

THERMOSTATS & CONTROLLERS

PROGRAMMABLE THERMOSTAT VT8650 SERIES

DESCRIPTION

The **Viconics VT8650 Series** are programmable and application specific room controllers with customizable screen colors. The **VT8650** room controller is a rooftop, heat pump, and indoor air quality controller suitable for commercial and high end hospitality markets. The room controllers dramatically decrease project delivery costs by reducing installation, configuration and commissioning time. No complex software or tools are required to customize functionality to meet your applications requirements. The room controllers provide all the advanced features and monitoring functions required by modern building automation systems in a simple compact enclosure. For more advanced needs, custom LUA script programming available. (-LS models)



VT8650 Series



BACnet



ZigBee



FEATURES

- 2H/2C (3H/2C heat pump)
- Fan switching (on/auto/smart)
- System switching (O/A/C/H)
- Backlit LCD touchscreen Display
- Remote and OSA sensors (optional)
- Adjustable deadband
- PIR cover available
- Permanent program retention
- Proportional + Integral control
- Mixed-air (0-10V) control outputs
- Mixed-air sensor input
- Mixed-air setpoint (SP)
- Economizer changeover S.P.
- OSA damper min. position in %
- Two or four configurable events/day
- Progressive recovery or none
- 12 or 24 hour clock
- Six hour clock retention
- Occ/Unocc auxiliary contact out
- BACnet MS/TP
- Zigbee Pro/Wireless communication module (optional)
- Configurable economizer, scheduler, sequence of operations
- Color display change

SPECIFICATIONS

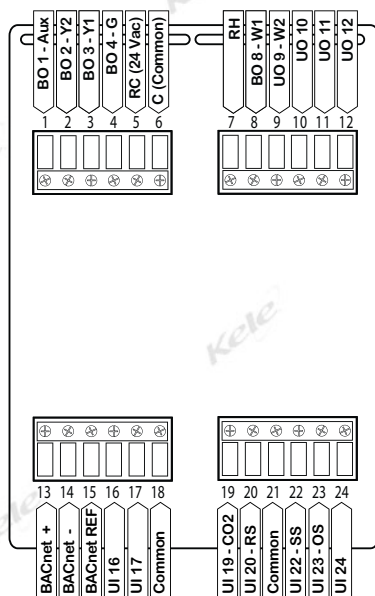
Supply Voltage	20-30 VAC @ 6 VA, 50/60 Hz	Control Output	1A relays 30 VAC, 3A surge maximum
Display	Touchscreen LCD	Mixed Air Output	Proportional 0-10V DC, 2 kΩ minimum
Controls	Touchscreen menu	Control Type	Proportional plus integral
Thermostat Type	Seven-day programmable, non-programmable models	Deadband	Proportional 3.2°F (1.8°C)
Heat Pump High/Low	OSA lockout (emer heating/comp. heating)	OSA Lockout Limits	
Stages	1H/1C, 2H/2C, (3H/2C heat pump) 2H/2C + proportional mixed-air economizer	Heating	15° to 120°F (26° to 49°C), 5°F increments
System Switching	Off/Auto/Cool/Heat	Cooling	-40° to 95°F (-40° to 35°C), 5°F increments
Fan Switching	On-continuous Auto-on demand Smart-on/occupied, off/unoccupied	Low Limit Protection	Enable/disable, heating @ 47°F (5.5°C)
Control Accuracy	±0.9°F, (±0.5°C) @ 70°F (21°C)	Keypad Lockout	Three levels (full, none, partial)
Setpoint Range		Cycles Per Hour	Adjustable, heating 3-8 CPH, cooling 3-4 CPH
Heating	40° to 90°F (4.5° to 32°C)	Display Offset	Adjustable ±5°F (2.5°C), 1°F increments
Cooling	54° to 100°F (12° to 37.5°C)	Wiring	18 AWG to 22 AWG, Power: 24 AWG min. communication
Setpoint High/Low Limits	Individually adjustable, H/C	Operating Temperature	32° to 122°F (0° to 50°C)
Remote Sensor		Operating Humidity	0% to 75% RH (non-condensing)
Room Sensor	Room Sensor input auto-detected 10K Type 2 thermistors	Color	White
Outside Air	Outside air input auto-detected 10K Type 2 thermistors	or Silver (optional fascias)	
Mixed Air	Mixed air input auto-detected (economizer model only) 10K Type 2 thermistors	Mounting	Standard vertical 2" x 4" box
Auxiliary Inputs	Two dry contact digital inputs	Enclosure Rating	NEMA 1, ULFR1 flame-retardant plastic
Four Types	Service/status reminders Filter alarm Central night setback clock Remote occupied override timer	Dimensions	4.72"H x 3.38"W x 1.00"D (12.0 x 8.6 x 2.5 cm)
		Weight	0.75 lb (0.34 Kg)
		Approvals	UL, File #E234137, CE, RoHs, BACnet
		Warranty	1 year

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70°

WIRING



TERMINAL DESIGNATION FOR IAQ HEAT PUMP AND RTU (Not all terminals are used for all applications)		
TERMINAL NUMBER	TERMINAL LABEL	DESCRIPTION
1	BO1 - Aux	Auxiliary
2	BO2- Y2	Y2 cooling stage
3	BO3- Y1	Y1 cooling stage
4	BO4- G	Fan energize
5	RC/24 V~HOT	24 VAC power supply for thermostat
6	C/ 24 V~COM	24 VAC common for thermostat
7	RH	Energize for heat
8	BO8-W1	W1 heating terminal
9	UO9-W2	W2/OB heating terminal
10	UO10	Economizer (0-10 Vdc)
11	UO11	Heat (0-10 Vdc)
12	UO12	Optional 0-10Vdc output (can be set from BACnet)
13	RS485+	BACnet MS-TP+
14	RS485-	BACnet MS-TP-
15	RS485 REF	BACnet MS-TP Ref
16	UI16	Universal input function specified
17	UI17	Universal input function specified
18	Scom	Sensor common
19	UI19-CO2	CO2 (0-10 Vdc input)
20	UI20 - RS	Remote Room Sensor (10 K ohm thermistor)
21	Scom	Sensor common
22	UI22 - SS	Remote Supply Sensor (10 K ohm thermistor)
23	UI23 - OS	Outside Air Sensor (10 K ohm thermistor)
24	UI24	Airflow (0-10 VDC input)

ORDERING INFORMATION

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MODEL	DESCRIPTION
VT8650U5000B	Room Controller for roof-top, heat pump, or IAQ with RH sensor, with no PIR sensor, 24VAC
VT8650U5500B	Room Controller for roof-top, heat pump, or IAQ with RH sensor and PIR sensor, 24VAC

Note: Replace last 3 digits of model number with **31B** for blank cover/no logo
Add -LS for custom LUA programming (upcharge applied)

WIRELESS ACCESSORIES	
MODEL	DESCRIPTION
SED-DOR-P-5045	Wireless remote sensor door switch
SED-WIN-P-5045	Wireless remote sensor window switch
SED-WDS-P-5045	Wireless remote sensor door or window switch
SED-WMS-P-5045	Wireless remote wall mount occupancy sensor
SED-CMS-P-5045	Wireless remote ceiling mount occupancy sensor
VCM8000V5045P*	ZigBee Pro extended profile communication module for all SE8000 series controllers

* Required for Zigbee Pro wireless communication for SED sensors.

ACCESSORIES

TG511A1000 Thermostat guard- clear-medium size

RELATED PRODUCTS

KTR24 Remote room thermistor sensor
KTR24-LED-MB Remote room sensor with override button and LED
ST-FZ24-8 Averaging duct thermistor sensor, Type 2, Model 24
ST-D24 10K Type 2 duct temperature thermistor
ST-O24 OSA thermistor sensor, Type 2, model 24, $\pm 0.36^{\circ}\text{F}$ (0.20°C)