

Crownstone Manual

READ THIS BEFORE PROCEEDING

Read the complete manual before attempting to install this device! Failure to adhere to the instructions in this manual may be dangerous.

Crownstone b.v. will not be held responsible for any loss, injury or damage resulting from not complying with the instructions of the operating manual.

Danger of electrocution

The Crownstone is designed to operate in standard electrical home installations.

Faulty connections or other abuse of the Crownstone may result in electric shock or fire.

All works on the Crownstone may only be performed by a qualified and licensed electrician.

Even when the device is turned off, voltage may be present at its terminals.

Any maintenance introducing changes into the configuration of connections or the load must always be performed while power to the Crownstone is turned off at the fuse box.

Required overcurrent protection

The Crownstone must be protected with an overcurrent protection (fuse) with a maximum value of 16A.

Before installation:

- Download app and make account at <https://crownstone.rocks/app>
- Prepare an extra length of wire to place between the Crownstone and the load.
- Make sure it fits before installation

Technical Specifications :

Two versions:

CR101 : a product intended to be mounted inside a wall socket.

CR102 : a product intended to be used by a consumer.

Shares majority of components across products.

Based on Nordic nRF 52832 MCU

Cortex M4 64MHz

2.45 GHz

BTLE (4.0)

Mesh proprietary protocol, trickle based.

Mains switch

Relay 250V / 16A

Panasonic VDE/UL Certified

IGBT's solid state <10A Clamped ST Microelectronics.

Measurements

Current 1mOhm shunt connected to opamp LMV 358 to ADC 12 bit on MCU

Voltage connected through 10M ohm into LMV 358 to ADC 12 bit on MCU

The software aims to use indoor localisation to facilitate intelligent automation.

Dimming:

The solid state switch allows for different dimming strategies to be implemented.
Regulations w.r.t. dimming are subject to change in Europe.
Dimming up to 100W lights is permitted and enabled.

Installation wall mounted version:

1. Before installing the Crownstone, turn off all power to the power socket you wish to outfit. The safest way to do this is by shutting off power to the socket in question at the fuse box. Make sure to verify that the power to the socket is indeed off.
[This can be achieved by probing the socket contacts with a screwdriver voltage tester.]
2. **! If you are uncomfortable with altering your home electrical system, stop now and call an experienced and licenced electrician !**
Open up the socket carefully. The way this is done varies with the type and brand of your socket, but usually involves removing the screw that binds them to the junction box.
3. Remove the socket from the wall and disconnect the wires attached to it.
You will only need two wires to supply power to your Crownstone. The ground wire (commonly green/yellow in colour) is not needed.
4. Strip about 8mm the ends off the live and neutral wires coming from the junction box.
Connect the 'live' and 'neutral' wires to the Crownstone.
The 'live' wire is usually coloured brown. Connect this wire to the Crownstone through contact point number 3.
The 'neutral' wire is usually coloured blue. Connect this wire to the Crownstone through contact point number 4.
Gently tug on the inserted wires to make sure they are fastened properly.
[!] Consult the figure <somewhere> for an appropriate connection diagram.
5. Connect two other lengths of wire to the socket/lamp. Make sure that the other ends are already stripped before going further.
The stripped end can be inserted into the remaining two contact points of the Crownstone (numbers 1 and 2).
Gently tug on the wires again to verify they are fixed securely.
6. Place the Crownstone inside the junction box making sure it sits as flush as possible to the back.
[insert antenna guide here?]
Reinsert the socket or cover the junction box with the lamp.
Turn the power to the socket/junction box back on.
Take your smart phone and start the Crownstone app
Place your smart phone near the place where you installed the Crownstone and follow the instructions in the app to set it up.
If your app does not detect the new Crownstone, make sure it receives power properly.

FCC Warning

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.