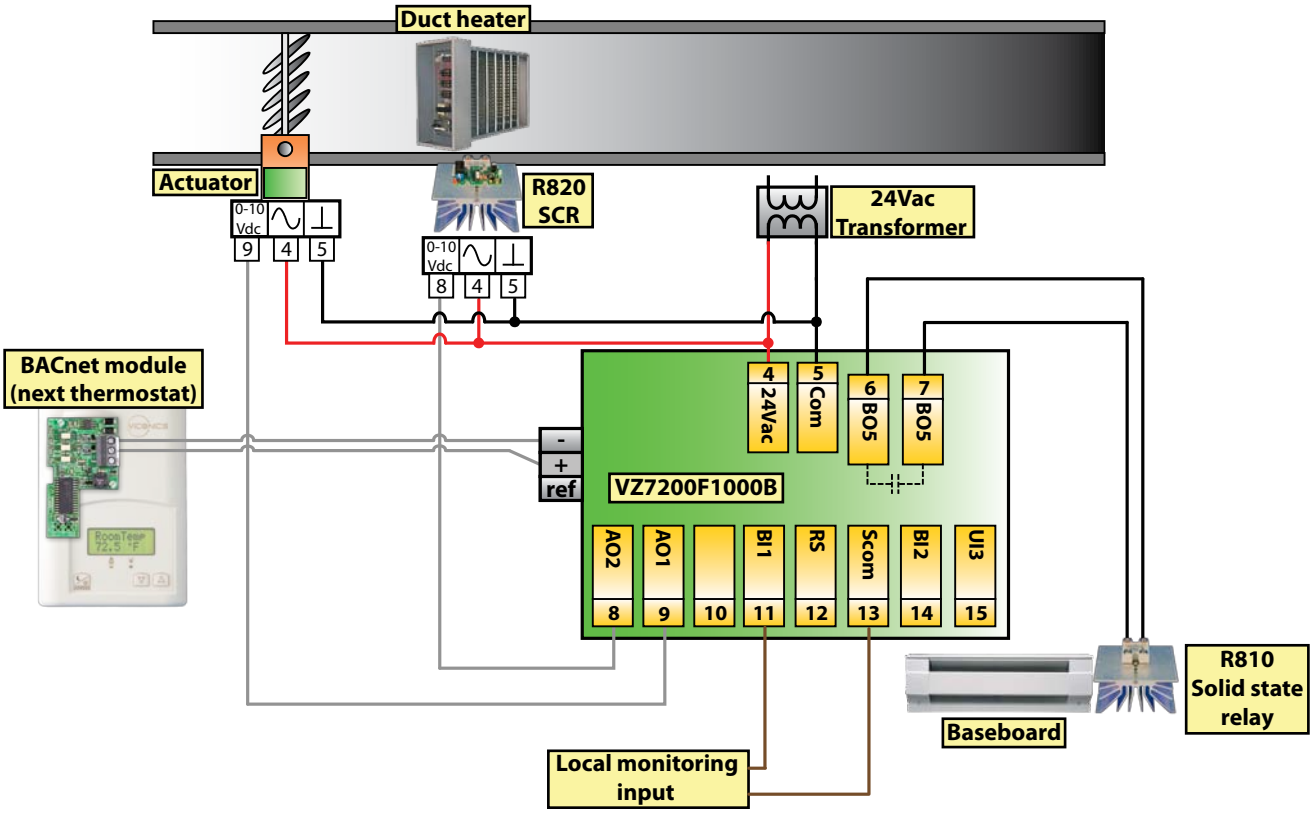
All VZ7000 series controls are for use as operating controls only and are not safety devices. These instruments have undergone rigorous tests and verifications prior to shipment to ensure proper and reliable operation in the field. Whenever a control failure could lead to personal injury and/or loss of property, it becomes the responsibility of the user / installer / electrical system designer to incorporate safety devices (such as relays, flow switch, thermal protections, etc…) and/or alarm system to protect the entire system against such catastrophic failures. Tampering with the device or mis-application of the device will void the warranty.

VZ7200F5000B BACnet Zone Thermostat

The Viconics VZ7200 PI thermostat family is specifically designed for local pressure dependent VAV zone control within Viconics Zoning System product family.
The product features a backlit LCD display with dedicated function menu buttons for simple user operation. Accurate temperature control is achieved due to the product's PI proportional control algorithm, which virtually eliminates temperature offset associated with traditional, differential-based thermostats.
The thermostats are used in conjunction with the Viconics VZ7656B1000B Roof Top Controller thermostat for total system operation of each zones and the RTU.
A local BACnet MS_TP communication bus between all devices insures proper communication and smooth data exchange of all required information between the Zones and the RTUs for proper system operation. As such, it can be seamlessly integrated into any 3rd party BACnet® supervision system.

Features

- **Fully scalable system**
  Can meet small and large system requirements
- **PI time proportioning algorithm**
  Increased comfort , accuracy, and energy savings
- **Removable terminal blocks**
  Facilitates wiring
- **Hinged PC board design**
  Access to mounting holes
- **Configurable zone sequences of operation**
  One model meet more applications
- **Unique local configuration setup utility**
  Rapid commissioning and set-up with no laptop required
- **EEPROM memory**
  No loss of program
- **Auxiliary output**
  Used for reheat
- **Pre-engineered design, software and documentation**
  Eliminates costly expenses usually associated with DDC system
- **Native BACnet MS/TP solution, non-proprietary design**
  Supports up to 127 devices per trunk and will work with any BACnet supervision system
- **Self-discovering and self-binding database**
  Easy to configure and no custom programming required
- **PIR and Stand-by setpoints supported**
  Increased energy savings
- **Locally lockable keypad**
  Tamper proof, no need for thermostat guards
- **Auto central system RTU changeover**
  Achieves maximum user comfort



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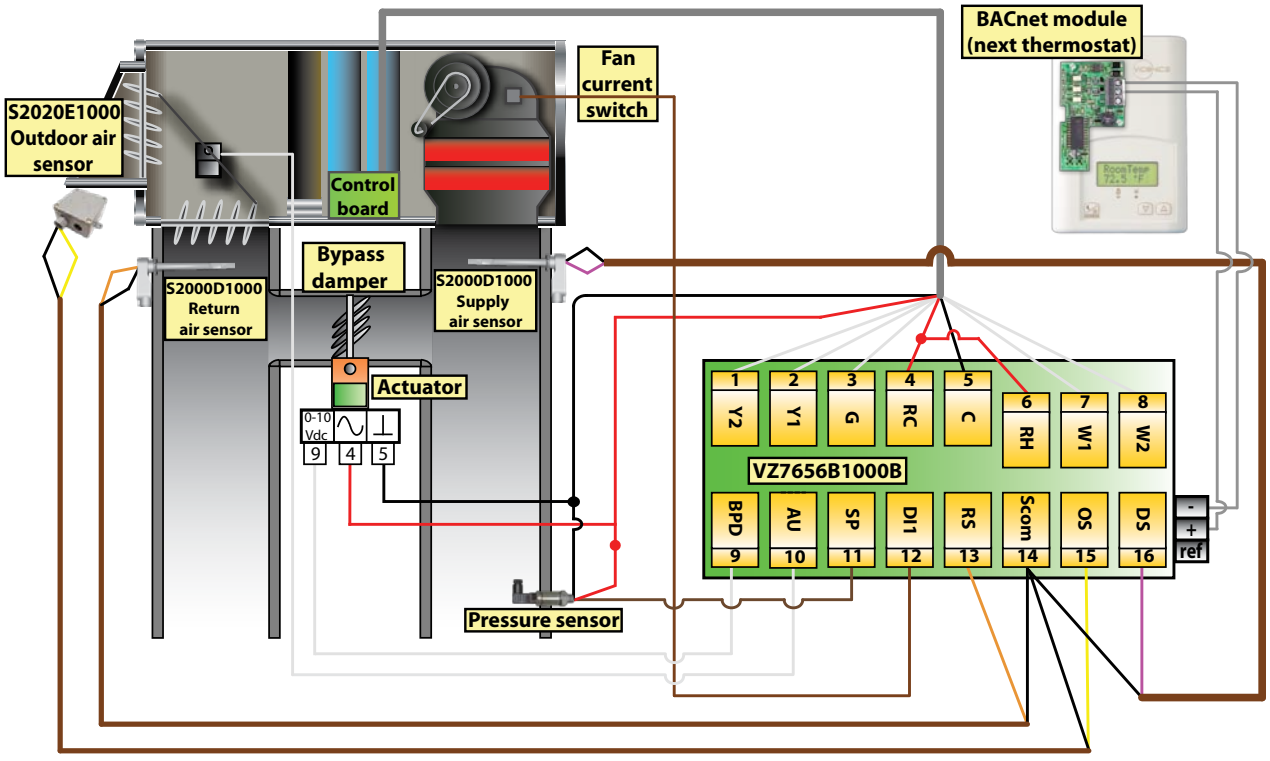
VZ7656B1000B Bacnet Rooftop Unit Thermostat

The Viconics VZ7656B1000B thermostat is specifically designed for RTU control of the Viconics Zoning System product family. The RTU thermostat is designed for single stage or multi-stage control of heating and cooling equipment such as rooftop and self-contained units used in zoning systems.
The product features a backlit LCD display with dedicated function menu buttons for simple user operation. Accurate temperature control is achieved due to the product's PI proportional control algorithm, which virtually eliminates temperature offset associated with traditional, differential-based thermostats.
The thermostat also contains extra digital inputs, which can be set by the user to monitor filter status or used as a general purpose service indicator. All models contain a SPST auxiliary switch, which can be used to control lighting or disable the RTU economizer function during unoccupied periods. It also features a discharge air sensor input. Proportional static pressure logic (input and output) has been integrated onto the thermostat to provide a complete single packaged unit for most small to medium size jobs.

Features

- **Fully scalable system**
  Can meet small and large system requirements
- **True stand-alone system**
  Do not require a computer to operate
- **Pre-engineered design, software and documentation**
  Eliminates costly expenses usually associated with DDC system
- **Native BACnet MS/TP solution, non-proprietary design**
  Supports up to 127 devices per trunk and will work with any BACnet supervision system
- **By-pass damper output logic for static pressure control**
  Increased comfort , accuracy, and energy savings
- **PI time proportioning algorithm**
  Increased comfort , accuracy, and energy savings
- **Intuitive, menu-driven programming (7 day, 2/4 events)**
  Can be used for all types of establishments
- **Auxiliary output**
  Can be used for lighting and/or economizer override
- **Freeze protection**
  Prevents costly freeze damage
- **Heating or cooling mode selection based on highest demand or average of various highest demands**
  Achieves maximum user comfort
- **Return air network lost function**
  Guarantees comfort even if network communication is lost
- **Outside air heating and cooling lockout**
  Prevents heating and cooling overlap
- **Supply and Return air high and low limits**
  Can be used with gas or electrical heating units
- **Progressive recovery feature**
  Increases energy savings and user comfort



Digital Stand-Alone and Communicating Thermostats

VT7000 Series communicating and non-communicating Digital PI based temperature / humidity controllers.

The VT7000 series PI based room temperature controllers have been specifically designed for easy installation, commissioning and user configuration to reduce overall project delivery costs.

End users will enjoy energy savings without sacrificing first installed cost and comfort.

All VT7000 series temperature controllers are available in both stand-alone and a host of networked industry standard protocols such as BACnet MS/TP, Lontalk and more recently Wireless Zigbee.

Uniquely the VT7000 series are matched with a host of accessories, including a new PIR accessory cover (see page VT5) which allows for incremental energy savings during unoccupied periods without disrupting occupant comfort.

In this section you will be provided with information on the following products:

- Stand-Alone Digital wall mounted temperature controllers VT7000 Series.
- Networked equivalents for all of the VT7000 Series.
- PIR Accessory cover for the VT7200 and VT7300 Series.
- Wireless network interface (Viconics Wireless Gateway)

For additional product or technical information please feel free to visit our web sites www.communicatingthermostat.com, www.viconics.com or contact our customer service department at: +1-800-563-5660,+1-514-321-5660, or email us at sales@viconics.com

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RoomTemp
72.5 °F
RoomTemp
72.5 °F
RoomTemp
72.5 °F

Five Step Model Selection Chart for VT7000 Digital Series Thermostats

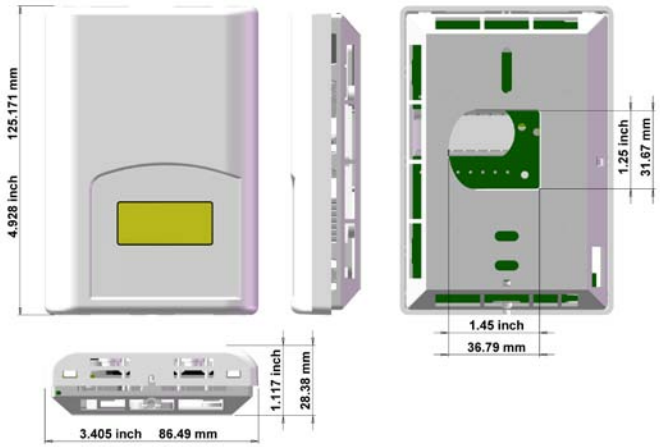
Step 1 →	Step 2 →	Step 3 →	Step 4 →	Step 5 : Network →			
Application	**Model**	**Feature**	**Primary Outputs**	**Standalone**	**BACnet (MS/TP)**	**Echelon**	**Wireless (ZigBee)**
Zone control, Hot/Cool air dampers, valves, changeover capability, reheat contact output. No Fan control with this model.			Floating 1H/1C	VT7200C5000	VT7200C5000**B**	VT7200C5000**E**	VT7200C5000**W**
			Analog 1H/1C	VT7200F5000	VT7200F5000**B**	VT7200F5000**E**	VT7200F5000**W**
2/4 pipe fancoil control Hot/Chill water valves, 1, 2 or 3 speed fan, changeover capability, reheat contact output.	Commercial	with Humidity sensor	Floating 1H/1C	VT7350C5000	VT7350C5000**B**	VT7350C5000**E**	VT7350C5000**W**
			Analog 1H/1C	VT7350F5000	VT7350F5000**B**	VT7350F5000**E**	VT7350F5000**W**
		without Humidity sensor	ON/OFF 1H/1C	VT7300A5000	VT7300A5000**B**	VT7300A5000**E**	VT7300A5000**W**
			Floating 1H/1C	VT7300C5000	VT7300C5000**B**	VT7300C5000**E**	VT7300C5000**W**
			Analog 1H/1C	VT7300F5000	VT7300F5000**B**	VT7300F5000**E**	VT7300F5000**W**
	Hotels/ Lodging	with Humidity sensor	Floating 1H/1C	VT7355C5000	VT7355C5000**B**	VT7355C5000**E**	VT7355C5000**W**
			Analog 1H/1C	VT7355F5000	VT7355F5000**B**	VT7355F5000**E**	VT7355F5000**W**
		without Humidity sensor	ON/OFF 1H/1C	VT7305A5000	VT7305A5000**B**	VT7305A5000**E**	VT7305A5000**W**
			Floating 1H/1C	VT7305C5000	VT7305C5000**B**	VT7305C5000**E**	VT7305C5000**W**
			Analog 1H/1C	VT7305F5000	VT7305F5000**B**	VT7305F5000**E**	VT7305F5000**W**
Rooftop unit control, staged heat and cool, single speed fan, frost protection, progressive recovery.	No schedule	Single stage	ON/OFF 1H/1C	VT7600A5000	VT7600A5000**B**	VT7600A5000**E**	VT7600A5000**W**
		Multi-stage	ON/OFF 2H/2C	VT7600B5000	VT7600B5000**B**	VT7600B5000**E**	VT7600B5000**W**
		Economizer	ON/OFF 2H/2C	VT7605B5000	VT7605B5000**B**	VT7605B5000**E**	VT7605B5000**W**
		Humidity control	ON/OFF 2H/2C	VT7607B5000	VT7607B5000**B**	VT7607B5000**E**	VT7607B5000**W**
	Schedule	Single stage	ON/OFF 1H/1C	VT7652A5000	VT7652A5000**B**	VT7652A5000**E**	VT7652A5000**W**
		Multi-stage	ON/OFF 2H/2C	VT7652B5000	VT7652B5000**B**	VT7652B5000**E**	VT7652B5000**W**
		Economizer	ON/OFF 2H/2C	VT7656B5000	VT7656B5000**B**	VT7656B5000**E**	VT7656B5000**W**
		Humidity control	ON/OFF 2H/2C	VT7657B5000	VT7657B5000**B**	VT7657B5000**E**	VT7657B5000**W**
Heat pump control	No schedule		ON/OFF 3H/2C	VT7600H5000	VT7600H5000**B**	VT7600H5000**E**	VT7600H5000**W**
	Schedule		ON/OFF 3H/2C	VT7652H5000	VT7652H5000**B**	VT7652H5000**E**	VT7652H5000**W**

For factory assembled PIR cover, use the same part numbers replacing 5000 by 5500 (ex: VT7200C**5500**E)

Specifications

Thermostat power requirements:	19-30 Vac 50 or 60 Hz; 2 VA Class 2
Operating conditions:	0 °C to 50 °C (32 °F to 122 °F) 0% to 95% R.H. non-condensing
Storage conditions:	-30 °C to 50 °C (-22 °F to 122 °F) 0% to 95% R.H. non-condensing
Temperature sensor:	Local 10 K NTC thermistor
Resolution:	± 0.1 °C (± 0.2 °F)
Control accuracy:	Temp: ± 0.5 ° C (± 0.9 °F) @ 21 °C (70 °F) typical calibrated Humidity: ± 5% RH from 20 to 0% RH at 50 to 90°F (10 to 32 °C)
Occupied and unoccupied setpoint range cooling:	12.0 to 37.5 °C (54 to 100 °F)
Occupied and unoccupied setpoint range heating:	4.5 °C to 32 °C (40 °F to 90 °F)
Room and outdoor air temperature display	-40 °C to 50 °C (-40 °F to 122 °F)
Proportional band for room temperature range control:	Cooling & Heating: 1.8°C (3.2°F)
Binary inputs:	Dry contact across terminal BI1, BI2 & UI3 to Scom
Outputs rating:	Triac output: 30 Vac, 1 Amp. Maximum, 3 Amp. in-rush Analog: 0 to 10 Vdc into 2KΩ resistance min.
Economizer analog output rating:	0 to 10 Vdc into 2Kohms resistance min.
Economizer analog output accuracy:	± 3% typical
Wire gauge:	18 gauge maximum, 22 gauge recommended
Dimensions:	4.94” x 3.38” x 1.13”
Approximate shipping weight:	0.75 lb (0.34 kg)
Agency Approvals:	
UL	UL 873 (US) and CSA C22.2 No. 24 (Canada), File E27734 with CCN XAPX (US) and XAPX7 (Canada)
FCC	Compliant to CFR 47, Part 15, Subpart B, Class A (US)
Industry Canada	ICES-003 (Canada)
CE	EMC Directive 89/336/EEC (Europe Union)
C-Tick	AS/NZS CISPR 22 Compliant (Australia / New Zealand)
	Supplier Code Number N10696

Dimensions



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VWG-40 Wireless Gateway

The VWG-40 and related wireless thermostats are targeted to retrofit applications where the addition of communicating field bus wiring within the building space is prohibitive. The Gateway and Communicating Thermostats with wireless field bus encourages the use of existing wiring utilized by existing electronic thermostat type controls.

The VWG-40-XX-1000 when utilized in conjunction with the VT7xxxXxxxxW series wireless thermostats will offer the integrator simple BACnet IP or BACnet MS/TP Objects or Lontalk SNVT's interface to integrate over standard building automation systems using familiar integration toolsets. Up to 30 thermostats are supported by a single gateway.

Available Models

MODEL	DESCRIPTION
VWG-40-IP-1000	Viconics BACnet over IP wireless gateway
VWG-40-MSTP-1000	Viconics BACnet RS485 MS-TP wireless gateway
VWG-40-LON-1000*	Viconics LON wireless gateway

Available Q2 2009

Features & Benefits

Features	Benefits
Supports up-to 40 thermostats per gateway	Satisfy most project requirements
BACnet/Lon models available	Integrates to a wide variety of industry automation systems
Auto-discovery of network nodes	Simple set-up and operation reduces installation cost.
Wireless network interface	Eliminates need for communication wiring
Thermostat operate absent from network connection	Fully redundant automation with minimal downtime
Uses existing equipment wiring to power thermostat	No batteries to service

Model	Accessory
VWG-APP-1000	Interface software for VWG configuration and set-up. Operates under Windows XP ™. Uses a LAN crossover IP connection for initial set-up
VWG-WA-1000	Replacement antenna for gateway mounted antenna setup
VWG-RA-1000	Remote antenna for gateway when the gateway is installed inside a metal cabinet or when remote antennal mounting is required by physical installation
VWG-PS-AC24-1000	24VAC to 16VDC power supply for VWG-40
VWG-PSNA-AC120-1000	120VAC North American wall adapter for VWG-40
VWG-PSEU-AC120-1000	120VAC European wall adapter for VWG-40

Specifications And Dimensions

Platform
- PowerPC 405EP 250 MHz processor
- 64MB SDRAM & 64 MB Serial Flash
- 128 KB Static RAM
- Battery Backup - 5 minutes typical - shutdown begins within 10 seconds
- Real-time clock - 3 month backup max via battery

Operating System
- QNX RTOS
- IBM J9 JVM Java Virtual Machine
- NiagaraAX

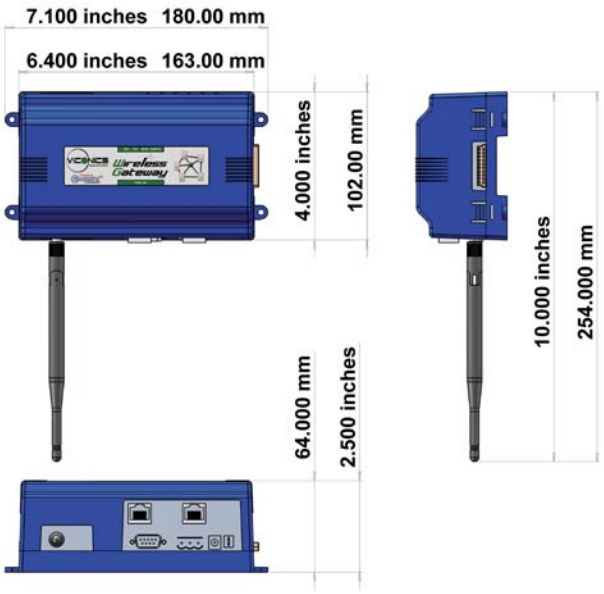
Communications
- 2 Ethernet Ports – 10/100 Mbps (RJ-45 Connectors)
- 1 RS 232 Port (9 pin D-shell connector)
- 1 RS 485 non isolated port (3 Screw Connector on base board)

Power Supply
- VWG-PS-DC 24 Vac to 15 Vdc panel mounted power supply for VWG
- VWG-PS-AC 120 Vac to 15 Vdc power supply for VWG with cord

Chassis
- Construction: Plastic, din rail or screw mount chassis, plastic cover
- Cooling: Internal air convection
- Dimensions: check graphic

Environment
- Operating temperature range: 0° to 50°C (32°F to 122°F)
- Storage Temperature range: 0° to 60°C (32°F to 140°F)
- Relative humidity range: 5% to 95%, non-condensing

Agency Listings
- UL 916, C-UL listed to Canadian Standards Association
- (CSA) C22.2 No. 205-M1983 “Signal Equipment”
- CE, FCC part 15 Class A
- C-tick (Australia)



The VT7000X5000 & VT7000X5500 PI thermostat family is specifically designed for advanced occupancy applications. These thermostats are equipped with advanced active occupancy logic, which will automatically switch occupancy levels from occupied to stand-by and unoccupied as required by local activity being present or not. This advanced occupancy functionality provides advantageous energy savings during occupied hours without sacrificing occupant comfort.

Available Models

All VT7000 series thermostats are available as VI-PIR cover ready models (VI-PIR cover could be added when needed) or factory assembled (VI-PIR cover factory installed).

Thermostats compatible with VI-PIR covers use the following part number assignments: VT7xxxxX5000(X). The 5 indicates that the thermostat's base has the necessary onboard polarized PIR connector and functionality added. Factory assembled PIR thermostats (VI-PIR cover included) use the following part number assignments: VT7xxxxX5500(X). The 55 indicates that the thermostat comes with factory installed VI-PIR cover.

For example, a VI-PIR cover ready model would have the following model number: **VT7300F5000B** and a PIR model with factory installed VI-PIR cover would have this model number **VT7300F5500B**

VI-PIR Cover Ready	Factory Assembled PIR Model
VT7200X5000	VT7200X5500
VT73xxX5000	VT73xxX5500
VT76xxX5000	VT76xxX5500

At the end of the model number add B for BACnet models, E for Echelon models or W for ZigBee wireless models. Ex: VT76xxX5000B, VT76xxX5000E, VT76xxX5000W.

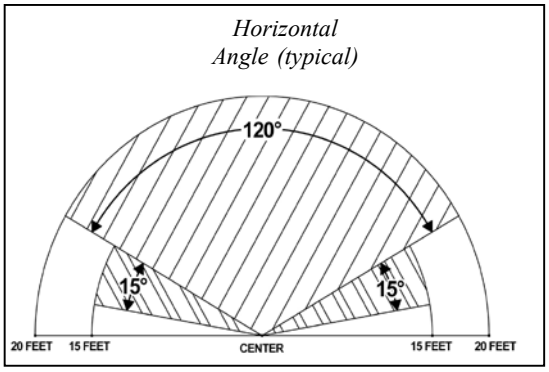
Configuration Parameters Specific to PIR Models

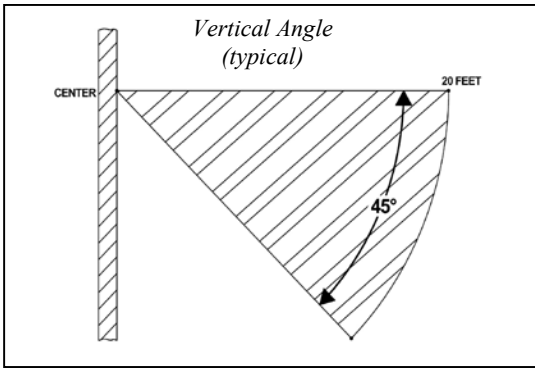
Parameter name	Function	Range/Options
St-By TM	Stand-by Timer value. Time delay between the moment where the PIR cover detected the last movement in the area and the time which the thermostat stand-by mode and setpoints become active.	0.5 to 24 hours in 0.5hr increments
Unocc TM	Unoccupied Timer value. Time delay between the moment where the thermostat toggles to stand-by mode and the time which the thermostat unoccupied mode and setpoints become active. The factory value or 0.0 hours: Setting this parameter to its default value of 0.0 hours disables the unoccupied timer. This prevents the thermostat to drift from stand-by mode to unoccupied mode when PIR functions are used	0.0 to 24 hours in 0.5hr increments
St-By HT	Stand-by heating setpoint. The value of this parameter should reside between the occupied and unoccupied heating setpoints and make sure that the difference between the stand-by and occupied value can be recovered in a timely fashion when movement is detected in the zone.	40 to 90 °F (4.5 to 32.0 °C)
St-By CL	Stand-by cooling setpoint. The value of this parameter should reside between the occupied and unoccupied cooling setpoints and make sure that the difference between the stand-by and occupied value can be recovered in a timely fashion when movement is detected in the zone.	54 to 100 °F (12.0 to 37.5 °C)

Features

- PI time proportioning algorithm
- Maximizes energy savings (10-30%)
- Can be utilized in conjunction with Viconics scheduled (7day) or open network protocol such as BACnet MS/TP, Echelon, or Zigbee thermostats
- Compatible with VT7200 and VT7300 series thermostats
- Pre-programmed, single device in a compact esthetically pleasing styling
- Potential for controlling local lighting systems based upon occupancy
- Factory or field installed versions available
- A diagnostic LED inside the PIR facilitates commissioning by providing visual confirmation of motion during the first 30 minutes of service
- Extends equipment lifespan
- Applications include hospitality, education, office for rooftop terminal equipment

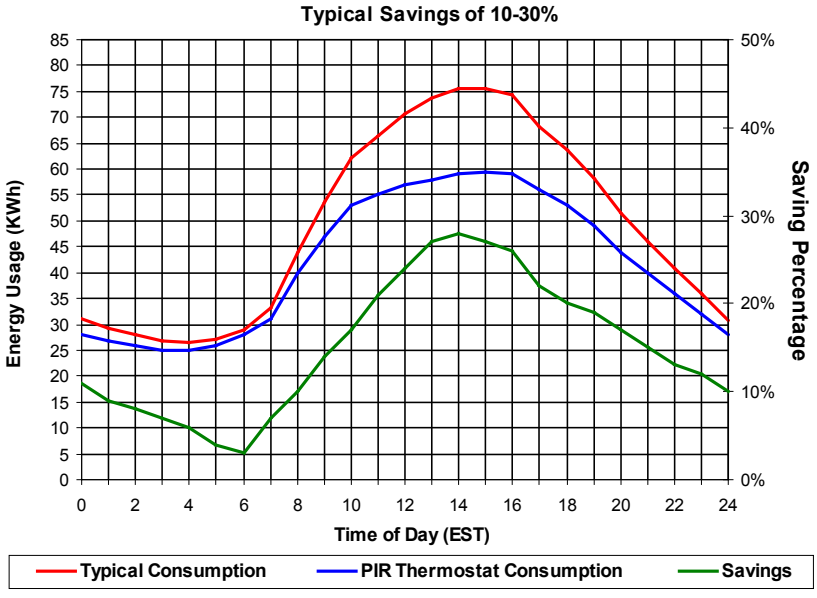
Typical Detection Pattern for VI-PIR Lens





Energy Savings

The VI-PIR can maximize your energy saving from 10-30% by relaxing temperature set points in unoccupied zones during scheduled periods.



The VT7200C5000 series features a backlit LCD display with dedicated function menu keys for simple operation. Accurate temperature control is achieved due to the product's PI proportional control algorithm. Models are available for 3 point floating (can be set for On/Off). In addition, remote room sensing is available. All models contain an auxiliary contact that can be used to control lighting or auxiliary reheat. All devices are also available with Echelon, BACnet MS-TP or wireless network adapter.

Available Models

MODEL	2 ON / OFF OR FLOATING OUTPUTS	AUX OUTPUT	BACNET MODEL	ECHELON MODEL	WIRELESS MODEL
VT7200C5000	•	•	VT7200C5000B	VT7200C5000E	VT7200C5000W

Replace 5000 by 5500 for factory installed PIR cover.

Configuration Parameters

Parameter name	Function	Range/Options
PswrdSet	Sets access password to the configuration menu	0 to 1000
Com Address*	Sets the Com address of the thermostat	0 to 254
PAN ID**	Sets the PAN ID of the thermostat	0 to 500
Channel**	Sets the channel of the thermostat	10 to 26
Get From**	Chooses thermostat to import configuration from	0 to 254
BI1	Defines the use of binary input BI1	None, Rem NSB, Motion NO, Motion NC, Window
BI2	Defines the use of binary input BI2	None, Door Dry, RemOVR, Filter, Service
UI3	Defines the use of universal input BI3	None, COC/NH, COC/NC, COS, SS
MenuScro	Used to activate or deactivate menu scroll	ON or OFF
C or F	Sets temperature units	°F, °C
Lockout	Sets the keypad lockout level	0, 1, 4, 5
Out1Conf	Defines the type of operation for output #1	2.0 pipe or 4.0 pipe
CntrlTyp	Defines the type of control outputs	Floating, On/Off
SeqOpera	Defines the sequence of operation of thermostat	0, 1, 2, 3, 4, 5
St-By TM	Sets the stand-by Timer value	0.5 to 24 hours (in 0.5hr increments)
Unocc TM	Sets the unoccupied Timer value	0.0 to 24 hours (in 0.5hr increments)
St-By HT	Sets the stand-by heating setpoint	40 to 90 °F (4.5 to 32.0 °C)
St-By CL	Sets the stand-by cooling setpoint	54 to 100 °F (12.0 to 37.5 °C)
Unocc HT	Sets the unoccupied heating setpoint	40 to 90 °F (4.5 to 32.0 °C)
Unocc CL	Sets the unoccupied cooling setpoint	54 to 100 °F (12.0 to 37.5 °C)
heat max	Sets the maximum heating setpoint limit	40 to 90 °F (4.5 to 32.0 °C)
cool min	Sets the minimum cooling setpoint limit	54 to 100 °F (12.0 to 37.5 °C)
Pband	Adjust the proportional band used by the PI control loop	2 to 10 °F (0.6 to 5.6 °C)
Set Type	Enables temporary setpoints feature	Permanent, Temporary
TOccTime	Sets the temporary occupancy time when overriding	0 to 24 hours (in 1 hour increments)
DoorTime	Forces Unoccupied mode if door stays open more than	1 to 10 minutes (in 1 minute increments)
deadband	Defines the minimum deadband	2, 3, 4, 5 °F
cal RS	Room air temperature sensor calibration	± 5.0 °F
aux cont	Sets Auxiliary contact function to occupancy or reheat	0 (reheat); 1, 2 (occupancy); 5 (network)
FL time	Sets stroke time of floating actuator	0.5 to 9 minutes
cph	Sets the number of cycles per hour for On/Off outputs	3, 4, 5, 6, 7, 8
Reheat	Sets the time base for the reheat output if used	0 (4 cph) or 1 (PWM 10 seconds)
UI3 dis	Displays supply or changeover temperature when UI3 is configured as analog input (SS or COS)	

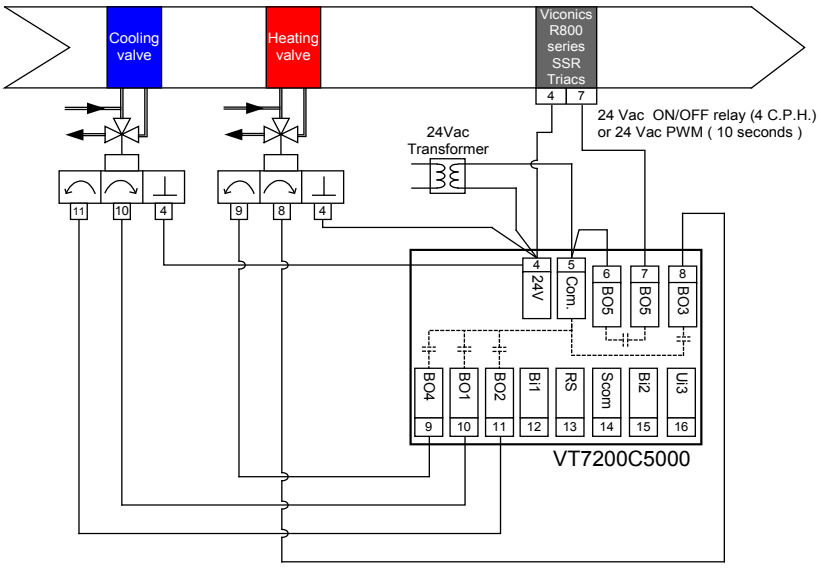
Note: to access the Configuration Menu press and hold the "Override" key for 8 seconds
(*) Only available in Wireless (VT7200X5000W) and BACnet (VT7200X5000B) models
(**) Only available in Wireless (VT7200X5000W) models

Features

- **Advanced occupancy functions**
  Through the network or smart local occupancy sensing
- **3 configurable inputs**
  Adds functionality
- **Pre-configured sequences of operation**
  One model meets more applications reduces project delivery cost
- **Unique local configuration utility**
  Minimizes parameter tampering
- **Lockable keypad**
  Tamper proof, no need for thermostat guards
- **Available for analog control (see VT7200F1000 page VT11)**
  Meet advanced applications requirements
- **Auxiliary output**
  Can be used for lighting or reheat
- **Available with various open industry standards communication adapters**
  Adds network integration functionality for additional savings

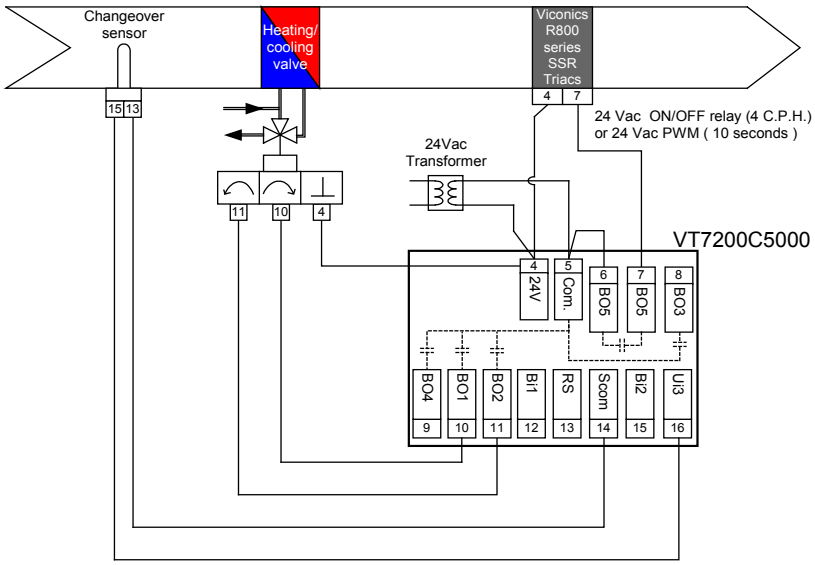
Typical 4 Pipe Application

- Heating valve
- Cooling valve
- Electric duct heater



Typical 2 Pipe Application

- Heating/Cooling valve
- Electric duct heater
- Changeover Sensor



See Page VT4 for Dimensions and specifications

Model no.	Accessory
S3010W1000	Wall mounted temperature sensor
S3020W1000	Wall mounted temperature sensor with override key and occupancy status LED
S2060A1000	Averaging temperature sensor
S2000D1000	Duct mounted temperature sensor

Model no.	Accessory
S1010D1000	Low cost duct mounted changeover temperature sensor
S1010E1000	Capsule type general purpose temperature sensor
COV-BC	Thermostat blind cover

See page S3-S4-S5 in Sensors section for details

The VT7200F5000 series features a backlit LCD display with dedicated function menu keys for simple operation. Accurate temperature control is achieved due to the product's PI proportional control algorithm. Models are available for analog 0-10Vdc control. In addition remote room sensing is available. All models contain an auxiliary contact that can be used to control lighting or auxiliary reheat. All devices are also available with Echelon, BACnet MS-TP or wireless network adapter.

Available Models

MODEL	2 ANALOG OUTPUTS	AUX OUTPUT	BACNET MODEL	ECHELON MODEL	WIRELESS MODEL
VT7200F5000	•	•	VT7200F5000B	VT7200F5000E	VT7200F5000W

Replace 5000 by 5500 for factory installed PIR cover.

Configuration Parameters

Parameter name	Function	Range/Options
PswrdSet	Sets access password to the configuration menu	0 to 1000
Com Addr*	Sets the Com address of the thermostat	0 to 254
PAN ID**	Sets the PAN ID of the thermostat	0 to 500
Channel**	Sets the channel of the thermostat	10 to 26
Get From**	Chooses thermostat to import configuration from	0 to 254
BI1	Defines the use of binary input BI1	None, Rem NSB, Motion NO, Motion NC, Window
BI2	Defines the use of binary input BI2	None, Door Dry, RemOVR, Filter, Service
UI3	Defines the use of universal input BI3	None, COC/NH, COC/NC, COS, SS
MenuScro	Used to activate or deactivate menu scroll	ON or OFF
C or F	Sets temperature units	°F, °C
Lockout	Sets the keypad lockout level	0, 1, 4, 5
Out1Conf	Defines the type of operation for output #1	2.0 pipe or 4.0 pipe
SeqOpera	Defines the sequence of operation of thermostat	0, 1, 2, 3, 4, 5
St-By TM	Sets the stand-by Timer value	0.5 to 24 hours (in 0.5hr increments)
Unocc TM	Sets the unoccupied Timer value	0.0 to 24 hours (in 0.5hr increments)
St-By HT	Sets the stand-by heating setpoint	40 to 90 °F (4.5 to 32.0 °C)
St-By CL	Sets the stand-by cooling setpoint	54 to 100 °F (12.0 to 37.5 °C)
Unocc HT	Sets the unoccupied heating setpoint	40 to 90 °F (4.5 to 32.0 °C)
Unocc CL	Sets the unoccupied cooling setpoint	54 to 100 °F (12.0 to 37.5 °C)
heat max	Sets the maximum heating setpoint limit	40 to 90 °F (4.5 to 32.0 °C)
cool min	Sets the minimum cooling setpoint limit	54 to 100 °F (12.0 to 37.5 °C)
Pband	Adjust the proportional band used by the PI control loop	2 to 10 °F (0.6 to 5.6 °C)
Set Type	Enables temporary setpoints feature	Permanent, Temporary
TOccTime	Sets the temporary occupancy time when overriding	0 to 24 hours (in 1 hour increments)
DoorTime	Forces Unoccupied mode if door stays open more than:	1 to 10 minutes (in 1 minute increments)
deadband	Defines the minimum deadband	2, 3, 4, 5 °F
cal RS	Room air temperature sensor calibration	± 5.0 °F
aux cont	Sets Auxiliary contact function to occupancy or reheat	0 (reheat); 1, 2 (occupancy); 5 (network)
cph	Sets the number of cycles per hour for On/Off outputs	3, 4, 5, 6, 7, 8
RA/DA	Changes the action of the analog outputs	RA or DA
Reheat	Sets the time base for the reheat output if used	0 (4 cph) or 1 (PWM 10 seconds)
UI3 dis	Displays supply or changeover temperature when UI3 is configured as analog input (SS or COS)	

Note: to access the Configuration Menu press and hold the "Override" key for 8 seconds
*** Only available in Wireless (VT7200X5000W) and BACnet (VT7200X5000B) models**
**** Only available in Wireless (VT7200X5000W) models**

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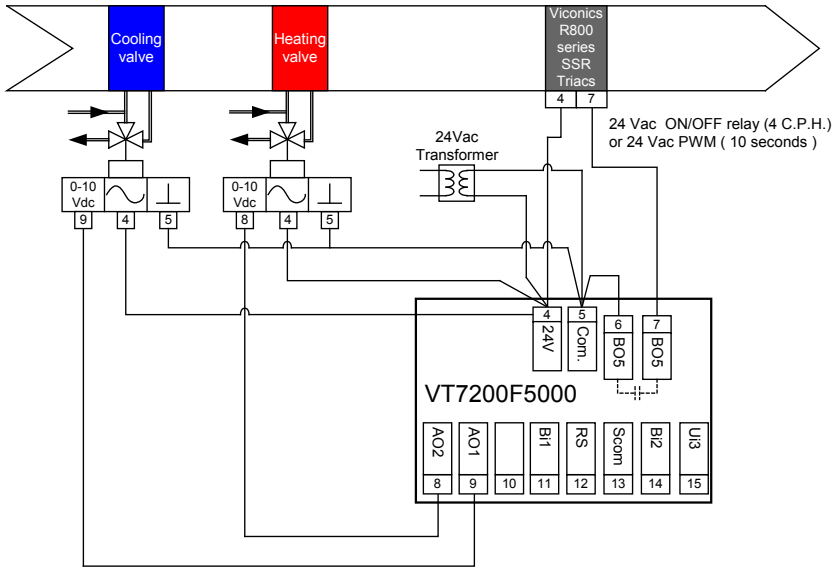
Features

- **Advanced occupancy functions**
  Through the network or smart local occupancy sensing
- **3 configurable inputs**
  Adds functionality
- **Pre-configured sequences of operation**
  One model meets more applications reduces project delivery cost
- **Unique local configuration utility**
  Minimizes parameter tampering
- **Lockable keypad**
  Tamper proof, no need for thermostat guards
- **Available for 24 Vac On/Off or floating control (p. VT9)**
  Meet advanced applications requirements
- **Auxiliary output**
  Can be used for lighting or reheat
- **Available with various open industry standards communication adapters**
  Adds network integration functionality for additional savings

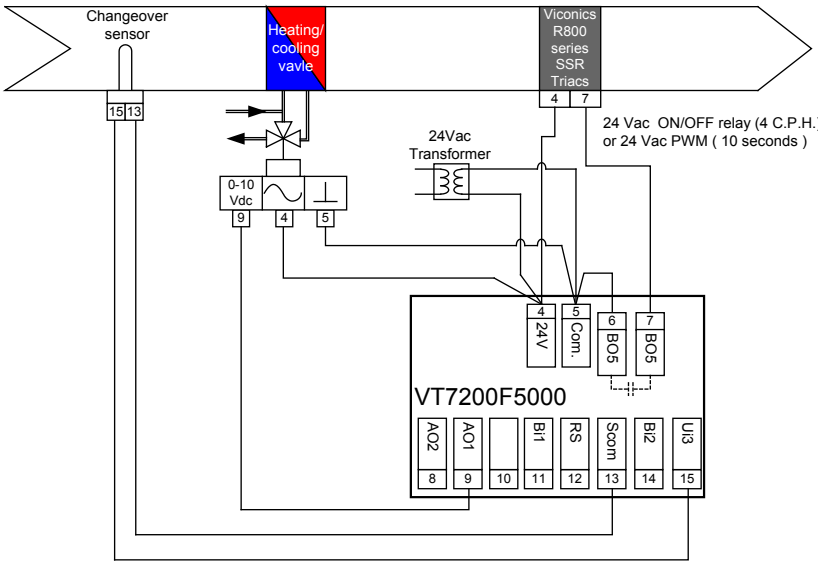
Typical 4 Pipe Application

- Heating valve
- Cooling valve
- Electric duct heater



Typical 2 Pipe Application

- Heating/Cooling valve
- Electric duct heater
- Changeover Sensor



See Page VT4 for Dimensions and specifications

Model no.	Accessory
S3010W1000	Wall mounted temperature sensor
S3020W1000	Wall mounted temperature sensor with override key and occupancy status LED
S2060A1000	Averaging temperature sensor
S2000D1000	Duct mounted temperature sensor

Model no.	Accessory
S1010D1000	Low cost duct mounted changeover temperature sensor
S1010E1000	Capsule type general purpose temperature sensor
COV-BC	Thermostat blind cover

See page S3-S4-S5 in Sensors section for details

The VT73xxC5000 PI thermostat family is specifically designed for fancoil control. The product features a backlit LCD display with dedicated function menu buttons for simple operation. Accurate temperature control is achieved due to the product's PI proportional control algorithm, which virtually eliminates temperature offset associated with traditional, differential-based thermostats. All models can control three, two or single fan speeds. Three additional inputs are also provided for various functions. All models feature configurable System and Fan button functions to meet all possible applications. All models contain an auxiliary contact that can be used to control lighting or auxiliary reheat. All devices are also available with Echelon or BACnet MS-TP network adapter.

MODEL	2 ON/OFF OUTPUTS	2 ON/OFF or FLOATING OUTPUTS	HUMIDITY SENSOR FOR DEHUM.	AUX. OUTPUT	APPLICATION (CENTER KEY OPTION)
VT7300A5000	•			•	Commercial
VT7305A5000	•			•	Hotels/Lodging
VT7300C5000		•		•	Commercial
VT7350C5000		•	•	•	Commercial
VT7305C5000		•		•	Hotels/Lodging
VT7355C5000		•	•	•	Hotels/Lodging

Add B for BACnet models, E for Echelon models or W for ZigBee wireless models. Ex: VT73xxX5000B, VT73xxX5000E,VT73xxX5000W. Replace 5000 by 5500 for factory installed PIR cover.

Parameter name	Function	Range/Options
PswrdSet	Sets access password to the configuration menu	0 to 1000
Com Addr*	Sets the Com address of the thermostat	0 to 254
PAN ID**	Sets the PAN ID of the thermostat	0 to 500
Channel**	Sets the channel of the thermostat	10 to 26
Get From**	Chooses thermostat to import configuration from	0 to 254
BI1	Defines the use of binary input BI1	None, Rem NSB, Motion NO or NC, Window
BI2	Defines the use of binary input BI2	None, Door Dry, RemOVR, Filter, Service
UI3	Defines the use of universal input UI3	None, COC/NH, COC/NC, COS, SS
MenuScro	Used to activate or deactivate menu scroll	ON or OFF
AutoMode	Enables auto function for the mode button	ON or OFF
C or F	Sets temperature units	°F, °C
%RH disp***	Enables %RH to be displayed below room temperature	ON or OFF
Lockout	Sets the keypad lockout level	0, 1, 2, 3, 4, 5
Pipe No	Defines number of pipes and limits sequences allowed	2.0 pipe or 4.0 pipe
CntrlTyp	Defines functioning of main outputs	ON/OFF or Tri-State Floating
SeqOpera	Defines the sequence of operation of thermostat	0, 1, 2, 3, 4, 5
Fan Menu	Defines sequence of fan operation	0, 1, 2, 3, 4
DEHumiLCK***	Enables or disables dehumidification	ON, OFF
%RH set***	Dehumidification setpoint	30 to 95%
DehuHyst***	Defines humidity control hysterisys	2 to 20%
DehuCool***	Maximum cooling valve position when dehumidification is enabled	20 to 100%
St-By TM	Sets the stand-by Timer value	0.5 to 24 hours (in 0.5hr increments)
Unocc TM	Sets the unoccupied Timer value	0.0 to 24 hours (in 0.5hr increments)
St-By HT	Sets the stand-by heating setpoint	40 to 90 °F (4.5 to 32.0 °C)
St-By CL	Sets the stand-by cooling setpoint	54 to 100 °F (12.0 to 37.5 °C)
Unocc HT	Sets the unoccupied heating setpoint	40 to 90 °F (4.5 to 32.0 °C)
Unocc CL	Sets the unoccupied cooling setpoint	54 to 100 °F (12.0 to 37.5 °C)
heat max	Sets the maximum heating setpoint limit	40 to 90 °F (4.5 to 32.0 °C)
cool min	Sets the minimum cooling setpoint limit	54 to 100 °F (12.0 to 37.5 °C)
Pband	Adjust the proportional band used by the PI control loop	2 to 10 °F (0.6 to 5.6 °C)
Set Type	Enables temporary setpoints feature	Permnent, Temporar
SptFunc	Sets the local setpoint interface for the user	Dual Stp or AttchStp
TOccTime	Sets the temporary occupancy time when overriding	0 to 24 hours (in 1 hour increments)
DoorTime	Forces Unoccupied mode if door stays open more than:	1 to 10 minutes (in 1 minute increments)
deadband	Defines the minimum deadband	2, 3, 4, 5 °F
cal RS	Room air temperature sensor calibration	± 5.0 °F
cal RH	Room relative humidity sensor calibration	± 15.0 %
aux cont	Sets Auxiliary contact function and configuration	0 (reheat); 1, 2, 3, 4 (occupancy); 5 (network)
Auto Fan	Auto Speed Fan Mode operation for Fan Sequences 2 and 3	AS or AS AD
FL time	Sets stroke time of floating actuator	0.5 to 9 minutes (in 0.5 minute increments)
cph	Sets the number of cycles per hour for On/Off outputs	3, 4, 5, 6, 7, 8
Reheat	Sets the time base for the reheat output if used	0 (4 CPH) or 1 (PWM 10 seconds)
UI3 dis	Displays supply or changeover temperature when UI3 is configured as analog input (SS or COS)	

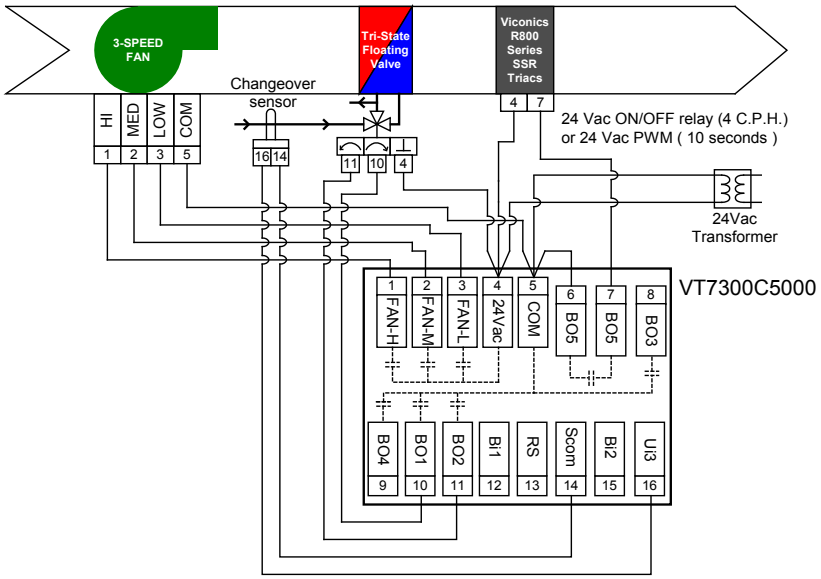
*** Only available in Wireless (VT73xxX5000W) and BACnet (VT73xxX5000B) models** **** Only available in Wireless (VT73xxX5000W) models**
***** Only available in models with RH Sensor (VT7350C5000X, VT7355C5000X)**

Features

- **Models available with internal humidity sensing**
  Increased occupant comfort through dehumidification
- **Advanced occupancy functions**
  Through the network or smart local occupancy sensing
- **3 configurable inputs**
  Adds functionality
- **Configurable sequences of operation**
  Single model meets more applications
- **Configurable fan functions button**
  Meets more applications with a single model
- **Unique local configuration utility**
  Minimizes parameter tampering
- **Multi-level lockable keypad**
  Tamper proof, no need for thermostat guards
- **Auto Fan speed mode**
  Increased occupant comfort in cooling mode by reducing humidity and offer less fan noise in all mode of operation
- **Available for Analog control (see VT73xxF1000 page VT15)**
  Meet advanced applications requirements
- **Auxiliary output**
  Can be used for lighting or reheat

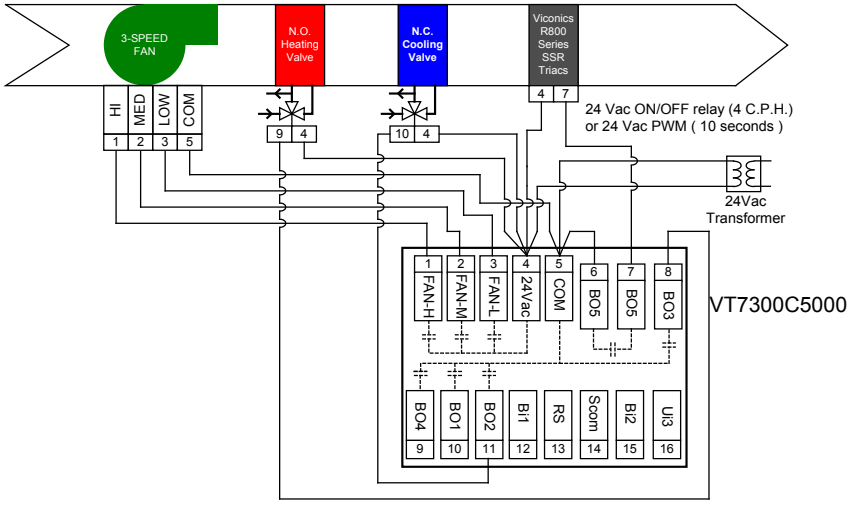
Typical 2 Pipe Application Floating Outputs

- Heating/Cooling valve
- Three speed fan
- Electric duct heater
- Changeover sensor



Typical 4 Pipe Application ON/OFF outputs

- Heating valve
- Cooling valve
- Three speed fan
- Electric duct heater



See Page VT4 for Dimensions and specifications

Model no.	Accessory
S3010W1000	Wall mounted temperature sensor
S3020W1000	Wall mounted temperature sensor with override key and occupancy status LED
S2060A1000	Averaging temperature sensor
S2000D1000	Duct mounted temperature sensor

Model no.	Accessory
S1010D1000	Low cost duct mounted changeover temperature sensor
S1010E1000	Capsule type general purpose temperature sensor
COV-BC	Thermostat blind cover

See page S3-S4-S5 in Sensors section for details

The VT73xxF5000 PI thermostat family is specifically designed for fancoil control. The product features a backlit LCD display with dedicated function menu buttons for simple operation. Accurate temperature control is achieved due to the product's PI proportional control algorithm, which virtually eliminates temperature offset associated with traditional, differential-based thermostats. All models can control three, two or single fan speed. Three additional inputs are also provided for various functions. All models feature configurable System and Fan button functions to meet all possible applications. All models contain an auxiliary contact that can be used to control lighting or auxiliary reheat. All devices are also available with Echelon or BACnet MS-TP network adapter.

MODEL	2 ANALOG OUTPUTS	HUMIDITY SENSOR FOR DEHUM.	AUX. OUTPUT	APPLICATION (CENTER KEY OPTION)
VT7300F5000	•		•	Commercial
VT7350F5000	•	•	•	Commercial
VT7305F5000	•		•	Hotels/Lodging
VT7355F5000	•	•	•	Hotels/Lodging

At The end of the model number, add B for BACnet models, E for Echelon models or W for ZigBee wireless models. Ex: VT73xxF5000B, VT73xxF5000E, VT73xxF5000W. Replace 5000 by 5500 for factory installed PIR cover.

Parameter name	Function	Range/Options
PswrdSet	Sets access password to the configuration menu	0 to 1000
Com Addr*	Sets the Com address of the thermostat	0 to 254
PAN ID**	Sets the PAN ID of the thermostat	0 to 500
Channel**	Sets the channel of the thermostat	10 to 26
Get From**	Chooses thermostat to import configuration from	0 to 254
BI1	Defines the use of binary input BI1	None, Rem NSB, Motion NO or NC, Window
BI2	Defines the use of binary input BI2	None, Door Dry, RemOVR, Filter, Service
UI3	Defines the use of universal input UI3	None, COC/NH, COC/NC, COS, SS
MenuScro	Used to activate or deactivate menu scroll	ON or OFF
AutoMode	Enables auto function for the mode button	ON or OFF
C or F	Sets temperature units	°F, °C
%RH disp***	Enables %RH to be displayed below room temperature	ON or OFF
Lockout	Sets the keypad lockout level	0, 1, 4, 5
Pipe No	Defines number of pipes and limits sequences allowed	2.0 pipe or 4.0 pipe
SeqOpera	Defines the sequence of operation of thermostat	0, 1, 2, 3, 4, 5
Fan Menu	Defines sequence of fan operation	0, 1, 2, 3, 4
DEHumiLCK***	Enables or disables dehumidification	ON, OFF
%RH set***	Dehumidification setpoint	30 to 95%
DehuHyst***	Defines humidity control hysterisys	2 to 20%
DehuCool***	Maximum cooling valve position when dehumidification is enabled	20 to 100%
St-By TM	Sets the stand-by Timer value	0.5 to 24 hours (in 0.5hr increments)
Unocc TM	Sets the unoccupied Timer value	0.0 to 24 hours (in 0.5hr increments)
St-By HT	Sets the stand-by heating setpoint	40 to 90 °F (4.5 to 32.0 °C)
St-By CL	Sets the stand-by cooling setpoint	54 to 100 °F (12.0 to 37.5 °C)
Unocc HT	Sets the unoccupied heating setpoint	40 to 90 °F (4.5 to 32.0 °C)
Unocc CL	Sets the unoccupied cooling setpoint	54 to 100 °F (12.0 to 37.5 °C)
heat max	Sets the maximum heating setpoint limit	40 to 90 °F (4.5 to 32.0 °C)
cool min	Sets the minimum cooling setpoint limit	54 to 100 °F (12.0 to 37.5 °C)
Pband	Adjust the proportional band used by the PI control loop	2 to 10 °F (0.6 to 5.6 °C)
Set Type	Enables temporary setpoints feature	Permnent, Temporar
SptFunc	Sets the local setpoint interface for the user	Dual Stp or AttchStp
TOccTime	Sets the temporary occupancy time when overriding	0 to 24 hours (in 1 hour increments)
DoorTime	Forces Unoccupied mode if door stays open more than:	1 to 10 minutes (in 1 minute increments)
deadband	Defines the minimum deadband	2, 3, 4, 5 °F
cal RS	Room air temperature sensor calibration	± 5.0 °F
cal RH	Room relative humidity sensor calibration	± 15.0 %
aux cont	Sets Auxiliary contact function and configuration	0 (reheat); 1, 2, 3, 4 (occupancy); 5 (network)
Auto Fan	Auto Speed Fan Mode operation for Fan Sequences 2 and 3	AS or AS AD
RA/DA	Defines the analog output as reverse or direct acting	RA or DA
Reheat	Sets the time base for the reheat output if used	0 (4 CPH) or 1 (PWM 10 seconds)
UI3 dis	Displays supply or changeover temperature when UI3 is configured as analog input (SS or COS)	

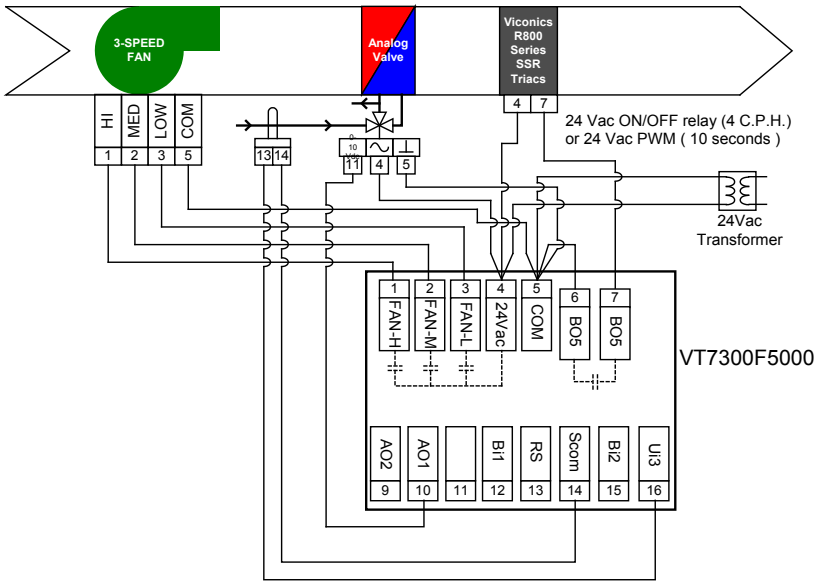
*** Only available in Wireless (VT73xxX5000W) and BACnet (VT73xxX5000B) models** **** Only available in Wireless (VT73xxX5000W) models**
***** Only available in models with RH Sensor (VT7350C5000X, VT7355C5000X)**

Features

- **Models available with internal humidity sensing**
  Increased occupant comfort through dehumidification
- **Advanced occupancy functions**
  Through the network or smart local occupancy sensing
- **3 configurable inputs**
  Adds functionality
- **Configurable sequences of operation**
  Single model meets more applications
- **Configurable fan functions button**
  Meets more applications with a single model
- **Unique local configuration utility**
  Minimizes parameter tampering
- **Multi-level lockable keypad**
  Tamper proof, no need for thermostat guards
- **Auto Fan speed mode**
  Increased occupant comfort in cooling mode by reducing humidity and offer less fan noise in all mode of operation
- **Available for 24 Vac On/Off or Floating control (see page VT13)**
  Meet advanced applications requirements
- **Auxiliary output**
  Can be used for lighting or reheat

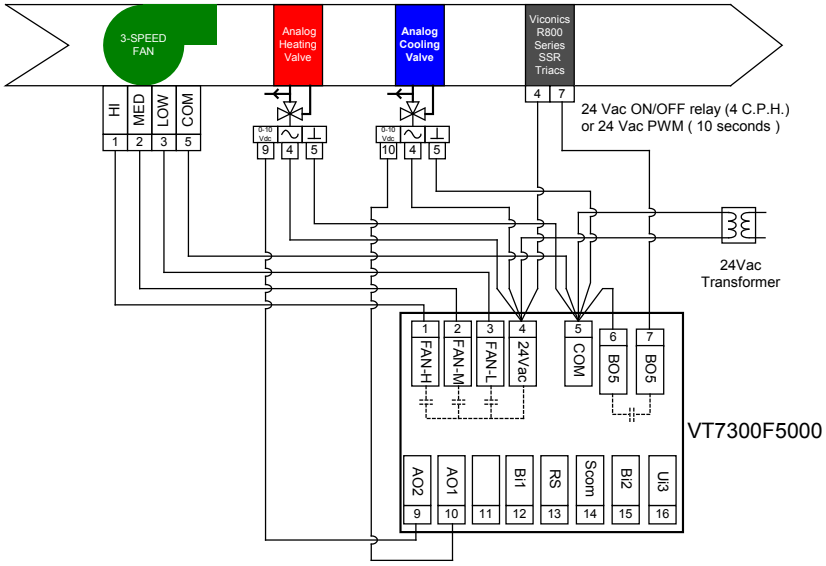
Typical 2 Pipe Application

- Heating/Cooling valve
- Three speed fan
- Electric duct heater
- Changeover sensor



Typical 4 Pipe Application

- Heating valve
- Cooling valve
- Three speed fan
- Electric duct heater



See Page VT4 for Dimensions and specifications

Model no.	Accessory
S3010W1000	Wall mounted temperature sensor
S3020W1000	Wall mounted temperature sensor with override key and occupancy status LED
S2060A1000	Averaging temperature sensor
S2000D1000	Duct mounted temperature sensor

Model no.	Accessory
S1010D1000	Low cost duct mounted changeover temperature sensor
S1010E1000	Capsule type general purpose temperature sensor
COV-BC	Thermostat blind cover

See page S3-S4-S5 in Sensors section for details

The VT76xxA/VT76xxB PI thermostat family is specifically designed for single stage and multi-stage control of heating/cooling equipment such as rooftop and self-contained units. The product features an intuitive, menu-driven, back-lit LCD display which walks users through the programming steps, making the process extremely simple.
All models contain two digital inputs, which can be set by the user to monitor filter status, change the occupancy status, and/or used as a general purpose service indicator. In addition, depending on the model, up to three remote sensor inputs are available. All models contain a discharge air sensor input and SPST auxiliary switch, which can be used to control lighting or disable the economizer function.

Available Models

MODEL	1HEAT/1COOL	2HEAT/2COOL	INTERNAL SCHEDULING
VT7600A5000	•		
VT7652A5000	•		•
VT7600B5000		•	
VT7652B5000		•	•

At the end of the model number add B for BACnet models, E for Echelon models or W for ZigBee wireless models. Ex: VT76xxX5000B, VT76xxX5000E, VT76xxX5000W. Replace 5000 by 5500 for factory installed PIR cover.

Configuration Parameters

Parameter name	Function	Range/Options
Pswrd	Configuration parameters menu access password	Range is: 0 to 1000
DI 1	Defines the use of binary input DI1	None, Rem NSB, RemOVR, Filter, Service, Fan lock
DI 2	Defines the use of binary input DI2	None, Rem NSB, RemOVR, Filter, Service, Fan lock
lockout	Sets the keypad lockout level	0, 1, 2
pwr del	Sets the power-up delay of the thermostat	10 to 120 seconds
Frost pr	Enables frost protection	ON or OFF
heat max	Sets the maximum heating setpoint limit	40 to 90 °F (4.5 to 32.0 °C)
cool min	Sets the minimum cooling setpoint limit	54 to 100 °F (12.0 to 37.5 °C)
Pband	Sets the proportional band setting	2 to 8 °F (0.6 to 3.9 °C)
Anticycle	Sets minimum On/Off operation time for stages	0, 1, 2, 3, 4, 5 minutes
Heat cph	Sets the maximum number of cycles for heating stages per hour	3, 4, 5, 6, 7, 8
cool cph	Sets the maximum number of cycles for cooling stages per hour	3, 4
Deadband	Sets the minimum deadband between cooling & heating setpoints	2, 3, 4 °F (1.0 to 2.0 °C)
fan cont	Sets the fan control mode in heating mode	ON or OFF
fan del	Extends fan operation by 60 seconds after demand ends	ON or OFF
Com Addr*	Sets the Com address of the thermostat	0 to 254
PAN ID**	Sets the PAN ID of the thermostat	0 to 500
Channel**	Sets the channel of the thermostat	10 to 26
Get From**	Chooses thermostat to import configuration from	0 to 254
ToccTime	Sets the temporary occupancy time when overriding	0 to 12 hours (in 1 hour increments)
cal RS	Room air temperature sensor calibration	± 5.0 °F (± 2.5 °C)
cal OS	Outside air temperature sensor calibration	± 5.0 °F (± 2.5 °C)
H stage	Sets the number of heating stages used	1 or 2
C stage	Sets the number of cooling stages used	1 or 2
H lock	Sets the outside air temperature heating lockout	-15 to 120 °F (-26 to 49 °C)
C lock	Sets the outside air temperature mechanical cooling lockout	-40 to 95 °F (-40 to 35 °C)
Unocc TM	Sets the unoccupied Timer value	0.0 to 24 hours (in 0.5hr increments)
2/4event	Sets the number of events for the occupancy schedule	2 or 4
aux cont	Sets the auxiliary contact to N.O. or N.C	N.O. or N.C
Prog rec	Enables the progressive recovery function	ON or OFF

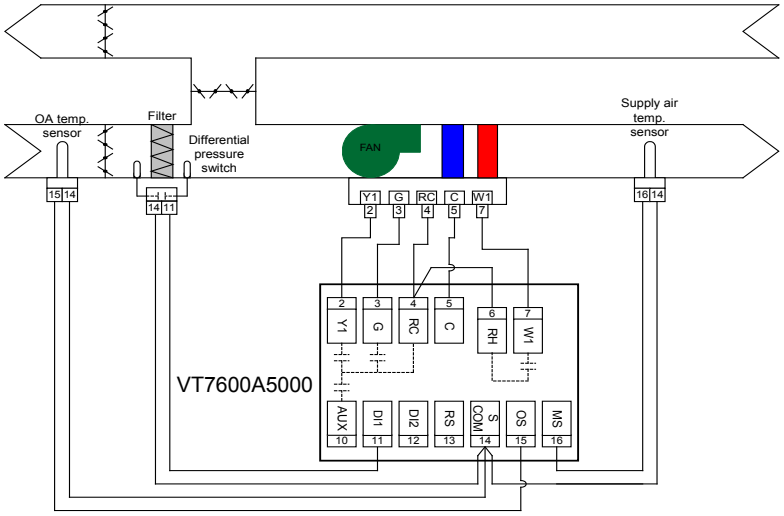
*** Only available in Wireless (VT7600X5000W) and BACnet (VT7600X5000B) models (**) Only available in Wireless (VT7600X5000W) models**

Features

- **PI time proportioning algorithm**
  Increased comfort , accuracy, and energy savings
- **2 digital inputs**
  Adds functionality
- **Smart fan**
  Saves energy during night mode
- **Unique local configuration utility**
  Minimizes parameter tampering
- **Lockable keypad**
  Tamper proof, no need for thermostat guards
- **Freeze protection**
  Prevents costly freeze damage
- **EEPROM memory**
  No loss of program
- **6 hour reserve time for clock**
  No need to reprogram day/time after power shortage
- **Remote room and outdoor temperature sensor**
  Increase flexibility and functionality
- **Auxiliary output**
  Can be used for lighting and/or economizer override
- **Discharge air sensor**
  Can be used to monitor unit efficiency
- **Intuitive, menu-driven programming**
  Can be used for all types of establishments

Typical 1H/1C Application

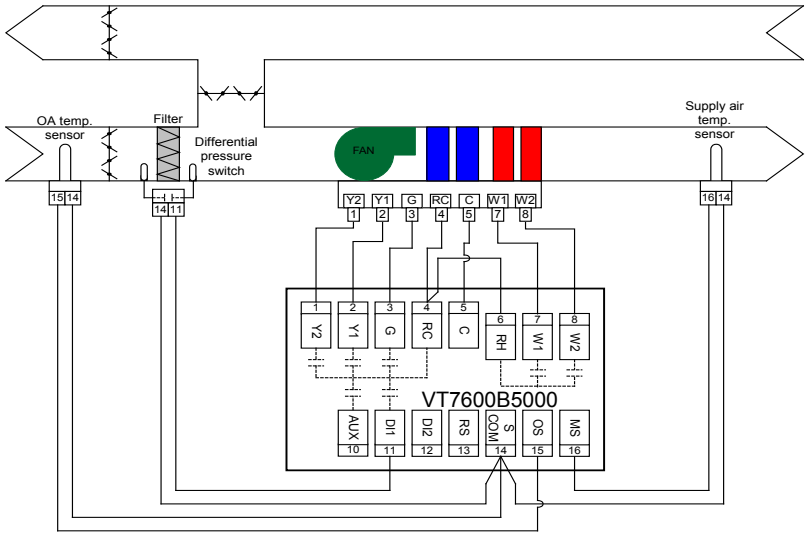
- Single Speed Fan
- Supply Air Temperature Sensor
- Outside Air Temperature Sensor
- Differential Pressure Switch



Typical 2H/2C Application

- Single Speed Fan
- Supply Air Temperature Sensor
- Outside Air Temperature Sensor
- Differential Pressure Switch

See Page VT4 for Dimensions and specifications



Model no.	Accessory
S3010W1000	Wall mounted temperature sensor
S3020W1000	Wall mounted temperature sensor with override key and occupancy status LED
S2060A1000	Averaging temperature sensor
S2020E1000	Outside air temperature sensor with enclosure

Model no.	Accessory
S2000D1000	Duct mounted temperature sensor
S1010D1000	Low cost duct mounted changeover temperature sensor
S1010E1000	Capsule type general purpose temperature sensor
COV-BC	Thermostat blind cover

See page S3-S4-S5 in Sensors section for details

VT76x5B5000 Series Roof Top Unit Thermostats With Economizer Function

The VT7605B/VT7656B PI thermostat family is specifically designed for multi-stage control of heating/cooling equipment such as rooftop and self-contained units with proportional damper economizer actuators. The product features an intuitive, menu-driven, back-lit LCD display which walks users through the programming steps, making the process extremely simple. All models contain two digital inputs, which can be set by the user to monitor filter status, change the occupancy status, and/or used as a general purpose service indicator. In addition, depending on the model, up to three remote sensor inputs are available. All models contain a SPST auxiliary switch, which can be used to control lighting or disable the economizer function and a discharge air sensor input.

Available Models

MODEL	1HEAT/1COOL	2HEAT/2COOL	ECONOMIZER FUNCTION	INTERNAL SCHEDULING
VT7605B5000	•	•	•	
VT7656B5000	•	•	•	•

Add B for BACnet models, E for Echelon models or W for ZigBee wireless models. Ex: VT76x5B5000B, VT76x5B5000E, VT76x5B5000W. Replace 5000 by 5500 for factory installed PIR cover.

Configuration Parameters

Parameter name	Function	Range/Options
Pswrd	Configuration parameters menu access password	Range is: 0 to 1000
DI1	Defines the use of binary input DI1	None, Rem NSB, RemOVR, Filter, Service, Fan lock
DI2	Defines the use of binary input DI2	None, Rem NSB, RemOVR, Filter, Service, Fan lock
lockout	Sets the keypad lockout level	0, 1, 2
pwr del	Sets the power-up delay of the thermostat	10 to 120 seconds
Frost pr	Enables frost protection	ON or OFF
heat max	Sets the maximum heating setpoint limit	40 to 90 °F (4.5 to 32.0 °C)
cool min	Sets the minimum cooling setpoint limit	54 to 100 °F (12.0 to 37.5 °C)
Pband	Sets the proportional band setting	2 to 8 °F (0.6 to 3.9 °C)
Anticycle	Sets minimum On/Off operation time for stages	0, 1, 2, 3, 4, 5 minutes
Heat cph	Sets the maximum number of cycles for heating stages per hour	3, 4, 5, 6, 7, 8
cool cph	Sets the maximum number of cycles for cooling stages per hour	3, 4
Deadband	Sets the minimum deadband between cooling & heating setpoints	2, 3, 4 °F (1.0 to 2.0 °C)
fan cont	Sets the fan control mode in heating mode	ON or OFF
fan del	Extends fan operation by 60 seconds after demand ends	ON or OFF
Com Addr*	Sets the Com address of the thermostat	0 to 254
PAN ID**	Sets the PAN ID of the thermostat	0 to 500
Channel**	Sets the channel of the thermostat	10 to 26
Get From**	Chooses thermostat to import configuration from	0 to 254
ToccTime	Sets the temporary occupancy time when overriding	0 to 12 hours (in 1 hour increments)
cal RS	Room air temperature sensor calibration	± 5.0 °F (± 2.5 °C)
cal OS	Outside air temperature sensor calibration	± 5.0 °F (± 2.5 °C)
H stage	Sets the number of heating stages used	1 or 2
C stage	Sets the number of cooling stages used	1 or 2
H lock	Sets the outside air temperature heating lockout	-15 to 120 °F (-26 to 49 °C)
C lock	Sets the outside air temperature mechanical cooling lockout	-40 to 95 °F (-40 to 35 °C)
Unocc TM	Sets the unoccupied Timer value	0.0 to 24 hours (in 0.5hr increments)
2/4event	Sets the number of events for the occupancy schedule	2 or 4
aux cont	Sets the auxiliary contact to N.O. or N.C	N.O. or N.C
Prog rec	Enables the progressive recovery function	On or Off
Chngstpt	Sets the changeover setpoint from mechanical to free cooling	14 to 70 °F (-10 to 21°C)
min pos	Sets the minimum position of the outside air damper	0 to 100%
C mech	Allows mechanical cooling if free cooling cannot maintain setpoint	ON or OFF
mix stpt	Sets the free cooling mixed air setpoint	50 to 90 °F (10 to 32 °C)
MS dis	Displays mixed air temperature	Displays mixed air temperature

*** Only available in Wireless (VT7605B5000W) and BACnet (VT7605B5000B) models (**) Only available in Wireless (VT7605B5000W) models**

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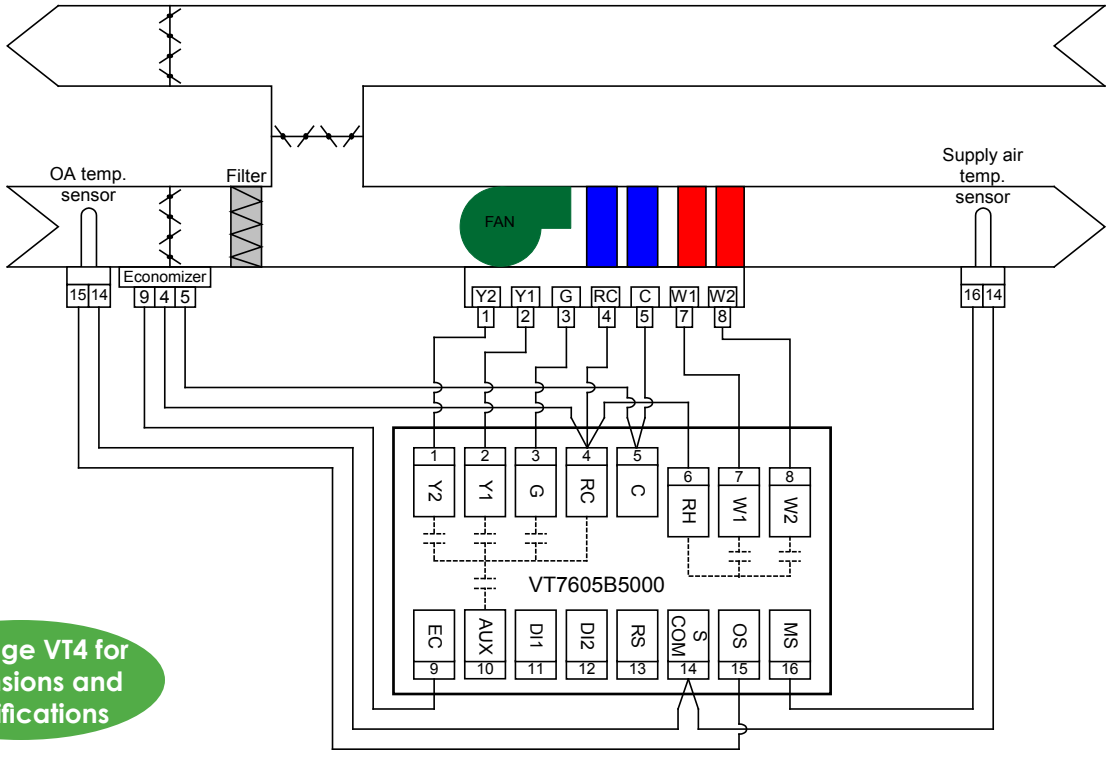
Features

- **PI time proportioning algorithm**
  Increased comfort, accuracy, and energy savings
- **2 digital inputs**
  Adds functionality
- **Smart fan**
  Saves energy during night mode
- **Unique local configuration utility**
  Minimizes parameter tampering
- **Lockable keypad**
  Tamper proof, no need for thermostat guards
- **Freeze protection**
  Prevents costly freeze damage
- **EEPROM memory**
  No loss of program
- **6 hour reserve time for clock**
  No need to reprogram day/time after power shortage
- **Remote room and outdoor temperature sensor**
  Increase flexibility and functionality
- **Auxiliary output**
  Can be used for lighting and/or economizer override
- **Discharge air sensor**
  Can be used to monitor unit efficiency
- **Intuitive, menu-driven programming**
  Can be used for all types of establishments
- **Economizer output (0-10 V d.c.)**
  Excellent retrofit opportunities

Typical 1H/1C Application

- Single Speed Fan
- Economizer damper
- Supply Air Temperature Sensor
- Outside Air Temperature Sensor
- Differential Pressure Switch



See Page VT4 for Dimensions and specifications

Model no.	Accessory
S3010W1000	Wall mounted temperature sensor
S3020W1000	Wall mounted temperature sensor with override key and occupancy status LED
S2060A1000	Averaging temperature sensor
S2020E1000	Outside air temperature sensor with enclosure

Model no.	Accessory
S2000D1000	Duct mounted temperature sensor
S1010D1000	Low cost duct mounted changeover temperature sensor
S1010E1000	Capsule type general purpose temperature sensor
COV-BC	Thermostat blind cover

See page S3-S4-S5 in Sensors section for details

The VT7600H PI thermostat family is specifically designed for multi-stage control of heating/cooling equipment such as heat pumps and self-contained units. The product features an intuitive, menu-driven, back-lit LCD display which walks users through the programming steps, making the process extremely simple.
All models contain two digital inputs, which can be set by the user to monitor filter status, change the occupancy status, and/or used as a general purpose service indicator. In addition, depending on the model, up to three remote sensor inputs are available.

Available Models

MODEL	1HEAT/1COOL	2HEAT/2COOL	3HEAT/2COOL HEAT PUMP	INTERNAL SCHEDULING
VT7600H5000	•	•	•	
VT7652H5000	•	•	•	•

Add B for BACnet models, E for Echelon models or Z for ZigBee wireless models. Ex: VT76xxH5000B, VT76xxH5000E, VT76xxH5000W. Replace 5000 by 5500 for factory installed PIR cover.

Configuration Parameters

Parameter name	Function	Range/Options
Pswrd	Configuration parameters menu access password	Range is: 0 to 1000
DI 1	Defines the use of binary input DI1	None, Rem NSB, RemOVR, Filter, Service, Fan lock
DI 2	Defines the use of binary input DI2	None, Rem NSB, RemOVR, Filter, Service, Fan lock
lockout	Sets the keypad lockout level	0, 1, 2
pwr del	Sets the power-up delay of the thermostat	10 to 120 seconds
Frost pr	Enables frost protection	ON or OFF
heat max	Sets the maximum heating setpoint limit	40 to 90 °F (4.5 to 32.0 °C)
cool min	Sets the minimum cooling setpoint limit	54 to 100 °F (12.0 to 37.5 °C)
Pband	Sets the proportional band setting	2 to 8 °F (0.6 to 3.9 °C)
Anticycle	Sets minimum On/Off operation time for stages	0, 1, 2, 3, 4, 5 minutes
Heat cph	Sets the maximum number of cycles for heating stages per hour	3, 4, 5, 6, 7, 8
cool cph	Sets the maximum number of cycles for cooling stages per hour	3, 4
Deadband	Sets the minimum deadband between cooling & heating setpoints	2, 3, 4 °F (1.0 to 2.0 °C)
fan cont	Sets the fan control mode in heating mode	ON or OFF
fan del	Extends fan operation by 60 seconds after demand ends	ON or OFF
Com Addr*	Sets the Com address of the thermostat	0 to 254
PAN ID**	Sets the PAN ID of the thermostat	0 to 500
Channel**	Sets the channel of the thermostat	10 to 26
Get From**	Chooses thermostat to import configuration from	0 to 254
ToccTime	Sets the temporary occupancy time when overriding	0 to 12 hours
cal RS	Room air temperature sensor calibration	± 5.0 °F (± 2.5 °C)
cal OS	Outside air temperature sensor calibration	± 5.0 °F (± 2.5 °C)
HP stage	Sets the number of compressor stages used	1 or 2
H lock	Sets the outside air temperature heating lockout	-15 to 120 °F (-26 to 49 °C)
C lock	Sets the outside air temperature mechanical cooling lockout	-40 to 95 °F (-40 to 35 °C)
Unocc TM	Sets the unoccupied Timer value	0.0 to 24 hours (in 0.5hr increments)
2/4event	Sets the number of events for the occupancy schedule	2 or 4
aux cont	Sets the auxiliary contact to N.O. or N.C	N.O. or N.C
Prog rec	Enables the progressive recovery function	On or Off
high bp	Sets outside air temperature at which auxiliary heat will be cut off	34 to 90 °F (1.0 to 32.0 °C)
low bp	Sets outside air temperature at which heat pump will be cut off	-40 to 30 °F (-40 to -1 °C)
comf/eco	Sets the operation and interaction mode of the heat pump with the auxiliary heat	comfort or economy
re valve	Defines the heat pump reversing valve operation	O or B
comp/aux	Sets the operation and interaction mode of the heat pump with the auxiliary heat	ON or OFF

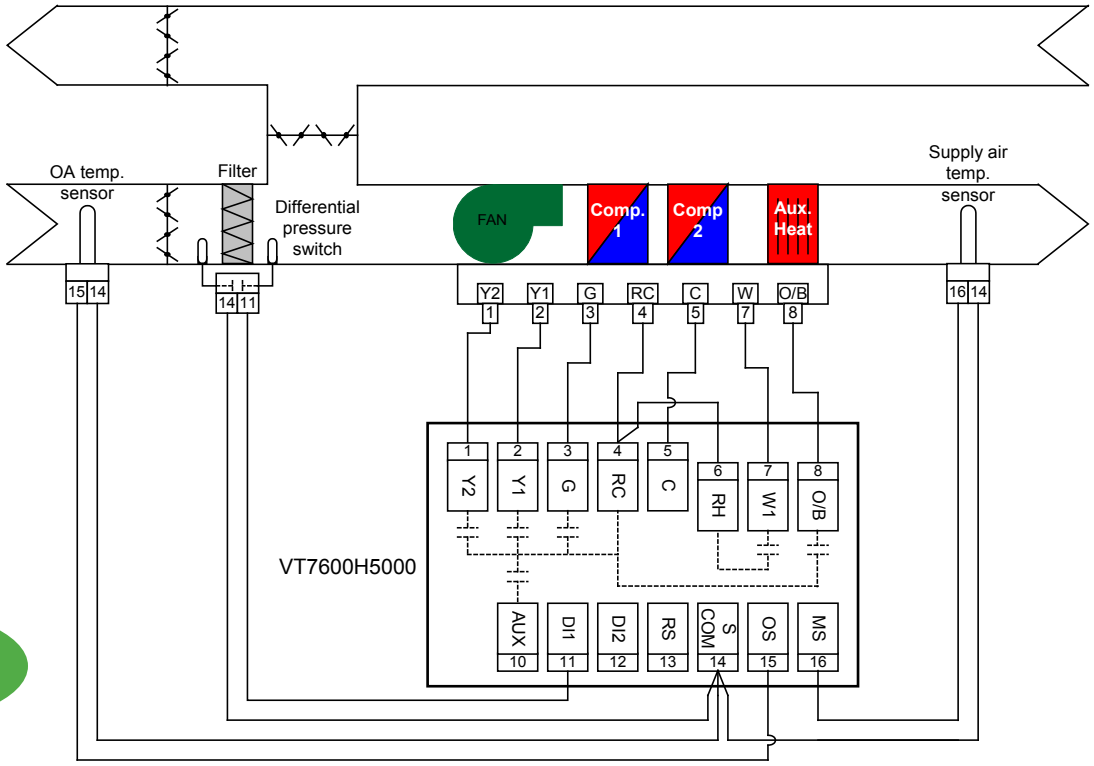
*** Only available in Wireless (VT7605B5000W) and BACnet (VT7605B5000B) models (**) Only available in Wireless (VT7605B5000W) models**

Features

- **PI time proportioning algorithm**
  Increased comfort, accuracy, and energy savings
- **2 digital inputs**
  Adds functionality
- **Smart fan**
  Saves energy during night mode
- **Unique local configuration utility**
  Minimizes parameter tampering
- **Lockable keypad**
  Tamper proof, no need for thermostat guards
- **Freeze protection**
  Prevents costly freeze damage
- **EEPROM memory**
  No loss of program
- **6 hour reserve time for clock**
  No need to reprogram day/time after power shortage
- **Remote room and outdoor temperature sensor**
  Increase flexibility and functionality
- **Auxiliary output**
  Can be used for lighting and/or economizer override
- **Discharge air sensor**
  Can be used to monitor unit efficiency
- **Intuitive, menu-driven programming**
  Can be used for all types of establishments
- **Low/High balance point**
  Protect and optimize system performance
- **3 Heat/2 Cool**
  Support single and two stages heat pump with one auxiliary heat stage

Typical 3H/2C Heat Pump Application

- Single Speed Fan
- Supply Air Temperature Sensor
- Outside Air Temperature Sensor
- Differential Pressure Switch



See Page VT4 for Dimensions and specifications

Model no.	Accessory
S3010W1000	Wall mounted temperature sensor
S3020W1000	Wall mounted temperature sensor with override key and occupancy status LED
S2060A1000	Averaging temperature sensor
S2020E1000	Outside air temperature sensor with enclosure

Model no.	Accessory
S2000D1000	Duct mounted temperature sensor
S1010D1000	Low cost duct mounted changeover temperature sensor
S1010E1000	Capsule type general purpose temperature sensor
COV-BC	Thermostat blind cover

See page S3-S4-S5 in Sensors section for details

VT76x7B5000 Series Roof Top Unit Thermostats with Humidity Control

The VT76x7 PI thermostat family is specifically designed for single stage and multi-stage control of heating/cooling equipment such as rooftop and self-contained units with humidifier and/or dehumidifier. The product features an embedded complete humidity solution with an intuitive, menu-driven, backlit LCD display that walks users through the programming steps, making the process extremely simple. All models contain one digital input, which can be set by the user to monitor filter status, change the occupancy status, and/or used as a general purpose service indicator. The two models contain SPST auxiliary switch, which can be used to control lighting and a discharge air sensor input.

Available Models

MODEL	HUMIDITY FUNCTION	2HEAT/2COOL	INTERNAL SCHEDULING
VT7607B5000	•	•	
VT7657B5000	•	•	•

Add B for BACnet models, E for Echelon models or W for ZigBee wireless models. Ex: VT76x5B5000B, VT76x5B5000E, VT76x5B5000W. Replace 5000 by 5500 for factory installed PIR cover

Parameter name	Function	Range/Options
Pswrd	Configuration parameters menu access password	Range is: 0 to 1000
%RH disp	Enables %RH to be displayed below room temperature	ON or OFF
DI1	Defines the use of binary input DI1	None, Rem NSB, RemOVR, Filter, Service, Fan lock
Lockout	Sets the keypad lockout level	0, 1, 2
Pwr del	Sets the power-up delay of the thermostat	10 to 120 seconds
Frost pr	Enables frost protection	ON or OFF
Heat max	Sets the maximum heating setpoint limit	40 to 90 °F (4.5 to 32.0 °C)
Cool min	Sets the minimum cooling setpoint limit	54 to 100 °F (12.0 to 37.5 °C)
Anticycle	Sets minimum On/Off operation time for stages	0, 1, 2, 3, 4, 5
Heat cph	Sets the maximum number of cycles for heating stages per hour	3, 4, 5, 6, 7, 8
Cool cph	Sets the maximum number of cycles for cooling stages per hour	3, 4, 5, 6, 7, 8
Deadband	Sets the minimum deadband between cooling & heating setpoints	2, 3, or 4 °F (1.0 to 2.0 °C)
Fan cont	Sets the fan control mode	ON or OFF
Fan del	Extends fan operation by 60 seconds after demand ends	ON or OFF
Com Addr*	Sets the Com address of the thermostat	0 to 254
PAN ID**	Sets the PAN ID of the thermostat	0 to 500
Channel**	Sets the channel of the thermostat	10 to 26
Get From**	Chooses thermostat to import configuration from	0 to 254
TOccTime	Sets the temporary occupancy time when overriding.	0 to 12 hours (in 1 hour increments)
Cal RS	Room air temperature sensor calibration	± 5.0 °F
Cal OS	Outside air temperature sensor calibration	± 5.0 °F
H stage	Sets the number of heating stages used	1 or 2
C stage	Sets the number of cooling stages used	1 or 2
H lock	Sets the outside air temperature heating lockout	-15 to 120 °F (-26 to 49 °C)
C lock	Sets the outside air temperature mechanical cooling lockout	-40 to 95 °F (-40 to 35 °C)
Unocc TM	Sets the unoccupied Timer value	0.0 to 24 hours (in 0.5hr increments)
2/4event	Sets the number of events for the occupancy schedule	2 or 4
aux cont	Sets the auxiliary contact to N.O. or N.C	N.O. or N.C
Prog rec	Enables the progressive recovery function	ON or OFF
RH LT	Minimum outside temperature for RH setpoint reset	-40 to 15 °F (-40 to 9.5 °C)
RH HT	Maximum outside temperature for RH setpoint reset	-20 to 55 °F (-6.5 to 13 °C)
HL Sp	High limit supply humidity setpoint	50 to 90%
Dhu OALK	Outside air temperature under which dehumidification is disabled	-40 to 122 °F (-40 to 50 °C)
Dhu LCK	Enables or disables the lockout functions for the duhum. output	ON or OFF
DehuHyst	Sets the value for the dehumidification hysterisys	2 to 20%
RE Sp	Value at which the RH setpoint will be reset based on RH LT	10 to 90%
RH cal	Relative humidity sensor calibration	± 15%
Display HL	Displays the high limit sensor value	Displays the high limit sensor value

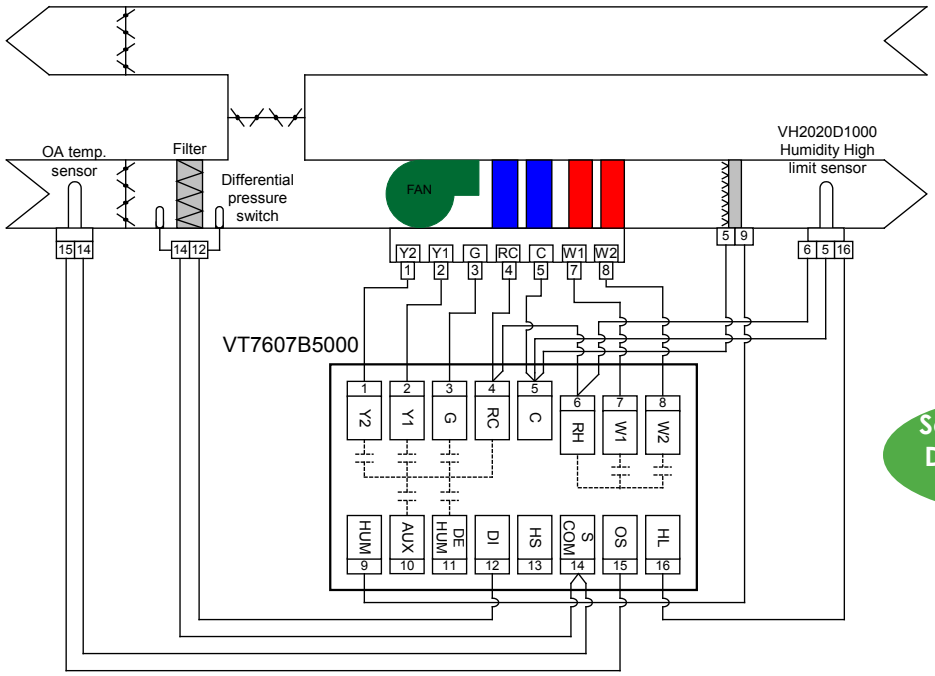
*** Only available in Wireless (VT7605B5000W) and BACnet (VT7605B5000B) models (**) Only available in Wireless (VT7605B5000W) models**

Features

- **Embedded humidification sequence (0-10 Vdc output) and dehumidification sequence (dry contact)**
  Simplifies installation and reduce installation costs
- **Internal RH sensor embedded**
  Eliminates components
- **Proportional high limit override**
  Prevents costly damage due to over-humidification
- **Humidity set point reset based on outdoor temperature**
  Saves energy and prevents window condensation in colder climates
- **Sensor failure protection**
  Prevents water damage
- **PI time proportioning algorithm**
  Increased comfort , accuracy, and energy savings
- **1 digital input**
  Adds functionality
- **Smart fan**
  Saves energy during night mode
- **Unique local configuration utility**
  Minimizes parameter tampering
- **Lockable keypad**
  Tamper proof, no need for thermostat guards
- **Freeze protection**
  Prevents costly freeze damage
- **EEPROM memory**
  No loss of program
- **6 hour reserve time for clock**
  No need to reprogram day/time after power shortage
- **Remote room and outdoor temperature sensor**
  Increase flexibility and functionality
- **Auxiliary output**
  Can be used for lighting and/or economizer override
- **Discharge air sensor**
  Can be used to monitor unit efficiency
- **Intuitive, menu-driven programming (on programmable models)**
  Can be used for all types of establishments

Typical 2H/2C Application With Humidity Control:

- Single Speed Fan
- Humidifier
- Supply Air Temperature Sensor
- Outside Air Temperature Sensor
- Differential Pressure Switch



See Page VT4 for Dimensions and specifications

Model no.	Accessory
S3010W1000	Wall mounted temperature sensor
S3020W1000	Wall mounted temperature sensor with override key and occupancy status LED
S2060A1000	Averaging temperature sensor
S2020E1000	Outside air temperature sensor with enclosure

See page S3-S4-S5 in Sensors section for details

Model no.	Accessory
S2000D1000	Duct mounted temperature sensor
S1010D1000	Low cost duct mounted changeover temperature sensor
S1010E1000	Capsule type general purpose temperature sensor
COV-BC	Thermostat blind cover
VH20 series	Humidity transmitters (See pages H9-H10)

Analog - Microcontroller Based Room Thermostats

The T900 Unistat® PI micro-controller based thermostats are specifically designed to provide an economical control alternative to traditional automation type equipment where communication from disparate equipment is unnecessary. The T900 series offer the contractor multiple control output options including analog, floating and time-proportioning in single or dual outputs.

All models are available with or without night-setback input, temporary override, and Celsius or Fahrenheit graduated set point adjustment.

In this section you will be provided with information on the following products:

» Stand-Alone Micro-controller based thermostats with analog user interface.
» Information on matching remote temperature sensors and accessories
» Application examples.

Selction Chart for T900 Series Unistats				
Outputs	With Night Setback		Without Night Setback	
	Celsius Scale	Fahrenheit Scale	Celsius Scale	Fahrenheit Scale
1 contact output	T901N-C	T901N-F	T901D-C	T901D-F
1 analog output	T920N-C	T920N-F	T920D-C	T920D-F
1 contact and 1 analog output	T921N-C	T921N-F	T921D-C	T921D-F
2 analog outputs	T926N-C	T926N-F	T926D-C	T926D-F
1 floating output	T950N-C	T950N-F	T950D-C	T950D-F
1 floating and 1 contact output	T951N-C	T951N-F	T951D-C	T951D-F

Specifications and Dimentions

Operating Conditions: -30 °C to 50 °C (-22 °F to 122 °F) (T901 only)
0 °C to 50 °C (32 °F to 122 °F) (Other models)
0% to 95% R.H. non-condensing

Sensor: Local 47 K NTC thermistor

Resolution: ± 0.1 °C (± 0.2 °F)

Control accuracy: ± 0.2 ° C (± 0.4 °F) (calibrated)

Ranges: 10 °C to 32 °C (50 °F to 90 °F)

Night setup for cooling mode (T9xxN only): 5°C (9°F) night setup

Night setback for heating mode (T9xxN only): 5°C (9°F) night setback

Proportional band for room temperature control : 1.8°C (3.2°F)

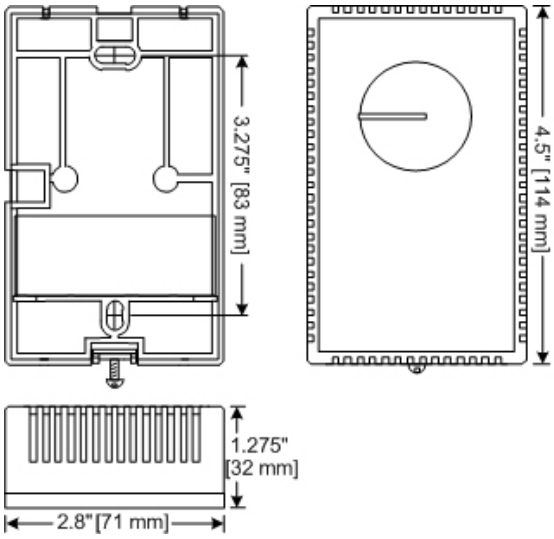
Proportional band for supply temperature control (T920 only): 28°C (50°F)

Analog output: 0 to 10 Vdc into 2KW resistance min.

Contact output: Isolated triac: 30 Vac, ½ A max.

Floating output: Non isolated triacs: 30 Vac, ½ A max.

Power: 24 Vac -15%, +10% 50/60 Hz; 2 VA



Accessories

Model no.	Description
S60	Duct sensor adapter that can be mounted directly to the back of the thermostat
S70	Remote duct sensor that can be mounted directly onto the supply or return of the ventilation duct
S80	Room sensor that can be mounted directly on the wall
S90	Immersion sensor that is intended for temperature sensing of hot or cold water, or other fluids

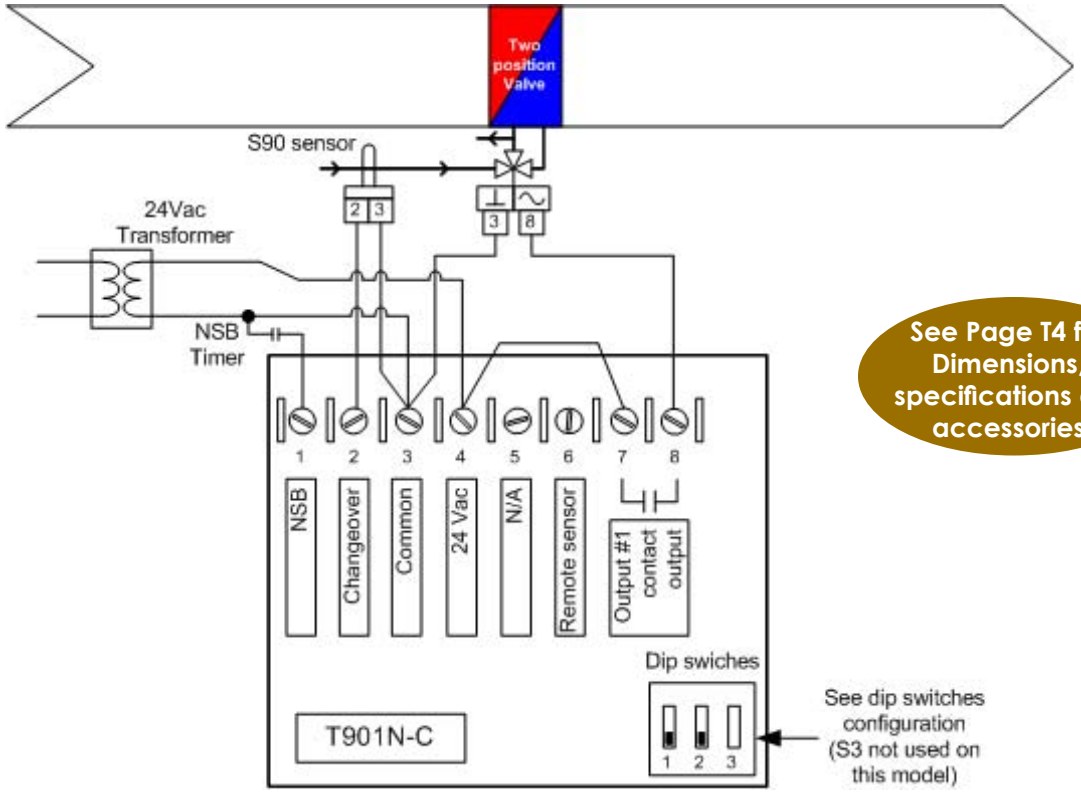
See page S7 in Sensors section for details

The T901 series proportional thermostats are microcomputer based, proportional and integral (PI) devices with one contact time proportioning output. They can be used with most relays and actuators that are compatible with on/off control signals. The thermostats also contain two dip switches to choose the location of the remote sensor (internal, external) and between direct and reverse acting modes. Some models have a day/night input, an override button and a night mode led mounted on the thermostat cover.

Available Models

Model	Celsius Scale	Fahrenheit Scale	Night setback (NSB)
T901D-F		•	
T901N-F		•	•
T901D-C	•		
T901N-C	•		•

Two Position Hot/Chill Water Coil With Changeover Sensor



See Page T4 for Dimensions, specifications and accessories

Dip Switch Configuration

S1	Application switch	S2	Main temperature sensor
ON	N.O. valve in cooling, N.C valve in heating, duct heater relay or baseboard relay	ON	Thermostat internal sensor for room temperature sensing
OFF	N.C. valve in cooling, N.O. valve in heating or DX cooling relay	OFF	Main temperature sensor is remote mounted

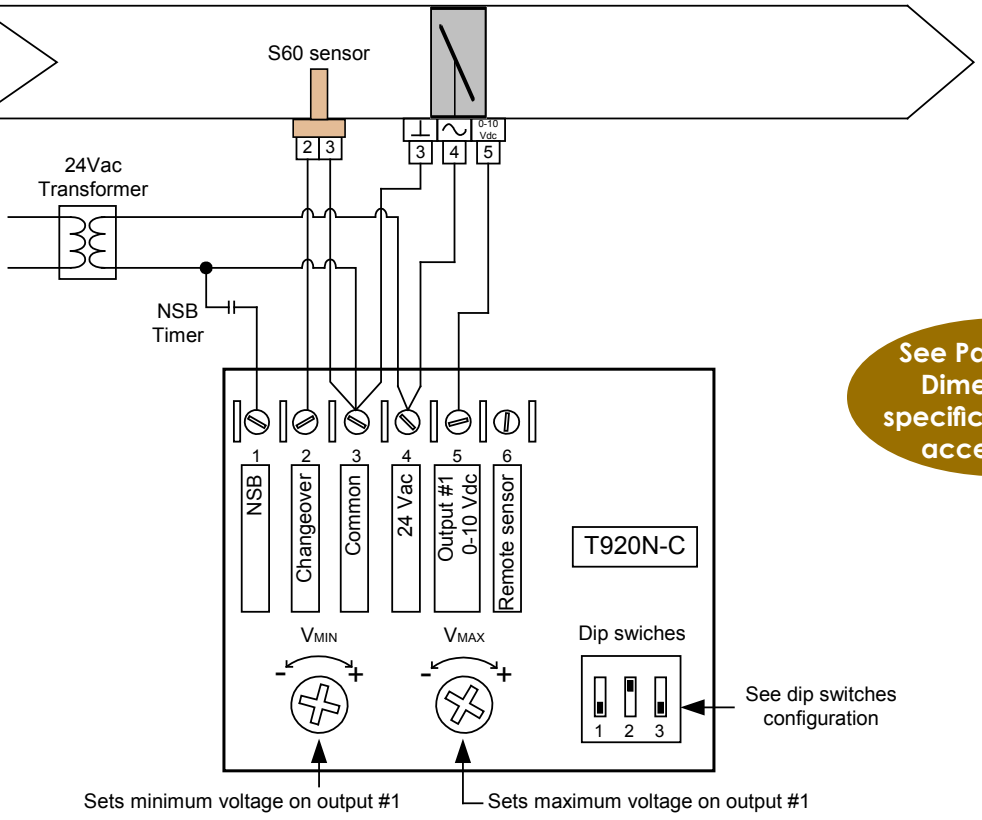
Switch S3 is not used

The T920 series thermostats are microcomputer-based, proportional and integral (PI) devices with one analog 0 to 10 Vdc output. They can be used with most control devices in the HVAC industry that are compatible with this signal. A typical application would be to control an analog VAV or valve actuator. Thi thermostat also contains three dip switches to choose the application (room or supply air control), the location of the main sensor (internal, remote) and between direct and reverse acting modes. Some models have a day/night input, an override button and a night mode LED mounted on the thermostat cover.

Available Models

Model	Celsius Scale	Fahrenheit Scale	Night setback (NSB)
T920D-F		•	
T920N-F		•	•
T920D-C	•		
T920N-C	•		•

Analog Hot/Cool Air Damper with Changeover Sensor



See Page T4 for Dimensions, specifications and accessories

Dip Switch Configuration

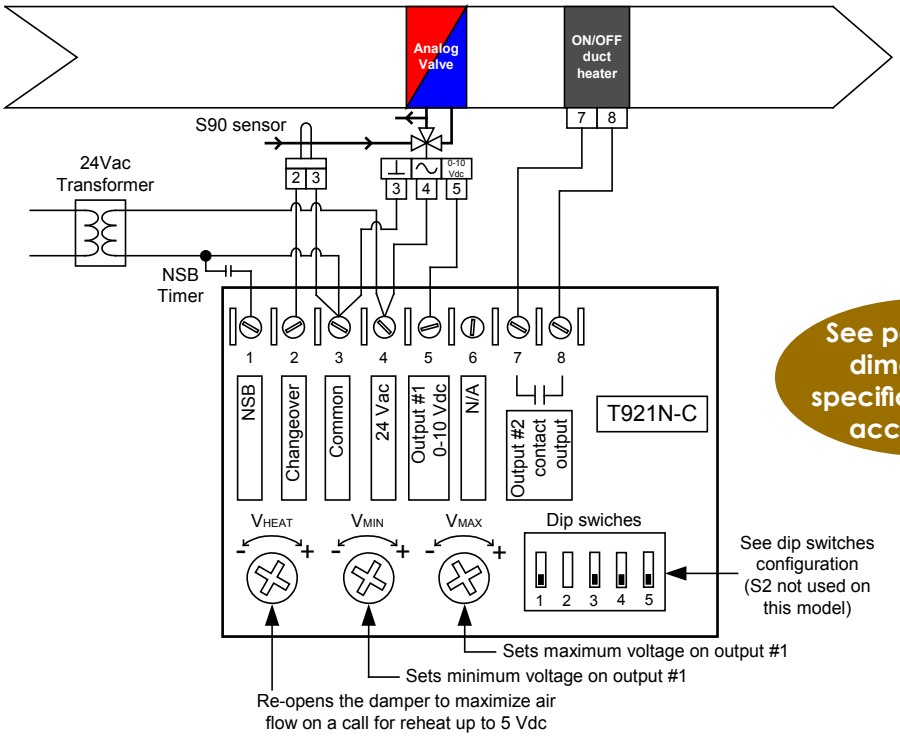
S1	Application switch	S2	Main temperature sensor	S3	Changeover of analog output
ON	For discharge air or supply temperature control	ON	Thermostat internal sensor for room temperature sensing	ON	Reverses the output to a fixed heating mode (RA)
OFF	For regular room control applications	OFF	Main temperature sensor is remote mounted	OFF	Auto changeover from cooling (DA) to heating mode (RA) with a supply sensor or with a dry contact

The T921 series thermostats are microcomputer-based, proportional and integral (PI) devices with one analog 0 to 10 Vdc output & one contact output. They can be used with most controlled devices in the HVAC industry that are compatible with those signals. The thermostats also contain 4 dip switches to choose the application type (heating, cooling), the deadband value (2°F, 4°F), changeover configuration and contact output configuration. Some models have a day/night input, an override button and a night mode LED mounted on the thermostat cover.

Available Models

Model	Celsius Scale	Fahrenheit Scale	Night setback (NSB)
T921D-F		•	
T921N-F		•	•
T921D-C	•		
T921N-C	•		•

Analog Hot/Chill Water Coil with Changeover Sensor and a Duct Heater



See page T4 for dimensions, specifications and accessories

Dip Switch Configuration

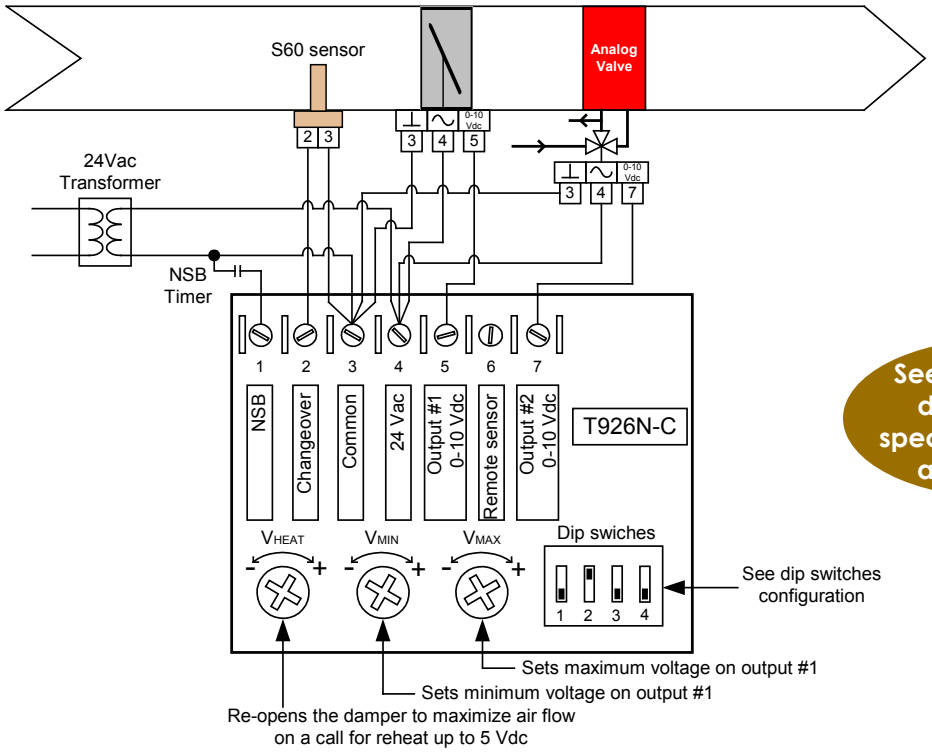
S1	Application switch for the analog output	S3	Changeover of analog output
ON	Generally for valve room control applications. Contact output operates in cooling mode	ON	Reverses the analog output to a fixed heating mode (RA)
OFF	Generally for VAV room control applications. Contact output operates in heating mode	OFF	Auto changeover from cooling (DA) to heating mode (RA) with a supply sensor or with a dry contact
S4	**Deadband**	**S5**	**Application switch for the contact output**
ON	4 °F (2.2 °C)	ON	For 2 position N.O. valve
OFF	2 °F (1.2 °C)	OFF	For 2 position N.C. valve For 2 position electromechanical relay

The T926 series thermostats are microcomputer-based, proportional and integral (PI) devices with two analog 0 to 10 Vdc outputs. They can be used with most control devices in the HVAC industry that are compatible with the above mentioned signals. The thermostats also contain four dip switches to choose the application type (heating, cooling), the location of the main sensor (internal, duct), the changeover configuration of analog output #1 and the deadband value. Some models have a day/night input, an override button and a night mode LED mounted on the thermostat cover.

Available Models

Model	Celsius Scale	Fahrenheit Scale	Night setback (NSB)
T926D-F		•	
T926N-F		•	•
T926D-C	•		
T926N-C	•		•

Two Position Hot/Chill Water Coil with Changeover Sensor



See page T4 for dimensions, specifications and accessories

Dip Switch Configuration

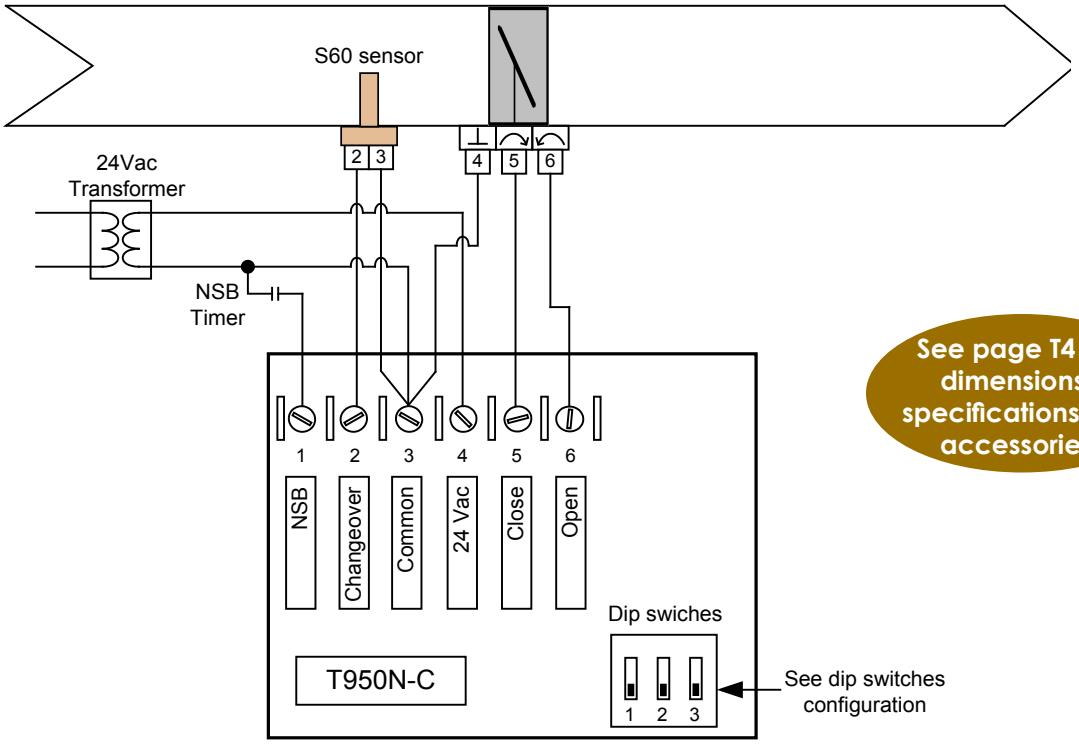
S1	Application switch	S4	Deadband
ON	Discharge air or supply temperature control	ON	10 °F (5.5 °C)
		OFF	2 °F (1.2 °C)
OFF	Regular room applications	ON	4 °F (2.2 °C)
		OFF	2 °F (1.2 °C)
S2	**Main temperature sensor**	**S3**	**Changeover of analog output #1**
ON	Thermostat internal sensor for room temperature sensing	ON	Reverses the output to a fixed heating mode (RA)
OFF	Main temperature sensor is remote mounted	OFF	Auto changeover from cooling (DA) to heating mode (RA) with a supply sensor or with a dry contact

The T950 series thermostats are microcomputer-based, proportional and integral (PI) devices with one floating (incremental) output. It can be used with most controlled devices in the HVAC industry that are compatible with this signal. The thermostats also contain three dip switches to choose the controlled device (VAV, valve), the actuator timing range for full stroke and the chageover configuration of the floating output. Some models have a day/night input, an override button and a night mode LED mounted on the thermostat cover.

Available Models

Model	Celsius Scale	Fahrenheit Scale	Night setback (NSB)
T950D-F		•	
T950N-F		•	•
T950D-C	•		
T950N-C	•		•

Two Position Hot/Chill Water Coil with Changeover Sensor



See page T4 for dimensions, specifications and accessories

Dip Switch Configuration

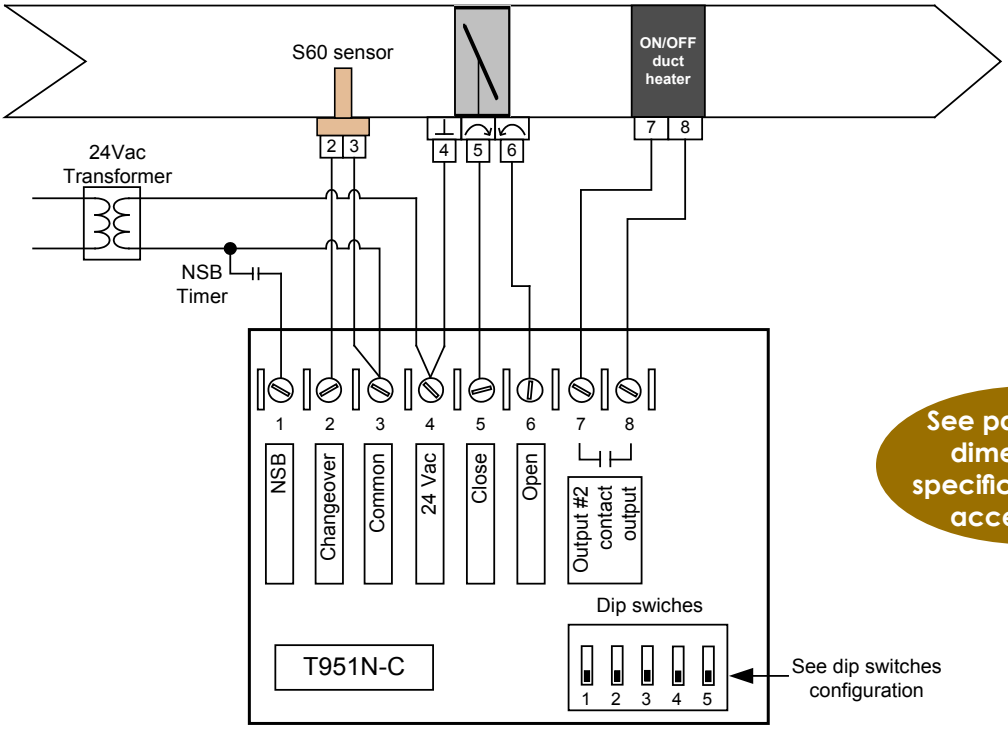
S1	S2	Application switch/actuator timing for full stroke	S3	Changeover of floating output
ON	ON	Actuator maximum timing range 0.5 to 1.0 minutes *(Generally for valve room control applications)*	ON	Reverses the output to a fixed heating mode (RA)
ON	OFF	Actuator maximum timing range 1.0 to 2.0 minutes *(Generally for valve room control applications)*		
OFF	ON	Actuator maximum timing range 2.5 to 5.5 minutes *(Generally for VAV room control applications)*	OFF	Auto changeover from cooling (DA) to heating mode (RA) with a supply sensor or with a dry contact
OFF	OFF	Actuator maximum timing range 1.0 to 2.0 minutes *(Generally for VAV room control applications)*		

The T951 series thermostats are microcomputer-based, proportional and integral (PI) devices with one floating (incremental) output & one contact output. It can be used with most control devices in the HVAC industry that are compatible with those signals. The thermostats also contain five dip switches to choose the application type (valve, VAV), the actuator timing range for full stroke, the changeover configuration of the floating output, the deadband (2 °F, 4 °F) and the configuration of the contact output. Some models have a day/night input, an override button and a night mode LED mounted on the thermostat cover.

Available Models

Model	Celsius Scale	Fahrenheit Scale	Night setback (NSB)
T951D-F		•	
T951N-F		•	•
T951D-C	•		
T951N-C	•		•

Two Position Hot/Chill Water Coil with Changeover Sensor



See page T4 for dimensions, specifications and accessories

Dip switch configuration

S1	S2	Application switch/actuator timing for full stroke	S3	Changeover of floating output
ON	ON	Actuator maximum timing range 0.5 to 1.0 minutes *(Generally for valve room control applications)*	ON	Reverses the output to a fixed heating mode (RA)
ON	OFF	Actuator maximum timing range 1.0 to 2.0 minutes *(Generally for valve room control applications)*		
OFF	ON	Actuator maximum timing range 2.5 to 5.5 minutes *(Generally for VAV room control applications)*	OFF	Auto changeover from cooling (DA) to heating mode (RA) with a supply sensor or with a dry contact
OFF	OFF	Actuator maximum timing range 1.0 to 2.0 minutes *(Generally for VAV room control applications)*		
S4	**Deadband**		**S5**	**Application switch for the contact output**
ON	4 °F (2.2 °C)		ON	For 2 position N.O. valve
OFF	2 °F (1.2 °C)		OFF	For 2 position N.C. valve For 2 position electromechanical relay

Analog/Digital Microcontroller Based Humidity Controls

Viconics Electronics Inc. is providing the industry with some of the most versatile, flexible and accurate humidity control and sensing equipment on the market today.

Viconics offers a full range of humidity control products. These products include: Stand-Alone PI based analog dial type (H200 and H270 series), Stand-Alone PI based with digital interface with optional communicating interface utilizing BACnet MS/TP, Lontalk or Wireless (VH7200 series).

In addition to the above, Viconics also offers a complete range of Humidity transmitters. The VH20 series is equipped with unique contractor-centric commissioning features which saves installation time while reducing project delivery costs.

In this section you will be provided with information on the following products:

- Stand-alone & communicating humidity controllers with digital interface; VH7200 series
- VH20 series humidity transmitters with or without onboard temperature sensors
- Application examples

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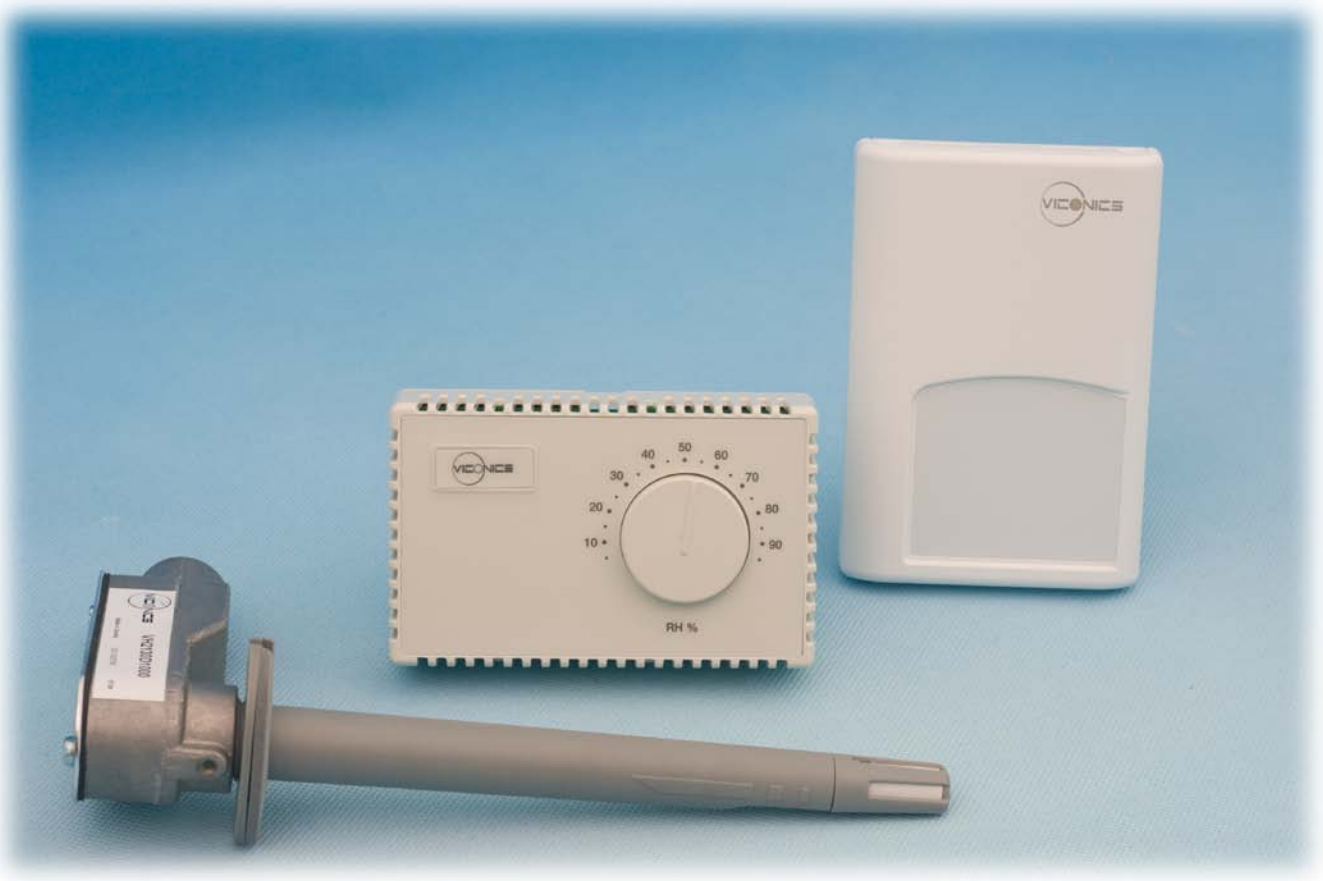
VICONICS
VICONICS
10
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RH %

The VH7200 humidity controller family is specifically designed for control of humidification and dehumidification equipment such as, steam header direct injection, desiccant wheel, or stand alone humidification / dehumidification equipment. The product features a complete embedded humidity control solution with an intuitive backlit LCD display that walks the installer through the configuration steps, making the process extremely simple. Accurate relative humidity control is achieved via the product's unique PI time proportional control algorithm, which virtually eliminates humidity offset associated with traditional, differential-based humidity controllers.
All models contain a binary input, which can be set by the user to monitor an electrode humidifier canister service status or may be used as a general purpose service indicator. Models are available with more advanced features such as discharge humidity proportional high limit and indoor humidity setpoint reset based upon outdoor air temperature to conserve energy and eliminate condensation on windows and structure.

Available Models

Model	Application	Humidification outputs	Dehumidification ouputs
VH7270K1000(X)	Model with Outdoor reset & Proportional High Limit	0-10 Vdc & On/Off 24 Vac	On-Off 24 Vac
VH7270F1000(X)	Model with Outdoor reset & Proportional High Limit	0-10 Vdc	On-Off 24 Vac
VH7270D1000 (X)	Duct mount model with Outdoor reset & Proportional High Limit	On/Off 24 Vac	On-Off 24 Vac
VH7200A1000 (X)	Model with outdoor reset only	On/Off 24 Vac	On-Off 24 Vac

Add B for BACnet models, E for Echelon models or W for ZigBee wireless models. Ex: VH72xxX1000B, VH72xxX1000E, VH72xxX1000W.

Configuration Parameters

Parameters	Function	Range/Options
Com Addr*	Sets the Com address of the humidistat	0 to 254
PAN ID**	Sets the PAN ID of the humidistat	0 to 500
Channel**	Sets the channel of the humidistat	10 to 26
Get From**	Chooses humidistat to import configuration from	0 to 254
BI	Defines the use of binary input BI	None, Canister, Service
Lockout	Defines the keypad lockout level	0 or 1
SeqOpera	Sets the desired control operation of the humidistat	1 to 5
C or F	Sets the display scale of the humidistat	°F for Fahrenheit scale, °C for Celsius scale
Humid max	Maximum humidify set point limit	10% RH to 90% RH
Dehumid min	Minimum dehumidify set point limit	15% RH to 95% RH
Menuscro	Allows the user to select from scrolling system mode or room humidity level. Disabling the scrolling function will render the display with the Room humidity only	ON or OFF
Hum CPH	Will set the maximum number cycles per hour under normal control operation for the relay humidification output	3 to 8 CPH
Dhu CPH	Will set the maximum number cycles per hour under normal control operation for the relay dehumidification output	3 to 8 CPH
Hum AOLK	Disables Humidification operation based on outdoor air humidity	-15 °F to 120 °F (-26 °C up to 49 °C)
Dhu OALK	Outside air humidity under which the dehumidification sequence is disabled	–40°F to 122°F (-40°C to 50°C)
Cal RH	Offset that can be added/subtracted to actual displayed humidity by ± 15.0 %RH	–15% RH to 15% RH
Cal OS	Offset that can be added/subtracted to actual displayed outside air temperature	± 5.0 °F (± 2.5 °C)
RH LT	Minimum outside air temperature for RH setpoint reset	–40°F to 15°F (-40°C to –9.5°C)
RH HT	Maximum outdoor air temperature for RH setpoint reset	20°F to 55°F (-6.5°C to 13°C)
RE Sp	The RH setpoint will be reset from the user setpoint to this value when the RH LT outside air humidity value is reached	10% RH to 90% RH
HL Sp	High humidity limit in the supply	50% RH to 90% RH
Display HL	Allows Technician to display discharge humidity condition in duct	Active or Inactive

Note: to access the Configuration Menu press and hold the "Override" key for 8 seconds
(*) Only available in Wireless (VT7200X1000W) and BACnet (VT7200X1000B) models
(**) Only available in Wireless (VT7200X1000W) models

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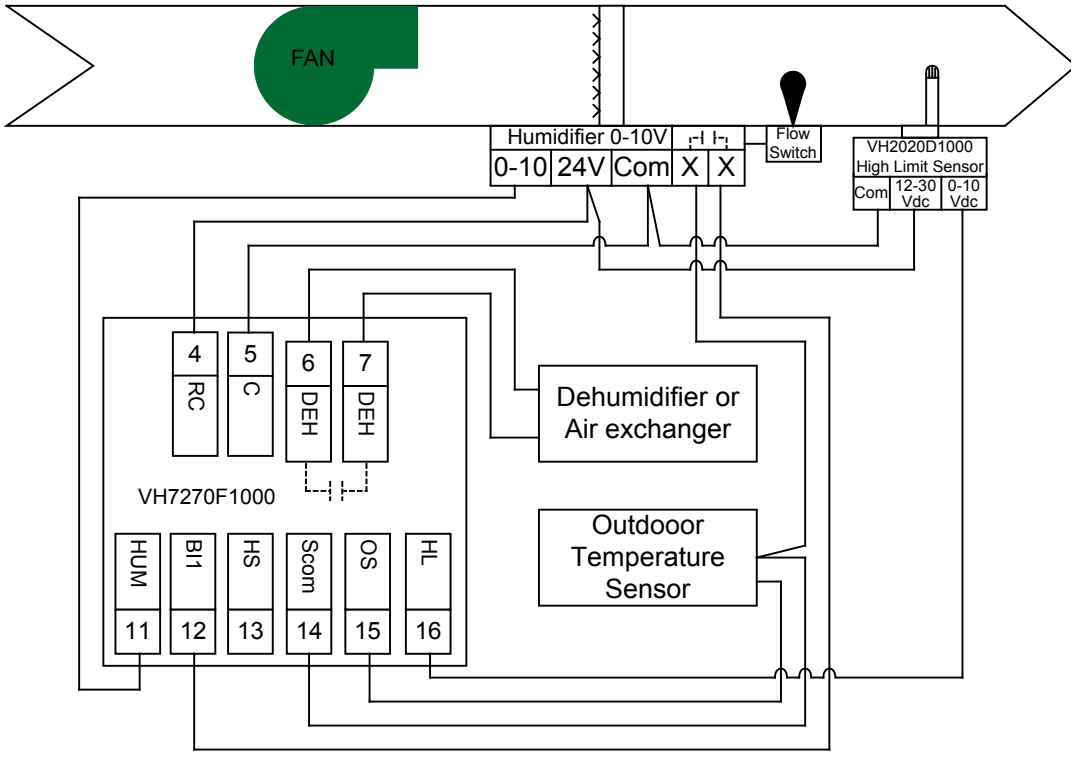
Features

- **Embedded humidification sequence (0-10 Vdc output) and dehumidification sequence (dry contact)**
  Simplifies installation and reduce installation costs
- **Internal RH sensor embedded**
  Eliminates components
- **Proportional high limit override (VH7270 Models Only)**
  Prevents costly damage due to over-humidification
- **Humidity setpoint reset based on outdoor temperature (VH7270 models only)**
  Saves energy and prevents window condensation in colder climates
- **Sensor failure protection**
  Prevents water damage
- **PI time proportioning algorithm**
  Increased comfort, accuracy, and energy savings
- **2 digital inputs**
  Adds functionality (Trigger service alarms)
- **Unique configuration key**
  Minimizes parameter tampering
- **Lockable keypad**
  Tamper proof, no need for humidistat guards
- **EEPROM memory**
  No loss configuration parameters
- **Optional remote humidity sensor**
  Increase flexibility and functionality

Typical Humidity Control Application:

- **Humidifier**
- **Dehumidifier/air exchanger**
- **Humidity high limit sensor**
- **Outdoor temperature sensor**
- **Airflow switch**



Model no.	Accessory
VH2020W1000	Wall mounted humidity transmitter 2% R.H.
VH2020D10000	Duct mounted humidity sensor 2% R.H.
S1010E1000	Capsule type general purpose temperature sensor
S2000D1000	Duct mounted temperature sensor
S2020E1000	Outside air temperature sensor in a NEMA 4 enclosure

Note: See Page VT4 For Dimensions And Specifications

VH20 Series Electronic Humidity Transmitters

The VH20 series, microcomputer-based humidity transmitters are designed for accurate humidity sensing in non-corrosive commercial applications such as: hospitals, schools, office buildings, retail stores, museums and computer rooms.

Available Models

Model	Mount Type		Output		Temperature sensor		Accuracy	
	Wall	Duct	0-5 / 0-10 V	4-20 mA	None	10K type 2	+/- 2%	+/- 3%
VH2020W1000	•		•		•		•	
VH2030W1000	•		•		•			•
VH2022W1000	•		•			•	•	
VH2032W1000	•		•			•		•
VH2120W1000	•			•	•		•	
VH2130W1000	•			•	•			•
VH2122W1000	•			•		•	•	
VH2132W1000	•			•		•		•
VH2020D1000		•	•		•		•	
VH2030D1000		•	•		•			•
VH2022D1000		•	•			•	•	
VH2032D1000		•	•			•		•
VH2120D1000		•		•	•		•	
VH2130D1000		•		•	•			•
VH2122D1000		•		•		•	•	
VH2132D1000		•		•		•		•

Features And Benefits

Features	Benefits
Microcomputer-based	Exceptional accuracy and linearity
2% models 10 point calibration 3% models 3 point calibration	Increased accuracy and linearity across the required control range
Timed RH level status LED	Rapid trouble-shooting and commissioning. Humidity level is proportional to a 10 second duty cycle. Ex, using a time clock, if pulse duration is 6.5 seconds, sensed % RH by transmitter is 65% RH
Elegant aesthetic design	Blends well in all environments
Various additional temperature sensor options are available	More functionality for DDC system installation by combining local temperature and humidity sensing in a single component

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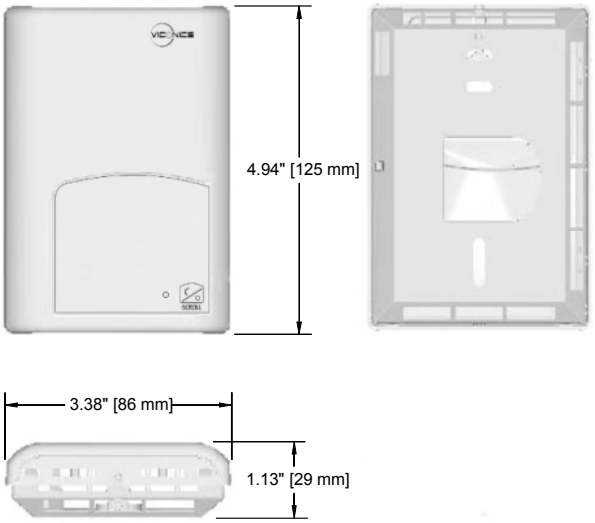
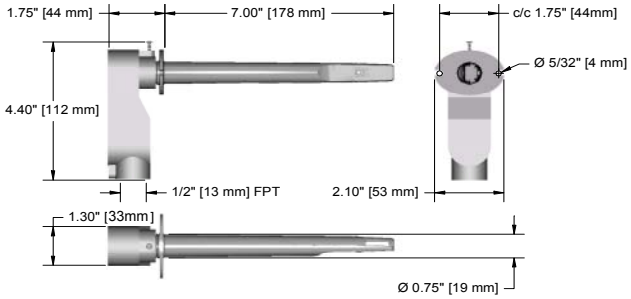
Wall Mount model Dimensions



Duct Mount Model Dimensions



Common Specifications

Power supply:	Linear output 0 to 10 Vdc / 0 to 5 Vdc into 2KW resistance min.
Vdc models output:	24 Vac / Vdc -15%, +10% Vac 50/60 Hz; 1 VA
Power supply:	Linear output 4 to 20 mA
4-20 mA models output:	12-30 Vdc
Calibration:	10 point for 2% models; 3 point for 3% models
Humidity sensing element:	10 points calibrated bulk polymer type sensor
Temperature effect:	% RH is temperature compensated. Effect is less than 0.1% over the full range (0-100%)
Stability:	Less than 1.0 % yearly (typical drift)
Field calibration:	-5% / 0% factory / +5% trimmer
Optional temperature sensor:	1 % accuracy typical
Maximum wire length:	5,000 feet [1,525 m] for 24 GA wire and up
Warranty:	18 months from date of purchase or 12 months from date of installation

Other Specifications

	Room humidity sensor	Duct humidity sensor
Operating conditions:	32 °F to 122 °F (0 °C to 50 °C) 0% to 95% R.H. non-condensing	-40 °F to 122 °F (-40 °C to 50 °C) 0% to 95% R.H. non-condensing
Time constant:	Less than 1 minute at 63% D	Less than 10 seconds at 63% D Min. 100 FPM max. 1200 FPM
Storage conditions:	-22 °F to 122 °F (-30 °C to 50 °C) 0% to 95% R.H. non-condensing	-40 °F to 122 °F (-40 °C to 50 °C) 0% to 95% R.H. non-condensing
Appr. shipping weight:	0.4 LBS (0.2 kg)	0.8 LBS [0.4 Kg]
Enclosure plastic type:	ABS - FRI [WT1337V] UV stabilized	N/A
Probe tip plastic type:	N/A	Fire retardant grade "HB" ABS

Electric Heat Controllers

For over 12 years, Viconics Electronics has been providing the electric heating community with a comprehensive line of advanced, simple to apply line of electric heating controllers.

The R800 series electric heat controllers provide the industry with a cost effective, efficient alternative to traditional staging prevalent in the North American marketplace. This series of controllers is able to control electric heating loads up to 75amps and beyond when used in conjunction with the R850 and R851 (Step controllers with Vernier logic).

All R800 series controllers feature visual feedback in the form of a time proportioned LED indicator and simple 2 or 3 wire control connections for easy installation.

R850 Series Step controllers feature embedded Vernier logic to effectively control multiple stages of electric heat without sacrificing the benefits associated with modulation.

In this section you will be provided with information on the following products:

- R810 & R811 Series Solid State Relays
- R820 Series SCR (Silicone Controlled Rectifiers).
- R842 & T186 Electronic Base Board heating relay with integrated PI temperature control logic.
- R850 & R851 Series Step Controllers with embedded Vernier Logic.
- Replacement components and accessory products.

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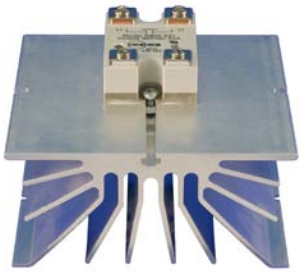

The Viconics R810 series power switching modules are designed for cost effective, precise modulation of electric loads for most electric heating applications (Applicable on resistive loads only). The R810 series consists of SSR's (solid state relays), c/w factory assembled heatsink for surface or in-panel mounting.

Available Models

Model	Maximum voltage (Up to)				Maximum amperage (Up to)				Phase	
	240 V	347 V	480 V	600 V	10 A	25 A	45 A	75 A	1 phase	3 phase
R810-211-REV2	•				•				•	
R810-213-REV2	•				•					•
R810-321-REV2		•				•			•	
R810-323-REV2		•				•				•
R810-341-REV2		•					•		•	
R810-343-REV2		•					•			•
R810-421-REV2			•			•			•	
R810-423-REV2			•			•				•
R810-441-REV2			•				•		•	
R810-443-REV2			•				•			•
R810-471-REV2			•					•	•	
R810-621-REV2				•		•			•	
R810-623-REV2				•		•				•
R810-641-REV2				•			•		•	
R810-643-REV2				•			•			•
R810-671-REV2				•				•	•	

Features

Features
Complete with factory installed heatsink
For surface or in-panel mounting
CSA approved for Canada and USA
UL recognized
Pulse status led for servicing & troubleshooting
Available with various open industry
2 year warranty

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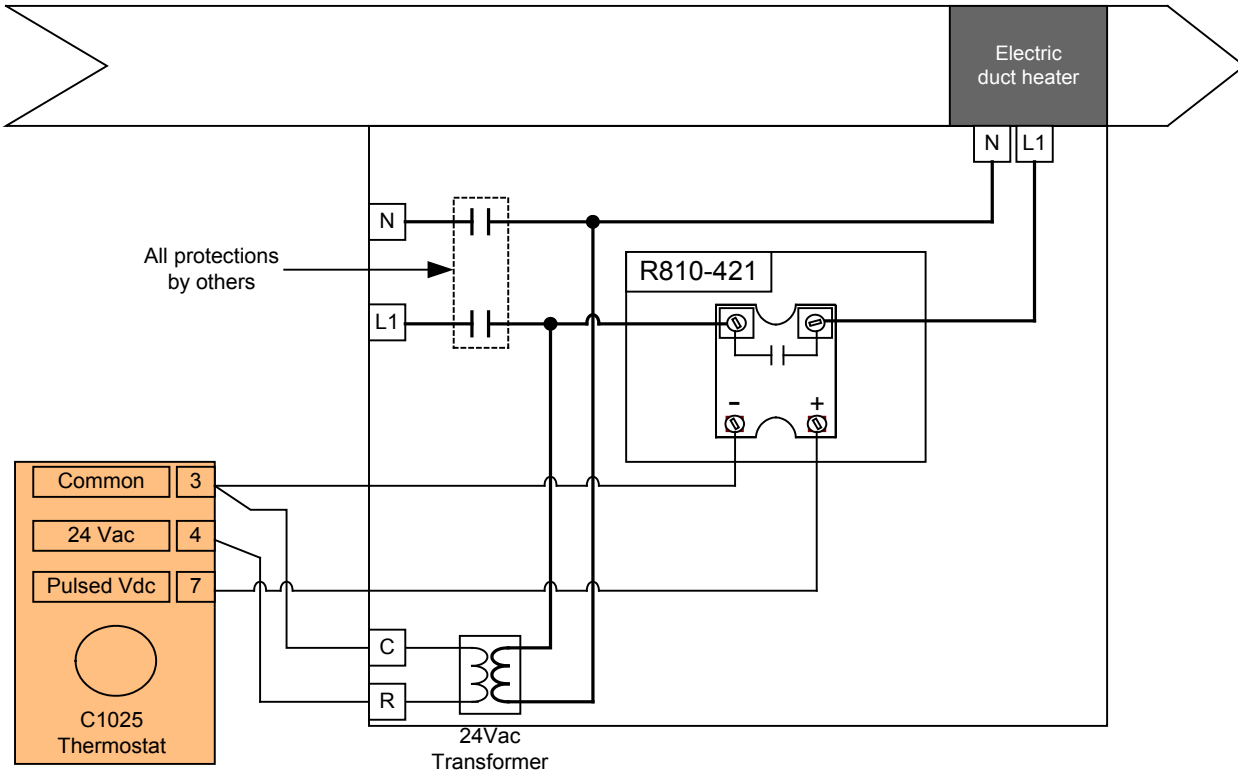
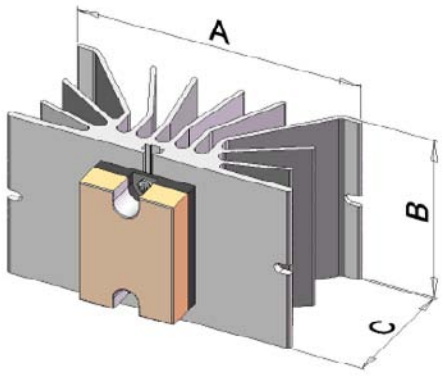
Electric Duct Heater With A C1025 Thermostat



Accessories

Model no.	Description
021-0247	Multi-signal input interface board. Converts input signal to pulsed output.
C24	AC/DC signal convertion module. Converts 24Vac signal to 5Vdc.
C25	Pulse repeater module.

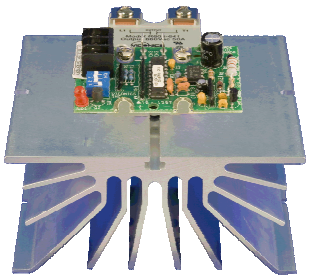
Dimensions and Specifications



Operating Conditions: 0°C to 80°C (32°F to 176°F)
0 % to 95 % R.H. non-condensing

Control Signal: 4-32 Vdc time proportioning signal into 2Kohms resistance
With C24 module: 24 Vac -15%, +10% 50/60 Hz; 25 mA

Model	A	B	C
R810-211-REV2	5.25”	4.5”	2.0”
R810-213-REV2	5.25”	6.5“	2.0”
R810-321-REV2	5.25”	4.5”	2.0”
R810-323-REV2	5.25”	10.0“	2.0”
R810-341-REV2	5.25”	6.5”	2.0”
R810-343-REV2	5.25”	10.0”	2.0”
R810-421-REV2	5.25”	4.5”	2.0”
R810-423-REV2	5.25”	6.5“	2.0”
R810-441-REV2	5.25”	6.5”	2.0”
R810-443-REV2	5.25”	10.0“	2.0”
R810-471-REV2	5.25”	10.0”	2.0”
R810-621-REV2	5.25”	4.5”	2.0”
R810-623-REV2	5.25”	6.5“	2.0”
R810-641-REV2	5.25”	6.5”	2.0”
R810-643-REV2	5.25”	10.0“	2.0”
R810-671-REV2	5.25”	10.0”	2.0”



The Viconics R820 series power switching modules are designed for cost effective, precise modulation of electric loads for most electric heating applications. (Applicable on resistive loads only)
The R820 series consists of SCR's power controls, complete with factory assembled heatsink for surface or in-panel mounting.
The R820 power controller also contain four dip switches to adjust the control signals.

Available Models

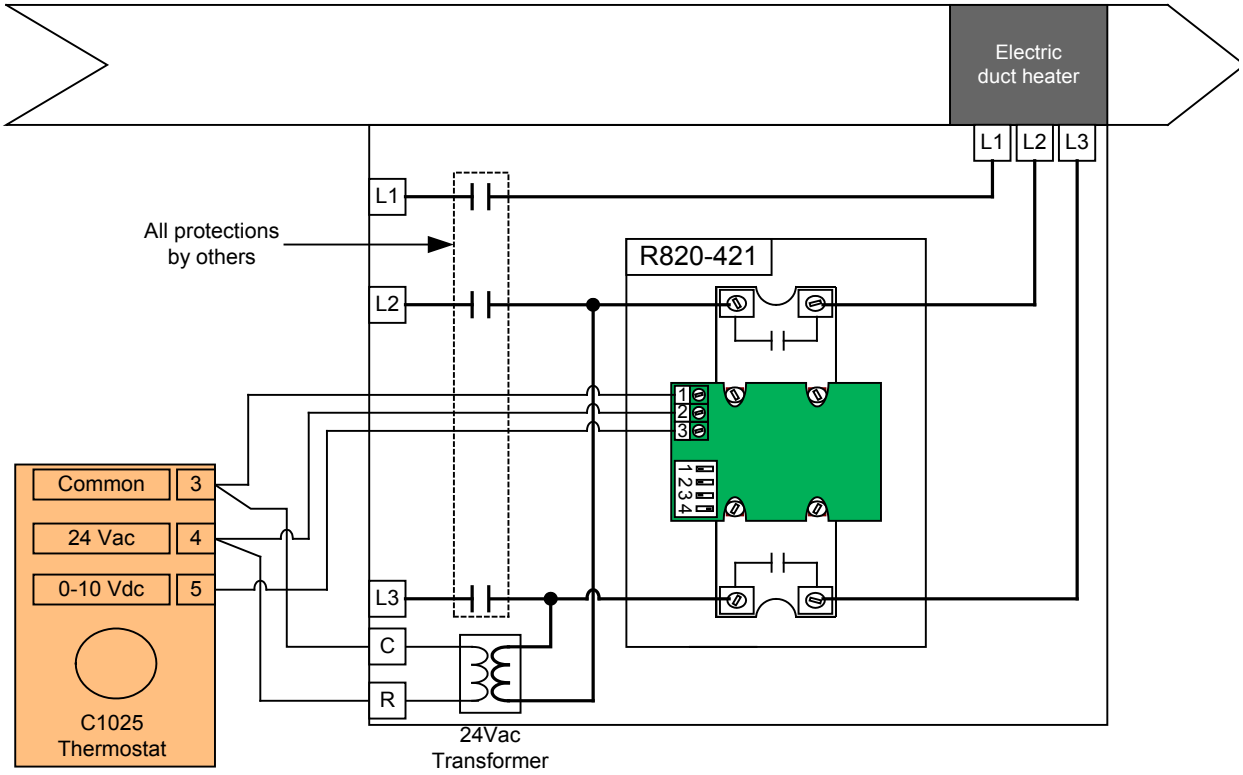
Model	Maximum voltage (Up to)				Maximum amperage (Up to)				Phase	
	240 V	347 V	480 V	600 V	10 A	25 A	45 A	75 A	1 phase	3 phase
R820-211-REV2	●				●				●	
R820-213-REV2	●				●					●
R820-321-REV2		●				●			●	
R820-323-REV2		●				●				●
R820-341-REV2		●					●		●	
R820-343-REV2		●					●			●
R820-421-REV2			●			●			●	
R820-423-REV2			●			●				●
R820-441-REV2			●				●		●	
R820-443-REV2			●				●			●
R820-471-REV2			●					●	●	
R820-621-REV2				●		●			●	
R820-623-REV2				●		●				●
R820-641-REV2				●			●		●	
R820-643-REV2				●			●			●
R820-671-REV2				●				●	●	

Features

Features
Microcomputer based.
Dip switch configurable
Integrated over temperature thermostatic protection (self resetting) Auto shut off when SCR ambient temperature is above 82°C (180°F)
Complete with factory installed heatsink
For surface or in-panel mounting
CSA approved for Canada and USA
UL recognized
Pulse status led for servicing & trouble shooting
2 years warranty

Viconics Electronics Inc. 2013

Electric Duct Heater With A C1025 Thermostat



Dip Swith Configuration

Input signal	S1	S2	S3	S4
0 to 10 Vdc control signal (2 to 10 Vdc control range)	OFF	OFF	OFF	ON
4 to 20 mA control signal	OFF	OFF	ON	OFF
0 to 135 W control signal	ON	ON	OFF	OFF

Specifications

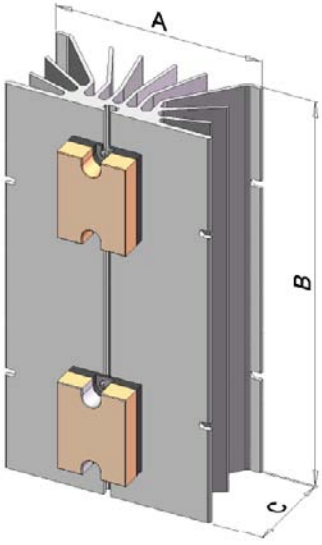
Operating Conditions: 0°C to 80°C (32°F to 176°F)
0 % to 95 % R.H. non-condensing

Thermostatic protection: Self resetting. Auto shut off when SCR ambient temp. is above 82°C (180°F)

Control signal: 4-32 Vdc time proportioning signal into 2Kohms resistance
With C24 module:
24 Vac -15%, +10% 50/60 Hz; 25 mA

Dimensions

Same as R810 series dimensions (Page R4)



The Viconics R850V series step controller is designed for cost effective, precise modulation of multi-stage control application.

An integrated vernier control output will give a precise and full modulation of the load from 0 to 100% of the total capacity.

Available Models

Model	4 stage unit control	8 stage unit control
R850V-4	•	
R850V-8		•

Features And Benefits

Features	Benefits
Microcomputer-based design	Accuracy and reliability
Adjustable inter-stage delay	Provides flexibility in replacement applications
Adjustable Vernier ratio	Simplifies design of proportional stage
Choice of pulsed or analog Vernier output	Permits use of SCR or lower cost SSR
Up to 16 stages	One product family can handle all applications
Choice of LIFO or FIFO sequencing	Increased flexibility of FIFO permits even use of contactors
Test button	Quick troubleshooting

Dip Switch Configuration

Using input dip switches:

Input signal	S1	S2	S3	S4
0 to 10 Vdc control signal (2 to 10 Vdc control range)	OFF	OFF	OFF	ON
4 to 20 mA control signal	OFF	OFF	ON	OFF
0 to 135 W control signal	ON	ON	OFF	OFF

Using control dip switches:

Sequence of operation	S1	Vernier stage	S2
FIFO (First in first out)	ON	Vdc pulsed signal (SSR)	ON
LIFO (Last in first out)	OFF	0-10 Vdc (SCR)	OFF

Number of stages	S3	S4
1	OFF	OFF
2	ON	OFF
3	OFF	ON
4	ON	ON

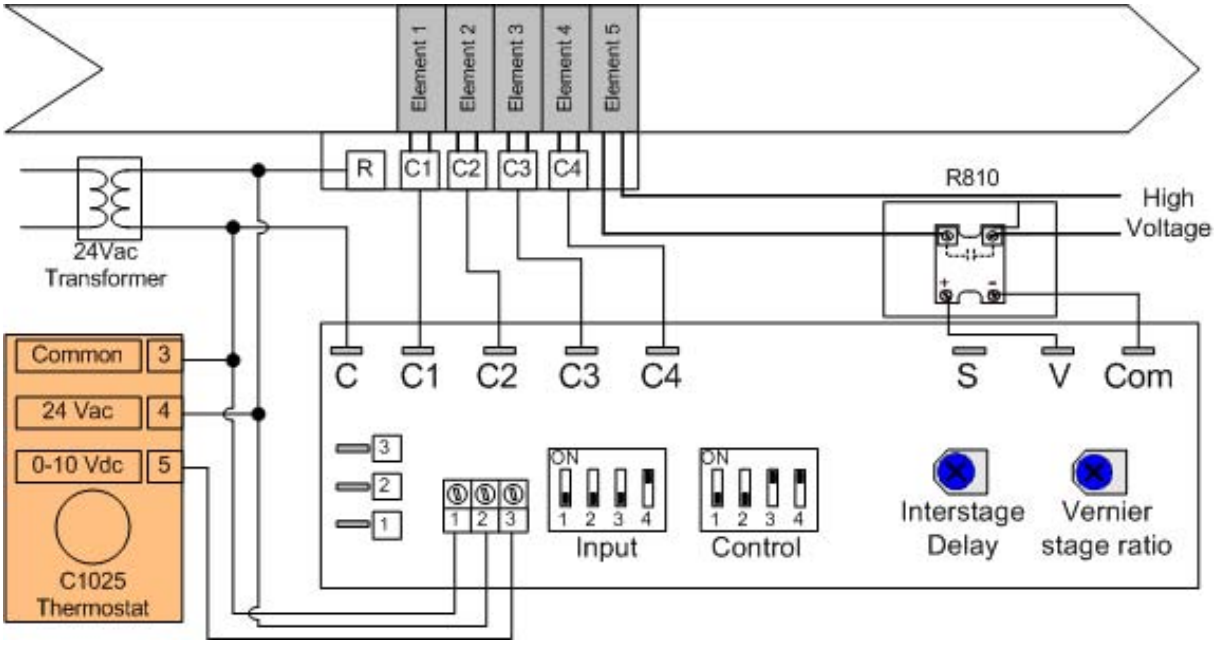
4 stages model

Number of stages	S3	S4	S5	S6
1	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF
3	OFF	ON	OFF	OFF
4	ON	ON	OFF	OFF
5	OFF	OFF	ON	OFF
6	ON	OFF	ON	OFF
7	OFF	ON	ON	OFF
8	ON	ON	ON	OFF

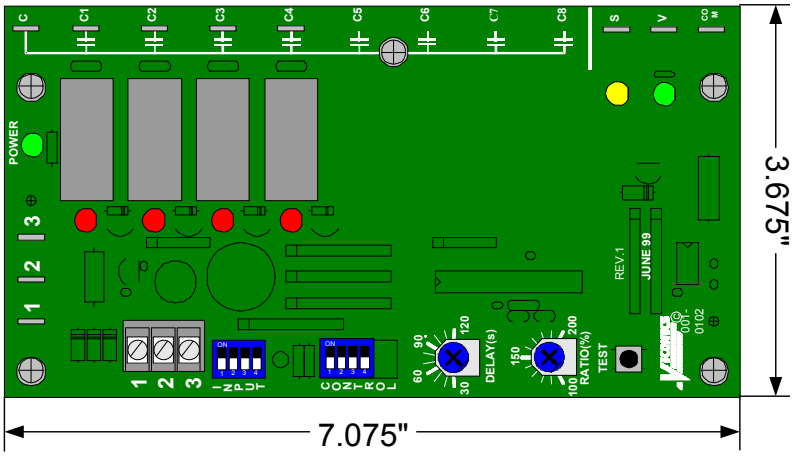
8 stages model

Viconics Electronics Inc. 2013

Five Stages Electric Duct Heater With A C1025 Thermostat



Dimensions



Specifications

Operating Conditions:	0°C to 80°C (32°F to 176°F)
	0 % to 95 % R.H. non-condensing
Relay outputs:	Isolated relay 30 Vac @ 1.0 amps. max. per output, up to a maximum of 4.0 amps. total per R850 controller. See application note 02.
Vernier stage:	Vdc pulsed: 6 Vdc, 30 mA max.0 to 10 Vdc 5 mA max.
Input impedance:	0 to 10 Vdc into 2Kohms minimum
Power supply:	24 Vac -15%, +10% 50/60 Hz; 4 VA Use a Class 1 (properly fused) or Class 2, CSA or UL recognized transformer for power supply & relay outputs.

The Viconics R851B/R851V series step controller is designed for cost effective, precise modulation of multi-stage control application. A common application is a multi step electric boiler.

An integrated vernier control output will give a precise and full modulation of the load from 0 to 100% of the total capacity.

Available Models

Model	Boiler application	Heater application	4 stage unit control	8 stage unit control
R851B-4	•		•	
R851B-8	•			•
R851V-4		•	•	
R851V-8		•		•

Features And Benefits

Features	Benefits
Microcomputer-based design	Accuracy and reliability
Adjustable step-up and step-down time delay	Tailored to exact application
Adjustable Vernier ratio	Simplifies design of proportional stage
0-10 Vdc analog Vernier output	Permits use of SCR power controller
Up to 16 stages	One product family can handle all applications
Progressive or linear sequencing	Increased flexibility
Test button	Quick troubleshooting

Dip Switch Configuration

Using input dip switches:

Input signal	S1	S2	S3	S4
0 to 10 Vdc control signal (2 to 10 Vdc control range)	OFF	OFF	OFF	ON
4 to 20 mA control signal	OFF	OFF	ON	OFF
0 to 135 W control signal	ON	ON	OFF	OFF

Using control dip switches:

Sequence of operation	S1	Vernier stage (on R851V)	S2	Step down interstage and minimum time ON (on R851B)	S2
FIFO (First in first out)	ON	Vdc pulsed signal (SSR)	ON	5 seconds	ON
LIFO (Last in first out)	OFF	0-10 Vdc (SCR)	OFF	2 seconds	OFF

Number of stages	S3	S4
1	OFF	OFF
2	ON	OFF
3	OFF	ON
4	ON	ON

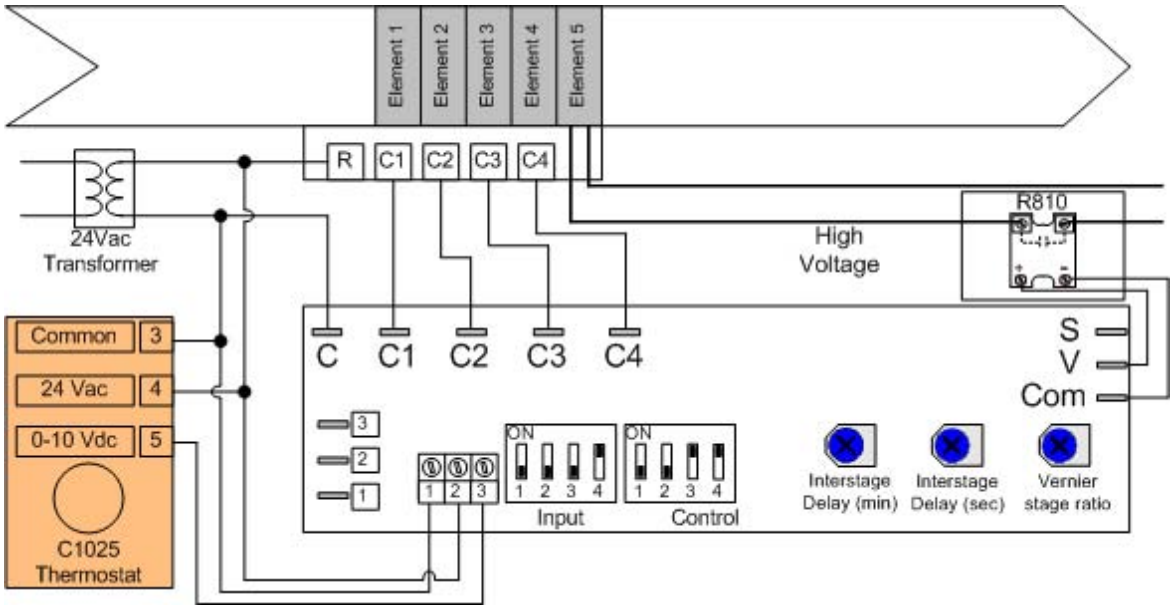
***4 stages model**

Number of stages	S3	S4	S5	S6
1	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF
3	OFF	ON	OFF	OFF
4	ON	ON	OFF	OFF
5	OFF	OFF	ON	OFF
6	ON	OFF	ON	OFF
7	OFF	ON	ON	OFF
8	ON	ON	ON	OFF

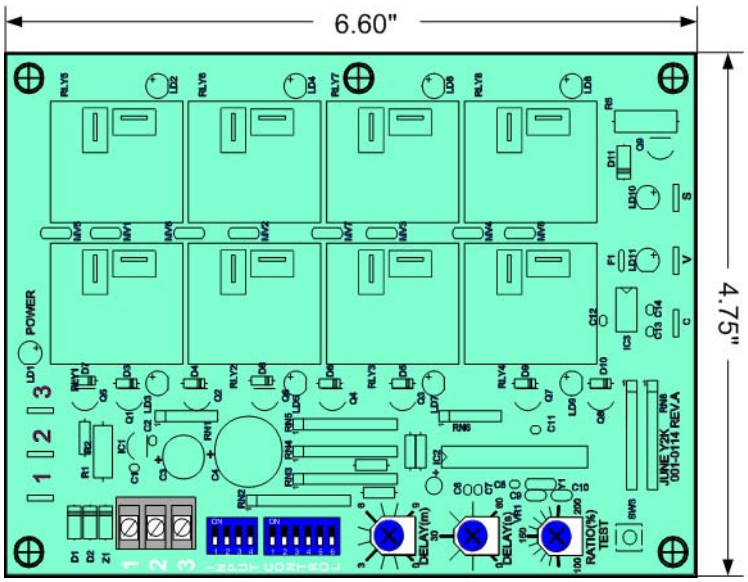
***8 stages model**

Viconics Electronics Inc. 2013

Five Stages Electric Duct Heater With A C1025 Thermostat



Dimensions



Specifications

Operating conditions:	0°C to 80°C (32°F to 176°F) 0 % to 95 % R.H. non-condensing
Relay outputs:	Pilot duty: - 24 - 120 Vac – 720 VA - 240 Vac – 690 VA Motor load: - 120 Vac – 1 HP - 240 Vac – 2 HP
Vernier stage:	0 to 10 Vdc, 5 mA max.
Input impedance:	0 to 10 Vdc into 2Kohms minimum
Power supply:	24 Vac -15%, +10% 50/60 Hz; up to18 VAUse a Class 1 (properly fused) or Class 2, CSA or UL recognized transformer for power supply & relay outputs.
UL recognized:	File # E212649

021-0247 Multi-Signal Input Electric Board

The Viconics 021-0247 interface board accepts an analog signal and converts it to a DC, time proportioning/pulsed output. It is designed to be mounted on Viconics' R810 series solid state relays for cost effective, precise modulation of electric loads for most electric resistive heating applications.

FEATURES
Microcomputer based
Slave outputs to other solid state relays (SSR)
Dip switch configurable
Integrated high limit thermostatic protection (self resetting) Auto shut off when SCR ambient temperature is above 82°C (180°F)
Pulse status led for servicing & trouble shooting
2 year warranty

Dip Switch Configuration

Input Signal dip switch position	S1	S2	S3	S4
0 to 5 Vdc	Off	Off	Off	Off
0 to 10 Vdc	Off	Off	Off	On
4 to 20 mA	Off	Off	On	Off
0 to 135 W	On	On	Off	Off

Specifications

Operating Conditions: 0°C to 80°C (32°F to 176°F)
0 % to 95 % R.H. non-condensing

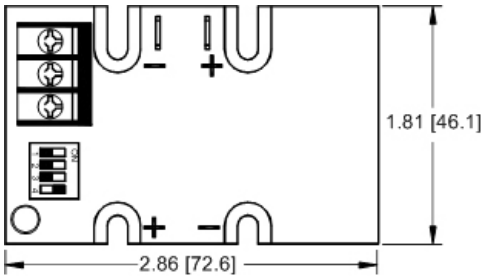
Thermostatic protection: Self resetting, auto shut off when ambient temp. is above 82°C (180°F)

Pulse output: 8 V dc @ 20mA
6 V dc when controlling 4 SSR 's (max)

Time Base: 1 second

Power supply: 24 Vac -15%, +10% 50/60 Hz; 2 VA
Use a Class 1 (properly fused) or Class 2, CSA or UL recognized transformer.

Dimensions



ELECTRIC HEAT CONTROLLERS

Viconics Electronics Inc. 2013

C24 Ac/Dc Converter For R810 Series

The C24 Interface module accepts a 24 Vac pulsed input and converts it into a 5 Vdc pulse for 4-32 Vdc SSR power switching modules.

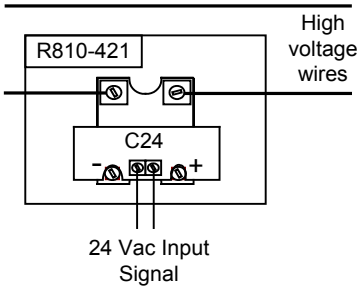
The interface features a pulse status led for easier servicing & trouble shooting.

Specifications

Operating Conditions: 0°C to 80°C (32°F to 176°F) 0 % to 95 % R.H. non-condensing

Power supply: 24 Vac -15%, +10% 50/60 Hz; 25 mA

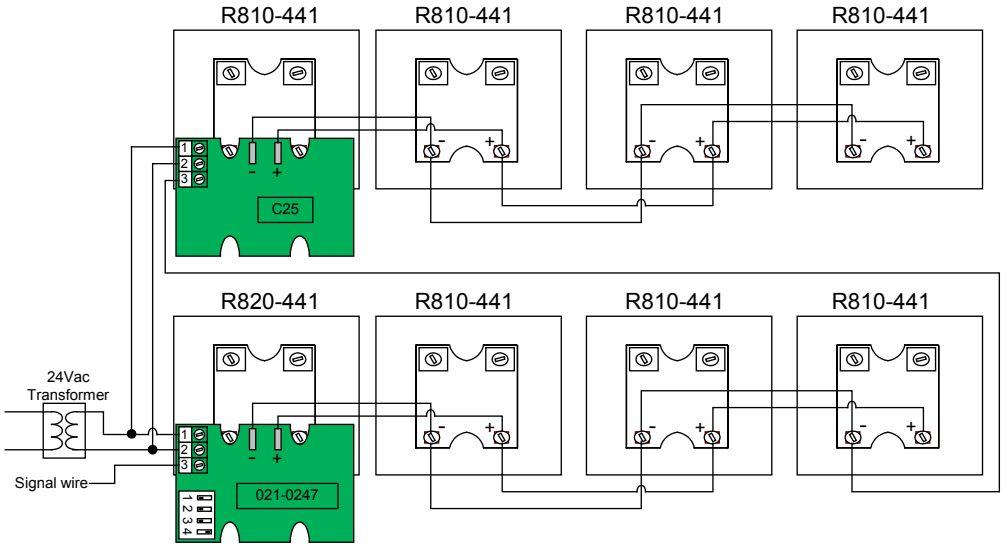
Wiring



C25 Pulse Repeater For R810 Series

The C25 module is used when more than 4 power modules need to be controlled by 1 R820 electronic control board. The C25 module can drive up to 4 additional R810 power module.

Wiring



Specifications

Operating Conditions: 0°C to 80°C (32°F to 176°F)
0 % to 95 % R.H. non-condensing

Power supply: 24 Vac -15%, +10% 50/60 Hz; 2 VA
Use a Class 1 (properly fused) or Class 2, CSA or UL recognized transformer.

Sensors

In every project, visual cues of quality of installation are important and leave a lasting impression of your company. With this in mind, Viconics Electronics has developed a complete series of matching wall sensor products, which are second to none from both a visual and technical point of view.

All wall – mounted sensor products from Viconics are featured in the same enclosure as the VT, VH and T900 series controllers, facilitating consistent wall presence throughout any installation.

Robust, installation friendly and cost effective for any project type, Viconics offers, in addition a complete range of duct, duct-averaging, bullet, change-over and outdoor air sensing products to complete our product range.

In this section you will be provided with information on the following products:

- S1000 series capsule type sensing elements for duct or pipe changeover applications.
- S2000 series duct probe type sensors.
- S2060 duct averaging type sensors.
- S2020 exterior type sensors.
- S3000 series wall mounted temperature sensors.

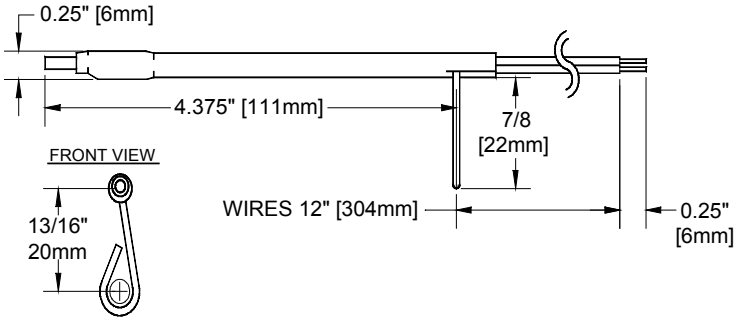
Viconics' latest generation S1000/2000/3000 series sensors have been especially developed for the VT7000 programmable and non-programmable thermostats as well as future Viconics thermostats. These robust sensors have provide accurate and stable temperature reading using a 10 Kohm thermistor element. The maximum wire length is 5,000 feet [1,525 m] for 24 GA wire and up.

S1010E1000 Capsule Type Sensor

The S1010E1000 sensor is a capsule type sensor for multi-purpose use. The S1010E1000 is easy to dissimulate for indoor and outdoor use. The capsule has a ¼" diameter. The sensor comes with 65 inch leads. This sensor is also used for water temperature sensing strapped a pipe or in an immersion well.

S1010D1000 Duct Mount Changeover Sensor

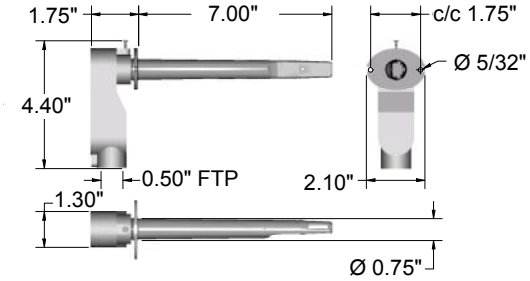
The S1010D1000 sensor is used for changeover purposes with the VT7000 series. This sensor is mounted to the duct for air temperature sensing.



Operating conditions:	Up to 85ºC [185ºF]
Sensing bulb type:	Plastic Heatshrink
Wire length:	12" [305 mm]
Probe length:	4-1/2" [114 mm]
Probe Diameter:	1/4" [6 mm]

S2000D1000 Duct Sensor With Junction Box

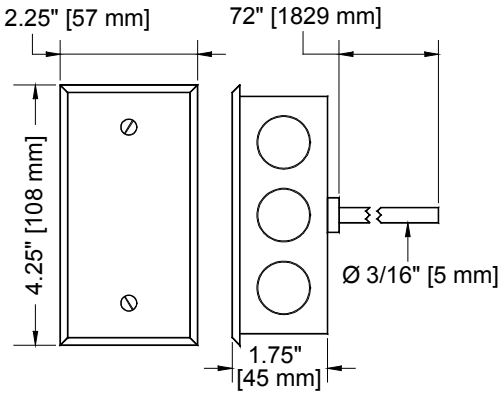
The S2000D1000 sensor is used for duct temperature sensing. The sensor is mounted on the return air duct to measure the return air temperature or on the fresh air duct to measure the outside air temperature.



Operating conditions:	-40 °C to 50 °C (-40 °F to 122 °F) 0% to 95% R.H. non-condensing
Storage conditions:	-40 °C to 70 °C (-40 °F to 122 °F) 0% to 95% R.H. non-condensing
Approximate shipping weight:	0.7 LBS [0.3 Kg]
Probe tip plastic type:	Fire retarding grade "HB" ABS

S2060A1000 Duct Averaging Sensor

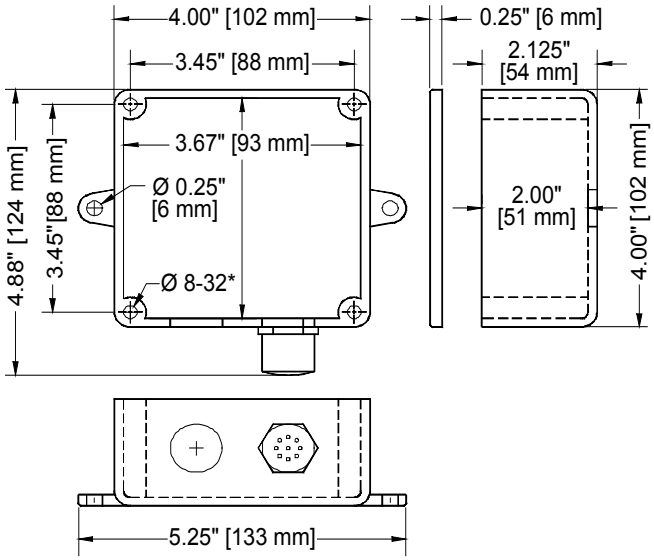
The S2060A1000 series duct sensor is used to average a duct's air temperature. To attain the average outside air temperature, the sensor must be mounted in the fresh air plenum.
For economizer models, the sensor can be placed in the mixed air plenum to average mixed air temperature.



Operating conditions:	-40 °C to 50 °C (-40 °F to 122 °F) 0% to 95% R.H. non-condensing
Storage conditions:	-40 °C to 70 °C (-40 °F to 158 °F) 0% to 95% R.H. non-condensing
Sensing element length	72 in [1,83 m]
Sensing element diameter / material:	3/16" [5 mm] / copper tube
Dimensions:	(refer to drawing Fig.9)
Approximate shipping weight:	1.6 LBS [0.7 Kg]

S2020E1000 Outdoor Air Sensor

The S2020E1000 sensor is used for outside air temperature sensing with the sensor installed directly exposed to the elements. This sensor uses a water resistant NEMA 4 PVC enclosure for outdoor applications.



Operating and storage conditions:	-40 °C to 50 °C (-40 °F to 122 °F) 0% to 100% R.H.
Approximate shipping weight:	1.1 LBS [0.5 Kg]
Enclosure plastic type:	NEMA 4 PVC

SENSORS

S3010W1000 Wall Mount Room Sensors

The S3010W1000 sensor is used for room temperature sensing. 3 thermistors with 2 dip switches are provided with each sensor for various averaging combinations.

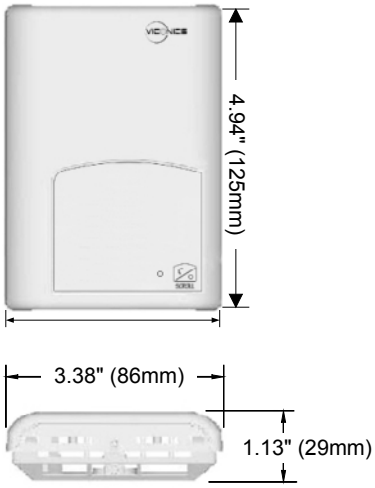
S3020W1000 Wall Mount Room Sensors

The S3020W1000 sensor is an upgraded version of the S3010W1000. Similar to the S3010W1000, it has 3 thermistors and 2 dip switches for averaging combinations. This model comes with a temporary override key and an occupancy LED.

Dip Switch Configuration For Averaging Applications

Number of averaging sensors	S1	S2
1	ON	ON
2	OFF	ON
3	OFF	OFF

Dimensions And Specifications



Operating conditions: 0 °C to 50 °C (32 °F to 122 °F)
0% to 95% R.H. non-condensing

Storage conditions: -30 °C to 50 °C (-22 °F to 122 °F)
0% to 95% R.H. non-condensing

Dimensions: 4.94” [125 mm] high, 3.38” [86 mm] wide, 1.13” [29 mm] thick

Approximate shipping weight: 0.34 LBS (155 grams)

Enclosure plastic type: ABS - FRI [WT1337V] UV stabilized

The S3000 analog wall sensor family is specifically designed to interface with fan coil, heat pump, roof top & other terminal unit building automation controls. The units provide precision indoor local temperature sensing. Units with local setpoint adjustment and various scales are available. The modern attractive low profile enclosure is suitable for classrooms, hotels, executive areas, office spaces & other commercial areas.

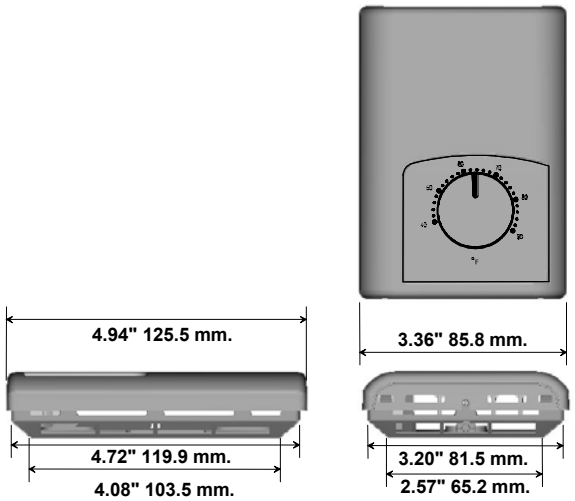
Available Models

Model	Local temperature	Tenant override button	Status LED	Tenant Setpoint		
				+ / -	40 to 90 °F	5 to 30 °C
S3000W1000	•					
S3060W1000	•	•	•			
S3060C1000	•	•	•	•		
S3060Z1000					•	
S3060U1000						•

Features And Benefits

Features	Benefits
Local temperature	10K type 2 NTC thermistor 5% precision
Tenant override button	An embossed membrane momentary open switch can be provided to act as a local override button to current system status. The override button operates in parallel with the temperature sensor.
Status LED	An externally 24 Vac / Vdc powered LED for occupied / unoccupied system status
Tenant setpoint	Standard setpoint potentiometer of 10KW Potentiometer is direct acting and has 20 % tolerance across the range.

Dimensions



Specifications

Operating Conditions: -20°C to 50°C (-4°F to 122°F) 0 % to 95 % R.H. non-condensing
Storage Conditions: -40°C to 80°C (-40°F to 176°F) 0 % to 95 % R.H. non-condensing
Standard Sensor: Local 10KW type 2 NTC thermistor 5% precision, other types available, call Viconics
Sensor Resolution, Sensor Accuracy, Sensor Drift, Sensor Time Constant: Call Viconics
Setpoint Potentiometer: Local 10KW direct acting setpoint potentiometer. 20 % tolerance across the range

The S60, S70, S80, S90 sensors are part of Viconics Unistat Series low voltage RHVAC temperature control line. These sensors are designed for wall, duct, immersion or changeover applications.

Applications

- Remote room temperature control
- Remote control of duct return air temperature
- Limitation of supply temperature
- Auto changeover of VAV damper operation with supply air temperature
- Hot water temperature control
- Auto changeover of valve operation with supply water temperature

Wiring

Wire lengths may exceed 100 feet without causing temperature errors, due to the high 47,000 ohm resistance.

Avoid running long sensor leads closed to, or in the same conduit as, high voltage and power wiring.

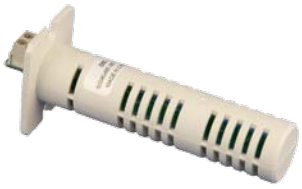
Four sensors may be wired in series / parallel combination in order to obtain average temperature readings.

Specifications

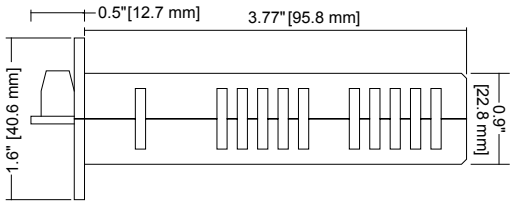
Operating Conditions:	-18 °C to 82 °C (0 °F to 180 °F) 0% to 95% R.H. non-condensing
Sensor:	47 K NTC thermistor
Interchangeability:	± 1 °C @ 25 °C (± 1.8 °F @ 77 °F)
Accuracy:	± 2 °C (for -18 °C to 82 °C) ± 3.6 °F (for 0 °F to 180 °F)

Viconics Electronics Inc. 2013

S60 Duct Sensor Adaptor

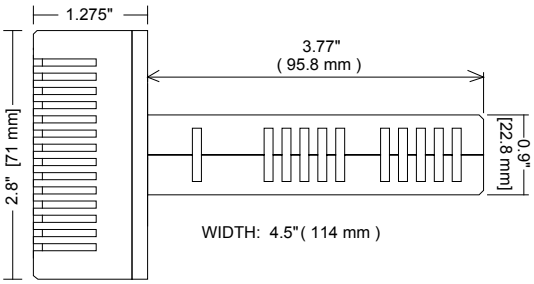


The S60 sensor is made to be mounted directly onto the back of the thermostat, with the supplied hardware. This transforms the thermostat into a duct-mounted thermostat.



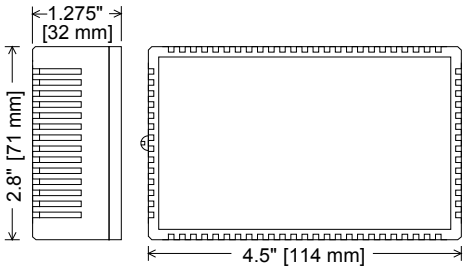
S70 Duct Mount Sensor

The S70 sensor can be mounted directly onto the supply or return of the ventilation duct. The thermostat may be located on the wall with temperature sensing from the remote S70 .



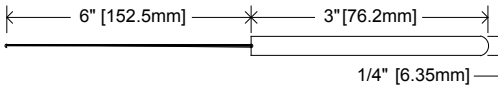
S80 Room sensor

This sensor can be mounted on the wall in any remote location. The thermostat may be located on the duct or other location, with temperature sensing from the S80 sensor location.



S90 Immersion Sensor

This sensor is for the control of hot or cold water, or other fluids. It can be mounted in a standard ¼" well or strap mounted to a pipe. It is constructed with 316 stainless steel.



Our Commitment to the Environment

Viconics is committed to a leadership role in contributing to an environmentally conscious global community and takes an environmental stewardship role in both it's design and manufacturing processes as well as the energy efficient products and solutions that it provides to its customers.

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