Shelly Dimmer Gen4

Device identification

- Device name: **Shelly Dimmer Gen4**
- Device model: **S4DM-0A101WWL**
- Device SSID: **ShellyDimmerG4-XXXXXXXXXXXX**
- BLE ID: **0x1075**

Short description

Shelly Dimmer Gen4 (the Device) is a single-channel smart dimming controller which allows remote control of dimmable lights and dimming drivers through a mobile phone, tablet, PC, or home automation system. It supports Wi-Fi, Bluetooth and Zigbee connectivity. 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 the Internet. Shelly Dimmer Gen4 has an embedded Web Interface which can be used to monitor and control the Device, as well as adjust its settings. The Device can be used as trailing edge dimmer switch, with or without neutral wire.

The Device is Matter compatible.

Main features

- **No need for neutral:** The Device can be used without neutral wire
- **Bypass**: Bypass is required when the device is used without neutral and the load is under 20 W. Bypass could help when there is light coming from the lamp even when it is turned off.
- **Groups of lights**: Groups of lights can be used, but they should have the same consumption (should have the same model and producer)
- **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.
- **Zigbee**: The device can be integrated into many popular smart home platforms and ecosystems like Home Assistant, Amazon Alexa, Samsung SmartThings, Google Smart Home.
- **Zigbee Range extender for IoT devices:** A Zigbee extender is employed to expand the reach of your Zigbee network by receiving your Zigbee signal, enhancing its strength, and then transmitting the enhanced signal over a wider area.
- **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. When the device is used without neutral wire, those protections might not work properly.
- **Power measurement:**

    - Information about voltage (V), current (A) and consumption (W) is displayed when the device is used with neutral.
    - Power consumption cannot be measured when the device is used without neutral.
- **Night Mode:** Enables to set a specific brightness of input lights during nighttime.
- **Transition duration:** Controls the time for dimming from 0 to 100 % on toggle On and from 100 to 0% on toggle Off.
- **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%. Not applied when explicit (custom) transition is defined in Schedules and Actions.
- **Min/Max brightness:** Reframes the range of the dimming signal to get more precise brightness control on the output.
- **Switch/Button input mode:** Allows flexible input control through switches and/or buttons
    - One button dimming control
    - Dual button dimming control
- **Button fade rate:** Controls how quickly the output brightness changes while holding the button(s). Default is 3x.
- **Button presets:** State to be applied on double-push (double-click) event. Default value is 100%
- **Warm-up**: Set brightness and time that will create an initial impulse for light bulbs that need more energy to wake up when the brightness is below 10%.
- **Gamma correction**: adjusts the control signal so that each step in dimming appears evenly spaced in brightness to prevent lights from seeming too jumpy at low levels or too compressed at high levels. Range: 0.4 - 4.0. Default value (no correction): 1.0
- **Automatic dimming calibration:** Provides smooth dimming throughout the entire range. Must be performed on a new device, after a factory reset and after every change of the load.
    - On a new/factory reset device the calibration is started on the first toggle (through physical switch/button, mobile application, local web UI or rpc command)
    - Calibration can be started with simultaneous long-push for 5 seconds of the two buttons. The calibration lasts no more than 2 minutes and on success the light is On for 10 seconds, then goes off.
- **Virtual components:** A special set of components that do not exist in the device initially and are created dynamically by the user.
- **KNX:** Supports **KNXnet/IP** communication
- **Wide range of integrations:** The device can be integrated with 3rd party home systems, documented HTTP API, MQTT(s), Web Hooks over HTTP and HTTPS, UDP
- **Integration with Smart Home Platforms:** The device can be integrated with popular smart home platforms, including Google, Alexa, and Samsung SmartThings. This enables voice control and automation capabilities through these platforms.
- **Local and Cloud Control:** The device can function independently in a local Wi-Fi network and can also be operated through cloud home automation services.
- **Matter**: Matter provides quick and simple process of adding the device to the user's smart home ecosystem.

Use cases

- Retrofit your existing lighting system with the Dimmer Gen4, even if there is no neutral wire, and continue using your current switches and electrical installation.
- Control your dimmable lights to set the perfect brightness.
- Create smart schedules to have lights automatically adjust their brightness throughout the day.
- Make the atmosphere comfortable and relaxing for the clients in your restaurant, bar, or cafe.
- Sync your lights with sunrise and sunset times easily using smart schedules.
- Activate a night mode for reduced brightness during nighttime hours.
- Integrate the Dimmer Gen4 with third-party systems like Home Assistant, Google Home, Alexa, and SmartThings for expanded control options.
- Use the Device to dim lights up or down with a single or double button press.
- Enhance the safety by creating actions to have the lights automatically on when Shelly Motion detects movement.

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

Amazon Alexa supported capabilities

- Brightness control
- Turn On/Off

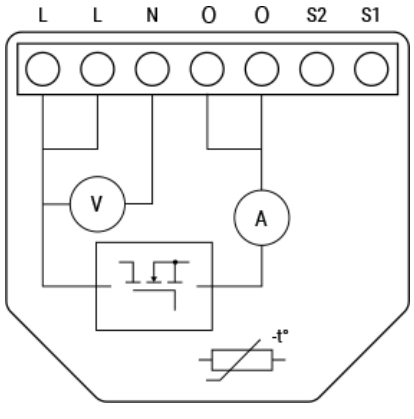
Google Smart Home supported traits

- Brightness control
- Turn On/Off

Samsung SmartThings supported capabilities

- Brightness control
- Turn On/Off

Simplified internal schematics



Device electrical interfaces

Inputs

- 2 switch/button inputs on screw terminals: **S1** and **S2**
- 3 power supply inputs on screw terminals: 1 **N** and 2 **L**

Outputs

- 2 internally bridged outputs on screw terminals: 2 **O**

Add-on interface

Not supported

Connectivity

- Wi-Fi
- Bluetooth
- Zigbee
- Matter

Safety functions

- Overheating protection
- Overpower protection*
- Overvoltage protection*
- Undervoltage protection*
- Overcurrent protection

* Works only when used with Neutral.

Supported load types

- Dimmable LED lamps: up to 150 W
- Incandescent bulbs: up to 200 W
- Halogen lamps: up to 200 W
- Iron-core transformer with low-voltage incandescent lamps: up to 200 VA
- Dimmable electronic transformers: up to 200 W

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.
  - Press the button 5 times to switch the Device from Matter (default) to Zigbee profile. The Device enters inclusion mode for 3 minutes. Include the Device following the instructions of your Zigbee home automation system.
  - Press the button 3 times to restart the inclusion mode for another 3 minutes if you missed the previous 3-minute window.

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 pressed 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.

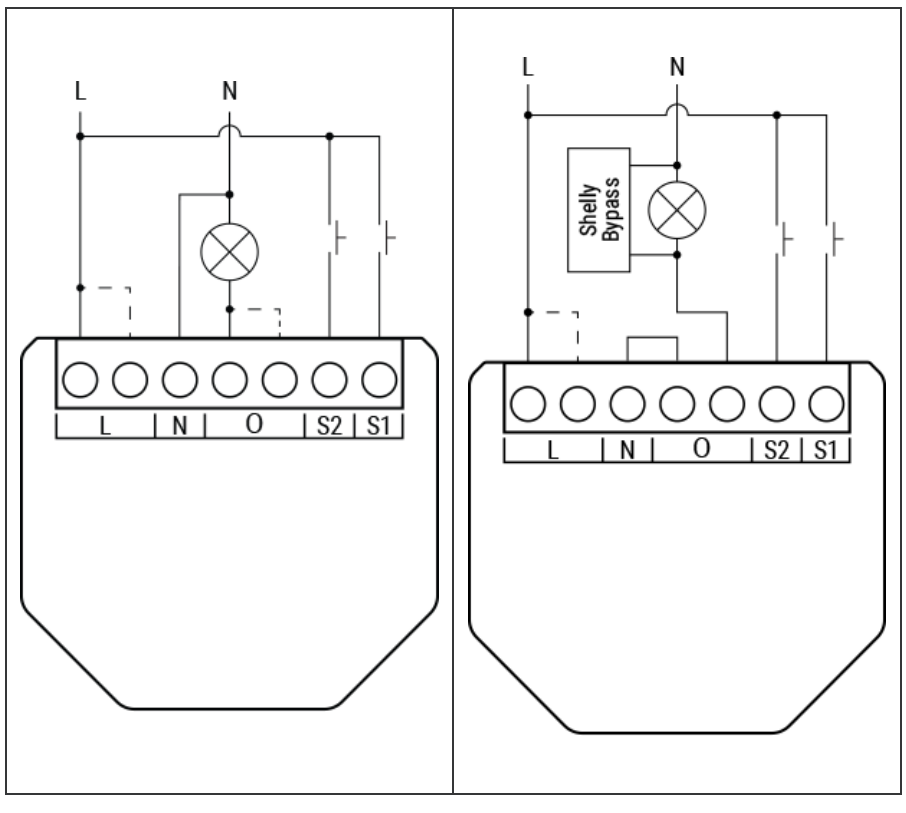
Specifications

Quantity	Value
Physical	
Size (HxWxD):	38.5x43.5x17mm / 1.52x1.71x0.67in
Weight:	24.3 g / 0.86 oz
Screw terminals max torque:	0.4 Nm / 3.5 lbin
Conductor cross section:	0.5 to 4 mm² / 20 to 11 AWG (solid, stranded, and bootlace ferrules)
Conductor stripped length:	5 to 6 mm / 0.20 to 0.24 in
Mounting:	In-wall
Shell material:	Plastic
Shell color:	Lime
Print color:	Black
Connectors color:	Gray
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:	220-240 V~ 50 Hz
Power consumption:	< 1.5 W
Neutral required:	No
Min. load without neutral and without a Bypass:	20 W
Dimming type	Trailing edge
External protection:	16 A, tripping characteristic B or C, 6 kA interrupting rating, energy limiting class 3
Output circuits ratings	
Max. output power:	200 W
Max. current:	0.85 A
Sensors, meters	
Voltmeter (AC):	180 V - 280 V
Voltmeter accuracy:	± 5 % (when used with neutral)
Ammeter (AC):	0 A - 3 A
Ammeter accuracy:	± 5 % (when used with neutral)
Internal-temperature sensor:	Yes
*Precise measurement is possible only when used with neutral.	
Radio	
Wi-Fi	
Protocol:	802.11 b/g/n/ax
RF band:	2401 - 2483 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:	5.0
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)
Zigbee	
Protocol:	802.15.4
Zigbee repeater:	Yes
RF bands:	2400 to 2483.5 MHz
Max. RF power:	< 20 dBm
Range:	Up to 100 m / 328 ft indoors and 300 meters / 984 ft outdoors (Depends on local conditions)
Microcontroller unit	
CPU:	ESP-Shelly-C68F STM32 G051
Clock frequency:	ESP-Shelly-C68F: 40 Mhz
Flash:	8 MB
Firmware capabilities	
Schedules:	20
Webhooks (URL actions):	20 with 5 URLs per hook
Scripting:	Yes
MQTT:	Yes

Basic wiring diagrams



Legend

Terminals		Wires	
L (x2)	2 live terminals	**L**	Live (220-240 V~) wire
N	Neutral terminal	**N**	Neutral wire
O (x2)	2 output terminals to the load		
S1, S2	Switch/button input terminals for light control		

Components and APIs

- This device
- All Shelly devices and services

Compliance

- Shelly Dimmer Gen4 multilingual EU declaration of conformity.pdf
- Shelly Dimmer Gen4 UK PSTI ACT Statement of Compliance.pdf

Printed user guide

- Shelly Dimmer Gen 4 multilingual printed user and safety guide.pdf