

Smappee EV Base

Installation manual



Table of contents

1. Introduction	3
2. Safety instructions	4
3. Components.....	6
4. Technical specifications	7
5. Preparing the installation	8
6. Installation and activation	11
7. Using the EV Base	18
8. Declaration of conformity	21

1. Introduction

Thank you for purchasing this Smappee EV Base charging station for electric vehicles, the smartest charging station for businesses.

This installation and user manual tell you how to install and use the Smappee EV Base. We advise you to read the contents of this manual carefully, to ensure a safe and proper installation and enable you to use all the advanced features of this product to the full.

Support

Only qualified electricians or equivalent may install the Smappee EV Base. If you have any questions, please contact your service partner.

Please have the following information ready to hand to speed up the process: Article number and serial number which you can find on the identification label of the charging station.



Should your local distributor be unable to help you, or you have a suggestion for us, you can contact Smappee at: **support@smappee.com**.

Smappee n.v.
Evolis 104
8530 Harelbeke
Belgium

2. Safety instructions

Safety warning

Fully read and follow the safety instructions below before you install, service or use your Smappee EV Base. The installer must ensure that the charging station is installed in accordance with the relevant national and local regulations.

Carrying out activities on this charging station without the relevant knowledge and qualifications can lead to serious accidents and death. Only carry out tasks for which you are qualified and have been fully instructed.

Incorrect installation, repairs or modifications can result in danger to the user and may void the warranty and liability.

Safety precautions

	CAUTION: Risk of electric shock.
	CAUTION: Refer to the accompanying documentation whenever you see this symbol.

Please observe the following safety precautions to avoid potential electric shock, fire, or personal injury:

- Use this charging station only for its intended purpose.
- Switch off electrical power supply to your charging station before installation or maintenance work.
- Do not use the charging station if damaged / defective.
- Do not immerse the charging station in water or any other liquids.
- Do not expose the charging station to heat, flame or extreme cold.
- Do not attempt to open, repair, or service any parts. Contact Smappee or your service partner for further information.
- Only use the charging station under the specified operating conditions.
- Do not allow children to operate a charging station.
- When a charging station is in use, adult supervision of any children present is required.
- While charging the charging cable must be completely unwound and connected to the electric car without overlapping loops. This to avoid the risk of overheating the charging cable.

Maintenance

- Observe the maintenance schedule.
- Clean the outside only with a dry, clean cloth.
- Do not use abrasive agents or solvents.

Keeping order

- After charging store the charging cable properly so it does not present a tripping hazard.
- Make sure the charging cable cannot become damaged (kinked, compressed or driven over).
- Do not place any objects on the charging station.

Transport and storage

- Disconnect electrical power supply before removing the charging station for storage or relocation.
- Only transport and store the charging station in its original packaging. No liability for damage incurred will be accepted if the charging station is transported in non-standard packaging.
- Store the charging station in a dry environment within the temperature range specified in the technical specifications.

3. Components

Components included

1. 1 x Smappee EV Base unit
2. 1 x Floor plate
3. 1 x Plastic bag containing installation material (4 x concrete anchors, 4 x washers)

Identification label

The identification label of your charging station is located under the top cover of connector 1.



1. Manufacturer
2. Article number
3. Rating
4. Serial number
5. Manufacturing date
6. Degree of protection
7. QR code containing article number and serial number

4. Technical specifications

Feature	Description
Technical features	
Charging capacity per connector	Single or triple phase, 3.7 to 22 kW per connector
Number of connectors	2 x Type 2
Output power per connector	1-phase or 3-phase, 230 V – 400 V, 16 A or 32 A
Charge mode	Mode 3 (IEC 61851)
Connection case	2 x Case C (Fixed cable)
Integrated Residual Current Monitor	Rated operating residual current detection : 6 mA DC / 30 mA AC per connector
Interfaces & Connectivity	
Information status	RGB LED
Session activation	Plug & Charge, Scan QR code, Swipe RFID card
Connectivity	Wi-Fi 2.4 GHz, Ethernet 100BASE-T, LTE CAT M1 or NB2
Communication protocol	OCPP 1.6 JSON
Certifications and Standards	
Product certification	CE, see declaration of conformity in chapter 8.
Standards	IEC 61851-1 (2017)
Environment	
Enclosure material	Aluminium (structure), Outdoor high pressure laminate (casing)
Enclosure rating	IP55 / IK10
Enclosure standard colours	RAL9016 (star white) + RAL7021 (black grey)
Operating temperature	-25 °C to 60 °C
Storage temperature	-25 °C to 80 °C
Relative humidity	0 % - 95 %, non-condensing
Maximum installation altitude	0 – 2.000 m
Physical properties	
Dimensions	1200 x 600 x 150 mm
Weight	20 kg (28 kg incl. 2 cables), excluding packaging
Charging cable length	2 x 2500 mm
Mounting method	Floor / Ground

5. Preparing the installation

The first step is to prepare the physical installation of the EV Base as described in this chapter.

Installation prerequisites

- Calculate the existing electrical load to find the maximum operating current for the charging station installation. The Smappee EV Base is equipped with 2 connectors which need to be powered individually. Note that with the Smappee Overload functionality more charging stations or the total maximum operating current can be higher than the physical installation allows.
- Determine the voltage drop over the distance from the power supply panel to the charging station installation. The voltage drop must not exceed 5 %. It is advised that the maximum voltage drop be 3 %. The maximum wire gauge that can be fitted is 10 mm². Local regulations may be applicable and can vary depending upon the region or country.
- Obtain all necessary permits from the relevant local authority.
- Refer to local wiring regulations to select the conductor sizes and use only copper conductors.
- Make sure that the installation area of the charging station is adequate for usability and ventilation purposes.
- Use the correct tools and provide sufficient material resources and protection measures.
- Make sure that there is an internet connection available for each EV Base (1 per unit). Depending on your Smappee EV Base type, either foresee an Ethernet cable (preferred) or Wi-Fi at the location of the EV Base or a reliable 4G cellular network reception.

Route power supply

- The appropriate wire gauge of the supply cable depends on the power rating and distance between the meter cabinet and the charging station. The voltage drop must not exceed 5%. It is advisable to have a maximum voltage drop of 3%. The maximum wire gauge that can be fitted is 10 mm².
- Route the power supply cables to the position where the charging station will be installed together with an Ethernet cable for the internet connection (if applicable).
- Make sure the power supply cables are positioned through central position of the floor plate recess.
- Make sure that there is at least 60 cm available out of the ground.

	Both power lines enter the station via the floor plate.
	If an Ethernet cable is used for the internet connection, this also enters the charging station via the floor plate.

The maximum power rating for each connector is specified in the table below.

Power per connector	Connection	Input current	Output current
3.7 kW	1-phase	2 x 16 A	2 x 16 A
11 kW	3-phase	2 x 16 A	2 x 16 A
22 kW	3-phase	2 x 32 A	2 x 32 A

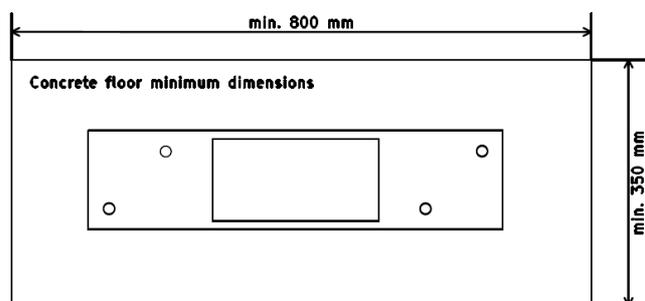
Prepare the mounting foundation

The Smappee EV Base is designed to be installed at ground level without the need for a separate mount.

A stable and level ground needs to be prepared in advance. We advise a levelled concrete foundation at ground level. It is also possible to have the foundation a little lower than ground level. This allows the anchors to be masked and the EV Base to be integrated in the surrounding soil.



Depending on the subsoil, the size may vary. Please refer to the technical specifications of size and weight to determine and construct a solid foundation for the EV Base.



Make sure the power supply cables are positioned through central position of the floor plate recess.

Tools (not included)

- Screwdrivers and a 2.5mm Hex screwdriver
- Multi meter and earth ground meter
- Wire stripper and cutter.
- Needle-nose pliers.
- Ferrules crimper, for stranded power supply cables
- Drill and rock drill diameter 12 mm.
- 18 mm socket wrench with ratchet handle
- Hammer

Supplies (included)

- 4 x concrete anchors (\varnothing 12 mm x 100 mm)
- 4 x washers (\varnothing 50 mm)

Supplies (not included)

- Ethernet cable or RJ45 connector for wired communication.
- Power supply cables
- Ferrules (10 mm²), for stranded power supply cables

6. Installation and activation

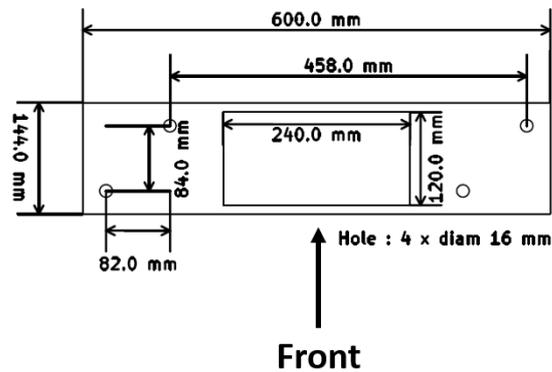
This procedure describes the required steps for the physical installation of the EV Base.



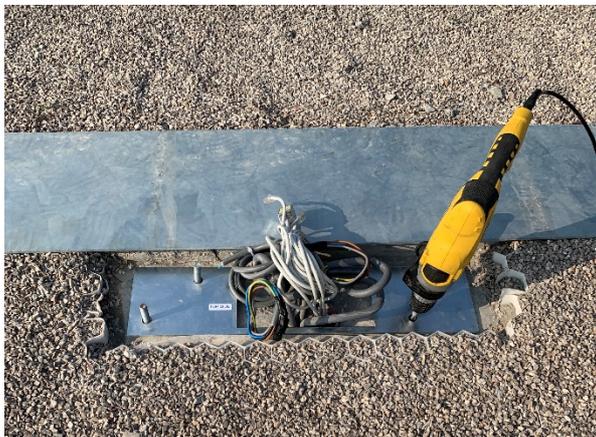
CAUTION: Make sure it is not possible to connect the electric current during installation. Put up caution tape and warning signs to mark the work areas. Make sure no unauthorised people can enter the work areas.

Mount the anchors

- Use the floor plate to mark the position of the anchors on the pre-prepared concrete foundation. Make sure the top side label of the floor plate is facing upwards. The power supply cables should go through the central recess of the base plate.



- Drill 4 holes of 12 mm diameter through the slots to a depth of 70 mm. Insert the supplied concrete anchors. Make sure that there is approx. 3 cm of threaded wire visible above ground level.



- c. Mount the floor plate over the anchors and make sure it is level in both directions. If not, tilt the floor plate until it becomes level.



To tilt the floor plate, insert large washers below the floor plate until it becomes level.



Place the EV Base in position

- a. Remove the backplate of the EV base and position this on the floor plate.



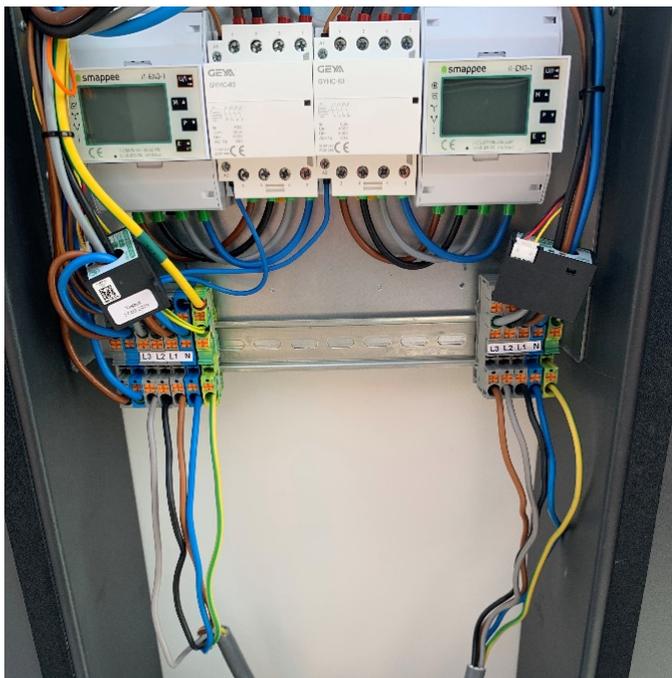
- b. Position the one of the four supplied large washers (\varnothing 50 mm) over each of the 4 screw threads (anchors).
- c. Place the four nuts and hand tighten.



Do NOT torque the four nuts yet. This is done in the last step of the installation, when the back cover of the EV Base is in place.

Power supply connection

- a. Cut both the power supply cables to adequate length and add the ferrules to each conductor.
- b. Measure the resistance of the grounding circuit and make sure that it is within acceptable limits. If necessary, install a grounding point closer to the charging station.
- c. Connect each supply cable to the correct terminal block.



Phase rotation

To avoid overloading the first phase with one-phase electric vehicles, phase rotation is recommended. We recommend rotating the phases as shown in the table below.

EV Base	Connector	Phase mapping
EV Base 1	Connector 1	L3 – L2 – L1 – N (as indicated on the label)
	Connector 2	L1 – L3 – L2 – N
EV Base 2	Connector 1	L2 – L1 – L3 – N
	Connector 2	L3 – L2 – L1 – N (as indicated on the label)
EV Base 3	Connector 1	L1 – L3 – L2 – N
	Connector 2	L2 – L1 – L3 – N

And continue with this pattern for other EV Base units.



When phase rotation is applied on a connector adjust the configuration in the Smappee Dashboard.

Internet connectivity

- a. Internet connectivity: If Ethernet cable is used for internet connection, mount the Ethernet cable in the Smappee Connect (bottom). Cut the Ethernet cable to the appropriate length and mount an RJ45 connector (not supplied).

Switching on the EV Base

- a. Check all connections are secure and power-up both power supplies of the EV base.
- b. Check the status LEDs:
 - Both charge controllers
 - Both RCM
 - Connect – Blue flashing
 - Ambient light is illuminated with a white fixed light

Activation

This procedure is done with the Smappee Energy Monitor mobile app. You can download this from the Apple App Store for iOS or the Google Play store for Android phones.



The Smappee App will guide you through the various steps to fill in all the required information.

- Log in to the Smappee App with the corresponding Smappee username or create a new user account.
- Install a Smappee EV Base
- Follow the steps shown in the mobile app.

	Multiple charging stations can be installed at a single location. To add a new charging station in the mobile app, go to Settings > Your Smappee charging stations
	The settings of your charging station can be adjusted in the Smappee Mobile app or Dashboard. <ul style="list-style-type: none">• Smappee Mobile App: Name, Minimum and maximum current per connector, Charging speed per connector and LED brightness• Dashboard: Name, Minimum and Maximum current per connector, Phase assignment per connector, Charging speed per connector and LED brightness
	For overload protection or optimised self-sufficiency, see chapter 8 “Product features”, additional Smappee Infinity components must be installed to measure the Grid and Solar, Battery, other submetering if applicable.

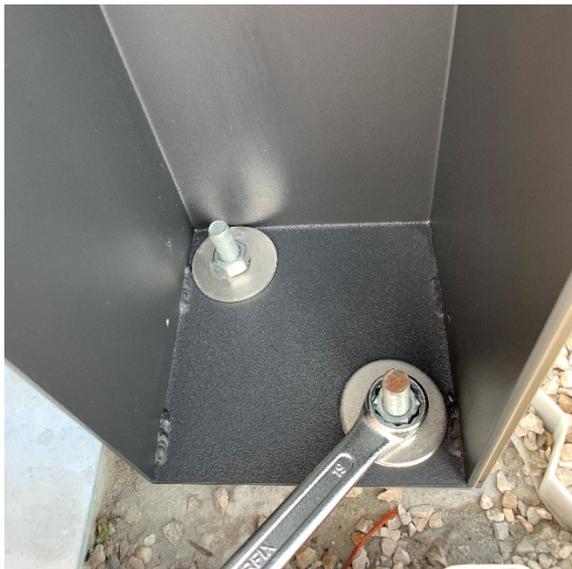
Closure

- a. Mount the back plate into position and tighten the screws.



If the screw holes do not align, loosen the anchor nuts to eliminate any torsion in the frame.

- b. Tighten the anchor nuts with a socket wrench.



- c. Finish off by using the preferred top coat.



7. Using the EV Base

There are three ways of charging using a Smappee EV Base:

1. Plug & Charge: Simply insert the connector in the EV and start charging.
2. Scan & Charge: Insert the connector, scan the QR code in the Smappee app and start charging.
3. Swipe & Charge: Insert the connector, swipe your RFID card and start charging.

Below you can find the different charging sequences.

Plug & Charge

This is a general authorisation without a charge card or without a QR code. To start charging, simply connect your EV with the Smappee EV Base. If you want to stop charging, simply disconnect the cable from your EV.

Start charging



Stop charging



Scan & Charge

If you want to authorise via a QR code, you will first have to connect your EV with the Smappee EV Base. Then, you will have to scan the QR code found on the same side as your EV with your smart phone and your charging session will commence. To stop charging, either go the Smappee app, your car charging app or simply disconnect your EV from the Smappee EV Base.

Start charging



Stop charging



Swipe & Charge

If you want to authorise your charging session with an eMSP provider, you will first have to connect your EV with the Smappee EV Base. Then, you will have to scan your RFID card which can be done by holding it directly above the Smappee EV Base. You will hear a confirmation tone when your card is successfully scanned. If your charge card is approved, you will hear an affirmative tone and a charging session will commence. To stop charging, simply disconnect your EV from the Smappee EV Base.

Start charging



Stop charging



LED status

LED colour	LED status	Meaning	Action of the user
	White fixed	The Smappee EV Base is available.	Connect your EV with the Smappee EV Base.
	Blue fixed	Your EV is connected with the Smappee EV Base, but is not yet charging.	<ul style="list-style-type: none"> • If using an RFID, scan your charge card and wait until the LED turns blue and flashes. • If using QR codes, scan the QR code and wait until the LED is green pulsing. • If no authorisation is required, wait until the LED becomes green pulsing.
	Blue flashing	Your RFID card is being verified.	Wait until the LED is green pulsing.
	Green pulsing	The Smappee EV Base is charging your EV.	Your EV is being charged.
	Green fixed	The EV is now fully charged.	Disconnect the cable and put it back in its socket of the Smappee EV Base.
	Red fixed	The Smappee EV Base has a problem and is now unavailable.	Check the manual or contact your supplier for more info and further steps.
	Red flashing	Your charge card is not authorised.	Contact your charge card supplier.

8. Declaration of conformity

We,

smappee nv
Evolis 104
B-8530 Harelbeke
Belgium

following the provision of the following EC Directives:

- 2014/35/EU The Low Voltage Directive
- 2014/30/EU The Electromagnetic Compatibility Directive
- 2014/32/EU Measuring Instrument Directive
- 2011/65/EU RoHS Directive

hereby declare that the product:

smappee EV-Base with subparts:

Smappee Connect (MOD-GW-3), Smappee MID meter, Power Supply Module, Smappee AC Charger module and auxiliary parts

is in conformity with the applicable requirements of the following documents

* Metering :

EN50470-1 :2006 / EN50470-3 :2006

* Emissions:

(EN61326-1 : 2013)

Radiated Emission: EN 55011:2009 / EN 55032:2015 (Class B)

Conducted Emission: EN 55011:2009 / EN 55032:2015 (Class B)

Harmonic current Emission: EN 61000-3-2:2005 +A1:2008 + A2:2009

Flicker: EN 61000-3-3:2008

* Immunity:

(EN61326-1 : 2013)

ESD : EN 61000-4-2:2008 / EN 61000-4-2 :2009

Radiated immunity : EN 61000-4-3:2006 + A1:2007 + A2: 2010

Power frequency magnetic field: EN 61000-4-8:2009

Voltage dips/interruptions: EN 61000-4-11:2004

Common Mode Immunity: EN 61000-4-6:2008 / EN 61000-4-6:2009

Burst : EN 61000-4-4:2004 / EN 61000-4-4:2012

Surge: EN 61000-4-5:2005 / EN 61000-4-5:2006

* Safety:

Metering Function : IEC 61010-1 Ed 3.0 (2010-06) + A1:2016

AC Charging equipment : IEC 61851-1 (2017) / EN61558-1

Authorized signatory



Stefan Grosjean
CEO