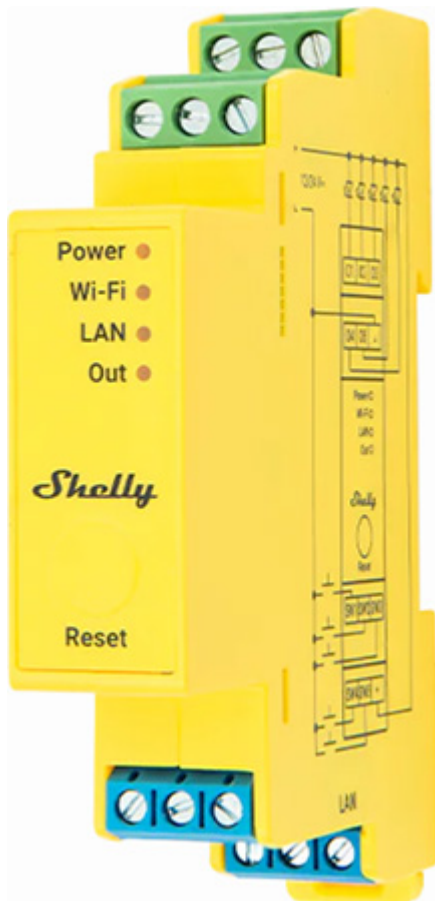




Knowledge Base / Devices / Shelly Pro devices

Shelly Pro RGBWW PM

Device image



Device identification

- Device name: **Shelly Pro RGBWW PM**
- Device model: **SPDC-0D5PE16EU**
- Device SSID: **ShellyProRGBWWPM-XXXXXXXXXXXX**
- Device Bluetooth ID: **0x2012**

Short description

Shelly Pro RGBWW PM (the Device) is a DIN-rail mountable, five-channel smart light controller. It has 5 inputs (button, switch or analog), and five outputs. The Device is commonly used with LED strips. It supports 4 profiles - *RGB and CCT* (default), *CCT x 2*, *RGB and lights x 2* and *Lights x 5*. In *Lights x 5* profile, 5 different led strips (groups of lights) can be controlled independently. Power measurement functionality allows real time track of the voltage, current and power consumption.

The Device can work standalone in a local Wi-Fi network or it can also be operated through cloud home automation services. It can be accessed, controlled, and monitored remotely from any place where the User has internet connectivity, as long as it is connected to a Wi-Fi router and the Internet. Shelly Pro RGBWW PM has an embedded Web Interface which can be used to monitor and control the Device, as well as adjust its settings.

Main features

- **DIN rail mountable**
- **Supports multiple profiles:** Supports *RGB and CCT* (default profile), *CCT x 2*, *RGB and lights x 2* and *Lights x 5*
- **Power measurement:** Precise monitoring of energy consumption.
- **Bluetooth:** The Device complies the Bluetooth standard and can connect with other Bluetooth devices to exchange data in short range.
- **BLE Gateway:** Facilitates communication between BLE and Wi-Fi-enabled devices.
- **Wi-Fi:** The Device can connect to a wireless network.
- **Wi-Fi Range extender:** Retransmits the Wi-Fi signal and extends its reach.
- **Ethernet:**
- **Scripting:** Allows creating automation scenarios through scripts.
- **Basic Schedules:** Supports weekly schedules and routines, including setting of brightness, transition duration, and flip value of the dimming signal.
- **Advanced Schedules:** Supports detailed schedules and routines throughout the year with a broad range of time adjustments from seconds to months, including setting of brightness, transition duration, and flip value of the dimming signal.
- **Auto on/off timers:** Enables auto on/off timer setting.
- **Local actions:** Allows creating automation scenarios within the local Wi-Fi network, including setting of brightness, transition duration, and flip value of the dimming signal.

- **Webhooks:** Supports automation through lightweight, event-driven communication with other devices.
- **Compatibility:** Highly compatible with 3rd Party home automation systems.
- **No need for hub:** Ready for use locally or remotely via Shelly Smart Control or 3rd Party systems.
- **Activity log:** Stores detailed history of events.
- **KVS (Key-value storage):** KVS service provides a basic persistent storage of key-value pairs.
- **Safety:** Over current/voltage/power protections
- **Dynamic components:** A special set of components that do not exist in the device initially and are created dynamically by the user.
- **Independent control for each output (channel) in Lights x 5 profile:** Provides separate control for each output for maximum flexibility.
- **Night Mode:** Enables to set a specific brightness of input lights during nighttime.
 - When the night mode time is set, the brightness is always set to the target night mode brightness, no matter the current brightness or the min brightness on power on
 - Default values: 50% brightness, RGB (255,255,255), 4600K (what's applicable). Option to change brightness or color/color temperature only (to keep current color/color temperature or brightness).
- **Switch/Button/Analog input mode:** Allows flexible input control through switches, buttons or potentiometers (10kΩ analog input)
 - CCT x 2 - Input(0) and Input(1) control CCT(0) (no temperature dimming), Input(2) and Input(3) control CCT(1), Input(4) is detached
 - RGB and CCT - Input(0) and Input(1) control RGB, Input(2) and Input(3) control CCT. Input(4) is detached
 - RGB and lights x 2 - Input(0) controls RGB, Input (2) controls Light(0), Input (3) controls Light(1), Input(1) and Input(4) are detached
 - Lights x 5 - Input(x) controls Light(x)
 - One button dimming control - all profiles
 - Dual button dimming control - dimming up/down for brightness only (color temperature cannot be controlled (changed) through buttons).

- **Transition duration:** Controls the time between change from current brightness level to desired brightness level in request (both for color and white). Applied on color temperature property also. No separate transition for color temperature. Default transition not applicable if input mode is "Analog", in this case only the explicit (custom) transition is applied for schedules and actions.
- **Minimum brightness on toggle On:** Brightness level (in percent) applied when there is a toggle On and current brightness is lower than 'Min brightness on toggle'. Default is 3% (for all profiles). Applied on RGB, CCT and Light component.
- **Min/Max brightness:** Reframes the range of the dimming signal to get more precise brightness control on the output. Applied on brightness property only.
- **Min/Max color temperature:** Provides support for different CCT LED strips by remapping output color temperature min/max range to the specified values. Max value needs to be greater than min value. Min value: 1000-9999 K, max value: 1001-10000 K. Default values: min: 2700 K, max: 6500 K
- **Button fade rate:** Controls how quickly the output brightness changes while holding the button(s).
- **Button presets:** Brightness and color (or color temperature) to be applied on double-click. Default values: 100% brightness, RGB (255, 255, 255), 4600 K. Option to change brightness or color/color temperature only (to keep current color/color temperature or brightness).

Use cases

- **Power monitoring:** Monitor power consumption of all connected lights in real-time. This is useful for understanding energy usage patterns and promoting energy efficiency.
- **RGBCCT or Five Individual Lights Control:** Manage an RGBCCT (Red, Green, Blue, Correlated Color Temperature) light or up to five separate light sources.
- **Wake-up and sleep routines:** Use a wide range of color and brightness levels in Night mode to simulate sunrise or sunset by gradually changing the color and brightness. Implement circadian lighting, promoting better sleep-wake cycles and supporting overall well-being by adjusting light color and intensity throughout the day.
- **Child-friendly night lights:** Create a comforting and child-friendly environment. Adjust colors to provide a soothing ambiance for children during bedtime.
- **Seasonal or entertainment decoration:** Decorate homes or commercial spaces for different seasons or holidays by adjusting the RGBW lighting. For example, use warm

tones for autumn and festive colors during holidays. Set dynamic and vibrant lighting patterns for parties, gatherings, or entertainment events.

- **Smart presence simulation:** Set customized color and brightness levels at any given time or based on sunrise/sunset. Enhance home security by simulating presence and turning lights on and off in a natural pattern.
- **Retail and commercial displays:** Use the Device for visual merchandising in retail spaces. Showcase products with dynamic lighting to attract attention and create visually appealing displays.
- **Enhanced lighting control options:** Integrate the Device with most of the frequently used home automation systems like Home Assistant, Google Home, Alexa, and SmartThings for expanded control options.
- **Dynamic art installations:** Integrate the Device into art installations or exhibitions to add dynamic and interactive lighting effects, enhancing the visual impact and engagement.

Main applications

- Residential
- MDU (Multi Dwelling Units - apartments, condominiums, hotels, etc.)...
- Light commercial (small office buildings, small retail/restaurant/gas station, etc.)...
- Industrial (factories, power plants, water processing, refineries, etc.)...
- Government/municipal
- University/college
- Farming

Integrations

Amazon Alexa supported capabilities

Yes

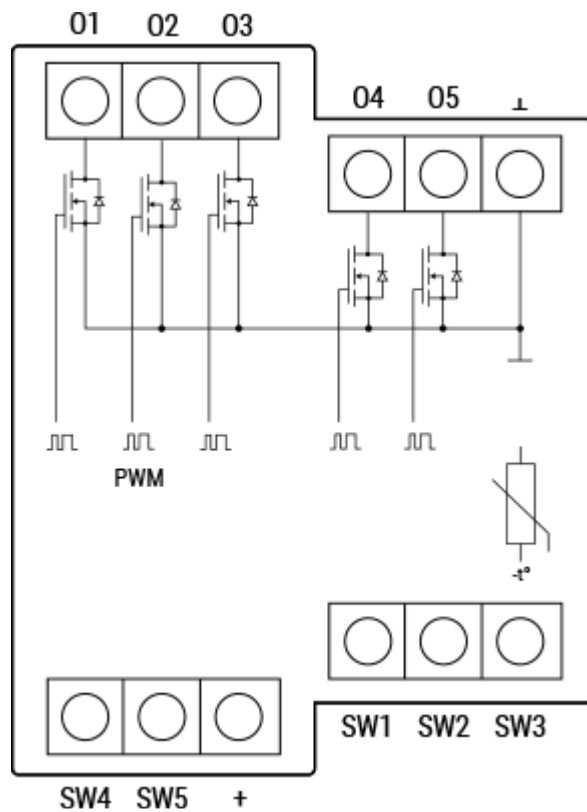
Google Smart Home supported traits

Yes

Samsung SmartThings supported capabilities

Yes

Simplified internal schematics



Device electrical interfaces

Inputs

- 5 switch/button inputs on screw terminals: **SW1, SW2, SW3, SW4** and **SW5**
- 2 power supply inputs on screw terminals: **1 GND** and **1 DC**

Outputs

- 5 outputs: **01, 02, 03, 04** and **05**

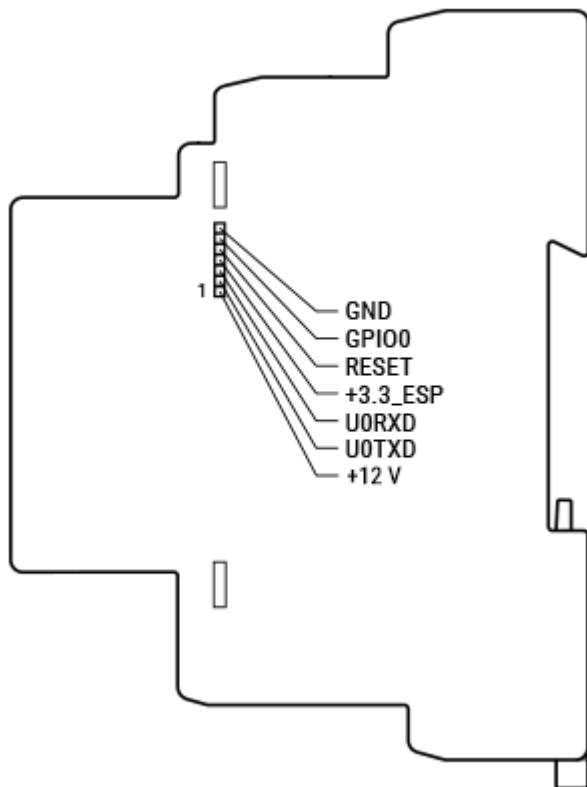
Ethernet port

- 1 RJ45 connector

⚠CAUTION! Plug in or unplug the LAN cable only when the Device is powered off! The LAN cable connector must not be metallic in the parts touched by the user to plug in or unplug the cable.

Add-on interface

- Shelly proprietary serial interface



⚠CAUTION! High voltage on the add-on interface when the Device is powered!

Connectivity

- Wi-Fi
- Ethernet
- Bluetooth

Safety function

- Overheating protection
- Overvoltage protection

- Overcurrent protection
- Overpower protection

Supported load types

- Incandescent
- LED and CFL

User interface

Inputs

- One (Control) button
 - Press and hold for 5 seconds to enable Device access point and Bluetooth connection.
 - Press and hold for 10 seconds to factory reset the Device.

Outputs

- LED (monocolor) indication
 - AP (Access Point) enabled and Wi-Fi disabled:
1 second ON / 1 second OFF
 - Wi-Fi enabled, but not connected to a Wi-Fi network:
1 second ON / 3 seconds OFF
 - Connected to a Wi-Fi network:
Constantly ON
 - Cloud is enabled, but not connected:
1 second ON / 5 seconds OFF
 - Connected to Shelly Cloud:
Constantly ON
 - OTA (Over the Air Update):
½ sec ON / ½ second OFF

- Button pressed and held for 5 seconds:
½ second ON / ½ second OFF
- Button presses and held for 10 seconds:
¼ second ON / ¼ second OFF

The list above starts with the initial device status and the lowest priority. Every next state cancels the previous one.

Specifications



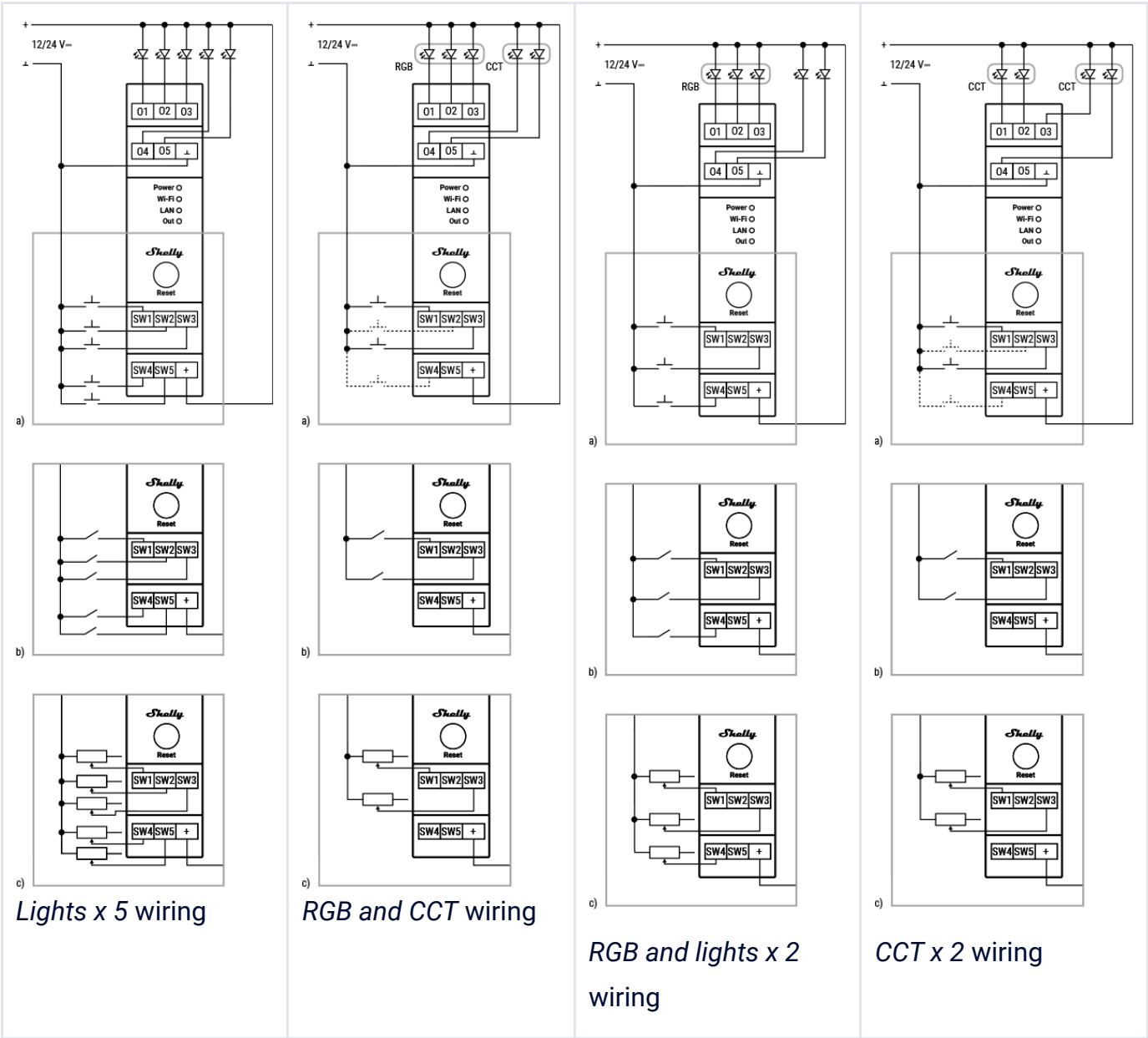
Quantity	Value
Physical	
Size (HxWxD):	94x19x69 ±0.5 mm / 3.70x0.75x2.71 ±0.02 in
Weight:	61 g / 2.15 oz
Screw terminals max torque:	0.4 Nm / 3.54 lbin
Conductor cross section:	0.5 to 2.5 mm² / 20 to 14 AWG (green connector) 0.5 to 1.5 mm² / 20 to 16 AWG (blue connectors) (solid, stranded, and bootlace ferrules)
Conductor stripped length:	6 to 7 mm / 0.24 to 0.28 in (green connector) 5 to 6 mm / 0.20 to 0.24 in (blue connectors)
Mounting:	DIN rail
Shell material:	Plastic
Shell color:	Yellow
Environmental	

Ambient working temperature:	-20 °C to 40 °C / -5 °F to 105 °F
Humidity:	30 % to 70 % RH
Max. altitude:	2000 m / 6562 ft
Electrical	
Power supply:	12-24 VDC
Power consumption:	< 1.5 W
External protection:	16 A, tripping characteristic B or C, 6 kA interrupting rating, Energy limiting class 3
Output circuits ratings	
Max. switching voltage:	24 VDC
Max. switching current:	16 A
Max. control current:	16 A (total), 5 A (per channel)
CCT range	2700K - 6500K (<- default, configurable to any range in between 1000K and 10000K)
Sensors, meters	
Voltmeter (DC)	12 V - 24 V, ± 10 %
Voltmeter accuracy:	+/-5% (12V-24V DC)
Ammeter (DC)	0 mA - 5 A, ± 10 %
Ammeter accuracy:	+/-5%
Power and energy meters:	<ul style="list-style-type: none">• Active and apparent power• Active and apparent energy

	<ul style="list-style-type: none">• Power factor• Fundamental active and fundamental reactive energy
Measurement data storage:	No
Internal-temperature sensor:	Yes
Radio	
Wi-Fi	
Protocol:	802.11 b/g/n
RF band:	2401 - 2495 MHz
Max. RF power:	< 20 dBm
Range:	Up to 30 m / 100 ft indoors and 50 m / 160 ft outdoors (Depends on local conditions)
Bluetooth	
Protocol:	4.2
RF band:	2400 - 2483.5 MHz
Max. RF power:	< 4 dBm
Range:	Up to 10 m / 33 ft indoors and 30 m / 100 ft outdoors (Depends on local conditions)
Microcontroller unit	
CPU:	ESP32-D0WDQ6
Clock frequency:	40 Mhz

Flash:	8 MB
Firmware capabilities	
Schedules:	20
Webhooks (URL actions):	20 with 5 URLs per hook
Scripting:	Yes
MQTT:	Yes
Encryption:	Yes
Advanced schedules	Yes
KVS (Key-Value Store):	Yes

Basic wiring diagrams



Legend



Terminals		Wires	
+	12/24 V~ positive terminal	+	Positive (12-24 V~) wire
⊥	12/24 V~ negative terminal	⊥	Ground wire
SW1	Input terminal <ul style="list-style-type: none">Controls 01 in <i>Lights x 5</i> profile		

	<ul style="list-style-type: none"> Controls 01, 02 and 03 in <i>RGB and CCT</i> and <i>RGB and lights x 2</i> profiles Controls 01 and 02 in <i>CCT x 2</i> profile 		
SW2	<p>Input terminal</p> <ul style="list-style-type: none"> Controls 02 in <i>Lights x 5</i> profile Controls 01, 02 and 03 in <i>RGB and CCT</i> profile (in dual-button dimming configuration) Controls 01 and 02 in <i>CCT x 2</i> profile (in dual-button dimming configuration) Detached in <i>RGB and lights x 2</i> profile 		
SW3	<p>Input terminal</p> <ul style="list-style-type: none"> Controls 03 in <i>Lights x 5</i> profile Controls 04 and 05 in <i>RGB and CCT</i> profile Controls 04 in <i>RGB and lights x 2</i> profile Controls 03 and 04 in <i>CCT x 2</i> profile 		
SW4	<p>Switch/button input terminal</p> <ul style="list-style-type: none"> Controls 04 in <i>Lights x 5</i> profile Controls 04 and 05 in <i>RGB and CCT</i> profile (in dual-button dimming configuration) Controls 05 in <i>RGB and lights x 2</i> profile Controls 03 and 04 in <i>CCT x 2</i> profile (in dual-button dimming 		

	configuration)		
SW5	Switch/button input terminal <ul style="list-style-type: none">Controls 05 in <i>Lights x 5</i> profileDetached in <i>RGB and CCT</i>, <i>RGB and lights x 2</i> and <i>CCT x 2</i> profiles		
01	Output terminal <ul style="list-style-type: none">Light 1 in <i>Lights x 5</i> profileRed light in <i>RGB and lights x 2</i> and <i>RGB and CCT</i> profilesCCT1 Warm white in <i>CCT x 2</i> profile		
02	Output terminal <ul style="list-style-type: none">Light 2 in <i>Lights x 5</i> profileGreen light in <i>RGB and lights x 2</i> and <i>RGB and CCT</i> profilesCCT1 Cold white in <i>CCT x 2</i> profiles		
03	Output terminal <ul style="list-style-type: none">Light 3 in <i>Lights x 5</i> profileBlue light in <i>RGB and lights x 2</i> and <i>RGB and CCT</i> profilesCCT2 Warm white in <i>CCT x 2</i> profile		

04	<p>Output terminal</p> <ul style="list-style-type: none">• Light 4 in <i>Lights x 5</i> profile• CCT Warm white in <i>RGB and CCT</i> profile• Light 1 in <i>RGB and lights x 2</i> profile• CCT2 Cold white in <i>CCT x 2</i> profile		
05	<p>Output terminal</p> <ul style="list-style-type: none">• Light 5 in <i>Lights x 5</i> profile• CCT Cold white in <i>RGB and CCT</i> profile• Light 2 in <i>RGB and lights x 2</i> profile• Not used in <i>CCT x 2</i> profile		

Troubleshooting

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Components and APIs

- [This device](#)
- [All Shelly devices and services](#)

Compliance and certification

Compliance

- [Shelly Pro RGBWW PM multilingual EU declaration of conformity.pdf](#)
- [Shelly Pro RGBWW PM UK PSTI ACT Statement of compliance.pdf](#)

Printed user guide

- [Shelly Pro RGBWW PM multilingual printed user and safety guide.pdf](#)

Installation guides



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