

Installation and User Instructions for Entergize

ENTERGIZE Transmitter FCCID PLGMCS001

THE SYSTEM

The Entergize™ System is comprised of five major components, all specifically designed and manufactured for use with the System. The main component is the Master Control Wall Switch (“MCWS”). This component looks and operates like a normal rocker wall switch but also houses a microchip controlled crystalline-based RF transmitter with its frequency set by a 10-toggel-position on/off dipswitch. The dipswitch can be set to allow for 256 different RF frequency transmissions, each with a range of up to 70 feet, enabling the System to provide a unique non-overlapping RF signal for each room in a hotel. The MCWS is installed in place of the wall switch located closest to the entry door of a hotel/motel room. When the guest enters the room they insert their room key-card into a specially designed backlit slot in the MCWS. This activates the microchip controlled RF transmitter, which then sends a unique RF signal to the other Entergize™ components in the room. The guest now has normal control of the electrical and HVAC system in the room.

When the guest vacates the room, they extract their key-card from the MCWS. This sends another RF signal to the Entergize™ components in the room, shutting off the electricity to the Entergize™ wall switches and plugs in the room. This signal also enables the TCU to take control of the rooms HVAC unit automatically setting back the room temperature ranges at more efficient levels. The MCWS is also programmed to delay this RF signal for thirty-second, allowing the guest sufficient time to gather their possessions and safely exit the still lit room before the lights are turned off.

The Entergize™ System has it's own uniquely designed wall plugs (“SWP”) and wall switches (“SWS”), which work and look exactly like their traditional counterparts but are remotely controlled by the RF signal received from the MCWS. Both of these components contain a computer board that has a microchip controlled RF receiver and a 10-toggel-position on/off dipswitch. When installed, the dipswitches are set to the same sequence/RF frequency as the rooms MCWS. This enables these components to recognize the unique RF signal sent from the rooms MCWS. When the key-card is inserted into the MCWS, these components recognize the RF transmission that is sent, allowing for the normal flow of electricity from each unit. When the guest leaves the room and extracts their key-card, an RF signal is again sent to these plugs and switches, causing the flow of electricity to be shut off.

The SWP has an added feature, which allows either both or just one of its outlets to be controlled by the System. This is useful in those situations where a refrigerator or clock radio is plugged into the same wall outlet as a light fixture. Obviously these appliances should not be turned off when the guest leaves the room. The SWS also has a unique feature in that its microchip processor reduces the initial surge of electricity that is sent to a light bulb when it is turned on. This has the affect of greatly extending the useful life of the light bulb that is being controlled by the switch. Representatives from Nevada Power have indicated to Management that this feature should extent the life of an average light bulb by as much as 8 times. Assuming an average cost to replace a light bulb of \$5.00, a hotel operator could pay for the wall switch in three to four years just from the savings it could achieve by extending the life of one light bulb.

THE SYSTEM-CONTINUED

Over 75% of the energy consumed in a hotel/motel room is used to for heating and air-conditioning. The Entergize™ System controls these costs through the use of its TCU. This component also has a microchip controlled RF receiver, as well as its own thermostat; three relay switches and a 10-toggle-position dipswitch. The TCU can be connected to any existing thermostat enabling it to regulate the room's temperature at more efficient levels. When the guest vacates the room and extracts their key-card from the MCWS, the TCU receives an RF signal, causing the TCU to take control of the existing thermostat. The TCU then uses its own thermostat to sensor the room's temperature enabling it to turn on and off the room's HVAC unit at preprogrammed temperature levels. As an example, the TCU can be programmed to only turn on the HVAC unit when the temperature in the room exceeds 80 degrees or falls below 60 degrees. The TCU can also function as a programmable thermostat when the room is occupied; regulating the room's temperature at the hotel operators predetermined ranges. This feature is very useful in the hotel industry because in a number of hotels the guest rooms HVAC unit is not temperature controlled. In these room's the guest only has the option to turn on the fan and then set the heating or cooling cycle to a hi - medium-low mode. This means that there is no upper or lower temperature range settings that, when reached, would cause the HVAC unit to automatically shut off or turn on. If the room gets to cold or too hot, the only way for the guest to regulate the temperature is by physically turning on/off the HVAC unit. The TCU has been designed to allow for complete flexibility in setting these managed temperature ranges. The System is programmed with four unique sets of temperature control ranges and the desired setting can be selected at the time of installation by positioning the appropriate toggle switches.

The final component of the System is a lithium battery powered door sensor. This sensor can be attached to a sliding glass balcony door and will send an RF signal to the TCU when the door is opened or closed. This enables the TCU turn off the HVAC unit when the door is open or returned to its previous setting when the door is closed. This functionality of the System is most useful in hotel located in warmer climates where guests tend to leave the balcony door open causing the air-conditioner to run continuously.

Wire Coding For Entergize Components

Master Control Wall Switch and Slave Wall Switch

Yellow – To Output
Black - Hot / power
White - Neutral / Wire to ground
Blue - RF Antenna

Wall Plug

White – Neutral
Black - Power
Green - Ground
Blue - RF Antenna

Thermostat Control Unit

White – Heat
Yellow – Air Conditioning
Green – Fan
Red – 24-volt power

Door Sensor

This component will shut off the TCU when the guest has vacated the room and the door is left open. This means that if the door is open and the guest is not in the room there will be no HVAC available to the room. When the Guest is in the Room the Door Sensor will have no effect on the TCU and accordingly opening and closing the door will not turn the HVAC unit off.

Thermostat Control Unit-Range Settings

The range settings are determined by how the #9 and #10 dip switches are set. The following explains these settings

9	10	<u>Room Occupied</u>		<u>Room Vacant</u>	
		High	Low	High	Low
On	On	73	67	80	60
Off	On	73	67	None	50
On	Off	78	67	85	60
Off	Off	78	67	None	50

Operating Procedures

Master Control Wall Switch:

This unit sends a unique RF transmission to all Entergize Components when the Key-Card is inserted as well as extracted from the slot.

There is a 30 second delay in sending the RF signal when the key-card is extracted

When the card is inserted the transmission is instantaneous

It should be noted that the RF frequency is the same for both transmissions but there is also different code sent to the components that lets them know whether the signal is being generated due to the insertion of the card (Room Occupied) or if the key-card is being extracted from the unit (Room Vacant).

If dipswitch 9 is set to the **ON** position the microchip processor reduces the initial surge of electricity that is sent to a light bulb when it is turned on the power will be