

General Instructions

APPLICATION

The VT7600 PI thermostat family is specifically designed for single stage and multi-stage control of heating/cooling equipment such as rooftop and self-contained units. The product features an intuitive, menu-driven, back-lit LCD display which walks users through the programming steps, making the process extremely simple. Accurate temperature control is achieved due to the product's PI time proportional control algorithm, which virtually eliminates temperature offset associated with traditional, differential-based thermostats.

FEATURES

- PI time proportional control
- Two digital inputs
- Smart fan
- Unique configuration key
- Lockable keypad
- Freeze protection
- EEPROM memory
- Six hour reserve time for clock
- Remote room and outdoor temperature sensor
- Auxiliary output



VT7600 Series Thermostat

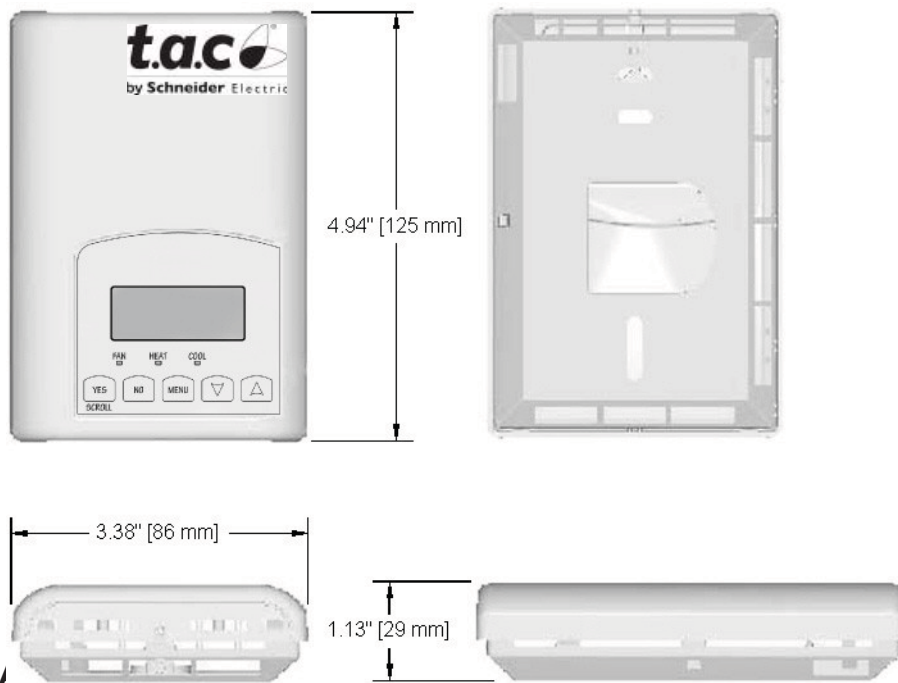
CAUTION

- Follow static precautions when installing this equipment.
- Make all connections according to electrical wiring diagram, national, and local electrical codes.
- Discharge static electricity by touching a known, securely grounded object and use a wrist strap connected to earth ground when handling the controller's PCB.
- 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.

SPECIFICATIONS

Thermostat power requirements:	19-30 Vac 50 or 60 Hz; 2 VA Class 2
Operating conditions:	0 °C to 50 °C (32 °F to 122 °F) 0% to 95% R.H. non-condensing
Storage conditions:	-30 °C to 50 °C (-22 °F to 122 °F) 0% to 95% R.H. non-condensing
Temperature sensor:	Local 10 K NTC thermistor
Temperature sensor resolution:	± 0.1 °C (± 0.2 °F)
Temperature control accuracy:	± 0.5 °C (± 0.9 °F) @ 21 °C (70 °F) typical calibrated
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:	1.1°C (2.0°F)
Digital inputs:	Relay dry contact across C terminal to DI1 or DI2
Contact output rating:	Triac output: 30 Vac, 1 Amp. Maximum, 3 Amp. in-rush Analog: 0 to 10 Vdc into 2KW resistance min.
Economizer analog output rating:	0 to 10 Vdc into 2KΩ resistance minimum
Economizer analog output accuracy:	±3% typical
Wire gauge:	18 gauge maximum, 22 gauge recommended

DIMENSIONS



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)

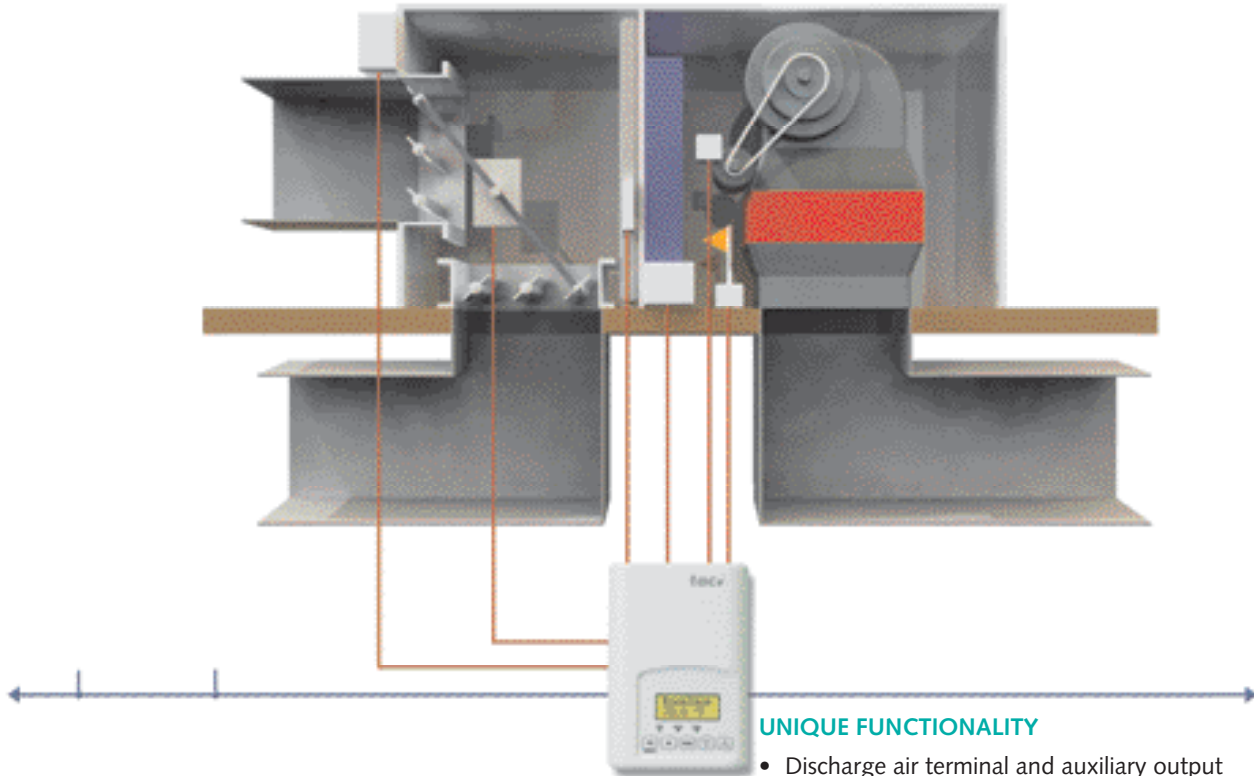
Agency Approvals all models

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 C
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.
2. This device must accept any interference received, including interference that may cause undesired operation/

SEQUENCE OF OPERATIONS



INSTALLATION

Choose location for the thermostat:

- Should not be installed on an outside wall.
- Must be installed away from any heat source.
- Should not be installed near an air discharge grill.
- Should not be affected by direct sun radiation. Nothing must restrain vertical air circulation to the thermostat

1. Remove security screw on the bottom of thermostat cover.
2. Open up by pulling on the bottom side of thermostat.
3. Remove Assembly and remove wiring terminals from sticker.
4. Please note the FCC ID and IC label installed in the cover upon removal of cover for the wireless products.
5. Swing open the thermostat PCB to the left by pressing the PCB locking tabs. (Figure One)
6. Pull out cables 6" out of the wall.
7. Wall surface must be flat and clean.
8. Insert cable in the central hole of the base.
9. Align the base and mark the location of the two mounting holes on the wall. Install proper side of base up.
10. Install anchors in the wall.
11. Insert screws in mounting holes on each side of the base. (Figure One)
12. Gently swing back the circuit board on the base and push on it until the tabs lock it.
13. Strip each wire 1/4 inch.
14. Insert each wire according to wiring diagram.
15. Gently push excess wiring back into hole. (Figure Two)
16. Re-Install wiring terminals in correct location. (Figure Two)
17. Reinstall the cover (top side first) and gently push back extra wire length into the hole in the wall.
18. Install security screw.



Figure One

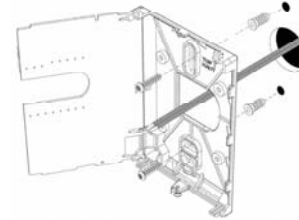


Figure Two: Location of PCB Retaining Tabs

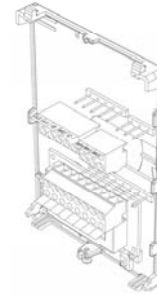


Figure Three: Reinstall Terminal Blocks

TERMINAL IDENTIFICATION

Part Number	Multi-Stage				1H/1C		Heat Pump	
	VT7656B	VT7656B	VT7652B	VT7600B	VT7652A	VT7600A	VT7652H	VT7600H
Programmable	Yes	No	Yes	No	Yes	No	Yes	No
Left Top Programmable Block								
Y2	X	X	X	X			X	X
Y1	X	X	X	X	X	X	X	X
G	X	X	X	X	X	X	X	X
RC	X	X	X	X	X	X	X	X
C		X	X	X	X	X	X	X
Right Top Programmable Block								
RH	X	X	X	X	X	X	X	X
W1	X	X	X	X	X	X	X	X
W2/OB	X	X	X	X			X	X
Bottom Terminal Block								
Econo	X	X						
Aux	X	X	X	X	X	X	X	X
DI1	X	X	X	X	X	X	X	X
D	X	X	X	X	X	X	X	X
Scm	X	X	X	X	X	X	X	X
OS	X	X	X	X	X	X	X	X
MS	X	X	X	X	X	X	X	X

GENERAL WIRING

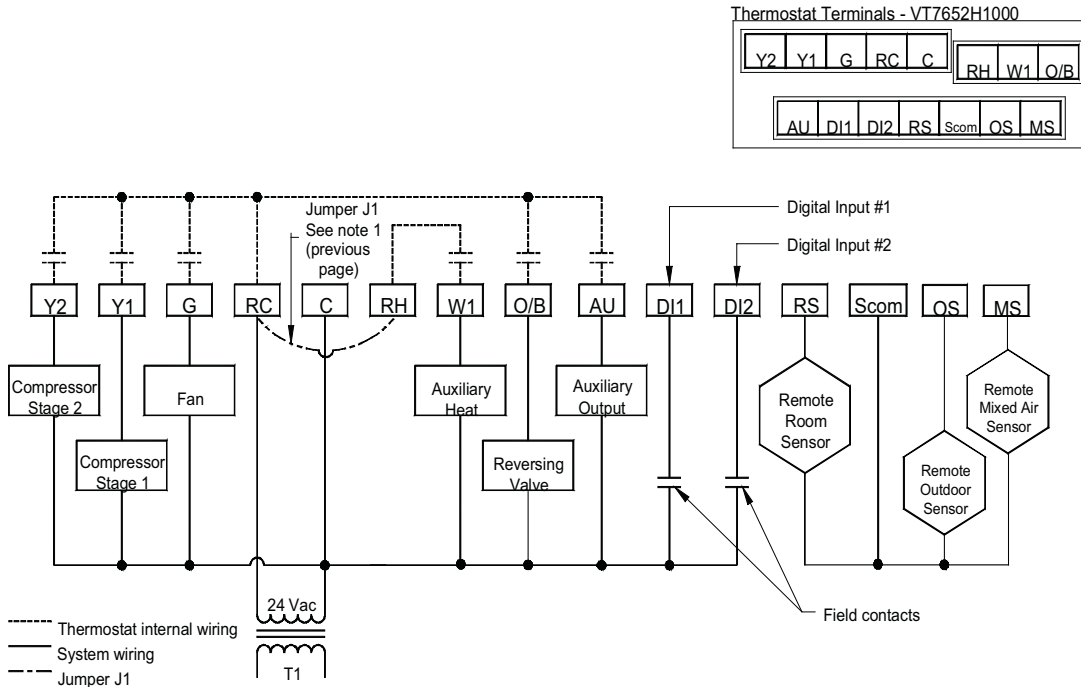


Figure Four: Two Heat/Two Cool, Economizer, Programmable

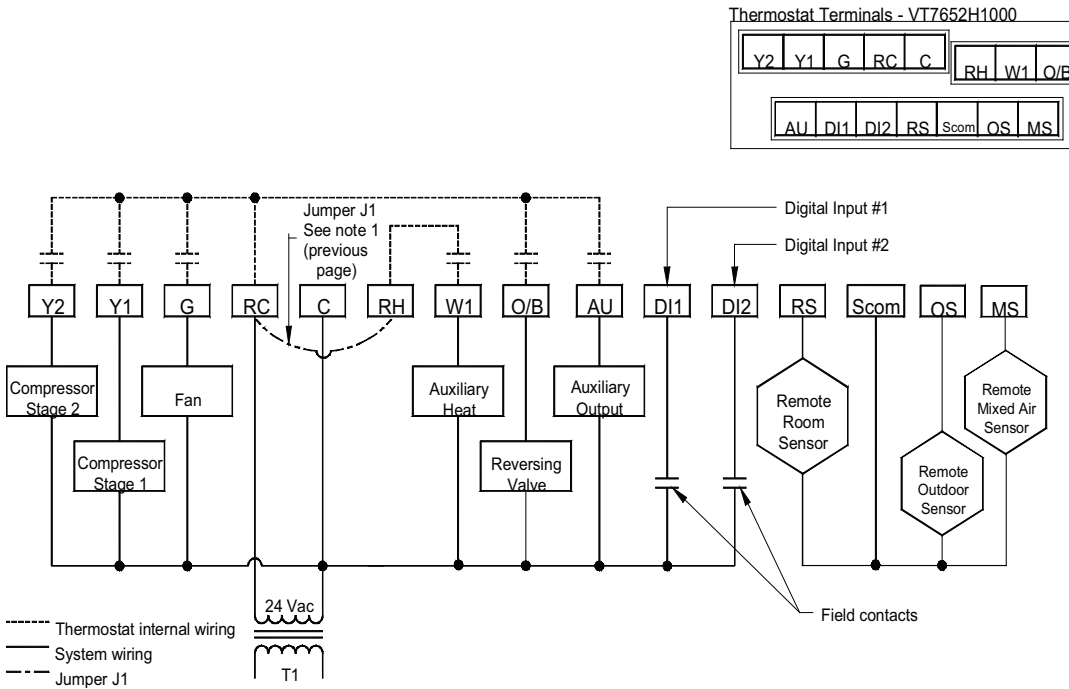


Figure Five: Heat pump, Programmable

PROGRAMMING

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. Each item is scrolled one by one with the back lighting off. Pressing any key will cause the back light to come on.

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.

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.

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:

- 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
- Service: Indicates that there is a service alarm as per one of the programmable digital input (DI1 or DI2)
- Filter: Indicates that the filters are dirty as per one of the programmable digital input (DI1 or DI2)

User programming instructions menu

The VT7600 series of thermostat feature an intuitive, menu-driven, back-lit LCD display that walks users through the programming steps, making the programming process extremely simple.

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-programming menu.

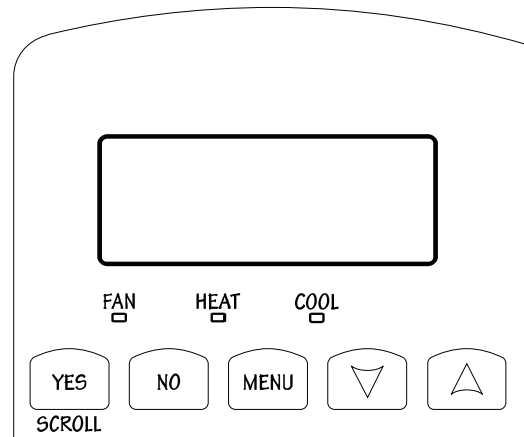
If the user pauses at any given time during programming, Auto Help text is displayed to help and guide the user through the usage and programming of the thermostat.

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

Three status LEDs on the thermostat cover are used to indicate the status of the fan, a call for heat, or a call for cooling.

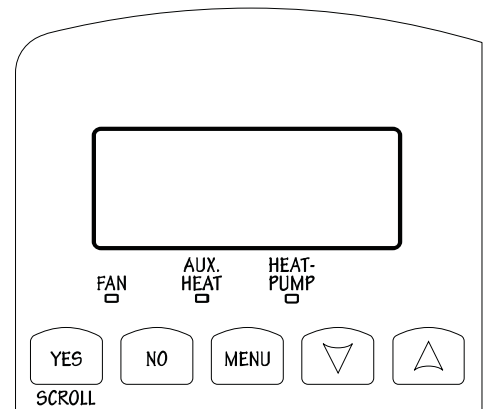
Multistage and single stage models

- When the fan is on, the FAN LED will illuminate.
- When heating is on, the HEAT LED will illuminate.
- When cooling is on, the COOL LED will illuminate.



Heat pump models

- When the fan is on, the FAN LED will illuminate.
- When auxiliary heat is on, the AUX HEAT LED will illuminate.
- When compressor is on, the HEAT-PUMP LED will illuminate.

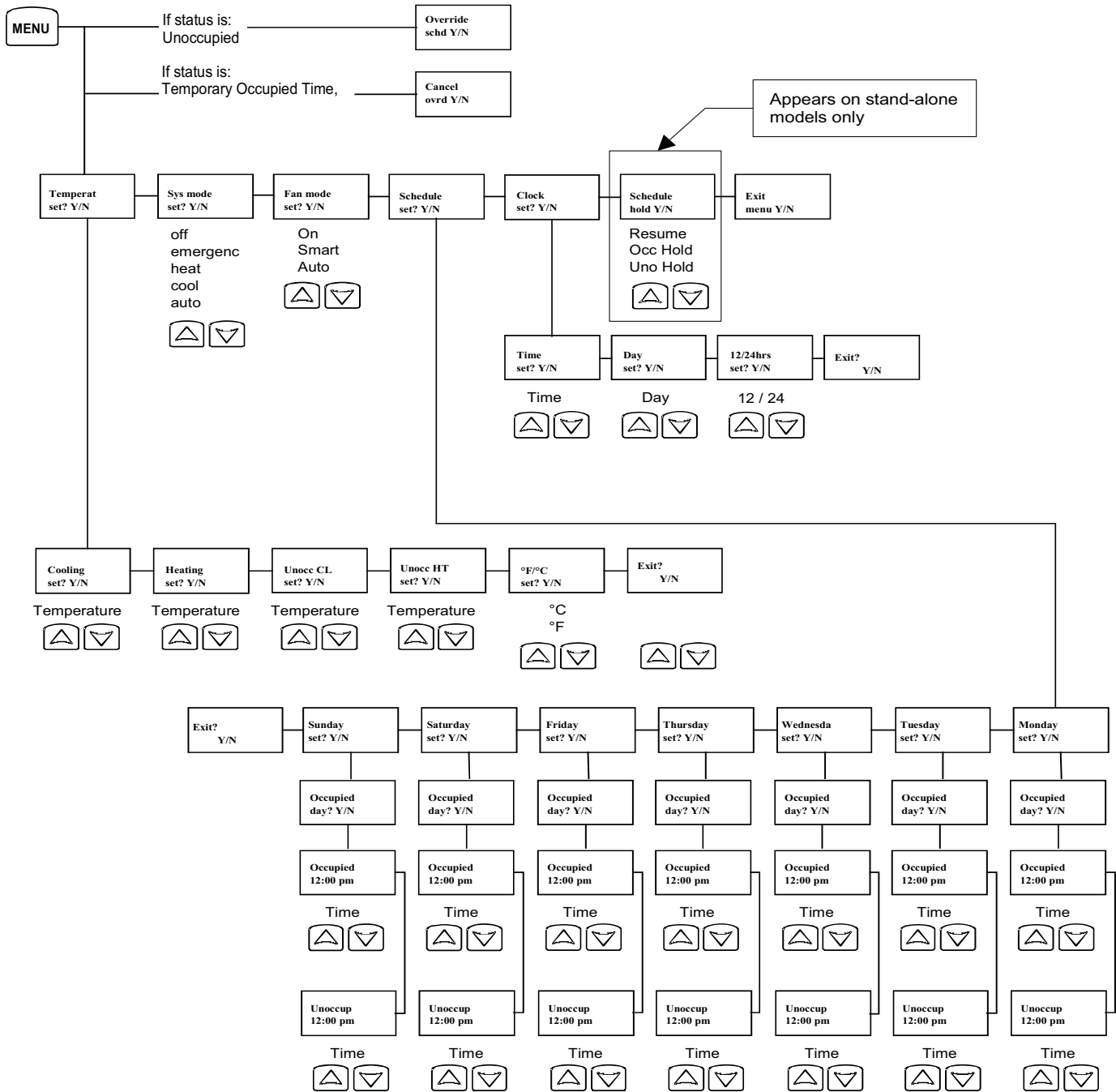


Each of the sections in the menu are accessed and programmed using 5 keys on the thermostat cover.

The priority for the alarms is as follows:

- The YES key is used to confirm a selection, to move onto the next menu item and to manually scroll through the displayed information.
- 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.
- 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 programming and configuring the thermostat.
- The up arrow key is used to increase temperature setpoint and to adjust the desired values when programming and configuring the thermostat.

USER INTERFACE



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