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Knowledge Base / Devices / Shelly Qubino Wave devices / Wave PM Mini

# Wave PM Mini (EU)

Note: The product line known as "Shelly Qubino Wave" will now be referred to as "Shelly Wave". This name change will not impact the functionality of any devices. The only modification will be the use of the new name in all future documentation.

Wave PM Mini 110-240 V AC, 50/60 Hz max. 16 A / 3840 W @ 240 V AC Shelly

#### **Device identification**

- Device name: Wave PM Mini
- EU Part number/Ordering Code: QMEM-0A1PC16EU
- Z-Wave Product type ID: 0x0007
- Z-Wave Product ID: 0x0081
- Z-Wave Manufacturer: Shelly Europe Ltd.
- Z-Wave Manufacturer ID: 0x0460

### Terminology

- Device In this document, the term "Device" is used to refer to the Shelly Qubino device that is a subject of this guide.
- Gateway A Z-Wave® gateway, also referred to as a Z-Wave® controller, Z-Wave® main controller, Z-Wave® primary controller, or Z-Wave® hub, etc., is a device that serves

central hub for a Z-Wave® smart home network. The term "**gateway**" is used in this document.

 S button - The Z-Wave® Service button, located on Z-Wave® devices and is used for various functions such as adding (inclusion), removing (exclusion), and resetting the device to its factory default settings. The term "S button" is used in this document.

#### Short description

The Device is a small form factor smart power meter, which allow remote monitoring of electric appliances power consumption with a load of up to 16 A.

### Main applications

- Residential
- MDU (Multi Dwelling Units apartments, condominiums, hotels, etc.)
- Light commercial (small office buildings, small retail/restaurant/gas station, etc.)
- Government/municipal
- University/college

#### Integrations

Shelly Qubino Wave devices are developed on the **world's leading technology for smart homes – Z-Wave**.

This means Shelly Qubino Wave works with all **certified** gateways supporting Z-Wave communication protocol.

To make sure the functions of Shelly Qubino Wave products are supported on your gateway, we are regularly executing compatibility tests of our devices with different Z-Wave gateways.

### Simplified internal schematics



# **Device electrical interfaces**

## Inputs

• 2 power supply inputs on screw terminals: N, L

# Outputs

• 2 output with power measurement on screw terminal

# Addon interface

N/A

# Connectivity

Z-Wave - Unsecure, S0 Security, S2 Unauthenticated Security, S2 Authenticated Security

# Safety features

### **Overheat protection**

- switch off its own relay
- sends the Notification Report to the Gateway (Overheat detected)
- the led lights react as specified above (check blinking mode for Overheat detected)

Any of next activities reset this alarm: power cycle, short press on S button, press any switchpush button connected to any SW (SW, SW1, SW2, ...) terminal. NOTE: The Overheat protection is always active and cannot be disabled. Additional description above under chapter **Notification for Overheat detected.** 

#### **Over-current Protection**

Device has internal Over-current protection. If the current exceeds 16A+10% (Max switching current +10%) for more than 5s, the Device will:

- switch off its own relay
- sends the Notification Report to the gateway (Over-current detected)
- the LED lights react as specified above (check LED blinking mode for Over-current detected)

Any of the following activities reset this alarm: power cycle, short press on the S button, press on any switch/push-button connected to any SW (SW, SW1, SW2, ...) terminal.

NOTE: The Over-current protection is always active and cannot be disabled. Additional description above under chapter **Notification for Over-current detected.** 

#### **Over-voltage Protection**

Device has internal Over-voltage protection. This is valid for standard power supply voltage 230 V AC. If the voltage exceeds 240 V AC+15% (278 V AC) for more than 5s, the Device will:

- switch off its own relay
- sends the Notification Report to the Gateway (Over-voltage detected)
- the LED lights react as specified above (check LED blinking mode for Over-voltage detected)

Any of the following activities reset this alarm: power cycle, short press on the S button, press on any switch/push-button connected to any SW (SW, SW1, SW2, ...) terminal.

NOTE: The Over-voltage protection is always active and cannot be disabled. Additional description above under chapter **Notification for Over-voltage detected.** 

### Supported load types

- Resistive (incandescent bulbs, heating devices)
- Capacitive (capacitor banks, electronic equipment, motor start capacitors)

• Inductive with RC Snubber (LED light drivers, transformers, fans, refrigerators, airconditioners)

## User interface

#### S button and operating modes

- 1. Normal mode
- 2. Setting in progress mode
- 3. Setting mode (with S button)
  - Settings mode is required to start desired procedure for example: adding (inclusion), removing (exclusion), factory reset etc. It has a limited time of operation. After the procedure in Setting mode is concluded, the Device goes automatically into Normal mode.
  - Entering to Setting mode:
    - Quickly press and hold the S button on the Device until the LED turns solid blue
    - An additional quick press on the S button means menu change in infinite loop
    - Menu LED status has a timeout of 10s before entering again into Normal state

### S button's functions

- Manually adding the Device to a Z-Wave network
- Manually removing the Device from a Z-Wave network
- Factory Reset the Device

### **LED Signalisation**

Click to see the LED Signalisation

# LED blinking modes

Click to see	the LED	blinking	modes
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# Specifications

Power supply	110 - 240 V AC, 50/60 Hz
Power consumption	< 0,3 W
Power measurement (W)	Yes
External protection	16 A, tripping characteristic B or C 6 kA interrupting rating Energy limiting class 3
Max. measurement power	3840 W
Max measurement current	16 A
Overheating protection	Yes
Distance	Up to 40 m indoors (131 ft.) (depends on local condition)
Z-Wave® repeater	Yes
CPU	Z-Wave® S800
Z-Wave® frequency band:	868,4 MHz
Maximum radio frequency power	< 25 mW

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transmitted in frequency band(s)	
Size (H x W x D)	29x35x16 ±0.5 mm / 1.11x1.35x0.63 ±0.02 in
Weight	13 ±1 g / 0.46 ±0.04 oz
Mounting	Wall box
Screw terminals max. torque	0.4 Nm / 3.54 lbin
Conductor cross section	0.5 to 1.5 mm² / 20 to 16 AWG
Conductor stripped length	5 to 6 mm / 0.20 to 0.24 in
Shell material	Plastic
Color	Light grey
Ambient temperature	-20°C to 40°C / -5°F to 105°F
Humidity	30% to 70% RH
Max. altitude	2000 m / 6562 ft.
Ambient temperature	-20°C to 40°C / -5°F to 105°F
Humidity	30% to 70% RH
Max. altitude	2000 m / 6562 ft.

# Basic wiring diagram



# Legend

Terminals		Cables	
Ν	Neutral terminal	N	Neutral wire
L	Live terminal (110–240 V AC)	L	Live (110 - 240 VAC) wire
0	Load circuit output terminal		
		S	S button

# About Z-Wave®

# Adding the Device to a Z-Wave® network (inclusion)

Click to see how to add, remove and reset the Device

https://kb.shelly.cloud/knowledge-base/wave-pm-mini

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#### Z-Wave® Security and Device Specific Key (DSK)

Click to see about the Security and the DSK

#### **Z-Wave® Parameters**

Click here to see the Z-Wave Parameters

#### Z-Wave® Command Classes

Click to see the Z-Wave Command Classes

#### **Z-Wave® Notifications Command Class**

Click to see the Z-Wave Notification Command Class

#### **Z-Wave®** Associations

Click to see the Z-Wave Associations

#### Z-Wave® Important disclaimer

Z-Wave® wireless communication may not always be 100% reliable. This Device should not be used in situations in which life and/or valuables are solely dependent on its functioning. If the Device is not recognized by your gateway or appears incorrectly, you may need to change the Device type manually and ensure that your gateway supports Z-Wave Plus<sup>™</sup> multi-level devices.

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# Troubleshooting

For troubleshooting please visit our support portal: Support

# Compatibility

Wave 1 mini	functions - reports		
Gateway	On/Off	SW On/Off	Notes
Home Assistant	•	•	
Fibaro HC 3 / Z-Wave engine 3	•	•	
Homey	•	•	
Homee Cube Gen 7	•	•	
Homee Cube Gen 5	•	×	
Smart Things	0	0	with the Shelly Wave edge driver

Legend	
Symbol	State
•	Working / Possible
×	Not Working / Not Possible
Р	Partially

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N/T	Not Tested
TBD	To be done

Function	Meaning / tested
On/Off	if device respond to the app UI On/Off command
SW On/Off	if device reports On/Off changes by SW input
Dimming	if device respond to app UI dimming command
SW Dimming	if device report dimming state change by SW input
Watts	if Watts are reported (unsolicited)
kWh	if kWh are reported (unsolicited)
Up/Down	if device respond to the app UI Up/Down command
SW Up/Down	if device reports Up/Down changes by SW input
Slats	if the slats respond to the app UI command
SW Slats	if the slats report the changes done by SW
*SW scene	<i>detached mode</i> if device reports scene commands single press, double press,
*SW On/Off	detached mode if the device reports binary On/Off by SW input

# Gateway guides

You may find useful guides on gateways in the Z-Wave Shelly Knowledge base.

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# Compliance

- Wave PM Mini multilingual EU declaration of conformity.pdf
- Wave PM Mini UK PSTI ACT Statement of compliance.pdf
- Wave PM Mini AU NZ Certificate for Suitability.pdf

#### **Printed User Guide**

• Wave\_PM\_mini\_user\_guide\_multilang\_2023\_print\_v2.pdf

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