Telkonet
SmartEnergy

SS5000 - Energy Management Thermostat for HVAC Systems

Overview

The SS5000 is a digital computerized thermostat that controls HVAC systems with a common thermostat interface using 24 volts. For systems that use line voltage (120, 240, or 277 volts), the SS5050 voltage converter is used.

The SS5000 uses a wireless radio network to communicate with occupancy sensors (SS2000 sensor). Using these occupancy sensors, the SS5000 determines whether or not a space is occupied. When people are present, the SS5000 maintains comfort and ventilation at occupant selected levels. When vacant, the SS5000 automatically reduces the energy consumption on the HVAC and adjusts ventilation as needed by adjusting the setpoint temperature. In addition, it is constantly performing patented scientific calculations to ensure that the comfort temperature is achieved within a specified time frame upon the occupant's return. This provides improved comfort for room occupants. The SS5000 Model 5 can optionally learn the day-to-day occupancy patterns of the room and recover in advance of the expected arrival as well as setback more deeply after a typical departure. This provides better savings and comfort for offices / schools.

The microprocessor inside the SS5000 not only performs the drift/drive calculations specified above, but it records detailed occupancy and HVAC usage data so that management reports may be generated. These reports assist in determining room occupancy patterns/percentages, HVAC system efficiency, runtime hours saved, etc. Data is downloaded onto a PC using the built-in interface and is stored in non-volatile memory to prevent loss in case of a power failure.

Features

- 24 volt thermostat replacement for all HVAC systems, including heat pumps, dual staged, (heat and cool), fan coil, and hybrids
- Quick and easy installation and programming
- People-sensing technology with a guaranteed comfort recovery time setting of 2 to 99 minutes
- User friendly buttons and internationally known icons

- Smart fan operation maximizes savings by making use of conditioned air resident in the ducts
- Continuously learns temperature variances and drive characteristics; continuously maximizes temperature drift (and energy savings) when vacant
- Constantly learns occupancy patterns. Optional arrival anticipation and deep setback departure prediction*
- Optional calendar allows for vacations to be programmed in advance*
- Supports peak demand load shedding via a temperature compensated real-time clock that automatically adjusts for daylight savings and leap years. Clock is backed by a "super-capacitor" that doesn't require replacement*
- Optional solid state, fast response, high accuracy humidity / dew point sensor. Allows for RH% or dew point setpoint targets (used in conjunction with 24VAC output to external dehumidification equipment)*
- Optional timed refresh cycle for additional humidity control
- Cover and buttons can be locked down to ensure simple operation and security
- Configurable ventilation control based on occupancy, humidity, time of day, light level, and external input*
- Supports monitoring (wired and /or wireless) of lanai doors. Multiple available HVAC responses to inputs*
- Supports automatic control of lighting
- ENERGY STAR certified, UL and FCC approved
- SSDN radio network, 49.85 MHz, AM, 1200 baud. Interface with RS-232/485 9 pin DIN.

*Indicates Features available on SS5000 Model 5

Technical Specifications

Parameter	Model 5 Limits	Model 4 Limits	Units	Comments
Operational Voltages	12 - 35	18 - 30	VAC	8 to 40 VDC (Model 4 - 7 to 12 VDC)
Input Current	0.022	0.03	Amp	No loads energized
Switched Current	1	2	Amp	Seven places (Model 4 - Five places)
Relays	7	5	—	Heat, Cool, Fan, Chgovr, 2nd Stage Heat, +2 (Rev. 4 Heat, Cool, Fan +2)
Setting Range	40 - 99	55 - 95	Degrees F	Adjustable limits, many types, Celsius available
Operational Range	35 - 99	35-99	Degrees F	—
Temperature Accuracy	+/- 1	+/- 1	Degrees F	Can field calibrate
Temperature Resolution	1/64	1/64	Degrees F	—
Humidity Accuracy	+/- 2%	—	%RH	10%-90% RH, +/- 4% RH <10%,>90%
Humidity Resolution	0.03%	—	%RH	—
Humidity Response Time	4	—	s	1/e (63%)
Auto Dead Band	+/- 3	+/- 3	F	Adjustable
Output Voltage	5	—	V (DC)	—
Data Output	RS232, 3.5mm Stereo, or S1P6	—	—	2 locations
Data Input	RS232, 3.5mm Stereo, or S1P6	—	—	—
Dry Contacts	2	—	—	Input and output
Clock Accuracy	2	—	Min	Max drift per year
Dimensions	4.9 x 5.4 x 0.5	4.9 x 5.4 x 0.5	Inches	Covers old thermostat locations

*Model 5: Supports multiple fan speeds. Lighting control is also available. Supports RF or hardwired sensors. Technical specifications are subject to change at any time.

Pin Connections and Back Plate

Pin	Direction	Use	
1	In	Occupancy Sensor +5V	
2	Out	Occupancy Sensor Data	
3	Out	Occupancy Sensor Ground	
4	In	Dry Contact in (Door switch / Load shed)	
5	Out	Dry Contact out (Door switch / Load shed)	
6	Out	Dehumidify	
7	Out	Ventilation	
8	In	External Relay Power	
9	In	(R)	24V Hot (Stat Power)
10	In	(C)	24V Common (Stat Power)
11	Out	(W1)	Heat
12	Out	(Y1)	Cool
13	Out	(G)	Fan
14	Out	(O)(B)	Changeover
15	Out	(W2)	Emergency Heat

SS5000 Model 5

Related Products: SS2000 Occupancy Sensor, SS5050 Voltage Converter, SS5060 Multiplexor

www.telkonet.com

Telkonet Headquarters

20374 Seneca Meadows Parkway
Germantown, Maryland 20876.7004 U.S.A.
sales@telkonet.com
international@telkonet.com

Phone: 240.912.1800
Toll-Free in the US: 866.375.6276
Fax: 240.912.1839

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