

PSS-29ZBS(R) / PSM-29ZBS(R) Power Switch Series

Introduction

The Power Switch series include the following models:

PSS-29ZBS: ZigBee Power Switch

PSS-29ZBSR: ZigBee Power Switch with Router function

PSM-29ZBS: ZigBee Power Switch with Meter

PSM-29ZBSR: ZigBee Power Switch with Meter and Router function

The Power Switches are capable of receiving wireless signals from the coordinator in the Zigbee network to toggle On/Off of appliances that are attached to it.

The Power Switch utilizes ZigBee technology for wireless signal transmission. ZigBee is a wireless communication protocol that is reliable, has low power consumption and has high transmission efficiency. Based on the IEEE802.15.4 standard, ZigBee allows a large amount of devices to be included in a network and coordinated for data exchange and signal transmission.

Models with Meter functions (PSM-29ZBS / PSM-29ZBSR) have the extra feature of keeping tracks of energy consumption with built-in power meter and transmit the data to coordinator regularly.

Models with router function (PSS-29ZBSR / PSM-29ZBSR) also serve as a router in the ZigBee network. After being included in the ZigBee network, it allows other ZigBee device to join the network through the Power Switch.

Model No.	Meter	ZigBee Router
PSS-29ZBS	No	No
PSS-29ZBSR	No	Yes
PSM-29ZBS	Yes	No
PSM-29ZBSR	Yes	Yes

Parts Identification

1. Function Button aka LED indicator

The Function Button also doubles as the LED Indicator. The function button is used to control the Power Switch. The LED indicator is used to indicate Power Switch status.

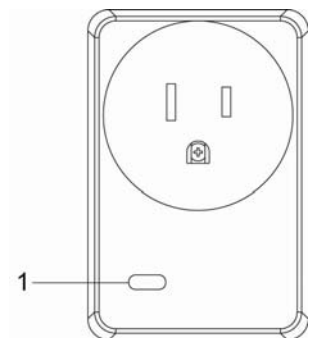
LED Indication:

The LED indicator lights up in the following conditions:

- On:
The Power Switch is turned on.
- Off:
The Power Switch is turned off.
- Flashes twice:
The Power Switch has successfully joined a ZigBee network.
- Flashes 5 times
The Power Switch has successfully bound with a controller
- Flashes every 20 minutes
The Power Switch has lost connection to its current ZigBee network
(PSS-29ZBS and PSM-29ZBS only)

Function Button Usage:

- Press the button to toggle on/off the Power Switch
- Press and hold the button for 10 seconds then release to reset the Power Switch.
- Press and hold the button for 3 seconds then release to bind with a controller



ZigBee Network Setup

● ZigBee Device Guideline

ZigBee is a wireless communication protocol that is reliable, has low power consumption and has high transmission efficiency. Based on the IEEE802.15.4 standard, ZigBee allows a large amount of devices to be included in a network and are coordinated for data exchange and signal transmission.

● **Joining the ZigBee Network**

As a ZigBee device, the Power Switch needs to join a ZigBee network to receive commands and transmit energy consumption information. Follow the steps below to join the Power Switch into a ZigBee network.

1. Plug in the Power Switch into a power outlet.
2. Press and hold the function button for 10 seconds as the Power Switch resets and starts searching for existing ZigBee network. Please make sure the permit-to-join feature on the router or coordinator of your ZigBee network is enabled.
3. If the Power Switch successfully joins a ZigBee network, the LED Indicator will flash twice to confirm.
4. After joining the ZigBee network, the Power Switch will be registered in the network automatically. Please check the Zigbee network coordinator, system control panel or CIE (Control and Indicating Equipment) to confirm if joining and registration is successful.
5. If registration and joining to the network is unsuccessful, please check your ZigBee network coordinator, system control panel or CIE setting to ensure the permit-to-join function is available, and then use the Factory Reset function below to join the ZigBee network.

● **Binding with Controller**

After joining the ZigBee network, the Power Switch can bind itself with a controller device which can be used to turn on/off the Power Switch. To bind the Power Switch and the device:

1. Press and hold the Function Button for 3 seconds, then release the button. The Power Switch will send binding request to the coordinator.
2. Refer to your controller manual to send binding request for the device within 16 seconds.
3. If binding is successful, the Power Switch LED indicator will flash 5 times to confirm. You can now use the controller to adjust power output level for the Power Switch.
4. If binding is unsuccessful, please retry the binding process.

● **Factory Reset**

If you want to remove the Power Switch from current network and join a new network, you need to use the Factory Reset function to clear the Power Switch from its stored setting and information first before it can join another network. To perform Factory Reset:

1. Press and hold the switch button for 10 seconds, release the button until the LED Indicator flash once.
2. The Power Switch has been reset to factory default setting with all its previous network information removed. It will now actively search for available ZigBee network again and join the network automatically.
3. If the Power Switch successfully joins a ZigBee network, the LED Indicator will flash twice to indicate.

● **ZigBee Router Device Capacity (PSS-29ZBSR / PSM-29ZBSR Only)**

The Power Switch models with Router function allow other ZigBee devices to join the ZigBee Network through the Router. The Power Switch Router has maximum capacity of 40 devices/routers; the Power Switch Meter Router has maximum capacity of 10/routers.

Model No.	Maximum ZigBee Device + Router Capacity
PSS-29ZBSR	40
PSM-29ZBSR	10

Operation

● **Installation**

- Plug the Power Switch into a power outlet.
- Plug the appliance into the socket of the Power Switch. The appliance must be in ON status.
- **IMPORTANT NOTE:** The Power Switch does not have a backup battery and will be powered down when AC power fails. **DO NOT** use the Power Switch as router for your security sensor or alarm control devices such as Door Contact, PIR Sensor...etc., otherwise the sensors will lose connection to ZigBee network if the Power Switch is disconnected from AC power. Plan the installation locations of these security sensors without using the Power Switch and only use a router with backup battery for them. The router function of the Power Switch should **ONLY** be used to provide signal range extension for other Power Switches/Dimmer.

● **Appliance Control**

- After the Power Switch has successfully joined a ZigBee network, the coordinator can remotely turn on/off the Power Switch to control the appliance

- You can also press the button on the Power Switch to toggle its on/off status
- If you have bound a controller with the Power Switch, you can also use the controller to turn on/off the Power Switch.
- If the Power Switch is removed from power outlet, after replugging the Power Switch, its previous on/off status will be restored within 1 minute.

● **Energy Consumption Monitor (PSM-29ZBS / PSM-29ZBSR Only)**

- Power Switch models with built-in meter will transmit a signal with its power consumption data every 10 minutes to the ZigBee network coordinator.
- Whenever the Power Switch energy output changes by +/- 2W, it will automatically transmit a signal with power consumption data to the ZigBee network coordinator for update.
- The Power Switch transmits a signal with power data to coordinator whenever accumulated power usage increases by 0.1kW/hr.
- If the Power Switch power output is below 20W, the power measurement error may become greater and the data may be inaccurate.
- To clear the Power Switch of its accumulated power consumption data, follow steps below:
 1. Unplug the Power Switch from power outlet.
 2. Press and hold the function button and plug in the Power Switch again when holding down the button.
 3. Keep holding the button and release after 3 seconds. The accumulated power consumption data will be cleared.

● **Maximum Operation Load**

- For 120V: the maximum operation load is **15A Resistive or 1/2hp or Tungsten lamp load: 5A**
- If the Power Switch is overheating, It will cut off power automatically as a safety measure. The Power Switch must be unplugged and replugged after cut off to resume normal operation.

Appendix (For developers only)

● **Cluster ID**

Device ID: On Off Output :0x0002 / Mains Power Outlet :0x0009	
Endpoint:0x0A	
Server Side	Client Side
Mandatory	
Basic (0x0000)	<i>None</i>
Identify(0x0003)	
Groups(0x0004)	
Scenes(0x0005)	
On/Off(0x0006)	
Optional	
Metering(0x0702)(PSM-29ZBS/PSM-29ZBSR Only)	<i>None</i>

● **Attribute of Basic Cluster Information**

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	<i>ZCLVersion</i>	Unsigned 8-bit integer	0x00 –0xff	Read only	0x01	M
0x0001	<i>ApplicationVersion</i>	Unsigned 8-bit integer	0x00 –0xff	Read only	0x00	O
0x0003	<i>HWVersion</i>	Unsigned 8-bit integer	0x00 –0xff	Read only	0	O
0x0004	<i>ManufacturerName</i>	Character String	0 – 32 bytes	Read only	Climax Technology	O
0x0005	<i>ModelIdentifier</i>	Character String	0 – 32 bytes	Read only	(Model Version)	O
0x0006	<i>DateCode</i>	Character String	0 – 16 bytes	Read only		O
0x0007	<i>PowerSource</i>	8-bit	0x00 –0xff	Read only		M
0x0010	<i>LocationDescription</i>	Character String	0 – 32 bytes	Read / Write		O
0x0011	<i>PhysicalEnvironment</i>	8-bit	0x00 –0xff	Read / Write	0x00	O

0x0012	<i>DeviceEnabled</i>	Boolean	0x00 –0x01	Read / Write	0x01	M
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- **Attribute of Identify Cluster Information**

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	<i>IdentifyTime</i>	Unsigned 16-bit integer	0x00 –0xffff	Read / Write	0x0000	M

- **Attributes of the Groups cluster Information**

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	<i>NameSupport</i>	8-bit bitmap	x0000000	Read only	-	M

- **Attributes of the Scenes cluster Information**

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	<i>NameSupport</i>	8-bit bitmap	x0000000	Read only	0x00	M
0x0001	<i>CurrentScene</i>	Unsigned 8-bit integer	0x00 – 0xff	Read only	0x00	M
0x0002	<i>CurrentGroup</i>	Unsigned 16-bit integer	0x0000 – 0xffff	Read only	0x00	M
0x0003	<i>SceneValid</i>	Boolean	0x00 – 0x01	Read only	0x00	M
0x0004	<i>NameSupport</i>	8-bit bitmap	x0000000	Read only	-	M

- **Attribute of On/Off Cluster Information**

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	<i>OnOff</i>	Boolean	0x00 –0x01	Read only	0x00	M

- **Attributes of the Metering cluster Information (Reading Information Attribute Set) (PSM-29ZBS / PSM-29ZBSR Only)**

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x00	CurrentSummation Delivered	Unsigned 48-bit Integer	0x000000000000 to 0xFFFFFFFFFFFF	Read Only		M

- **Attributes of the Metering cluster Information (Formatting Attribute Set) (PSM-29ZBS / PSM-29ZBSR Only)**

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x00	UnitofMeasure	8-bit Enumeration	0x00 to 0xFF	Read Only	0x00	M
0x01	Multiplier	Unsigned 24-bit Integer	0x000000 to 0xFFFFFF	Read Only	1	O
0x02	Divisor	Unsigned 24-bit Integer	0x000000 to 0xFFFFFF	Read Only	10000	O
0x03	SummationFormating	8-bit BitMap	0x00 to 0xFF	Read Only	0xF9	M
0x04	DemandFormating	8-bit BitMap	0x00 to 0xFF	Read Only	0x93	O
0x06	MeteringDeviceType	8-bit BitMap	0x00 to 0xFF	Read Only	0x00	M

- **Attributes of the Metering cluster Information (Historical Attribute Set) (PSM-29ZBS / PSM-29ZBSR Only)**

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x00	InstantaneousDemand	Signed 24-bit Integer	-8,388,607 to 8,388,607	Read Only	0x00	O

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.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

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.