EcoWave

Remote Thermostat Package

A revolutionary remote interface wireless thermostat and control solution offering distributed management over in-room HVAC units.

Flexible Wireless Hardware Provides Ease of Installation

The EcoWave wireless thermostat solution is part of the EcoSmart Suite of products by Telkonet. The EcoWave solution is comprised of two hardware components: the EcoAir battery powered display unit and the EcoSource wireless controller. The EcoSource is placed at the heating ventilation and cooling (HVAC) unit for physical control of the system. The EcoAir display can be placed in the optimum location for both temperature measurement and ease of occupant use. There are no restrictions on where existing thermostat wire has been run or if there are enough conductors.

The EcoWave system can be configured for many different HVAC scenarios. It can control multiple HVAC's each with an EcoSource but directed by a single EcoAir display unit. This type of setup reduces the complexity of running multiple HVAC units in a single large space and worrying about opposing modes competing against each other.

The EcoWave functionality adds increased usability, extra efficiency and component cost savings to conference rooms or large room suites. Conversely multiple EcoAir display units in different areas of a building would allow each individual area the ability to make setpoint changes to control a single EcoSource on a larger HVAC system.

The EcoWave components together form a wireless programmable controllable thermostat (PCT) with over 125 configurable settings used to control the efficiency and load control of a HVAC system. The EcoWave provides unparalleled compatibility across HVAC systems. Easily installed on packaged terminal air conditioners, fan coils, heat pumps, split systems and more. With its software based relay control and fan speed configuration, programming setup is simple and fast.

The ultra-wide power input along with its ability to switch alternate power sources, and its proportional control outputs makes it a fit for the basic to the most complicated installations. Large internal data loggers measuring over 40 various runtime metrics make the EcoWave the thermostat of choice for measurement/verification and detailed analytics. With the EcoWave package you get more than just a wireless thermostat with a generous number of input options. Two Current Transducers (CT) inputs can be used to measure and log current. Two external temperature inputs can be used to monitor remote temperature and two dry contacts are available for door contacts or integration with third party building controls.

Standards Based Communication

With the intelligence built-in, the EcoWave system can communicate as part of a larger EcoSmart network based on the ZigBee wireless module or fit seamlessly into existing control networks already based on ZigBee SmartEnergy™ standards. Additionally, the EcoWave can inter-operate by utilizing a building's direct digital control (DDC) or building automation systems (BAS) and communicating with industry standards such as BACnet.

Efficient HVAC Operation While Away

The EcoWave solution is designed to provide building operators with efficiency in the performance of their HVAC systems at a fraction of the normal install cost. It achieves efficiency by allowing granular control over available setpoint ranges, mode selections, setback temperature limits, and data from interconnected systems such as a hotel's property management system or utilities time of day pricing data.

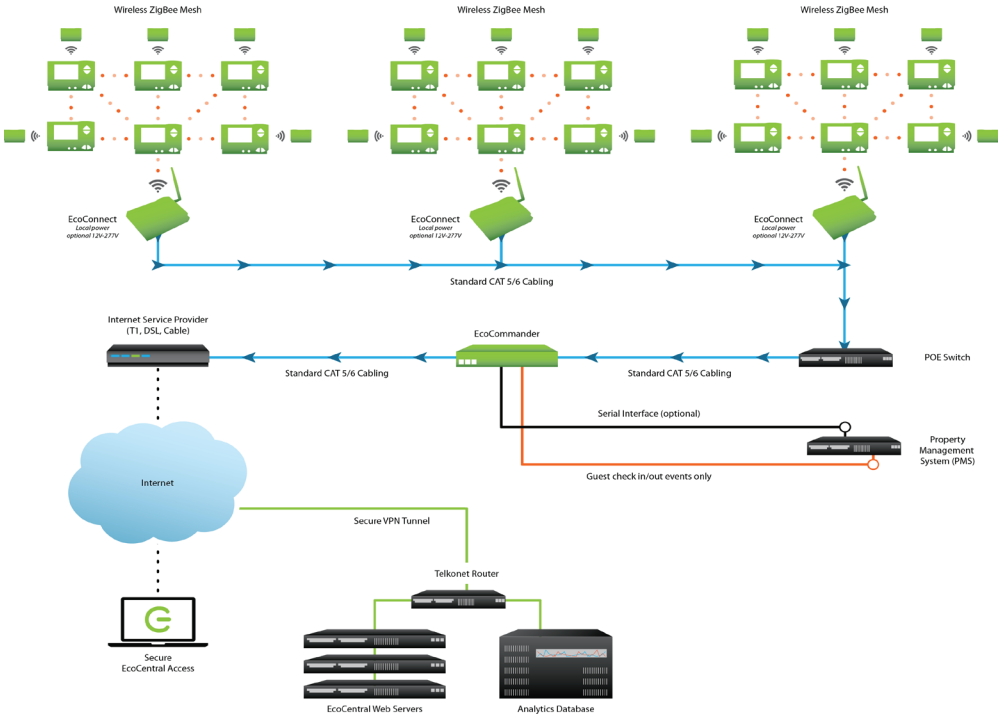
Using the optional built-in passive infrared motion sensor, optional external sensor (EcoView) or the optional door contact (EcoContact), the EcoInsight will determine when a space is occupied or vacant and react according to its operators programming. It can set the temperature to preset limits set by the operator or implement Telkonet's patented Recovery Time. The Recovery Time method will dynamically select the optimum setback temperature for each individual HVAC system based on its past performance and specific room characteristics such as solar load. The EcoWave is designed with networking in mind and comes integrated with the ZigBee module needed to create

Overview

- Displays current room temperature, date and time, and setpoint degree
- Onboard PIR motion sensor for more accurate room occupancy checks
- 100% ZigBee compatible for more robust control over your property
- Provides access to many resources that constantly monitor and control your properties energy savings

Features

- Highly compatible across many heating and cooling systems
- Easily installed and programmed
- Patented Recovery Time™ Technology
- Networked or stand-alone operations
- Full remote control capability with any web browser via our EcoCentral platform
- Communicates wirelessly with other EcoSmart products to ensure the highest energy savings
- Optional IP network
- Multi-color backlights for alerts and easy night operation



The above diagram illustrates how the EcoWave package communicates within a typical property setting.

a larger managed building network. Large internal memory is standard on the EcoWave and data is available for download via laptop connection. When the EcoWave is connected to the EcoConnect device it becomes a ZigBee router and logs data internally and sends data on selectable intervals to a centralized database server.

By combining the EcoWave products with the full EcoSmart network solution an operator gains full remote control capability down to the individual thermostat level. Room-by-room a setpoint or mode can be changed over the secure web-based EcoCentral portal. Global site changes to set point ranges, setbacks or even scheduled load shed events can be made easily by grouping the settings into new profiles, which can be delivered to a group of thermostats at a time.

Design for all Styles

The EcoAir display thermostat features a modern design with optional backlights in orange, green and blue. The large, easy to read LCD display has options to display both the set-point and room temperature as well as outdoor temperature. It's easy to understand display makes it perfect for hospitality use and makes maintaining the EcoAir thermostat simple with its secured maintenance menu for building staff. The EcoAir comes in two optional enclosures: a flush-mount and partially recessed. Both enclosures are available in a multitude of color pantones to match specific designer requirements. Optional buttons under the screen can be software customized per site. Common uses include F/C, Heat/Cool mode buttons, and Savings Mode.

EcoSmart Patented RecoveryTime™

EcoWave constantly calculates how far each room 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. Through the constant monitoring of the HVAC unit's ability to drive the temperature and real-time adjustment of setback 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. Recovery Time technology delivers room-by-room, occupant-by-occupant savings, while maximizing occupant comfort.

Proven Savings

Telkonet's energy efficiency products have been proven in over 200,000 rooms across Hospitality, Education, Military, and Health Care markets. The power and intelligence behind the EcoWave makes it an ideal fit for a number of applications, including residential and office complex space. New opportunities for efficiency in HVAC are constantly uncovered with the wide array of support the EcoWave provides.

EcoWave Technical Specifications

- Zigbee/802.15.4 Wireless
- 2.4Ghz ISM band

- Temperature Accuracy: +/- 1F
- Temperature Resolution: 1/100 F

- Humidity Accuracy: +/-2% (10%-90%)
- Humidity Response Time: 4 seconds

- Dimensions: 6 x 3.9 x 1.5
- Operational Voltage: 12-277AC 12-40DC
- Maximum Functional Wattage: 2.5W
- 2 AA batteries (2 year life)
- Hertz: 50Hz/60Hz
- Switched Current: 1-16A
- Switched: 3-7(3A),0-2(5A), 0-1(16)
- Temperature Range: 35-120F

EcoWave Options + Inputs/Outputs

- Humidity Sensor
- Real-Time Clock
- Ethernet Port
- ZigBee High Power
- External CT
- Temperature Probe

- Configurable 7th relay (build option)
- Two dry contact inputs
- Two external temperature inputs
- Two current transducer inputs
- Two 0-10v/4-20mA outputs

Standards

- ZigBee Certified
- FCC Certified
- UL Certified
- Field upgradable firmware over 802.15.4

Availability

The EcoWave is available now

eco2max