

# AI-01775 Home Assistant Sonoff Hallway Motion Light

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Design a home automation project using the following information below. I already have a home assistant running from a hyper-v setup and it is up and running including access of home assistant from my iPhone. I need a shopping list and a step by step procedure on how to turn "on" the hallway light1.

Requirements:

1. Turn on locally a hallway light1
2. Turn on light1 using Sonoff motion sensor
3. Turn on light1 using home assistant
4. Use Sonoff brand
5. Use home assistant
6. Turn on light1 anywhere from earth

Here's a home automation project design to control your hallway light1 using Sonoff devices and Home Assistant, including a shopping list and step-by-step instructions.

## Home Automation Project: Smart Hallway Lighting

This project will allow you to control your hallway light1 locally, with a Sonoff motion sensor, and via your Home Assistant setup.

## Shopping List

Here's what you'll need to purchase:

1. Sonoff MINI R2 Wi-Fi Smart Switch (or Sonoff MINI R4M): You'll need one of these. The MINI R2 is a popular choice for its small size and ability to be installed behind a traditional light switch, allowing local control. The MINI R4M is its newer Matter-compatible version, which offers broader compatibility if you ever decide to integrate with other Matter devices, but for this specific setup, the R2 is perfectly fine.
  - Quantity: 1
  - Reason: This will make your existing hallway light "smart" and allow it to be controlled via Wi-Fi. It also supports connection to a traditional switch for local control.
2. Sonoff SNZB-03 Zigbee Motion Sensor:
  - Quantity: 1
  - Reason: This will detect motion in your hallway and trigger the light.
3. Sonoff ZBBridge-P (Zigbee Bridge Pro) or Sonoff ZBDongle-E / ZBDongle-P (Zigbee USB Dongle): Since your Home Assistant is already running, you'll need a way for Home Assistant to communicate with the Zigbee motion sensor.
  - Quantity: 1
  - Reason: The SNZB-03 motion sensor uses Zigbee. A Zigbee bridge or USB dongle will act as the coordinator for your Zigbee network and allow Home Assistant to communicate with the motion sensor. If you plan on adding many more Zigbee devices in the future, a USB dongle connected directly to your Hyper-V host (and passed through to your Home Assistant VM) is often preferred for its flexibility and ability to run Zigbee2MQTT or ZHA. The ZBBridge-P is a good option if you prefer a standalone bridge. Optional (but recommended for ease of setup if you don't already have one):
4. Small flat-head screwdriver and Phillips head screwdriver: For wiring.

5. Wire strippers: If you need to expose more wire.
6. Electrical tape: For securing connections.
7. Voltage tester: For safety when working with electrical wiring.

## **Step-by-Step on How to Turn On "hallway light1"**

This guide assumes your Home Assistant setup is fully operational and accessible from your iPhone.

### **Phase 1: Hardware Installation & Wiring**

Important Safety Warning: Before beginning any electrical work, ALWAYS turn off the power to your hallway light circuit at the circuit breaker. Verify the power is off with a voltage tester. If you are uncomfortable with electrical wiring, please consult a qualified electrician.

#### **1. Install the Sonoff MINI R2/R4M Smart Switch:**

- **Locate your Hallway Light Switch:** Find the wall switch that controls your hallway light1.
- **Remove the Wall Plate:** Carefully remove the screws holding the wall plate and detach it.
- **Examine Existing Wiring:** You will typically find two wires connected to your existing switch (live and load). If you have a neutral wire available in the switch box (usually white or grey, often bundled with other neutral wires), this will make installation easier. The Sonoff MINI R2/R4M requires a neutral wire.
- **Wire the Sonoff MINI R2/R4M:**
  - **Identify Wires:**
    - **Live (L in):** This is the incoming live wire from your circuit breaker.
    - **Load (L out):** This wire goes to your light fixture.

- Neutral (N in/out): This is the neutral wire.
- S1/S2: These terminals are for connecting your traditional wall switch.
- Connect Wires:
  - Connect the Live (L in) from your wall box to the L in terminal on the Sonoff MINI R2/R4M.
  - Connect the Load (L out) wire going to your light fixture to the L out terminal on the Sonoff MINI R2/R4M.
  - Connect the Neutral wire from your wall box to the N in/out terminal on the Sonoff MINI R2/R4M.
  - Connect your Existing Wall Switch: Connect the two wires from your existing wall switch to the S1 and S2 terminals on the Sonoff MINI R2/R4M. It doesn't matter which wire goes to S1 or S2. This allows your physical switch to still control the light.
- Tuck in the Module: Carefully tuck the Sonoff MINI R2/R4M into the switch box, ensuring no wires are pinched.
- Reinstall Wall Plate: Reinstall the wall plate.

## 2. Install the Sonoff Zigbee Bridge or Dongle:

- Sonoff ZBBridge-P: Plug it into a power outlet near your Home Assistant setup. Ensure it has a good Wi-Fi signal.
- Sonoff ZBDongle-E/P: Plug the USB dongle directly into your Hyper-V host machine. You will need to configure Hyper-V to pass this USB device through to your Home Assistant virtual machine. This is typically done in the VM settings under "COM Port" or "USB Passthrough." Consult Hyper-V documentation for precise steps if you're unfamiliar with this.

### Phase 2: Sonoff App and Home Assistant Integration

## 3. Pair Sonoff MINI R2/R4M with Sonoff eWeLink App (Initial Setup):

- Restore Power: Turn the power back on at the circuit breaker.
- Pairing Mode: The Sonoff MINI R2/R4M should automatically enter pairing mode (the LED will flash). If not, press and hold the button on the Sonoff

MINI R2/R4M for 5 seconds until it flashes rapidly.

- Open eWeLink App: On your iPhone, open the Sonoff eWeLink app.
- Add Device: Tap the "+" icon to add a new device. Follow the on-screen instructions to connect the Sonoff MINI R2/R4M to your Wi-Fi network. Name it clearly, e.g., "Hallway Light1."

#### 4. Add Sonoff MINI R2/R4M to Home Assistant:

- Home Assistant can usually discover Sonoff devices on your local network automatically if you have the "eWeLink" integration set up or use a custom component like SonoffLAN.
- Method A (eWeLink Integration - if applicable):
  - In Home Assistant, go to Settings > Devices & Services > Integrations.
  - If the eWeLink integration is already configured, your "Hallway Light1" should appear as a discovered device. Follow the prompts to add it.
  - If not, search for "eWeLink" and set it up using your eWeLink account credentials.
- Method B (SonoffLAN - Recommended for local control and faster response):
  - If you haven't already, install HACS (Home Assistant Community Store) in your Home Assistant. Search for instructions on installing HACS.
  - Once HACS is installed, go to HACS > Integrations > Explore & Download Repositories.
  - Search for "SonoffLAN" and install it.
  - Restart Home Assistant.
  - Go to Settings > Devices & Services > Integrations > Add Integration. Search for "Sonoff" and select "Sonoff (LAN Mode)."
  - Follow the prompts. You'll need your eWeLink account username and password. This integration allows local control of your Sonoff devices, meaning they don't rely on the Sonoff cloud for commands.

- Verify: Once added, you should see an entity like switch.hallway\_light1 (or similar, depending on how you named it) in your Home Assistant. You can now toggle this entity from Home Assistant.

#### 5. Add Sonoff SNZB-03 Motion Sensor to Home Assistant:

- This step depends on whether you chose the Sonoff ZBBridge-P or a Zigbee USB Dongle.
- Option A: Using Sonoff ZBBridge-P (with Zigbee Home Automation - ZHA or Zigbee2MQTT)
  - If using ZHA (recommended for simplicity with ZBBridge-P):
    - In Home Assistant, go to Settings > Devices & Services > Integrations > Add Integration.
    - Search for "Zigbee Home Automation" (ZHA).
    - Follow the setup wizard. It should detect your Sonoff ZBBridge-P. You might need to put the bridge into pairing mode (refer to its manual).
    - Once the ZBBridge-P is integrated, put your Sonoff SNZB-03 Motion Sensor into pairing mode (usually by pressing and holding its reset button for a few seconds until the LED flashes).
    - In ZHA, click "Add Device" and it should discover the motion sensor. Name it, e.g., "Hallway Motion Sensor."
  - If using Zigbee2MQTT (more advanced, greater control):
    - You'll need to flash custom firmware onto the ZBBridge-P to use it with Zigbee2MQTT. This is a more involved process. If you're new, ZHA is simpler. If you choose Zigbee2MQTT, there are many online guides for flashing the ZBBridge-P and integrating Zigbee2MQTT with Home Assistant.
- Option B: Using Sonoff ZBDongle-E/P (with ZHA or Zigbee2MQTT - preferred for USB dongles)
  - For ZHA:

- Ensure the USB dongle is passed through to your Home Assistant VM (see Phase 1, Step 2).
  - In Home Assistant, go to Settings > Devices & Services > Integrations > Add Integration.
  - Search for "Zigbee Home Automation" (ZHA).
  - During setup, select the correct USB path for your dongle (e.g., /dev/ttyUSB0 or similar). Home Assistant might auto-detect it.
  - Once integrated, put your Sonoff SNZB-03 Motion Sensor into pairing mode.
  - In ZHA, click "Add Device" and it should discover the motion sensor. Name it, e.g., "Hallway Motion Sensor."
  - For Zigbee2MQTT:
    - Install Zigbee2MQTT as an add-on in Home Assistant (if you're running Home Assistant OS or Supervised). If you're running Core, you'll need to install it separately.
    - Configure Zigbee2MQTT to use your USB dongle (you'll specify the USB path in its configuration).
    - Put your Sonoff SNZB-03 Motion Sensor into pairing mode.
    - In the Zigbee2MQTT interface, click "Permit Join (All)" and the motion sensor should be discovered. Name it, e.g., "Hallway Motion Sensor."
  - Verify: Once added, you should see an entity like `binary_sensor.hallway_motion_sensor_occupancy` in your Home Assistant. This entity will change state from off (no motion) to on (motion detected).
- Phase 3: Setting Up Automations in Home Assistant
- Now that all devices are integrated, let's create the automations.

## 6. Turn on hallway light1 using Home Assistant (Manual Control):

- This is already done. Once the `switch.hallway_light1` entity is in Home Assistant, you can go to Overview (your dashboard), find the "Hallway Light1" card, and simply tap it to toggle the light on/off.

- You can also create a button on a dashboard or use the "Developer Tools" → "States" tab to change the state of switch.hallway\_light1 to on.

#### 7. Turn on hallway light1 using Sonoff motion sensor:

- In Home Assistant, go to Settings > Automations & Scenes > Automations.
- Click "Create Automation" and choose "Start with an empty automation."
- Automation Name: "Hallway Light On with Motion"
- Trigger:
  - Type: State
  - Entity: binary\_sensor.hallway\_motion\_sensor\_occupancy (or whatever your motion sensor entity is named)
  - From: off
  - To: on
  - For: (Optional, but recommended) 00:00:01 (This means the sensor must be "on" for at least 1 second to trigger, helping to filter out false positives).
- Action:
  - Type: Call service
  - Service: switch.turn\_on
  - Target:
    - Entity: switch.hallway\_light1 (or whatever your light switch entity is named)
- Save the Automation.
- Optional: Turn Off Light After No Motion:
  - Create a new automation for turning off the light.
  - Automation Name: "Hallway Light Off After No Motion"
  - Trigger:
    - Type: State



- Entity: binary\_sensor.hallway\_motion\_sensor\_occupancy
- From: on
- To: off
- For: 00:01:00 (This means the sensor must be "off" for 1 minute before the light turns off. Adjust this duration to your preference).
- Action:
  - Type: Call service
  - Service: switch.turn\_off
  - Target:
    - Entity: switch.hallway\_light1
- Save the Automation.

Testing:

8. Local Control: Go to your hallway light switch and toggle it. The light should turn on/off.
9. Home Assistant Control: Open your Home Assistant app on your iPhone, go to your dashboard, and tap the "Hallway Light1" card. The light should toggle.
10. Motion Sensor Control: Walk into your hallway. The light should turn on. Wait for the set For time (e.g., 1 minute) after you leave the hallway; the light should then turn off.

This comprehensive guide should get your hallway light up and running with Sonoff and Home Assistant!

ChatGPT version

Here's a complete home automation project plan to control your Hallway Light1 using Sonoff devices and Home Assistant, including local, motion-triggered, app-based, and remote control functionality.

## **Project Goals Summary**

Goal #	Description
1	Turn on Hallway Light1 locally
2	Turn on Light1 using Sonoff Motion Sensor
3	Turn on Light1 via Home Assistant App (iPhone)
4	Use Sonoff brand devices
5	Use Home Assistant
6	Control Light1 remotely (from anywhere in the world)

## Shopping List (All Sonoff)

Item	Model	Qty	Purpose
Smart Switch Module	Sonoff Mini R3	1	Turns Hallway Light1 ON/OFF
Motion Sensor	Sonoff SNZB-03 (Zigbee)	1	Detects hallway motion
Zigbee Hub	Sonoff Zigbee 3.0 USB Dongle Plus	1	Zigbee gateway for Home Assistant
Wall Switch (optional)	Momentary wall switch	1	Optional physical control
Tools	Wire connectors, screwdrivers, voltage tester	–	For installation

## Network/Protocol Compatibility

- Sonoff Mini R3: Wi-Fi
- Sonoff SNZB-03: Zigbee
- Home Assistant Integration: Via Zigbee2MQTT or ZHA for Zigbee, and native integration or eWeLink via Local Tuya for Wi-Fi Sonoff devices

## Step-by-Step Installation & Setup

 1.

## Prepare Environment

- Make sure your Home Assistant on Hyper-V is running with internet access.
- Access it via IP or DuckDNS (for remote control later).
- Install Zigbee2MQTT or ZHA in Home Assistant for Zigbee support.

### ✓ 2.

## Hardware Installation: Sonoff Mini R3 (Light1 Control)

Electrical Steps:

⚠ Turn off circuit breaker first!

- Install Sonoff Mini R3 inline with your hallway light1 switch circuit.
- Connect:
  - L-in: Line input from power source
  - L-out: Line to light
  - N: Neutral wire
- 
- (Optional) Connect a momentary push button if you want physical local control.

### ✓ 3.

## Add Sonoff Mini R3 to Home Assistant

- Power on Mini R3.
- Use the eWeLink app to connect to Wi-Fi.
- In Home Assistant:
  - Add Integration → Local Tuya (preferred for local control) or SonoffLAN
  - Discover and add Sonoff Mini R3
- 

### ✓ 4.

## Set Up Sonoff SNZB-03 Motion Sensor

- Plug in Sonoff Zigbee USB Dongle Plus to your Home Assistant server.
- Install and configure:
  - ZHA (easier) or Zigbee2MQTT (more flexible)
- 
- Add SNZB-03 sensor via pairing mode (press sensor button 5 seconds).
- Place it in the hallway area.

## ✅ 5.

### Create Automations in Home Assistant

#### 🧩 Automation 1: Turn on Light1 When Motion Detected

alias: Hallway Motion Turns On Light1

trigger:

- platform: state

entity\_id: binary\_sensor.sonoff\_motion\_sensor

to: 'on'

action:

- service: switch.turn\_on

entity\_id: switch.sonoff\_light1

mode: single

#### 🧩 Automation 2: Turn Off Light After 1 Minute of No Motion

alias: Turn Off Light1 After No Motion

trigger:

- platform: state

entity\_id: binary\_sensor.sonoff\_motion\_sensor

to: 'off'

for: '00:01:00'

action:

- service: switch.turn\_off  
entity\_id: switch.sonoff\_light1  
mode: single

✓ 6.

### **Control from iPhone or Anywhere**

a.

#### **Using Home Assistant App**

- Open Home Assistant app → Tap Light1 switch

b.

#### **Remote Access (Optional)**

- Set up DuckDNS + Let's Encrypt or Nabu Casa:
  - DuckDNS: Free, DIY
  - Nabu Casa: \$5/month, supports remote access, Google/Alexa, voice
- 



## **Tips and Notes**

- You don't need the eWeLink cloud after initial Sonoff setup if using Local Tuya or SonoffLAN.
- Prefer local control for speed, privacy, and no-cloud dependency.
- Consider adding automation conditions to prevent triggering during daytime or if lights are already on.

Would you like me to generate:

- YAML export of all automations?
- Visual automation via Home Assistant UI?
- Voice assistant control (Siri, Alexa, Google)?

Let me know and I can tailor the next steps.

## **I have new condo 3 bedroom, 220v power and would like to upgrade to home automation system. Guide me on how to do it**

Upgrading your 3-bedroom condo with 220V power to a full home automation system can make your living space more convenient, secure, and energy-efficient. Here's a step-by-step guide to help you get started:



### **Step 1: Define Your Home Automation Goals**

Ask yourself:

- What do you want to automate? (Lights, A/C, curtains, appliances, security, etc.)
- Do you want voice control? (e.g., Siri, Alexa, Google Assistant)
- Do you want remote access via smartphone?
- Do you prefer wired or wireless (e.g., WiFi, Zigbee, Z-Wave)?



### **Step 2: Choose a Smart Home Ecosystem**

Since you're already using Home Assistant on Hyper-V, you're in a great place to:

- Control everything locally (no cloud dependency)
- Use Zigbee, Z-Wave, Wi-Fi, or Matter-compatible devices
- Support Sonoff, Tuya, Shelly, Philips Hue, Aqara, and many others



### **Step 3: Shopping List (Beginner to Intermediate Setup)**

Here's a suggested modular shopping list grouped by area:



#### **General Core**

- Zigbee or Z-Wave USB dongle (e.g., Sonoff Zigbee 3.0 Dongle-P for Home Assistant)
- WiFi Router (Mesh if signal is weak)
- Uninterruptible Power Supply (UPS) for your Home Assistant hub

## **Lighting**

- Smart switches (e.g., Sonoff Mini R3 for 220V control, or Aqara Smart Wall Switch)
- Motion sensors (e.g., Sonoff SNZB-03 Zigbee motion sensor)
- Dimmable smart bulbs (Philips Hue, Tuya Wi-Fi, or Zigbee-based)
- Door sensors for auto-light logic (e.g., SNZB-04)

## **Climate Control**

- Smart IR Blaster (e.g., Broadlink RM4 Pro) for split-type A/C
- Smart thermostats (for water heater, if needed)

## **Security**

- WiFi or PoE Cameras (e.g., Reolink, Eufy, TP-Link Tapo)
- Smart door lock (e.g., Yale, Aqara N100)

## **Curtains and Blinds**

- Smart curtain motor (e.g., SwitchBot Curtain 3, Aqara Curtain Driver E1)

## **Outlets & Appliances**

- Smart plugs (Sonoff S26, TP-Link Tapo P110)
- Energy monitoring plugs (Tuya or Shelly EM)



## **Step 4: Network and Power Setup**

- Make sure your WiFi covers all rooms (use mesh if needed).
- Ensure safety with circuit breakers for all smart devices.
- Use DIN-rail mounted relays for central control if you're rewiring from the circuit panel (for a cleaner install).



## **Step 5: Install Devices & Integrate to Home Assistant**

1. Add Zigbee dongle to Home Assistant

2. Pair Zigbee sensors/switches via Zigbee2MQTT or ZHA
3. Install HACS (Home Assistant Community Store) for extended integrations
4. Create automations:
  - "If motion in hallway after 7 PM, turn on hallway light for 3 minutes"
  - "When bedroom door closes, turn on A/C"
  - "Auto shutoff outlets after 1 hour use"

5.



### **Step 6: Enable Voice + Remote Access**

- Use Nabu Casa (optional, paid) or DuckDNS with Let's Encrypt (free)
- Integrate with Apple HomeKit, Google Home, or Amazon Alexa
- Set up iOS shortcuts or Widgets for one-tap control



### **Sample Room Setup: Master Bedroom**

- Smart light switch or dimmer
- Motion sensor by door
- Smart curtain motor
- Smart plug for bedside lamp
- IR blaster for A/C
- Automation: "At 6 AM, open curtains, turn on lamp to 20% brightness"



### **Step 7: Secure Your Smart Home**

- Use strong Wi-Fi password and VPN if remote access is enabled
- Regularly update firmware of all smart devices
- Keep Home Assistant and integrations updated



Would you like a condo-specific device layout plan and automation scenario suggestions by room (e.g., hallway, kitchen, etc.)?

### **Deep dive on Sonoff Mini R4M, SNB-03 and Zigbee Bridge.**

Let's do a deep dive into three specific Sonoff products: the **MINIR4M**, the **SNZB-03** motion sensor, and the **Zigbee Bridge (and its Pro/Ultra versions)**. These products represent different facets of Sonoff's smart home ecosystem, from basic control to sensor-based automation and the essential hub for Zigbee devices.

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## **1. Sonoff MINIR4M (MINI Extreme WiFi Smart Switch with Matter)<sup>1</sup>**

The Sonoff MINIR4M is the latest iteration in Sonoff's popular "Mini" series of DIY smart switches.<sup>2</sup> It builds upon the success of its predecessors (MINI, MINIR2, MINIR3) by introducing crucial new features, most notably **Matter compatibility**.

### **Key Features and Deep Dive:**

- **Ultra-Compact Size:** The "Extreme Mini" designation is accurate. The MINIR4M is incredibly small, reportedly 40% smaller than the MINIR2.<sup>3</sup> This tiny footprint is a major advantage, allowing it to fit into virtually any mounting box, including the smallest European standard junction boxes, behind existing wall switches, or directly into appliance wiring.<sup>4</sup> This makes it highly versatile for smartening traditional lighting and appliances without needing to replace the original switches.
- **Matter Compatibility:** This is the headline feature. The MINIR4M is one of Sonoff's first Matter-certified devices.<sup>5</sup>
  - **Universal Interoperability:** Matter is a new industry standard designed to make smart home devices from different brands work seamlessly together.<sup>6</sup> With Matter, the MINIR4M can be integrated into any Matter-enabled platform, such as **Apple Home, Google Home, Amazon Alexa, or Samsung SmartThings**, controlling it directly through your preferred smart home app, regardless of the device's brand.<sup>7</sup> This significantly reduces ecosystem lock-in.
  - **Local Control:** A huge benefit of Matter is its emphasis on local communication.<sup>8</sup> Even if your internet connection goes down, Matter-

certified devices (like the MINIR4M) can still communicate and function normally within your local network, ensuring faster response times and greater reliability for automations.<sup>9</sup>

- **"Detach Relay" Mode:** This intelligent feature separates the state of the external wall switch from the relay's state.<sup>10</sup> This means that if you physically flip the traditional wall switch connected to the MINIR4M, it won't cut power to the smart light/appliance, ensuring the smart device remains online and controllable via the app or voice commands. This is crucial for maintaining smart functionality even when interacting with the physical switch.
- **External Switch Compatibility:** The MINIR4M is highly flexible in terms of the types of external switches it can connect to. It supports:
  - Momentary switches (push buttons)
  - Door exit switches
  - SPDT (Single Pole, Double Throw) switches (often used in 3-way/2-way lighting)
  - Latching switches (standard toggle switches)
  - Even dry contact sensors. This broad compatibility makes it suitable for a wide range of wiring setups.
- **ESP32 Chip:** Equipped with an ESP32 chip, the MINIR4M offers robust Wi-Fi connectivity and performance, common for reliable smart home devices.<sup>11</sup>
- **Safety Features:** Sonoff emphasizes safety, and the MINIR4M has passed rigorous certifications (CE, FCC, TÜV). It also includes a "Delay Power-on State" feature. After a power outage, you can set a delay for appliances to turn back on, preventing a sudden surge of current if all devices power on simultaneously.
- **eWeLink App Integration:** While Matter allows for multi-platform control, the MINIR4M remains fully compatible with the native eWeLink app, offering full access to its features, scheduling, smart scenes, and rich logs.
- **Voice Control:** Seamlessly integrates with Amazon Alexa, Google Assistant, and Siri (via Apple HomeKit when paired through Matter).<sup>12</sup>

## Use Cases:

- Turning any standard light switch into a smart switch.
  - Automating ceiling fans, lamps, and other plug-in appliances (by wiring into their power supply).<sup>13</sup>
  - Creating two-way or multi-way control for lights with existing traditional switches.
  - Integrating with sensors (like the SNZB-03) for scene automation (e.g., light turns on when motion is detected).<sup>14</sup>
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## 2. Sonoff SNZB-03 (Zigbee Motion Sensor)

The Sonoff SNZB-03 is a small, battery-powered Passive Infrared (PIR) motion sensor designed to detect human movement and trigger smart home automations.<sup>15</sup> It's part of Sonoff's Zigbee line, offering benefits like low power consumption and a robust mesh network.

### Key Features and Deep Dive:

- **Zigbee 3.0 Protocol:** Operates on the Zigbee 3.0 standard.
  - **Low Power Consumption:** Zigbee devices are highly energy-efficient, meaning the SNZB-03 can run on a single CR2450 coin-cell battery for an extended period (typically 6-12 months, though heavy usage or a weak Zigbee mesh can reduce this).
  - **Mesh Networking:** Zigbee creates a mesh network, where mains-powered Zigbee devices (like smart plugs or the Zigbee Bridge itself) act as repeaters, extending the signal range and improving reliability for battery-powered end devices like the SNZB-03.<sup>16</sup>
  - **Hub Requirement:** The SNZB-03 **requires a Zigbee hub** (like the Sonoff Zigbee Bridge Pro or another compatible Zigbee coordinator like SmartThings, Home Assistant with a Zigbee dongle, or Amazon Echo devices with built-in Zigbee) to connect to your smart home system and the internet. It cannot connect directly to Wi-Fi.
- **Motion Detection:**
  - **Detection Angle & Distance:** Offers a detection angle of up to 110° and a detection distance of up to 6 meters. This is suitable for most indoor

rooms and hallways.

- **Fast Response Time:** Generally provides quick detection and notification, crucial for security or lighting automation.<sup>17</sup>
- **Cooldown Period:** Like most PIR sensors, it has a cooldown period (often around 1 minute) after detecting motion before it can trigger again to prevent rapid false triggers.
- **Compact and Discreet Design:** Its small size makes it easy to place discreetly in corners, on shelves, or above door frames. It typically comes with a 3M adhesive pad for tool-free installation.
- **No Lux Sensor:** A notable drawback of the SNZB-03 is that it **does not include a lux (ambient light) sensor**. This means you cannot use it to trigger automations based on light levels (e.g., "turn on lights only if it's dark and motion is detected"). For this functionality, you'd need a more advanced motion sensor (like Sonoff's newer SNZB-06P, which includes presence and lux sensing) or a separate light sensor.
- **Indoor Use Only:** It lacks an IP rating, meaning it's not weatherproof and is designed solely for indoor environments.
- **eWeLink and Third-Party Compatibility:**
  - **eWeLink App:** When paired with a Sonoff Zigbee Bridge, it integrates seamlessly into the eWeLink app for notifications, scene creation, and status monitoring.
  - **Third-Party Hubs:** It's highly popular with DIY smart home enthusiasts because it's broadly compatible with other Zigbee hubs like Home Assistant (via ZHA or Zigbee2MQTT), SmartThings, and Amazon Echo devices with Zigbee. This means you are not locked into the Sonoff ecosystem for its use.
- **Low-Battery Notification:** Sends a notification to your app when the battery life is down to 10%, allowing you to replace it in time.

### Use Cases:

- **Automated Lighting:** Turn on hallway or bathroom lights when motion is detected, and off after a period of inactivity.

- **Security Alerts:** Trigger an alarm or send a notification if motion is detected in an unexpected area when the house is armed.<sup>18</sup>
- **Presence Detection:** For simple occupancy sensing (though the lack of a lux sensor limits its use for "smart" lighting decisions).
- **Smart Scenes:** Link with other smart devices (e.g., a Sonoff MINIR4M) to create complex automations.

### 3. Sonoff Zigbee Bridge (and Pro/Ultra versions)

The Sonoff Zigbee Bridge is the essential gateway that connects Sonoff's Zigbee sub-devices (like the SNZB-03, SNZB-04 door/window sensors, ZBMINI switches, etc.) to your Wi-Fi network and the eWeLink ecosystem.<sup>19</sup> This allows you to control and automate Zigbee devices via the eWeLink app, voice assistants, and smart scenes. Sonoff has released several iterations, each with enhanced capabilities.

#### Key Features and Deep Dive (comparing original, Pro, and Ultra):

Feature/Model	Original ZBBridge (ZBBridge)	ZBBridge-P (Zigbee Bridge Pro)	ZBBridge-U (Zigbee Bridge Ultra / iHost)
<b>Connectivity</b>	Wi-Fi (2.4GHz) & Zigbee 3.0	Wi-Fi (2.4GHz) & Zigbee 3.0	Wi-Fi (2.4GHz) & Zigbee 3.0 & Ethernet & Bluetooth & Matter
<b>Max Sub-Devices</b>	Up to 32 (often closer to 20-25 end devices)	Up to 128 (plug-in devices act as routers)	Up to 256 (higher capacity and more robust mesh)
<b>Local Smart Scenes</b>	Limited / Cloud-dependent for complex scenes	<b>Yes</b> , supports local smart scenes between Zigbee devices (even without internet) thanks to a built-in RTC.	<b>Yes</b> , robust local smart scene execution with faster processor.
<b>Smart Home Security</b>	Basic integration for alerts	<b>Yes</b> , allows customization of 3 security modes (Home, Away, Sleep) and acts as a local alarm.	<b>Yes</b> , comprehensive security features and local alarm.

<b>Matter Bridge</b>	No	No (but newer Sonoff Matter devices can bypass it or use iHost as a Matter controller)	<b>Yes</b> , acts as a Matter Bridge, integrating Zigbee devices into Matter ecosystems (Apple Home, Google Home, Alexa).
<b>Local Control</b>	Primarily cloud-dependent for most functions	Enhanced local control for Zigbee devices and local scenes.	<b>Strong Emphasis on Local Control &amp; Data Privacy.</b> Runs on a powerful processor. Offers local APIs, Node-RED support.
<b>Processor</b>	Basic Zigbee chip (e.g., CC2530)	More capable Zigbee 3.0 chip (e.g., CC2652P)	1.5 GHz Dual-core processor (significantly more powerful)
<b>Power Supply</b>	Micro USB	Micro USB	USB-C (5V/2A) or PoE (Power over Ethernet)
<b>Physical Design</b>	Smaller, basic plastic casing	Compact, refined plastic casing	Larger, more robust casing, often with Ethernet port and microSD slot.
<b>Primary Use</b>	Basic Zigbee network for eWeLink app.	Expanded Zigbee network, local scenes, security.	Advanced local smart home hub, Matter bridge, powerful local processing, extensive device support.

### Deep Dive on Zigbee Bridge Pro (ZBBridge-P):

- **Expanded Device Capacity:** A significant upgrade over the original, supporting up to 128 Zigbee sub-devices. This is crucial for larger smart homes.
- **Local Smart Scenes:** This is a killer feature. Automations set between Zigbee devices connected to the Bridge Pro can run locally, even if your internet connection goes down. This means your motion sensor can still turn on your light, or your door sensor can still trigger an alarm, ensuring reliability.

- **Smart Home Security System:** Allows users to define custom security modes (Home, Away, Sleep) and link Zigbee sensors to these modes for alarms and notifications. The bridge itself can act as a local alarm buzzer.
- **Zigbee 3.0:** Supports the latest Zigbee standard for better compatibility and efficiency.
- **Wi-Fi & Zigbee Dual-Protocol Support:** Acts as a bridge, allowing Zigbee devices to communicate with Wi-Fi devices (e.g., SNZB-03 motion sensor triggers a Wi-Fi-enabled MINIR4M switch).
- **eWeLink App Integration:** Full control, management, and automation capabilities within the eWeLink app.<sup>20</sup>
- **Voice Assistant Support:** Works with Amazon Alexa and Google Assistant for voice control of connected Zigbee devices.<sup>21</sup>

#### Deep Dive on iHost (ZBBridge-U / Zigbee Bridge Ultra):

- **The Next Level:** The iHost is more than just a bridge; it's a full-fledged local smart home server designed for advanced users and those prioritizing local control and data privacy.<sup>22</sup>
- **Matter Bridge:** Crucially, the iHost can act as a Matter Bridge, bringing your connected Zigbee devices into the Matter ecosystem.<sup>23</sup> This is significant because it means Zigbee devices (even if not natively Matter-certified) can become accessible to Matter controllers like Apple Home, Google Home, and Alexa, centralizing control.
- **Powerful Processor:** Its 1.5 GHz dual-core processor allows for robust local processing of automations and data.
- **Local Data Storage:** Supports a microSD card for local data storage, enhancing privacy and reducing reliance on cloud services.<sup>24</sup>
- **PoE Support:** Power over Ethernet (PoE) provides flexible placement options by combining power and network connectivity in a single cable.
- **Openness (for developers/advanced users):** Offers local APIs and integrates with tools like Node-RED, allowing advanced users to create highly customized automations and integrations.

- **Wi-Fi and Ethernet Connectivity:** Provides flexible network connection options for stability.

### Overall Role of the Zigbee Bridge:

The Sonoff Zigbee Bridges are fundamental for anyone building a Sonoff-centric smart home using their Zigbee line of sensors and switches. They translate Zigbee signals into Wi-Fi (and increasingly, Matter) signals, allowing these low-power, robust devices to integrate with your broader smart home system and be controlled via your smartphone or voice commands. The progression from the original Bridge to the Pro and then the iHost shows Sonoff's commitment to expanding Zigbee network capabilities, enhancing local control, and embracing new interoperability standards like Matter.

### List Sonoff product with POW (tabulate)

Sonoff's "POW" series is specifically designed for **energy monitoring**, allowing users to track the power consumption (wattage, current, voltage, and cumulative kWh) of connected appliances. This makes them invaluable for understanding electricity usage, identifying energy vampires, and promoting energy savings.

Here's a tabulated list of key Sonoff products within the POW series, including their models and descriptions:

Product Category	Model(s)	Description	Key Features / Specifications
<b>Smart Power Meter Switches</b>	<b>POW Origin (POWR316/POWR320)</b>	An upgraded version of the popular POWR2, featuring a more powerful ESP32 chip (200% faster than ESP8266) for enhanced performance and reliability. It tracks real-time power, current, voltage, and cumulative power consumption. Designed for individual appliance monitoring or as a sub-meter for a single circuit/room.	<p><b>Power Metering:</b> Real-time &amp; cumulative (kWh) power, current, voltage.</p> <p><b>Load Capacity:</b> Max 16A (POWR316) or 20A (POWR320).</p> <p><b>Chip:</b> Upgraded ESP32.</p> <p><b>Data History:</b> 6-</p>



		<p>Comes in 16A and 20A max load versions.</p>	<p>month consumption history (by hour), exportable to Excel.</p> <p><b>Overload Protection:</b> Customizable power, current, voltage thresholds for auto-off.</p> <p><b>Notifications:</b> Push notifications for reaching daily/monthly consumption goals.</p> <p><b>Connectivity:</b> Wi-Fi (2.4GHz).</p> <p><b>Control:</b> eWeLink App, Alexa Energy Dashboard, Google Assistant, IFTTT (eWeLink Advanced).</p> <p><b>Safety:</b> High flame-retardant grade V-0 enclosure, upgraded terminal wiring.</p> <p><b>Installation:</b> DIN rail mountable.</p>
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	<p><b>POW Elite (POWR316D/POWR320D)</b></p>	<p>Sonoff's premium power meter switch, similar to POW Origin but often featuring an <b>LCD screen</b> directly on the device for instant viewing of power data (power, current, voltage, cumulative consumption). Also comes in 16A and 20A versions. It is ideal for heavy-duty appliances and industrial use.</p>	<p><b>LCD Screen:</b> Real-time display of power, current, voltage, cumulative kWh.</p> <p><b>Power Metering:</b> Real-time &amp; cumulative (kWh).</p> <p><b>Load Capacity:</b> Max 16A (POWR316D) or 20A (POWR320D).</p> <p><b>Chip:</b> Upgraded ESP32.</p> <p><b>Data History:</b> 6-month consumption history (by hour), exportable to Excel.</p> <p><b>Overload Protection:</b> Customizable thresholds for auto-off.</p> <p><b>Notifications:</b> Push notifications for consumption goals.</p> <p><b>Connectivity:</b> Wi-Fi (2.4GHz).</p>
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			<p><b>Control:</b> eWeLink App, Alexa Energy Dashboard, Google Assistant, IFTTT (eWeLink Advanced).</p> <p><b>Safety:</b> V-0 flame-retardant, upgraded terminals.</p> <p><b>Installation:</b> DIN rail mountable.</p>
	<b>POWR3 (POWR325)</b>	<p>This model stands out for its exceptionally <b>high load capacity</b>, designed to handle very high-power devices or act as a smart meter for an entire room/circuit with significant power draw. It does not typically have an LCD screen but offers comprehensive power monitoring through the app.</p>	<p><b>Highest Output Power:</b> Max 25A / 5500W.</p> <p><b>Power Metering:</b> Active power, current, voltage, cumulative kWh tracking on App.</p> <p><b>Overload Protection:</b> Configurable thresholds to cut off power.</p> <p><b>Data History:</b> 100-day historical data (daily/monthly).</p> <p><b>Connectivity:</b> Wi-Fi (2.4GHz).</p> <p><b>Control:</b> eWeLink</p>

			<p>App, Alexa, Google Assistant, SmartThings, IFTTT (eWeLink Advanced).</p> <p><b>Safety:</b> Overload protection.</p> <p><b>Installation:</b> DIN rail compatible.</p>
	<b>POW R2 (Older Version)</b>	<p>The predecessor to POW Origin and Elite. It provides basic power monitoring (wattage, current, voltage) and remote control. While still functional, it has been largely superseded by the newer models with upgraded chips and features.</p>	<p><b>Power Metering:</b> Real-time power, current, voltage.</p> <p><b>Load Capacity:</b> Max 15A / 3500W.</p> <p><b>Data History:</b> 100-day historical data.</p> <p><b>Overload Protection:</b> Yes.</p> <p><b>Connectivity:</b> Wi-Fi (2.4GHz).</p> <p><b>Control:</b> eWeLink App, Alexa, Google Assistant, IFTTT.</p>
<b>Current Transformer</b>	<b>POWCT (POW Ring Smart Power Meter)</b>	<p>A unique product that utilizes a <b>split core current transformer (CT clamp)</b> to monitor the power consumption of an entire circuit or household, without direct contact with live</p>	<p><b>CT Clamp Technology:</b> Safe, non-invasive current detection up to 100A.</p> <p><b>Energy</b></p>

		<p>wires. It's designed for installation in electrical circuit panels. Includes a dry contact relay for load control with a contactor.</p>	<p><b>Monitoring:</b> Monitors power consumption of main household circuits or individual rooms from the electrical panel.</p> <p><b>Data History:</b> 6-month historical data.</p> <p><b>Contactor Control:</b> Dry contact relay (2A output) for switching control via an external contactor.</p> <p><b>Safety:</b> Multiple rigorous tests, no direct contact with live wires.</p> <p><b>Connectivity:</b> Wi-Fi (2.4GHz).</p> <p><b>Control:</b> eWeLink App, notifications for thresholds.</p>
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The "POW" in Sonoff's product names consistently indicates **power monitoring capabilities**, making these devices ideal for users focused on energy management and smart electricity usage.

Here's a list of **Sonoff products with "POW"** in their name—these are smart switches with **power monitoring** capabilities, ideal for tracking energy usage and automating appliances:

Model	Description	Max Load	Key Features
<b>POWR2</b>	Early-gen Wi-Fi smart switch with basic power metering	15A	Real-time power tracking, overload protection
<b>POWR3</b>	Upgraded version with higher load capacity and improved accuracy	25A	Power/current/voltage monitoring, overload protection, app control
<b>POW Elite (POWR316D / POWR320D)</b>	ESP32-based smart power meter switch with LCD display and advanced analytics	16A / 20A	6-month data history, export to Excel, overload alerts, Home Assistant support
<b>POWCT</b>	Wi-Fi smart power meter with <b>non-contact current transformer (CT clamp)</b>	100A	Ideal for solar panels or whole-room monitoring, supports contactor control

These devices are perfect for energy-conscious users who want to monitor and automate high-power appliances like water heaters, air conditioners, or even entire circuits.

Want help choosing the right one for your setup or integrating it with Home Assistant or Alexa? I've got you covered.