Product overview

The VT7200 PI thermostat family is specifically designed for zoning applications. Typical applications include local hydronic reheat valve control and pressure dependent VAV with or without local reheat. The product 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, which virtually eliminates temperature offset associated with traditional, differential-based thermostats. Models are available for 3 point floating and analog 0 to 10 Vdc control. In addition remote room sensing is available. They all contain an SPST auxiliary switch that can be used to control lighting or auxiliary reheat. All devices are also available with Echelon or BACnet MS-TP network adapter.

The additional following documentation is available on www.viconics.com

- Information on the LON models (VT7200x1000E), is available on document ITG-VT7200-LON-Exx
- Information on the BACnet models (VT7200x1000B), is available on document ITG-VT7200-BAC-Exx

Models available

Viconics number	VT7200C1000 VT7200C1000B (BACnet) VT7200C1000E (Echelon)	VT7200F1000 VT7200F1000B (BACnet) VT7200F1000E (Echelon)
Control outputs	2 x Tri-state floating	2 x Analog 0 to 10 Vdc
	1 x Auxiliary or reheat contact	1 x Auxiliary or reheat contact

Features and benefits

Features	Benefits
• Advanced occupancy functions	⇒ Through the network or smart local occupancy sensing
• 3 configurable inputs	⇒ Adds functionality
• Pre-configured sequences of operation	⇒ One model meet more applications ⇒ Reduces project delivery cost
• Unique configuration setup utility	⇒ Minimizes parameter tampering
• Lockable keypad	⇒ Tamper proof, no need for thermostat guards
• Available for 24 Vac On/Off, Floating or Analog control	⇒ 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

Installation ─────────────────────────────

- Remove security screw on the bottom of thermostat cover.
- Open up by pulling on the bottom side of thermostat.
- Remove Assembly and remove wiring terminals from sticker. **(Fig. 3)**

A) **Location:**
1- Should <u>not</u> be installed on an outside wall.
2- Must be installed away from any heat source.
3- Should not be installed near an air discharge grill.
4- Should not be affected by direct sun radiation.
5- Nothing must restrain vertical air circulation to the thermostat.

Fig.3

B) **Installation:**
1- Swing open the thermostat PCB to the left by pressing the PCB locking tabs. **(Fig. 4)**
2- Pull out cables 6" out of the wall.
3- Wall surface must be flat and clean.
4- Insert cable in the central hole of the base.
5- Align the base and mark the location of the two mounting holes on the wall. Install proper side of base up.
6- Install anchors in the wall.
7- Insert screws in mounting holes on each side of the base. **(Fig. 4)**
8- Gently swing back the circuit board on the base and push on it until the tabs lock it.
10- Strip each wire 1/4 inch.
11- Insert each wire according to wiring diagram.
13- Gently push back into hole excess wring **(Fig. 5)**
14- Re-Install wiring terminals in correct location. **(Fig. 5)**
15- Reinstall the cover (top side first) and gently push back extra wire length into the hole in the wall.
16- Install security screw.

Location of PCB retaining tabs

Fig.4

Re-install terminal blocks

Fig.5

⚠

- If replacing an old thermostat, label the wires before removal of the old thermostat.
- Electronic controls are static sensitive devices. Discharge yourself properly before manipulation and installing the thermostat.
- Short circuit or wrong wiring may permanently damage the thermostat or the equipment.
- Anti-short cycling can be set to 0 minutes for equipment that posses their own anti cycling timer. Do not use that value unless the equipment is equipped with such internal timer. Failure to do so can damage the equipment.
- All VT7200 series thermostats are to be used only as operating controls. Whenever a control failure could lead to personal injury and/or loss of property, it becomes the responsibility of the user to add safety devices and/or alarm system to protect against such catastrophic failures.
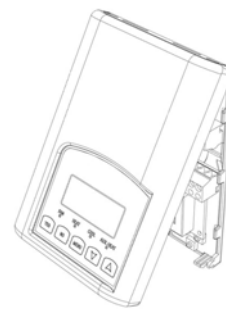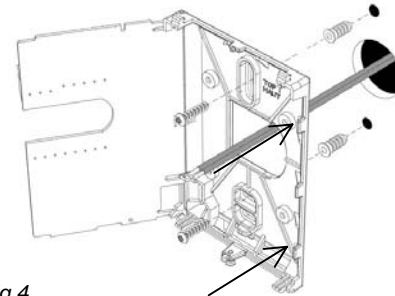
Thermostat assembly
(VT7300F1000 shown)

RoomTemp
70.0 °F

Fig.6

Programmable BI/UI inputs overview ─────────────

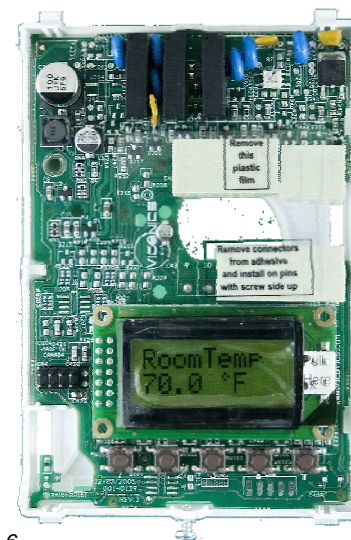**Binary input #1 can be configured for the following functions:**

1. **(None):** No function will be associated with the input
2. **(Rem NSB):** remote NSB timer clock input. The scheduling will now be set as per the binary input. It provides low cost setback operation via a dry contact
   - Contact opened = Occupied
   - Contact closed = Unoccupied
3. **(Motion NO):** remote NSB using a motion detector. The occupancy will now be set as per the binary input. Contact opened = Unoccupied. When the contact closes momentarily, the thermostat goes into occupied mode for the time specified by the ToccTime timer. The timer can reset at the end of its cycle if new movements are detected in the area.
4. **(Motion NC):** remote NSB using a motion detector. The occupancy will now be set as per the binary input. Contact closed = Unoccupied. When the contact opens momentarily, the thermostat goes into occupied mode for the time specified by the ToccTime timer. The timer can reset at the end of its cycle if new movements are detected in the area.
5. **(Window) EMS:** Forces the system to disable any current heating or cooling action by the thermostat. The mode stays the same and the current setpoints are the same Occupied setpoints. Only the outputs are disabled. There is a Door/Window alarm displayed on the thermostat to indicate to the local tenant that the door/window needs to be closed for cooling or heating to resume. Use NC contact.
   - Contact opened = System disabled with local Window alarm
   - Contact closed = System enabled

Binary input #2 can be configured for the following functions:

1. **(None):** No function will be associated with the input
2. **(Door Dry) Door contact & Motion detector:** This configuration is only functional if binary input #1 is set to **Motion NO** or **Motion NC**.
   BI1 is connected to a motion detector & BI2 is connected to a door contact switch. With this sequence enabled, the occupancy is now dictated through those 2 inputs. Any motion detected will set the zone to occupied status. The zone will remain permanently in occupied mode until the door contact switch opens momentarily. The thermostat will then go in unoccupied mode. If more movements are detected, the occupied mode will resume. If the door stays open more than the time value specified by the **doortime** parameter, the zone will remain unoccupied. Use NC contact.
   - Contact opened = Door opened
   - Contact closed = Door closed

3. **(RemOVR):** temporary occupancy remote override contact. This function disables the central button

override function on the thermostat. The override function is now controlled by a manual remote momentarily closed contact. When configured in this mode, the input operates in a toggle mode.

It is now possible to toggle between unoccupied & occupied setpoints for the amount of time set by parameter (TOccTime) temporary occupancy time.

4. **(Filter):** a backlit flashing **Filter** alarm will be displayed on the thermostat LCD screen when the input is energized. It can be tied to a differential pressure switch that monitor filters
   - Contact opened = No alarm
   - Contact closed = Alarm displayed

5. **(Service):** a backlit flashing Service alarm will be displayed on the thermostat LCD screen when the input is energized. It can be tied in to the AC unit control card, which provides an alarm in case of malfunction.
   - Contact opened = No alarm
   - Contact closed = Alarm displayed

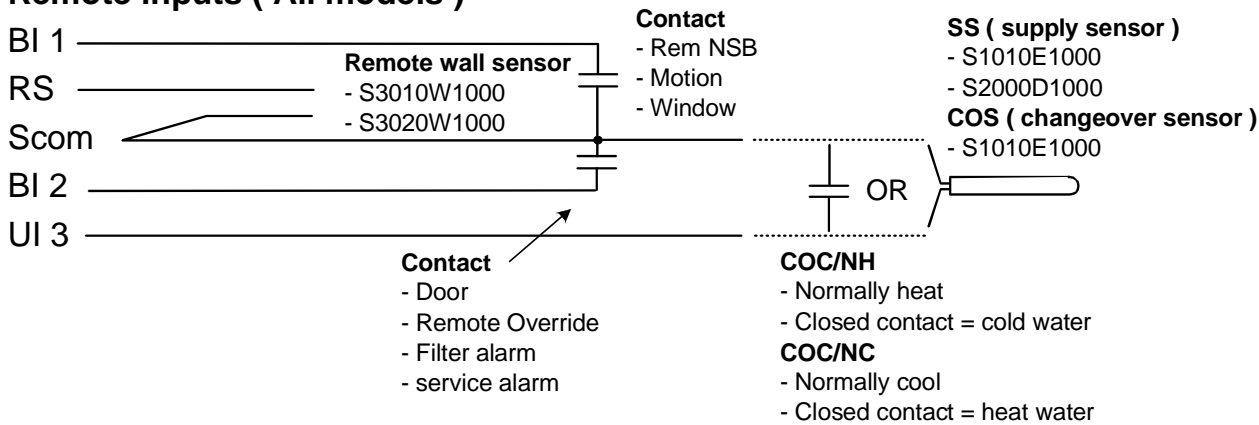**Universal input #3 can be configured for the following functions:**

1. **(None):** No function will be associated with the input
2. **(COC/NH) Change over dry contact. Normally Heat:** Used for hot / cold water change over switching in 2 pipe systems.
   - Contact closed = Cold water present
   - Contact opened = Hot water present

   Only used and valid if system is setup as 2 pipes. Parameter (Pipe No) set as 2 pipes.

3. **(COC/NC) Change over dry contact. Normally Cool:** Used for hot / cold water or air change over switching in 2 pipe systems.
   - Contact closed = Hot water present
   - Contact opened = Cold water present

   Only used and valid if system is setup as 2 pipes. Parameter (Pipe No) set as 2 pipes.

4. **(COS) Change over analog sensor:** Used for hot / cold water or air change over switching in 2 pipe systems.
   Only used and valid if system is setup as 2 pipes. Parameter (Pipe No) set as 2 pipes.
   - If water temperature is > 77 °F = Hot water present
   - If water temperature is < 75 °F = Cold water present

5. **(SS) Supply air sensor monitoring:** Used for supply air temperature monitoring.
   Only used for network reporting of the supply air temperature. Has no internal function in the thermostat.

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Terminal identification

Viconics number	VT72xxC10xx
Description / application	1 or 2 Floating outputs
	1 or 2 On/Off outputs

4- 24 V~ Hot	24 V~ Hot
5- 0 V~ Com	24 V~ Com

6- Aux BO 5	BO 5-Aux
7- Aux BO 5	BO 5-Aux
8- BO 3 Open Heat	BO 3

9- BO 4 Close Heat	BO 4
10- BO 1 Open Cool	BO 1
11- BO 2 Close Cool	BO 2
12- BI 1	BI 1
13- RS	RS
14- Scom	Scom
15- BI 2	BI 2
16- UI 3 COS / COC /SS	UI 3

Viconics number	VT72xxF10xx
Description / application	1 or 2 Analog outputs

4- 24 V~ Hot	24 V~ Hot
5- 0 V~ Com	24 V~ Com

6- Aux BO 5	BO 5-Aux
7- Aux BO 5	BO 5-Aux

9- AO 2 Heat	AO 2
10- AO 1 Cool	AO 1
Not used Blank	*Blank*
12- BI 1	BI 1
13- RS	RS
14- Scom	Scom
15- BI 2	BI 2
16- UI 3 COS / COC /SS	UI 3

Generic wiring

Remote inputs (All models)

BI 1

RS — Remote wall sensor
- S3010W1000
Scom — S3020W1000

BI 2

UI 3

Contact
- Rem NSB
- Motion
- Window

Contact
- Door
- Remote Override
- Filter alarm
- service alarm

SS (supply sensor)
- S1010E1000
- S2000D1000
COS (changeover sensor)
- S1010E1000

OR

COC/NH
- Normally heat
- Closed contact = cold water
COC/NC
- Normally cool
- Closed contact = heat water
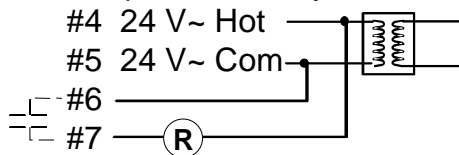
Auxiliary output (All models)
- Dry contact to end device 24 V~ maximum

#4 24 V~ Hot
#5 24 V~ Com
#6
#7

R
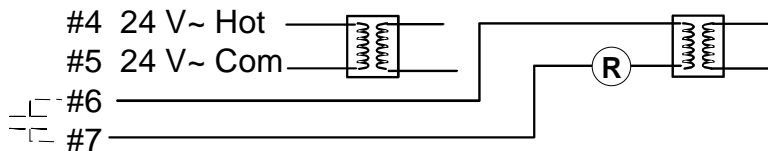
- 24 Vac power to relay

#4 24 V~ Hot
#5 24 V~ Com
#6
#7

R
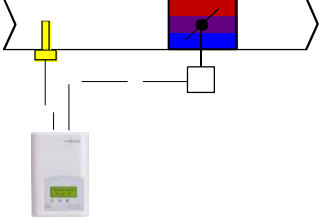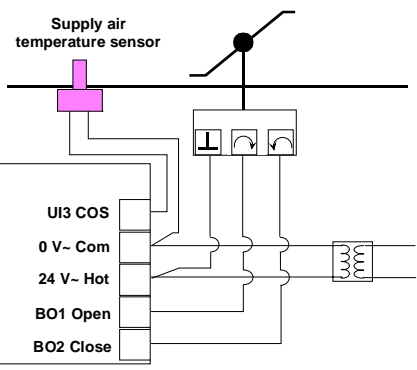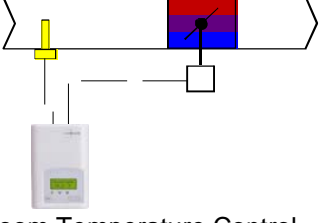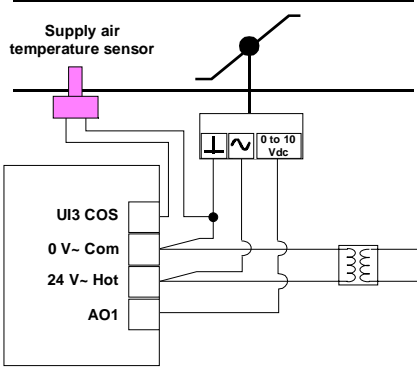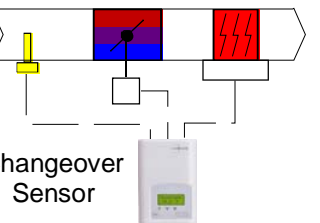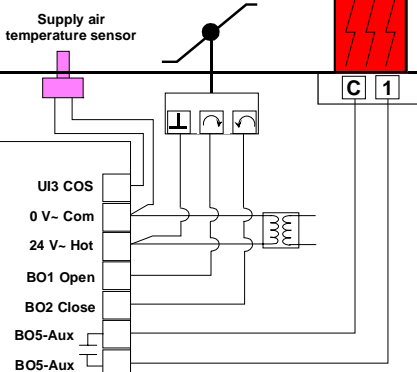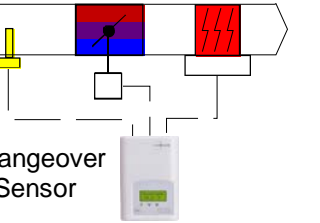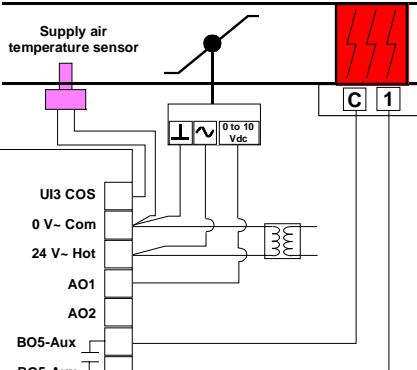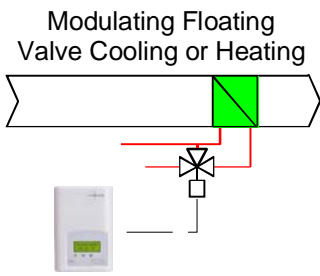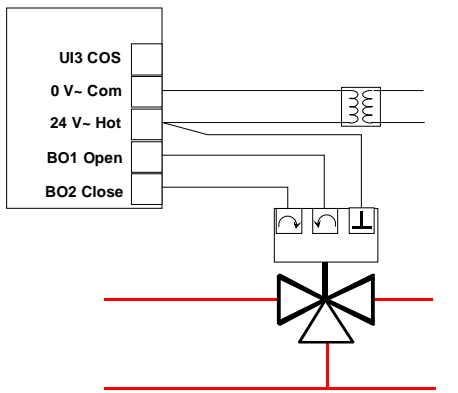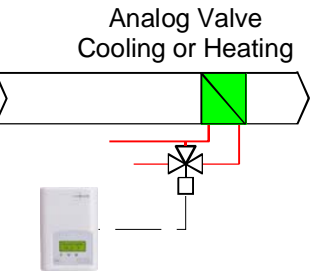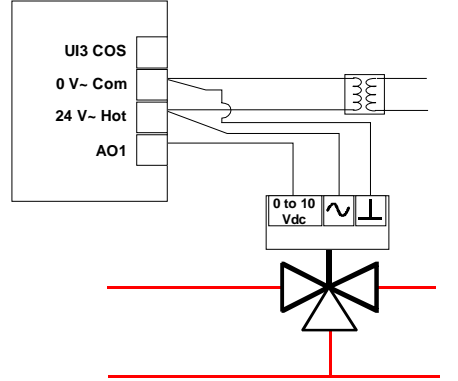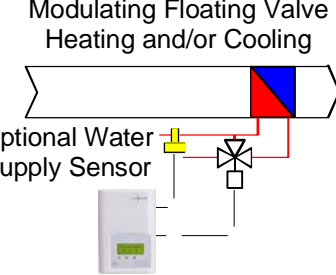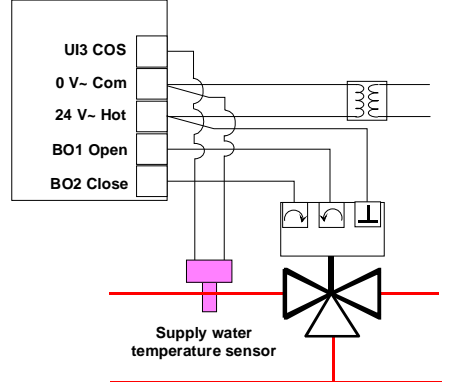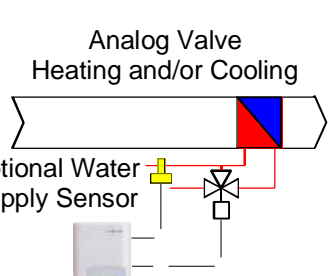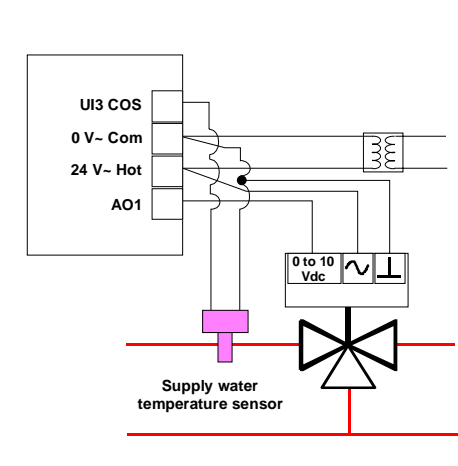
Main outputs wiring typical for valves

Single output applications	Dual output applications
On-Off control VT7200C1000	
24 V~ Hot 24 V~ Com Heating / Cooling valve BO1 if N.O. OR BO2 if N.C. 24 Vac Com	24 V~ Hot 24 V~ Com BO3 if N.O. OR BO4 if N.C. 24 Vac Com — Heating valve BO1 if N.O. OR BO2 if N.C. 24 Vac Com — Cooling valve
Floating control VT7200C1000	
24 V~ Hot 24 V~ Com Heating / Cooling valve BO1 BO2 Open Com Close	24 V~ Hot 24 V~ Com BO3 BO4 — Open Com Close — Heating valve BO1 BO2 — Open Com Close — Cooling valve
Analog control VT7200F1000	
24 V~ Hot 24 V~ Com Heating / Cooling valve AO 1 — Com 24 Vac 0-10 Vdc	24 V~ Hot 24 V~ Com AO 2 — Com 24 Vac 0-10 Vdc — Heating valve AO 1 — Com 24 Vac 0-10 Vdc — Cooling valve

Typical applications

Schematic	Wiring	Settings
Pressure dependent VAV cooling only (VT7200C1000) Floating actuator		
Modulating Floating VAV Actuator Room Temperature Control Minimum & Maximum Position Adjusted on the actuator	UI3 COS 0 V~ Com 24 V~ Hot BO1 Open BO2 Close	**Mandatory** • Out1Conf = 2.0 • CntrltTyp = Floating • FL time = *as per actuator* • SeqOpera = 0 Cooling only
Pressure dependent VAV cooling only (VT7200F1000) Analog actuator		
Analog VAV Actuator Room Temperature Control Minimum & Maximum Position Adjusted on the actuator	0 to 10 Vdc UI3 COS 0 V~ Com 24 V~ Hot AO1	**Mandatory** • Out1Conf = 2.0 • RA/DA = *as per actuator* • SeqOpera = 0 Cooling only

Schematic	Wiring	Settings
Pressure dependent VAV cooling / heating with changeover (VT7200C1000) Floating actuator		
Changeover Modulating Floating Sensor VAV Actuator Room Temperature Control Minimum & Maximum Position Adjusted on the actuator	Supply air temperature sensor UI3 COS 0 V~ Com 24 V~ Hot BO1 Open BO2 Close	**Mandatory** • Out1Conf = 2.0 • CntrltTyp = Floating • FL time = *as per actuator* If **heat / cool auto-changeover** with a local discharge air temperature sensor set: • SeqOpera = 0 Cooling only • UI3 = COS
Pressure dependent VAV cooling / heating with changeover (VT7200F1000) Analog actuator		
Changeover 0 to 10 Vdc Sensor Analog Actuator Room Temperature Control Minimum & Maximum Position Adjusted on the actuator	Supply air temperature sensor UI3 COS 0 V~ Com 24 V~ Hot AO1	**Mandatory** • Out1Conf = 2.0 • RA/DA = *as per actuator* If **heat / cool auto-changeover** with a local discharge air temperature sensor set: • SeqOpera = 0 Cooling only • UI3 = COS
Pressure dependent VAV cooling / heating with changeover and reheat (VT7200C1000) Floating actuator		
Modulating Floating VAV Actuator Heating and/or Cooling & On/Off Duct Heater Changeover Sensor Room Temperature Control Minimum & Maximum Position Adjusted on the actuator	Supply air temperature sensor C 1 UI3 COS 0 V~ Com 24 V~ Hot BO1 Open BO2 Close BO5-Aux BO5-Aux	**Mandatory** • Out1Conf = 2.0 • CntrltTyp = Floating • FL time = *as per actuator* If **heat / cool auto-changeover** with a local discharge air temperature sensor set: • SeqOpera = 2 Cooling with Reheat • UI3 = COS
Pressure dependent VAV cooling / heating with changeover and reheat (VT7200F1000) Analog actuator		
Analog VAV Actuator Heating and/or Cooling & On/Off Duct Heater Changeover Sensor Room Temperature Control Thermostat Minimum & Maximum Position Adjusted on the actuator	Supply air temperature sensor C 1 UI3 COS 0 V~ Com 24 V~ Hot AO1 AO2 BO5-Aux BO5-Aux	**Mandatory** • Out1Conf = 2.0 • RA/DA = *as per actuator* If **heat / cool auto-changeover** with a local discharge air temperature sensor set: • SeqOpera = 2 Cooling with Reheat • UI3 = COS

Schematic	Wiring	Settings
Heating or cooling hydronic valve control (VT7200C1000) Floating actuator		
Modulating Floating Valve Cooling or Heating Room Temperature Control Thermostat	UI3 COS 0 V~ Com 24 V~ Hot BO1 Open BO2 Close	**Mandatory** • Out1Conf = 2.0 • CntrltTyp = Floating • FL time = *as per actuator* If **cooling only** set:: • SeqOpera = 0 Cooling only If **heating only** set:: • SeqOpera = 1 Heating only
Heating or cooling hydronic valve control (VT7200F1000) Analog actuator		
Analog Valve Cooling or Heating Room Temperature Control Thermostat	UI3 COS 0 V~ Com 24 V~ Hot AO1 0 to 10 Vdc	**Mandatory** • Out1Conf = 2.0 • RA/DA = *as per actuator* If **cooling only** set:: • SeqOpera = 0 Cooling only If **heating only** set:: • SeqOpera = 1 Heating only
Cooling / heating with changeover hydronic valve control (VT7200C1000) Floating actuator		
Modulating Floating Valve Heating and/or Cooling Optional Water Supply Sensor Room Temperature Control Thermostat	UI3 COS 0 V~ Com 24 V~ Hot BO1 Open BO2 Close **Supply water temperature sensor**	**Mandatory** • Out1Conf = 2.0 • CntrltTyp = Floating • FL time = *as per actuator* If **heat / cool auto-changeover** with a local water temperature sensor set: • SeqOpera = 0 Cooling only • UI3 = COS
Cooling / heating with changeover hydronic valve control (VT7200F1000) Analog actuator		
Analog Valve Heating and/or Cooling Optional Water Supply Sensor Room Temperature Control Thermostat	UI3 COS 0 V~ Com 24 V~ Hot AO1 0 to 10 Vdc **Supply water temperature sensor**	**Mandatory** • Out1Conf = 2.0 • RA/DA = *as per actuator* If **heat / cool auto-changeover** with a local water temperature sensor set: • SeqOpera = 0 Cooling only • UI3 = COS

Remote sensor accessories

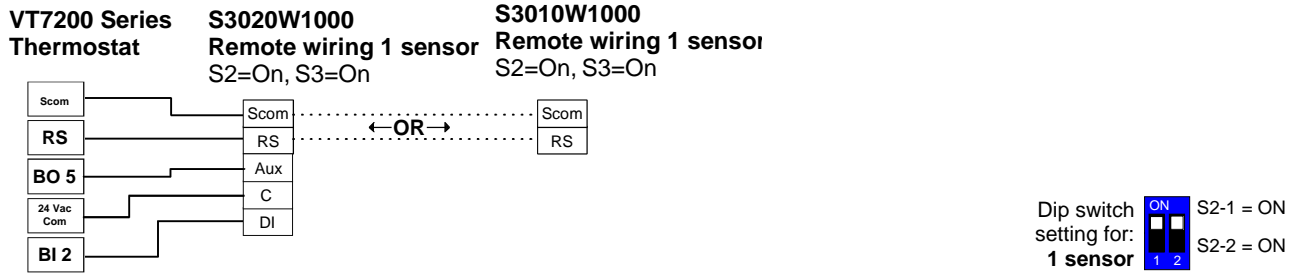| Model no.	Description
S3010W1000	Wall mounted temperature sensor
S3020W1000	Wall mounted temperature sensor with override key and occupancy status LED
S2060A1000	Averaging temperature sensor
S2000D1000	Duct mounted temperature sensor

Remote mount temperature sensors use 10K NTC thermistors.

- This sensor can be used for:
- Each sensor can be configured for various averaging combinations
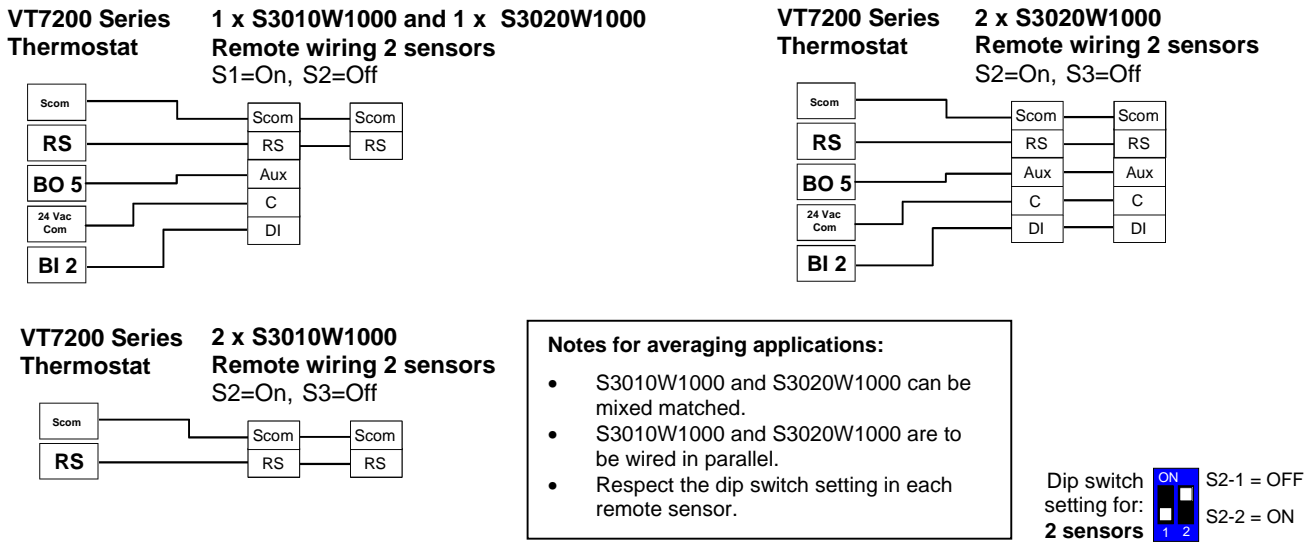- Optional occupancy led
- Optional override key
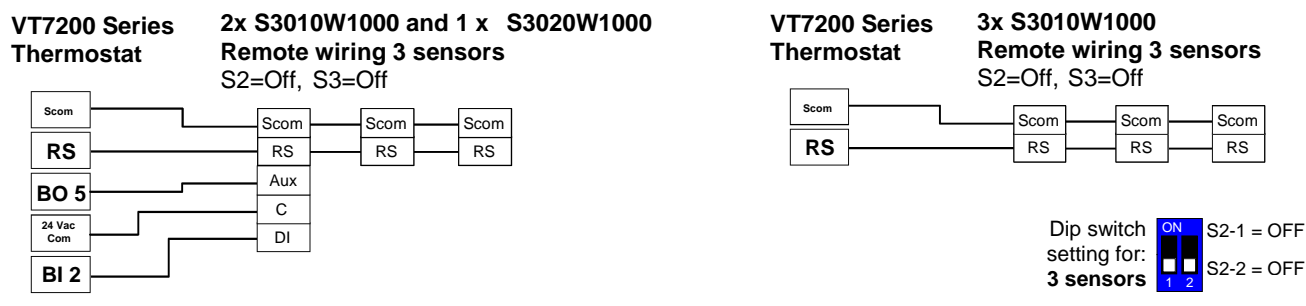
Fig.8 – S3020W1000

Wall mounted sensor

Wiring example of single remote room sensor:

VT7200 Series Thermostat

S3020W1000
Remote wiring 1 sensor
S2=On, S3=On

S3010W1000
Remote wiring 1 sensor
S2=On, S3=On

Scom
RS
BO 5
24 Vac Com
BI 2

Scom
RS
Aux
C
DI

←OR→

Scom
RS

Dip switch setting for: **1 sensor**
S2-1 = ON
S2-2 = ON

Wiring examples of 2 remote room sensors for averaging applications:

VT7200 Series Thermostat

1 x S3010W1000 and 1 x S3020W1000
Remote wiring 2 sensors
S1=On, S2=Off

Scom
RS
BO 5
24 Vac Com
BI 2

Scom
RS
Aux
C
DI

Scom
RS

VT7200 Series Thermostat

2 x S3020W1000
Remote wiring 2 sensors
S2=On, S3=Off

Scom
RS
BO 5
24 Vac Com
BI 2

Scom
RS
Aux
C
DI

Scom
RS
Aux
C
DI

VT7200 Series Thermostat

2 x S3010W1000
Remote wiring 2 sensors
S2=On, S3=Off

Scom
RS

Scom
RS

Scom
RS

Notes for averaging applications:

- S3010W1000 and S3020W1000 can be mixed matched.
- S3010W1000 and S3020W1000 are to be wired in parallel.
- Respect the dip switch setting in each remote sensor.

Dip switch setting for: **2 sensors**
S2-1 = OFF
S2-2 = ON

Wiring examples of 3 remote room sensors for averaging applications:

VT7200 Series Thermostat

2x S3010W1000 and 1 x S3020W1000
Remote wiring 3 sensors
S2=Off, S3=Off

Scom
RS
BO 5
24 Vac Com
BI 2

Scom
RS
Aux
C
DI

Scom
RS

Scom
RS

VT7200 Series Thermostat

3x S3010W1000
Remote wiring 3 sensors
S2=Off, S3=Off

Scom
RS

Scom
RS

Scom
RS

Scom
RS

Dip switch setting for: **3 sensors**
S2-1 = OFF
S2-2 = OFF

Temperature vs resistance chart for 10 Kohm NTC thermistor ($R_{25°C}$ = 10KΩ±3%, $B_{25/85°C}$ = 3975K±1.5%)

ºC	ºF	Kohm	ºC	ºF	Kohm	ºC	ºF	Kohm	ºC	ºF	Kohm	ºC	ºF	Kohm
-40	-40	324.3197	-20	-4	94.5149	0	32	32.1910	20	68	12.4601	40	104	5.3467
-35	-31	234.4009	-15	5	71.2430	5	41	25.1119	25	77	10.0000	45	113	4.3881
-30	-22	171.3474	-10	14	54.1988	10	50	19.7390	30	86	8.0694	50	122	3.6202
-25	-13	126.6109	-5	23	41.5956	15	59	15.6286	35	95	6.5499	55	131	3.0016

Programming and status display instructions —————————————————————

Status display

The thermostat features a two-line, eight-character display. There is a low level back-light level that is always active and can only be seen at night.

When left unattended, the thermostat has an auto scrolling display that shows the actual status of the system. There is an option in the configuration menu to lockout the scrolling display and to only present the room temperature and conditional outdoor temperature to the user. With this option enabled, no local status is given of mode, schedule and relative humidity.

Each item is scrolled one by one with the back lighting off. Pressing any key will cause the back light to come on. When left unattended for 10 seconds after changes are made, the display will resume automatic status display scrolling.

To turn on the back light, press any key on the front panel. The back lit display will turn off when the thermostat is left unattended for 45 seconds

Sequence of auto-scroll status display:

Room & Humidity	System mode	Schedule status	Outdoor temperature	Alarms
RoomTemp x.x °C or °F	Sys mode Auto	Occupied	Outdoor x.x °C or°F	Service
	Sys mode Cool	Unoccup	Network value only	Filter
	Sys mode heat	Override		Window
	Sys mode off			

Outdoor air temperature
- Display is only enabled when outdoor air temperature network variable is received.

Schedule Status
- Occupied, Unoccupied and Override status are displayed on the scrolling display.

Alarms
- If alarms are detected, they will automatically be displayed at the end of the status display scroll.
- During an alarm message display, the back lit screen will light up at the same time as the message and shut off during the rest of the status display.
- Two alarms maximum can appear at any given time. The priority for the alarms is as follows:

Service	Indicates that there is a service alarm as per one of the programmable binary input (BI2)
Filter	Indicates that the filters are dirty as per one of the programmable binary input (BI2)
Window	Indicates that the outside window or door is opened and that the thermostat has cancelled any cooling or heating action (BI1)

Two status LED's on the thermostat cover are used to indicate a call for heat or a call for cooling.

Zoning models
- When heating & reheat is ON, the HEAT LED will illuminate.

- When cooling is ON, the COOL LED will illuminate.

Fig.11 – Zoning models

Installer configuration parameter menu
Configuration can be done through the network or locally at the thermostat.
- To enter configuration, press and hold the Override button for 8 seconds
- Press again the Override button repetitively to scroll between all the available parameters
- Use the up and down key to change the parameter to the desired value.
- To acknowledge and save the new value, press the Override button again.
- The next listed parameter is now displayed

Configuration interface

Override	Enters the configuration mode. Press and hold for 8 seconds
	Pressing repetitively will scroll all available parameters one by one
Down	Adjust / rotate parameter value down
Up	Adjust / rotate parameter value up

User interface

- **Unoccupied mode Override**

An Override can be made during an Unoccupied period. If the Override option is enabled in the lockout configuration pressing the Override button will resume occupied setpoints for a time specified by parameter ToccTime

- **Keypad interface**

Override	An Override can be made during an Unoccupied period. If the Override option is enabled in the lockout configuration pressing the override key will resume occupied setpoints for a time specified by parameter ToccTime
Down	Adjust the setpoints down ❖ In cooling mode only the cooling setpoint displayed, ❖ In heating mode only the heating setpoint displayed ❖ In auto mode, (See below)
Up	Adjust the setpoints up ❖ In cooling mode only the cooling setpoint displayed, ❖ In heating mode only the heating setpoint displayed ❖ In auto mode, (See below)

1. Any setpoint change can be permanent or temporary based on configuration parameter (Setpoint Type)
2. Any setpoint written through the network, will be permanent and cancel any active temporary setpoints
3. Lockouts of access to certain functions is made with configuration parameter (lockout)

- **Occupied setpoint adjustments**

Cooling mode	Heating mode	Off mode	Auto Mode • Setpoint presented to user is the setpoint from the last action taken by the thermostat or the one currently in use. • Both heating and cooling setpoint are changed simultaneously while respecting the minimum configured deadband
Cool XX.X °F or °C	Heat XX.X °F or °C	No access to setpoint	Cool XX.X °F or °C and Heat XX.X °F or °C **Both heating & cooling setpoints are change simultaneously**

- **Unoccupied setpoints adjustments**

Setting the unoccupied setpoints is done through the network or through configuration setup only.

- **System mode function.**
  - PLEASE NOTE THAT: Default system mode of operation is dependent on sequence of operation selected
  - **Default mode** is in **bold** when sequence of operation parameter is changed
  - *The available mode can only be changed through the network since there is no local mode access*

Sequence selected	Mode Menu
0 = Cooling only	Off - **Cool**
1 = Heating only	Off - **Heat**
2 = Cooling with reheat	Off – **Auto** – Heat – Cool
3 = Heating with reheat	Off - **Heat**
4 = Cooling and Heating (2 modulating outputs)	Off – **Auto** – Heat – Cool
5 = Cooling / Heating (2 modulating outputs) with reheat	Off – **Auto** – Heat – Cool

Configuration parameters Default value	Significance and adjustments
Com Addr Thermostat networking address Default value = **4** **Range is:** 0 to 254	**Conditional parameter to BACnet MS-TP models (VT7200X1000B)** **Conditional parameter to Wireless models (VT7200X1000W)** This parameter will only appear when a BACnet or wireless network adapter is present. If the thermostat is installed as a stand-alone unit or with an Echelon adapter, this parameter will not be used or displayed • For BACnet MS-TP models valid range to use is from 1 to 127 • For wireless models valid range is 0 to 254 with a maximum of 40 thermostat per VGG
PAN ID Personal Area Network Identification Default value = 0 **Range is:** 0 to 500	**Conditional parameter to Wireless models (VT7200X1000W)** This parameter will only appear when a wireless network adapter is present. If the thermostat is installed as a stand-alone unit or with a BACnet or Echelon adapter, this parameter will not be used or displayed This parameter (Personal Area Network Identification) is used to link specific thermostats to a single specific Viconics wireless gateway (VWG) For every thermostat reporting to a gateway (maximum of 40 thermostats per gateway), be sure you set the *SAME* PAN ID value both at the gateway and the thermostat(s).
Channel Channel selection Default value = 10 **Range is:** 10 to 26	**Conditional parameter to Wireless models (VT7200X1000W)** This parameter will only appear when a wireless network adapter is present. If the thermostat is installed as a stand-alone unit or with a BACnet or Echelon adapter, this parameter will not be used or displayed This parameter (Channel) is used to link specific thermostats to specific Viconics wireless gateway(s) (VWG) For every thermostat reporting to a gateway (maximum of 40 thermostats per gateway), be sure you set the *SAME* channel value both at the gateway and the thermostat(s). *Viconics recommends using only the 2 last channels (25-2575MHz and 26-2580MHz)* The default value of 10 is *NOT* a valid channel. The valid range of available channel is from 11 to 26
Get From Thermostat Get From another device configuration utility Default value = **0** **Range is:** 0 to 254	**Conditional parameter to Wireless models (VT7200X1000W)** This parameter will only appear when a wireless network adapter is present. If the thermostat is installed as a stand-alone unit or with a BACnet or Echelon adapter, this parameter will not be used or displayed This function is used when you want to copy all the configuration parameters automatically from another thermostat of the **SAME** model communicating on the **SAME** network. Configuration parameters copied **from another device** during this process are marked below with an **(*)**. The thermostat will begin querying the network 30 seconds after this parameter is given an address to query. If the device queried is not online yet, the thermostat will continue querying the specified device for its properties every 30 seconds until it comes on line and gets the requested information. If the specified address is unused and does not exist, the thermostat repeat its query every 30 seconds indefinitely. When the thermostat receives the configuration information, the query for configuration is disabled. The only way to re-enable the request for the configuration properties is by changing the actual address of the queried device to another value. The default value of 0 is *NOT* a valid address and disables this function. If the specified thermostat is of a different model, the query will be disabled automatically. The only way to re-enable the request for the configuration properties is by changing the actual address of the queried device to another value and to use a valid address used by a thermostat of the **SAME** model number.

BI1 * Binary input no.1 configuration **Default value =** None	**(None):** No function will be associated with the input **(Rem NSB):** remote NSB timer clock input. The scheduling will now be set as per the binary input. It provides low cost setback operation via occupancy sensor or from a dry contact **(Motion NO):** remote NSB through motion detector input. The scheduling will now be set as per the binary input. Contact opened = Unoccupied. When the contact toggles closed, the thermostat goes into occupied mode for the time specified by ToccTime. The timer can only reset through new movements at the end of its cycle. **(Motion NC):** remote NSB through motion detector input. The scheduling will now be set as per the binary input. Contact closed = Unoccupied. When the contact toggles opened, the thermostat goes into occupied mode for the time specified by ToccTime. The timer can only reset through new movements at the end of its cycle. *Motion NO or Motion NC will disable any local override function (central keypad key or through BI2)* **(Window)** EMS: Forces the system to disable any current heating or cooling action by the thermostat. The mode stays the same and the current setpoints are the same Occupied setpoints. Only the outputs are disabled. There is a Door/Window alarm displayed on the thermostat to indicate to the local tenant that the door/window needs to be closed for cooling or heating to resume. • Closed contact = Window closed, outputs enabled • Opened contact = Window opened, outputs disabled *A hold on the current PI loop is enabled*
BI2 * Binary input no.2 configuration Default value = **None**	**(None):** No function will be associated with the input **(Door Dry) Door contact & Motion detector:** This configuration only has effect if OCCUPANCY input is set to **Motion NO** or **Motion NC.** Occupancy input is connected to motion detector & BI2 input is connected to door contact. With this sequence enabled, the occupancy is now dictated through those 2 inputs. Any motion detected will set the zone to occupied status. The zone will remain permanently in occupied mode until a door toggle is detected; the thermostat will then go in unoccupied mode. If more movements are detected, the occupancy mode will resume. If the door stays open more than (X = doortime) there is a maid in the room; the zone will remain unoccupied. • Closed contact = Door closed, • Opened contact = Door opened **(RemOVR):** temporary occupancy contact. Disables all override menu function of the thermostat. . The override function is now controlled by a manual remote momentarily closed contact. When configured in this mode, the input operates in a toggle mode. With this function enabled it is now possible to toggle between unoccupied & occupied setpoints for the amount of time set by parameter (TOccTime) temporary occupancy time. When enabled, the Override function on the central keypad is disabled. **(Filter):** a backlit flashing Filter alarm will be displayed on the thermostat LCD screen when the input is energized. It can be tied to a differential pressure switch that monitor filters **(Service):** a backlit flashing Service alarm will be displayed on the thermostat LCD screen when the input is energized. It can be tied in to the AC unit control card, which provides an alarm in case of malfunction.
UI3 * Universal input no.3 configuration Default value = **None**	**(None):** No function will be associated with the input **(COC/NH) Change over dry contact. Normally Heat:** Used when both heating and cooling are controlled from the same thermostat output. Contact closes when cold air/water is present. Only used and valid if system parameter (Out1Conf) is set at 2.0 **(COC/NC) Change over dry contact. Normally Cool:** Used when both heating and cooling are controlled from the same thermostat output. Contact closes when hot air/water is present. Only used and valid if system parameter (Out1Conf) is set at 2.0 **(COS) Change over analog sensor:** Used where heating and cooling are controlled from the same output. Temperature in duct/pipe determines control mode (heat/cool) Only used and valid if system parameter (Out1Conf) is set at 2.0 **(SS) Supply air sensor monitoring:** Used for supply air temperature monitoring. Only used for network reporting of the supply air temperature. Has no internal function in the thermostat

MenuScro * **Menu scroll** Default value = **On =** Scroll active	Removes the scrolling display and only present the room temperature/humidity to the user. With this option enabled, no status is given of mode, schedule and outdoor temperature. **On = Scroll active** **Off = Scroll not active**
C or F * Sets the display scale f the thermostat Default value = **°F** Commercial / Institution models only **VT72xxC10xx models only**	**°F** for Fahrenheit scale **°C** for Celsius scale On hotel models, this parameter or function is not available in the list. The function is directly toggled from the front °C / °F key
Lockout Keypad lockout levels Default value = **0 No lock**	

Level	Occupied temperature setpoints	Unoccupied Override
0	Yes access	Yes access
1	Yes access	No access
2	Level not used	
3	Level not used	
4	No access	Yes access
5	No access	No access

Out1Conf * Output # 1 configuration Default is: **4.0** (2 control outputs, no changeover)	Defines the type of operation needed for Output #1 (BO1 & BO2) **2.0,** will limit the number of sequences of operation available from 0 to 3 Will enable heat/cool operation from the same output (refer to wiring diagram) **4.0**, can access all the sequences of operation from 0 to 5 Will enable heat/cool operation from different output (refer to wiring diagram)
CntrlTyp * Control type for Triac models Default is: **Floating**	Defines the type of control output for the type of valves installed **VT7200C10xx only** **On/Off** is for normally opened or normally closed 24 Vac 2 position valves **Floating** is for modulating 3 wires control of 24 Vac floating valves

SeqOpera Sequence of operation Default is: **Sequence #1**	Single output application (Out1Conf) = 2.0)	Dual output application (Out1Conf) = 4.0)
0 = Cooling Only	Yes access	Yes access
1 = Heating only	Yes access	Yes access
2 = Cooling with Reheat	Yes access	Yes access
3 = Heating with Reheat	Yes access	Yes access
4 = Cool and Heat, 2 outputs	No access	Yes access
5 = Cool and Heat, 2 outputs with Reheat	No access	Yes access

	For single output applications, the system access is also limited if UI3 is configured for local changeover COS, COC/NC or COC/NC. The system mode available for the local configuration or network write is then limited by the current water temperature detected by the UI3.
Unocc HT Unoccupied heating setpoint Default value = **62 °F**	Heating setpoint range is: **40 to 90 °F (4.5 to 32.0 °C)**
Unocc CL Unoccupied cooling setpoint limit Default value = **80 °F**	Cooling setpoint range is: **54 to 100 °F (12.0 to 37.5 °C)**
heat max * Maximum heating setpoint limit Default value = **90 °F (32 °C)**	Maximum occupied & unoccupied heating setpoint adjustment. Heating setpoint range is: **40 to 90 °F (4.5 to 32.0 °C)**
cool min * Minimum cooling setpoint limit Default value = **54 °F (12 °C)**	Minimum occupied & unoccupied cooling setpoint adjustment. Cooling setpoint range is: **54 to 100 °F (12.0 to 37.5 °C)**
Set Type * Temporary setpoint enable Default is : **Permnent** Enables temporary setpoints feature to any change of occupied or unoccupied setpoint.	**Temporar**: (temporary) Setpoint will revert back to their default value after internal timer ToccTime expires. To change setpoints permanently, revert to **No** this variable or write through the network. Any setpoints written through the network will be permanent ones and written to EEPROM. **Permnent**: (permanent) Any change of occupied or unoccupied setpoints through the keypad by the user are permanent and written to RAM & EEPROM

TOccTime * Temporary occupancy time Default value = **2 hours**	Temporary occupancy time with occupied mode setpoints when override function is enabled When the thermostat is in unoccupied mode, function is enabled with either the menu or BI1 or BI2 configured as remote override input. **0,1, 2, 3, 4, 5, 6, 7, 8, 9, 10, & up to 24 hours**
DoorTime * Forces Unoccupied mode if door stays open more than: Default value = **2 minutes**	If BI 1 is configured for motion detector and occupancy sensor. If the door stays open more than this variable on BI 2 and there is movement in the room; the zone will remain in unoccupied mode for the Maid. **1, 2, 3, 4, 5, 6, 7, 8, 9, 10 minutes**
deadband * Minimum deadband Default value = **2.0 °F (1.0 °C)**	Minimum deadband value between the heating and cooling setpoints. If modified, it will be applied only when any of the setpoints are modified. **2, 3, 4 or 5 °F, 1.0 °F increments (1.0 to 2.5 °C, 0.5 °C increments)**
cal RS Room air temperature sensor calibration Default value = **0.0 °F or °C**	Offset that can be added/subtracted to actual displayed room temperature **± 5.0 °F, 1.0 °F increments (± 2.5 °C, 0.5 °C increments)**
aux cont * Auxiliary contact function & configuration Default value = **0** Not Used	**0 Aux contact function not used or used for reheat** *IF SEQUENCE IS SET TO REHEAT THROUGH NETWORK OR LOCAL*, Ignore this parameter (Sequence 2, 3 or 5) **The output will directly follow the occupancy of the thermostat** 1 Auxiliary NO, Occupied = Contact Closed / Unoccupied = Contact Opened 2 Auxiliary NC, Occupied = Contact Opened / Unoccupied = Contact Closed (3 & 4 are not used) **Output to follow secondary network occupancy command** 5 Auxiliary On/Off control through auxiliary network command. The output can be commanded through the network for any required auxiliary functions through a separate & dedicated network variable.
FL time * Floating actuator timing **VT72xxC10xx models only** Default value: **1.5 minutes**	Maximum stroke time of floating valve actuator. 0.5 to 9.0 in 0.5 minutes increment
cph * On/Off devices cycles per hour Default value = **4 C.P.H.**	Will set the maximum number cycles per hour under normal control operation. It represents the maximum number of cycles that the equipment will turn ON and OFF in one hour. Note that a higher C.P.H will represent a higher accuracy of control at the expense of wearing mechanical components faster. **3, 4, 5, 6,7 & 8 C.P.H.**
RA/DA * Reverse acting or Direct acting signal for Analog output signals **VT72xxF10xx models only** Default value: **DA signal**	Changes the action of the analog outputs on the analog models. DA = Direct acting 0 to 100 % = 0 to 10 Vdc RA = Reverse acting 0 to 10 % - 10 to 0 Vdc
Reheat * Sets the time base for the reheat output if used Default value: **0= 15 minute**	Sets the reheat output time base Valid only if reheat sequences are enabled **0=** 15 minutes **1=** 10 seconds for Solid state relays
UI3 dis Display supply or changeover temperature when UI 3 is configured as an analog input (SS or COS)	Used as diagnostic / service help to troubleshoot and diagnose sensor operation

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
Sensor:	Local 10 K NTC thermistor
Resolution:	± 0.1 °C (± 0.2 °F)
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 range	-40 °C to 50 °C (-40 °F to 122 °F)
Proportional band for room temperature control:	Cooling & Heating: 1.8°C (3.2°F)
Binary inputs:	Dry contact across terminal BI1, BI2 & UI3 to Scom
Contact output 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

Drawing & dimensions
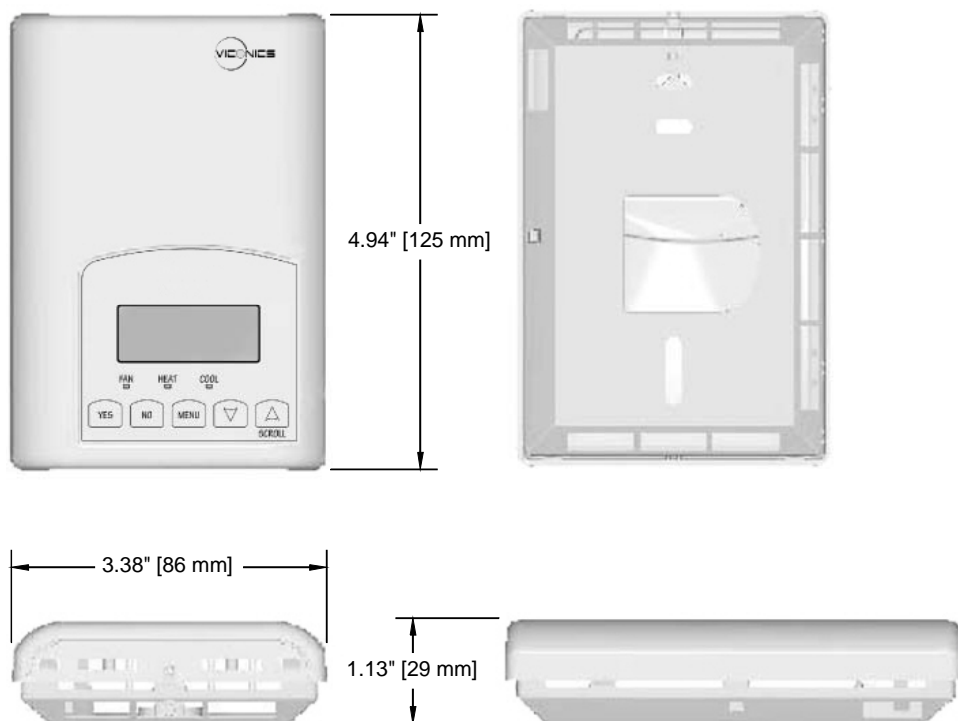

4.94" [125 mm]

3.38" [86 mm]

1.13" [29 mm]

Fig.13 – Thermostat dimensions

Important notice

All VT7200 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 of the devices or miss application of the device will void warranty.

Notes: