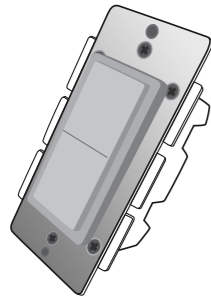


# Model: 86-102 | Wireless In Wall Light Switch Module Owner's Manual



This product speaks with other Z-Wave certified devices.

## INTRODUCTION

Satco 86-102 is a member of the Z-Wave® family and communicates with other Z-Wave certified devices in a control network. 86-102 replaces a standard in-wall light switch and turns it into a Z-Wave controlled network device. Each Z-Wave device serves as a node to repeat the signal in the network, thus, extending the overall Z-Wave mesh wireless network range. Different types and brands of Z-Wave devices can be associated with Satco in your system and they will work together to optimize and expand the coverage of your Z-Wave network. Once setup is completed, you can enjoy the convenience and leisure which 86-102 offers.

## FEATURES

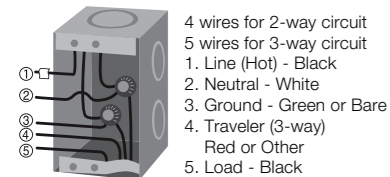
- Works with incandescent, florescent (CFL), or LED lighting and appliance
- ON/OFF status and location LED indicator
- Can be controlled wirelessly or manually
- Fits into standard single or multiple gang junction box and standard wall plates
- Over-The-Air firmware upgrade available with compatible gateway, Z-Wave static controller, PC and software
- Z-Wave Plus Certified with 500 Series module inside
- Internal resettable fuse to protect from surge current
- Manual reset capability

## WARNING

**RISK OF FIRE, ELECTRICAL SHOCK & BURNS. DO NOT USE WITH MEDICAL AND LIFE SUPPORT INSTRUMENT.** No user serviceable parts are in this module. The appliance connected to 86-102 must not exceed 900W incandescent, 200W CFL/LED, ½ horsepower motor and 15A, 1800W resistive load.

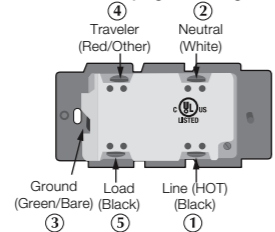
## IMPORTANT: 86-102 requires LINE, NEUTRAL and LOAD wires for every installation.

- LINE (Hot) – Black (connected to power)
- NEUTRAL – White (this wire is often tied to other neutral wires and may require a jumper to connect with the 86-102)
- LOAD – Black (usually tied closely to Traveler wire)
- TRAVELER – Red/Other (only used in 3-way circuits)
- GROUND – Green or Bare



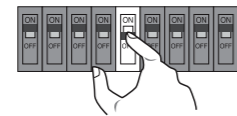
## SETUP

**STEP 1.** Identifying the wiring terminals on the module



## STEP 2.

**WARNING! RISK OF SHOCK! Make sure power is OFF before wiring!**



## STEP 3.

Remove the wall plate and the existing switch (if mounted) at your preferred installation location. You should label the wires connected to the screw terminals before disconnecting the switch. Please check that the wiring configuration below is present in the wall switch box, otherwise consult a qualified electrician.

- 4 wires for 2-way circuit / 5 wires for 3-way circuit
1. Line(Hot) - Black
  2. Neutral - White
  3. Ground - Green or bare
  4. Traveler (for 3-way) - Red or other
  5. Load - Black

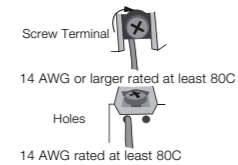
## Wiring Information

Use copper wires only.

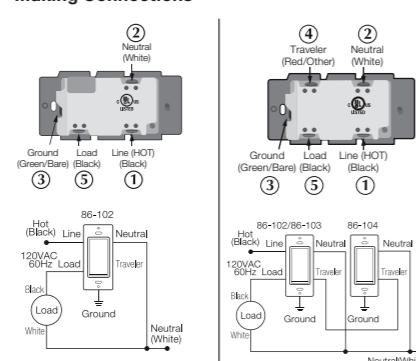
UL specification: the tightening torque for the screws is 14 Kgf-cm (12 lbf-in)

Strip insulation 5/8" (16mm)

Wire connection can be made either to Screw terminal - OR - Hole that is 14 AWG or larger rated at least 80°C.



## Making Connections



## 2-way circuit

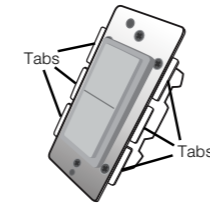
The Traveler terminal is not used in a 2-way circuit. Do not remove the insulation tape on the Traveler terminal in this application.

## 3-way circuit

Please refer to 86-104 user manual for wiring instructions of the auxiliary switch. The maximum length of Traveler wire may not exceed 200ft.

## Gang Box

To install the 86-102 in a multi-gang or J box, the tabs on the sides of the metal yoke may need to be removed. For single gang switch, no changes should be required. For dual or higher gang configuration where switches are next to each other, the tabs need to be removed. Simply take a pair of pliers, grab the tabs and wiggle until the tabs break off.



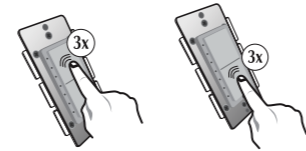
**STEP 4.** When proper wiring is completed, secure the module to the wall box. Restore power to the circuit to test if the connected load can be turned ON/OFF manually by the rocker on the module before remounting the wall plate. Also observe the status change of the LED indicator to ensure the module is in normal operating mode. If 86-104 Auxiliary Switch is used for a 3-way connection, please also test if it can control the load.

**STEP 5.** Add (Include) the module into your network by a Z-Wave certified controller. Please refer to the controller's instructions manual for details. Normally, this requires putting your controller software in Add New Device (inclusion) mode. When this process is initiated in the controller software, single click and release the rocker switch. The controller software should indicate that the action was successful. If the controller shows it was a fail, repeat the procedure.

## Manual Reset

**NOTE:** If inclusion still fails after the 2nd attempt, you need to first reset the module before repeating the above steps. The manual reset method is as follows.

1. Turn the connected lighting ON with the rocker.
2. Quickly tap the top side(ON) of the rocker 3 times.
- Then, quickly tap the bottom side (OFF) of the rocker 3 times.

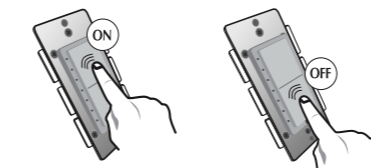


If you see the lighting turns OFF and then ON, it means that the module has been reset successfully and you may retry Step. 5 above to add the module into your network. Otherwise, please repeat the manual reset procedures.

Use the manual reset procedure only in the event that the network primary controller is lost or otherwise inoperable.

## BASIC OPERATION

The connected lighting can be controlled manually with a rocker.



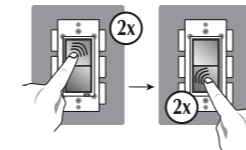
- OR - Wirelessly with a remote controller



A Z-Wave certified controller of either portable or static is capable of setting up Satco products in your desired network. Once the module is added, you may assign it to a Group. It will change its status when the All ON or OFF command is received. Furthermore, it can be set in Association with another Z-Wave device to perform a specific function. Please refer to the instructions manual of your gateway or remote controller for details and procedures on how these settings can be done. In the event of a power failure, the Satco device will return to the last dimming level after the power is restored.

## About the rocker switch:

Turn the connected appliance ON/OFF by tapping the switch. Tapping and releasing the upper part of the rocker turns the appliance ON. Tapping and releasing the lower part of the rocker turns the appliance OFF.



## Configurable Parameter Settings.

If your controller supports Z-Wave configurable parameters, the following settings can be modified.

### Parameter 3

Length: 1 byte

Valid values: 0, 1 or 2 (default 0)

When value = 0, the LED indicator will be ON when the connected appliance is ON, and the LED indicator will be OFF when the connected appliance is OFF.

If value = 1, the LED indicator will be ON when the connected appliance is OFF, and the LED indicator will be OFF when the connected appliance is ON.

If value = 2, the LED indicator will be always Off regardless of the load status.

### Parameter 4

Length: 1 byte

Valid values: 0 or 1 (default 0)

If value = 0, the connected light will turn ON by pressing the top side of the rocker switch and turn OFF by pressing the bottom side.

If value = 1, the connected light will turn OFF by pressing the top side of the rocker switch and turn ON by pressing the bottom side.

You may also manually turn off LED with the rocker switch by the following procedure.

Quickly press the top (ON) rocker switch 2x and the bottom (OFF) of the rocker 2x. If successful, the LED indicator will always be Off regardless of the load status. Repeating the procedures above restores the factory default

You can use a Z-Wave certified controller or app from your controller to communicate with 86-102. Depending on the capability of your controller, the following simple to advanced operations can be performed. Please refer to the gateway or controller's manual for details.

1. Turn the lights/appliance On/Off
2. Add(Include) or Delete(Exclude) the 86-102 to/from your network
3. Assign 86-102 to a specific Group and control as part of a group of devices such as All On or Off command
4. Firmware update by Over-The-Air (requires Z-Wave Plus certified gateway with software support)

## Association: Triggered action based on another device in the network

1. 86-102 supports group one for lifeline communication.
2. You can associate up to five Z-Wave devices to group one.
3. Lifeline association only supports the "manual reset" event.
4. For instructions on how to "set lifeline associate", please refer to your controller/gateway instructions.

## Central Scene

Z-Wave Plus introduced a new process for scene activation called "Central Scene Control". Press and release the button, it will send a certain command to the central controller via the lifeline association group 1. This allows the controller to react to key pressed, key released and key held down.

- Press and release the top button, Scene 1 preset by the Gateway will be turned ON.
- Press and release the bottom button, Scene 2 preset by the Gateway will be turned ON.

Again, this new feature needs to be supported by your controller in order to enjoy the benefits of this new function. Please consult your controller manufacturer.

## SPECIFICATIONS

Model: 86-102

Input power: 120 VAC, 60 Hz.

Max output loading: 900W incandescent, 200W CFL/LED, ½ horsepower motor and 15A, 1800W resistive load.

Radio frequency: 908.4/916 MHz.

Wireless range: up to 130 ft line of sight between the controller and the other available nodes.

Normal operating temperature: 77°F (25°C)

For indoor use only.

## Interoperability with Z-Wave devices

A Z-Wave network can integrate devices of various classes, and these devices can be made by different manufacturers. The Satco product introduced in this instructions manual has a Z-Wave certification which guarantees such an interoperability.

## FCC ID: 2ABWCWS100

The Federal Communication Commission Radio Frequency Interference Statement includes the following paragraph:

The equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses, generates and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by

turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Operation is subject to the following two conditions:

- This device may not cause interference
- This device must accept any interference, including interference that may cause undesired operation of the device.

Important Note: To comply with the FCC RF exposure compliance requirements, no change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

**CAUTION:** Exposure to Radio Frequency Radiation. To comply with FCC/IC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

IC: 11786A-WS100

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Z-Wave is a registered trademark of Sigma Design

## WARRANTY

Satco Products, Inc. warrants to the original purchaser of this product that for the warranty period, this product will be free from material defects in materials and workmanship. The foregoing warranty is subject to the proper installation, operation and maintenance of the product in accordance with installation instructions and the operating manual supplied to customer. Warranty claims must be made by customer in writing within 30 days of the manifestation of a problem.

Satco's sole obligation under the foregoing warranty is to repair, replace or correct any such defect that was present at the time of delivery, or to remove the product and to refund the purchase price to customer. The warranty does not extend to consequential or incidental damage to other products that may be used with this product. For inquiry and customer service, call **1-800-43-SATCO**.

All brand names shown are trademarks of their respective owners.

Warranty period: limited 1 year from date of purchase.



