

Contents [[hide](#)]

- [1 Shelly Plus Add-on Isolated Sensor Interface](#)
- [2 Specifications](#)
- [3 Product Usage Instructions](#)
- [4 Installation Instructions](#)
- [5 FAQs](#)
- [6 Documents / Resources](#)
 - [6.1 References](#)



Shelly Plus Add-on Isolated Sensor Interface



Specifications

- Mounting: Attached to a Shelly Plus device

- Dimensions (HxWxD): 37x42x15 mm
- Working temperature: -20°C to 40°C
- Max. altitude: 2000 m
- Power supply: 3.3 V (from Shelly plus device)
- Electrical consumption: < 0.5 W (without sensors)
- Analogue input range: 0 – 10 V
- Analogue input report threshold: 0.1 V *
- Analogue input sampling rate: 1 Hz
- Analogue measurement accuracy: better than 5%
- Digital input levels: -15 V to 0.5 V (True) /2.5 V to 15 V (False) **
- Screw terminals max. torque: 0.1 Nm
- Wire cross-section: max. 1 mm²
- Wire strip length: 4.5 mm
- Can be configured in the analogue input settings
- Logic can be inverted in the digital input settings

Product Usage Instructions

Installation:

Before starting the installation process, ensure you have read and understood the user and safety guide provided with the device.

1. Mount the Shelly Plus Add-on to the power grid cautiously by a qualified electrician to prevent the risk of electrocution.
2. Ensure there is no voltage present before making any connections to the device.
3. Connect the Device only to power grids and appliances that comply with all regulations.
4. Avoid connecting the Device to appliances exceeding the given maximum load.

Adding Sensors:

1. Attach the Shelly Plus Add-on to the Shelly Plus device by ensuring the brackets lock securely onto the device hooks.
2. Connect a digital humidity and temperature sensor DHT22 or up to 5 digital temperature sensors DS18B20 following the provided diagrams.

3. Connect a 10k potentiometer for smooth analogue readings or a thermistor with specific resistance for temperature measurement.

External Source Measurement:

1. Measure the voltage of an external source within the range of 0 to 10 V. Ensure the source's internal resistance is less than 10k for optimal performance.


Digital Input: Utilise the digital input interface to connect a switch/button, relay, or electronic device as illustrated in the provided diagrams.

USER AND SAFETY GUIDE

SHELLY PLUS ADD-ON

Read before use

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

 **CAUTION!** Before beginning the installation, please read this guide 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). Shelly Europe Ltd. is not responsible for any loss or damage in case of incorrect installation or improper operation of this device due to failure to follow the user and safety instructions in this guide.

Product Introduction

Shelly Plus Add-on (the Device) is a galvanically isolated sensor interface to the Shelly Plus devices.

Legend

Device terminals:

- VCC: Sensor power supply terminals

- DATA: 1-Wire data terminals
- GND: Ground terminals
- ANALOG IN: Analogue input
- DIGITAL IN: Digital input
- VREF OUT: Reference voltage output
- VREF+R1 OUT: Reference voltage through a pull-up resistor*

output

External sensor pins:

- VCC/VDD: Sensor power supply pins
- DATA/DQ: Sensor data pins
- GND: Ground pins
- For passive devices that need it to form a voltage divider.

Schematic

fig.1A

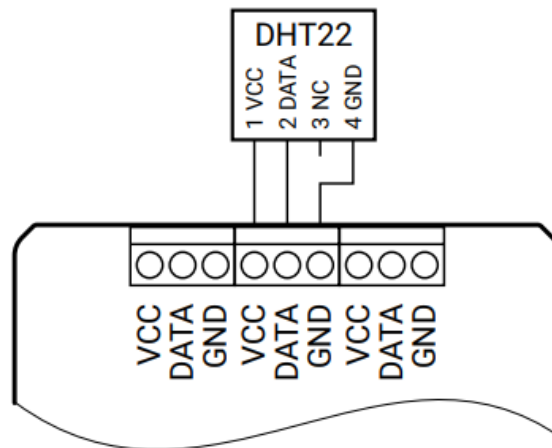


fig.1B

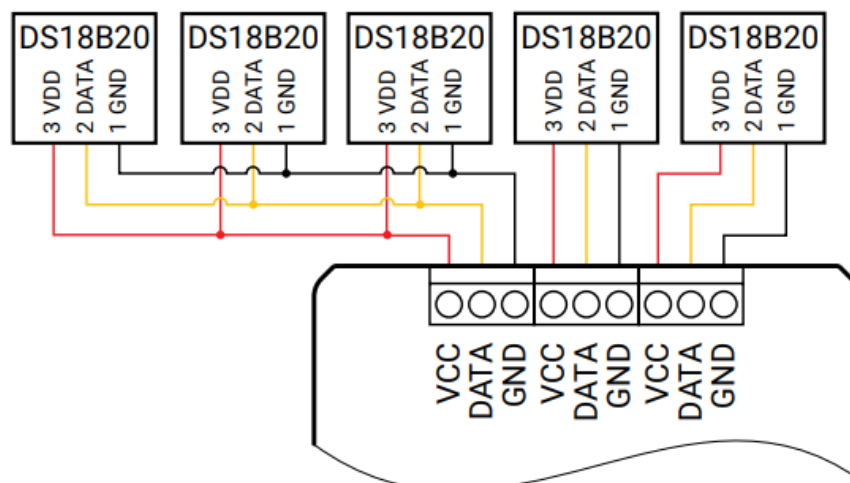


fig.2A

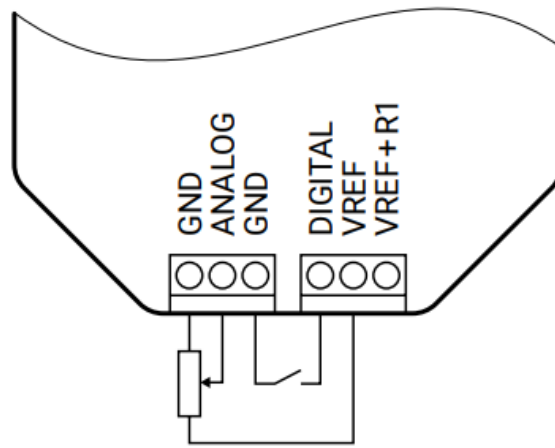


fig.2B

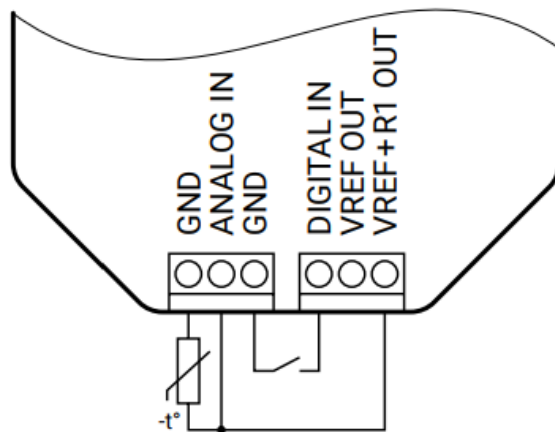
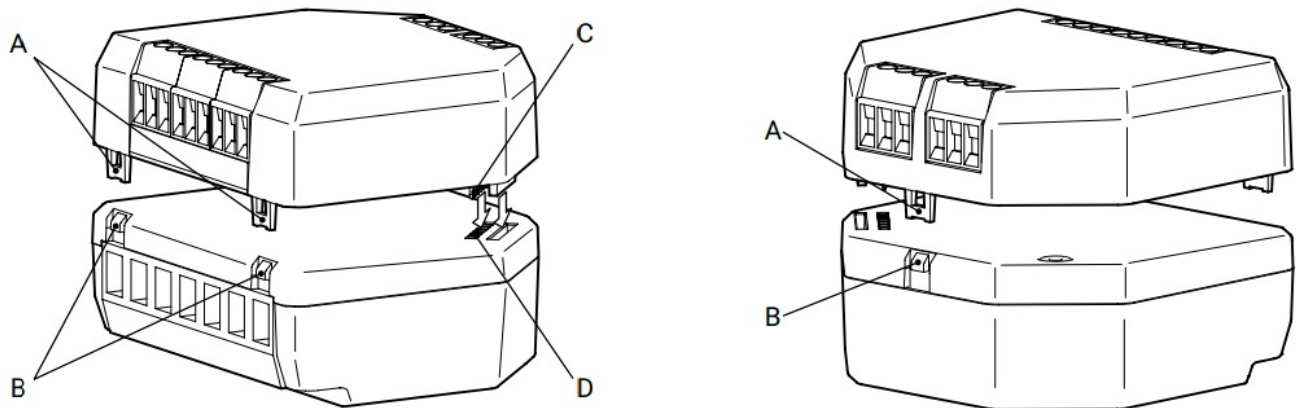







fig.3



Installation Instructions

- **⚠ CAUTION!** Danger of electrocution. Mounting/installation of the Device to the power grid has to be performed with caution, by a qualified electrician.
- **⚠ CAUTION!** Danger of electrocution. Every change in the connections has to be done after ensuring there is no voltage present at the Device terminals.
- **⚠ CAUTION!** Use the Device only with a power grid and appliances which comply with all applicable regulations. A short circuit in the power grid or any appliance connected to the Device may damage the Device.

-  **CAUTION!** Do not connect the Device to appliances exceeding the given max load!
-  **CAUTION!** Connect the Device only in the way shown in these instructions. Any other method could cause damage and/or injury.
-  **CAUTION!** Do not install the Device where it can get wet.
- If you are installing the Shelly Plus Add-on to a Shelly Plus device that is already connected to the power grid, check that the breakers are turned off and there is no voltage on the terminals of the Shelly Plus device you are attaching the Shelly Plus Add-on to. This can be done with a phase tester or multimeter. When you are sure that there is no voltage, you can proceed to install the Shelly Plus Add-on.
- Attach the Shelly Plus Add-on to the Shelly Plus device as shown in Fig. 3
-  **CAUTION!** Be very careful not to bend the Device header pins (C) when inserting them into the Shelly Plus device header connector (D). Make sure the brackets (A) lock on the Shelly Plus device hooks (B), and then proceed to the Device wiring.
- Connect one digital humidity and temperature sensor DHT22, as shown in Fig. 1A, or up to 5 digital temperature sensors DS18B20, as shown in Fig. 1B.
-  **CAUTION!** Do not connect more than one DHT22 sensor or a combination of DHT22 and DS18B20 sensors.
- Connect a 10 k Ω potentiometer as shown in Fig. 2A for smooth analogue readings or a thermistor with 10 k Ω nominal resistance and $\beta=4000$ K as shown in Fig. 2 B for analogue temperature measurement.
- You can also measure the voltage of an external source within the 0 to 10 V range. The voltage source internal resistance should be less than 10 k Ω for optimal performance.
- The Device also provides an interface to an auxiliary digital signal through its digital input. Connect a switch/button, a relay or an electronic device as shown in Fig. 2.
- If the Shelly Plus device, which the Shelly Plus Add-on is attached to, has not been connected to the power grid, install it following its user and safety guide.

Declaration of conformity

Hereby, Shelly Europe Ltd. declares that the equipment type Shelly Plus Add-on complies with Directive 2014/30/EU, 2014/35/EU, 2011/65/EU. The full text of the EU declaration of conformity is available at the following internet address:

<https://shelly.link/Plus-Addon-DoC>.

Disposal and recycling

- Do not dispose of the product in household waste. Recycle the product to prevent environmental and health damage and to promote resource conservation. Dispose of the product at an appropriate waste collection point at your own responsibility.
- Resellers, from whom the Device was purchased, are required to accept Waste Electrical and Electronic Equipment (WEEE) free of charge for proper disposal.
- Some electronic products may store personal data. The user is responsible for deleting this data before disposing of the Device. To delete it, reset the Device to its factory settings.

Manufacturer: Shelly Europe Ltd.

- Address: 51 Cherni Vrah Blvd., bldg. 3, fl. 2-3, 1407 Sofia, Bulgaria
- Tel.: +359 2 988 7435
- E-mail: support@shelly.cloud
- Web: <https://www.shelly.com>
- Changes in the contact data are published by the Manufacturer at the official website. <https://www.shelly.com>
- All rights to trademark Shelly® and other intellectual rights associated with this Device belong to Shelly Europe Ltd.

FAQs

Q: Can I connect multiple DHT22 sensors to the Shelly Plus Add-on?



A: No, you should not connect more than one DHT22 sensor or a combination of DHT22 and DS18B20 sensors to the device.

Q: What should I do before attaching the Shelly Plus Add-on to a Shelly Plus device already connected to the power grid?

A: Make sure to turn off the breakers and check for voltage on the terminals using a


phase tester or multimeter.


Documents / Resources

	Shelly Plus Add on Isolated Sensor Interface [pdf] User Guide Plus Add on Isolated Sensor Interface, Plus Add on, Isolated Sensor Inter face, Sensor Interface, Interface
	Shelly Plus Add-on Isolated Sensor Interface [pdf] User Guide Plus Add-on Isolated Sensor Interface, Plus Add-on, Isolated Sensor Interface, Sensor Interface, Interface

References

- [User Manual](#)

 Shelly

 Interface, Isolated Sensor Interface, Plus Add on, Plus Add on Isolated Sensor Interface, Sensor Interface,

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