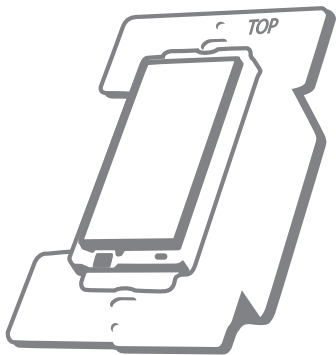Wireless Lighting Control

# On/Off/Dim
Dimmer Switch

Z-Wave® Certified

Introduction:

Thank you for your purchase of a GE Z-Wave® control device. Z-Wave technology is designed to automate lighting/home control and provide easy remote operation of all your Z-wave enabled devices. The GE Z-Wave product family includes a variety of devices to control lighting in your home. It is up to you whether you want to control one room or your entire house and whether you want to do it all now or start with one room and add more over time.

This dimmer is one component of a Z-Wave® control system and is designed to work with all other Z-Wave enabled devices in a home control network. It will also act as a wireless repeater to insure that commands intended for another device in the network are received, thereby extending the range of the wireless controller. Z-Wave devices of other types and brands can be added to the system and will also act as range extenders if they support this function of repeating the signal received to other nodes in the system.
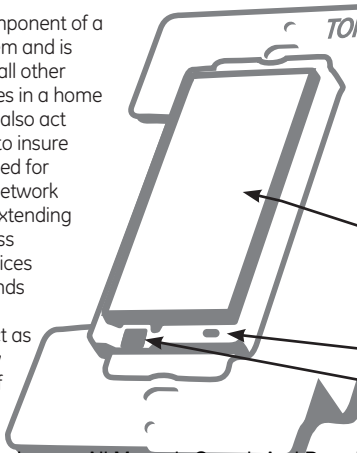
This dimmer switch is designed for use only with permanently installed incandescent lighting fixtures. Do not use it to control fluorescent lighting, transformer supplied lighting/appliances, motorized appliances or receptacles. The incandescent lighting controlled by this dimmer switch must not exceed a total of 500 watts.

There are no user serviceable parts in this unit.

Dimmer switch

LED light

Air gap switch

WARNING

RISK OF FIRE

RISK OF ELECTRICAL SHOCK

RISK OF BURNS

Controlling Appliances:
Exercise extreme caution when using Z-Wave devices to control appliances. Operation of the Z-Wave device may be in a different room than the controlled appliance, also an unintentional activation may occur if the wrong button on the remote is pressed. Z-Wave devices may automatically be powered on due to timed event programming. Depending upon the appliance, these unattended or unintentional operations could possibly result in a hazardous condition. For these reasons, we recommend the following:

1. Assign Z-Wave controlled appliances to device numbers 10 – 18 on the GE remote. The likelihood of unintentionally turning on the appliance will be reduced significantly because the "Shift" button will need to be pressed before pressing device numbers 10-18.

2. Z-Wave devices controlling appliances should be removed from "All" control setting. Instructions on how to do this are included in the manual for your GE remote.

3. Do Not include Z-Wave devices in Groups or Scenes if they control appliances.

4. Do Not use Z-Wave devices to control electric heaters or any other appliances which may present a hazardous condition due to unattended or unintentional or automatic power on control.

5. Double check programs for accuracy before using them.

Wireless Range

This device complies with the Z-Wave standard of open-air, line of sight transmission distances of 65 feet. Actual performance in a home depends on the number of walls between the remote controller and the destination device, the type of construction and the number of Z-Wave enabled devices installed in the control network.

Ge Z-Wave Network

Every Z-Wave enabled device acts as a signal repeater and multiple devices result in more possible transmission routes which helps eliminate "RF dead-spots".

Things to consider regarding RF range:

- Each wall or obstacle (i.e.: refrigerator, big screen TV, etc.) between the remote or a Z-Wave device and the destination device will reduce the maximum range by approximately 25-30%.
- Brick, tile or concrete walls block more of the RF signal than walls made of wooden studs and plasterboard (drywall).
- Wall mounted Z-Wave devices installed in metal junction boxes will suffer a significant loss of range (approximately 20%) since the metal box blocks a large part of the RF signal.

Effects of Home Construction on Wireless Range Between Z-Wave Enabled Devices.

Note: The distances shown in the table below are typical examples. Actual performance in your home will vary.

From the Remote (or repeating Z-Wave module) to destination device:

		Type of Construction			
		Wood Frame w/Drywall		Brick, Tile or Concrete	
		Plastic J-Boxes*	Metal J-Boxes	Plastic J-Boxes*	Metal J-Boxes
Number of Walls or Obstacles	0**	100'	80'	100'	80'
	1	70'	56'	60'	48'
	2	49'	39'	36'	29'
	3	34'	27'	21'	17'

* For Plug-in Modules or In-Wall Devices Installed in Plastic Junction Boxes

Please Note: Z-Wave home control networks are designed to work properly alongside 802.11 wireless computer networks, Bluetooth and other 2.4GHz or 5.8GHz devices. Some baby cams, wireless video devices and older cordless phones using the 900MHz frequency range may cause interference and limit Z-Wave functionality. Many 900MHz products have a switch to select channel "A" or "B". You may find that one of these channels will cause less interference than the other.

Installation
This dimmer switch may be used in new installations or to replace an existing wall switch (incandescent lighting only). A wall plate is not included. You may be able to re-use your existing wall plate if you are replacing a standard decorator style switch or dimmer. If this is a new installation or your existing wall plate can not be used, we recommend the use of a mid-sized, decorator style wall plate. These are available at most home centers or hardware stores.
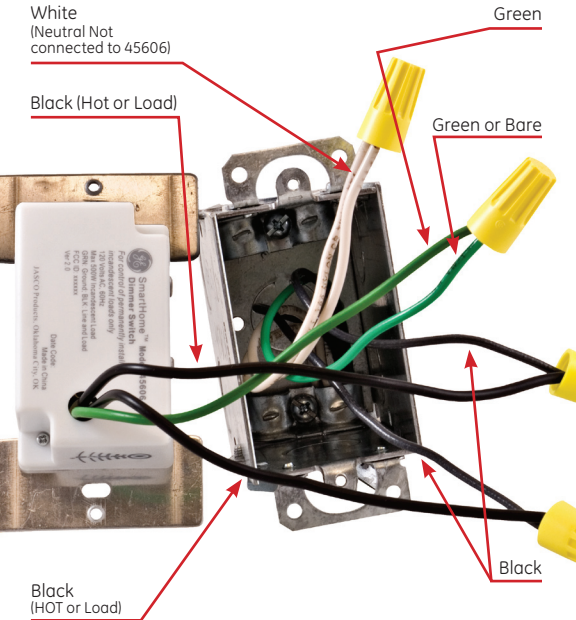
See diagram on next page.

Typical Dimmer Wiring Schematic
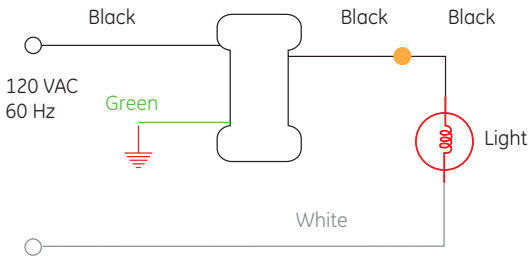
Single, Dual and Triple Gang Boxes

The metal plate surrounding the switch assembly is a heat sink. The maximum load rating (500W) is provided when installed in a single gang box with the full heat sink. Multiple 45606 Dimmer Switches may be installed in dual or triple gang boxes and, if necessary, one or both sides of the heat sink may be removed by bending it at the score lines. There is a corresponding reduction in the switch's load rating when ganged. **DO NOT** exceed the following loads:

Dimmer Rating	Number of Dimmers	Heat Sink
500W	One Dimmer in a Single Gang Box	Full
400W	Two Dimmers in a Double Gang Box	One side removed
300W	Three Dimmers in a Triple Gang Box	Both sides

White
(Neutral Not
connected to 45606)

Green

Black (Hot or Load)

Green or Bare

Black
(HOT or Load)

Black

⚠ WARNING

SHOCK HAZARD!
Turn OFF the power to the branch circuit at the circuit breaker in your electrical service panel. Ensure power is OFF before you install this device. All wiring connections must be made with the POWER OFF to avoid personal injury and/or damage to the switch.

1. Shut off power to the circuit at fuse box or circuit breaker.
2. Remove wall plate. **! Warning: Verify power is OFF to switch box before continuing.**
3. Remove the switch mounting screws.
4. Carefully remove the switch from the switch box. DO NOT disconnect the wires.
5. There are three wires (2 black and 1 green) exiting from the back of the Z-Wave 2-pole dimmer case. Match these wires to the wires connected to the existing switch.
6. Disconnect the wires from the existing switch.
7. Connect the green dimmer ground wire to the green or bare copper ground wire in the switch box.
8. Choose either of the black dimmer wires and connect it to either of the black wires previously removed from the switch.
9. Connect the only remaining black dimmer wire to the remaining black wire previously removed from the switch.
10. Insert Z-Wave Switch into the switch box being careful not to pinch or crush wires.
11. Secure the switch to the box using the supplied screws.
12. Mount the wall plate.
13. Reapply power to the circuit at fuse box or circuit breaker and test the system.

Observe Important Wiring Information

Always follow the recommended wire strip lengths and wiring combinations when making wiring connections. **Important:** The wire connectors included with this dimmer are intended to only be used with copper wire. Consult a qualified electrician if you have aluminum wiring.

Instructions:

1. Strip insulation 3/8" for 12 or 14 AWG wire. Strip insulation 7/16" for 16 or 18 AWG wire.
2. Hold stripped ends together in parallel and align any frayed strands (do not twist wires).
3. Push wires firmly into connector. Twist connector clockwise with fingers until tight. Pull wires to check for tightness.

Wire Connector / Combination Chart

One #14 w/one-to-four #16 or #18
One #12 w/one-to-three #14 or #16 or #18

Two #14 w/one-to-three #16 or #18
Two #12 w/one or two #14 or #16 or #18

You should now be able to use the rocker to manually turn On/Off a lamp plugged into the Z-Wave controlled outlet.

Use your primary controller to include the dimmer switch in the home control network after the dimmer switch is wired as shown in the above diagram,. It can then be added to groups and/or lighting scenes and managed remotely to control the On/Off status and brightness level of the connected incandescent lighting.

Air Gap Switch

During normal operation, there is a small amount of power passing through the switch to the load even when the dimmer switch is turned off. The 45606 has an air gap switch on the lower left side (see diagram for location) to completely disconnect power to the load. Pull the air gap switch OUT to disconnect the power while replacing light bulbs and push it all the way back in for normal operation. The air gap switch must be all the way in for the dimmer to function and control the lighting.

Key Features

- Remote On/Off/Brightness control via the Z-Wave
  controller/network
- Manual On/Off/Brightness control with the front panel rocker
- LED indicates switch location in a dark room
- Adjustable Dim rates

BASIC OPERATION

Remote Control

GE Z-Wave remotes provide control of an Individual device, Groups of devices and Scenes. Other brands of Z-Wave Certified remotes may not offer as much flexibility in how you can set up your lighting control network. Please refer to your remote control's instructions for details on its capabilities and instructions for adding and controlling devices.

Manual Control

The 45606 dimmer switch allows the user to:

Turn **ON/OFF** and control the brightness level of the connected incandescent lighting.

- To turn the connected lighting **ON**: Tap the top of the rocker.
- To turn the connected lighting **OFF**: Tap the bottom of the rocker.
- To brighten the connected lighting: Press and hold the top of the rocker; release when desired level is achieved
- To dim the connected lighting: Press and hold the bottom of the rocker; release when desired level is achieved. Please note: pressing and holding the rocker until the light intensity is at the minimum setting does not turn the power **OFF**; you must still tap (press & release) the bottom of the rocker to turn the power **OFF**.
- When **OFF**, pressing and holding the bottom of the rocker will cause the lighting to go to the minimum dim level.

Program your Light Switch (Include or exclude the dimmer switch from the Z-Wave home control network.)

- Refer to the instructions for your primary controller to access the network setup function and include or exclude devices.
- When prompted by your primary controller, tap the top or bottom of the rocker.
- The primary controller should indicate that the action was successful. If the controller indicates the action was unsuccessful, please repeat the procedure.
- Once the dimmer switch is part of the network, the same basic procedure is used to add the dimmer switch to groups & scenes or change advanced functions. Refer to the primary controller's instructions for details.

Please Note: After a power failure, the 45606 dimmer switch returns to OFF state.

LED Indicator

The LED will be lit when the connected lighting is **OFF.**
This is the factory default setting and can be changed if your primary controller supports the node configuration function (see Advanced Operation below)

ADVANCED OPERATION

The following Advanced Operation parameters require that you have an advanced controller like the model 45601 Advanced remote. Advanced remotes from other manufacturers may also be able to change these settings; however, basic remotes do not have this capability.

All On/All Off

Depending upon your primary controller, the 45606 dimmer switch can be set to respond to **ALL ON** and **ALL OFF** commands in up to four different ways. Some controllers may not be able to change the response from its default setting. Please refer to your controller's instructions for information on whether or not it supports the configuration function and if so, how to change this setting.

The four possible responses are:

1. It will respond to **ALL ON** and the **ALL OFF** command (default).
2. It will not respond to **ALL ON** or **ALL OFF** commands.
3. It will respond to the ALL OFF command but will not respond to the **ALL ON** command.
4. It will respond to the **ALL ON** command but will not respond to the **ALL OFF** command.

LED Light

When shipped from the factory, the LED on the 45606 is set to turn ON when the connected light is turned OFF. This allows the LED to indicate the switch's location in a dark room. To make the LED turn ON when the light is turned ON, change parameter 3's value to "1".

- Parameter No: 3
- Length: 1 Byte
- Valid Values = 0 or 1 (default 0)

Invert Switch

If the dimmer switch is accidentally installed upside down with "On" at the bottom and "Off" at the top, the default On/Off rocker settings can be reversed by changing parameter 4's value to "1".

- Parameter No: 4
- Length: 1 Byte
- Valid Values = 0 or 1 (default 0)

Dim Rate Adjustments

Both the number of steps (or levels) that the dimmer will change and the timing of the steps can be modified to suit personal preferences. The timing of the steps can be adjusted in 10 millisecond intervals. As an example, the default setting for parameter 8 is "3". This means that the lighting level will change every 30 milliseconds when the Dim Command is received. A value of 255 would mean that the level would change every 2.55 seconds. Combined, the two parameters allow dim rate adjustments from 10 milliseconds to 4.2 minutes to go from maximum-to-minimum or minimum-to-maximum brightness levels.

1. When Receiving a Z-Wave Dim Command
- Parameter 7 (number of steps or levels)
- Parameter 8 (timing of the steps)
- Length: 1 Byte

Valid Values:

Parameter 7 (default = 1) Valid Values: 1-99

Parameter 8 (default = 3) Valid Values: 1-255

2. Manual Control Dimming (pressing the Dimmer's rocker)
- Parameter 9 (number of steps or levels)
- Parameter 10 (timing of the steps)
- Length: 1 Byte

Valid Values:

Parameter 9 (default = 1) Valid Values: 1-99

Parameter 10 (default = 3) Valid Values: 1-255

3. When Receiving an All-On or All-Off Command
- Parameter 11 (number of steps or levels)
- Parameter 12 (timing of the steps)
- Length: 1 Byte

Valid Values:

Parameter 11 (default = 1) Valid Values: 1-99

Parameter 12 (default = 3) Valid Values: 1-255

Ignore Start Level When Receiving Dim Commands

Please note: Every "Dim" command includes a start level embedded in it.

The 45606 can be set to ignore the start level that is part of the dim command. Setting parameter 5 to a value of 0 will cause the 45606 to dim or brighten from the start level embedded in the command.
- Parameter No: 5
- Length: 1 Byte
- Valid Values = 0 or 1 (default 1)

Restoring Factory Defaults

All Configuration Parameters can all be restored to their factory default settings by using your master controller to reset the device. Interoperability with Z-Wave™ Devices A Z-Wave™ network can integrate devices of various classes, and these devices can be made by different manufacturers. Although every Z-Wave certified product is designed to work with all other Z-Wave certified products, your controller must include the appropriate device classifications in order to control non-lighting Z-wave devices. As an example, the 45600 basic remote is designed only for controlling Z-Wave devices using the lighting control classification. The 45601 deluxe remote with LCD readout can control other Z-Wave certified devices like thermostats as well as lighting.

WARRANTY

JASCO Products warrants this product to be free from manufacturing defects for a period of two years from the original date of consumer purchase. This warranty is limited to the repair or replacement of this product only and does not extend to consequential or incidental damage to other products that may be used with this product. This warranty is in lieu of all other warranties, expressed or implied. Some states do not allow limitations on how long an implied warranty lasts or permit the exclusion or limitation of incidental or consequential damage, so the above limitations may not apply to you. This warranty gives you specific rights, and you may also have other rights which vary from state to state. Please contact Customer Service at 800-654-8483 (option 4) between 7:30AM – 5:00PM CST or via our website (www.jascoproducts.com) if the unit should prove defective within the warranty period,

JASCO Products Company
Building B

FCC
U2Z45606-7

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.

Compliance with IC Rules and Regulations
IC: 6924A-45606A7
Jasco Products Company
Model: 45606

This Class B digital device complies with Canadian ICES-003.

SPECIFICATIONS
Power: 120 VAC, 60 Hz.
Signal (Frequency): 908.42 MHz.
Minimum Load: 40W, incandescent lamps only.
Maximum Load: 500W, incandescent lamps only.
Range: Up to 100 feet line of sight between the Wireless Controller and the closest Z-Wave receiver module.
Operating Temperature Range: 32-104° F (0-40° C)
For indoor use only.

Specifications subject to change without notice due to continuing product improvement

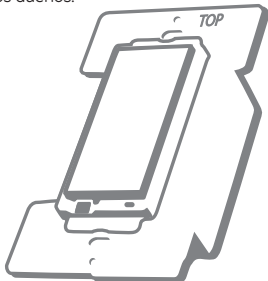Z-Wave is a registered US trademark of Zensys A/S

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