



ZBDongle-E

Trouble Shooting Guide

Zigbee 3.0 USB Dongle Plus



This document is designed to help you resolve common issues encountered when using the SONOFF ZBDongle-E coordinator. It is based on recent user discussions and official documentation, focusing on problem-solving and troubleshooting.

1. Key Prerequisite: Confirm Your Device Model

Before starting any troubleshooting, you must confirm you have the **ZBDongle-E**.

The ZBDongle-E and ZBDongle-P are based on completely different chips and protocols. Mixing them up will cause all troubleshooting steps to fail.

- **ZBDongle-E (This guide):**

- **Chip:** EFR32MG21
- **Protocol:** EmberZNet (EZSP)
- **Serial Chip:** CH9102F (Old batch) or CP2102(N) (New batch)

- **ZBDongle-P (Not this guide):**

- **Chip:** CC2652P
- **Protocol:** Z-Stack (ZNP)

How to Check: Look at the silk-screen printing on the bottom of the device's metal shell. It should be clearly marked "ZBDongle-E".

2. Problem: Device Not Detected by Host System

After plugging the ZBDongle-E into your computer, platforms like Home Assistant (HA) or Zigbee2MQTT (Z2M) cannot find the device.

2.1. Windows System Troubleshooting

1. Check Device Manager:

- The ZBDongle-E should appear as a **COM device**, not a USB drive.
- Open "Device Manager" -> Expand "Ports (COM & LPT)".
- **Normal:** You should see a COM port named something like **Silicon Labs CP210x USB to UART Bridge (New batch -E)** or

USB-Enhanced-SERIAL CH9102 (Old batch -E).

- **Abnormal:**

- An unknown device with a yellow exclamation mark appears under "Other devices".
- No new device appears in the COM port list.

2. Install Drivers:

- This is the most common reason for failure. While Windows 10/11 may auto-download the CH9102 driver, the CP2102 driver or some systems still require manual installation.
- **Confirm Chip Model:** Check the 10-digit serial number on the back of the device. If the first 5 digits are greater than 30623, it's a CP2102(N) chip. Otherwise, it's a CH9102 chip.
- **Download and install the correct driver:**
 - **CP2102 Driver (New batch):** [Silicon Labs Official Driver Download](#)
 - **CH9102 Driver (Old batch):** [SONOFF Official Driver Download](#)

2.2. Linux / Virtual Machine (VM) Troubleshooting

1. Check Kernel Logs:

- In a terminal, run `dmesg | grep -i usb` or `dmesg | grep -i tty`.
- You should see information about the device being recognized and assigned a path.

2. Confirm Device Path:

- **CP2102(N)** chips are usually registered as `/dev/ttyUSB` (e.g., `/dev/ttyUSB0`).
- **CH9102** chips are usually registered as `/dev/ttyACM` (e.g., `/dev/ttyACM0`).

3. For Virtual Machine Users (Crucial):

- If you are running Home Assistant or Linux inside a VM (like VMware, VirtualBox, Proxmox), you **must** "passthrough" or

"assign" the USB device from the Host machine to the Guest VM.

- Otherwise, the system inside the VM (like HAOS) will never be able to see the ZBDongle-E.

2.3. Home Assistant OS (HAOS) Troubleshooting

If you are using the official HAOS image, detection is the easiest:

1. Go to **Settings > System > Hardware**.
 2. Click the three-dot menu in the top-right and select "All hardware".
 3. Look through the list. You should see the device path for the ZBDongle-E, such as `/dev/ttyUSB0` or `/dev/serial/by-id/....`
 4. Take note of this path, as you will need it for configuration.
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3. Problem: Platform Fails to Start (Especially Zigbee2MQTT)

Your system can see the device (Section 2), but after configuring ZHA or Z2M, the platform fails to start and gives an error.

3.1. For Zigbee2MQTT (Z2M)

Z2M failing to start is the most common beginner issue, and 99% of the time it is a configuration error. Z2M must be configured correctly before it starts; it does not "search" for a coordinator.

Point 1: MQTT Broker Connection Failure

- Z2M (Zigbee to MQTT) must connect to a running MQTT server (Broker).
- **Action:** Check the `mqtt:` section of your Z2M configuration. Ensure the server address, port, username, and password are **absolutely correct**.

Point 2: Incorrect Coordinator Configuration (Most Critical)

- Check the `serial:` section of your Z2M `configuration.yaml` file.
- `port:` Must be the **correct device path** you found in Section 2.

- Windows example: port: \\.\COM3
- Linux example: port: /dev/ttyUSB0
- adapter: **Must** be set to ezsp.
- **Note:** Setting adapter: zstack is for the ZBDongle-P. Using it for the -E model will cause an immediate startup failure.

Point 3: Firmware Version & Z2M Version Compatibility

- If you see a warning in your Z2M logs about the ezsp driver being "deprecated" or recommending a migration to ember, this is **not an error**.
- It's just Z2M suggesting you update to a newer coordinator firmware (EZSP v8+).
- **Action:**
 1. **Do nothing:** As long as adapter: ezsp works, you can ignore this warning.
 2. **Update Firmware:** Follow the flashing guide (Section 5) to flash the latest NCP firmware (e.g., 7.4.x) from the official GitHub repo.
 3. **(Important) After updating:** You must immediately change the adapter: in your Z2M config from ezsp to ember.

3.2. For ZHA (Home Assistant)

- When adding the ZHA integration, choose to enter the device path manually.
 - Enter the path you found in Section 2.3 (e.g., /dev/ttyUSB0).
 - When prompted for "Radio Type," you **must** select EZSP.
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4. Problem: Unstable Connection / Devices Dropping / Poor Range

This is the most common issue for all Zigbee coordinators and is usually caused by environmental interference or poor network topology.

4.1. USB 3.0 Interference (Top Priority)

- **Problem:** USB 3.0 ports and cables generate strong 2.4GHz radio frequency interference, which severely disrupts the Zigbee signal (also on the 2.4GHz band).
- **Symptoms:** Devices drop off the network, are slow to respond, or fail to pair.
- **Solution (Strongly Recommended):**
 - **MUST use a USB extension cable** to move the ZBDongle-E away from your host computer (especially Raspberry Pi, NUCs) and its USB 3.0 ports.
 - If possible, plug the dongle into a **USB 2.0 port** on the host.

4.2. Signal Range and Coverage

- **Problem:** The ZBDongle-E firmware (at 20dBm) has an open-air range of ~135 meters. Indoors, walls and furniture will drastically reduce this.
- **Symptoms:** Devices far from the coordinator cannot connect or drop off.
- **Solution:**
 - **Add Zigbee Routers:** Zigbee is a mesh network. You need to add more **mains-powered** (always-on) Zigbee devices (like Zigbee smart plugs, some Zigbee light bulbs, or no-neutral Zigbee wall switches) to act as "repeaters" or "routers."
 - **Use Dedicated Router Firmware:** You can buy a **second** ZBDongle-E and flash it with the **Router firmware**. It will then act as a dedicated, high-power Zigbee signal extender.

4.3. Outdated Firmware

- **Problem:** The factory-installed firmware may have known stability bugs.
- **Solution:** Consider upgrading to the latest **Coordinator firmware** from the official GitHub repository.

5. Problem: Firmware Flashing Fails

You want to update the coordinator firmware or flash it to become a router, but the operation fails.

5.1. Critical Prerequisite: Enter Bootloader Mode

- Firmware can only be flashed while the device is in Bootloader (BL) state. This is the easiest step to get wrong.
- **Action:**
 - **Remove the case:** You must remove the metal shell to access the buttons on the PCB.
 - **Button sequence to enter BL:**
 - Plug the ZBDongle-E into USB.
 - **Press and HOLD the "Boot" button.**
 - While holding "Boot," **press and release the "Reset" button** once.
 - **Release the "Boot" button.**

- **Verify:** If you connect using a serial tool like CoolTerm or SecureCRT (Baud rate 115200, no flow control), you should see the Bootloader menu.

5.2. Use the Correct Flashing Tool

- Tools for -E and -P are not compatible. For the -E, CoolTerm (v2.3.0+) or SecureCRT is recommended.
- Flashing Process (Example with CoolTerm):
 - In "Options," set the correct COM port, Baud rate 115200, and Disable all Flow Control.
 - Click "Connect" and perform the button sequence (5.1) to enter the BL menu.
 - In the BL menu, press 1 (for Upload) to prepare the device to receive a file.
 - The screen will start outputting the letter C....

- Quickly go to the CoolTerm menu and select **Connection > Send File (Xmodem)**.
 - Choose the .gbl firmware file you downloaded. The transfer will begin.
 - Wait for the transfer to complete.
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6. Problem: Cannot Add (Pair) Certain Sub-devices

The coordinator is working, but a specific Zigbee sub-device will not join the network.

6.1. Platform Compatibility

- **The ZBDongle-E is only a "radio transceiver."** Whether a device is supported depends entirely on your **platform software** (ZHA or Zigbee2MQTT).
- **Action:**
 - **Zigbee2MQTT:** Check the [Z2M supported devices list](#). Z2M generally has the best compatibility.
 - **ZHA:** The ZHA supported list ([ZHA website](#)) is smaller but setup is simpler.
- If the platform doesn't support the device, the ZBDongle-E cannot do anything about it.

6.2. Green Power Devices (e.g., Philips Hue remotes)

- **Problem:** The ZBDongle-E supports Green Power devices, but they have special requirements.
- **Solution:** Green Power devices often operate on specific Zigbee channels. You may need to change your Zigbee network channel (a setting in ZHA or Z2M) to 11, 15, 20, or 25 to pair them successfully.

6.3. Sub-device State

- **Action:** Make sure your sub-device has been **properly factory reset** and is in "pairing mode" (usually indicated by a flashing light). Refer to the sub-device's own manual.

More Detailed Tutorials

<https://dongle.sonoff.tech/guide/zbdongle-e/introduction/>

Manufacturer Information

Shenzhen Sonoff Technologies Co., Ltd.

3F & 6F, Bldg A, No. 663, Bulong Rd, Shenzhen, Guangdong,
China

ZIP code: 518000

Website: <https://sonoff.tech>

MADE IN CHINA

