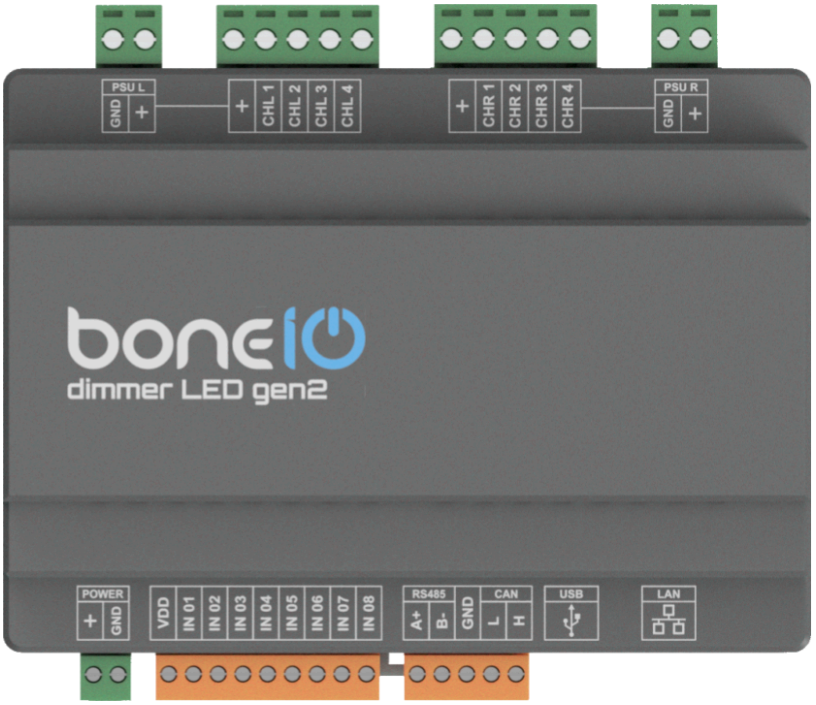
USER MANUAL

boneIO Dimmer LED gen 2



ENGLISH VERSION

MADE FOR ESPHome

Home Assistant

READ BEFORE USE

This document contains important technical and safety information about the device, its safety use and installation.

⚠CAUTION

Before beginning the installation, please read this instruction and any other documents accompanying the device carefully and completely. Failure to follow the installation procedures could lead to malfunction, danger to your health and life, violation of the law or refusal of legal and/or commercial guarantee (if any). boneIO is not responsible for any loss or damage in case of incorrect installation or improper operation of this device due to failure of following the user and safety instructions in this guide

⚠CAUTION

Danger of electrocution. Mounting and Installation of the boneIO device to the power grid has to be performed with caution, by a qualified person (electrician).

⚠CAUTION

Danger of electrocution. Every change in the connection of the terminals has to be done after ensuring all local power is powered off/disconnected.

⚠CAUTION

The power supply that powers the boneIO device should be connected by protecting it with a differential switch and a circuit breaker.

Product Information

This is an advanced LED dimmer designed for integration with smart home systems, such as Home Assistant, using ESPHome software.

Main Features

- **Power Supply:** The device operates on a DC voltage range of **12-24V DC**.
- **PWM Outputs:** It features **8 PWM (Pulse Width Modulation) outputs** for controlling LED lighting, such as LED strips. The output voltage matches the supply voltage (12-24V).
- **Digital Inputs:** It is equipped with **8 digital inputs**, which can be used to connect switches, motion sensors, or other control signals.
- **Connectivity:** It has a **10/100Mbps Ethernet port** for stable communication within a local network.
- **USB-C Port:** Used for uploading and updating software.
- **RS485/Modbus Port:** Used for polling sensors that operate with this protocol.
- **CAN Port:** Used for communication in a tree topology with other boneIO devices or for polling sensors operating with a CAN bus compatible protocol.

Integration

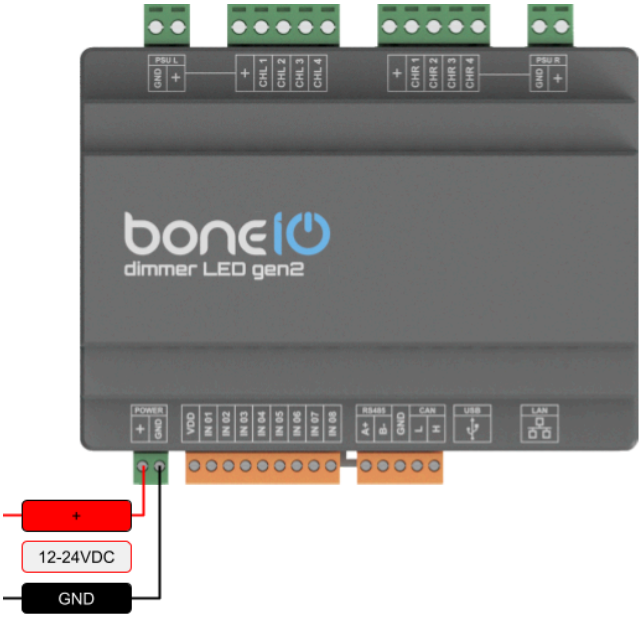
The dimmer is built to work with the **ESPHome** platform, which allows for easy configuration and deep integration with **Home Assistant**. This enables users to create advanced automations, control lighting remotely, and monitor its operation.

Comparison with other boneIO Products

Unlike other **boneIO** modules (such as the 32x10A, Cover, or 24x16A), which are relay controllers designed for switching high-load circuits on and off, the **Dimmer LED** is a specialized device for the smooth control and dimming of low-voltage LED lighting.

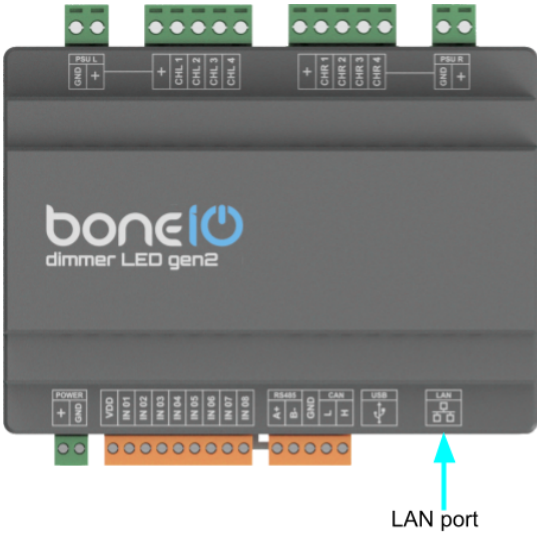
Power up device

To power boneIO up connect power supply 24VDC to POWER socket. Look for proper polarity of + and GND!



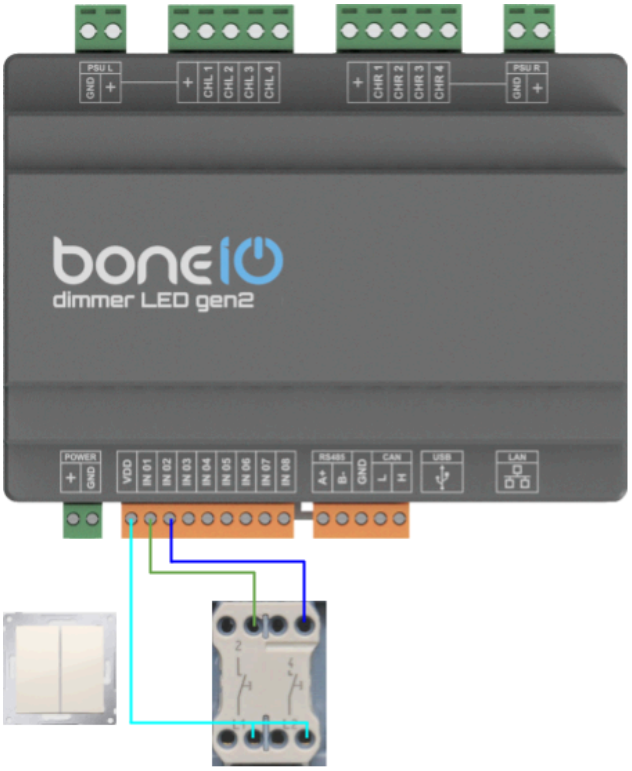
Connecting Ethernet

Connect Ethernet cable to LAN port.
By default IP address would be obtained via DHCP.



Connecting Inputs

The inputs can be controlled by a positive voltage or by ground. The user selects the control type using the "Inputs" switch, which is located behind the front flap in the bottom-left corner of the device. An input (IN01-IN08) is triggered by connecting the IN pin to the input labeled VDD. More examples of input connections are available at:
https://boneio.eu/en/docs/esp/products/dimmer/gen2



Connecting push button.

Connecting LED strips

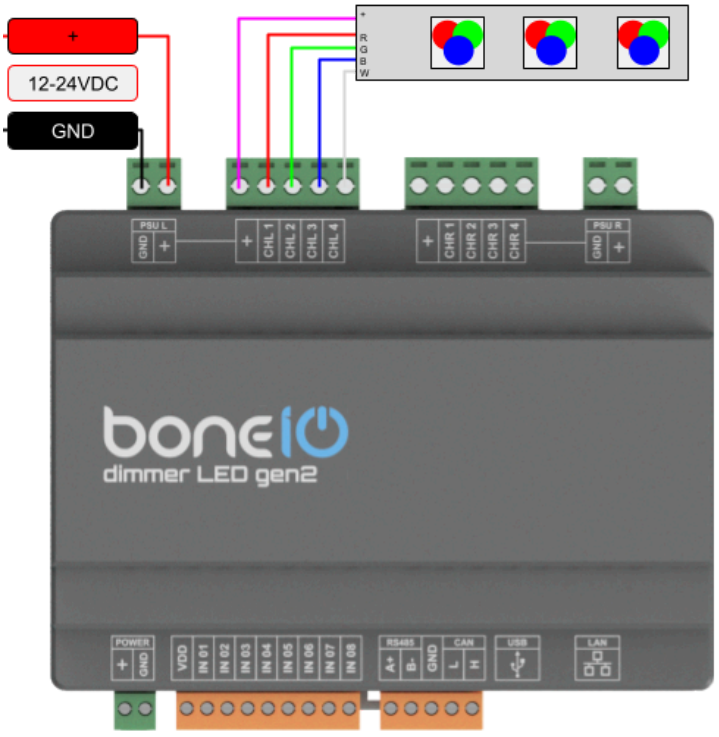
PSU L is the power supply input for the LED strips on the left side.
The **+** terminal on the left side is for the +/VCC of the LED strip.
Next are the **CHL1-4** outputs, which are:

- for a white strip - the ground/GND of the strip.
- for an RGBW strip - the colors marked RGBW on the LED strip

PSU R is the power supply input for the LED strips on the left side.
The **+** terminal on the left side is for the +/VCC of the LED strip.
Next are the **CHR1-4** outputs, which are:

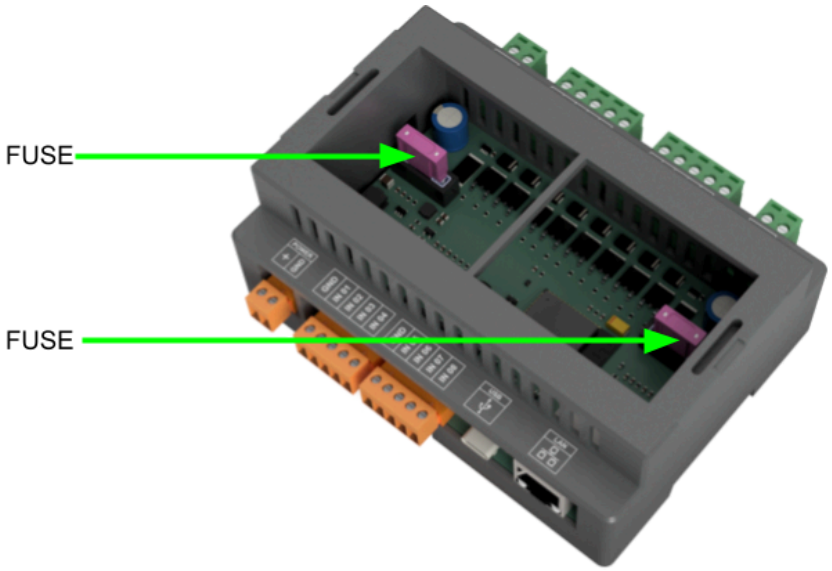
- for a white strip - the ground/GND of the strip.
- for an RGBW strip - the colors marked RGBW on the LED strip

More connection examples are available at:
https://boneio.eu/en/docs/esp/products/dimmer/gen2



Fuse replacement

Open the top cover and replace the fuse if it is damaged.

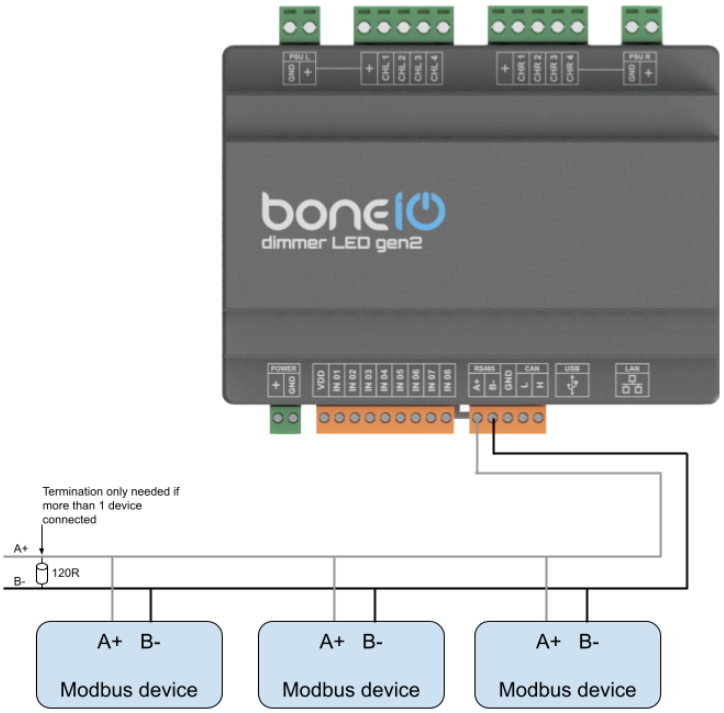


Connecting RS485

To connect an RS485/Modbus device, connect the **A+** and **B-** terminals on the boneIO and on the device being read. Most devices do not require a **GND** (ground) connection.

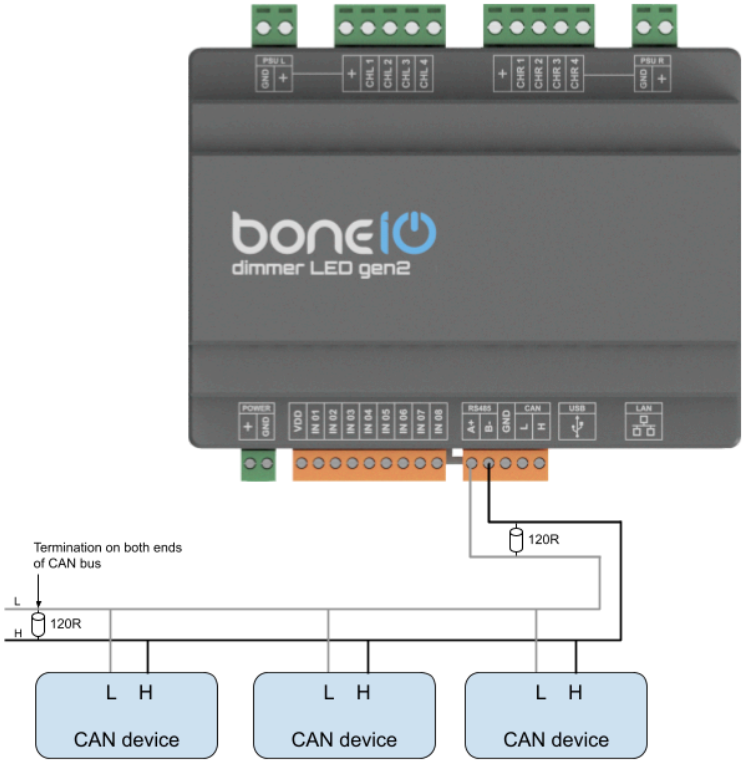
For further configuration, check the online instructions on our website, the ESPHome documentation, and the manual of the connected device.

The maximum cable length is **30m**.



Connecting CAN

To connect a device to the CAN bus, connect the boneIO **CAN H** and **CAN L** terminals to the **CAN H** and **CAN L** terminals on the other device. The maximum cable length is **30m**.


dimmer LED gen2
120R
Termination on both ends
of CAN bus
L
H
120R
L H
CAN device
L H
CAN device
L H
CAN device

Software installation

boneIO Dimmer LED is compatible with the "Made for ESPHome" program. It is delivered with ESPHome software pre-installed. By default, the device allows for automatic adoption by the ESPHome add-on and supports auto-discovery by Home Assistant, as long as the network it operates on does not block mDNS packets.

We recommend first adopting the device in the ESPHome add-on, configuring it, and then adding it to Home Assistant. A newer version of the ESPHome software may be available on our website. We encourage you to check the page:

https://boneio.eu/esp

Rozbudowana instrukcja krok po kroku znajduje się na stronie:
https://boneio.eu/en/docs/esp/products/dimmer/gen2

Technical data

Power supply	12-24VDC Device should be powered up from single power supply.
Power consumption	2W (LED strips not included)
Number of digital inputs	8
Inputs voltage	Same as power supply
Number of output channels	8
Max output voltage	24VDC
Max output current	10A per side (for 4 channel)
PWM Frequency	10Hz-40MHz
External interfaces	Modbus RS485, CAN
Communication	Ethernet 10/100Mbit CAN USB-C (instalacja oprogramowania)
Dimensions	126 mm x 91 mm x 57 mm (WxHxL) (bez wtyczek) 126 mm x 108 mm x 57 mm (WxHxL) (z wtyczkami) 7DIN
Weight	2300g

RoHS COMPLIANT

Discord support:
https://discord.gg/Hm2CzSjvtu

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