

THERMOSTATS & CONTROLLERS



AHU COMMUNICATING THERMOSTAT SINGLE AND MULTISTAGE, PROGRAMMABLE AND NON-PROGRAMMABLE, (BACNET, LON) VT7600 COMMUNICATING



DESCRIPTION

The **VT7600 Communicating Thermostats** are digital display, single or multistage, seven-day programmable or nonprogrammable PI thermostats (°F or °C) for use with AHU controls and heat pumps for both heating and cooling applications. The **VT7600** has both system and fan switching with internal sensor or remote sensor capabilities. Five buttons control a simplified menu for over 20 configurable parameters. A communication card is added for multiple protocols, including BACnet and LON. Other control features are listed below.



VT7600A5031B
BACnet Thermostat



FEATURES

ALL MODELS

- No logo on thermostat cover
- 1H/1C, 2H/2C (3H/2C heat pump) models
- Fan switching (on/auto/smart)
- System switching (O/A/C/H)
- Two line 8 digit backlit LCD Display
- Three status LEDs (Fan, Clg, Htg)
- Five control keys
- Remote sensor and OSA sensor inputs
- Adjustable deadband

- PIR cover available
- Permanent program retention
- Two configurable DI inputs
- Two line LCD display (°F or °C)
- Proportional + Integral control

ECONOMIZER MODELS

- Mixed-air (0-10V) control outputs
- Mixed-air sensor input
- Mixed-air setpoint (SP)
- Economizer changeover S.P. temperature
- OSA damper minimum position in %

PROGRAMMABLE MODELS

- Two or four configurable events per day
- Progressive recovery or none
- 12 or 24 hour clock
- Six hour clock retention
- Occ/Un-occ auxiliary contact out

COMMUNICATION MODELS

- BACnet
- LON

SPECIFICATIONS

Supply Voltage	20-30 VAC, 50/60 Hz	Control Output	1A relays 30 VAC, 3A surge maximum
Supply VA	2 VA	Auxillary Contact Output	1A relay 30 VAC, N.O./N.C. follows occupied schedule
Display	Two-line backlit LCD	Mixed Air Output	Proportional 0-10V DC, 2 kΩ minimum (economizer model)
Controls	Five menu-driven push buttons – up, down, menu, no, yes/scroll	Control Type	Proportional plus integral
Thermostat Type	Seven-day programmable models, non-programmable models	Deadband	Adjustable 2° to 4°F (1° to 2°C)
Optimal Start	Progressive recovery (enable/disable)	OSA Lockout Limits	
Heat Pump High/Low	OSA lockout (emer heating/comp. heating)	Heating	15° to 120°F (26° to 49°C), 5°F increments
Stages	(Dependent upon model) 1H/1C, 2H/2C, (3H/2C heat pump) 2H/2C + proportional mixed-air economizer	Cooling	-40° to 95°F (-40° to 35°C), 5°F increments
Memory (schedule)	Permanent EEPROM	Low Limit Protection	Enable/disable, heating @ 47°F (5.5°C)
Clock (12 or 24 hour)	Six-hour power fail retention	Power Up Delay	10 to 120 seconds
System Switching	Off/Auto/Cool/Heat	Keypad Lockout	Three levels (full, none, partial)
Fan Switching	On-continuous Auto-on demand Smart-on/occupied, off/unoccupied	Cycles Per Hour	Adjustable, heating 3-8 CPH, cooling 3-4 CPH
Control Accuracy	±0.9°F, (±0.5°C) @ 70°F (21°C)	Display Offset	Adjustable ±5°F (2.5°C), 1°F increments
Setpoint Range		LED Indicators	Three green on (fan, cooling, heating)
Heating	40° to 90°F (4.5° to 32°C)	Wiring	18 AWG max, 22 AWG recommended
Cooling	54° to 100°F (12° to 37.5°C)	Operating Temperature	32° to 122°F (0° to 50°C)
Setpoint High/Low Limits	Individually adjustable, H/C	Operating Humidity	0% to 95% RH (non-condensing)
Remote Sensor		Enclosure	ULFR1 flame-retardant plastic
Room Sensor	Room sensor input auto-detected 10K Type 2 thermistors	Color	White
Outside Air	Outside air input auto-detected 10K Type 2 thermistors	Mounting	Standard vertical 2" x 4" box
Mixed Air	Mixed air input auto-detected (economizer model only) 10K Type 2 thermistors	Dimensions	4.94"H x 3.38"W x 1.13"D (12.5 x 8.6 x 2.9 cm)
Auxiliary Inputs	Two dry contact digital inputs	Weight	0.75 lb (0.34 kg)
Four Types	Service/status reminders Filter alarm Central night setback clock Remote occupied override timer	Approvals	UL Listed File #E234137, cUL, CE, LonMark
		RoHS Statement	Yes
		Warranty	1 year

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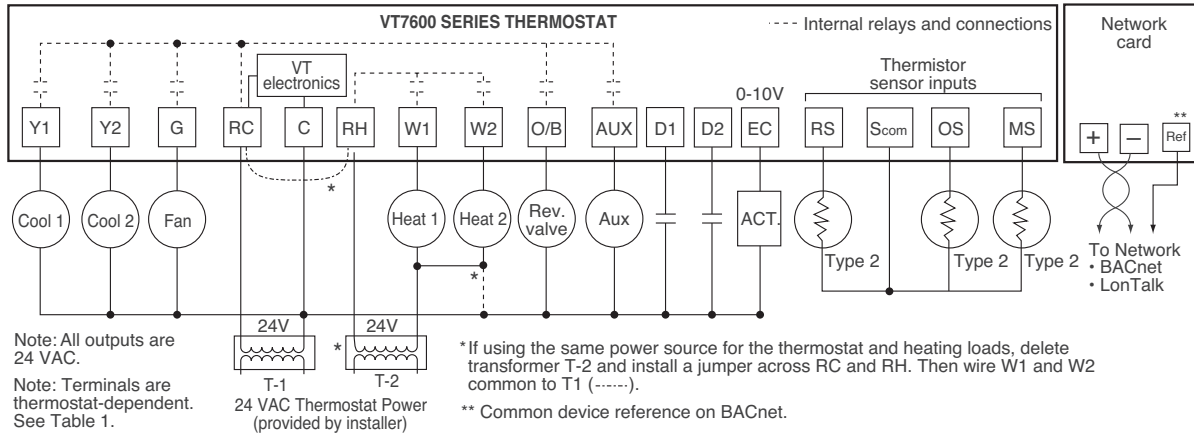
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WIRING

TABLE 1. TERMINAL DESIGNATION BY THERMOSTAT MODEL

THERMOSTAT MODEL VT7600								LON BACNET	Function
VT7600A-E VT7600A-B	VT7600B-E VT7600B-B	VT7605B-E VT7605B-B	VT7600H-E VT7600H-B	VT7652A-E VT7652A-B	VT7652B-E VT7652B-B	VT7656B-E VT7656B-B	VT7652H-E VT7652H-B		
•	•	•	•	•	•	•	•	Y1	Energizes on a call for first stage cooling (first stage heating HP)
•	•	•	•	•	•	•	•	Y2	Energizes on a call for second stage cooling (second stage heating HP)
•	•	•	•	•	•	•	•	G	Energizes fan in accordance with the selected fan mode
•	•	•	•	•	•	•	•	RC	24 VAC from equipment transformer
•	•	•	•	•	•	•	•	C	24 VAC (common) from equipment transformer
•	•	•	•	•	•	•	•	RH	RH24 VAC for heating stages (jumper to RC for single power systems)
•	•	•	•	•	•	•	•	W1	W1Energizes on a call for first stage heating (third stage heating HP)
•	•	•	•	•	•	•	•	W2	W2Energizes on a call for second stage heating
•	•	•	•	•	•	•	•	O/B	O/BHP reversing valve configurable (O = on or B = on)
•	•	•	•	•	•	•	•	AUX	AUXConfigurable auxiliary output (follows schedule)
•	•	•	•	•	•	•	•	D1	D1Configurable digital input
•	•	•	•	•	•	•	•	D2	D2Configurable digital input
•	•	•	•	•	•	•	•	EC	EC0 - 10 VDC economizer actuator output
•	•	•	•	•	•	•	•	RS	RSRemote room sensor
•	•	•	•	•	•	•	•	Scom	ScomSensor common
•	•	•	•	•	•	•	•	OS	OSOutdoor air sensor
•	•	•	•	•	•	•	•	MS	MSMixed air sensor

Note: Terminals and functions are not present on every thermostat



ORDERING INFORMATION

MODEL	DESCRIPTION
VT7600A5031B	BACnet heat/cool non-programmable, 1H/1C thermostat with fan and system switching
VT7600B5031B	BACnet multistage non-programmable, 2H/2C thermostat with fan and system switching
VT7605B5031B	BACnet multistage economizer non-programmable, 2H/2C/mixed-air thermostat with fan and system switching
VT7600H5031B	BACnet heat pump non-programmable, 3H/2C thermostat with fan and system switching
VT7652A5031B	BACnet heat/cool programmable, 1H/1C thermostat with fan and system switching
VT7652A5031E	BACnet heat pump programmable, 3H/2C thermostat with fan and system switching
VT7652B5031B	BACnet multistage programmable, 2H/2C thermostat with fan and system switching
VT7656B5031B	BACnet multistage economizer programmable, 2H/2C/mixed-air thermostat with fan and system switching
VT7600A5031E	LonTalk heat/cool non-programmable, 1H/1C thermostat with fan and system switching
VT7600H5031E	LonTalk heat pump non-programmable, 3H/2C thermostat with fan and system switching
VT7600B5031E	LonTalk multistage non-programmable, 2H/2C thermostat with fan and system switching
VT7605B5031E	LonTalk multistage economizer non-programmable, 2H/2C/mixed-air thermostat with fan and system switching
VT7652A5031E	LonTalk heat/cool programmable, 1H/1C thermostat with fan and system switching
VT7652H5031E	LonTalk heat pump programmable, 3H/2C thermostat with fan and system switching
VT7652B5031E	LonTalk multistage programmable, 2H/2C thermostat with fan and system switching
VT7656B5031E	LonTalk multistage economizer programmable, 2H/2C/mixed-air thermostat with fan and system switching
COV-PIR-HPUMP-5031	PIR cover for HP thermostat
COV-PIR-RTU-5032	PIR cover for RTU thermostat