

USER AND SAFETY GUIDE

2 CIRCUIT WI-FI RELAY SWITCH WITH POWER MEASUREMENT AND COVER CONTROL CAPABILITY

Read before use

This document contains important technical and safety information about the device, its safety use and installation.

⚠ CAUTION! Before beginning the installation, please read this guide and any other documents accompanying the device carefully and completely. Failure to follow the installation procedures could lead to malfunction, danger to your health and life, violation of the law or refusal of legal and/or commercial guarantee (if any). Alterco Robotics EOOD is not responsible for any loss or damage in case of incorrect installation or improper operation of this device due to failure of following the user and safety instructions in this guide.

Product Introduction

Shelly® is a line of innovative microprocessor-managed devices, which allow remote control of electric appliances through a mobile phone, tablet, PC, or home automation system. Shelly® devices can work standalone in a local Wi-Fi network or they can also be operated through cloud home automation services. Shelly® devices can be accessed, controlled and monitored remotely from any place the User has Internet connection, as long as the devices are connected to a Wi-Fi router and the Internet. Shelly® devices have integrated web servers, through which the user can adjust, control and monitor them. The cloud function could be used, if it is activated through the web server of the device or the settings in the Shelly Cloud mobile application. The user can register and access Shelly Cloud using either Android or iOS mobile application, or with any internet browser at <https://my.shelly.cloud/>.

Shelly® devices have two Wi-Fi modes - Access Point (AP) and Client mode (CM). To operate in Client Mode, a Wi-Fi router must be located within the range of the device. Shelly® devices can communicate directly with other Wi-Fi devices through HTTP protocol. An API is provided by Alterco Robotics EOOD.

For more information, please visit: [shelly-api-docs.shelly.cloud/#shelly-family-overview](https://my.shelly.cloud/#shelly-family-overview)

Shelly® Plus line offers PM products capable of real-time precise power measurement.

Control your home with your voice

Shelly® devices are compatible with Amazon Echo and Google Home supported functionalities. Please see our step-by-step guide on: <https://shelly.cloud/support/compatibility/>.

Schematics

See the schematics at the beginning of the user guide.

Legend

Device terminals:

- O1: Load circuit 1 output terminal
- O2: Load circuit 2 output terminal
- S1: Switch (controlling O1*) input terminal
- S2: Switch (controlling O2*) input terminal
- L: Live (110-240V) terminals
- N: Neutral terminal
- +: 24 VDC positive terminal
- -: 24 VDC negative terminal

Cables:

- N: Neutral cable
- L: Live (110 VAC - 240 VAC) cable
- +: 24 VDC positive cable
- -: 24 VDC negative cable

* Can be reconfigured

Installation Instructions

Shelly® Plus 2PM (the Device) can control 2 electrical circuits, including a bi-directional AC motor. Each circuit can be loaded up to 10 A (18 A total) and its power consumption can be measured individually (AC only). It can be retrofitted into a standard in-wall console, behind power sockets and light switches or other places with limited space.

⚠ CAUTION! Danger of electrocution. Mounting/installation of the Device to the power grid has to be performed with caution, by a qualified electrician.

⚠ CAUTION! Danger of electrocution. Every change in the connections has to be done after ensuring there is no voltage present at the Device terminals.

⚠ CAUTION! Use the Device only with a power grid and appliances which comply with all applicable regulations. A short circuit in the power grid or any appliance connected to the Device may damage the Device.

⚠ CAUTION! Do not connect the Device to appliances exceeding the given max load!

⚠ CAUTION! Connect the Device only in the way shown in these instructions. Any other method could cause damage and/or injury.

⚠ CAUTION! Do not install the device at a place that is possible to get wet.

⚠ RECOMMENDATION Connect the Device using solid single-core cables with increased insulation heat resistance not less than PVC T105°C.

Before starting installing/mounting the Device, wire check that the breakers are turned off and there is no voltage on their terminals. This can be done with a phase meter or multimeter. When you are sure that there is no voltage, you can proceed to wire the cables.

If you want to use the Device to control 2 separate load circuits, connect the Device as shown on **Fig. 1** for AC circuits and on **Fig. 2** for DC circuits.

⚠ CAUTION! Use the same power supply for the two load circuits and the Device.

For AC circuits connect both L terminals to the Live cable and the N terminal to the Neutral cable. Connect the first load circuit to the O1 terminal and the Neutral cable. Connect the second load circuit to the O2 terminal and the Neutral cable. Connect the first switch to the S1 terminal and the Live cable. Connect the second switch to the S2 terminal and the Live cable.

For DC circuits connect both L terminals to the Negative cable and the N terminal to the Positive cable. Connect the first load circuit to the O1 terminal and the Positive cable. Connect the second load circuit to the O2 terminal and the Positive cable. Connect the first switch to the S1 terminal and the Negative cable. Connect the second switch to the S2 terminal and the Negative cable.

As a cover controller Shelly® Plus 2PM can work in 3 modes - detached, single input or dual input.

In detached mode, the Device can be controlled through its WebUI and the App only. Even if buttons or switches are connected to the Device, they will not be allowed to control the motor rotation in detached mode.

If you want to use the Device in detached mode connect the device as shown on **Fig. 3**: Connect both L terminals to the Live cable and the N terminal to the Neutral cable. Connect the common motor terminal/wire to the Neutral wire. Connect motor direction terminals/wires to the O1 and O2 terminals.**

If you want to use the Device in single input mode connect the device as shown on **Fig. 4** for a button input or **Fig. 5** for a switch input. Connect both L terminals to the Live cable and the N terminal to the Neutral cable. Connect the common motor terminal/wire to the Neutral wire. Connect motor direction terminals/wires to the O1 and O2 terminals.**

Connect the button or the switch to the S1 or the S2 terminal and the Live cable.

If the input is configured as a button in the Device settings, each button press cycles open, stop, close, stop...

If the input is configured as a switch, each switch toggle cycles open, stop, close, stop...

In single input mode Shelly® Plus 2PM provides safety switch functionality. To utilize it, connect the device as shown on **Fig. 6** for a button input or **Fig. 7** for a switch input. Con-

nect both L terminals to the Live cable and the N terminal to the Neutral cable. Connect the common motor terminal/wire to the Neutral wire. Connect motor direction terminals/wires to the O1 and O2 terminals.**

Connect the controlling button or switch to the S1 terminal and the Live cable. Connect the safety switch to the S2 terminal and the Live cable.

The safety switch can be configured to:

- Stop the movement until the safety switch is disengaged or until a command is sent*** and, if allowed in the Device settings, the movement is resumed in the opposite direction until the end position is reached.
- Stop and immediately reverse the movement until the end position is reached. This option requires reverse movement to be allowed in the Device settings.

The safety switch can also be configured to stop the movement in only one of the directions or in both.

If you want to use the Device in dual input mode, connect the device as shown on **Fig. 8** for a button inputs or **Fig. 9** for a switch inputs. Connect both L terminals to the Live cable and the N terminal to the Neutral cable. Connect the common motor terminal/wire to the Neutral wire. Connect motor direction terminals/wires to the O1 and O2 terminals.**

Connect the first button/switch to the S1 terminal and the Live cable. Connect the second button/switch to the S2 terminal and the Live cable.

In case the inputs are configured as buttons:

- Pressing a button when the cover is static, moves the cover in the corresponding direction until the endpoint is reached.
- Pressing the button for the same direction while the cover is moving, stops the cover.
- Pressing the button for the opposite direction, while the cover is moving, reverses the cover movement until the endpoint is reached.

In case the inputs are configured as switches:

- Turning a switch on moves the cover in the corresponding direction until an endpoint is reached.
- Turning the switch off stops the cover movement.

If both switches are turned on, Shelly® Plus 2PM is going to respect the last engaged switch. Turning off the last engaged switch stops the cover movement, even if the other switch is still on. To move the cover in the opposite direction, the other switch has to be turned off and on again.

Shelly® Plus 2PM can detect obstacles. If an obstacle is present, the cover movement will be stopped and, if configured so in the Device settings, reversed until the endpoint is reached. Obstacle detection can be enabled or disabled for only one of the directions or for both.

****The Device outputs can be reconfigured to match the required rotation direction.**

*****Interaction with the button, the switch or a control in the WebUI or in the App (has to command the cover in the opposite to the direction before the safety switch engagement)**

Initial Inclusion

You can choose to use Shelly® with the Shelly Cloud mobile application and Shelly Cloud service. Instructions on how to connect your device to the Cloud and control it through the Shelly App can be found in the "App Guide" included in the box. You can also familiarize yourself with the instructions for Management and Control through the embedded Web interface at 192.168.33.1 in the Wi-Fi network, created by the Device.

⚠ CAUTION! Do not allow children to play with the button/switch connected to the Device. Keep the Devices for remote control of Shelly (mobile phones, tablets, PCs) away from children.

Specifications

- Dimensions (HxWxD): 41x36x17 mm
- Power supply: 110 - 240 VAC, 50/60 Hz or 24 VDC
- Power metering: Yes
- Roller-shutter mode: Yes
- Electrical consumption: < 1.4 W
- Working temperature: 0 °C - 40 °C
- Controlling elements: 2 relays
- Controlled elements: 2 circuits or a bi-directional motor
- Max switching voltage: 240 VAC / 24 VDC
- Max current per channel: 10 A

- Dry contacts: No
- Temperature Protection - YES
- Wi-Fi - YES
- Bluetooth - YES
- Radio protocol: Wi-Fi 802.11 b/g/n
- Radio signal power: 1 mW
- Frequency Wi-Fi: 2412-2462 MHz
- RF output Wi-Fi: < 15 dB
- Operational range (depending on terrain and building structure): up to 50 m outdoors, up to 30 m indoors
- Bluetooth: v4.2
- Basic/EDR: YES
- Bluetooth modulation: GFSK, π/4-QPSK, 8-PSK
- Frequency Bluetooth: TX/RX: 2402-2480 MHz (Max. 2483.5MHz)
- RF output Bluetooth: < 5 dB
- Scripting (mjs) - YES
- MQTT - YES
- CoAP - No
- URL Actions - 20
- Scheduling - 50
- Add-on support - YES
- CPU - ESP32
- Flash - 4 MB

Declaration of conformity

Hereby, Alterco Robotics EOOD declares that the radio equipment type Shelly® Plus 2PM is in compliance with Directive 2014/53/EU, 2014/35/EU, 2014/30/EU, 2011/65/EU. The full text of the EU declaration of conformity is available at the following internet address

shelly.cloud/knowledge-base/devices/shelly-plus-2pm/

Manufacturer: Alterco Robotics EOOD

Address: Bulgaria, Sofia, 1407, 103 Cherni vrah Blvd.

Tel.: +359 2 988 7435

E-mail: support@shelly.cloud

Web: <http://www.shelly.cloud>

Changes in the contact data are published by the Manufacturer at the official website of the Device

All rights to trademark Shelly® and other intellectual rights associated with this Device belong to Alterco Robotics EOOD.

FCC Warning

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 or more 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.

Radiation Exposure Statement

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