



VT7300 Series

24 Vac Low Voltage Fan Coil Thermostats For Commercial and Lodging HVAC Applications

(Issue Date: August 10, 2007 – 028-0125 R6)

Product overview

The VT7300 PI thermostat family is specifically designed for fan coil 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.

Models are available for On/Off, 3 point floating and analog 0 to 10 Vdc control.

All models contain can control three, two or single fan speed. 3 additional inputs are also provided for various functions.

All models feature configurable System and Fan button functions to meet all possible applications. They all contain an SPST auxiliary switch that can be used to control lighting or auxiliary reheat.



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

- Information on the LON models (VT73xxX1000E), is available on document ITG-VT7300-LON-Exx
- Information on the BACnet models (VT73xxX1000B), is available on document ITG-VT7300-BAC-Exx

Models available

Viconics number	VT7300A1000	VT7300C1000	VT7350C1000	VT7305A1000	VT7305C1000	VT7355C1000	VT7300F1000	VT7350F1000	VT7305F1000	VT7355F1000
Application	2 & 4 Pipe On/Off	2 & 4 Pipe Floating & On/Off		2 & 4 Pipe On/Off	2 & 4 Pipe Floating & On/Off		2 & 4 Pipe Analog 0-10 Vdc			
RH sensor	No	No	Yes	No	No	Yes	No	Yes	No	Yes
Market	Commercial / Institution			Hotels / Lodging			Commercial / Institution		Hotels / Lodging	

Features and benefits

Features	Benefits
• 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 configuration setup 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, Floating or Analog control	⇒ Meet advanced applications requirements
• Auxiliary output	⇒ Can be used for lighting or reheat

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**.
B11 is connected to a motion detector & B12 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.

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 not 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.

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 wiring **(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.



- 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 possess 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 VT7000 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.

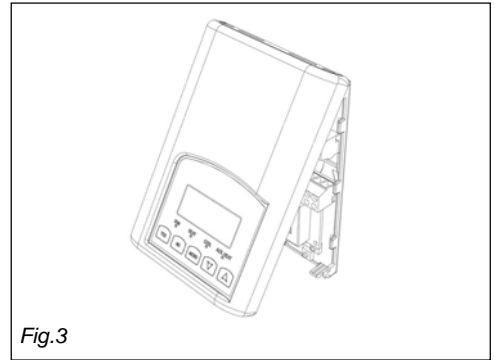


Fig.3

Location of PCB retaining tabs

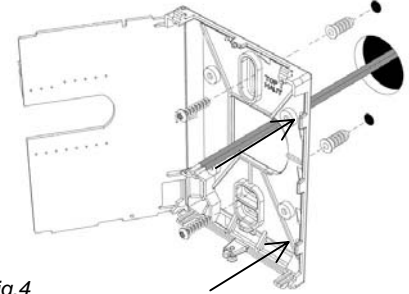


Fig.4

Re-install terminal blocks

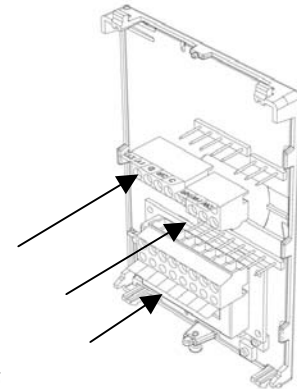


Fig.5

Thermostat assembly
(VT7300F1000 shown)

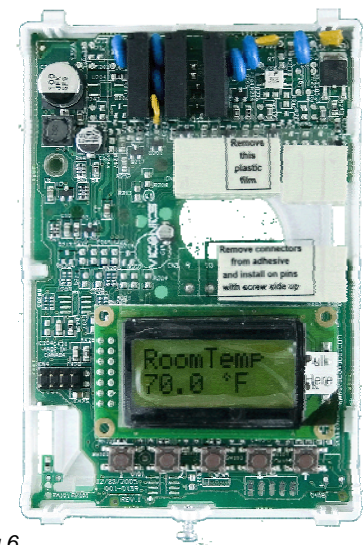


Fig.6

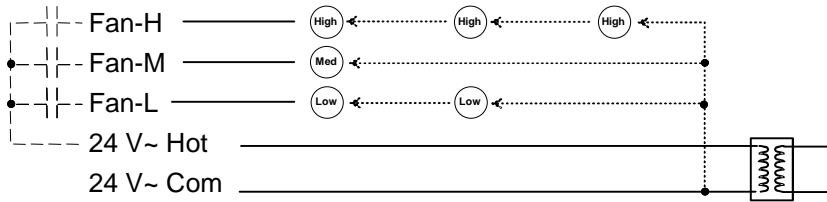
Terminal identification

Viconics number	VT73xxA10xx	VT73xxC10xx	Viconics number	VT73xxF10xx
Description / application	2 & 4 Pipe On/Off	2 & 4 Pipe Floating 2 & 4 Pipe On/Off	Description / application	2 & 4 Pipe Analog
Internal temperature	X	X	Internal temperature	X
Internal humidity		Model dependent	Internal humidity	Model dependent
1- High Fan Speed	Fan-H	Fan-H	1- High Fan Speed	Fan-H
2- Medium Fan Speed	Fan-M	Fan-M	2- Medium Fan Speed	Fan-M
3- Low Fan Speed	Fan-L	Fan-L	3- Low Fan Speed	Fan-L
4- 24 V~ Hot	24 V~ Hot	24 V~ Hot	4- 24 V~ Hot	24 V~ Hot
5- 24 V~ Com	24 V~ Com	24 V~ Com	5- 24 V~ Com	24 V~ Com
6- Aux BO 5	BO 5-Aux	BO 5-Aux	6- Aux BO 5	BO 5-Aux
7- Aux BO 5	BO 5-Aux	BO 5-Aux	7- Aux BO 5	BO 5-Aux
8- BO 3 Open Heat	BO 3	BO 3		
9- BO 4 Close Heat		BO 4	9- AO 2 Heat	AO 2
10- BO 1 Open Cool		BO 1	10- AO 1 Cool	AO 1
11- BO 2 Close Cool	BO 2	BO 2	Not used Blank	Blank
12- BI #1	BI 1	BI 1	12- BI #1	BI 1
13- RS	RS	RS	13- RS	RS
14- Scom	Scom	Scom	14- Scom	Scom
15- BI #2	BI 2	BI 2	15- BI #2	BI 2
16- UI #3 COS / COC /SS	UI 3	UI 3	16- UI #3 COS / COC /SS	UI 3

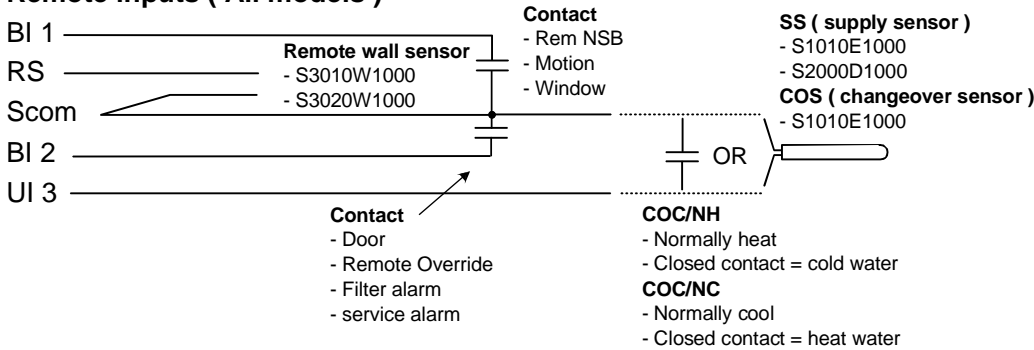
Wiring

Power & Fan (All models)

24 V~ transformer relay pack
3 speed 2 speed Single speed

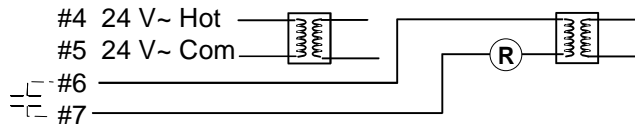


Remote inputs (All models)

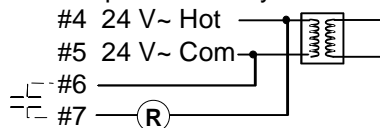


Auxiliary output (All models)

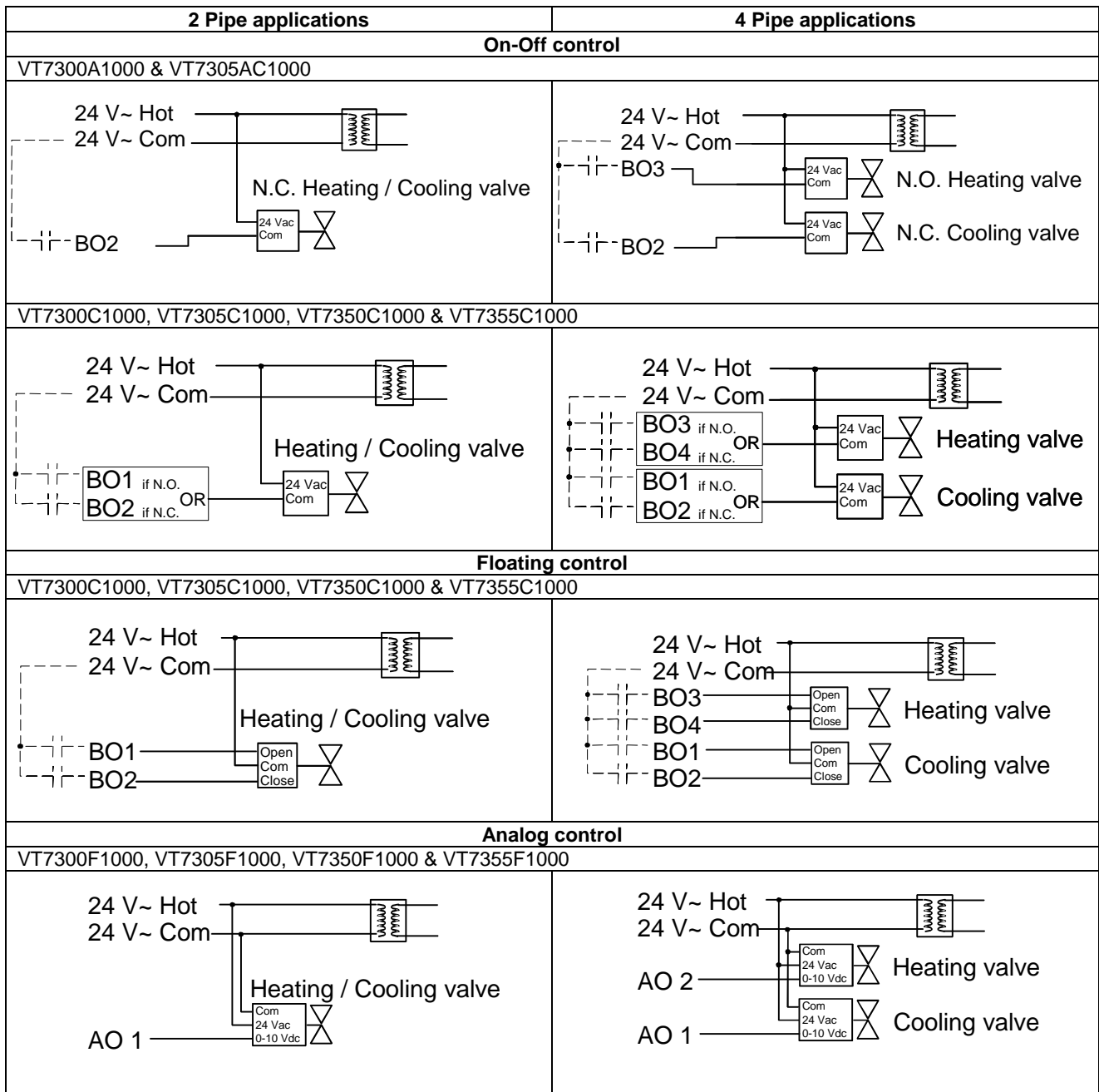
- Dry contact to end device 24 V~ maximum



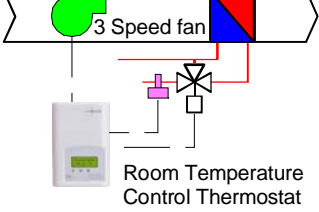
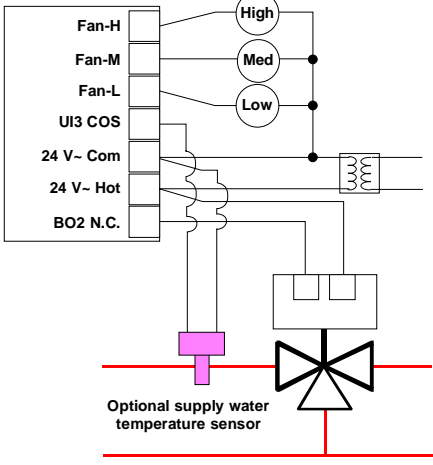
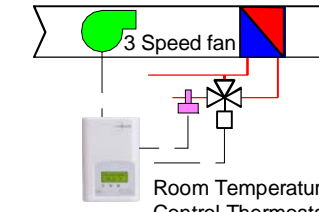
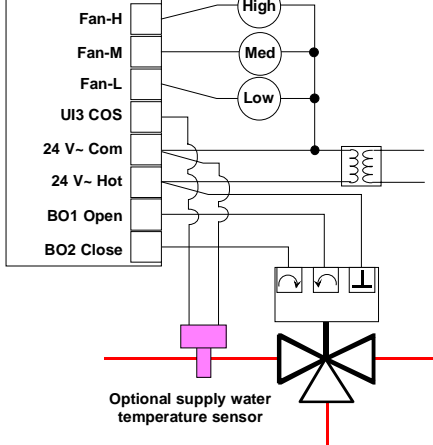
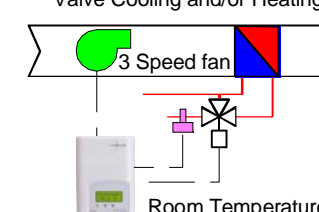
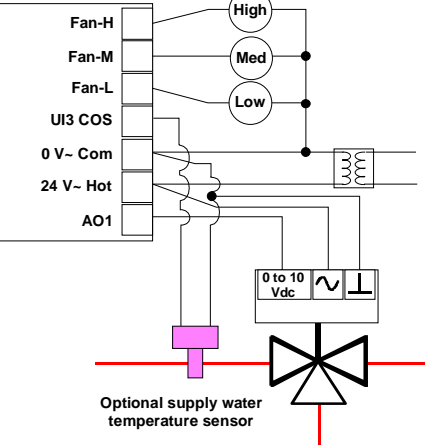
- 24 Vac power to relay

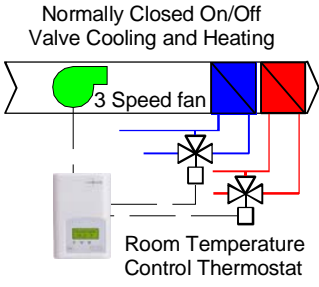
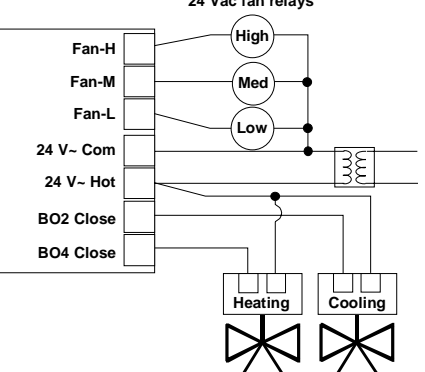
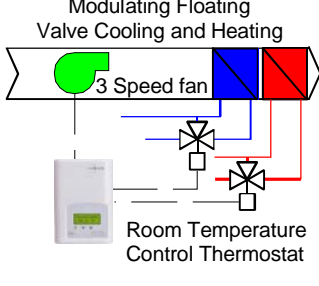
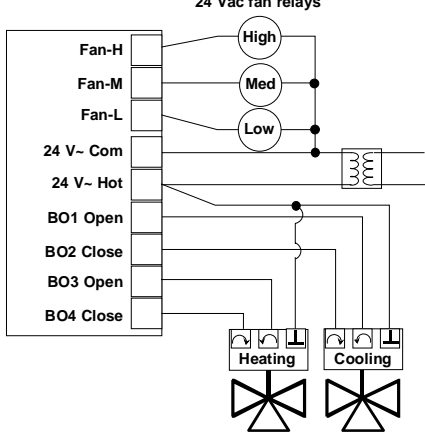
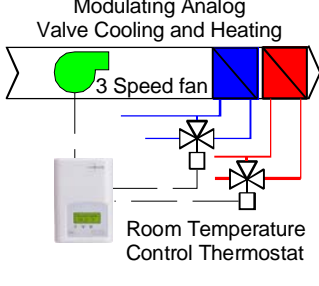
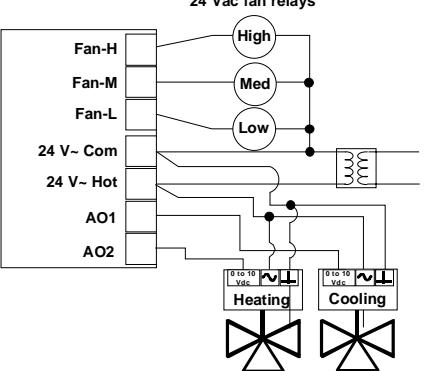
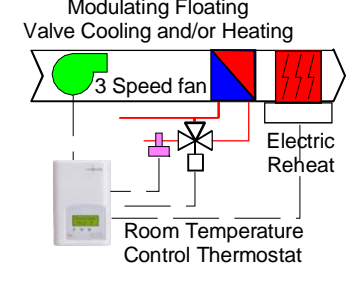
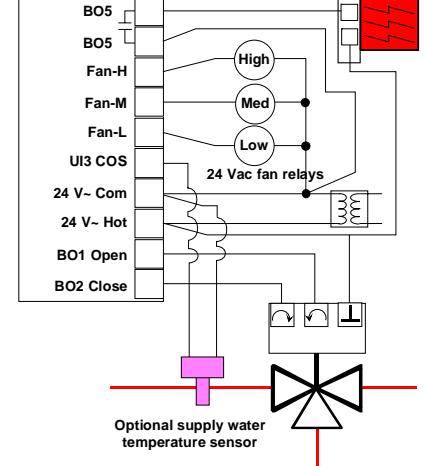


Main outputs wiring



Typical applications

Schematic	Wiring	Settings
<p data-bbox="94 157 414 273">Normally Closed On/Off Valve Cooling and/or Heating</p>  <p data-bbox="219 441 397 493">Room Temperature Control Thermostat</p>	<p data-bbox="698 189 828 210">24 Vac fan relays</p>  <p data-bbox="609 609 787 651">Optional supply water temperature sensor</p>	<p data-bbox="982 178 1104 199">Mandatory</p> <ul data-bbox="982 210 1282 325" style="list-style-type: none"> • Pipe no = 2 pipes • CntrlTyp = On/Off • Fan Menu = 0 (L-M-H) • FL time = <i>as per actuator</i> <p data-bbox="982 346 1193 367">If cooling only set::</p> <ul data-bbox="982 378 1299 409" style="list-style-type: none"> • SeqOpera = 0 Cooling only <p data-bbox="982 430 1193 451">If heating only set::</p> <ul data-bbox="982 462 1299 493" style="list-style-type: none"> • SeqOpera = 1 Heating only <p data-bbox="982 514 1315 598">If heat / cool auto-changeover with a local water temperature sensor set:</p> <ul data-bbox="982 609 1315 661" style="list-style-type: none"> • SeqOpera = 0 Cooling only • UI3 = COS
<p data-bbox="94 718 414 833">Modulating Floating Valve Cooling and/or Heating</p>  <p data-bbox="219 1001 397 1033">Room Temperature Control Thermostat</p>	<p data-bbox="698 770 828 791">24 Vac fan relays</p>  <p data-bbox="609 1190 787 1232">Optional supply water temperature sensor</p>	<p data-bbox="982 739 1104 760">Mandatory</p> <ul data-bbox="982 770 1282 886" style="list-style-type: none"> • Pipe no = 2 pipes • CntrlTyp = Floating • Fan Menu = 0 (L-M-H) • FL time = <i>as per actuator</i> <p data-bbox="982 907 1193 928">If cooling only set::</p> <ul data-bbox="982 938 1299 970" style="list-style-type: none"> • SeqOpera = 0 Cooling only <p data-bbox="982 991 1193 1012">If heating only set::</p> <ul data-bbox="982 1022 1299 1054" style="list-style-type: none"> • SeqOpera = 1 Heating only <p data-bbox="982 1075 1315 1159">If heat / cool auto-changeover with a local water temperature sensor set:</p> <ul data-bbox="982 1169 1282 1222" style="list-style-type: none"> • SeqOpera = 0 Cooling only • UI3 = COS
<p data-bbox="94 1278 414 1394">Modulating Analog Valve Cooling and/or Heating</p>  <p data-bbox="219 1562 397 1593">Room Temperature Control Thermostat</p>	<p data-bbox="698 1331 828 1352">24 Vac fan relays</p>  <p data-bbox="609 1751 787 1793">Optional supply water temperature sensor</p>	<p data-bbox="982 1320 1104 1341">Mandatory</p> <ul data-bbox="982 1352 1282 1425" style="list-style-type: none"> • Pipe no = 2 pipes • Fan Menu = 0 (L-M-H) • RA/DA = <i>as per actuator</i> <p data-bbox="982 1446 1193 1467">If cooling only set::</p> <ul data-bbox="982 1478 1299 1509" style="list-style-type: none"> • SeqOpera = 0 Cooling only <p data-bbox="982 1530 1193 1551">If heating only set::</p> <ul data-bbox="982 1562 1299 1593" style="list-style-type: none"> • SeqOpera = 1 Heating only <p data-bbox="982 1614 1315 1698">If heat / cool auto-changeover with a local water temperature sensor set:</p> <ul data-bbox="982 1709 1282 1761" style="list-style-type: none"> • SeqOpera = 0 Cooling only • UI3 = COS

Schematic	Wiring	Settings
<p>4 pipe system cooling and heating (VT7300C1000 & VT7305C1000) On / Off N.C. actuators</p> <p>Normally Closed On/Off Valve Cooling and Heating</p>  <p>3 Speed fan</p> <p>Room Temperature Control Thermostat</p>	<p>24 Vac fan relays</p>  <p>Fan-H</p> <p>Fan-M</p> <p>Fan-L</p> <p>24 V- Com</p> <p>24 V- Hot</p> <p>BO2 Close</p> <p>BO4 Close</p> <p>High</p> <p>Med</p> <p>Low</p> <p>Heating</p> <p>Cooling</p>	<p>Mandatory</p> <ul style="list-style-type: none"> • Pipe no = 4 pipes • CntrlTyp = On/Off • Fan Menu = 0 (L-M-H) • FL time = <i>as per actuator</i> • SeqOpera = 4 Cool/Heat
<p>4 pipe system cooling and heating (VT7300C1000 & VT7305C1000) Floating actuators</p> <p>Modulating Floating Valve Cooling and Heating</p>  <p>3 Speed fan</p> <p>Room Temperature Control Thermostat</p>	<p>24 Vac fan relays</p>  <p>Fan-H</p> <p>Fan-M</p> <p>Fan-L</p> <p>24 V- Com</p> <p>24 V- Hot</p> <p>BO1 Open</p> <p>BO2 Close</p> <p>BO3 Open</p> <p>BO4 Close</p> <p>High</p> <p>Med</p> <p>Low</p> <p>Heating</p> <p>Cooling</p>	<p>Mandatory</p> <ul style="list-style-type: none"> • Pipe no = 4 pipes • CntrlTyp = Floating • Fan Menu = 0 (L-M-H) • FL time = <i>as per actuator</i> • SeqOpera = 4 Cool/Heat
<p>4 pipe system cooling and heating (VT7300F1000 & VT7305F1000) Analog actuators</p> <p>Modulating Analog Valve Cooling and Heating</p>  <p>3 Speed fan</p> <p>Room Temperature Control Thermostat</p>	<p>24 Vac fan relays</p>  <p>Fan-H</p> <p>Fan-M</p> <p>Fan-L</p> <p>24 V- Com</p> <p>24 V- Hot</p> <p>AO1</p> <p>AO2</p> <p>High</p> <p>Med</p> <p>Low</p> <p>Heating</p> <p>Cooling</p>	<p>Mandatory</p> <ul style="list-style-type: none"> • Pipe no = 4 pipes • Fan Menu = 0 (L-M-H) • RA/DA = <i>as per actuator</i> • SeqOpera = 4 Cool/Heat
<p>2 pipe system cooling or heating with reheat (VT7300C1000 & VT7305C1000) Floating actuator</p> <p>Modulating Floating Valve Cooling and/or Heating</p>  <p>3 Speed fan</p> <p>Room Temperature Control Thermostat</p> <p>Electric Reheat</p>	<p>24 Vac fan relays</p>  <p>BO5</p> <p>BO5</p> <p>Fan-H</p> <p>Fan-M</p> <p>Fan-L</p> <p>UI3 COS</p> <p>24 V- Com</p> <p>24 V- Hot</p> <p>BO1 Open</p> <p>BO2 Close</p> <p>High</p> <p>Med</p> <p>Low</p> <p>Heating</p> <p>Cooling</p> <p>Optional supply water temperature sensor</p>	<p>Mandatory</p> <ul style="list-style-type: none"> • Pipe no = 2 pipes • CntrlTyp = Floating • Fan Menu = 0 (L-M-H) • FL time = <i>as per actuator</i> • SeqOpera = 2 Cool/Reheat • UI3 = COS

Remote sensor accessories

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



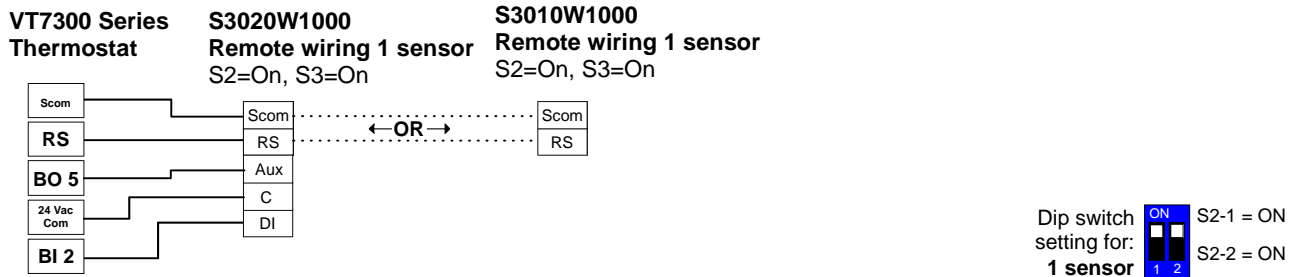
FIG.8 – S3020W1000 WALL MOUNTED SENSOR

Remote mount temperature sensors use 10K type 2 NTC thermistors.

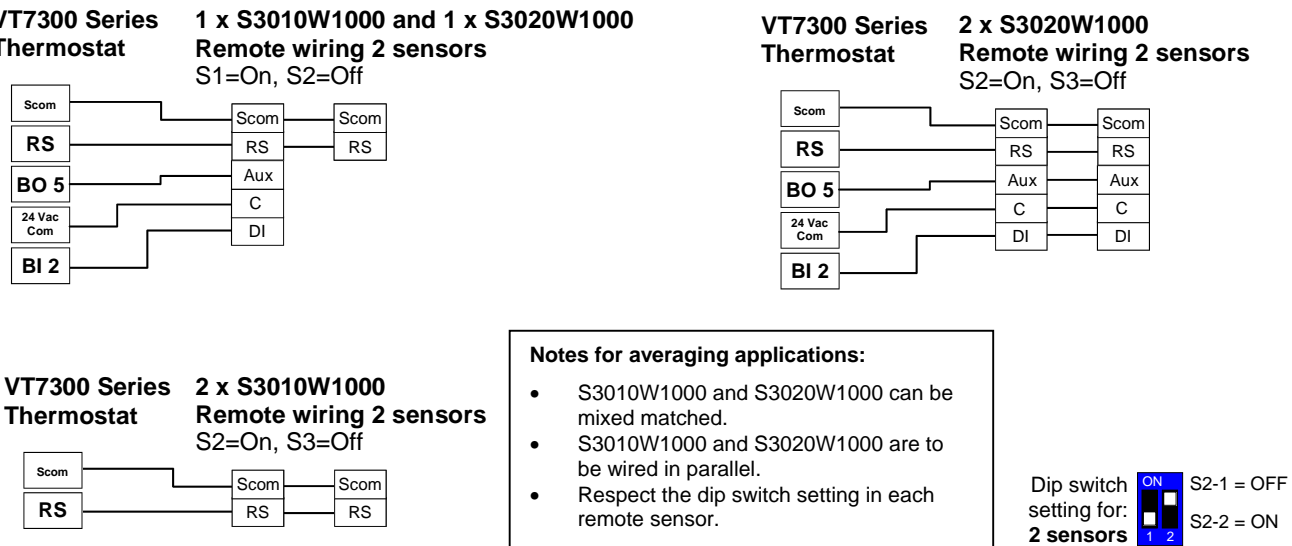
Features:

- Each sensor can be configured for various averaging combinations
- Optional occupancy led
- Optional override key

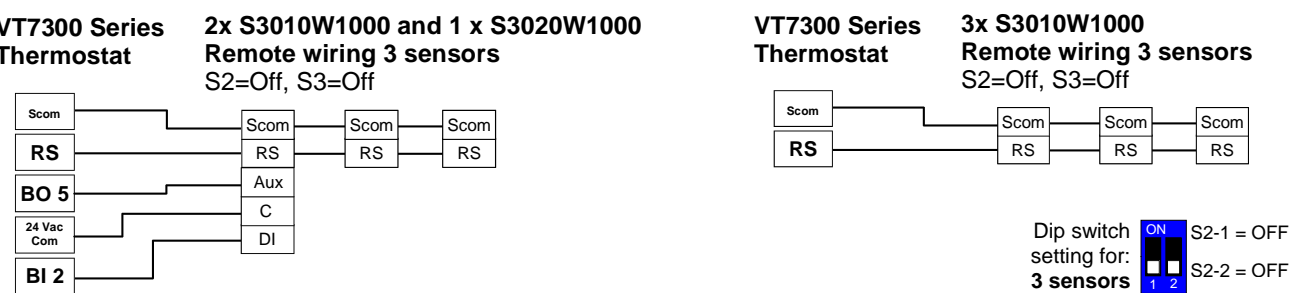
Wiring example of single remote room sensor:



Wiring examples of 2 remote room sensors for averaging applications:



Wiring examples of 3 remote room sensors for averaging applications:



Temperature vs resistance chart for 10 Kohm NTC thermistor ($R_{25^{\circ}\text{C}} = 10\text{K}\Omega \pm 3\%$, $B_{25/85^{\circ}\text{C}} = 3975\text{K} \pm 1.5\%$)

°C	°F	Kohm	°C	°F	Kohm	°C	°F	Kohm	°C	°F	Kohm	°C	°F	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
x.x °C or °F XX % RH If humidity display enabled	Sys mode Auto	Occupied	Outdoor x.x °C or °F Network value only	Service
RoomTemp x.x °C or °F If humidity display is not enabled	Sys mode Cool	Unoccup		Filter
	Sys mode heat	Override		Window
	Sys mode off			

% RH display is conditional to:

(Humidity display is model and configuration dependent)

- Model with RH sensor built in
- Display function be enabled with RH display parameter. Displayed range is 10 to 90 % RH

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)

Three status LED's on the thermostat cover are used to indicate the status of the fan (any speed), a call for heat, or a call for cooling.

Fan coil models

- When any of the fan speeds are ON, the FAN LED will illuminate.
- When heating & reheat is ON, the HEAT LED will illuminate.
- When cooling is ON, the COOL LED will illuminate.



Fig.11 – Hotel models °C/°F



Fig. 12 Commercial models with Override

Installer configuration parameter menu

Configuration can be done through the network or locally at the thermostat.

- To enter configuration, press and hold the middle button (°C/°F or Override) for 8 seconds
- Press the same middle 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 middle button again.
- The next listed parameter is now displayed

Configuration interface

Fan	Re-starts the configuration parameter list at the beginning
°C/°F	Enters the configuration mode. Press and hold for 8 seconds
Override	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 on commercial models during an Unoccupied period. If the Override option is enabled in the lockout configuration pressing the middle override button will resume occupied setpoints for a time specified by parameter ToccTime

• **Keypad interface**

System	Is used to toggle between the different system mode available as per sequence and menu selected Pressing repetitively the button will toggle between all the available modes Available menus are dependent on selected sequence of operation
Fan	Is used to toggle between the different fan mode available as per sequence and menu selected Pressing repetitively the button will toggle between all the available modes Available menus are dependent on selected sequence of operation and menu selected for Fan
°C/°F Override	❖ Middle key is <ul style="list-style-type: none"> • °C / °F for Hotel models • Override for commercial models
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 <ul style="list-style-type: none"> • Setpoint presented to user is the setpoint from the last action taken by the thermostat or the one currently in use. • If the other setpoint is the one desired, then the MODE button is used to toggle between the current displayed one and the other.
Cool XX.X °F or °C	Heat XX.X °F or °C	No acces to setpoint	Cool XX.X °F or °C or Heat XX.X °F or °C Toggle to (Heat or Cool)with MODE button

- Heat/Cool setpoint toggle with MODE button to be active only in AUTO mode.
- If cooling, heating or off mode is active, function is disabled

• **Unoccupied setpoints adjustments**

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

- **Mode button menu sequence.**

- Modes presented to the user are dependent on sequence of operation selected
- **Default mode** is in **bold** when sequence of operation parameter is changed
- * Auto mode menu can be disabled with (AutoMode) parameter

Sequence selected	Mode Menu
0 = Cooling only	Off - Cool
1 = Heating only	Off - Heat
2 = Cooling With Reheat	Off - <u>Auto</u> * - Heat - Cool
3 = Heating With Reheat	Off - Heat
4 = Cooling / Heating 4 pipes	Off - <u>Auto</u> * - Heat - Cool
5 = Cooling / Heating 4 pipes with Reheat	Off - <u>Auto</u> * - Heat - Cool

* Auto. The Auto mode can be disabled from the menu with the (AutoMode) parameter

- **Available fan button menu sequences.**

Fan button menu configuration	Menu presented are dependent on model used and sequence of operation selected	Default value when sequence toggled
0 Low-Med-High	3 Speed configuration using 3 fan relays (L-M-H)	High
1 Low-High	2 Speed configuration using 2 fan relays (L-H)	High
2 Low-Med-High-Auto	3 Speed configuration with Auto fan speed mode using 3 fan relays (L-M-H)	High
3 Low-High-Auto	2 Speed configuration with Auto fan speed mode using 2 fan relays (L-H)	High
4 On-Auto	Single Speed configuration. Auto is for Fan on demand / On is On all the time	Auto

Auto speed fan mode is also offered in heating mode applications; it will not however have any effect on dehumidification. It will be strictly for noise comfort issues

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 (VT730xX1000B) Conditional parameter to Wireless models (VT730xX1000W) 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 <ul style="list-style-type: none"> • 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 (VT730xX1000W) 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 (VT730xX1000W) 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

<p>Get From Thermostat Get From another device configuration utility Default value = 0 Range is: 0 to 254</p>	<p>Conditional parameter to Wireless models (VT730xX1000W) 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</p> <p>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.</p> <p>Configuration parameters copied from another device during this process are marked below with an (*).</p> <p>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.</p> <p>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.</p> <p>The default value of 0 is NOT a valid address and disables this function.</p> <p>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.</p>
<p>BI1 * Binary input no.1 configuration Default value = None</p>	<p>(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 a dry contact Contact opened = Occupied Contact closed = Unoccupied (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. (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. (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.</p> <p>* these settings will disable the local override function on the thermostat.</p>

<p>BI2 * Binary input no.2 configuration Default value = None</p>	<p>(None): No function will be associated with the input (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. (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. (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 (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</p>
<p>UI3 * Universal input no.3 configuration Default value = None</p>	<p>(None): No function will be associated with the input (COC/NH) Change over dry contact. Normally Heat: Used for hot / cold water or air change over switching in 2 pipe systems. Contact closed = Cold water or air present Contact opened = Hot water or air present Only used and valid if system is setup as 2 pipes. Parameter (Pipe No) set as 2 pipes. (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. (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 > 78 °F = Hot water present If water temperature is < 75 °F = Cold water present (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.</p>
<p>MenuScro * Menu scroll Default value = On = Scroll active</p>	<p>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</p>

AutoMode * Enables Auto menu for Mode button Default value = Off	Enables Auto function for the mode button For sequences 2, 4 & 5 only On = Auto active (Off-Cool-Heat-Auto) Off = auto not active (Off-Cool-Heat)			
C or F * Sets scale of the thermostat Default value = °F	°F for Fahrenheit scale °C for Celsius scale On hotel models, this sets the default value when the thermostat powers up			
%RH disp * Local %RH Display Default value = OFF Models with Humidity sensor only VT735xX10xx models only	RH models only Enables the display of humidity below the room temperature on the display ON = Display %RH OFF = No display of %RH			
Lockout Keypad lockout levels Default value = 0 No lock				
Level	Occupied temperature setpoints	System mode setting	Fan mode setting	Unoccupied Override
0	Yes access	Yes access	Yes access	Yes access
1	Yes access	Yes access	Yes access	No access
2	Yes access	No access	No access	Yes access
3	Yes access	No access	No access	No access
4	No access	No access	No access	Yes access
5	No access	No access	No access	No access
Pipe No * System type installation Number of pipes Default is: 4.0 Pipes	Defines the type of system installed 2.0 Pipes, 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 Pipes, 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 VT7350C10xx, VT7300C10xx, VT7355C10xx and VT7305C10xx 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	System = 2 Pipes		System = 4 Pipes	
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 = Cooling / Heating 4 pipes	No access		Yes access	
5 = Cooling / Heating 4 pipes 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.			
Fan Menu * Mode button menu configuration Default is: Menu #4	Menu presented are dependent on model used and sequence of operation selected			
0 = Low-Med-High	3 Speed configuration using 3 fan relays (L-M-H)			
1 = Low-High	2 Speed configuration using 2 fan relays (L-H)			
2 = Low-Med-High-Auto	3 Speed configuration with Auto fan speed mode using 3 fan relays (L-M-H)			
3 = Low-High-Auto	2 Speed configuration with Auto fan speed mode using 2 fan relays (L-H)			
4 = On-Auto	Single Speed configuration. Auto is for Fan on demand / On is On all the time			

DHumiLCK Dehumidification network lockout Locks out dehumidification variable Default value: On = Authorized	Typically toggled through the network. This variable enables or disables dehumidification based on central network requirements from the BAS front end On = Dehumidification Authorized Off = Dehumidification Not Authorized
%RH set * Dehumidification setpoint Default is 50 % RH	Used only if dehumidification sequence is enabled 30-95% RH
DehuHyst * Dehumidification hysteresis Default is 5 % RH	Humidity control hysteresis. Used only if dehumidification sequence is enabled. 2 to 20% RH
DehuCool * Maximum Dehumidification Cooling output Default is 100 %	Maximum cooling valve position when dehumidification is enabled. This can be used to balance smaller reheat loads installed in regards to the capacity of the cooling coil. Range is : 20 to 100 %
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 : Permnet Enables temporary setpoints feature to any change of occupied or unoccupied setpoint.	Temporar: (temporary) Local changes to the heating or cooling setpoints by the user are temporary. They will remain effective for the duration specified by ToccTime. Setpoints 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. Permnet: (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 UI2 configured as remote override input. 0,1, 2, 3, 4, 5, 6, 7, 8, 9, 10, & up to 24 hours
DoorTime * Default value = 2 minutes	Used only if BI1 is set to Motion NO or NC and BI2 is set to Door Dry . With this option enabled, the thermostat will stay in unoccupied mode when the door is open and remains open by a duration longer than set by this parameter. 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 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)
cal RH Humidity sensor calibration Default value = 0 %RH	Offset that can be added/subtracted to actual displayed humidity by ± 15.0 %RH. Range is : ± 15.0 %RH

<p>aux cont * Auxiliary contact function & configuration Default value = 0 Not Used</p>	<p>0 Aux contact function not used or used for reheat <i>IF SEQUENCE IS SET TO REHEAT THROUGH NETWORK OR LOCAL</i>, Ignore this parameter (Sequence 2, 3 or 5)</p> <p>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</p> <p>Output to follow directly main occupancy and Fan on command Typically used for 2 position fresh air damper applications. 3 Auxiliary NO, Occupied & Fan On = Contact Closed / Unoccupied & Fan On or Off = Contact Opened 4 Auxiliary NC, Occupied & Fan On = Contact Opened / Unoccupied & Fan On or Off = Contact Closed</p> <p>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.</p>
<p>FL time * For floating models VT73xxC10xx only Default value: 1.5 minutes</p>	<p>Floating actuator timing Maximum stroke time of floating valve actuator. 0.5 to 9.0 in 0.5 minutes increment</p>
<p>cph * On/Off devices cycles per hour For On/Off models & sequences Default value = 4 C.P.H.</p>	<p>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.</p>
<p>RA/DA * For Analog models VT73xxF10xx only Default value: DA signal</p>	<p>Reverse acting or Direct acting signal for Analog output signals</p> <ul style="list-style-type: none"> • DA = Direct acting 0 to 100 % = 0 to 10 Vdc • RA = Reverse acting 0 to 100 % = 10 to 0 Vdc
<p>Reheat * Default value: 0 = 15 minute</p>	<p>Sets the reheat output time base Valid only if reheat sequences are enabled 0= 15 minutes 1= 10 seconds for Solid state relays</p>
<p>UI3 dis Display UI3 value.</p>	<p>Used as diagnostic / service help to troubleshoot and diagnose sensor operation Supply or change over temperature when UI3 is configured as an analog input (SS or COS)</p>

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 Scm
Contact output rating:	Fan relay output: 30 Vac, 1 Amp. Maximum, 3 Amp. in-rush Valve triac output: 30 Vac, 1 Amp. Maximum, 3 Amp. in-rush Valve 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

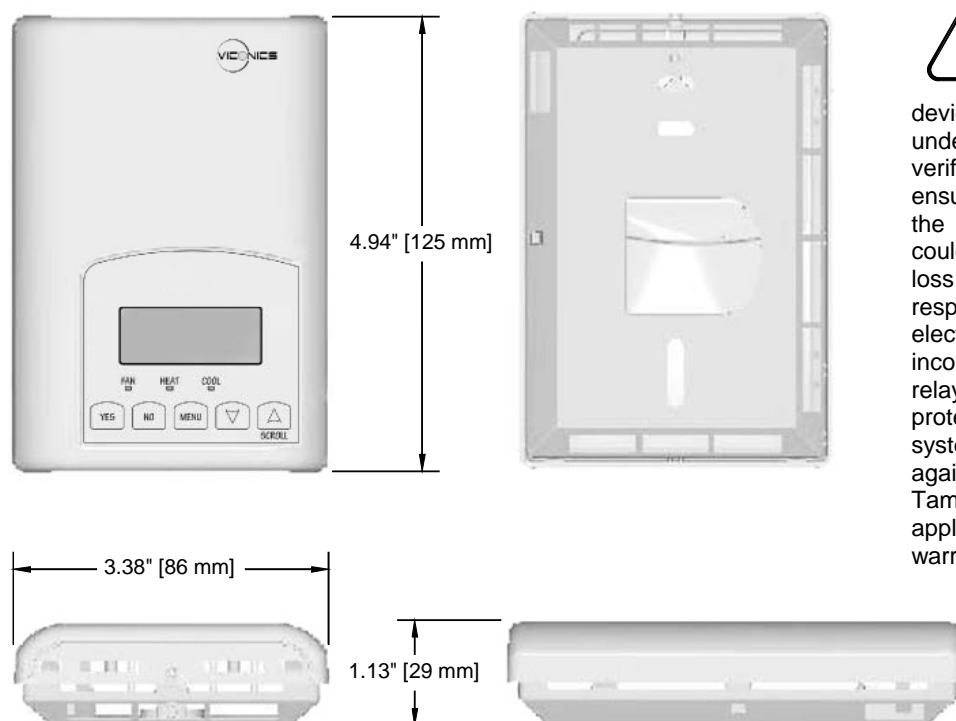


Fig. 13 – Thermostat dimensions

Important notice



All VT7300 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.