

THERMOSTATS & CONTROLLERS



AHU COMMUNICATING THERMOSTATS SINGLE AND MULTISTAGE, PROGRAMMABLE AND NON-PROGRAMMABLE (BACNET, ZIGBEE PRO)

SE8650 SERIES



DESCRIPTION

The **Schneider Electric SE8650 Communicating Controllers** 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 **SE8650** 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 BACnet as well as a separate communication module card for adding wireless Zigbee Pro. For more advanced needs, custom LUA script programming available. (-LS models)



SE8650 Series

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

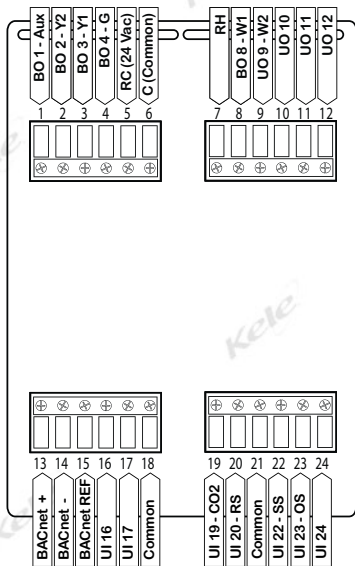
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WIRING



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

ORDERING INFORMATION	
MODEL	DESCRIPTION
SE8650U0B00	Room Controller for roof-top, heat pump, or IAQ with RH sensor, no PIR sensor, silver, 24VAC
SE8650U0B11	Room Controller for roof-top, heat pump, or IAQ with RH sensor, no PIR sensor, white, 24VAC
SE8650U5B00	Room Controller for roof-top, heat pump, or IAQ with RH sensor and PIR sensor, silver, 24VAC
SE8650U5B11	Room Controller for roof-top, heat pump, or IAQ with RH sensor and PIR sensor, white, 24VAC

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.

REPLACEMENT COVERS (FASCIAS)	
MODEL	DESCRIPTION
FAS-00	Fascia replacement-Silver
FAS-01	Fascia replacement-White
FAS-02	Fascia replacement-Glossy Translucent Silver
FAS-03	Fascia replacement-Glossy Translucent White
FAS-04	Fascia replacement-Glossy Translucent Black
FAS-08	Fascia replacement-Brushed Aluminum Finish
FAS-09	Fascia replacement-Light Grey Sleight Finish

RELATED PRODUCTS

691-K0A

Control transformer, 120:24 VAC, 40 VA, Class 2