



SS1107 Energy Management Controller

Telkonet SmartEnergy™

Energy Management Solutions



Overview

The Telkonet SS1107 Energy Management Controller (EMC) is an advanced controller for use in rooms with packaged terminal air conditioning (PTAC) units. The SS1107 controls a PTAC unit based upon a room's occupancy, using a wireless radio link to communicate with the SS2000 Energy Management Occupancy Sensor to determine whether or not a room is occupied.

The SS1107 represents significant advances in versatility, interoperability with other equipment, and overall performance. The powerful SS1107 incorporates key design innovations, including compatibility with a wide range of Packaged Terminal Air Conditioner (PTAC) equipment and third party sensors, for maximum installation flexibility.

The SS1107 can simply mount either over or into an existing power source outlet. Used in combination with the SS2000 Energy Management Occupancy Sensor, the SS1107 maintains the occupant's preferred setpoint temperature when the room is occupied. When vacant, the SS1107 works with the PTAC unit to adjust the setpoint to the new energy efficient temperature. The temperature will continue to drift until the occupant re-enters the room. The SS1107 allows the PTAC to return the temperature to the occupant's original setpoint within the customer's predetermined recovery time.

Powerful Technology Advancements

Compared to the previous SS1000 model, the Telkonet SS1107 controller's communications have been radically enhanced with a dedicated port for high-speed communication and the ability to support future mesh networking technology. Other major features include operating at much higher data rates, typically 100 times faster, for extended performance and future-proofing.

The SS1107 provides instant visual verification of the radio signal strength between the sensor and base station devices for confirmation of installation quality. Flexible mounting options ensure that any outlet location can be accommodated, making the controller substantially easier to install.

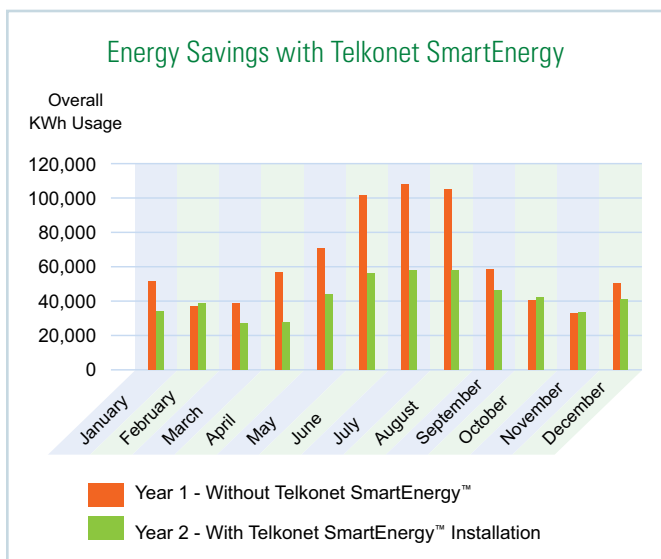
Users can also access more run-time statistical data for enhanced performance analysis, spanning a wide array of parameters, such as heating and cooling status, room occupancy patterns, and the status of the wireless communications with current room sensors.

Patented Recovery Time™ Technology

By incorporating Telkonet's patented Recovery Time™ technology into the SS1107, the controller 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, or setpoint, 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 condition of the HVAC unit.

Through the constant monitoring of the HVAC unit's ability to drive the temperature and the adjustment of the recovery time temperature, 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.

In addition to calculating how far the temperature can drift out to the recovery setpoint and drive back to the occupant's desired setpoint, the SS1107 records detailed occupancy and HVAC usage data which can be used to generate management reports. These reports assist in determining room occupancy patterns/percentages, HVAC system efficiency, runtime hours saved, and



This shows the energy usage for a midsize hotel in Las Vegas, Nevada, where the rooms were cooled from April to Sept and heated in Dec and January. Usage varied in February, October, and November due to increased loads and yearly temperature fluctuations.



return on investment calculations. 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. The SS1107 is available for 120, 208, 240 and 277 VAC applications.

Features and Benefits

Field upgradeable

- Flash-based CPU enables the controller's firmware to be kept-up to-date easily, ensuring long-term future-proofing

Increased compatibility with many different PTAC units

- Operates with virtually any PTAC, irrespective of age and type, including lower-voltage systems and mini splits, plus interfaces with third party occupancy sensors

Fast operating speed with higher data rate

- Serial speed is over 100 times faster than the previous SS1000 model
- Supports BAUD rates of 1,200, 5,600, 57,600 and 115,200

Advanced patio/lanai door or window monitoring

- Dry contact switch inputs enable the PTAC to be turned off when doors or windows are opened; operates with the Telkonet SS2020 wireless door sensor
- Can use hard-wired door sensors to either monitor a lanai door or use the contact to assist in determining occupancy

Temperature calibration flexibility

- Supports calibration at absolute rather than relative values, with adjustable setpoint limits adjustable for heating-only/cooling-only systems
- Can calibrate the temperature to read the temperature in the middle of the room, rather than limiting the reading to near the air conditioner where the room is typically colder
- Ability to set setpoint limits for single stage systems (heating or cooling only systems)

Maximizing energy efficiency and occupant comfort with room-by-room energy savings

- Incorporates Telkonet's patented Recovery Time technology, prioritizing energy efficiency and customer comfort, with greater recording of run-time statistics for improved diagnostics
- Patented Recovery Time technology continuously learns temperature variances and drive characteristics; continuously maximizes temperature drift (and energy savings) when vacant
- Guaranteed comfort recovery time setting, selectable by management, from 2 to 99 minutes
- Adapts in real time to changing weather and environmental conditions
- "Sleep Protection" automatically adjusts for altered operation while occupant is sleeping with auto-calibrating light sensor
- Improved refresh cycle combats humidity

Load shedding on demand

- Extra dry contact supports the ability to perform load shed events when used in conjunction with other services

Customized programming features for property management

- Custom programming can be set for humid vs. dry environments, extreme temperatures that require guest setpoint limits, measured emphasis on comfort versus savings goals
- 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)

Telkonet SmartView remote viewing software

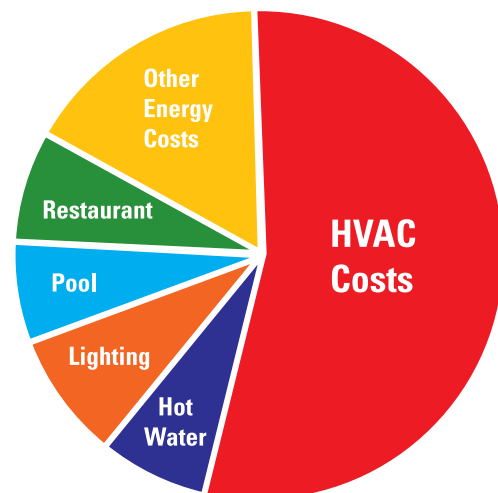
- Seamlessly integrates with the SS1107 to enable the convenient monitoring of the Telkonet SmartEnergy system, as well as easy data download

Enhanced data statistics for better troubleshooting and maintenance

- Captures detailed statistics to proactively identify failing PTACs, dirty filters, low refrigerant, enabling better maintenance of HVAC equipment and longer equipment life
- Improved HVAC protection algorithm, protecting the HVAC system from excessive runtime. Users can specify the maximum runtime in occupied/unoccupied states individually, as well as individual rest times required for the HVAC system if a maximum runtime was reached, helping to extend the HVAC system's life and eliminating frozen PTACs due to an occupant setting a setpoint that is unobtainable.
- Additional 56 variables are permanently stored in non-volatile memory, allowing for more precise determinations of the amount of energy consumed and saved
- Increased data logging records more statistics that can be viewed remotely with high-speed data port

Monitoring and Management

- Ability to monitor and report HVAC health and efficiency
- Accurately records/reports real time HVAC runtime savings information



Energy costs associated with heating, ventilation and air conditioning (HVAC) add up to one of the largest operating expense for property owners.

- Useful occupancy statistics recorded by internal computer chip
- PC downloadable data to generate savings analysis

Improved installation speed and flexibility

- With flexible mounting options, accommodates any outlet location
- Visible radio strength indicator to show quality link between sensors and base station to indicate the quality of the installation
- Built-in connectors are available for hard-wired occupancy sensors
- Wireless communication enables simple, non-disruptive installation
- Quick and simple, plug and play installation

Operation

- Up to eight sensors can be linked with each SS1107
- Humidity protection and mildew suppression; refresh cycle protects soft goods
- Observe strict separate heating and cooling setback limits, often requested by customers and required by some states for safety; limits can be set to any value and/or field adjusted
- Radio can be disabled if necessary for hard-wired operation in harsh RF environments

Reliability and maintenance

- All PCM assembly is 100% quality tested before shipped
- Reduced wear and tear on HVAC units, ensuring longer life and reduced maintenance
- Strong industrial design for a more secure mounting and to prevent tampering

Other

- One year standard warranty
- ENERGY STAR certified
- FCC approved
- ZigBee compatible



The SS2000 Energy Management Occupancy Sensor constantly monitors a room and sends data back to the SS1107 Energy Management Controller. This data is used to calculate occupancy patterns to optimize energy savings.

Technical Specifications

Parameter	Limits	Units	Comments
Operational Voltages	120, 240, 277	VAC	—
Switched Current	20	Amp	—
Motor Ratings	1, 2.5, 2.5	Hp	—
Operational Range	35 - 99	Degrees F	—
Temperature Resolution	1/64	Degrees F	—
Display	3 color LED	—	Red, Green, Orange
CDS Cell	1 - 100	lx	Day and Night Comfort
Data Port	—	—	RS232, SIP 1x4 ZigBee Module Port
Dimensions	4.6 x 4.6 x 2.75	Inches	L x W x Profile
Certifications	FCC	—	US, Canada

*Technical specifications are subject to change at any time.

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



Telkonet SmartEnergy™



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

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

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