

Product Description

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, backlit LCD display that 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 that virtually eliminates temperature offset associated with traditional, differential-based thermostats.

All models contain two digital inputs that can be set by the user to monitor filter status, activate a remote temporary occupancy switch, and/or be used as a general purpose service indicator. In addition, depending on the model, up to three remote sensor inputs are available. All models contain a SPST auxiliary switch that can be used to control lighting or disable the economizer function, and a discharge air sensor input. For more advanced applications, economizer control logic has been integrated into the thermostat for use with proportional damper economizer actuators.

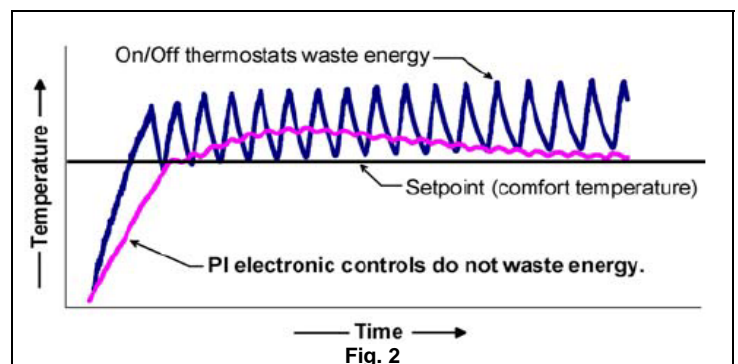


Features and Application Highlights

- PI time proportioning algorithm for increased comfort, accuracy, and energy savings
- 2 digital inputs that add functionality
- Smart fan saves energy during night mode
- Unique configuration key that minimizes parameter tampering
- Lockable keypad eliminates tampering - no need for thermostat guards
- Freeze protection that prevents costly freeze damage
- EEPROM memory so the thermostat will remember customized settings in the event of a power outage.
- Remote room and outdoor temperature sensor
- Auxiliary output can be used for lighting and/or economizer override
- Supply air sensor can be used to monitor unit efficiency
- Economizer output (0-10 Vdc) (VT7605B1020B only) provides excellent retrofit opportunities
- Low / High balance point (VT7600H1020B only) to protect and optimize system performance
- 3 heat / 2 cool (Vt7600H1020B only) supports single- and dual-stage heat pumps with 1 auxiliary heat stage

Theory of Operation

The VT7600 uses a proprietary adaptive logic algorithm to control the space temperature. This algorithm controls the heating / 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 represents On/Off mechanical control vs. PI electronic control.



Overall Features

- Gas/Oil or electric system compatibility for all types of applications.
- Remote indoor averaging sensing capability.
- Temperature averaging with 2, 3, 4, 9 or 16 sensors.
- Remote outdoor sensing capability for added flexibility.
 - System mode lockout.
 - Heat pump balance point settings.
- Remote supply air sensor input for monitoring purposes.
 - System efficiency feedback.
- Lockable keypads for tamper-proofing. No need for thermostat guards.
- Automatic frost protection to prevent costly freeze damage.
- Anti short cycle and minimum on/off runtime protection. Reduces wear and maximizes the life span of mechanical equipment.
- Two programmable digital inputs for added flexibility. Each input can be programmed as the following:
 - None: Functions will not be associated with the input.
 - 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, providing an alarm in the case of malfunction.
 - 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 monitors filters.
 - RemNSB: Remote NSB timer clock input will disable the internal scheduling of the thermostat. The scheduling will then be set according to the digital input. The menu part related to scheduling is disabled and no longer accessible. This provides low cost setback operation via occupancy sensor or from a dry contact.
 - RemOVR: Temporary occupancy contact. Disables all override menu function of the thermostat. The override function is now controlled by a manual, remote, momentarily-closed contact. When configured in this mode, the input operates in a toggle mode.
 - With this function enabled, it is now possible to toggle between unoccupied and occupied set points for the amount of time set by the temporary occupancy time parameter (TOccTime).
- Programmable smart fan operation saves energy during night mode.
- Non-volatile EEPROM memory prevents loss of parameters during power shortage.
- Built-in default profile set-up for easier start-up and commissioning.
- Configurable SPST output relay on programmable models for lighting, exhaust fan or fresh air control.
- 0-10 Vdc economizer output for more retrofit opportunities.
 - Built-in dry bulb economizer logic using outdoor temperature sensor.
 - Input for supply/mixed air temperature sensor.

Heat Pump Model Specific Features

- Selectable single stage or dual stage compressor options.
- High Balance Point: Lockout of auxiliary heating when outside air temperature is above this value.
- Low Balance Point: Lockout of heat pump compressor operation when outside air temperature is below this value.
- Comfort Economy Mode: In economy mode, heat pump use is maximized before turning on auxiliary interlock.
- Compressor/Auxiliary Interlock: Adds flexibility by locking out heat pump operation during auxiliary heating to prevent high pressure trip when the coil is downstream of the auxiliary heat source.

Models Available

Application	2 Heat / 2 Cool	2 Heat / 2 Cool with Economizer	3 Heat / 2 Cool Heat Pump
Model Number	VT7600B1020B	VT7605B1020B	VT7600H1020B