



## EcoSmart Intelligent Energy Management Suite of Products

Delivering a Balance of Comfort and Energy Efficiency



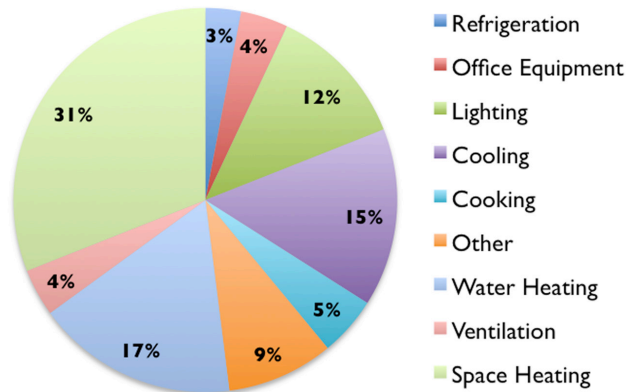
EcoSmart achieves the balance of energy savings and guest comfort.

Facility managers need innovative ways to reduce operating expenses and satisfy guest expectations for comfort and sustainability. Air conditioning and heating costs represent one of the largest uncontrolled operating expenses for most properties. Since a typical hotel room is vacant approximately 70% of the day, a considerable amount of energy is wasted on empty rooms without intelligent HVAC controls.

HVAC costs can total as much as 45% of a building's utility expense, so reducing in-room energy consumption can significantly add to a hotel's profit. The EcoSmart™ intelligent energy management system can save energy, reduce HVAC runtime, decrease maintenance costs and increase mechanical equipment working life by intelligently managing energy in spaces with unpredictable occupancy patterns.

The EcoSmart system is installed in all major hospitality brands and is proven to reduce energy consumption 20% - 45%. One of the greatest advantages of the EcoSmart system is how it reduces energy consumption while maintaining guest comfort.

### Total Energy Consumed by End Use



Source: E Source [2006] Commercial Energy Advisor

In 2007, a survey commissioned by the Element extended-stay brand of Westin Hotels found that people are 63% more likely to leave a light on when absent from their hotel room than at home.

The EcoSmart system is comprised of these major components:

<p style="text-align: center;"><b>EcoCentral</b></p> <ul style="list-style-type: none"> <li>• Cloud-based energy management command center</li> <li>• Monitor &amp; control your facility remotely</li> <li>• EcoSmart device control</li> <li>• Ability to process raw data into usable, actionable reports</li> <li>• Over the air updates</li> </ul>	<p style="text-align: center;"><b>EcoInsight+</b></p> <ul style="list-style-type: none"> <li>• Occupancy-based programmable thermostat</li> <li>• Samples 132 data points to control the efficiency of HVAC equipment</li> <li>• Compatible across most HVAC systems</li> <li>• Easily installed on:             <ul style="list-style-type: none"> <li>- packaged terminal air conditioners</li> <li>- fan coils</li> <li>- heat pumps</li> <li>- split systems</li> </ul> </li> </ul>	<p style="text-align: center;"><b>EcoSource+</b></p> <ul style="list-style-type: none"> <li>• For use with thermostat user interface (EcoAir or EcoTouch+) to form wireless HVAC control package</li> <li>• Connected to HVAC unit for physical control of the system</li> <li>• Compatible across most HVAC systems.</li> <li>• Easily installed on:             <ul style="list-style-type: none"> <li>- packaged terminal air conditioners</li> <li>- fan coils</li> <li>- heat pumps</li> <li>- split systems</li> <li>- and more</li> </ul> </li> </ul>
<p style="text-align: center;"><b>EcoSmart VRF Controller</b></p> <ul style="list-style-type: none"> <li>• Similar to EcoSource+</li> <li>• For use with variable refrigerant HVAC systems (VRF/VRV/VRP)</li> <li>• Mounts next to the VRF indoor unit</li> <li>• Communicates with the thermostat user interface (EcoAir or EcoTouch+) or other compatible Zigbee remote user interfaces</li> </ul>	<p style="text-align: center;"><b>EcoTouch+</b></p> <ul style="list-style-type: none"> <li>• Wireless thermostat user interface</li> <li>• Ultra-thin, modern</li> <li>• Capacitive touch flat screen resembles mobile device</li> <li>• Traditional thermostat buttons replaced with icons on glass</li> <li>• Line or battery powered</li> <li>• Contains a passive infrared sensor, detecting body temperature AND motion</li> </ul>	<p style="text-align: center;"><b>EcoAir</b></p> <ul style="list-style-type: none"> <li>• Our traditional wireless thermostat user interface</li> <li>• Typically battery powered</li> <li>• Contains a passive infrared sensor, detecting body temperature AND motion</li> </ul>
<p style="text-align: center;"><b>EcoContact+</b></p> <ul style="list-style-type: none"> <li>• Supplemental occupancy detection</li> <li>• Consists of occupancy sensor and magnetic contact</li> <li>• Perfect for doors and windows</li> <li>• Turns off HVAC to save energy when doors and windows are left open.</li> <li>• ZigBee Home Automation (HA) Compliant</li> </ul>	<p style="text-align: center;"><b>EcoSense+</b></p> <ul style="list-style-type: none"> <li>• Supplemental occupancy detection for large or multi-room spaces</li> <li>• Contains a passive infrared sensor, detecting body temperature AND motion</li> <li>• Directional occupancy sensor</li> <li>• Install on wall or ceiling</li> <li>• ZigBee Home Automation (HA) Compliant</li> </ul>	<p style="text-align: center;"><b>EcoGuard</b></p> <ul style="list-style-type: none"> <li>• Intelligent power outlet</li> <li>• Monitors and stops flow of power to one or both outlets, shutting off energy consuming loads</li> <li>• Targets “energy vampires”, devices on standby power that continue to draw energy</li> <li>• ZigBee Home Automation (HA) Compliant</li> </ul>
<p style="text-align: center;"><b>EcoSwitch</b></p> <ul style="list-style-type: none"> <li>• Energy management light switch</li> <li>• Individually addressable</li> <li>• Controls lighting with commands from:             <ul style="list-style-type: none"> <li>- EcoSmart thermostat</li> <li>- Occupancy sensor</li> <li>- EcoCentral schedule</li> <li>- Manual command</li> <li>- BMS/PMS system that determines sold/unsold room status</li> </ul> </li> <li>• ZigBee Home Automation (HA) Compliant</li> </ul>	<p style="text-align: center;"><b>EcoSmart Mobile</b></p> <ul style="list-style-type: none"> <li>• Mobile application for tenants</li> <li>• Tenant can program unique schedules to automate energy savings</li> <li>• Tenant can monitor &amp; control thermostat &amp; energy settings from anywhere in the world</li> <li>• Uses geolocation data from tenant mobile device to increase occupancy accuracy</li> </ul>	<p style="text-align: center;">A 10% reduction in energy costs is equivalent to increasing Average Daily Rate (average dollar amount paid per customer per night) by 2.6% and increasing Occupancy Rate (percent of rooms occupied at any given time) by 4.3%.</p>

## Balancing Guest Comfort and Energy Savings

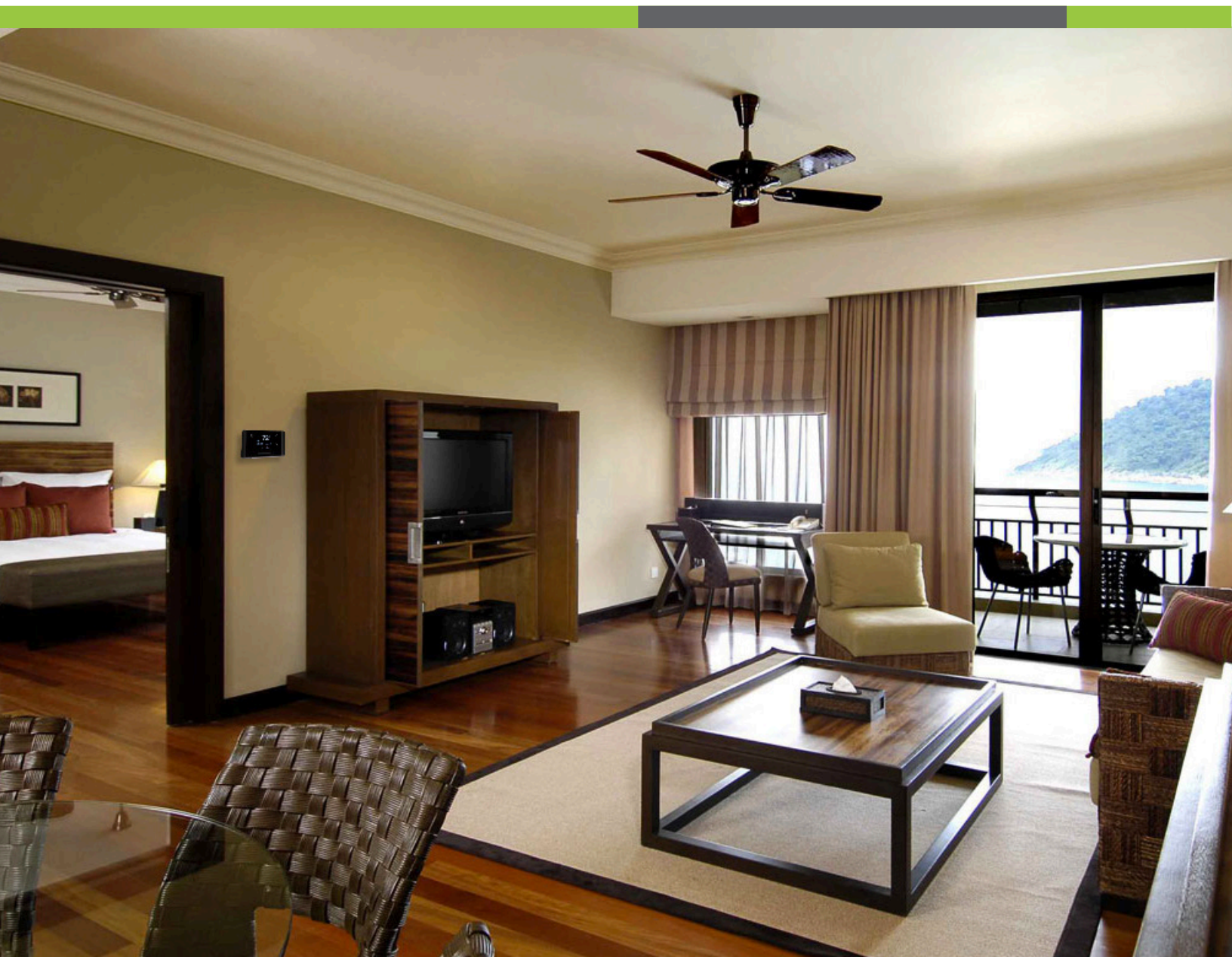
EcoSmart thermostats have internal passive infrared (PIR) and motion sensors to detect motion and body heat, to ensure comfort is maintained for sleeping guests. Each thermostat also includes light level and humidity sensors, plus multiple inputs for remote sensors and contacts, an optional real-time clock and a powerful internal processor to manage and store data.

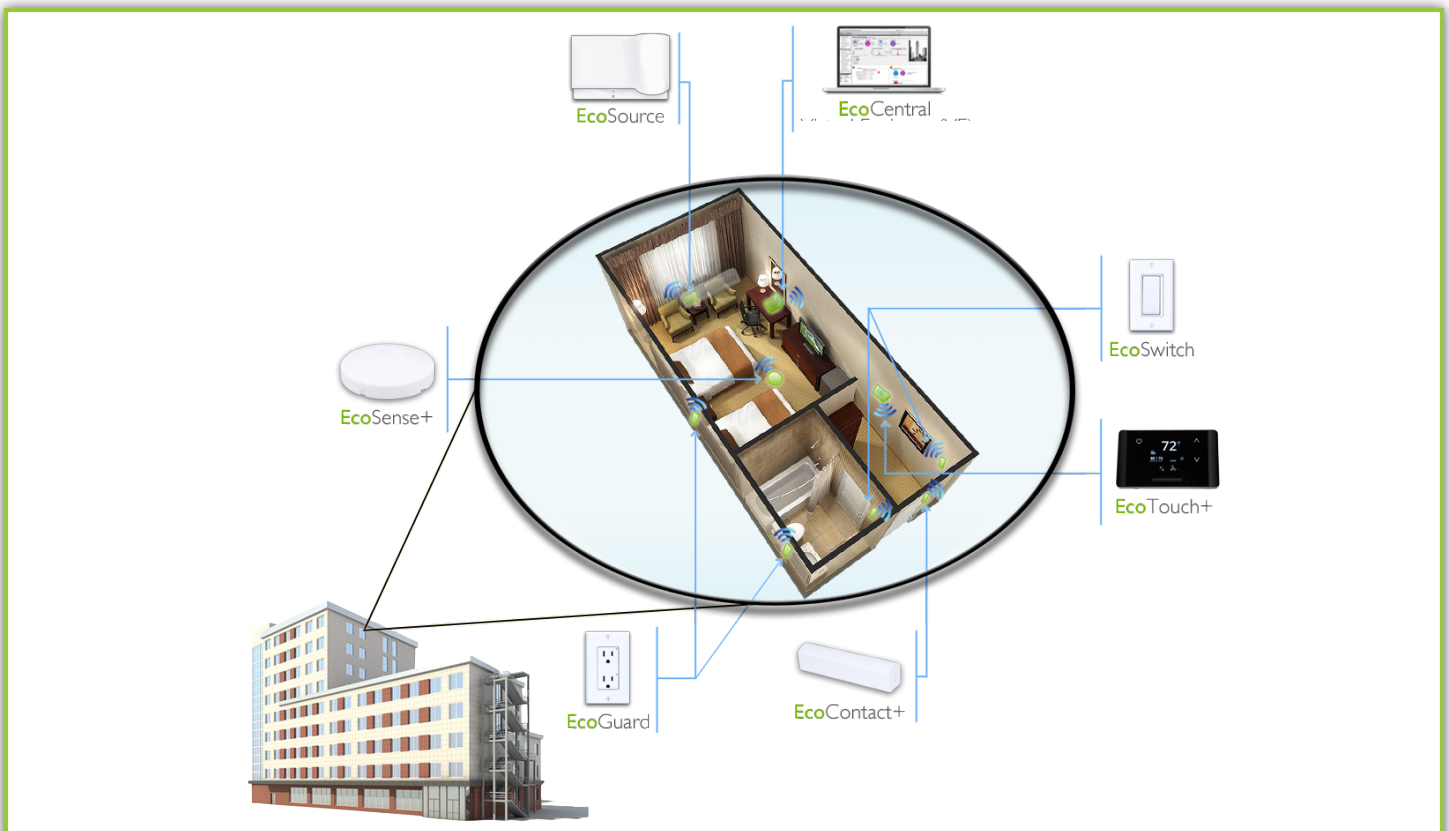
EcoSmart utilizes a proprietary Recovery Time™ algorithm that allows the room temperature to drift for energy savings while rooms are not occupied, but returns to the occupant selected setpoint within a predefined number of minutes. Recovery Time continuously calculates how far the temperature can drift and still return to the setpoint within the property-determined recovery time. For example, a 5-minute recovery time for a 7-star hotel and a 20-minute recovery time for a budget hotel would align the balance of guest experience and operating costs.

## Reliable Wireless Communication

EcoSmart thermostats communicate over a robust wireless mesh network that is managed by the cloud-based EcoCentral™. Users can securely control an entire facility and manage data from any web-connected device. EcoSmart incorporates industry-standard ZigBee wireless mesh communication technology because it has been proven reliable in thousands of installations worldwide and offers the advantages of simple installation, network security and uninterrupted coexistence with other wireless technologies.

EcoSmart ZigBee self-healing mesh technology maintains wireless communication even when signals are obstructed. Disrupted signals automatically and immediately re-route around obstacles and find other paths to connect to the network. This technology eliminates the risks of conventional wired systems, which fail when wires are cut or disconnected, or lose data if network connections are lost. Each thermostat has sufficient memory to store up to 90 days worth of data – ensuring data retention.





## Increase Your Marketability and Asset Value While Reducing Operating Expense

You are already paying a hefty HVAC operating expense. Don't make your utility your favorite charity. Simply use expenses already allocated for your utility bill to pay for an EcoSmart energy management system with the savings it will generate.

An EcoSmart investment will increase your net asset value and marketability as a 'green' or 'eco hotel' while reducing your operating costs. Your guests will benefit from a consistently comfortable experience, and you can capitalize on the growing trend of marketing your property as an ecofriendly accommodation. A 2013 TripAdvisor® survey found 79% of travelers place importance on properties implementing eco-friendly practices.

### Stopping Wasted Plug Loads

For additional energy conservation, intelligent EcoGuard™ power outlets and EcoSwitch™ light switches communicate wirelessly with thermostats or remote occupancy sensors to determine when a room is unoccupied and stop the flow of electricity to lights and plug load devices that would otherwise be wasted on an empty space. These smart outlet and switches are networked with the EcoSmart system and can control and manage lights, entertainment systems, mini-bars and other power sapping devices. A built-in high precision power meter accurately monitors energy use and provides real-time savings information for energy use analysis.

### Remote System Management

The EcoSmart energy management system improves both energy efficiency and maintenance staff productivity. EcoSmart offers remote facility management with the EcoCentral cloud-based command center is accessible from any Internet-enabled mobile device. This also eliminates dedicated PC hardware and software that needs manual updating.

### Big Data Offers Relevant Reports




EcoSmart thermostats are powerful data loggers that monitor 132 data points to learn room conditions and occupancy patterns and generate actionable reports to:

- Track room-by-room usage patterns and generate detailed reports of room performance, including real-time energy savings on HVAC, lighting and plug-load devices.
- Monitor each room's HVAC equipment and get proactive reports of when to schedule maintenance like replacing filters and batteries and when to service malfunctioning equipment before they fail.
- Schedule demand-response strategies to reduce energy use in unoccupied rooms and balance the grid load across a specified number of units.
- Identify unusual occupancy statistics to eliminate potential lost room revenue.

Reports can be created to qualify for LEED certification, secure rebates from a local utility, and provide measurement and verification data to prove a property has achieved brand sustainability standards.

## Future Proof and Integration Ready

The EcoSmart product line can be installed standalone, for hotels that without a current budget for a networked system, and later be upgraded to a fully networked system for property-wide energy management and efficiency.

Good	Better	Best
 <p>Standalone Upgradeable Basic Thermostat</p>	 <p>Standalone Energy Management Thermostat</p>	 <p>Networked Energy Management System</p>

To maximize savings from unsold rooms, EcoSmart can be integrated with a hotels' property management system to determine sold or unsold room status and pre-condition rooms at guest check-in, plus enable a deep setback mode in unsold rooms for additional energy savings. EcoSmart can also be integrated with many automated in-room systems for a total integrated guestroom solution.

## EcoCare Support

Telkonet's EcoCare program offers customer support, cloud-based equipment monitoring and firmware upgrades to keep your EcoSmart system operating at maximum efficiency. Telkonet will develop a unique EcoCare plan that complements every property's budget and staff capabilities to assure peace of mind that your property is running optimally and efficiently. Contact Telkonet today to see how EcoSmart can reduce your energy expense and simplify the management of your operation.

For more information contact a Telkonet representative today. Visit [telkonet.com](http://telkonet.com) or call 888.703.9398.