mcsShelly

HomeSeer HS3/HS4 Plug-in

HomeSeer HS4 Plug-in

Version 6.12.0.x

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Contents

List of Figures

List of Tables

1   Introduction

mcsShelly is a plug-in that interfaces the entire Shelly family of automation devices with HomeSeer. Once a Shelly device is configured for use on one's WiFi network then HS devices will be automatically created and updated based upon changes reported by the Shelly device.

Shelly is a brand of the Bulgarian company Allterco. The company initially produced wearable electronics and has now branched out into the Internet Of Things with WiFi products that serve the Home Automation marketplace. Their products are characterized by their small size and modest price point. They are the first company to obtain UL certification for some of their products.

The interfacing protocol is MQTT which is the preferred IOT protocol that delivers a guaranteed Quality Of Service, assures messages are delivered following an offline device coming online and is event-based to provide minimum latency.

2   Installation

To get Shelly devices connected on the local network to Homeseer the following three steps are needed.

1. Run mcsShelly plug-in

2. Tell Shelly device to use MQTT

3. Connect Shelly device to local network

Run mcsShelly plug-in

The plug-in is installed from the HS Updater and enabled from the HS Plugins page. No configuration of the plugin is needed unless there is an external (i.e. not mcsShelly) MQTT broker setup on the network. In this case the HS Plugin Menu will list mcsShelly and MQTT Setup as a page. Select this page and then select General Tab. In the Broker Operations section enter the IP of the external MQTT Broker.

In lieu of normal install from the HS Updater it is possible to perform a local installation. See Section 5.27 for guidance on manual and local install procedures.

Tell Shelly device to use MQTT

Shelly will open an HTTP server at 192.168.33.1 using SSID starting with shelly. Connect laptop or smartphone to this SSID. Telling Shelly to use MQTT can be done before or after getting the Shelly device on your WiFi network, but done first for simplicity of instructions. Using a browser enter the following text in the URL, but first change the red text to that which is appropriate for you.

For Generation 1 products:

> http://192.168.33.1/settings?mqtt_server=192.168.0.7:1883&mqtt_enable=true&mqtt_update_period=300
>
> The key mqtt_server or server (192.168.0.7) will be the IP of the MQTT broker. This will be the same as the IP of your HS server unless there is an external MQTT Broker setup. The key update period for generation 1 products (300) is the periodic reporting interval in seconds for things like temperature sensors.

For Generation 2 (i.e., Plus) products

> Browse to 192.168.33.1 and select Networks icon. Select MQTT with connection type of MQTT, broker/server to xxx.xxx.xxx.xxx:1883. If using internal broker then xxx.xxx.xxx.xxx is IP of HS otherwise the IP of external broker. Username and password only needed if they have been setup on the MQTT Broker.

Connect Shelly device to local network

Shelly initially powers up in AP mode using the 192.168.33.1 as its IP. This needs to be changed to station mode with the SSID credentials to get onto your local WiFi network. The following browser URL, with text is red changed for your WiFi, is used to accomplish this:

For Generation 1 products:

> http://192.168.33.1/settings/sta?ssid=MyWiFiSSID&key=MyWiFiPassword&enable=1

For Generation 2 (i.e., Plus) products

> Browse to 192.168.33.1 and select Networks icon. Select Wifi to enter the SSID and password.

The Shelly device will restart and connect to MyWiFiSSID rather than setting up its own SSID. It will announce itself using MQTT. mcsShelly will create all the HS devices and these can be viewed in HS Device Management or other favorite manner within HS. Setup is complete at this point.

If you discover that after commanding the SSID/Password/Enable the feedback from the browser still has enable false or 0 then go to the HTTP server at 192.168.33.1, Internet & Security tab, WiFi Mode – Client and make the settings there to connect to your local network.

2.1   Other Setup Options

Enabling MQTT can be done after the Shelly device has been added to your local network. The URL will be the URL after Shelly has connected to your network rather than 192.168.33.1.

It can also be done from the Browser page served by the Shelly device using the URL http://192.168.33.1. See Figure 1 for the browser page presented by Shelly H&T device for the App method. Initially all that is needed is the Enable Acton checkbox and the Server textbox as shown in Figure 1 under the Internet & Security tab for Generation 1 devices.
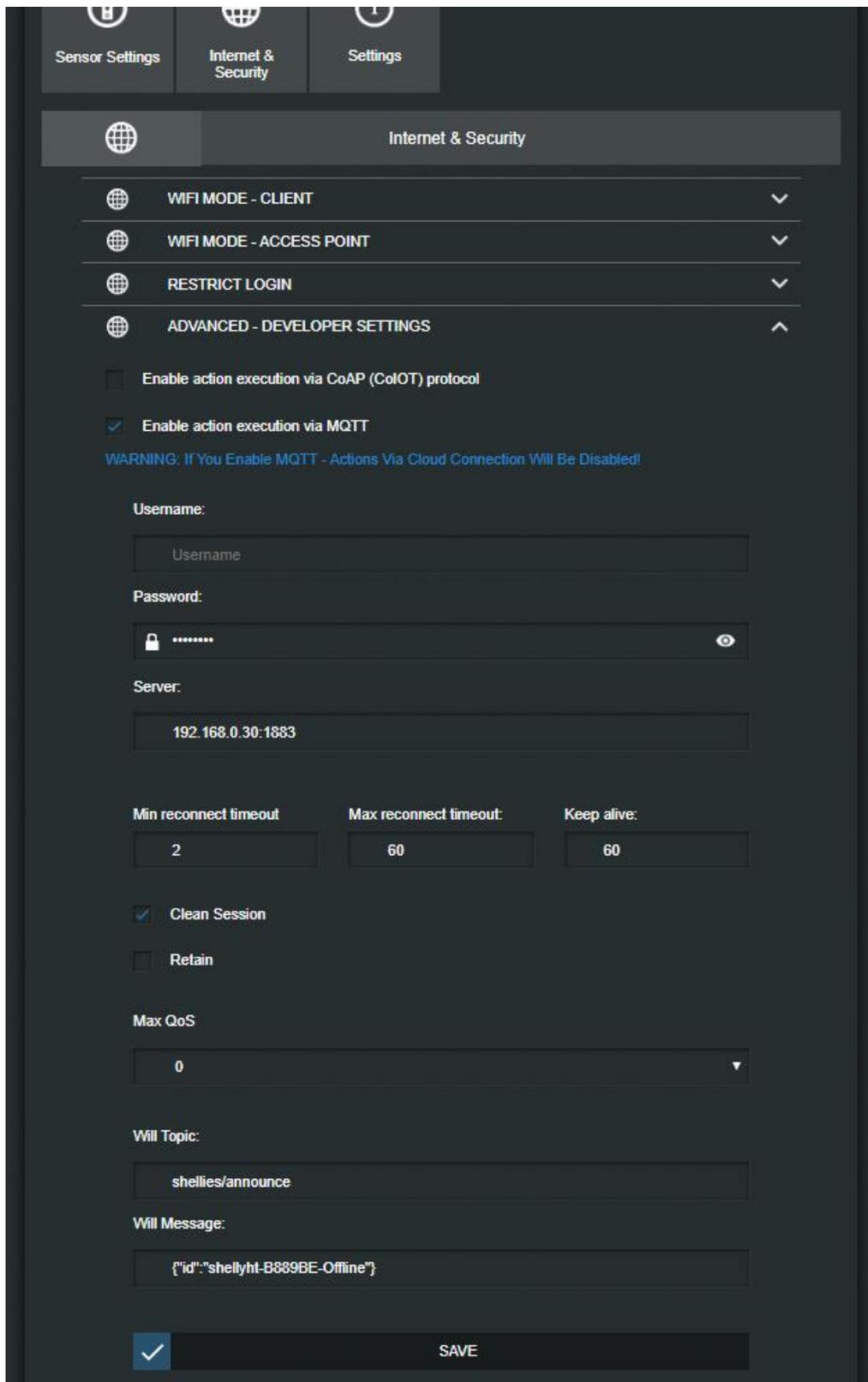
Figure 1 Configure MQTT using Brower and Shelly Server

The same browser page can be used to set the Wifi to station mode to join your WiFi network. This is shown in Figure 2.
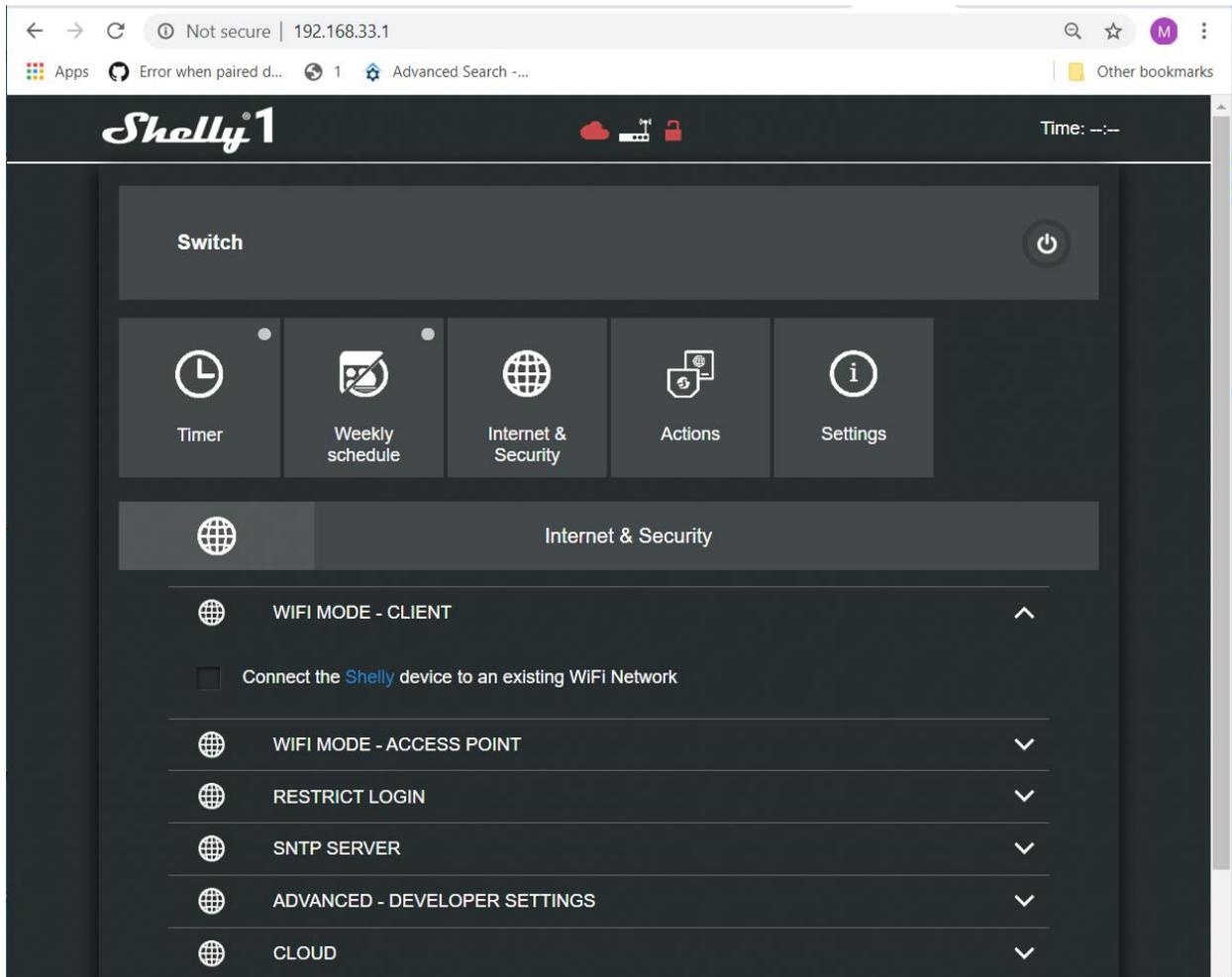
Figure 2 Initial Shelly Configuration of WiFi SSID

Another way to perform setup is with Shelly App. Sometimes a full setup can be done and with some devices it is only partial setup of the WiFi and not of MQTT.

With Shelly App start at the Hamburger menu (triple stacked dash), add device. It will prompt for network SSID and password. Continue with Add Device. Shelly will restart and now be connected to your WiFi and communicating with mcsShelly to create the HS devices.

I have found this Shelly App process to sometimes take multiple attempts.

Most of the Shelly devices are powered from mains, but the H&T (Humidity and Temperature) device uses a CR123A battery. The H&T goes offline most of the time to conserve power and then every hour or so will wake up and able to provide sensor updates. This behavior is similar to Zigbee devices that are battery powered. One should to be aware that the device will go asleep and manual actions (e.g. button push) are needed to keep it awake during the process when the network credentials are being assigned.

On fast networks the process should complete before the unit goes asleep, but on slower ones it may not.

2.2   Other MQTT Settings

Other settings such as those shown in Table 1 can be setup using a Browser and Shelly device's server such as illustrated in this paragraph. The shelly devices can report status periodically with the default of 30 seconds. Battery powered devices have their own reporting frequency. This can be changed as part of the configuration using similar format as above with "mqtt_update_period" set to number of seconds. The parameter used depends upon the device. 0 is used to send updates only when something changes. For the remaining examples 192.168.0.127 will be used as the IP of the Shelly device. It will change to whatever has been assigned on your network. For most Shelly devices the IP was announced over MQTT and will be visible in mcsShelly Association tab of the MQTT page. You can also find the assigned IP address on your DHCP server which is normally part of your network router. It can be found with smartphone app such as fing. It can be found using a command line "arp -a" command and look for MAC address starting with "ec-fa-bc".

http://192.168.0.127/settings?mqtt_update_period=300

Other MQTT parameters can be setup as shown in Table 1, but for most users these will not be necessary. Two may be of interest. mqtt_max_qos and mqtt_retain. Mqtt_max_qos is the Quality Of Service that is to be guaranteed with 0 (fire and forget), 1 (get acknowledge it was delivered), or 2 (assure is was understood). Mqtt_retain is set to 1 to tell the MQTT broker that it should retain a copy of the message so that if any other MQTT clients are currently offline, the broker should send the message when it comes online.

Some devices have regional settings such as timezone or F vs. C for temperature reporting as well as device-specific settings. Device specific settings on can also be set now. For the H&T it is done on the Sensor Settings tab to report F vs. C and adjust the wakeup period and thresholds. The defaults for this sensor are every three hours or sooner if a one-degree temperature change or a five percent humidity change. The API at https://shelly-api-docs.shelly.cloud/ provides a complete list with special attention given to /settings. The same browser URL setup as above can be used for these settings. It can be done with the URL command or can be done interactively from the browser page that is accessed such as:

http://192.168.0.127

There is no need to go overboard with the settings as most are not used. A relay will work the same way no matter what time zone it is in or its latitude is one location or another. One can always come back and change a setting if they find something to not be as desired in the HS reporting.

Table 1 Shelly MQTT Configuration Keys

`mqtt_enable`	bool	Enable connecting to a MQTT broker

`mqtt_server`	string	MQTT broker IP address and port, ex. `10.0.0.1:1883`
`mqtt_clean_session`	bool	MQTT clean session flag
`mqtt_retain`	bool	MQTT retain flag
`mqtt_user`	string	MQTT username, leave empty to disable authentication
`mqtt_pass`	string	MQTT password
`mqtt_id`	string	MQTT ID -- by default this has the form `<shellymodel>-<deviceid>` e.g. `shelly1-B929CC`
`mqtt_reconnect_timeout_max`	number	Maximum interval for reconnect attempts
`mqtt_reconnect_timeout_min`	number	Minimum interval for reconnect attempts
`mqtt_keep_alive`	number	MQTT keep alive period in seconds
`mqtt_update_period`	number	Periodic update in seconds, 0 to disable
`mqtt_max_qos`	number	Max value of QOS for MQTT packets

2.3   Firmware Update

Shelly devices do have firmware updates available from the factory. They typically occur across the family so it may be the case that when an update is available it will affect multiple devices. In general, if desired operation is being achieved for your device there is no reason to update firmware. At some times additional features are provided and an update will be needed to obtain them.

The update is available using the browser to access the HTTP server of t he device (.e.g. http://192.168.0.123). Settings page then Firmware option is selected. In Figure 3 it can be seen that firmware version v1.7 is the latest available. This version, among other things, added input event reporting that distinguishes the type of button push and a count of the number of these events.
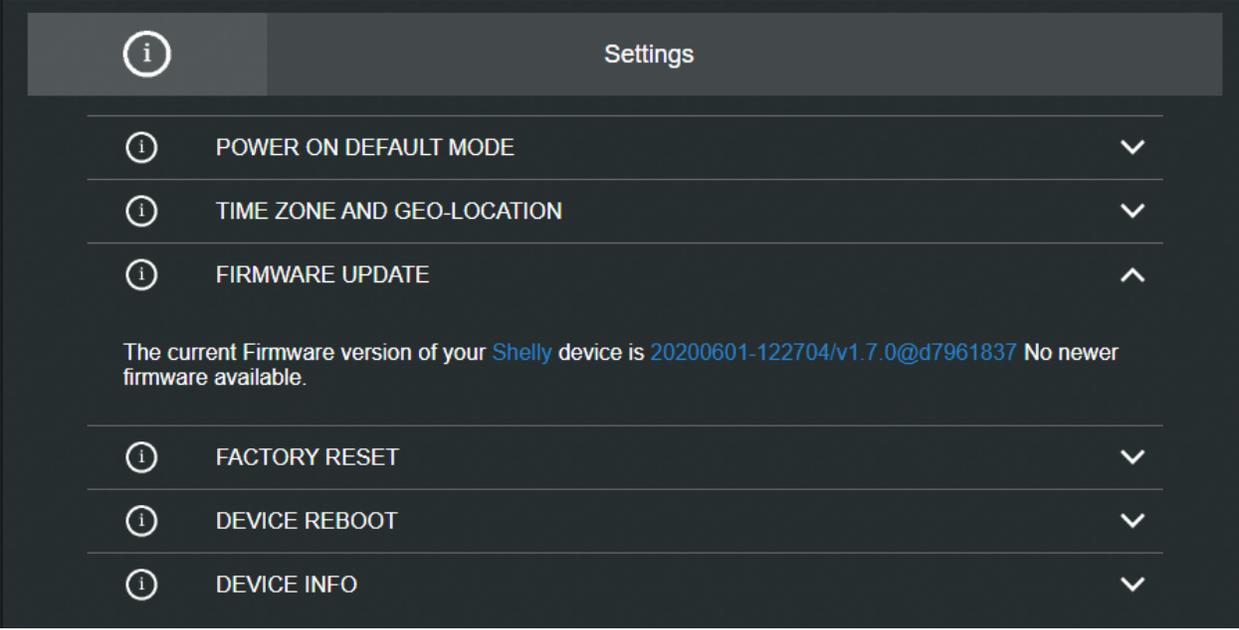
Figure 3 Shelly Device Firmware Update

3 Plug-in Capabilities

mcsShelly and mcsMQTT share a common library so all features available in mcsMQTT (https://plugins.homeseer.com/guides/273_mcsMQTT.pdf) are available to mcsShelly. What distinguishes mcsShelly from mcsMQTT is that mcsShelly provides a front-end that sets up the mcsMQTT configuration to be tailored for the Shelly devices. This means that no additional configuration is needed to start interfacing the Shelly devices.

The Shelly devices report their IP address, MAC address, firmware version and other information. This information is visible from the plug-in on the Association tab of the MQTT page, but is not automatically visible in HS devices. If a use has a desire to have these visible then they can be selectively associated.

By default, history is saved for ten days and charts can be constructed with button click for the history such as Figure 4. If changes from this default are desired then they can be made from the General Tab of the MQTT page.

There are many other capabilities that can be used by mcsShelly such as ability to publish MQTT messages as a result on any HS device change. Events can be setup as triggers on MQTT messages or actions can be setup to send MQTT messages. There are many other capabilities provided by the libraries shared between the two plug-ins.

The devices created in HS will have the Interface property set to mcsMQTT. This is intentional so that a mcsShelly user can move to mcsMQTT when their needs grow beyond Shelly products. This means the migration will not need any change in HS events, device reference, names, etc. The customized support of Shelly devices will continue with mcsMQTT.
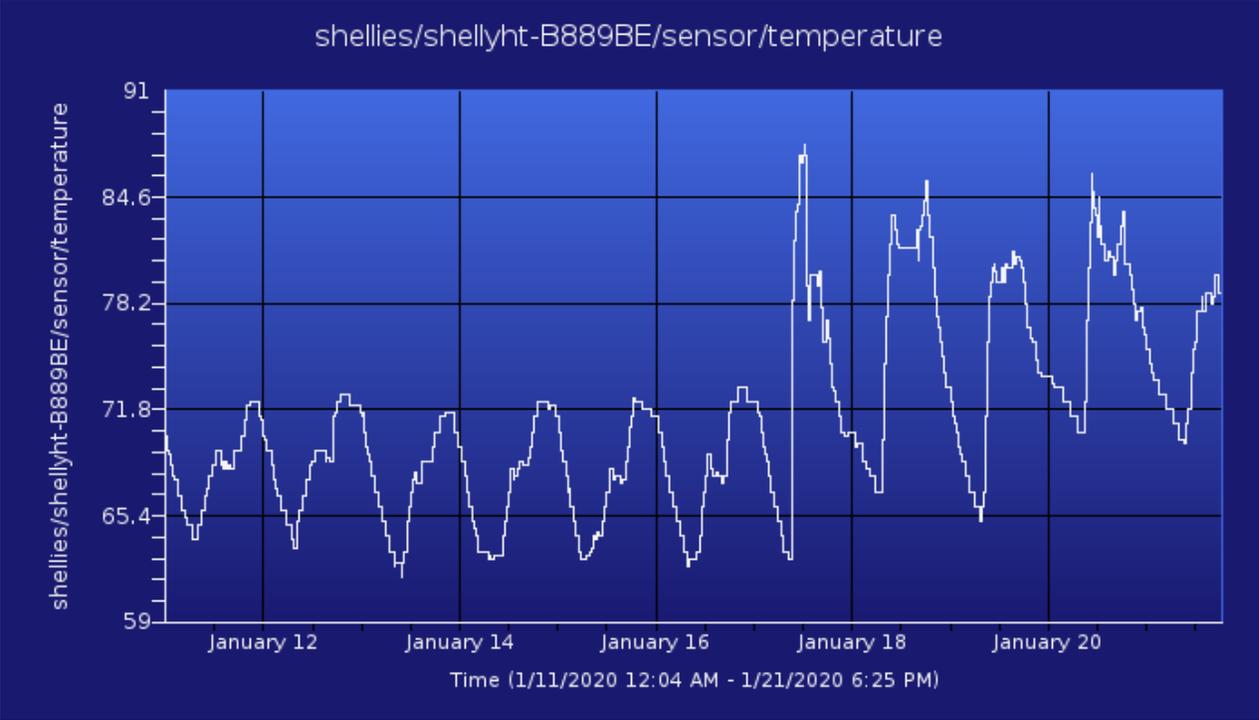
Figure 4 Chart of Shelly H&T Temperature History

4 Shelly MQTT API

The MQTT API for the family of Shelly devices can be found at https://shelly-api-docs.shelly.cloud/#mqtt-support It is organized as general MQTT configuration and then the topics and payloads for each Shelly device.

5 Shelly Device Application

5.1 Shelly Online Status

Every Shelly device provides a Last Will and Testament as an Online status message. In cooperation with the MQTT Broker the Online status of the Shelly device will be available to HS. They are organized with one parent HS device and each online status being a child.

☐	2576			shellies	shellies-Online	shellies/shellies-Online	Yesterday 1:55:38 PM
☐	2592	⏻	Offline	shellies	shelly1pm-D4D486-Online	shellies/shelly1pm-D4D486/online	Today 4:23:59 PM
☐	2602	⏻	Offline	shellies	shelly4pro-C847BE-Online	shellies/shelly4pro-C847BE/online	Today 4:24:03 PM
☐	2616	⏻	Online	shellies	shellyem-CAB452-Online	shellies/shellyem-CAB452/online	Today 4:24:07 PM
☐	2629	⏻	Online	shellies	shellyflood-D8D476-Online	shellies/shellyflood-D8D476/online	Today 4:24:11 PM
☐	2577	⏻	Offline	shellies	shellyht-B889BE-Online	shellies/shellyht-B889BE/online	Today 3:08:28 PM
☐	2664	⏻	Online	shellies	shellyht-CDE7A7-Online	shellies/shellyht-CDE7A7/online	Today 4:24:25 PM
☐	2580	⏻	Online	shellies	shellyplug-C09851-Online	shellies/shellyplug-C09851/online	Today 4:23:38 PM
☐	2585	⏻	Offline	shellies	shellyplug-s-D6C989-Online	shellies/shellyplug-s-D6C989/online	Today 4:23:57 PM
☐	2634	⏻	Online	shellies	shellyrgbw2-C649B2-Online	shellies/shellyrgbw2-C649B2/online	Today 4:24:13 PM
☐	2651	⏻	Online	shellies	shellysense-C1247A-Online	shellies/shellysense-C1247A/online	Today 4:24:19 PM
☐	2659	⏻	Offline	shellies	shellysmoke-C99745-Online	shellies/shellysmoke-C99745/online	Today 4:24:23 PM
☐	2708	⏻	Online	shellies	shellyswitch25-C3DE88-Online	shellies/shellyswitch25-C3DE88/online	Today 4:24:40 PM
☐	2669	⏻	Offline	shellies	shellyswitch-D78C13-Online	shellies/shellyswitch-D78C13/online	Today 4:24:26 PM

Figure 5 Shellies Online HS Devices

5.2   Shelly Smoke, Shelly Plus Smoke
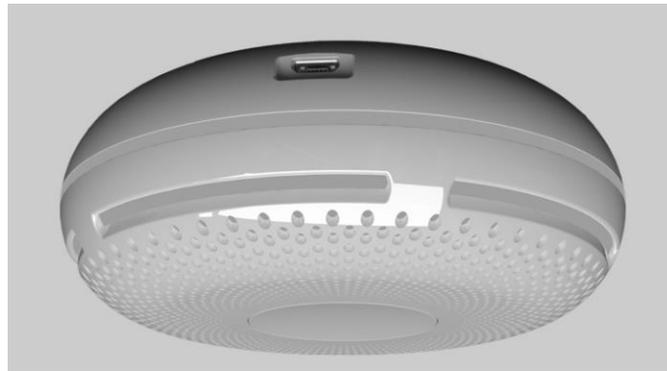
☐	2660			shellies	shellysmoke-C99745	shellies/shellysmoke-C99745	Today 4:24:23 PM	
☐	2663	🔋	77%	shellies	shellysmoke-C99745-battery	shellies/shellysmoke-C99745/sensor/battery	Today 4:24:24 PM	
☐	2662	🔥	false	shellies	shellysmoke-C99745-smoke	shellies/shellysmoke-C99745/sensor/smoke	Today 4:24:24 PM	
☐	2661	🌡	58	shellies	shellysmoke-C99745-temperature	shellies/shellysmoke-C99745/sensor/temperature	Today 4:24:24 PM	

Figure 6 Shelly Smoke HS Devices

Figure 7 Shelly Plus Smoke HS Devices

Shelly smoke is a battery powered dual sensor. It detects blockage of visible light such as is caused by smoke or water vapor and it reports temperature. It is similar in operation to the Shelly H&T with smoke rather than humidity as the companion sensor. For more details on the setup refer to the H&T at https://forums.homeseer.com/forum/li...emperature-h-t.

This device does not replace smoke alarms required in buildings, but provides an easy way to get notifications through HS or other automation systems of smoke events. Battery life is advertised at two years assuming low rate of periodic reporting or manual inducement to report status. A more practical battery life should be expected to be one year with margin.

No additional configuration is needed after the device has been setup for MQTT protocol, but some option does exist as shown below. These are set from a browser with URL set to the IP of the Shelly smoke. It can be done either interactively through the HTTP server contained within the Shelly smoke or it can be done with a single URL command such as below assuming the IP of the Shelly smoke is 192.168.0.123. The red text will be changed based upon each user's specific needs.

Small temperature thresholds will result in the unit waking up more often and thereby decreasing battery life. Battery life can be improved by using a Static IP rather than Dynamics as this will reduce the time to connect to the WiFi access point.

```
http://192.168.0.123/settings?temperature_units=F&temperature_threshold=5
```

temperature_units	string	Either C or F
temperature_threshold	number	Temperature delta (in °C) which triggers an update, 0..15

5.3   Shelly Sense

☐	2652			shellies	shellysense-C1247A	shellies/shellysense-C1247A	Today 4:24:20 PM	
☐	2658	🔋	66%	shellies	shellysense-C1247A-battery	shellies/shellysense-C1247A/sensor/battery	Today 4:24:22 PM	
☐	2654	⏻	false	shellies	shellysense-C1247A-charger	shellies/shellysense-C1247A/sensor/charger	Today 4:24:22 PM	
☐	2656	💧	28%	shellies	shellysense-C1247A-humidity	shellies/shellysense-C1247A/sensor/humidity	Today 4:24:22 PM	
☐	2657	☀	1000 Lux	shellies	shellysense-C1247A-lux	shellies/shellysense-C1247A/sensor/lux	Today 4:24:22 PM	
☐	2653	🚶	true	shellies	shellysense-C1247A-motion	shellies/shellysense-C1247A/sensor/motion	Today 4:24:20 PM	
☐	2655	🌡	27	shellies	shellysense-C1247A-temperature	shellies/shellysense-C1247A/sensor/temperature	Today 4:24:22 PM	

Figure 8 Shelly Sense HS Devices

The Shelly Sense contains sensors for Temperature, Humidity, Lux, and Motion. It also contains a IR transmitter for devices that are controlled using IR such as a television.
For IR control Shelly provides a library of IR codes on their cloud. These can be selectively downloaded

into the devices. Alternately the Pronto codes can be commanded directly without prior downloading.

The unit is battery operated, but advertised battery life is up to ten days which in my option is too short to be practical. Some Shelly devices such as the H&T have a power supply accessory to operate it from mains power. I do not know if this provision exists or not. I even question if the Shelly Sense will be in production as the factory and all distribution sites I could locate list is as out of stock or not even an available product.

No additional setup is required, but configuration options are available. It can be done interactively through the HTTP server contained within the Shelly Sense. The following parameters can be customized.

light_sensor	string	Light sensor type name
schedule	bool	Schedule timer enabled/disabled
schedule_rules	array of strings	Definition of scheduling rules
sensors.motion_duration	number	Duration time in seconds for motion flag after motion detection
sensors.motion_led	bool	Whether LED light should indicate motion detected
sensors.temperature_unit	string	Temperature units: C for Celsius and F for Fahrenheit

IR is commanded via MQTT Message action of HS Event. The Topic to send IR is shellies/shellysense-xxxxxx/ir/emit/yyyyyy where xxxxxx is the specific device Id of the Shelly Sense and yyyyyy is one of {Id, Pronto, or Pronto_hex}. Id is used if the IR code has already been downloaded in the Shelly Sense. Pronto or Pronto_hex is used for Base64 or Hex, respectively immediate command. The payload will contain the Id number or the Pronto code.

5.4   Shelly RGBW2

5.4.1   RGBW2 Color Mode

☐ 2681			shellies	shellyrgbw2-C649B2	shellies/shellyrgbw2-C649B2	Today 4:24:31 PM	
☐ 2686	⬤		shellies	shellyrgbw2-C649B2-c olor-effect	shellies/shellyrgbw2-C649B2/color/0/status	Today 4:24:33 PM	Off ▼
☐ 2685	⏻	100%	shellies	shellyrgbw2-C649B2-color-gain	shellies/shellyrgbw2-C649B2/color/0/status	Today 4:24:32 PM	
☐ 2682	⏻	on	shellies	shellyrgbw2-C649B2-color-ison	shellies/shellyrgbw2-C649B2/color/0/status	Today 4:24:32 PM	off on
☐ 2688	❗	true	shellies	shellyrgbw2-C649B2-c olor-overpower	shellies/shellyrgbw2-C649B2/color/0/status	Today 4:24:34 PM	
☐ 2687	⚡	123 Watt	shellies	shellyrgbw2-C649B2-color-power	shellies/shellyrgbw2-C649B2/color/0/status	Today 4:24:33 PM	
☐ 2683	◉	255	shellies	shellyrgbw2-C649B2-color-RGB	shellies/shellyrgbw2-C649B2/color/0/status	Today 4:24:32 PM	0000FF
☐ 2684	⏻	0%	shellies	shellyrgbw2-C649B2-color-white	shellies/shellyrgbw2-C649B2/color/0/status	Today 4:24:32 PM	

Figure 9 Shelly RGBW2 Color Mode HS Devices

The Shelly RGBW2 is a WiFi device that is able to use Pulse Width Modulation (PWM) to provide color and dimming control of up to four channels of lighting. This is typically Red, Green, Blue and White. Common applications are dumb LED light strips and RGB LED lamps. Price point is in the neighborhood of $25.

HS Devices provide control and status of the RGB color, the White channel intensity, gain, ramp rate, and effects. Status for power and power exceedance is also provided. The ramp rate device contains the number of seconds it will take for the device to change gain from 0% to 100%. A zero value is used if no ramp on gain change or power on desired.

Most status information is pushed from the RGBW2 so immediate update of HS devices is available. The input status needs to be pulled by mcsShelly. It is done at a one Hz rate.

Its total drive capability is 3.75 amps per channel which is most significant when determining the length of LED strips that one unit will be able to drive. For 12VDC LEDS this will be typically be a strip of up to eight meters. Twice the length for 24V LEDs.

Note that smart LED strips that have individually addressable LEDs (e.g. WS2812B) will not use the RGBW2, but just a simple micro controller discrete output for their control. Where the RGBW2 shines is a replacement for other RGBW controllers such as magichome, HUE, or LIFX which are either expensive

or more difficult to control without using the cloud.

Typical of PWM dimmers there is a tendency to observe flicker when the gain (brightness) is at low levels. For some this will not be noticeable. Color space also tends to lose quality at lower intensities. This is not unique to the RGBW2, but common for the technology.

The RGBW2 also contains a mains-level input that will typically be connected to the switch input that exists in the J-Box where dumb lighting is made smart with the RGBW2. The RGBW2, as most Shelly products are small and can usually be installed behind the switch without too much difficulty in the J-Box.

A typical wiring diagram for a LED strip or color bulb is shown below.
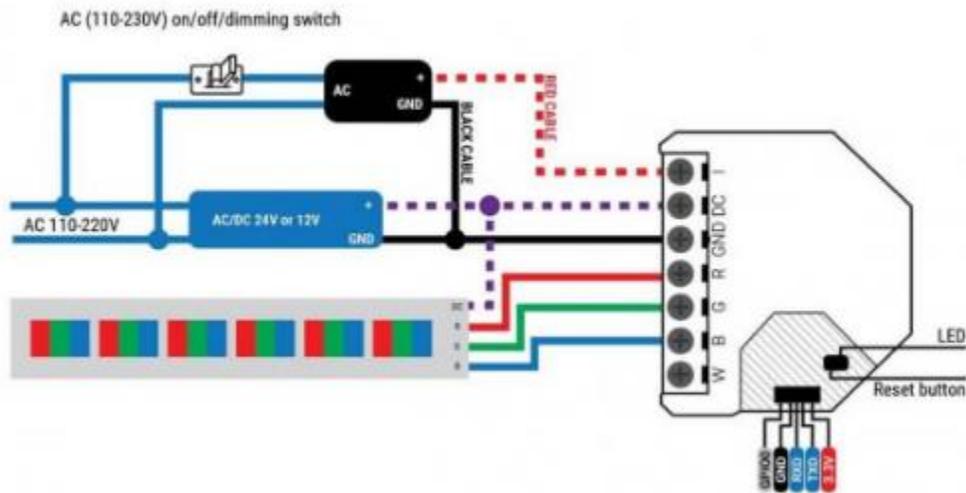
Figure 10 Shelly RGBW2 Typical LED Strip Wiring

The RGBW2 operates in two modes. One is Color and one is White. This discussion covers the Color mode. The HS devices that are created for the RGBW2 in Color mode are shown below. Properties reported to HS include the brightness (gain), power consumption, on/off status, RBG and White color level, special effect and indication of a overpower condition. Also reported is the online status which is maintained in a separate group dedicated for Shelly online status.

Unlike the Shelly color bulb, the RGBW2 configuration of the mode is via the settings in the App or URL to the IP of the web server running in the RGBW2. Assuming that the IP of the RGBW2 is 192.168.0.123 then setting the mode to color is done from a browser with URL shown below. The IP shown in red will be different for each user's install.

```
http://192.168.0.123/settings?mode=color
```

The other setting available is the voltage of the power supply being used. It is a true/false setting for 24V vs. 12V power supply source as shown below.

mode	string	Set to color or white; determines the operating mode
dcpower	bool	Set to true for 24 V power supply, false for 12 V

Defining both settings would be done like below where 12V is selected in this example.

```
http://192.168.0.123/settings?mode=color&dcpower=false
```

The other settings apply only to the Color mode. These have the URL path of /settings/color/0 with the options shown below:

reset	string	Any non-zero-length value will reset light settings to default
effect	number	Applies an effect, see description below
default_state	string	Sets default power-on state: on, off or last
auto_on	number	Sets a default timer to turn ON after every OFF command in seconds
auto_off	number	Sets a default timer to turn OFF after every ON command in seconds
btn_type	string	Input type: momentary, toggle, edge or detached
btn_reverse	bool	Whether to invert external switch input
schedule	bool	Enable schedule timer
schedule_rules	array of strings	Rules for schedule activation, e.g. 0000-0123456-on

Supported values for effect are:

- 1 - Meteor shower
- 2 - Gradual change
- 3 - Breath

- 4 - Flash
- 5 - Gradual On/Off
- 6 - Red/Green change

An example use would be the following to restore the output to the state that existed before power loss and the input being a toggle.

```
http://192.168.0.123/settings/color/0?default_state=last&btn_type=toggle
```

While any of the six effects can be commanded from the browser URL, the effect is also setup as a HS device so controlling the HS device via Device Management, Script, or Event will be the normal way to change the effect. If one is into effects then the WLED project may be of interest as it has a much richer set of effects and can be used in more elaborate lighting schemes such as those synced to music or for seasonal lighting pizzazz.

5.4.2   RGBW2 White Mode

☐ 2635			shellies	shellyrgbw2-C649C2	shellies/shellyrgbw2-C649C2	Today 4:24:14 PM	
☐ 2644	⏻ 50%		shellies	shellyrgbw2-C649C2-w hite-0-brightness	shellies/shellyrgbw2-C649C2/white/#/status	Today 4:24:16 PM	
☐ 2643	⏻ on		shellies	shellyrgbw2-C649C2-w hite-0-ison	shellies/shellyrgbw2-C649C2/white/#/status	Today 4:24:16 PM	off on
☐ 2646	⏻ 10%		shellies	shellyrgbw2-C649C2-w hite-1-brightness	shellies/shellyrgbw2-C649C2/white/#/status	Today 4:24:19 PM	
☐ 2645	⏻ off		shellies	shellyrgbw2-C649C2-w hite-1-ison	shellies/shellyrgbw2-C649C2/white/#/status	Today 4:24:19 PM	off on
☐ 2648	⏻ 50%		shellies	shellyrgbw2-C649C2-w hite-2-brightness	shellies/shellyrgbw2-C649C2/white/#/status	Today 4:24:19 PM	
☐ 2647	⏻ off		shellies	shellyrgbw2-C649C2-w hite-2-ison	shellies/shellyrgbw2-C649C2/white/#/status	Today 4:24:19 PM	off on
☐ 2650	⏻ 10%		shellies	shellyrgbw2-C649C2-w hite-3-brightness	shellies/shellyrgbw2-C649C2/white/#/status	Today 4:24:19 PM	
☐ 2649	⏻ off		shellies	shellyrgbw2-C649C2-w hite-3-ison	shellies/shellyrgbw2-C649C2/white/#/status	Today 4:24:19 PM	off on

Figure 11 Shelly RGBW2 White Mode HS Devices

5.5   Shelly Plug-S

☐	2586			shellies	shellyplug-s-D6C989	shellies/shellyplug-s-D6C989	Today 4:23:57 PM	
☐	2589	⚡	900 Watt-min	shellies	shellyplug-s-D6C989-energy	shellies/shellyplug-s-D6C989/relay/0/energy	Today 4:23:59 PM	
☐	2591	⬤	false	shellies	shellyplug-s-D6C989-overtemperature	shellies/shellyplug-s-D6C989/temperature/overtemperature	Today 4:23:58 PM	
☐	2588	⚡	90 Watt	shellies	shellyplug-s-D6C989-power	shellies/shellyplug-s-D6C989/relay/0/power	Today 4:23:59 PM	
☐	2587	⚠	overpower	shellies	shellyplug-s-D6C989-relay	shellies/shellyplug-s-D6C989/relay/0	Today 4:23:58 PM	off on
☐	2590	🌡	0	shellies	shellyplug-s-D6C989-temperature	shellies/shellyplug-s-D6C989/temperature/temperature	Today 4:23:58 PM	

Figure 12 Shelly Plug-S HS Devices

5.6   Shelly Plug

☐	2581			shellies	shellyplug-C09851	shellies/shellyplug-C09851	Today 4:23:49 PM	
☐	2584	⚡	880 Watt-min	shellies	shellyplug-C09851-energy	shellies/shellyplug-C09851/relay/0/energy	Today 4:23:57 PM	
☐	2583	⚡	80 Watt	shellies	shellyplug-C09851-power	shellies/shellyplug-C09851/relay/0/power	Today 4:23:56 PM	
☐	2582	⚠	overpower	shellies	shellyplug-C09851-relay	shellies/shellyplug-C09851/relay/0	Today 4:23:56 PM	off on

Figure 13 Shelly Plug HS Devcies

5.7 Shelly H&T (Humidity & Temperature), Shelly Plus H&T

SHELLY H&T

☐ 2572		shellies	shellyht-B889BE	shellies/shellyht-B889BE	Yesterday 1:55:36 PM
☐ 2575	🔋 100%	shellies	shellyht-B889BE-battery	shellies/shellyht-B889BE/sensor/battery	Today 3:06:57 PM
☐ 2574	💧 34%	shellies	shellyht-B889BE-humidity	shellies/shellyht-B889BE/sensor/humidity	Today 3:06:57 PM
☐ 2573	🌡 78.8	shellies	shellyht-B889BE-temperature	shellies/shellyht-B889BE/sensor/temperature	Today 3:06:57 PM

Figure 14 Shelly H&T HS Devices

shellies | shellyplusht-c049ef8bbb30

shellies-shellyplusht-c049ef8bbb... (5816)

🌡 shellyplusht-c049ef8bbb30-temperature.0:tF (5817)	0.0 °F	Today 4:08:09 PM
💧 shellyplusht-c049ef8bbb30-humidity.0:rh (5818)	0 %	Today 4:08:10 PM
🔋 shellyplusht-c049ef8bbb30-devicepower.0:battery:percent (5819)	0 %	Today 4:08:10 PM

Figure 15 Shelly Plus H&T Devices

The H&T is an attractive sensor of about 1.5" diameter that reports humidity, temperature and its battery life. It reports periodically or when a change in a sensor reading exceeds a threshold.

No user configuration is necessary, but some options are available as documented at https://shelly-api-docs.shelly.cloud/#shelly-h-amp-t Since it is a battery powered device it needs to be awaken if additional configuration is to be done. It is awakened by pressing its button. The button is accessed by twisting the top. This is also the mechanism used to change the battery when necessary, but this should only need to be done annually.

Figure 16 Shelly H&T Battery and Button Locations

Just like all Shelly devices the H&T contains its own HTTP server for easy browser configuration access. In this example the assumption is that the IP on the network is 192.168.0.123. Since this likely will not be the IP of your H&T just change the examples below appropriately.

```
http://192.168.0.123/settings?temperature_unts=F
http://192.168.0.123/settings?temperature_unts=F&sleep_mode_period=4
```

Shelly HT accepts the following extra parameters on its /settings endpoint:

temperature_units	string	Either 'C' or 'F'
temperature_threshold	number	Temperature delta (in configured degree units) which triggers an update

humidity_threshold	number	RH delta in % which triggers an update
sleep_mode_period	number	Periodic update period in hours, between 1 and 24

It is also possible to do some configuration directly from the browser URL to have a more interactive settings selection. Just remember that the H&T goes to sleep about three minutes after it is awaken. If a session is not completed then start a new one by pressing the button again.

5.8   Shelly Flood

☐ 2630			shellies	shellyflood-D8D476	shellies/shellyflood-D8D476	Today 4:24:12 PM	
☐ 2633	🔋	90%	shellies	shellyflood-D8D476-battery	shellies/shellyflood-D8D476/sensor/battery	Today 4:24:13 PM	
☐ 2632	🚰	true	shellies	shellyflood-D8D476-flood	shellies/shellyflood-D8D476/sensor/flood	Today 4:24:12 PM	
☐ 2631	🌡	78	shellies	shellyflood-D8D476-temperature	shellies/shellyflood-D8D476/sensor/temperature	Today 4:24:13 PM	

Figure 17 Shelly Flood HS Devices

Shelly Flood is a WiFi device that detects a electrical flow between its two probes on the bottom of the device. It is designed to detect water on the floor. It is advertised as 18-month battery life and battery status is reported for monitoring via HS. It adds a bonus of temperature measurement so could be used in applications where the primary objective is temperature measurement without need for a wired connection. Note that battery life if maximized when Static vs. DHCP is used and the reporting interval and threshold is increased.

In its default configuration it will report when any water is detected, will periodically update status hourly or when temperature changes by one degree. It also supports a "rain mode" where it reports when water is detected (i.e. rainfall detected) and then reports when water is no longer detected (i.e. stopped raining).

While no configuration of the device is needed, there are some options available as described at https://shelly-api-docs.shelly.cloud...flood-settings and shown below. Editing a setting can be done from a browser URL or interactively from the http server built into the flood sensor. Assuming the IP or the sensor is 192.168.0.123 then the URL command would look like the following with the text in red

changed to reflect your specific sensor and needs.

```
http://192.168.0.123?temperature_units=C
http://192.168.0.123?temperature_units=C&temperature_threshold=2
```

Table 2 Shelly Flood Settings

temperature_units	string	Either C or F
temperature_threshold	number	Temperature delta (in configured degree units) which triggers an update
sleep_mode_period	number	Periodic update period in hours, between 1 and 24
report_url	string	URL to report sensor events on
rain_sensor	bool	Enable Rain Mode

When navigating to the IP of the device these settings can be changed interactively.

The Shelly Flood is about 2.75" diameter and 3/4" high. This is a little larger than a similar Zigbee product from Xiaomi (2" x 1/2") and the price point of $25 is twice that of the Zigbee device. I have had great success with the Xiaomi water sensor with nine deployed in a remote location using the USB interface on a RPi running Zigbee2MQTT.

Furthermore, the Xiaomi uses cheap coin cell CR2012 with better battery life vs. the more expensive CR123 used by the Shelly. This is just a reflection of WiFi vs. Zigbee technology.

For specific applications the Shelly Flood does provide a good solution.

5.9 Shelly EM (Energy Monitor)

Figure 18 Shelly EM HS Devices

The Shelly EM can be used to monitor the energy use on two distributions from a circuit panel, sub-panel or similar. Its capabilities are similar to other devices such as Brutech and TED for each channel that is monitored. Measurements are provided for voltage, wattage and energy. It also provides a reactive power measurement that will provide insight into typical inductive loads were the current and voltage waveforms are out of phase.

The wiring diagram is shown below

Table 3 Shelly EM Wiring
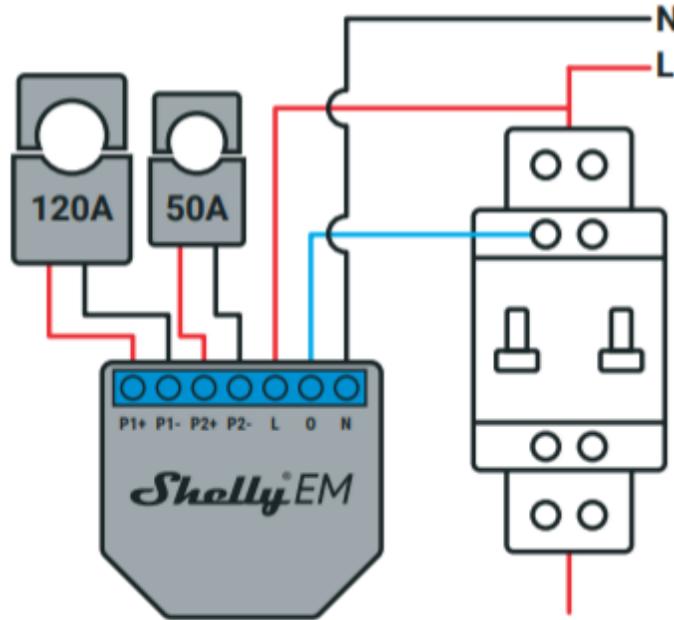
LEGEND:
N - Neutral input (110-230V AC);
L - Line input (110-230V AC);
O - Output for contactor control (max 2A);
P1+ - Positive connection of current transformer 1
P1- - Negative connection of current transformer 1
P2+ - Positive connection of current transformer 2
P2- - Negative connection of current transformer 2

Care needs to be used when installing the device as different jurisdictions have different rules as to what devices and types of connections are allowed in a circuit panel. The unit will be mounted outside the circuit panel independent of regulations as the WiFi would be blocked by the metal enclosure. The current transformers will be inside the panel as they need to straddle the hot side of line after it leaves the circuit breaker, or if monitoring the entire panel then will straddle the two 120V legs of the 240V incoming service.

The Shelly EM also provides a controllable relay that switches the mains-level voltage. The relay is only rated at two amps so its application will need to be specialized. Perhaps it is designed for solar installations.

Configuration settings are available for both current sensors and the relay. The configuration can be done interactively from the browser with URL pointing to the IP of the HTTP server within the Shelly EM or by using the URL to make the settings directly. A common looking web page for all Shelly devices will be available when using the HTTP server.

Examples below illustrate the direct setting and assume the Shelly EM is at IP 192.168.0.123. This IP and settings in red will be different for your install.

For the current transformers a setting provision exists at /settings/emitter/0 and /settings/emitter/0, but not currently used.

Table 4 Shelly EM Transformer Settings

ctraf_type	integer	Current transformer type, currently unused

The same provisions as a Shelly 1 are available for the relay these are:

Table 5 Shelly EM Relay Settings

reset	any	Submitting a non-empty value will reset settings for the output to factory defaults.
default_state	string	Accepted values: off, on, last, switch
auto_on	number	Automatic flip back timer, seconds. Will engage after turning relay OFF.
auto_off	number	Automatic flip back timer, seconds. Will engage after turning relay ON.
out_on_url	string	URL to access when output is activated
out_off_url	string	URL to access when output is deactivated

Examples:

```
http:192.168.0.123?/default_state=last
http:192.168.0.123?/default_state=last&auto_onm=10
```

The Shelly EM fits a nice niche where a limited number of higher amperage circuits needs to be monitored for energy utilization. As an example, it may be an air conditioner circuit where the amperage of the circuit exceeds that of something like a Shelly 2.5.

It is also possible to monitor the entire service entering the circuit panel. For a 200 Amp service a pair of 120 Amp transforms should be appropriate. As the transformer amperage increases the resolution of the current measurement will decrease. If your service is 200 Amp, but actual utilization is 100 then a smaller transformer will give better results.

The unit is around $45 and each current transformer is approximately $15.

5.10 Shelly 3EM Three Phase Energy Monitor

Shelly 3EM is a professional 3-phase energy meter with the following features:

Precise 3-phase energy metering
Up to 120A per phase
Integrated 10A contactor control
Solar and Wind power compatible
Factory calibrated with over 99% accuracy
DIN mountable
Wi-Fi enabled
Cloud and MQTT Enabled
365 days power consumption history
Anti energy theft protection

Energy and returned_energy do not survive power cycle or reboot. Shelly 3EM features a persisted version which is not affected by power cycling or lack of connectivity. To get the persisted counters use total and total_returned.

☐ ⚙ **shellies-shellyem3-CAB457 (7971)**		Today 5:03:54 PM	
☐ ⚡ **shellyem3-CAB457-0-power (7972)**	101 Watt	Today 5:03:55 PM	
☐ ⚡ **shellyem3-CAB457-0-energy (7973)**	202 Watt-min	Today 5:03:55 PM	
☐ ⚡ **shellyem3-CAB457-0-voltage (7974)**	120 V	Today 5:03:56 PM	
☐ ⚡ **shellyem3-CAB457-0-current (7975)**	404 A	Today 5:03:55 PM	
☐ ⚡ **shellyem3-CAB457-0-pf (7976)**	303	Today 5:03:55 PM	
☐ ⚡ **shellyem3-CAB457-0-total (7977)**	303 Wh	Today 5:03:55 PM	
☐ ⚡ **shellyem3-CAB457-0-total_returned (7978)**	3034 Wh	Today 5:03:55 PM	
☐ ⚡ **shellyem3-CAB457-0-returned_energy (7979)**	303 Wh	Today 5:03:55 PM	
☐ ⚡ **shellyem3-CAB457-1-power (7980)**	444 Watt	Today 5:03:56 PM	
☐ ⚡ **shellyem3-CAB457-1-energy (7981)**	405 Watt-min	Today 5:03:56 PM	
☐ ⚡ **shellyem3-CAB457-1-voltage (7982)**	419 V	Today 5:03:56 PM	
☐ ⚡ **shellyem3-CAB457-1-current (7983)**	407 A	Today 5:03:56 PM	
☐ ⚡ **shellyem3-CAB457-1-pf (7984)**	406	Today 5:03:56 PM	
☐ ⚡ **shellyem3-CAB457-1-total (7985)**	403 Wh	Today 5:03:56 PM	
☐ ⚡ **shellyem3-CAB457-1-total_returned (7986)**	4034 Wh	Today 5:03:56 PM	
☐ ⚡ **shellyem3-CAB457-1-returned_energy (7987)**	403 Wh	Today 5:03:56 PM	
☐ ⏻ **shellyem3-CAB457-relay (7988)**	on	Today 5:03:54 PM	OFF / ON

Figure 19 Shelly 3EM HS Devices

The Shelly 3EM also provides a controllable relay that switches the mains-level voltage. The relay is only rated at two amps so its application will need to be specialized. Perhaps it is designed for solar installations.

Configuration settings are available for both current sensors and the relay. The configuration can be done interactively from the browser with URL pointing to the IP of the HTTP server within the Shelly 3EM or by using the URL to make the settings directly. A common looking web page for all Shelly devices will be available when using the HTTP server.

The relay configuration options are available at https://shelly-api-docs.shelly.cloud/#shelly-3em-settings-relay-0 and listed below:

Table 6 Shelly 3EM Relay Settings

reset	any	Submitting a non-empty value will reset settings for the output to factory defaults
name	string	Set relay name
default_state	string	Accepted values: off, on, last, switch
auto_on	number	Automatic flip back timer, seconds. Will engage after turning OFF

auto_off	number	Automatic flip back timer, seconds. Will engage after turning ON
out_on_url	string	URL to access when output is activated
out_off_url	string	URL to access when output is deactivated
schedule	bool	Enable schedule timer
schedule_rules	array of strings	Rules for schedule activation, e.g. 0000-0123456-on

Examples below illustrate the direct setting and assume the Shelly 3EM is at IP 192.168.0.123. This IP and settings in red will be different for your install.

```
http:192.168.0.123?/default_state=last
http:192.168.0.123?/default_state=last&auto_on=10
```

5.11 Shelly 2.5 (Dual Relay/Switch & Energy Monitor)

The Shelly 2.5 has two mains-level inputs and two mains-level relay outputs. This is in contrast with the Shelly 1 that has a single relay, but can be used for lower-voltage switching of relay inputs. It is the first Shelly product that went through the process of UL certification. If my memory serves me the CEO disclosed that it was a $600,000 cost for this certification. The Shelly 1 and Shelly 1PM have since gone through this screening as well. Products are in the pipeline with and without this certification so be careful when ordering to get the version that suits your needs. UL certification is often required by local jurisdiction for approval in home and other installations.

Unfortunately, the relays in the Shelly 2.5 are rated at only 10 amps so they will be the weak link in typical household wiring which is typically 15 amps or 20 amps at the circuit breaker. (i.e. smoke a Shelly rather than tripping a circuit breaker). It does, however, implement a temperature sensor and this is reported back to the HS On/Off status device to report overtemperature notification for situations where the overcurrent situation occurs more slowly and heats up the unit. Besides reporting it also switches the relay off automatically. It also does the same if it senses a current differential of more than 10 ma in the neutral and line. This represents a leakage between neutral and earth grounds.

Relay-oriented outputs are the position of each of the two relays, as well as the power and energy passing through each relay. Note that some dual plugs report energy use, but have only one sensor so reports total usage of the plug rather than each circuit individually as is done with the Shelly 2.5.

The Shelly firmware is able to sense level or edge input on the switch inputs. It is ideally suited for push button type installation, but can be used in the standard toggle switch installs typical of USA. When using a push button for the switch input it is able to report a short press or a long press of the push button. Separate HS devices are created for short and long presses to simplify event triggers based upon this type of input.

The inputs are independent and the relays are independent so this device is ideally suited behind switches in a dual gang junction box. This assumes that the same phase power is applied to both switches in the junction box. It can support two-way switches or multi-way. Refer to the post for the Shelly 1 for examples of multi-way wiring.
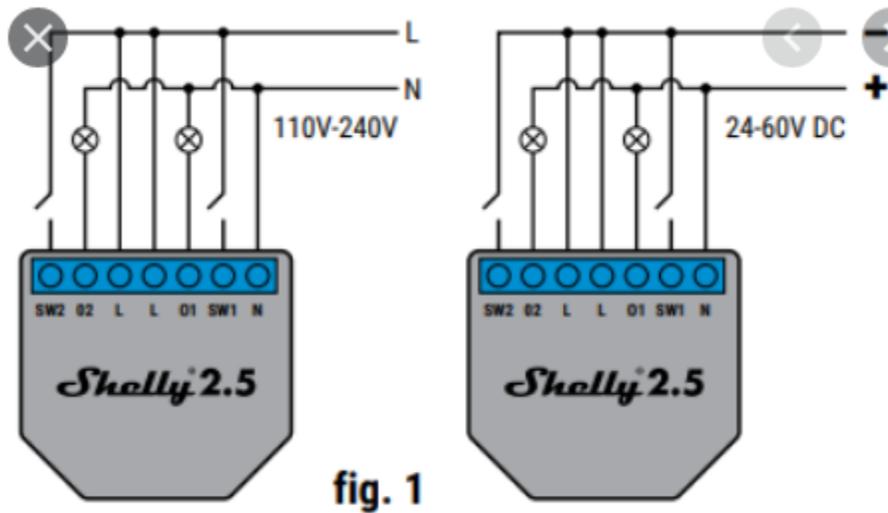
Figure 20 Shelly 2.5 Wiring

The Shelly 2.5 supports two modes. The one discussed here is the dual relay mode. The other is the roller mode. Dual relay is the default mode but is also one of the settings that can be used via browser URL to the IP of the Shelly 2.5. This setting is shown below.

Table 7 Shelly 2.5 Mode Settings

mode	string	Accepted values are relay and roller

The example below assume the IP of the Shelly 2.5 is 192.168.0.123. The mode selection can also be done interactively by navigating to the same IP.

```
http://192.168.0.123/settings?mode=relay
```

5.11.1 2.5 Roller Mode

☐	2724			shellies	shellyswitch25-C3DE98	shellies/shellyswitch25-C3DE98	Today 4:24:45 PM	
☐	2725	⏻ 0	shellies	shellyswitch25-C3DE98-input-0	shellies/shellyswitch25-C3DE98/input/0	Today 4:24:46 PM	
☐	2726	⏻ 0	shellies	shellyswitch25-C3DE98-input-1	shellies/shellyswitch25-C3DE98/input/1	Today 4:24:46 PM	
☐	2727	⏻ 0	shellies	shellyswitch25-C3DE9 8-longpush-0	shellies/shellyswitch25-C3DE98/longpush/0	Today 4:24:46 PM	
☐	2728	⏻ 0	shellies	shellyswitch25-C3DE9 8-longpush-1	shellies/shellyswitch25-C3DE98/longpush/1	Today 4:24:46 PM	
☐	2730	false	shellies	shellyswitch25-C3DE9 8-overtemperature	shellies/shellyswitch25-C3DE98/overtemperature	Today 4:24:47 PM	
☐	2731	⏻ stopped	shellies	shellyswitch25-C3DE98-roller-0	shellies/shellyswitch25-C3DE98/roller/0	Today 4:24:48 PM	close open stop
☐	2732	85%	shellies	shellyswitch25-C3DE9 8-roller-0-pos	shellies/shellyswitch25-C3DE98/roller/0/pos	Today 4:24:49 PM	(value)% 85 Submit
☐	2729	0	shellies	shellyswitch25-C3DE9 8-temperature	shellies/shellyswitch25-C3DE98/temperature	Today 4:24:47 PM	

Figure 21 Shelly 2.5 Roller Mode HS Devices

5.11.2 2.5 Relay Mode

☐	2709		shellies	shellyswitch25-C3DE88	shellies/shellyswitch25-C3DE88	Today 4:24:41 PM	
☐	2718	⏻ on	shellies	shellyswitch25-C3DE88-0	shellies/shellyswitch25-C3DE88/relay/0	Today 4:24:43 PM	off on
☐	2720	210.1 Watt-min	shellies	shellyswitch25-C3DE88-0-energy	shellies/shellyswitch25-C3DE88/relay/0/energy	Today 4:24:45 PM	
☐	2719	110.1 Watt	shellies	shellyswitch25-C3DE88-0-power	shellies/shellyswitch25-C3DE88/relay/0/power	Today 4:24:45 PM	
☐	2721	!	shellies	shellyswitch25-C3DE88-1	shellies/shellyswitch25-C3DE88/relay/1	Today 4:24:45 PM	off on
☐	2723	220.3 Watt-min	shellies	shellyswitch25-C3DE88-1-energy	shellies/shellyswitch25-C3DE88/relay/1/energy	Today 4:24:45 PM	
☐	2722	120.3 Watt	shellies	shellyswitch25-C3DE88-1-power	shellies/shellyswitch25-C3DE88/relay/1/power	Today 4:24:45 PM	
☐	2710	⏻ 0	shellies	shellyswitch25-C3DE88-input-0	shellies/shellyswitch25-C3DE88/input/0	Today 4:24:45 PM	
☐	2711	⏻ 1	shellies	shellyswitch25-C3DE88-input-1	shellies/shellyswitch25-C3DE88/input/1	Today 4:24:45 PM	
☐	2712	⏻ 1	shellies	shellyswitch25-C3DE8 8-longpush-0	shellies/shellyswitch25-C3DE88/longpush/0	Today 4:24:45 PM	
☐	2713	⏻ 0	shellies	shellyswitch25-C3DE8 8-longpush-1	shellies/shellyswitch25-C3DE88/longpush/1	Today 4:24:45 PM	
☐	2715	! true	shellies	shellyswitch25-C3DE8 8-overtemperature	shellies/shellyswitch25-C3DE88/overtemperature	Today 4:24:45 PM	
☐	2714	111	shellies	shellyswitch25-C3DE8 8-temperature	shellies/shellyswitch25-C3DE88/temperature	Today 4:24:45 PM	

Figure 22 Shelly 2.5 Relay Mode HS Devices

Relay-specific settings are done in a similar manner interactively or direct URL with the available configuration settings shown below.

Table 8 Shelly 2.5 Relay Mode Settings

reset	any	Submitting a non-empty value will reset settings for this relay output channel to factory defaults
name	string	Relay name
default_state	string	Accepted values: off, on, last, switch

btn_type	string	Accepted values: momentary, toggle, edge, detached, action, cycle
btn_reverse	bool	Invert the input switch state
auto_on	number	Automatic flip back timer, seconds. Will engage after turning the channel OFF
auto_off	number	Automatic flip back timer, seconds. Will engage after turning the channel ON
btn_on_url	string	URL to access when SW input is activated
btn_off_url	string	URL to access when SW input is deactivated
out_on_url	string	URL to access when output is activated
out_off_url	string	URL to access when output is deactivated
longpush_url	string	URL to access on longpush
shortpush_url	string	URL to access on shortpush
schedule	bool	Enable or disable schedules and sunrise/sunset commands for this channel
schedule_rules	array of strings	Rules for schedule activation, e.g. 0000-0123456-on
max_power	number	Per-channel overpower threshold (used in relay mode)

Examples are shown below where one command and two commands are sent with the direct URL command. Use of settings such as schedules are most easily done interactively using the http server build into the Shelly at IP address, port 80.

```
http://192.168.0.123/settings/relay/0?default_state=last
http://192.168.0.123/settings/relay/0?default_state=off&max_power=800
```

5.12 Shelly 4 (Quad Relay & Energy Monitor)

☐	2603			shellies	shelly4pro-C847BE	shellies/shelly4pro-C847BE	Today 4:24:03 PM	
☐	2604	⏻ on		shellies	shelly4pro-C847BE-0	shellies/shelly4pro-C847BE/relay/0	Today 4:24:03 PM	off on
☐	2606	⚡ 10.1 Watt-min		shellies	shelly4pro-C847BE-0-energy	shellies/shelly4pro-C847BE/relay/0/energy	Today 4:24:07 PM	
☐	2605	⚡ 10.1 Watt		shellies	shelly4pro-C847BE-0-power	shellies/shelly4pro-C847BE/relay/0/power	Today 4:24:06 PM	
☐	2607	⏻ off		shellies	shelly4pro-C847BE-1	shellies/shelly4pro-C847BE/relay/1	Today 4:24:06 PM	off on
☐	2609	⚡ 20.3 Watt-min		shellies	shelly4pro-C847BE-1-energy	shellies/shelly4pro-C847BE/relay/1/energy	Today 4:24:07 PM	
☐	2608	⚡ 20.3 Watt		shellies	shelly4pro-C847BE-1-power	shellies/shelly4pro-C847BE/relay/1/power	Today 4:24:07 PM	
☐	2610	overpower		shellies	shelly4pro-C847BE-2	shellies/shelly4pro-C847BE/relay/2	Today 4:24:06 PM	off on
☐	2612	⚡ 30.5 Watt-min		shellies	shelly4pro-C847BE-2-energy	shellies/shelly4pro-C847BE/relay/2/energy	Today 4:24:07 PM	
☐	2611	⚡ 30.5 Watt		shellies	shelly4pro-C847BE-2-power	shellies/shelly4pro-C847BE/relay/2/power	Today 4:24:07 PM	
☐	2613	⏻ on		shellies	shelly4pro-C847BE-3	shellies/shelly4pro-C847BE/relay/3	Today 4:24:06 PM	off on
☐	2615	⚡ 40.7 Watt-min		shellies	shelly4pro-C847BE-3-energy	shellies/shelly4pro-C847BE/relay/3/energy	Today 4:24:07 PM	
☐	2614	⚡ 40.7 Watt		shellies	shelly4pro-C847BE-3-power	shellies/shelly4pro-C847BE/relay/3/power	Today 4:24:07 PM	

Figure 23 Shelly 4 Pro HS Devices

5.13 Shelly 2 (Dual Relay/Switch & Energy Monitor)

5.13.1 2 Roller Mode

☐	2697			shellies	shellyswitch-D78C23	shellies/shellyswitch-D78C23	Today 4:24:37 PM	
☐	2698	0		shellies	shellyswitch-D78C23-input-0	shellies/shellyswitch-D78C23/input/0	Today 4:24:37 PM	
☐	2699	0		shellies	shellyswitch-D78C23-input-1	shellies/shellyswitch-D78C23/input/1	Today 4:24:37 PM	
☐	2700	0		shellies	shellyswitch-D78C23-longpush-0	shellies/shellyswitch-D78C23/longpush/0	Today 4:24:37 PM	
☐	2701	0		shellies	shellyswitch-D78C23-longpush-1	shellies/shellyswitch-D78C23/longpush/1	Today 4:24:37 PM	
☐	2702	opened		shellies	shellyswitch-D78C23-roller-0	shellies/shellyswitch-D78C23/roller/0	Today 4:24:38 PM	close open stop
☐	2703	0%		shellies	shellyswitch-D78C23- roller-0-pos	shellies/shellyswitch-D78C23/roller/0/pos	Today 4:24:38 PM	(value)% 0 Submit

Figure 24 Shelly 2 Roller Mode Devices

5.13.2 2 Relay Mode

☐	2670			shellies	shellyswitch-D78C13	shellies/shellyswitch-D78C13	Today 4:24:27 PM	
☐	2677	on		shellies	shellyswitch-D78C13-0	shellies/shellyswitch-D78C13/relay/0	Today 4:24:29 PM	off on
☐	2678			shellies	shellyswitch-D78C13-1	shellies/shellyswitch-D78C13/relay/1	Today 4:24:30 PM	off on
☐	2680	0 Watt-min		shellies	shellyswitch-D78C13-energy	shellies/shellyswitch-D78C13/relay/energy	Today 4:24:30 PM	
☐	2671	0		shellies	shellyswitch-D78C13-input-0	shellies/shellyswitch-D78C13/input/0	Today 4:24:30 PM	
☐	2672	1		shellies	shellyswitch-D78C13-input-1	shellies/shellyswitch-D78C13/input/1	Today 4:24:31 PM	
☐	2673	1		shellies	shellyswitch-D78C13-longpush-0	shellies/shellyswitch-D78C13/longpush/0	Today 4:24:31 PM	
☐	2674	0		shellies	shellyswitch-D78C13-longpush-1	shellies/shellyswitch-D78C13/longpush/1	Today 4:24:31 PM	
☐	2679	0 Watt		shellies	shellyswitch-D78C13-power	shellies/shellyswitch-D78C13/relay/power	Today 4:24:30 PM	

Figure 25 Shelly 2 Relay Mode Devices

5.14 Shelly 1 PM (Relay/Switch & Power Monitor)

☐	2593			shellies	shelly1pm-D4D486	shellies/shelly1pm-D4D486	Today 4:23:59 PM	
☐	2595	⏻	off	shellies	shelly1pm-D4D486-input	shellies/shelly1pm-D4D486/input/0	Today 4:24:02 PM	
☐	2596	⏻	on	shellies	shelly1pm-D4D486-longpush	shellies/shelly1pm-D4D486/longpush/0	Today 4:24:02 PM	
☐	2601	❗	true	shellies	shelly1pm-D4D486-overtemperature	shellies/shelly1pm-D4D486/overtemperature	Today 4:24:02 PM	
☐	2594	⏻	on	shellies	shelly1pm-D4D486-relay	shellies/shelly1pm-D4D486/relay/0	Today 4:24:00 PM	off on
☐	2598	⚡	210.1 Watt-min	shellies	shelly1pm-D4D486-relay-energy	shellies/shelly1pm-D4D486/relay/0/energy	Today 4:24:02 PM	
☐	2597	⚡	110.1 Watt	shellies	shelly1pm-D4D486-relay-power	shellies/shelly1pm-D4D486/relay/0/power	Today 4:24:02 PM	
☐	2599	🌡	100	shellies	shelly1pm-D4D486-temperature	shellies/shelly1pm-D4D486/temperature	Today 4:24:02 PM	
☐	2600	🌡	212	shellies	shelly1pm-D4D486-temperature_f	shellies/shelly1pm-D4D486/temperature_f	Today 4:24:02 PM	

Figure 26 Shelly 1PM HS Devices

Shelly 1PM is a single channel mains-power relay with energy and temperature monitoring. The relay is rated at 16 Amps so works well with standard 14-gauge wiring on a 15 Amp circuit breaker. Note the Shelly 2.5 is only rated at 10 Amps. The original Shelly 1PM did not have a UL certification but newer ones, at a higher price, can be obtained with the UL certification. Do note that the relay switches mains-power so, unlike the Shelly 1, it is not possible to use it as a dry-contact type relay.

A setting is available to set the wattage level at which the relay is switched off as a protective measure. The browser with URL set to either the settings page or to the built-in HTTP server can be used to specify the setting. The example below assumes the IP of the Shelly 1PM is 192.168.0.123. The selection can also be done interactively by navigating to the same IP for access to the HTTP server.

```
http://192.168.0.123/settings?max_power=1500
```

max_power	number	**Shelly1PM only** power threshold above which an overpower condition will be triggered

Note that the Shelly 1 reports both C and F units for temperature. Unlike other Shelly units there is no setting to select only one. It is unlikely that both are desired so it is best disabled by removing the association on the Association tab of the MQTT page of the plugin. It is also possible to delete the device directly in HS Devices page.

In addition to the max_power setting on the /settings URL, a second URL /settings/relay/0 can be used to set a number of parameters for the relay operation. Example is:

```
http://192.168.0.123/settings?default_state=last&auto_off=10
```

The unit has a single mains-level input which can be configured as momentary, toggle, edge, detached or action modes. For status it provides either input or longpush status.

The auto_off and auto_on settings are used when the relay is to be pulsed and return to its original state a specified number of seconds. When this setting is activated the MQTT status will be reported on each transition so HS will remain in sync with the actual state of the relay.

When doing settings related to the schedule it is easier to use the HTTP server built-in to the Shelly 1.

Table 9 Shelly 1PM Settings

reset	any	Submitting a non-empty value will reset settings for the output to factory defaults
name	string	Relay name
default_state	string	Accepted values: off, on, last, switch
btn_type	string	Accepted values: momentary, toggle, edge, detached, action
btn_reverse	bool	Inverts the logical state of the input
auto_on	number	Automatic flip back timer, seconds. Will engage after turning Shelly1PM OFF

auto_off	number	Automatic flip back timer, seconds. Will engage after turning Shelly1PM ON
btn_on_url	string	URL to access when SW input is activated
btn_off_url	string	URL to access when SW input is deactivated
out_on_url	string	URL to access when output is activated
out_off_url	string	URL to access when output is deactivated
longpush_url	string	URL to access on longpush
shortpush_url	string	URL to access on shortpush
schedule	bool	Enable schedule timer
schedule_rules	array of strings	Rules for schedule activation, e.g. 0000-0123456-on

Shelly 1L is a single channel mains-power relay with energy and temperature monitoring. It can be expanded with up to three external temperature sensors and an external humidity sensor. The relay is rated at 4.1 Amps so is not able to handle larger loads such as kitchen appliances.

The distinguishing characteristic of the Shelly 1L is that it can be installed in locations that do not have a neutral wire as long as the minimum attached load is 20 watts. This means it is a rather niche use case with a relatively high minimum and low maximum when the neutral is not available. It is possible to add a bypass load to achieve the 20-watt minimum requirement.

If a neutral is available the minimum requirement no longer exists, but the 4.1 Amp maximum still applies. The Shelly 1PM would be a preferred choice unless the external sensors become the overriding criteria when used in installs that do have the neutral. UL listing for the Shelly 1L does not exist.

A set of HS devices are created upon first detection of the Shelly1L. These are shown in Figure 27. If the external sensors are added the reporting will be shown on the plug-in's MQTT page, Association tab table as shown in Figure 28. These can be associated with HS devices by clicking the "A" column checkbox.

shellies | shellies-Online						
⚙ **shellies-shellies-Online (1784)**						
shellies | shelly1l-C1D486						
⏻ **shelly1l-C1D486-Online (1785)**	Offline		Today 10:01:50 PM			
shellies | shelly1l-C1D486						
⚙ **shellies-shelly1l-C1D486 (1798)**						
⏻ **shelly1l-C1D486-relay (1799)**	on	Today 10:01:50 PM		OFF	ON	
⏻ **shelly1l-C1D486-input (1800)**	off	Today 10:01:50 PM				
shelly1l-C1D486-longpush (1801)	Long	Today 10:01:51 PM				
shelly1l-C1D486-event (1802)	S	Today 10:01:51 PM				
shelly1l-C1D486-event_cnt (1803)	15	Today 10:01:51 PM				
shelly1l-C1D486-relay-power (1804)	110.10 Watt	Today 10:01:51 PM				
shelly1l-C1D486-relay-energy (1805)	210.10 Watt-min	Today 10:01:51 PM				
shelly1l-C1D486-temperature (1806)	100	Today 10:01:51 PM				
shelly1l-C1D486-temperature_f (1807)	212	Today 10:01:51 PM				
shelly1l-C1D486-overtemperature (1808)	true	Today 10:01:51 PM				
shelly1l-C1D486-overpower_value (1809)	400 Watt	Today 10:01:51 PM				

Figure 27 Shelly1L Default HS Devices

2	☐	☐	☐		1736	shellies/shelly1l-C1D486		
3	☐	☐	☐			shellies/shelly1l-C1D486/ext_temperatures		
4	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:0:hum	50	☐	2021-01-22 20:24:10
5	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:0:hwID	A059801D90000220	☐	2021-01-22 20:24:10
6	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:0:tC	20.5	☐	2021-01-22 20:24:09
7	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:0:tF	68.9	☐	2021-01-22 20:24:10
8	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:1:hwID	A059801D90000320	☐	2021-01-22 20:24:10
9	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:1:tC	21.5	☐	2021-01-22 20:24:10
10	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:1:tF	70.7	☐	2021-01-22 20:24:10
11	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:2:hwID	D059801D90000326	☐	2021-01-22 20:24:10
12	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:2:tC	22.5	☐	2021-01-22 20:24:10
13	☐	☐	☐	☐		Sub: shellies/shelly1l-C1D486/ext_temperatures:2:tF	72.5	☐	2021-01-22 20:24:10

Figure 28 Other Shelly1L Topics Available for HS Device Association

The two wiring configurations are shown below with the difference being the neutral having or not having a connection.

Wiring with neutral
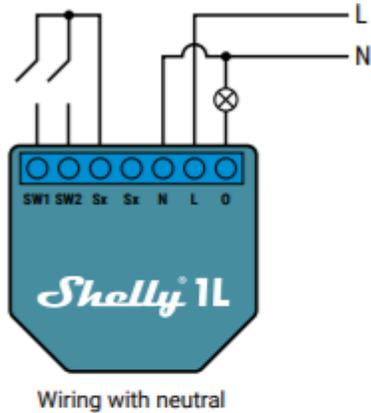
LEGEND*
N - Neutral Input
L - Line input (110-240V)
O - Output
SW1 - Switch 1
SW2 - Switch 2
SX - signal for Switch

Wiring without neutral
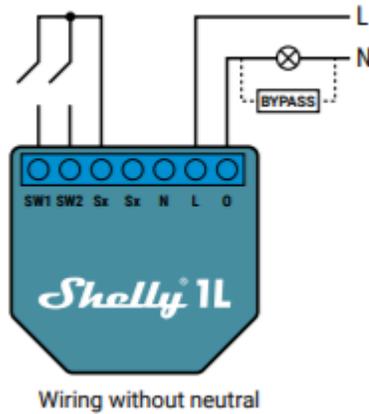
There are several settings that are available that tweak the behavior of the device. For example, a setting is available to set the wattage level at which the relay is switched off as a protective measure. The browser with URL set to either the settings page or to the built-in HTTP server can be used to specify the setting. The example below assumes the IP of the Shelly 1L is 192.168.0.123. The selection can also be done interactively by navigating to the same IP for access to the HTTP server.

```
http://192.168.0.123/settings?max_power=1500
```

max_power	number	Shelly1L only power threshold above which an overpower condition will be triggered

Note that the Shelly 1L reports both C and F units for temperature. Unlike other Shelly units there is no setting to select only one. It is unlikely that both are desired so it is best disabled by removing the association on the Association tab of the MQTT page of the plugin. It is also possible to delete the device directly in HS Devices page.

In addition to the max_power setting on the /settings URL, a second URL /settings/relay/0 can be used to set a number of parameters for the relay operation. Example is:

```
http://192.168.0.123/settings?default_state=last&auto_off=10
```

The unit has a single mains-level input which can be configured as momentary, toggle, edge, detached or action modes. For status it provides either input or longpush status.

The auto_off and auto_on settings are used when the relay is to be pulsed and return to its original state a specified number of seconds. When this setting is activated the MQTT status will be reported on each transition so HS will remain in sync with the actual state of the relay.

When doing settings related to the schedule it is easier to use the HTTP server built-in to the Shelly 1.

Table 10 Shelly 1L Settings

`factory_reset_from_switch`	bool	Whether factory reset via 5-time flip of the input switch is enabled
`max_power`	number	Power threshold above which an overpower condition will be triggered
`supply_voltage`	number	Supply voltage of the device, 0 for 110V, 1 for 220V
`mode`	string	Always `relay`
`led_status_disable`	bool	Whether LED status indication is enabled
`longpush_time`	number	Duration to detect long push, `ms`
`actions`	hash	List with all supported url actions. For detailed actions descriptions, see /settings/actions
`relays`	array of hashes	Current relay settings, see /settings/relay/0
`meters`	array of hashes	Contains information about instantaneous power and cumulative energy counter, see /status
`ext_sensors.temperature_unit`	string	If add-on attached (DS1820/DHT22): External

		temperature unit `C`/`F`
`ext_temperature`	hash	If add-on attached (DS1820/DHT22): External temperature thresholds and actions, see /settings/ext_temperature/{index}
`ext_humidity`	hash	If add-on attached (DHT22 only): External humidity thresholds and actions, see /settings/ext_humidity/0
`ext_switch_enable`	number	Whether low-power switch add-on is enabled
`ext_switch`	hash	If low-power switch add-on attached: Information about the relay, which is controlled with the low-power switch

Additional settings for the DH11T humidity sensor are shown in Table 11. They are reached using the /settings/ext_humidity/0 endpoint.

Table 11 Additional Shelly1 Settings for external humidity DH11T

`overhum_threshold`	number	Humidity (in %) over which to trigger `overhum_act`
`underhum_threshold`	number	Humidity (in %) under which to trigger `underhum_act`
`overhum_act`	string	Over-humidity action, one of `disabled`, `relay_on`, `relay_off`
`underhum_act`	string	Under-humidity action, one of `disabled`, `relay_on`, `relay_off`

The external DS18B20 and DH11T temperature sensors parameters that can be set with the /settings/ext_temperture/# where # is 0, 1 or 2 are shown in Table 12.

Table 12 Shelly1L External Temperature Sensor Parameters

`overtemp_threshold_tC`	number	Temperature (in °C) over which to trigger `overtemp_act`
`overtemp_threshold_tF`	number	Temperature (in °F) over which to trigger `overtemp_act`
`undertemp_threshold_tC`	number	Temperature (in °C) under which to trigger `undertemp_act`
`undertemp_threshold_tF`	number	Temperature (in °F) under which to trigger `undertemp_act`
`overtemp_act`	string	Over-temperature action, one of `disabled`, `relay_on`, `relay_off`
`undertemp_act`	string	Under-temperature action, one of `disabled`, `relay_on`, `relay_off`

5.16 Shelly Bulb
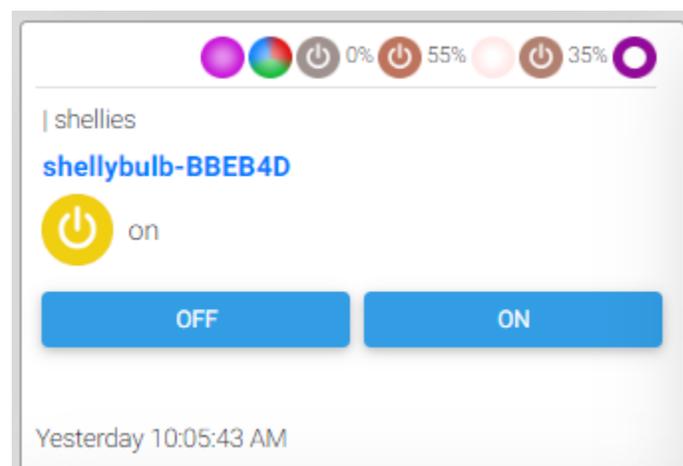
			shellies	shellybulb-BBEB4D	Today 9:40:58 AM	
	on		shellies	shellybulb-BBEB4D-ison	Today 10:05:43 AM	off on
	color		shellies	shellybulb-BBEB4D-mode	Today 10:05:43 AM	color white
	16711803		shellies	shellybulb-BBEB4D-RGB	Today 10:05:43 AM	FF007B
	0%		shellies	shellybulb-BBEB4D-white	Today 10:05:43 AM	
	55%		shellies	shellybulb-BBEB4D-gain	Today 10:05:43 AM	
	3000		shellies	shellybulb-BBEB4D-temp	Today 10:05:43 AM	(value) 3000 Submit
	35%		shellies	shellybulb-BBEB4D-brightness	Today 10:05:43 AM	
	Gradual Change		shellies	shellybulb-BBEB4D-effect	Today 10:05:43 AM	Gradual Change ▼

Figure 29 Shelly Bulb HS4 Devices

The Shelly bulb operates in one of two modes. Mode is selected by the color/white mode buttons.

Color supports color change based upon the RGB color space. This means brightness is implicit. A color picker is used to select the desired color. Special effects from a predefined list are available from the effect pull-down selector.

> 0 - Off
> 1 - Meteor Shower
> 2 - Gradual Change
> 3 - Breath
> 4 - Flash
> 5 - On/Off Gradual
> 6 - Red/Green Change

In White mode the control is the brightness level and temperature. The brightness is presented as a slider from 0% to 100%. Temperature is a number entry in the 3000 K to 6500 K range accepted by the bulb.

Both modes can use the On/Off buttons to enable or disable the bulb.

A ramp rate device contains the number of seconds it will take for the device to change brightness from 0% to 100%. A zero value is used if no ramp on brightness or power-on device change is desired.

There are no additional configuration options that are available or needed.

The bulb is a fair value at a lower price point to perform lighting effects, but it does not track true color well over the full RGB range. When sticking to primary colors and at higher intensity levels then good results will be achieved.

The white vs. color mode can be set from the HS device or it can be set with browser with URL at the IP of the Shelly bulb. If the IP is 192.168.0.123 then the browser command would be

```
http://192.168.0.123/settings?mode=white
```

```
http://192.168.0.123/settings?mode=color
```

In addition, settings of the bulb can be done with URL or interactively via the HTTP server built into the Shelly bulb.

```
http://192.168.0.123/light/0?default_state=last
```

Table 13 Shelly Bulb Settings

reset	string	Any non-zero-length value will reset light settings to default
effect	number	Applies an effect, see above
default_state	string	Sets default power-on state, one of on, off or last
auto_on	number	Sets a default timer to turn the bulb ON after every OFF command in seconds
auto_off	number	Sets a default timer to turn the bulb OFF after every ON command in seconds

5.17 Shelly Duo RGB GU10

Figure 30 Shelly Duo RGB HS4 Devices

The Shelly Duo RBB operates in one of two modes. Mode is selected by the color/white mode buttons.

Color supports color change based upon the RGB color space. This means brightness is implicit. A color picker is used to select the desired color. Special effects from a predefined list are available from the effect pull-down selector.

0 - Off
1 - Meteor Shower
2 - Gradual Change
3 - Breath
4 - Flash
5 - On/Off Gradual
6 - Red/Green Change

In White mode the control is the brightness level and temperature. The brightness is presented as a slider from 0% to 100%. Temperature is a number entry in the 3000 K to 6500 K range accepted by the bulb.

Both modes can use the On/Off buttons to enable or disable the bulb.

A ramp rate device contains the number of seconds it will take for the device to change brightness from 0% to 100%. A zero value is used if no ramp on brightness or power-on device change is desired.

There are no additional configuration options that are available or needed.

The bulb is a fair value at a lower price point to perform lighting effects, but it does not track true color well over the full RGB range. When sticking to primary colors and at higher intensity levels then good results will be achieved.

The white vs. color mode can be set from the HS device or it can be set with browser with URL at the IP of the Shelly bulb. If the IP is 192.168.0.123 then the browser command would be

```
http://192.168.0.123/settings?mode=white
http://192.168.0.123/settings?mode=color
```

In addition, settings of the bulb can be done with URL or interactively via the HTTP server built into the Shelly bulb.

```
http://192.168.0.123/light/0?default_state=last
```

Table 14 Shelly Duo RGB Settings

reset	string	Any non-zero-length value will reset light settings to default
effect	number	Applies an effect, see above

default_state	string	Sets default power-on state, one of on, off or last
auto_on	number	Sets a default timer to turn the bulb ON after every OFF command in seconds
auto_off	number	Sets a default timer to turn the bulb OFF after every ON command in seconds

5.18 Shelly Duo

Shelly Duo – is a dimmable bulb with adjustable color temperature between 2700K up to 6500K,

Figure 31 Shelly Duo HS Devices

There are no additional configuration options that are available or needed, but settings of the bulb can be done with URL or interactively via the HTTP server built into the Shelly bulb. Some settings are available as shown in the two tables and examples below taken from https://shelly-api-

docs.shelly.cloud/#shelly-duo-settings. Text in red will be based on your setup and desires.

```
http://192.168.0.123/settings?transition=10000
```

Table 15 Shelly Duo Settings

mode	string	Currently configured mode, always white for Shelly Duo
transition	number	On/off transition time, ms from 0 to 5000. For longer transition times use the Rate device created by pluin

```
http://192.168.0.123/settings/night_mode?enabled=true&start_time=14:23&end_time=23:50
```

Table 16 Shelly Duo Night Mode Settings

enabled	bool	Enable/disable night mode
start_time	string	Set night mode start time in format hh:mm
end_time	string	Set night mode end time in format hh:mm
brightness	number	Set brightness when in night mode, 0..100

5.19 Shelly Vintage

Shelly Vintage is a family of dimmable bulbs with varied form factors.

Figure 32 Shelly Vintage HS Devices

There are no additional configuration options that are available or needed, but settings of the bulb can be done with URL or interactively via the HTTP server built into the Shelly bulb. Some settings are available as shown in the two tables and examples below taken from https://shelly-api-docs.shelly.cloud/#shelly-duo-settings. Text in red will be based on your setup and desires.

```
http://192.168.0.123/settings?transition=10000
```

Table 17 Shelly Duo Settings

mode	string	Currently configured mode, always white for Shelly Duo
transition	number	On/off transition time, ms from 0 to 5000. For longer transition times use the Rate device created by pluin

```
http://192.168.0.123/settings/night_mode?enabled=true&start_time=14:23&end_time=23:50
```

Table 18 Shelly Duo Night Mode Settings

enabled	bool	Enable/disable night mode
start_time	string	Set night mode start time in format hh:mm
end_time	string	Set night mode end time in format hh:mm
brightness	number	Set brightness when in night mode, 0..100

5.20 Shelly Dimmer
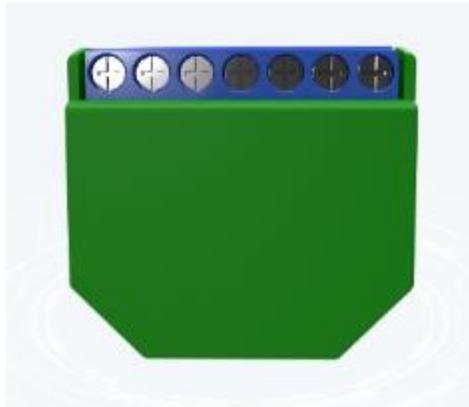
☐	5899			shellies	shellydimmer-F369CF	shellies-shellydimmer-F369CF	Today 6:32:52 PM	
☐	5900	⏻	on	shellies	shellydimmer-F369CF	shellydimmer-F369CF-ison	Today 6:33:28 PM	off on
☐	5901	🔆	24%	shellies	shellydimmer-F369CF	shellydimmer-F369CF-brightness	Today 6:33:28 PM	▬▬
☐	5902	⏏	0	shellies	shellydimmer-F369CF	shellydimmer-F369CF-ramprate	Today 6:32:52 PM	(value) 0 Submit
☐	5903	⚡	8 Watt	shellies	shellydimmer-F369CF	shellydimmer-F369CF-power	Today 6:33:30 PM	
☐	5904	⚡	0 Watt-min	shellies	shellydimmer-F369CF	shellydimmer-F369CF-energy	Today 6:33:30 PM	
☐	5905	🌡	45.75 °C	shellies	shellydimmer-F369CF	shellydimmer-F369CF- temperature	Today 6:33:28 PM	
☐	5906	🌡	114.36 °F	shellies	shellydimmer-F369CF	shellydimmer-F369CF- temperature_f	Today 6:33:28 PM	
☐	5907	🔵	false	shellies	shellydimmer-F369CF	shellydimmer-F369CF-overtemperature	Today 6:33:29 PM	
☐	5908	🔵	false	shellies	shellydimmer-F369CF	shellydimmer-F369CF-overload	Today 6:33:29 PM	
☐	5909	🔵	false	shellies	shellydimmer-F369CF	shellydimmer-F369CF-loaderror	Today 6:33:29 PM	
☐	5910	⏻	off	shellies	shellydimmer-F369CF	shellydimmer-F369CF-input	Today 6:32:53 PM	

Figure 33 Shelly Dimmer HS4 Devices

The Shelly dimmer provides PWM control to alter the energy provided to a single load (e.g. white bulb) thus effecting a dimmer function. It also provided absolute on/off control, power utilization measurement, device temperature measurement and monitoring for overload conditions. It is not able to control inductive loads such as a fan.

HS Devices provide control and status of the brightness, ramp rate and power. Status for power use, temperature, temperature and load exceedance is also provided. The ramp rate device contains the number of seconds it will take for the device to change brightness level from 0% to 100%. A zero value is used if no ramp on brightness change or power application is desired.

It has provisions for two mains-level inputs that are designed for use as local switch inputs. Note that these are not digital level inputs. Theses switches can be wired in various ways to achieve different switch control characteristics as shown below.
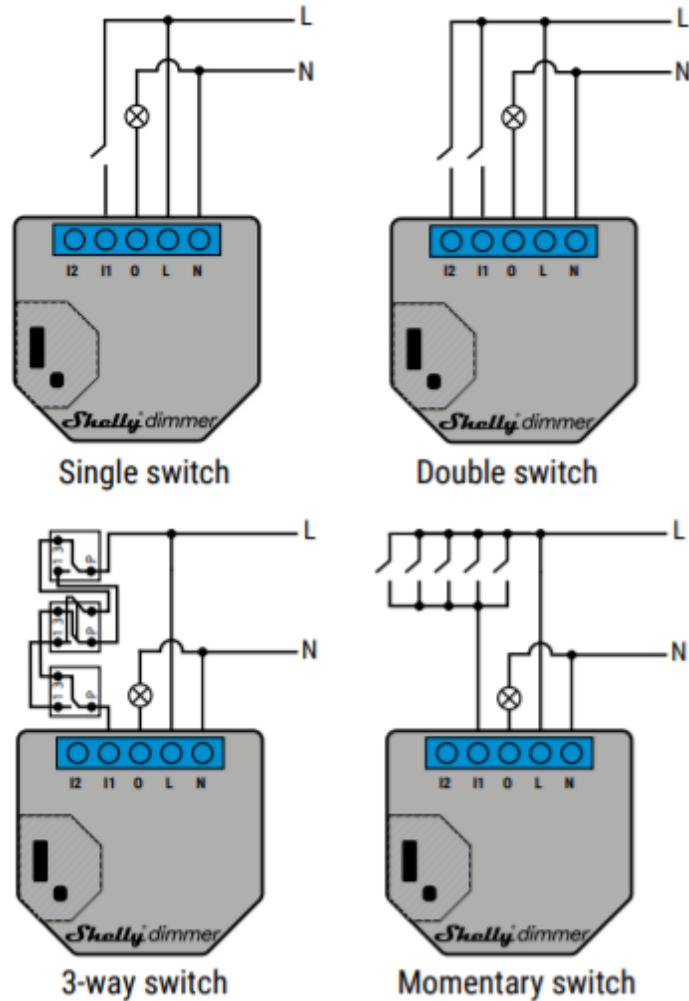
Figure 34 Shelly Dimmer Wiring

Additional settings are available per https://shelly-api-docs.shelly.cloud...er-sl-settings and shown below. To change a setting a browser is used with the URL set of the IP Shelly device and parameter to be changed such as below for a Shelly Dimmer at IP 192.168.0.123. Those parameters that are user-defined as shown in red.

```
http://192.168.0.123/settings?fade_rate=2
http://192.168.0.123/settings?fade_rate=2&transition=2000
```

Table 19 Shelly Dimmer Settings

pulse_mode	number	1 - Leading Edge Dimming, 2 - Trailing Edge Dimming
calibrate	number	0 - Delete calibration, 1 - Start calibration

calibrate_cancel	number	1 - Cancel calibration
transition	number	Transition time for on/off: 0..5000 ms
fade_rate	number	Brightness change speed when button is pressed: 1..5

Settings can also be set interactively by using browser and navigating to the IP of the Shelly Dimmer.

The Shelly Dimmer also supports a night mode. When night mode is active, turning ON the device during the set interval it will only go up to the pre-set brightness limit. The night mode enabled with a setting as well as the time bounds and alternate brightness level. For the start and end times to be useful the timezone also needs to be setup. While all of these can be done using browser URL, it is easier to navigate to the Shelly Dimmer URL using just the IP and browser.   If done problematically then the following are examples.

```
http://192.168.0.123/settings_nightmode?enabled=1
http://192.168.0.123/settings_nightmode?enabled=1&brightness=40
```

Table 20 Shelly Dimmer Mode Settings

enabled	boolean	Flag to enable/disable night mode
start_time	boolean	Start time in format hh:mm
end_time	boolean	End time in format hh:mm
brightness	number	Night mode brightness in percent

In addition, there are settings available for how the load (bulb) behaves. These can be controlled as shown below or interactively with browser to the same IP.

```
http://192.168.0.123/settings/light/0?default_state=last
http://192.168.0.123/settings/light/0?default_state=last&btn_type=edge
```

Table 21 Shelly Dimmer Bulb Settings

reset	any	Perform settings reset

default_state	string	Default power-on state, one of on, off, last, switch
auto_on	number	Default timer to turn the dimmer ON after every OFF command in seconds
auto_off	number	Default timer to turn the dimmer OFF after every ON command in seconds
schedule	bool	Enable scheduling timer
schedule_rules	array of strings	String values for sheduling in ir format see description below
btn_type	string	Input type: one of one_button, dual_button, toglle, edge ot detached
swap_inputs	bool	Swap inputs
btn1_on_url	string	URL to access when SW1 input is activated
btn1_off_url	string	URL to access when SW1 input is deactivated
btn2_on_url	string	URL to access when SW2 input is activated
btn2_off_url	string	URL to access when SW2 input is deactivated
out_on_url	string	URL to access when output is activated
out_off_url	string	URL to access when output is deactivated

Use of this device is only appropriate in situations for controlling mains-level voltages. This is for both switch inputs and output loads. Digital level input and output are not supported. As mentioned above it cannot be used for inductive loads such as a fan.

Interestingly the device supports a night mode with different behaviors, but it does not provide a MQTT endpoint that shows if it is currently in day or night mode. I suppose one can look at the power level or brightness level and infer if in night mode or not if one needs to know.

Note also that it reports temperature in both F and C units. Likely you will only want one of these

showing in HS. While it can be deleted as a HS device, it is better to keep the plugin and HS in sync to uncheck the "a" column checkbox for the temperature reading that is not to be shown.

If it is desired to have a single device that does both on/off control as well as brightness then remove the association on the Association tab of the IsOn Topic then enter the ref number of the brightness topi in the text box provided for the IsOn Topic. This will create a device with a slider and two buttons. The DeviceValue will contain the brightness value when On and will be 0 when Off.

For simple timer functions to change something at a given time of day and day or week the Shelly Dimmer has a built in event engine. It is most easily setup from the URL of the Shelly dimmer. The result is similar to setting up events in HS, but this is all local and does not involve HS. It only needs an internet connection so Shelly can get time update from NTP server.
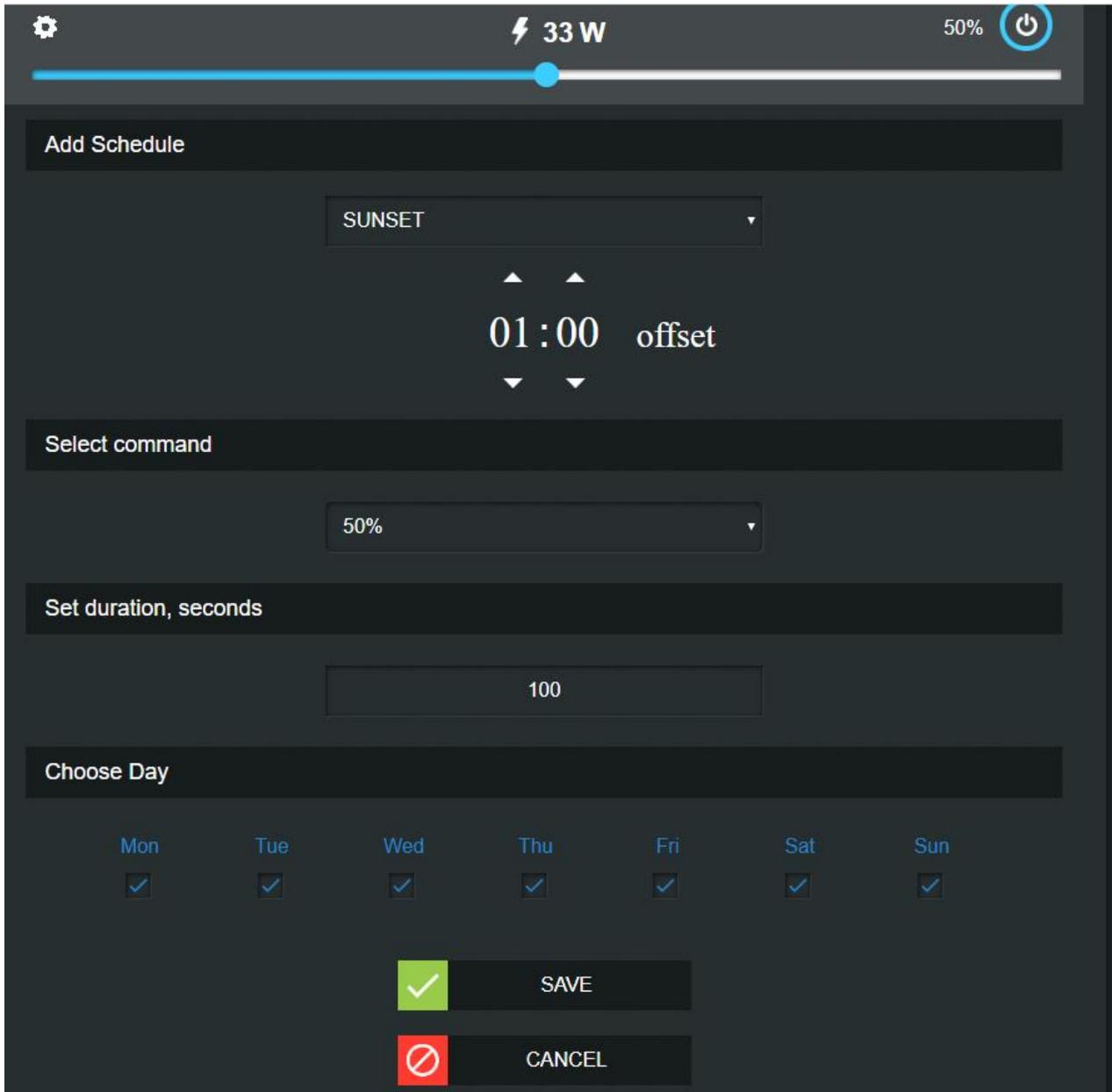
Figure 35 Shelly Dimmer Interactive Schedule Setup

5.21 Shelly 1 (Relay/Switch)

				shellies	shelly1-C48743	Today 7:35:58 PM	
☐	⏻	off			shellies	shelly1-C48743-relay	Today 7:35:59 PM	off on
☐	⏻	off			shellies	shelly1-C48743-input	Today 7:35:59 PM	
☐	⏻	off			shellies	shelly1-C48743-longpush	Today 7:35:59 PM	

Figure 36 Shelly 1 HS4 Devices

The Shelly 1 is a basic module designed to fit behind non-smart switches in traditional J-Box installs and provide smarts to the previously installed switch. Unlike other relay/switch members of the Shelly family this device isolates the relay inputs and outputs from mains voltages. This means this device can be applied to any situation where smart switching using a relay is desired such as irrigation where 24VAC is switched or a garage door push button where digital 24/12/5 volts is switched.

It uses a 16A relay so it can handle typical 14 gauge household wiring without being the weak link. It comes in models with UL rating and without this rating. Obviously, a price premium exists for the additional certification, but the UL rating makes it legal for install in many jurisdictions. Contrast this with many other suppliers of equivalent WiFi devices where the relay is rated at 10 amps and no UL

certification exists.

The switch side of the device does only work at mains level voltages so it is not possible to safely use the input to sense digital voltage levels or contact closures.

The unit is small with dimensions of about 1.5" diameter and 0.6" depth. This size makes it attractive for install in its primary design location behind existing switches. For those who are unlucky and have shallow J-Box (no room) or have metallic J-Box (blocks WiFi from most directions) may have difficulty with using the Shelly 1 in its intended application.

The electrical connection shown below illustrates the mains connections to Load and Neutral and the switch connection also switching with mains levels. The two sides of relay I and O can be connected to anything.
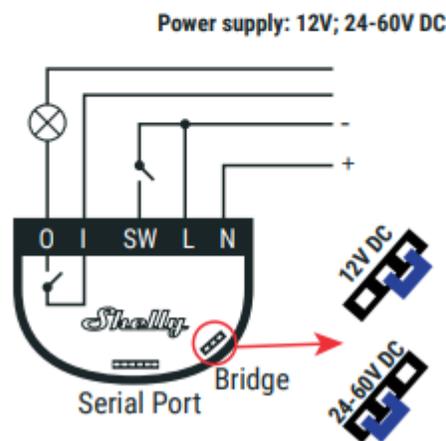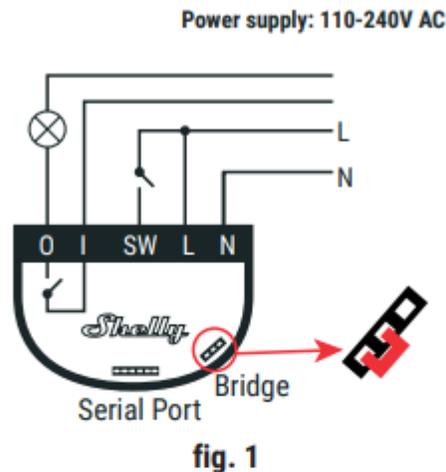
Figure 37 Shelly 1 Wiring

Additional settings for the Shelly 1 can be found at
and are shown below. The ones that may be of interest is how the switch input behaves, the polarity of the switch input and default state upon application of power

Assuming that the IP of the Shelly 1 is 192.168.0.123 (yours will be different) these settings can be applied using a browser with URL set with examples shown below. The red font is what will be the parts that you need to customize.

```
http://192.168.0.123/settings/relay/0?default_state=last
http://192.168.0.123/settings/relay/0?default_state=last&btn_type=edge
```

Table 22 Shelly 1 Settings

reset	any	Submitting a non-empty value will reset settings for the output to factory defaults
name	string	Relay name
default_state	string	Accepted values: off, on, last, switch
btn_type	string	Accepted values: momentary, toggle, edge, detached, action
btn_reverse	bool	Inverts the logical state of the input
auto_on	number	Automatic flip back timer, seconds. Will engage after turning Shelly1 OFF
auto_off	number	Automatic flip back timer, seconds. Will engage after turning Shelly1 ON
btn_on_url	string	URL to access when SW input is activated
btn_off_url	string	URL to access when SW input is deactivated
out_on_url	string	URL to access when output is activated
out_off_url	string	URL to access when output is deactivated
longpush_url	string	URL to access on longpush

shortpush_url	string	URL to access on shortpush
schedule	bool	Enable schedule timer
schedule_rules	array of strings	Rules for schedule activation, e.g. 0000-0123456-on

These can also be set interactively by navigating browser to same IP without parameters. After selecting settings option, the browser image will appear as:

Figure 38 Shelly 1 Interactive Setup

A common feature of the Shelly family is the Weekly Schedule options to allow the device to automatically control the output based upon day of week and time of day. This is equivalent to HS events doing the same, but does not depend upon HS. Note that HS will be informed via MQTT message of a new output state of the device so HS is able to monitor and provide notifications or remedial actions if the state update is not received when expected.

For the weekly schedule to function the Shelly 1 needs to be on the internet to use NTP time and the timezone setup. The device has an auto timezone discovery, but my experience is that it seems to always be New York (USA Eastern) rather than Los Angeles (USA Pacific) when left in the auto mode.

5.22 Shelly Gas

Shelly Gas is a sensor which can measure combustible gas concentration and issue an alarm in the event of a gas leak. Shelly Gas operates on AC voltage. The center circle-shaped LED indicates the sensor status:

>solid green: sensor is in normal operation

>solid yellow: sensor has a fault

>flashing red: there is an alarm

>flashing red/yellow/green in sequence: sensor is warming up
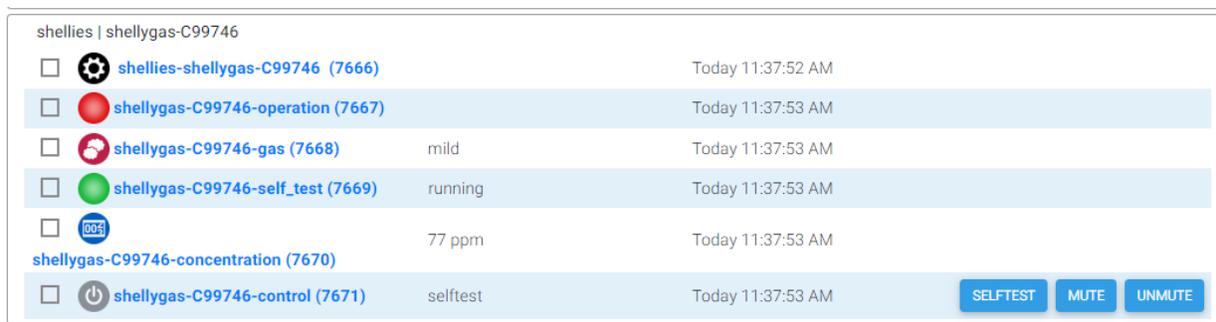
Figure 39 Shelly Gas HS Devices

Additional settings for the Shelly Gas can be found at https://shelly-api-docs.shelly.cloud/#shelly-gas-settings and are shown below.

Assuming that the IP of the Shelly Gas is 192.168.0.123 (yours will be different) these settings can be applied using a browser with URL set with examples shown below. The red font is what will be the parts that you need to customize.

```
http://192.168.0.123/settings?set_volume=3
http://192.168.0.123/settings?mqtt_update_period=0
```

Table 23 Shelly 1 Settings

set_volume	number	Set the buzzer volume [1 (lowest) .. 11 (highest)]
alarm_off_url	string	Set URL to access when gas alarm is gone
alarm_mild_url	string	Set URL to access when there is a mild gas alarm
alarm_heavy_url	string	Set URL to access when there is a heavy gas alarm
mqtt_update_period	string	By default, Shelly Gas will send periodic MQTT updates every 30 seconds. You can turn these off and only receive messages when there is a change by setting this parameter to 0

5.23 Shelly Button1

Shelly Button1 is a WiFi button which can detect and announce 4 types of button presses - short, 2x short, 3x short, long. We developed Shelly Button1 to help you easily activate or deactivate any device or scene manually with just a click.

The device is powered by rechargeable batteries, allowing for more than 3000 actions per charge. As an option it can be connected via USB for constant power supply and Wi-Fi connection.

Response times are less than 2sec. on battery and 100 ms on USB power.

Figure 40 Shelly Button1 HS Devices

Additional settings for the Shelly Button1 can be found at https://shelly-api-docs.shelly.cloud/#shelly-button1-settings and are shown below.

Assuming that the IP of the Shelly Button1 is 192.168.0.123 (yours will be different) these settings can be applied using a browser with URL set with examples shown below. The red font is what will be the parts that you need to customize.

```
http://192.168.0.123/settings? led_status_disable =true
http://192.168.0.123/settings? remain_awake=10
```

Table 24 Shelly 1 Settings

device.sleep_mode	bool	Always true
sleep_mode.period	number	Periodic update period, always 12
sleep_mode.unit	string	Always h
led_status_disable	bool	Whether status LED is enabled/disabled
longpush_duration_ms.max	number	Longpush max duration (ms)
multipush_time_between_pushes_ms.max	number	Max time between sequential pushes (ms)
remain_awake	number	Time after last event before go to sleep in sec

5.24 Shelly i3

Shelly i3 is a WiFi AC switch reader. It has 3 independent input channels which can operate with all types of toggle and momentary AC switches.

Shelly i3 can detect and announce not only simple ON/OFF state changes, but also complex (multipush) input events, for example double shortpush, shortpush + longpush, etc.

Figure 41 Shelly i3 HS Devices

Additional settings for the Shelly i3 can be found at https://shelly-api-docs.shelly.cloud/#shelly-i3-settings

Assuming that the IP of the Shelly i3 is 192.168.0.123 (yours will be different) these settings can be applied using a browser with URL set with examples shown below. The red font is what will be the parts that you need to customize.

```
http://192.168.0.123/settings? longpush_duration_ms_min =1000
```

Table 25 Shelly i3 Settings

longpush_duration_ms_min	number	Set longpush min duration (ms)
longpush_duration_ms_max	number	Set longpush max duration (ms)
multipush_time_between_pushes_ms_max	number	Set max time between sequential pushes (ms)

5.25 Shelly Uni

Shelly Uni(versal) is a general purpose two-channel interface component. Its firmware currently supports inputs characterized as short and long push and digital outputs on each of its two channels. It is advertised to also have ADC and temperature capability for which the firmware needs to catch up.

One HS Device and eight features are setup for each Shelly Uni. The longpush feature and the event feature provide the same information. The event feature also provides the count of number of button pushes that caused the event to be reported.

In addition to the status and control of the device there is also a Last Will and Testament report to know if the WiFi connection to the Shelly is active.

Figure 42 Shelly Uni Devices

The relay outputs are isolated from ground so can be used for any contact closure of up to 100ma up to 24VDC or 36VAC. The inputs require a pull up voltage of 2.2 to 36VDC or 12 to 24VAC. Acceptance of both AC and DC provides a degree of flexibility that is not available on most IOT devices. The wiring diagram in shown in Figure 43.
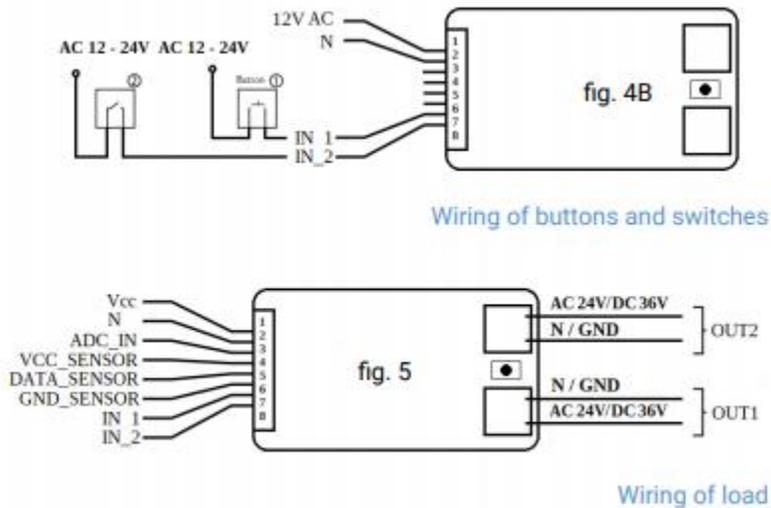
Figure 43 Shelly Uni Input and Output Wiring

Either AC 12 to 24VAC or DC between 12 and 36VDC is use to power the device. Power consumption is under 1 Watt so not very well suited for battery operation.

Additional settings for the Shelly Uni can be found at https://shelly-api-docs.shelly.cloud/#shelly-uni-settings.

Assuming that the IP of the Shelly i3 is 192.168.0.123 (yours will be different) these settings can be applied using a browser with URL set with examples shown below. The red font is what will be the parts that you need to customize.

```
http://192.168.0.123/settings? longpush_time =1000
```

5.26 Shelly Door Window

Shelly Door/Window is a WiFi-connected door and window sensor with lux measurement. It is able to report open/close status, vibration and tilt events, and the battery status. With this capability the device can be applied to other applications beyond just entry monitoring.

Table 26 Shelly Door/Window HS Devices

shellies | shellydw-C0A859			
⚙ shellies-shellydw-C0A859 (7706)			
📱 shellydw-C0A859-state (7707)	opened	Today 10:05:40 PM	
➡ shellydw-C0A859-tilt (7708)	90 °	Today 10:05:40 PM	
🔲 shellydw-C0A859-vibration (7709)	vibration	Today 10:05:40 PM	
☀ shellydw-C0A859-lux (7710)	100 lux	Today 10:05:40 PM	
🔋 shellydw-C0A859-battery (7711)	70	Today 10:05:40 PM	

Additional settings for the Shelly Door/Window can be found at https://shelly-api-docs.shelly.cloud/#shelly-door-window-settings

Assuming that the IP of the Shelly Door/Window is 192.168.0.123 (yours will be different) these settings can be applied using a browser with URL set with examples shown below. The red font is what will be

the parts that you need to customize.

```
http://192.168.0.123/settings?tilt_enabled=true&vibration_enabled=false
```

Table 27 Shelly Door/Window Settings

`dark_threshold`	number	Illumination definition for "dark" in `lux`, `0..100000` and must be lower than `twilight_threshold`
`twilight_threshold`	number	Illumination definition for "dusk" in `lux`, `0..100000` and must be greater than `dark_threshold`
`dark_url`	string	Set URL to invoke when luminance `<=` `dark_threshold`
`twilight_url`	string	Set URL to invoke when luminance `>` `dark_threshold` AND luminance `<=` `twilight_threshold`
`close_url`	string	Set URL to invoke on close
`vibration_url`	string	Set URL to invoke on vibration detection
`led_status_disable`	bool	Enable/disable status LED
`sleep_mode_period`	number	Periodic update period in hours, `1..24`
`reverse_open_close`	bool	Reverse which position the sensor consideres "open"
`tilt_enabled`	bool	Enable/disable tilt detection
`vibration_enabled`	bool	Enable/disable vibration detection

5.27 Shelly Motion Sensor

Shelly motion provides a WiFi option for motion detection. Another, in a much smaller package, is the Monoprice Stich family. Shelly has built this sensor using its family of standard sensors on its circuit board to provide light intensity and vibration detection as well as the PIR for motion.

PIR is the most common and lowest cost method used to detect motion, but does have issues with false detection. Shelly has provided a set of tweaking parameters that a user can apply to change the responsiveness vs. false-report behaviors, but the bottom line is the technology has issues and the tweaking parameters just moves the problem from the manufacturer to the user. Radar is a more effective motion detection technology. Unfortunately, it does not have widespread commercial use.

Typically, one desires motion sensors to be located in stealthy locations. This criterion is not met with the Shelly Motion due to its large size that is used to provide a battery that has a reasonable lifespan. The Shelly H&T goes to sleep and then wakes up at hourly-like intervals to report the sensor readings. This design approach does not work for motion sensors. Devices like Trigboard are better suited for event-based reporting over WiFi. The Trigboard uses microamps most of the time and is only awaken based upon the motion sensor event. It requires special circuity, but allows multi-year operation on a battery.

Shelly Motion Sensor does provide a "free" vibration and lux sensor. The vibration sensor will report when the device is moved. This is good for security devices where the concern is that the intruder is trying to defeat the systems that are detection his/her presence. It may be more important with the large Shelly Motion, but in general I doubt if intruders are looking for sensors in one house.

The Lux can be useful with primary role being in dawn/dusk detection where you may want motion lighting control at night, but not during the day. This is similair to the X10 hawkeye.

Today's mass-market technology that is best suited for battery-powered discrete motion detection is Zigbee. X10-RF is also a good technology for this, but has lost favor in the marketplace. There will be some niche's that the Shelly Motion Sensor may fill, but not likely to be a killer mainstream product.

shellies	shellymotionsensor-D8BFC01A9508		
⚙ shellies-shellymotionsensor-D8BF... (2837)			
🚶 shellymotionsensor-D8BFC01A9508-motion (2838)	true		Today 3:55:46 PM
☀ shellymotionsensor-D8BFC01A9508-lux (2839)	589 lux		Today 3:55:46 PM
✹ shellymotionsensor-D8BFC01A9508-illumination (2840)	bright		Today 3:55:46 PM
🔋 shellymotionsensor-D8BFC01A9508-battery (2841)	98 %		Today 3:55:46 PM
🖼 shellymotionsensor-D8BFC01A9508-vibration (2842)	vibration		Today 3:55:46 PM

Assuming that the IP of the Shelly Motion Sensor is 192.168.0.123 (yours will be different) these settings can be applied using a browser with URL set with examples shown below. The red font is what will be the parts that you need to customize.

```
http://192.168.0.123/settings? twilight_threshold=500&vibration_enabled=false
```

Table 28 Shelly Door/Window Settings

dark_threshold	number	Illumination definition for "dark" in lux, 0..100000 and must be lower than twilight_threshold
twilight_threshold	number	Illumination definition for "dusk" in lux, 0..100000 and must be greater than dark_threshold
dark_url	string	Set URL to invoke when luminance <= dark_threshold

`twilight_url`	string	Set URL to invoke when luminance > `dark_threshold` AND luminance <= `twilight_threshold`
`close_url`	string	Set URL to invoke on close
`vibration_url`	string	Set URL to invoke on vibration detection
`led_status_disable`	bool	Enable/disable status LED
`sleep_mode_period`	number	Periodic update period in hours, `1..24`
`reverse_open_close`	bool	Reverse which position the sensor consideres "open"
`vibration_enabled`	bool	Enable/disable vibration detection

5.28 Shelly Gen2

Shelly next generation products are based upon the ESP32 vs. the prior generation products being ESP8266. The firmware also new using a rpc endpoint. The approach taken in mcsShelly is to interpret the new API and convert it to the Gen 1 API format for subsequent processing. This minimizes the complexity and keeps the look and feel of Shelly devices the same.

Shelly will be incrementally adding products using the ESP32/Gen2 firmware. At this time these products are identified as Plug or Pro. There product line now consists of relays and power monitoring with 1, 2 or 4 channels.

5.29 Plus 1, Plus 1PM, Plus 2, Plus 2PM, Shelly Pro3, Shelly Pro 3PM, Pro 4, Pro 4PM, Plug US and I4

Figure 44 Shelly Plus 1, Plus 1PM, Pro3, Pro 4, Plus I4, Plug US

These second-generation product using ESP32 vs. the ESP8266 of the Shelly family. The physical characteristics are the same as the first-generation products, but the firmware adopted a new structure that provides better consistency across the Shelly products. Refer to the first-generation products in this document for wiring applications.

The HS devices that are created for the Plus 1PM are shown in Figure 45. Like other Shelly devices the reporting is separated into an Online device and a device for the specific unit.

 Additional information is provided on the Association tab of the MQTT page for things like firmware version, MQTT connection status, RSSI, etc.   Figure 46 provides an example of this information on the MQTT Page Association tab. The status of these can be viewed on the MQTT page Association tab and can also be included in the devices that are mapped to HS Device features.

The Pro4 provides the same capabilities of the Plus 1PM with four rather than a single channel. Similarly, the 1PM, 2PM and 4 PM are the same other than the number of channels contained in the same package. It is sold as a Pro line series of products. Do be aware that the specification provides a DC rating for amperage capacity. The AC capability will be much less so things like fans that present inductive loads may not be compatible. Also be aware that the mains and the DC share a common ground so there are failure modes where mains voltage can exist where not desired.

shellies | shellies-Online
☐ **shellies-shellies-Online (1651)**

shellies | shellyplus1pm-a8032ab2dba8

☐ ⏻ **shellyplus1pm-a8032ab2dba8-Online (1652)**   Online   Today 4:08:10 PM

shellies | shellyplus1pm-a8032ab2dba8
☐ **shellies-shellyplus1pm-a8032ab2d... (1641)**

☐ ⏻ **shellyplus1pm-a8032ab2dba8-input.0:state (1642)**   false   Today 4:08:09 PM

☐ 🌡 **shellyplus1pm-a8032ab2dba8-switch.0:temperature:tC (1643)**   33.73 ° C   Today 4:08:24 PM

☐ 🌡 **shellyplus1pm-a8032ab2dba8-switch.0:temperature:tF (1644)**   92.71 ° F   Today 4:08:24 PM

☐ ⏻ **shellyplus1pm-a8032ab2dba8-switch.0:output (1645)**   true   Today 4:08:26 PM   [FALSE] [TRUE]

☐ ⚡ **shellyplus1pm-a8032ab2dba8-switch.0:voltage (1646)**   114.67 V   Today 4:08:26 PM

☐ ⚡ **shellyplus1pm-a8032ab2dba8-switch.0:apower (1647)**   0.00 Watt   Today 4:09:09 PM

☐ ⚡ **shellyplus1pm-a8032ab2dba8-switch.0:aenergy:by_minute (1648)**   2.93 Watt-min   Today 4:08:59 PM

☐ ⚡ **shellyplus1pm-a8032ab2dba8-switch.0:aenergy:total (1649)**   0.00 Watt-min   Today 4:08:59 PM

☐ ⏻ **shellyplus1pm-a8032ab2dba8-switch.0:errors (1650)**   Today 4:08:09 PM

Figure 45 Shelly Plus 1PM HS Device and Features

4	☐	☐	☐	☐	Sub: shellies/shellyplus1pm-a8032ab2dba8/sys:available_updates:beta:version	"0.9.0-beta2" ☐	2021-11-17 15:50:20
5	☐	☐	☐	☐	Sub: shellies/shellyplus1pm-a8032ab2dba8/sys:stable:version	"0.8.1" ☐	2021-11-17 15:50:20
6	☐	☐	☐	☐	Sub: shellies/shellyplus1pm-a8032ab2dba8/wifi:rssi	-56 ☐	2021-11-17 15:50:07
7	☐	☐	☐	☐	Sub: shellies/shellyplus1pm-a8032ab2dba8/wifi:ssid	"U" ☐	2021-11-17 15:50:07
8	☐	☐	☐	☐	Sub: shellies/shellyplus1pm-a8032ab2dba8/wifi:sta_ip	"192.168.0.242" ☐	2021-11-17 15:50:07
9	☐	☐	☐	☐	Sub: shellies/shellyplus1pm-a8032ab2dba8/wifi:status	"got ip" ☐	2021-11-17 15:50:07

Figure 46 Shelly Plus Additional Information

In the case of the ShellyPlus2 and ShellyPlus2PM, the pair of relays can be configured to operate independently or they can be coordinated to provide the function of controlling blinds or shades cover. The setup for the cover mode is done using a browser and IP of the Shelly device. The HS presentation contains controls for Close, Open, Stop and Calibrate as well as a slider to command a specific position percentage. See Figure 47.

Figure 47ShellyPlus2PM Configured as a Cover

Figure 48 Shelly Pro3 HS Devices

5.30 Shelly Pro 3EM

The Shelly Pro 3EM is a status-only device that measures energy in each of three phases and provides a temperature measurement. The temperature will be selected to be the one that is F vs. C based upon HS settings. The HS Device and Features are shown in Figure 49.

Figure 49 Shelly Pro 3EM HS Device and Features

There is some additional information available from the Pro 3EM that is not automatically mapped into HS Device Features. They can be added by using the "a" column checkbox on the MQTT Page, Association Tab. An example is shown in Figure 50

Figure 50 Shelly Pro 3EM Additional Status Information

5.31 Add-On

Figure 51 Shelly Add-On

The Shelly Add-On is a clip-on extension to the Gen2/Plus Shelly Plus 1/1PM, Shelly Plus 2PM, Shelly Plus i4/i4DC line of Shelly products. It provides the mechanism to use DS18B20, DHT22, Digital level discrete and analog sensor inputs.

The digital levels are within the range -15VDC and 15VDC. This is in contrast with the input level of the host Shelly device that is at mains levels. 2.5VDC and higher is reported as false and shown in HS as Off.

The analog input can be either a voltmeter in 0 to 10 VDC range or an analog measurement of 0% to 100% of the provided Vref 10 VDC. This is also in contrast with the mains AC voltage measurement provided by the host Shelly device.

The wiring diagram provided in the product leaflet is shown below which is for the most part sufficient to understand the connections.

The DHT11 is a very similar sensor to the DHT22, but when connected to the Add-On it was not recognized.

DHT22
1 VCC
2 DATA
3 NC
4 GND

DS18B20 — 3 VDD / 2 DATA / 1 GND
DS18B20 — 3 VDD / 2 DATA / 1 GND
DS18B20 — 3 VDD / 2 DATA / 1 GND
DS18B20 — 3 VDD / 2 DATA / 1 GND
DS18B20 — 3 VDD / 2 DATA / 1 GND

VCC DATA GND VCC DATA GND VCC DATA GND

or
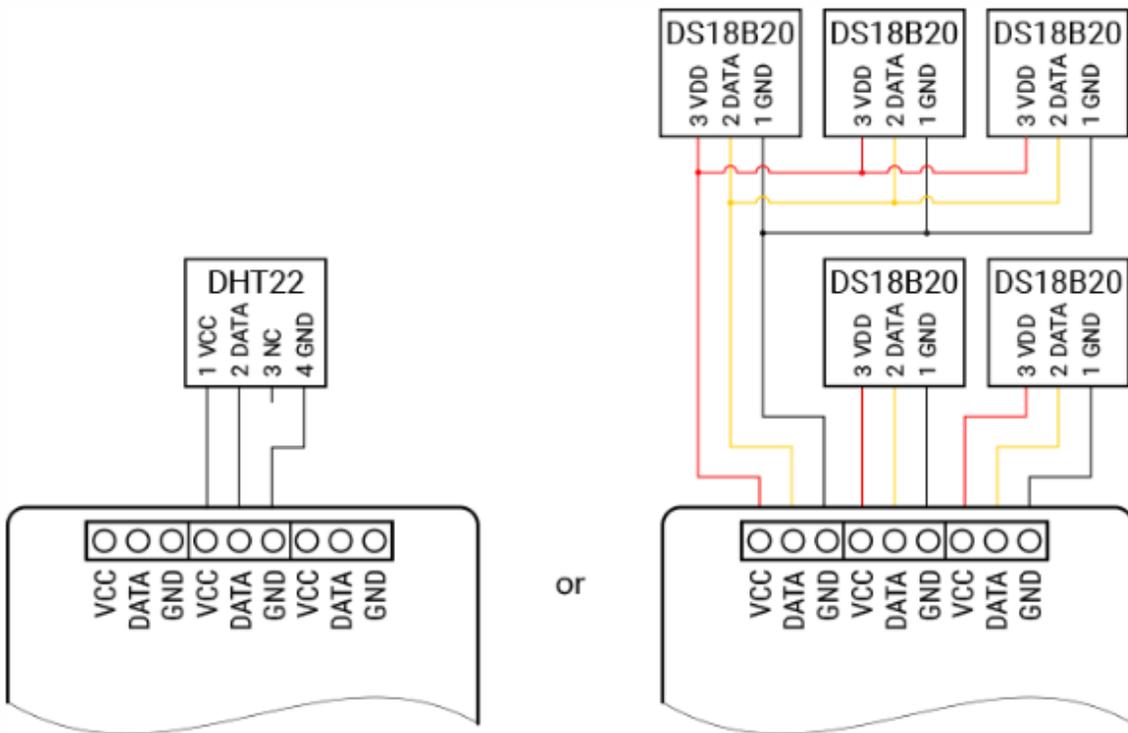
Shelly Plus Add-on 1-Wire sensors wiring diagrams

GND ANALOG IN GND DIGITAL IN VREF OUT VREF + R1 OUT

or

GND ANALOG IN GND DIGITAL IN VREF OUT VREF + R1 OUT
-t°
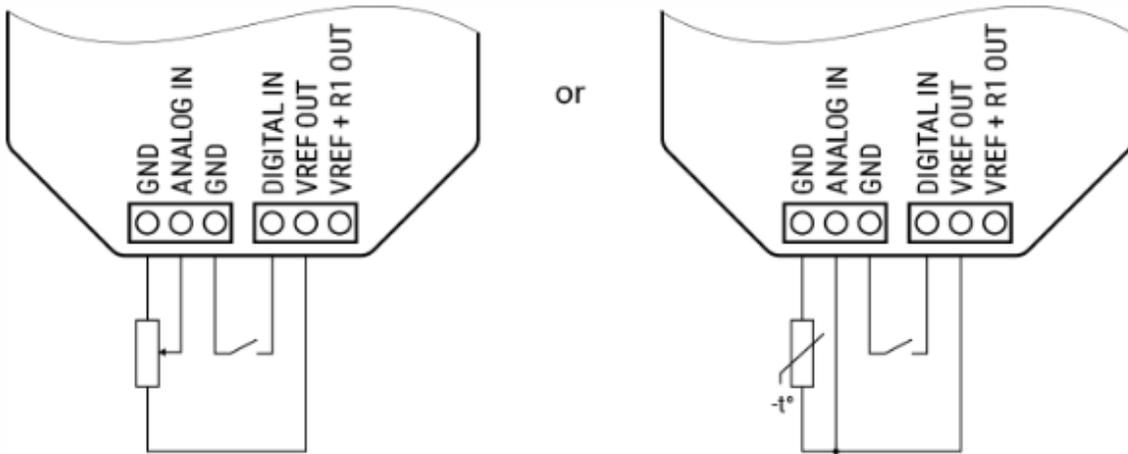
Figure 52 Shelly Add-On Connection Options

The plugin includes the Add-On Features with the Features of the host Shelly device. The plugin looks for status reports and if it detects an Add-On report it will add the Feature to HS. It will use the HS global setting of F vs. C temperature scale to select the desired scale reported by Shelly.

Figure 53 Add-On HS Device Features

The Add-On is configured from the WiFi hot spot setup by the host Shelly device such is shown in Figure 54.
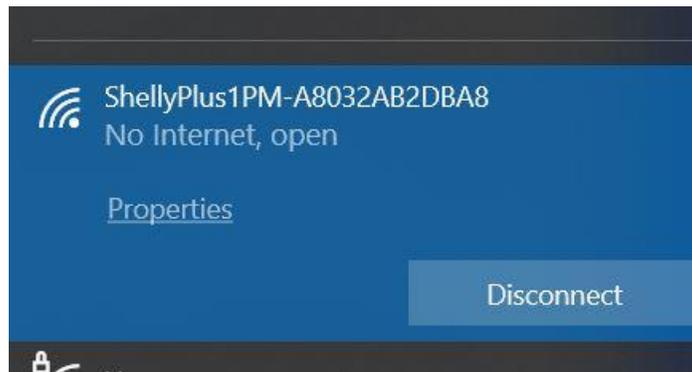

Figure 54 Shelly SSID selection

This Browser URL is 192.168.33.1 after a WiFi connection is made. This will bring up the config page and in particular the Add on menu selection such as shown in Figure 55.
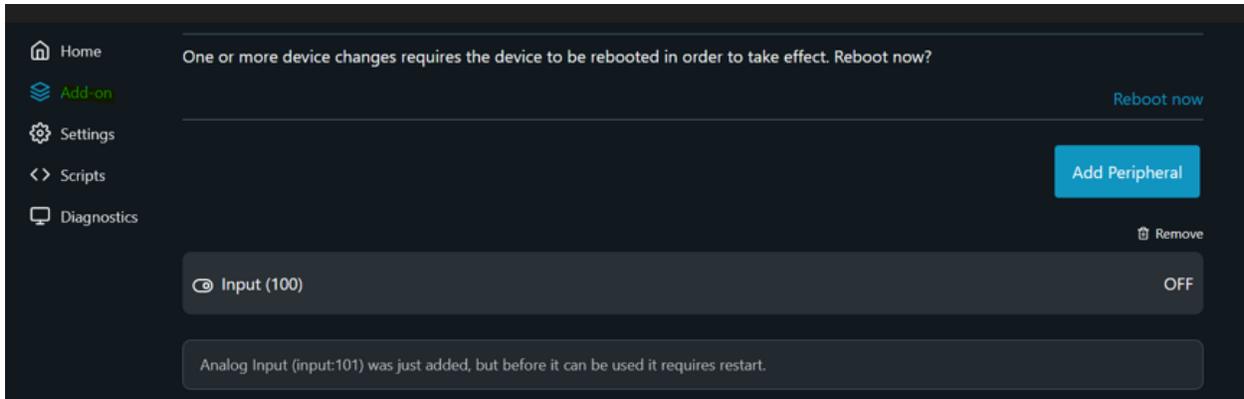

Figure 55 Shelly Add On Inclusion Setup

The specific sensor to be added is then selected such as shown in Figure 56. This can be repeated as desired to add additional sensors. Each time a new one is added and the Shelly host starts reporting the sensor value, the plugin will add it as a HS Feature.
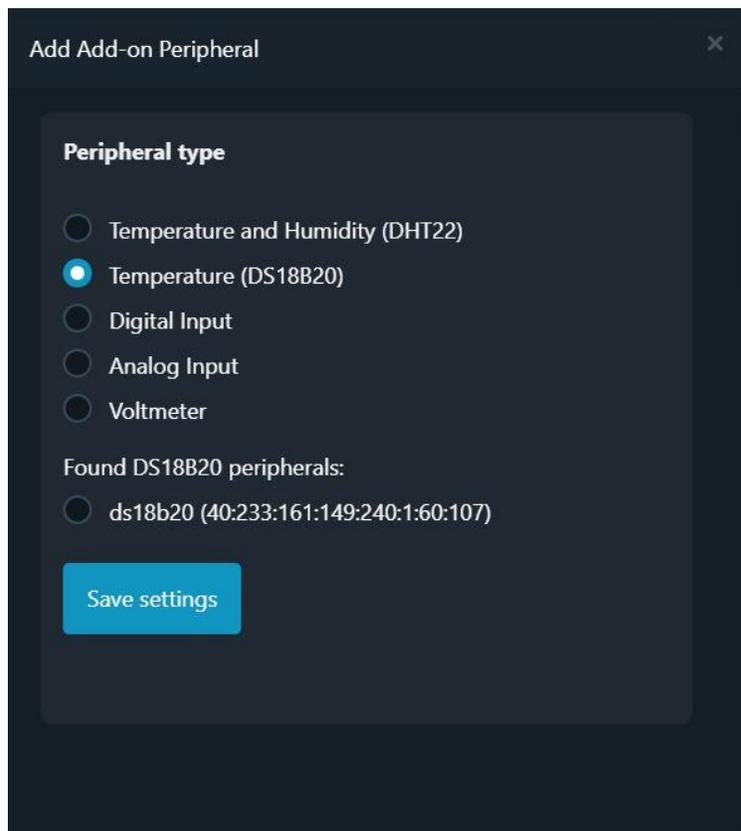

Figure 56 Shelly Add On Sensor Selection

6 Manifest

The following files are used by mcsShelly:

HSPI_MCSSHELLY.exe – HS3/HS4 Plug-in

For HS3

MCSMQTT_2020.dll – HS3 MQTT core plugin libraries

For HS4

MCSMQTTHS4_2020.dll – HS4 MQTT core plugin libraries

HSPI_MCSSHELLY.exe.config – optional to define path for other used executables

mcsShelly.pdf – this document for initial setup and device characteristics

mcsMQTT.pdf – companion document for additional settings and operation

MQTTnet.Net – MQTT protocol

Mono.Data.SQLite.dll - .NET SQLite database connector

Sqlite3.dll – SQLite database

MySql.Data.dll – My SQL database

Eval3.dll – Expression parser

Newtonsoft.Json.dll – JSON parsing

System.Web.DataVisualization.dll - .NET charting library

.NET 4.7.2 – Windows/Mono 5+ framework

For HS3

HomeSeerAPI.dll – HS3 component

HSCF.dll – HS3 component

Scheduler.dll – HS3 component

For HS4

PluginSDK.dll

The mcsShelly.zip file contains the first ten of the above.

The zip file contents are to be placed in a folder relative to the HS3 installation. All files can be placed in the HS3 root folder or in a more organized manner in the \bin and \doc subfolder. Other paths can be used with an edit of the probing path attribute in HSPI_MCSSHELLY.exe.config. The files that are not contained in the zip are expected to already be installed as part of the HS3 install.

Initial install and updates are expected to be facilitated by the HS3 or HS4 Updater. Alternate methods are manual install per the install.txt file contained in the zip or use of the updater-override methods.

For HS3 the process is to place updater_override.txt in the HS3 root folder and the zip in the \updates3 folder. Refresh the list of available plugins from the HS3 plugin menu and select mcsShelly in the local section of the listing.

For HS4 the process is to place updater_override.json and the zip in the HS4 root folder. From the HS4 plugin menu select Add. The only HS4 plugin available will show as mcsShelly where it can be selected for install.

In both HS3 and HS4 cases it may be necessary to restart HS so it recognizes the override file. After the install is complete then remove the override files so normal updater functionality is restored.

mcsShelly creates one file in the \Data\mcsMQTT folder of name mcsMQTT.db. It also retains information in HS3 devices about the devices the Plug-in owns and makes use of the ini settings facility of HS to save and retrieve user setup information.

Note that only \Config\mcsShelly.ini is unique vs. files created and used by mcsMQTT. This is done intentionally so migration between the two plug-ins would be seamless.