VICONICS Beyond Comfort

NETWORK READY

VT7600E Series
RTU Terminal Equipment Controller with IAQ Control
Installation Guide
For Commercial HVAC Applications

February 25th, 2014 / 028-0363-02

Contents

BACnet International

ZigBee® Alliance Wireless Control That Simply Works

Installation

Remove the security screw on the bottom of Terminal Equipment Controller cover.

- Open unit by pulling on the bottom side of Terminal Equipment Controller (Fig. 1).
- Remove wiring terminals from sticker.
- Please read the FCC ID and IC label installed in the cover upon removal of cover for the wireless products.

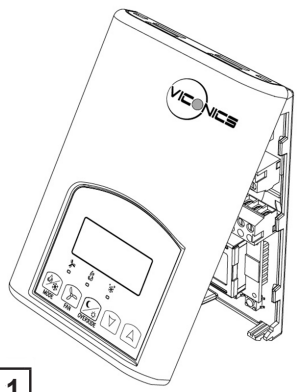


Fig. 1

Location

1. Should not be installed on an outside wall.
2. Must be installed away from any direct heat source.
3. Should not be installed near an air discharge grill.
4. Should not be affected by direct sun radiation.
5. Nothing should restrict vertical air circulation to the Terminal Equipment Controller.

Installation

1. Swing open the Terminal Equipment Controller PCB to the left by pressing the PCB locking tabs (Fig. 2).
2. Pull out cables 6” out from 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. 2).
8. Gently swing back the circuit board on the base and push on it until the tabs lock it.
9. Strip each wire 1/4 inch from end.

Location of PCB retaining tabs

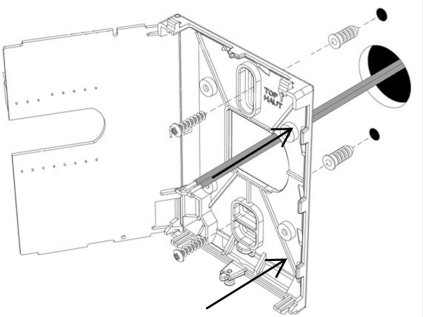


Fig. 2

Re-install terminal blocks

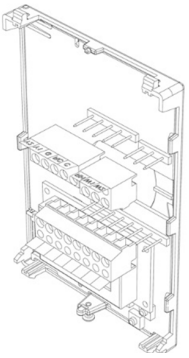


Fig. 3

10. Insert each wire according to wiring diagram.
11. Gently push excess wiring back into hole (Fig. 3).
12. Re-Install wiring terminals in their correct locations (Fig. 3).
13. Re-install the cover (top side first) and gently push extra wire length back into the hole in the wall.
14. Install security screw.

- If replacing an existing Terminal Equipment Controller, label the wires before removal of the Terminal Equipment Controller.
- Electronic controls are static sensitive devices. Discharge yourself properly before manipulating and installing the Terminal Equipment Controller.
- A short circuit or wrong wiring may permanently damage the Terminal Equipment Controller or the equipment.
- All VT7000 series Terminal Equipment Controllers are designed for use as operating controls only and are not safety devices. These instruments have undergone rigorous tests and verification prior to shipping 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 an alarm system to protect the entire system against such catastrophic failures. Tampering with the devices or unintended application of the devices will result in a void of warranty.

Theory of Operation

The VT76X6E series uses a Viconics proprietary adaptive logic algorithm to control the space temperature. This algorithm controls the heating or air conditioning system to minimize overshoot while still providing comfort. It provides exceptional accuracy due to its unique PI time proportioning control algorithm, which virtually eliminates temperature offset associated with traditional, differential-based On-Off thermostats.

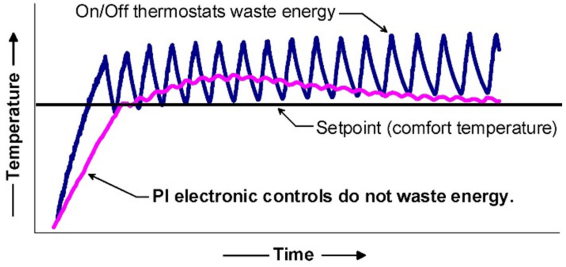


Fig.2 - On-Off mechanical control vs PI electronic control.

Features overview

- 7 day schedule models, 2 or 4 events.
- C02 control logic based on fresh air volume or fresh air damper position.
- Fresh air damper output for building CO2 level control.
- Gas, oil or electric system compatibility.
- Remote outdoor sensing capability for added flexibility.
  - System mode heating and cooling lockout.
- Remote discharge air sensor input for monitoring and control purpose.
  - System efficiency feedback.
  - Discharge high limit heating lockout.
  - Discharge low limit cooling lockout.
- Remote return air sensor input that replaces internal on board sensor.
  - System efficiency feedback.
- Password protected configuration menu and lockable keypads for security.
- Automatic smart fan operation saves energy during unoccupied periods.
- Non volatile EEPROM memory prevents loss of parameters during power shortage.
- Configurable SPST output relay on scheduling models for lighting, exhaust fan or fresh air control.
- 6 hour typical reserve time for clock in case of power loss.

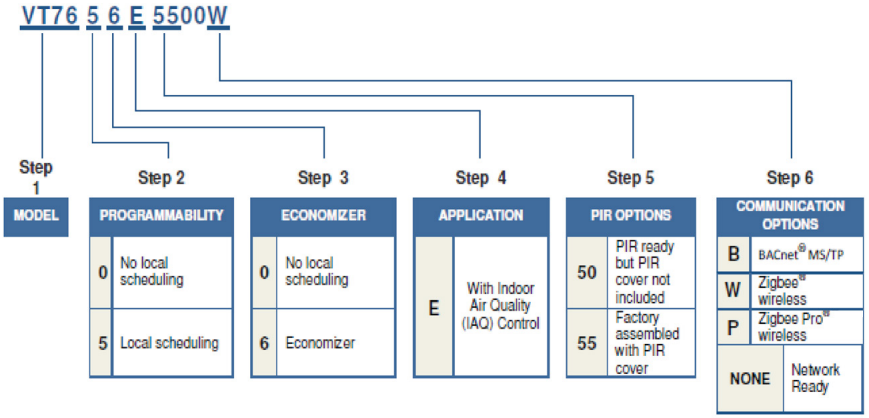
Easy configuration and self-binding operation

- Easy configuration without using any special software or additional tools.
- Can be used as stand-alone or with BACnet™ MS-TP supervision controller for monitoring purposed.
- Truly scalable in terms of supported number of zones and RTU units.

Model Chart

Product Selector

Please refer to the following matrix when ordering



Example:

VT765 6 E 5500W

- **Wireless communication**
- **Factory installed PIR cover**
- **IAQ Control**
- **With Economizer**
- **Local Scheduling**

Please note, not all combinations and variants are available. Refer to the Viconics price list for a complete selection listing of all available models.

Network ready

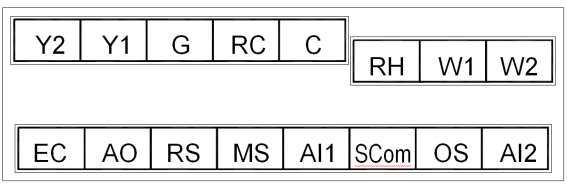
- All Viconics VT7600 series Terminal Equipment Controllers are designed for stand-alone (Network Ready) operation.
- They can be fully integrated into your choice of automation systems using the available communication adapter options.
- If required, stand-alone (Network Ready) Terminal Equipment Controllers can be field retrofitted with the following communication adapters:
  - VCM7600N5000B, Terminal Equipment Controller BACnet™ MS-TP® communication adapter.
  - VCM7600N5000W Terminal Equipment Controller wireless Zigbee™ communication adapter.

Terminal, Identification and Function

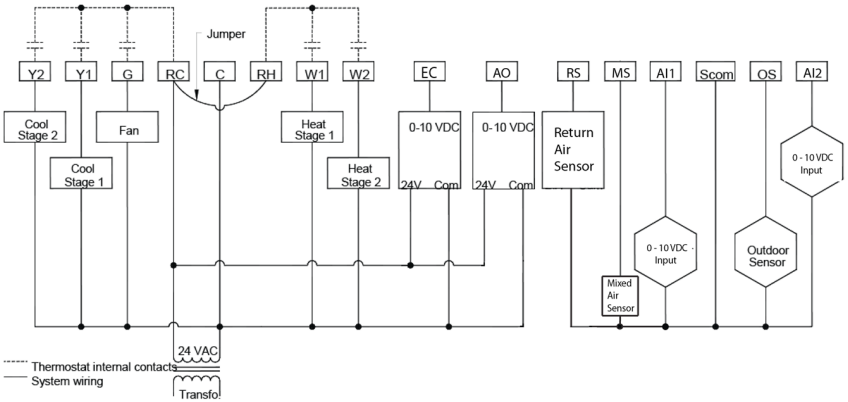
Terminal Use	Terminal Identification	Description
1 – Cool 2	Y2	Output for cooling / compressor stage number 2.
2 – Cool 1	Y1	Output for cooling / compressor stage number 1.
3 - Fan	G	Output for the fan.
4 - 24 V ~ Hot	RC	Power supply of controller, hot side (Delivered from the RTU).
5 - 0 V ~ Com	C	Power supply of controller, common side. Also used as reference for the analog BPD output when used (Delivered from the RTU).
6 – Heat Switch Leg	RH	24 VAC switched leg for the heating stages. • If heating stages are part or RTU, install a jumper across RC & RH. • If heating stages are part of separate equipment with a different power supply, feed external switched power leg through RH ***without*** installing a jumper across RC & RH.
7 – Heat 1	W1	Output for heating stage number 1.
8 – Heat 2	W2	Output for heating stage number 2.
9 – Economizer Output	EC	0-10 VDC analog fresh air damper / economizer output.
10 – Analog Heat Output	AO	0-10 VDC analog heating output.
11 – RS	RS	Return air temperature sensor input. Used when communication is lost. If remote sensor fails, thermostat will use its on-board sensor to control.
12 – MS	MS	Discharge air temperature sensor input
13 – AI1	AI1	0-10 VDC analog input for CO2 transmitter
14 – Scom	Scom	Reference input for AI, RS, OS and DS
15 – OS	OS	Outside air temperature sensor input
16 –AI2	AI2	0-10 VDC analog input for airflow transmitter

Screw terminal arrangement and wiring

Controller terminals:



Typical Applications



Main outputs wiring

Wiring notes:

Note 1: If the same power source is used for the heating stages, install jumper across RC & RH. Maximum current is 2.0 amps.

Note 2: Economizer and all analog outputs and inputs use a half bridge rectifier. Reference of the control signal is the common of the power supply of the Terminal Equipment Controller. (Terminal C).

Note 3: Electromechanical contacts are to be used with the digital inputs. Electronic triacs cannot be used as mean of switching for the input. The switched leg to the input for the input to activate is terminal C (common)

Note 4: The transformer of the unit provides power to the Terminal Equipment Controller and the additional loads that will be wired to the Terminal Equipment Controller.

Remote sensor accessories

Model no.	Description
S2020E1000	Outdoor temperature sensor
S2060A1000	Averaging temperature sensor
S2000D1000	Duct mounted temperature sensor

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

Temperature vs. resistance chart for 10 Kohm NTC thermistor

(R25°C = 10KΩ±3% - B25/85°C = 3975K±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
-39	-38	303.6427	-19	-2	89.2521	1	34	30.6120	21	70	11.9177	41	106	5.1373
-38	-36	284.4189	-18	0	84.3147	2	36	29.1197	22	72	11.4018	42	108	4.9373
-37	-35	266.5373	-17	1	79.6808	3	37	27.7088	23	73	10.9112	43	109	4.7460
-36	-33	249.8958	-16	3	75.3299	4	39	26.3744	24	75	10.4443	44	111	4.5631
-35	-31	234.4009	-15	5	71.2430	5	41	25.1119	25	77	10.0000	45	113	4.3881
-34	-29	219.9666	-14	7	67.4028	6	43	23.9172	26	79	9.5754	46	115	4.2208
-33	-27	206.5140	-13	9	63.7928	7	45	22.7861	27	81	9.1711	47	117	4.0607
-32	-26	193.9703	-12	10	60.3980	8	46	21.7151	28	82	8.7860	48	118	3.9074
-31	-24	182.2686	-11	12	57.2044	9	48	20.7004	29	84	8.4190	49	120	3.7607
-30	-22	171.3474	-10	14	54.1988	10	50	19.7390	30	86	8.0694	50	122	3.6202
-29	-20	161.1499	-9	16	51.3692	11	52	18.8277	31	88	7.7360	51	124	3.4857
-28	-18	151.6239	-8	18	48.7042	12	54	17.9636	32	90	7.4182	52	126	3.3568
-27	-17	142.7211	-7	19	46.1933	13	55	17.1440	33	91	7.1150	53	127	3.2333
-26	-15	134.3971	-6	21	43.8268	14	57	16.3665	34	93	6.8259	54	129	3.1150
-25	-13	126.6109	-5	23	41.5956	15	59	15.6286	35	95	6.5499	55	131	3.0016
-24	-11	119.3244	-4	25	39.4921	16	61	14.9280	36	97	6.2866	56	133	2.8928
-23	-9	112.5028	-3	27	37.5056	17	63	14.2629	37	99	6.0351	57	135	2.7886
-22	-8	106.1135	-2	28	35.6316	18	64	13.6310	38	100	5.7950	58	136	2.6886
-21	-6	100.1268	-1	30	33.8622	19	66	13.0307	39	102	5.5657	59	138	2.5926

S2000D1000; remote duct mounted temperature sensor c/w junction box.

This sensor can be used for:

- Remote return air temperature sensing with the sensor mounted on the return air duct.
- Outside air temperature sensing with the sensor installed in the fresh air plenum.
- Supply air temperature sensing.

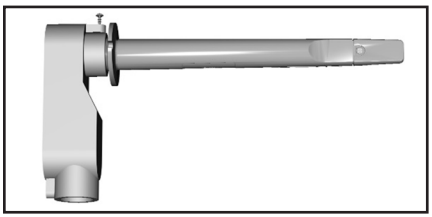


Fig.10 – Remote Duct Mounted Temperature Sensor

S2060A1000; remote averaging duct mounted temperature sensor c/w junction box.

This sensor can be used for:

- Remote averaging return air temperature sensing with the sensor mounted on the return air duct.
- Outside air temperature averaging sensing with the sensor installed in the fresh air plenum.
- Supply air temperature averaging sensor for economizer models with the sensor in the mixing plenum.

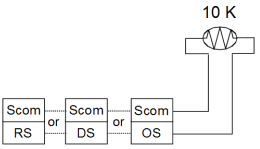
S2020E1000; outdoor air temperature sensor

This sensor can be used for:

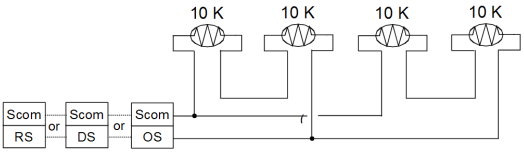
- Outside air temperature sensing with the sensor installed directly exposed to the elements.
- Sensor uses a water resistant NEMA 4 ABS enclosure for outdoor applications.

WIRING S2000D1000, S2060A1000 and S2020E1000

Remote wiring 1 sensor



Remote wiring 4 sensors



Configuration and Status Display Instructions

Status display

The Terminal Equipment Controller features a two-line, eight-character display. There is a low backlight level that is always active and can only be seen at night.

When left unattended, the Terminal Equipment Controller has an auto scrolling display that shows the current status of the system.

Each item is scrolled sequentially with the back lighting in low level mode. Pressing any key will cause the back lighting to come on to high level.

Manual scrolling of each menu item is achieved by pressing the Yes (scroll) key repetitively. The last item viewed will be shown on the display for 30 seconds before returning to automatic scrolling. Temperature is automatically updated when scrolling is held.

Sequence of auto-scroll status display:

CLOCK STATUS	SYSTEM MODE	SCHEDULE STATUS	OUTDOOR TEMPERATURE	ALARMS
Monday 12:00 AM	Sys mode auto	Occupied	Outdoor x.x °C or °F	Frost ON
	Sys mode off	Occupied Hold		SetClock
	Sys mode heat	Unoccup		DAS alarm
	Sys mode cool			FA alarm
				High CO_2

Outdoor air temperature

- Outdoor air temperature display is only enabled when outdoor air temperature sensor is connected.
- A maximum range status display of 50 °C (122 °F) indicates a shorted sensor. Associated functions, such as mode lockouts and economizer function are automatically disabled.
- A minimum range status -40 °C (-40 °F) is not displayed and indicates a opened sensor or a sensor not connected. Associated functions, such as mode lockouts and economizer function are automatically disabled.

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:

Sequence of manual-scroll status display:

Manual scroll of each menu item is achieved by pressing the Yes (scroll) key repetitively. The last item viewed will be shown on the display for 30 seconds before returning to automatic scrolling. Temperature is automatically updated when scrolling is held.

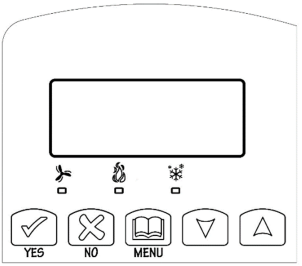
Clock Status	System Mode	Schedule Status	Outdoor Temperature	Alarms (if detected)
Monday 12:00 AM	Sys Mode Off	Occupied	Outdoor xx.x °C or °F	Frost ON
	Sys Mode Auto	Unoccupied		SetClock
	Sys Mode Cool	Override		DAS Alarm
	Sys Mode Heat			FA Alarm
				High CO2

Frost ON	Indicates that the heating is energized by the low limit frost protection room temperature setpoint 5.6 °C (42 °F).
SetClock	Indicates that the clock needs to be reset. There has been a power failure which has lasted longer than 6 hours.
DAS Alarm	Indicates that the discharge air temperature is either too low or too high.
FA Alarm	Indicates that the Fresh Air Level is either too low or too high.
High CO2	Indicates that the CO2 Level value is higher than the Max CO2 parameter value.

User Interface

When any of the fan is 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	

User configuring instructions menu



The VT76X6E series of controllers feature an intuitive, menu-driven, back-lit LCD display that walks users and installers through the configuring steps, making the configuring process extremely simple. This menu is typically accessed by the user to set the parameters such as the clock time set, the schedule time events and the system mode.

It is possible to bring up the user menu at any time by depressing the MENU key. The status display automatically resumes after exiting the user-configuring menu.

If the user pauses at any given time during configuring, **Auto Help** text is displayed to help and guide the user through the usage and configuring of the controller.

Ex.:	Press yes key to change cooling temperature setpoint Use the up or down arrow to adjust cooling setpoint

Local keypad interface

Each of the sections in the menu is accessed and configured using 5 keys on the Terminal Equipment Controller cover.

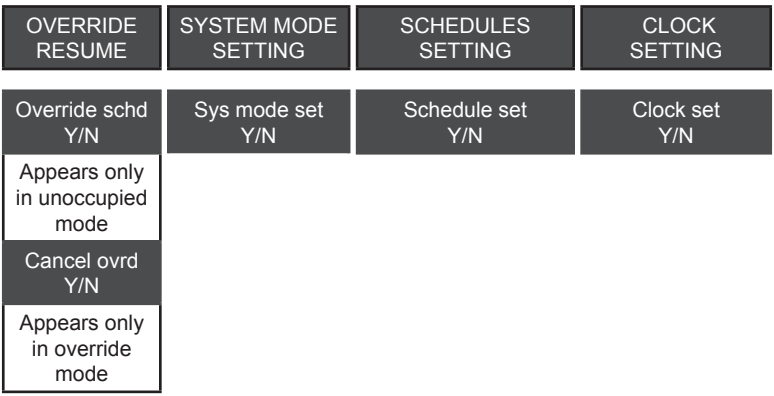
The priority for the alarms is as follows:

YES	The YES key is used to confirm a selection, to move onto the next menu item and to manually scroll through the displayed information.
NO	The NO key is used when you do not desire a parameter change, and to advance to the next menu item. Can also be used to toggle between heating and cooling setpoints.
MENU	The MENU key is used to access the Main User Menu or exit the menu.
	The down arrow key is used to decrease temperature setpoint and to adjust the desired values when configuring the Terminal Equipment Controller.
	The up arrow key is used to increase temperature setpoint and to adjust the desired values when configuring the Terminal Equipment Controller.

When left unattended for 45 seconds, 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 Terminal Equipment Controller is left unattended for 45 seconds

Sequence of user menu:



A) Override an unoccupied period

Override schd Y/N

This menu will appear only when the Terminal Equipment Controller is in unoccupied mode.

Answering yes to this prompt will cause the Terminal Equipment Controller to go into occupied mode for an amount of time equal to the parameter “TOccTime” (1 to 12 hours).

B) Resume regular scheduling

Cancel ovrd Y/N

This menu does not appear in regular operation. It will appear only when the Terminal Equipment Controller is in Unoccupied override mode.

Answering “Yes” to this question will cause the Terminal Equipment Controller to resume the regular setpoints & scheduling.

C) Temperature setpoints

Permanent setpoint changes

Temperat set Y/N

This menu permits the adjustment of all permanent temperature setpoints (occupied and unoccupied) as well as the desired temperature units (°F or °C). Permanent setpoints are written to RAM and EEPROM.

Cooling setpoint Occupied mode	Heating setpoint Occupied mode	Cooling setpoint Unoccupied mode	Heating setpoint Unoccupied mode	°F or °C display setting

Cooling set? Y/N	No next → Yes down ↓	Heating set? Y/N	No next → Yes down ↓	Unocc CL set? Y/N	No next → Yes down ↓	Unocc HT set? Y/N	No next → Yes down ↓	°F or °C set? Y/N	No next → Yes down ↓
Use ▲▼ keys to set value, Yes key to confirm									
Cooling 70.0 °F	Use ▲▼ To set value	Heating 68.00 °F	Use ▲▼ To set value	Unocc CL 80.0 °F	Use ▲▼ To set value	Unocc HT 60.0 °F	Use ▲▼ To set value	Units °F	Use ▲▼ To set value

Temporary setpoint changes

Temporary setpoints can be modified through the Up arrow key (▲) and the Down arrow keys (▼).
User will be prompted with the present mode (Heating or Cooling) of the Terminal Equipment Controller and its setpoint.
The Up (▲) arrow key will increment the setpoint by 0.5 degree (F or C).
The Down (▼) arrow key will decrement the setpoint by 0.5 degree (F or C).

Press the Yes key to accept the new setpoint.
Local changes to the heating or cooling setpoints made by the user directly using the up or down arrow 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.
If a permanent change to the setpoints is required, use the **Temperat set ?** menu

D) System mode setting

Sys mode set Y/N

This menu is accessed to set system mode operation
Use ▲▼ to set value, Yes key to confirm

Sys mode auto	**Automatic mode** Automatic changeover mode between heating and cooling operation
Sys mode cooling	**Cooling mode** Cooling operation mode only
Sys mode heating	**Heating mode** Heating operation mode only
Sys mode emergency	**Emergency heat mode** (heat pump models only) Forced auxiliary heat operation mode only
Sys mode off	**Off mode** Normal cooling or heating operation disabled If enabled in installer parameters, only the automatic heating frost protection at 50 °F (10 °C) is enabled

E) Fan mode setting

Fan mode set Y/N

This section of the menu is permits the setting of the fan mode operation.

Use ▲▼ to set value, Yes key to confirm.

Fan mode On	**On fan mode** Fan is on continuously, even when system mode is OFF.
Fan mode Auto	**Automatic fan mode** Fan cycles on a call for heating or cooling for both occupied & unoccupied periods.
Fan mode Smart	**Smart fan mode** During occupied periods, fan is on continuously. In unoccupied mode, fan cycles on a call for heating or cooling. This selection is available on all models with a communication module, on all stand-alone (Network Ready) scheduling models or if DI1 or DI2 is set to RemNSB on stand-alone non-scheduling models.

F) Schedule set (2 events)

Scheduling can have 2 or 4 events per day. This is set in the configuration menu as per parameter (2/4 event)

Schedule set Y/N

This section of the menu permits the user to set the whether 2 or 4 events is needed.

Each day can be tailored to specific schedules if needed.

• 2 events can be scheduled per day.

• Occupied and unoccupied periods can be set for each day.

Monday timer Schedule set		Tuesday timer Schedule set		Wednesday timer Schedule set		Other days are identical
Monday set? Y/N	No next → Yes down ↓	Tuesday set? Y/N	No next → Yes down ↓	Wednesda set? Y/N	No next → Yes down ↓	Selects the day to be programmed or modified
Yes key to access day scheduling, No key to jump to next day						
Occupied Day? Y/N	No next → Yes down ↓	Occupied Day? Y/N	No next → Yes down ↓	Occupied Day? Y/N	No next → Yes down ↓	Yes = Daily schedules will be accessed No = Unoccupied mode all day
Yes key to access day scheduling, No key to jump to next day						
		Copy Y/N Previous	Yes next → No down ↓	Copy Y/N Previous	Yes next → No down ↓	Yes = Will copy previous day schedule No = Daily schedules will be accessed
Yes key to copy previous day, No key to set new time value for each day						
Occupied 00:00 AM	Use ▲▼ To set value	Occupied 00:00 AM	Use ▲▼ To set value	Occupied 00:00 AM	Use ▲▼ To set value	Sets Event # 1 Occupied time Will activate occupied setpoints
Use ▲▼ to set value, Yes key to confirm						
Unoccup 00:00 AM	Use ▲▼ To set value	Unoccup 00:00 AM	Use ▲▼ To set value	Unoccup 00:00 AM	Use ▲▼ To set value	Sets Event # 2 Unoccupied time Will activate unoccupied setpoints
Use ▲▼ to set value, Yes key to confirm						

Typical examples of a 2 event office schedule

Ex. #1 Office building closed all weekend

Event	Period #1 - Event #1		Period #1 - Event #2		
	Occupied		Unoccupied		
Setpoint	Cool 72 °F	Heat 70 °F	Cool 80 °F	Heat 62 °F	Daily Occupancy
Monday	7.00 AM		6.00 PM		Day time only
Tuesday	7.00 AM		6.00 PM		Day time only
Wednesday	7.00 AM		6.00 PM		Day time only
Thursday	7.00 AM		6.00 PM		Day time only
Friday	7.00 AM		6.00 PM		Day time only
Saturday	12.00 PM *		12.00 PM *		Unoccupied
Sunday	12.00 PM *		12.00 PM *		Unoccupied

* Programming consecutive events to the same time will cause the thermostat to choose the last event as the time at which it will set its schedule. In the above example, the thermostat will control to the unoccupied set point until 7:00 AM Monday.

Ex. #2 Office building open all weekend

Event	Period #1 - Event #1		Period #1 - Event #2		
	Occupied		Unoccupied		
Setpoint	Cool 72 °F	Heat 70 °F	Cool 80 °F	Heat 62 °F	Daily Occupancy
Monday	7.00 AM		6.00 PM		Day time only
Tuesday	7.00 AM		6.00 PM		Day time only
Wednesday	7.00 AM		6.00 PM		Day time only
Thursday	7.00 AM		6.00 PM		Day time only
Friday	7.00 AM		6.00 PM		Day time only
Saturday	12.00 AM		11.59 PM **		Occupied
Sunday	12.00 AM		11.59 PM **		Occupied

** To program a day as occupied for 24 hours, set that day Occupied time to 12:00 AM and Unoccupied time to 11:59 PM There will be a 1 minute unoccupied period every night at 11:59 PM with this schedule configuration.

Note: 12:00 PM = Noon
12:00 AM = Midnight

G) Schedule set (4 events)

Schedule set Y/N

This section of the menu permits the user to set the whether 2 or 4 events is needed. Each day can be tailored to specific schedules if needed.

- 4 events can be scheduled per day.
- Occupied and Unoccupied periods can be set for each day.
- Scheduling the 3rd. & 4th. Events to the same time will cancel the last period.

Monday timer Schedule set		Tuesday timer Schedule set		Wednesday timer Schedule set		Other days are identical
Monday set? Y/N	No next → Yes down ↓	Tuesday set? Y/N	No next → Yes down ↓	Wednesda set? Y/N	No next → Yes down ↓	Selects the day to be programmed or modified
Yes key to access day scheduling, No key to jump to next day						
Occupied Day? Y/N	No next → Yes down ↓	Occupied Day? Y/N	No next → Yes down ↓	Occupied Day? Y/N	No next → Yes down ↓	Yes = Daily schedules will be accessed No = Unoccupied mode all day
Yes key to access day scheduling, No key to jump to next day						
		Copy Y/N Previous	Yes next → No down ↓	Copy Y/N Previous	Yes next → No down ↓	Yes = Will copy previous day schedule No = Daily schedules will be accessed
Yes key to copy previous day, No key to set new time value for each day						
Occupied 00:00 AM	Use ▲▼ To set value	Occupied 00:00 AM	Use ▲▼ To set value	Occupied 00:00 AM	Use ▲▼ To set value	Sets Event # 1 Occupied time Will activate occupied setpoints
Use ▲▼ to set value, Yes key to confirm						
Unoccup 00:00 AM	Use ▲▼ To set value	Unoccup 00:00 AM	Use ▲▼ To set value	Unoccup 00:00 AM	Use ▲▼ To set value	Sets Event # 2 Unoccupied time Will activate unoccupied setpoints
Use ▲▼ to set value, Yes key to confirm						
Occupie2 00:00 AM	Use ▲▼ To set value	Occupie2 00:00 AM	Use ▲▼ To set value	Occupie2 00:00 AM	Use ▲▼ To set value	Sets Event # 3 Occupied time Will activate occupied setpoints
Use ▲▼ to set value, Yes key to confirm						
Unoccu2 00:00 AM	Use ▲▼ To set value	Unoccu2 00:00 AM	Use ▲▼ To set value	Unoccu2 00:00 AM	Use ▲▼ To set value	Sets Event # 4 Unoccupied time Will activate unoccupied setpoints
Use ▲▼ to set value, Yes key to confirm						

Ex. #1 Four event retail establishment schedule

Event	Period #1 - Event #1		Period #1 - Event #2		Period #2 - Event #3		Period #2 - Event #4		
	Occupied		Unoccupied		Occupied		Unoccupied		
Setpoint	Cool 72 °F	Heat 70 °F	Cool 80 °F	Heat 62 °F	Cool 72 °F	Heat 70 °F	Cool 80 °F	Heat 62 °F	Daily Occupancy
Monday	7.00 AM		5.00 PM		12.00 PM *		12.00 PM *		Day time only
Tuesday	7.00 AM		5.00 PM		12.00 PM *		12.00 PM *		Day time only
Wednesday	7.00 AM		5.00 PM		12.00 PM *		12.00 PM *		Day time only
Thursday	7.00 AM		5.00 PM		7.00 PM		10.30 PM		Day/evening time only
Friday	7.00 AM		5.00 PM		7.00 PM		10.30 PM		Day/evening time only
Saturday	12.00 PM *		12.00 PM *		12.00 PM *		12.00 PM *		Occupied
Sunday	12.00 PM *		12.00 PM *		12.00 PM *		12.00 PM *		Occupied

* Programming events to the same time will cancel the last period and leave the controller in unoccupied mode

Ex. #2 Residential

Event	Period #1 - Event #1		Period #1 - Event #2		Period #2 - Event #3		Period #2 - Event #4		
	Occupied		Unoccupied		Occupied		Unoccupied		
Setpoint	Cool 72 °F	Heat 70 °F	Cool 80 °F	Heat 62 °F	Cool 72 °F	Heat 70 °F	Cool 80 °F	Heat 62 °F	Daily Occupancy
Monday	6:00 AM		8:00 AM		4:00 PM		10:00 PM		Day/evening time only
Tuesday	6:00 AM		8:00 AM		4:00 PM		10:00 PM		Day/evening time only
Wednesday	6:00 AM		8:00 AM		4:00 PM		10:00 PM		Day/evening time only
Thursday	6:00 AM		8:00 AM		4:00 PM		10:00 PM		Day/evening time only
Friday	6:00 AM		8:00 AM		4:00 PM		11:30 PM		Day/evening time only
Saturday	8:00 AM **		8:00 AM **		8:00 AM **		11:59 PM **		Day time only
Sunday	12:00 AM **		12:00 AM **		12:00 AM **		11:59 PM **		Occupied all day

** Programming consecutive events to the same time will cause the controller to choose the last event as the time at which it will set its schedule. In the above example for Saturday, the controller will control to the occupied set point from 8:00 AM until 11:59 PM. Since it is desired to be in occupied mode throughout the night, then it is necessary to program the first event on Sunday at 12:00 AM. The controller will force a one minute unoccupied period for a one minute period (between 11:59 PM and 12:00 AM on Saturday).

H) Clock/Day Settings

Clock set Y/N

This section of the menu permits the user to set the time and day.

Time setting		Day setting		Time format setting	
Time set? Y/N	No next → Yes down ↓	Day set? Y/N	No next → Yes down ↓	12/24hrs set? Y/N	No = exit Yes down ↓
Time 0:00	Use ▲▼ To set value	Day Monday	Use ▲▼ To set value	12/24hrs 12 hrs	Use ▲▼ To set value

I) Schedule hold

Schedule hold Y/N

- This menu will only appear on stand-alone (Network Ready) Terminal Equipment Controller, i.e. without a BACnet® Echelon® module.
- This section of the menu permits the user to set a permanent schedule hold, which bypasses the internal Terminal Equipment Controller scheduling.
- The permanent schedule hold function is typically used for nonscheduled events that extend for various periods of time.
- Enabling a permanent occupied or permanent unoccupied schedule hold will cancel any active override.
- The use of temporary setpoints during permanent hold is permitted. The duration of the temporary setpoint is as set per the TOccTime parameter.
- Ex. 3 hours

Use ▲▼ to set value, yes key to confirm

CONFIGURATION PARAMETERS DEFAULT VALUE	SIGNIFICANCE AND ADJUSTMENTS
PswrdSet Configuration parameters menu access password Default value = **0** Range is: 0 to 1000	This parameter sets a password access to prevent unauthorized access to the configuration menu parameters. A default value of “0” will not prompt a password or lock the access to the configuration menu. Range is: 0 to 1000
Com addr Thermostat networking address Default value = 254 Range is: **0 to 254**	**Conditional parameter to BACnet MS-TP models (VT76xxX5x00B)** **Conditional parameter to Wireless models (VT76xxX5x00W)** 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. Default value of 254 disables BACnet communication for the thermostat. - For wireless models valid range is 0 to 254 with a maximum of 30 thermostat per VWG
PAN ID Personal Area Network Identification Default value = **0** Range is: 0 to 500	**Conditional parameter to Wireless models VT76xxX5x00W** This parameter will only appear when a wireless network adapter is present. If the Terminal Equipment Controller is installed as a stand-alone (Network Ready) 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 Terminal Equipment Controllers to a single specific Schneider-Electric wireless gateway (VWG). For every Terminal Equipment Controller reporting to a gateway (maximum of 30 Terminal Equipment Controllers per gateway), be sure you set the *SAME* PAN ID value both on the gateway and the Terminal Equipment Controller(s). The default value of 0 is *NOT* a valid PAN ID. The valid range of available PAN ID is from 1 to 500.

Channel Channel selection Default value = **10** Range is: 10 to 26	**Conditional parameter to Wireless models VT76xxX5x00W** This parameter will only appear when a wireless network adapter is present. If the Terminal Equipment Controller is installed as a stand-alone (Network Ready) unit or with a BACnet® or Echelon® adapter, this parameter will not be used or displayed. This parameter (Channel) is used to link specific Terminal Equipment Terminal Equipment Controllers to specific Viconics wireless gateway(s) (VWG). For every Terminal Equipment Terminal Equipment Controller reporting to a gateway (maximum of 30 Terminal Equipment Controllers per gateway), be sure you set the *SAME* channel value both on the gateway and the Terminal Equipment Controller(s). ***Viconics recommends using only channels 15 and 25.*** The default value of 10 is *NOT* a valid channel. The valid range of available channel is from 11 to 26
AI1 Analog input no.1 configuration Default value = **None**	**None**, No function will be associated with the input CO2, the 0-10VDC input value is used as a 0-2000ppm CO2 level: 0 VDC = 0ppm 10VDC = 2000ppm
FA Range FA range upper limit value Default value = **0 CFM**	Sets the upper limit of the CFM range. This parameter should be set based on the rooftop unit size. If set to 0 CFM, the fresh air damper control will be based on the Min/Max CO2 and Min/Max Pos values. See Damper Position section for more details. **0 to 20 000 CFM (0 to 9438 L/s), 10 or 100 increments**
MenuScro Menu scroll Default value = **On = Scroll active**	Removes the scrolling display and displays the room temperature/humidity to the user. With this option enabled, no mode, schedule and outdoor temperature status is given. ▪ **On = Scroll active** ▪ **Off = Scroll not active**
Lockout Keypad lockout levels Default value = **0 No lock**	0 = No lock 1 = Low level 2 = High level

USER KEY FUNCTIONS								
LEVEL	Resume/ Override scheduling	Permanent Occupied and Unoccupied Setpoints	Temporary setpoints using arrows	System mode setting	Fan mode setting	Schedules setting	Clock setting	Permanent hold
0	🔓	🔓	🔓	🔓	🔓	🔓	🔓	🔓
1	🔓	🔒	🔓	🔒	🔒	🔒	🔓	🔒
2	🔒	🔒	🔒	🔒	🔒	🔒	🔓	🔒

pwr del Power-up delay Default value = **10 seconds**	On initial power up of the Terminal Equipment Controller (each time 24 VAC power supply is removed & re-applied) there is a delay before any operation is authorized (fan, cooling or heating). This can be used to sequence start up multiple units / Terminal Equipment Controller in one location. **10 to 120 seconds**
Frost pr Frost protection enabled Default value = **Off**	Off: no room frost protection On: room frost protection enabled in all system mode at: 42 °F (5.6 °C) Frost protection is enabled even in system **Off** mode **Off or On** On heat pump models the system mode will be forced to EMERGENCY mode if frost protection is activated
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 (2 °C)**	Minimum occupied & unoccupied cooling setpoint adjustment. Cooling setpoint range is: **54 to 100 °F (12.0 to 37.5 °C)**

Pband
Proportional band setting
Default value **2 = 2.0 °F (1.1 °C)**

Adjust the proportional band used by the Terminal Equipment Controller PI control loop.

Note that the default value of 2.0 °F (1.1 °C) gives satisfactory operation in most normal installation cases. The use of a proportional band different than the factory one is normally warranted in applications where the Terminal Equipment Controller location is problematic and leads to unwanted cycling of the unit. A typical example is a wall mounted unit where the Terminal Equipment Controller is installed between the return and supply air feeds and is directly influenced by the supply air stream of the unit.

VALUE	°F SCALE PBAND	°C SCALE PBAND
2	**2 F**	**1.1 C**
3	**3 F**	**1.7 C**
4	**4 F**	**2.2 C**
5	**5 F**	**2.8 C**
6	**6 F**	**3.3 C**
7	**7 F**	**3.9 C**
8	**8 F**	**4.4 C**

Anticycle
Minimum On-Off operation time for stages
Default value = **2 minutes**

Minimum On-Off operation time of cooling & heating stages.

***IMPORTANT**, anti-short cycling can be set to 0 minutes for equipment that posses their own anti cycling timer. Do not use this value unless the equipment is equipped with such internal timer. Failure to do so can damage the equipment.*
0, 1, 2, 3, 4 & 5 minutes

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.

Heat cph
Heating stages cycles per hour Default value = **4 C.P.H.**

Will set the maximum number of heating stage 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.

For multi stage models, heat cph applies to W1 & W2

For heat pump models, heat cph applies to W1 only (Emergency heat)

Cool cph Cooling stages cycles per hour Default value = **4 C.P.H.**	Will set the maximum number of cooling stage cycles per hour under normal control operation. It represents the maximum number of cycles that the equipment will turned 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 or 4 C.P.H.** **For multi stage models, cool cph applies to Y1 & Y2** **For heat pump models, cool cph applies to Y1 & Y2 in cooling and heating independently of the reversing valve position**
Deadband Minimum deadband Default value = **2.0 °F (1.1 °C)**	The minimum deadband value between the heating and cooling setpoints. When modified, it will take effect only when any of the setpoints are modified again. Range is: **2, 3, or 4 °F, 1.0 °F increments (1.0 to 2.0 °C, 0.5 °C increments)**
Fan cont Fan control Default value = **On**	Fan control in heating mode. When selecting On; the Terminal Equipment Controller in all cases will always control the fan (terminal G). Valid for On or Auto fan mode When selecting Off; the fan (terminal G), when heating stages (terminals W1 & W2) are solicited, will not be energized. The fan in this case will be controlled by the equipment fan limit control. Valid only for Auto fan mode. On fan mode will leave the fan always on. ON OR OFF **For multi stage models, fan control applies to W1 & W2** **For heat pump models, fan control applies to W1 only (Emergency heat)**
Fan del Fan delay Default value = **Off**	Fan delay extends fan operation by 60 seconds after the call for heating or cooling ends. Valid only for Auto fan mode. “On” fan mode will leave the fan always on. **Off or On**
TOccTime Temporary occupancy time Default value = **2 hours**	Temporary occupancy time with occupied mode setpoints when override function is enabled. When the Terminal Equipment Controller is in unoccupied mode, function is enabled with either the menu or UI2 configured as remote override input. Range is: **0,1, 2, 3, 4, 5, 6, 7, 8, 9, 10, & up to 24 hours**
Cal RS Room temperature sensor calibration Default value = **0.0 °F or °C**	Offset that can be added/subtracted to the actual displayed room temperature **± 5.0 °F, (± 2.5 °C)**

Cal OS Outside air temperature sensor calibration Default value = **0.0 °F or °C**	Offset that can be added/subtracted to the actual displayed outdoor temperature. **± 5.0 °F, (± 2.5 °C)**
H stage Number of heating stages. Applicable to 2 stage models only Default value = **2 stages**	Will revert the operation of 2 stages Terminal Equipment Controller to single stage operation only when the second heating step is not needed. **1 or 2 stages** **For heat pump models, H stage is limited to 1 stage only (W1 – Aux. Heat)**
C stage Number of cooling stages Default value = **2 stages**	Will revert the operation of 2 stage Terminal Equipment Controller to single stage operation only when the second cooling step is not needed. **1 or 2 stages**
H lock Outside air temperature heating lockout Default value = **120 °F (49 °C)**	Disables heating stage operation based on outdoor air temperature. Function will only be enabled if OS (outside air temperature sensor) is connected. **From -15 °F up to 120 °F (-26 °C up to 49 °C)**
C lock Outside air temperature mechanical cooling lockout. Default value = **-40 °F (-40 °C)**	Disables cooling stage operation based on outdoor air temperature. On economizer model, free cooling will not be disabled by this function. Function will only be enabled if OS (outside air temperature sensor) is connected. **From -40 °F up to 95 °F (-40 °C up to 35 °C)**
Unocc TM Unoccupied Timer value Default **0.5 hours**	Time delay between the moment where the Terminal Equipment Controller toggles from occupied to unoccupied after the last movement has been detected by the PIR. Range is: **0.5 to 24.0 hours** in 0.5 hour increments

2/4event Number of events configuration Default value = **2 event**	**2 events**, will set up scheduling for the following Event 1 is for Occupied setpoints Event 2 is for Unoccupied setpoints **4 events**, will set up scheduling for the following Event 1 is for Occupied setpoints Event 2 is for Unoccupied setpoints Event 3 is for Occupied setpoints Event 4 is for Unoccupied setpoints
Prog rec Progressive recovery enabled Default value = **Off** Progressive recovery is automatically disabled if DI 1 and / or DI 2 are configured remote NSB	Off, = no progressive recovery The occupied schedule time is the time at which the system will restart. **On**, = progressive recovery active. The occupied schedule time is the time at which the desired occupied temperature will be attained. The Terminal Equipment Controller will automatically optimize the equipment start time. In any case, the latest a system will restart is 10 minutes prior to the occupied period time.
Min SH **Only valid if HT Type is set to Analog** Minimum supply heat temperature setpoint Default value = **64 °F (18 °C)**	Sets the minimum supply heat to be maintained by the controller during occupied periods (Occupied or Temporary Override). **From 50 °F up to 72 °F (10 °C up to 22 °C)** (increments: 0.5° or 5°)
Chngstpt Changeover setpoint Default value = **55 °F (13.0 °C)**	In *Cooling* mode. The outside air temperature value at which the cooling will be switched over from mechanical (compressor) to free cooling (economizer) **14 to 70 °F (-10.0 to 21.0 °C)**

C mech Mechanical cooling allowed Default value = **Off**	In *Cooling* mode. Allows the operation of the mechanical cooling if the free cooling (economizer) cannot maintain the cooling setpoint. **Off** Typically applies when the MS (mixed air temperature sensor) is installed after the mechanical cooling refrigeration coils. In this case, mechanical cooling will never operate at the same time as free cooling. **On** Typically applies when the MS (mixed air temperature sensor) is installed before the mechanical cooling refrigeration coils in the mixing plenum. In this case, mechanical cooling is allowed when the free cooling (economizer operation) cannot maintain the cooling setpoint. Off or On
mix stpt Mixed air setpoint Default value = **55 °F (13.0 °C)**	Free cooling mixed air setpoint when economizer mode is enabled. **50 to 90 °F (10.0 to 32.0 °C)**
SH lock Only valid if HT Type is set to Analog Outside air temperature supply heat lockout Default value = **32 °F (0 °C)**	Disables heating operation based on outdoor air temperature. **From –15 °F up to 120 °F (-26 °C up to 49 °C)** (increments: 5° or 50°)
Dis HL Discharge air temperature high limit Default: **120°**	Discharge air high temperature value at which the heating stages will be locked out. **70°F to 150°F (21°C to 65°C)** (increments: 0.5° or 5°)
Dis LL Discharge air temperature low limit Default: **45°F**	Discharge air low temperature value at which the cooling stages will be locked out. **35 to 65°F (2.0°C to 19.0°C)** (increments: 0.5° or 5°)

Min Pos Minimum Fresh Air Damper/Economizer Position Default value = **0%**	Minimum fresh air damper position. Effective only in Occupied mode (Fan is ON). This value is also used to determine the fresh air damper position based on the Min/Max CO_2 and Min/Max Pos values set. See Fresh Air Damper Position section for more details. **0% to 100%, 1 or 10 increments**
Max Pos Maximum Fresh Air Damper/Economizer Position Default value = **100%**	Maximum fresh air damper position. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO_2 and Min/Max Pos values set. See Fresh Air Damper Position section for more details. **0% to 100%, 1 or 10 increments**
Min FA Minimum Fresh Air Value Default value = **0 CFM**	Minimum fresh air required. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO_2 and Min/Max FA values (if FA Range is set to other than 0 CFM). See Fresh Air Damper Position section for more details. **0 to 20 000 CFM (0 to 9438 L/s) (the value set cannot exceed the value of FA Range parameter), 10 or 100 increments**
Max FA Maximum Fresh Air Value Default value = **0 CFM**	Maximum fresh air allowed. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO_2 and Min/Max FA values set (if FA Range is set to other than 0 CFM). See Fresh Air Damper Position section for more details. **0 to 20 000 CFM (0 to 9438 L/s) (the value set cannot exceed the value of FA Range parameter), 10 or 100 increments**
Min CO_2 Minimum CO_2 Level Default value = **800 ppm**	Minimum CO_2 Level required. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO_2 and Min/Max Pos values set. See Fresh Air Damper Position section for more details. **0 to 2000 ppm, 10 or 100 increments**

Max CO_2 Maximum CO_2 Level Default value = **1200 ppm**	Maximum CO_2 Level allowed. Effective only in Occupied mode (Fan is ON). This value is used to determine the fresh air damper position based on the Min/Max CO_2 and Min/Max Pos values set. See Fresh Air Damper Position section for more details. **0 to 2000 ppm, 10 or 100 increments**
MS dis Display mixed air temperature, only if sensor is installed.	Used as diagnostic / service help to troubleshoot and diagnose economizer operation.
CO_2 Level Display CO_2 Level, only if a CO_2 transmitter is installed at AI1 input.	Used as diagnostic / service help to troubleshoot and diagnose IAQ control operation

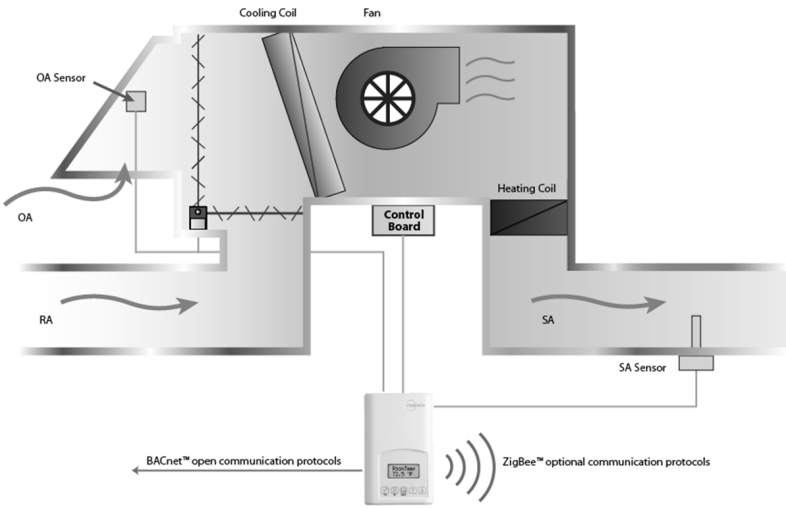
Fresh Air Damper Control Sequences

The fresh air damper can be controlled through more than one sequence to achieve different control strategies such as free cooling (economizer mode), minimum fresh air control and CO2 level control. Here are the control sequences available:

Note: For the sequences mentioned below, the following conditions must be met in order for the sequences to be performed as stated:

- **Max Pos parameter value must be greater than Min Pos Parameter value.**
- **Mac CO2 parameter value must be greater than Min CO2 Parameter value.**
- **Max FA parameter value must be greater than Min FA Parameter value.**

Economizer Control Mode Only

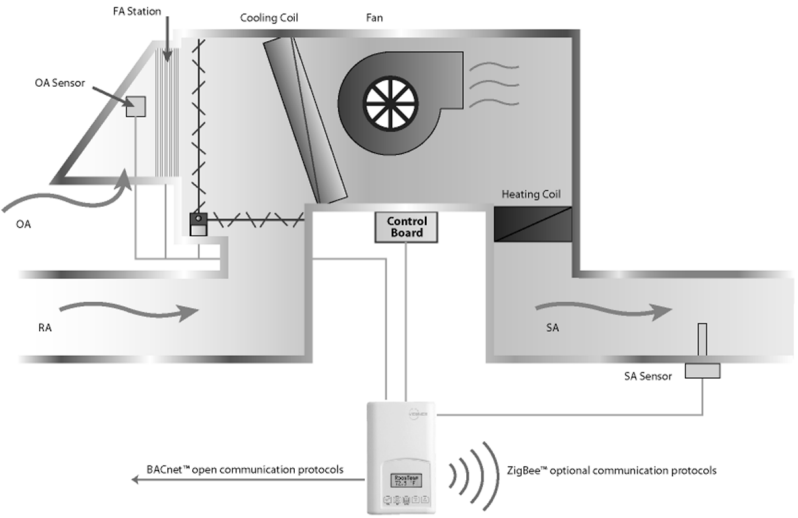


If the fresh air damper is to be used only for free cooling purposes (economizer mode, without fresh air measurement station or CO2 control), only the Min Pos parameter and the free cooling sequence will be active.

- **The FA Range parameter should be set to 0 CFM. (Default Value = 0 CFM)**
- **Set the Chngstpt parameter to desired value which free cooling is enabled. (Default Value = 55°F)**

If the outside air temperature is greater than the changeover setpoint, then normal mechanical cooling will be used. If the outside air temperature is less than or equal to the changeover setpoint, then free cooling will be enabled and mechanical cooling stages will be locked out.

Economizer Mode and Fresh Air Measurement Station



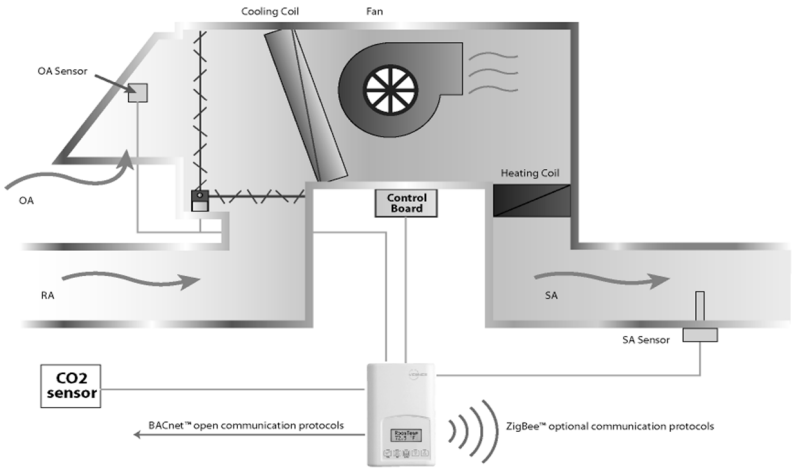
If the fresh air damper is to be used for both free cooling and minimum fresh air volume control (economizer mode and fresh air measurement station, but without CO2 level control), only the Min FA parameter and the free cooling sequence will be active.

- **The FA Range parameter should be set to a value higher than 0 CFM (0 CFM disables the fresh air control).**
- **Min FA (minimum fresh air) parameter should be set to the desired level.**

The FA Range parameter value should be set to the maximum capacity of the fresh air measurement station. Therefore the relationship between air volumes and input signals can be established. For example, if the fresh air station capacity is 10000 CFM, set FA Range to 10000.

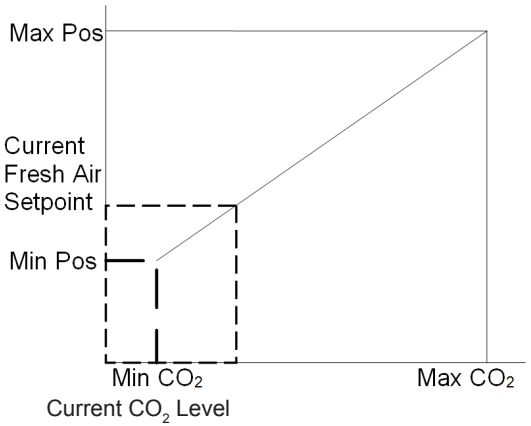
This will set the relationship of **0 VDC = 0 CFM** and **10VDC = 10000 CFM.**

Economizer Mode and CO2 Level Control



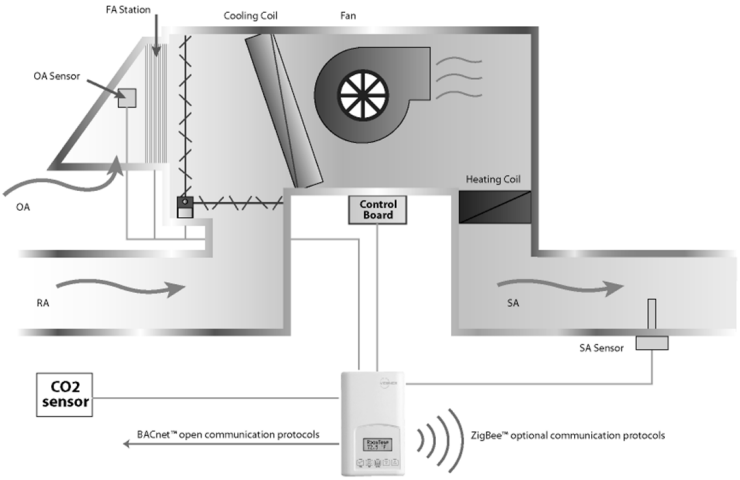
If the fresh air damper is to be used for both free cooling and CO2level control (economizer mode and CO2 level control, but without fresh air measurement station), only the Min Pos, Max Pos, Min CO2and Max CO2 parameters as well as the free cooling sequence will be active.

- **The FA Range parameter should be set to 0 CFM.**
- **Set AI1 parameter to CO2 (0 VDC = 0ppm ; 10VDC = 2000ppm)**
- **Min Pos, Max Pos, Min CO2 and Max CO2 parameters should be set according to the required setting.**



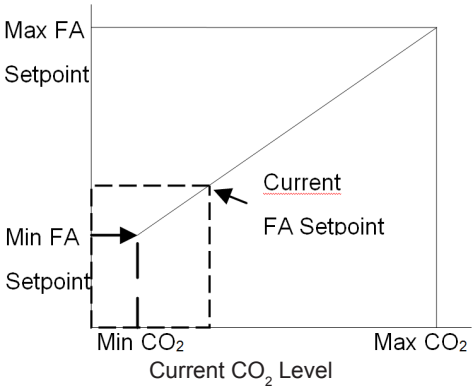
The highest value between free cooling demand output and interpolation output for the fresh air setpoint will be the output to the fresh air damper.

Economizer Mode, CO2 Level Control and Fresh Air Measurement Station



If the fresh air damper is to be used for both free cooling and CO2 level control with a fresh air measurement station, only the Min FA, Max FA, Min CO2 and Max CO2 parameters as well as the free cooling sequence will be active.

- **The FA Range parameter should be set to something other than 0 CFM.**
- **Use an air flow transmitter to read fresh air level with AI2 input (0-5 VDC input)**
- **Min FA, Max FA, Min CO2 and Max CO2 parameters should be set according to the required setting.**



The highest value between free cooling demand output and interpolation output for the fresh air setpoint based on the CO2 level will be the output to the fresh air damper.

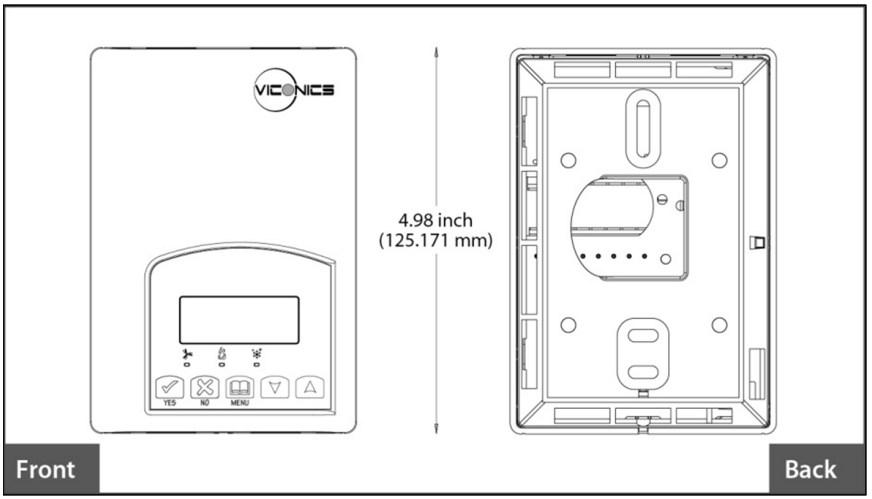
SPECIFICATIONS

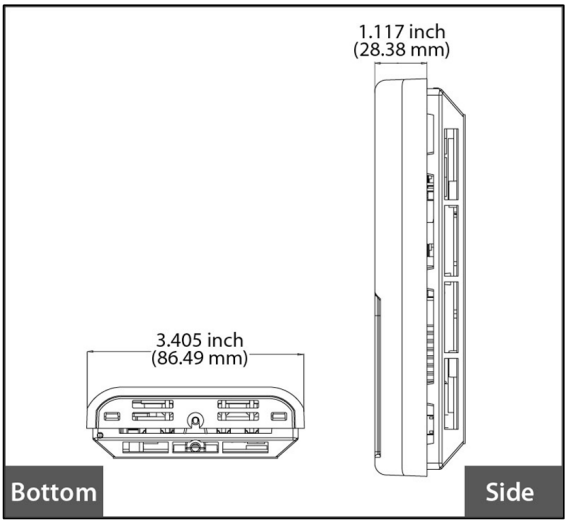
Terminal Equipment Controller power requirements:	19-30 VAC 50 or 60 Hz; 2 VA Class 2
Operating conditions:	0 °C to 50 °C (32 °F to 122 °F) 0% to 95% R.H. non-condensing
Storage conditions:	-30 °C to 50 °C (-22 °F to 122 °F) 0% to 95% R.H. non-condensing
Sensor:	Local 10 K NTC thermistor
Resolution:	± 0.1 °C (± 0.2 °F)
Temperature control accuracy:	± 0.5 ° C (± 0.9 °F) @ 21 °C (70 °F) typical calibrated
Contact output rating:	Relay output: 30 VAC, 1 Amp. Maximum, 3 Amp. In-rush.
Occ, Stand-By and Unocc cooling setpoint range:	12.0 to 37.5 °C (54 to 100 °F)
Occ, Stand-By and Unocc heating setpoint range:	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:	Factory default: Cooling & Heating: 1.8°C (3.2°F)-(Adjustable)
CO_2 and airflow analog inputs:	0 to 10 VDC input across Scom, AI1 and AI2.
Analog heat & economizer analog outputs rating:	0-10 VDC into 2KW resistance min.
Analog heat & economizer analog output accuracy:	± 3% typical
Wire gauge:	18 gauge maximum, 22 gauge
Approximate shipping weight:	0.75 lb (0.34 kg)
Agency Approvals all models:	**UL**: UL 873 (US) and CSA C22.2 No. 24 (Canada), File E27734 with CCN XAPX (US) and XAPX7 (Canada) **Industry Canada**: ICES-003 (Canada)
Agency Approvals all models:	**FCC**: Compliant to CFR 47, Part 15, Subpart B, Class A (US) **CE** : EMC Directive 89/336/EEC (Europe Union) **C-Tick**: AS/NZS CISPR 22 Compliant (Australia / New Zealand) Supplier Code Number N10696
Agency Approvals Wireless models:	**FCC**: Compliant to: Part 15, Subpart B

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

Please check with your local government for instruction on disposal of this product.

Drawing & Dimensions





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