BE NEXT

Quick start
Energy Switch EU

Technical specs

Normal operating voltage	230V/50Hz
Recommended max load	💡 3000W 🌀 600W
Frequency range	868.42 MHz
Wireless Range	Up to 30m line of sight
Energy measurement	1 - 3600W (5%) and kWh

Indicator light

Push Button

AC Power Socket

AC Power Plug
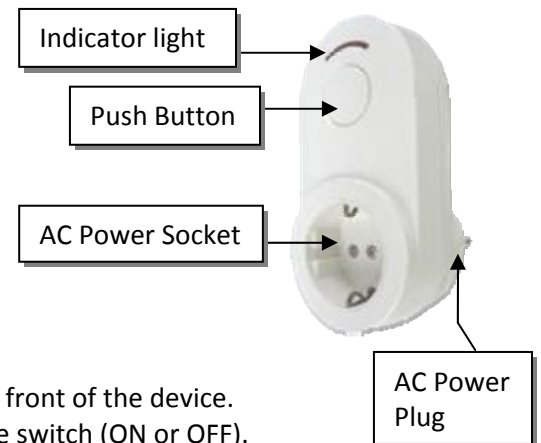
Basic operations

- The *Energy Switch* can be remotely controlled.
- The *Energy Switch* can be controlled by the push button on the front of the device.
- The *Energy Switch*'s indicator light will indicate the status of the switch (ON or OFF).
- The *Energy Switch* can measure the power that is consumed through the socket.

How it operates

Control and monitor your lightning or any other appliance.
During operation mode it will measure the instance and accumulated energy consumption of the applied appliance.
Easy plug and play.

Mounting

1. Place the *Energy Switch* into an outlet socket.
2. Plug any appliance into the socket of the Energy Switch to control and measure the energy consumption from.

Include or exclude in Z-Wave network [1]

1. Press and hold the push button until the indicator light is blinking than release the button to start the inclusion or exclusion process.
2. When classic inclusion failed the product will start Network Wide Inclusion automatically

Manual control

Press and release the push button of the *Energy Switch* to switch on/off the socket of the *Energy Switch*.

Remote control

The *Energy Switch* can be remote controlled by several Z-Wave devices.

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[1] Make sure your Z-Wave controller is in the correct operation mode (include or exclude).

Technical Manual

Caution:

- **This device is using a radio signal that passes through walls, windows and doors. The range is strongly influenced by local conditions such as large metal objects, house wiring, concrete, furniture, refrigerators, microwaves and similar items. On average, the indoor range is approximately 30 meters.**
- **Do not expose this product to excessive heat or moisture. Dry location use only.**
- **Prevent long term exposure to direct sunlight.**
- **Do not attempt to repair this product. If the product is damaged or if you are in doubt about the proper operation, take the product back to the place of purchase.**
- **Do not clean the product with any liquid.**
- **Indoor use only.**

Technical details

Absolute min/max voltage	90-260Vac 40-60Hz
Maximum peak resistive load	16A
Maximum peak inductive load	8A
Frequency range	868.42 MHz
Wireless Range	Up to 30m line of sight
Energy measurement	5 - 3600W (8%) and kWh
Storage temperature	-5°C to +65°C
Storage humidity	10% to 70%
Operating temperature	0°C to 50°C
Operating humidity:	30% to 80%

1 pole	
Resistive load (cosϕ = 1)	Inductive load (cosϕ = 0.4; L/R = 7 ms)
16 A at 250 VAC; 16 A at 30 VDC	8 A at 250 VAC; 8 A at 30 VDC
16 A	
380 VAC, 125 VDC	
16 A	
4,000 VA,	2,000 VA,

Note: When applied to FL lightning or inductive load the max current of 8A may not exceed. Recommend to use no more than 15x40W.

Indication modes

The indicator gives various statuses of the device as follows:

1. Ready for learn mode: Indicator light blinks every second.
2. Learn in progress (add):   Indicator light blinks 2 times every second.
3. Learn in progress (remove):   Indicator light blinks 3 times every second.
4. Learn mode success: Indicator light is on for second.
5. Learn mode failed: Indicator light blinks 8 times fast.
6. RF message send failed   indicator light blinks 6 times rapidly

Supporting Command Classes

Basic type: BASIC_TYPE_ROUTING_SLAVE
Generic type: GENERIC_TYPE_SWITCH_BINARY
Specific type: SPECIFIC_TYPE_POWER_SWITCH_BINARY
Listening: TRUE, Z-Wave Lib: 4.51

class: 0x25 COMMAND_CLASS_SWITCH_BINARY
class: 0x32 COMMAND_CLASS_METER_V2

class: 0x70 COMMAND_CLASS_CONFIGURATION
class: 0x72 COMMAND_CLASS_MANUFACTURER_SPECIFIC
class: 0x73 COMMAND_CLASS_POWERLEVEL
class: 0x75 COMMAND_CLASS_PROTECTION
class: 0x85 COMMAND_CLASS_ASSOCIATION
class: 0x86 COMMAND_CLASS_VERSION
class: 0x31 COMMAND_CLASS_SENSOR_MULTILEVEL
class: 0x27 COMMAND_CLASS_SWITCH_ALL

ROUTING SLAVE

This Z-Wave product will be used as slave. Slave nodes are nodes in a Z-Wave network that receive commands and perform actions based on the command. A routing slave can route Z-Wave messages to other nodes in the network. This device is always awake and does not go to sleep mode because it is an AC powered device. This device can act as a wireless repeater to forward commands for another device in the Z-Wave network to expand the range of the network. This function works for every Z-Wave device from any manufacturer when included into the same Z-Wave network.

Unlike a normal slave a routing slave can store a number of static routes which he uses to send a routed rf frame to another node.

Include Initiator

The include initiator is used when Primary and Inclusion Controllers include nodes into the network. When both the include initiator have been activated simultaneously the new node will be included to the network (if the node was not included previously).

Exclude Initiator

The exclude initiator is used by Primary Controllers to exclude nodes from the network. When the exclude initiator and a slave initiator are activated simultaneously, it will result in the slave being excluded from the network (and reset to Node ID zero). Even if the slave was not part of the network it will still be reset by this action.

Z-Wave compatibility

Because this is a Z-Wave device, it means it can co-operate with other Z-Wave devices of other manufacturers. It can co-exist in a Z-Wave network existing with product from other manufacturers.

Hops & Retries

The Z-Wave range has a range of up to 30 meters in line of sight. This signal is not limited to the 30 meter range due to routing the Z-Wave message to other nodes in the network. This way the range of the Z-Wave network can be expanded to 150 meters indoors (limit of 4 hops).

Class 0x20 COMMAND_CLASS_BASIC

The basic command class only has a supporting role and is mapped to the switch binary command class.

class: 0x25 COMMAND_CLASS_SWITCH_BINARY

The Switch Binary Command class can be used to turn the *Energy Switch* on or off.

Value
- 0x00: OFF
- 0x01 – 0x63 or 0xFF: ON

class: 0x86 COMMAND_CLASS_VERSION

This Command Class is used to obtain information about the *EnergySwitch*. The Z-Wave library type, the
Z-Wave protocol version and the application version will be reported.

class: 0x72 COMMAND_CLASS_MANUFACTURER_SPECIFIC

This will report information about the manufacturer. This product will contain the manufacturer ID of *BeNeXt*.
Manufacturer ID of *BeNeXt* is 138, the ID of this product is 6.

class: 0x32 COMMAND_CLASS_METER_V2

This command is used to read the values from the *EnergySwitch*'s energy measuring unit. Data is collected
automatically.
A report can be requested containing the accumulated consumption, this can be done using the METER_GET
command. The scale must also be entered:

kWh	0x00	Accumulated
W	0x02	instant measured

Note: When devices supporting Meter Command Class (Version 2) receive a Meter Get Command of Version 1
they must report their default scale which is the accumulated value.

Note2: Every non-supported scale will be ignored by application

The kWh(accumulated) report, will contain the following:

- The current measurement value(meter value).
- The previous measurement value(previous meter value).
- The time between the measurements(delta time).

The W(instant measured) report will not contain a previous measured value. The rest will be the same.
The valid values for time are 1(0x0001) – 65534(0xFFFFE) seconds.

The meter can be reset by using the METER_RESET command.

class: 0x70 COMMAND_CLASS_CONFIGURATION

With this Command Class it's possible to change the default settings of the *EnergySwitch*. With
CONFIGURATION_SET different configuration parameters can be set. These parameters can be changed:

0. **not used**
1. **Set to default**

Description:	Set all config values to default values (factory settings).
	Read more in chapter Configuration Reset.
Size:	1 byte*
Param1:	All values (0x00 – 0xFF) except for 0x55 can be used to default all the configuration params.
Param2,3,4:	not used

2. **Measure Decimals**

Description:	The number of decimals the instant energy is reported
Default:	0x00

Size:	1 byte*
Param1:	0,1,2,3 (decimals)
	Every value higher then 3 will be reported as the value that is set but handled in SW as if it was 3.
Param2,3,4:	Not used

3. **Power limit**

| Description**:** | The relay automatically switches off when the instant   measured |
| powered is higher then configured value |
Default:	0x0E10 = 3600 W
Size:	2 bytes*
Param1,2:	the value of the power limit
	0 is no power limit selected
	1 – 3600 variable power limit
	> 3600 will be reported as the set value but will be handled in SW as 3600.
Param 3,4:	not used

4. **Startup with last known socket status**

Description:	The state in what the switch is when power is supplied.
Default:	0x00
Size:	1 byte*
Param1	if 0x00: When power applied socket is always off
	If 0x01 – 0xFF: When power applied socket is the state before power was disconnected.

5. **Temperature offset**

Description:	A offset for the temperature.
Default:	0x00
Size:	2 bytes*
param1,2:	A signed integer to determine the offset off the temperature.
param3,4:	not used.

* if a size is other then given size the frame is ignored totally so configuration values are **not** changed

class: 0x85 COMMAND_CLASS_ASSOCIATION

The Association Command Class is used to associate other devices with the Energy Switch The devices that are associated can be controlled on application level.

Every time the push button is pressed a switch binary report is sent to the associated node

The Energy Switch can be associated into a grouping. If so, the Energy Switch can be controlled by another Z-Wave device (does not have to be a controller).

Number of groupings: 1
Maximum supported nodes per group: 1

Because only one group is supported grouping identifier is ignored in all cases.

class: 0x73 COMMAND_CLASS_POWERLEVEL

The Powerlevel Command Class defines the RF transmitting power. This command is used to test the connectivity of a network. The Command makes it possible for supporting controllers to SET/GET the RF transmitting power level of a node and test specific links between nodes.

class: 0x75 COMMAND_CLASS_PROTECTION

The Protection Command Class is used to protect the device being controlled unintentional or unwanted by e.g. a child. When this is applied the push button will not work.

This can be set using the PROTECTION_SET command. The following three protection states can be used:

> 0x00: Unprotected – The device is not protected and can be operated normally with the push button.
> 0x01: Protection by sequence: The device can be used by a different way of operating, three rapid button presses are used to switch manually.
> 0x02: No operation possible – it is not possible to control the device by the push button. Off course you can control the device by z-wave.

Note: every other state will be ignored by application.

class: 0x31 COMMAND_CLASS_SENSOR_MULTILEVEL

Sensor_multilevel_get
The Sensor Multilevel Command Class is used to get a report from the Energy Switch. The returned value is the measured temperatue inside the housing with 2 decimals.

class 0x27 COMMAND_CLASS_SWITCH_ALL

The Energy Switch supports switch all functionality and therefore can be in included in a switch all broadcast.

If Energy Switch is configured to switch all mode:

0x00   : is excluded from all switch on/off functionality.
0x01   : is excluded from the all on but not the all off.
0x02   : is excluded from the all off but not the all on.
0x03   : All on and all off are both included.

Configuration Reset

The Energy Switch Supports a configuration resets function. Configuration reset means
-    All configuration values are defaulted.

This function can be activated by sending a configuration set frame:

CONFIGURATION_SET
Parameter: 0x00
Size: 0x01 (can't be different from 1)
Value: All values (0x00 – 0xFF) except for 0x55.

When the value of configuration value is requested 2 possible values can be returned

CONFIGURATION_REPORT
Parameter: 0x00
Value 0x55:   Device doesn't have all his factory settings anymore.
                  Even when a configuration parameter is changed back to the default value

Value 0xAA: Devices still has all his factory settings.

Frequently Asked Questions

Q: Why does the push button on the switch not work?
A: **1**. Check whether the Protection is enabled or not. If it is, disable the protection and try again.
For more information about disabling the protection please refer to the supporting command classes.
2. During the NWI and the inclusion/exclusion process, the push button will not work.
3. Check if the *EnergySwitch* is completely plugged into the socket.

Q: I can't have my *EnergySwitch* included into my Z-Wave network, what am I doing wrong?
A: **1**. Is the controller ready to include any device into the Z-Wave network? If the controller is not in
Include or exclude mode, the *EnergySwitch* cannot be included or excluded.
2. The *EnergySwitch* is already included into a Z-Wave network. Exclude the switch and try to include it
again.

Q: Where can I see the energy consumption measurement?
A: **1**. The energy consumption measurement can be viewed by the use of a Z-Wave controller. You can
request the accumulated or instant measured values by the use of the meter command class.

Q: Why is the energy measurement not working?
A: **1**. A device must be plugged into the socket of the *EnergySwitch*. Please check if you had any device
plugged in before checking the energy measurement.

Q: Why does the indicator light not work?
A: **1**. Check if the *EnergySwitch* is fully plugged into a socket. The indicator light will not work if there is no
power supplied to the *EnergySwitch*.
2. The Indicator light is only on when the *EnergySwitch* is on. Press the push button to turn it on.