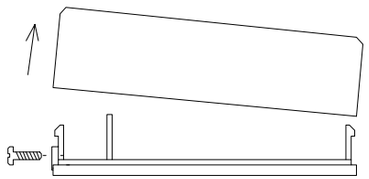
T510
T560

THERMOSTAT WITH:

- **1 TRI-STATE FLOATING MOTOR OUTPUT**
- **+ 2 MORE OUTPUTS**
- **POWER LIMIT INPUT**
- **DAY-NIGHT MODE (T560 ONLY)**

TO OPEN THERMOSTAT COVER

- Remove security screw on left side of thermostat cover.
- Open up by pulling on the left side of thermostat.



THERMOSTAT INSTALLATION

A) **Location:**

1- Shouldn't be installed on outside wall.
2- Must be installed away from any heat source.
3- Shouldn't be affected by direct sun radiation.
4- Nothing must restrain vertical air circulation to the thermostat.

B) **Installation:**

1- Pull out cables 6" out of the wall.
2- Wall surface must be flat and clean.
3- Separate the thermostat and the base by pulling cover on the left side (same as the security screw.)
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.
6- Install shields in the wall.
7- Insert screws in mounting holes on each side of the base.
DO NOT OVERTIGHTEN!
8- Open the cable protection 1 1/4 inch more or less.
9- Strip each wire 1/4 inch.
10- Insert each wire according to wiring diagram.
11- Reinstall the cover (right side first).
12- Install security screw.

SETPOINT ADJUSTMENT KNOB LIMITATION

Note: To limit the rotation of setpoint knob, adjust setpoint to desired value, then insert stoppers in appropriate holes.

Horizontal model:
S1,S10 = No limitation
S3 à S8 = Setpoint limitations

REMOTE SENSOR

It is possible to use a remote sensor (for duct or room application) by connecting it to pins no. 6 and 7. Inside sensor must be disconnected by removing jumper J4 inside the thermostat.

Characteristics of remote sensor 47 KΩ.

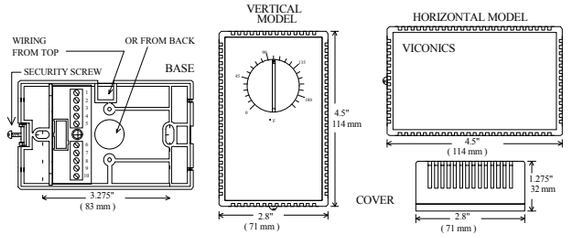
180.0 °F	82.2 °C	5.494 Kohm	0.553 Volts
170.0 °F	76.7 °C	6.585 Kohm	0.648 Volts
160.0 °F	71.1 °C	7.933 Kohm	0.761 Volts
150.0 °F	65.6 °C	9.610 Kohm	0.893 Volts
140.0 °F	60.0 °C	11.700 Kohm	1.047 Volts
130.0 °F	54.4 °C	14.342 Kohm	1.225 Volts
120.0 °F	48.9 °C	17.682 Kohm	1.429 Volts
110.0 °F	43.3 °C	21.940 Kohm	1.659 Volts
100.0 °F	37.8 °C	27.412 Kohm	1.914 Volts
90.0 °F	32.2 °C	34.483 Kohm	2.191 Volts
80.0 °F	26.7 °C	43.704 Kohm	2.486 Volts
70.0 °F	21.1 °C	55.834 Kohm	2.791 Volts
60.0 °F	15.6 °C	71.866 Kohm	3.096 Volts
50.0 °F	10.0 °C	93.340 Kohm	3.393 Volts
40.0 °F	4.4 °C	122.298 Kohm	3.673 Volts
30.0 °F	-1.1 °C	161.670 Kohm	3.927 Volts
20.0 °F	-6.7 °C	215.805 Kohm	4.150 Volts
10.0 °F	-12.2 °C	291.100 Kohm	4.341 Volts
0.0 °F	-17.8 °C	396.830 Kohm	4.499 Volts

DAY-NIGHT MODE

An external contact closing between terminals 6 and 8 activates night mode. A LED on the thermostat flashes continuously indicating night mode. By pressing the button on the thermostat, day mode is reactivated. The thermostat returns to night mode when pressing again the button, or automatically after a 4 hours delay.

Note: Terminals 6 and 8 can be connected together between thermostats.

DIMENSIONS



POWER LIMIT INPUT

An external DC voltage applied between terminals no. 9 (+) et 6 (-), limits the power permitted to outputs 1 and 2 only when these outputs are programmed as heating. The following table gives the relationship between input voltage and the allowed power for each output.

DC VOLTAGE AT TERMINALS NO 6 AND 9	MAXIMUM POWER OUTPUT 1	MAXIMUM POWER OUTPUT 2	MAXIMUM POWER TOTAL
0 volt	100 %	100 %	100 %
1 volt	100 %	100 %	100 %
2 volts	100 %	100 %	100 %
3 volts	100 %	80 %	90 %
4 volts	100 %	54 %	77 %
5 volts	100 %	28 %	64 %
6 volts	98 %	0 %	49 %
7 volts	68 %	0 %	34 %
8 volts	40 %	0 %	20 %
9 volts	18 %	0 %	9 %
10 volts	0 %	0 %	0 %

Note: Terminals 6 and 9 can be connected together between thermostats.

HIGHER SIGNAL OUTPUT

Output no 3 (terminal no. 10) produces a DC voltage 0 to 10 volts . This signal can be connected with signals from all other thermostats. Resulting voltage corresponds to higher demand of heating or cooling, depending of programming at each thermostat. This signal can also be used to control a modulating 0 to 10 Vdc actuator. Resistive load between 2 KΩ and 100 KΩ is recommended.

Note: Terminals 6 and 10 can be connected together between thermostats.

MAXIMUM RUNNING TIME OF TRI-STATE FLOATING ACTUATOR

It is important to adjust (or specify at the time of order) the parameter "dt" to obtain optimum regulation. The parameter "dt" is adjustable (using the programmer) from 0.1 to 12.7 minutes. When powering up the thermostat, the thermostat sends a signal to fully close the actuator. For the period indicated by "dt" the actuator will go to fully closed position and with not react to changing demand. At the end of this period, the damper will position according to the demand.

SPECIFICATIONS

Operating Conditions:	0 °C to 50 °C (32 °F to 122 °F)
	0% to 95% R.H. non-condensing
Sensor:	Local 47 K NTC thermistor
Resolution:	± 0.1 °C (± 0.2 °F)
Control accuracy:	± 0.2 ° C (± 0.4 °F) for low ranges
(calibrated)	± 0.9 ° C (± 1.8 °F) for high ranges
Ranges:	10 °C to 32 °C (50 °F to 90 °F)
	-18 °C to 82 °C (0 °F to 180 °F)
Outputs:	Isolated Triac: 30 Vac at ½ A max.
	0 to 10 Vdc into 2KΩ resistance min.
	0 / 5 Vdc at 20 mA max. for both outputs.
Power:	24 Vac -15%, +10% 50/60 Hz; 2 VA

ORDER CODE

T510 - AB - CD - EF - GH (without day-night mode)

T560 - AB - CD - EF - GH (with day-night mode)

A	Output no. 1 (controlled device)	Type
0	Not installed	
5	"SSR" with 3-32 Vdc input	Pulsed 0/5 Vdc
6	0 to 10 Vdc actuator, voltage relay or "SCR" *	0 to 10 Vdc
7	0 to 10 Vdc high cooling signal for Vdc relay	Higher signal

B	Output no. 2 (controlled device)	Type
0	Not installed	
1	Relay, thermal relay, two position motor	Isolated Triac
2	Normally open thermal valve	Isolated Triac
3	Normally close thermal valve	Isolated Triac
4	"SSR" with 24 Vac input	Isolated Triac
5	"SSR" with 3-32 Vdc input	Pulsed 0/5 Vdc

C	Output no. 1 and 2 control mode	
1	Heating, reverse acting, (RA)	* Standard
2	Cooling, direct acting, (DA)	
3	Heating, RA (no. 1) and cooling, DA (no. 2)	
4	Cooling, DA (no. 1) and heating, RA (no. 2)	

D	Main control sensor location	
1	Room, inside thermostat, or (duct return air**)	* Standard
2	Duct supply air **	

** Order with S60 or S70 sensor

E	Setpoint adjustment	
1	User adjustable	* Standard
2	Blind cover	

F	Scale	
1	10 °C to 32 °C	* Standard
2	50 °F to 90 °F	
3	-18 °C to 82 °C	Δ
4	0 °F to 180 °F	Δ

G	Output no. 3	
1	Normally cooling, (DA)	* Standard
2	Normally heating, (RA)	

H	Maximum running time of tri-state floating actuator
1	1 minute
2	2 minutes
...	etc.
9	9 minutes

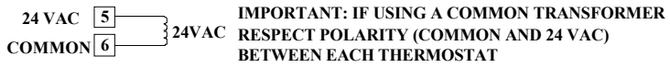
Order Example: T560 - 75 - 41 - 12 - 12
One higher signal cooling output and one "SSR" 3-32 volts heating output.
Main sensor located inside the room. Setpoint adjustable by user.
Scale 50 °F to 90 °F. The output no. 3 is a damper with
a travel time of 2 minutes used in cooling mode.
Δ Note: These models have a vertical cover.
Note: remote sensor separately

WIRING

NOTE: TERMINALS 5, 6, 8, 9 AND 10 CAN BE WIRED TOGETHER BETWEEN EACH THERMOSTAT IF POLARITY IS RESPECTED

Power supply 24 Vac -15% +10% 50/60 HZ 2 VA

POWER SUPPLY 24 Vac.

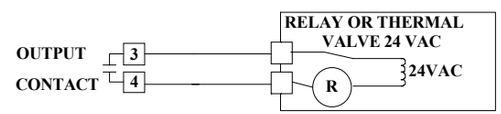


Day night mode T560 only

DAY NIGHT MODE

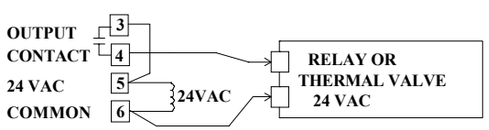
Output #2 code A= 1, 2, 3 & 4 Triacs

OUTPUT #2 USING RELAY WITH ISOLATED TRANSFORMER



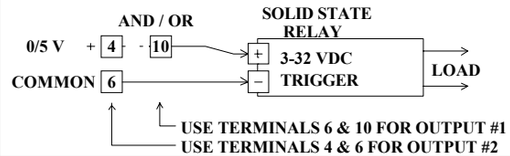
Output #2 code A= 1, 2, 3 & 4 Triacs

OUTPUT #2 USING SAME TRANSFORMER TO OUTPUT



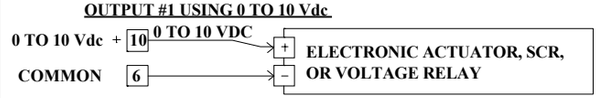
Output #1 code A= 5 Pulsed 0/5 Vdc
Output #2 code B= 5 Pulsed 0/5 Vdc

OUTPUT #1 AND/OR #2 USING PULSED 0/5 Vdc



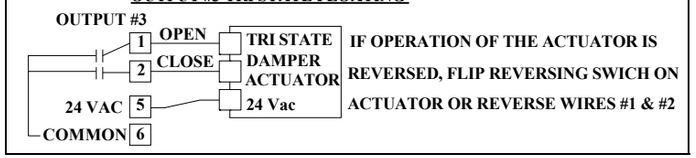
Output #1 code A=6 & 7Analog 0 to 10 Vdc

OUTPUT #1 USING 0 TO 10 Vdc



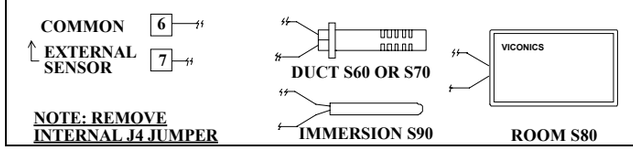
Output #3 Tri-State Floating

OUTPUT #3 TRI STATE FLOATING



Remote main temperature control sensor
Room or return control code D= 1,
Supply control code D=2

REMOTE MAIN CONTROL SENSOR



Power limit input
Analog 0 to 10 Vdc

POWER LIMIT INPUT USING 0 TO 10 Vdc