DATA SHEET

Telkonet SmartEnergy™

SS5000 Energy Management Thermostat

The SS5000 Energy Management Thermostat is a digital computerized intelligent thermostat that controls HVAC systems with a common thermostat interface.

Overview

The SS5000 Energy Management Thermostat is a digital computerized intelligent thermostat that controls HVAC systems with a common thermostat interface. It uses a wireless radio link or hard-wired connection to communicate with the SS2000 Energy Management Occupancy 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 by the HVAC and adjusts the settings as needed by allowing the temperature to drift to energy saving levels.

Patented Recovery Time Technology

Utilizing Telkonet's patented Recovery Time™ technology, the SS5000 constantly calculates how far each room's temperature can drift from the occupant's preferred setting (setpoint) to maximize energy savings and still return within the preset recovery time. Every room is constantly evaluated independently to determine its energy efficient temperature based on its environmental characteristics. Factors considered include if the drapes are open or closed, the window placement in the room, if the climate is dry or humid, the varying weather conditions, and the functional condition of the HVAC unit.

Through the constant monitoring of the HVAC unit's ability to drive the temperature and real-time adjustment of setback temperature (Recovery Time™ technology), rooms are never excessively hot or cold when an occupant returns to the room. The room will always be just minutes away from an occupant's desired comfort setting. Unlike fixed setback systems where the temperature is forced to one setpoint in all rooms, Recovery Time technology delivers room-by-room, occupant-by-occupant savings, while maximizing occupant comfort.

The SS5000 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 optimal savings and comfort, and is ideal for use in offices and schools with set schedules.

Management Reports

In addition to calculating how far the temperature can drift out to a recovery time setpoint and drive back to the guest setpoint, the SS5000 also records detailed occupancy and HVAC usage data, which can be captured in management reports. These reports assist in determining room occupancy patterns/percentages, HVAC system efficiency, runtime hours saved, and return on investment calculations. Data that is stored on the SS5000 can be 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 and Benefits

Occupant Comfort

- Maintains temperature to within less than one degree of occupant's setpoint while the room is occupied
- Special settings for sleep mode when rooms are dark to ensure guest comfort
- Refresh cycle keeps the room air fresh

Maximum Energy Savings

- Automatically adjusts for altered operation while guest is sleeping
- Multi-stage HVAC operation optimizes the use of varying heating and cooling stages
- 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 does not require replacement. Also supports load shedding on demand.

- Advanced SmartFan operation evacuates conditioned air from ductwork after the compressor has turned off, conserving compressor usage

Customization

- Custom programming can be set for humid vs. dry environments, extreme temperatures that require guest setpoint limits, measured emphasis on comfort vs. savings goals, etc.
- Preprogrammed temperature set point limits set by property management
- Selectable recovery time by property management at time of installation; can be altered at any time
- Deeper temperature setbacks during extended periods of non-occupancy (as with long periods of non-rented guest rooms, vacant meeting rooms, ballrooms, vacations, etc.)

Recovery Time Technology

- Continuously learns temperature variances and drive characteristics; continuously maximizes temperature drift (and energy savings) when vacant
- Guaranteed comfort recovery time setting of 2 to 255 minutes
- Room-by-room energy savings
- Ensures the room temperature will recover to the occupant's setpoint within minutes after their return to the room
- Adapts in real time to changing weather and environmental conditions

Installation

- Wireless communication allows simple, non-disruptive installation
- Unobtrusive design

Ease of Use

- Comes preprogrammed
- User friendly buttons and internationally known icons: flashing flames or snowflakes to indicate heating or cooling
- Large, easy-to understand icons and temperature display digits
- Simple temperature adjustments by pressing the temperature up or down arrow
- Cover and buttons can be locked down to ensure simple operation and security
- Selectable Fahrenheit or Celsius display

Monitoring and Management

- Ability to monitor and report HVAC health and efficiency
- Supports monitoring (wired and /or wireless) of lanai doors and windows
- Accurately records/reports real time HVAC runtime savings information
- Useful occupancy statistics recorded by internal computer chip
- PC downloadable data to generate savings analysis

Interfaces

- Interfaces with virtually all HVAC models including fan coil, PTAC, PTHP, split system, multi-stage heating and cooling systems
- Interfaces with HVAC sharing environments

Operation

- Feature rich; 132 programmable features, including vacation mode, setpoint limiting, humidity refresh cycling, fan optimization
- Configurable ventilation control based on occupancy, humidity, time of day, light level, and external input
- Up to eight sensors can be linked with each SS5000
- 24 volt thermostat replacement for all HVAC systems, including heat pumps, dual staged, (heat and cool), fan coil, and hybrids
- For systems that use line voltage (120, 240, or 277 volts), the SS5050 voltage converter is used
- Humidity protection and mildew suppression; refresh cycle or direct relative humidity (RH) percentage targeting protects soft goods

Reliability

- All PCM assembly is 100% quality tested before shipped
- Replacement of damaged or broken components; no need to replace the entire system

Maintenance

- Reduced wear and tear on HVAC units, ensuring longer life and reduced maintenance

Options

- 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)
- Programmable timed refresh cycle to ensure humidity control
- Calendar allows for vacations or holidays to be programmed in advance for further temperature setback
- Auto changeover mode for heating or cooling as needed
- Constantly learns occupancy patterns; arrival anticipation and deep setback departure prediction
- Wireless/wired door switch monitoring
- Wireless door sensors to turn off HVAC when a patio door is left open

Other

- ENERGY STAR certified
- UL and FCC approved
- One year standard warranty

Note: Features for the energy management products listed above vary by model number.

Technical Specifications

Parameter	Model 5 Limits	Model 4 Limits	Units	Comments
Operational Voltages	12 - 35	18 - 32	VAC	8 to 40 VDC (Model 4 - 20 to 36 VDC)
Input Current	0.022	0.1	Amp	No loads energized
Switched Current	1	1	Amp	Seven places (Model 4 - Five places)
Relays	7	5	—	Heat, Cool, Fan, Chgovr, 2nd Stage Heat, +2 (Model 4 - Heat, Cool, Fan +2)
Setting Range	40 - 99	40 - 99	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 VDC	5 VDC	V (DC)	—
Data Output	RS232, 3.5mm Stereo, or SiP2x3	RS232, 3.5mm Stereo, or SiP2x3	—	2 locations
Data Input	RS232, 3.5mm Stereo, or SiP2x3	RS232, 3.5mm Stereo, or SiP2x3	—	2 locations
Dry Contacts	1 pair	—	—	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 - Model 5

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

Related Products: SS2000 Energy Management Occupancy Sensor, SS5050 Energy Management Voltage Converter, SS5060 Energy Management 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

ENERGY STAR

SE-SS5000DS–12/07