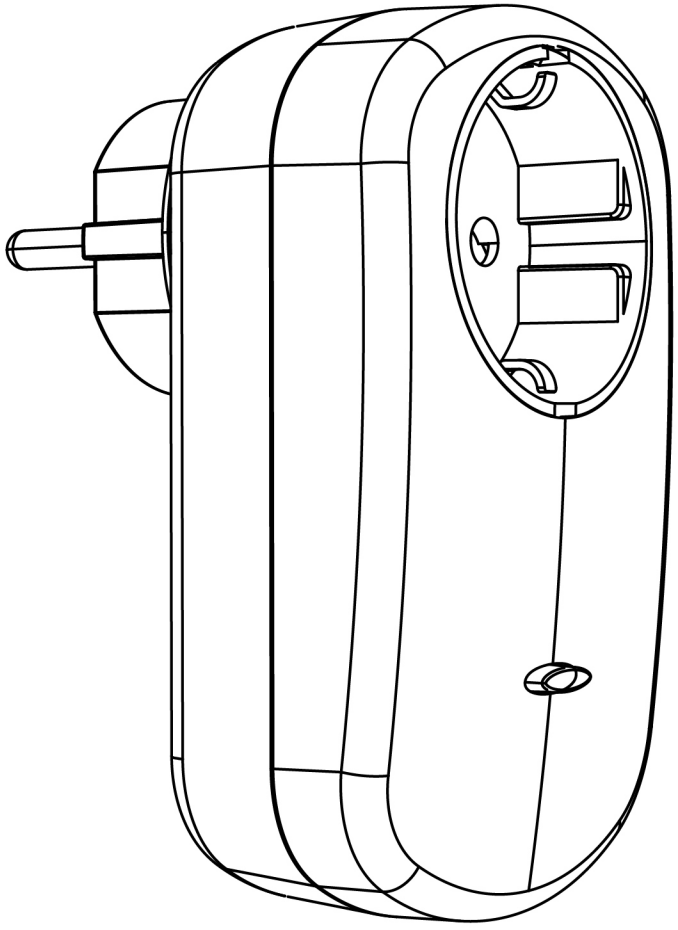
WINKA SYSIT

User Manual

for

Smart Power Plug

WK-0003

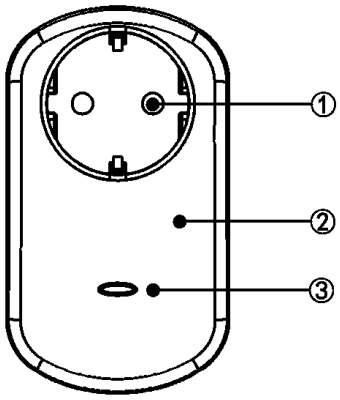


Z-WAVE PLUS

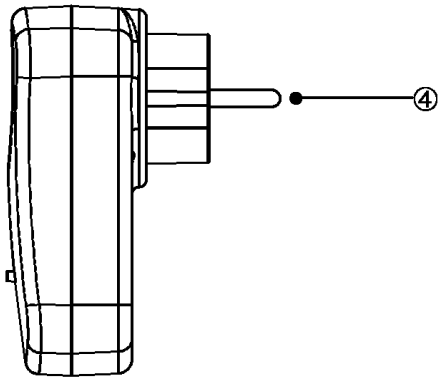
User Manual for Smart Power Plug

Ⅰ、Rendering

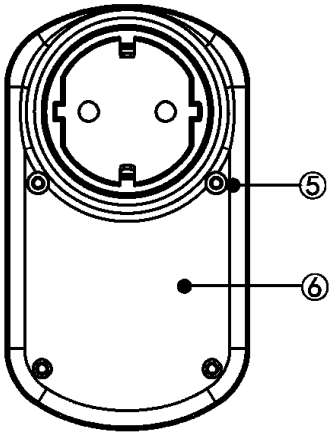
Ⅱ、Structure



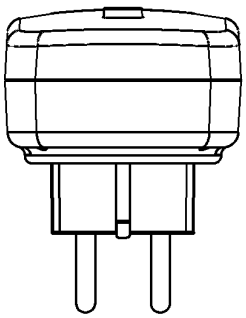
Front case



Side part



Bottom case



Front part

Comment：

① Socket
② Front case
③ Button + indication light
④ Plug
⑤ Screw hole
⑥ Bottom case

This product can be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

1、 Power up the device

After the device is powered up correctly (the button should not be pressed during the power-on period), if it has not be added a Z-Wave network, LED light will flash for five times with an interval of one second; If the outlet has be added in a z-wave network, the LED light will flash for five times very fast with an interval of 300ms; Then it will enter the normal working mode.

2、 Add in Z-Wave Network

a) Ensure that the outlet is powered up correctly.
b) Set Z-Wave Gateway entered inclusion mode.
c) Press the button on the outlet for three times quickly within 1.5 seconds. Then the LED light will flash for 5 times with an interval of 500ms, which means that the outlet has entered the inclusion mode and it is waiting for the gateway to complete the configuration.

3、 Remove from Z-Wave Network

a) Ensure that the outlet is powered up correctly.
b) Set Z-Wave Gateway entered exclusion mode.
c) Press the button on the outlet for three times quickly within 1.5 seconds. Then the LED light will flash for 5 times with an interval of 500ms, which means that the outlet has entered the mode of excluding from the network and it is waiting for the gateway to complete the configuration.

4、 Enter factory testing mode

Keep pressing the button of the outlet, and then power up the outlet. The outlet will enter the factory test mode, in which all the operations of the outlet will not work and the green LED light will keep flashing.

Exit from factory test mode: Power off, and then power the outlet on by un-pressing the button. And then it will enter the normal working mode.

5、 Restore factory defaults settings

a) Ensure that the outlet is powered up correctly.
b) Press the button and maintain this action for 10 seconds, then release it after the green and red LEDs both light on. Then the outlet will restore all data to the factory defaults.

Note: This mode can also delete the network information of the outlet and make the device exclude from the Z-Wave network that it has joined. Please use this procedure only when the network primary controller is missing or otherwise inoperable.

6、 Associations

This outlet supports 3 Association groups, with each group supporting max 5 associated nodes. The Command Class supported by each association group is shown in the table below:

Group	Command Class	Event
1 (Lifeline)	COMMAND_CLASS_SWITCH_BINARY	SWITCH_BINARY_REPORT
	COMMAND_CLASS_METER	METER_REPORT
	COMMAND_CLASS_NOTIFICATION	NOTIFICATION_REPORT

	COMMAND_CLASS_DEVICE_RESET_LOCALLY	DEVICE_RESET_LOCALLY_NOTIFICATION
2 (Control)	COMMAND_CLASS_BASIC	BASIC_SET
3	COMMAND_CLASS_NOTIFICATION	POWERMANAGEMENT STATUS (OVER LOAD)

7、 Description of outlet functions

The outlet supports S0 encryption communication mechanisms; the outlet has four main functions: Switch, electrical parameters measurement over-current protection, and timing.

1) Switch

There are three ways of controlling the outlet switch:

a Press the button on the outlet shortly

b Send SWITCH_BINARY_SET(0x00, 0xFF) via COMMAND_CLASS_SWITCH_BINARY of Z-Wave

c Send BASIC_SET(0x00, 0xFF) via other sensors equipped with connection control interfaces

Command Class controlling the outlet switch

COMMAND CLASS: COMMAND_CLASS_SWITCH_BINARY; COMMAND_CLASS_BASIC

COMMAND: SWITCH_BINARY_SET (0x00, 0xFF); BASIC_SET (0x00, 0xFF)

2) Electrical Parameters Measure

The outlet provides line voltage measurement (V), loaded current (A), active power (W), and accumulated energy consumed (kWh) measurement; the significant digits of the measured result should be two digits after the decimal point;

These electrical parameters result will be reported to the host regularly through the Meter Report of Meter Command Class, the interval of which can be configured by the user by means shown in "**Parameter Configuration.**"

The outlet also provides the function of reporting the measurement results to the gateway when the load current changes and the user can set the changed quantity of the load current freely by means shown in "**Parameter Configuration.**"

The electric quantity detection result is reported to Command Class

COMMAND CLASS: METER_ COMMAND_CLASS

REPORT: METER_REPORT

Data reported: Voltage (A), current (V), active power (W), and accumulated energy (kWh)

3) Over-current Protection

The outlet can provide a maximum load current of 16A, and when the load current exceeds 16A, the load power supply will be automatically cut off. And it will inform the host of the overload of the outlet through NOTIFICATION_REPORT of the Notification Command Class, and meanwhile, the LED light of the outlet will flash with an interval of one second; Users can remove the overload alarm by pressing the button or sending SWITCH_BINARY_SET=0xFF, and for safety's sake, before that, users should remove the load from the outlet first.

Users can control the maximum output current of the outlet by setting the maximum output current, the setting method of which is shown in "**Parameter Configuration**".

Overload protection communication Command Class

COMMAND CLASS: Notification Command Class

NOTIFICATION TYPE: NOTIFICATION_TYPE_POWER_MANAGEMENT

EVENT: NOTIFICATION_EVENT_POWER_MANAGEMENT_OVER_LOAD_DETECTED

4) Outlet timing

The outlet also provides the function of timing, and users can turn off the outlet by opening this function and setting the time cycle, the setting method of which is shown in "**8 Parameter Configuration**".

8、 Parameter Configuration (Command Class Configuration)

This outlet supports the host to configure parameters of the sensor through Configuration Command Class, and the sensor has two parameters available for users to set according to their different needs:

1) Outlet On/Off state Saved Disable

This parameter is set as '1'. The switch will save the current switch state, and after the outlet is powered down and restarted, it will automatically recover to the switch state before power-down.

Parameter Number	Size (Byte)	Available Settings	Default value
1	1	0, 1	1

2) Button Switch Function Disable

Setting this parameter as '0' will make it invalid to operate the outlet switch with the button.

Parameter Number	Size (Byte)	Available Settings	Default value
2	1	0, 1	1

3) Outlet LED indication Disable

Setting this parameter as '0' will forbid the LED of the outlet from being on; Parameter '0' is invalid to the LED indication in the power-up state.

Parameter Number	Size (Byte)	Available Settings	Default value
3	1	0, 1	1

4) Timer Enable

Setting this parameter as '1' will start the timing function of the outlet, and the length of time is determined by the setting of Parameter 5.This function can only provide the timed closing control function when the outlet is open.

Parameter Number	Size (Byte)	Available Settings	Default value
4	1	0, 1	0

5) Time cycle setting

This parameter sets the time length of closing the outlet at a fixed time, the unit of which is minute, which is only valid when Parameter 4 is set as '1'.

Parameter Number	Size (Byte)	Available Settings (min)	Default value (min)
5	2	0 ~ 32767	150

6) Meter reporting function Disable

Setting this parameter as '0' will close the timed report function of the outlet, with no influence on the current change reporting function. The interval of reporting electric quantity detection result is controlled by the time set by Parameter 7.

Parameter Number	Size (Byte)	Available Settings	Default value
6	1	0, 1	1

7) Interval of meter reporting setting

This parameter is to set the interval of reporting electric quantity detection result, the unit of which is:

Seconds. This parameter is only valid when Parameter 6 is set as '1'.

Parameter Number	Size (Byte)	Available Settings (s)	Default value (s)
7	2	30 ~ 32767	300

8) Maximum output current setting

This parameter sets the maximum output current that the outlet can provide, the unit of which is: Ampere (A).When the current consumed by the load is greater than the set value, the outlet will automatically cut off the power of the load and send out alarm information.

Parameter Number	Size (Byte)	Available Settings (A)	Default value (A)
8	1	1 ~ 16	16

9) Current changes setting

This parameter sets the change volume of the load current (volatility). When the differences between two measurements of current consumed by the load exceed the value set by this parameter, the outlet will report the last electric quantity detection result automatically to the host, the unit of which is 0.01A.

For example, when this parameter is set as 10, then 10×0.01A = 0.1A, which means that all results currently measured will be reported to the outlet automatically (voltage, current, instant power and cumulative power) when the difference between the current measured currently and the current reported last time is greater than 0.1A.

Parameter Number	Size (Byte)	Available Settings (0.01A)	Default value (0.01 A)
9	2	1 ~ 1600	50

10) To Test Current Over-loading

Set this parameter to 0xFF, the device will simulate the action of current over-load. For this test, you must sure the relay is turn on first.

Running this configuration, the device will turn off the relay first, and the send the NOTIFICATION_EVENT_POWER_MANAGEMENT_OVER_LOAD_DETECTED notification to controller. The red led will flash with 1 second interval at the same time.

User can press the button once or send BINARY_SWITCH_SET = 0xFF to device to release the current over-load alarm.

Parameter Number	Size (Byte)	Available Settings	Default value
100	1	0xFF	

9、Security Network

This device supports the security function with S0 encrypted communication. The device will auto switch to the security mode when the device included with a security controller. In the security mode, the follow commands must use security command class (Version 1) wrapped to communicate, otherwise the device will not response any commands.

* COMMAND_CLASS_VERSION (V2)
* COMMAND_CLASS_ASSOCIATION (V2)
* COMMAND_CLASS_ASSOCIATION_GRP_INFO (V1)
* COMMAND_CLASS_MANUFACTURER_SPECIFIC (V2)
* COMMAND_CLASS_DEVICE_RESET_LOCALLY (V1)
* COMMAND_CLASS_SWITCH_ALL (V1)
* COMMAND_CLASS_SWITCH_BINARY (V1)
* COMMAND_CLASS_NOTIFICATION (V8)

* COMMAND_CLASS_METER (V4）
* COMMAND_CLASS_CONFIGURATION (V1)

10、Supports Command Class

This device supports Z-Wave Command Class as follows:

* COMMAND_CLASS_ZWAVEPLUS_INFO (V2)
* COMMAND_CLASS_POWERLEVEL (V1)
* COMMAND_CLASS_SECURITY (V1)
* COMMAND_CLASS_VERSION (V2)
* COMMAND_CLASS_ASSOCIATION (V2)
* COMMAND_CLASS_ASSOCIATION_GRP_INFO (V1)
* COMMAND_CLASS_MANUFACTURER_SPECIFIC (V2)
* COMMAND_CLASS_DEVICE_RESET_LOCALLY (V1)
* COMMAND_CLASS_SWITCH_ALL (V1)
* COMMAND_CLASS_SWITCH_BINARY (V1)
* COMMAND_CLASS_NOTIFICATION (V8)
* COMMAND_CLASS_METER (V4)
* COMMAND_CLASS_CONFIGURATION (V1)

11、Specifications

Power supply type: AC 110V, AC 220V

Communication frequency: 868.42MHz (European frequency band)

Communication distance: 50m for the indoor (depending on the building structure), and 80m for outdoor open fields.

Working temperature: -10 ~ 65 degrees