enelion

# Installation guide


Video tutorial

## ENELION LUMINA

3 in 1 modular structure – build and upgrade your dreamed solution using the same base module.
Quick installation – get your EV charger ready to work online in no more than 15 minutes of the installation process.

# Dear Partner,

Congratulations on your purchase of the Enelion charger and thank you for your trust.

Up-to-date manuals for users and installers always available at:
**https://enelion.com/support-lumina/**

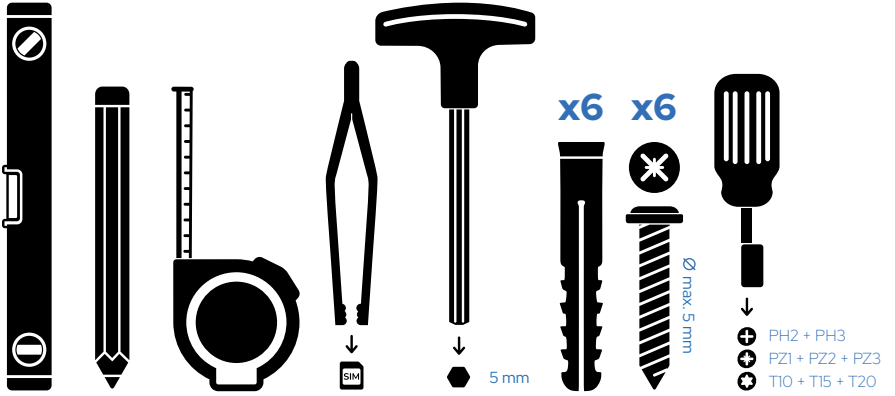
Please read this manual before installation or prior to the station being commisioned.

# Table of content

# Table of content

# ENELION LUMINA products family

# Additional tools necessary for installation



# Optional safety screws

Each charger kit includes safety screws (additionally secured with a pin to prevent unauthorized access) that can replace the standard screws attaching the top part of the head to the back, if needed.

The appropriate bit is optionally available as an accessory or can be purchased separately (size T10H x 25 mm).

If you need the appropriate bit, you can order it from us under the index AKC-BIT-010.

# Features

LED INTERFACE

RFID CARD READER

LTE

SOCKET TYPE 2

WI-FI

ROOM FOR OPTIONAL
BACKUP POWER SUPPLY

ROOM FOR OPTIONAL
CERTIFIED ENERGY METER

ROOM FOR OPTIONAL
230 V CEE 7/3 SOCKET

# Technical specifications

| | |
|---|---|
| Housing | Polycarbonate, Anodised aluminium* |
| Ingress protection rate | IP54 |
| Impact protection | IK10 |
| Flammability class | UL94-V0 |
| Charging connector type | Enelion LUMINA Socket – Type 2 socket,<br>Enelion LUMINA Cable Premium – Type 2 connector with 5.2 m cord |
| Residual current protection | Embedded residual current monitor - Enelion RCMB 6 mA DC |
| Energy metering | Integrated 3-phase energy meter > 99% accuracy |
| Certified electricity meter (MID) | Impulse* – possible to install inside the housing |
| User interface | • Multi-colour LED strip EVC status indication;<br>• Dedicated app |
| Online communication unit | • Integrated LTE/4G modem<br>• Wi-Fi 2.4 GHz b/g/n – direct access point to the station with an option to hide the AP and connect the station to local Wi-Fi network |
| OCPP communication protocol | compliance with OCPP 1.6 J protocol |
| Minimal signal quality requirements | • Wi-Fi: -60 dBm<br>• GSM: -85 dBm |
| Authorization | • Built-in RFID/NFC reader – Mifare Classic/Free mode<br>• Dedicated app |
| Current/Charging power | • Up to 7.4 kW at 32 A 1-phase<br>• Up to 22 kW at 32 A 3-phase (TN system) |
| Charging voltage | 3 x 400 V AC/230 V AC (±10%) |

| | |
|---|---|
| Supply voltage | 3 x 400 V AC/230 V AC (±10 %) (TN/IT)<br>Possibility of connecting the cable from the top, bottom and the back of the station |
| Other features | • Configuration with no additional tools<br>• Remotely controlled schuko outlet (max 2000 W/10 A)*<br>• Temperature and humidity monitoring inside device<br>• Remote start/stop, delayed start and end of charging |
| Operating temperature | From -30°C to +55°C |
| Maximum altitude for installation | 2000 m |
| Height | 390 mm |
| Depth | 133 mm |
| Width | 155 mm |
| Weight | 3.3–8.9 kg (depending on device version) |
| Compliance | 2014/53/EU (RED); 2011/65/EU (RoHS), 2014/30/EU (EMC) ; 2014/35/EU (LVD); UK SI 2016 No. 1101; UK SI 2016 No. 1091; UK SI 2017 No. 1206; UK SI 2012 No. 3032<br><br>The following BSI and ETSI standards and technical specifications have been applied:<br><br>ETSI EN 300 328 V2.2.2:2020-03; EN 62196-2:2017-06; EN IEC 61851-1:2019-10; EN IEC 61851-21-2:2021-09; EN 62196-1:2015-05; ETSI EN 301 511 V12.5.1:2017-10 ETSI EN 300 330 V2.1.1:2017-08; ETSI EN 301 489-1 V2.2.3:2020-07; ETSI EN 301 489-17 V3.2.4:2021-05 |

* Option

# Safety instructions

**Please read this manual before attempting to install or commission the charger.**

**Safety instructions for installation:**

- Do not carry out outdoor installation during precipitation or strong winds if there is a risk that water or debris may enter the device.
- Carry out all operations described in this manual after ensuring that there is no voltage in the power cord.
- This product may only be installed, repaired or serviced by an authorized electrician.
- All local, regional and national electrical installation regulations must be observed.
- Installation must not be carried out near explosive atmospheres or in areas where there is a risk of running water.
- Risk to life from high electrical voltages.
- The product must be permanently installed in its final location.
- The product must be installed on a wall or structure with sufficient load bearing capacity.
- The clamps on the rear panel are live when the power circuit is closed and must never come into direct contact with anything other than the Enelion LUMINA plug-in electronics.
- Enelion LUMINA's network SSID and password are required for installation and configuration; they can be found on the back of the charging head.

**Safety instructions for use**

- Never use or touch the device if it is damaged or not functioning properly.
- Always perform the recommended maintenance, installation and any repair work by an authorized service center and in accordance with local requirements.
- Do not use water to extinguish a fire.
- Never clean the station with high pressure or running water.
- Do not immerse the station in water or other liquids.
- Never touch the contacts of the Type 2 socket/plug and never insert foreign objects into it.
- Never use the charging cable if it is damaged or if the connector is wet or dirty.
- Do not use extension cables or adapters in connection with the station.
- If the light bar on the device lights up red, an error has occurred.
- The charging cable can only be disconnected from the station by pulling on the plug handle, not on the cable.
- Make sure that the charging cable does not cause a tripping or running over hazard.
- Even though the station is designed to withstand normal weather conditions, it is recommended to protect it from direct sunlight or exposure to extreme weather conditions.
- Do not use the station near strong electromagnetic fields or in the immediate vicinity of radio transmitters.

# Before the installation

- This product may only be installed, repaired or serviced by an authorized electrician. All local, regional and national electrical installation regulations must be observed. It is recommended to consider future charging needs before installation.
- The power supply to the Enelion charging terminal must be provided from an electrical switchgear. The switchgear must have the required protection in the form of a type B or C over current circuit breaker and a current rating of 32 A or less, suitable for the configuration of the device. To declare compliance with EN IEC 61851-1:2019-10, each charging point must also be individually protected against Type A and Type B residual current. This requirement must be fulfilled by one of the following:
  1. Installation of a type B residual current device (RCD B 30 mA/40 A) or RCD EV (30 mA/40 A) in the switchgear,
  2. Installation of a residual current device type A (RCD A 30 mA/40 A) in the switchgear using the Enelion RCMB – Residual Current Monitor type B provided on the charging terminal.
- The final selection of the protective equipment must be made by an authorized designer or qualified electrician.
- For maximum charging power, it is recommended to use cables with a conductor cross-section not exceeding 6 $mm^2$. This is also the maximum diameter that can be installed in the connection terminals. For convenient installation, flexible power cords of the wire type terminated with collets are recommended.
- A residual current monitor (RCM) can be integrated into the Enelion LUMINA charger. This will switch off the current to the electric vehicle if: a residual current of 4–6 mA DC occurs. The RCM is reset by disconnecting the charging cable and reconnecting it.

| Load | Charging power | |
|---|---|---|
| Charging current (A) | 1 phase (kW) | 3 phase (kW) |
| 6 | 1.4 | 4.1 |
| 8 | 1.6 | 5.5 |
| 10 | 2.3 | 6.9 |
| 13 | 3.0 | 9 |
| 16 | 3.7 | 11 |
| 20 | 4.6 | 13.8 |
| 25 | 5.8 | 17.3 |
| 32 | 7.4 | 22 |

**The table above shows what charging power you can expect from your installation.**

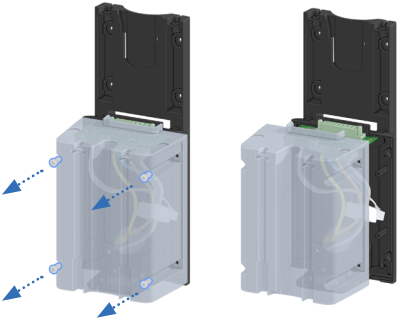
**The table is for information purposes only.**

# How to prepare the device for installation

**ENELION LUMINA SOCKET**


01 Undo two long bolts and two screws at the bottom (1). Repeat with two screws at the top (2)

02 Slide out the head module and remove the housing cover



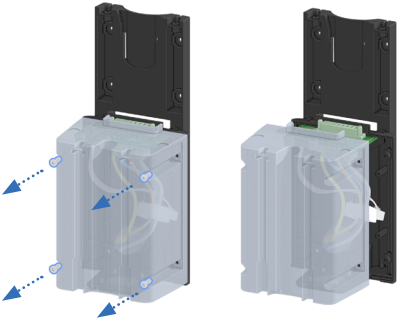
03 Unscrew the fixing screws and remove the transparent cover

**ENELION LUMINA SOCKET PREMIUM**




01 Undo two long bolts at the bottom (1) and two screws at the top (2)

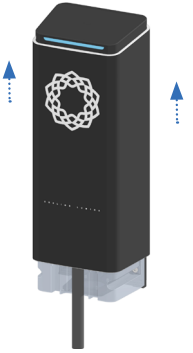

02 Slide out the head module



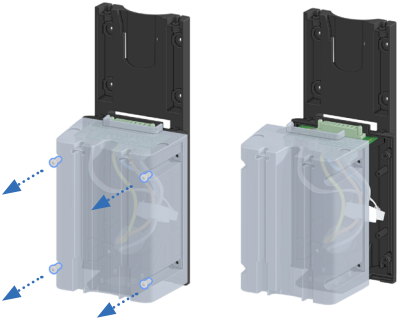
03 Unscrew the fixing screws and remove the transparent cover

**ENELION LUMINA PREMIUM CABLE**


01 Dismantle the cable holder (1). Undo two long bolts at the bottom (2) and two screws (3) at the top



02 Slide out the head module



03 Unscrew the fixing screws and remove the transparent cover

# Installation

Do not carry out outdoor installation during rain or strong winds if there is a risk that water or debris may enter the device.

All of the operations described in this manual should be carried out after making sure that there is no voltage in the power cord.

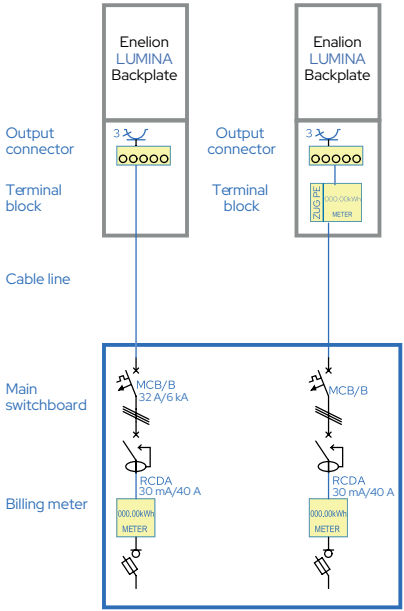
This product may only be installed, repaired or serviced by an authorized electrician. All local, regional and national electrical installation regulations must be observed.

Video tutorial

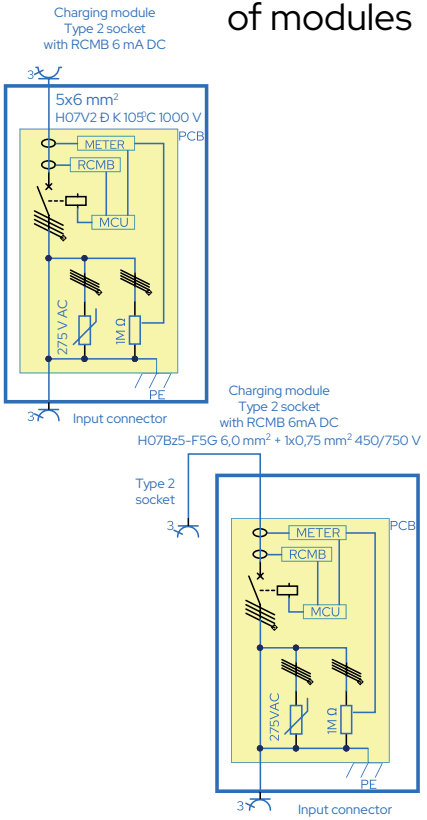
https://enelion.com/support-lumina/

**In addition to the steps described on the following pages, we recommend watching the installation videos.**

## 01 Diagrams of connection variants



# 02 Overview diagrams of modules




# 03 Preparation

In the box with the Enelion LUMINA charger, you will find an assembly template to help you choose the installation location and prepare the installation holes.

We recommend that you position the station so that the top edge of the charging station is approximately 130 cm from the floor.

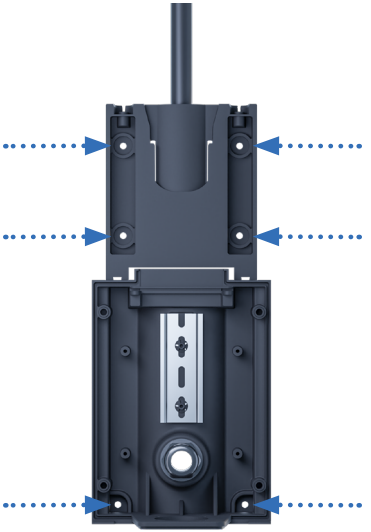
The electrical cable can be connected to the station from above, from below and directly from behind the station at the gland marked on the template.

The design of the station allows both wall and pole installation (additional installation components required – sold separately). We suggest that there is local Wi-Fi network coverage at the station installation site and/or LTE mobile network coverage if the station is to be used online.

# 04 Installation of mounting plate

Turn off the power before installation.

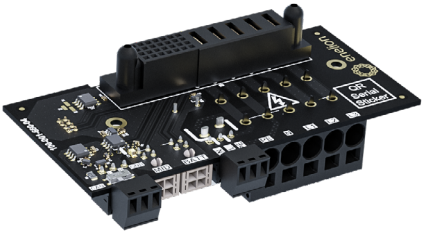
1. Connect the electrical cable.
2. Hang the mounting plate according to the template.
3. Secure electric cable in the gland.

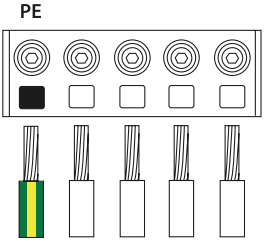


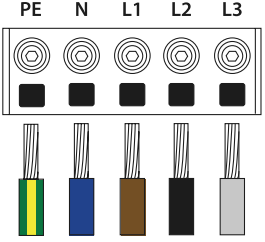
# 05 Electrical connection

For maximum charging power, it is recommended to use cables with a conductor cross-section not exceeding 6 $mm^2$. This is also the maximum diameter that can be installed in the connection terminals. For convenient installation, flexible power cords of the wire type terminated with collets are recommended.

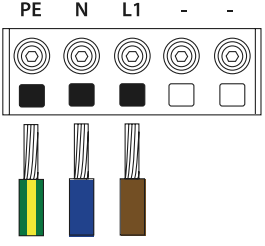
Installation of the cables in the station cable terminals does not require any special tools.



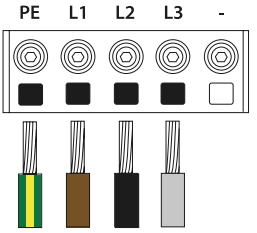


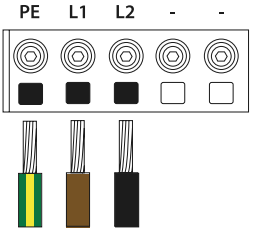

TN 1-phase (230 V)




IT/TT 3-phase (230 V)




IT/TT 1-phase (230 V)




It is recommended to use the existing colour code used in the wiring. Depending on the standard in your country, the cable colours may differ from those shown.

Before switching on the power, make sure that the cables are connected correctly. Test this by pulling on each wire.

After preparing the installation, close the transparent cover.

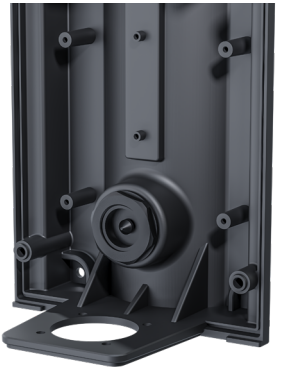
# 06 Alternative method for the insertion of power cables

If it is not feasible to insert the power cables in the standard way, an alternative method can be applied.

In the lower part of the rear housing of the station (if it is not equipped with the optional 230 V socket), there is a hole for an M25 cable gland with a blanking plug.

If necessary, the installer can remove the blanking plug and insert the removed cable gland from the standard installation variant in its place.

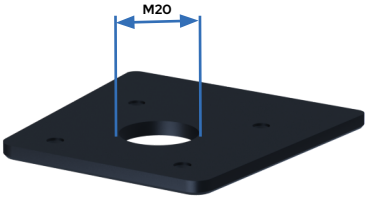
In order to maintain the warranty, the previously removed plug must be installed in place of the originally installed cable gland.



Blanking plug in place of originally installed cable gland

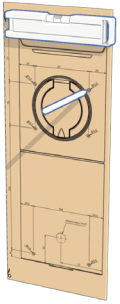
# 07 M20 gland adapter

For the alternative method of inserting power cables into the station, an adapter with a hole for M20 gland is available separately – it can be used to install a special gland with an armoured cable in case of a single-phase system.



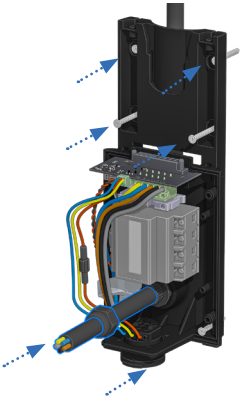

Hole for M20 gland

# 08 Step by step

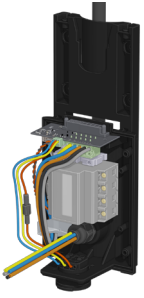


01 Level the template – mark the holes

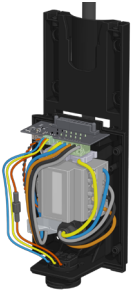
02 Drill holes – insert pins



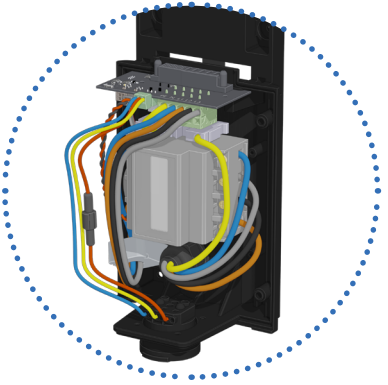
03 Screw the backplate to walls – tighten the cable entry



04 Remove the insulation from the cable



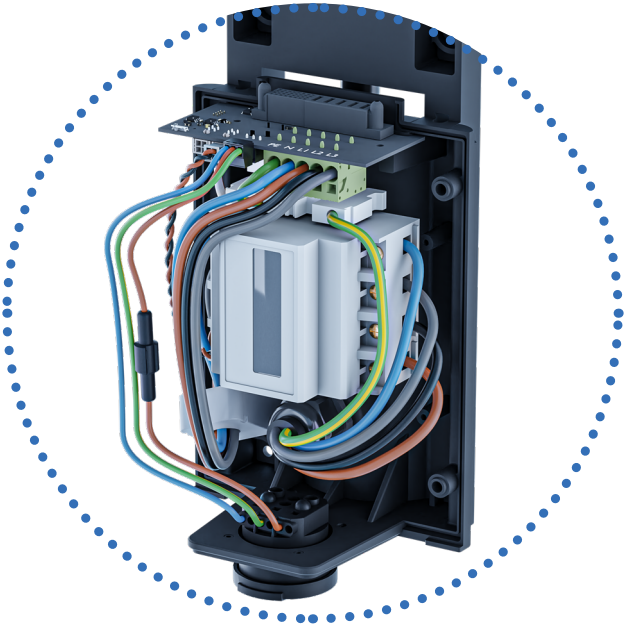
05 Connect wires



05a

# **Enelion LUMINA**
with optional
230 V CEE 7/3 SOCKET
and optional CERTIFIED
ENERGY METER

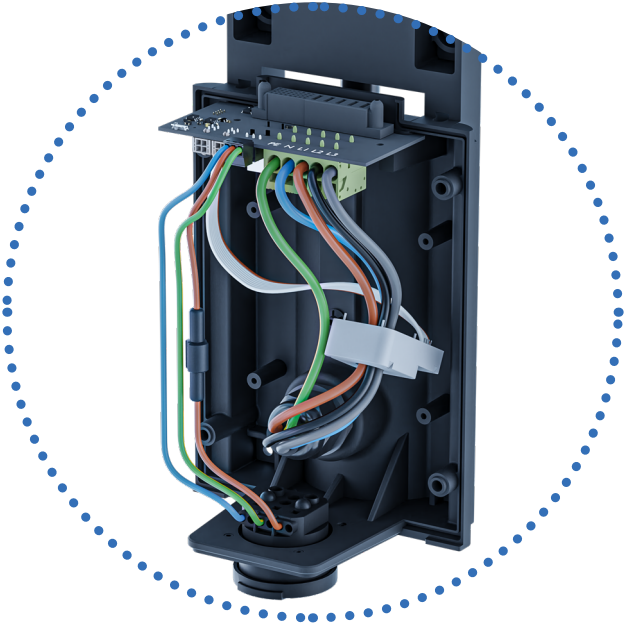
**MODEL LB-32-3-X-1-X-XX-MGR-00**

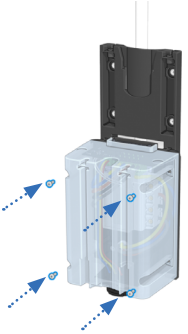


05b

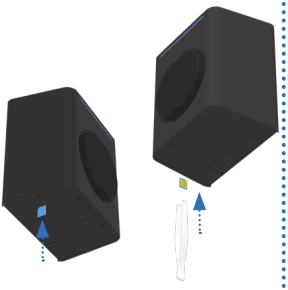
# **Enelion LUMINA**
with optional 230 V
CEE 7/3 SOCKET

**MODEL LB-32-3-X-1-X-XX-GR-00**





06 Install the transparent cover using four screws.



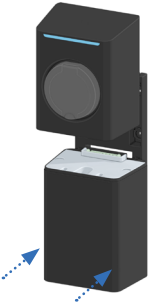
07 Insert SIM card

ENELION LUMINA SOCKET PREMIUM


08a Mount the head on

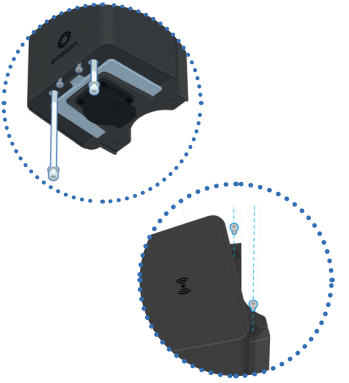
08b Tighten the head – two long bolts at the bottom and two screws at the top

ENELION LUMINA SOCKET



Slide from the front

09a Install front cover



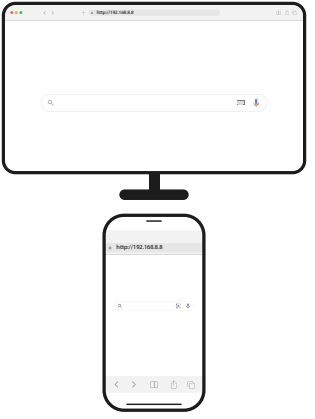
09b Use two long bolts and two screws at the bottom and two screws at the top

# 08 Start-up and configuration of the station

Switching on the safety devices, which turns on the voltage at the station, should be carried out by a suitably qualified person.

Using a smartphone or computer, search for the LUMINA station's AP with the SSID listed on the back of the charging head.

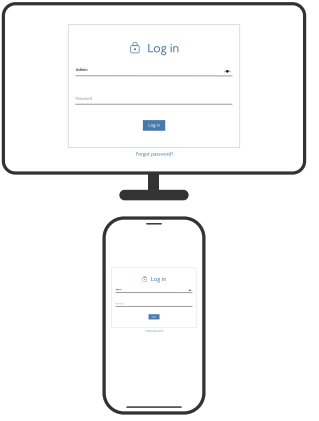
After connecting to the LUMINA station's AP with the SSID and password given on the back of the charging head, type the following into the address bar of your browser: http://192.168.8.8




Access to the configuration panel is protected by a password, which by default is **admin.**

It is also possible to log into the simplified version of the panel via your **user** account and password **user.**

The password should be changed if necessary.




**The configuration process should be carried out according to the instructions on the panel.**

# Additional information for the UK market

This section outlines the information for installation of Enelion LUMINA in the UK region.

**Part Numbers Affected:**

**Heads:**

LH-32-1-X-0-S-04-EO-00
LH-32-1-S-0-S-04-EO-00
LH-32-1-B-0-S-04-EO-00
LH-32-1-S-0-C-50-EO-00
LH-32-1-B-0-C-50-EO-00

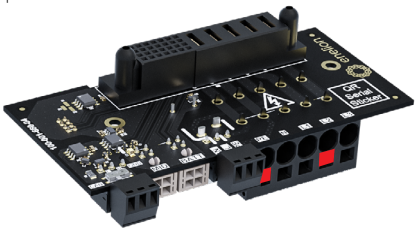
Connection for Pen Fault Detection configured charger Head. **Pay attention to different connection of PE conductor!**

## 01 Pen Fault Detection

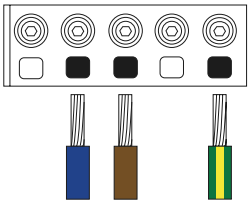
To follow and be compliant with the regulations specified by IET in clause 722.411.4.1 (iv), Enelion LUMINA uses a technology that enables you to directly connect your charger to a PME supply.

Enelion LUMINA now includes a safety monitoring system to detect potential earth-neutral faults. If faults are detected in the circuit, the charge cycle ends thus isolating the vehicle from the power supply.

This removes the risk of touching the vehicle and a potential shock if earth-neutral fault is present.



| STANDARD | PE | N | L1 | L2 | L3 |
|---|---|---|---|---|---|
| UK | – | N | L1 | – | PE |



# Daily use and operation

## 01 How do I charge?

**Before using the Enelion LUMINA charger, ensure that the following requirements are met:**

- An authorized electrician has made the electrical connection correctly.
- The charger is correctly configured.
- The software is up to date.
- If access control is configured, block it with a registered RFID tag or disable it in the configuration panel on the Wi-Fi interface.

**Before each use of the Enelion LUMINA charger:**

1. Check that the charging cable and connector are not damaged or contaminated, e.g. due to foreign objects or water.
2. Connect the charging cable to the Enelion LUMINA charger and to the electric car. The charging process starts and adapts automatically to the electric car and the available power based on its configuration. If the car does not start charging, check that charging is enabled in your car and that the connectors are correctly connected.

# 02 Interface LED

**The Enelion LUMINA charging station has an LED interface that provides the user with basic information:**

| Status | Light type |
|---|---|
| Availability | Green flashing |
| Charging (energy transfer in progress) | Blue flashing from inside towards the edge |
| Charging (no energy transfer) | Blue flashing |
| Warning/minor error (the charger will attempt to return to its previous state) | Yellow flashing |
| Error | Red flashing |
| Fatal error | Steady red |
| **Authorization** | **Light type** |
| User acceptance | Running from left to right in green |
| User rejection | Running from left to right in red |
| Authorization pending | White dot moving from left to right |

**The interface provides only basic operational information, detailed information can be read from the configuration panel.**

# 03 Maintenance

The device is designed to operate in temperatures from -30°C to +55°C. The manufacturer does not guarantee the correct operation of the charging station at temperatures outside of the specified range. Chargers damaged by temperatures below -30°C or above +55°C are not covered under the warranty.

# 04 Cleaning

The correct way to clean the charger is to wipe the casing with a microfibre cloth using a cleaner dedicated to the plastic of the casing. Plastic parts (the socket) should be cleaned with a microfibre cloth using a cleaning agent dedicated to glass. Other cleaning methods (e.g. using a wire brush) may damage the casing.

Damage caused by improper cleaning of the device does not constitute grounds for warranty claims.

# Practical details

## Standards

Enelion sp. z o.o. hereby declares that this product, the Enelion LUMINA charging station, complies with:

2014/53/EU (RED); 2011/65/EU (RoHS), 2014/30/EU (EMC) ; 2014/35/EU (LVD); UK SI 2016 No. 1101; UK SI 2016 No. 1091; UK SI 2017 No. 1206; UK SI 2012 No. 3032

The following BSI and ETSI standards and technical specifications have been applied:

ETSI EN 300 328 V2.2.2:2020-03; EN 62196-2:2017-06; EN IEC 61851-1:2019-10; EN IEC 61851-21-2:2021-09; EN 62196-1:2015-05; ETSI EN 301 511 V12.5.1:2017-10 ETSI EN 300 330 V2.1.1:2017-08; ETSI EN 301 489-1 V2.2.3:2020-07; ETSI EN 301 489-17 V3.2.4:2021-05

The full content of the declaration of conformity is available at: enelion.com

## Disposal

This electronic equipment must not be disposed of with household waste. There may be free collection points available in your area where you can hand over your old equipment. Please follow local regulations for proper and environmentally friendly disposal. If your old electronic equipment contains personal data, you are responsible for removing this data before returning the equipment.

## Repair

If your charger requires repair, please contact your distributor.

## Returns and complaints

For product returns and complaints, please contact your distributor or Enelion customer service.

# Customer service

Download the latest user manuals, useful documents and videos for your product on **https://enelion.com/support-lumina/**



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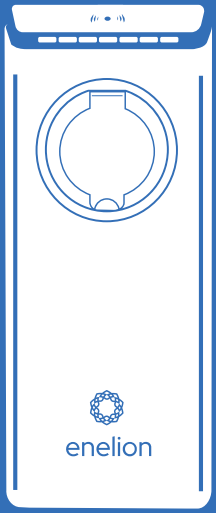


enelion

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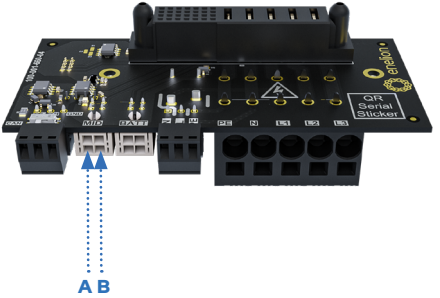
# Preparation of the cable-set for connecting an additional energy meter and the RS485 interface (ModBus RTU)

Connector we have on the terminal board is a 4pos Wurth male connector MPN: 66200421022

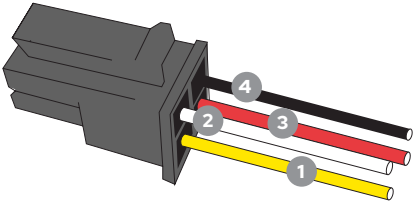



Female side should be: housing MPN 662004113322 + crimp terminals MPN 66200313722 – if installer will use Wurth

You don't need to use wurth as a manufacturer, you can also take amphenol or molex 1:1 replacement

The signal wires must be correctly crimped on the terminals before they are inserted into the housing – the crimping tool used should be dedicated by the crimp terminal manufacturer

Signal Wire Dimension AWG: AWG 20–24




pin 1
– additional energy meter - impulse signal
pin 2
– Modbus "B" wire
pin 3
– additional energy meter - impulse signal
pin 4
– Modbus "A" wire