ENERGY PATROL
Energy Management Systems

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PATROL SYSTEM®

✔ GUARANTEED SAVINGS

SYSTEM COMPONENT DESCRIPTION

The Energy Patrol System consists of four basic components: the **Patrol 7000™ Sensor/Controller, Door Switch, HVAC Relay Assembly**, and **Transformer**. (SEE FIGURE 1) Additional System accessories described elsewhere include the hardwired Patrol 7001™ Slave Sensor, a Wireless Slave Sensor and Wireless Receiver.

1. Patrol 7000™ SENSOR / CONTROLLER

The Patrol 7000™ Sensor/Controller consists of a proprietary surface mount technology passive infrared (PIR) Sensor Module and advanced logic Controller circuits mounted on a small circuit board and contained in an aesthetically pleasing plastic enclosure.

A. The Patrol 7000™ Sensor circuitry evaluates whether the guestroom is occupied or unoccupied by detecting changes in infrared (heat) energy due to the absence or presence of guests. It is not a motion sensor, but rather a **MOVING HEAT SOURCE** sensor and thus is not affected by moving inanimate objects or stationary heat sources.

B. The Patrol 7000™ Controller circuitry performs the various timing, delay, and control functions required by the system. The circuitry contains an adjustable internal Dual Secondary Thermostat Setback feature which allows the HVAC unit to maintain the room at a management selected, energy conserving temperature when the room is *unoccupied* or *unrented*.

   The Controller circuitry also sends low voltage signals to the HVAC Relay Assembly which controls the high voltage power source for the HVAC unit or the low voltage wall-mounted thermostat.

2. DOOR SWITCH

The Door Switch is recessed mounted into the entry door frame and is connected to the Patrol 7000™ to detect the opening and closing of the guestroom door. The electrical contacts are *open* when the door is open and *closed* when the door is closed.

A. When the door is open, the Patrol 7000™ assumes the **SENSING** mode to determine if the room is occupied. Upon detection of the guest, the Patrol 7000™ releases the HVAC Relay to allow the HVAC unit to operate according to its own thermostat and controls.

   (**Note:** If desired, the Patrol 7000™ has a circuit board selectable option to *not allow sensing with the guestroom door open* to prevent the HVAC unit from operating while the door is open.)

B. *If guests are detected after the door is closed*, the Patrol 7000™ assumes the **OCCUPIED** mode. Requiring no further detection of guests in order to continue normal HVAC operation.

If the room is vacant and no guests are detected after closing the door, HVAC operation is disallowed after an adjustable time-delay and the Patrol 7000™ remains in the **SENSING** mode indefinitely.

C. When guests are detected in the **SENSING** mode, as when first entering the room, or in the **OCCUPIED** mode after the door is closed, all control is released to the guest and the HVAC's own thermostat.

D. When the door is again opened, after the System has been in the **OCCUPIED** mode, the Patrol 7000™ returns to the **SENSING** mode to determine if another person has entered or if all persons have left the room. If the room is vacated for a preselected time period (5, 10, or 15 minutes), control of room temperature is removed from the normal HVAC thermostat.

(**Note:** The internal Dual Secondary Thermostat Setback Feature removes control of room temperature from the HVAC thermostat and enters a Normal, rented room setback. The room will now be maintained at a management selected, energy conserving temperature (provided that the guest left the HVAC on.) Control is removed from the normal HVAC thermostat only after all guests have left the room and is immediately released to the guest upon his return.)

If a communication link is installed or already exists between the Front Desk and the guestroom, the Patrol System can enter a deeper vacant, unrented room temperature setting for additional energy savings upon checkout of the guest, *if this feature is selected.*

3. HVAC RELAY ASSEMBLY

The HVAC Relay Assembly is connected to the guestroom HVAC unit and receives signals from the Patrol 7000™. When the enclosed low voltage relay is activated by the Patrol 7000™, it removes high voltage power from the HVAC unit or its thermostat, thus deactivating the unit. In the event of System failure, the HVAC unit will operate manually in a **FAIL-SAFE** mode, through the HVAC Relay's *normally closed* contacts. The HVAC unit will also operate normally when disconnected from the Patrol System and in the maintenance shop for service.

4. TRANSFORMER

The low voltage Transformer provides safe low voltage 24 vac power to operate the Patrol System Passive Infrared Guestroom Energy Management System.