THERMOSTATS & CONTROLLERS

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

VT7600 COMMUNICATING

DESCRIPTION

The **Viconics VT7600 Communicating Thermostat**s 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.

VT7600B5031B
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

ALL MODELS
- 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/Unocc auxiliary contact out

COMMUNICATION MODELS
- BACnet
- LON
- Wireless
- Wireless/ Zigbee Pro

SPECIFICATIONS

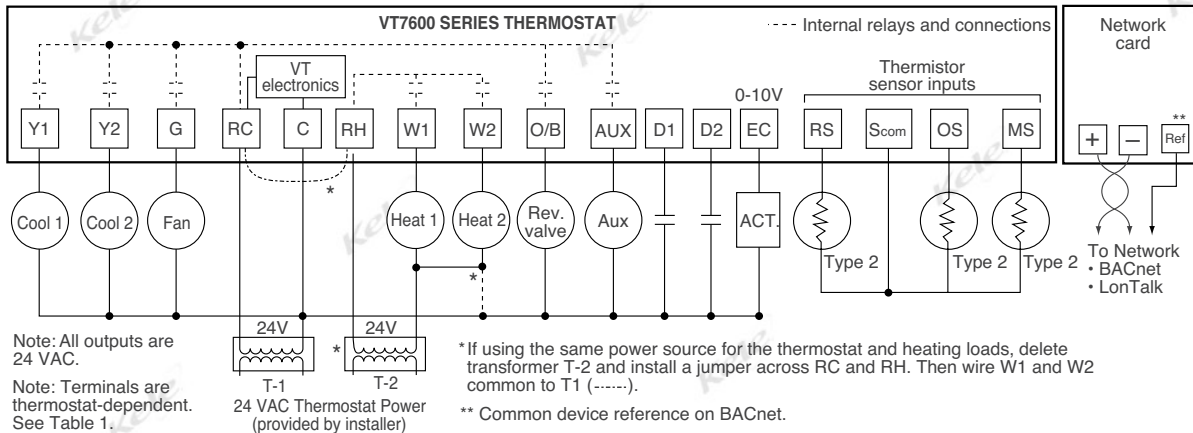|			
Supply Voltage	20-30 VAC, 50/60 Hz	**Control Output**	1A relays 30 VAC, 3A surge maximum
Supply VA	2 VA	**Auxiliary Contact Output**	1A relay 30 VAC, N.O./N.C. follows occupied schedule
Display	Two-line backlit LCD	**Mixed Air Output**	Proportional 0-10V DC, 2 kΩ minimum (economizer model)
Controls	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	**Cycles Per Hour**	Adjustable, heating 3-8 CPH, cooling 3-4 CPH
	Auto-on demand	**Display Offset**	Adjustable ±5°F (2.5°C), 1°F increments
	Smart-on/occupied, off/unoccupied	**LED Indicators**	Three green on (fan, cooling, heating)
Control Accuracy	±0.9°F (±0.5°C) @ 70°F (21°C)	**Wiring**	18 AWG max, 22 AWG recommended
Setpoint Range		**Operating Temperature**	32° to 122°F (0° to 50°C)
Heating	40° to 90°F (4.5° to 32°C)	**Operating Humidity**	0% to 95% RH (non-condensing)
Cooling	54° to 100°F (12° to 37.5°C)	**Enclosure**	ULFR1 flame-retardant plastic
Setpoint High/Low Limits	Individually adjustable, H/C	**Color**	White
Remote Sensor		**Mounting**	Standard vertical 2" x 4" box
Room Sensor	Room sensor input auto-detected 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)
Outside Air	Outside air input auto-detected 10K Type 2 thermistors	**Weight**	0.75 lb (0.34 Kg)
Mixed Air	Mixed air input auto-detected (economizer model only) 10K Type 2 thermistors	**Approvals**	UL Listed File #E234137, cUL, CE, LonMark
Auxiliary Inputs	Two dry contact digital inputs	**RoHS Statement**	Yes
Four Types	Service/status reminders	**Warranty**	1 year
	Filter alarm		
	Central night setback clock		
	Remote occupied override timer		

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WIRING

TABLE 1. TERMINAL DESIGNATION BY THERMOSTAT MODEL

THERMOSTAT MODEL VT7600									Note: Terminals and functions are not present on every thermostat	
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	LON BACNET	**Function**	
•	•	•	•	•	•	•	•	**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	

VT7600 SERIES THERMOSTAT — Internal relays and connections — Network card

Terminals: Y1, Y2, G, RC, C, RH, W1, W2, O/B, AUX, D1, D2, EC, RS, Scom, OS, MS

VT electronics

Cool 1, Cool 2, Fan, Heat 1, Heat 2, Rev. valve, Aux, ACT.

Thermistor sensor inputs — Type 2, Type 2, Type 2

0-10V

+ — Ref **

To Network
• BACnet
• LonTalk

Note: All outputs are 24 VAC.

Note: Terminals are thermostat-dependent. See Table 1.

24V 24V
T-1 T-2
24 VAC Thermostat Power (provided by installer)

* If using the same power source for the thermostat and heating loads, delete transformer T-2 and install a jumper across RC and RH. Then wire W1 and W2 common to T1 (------).

** Common device reference on BACnet.

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| 70° |

ORDERING INFORMATION

MODEL	THERMOSTAT TYPE
VT7600	RTU controller, no local schedule
VT7605	RTU + economizer controller, no local schedule
VT7606	RTU + IAQ + economizer controller, no local schedule
VT7607	RTU + humidity controller, no local schedule
VT7652	RTU controller, local schedule
VT7656	RTU + economizer controller, local schedule
VT7657	RTU + humidity controller, local schedule

	OUTPUTS
B	2H/2C (Not available on VT7606)
E	2H/2C + IAQ + economizer controller (VT7606 and VT7656 only)
F	2C + Analog heat controller (VT7600 and VT7652 only)
H	3H/2C Heatpump controller (VT7600 and VT7652 only)
W	2H/2C + humidity +watersource heatpump controller (VT7600 and VT7652 only)

	COVER
5000	Viconics logo
5031	Blank cover (no logo)
5500	PIR cover w/ Viconics logo
5531	PIR cover blank (no logo)

	COMMUNICATION PROTOCOL
E	Echelon/LONworks
B	BACnet
P	Wireless/Zigbee Pro
W	Wireless

| VT7605 | B | 5031 | W |

Example: **VT7605B5031W** RTU + economizer with 2 heat/2 cool, blank cover, wireless

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ACCESSORIES

TG511A1000	Thermostat guard- clear-medium size
COV-PIR-HPUMP-5031	PIR cover for HP thermostat
COV-PIR-RTU-5032	PIR cover for RTU thermostat