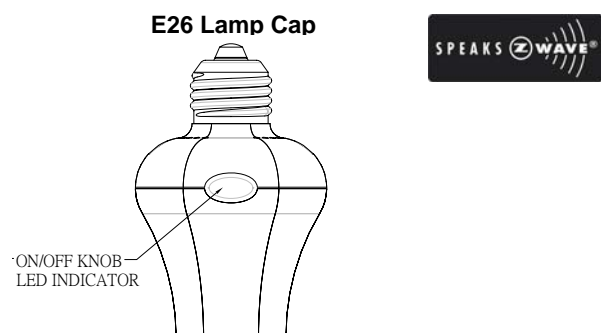


# AD145-1 SCREW-IN ON/OFF MODULE

The AD145-1 Screw-in On/Off Module is a lamp holder (for Philips dimmable LED bulbs only) and a transceiver which is a Z-Wave™ enabled device. Z-Wave™ enabled devices displaying the Z-Wave™ logo can also be used with this unit regardless of the manufacturer. Inclusion of this Module on other manufacturer's Wireless Controller allows remote control of On/Off status. Each Module is designed to act as a repeater. Repeaters will re-transmit the RF signal to ensure that the signal is received by its intended destination by routing the signal around obstacles and radio dead spots.



## Adding to Z-Wave™ Network

In the front casing, there is an On/Off knob coupled with LED indicator. The knob is used as a Learn Key to carry out inclusion, exclusion or association. When power is first applied, the LED flashes on and off alternately and repeatedly at 2-second intervals. It implies that the unit has not been assigned a node ID and cannot work with Z-Wave enabled devices. Please get familiar with the terms below before starting the operations.

Function	Description
Inclusion	Add a Z-Wave enabled device (e.g. Lamp Holder) to Z-Wave network.
Exclusion	Delete a Z-Wave enabled device (e.g. Lamp Holder) from the network.
Association	After inclusion, you have to define the relationship between devices. Through association, device can be assigned as master/slave, and specify which slave is going to be controlled by which master.
Reset	Restore the device to factory default settings.

The table below lists an operation summary of basic Z-Wave functions. Please refer to the instructions for your Z-Wave™ Certificated Primary Controller to access the setup function, and to include/exclude/associate devices. The lamp holder executes the function of auto inclusion when...

### Auto Inclusion

1. The power is applied for the first time and no ID code has been stored in the unit.
2. The execution of Exclusion or Reset is successful and the stored ID code is cleared.

**Note:** The duration for Auto Inclusion is 4 minutes during which period the node information of explorer frame will be emitted once every 5 seconds. Unlike the "Inclusion" procedure described in the next section, the execution of Auto Inclusion is automatic without the necessity of pressing the learn key.

### Module Status and LED Indication

As soon as the light bulb is screwed into the lamp holder, the LED on the Module will be flashing slowly. This implies that the Module is not yet included in a Z-Wave system and cannot be controlled by the Wireless Controller. However, pressing the On/Off knob will control directly the On/Off status of the connected bulb without using the Wireless Controller.

The following table lists the module status and LED indications:

Action or Status	Description	LED Indication
Inclusion	1. First set the Controller into Inclusion mode.	Press once and LED flashes once. LED will flash 3 times when code is emitted successfully.
	2. Press the Learn Key on the unit once.	
Exclusion	1. First set the Controller into Exclusion mode.	Press once and LED flashes once. LED will flash 3 times when code is emitted successfully.
	2. Press the Learn Key on the unit once.	
Association	1. First set the Controller into Association mode.	Press once and LED flashes once. LED will flash 3 times when code is emitted successfully.
	2. Press the Learn Key on the unit once.	

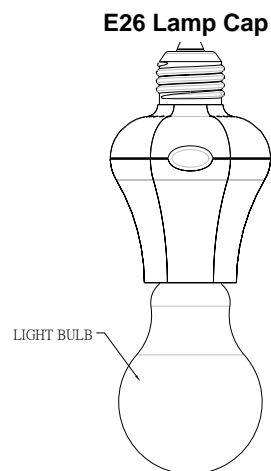
Reset	1. Press the Learn Key 5 times within 5 seconds.	
	2. The Home ID and Node ID in the memory will be cleared and system will be restored to factory default.	LED flashes 3 times.
Empty	No ID code memorized.	On for 2 seconds & off for 2 seconds.
Normal	Normal operation mode.	LED turns on/off according to the Module being on or off.

## Installation

1. Turn off the wall switch on the wall or mains power supply.
2. The lamp cap is E26. Choose the light bulb that fits the standard.
3. The Module is designed for ceiling mounting. Fit the Module into an existing lamp cap.
4. Place the light bulb into the lamp holder.

### Note:

- 1) The Module cannot be screwed in an air tight environment/ lamp stand.
- 2) The Module is suitable for use with Philips dimmable LED bulbs only. DO NOT connect non-lighting appliances to the Module or the connected load might be damaged.



## Operation

To turn on or off the bulb controlled by the Module:

- Simply press and release the On/Off knob. The red indicator LED will turn On/Off and the bulb screwed into the Module will also turn On/Off.
- Dim function: Press and hold down the On/Off knob, after 2 seconds the brightness of the bulb will start to cycle. Release the knob when the brightness is right and the bulb will keep the setting.
- With Z-Wave controller: simply press On or Off button on the controller.
- With Z-Wave routing slave: Complete association between routing slave and the Module through Z-Wave controller, and the routing slave can control the On/Off status of Module.

## Programming

### 1. Z-Wave's Groups (Association Command Class Version 2)

1-1. Group supported: The Module supports Group 1 (max. 5 nodes)

#### 1-1-1. Power On

Whenever power is applied, it will send ALARM\_REPORT command to the nodes of Grouping 1 to inform associated devices that the Module is powered up.

ALARM\_REPORT Command  
[Command Class Alarm, Alarm Type = 0x02, Alarm Level = 0x01]

## Supported Command Class

1. COMMAND_CLASS_BASIC
2. COMMAND_CLASS_SWITCH_MULTILEVEL
3. COMMAND_CLASS_SWITCH_ALL
4. COMMAND_CLASS_MANUFACTURER_SPECIFIC
5. COMMAND_CLASS_VERSION
6. COMMAND_CLASS_ALARM
7. COMMAND_CLASS_ASSOCIATION_V2

## Troubleshooting

Symptom	Cause of Failure	Recommendation
The module not working and LED off	<ol style="list-style-type: none"> <li>Poor connection between lamp cap of mounted ceiling and lamp cap of the lamp holder</li> <li>The module broke down</li> </ol>	<ol style="list-style-type: none"> <li>Check if the lamp cap of mounted ceiling fits well into the module, and that voltage is suitable</li> <li>Don't open up the module and send it for repair</li> </ol>
The module's LED working, but the connected light bulb not working	<ol style="list-style-type: none"> <li>Light bulb has burnt out</li> <li>Poor connection or improper assembly between lamp cap of the light bulb and lamp holder of the module</li> <li>The module broke down</li> </ol>	<ol style="list-style-type: none"> <li>Replace a new bulb</li> <li>The light bulb has screwed tightly to the lamp holder of the module</li> <li>Don't open up the module and send it for repair</li> </ol>
The receiver's on/off knob can control on/off status, but the transmitter cannot control the receiver	<ol style="list-style-type: none"> <li>Incorrect ID code</li> <li>Transmitter's battery runs low</li> <li>Out of receiving range or poor reception</li> <li>Radio signal is being jammed or interfered</li> </ol>	<ol style="list-style-type: none"> <li>Proceed with learning the ID code</li> <li>Replace the battery of the Transmitter</li> <li>Get closer to the receiver</li> <li>Wait for a while and try the operation again</li> </ol>

## Specification

Operating Voltage	120V AC/60Hz
Type of Lamp Cap	E26
Lighting Load	Max. 20 Watts (Philips dimmable LED bulbs only)
Operating Temperature	0°C - 40°C
Operating Humidity Range	85%RH
Receiving Range	30 meters min. line of sight (indoor)
Frequency Range	908.42MHz
FCC ID	FU5AD145

\* Specifications are subject to change without notice.

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## Federal Communication Commission Interference Statement

This 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 generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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 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.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### IMPORTANT NOTE:

#### FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

### WARNING:

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact your local government for information regarding the collection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

When replacing old appliances with new ones, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.