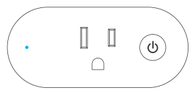
# KAUF



## Energy Monitoring Smart Plug

## User Manual

Kaufman Home Automation, LLC
kaufha.com



## Prerequisites

The software included on the KAUF smart plug requires that the user have an installation of Home Assistant to connect the smart plug to.

If you need to set up Home Assistant, Kaufman Home Automation recommends that you purchase a Raspberry Pi 4 kit and follow the directions at:

https://www.home-assistant.io/installation/

Once you have Home Assistant running, proceed to Getting Started - Step 1 on the next page.

You also have the option to reprogram the KAUF smart plug with another ESP8266 compatible firmware, which may not require Home Assistant.



## Getting Started - Step 1

Begin by plugging the KAUF smart plug into a wall outlet. Multiple new KAUF devices can be plugged in and configured at once, but the process may go more smoothly if only a single new device is plugged in and completely set up before plugging in another.

The red LED on the front face will begin blinking very soon after you plug in the KAUF smart plug, since the device will initially be unable to connect to Wi-Fi.

NOTE: If the blue LED is also on, the LED will appear to alternate between blue and purple rather than between red and off due to the red and blue light combining into purple.

Move to step 2 once you see the red LED blinking.



## Getting Started - Step 2

After being plugged in for 20-30 seconds, the KAUF smart plug will recognize that it cannot connect to Wi-Fi and create its own "fallback" Wi-Fi hotspot for you to connect to.

The KAUF smart plug's fallback Wi-Fi hotspot will be called "Kauf Plug Hotspot".

Using a Wi-Fi enabled device, such as a mobile phone or laptop computer, connect to the fallback Wi-Fi hotspot. Please be patient and refresh the Wi-Fi network list on your device. It can take 1-2 minutes for the hotspot to show up in your system's Wi-Fi menu. FIG. 1 shows the fallback Wi-Fi hotspot found by an Android device. Any device with Wi-Fi and a web browser should work.

Connect to the Kauf Plug Hotspot Wi-Fi network and continue to Step 3.



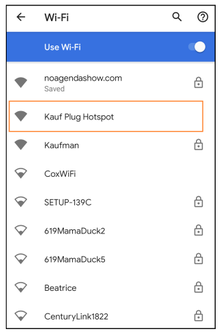



FIG. 1

## Getting Started - Step 3

Once you are connected to the KAUF smart plug's fallback Wi-Fi hotspot, you should be prompted to "sign in" to the hotspot.

Clicking the sign-in prompt will open up the web interface shown in FIG. 2.

If there is no sign-in prompt, or the web interface in FIG. 2 is not automatically opened, you can try going to http://192.168.4.1 in a web browser while connected to the fallback hotspot.

The web interface allows you to select one of the listed Wi-Fi networks automatically detected by the KAUF smart plug, or enter any other SSID/password combination to join any 2.4 GHz Wi-Fi network.

Enter your Wi-Fi credentials into the web interface shown in FIG. 2, click save, and then continue on to Step 4.



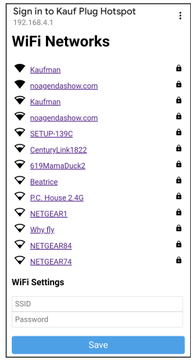



FIG. 2



## Adding to Home Assistant

The KAUF smart plug will connect to the entered Wi-Fi network.

Shortly thereafter, Home Assistant will detect the KAUF smart plug and provide a notification in Home Assistant's interface. FIG. 3a shows a notification in Home Assistant's menu.

Click the "notifications" option in the menu and another menu will appear with the notification as shown in FIG. 3b. Click "Check it out" in the notification.

Home Assistant will take you to the Integrations configuration page, and you will see a card that shows the KAUF smart plug as a Discovered device. FIG. 3c shows the card.

Click "configure" and follow the prompts to finish adding the KAUF smart plug to Home Assistant.



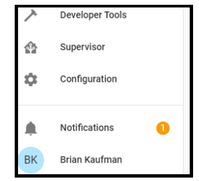



FIG. 3a

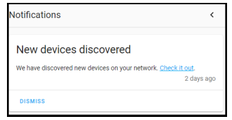



FIG. 3b



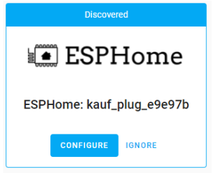



FIG. 3c

## Finding and Renaming in Home Assistant

Search for kauf under the Integrations configuration page. Use the kebab menu (three dots) and select rename to change the name to something more descriptive, e.g., Bedroom Fan or Living Room Lamp.



## Renaming Continued

Search for kauf under the Devices configuration page. Click the plug to open up Home Assistant's device page for the plug, which will show detailed information about the device including all entities. The information is shown in FIG. 4. At the top of FIG. 4 is the device's name in Home Assistant, kauf_plug_e9e97b. Click the pencil by the device name to change it to the same name previously used.

Below that is a list of entities. "Kauf Plug" is the main switch entity that turns the KAUF smart plug on and off. The remaining entities are sensors that give various information about the plug, such as IP address and power usage.

Each of the entities in FIG. 4 can be renamed by clicking on it. Be sure to change both its name and its entity ID to something more descriptive.



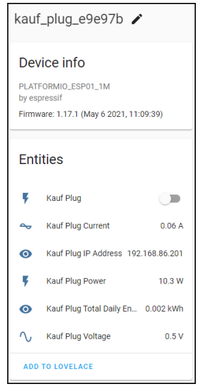



FIG. 4

## Importing into ESPHome Dashboard First

Importing into the ESPHome dashboard before Home Assistant has helpful benefits. First, the ESPHome dashboard will automatically pull in firmware updates we release. Second, the plug name can be changed before adding into Home Assistant, preventing the need to rename each entity individually.

After connecting the plug to WiFi as described in Step 3, the ESPHome dashboard will detect the plug like Home Assistant. FIG. 5a shows the ESPHome dashboard having detected a plug.

Press Adopt to add the plug into your dashboard.

Next, edit the yaml file generated for the plug to add a friendly_name as shown in FIG. 5b. The friendly name will be used for the name of each entity in Home Assistant. That way you shouldn't have to rename each entity individually.



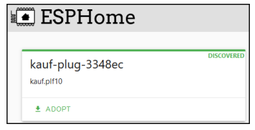



FIG. 5a

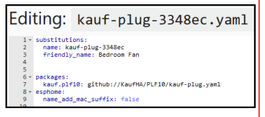



FIG. 5b

Changing the "name" to something descriptive, as well as renaming the yaml file, would also be helpful. To do so, you will need to add the plug's current IP address in the use_address option of the wifi: section.



## Static IP

ESPHome can have issues if your network changes the IP address of the KAUF smart plug. We recommend that you give your KAUF smart plug a static IP address on your local network to prevent potential issues.

If the IP address of your KAUF smart plug does happen to change, the plug will likely show up as unavailable in Home Assistant temporarily. Restarting Home Assistant should cause it to find the plug at its new IP address.

You can set a static IP address in the yaml from FIG. 5b in the wifi: section, see the ESPHome wifi documentation at:

https://esphome.io/components/wifi.html

You can also use the yaml file to calibrate power monitoring. The default calibration can be inaccurate, although it will be sufficient to determine if the plugged in device is running.



## Flashing a Different Firmware

The KAUF smart plug's web interface allows its firmware to be reprogrammed by uploading a bin or bin.gz file.

A replacement firmware can be uploaded at the bottom of the page shown in FIG. 2, or by browsing to the KAUF smart plug's IP address after the plug is added to Home Assistant. The KAUF smart plug will generate an entity that shows the plug's IP address, which is 192.168.86.201 in FIG. 4b.

Any ESP8266 compatible firmware can be used as long as the firmware supports both 1MB flash and OTA updates. We do not recommend flashing WLED to these bulbs, as WLED is not well suited for 1MB flash. The stock firmware includes support for controlling the bulb from another WLED instance via DDP.



## Tasmota Notes

The flash memory on the KAUF smart plug has enough free space to flash the full default Tasmota firmware as long as the gzip file is used. Download the file called "tasmota.bin.gz" and flash it to install Tasmota.

You can also try tasmota-lite.bin or .bin.gz if you are receiving an out of space error.

**IMPORTANT: DO NOT flash the KAUF smart plug with tasmota-minimal.bin or .bin.gz**

The minimal version of Tasmota does not include the captive portal that is required to connect the plug to your Wi-Fi network. If you go straight from the included ESPHome-based firmware to tasmota-minimal, your KAUF smart plug will be bricked, requiring the plug to be taken apart and soldered to reflash.



## ESP8266 Pinout

GPIO 0 - Red LED, active low
GPIO 2 - Blue LED, active low
GPIO 4 - Relay output, active high
GPIO 5 - Power monitoring CF pin
GPIO 12 - Power monitoring SEL pin
GPIO 13 - Button input, requires pullup R
GPIO 14 - Power monitoring CF1 pin

## Additional Help

Visit our webpage for additional details and help:

`https://kaufha.com/PLF10`

Feel free to email us to ask specific questions not covered in this manual or on our website:

`help@kaufha.com`