# Smappee EV Line
Installation Training

Agenda

- Smappee Smart Charging

- Overzicht EV-laadpunt varianten

- Installatie en indienststelling procedure van de EV Wall (Home)

- Aandachtspunten 3x230V (Delta)

- Wrap-Up na installatie - Overdracht App-toegang naar eindklant

- Smappee Partner Dashboard:
  - Remote opvolging, validatie & configuratie-mogelijkheden
  - Activatie bijgeleverde Smappee RFID-card

- Verschil met Business varianten
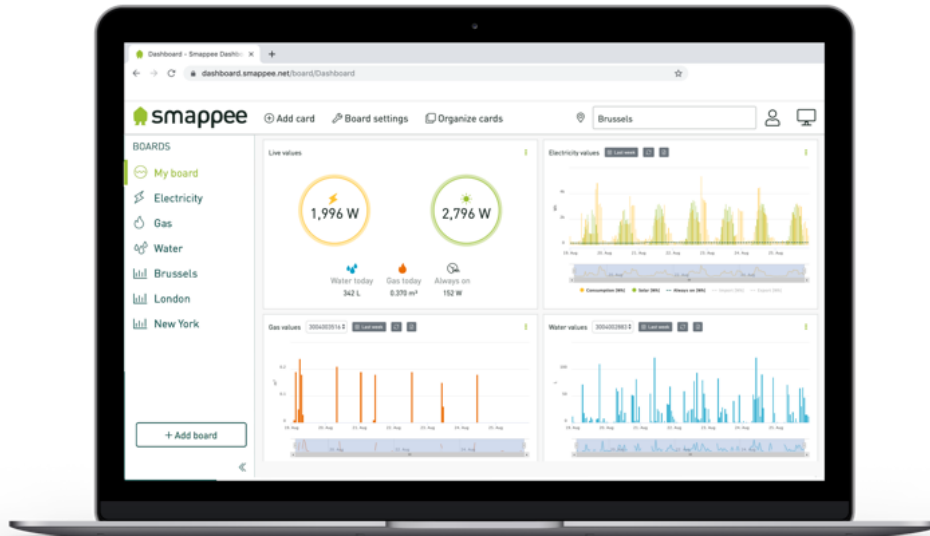
- Quotatie & configurator

Consumption analysis

Available in the Smappee App:
- Total consumption and solar production
- Always-on (standby) consumption
- Cost analysis (down to the appliance level)
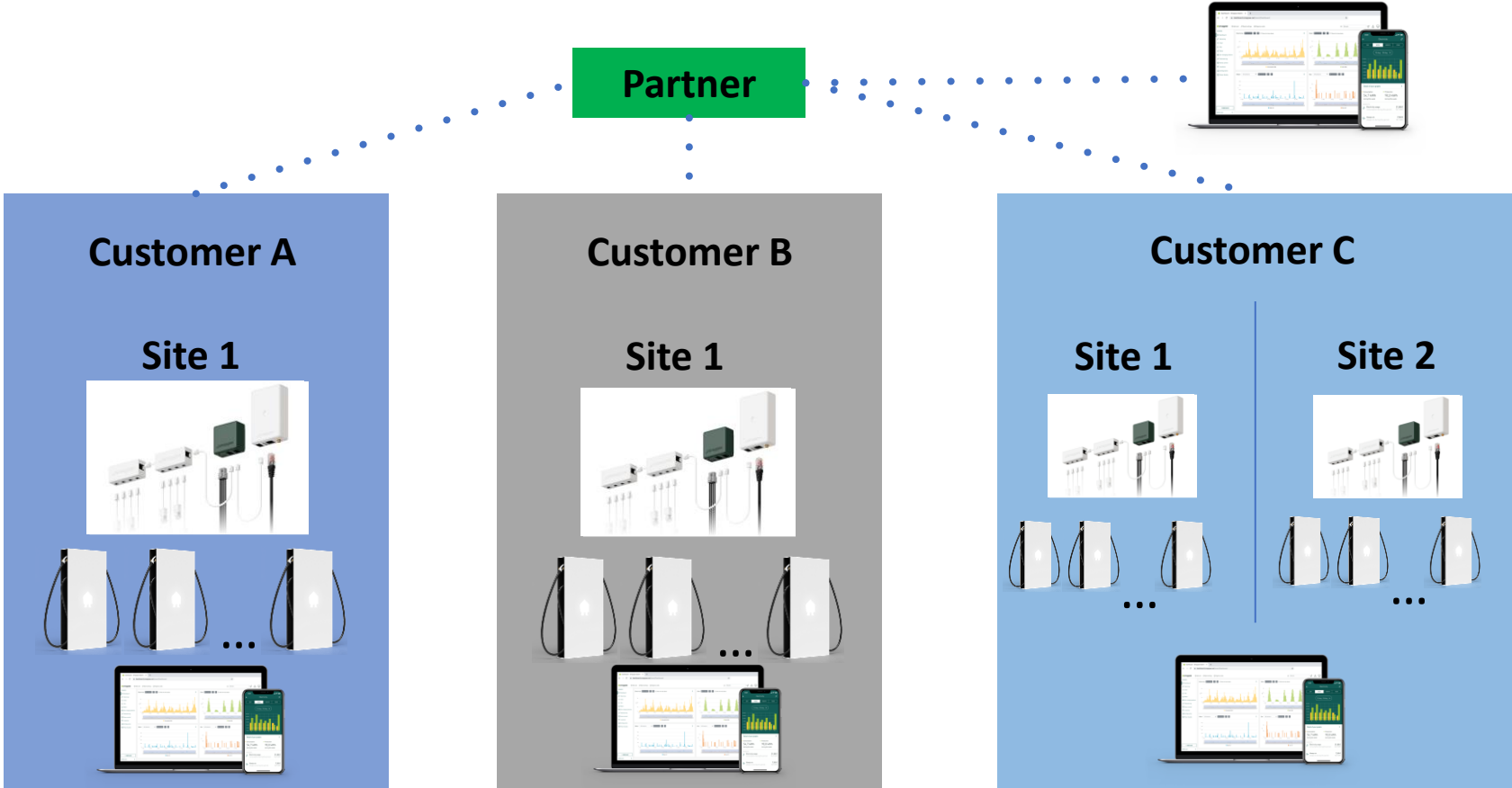

3
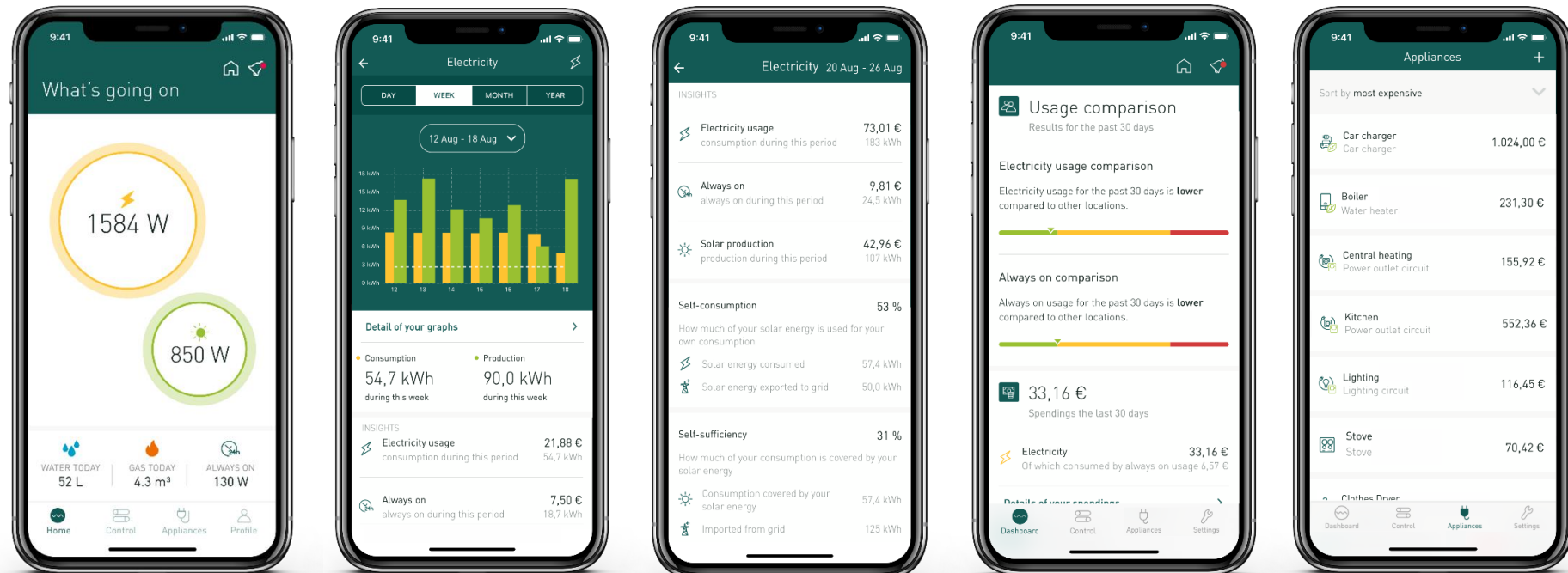
Smappee Dashboard

- Real-time and historical data

- Energy, solar, gas & water

- Submetered appliances

- Data across multiple sites in one place

- Channel & CT configuration

- Tailor the dashboard to your needs by adding 'Cards'

- Export data as .CSV file

- Includes 1st line support tool

- Possible to add you logo and branding

Architecture – Partner vs. end customer

Dynamic load balancing with Smappee Infinity
Overload protection – Circuit Breaker protection

What: Smappee reduces power of each charging point to protect installation from overloads.

How:

- Maximum allowed power of the car charging point is adjusted in real time to protect the main circuit breaker, based on:
  - Real time total consumption of the site
  - Maximum current of main circuit breaker (set point)
- Dynamic aspect:
  - depending on active charge points, charging session time and their actual consumption
  - based on Priority Settings per user (user group) – see later
- Enables:
  - Maximize amount of charging points or oversize maximum charge current of charging points on existing electrical installation
  - No need for higher rated grid connection
  - Peace of mind that all chargers can be operated safely even with more frequent use
  - Cost savings by keeping existing building power connection

Dynamic load balancing with Smappee Infinity

Optimization by self-consumption/sufficiency increase and cost reduction

What:

- Charging schedule adapted to charge with renewable energy

- Import energy as lowest tariff rate

How:

- Predicted solar production & consumption via AI: forecast & real time data
- Need of the EV-driver (charged for # km by a certain time)
- Cost (multi-tariffs & dynamic tariffs)

The user indicates through Smappee App:

- how long he will be on-site and

- how many kWh needs to be charged.

To ensure EV-driver comfort, interaction and input of 'charged for # km by a certain time' is required.

Dynamic load balancing with Smappee Infinity
Need of the EV-driver (charged for # km by a certain time)

Residential: House owner sets smart charging schedules for each day of the week providing time of departure and required charged distance

Demo movie: https://www.youtube.com/watch?v=BJw1-0MDgv4
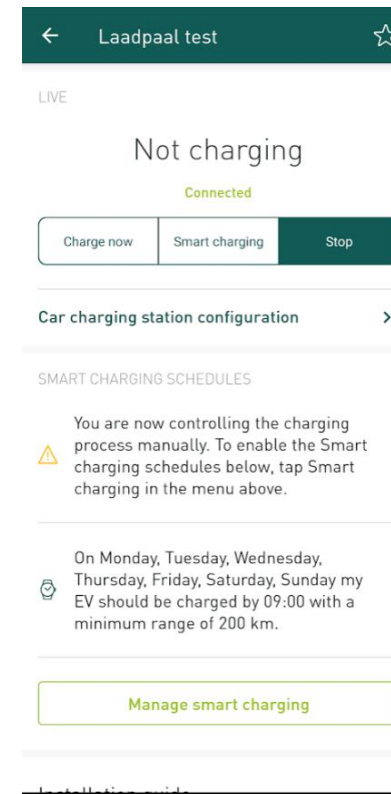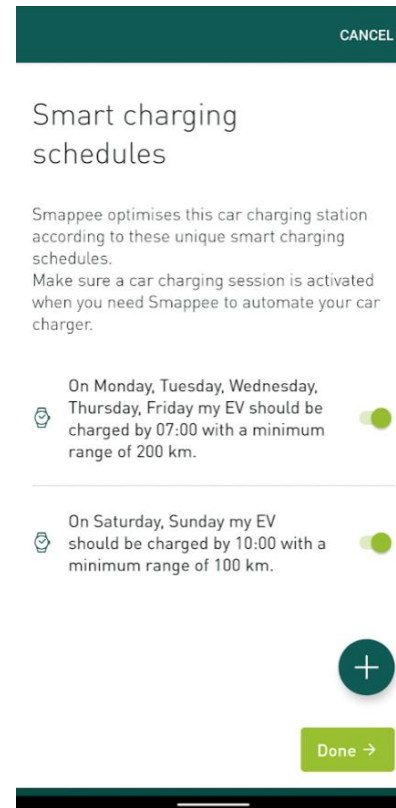
Dynamic load balancing with Smappee Infinity
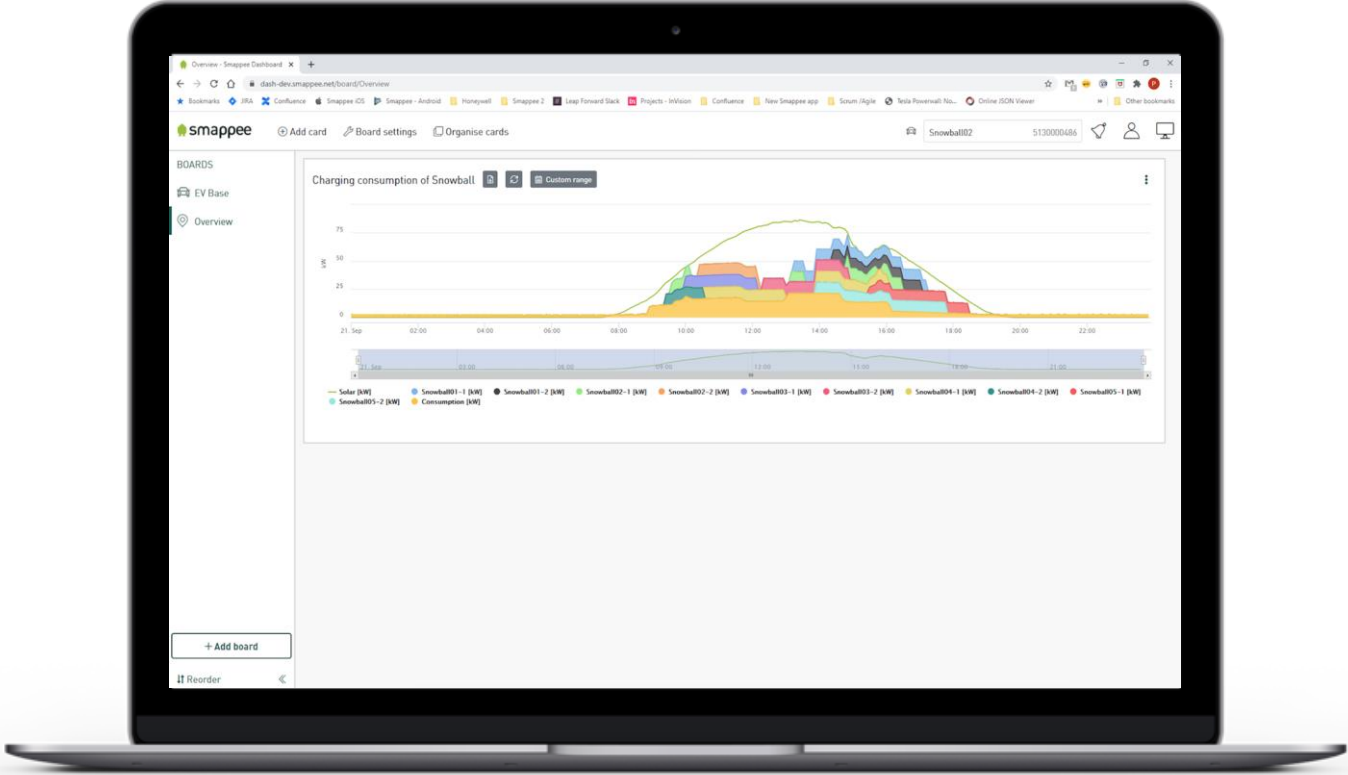
Installation procedure EV Wall
(residential)

Smappee EV Line

Home	Business	

Smappee EV Wall

- Energy and charging data
- Overload protection
- Solar optimisation

Infinity & Smart Charging Package included!

**Internet connectivity at the distribution panel**
- Ethernet (preferred)
- 2.4 GHz Wi-Fi

Smappee EV Wall Business

- Charging data
- MID metering

Infinity & Smart Charging Package need to be purchased separately:
- Energy data
- Overload protection
- Solar optimisation
- Extension to 5 year warranty

Internet connectivity for the unit
- Ethernet only

Smappee EV Base

- Charging data
- MID metering

Infinity & Smart Charging Package need to be purchased separately
- Energy data
- Overload protection
- Solar optimisation
- Extension to 5 year warranty

Internet connectivity
- Ethernet (preferred)
- 2.4 GHz Wi-Fi (alternative)
- 4G (contact Smappee)

Smappee EV Line

Home

Smappee EV Wall

- Energy and charging data
- Overload protection
- Solar optimisation

Infinity & Smart Charging Package included!

Use only for residential installations.

	EV Wall (Home) can only be used for: • Residential installations • New installations that have no Infinity installed yet.
	If multiple EV Wall (Home) unit are needed in residential environment, use a second charging point the EV Wall Business.
	EV Wall (Home) does not support the use of Output module or other Infinity accessories (Switch, Gas & Water monitor, Input module)
	EV Wall (Home) can be extended with additional CT Hubs & CT's for metering.

EV Wall – *Home*

The EV Wall comes in the package with the required Smappee Infinity components to be installed in the distribution panel:

Single Phase Edition
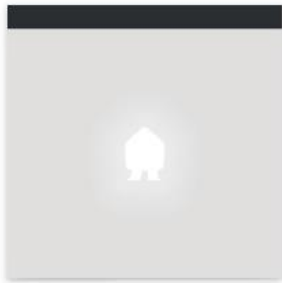
EV Wall

EV Wall mounting plate

EV Wall splitter

DIN mounting plate

Connect

Wall mounting plate

CT Hub

CT 50A

RJ10 cable 40 mm

RJ10 cable 150 mm

Bus termination plug

Screw & plug

Small screw

Three Phase Edition
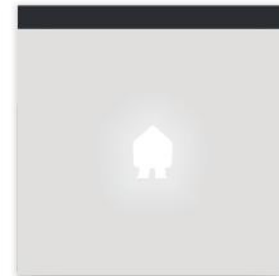
EV Wall

EV Wall mounting plate

EV Wall splitter

DIN mounting plate

Connect

Wall mounting plate

CT Hub

CT 50A

Solid Core 3-phase CT

Bus termination plug

RJ10 cable 40 mm

RJ10 cable 150 mm

Screw & plug

Small screw

EV Wall – *Home*

At the location of each EV Line unit, foresee:

- 1x power supply cable **per connector** (1x EV Wall)

- 1x CAT 5/6 UTP communication cable:
    - EV Wall Business & EV Base: providing internet connection
    - **EV Wall (Home): going to distribution panel where Infinity components are to be installed**

 Each EV Line **connector** has a separate differential protection:
    - Diff. Type A – 30 mA AC
    - RCM 6 mA DC

Wi-Fi connection properties

- **2.4 GHz** Wi-Fi required, preferably with automatic channel selection.

- Networks without DHCP server are not supported

- WPA or WPA2 encryption mandatory.

- Networks without security are not supported.

- SSID must be visible and should not be hidden during installation.

- Not all characters are allowed in the SSID or Wi-Fi password
  - Allowed characters for SSID: [a-z],[A-Z],[0-9],[!#$%&'()*+-./:;<>?@[]^_`{|}~]
  - Allowed characters for Wi-Fi password: [a-z],[A-Z],[0-9],[!"#$%&'()*+-./:;<>?@[\]^_`{|}~]

- The maximum number of characters for the WPA2/PSK is 20.

🔅	The DHCP of your router assigns the IP address of your Smappee.
🔅	See Wi-Fi connection properties in Addendum 2 of the Infinity Installation manual.

15

Firewall rules

- Your firewall should allow Smappee to create outbound secure HTTP connections.

- No specific firewall settings are required in your network. If you use a firewall, use the commonly applied secure firewall rules:
  - Inbound communication: All inbound ports closed. No port forwarding.
  - Outbound communication: All outbound ports allowed.

See firewall rules in Addendum 2 of the Infinity Installation manual.

EV Wall – Connection diagram (1P+N)

EV Wall – Connection diagram (3P+N - Star)

💡	Connect the CT to measure solar to the correct phase. Adjust the configuration in the Smappee App when this is not the L1 phase.
	When the solar installation is 3-phased, you need to purchase and install the EV Wall solar add-on.
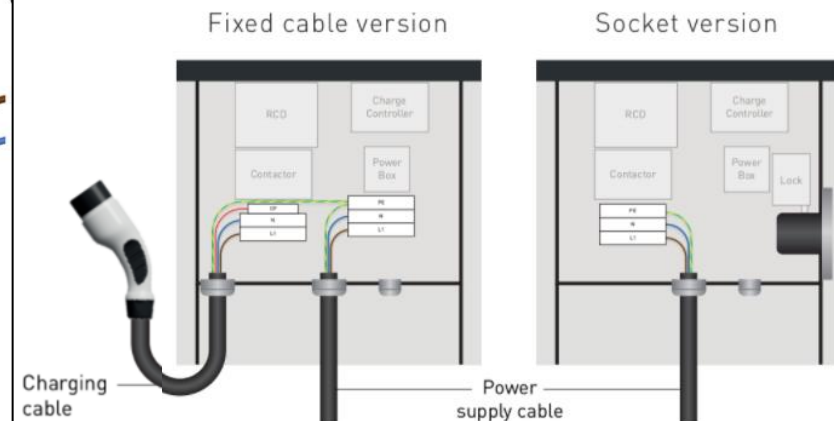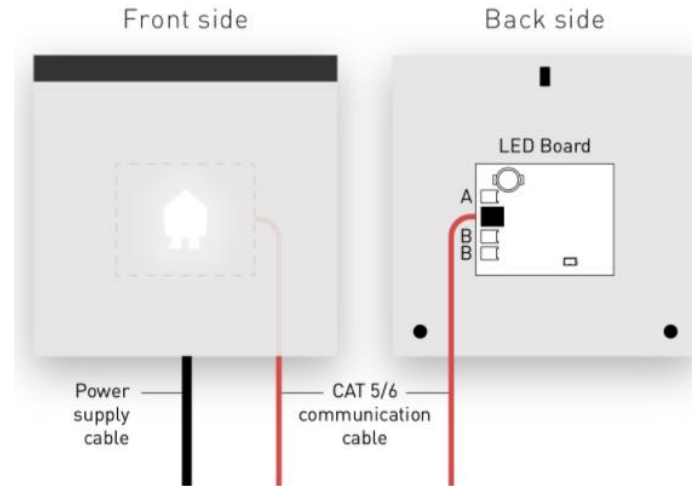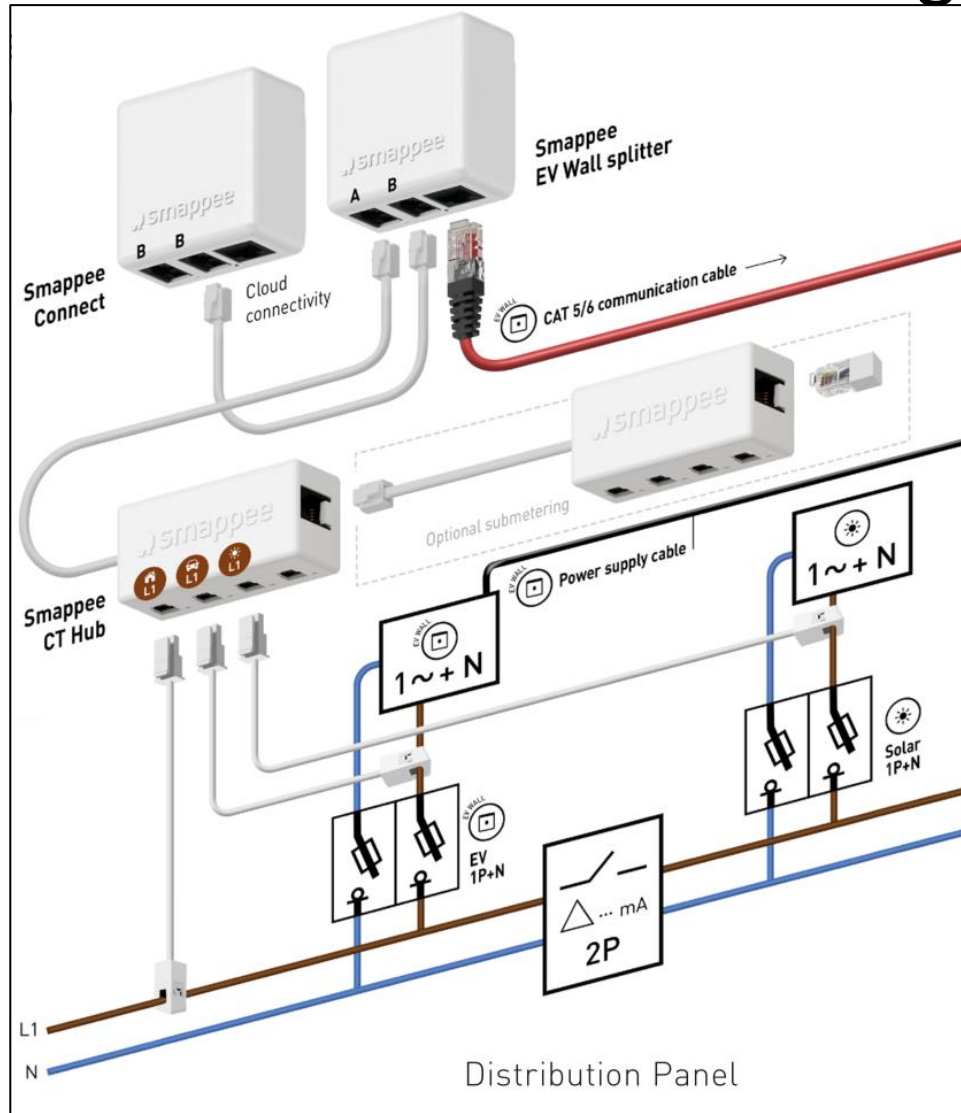
Step 2. Installation and activation

Power supply connection – Socket version

- Mount the power cable through the central cable gland (M32)

- Connect each supply cable to the connecting block and respect the phase-numbering:
  - L1, L2,L3,N to Diff. Type A
  - Ground (6 mm²) to connecting block
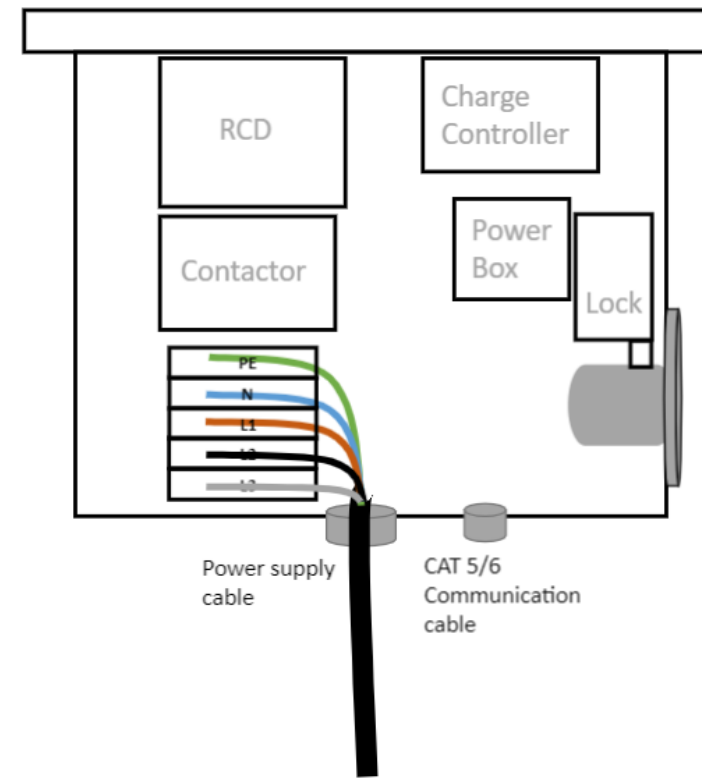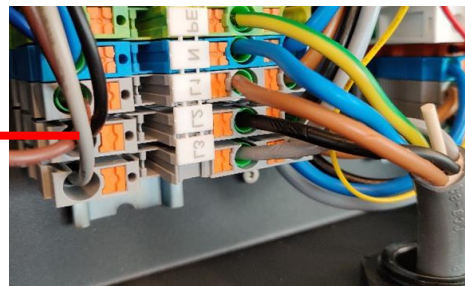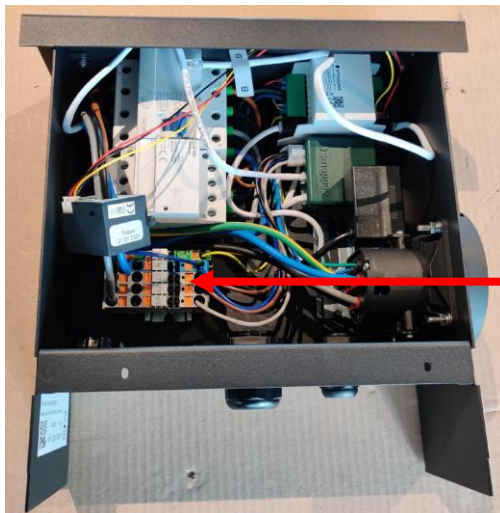
Step 2. Installation and activation

Power supply connection – Fixed cable version

- Mount the power cable through the central cable gland (M32)

- Connect each supply cable to the connecting block and respect the phase-numbering:

  - L1, L2,L3,N to Diff. Type A
  - Ground (6 mm²) to connecting block
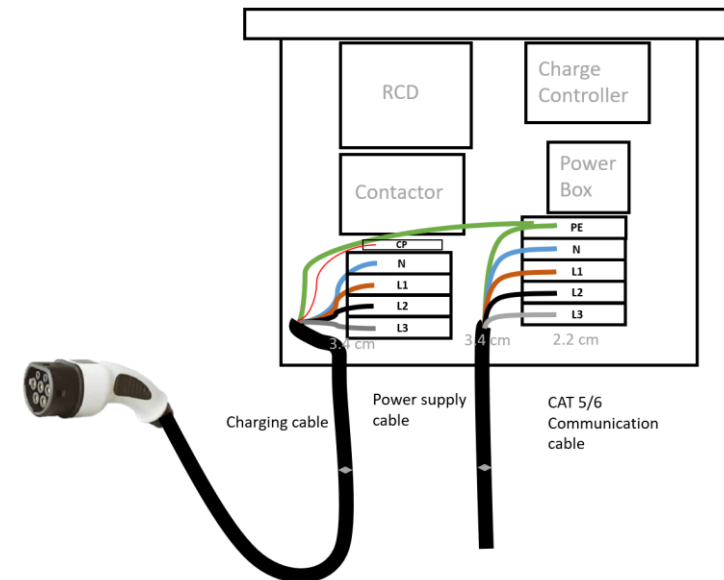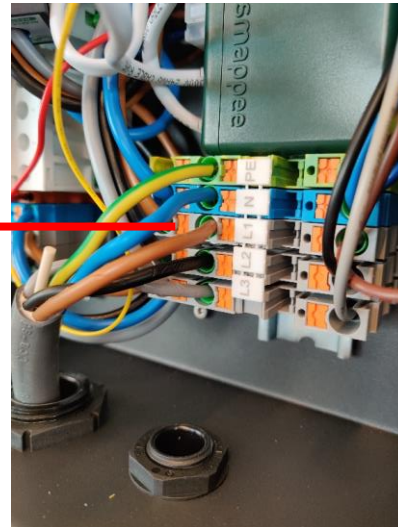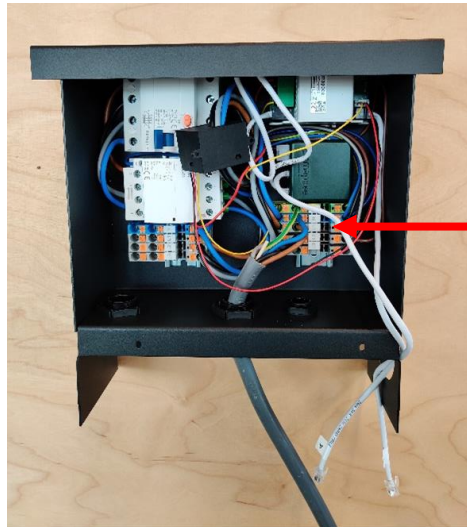
Step 2. Installation and activation

Closure

- Mount the front plate into position by connecting the RJ10 cables and Cat 5/6 cable to the PCB attached to the front plate.

- Pay attention to stickers and connect each cable to the corresponding input (A & B).
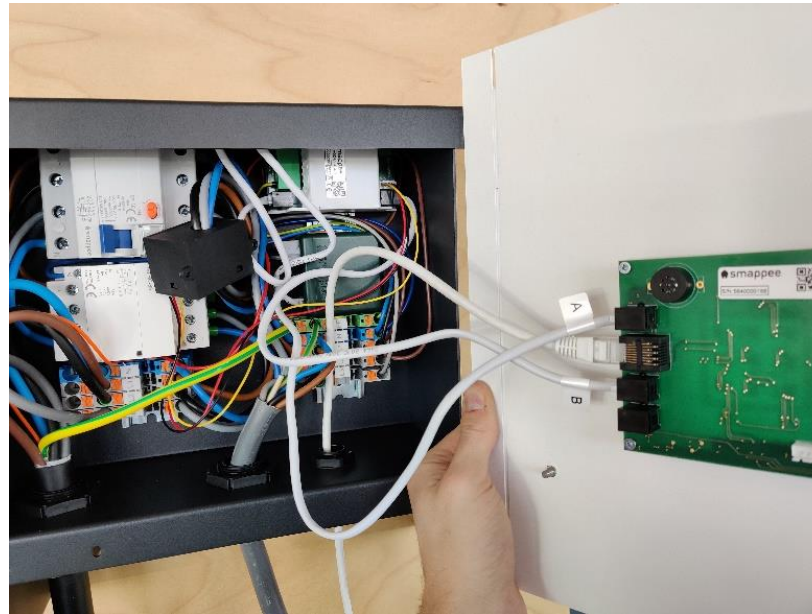
All communication cables must be attached to the front panel before powering the EV Wall. The EV Wall should also be closed.

Step 2. Installation and activation

Install Infinity components in distribution panel

Connect the current transformers (CTs) to phase wires of the main feeder

Load

💡	The arrow on the CT (K → L) indicates the direction of the current flow.

Step 2. Installation and activation

Install Infinity components in distribution panel

Connect the current transformers (CTs) to phase wires of the solar inverter.

The arrow on the CTs that measure solar have **<u>to point away from the inverter</u>**, towards the loads.
The direction is how the current of the produced energy flows.

Solar
(note the 'reversed' direction)

💡	The arrow on the CT (K ⮕ L) indicates the direction of the current flow.

Step 2. Installation and activation

Install Infinity components in distribution panel
Connect the CTs to the pre-configured CT Hub, matching each CT with its corresponding labelled input.

Total Load Home grid   **Car Charger**   **Solar**
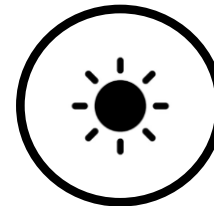
Step 2. Installation and activation

Install Infinity components in distribution panel

And connect the Solid Core 3-Phase CT for car charger.
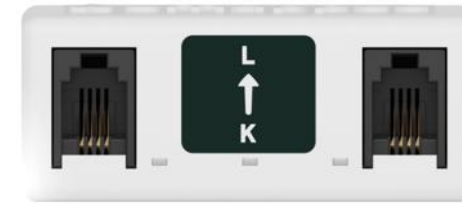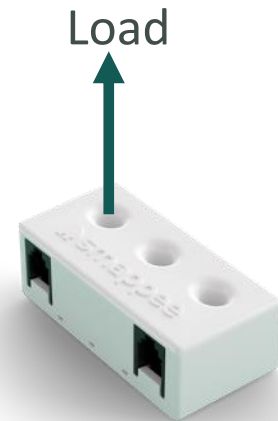
Load

💡	The arrow on the CT (K ⮕ L) indicates the direction of the current flow.

Important! Phase mapping check

Use a digital multi meter to determine by which phase the different loads are powered.
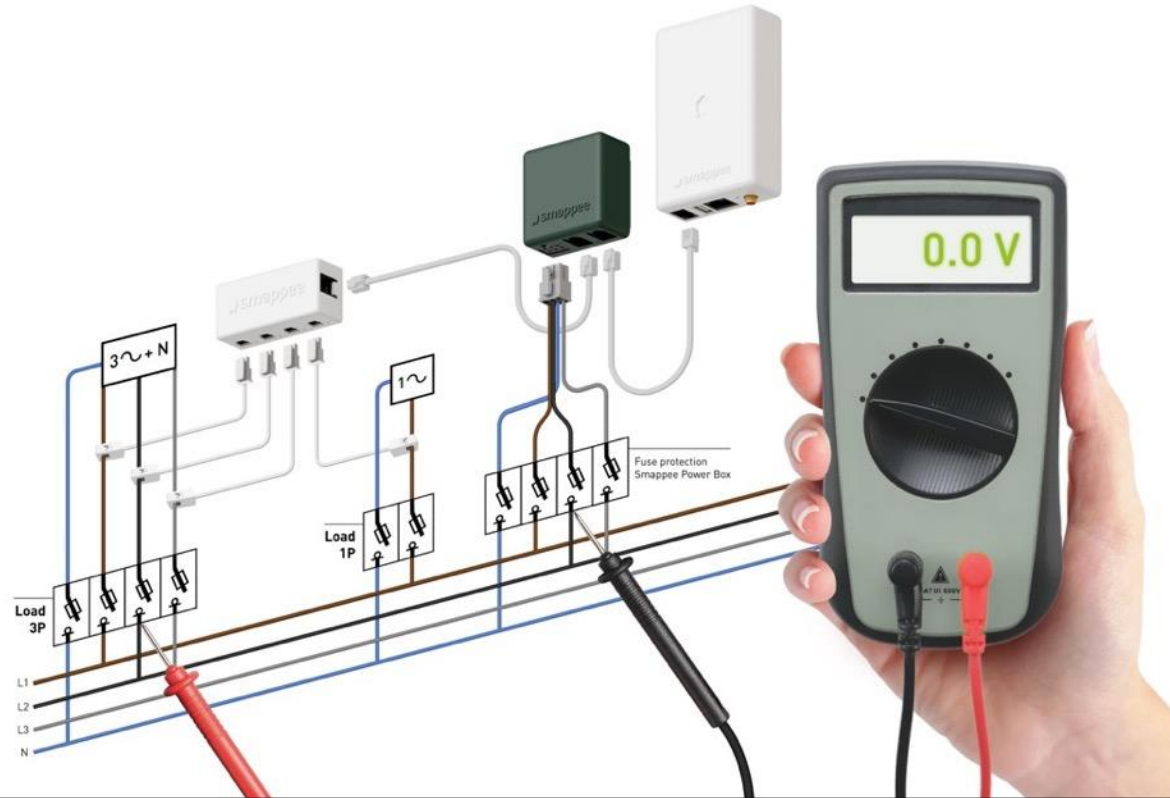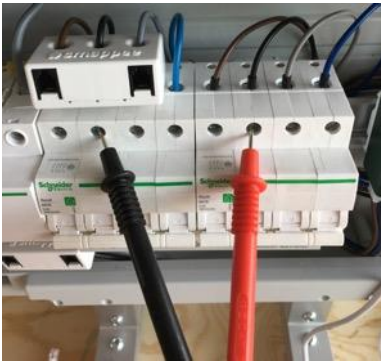
The colour code inside the fuse box and/or phase numbering can be false.

Step 2. Installation and activation

Example: 3x400V with PV 1x230V

Bus Terminal

CT Hub
Total & Solar measurement

CT 50A – Grid
Current measurement

3-phase CT Hub
EV Charger measurement

Connect Gateway
Internet connection

CT 50A – Solar
Current measurement

EV Wall Splitter
Datacable from charger, to CT Hub and Connect

Step 2. Installation and activation

Switching on the EV Wall

- Check all connections are secure and power-up the power supply of the EV Wall.

- Check the status LEDs:
    - Connect gateway – Blue blinking (1x per second)
    - Power Box – Pulsing 1x per 3 seconds
    - Both RCM – ON light active
    - Charging controller: green flashing light (1 x per 3 seconds)

Power Box

Connect
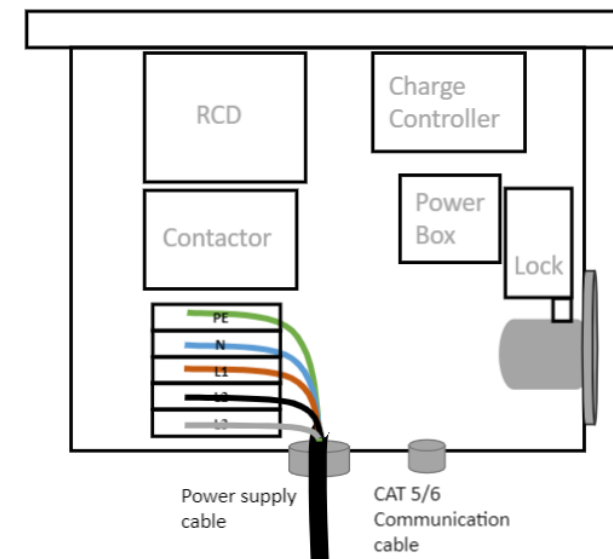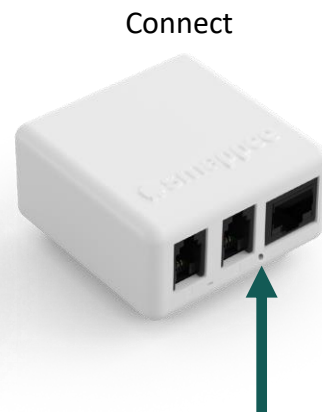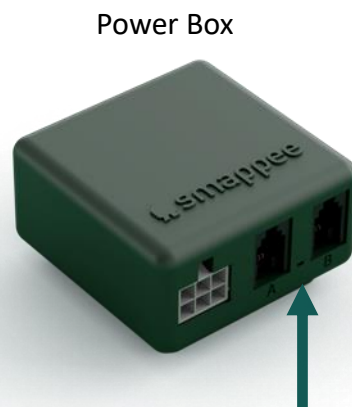
Step 2. Installation and activation

Download the Smappee Smappee Energy Monitor app (iOS or Android) on your mobile device.

Log in to the Smappee App with the corresponding Smappee username or create a new user account.

Step 2. Initial setup and configuration

Option 1: First Smappee installation.
Sign up to create a new account. Tap Install your first monitor and pick Smappee Infinity.
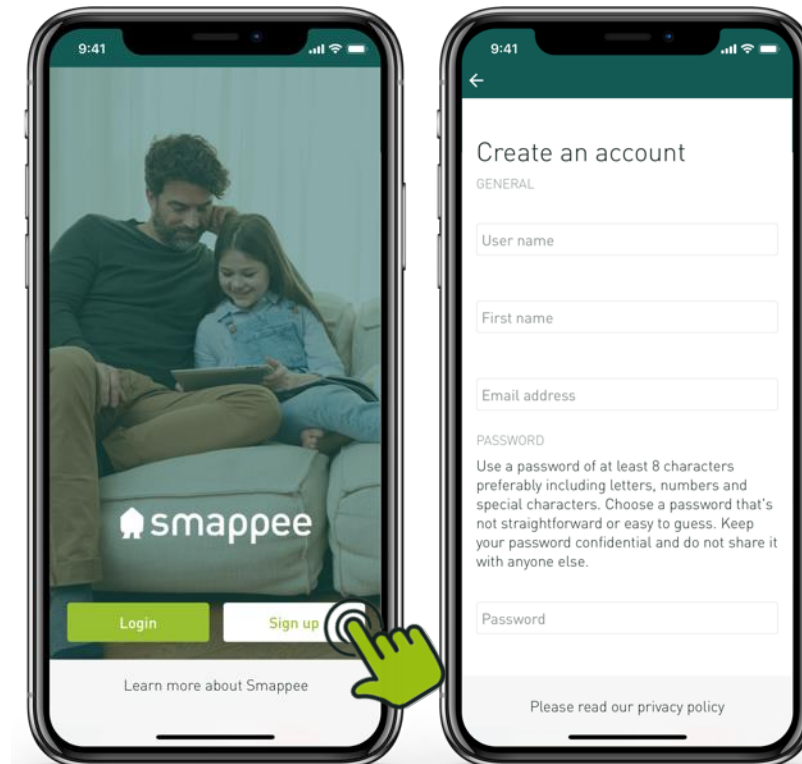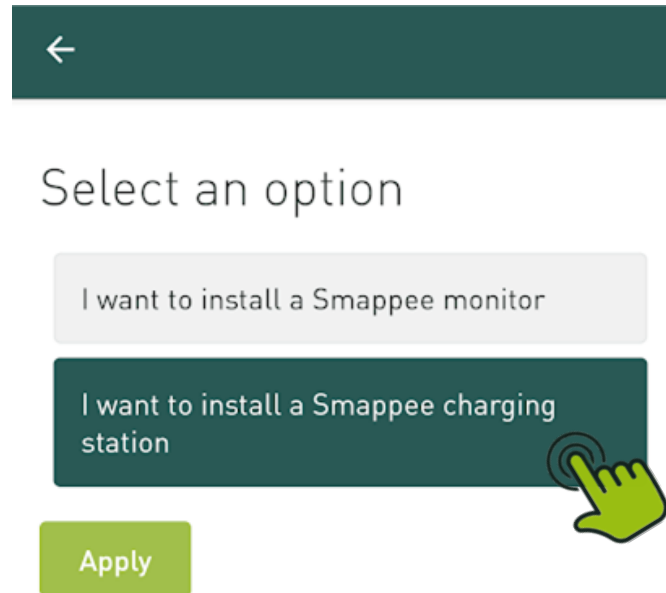
Step 2. Initial setup and configuration

Option 2: Add an additional installation on the same user account;
Log in the Smappee App, go to Settings > Your locations > add a new
location and pick Smappee Infinity.
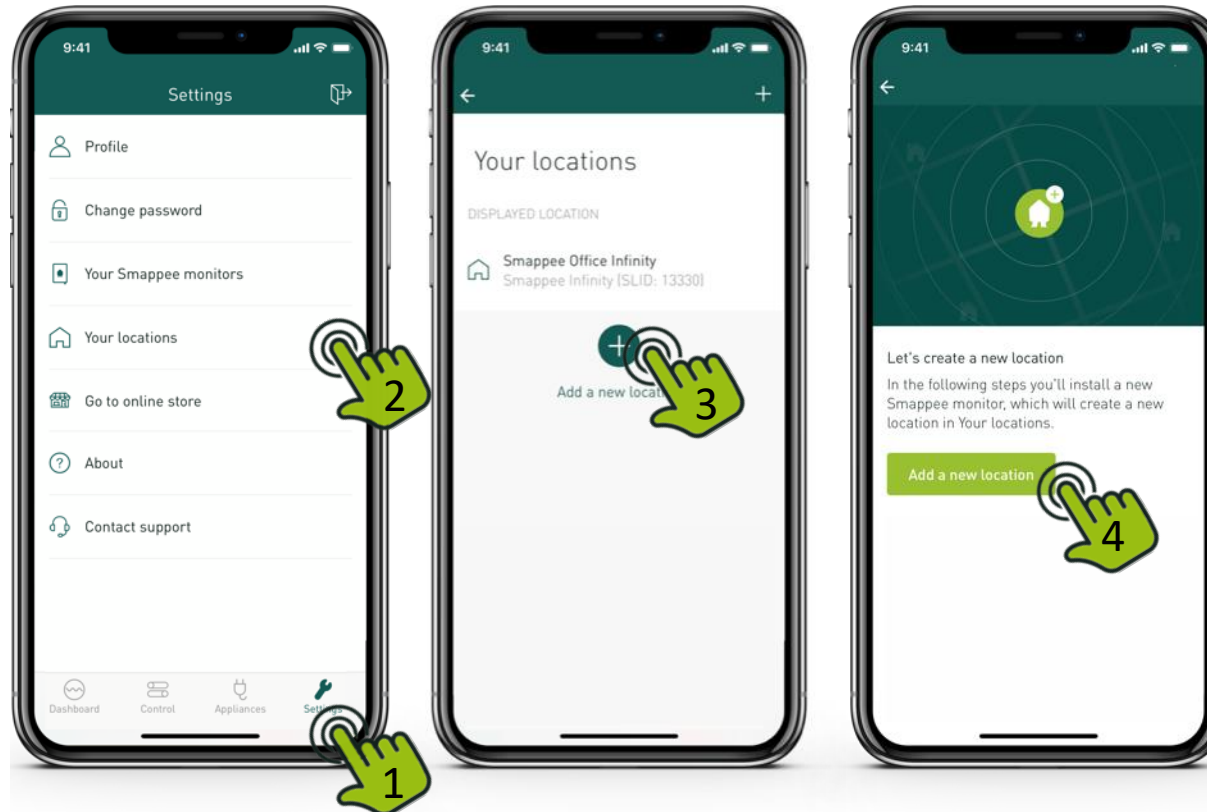
Step 2. Installation and activation

To install an EV Wall (Home), select 'I want to install a Smappee charging station':

Step 2. Installation and activation

Follow the steps shown in the mobile app.

S/N EV Line starts with 6xxxxxxxxx
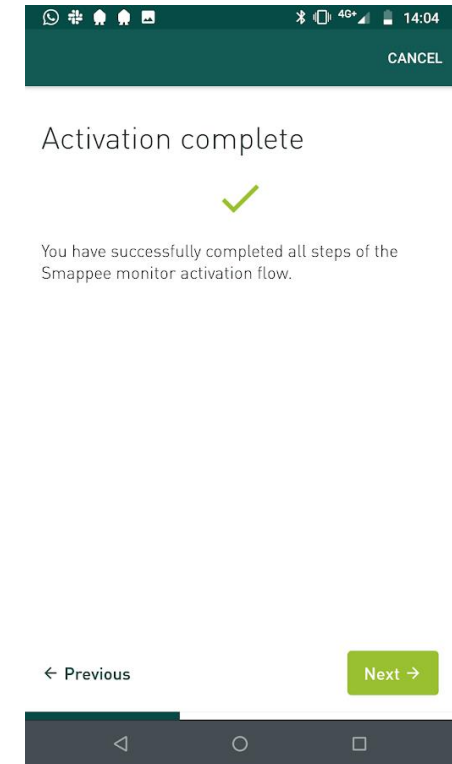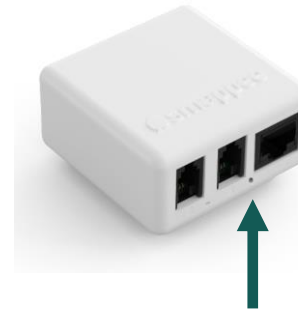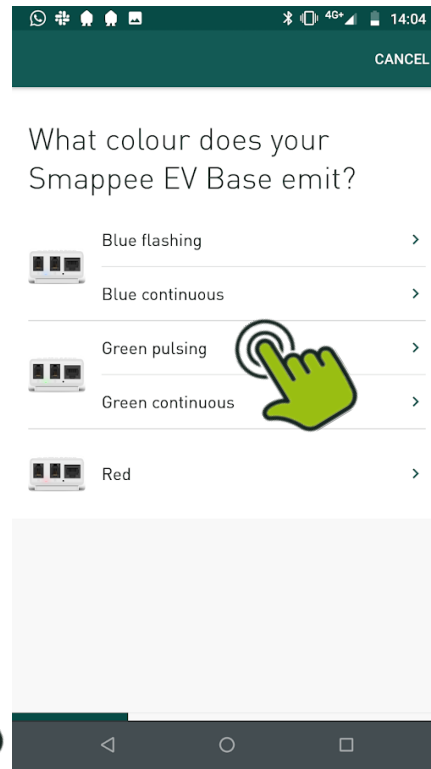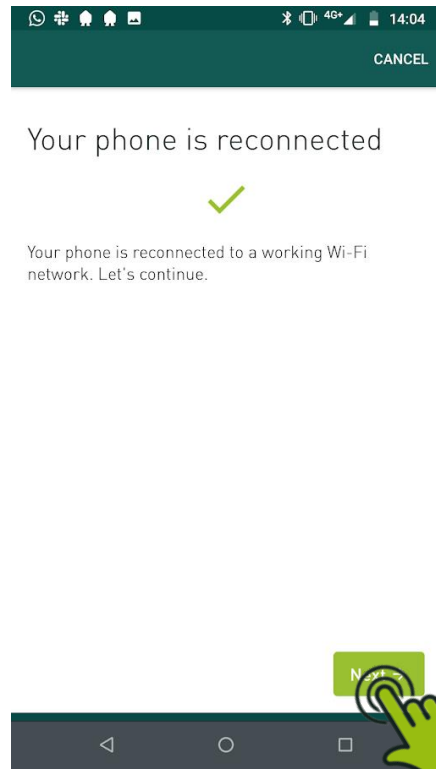
Step 2. Installation and activation

Follow the steps shown in the mobile app.

Step 2. Installation and activation

Follow the steps shown in the mobile app.

Step 2. Installation and activation

Follow the steps shown in the mobile app.

Step 2. Installation and activation

Follow the steps shown in the mobile app.

Maximum: the maximum current the charge point can provide

	Settings are applicable to both connectors & can be changed later through App & Dashboard

Step 2. Installation and activation

Follow the steps shown in the mobile app.
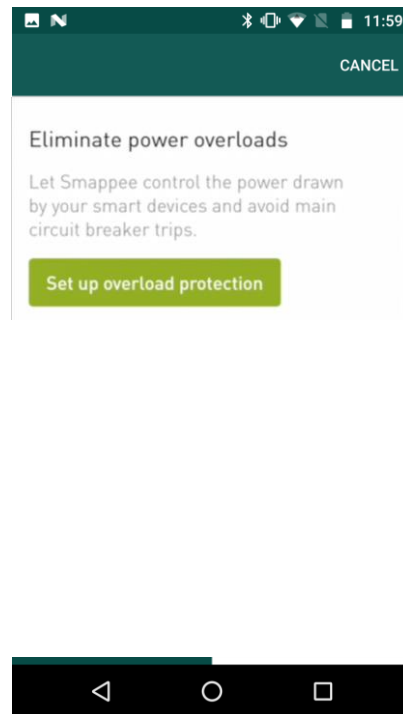
Overload protection: the maximum current of the main circuit breaker of the electrical installation

	Settings are applicable to both connectors & can be changed later through App & Dashboard

Step 3. Validation of the installation
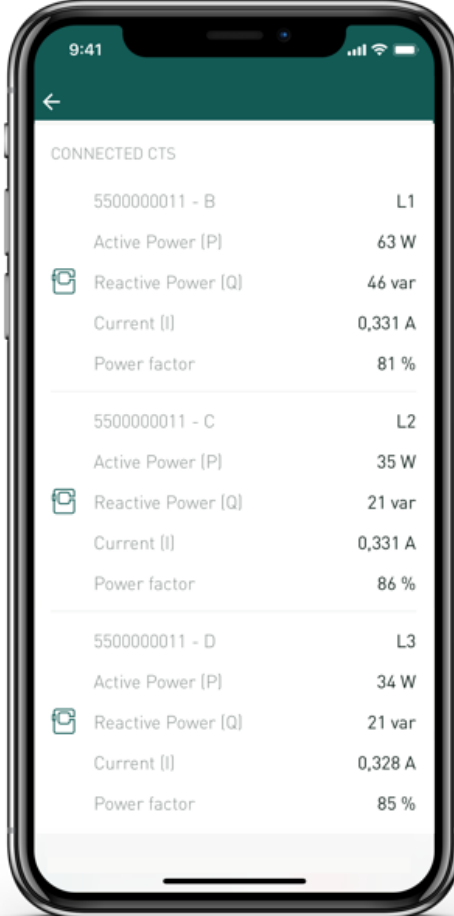
Option 1: Smappee App

3. How to access the details of each measured load & CT.
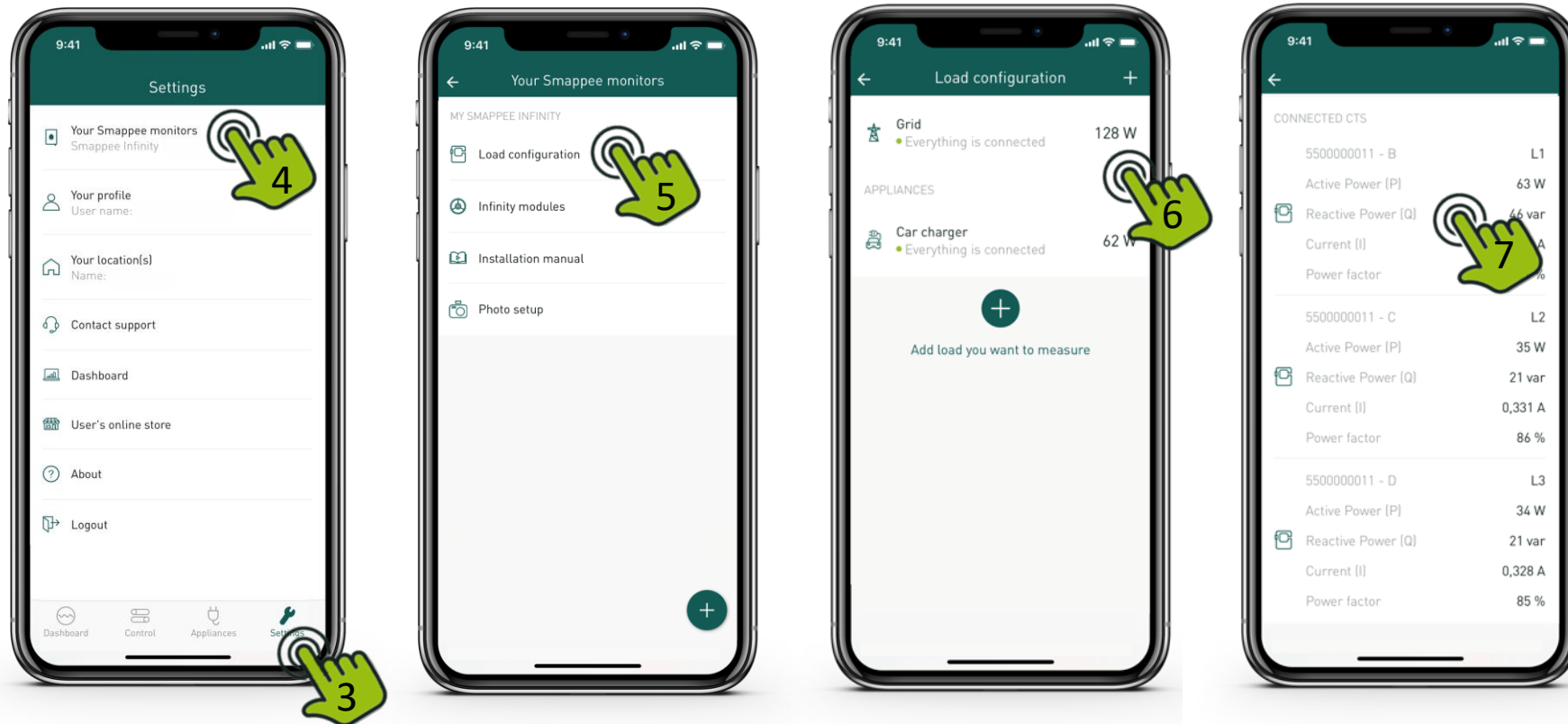
Step 3. Validation of the installation

- Is the current (A) correct?

- Is the Active power (P) value correct?

- In case of Production (solar):
  - The Power factor (PF) has to have a high value. It should be 90% or higher.
  - Is the production value correct?
  - **Grid values visualise actual values of the CT's. When solar is exported to the grid, these values will be negative.**

Step 3. Validation of the installation

Option 1: Smappee App

3. How to access and change the details of each measured load & CT.

💡	Connect the CT to measure solar to the correct phase. Adjust the configuration in the Smappee App when this is not the L1 phase.
	When the solar installation is 3-phase, you need to purchase and install the EV Wall solar add-on.

Step 3. Validation of the installation

Overload or circuit breaker protection

Maximum current load setting is the setpoint of the **Grid load**:
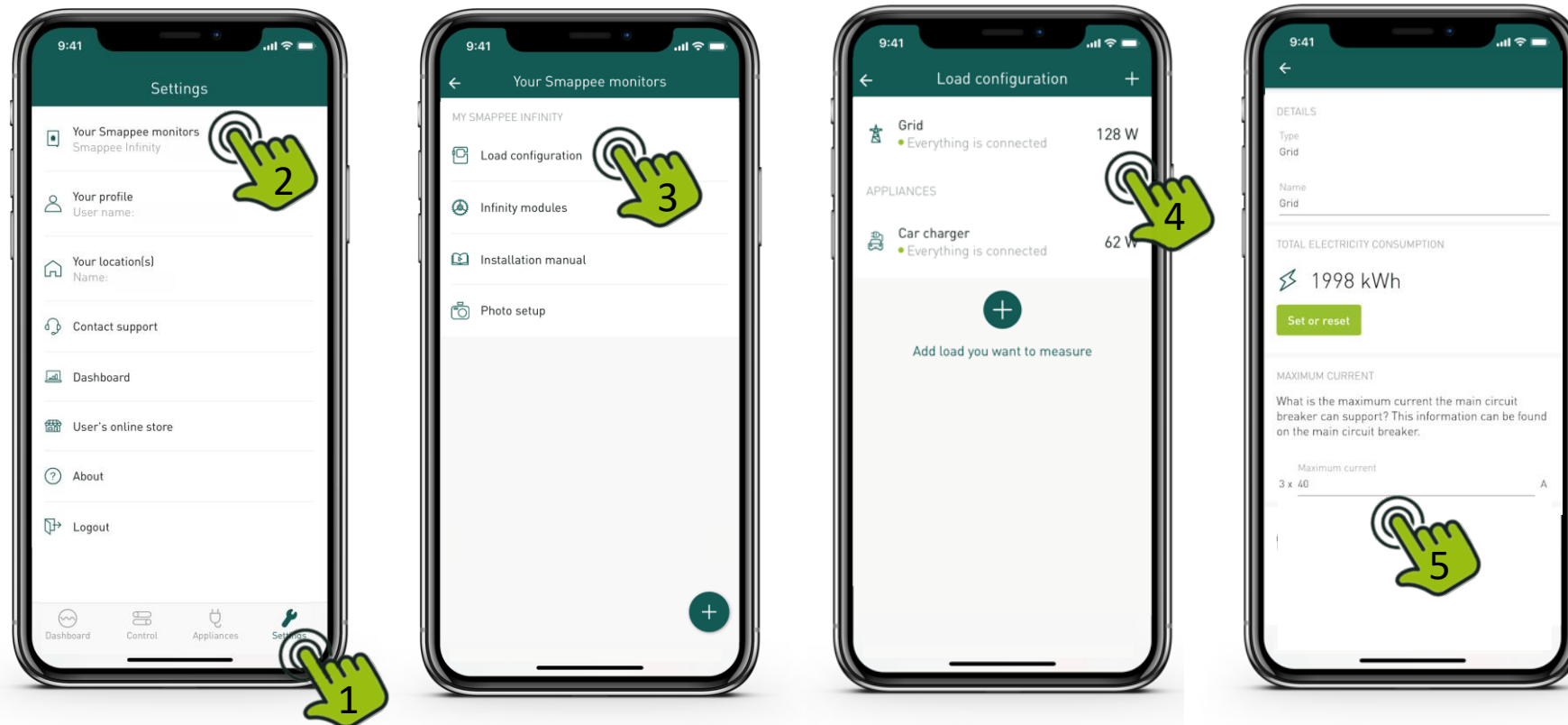
Step 3. Validation of the installation

Confirm the changes you've made to the load configuration. Tap "Apply changes" and save and activate the changes.
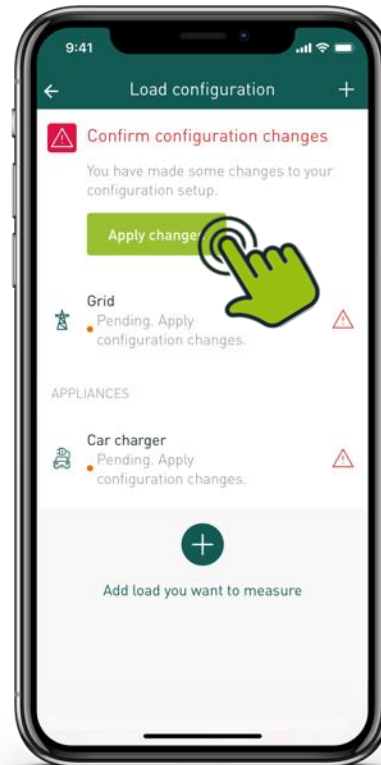
TIP: Changes to standard load configuration

Under Load configuration, changes to the pre-configured can be done and additional sub-metering can be added (e.g. additional solar panels,
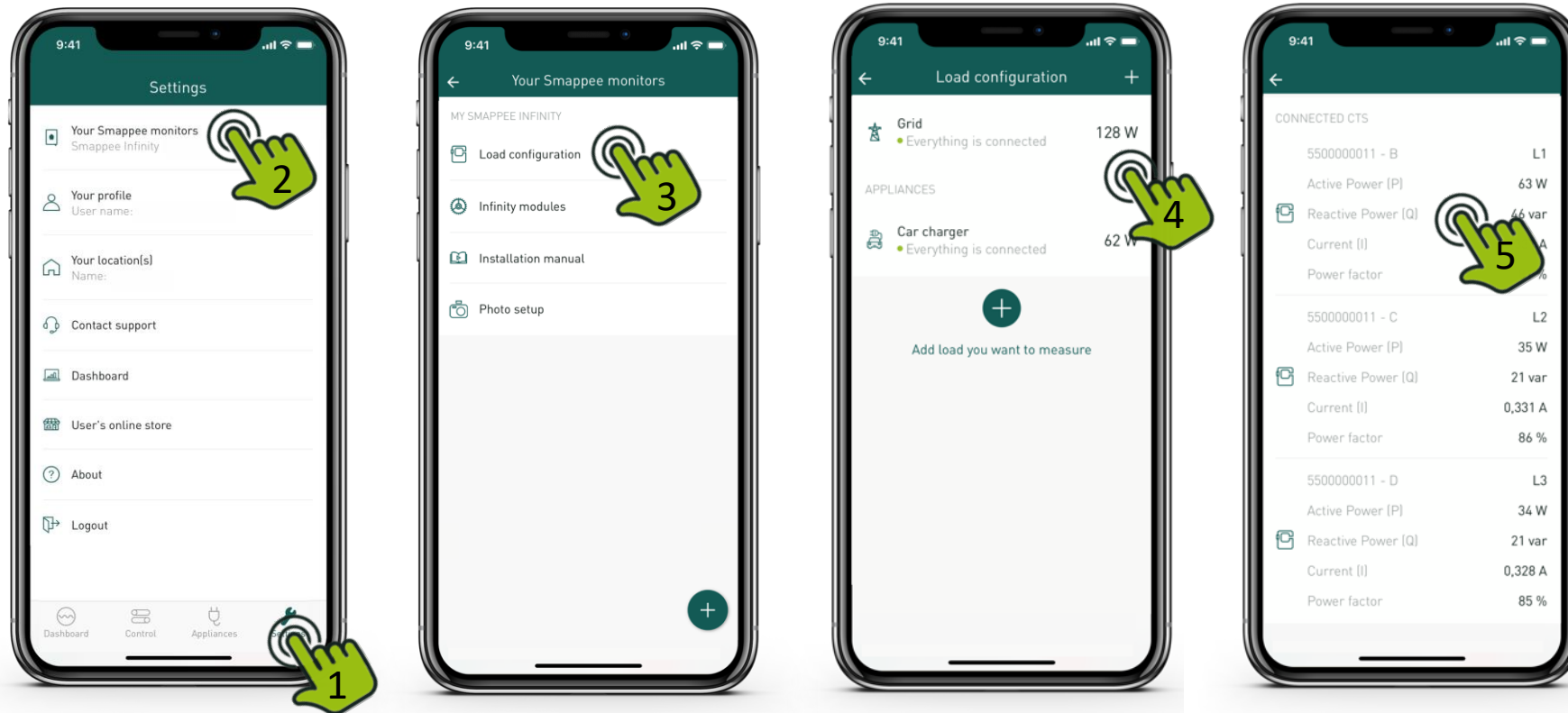
💡	The car charger measurement cannot be adjusted or deleted.

Setup of LED Brightness

Setup of LED Brightness

LED Brightness
- The intensity of the white ambient lighting can be adjusted.
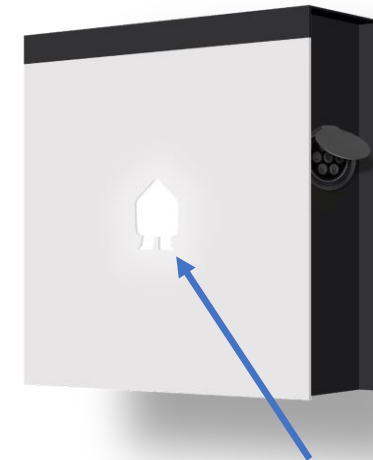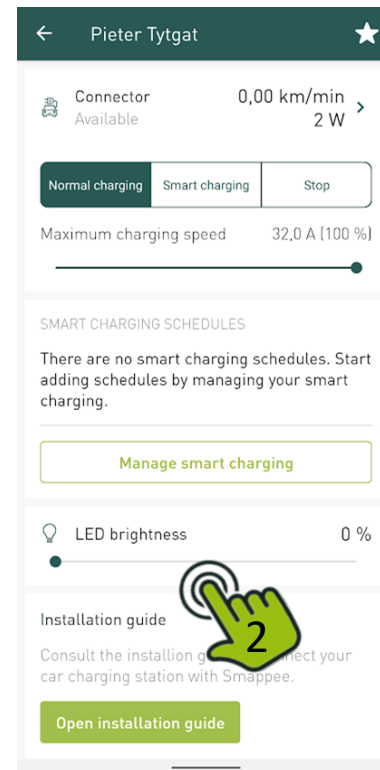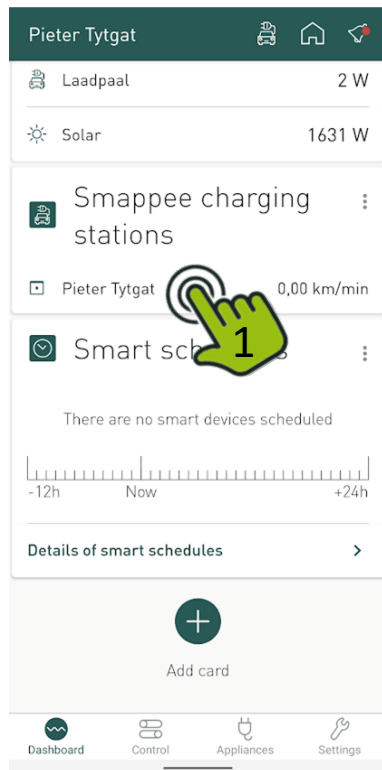
Dynamic Load Balancing

Setup of Dynamic Load Balancing

Overload or circuit breaker protection

Maximum current load setting is the setpoint of the **Grid load**:

Setup of Dynamic Load Balancing

Solar & Cost Optimization:

- How: House owner sets smart charging schedules for each day of the week providing time of departure and required charged distance
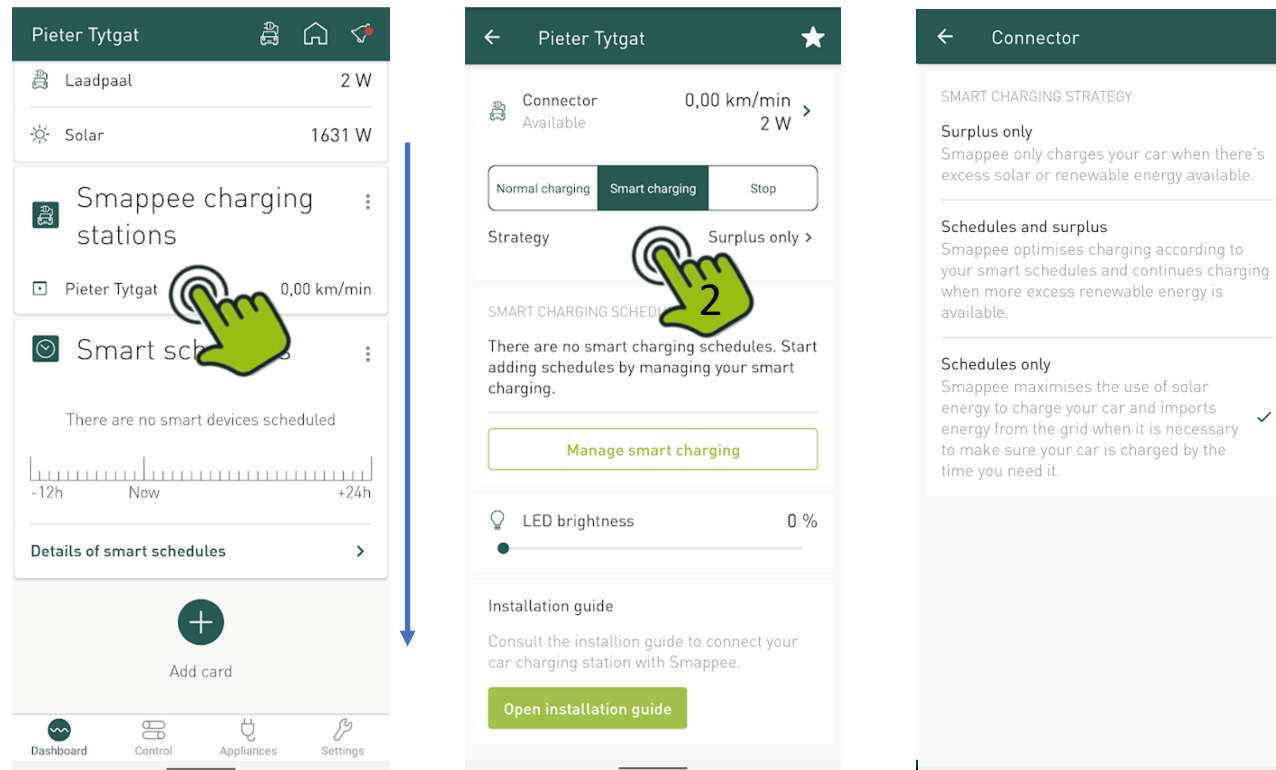
Setup of Dynamic Load Balancing

Solar & Cost Optimization:

- How: House owner sets smart charging schedules for each day of the week providing time of departure and required charged distance
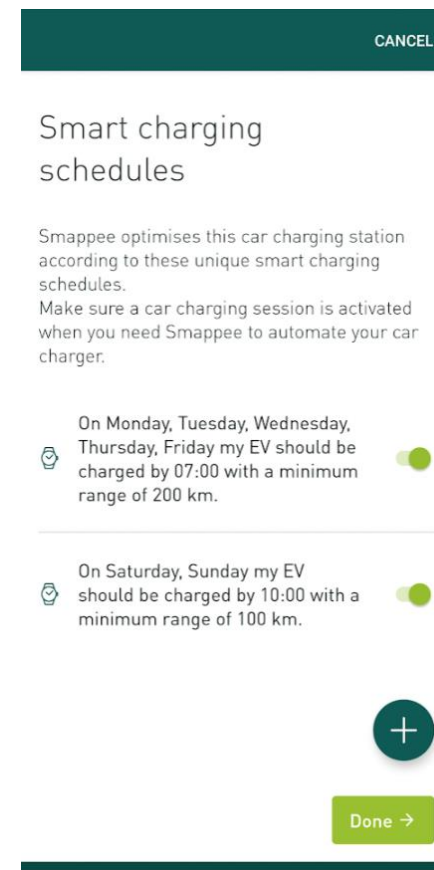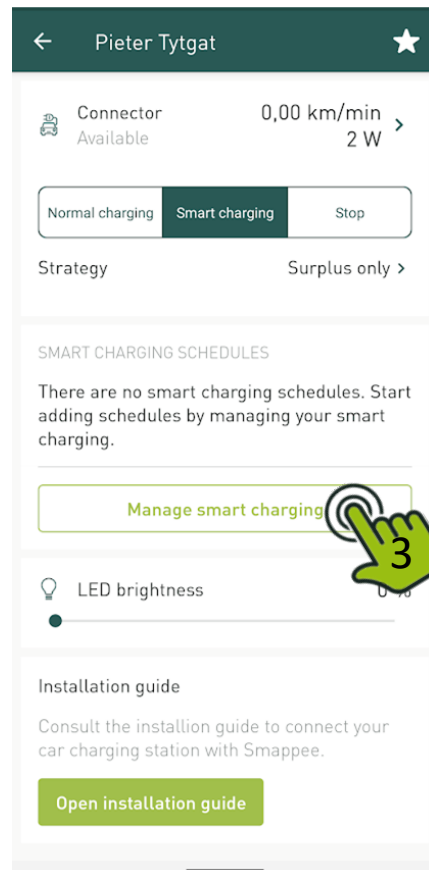
Setup of Dynamic Load Balancing

Cost Optimization:

- How: setup multi-tariffs to reduce cost on import of energy (if solar energy is not sufficient**)**
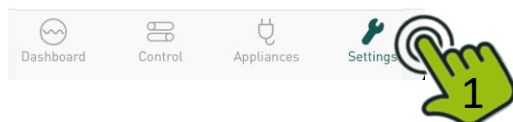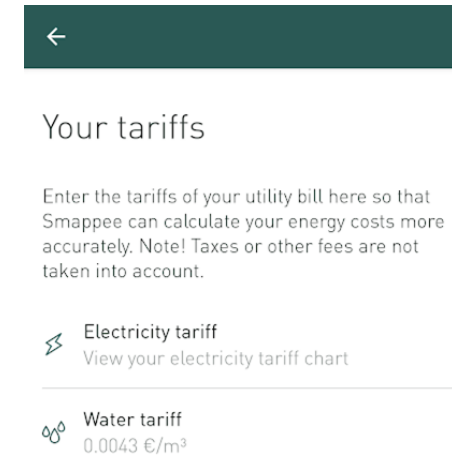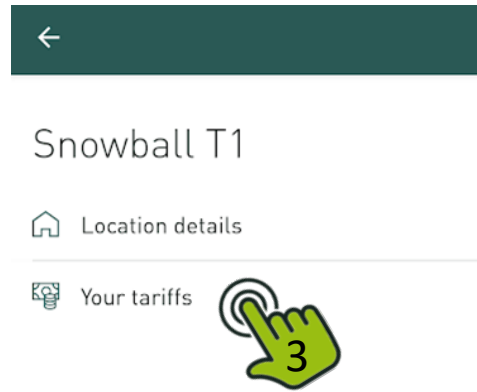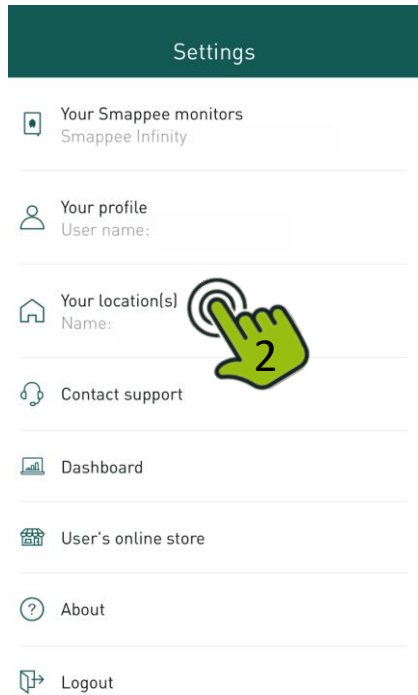
IMPORTANT notes for 3P (3*230V) – Delta

Step 2. Installation and activation

IMPORTANT notes for 3P (3*230V) – Delta

Power supply connection

- **EV Line is connected as a 3-phase (3P) <u>without</u> isolation transformer.**

EV Line power supply cable from distribution cabinet

Brown – L1	
Black – L2	
Grey – L3	

EV Line power supply input

Brown – L1	
Black – L2	
Grey – L3	
Blue – Neutral	
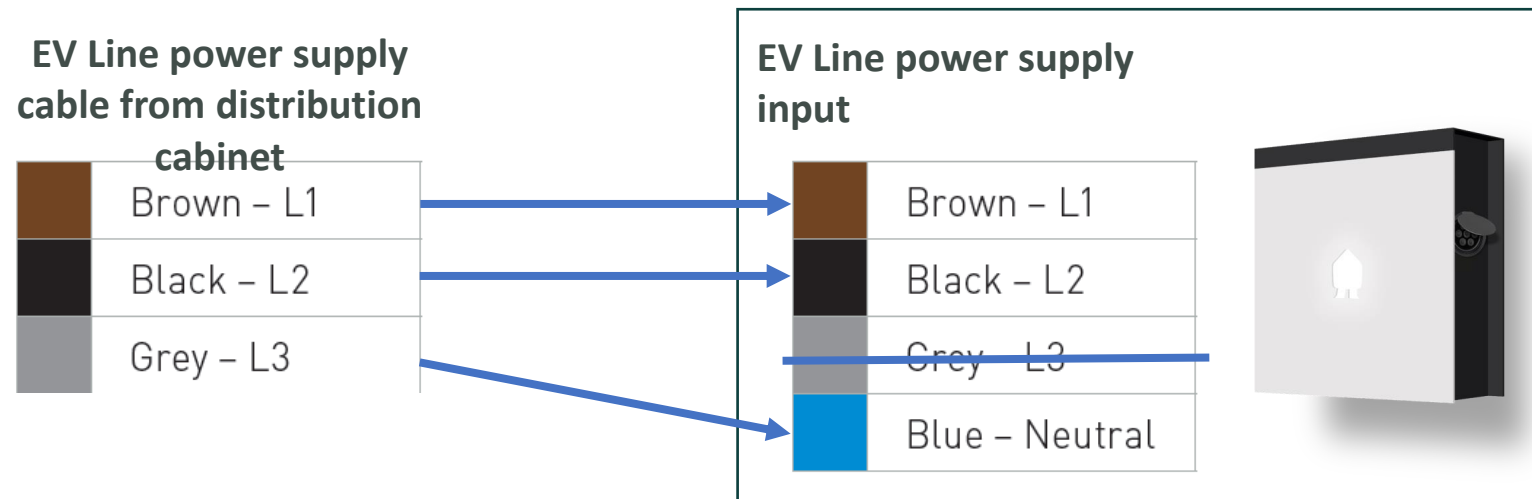
EV Wall – *Home*

IMPORTANT notes for 3P (3*230V) – Delta

- In case **an isolation transformer is used,** converting 3*230V (3P) to 3*400V (3P+N)**, an additional Power Box needs to be purchased** and installed in the distribution panel.

- In the EV Wall (Home) unit, the RJ10 data cables on the in-built Power Box need to be disconnected.

EV Wall – *Home*

IMPORTANT notes for 3P (3*230V) – Delta
WITHOUT isolation transformer
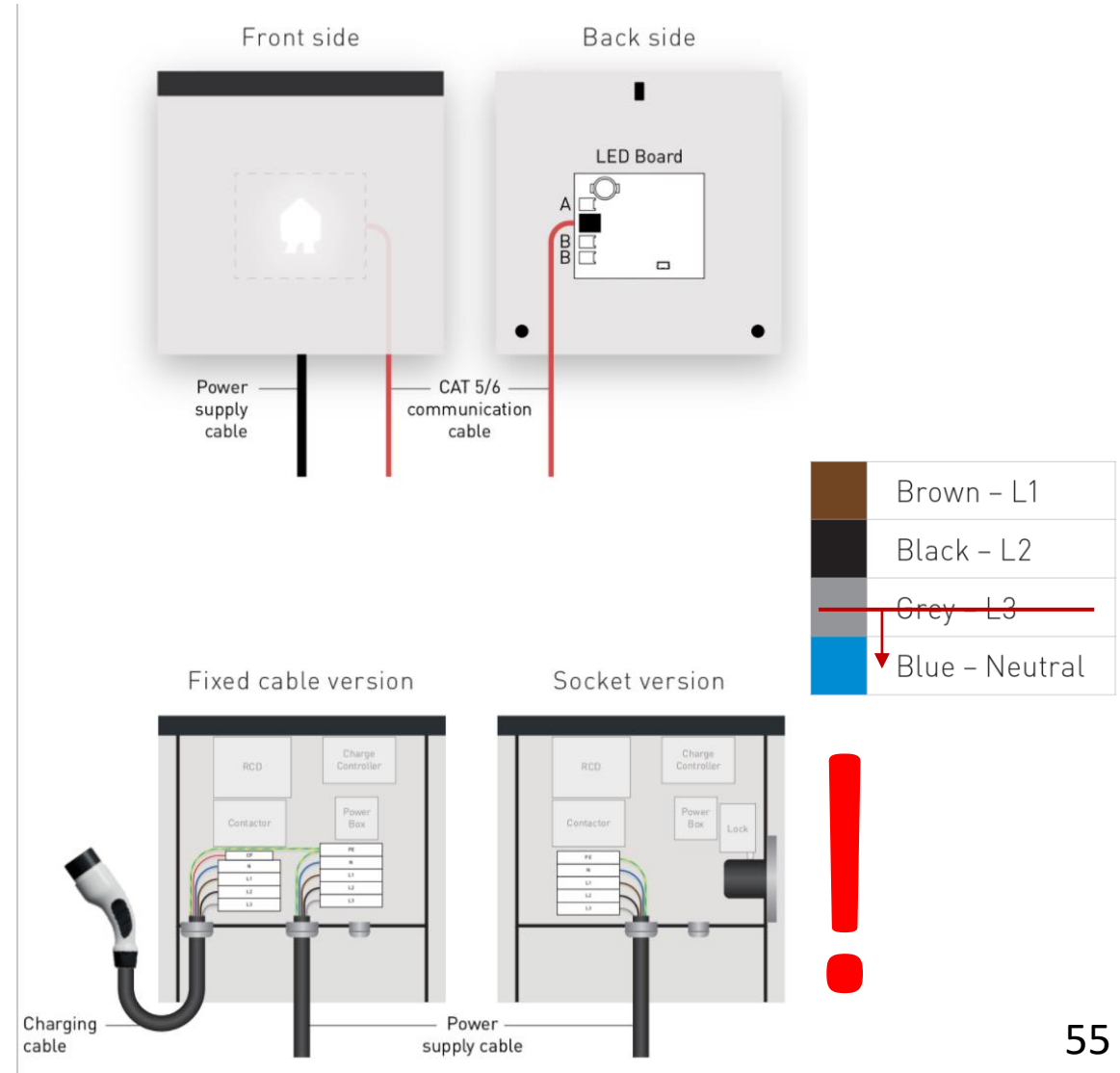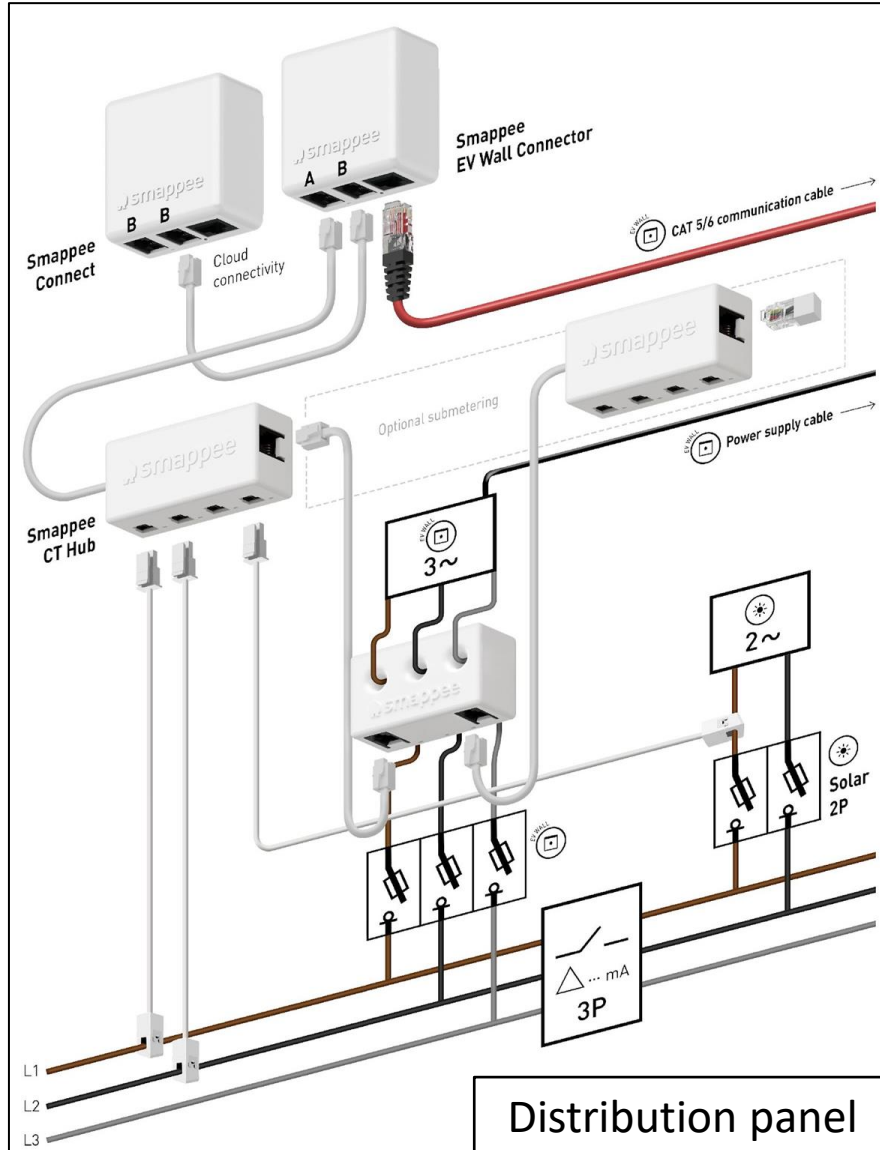
Distribution panel

Front side

Back side

LED Board

Power supply cable

CAT 5/6 communication cable

	Brown – L1
	Black – L2
	Grey – L3
	Blue – Neutral

Fixed cable version

Socket version

Charging cable

Power supply cable

55

EV Wall – *Home*

IMPORTANT notes for 3P (3*230V) – Delta
WITHOUT isolation transformer

Brown – L1
Black – L2 !
Grey – L3
Blue – Neutral

Depends on car type (Tesla, Porsche, VW)
(Peugeot, BMW)

Fixed cable version

Socket version

RCD

Charge Controller

Contactor

Power Box

Lock

Charging cable

Power supply cable
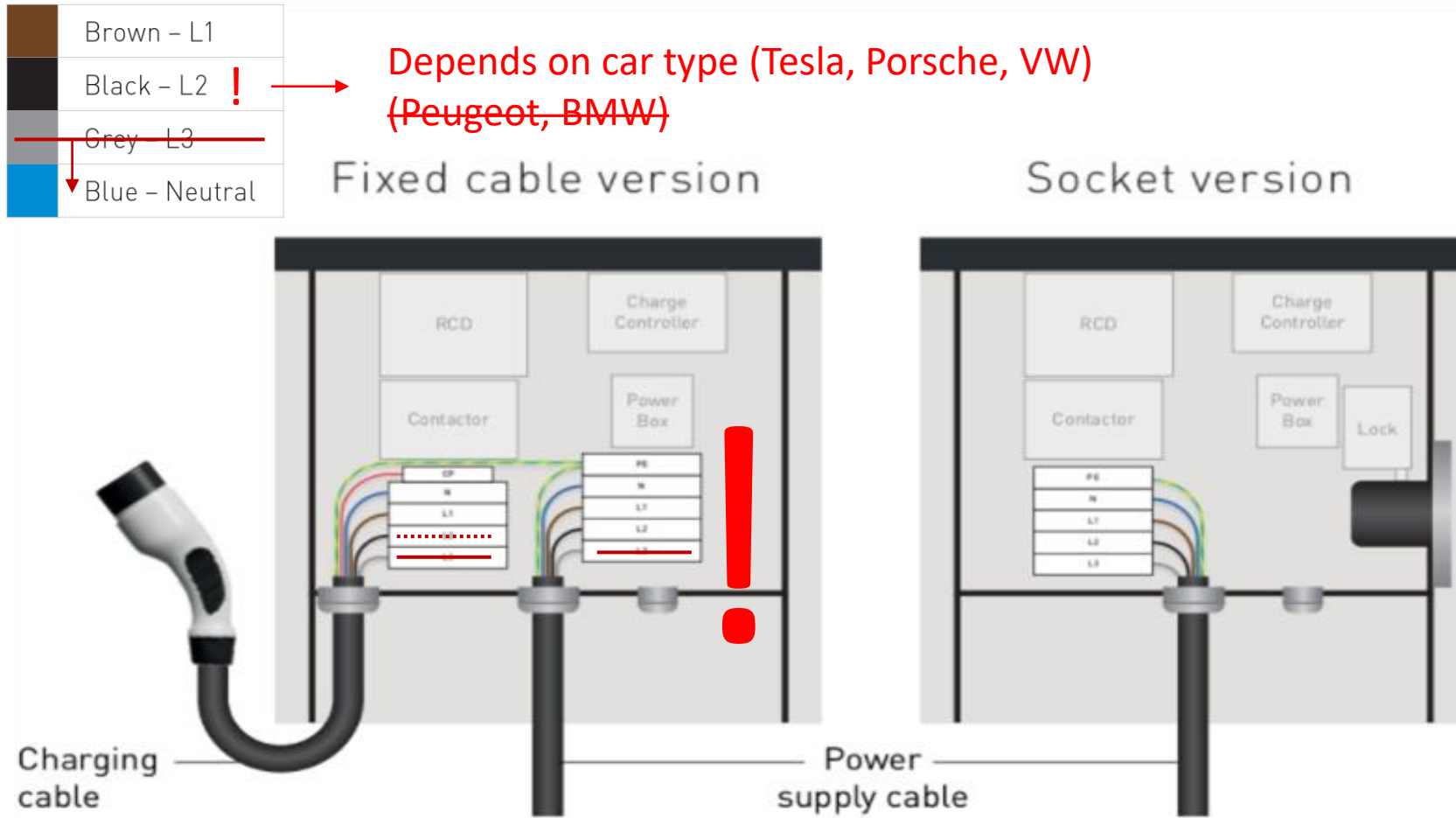
3P (3*230V) – Delta

Important Notes:

- Grid always must be measured with L1 and L2.

- For 3-phase inverters, appliances or sub circuits always must be measured with clamps on L1 and L2.
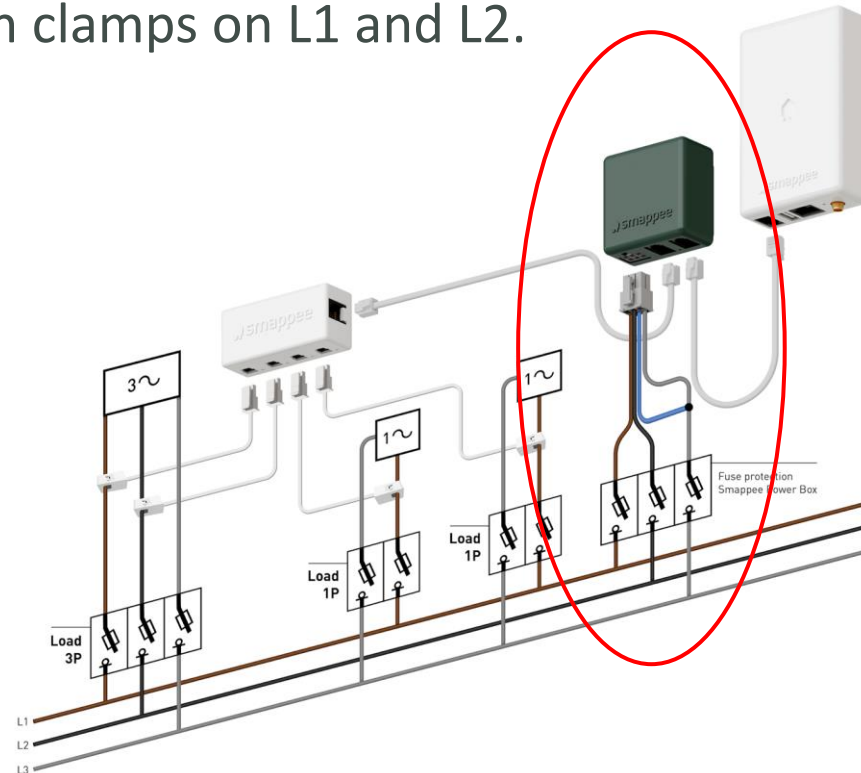
EV Wall – *Home*

IMPORTANT notes for 3P (3*230V) – Delta
In case an isolation transformer is used

	An additional Power Box (i1-VAC-1) needs to be installed in the distribution panel.
	Disconnect both the RJ10 data cables out of the in-built Power Box

EV Wall – *Home*
IMPORTANT notes for 3P (3*230V) – Delta
In case an isolation transformer is used

Distribution panel
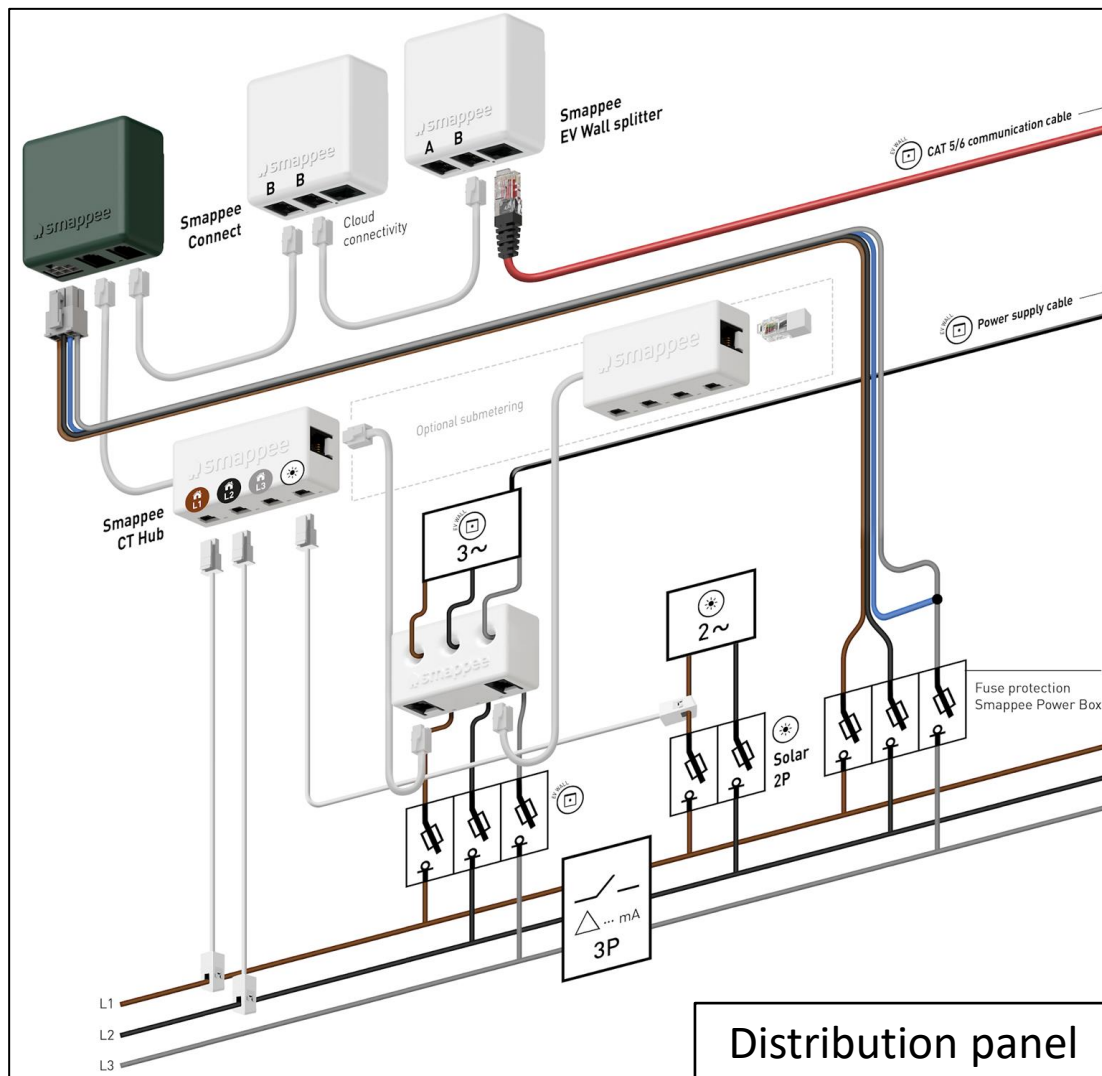
Charging station configuration	Online
Property	Value
Location	Vandecasteele Noël
Name	Vancia Car Lease NV
Article code	EVW-AC1-CB-MID-RCM-RFID-ETH
Serial number	6101000003
Availability	Available Disable
Behind voltage transformer	✅
LED brightness	100 %
Session activation method	Plug and charge
MAC address	98F4AB6044C4
Location ID	59309
Timezone	Europe/Brussels

17 properties | Items per page 20

Setup of RFID-card authentication method

60

RFID-card authentication method

Swipe & Charge
Insert the connector, swipe your
RFID card and start charging.

Steps:

1. Go to Dashboard https://dashboard.smappee.net

2. Login in with your App User Account

3. In 'Charging station configuration' card

Property	Value
Location	Snowball T1
Name	Charging Station 8
Article code	EVB-AC2-CC-MID-RCM-RFID-ETH
Serial number	6000000008
Availability	Available Disable
LED brightness	100 %
Session activation method	Plug & Charge
MAC address	98F4AB66F794

4. Session Activation Methods

4. Activate Swipe & Charge – Setup & Free charging

5. Add RFID Tokens (barcode) to be added through 'Whitelisting' card:

62

Wrap-Up on-site installation

Sharing Smappee location with end customer

Transfer location to end user

Installer – End user

After completing the installation procedure, the location needs to be transferred to the end user (location owner).

1. Ask the end user to install the Smappee Energy Monitor app (iOS or Android) on his mobile device.

2. Let the end user sign up for a new user name on his own mobile device
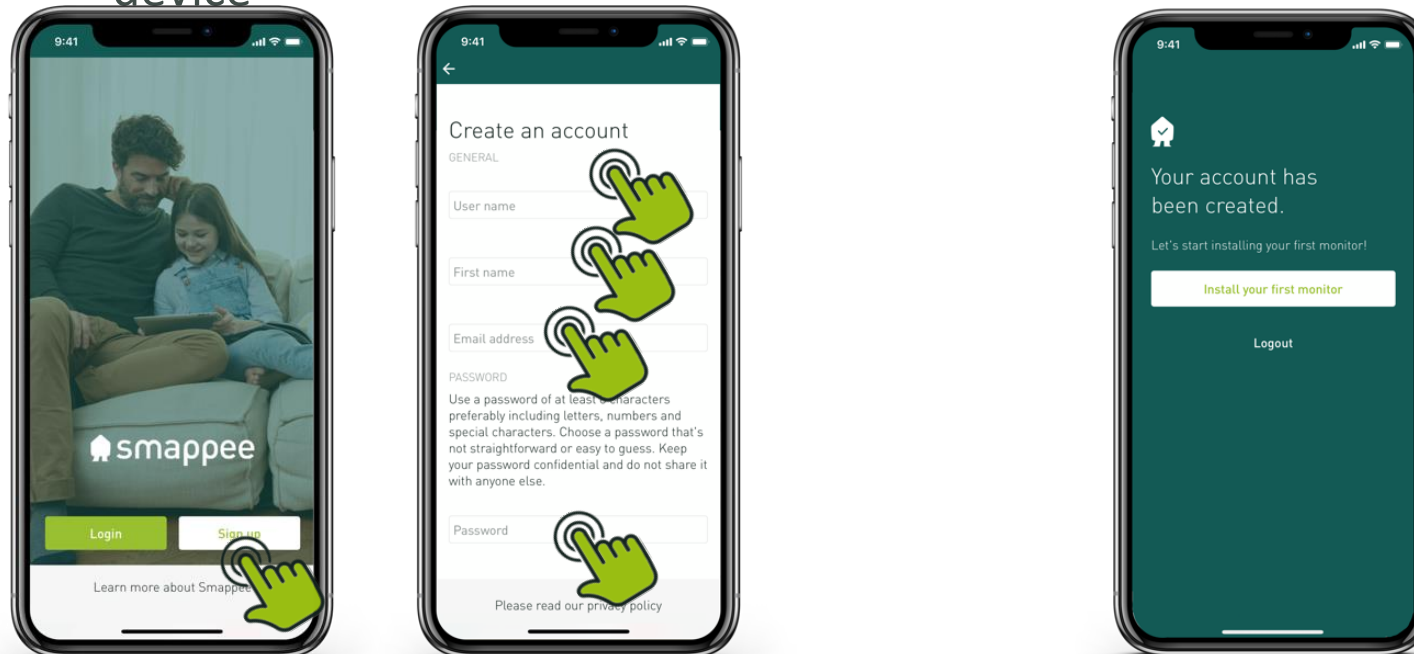
Transfer location to end user
Installer – End user

3. The installer shares the location with the end user:

Transfer location to end user

Installer – End user
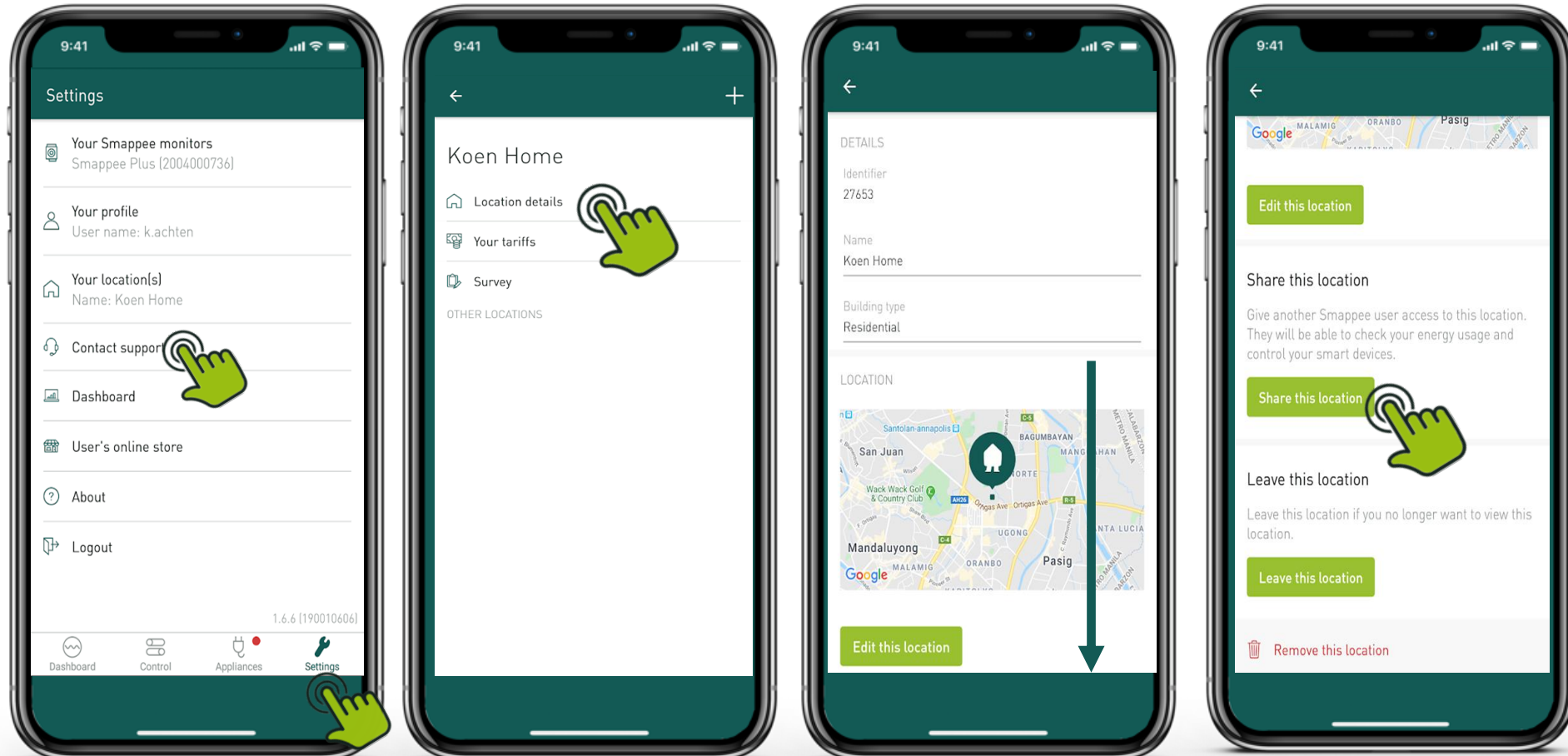
Fill in the Smappee user name
to share the location with
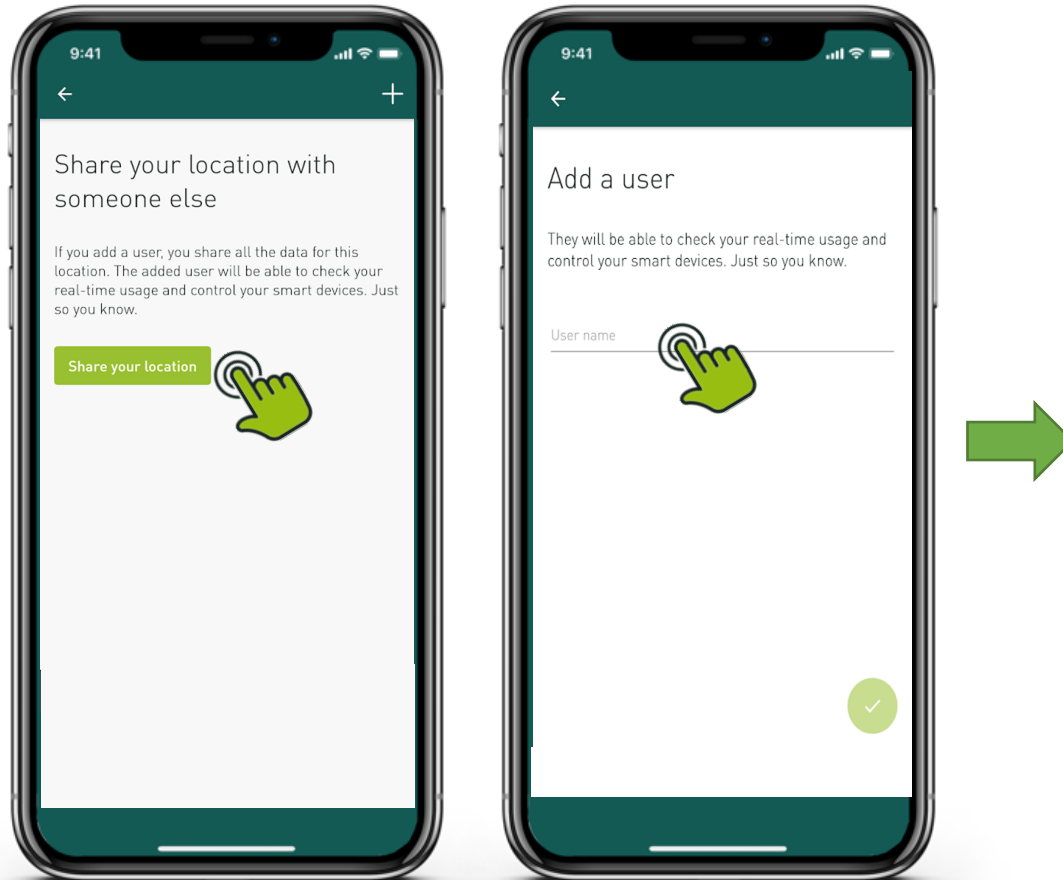
On the end user phone:

- Close the Smappee app and reopen. The location is now available in the app.
- Alternative: Logout form the Smappee app and login again

Smappee Dashboard
Advanced settings for EV Wall (residential)

67

Smappee Dashboard

- Visualize real-time and historical data for each charging point or hubs, together with Energy Monitor data

- Data across multiple sites in one place

- Get an overview of charging consumption and costs

- Manage charging points & hubs
    - Visualize live status
    - Adjust charge point and connector settings
    - Mark charge point as unavailable
    - Priority charging & multiple rates (discounts)

- Data export (MS Excel, csv)
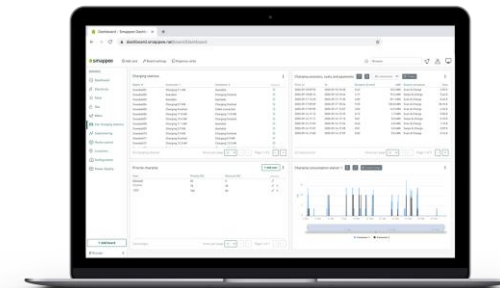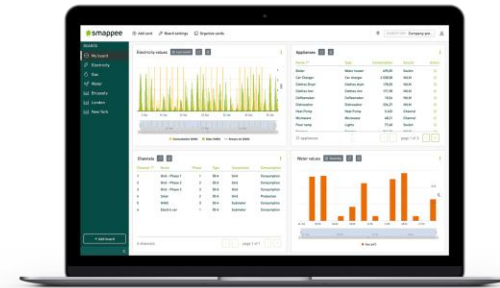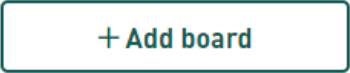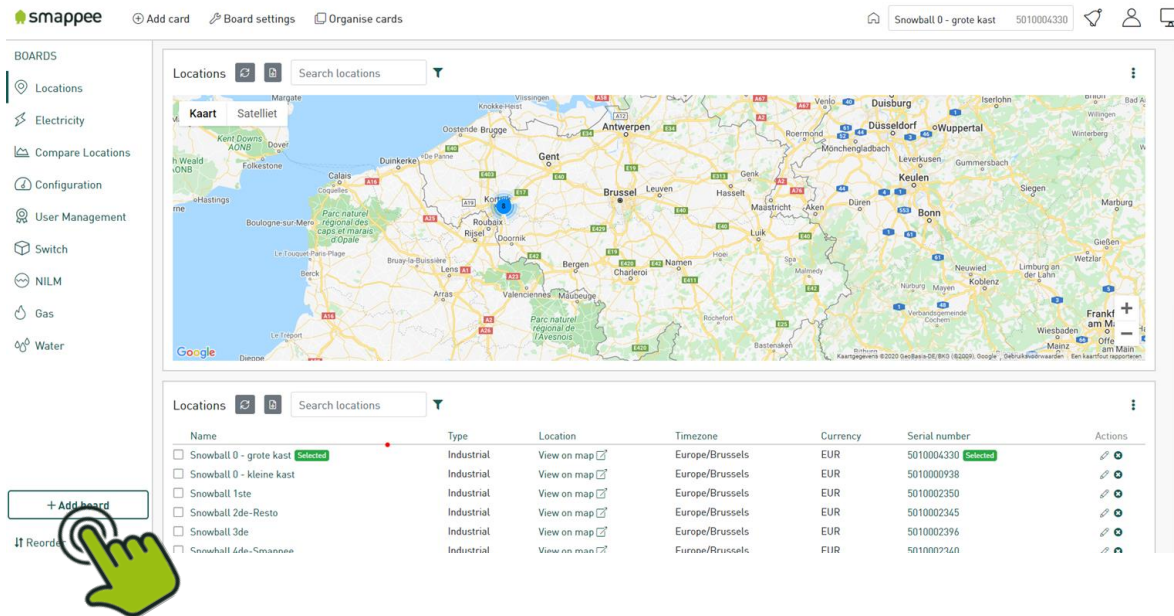
Link: https://dashboard.smappee.net

The Smappee Dashboard has a preset layout.
Additional boards and cards can be added by the user.
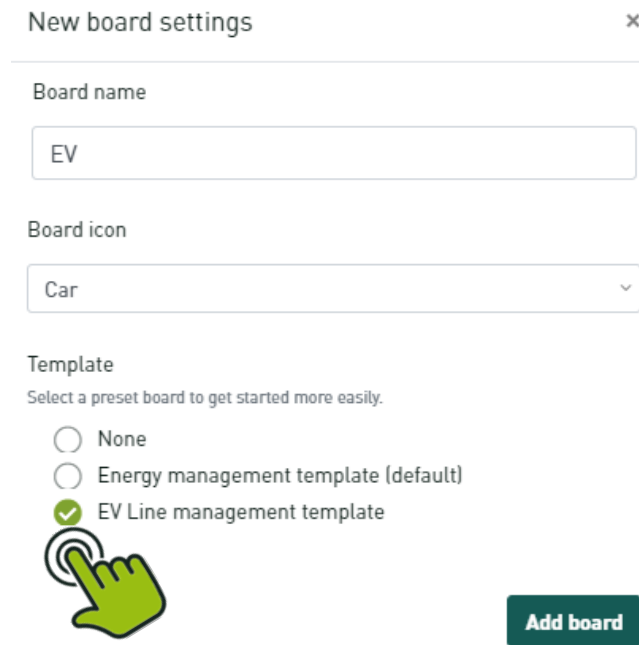
Smappee Dashboard

- Log in with Smappee user: Basic or Partner user

- Add a new board – | + Add board |

- Use the 'Charging Management template', adds all EV-related cards in the Dashboard

Smappee Dashboard

- Log in with Smappee user: Basic (App) or Partner user
- Navigate to Smappee location (EV Wall – Home), using serial number or location name.

Smappee Dashboard

- Charging station configuration card displays all settings of the EV Line
- To edit settings, press ✎ icon under 'Value' column

Smappee Dashboard

Session Activation Method setup

How to activate the supplied Smappee RFID card for authentication:

2. Navigate to the Whitelisting'-card:

- Click on '+ Add token'
- fill in the RFID number mentioned on the back side of the Smappee RFID card

Differences with Business variants

Smappee EV Line

Home	Business	

Home

Smappee EV Wall

- Energy and charging data
- Overload protection
- Solar optimisation

Infinity & Smart Charging Package included!

Internet connectivity at the distribution panel
- Ethernet (preferred)
- 2.4 GHz Wi-Fi

Business

Smappee EV Wall Business

- Charging data
- MID metering

Infinity & Smart Charging Package need to be purchased separately:
- Energy data
- Overload protection
- Solar optimisation
- Extension to 5 year warranty

Internet connectivity for the unit
- Ethernet only

Smappee EV Base

- Charging data
- MID metering

Infinity & Smart Charging Package need to be purchased separately
- Energy data
- Overload protection
- Solar optimisation
- Extension to 5 year warranty

Internet connectivity
- Ethernet (preferred)
- 2.4 GHz Wi-Fi (alternative)
- 4G (contact Smappee)

74

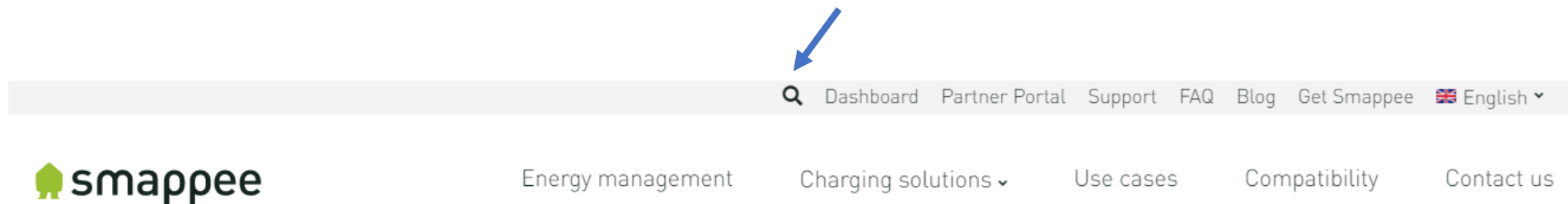# Differences with EV Lines **Business** variants:

- Each charging station **needs separate internet connection**
- Smappee Infinity (energy monitor) needs to be purchased separately for the Overload and Solar optimization capabilities.

Cloud
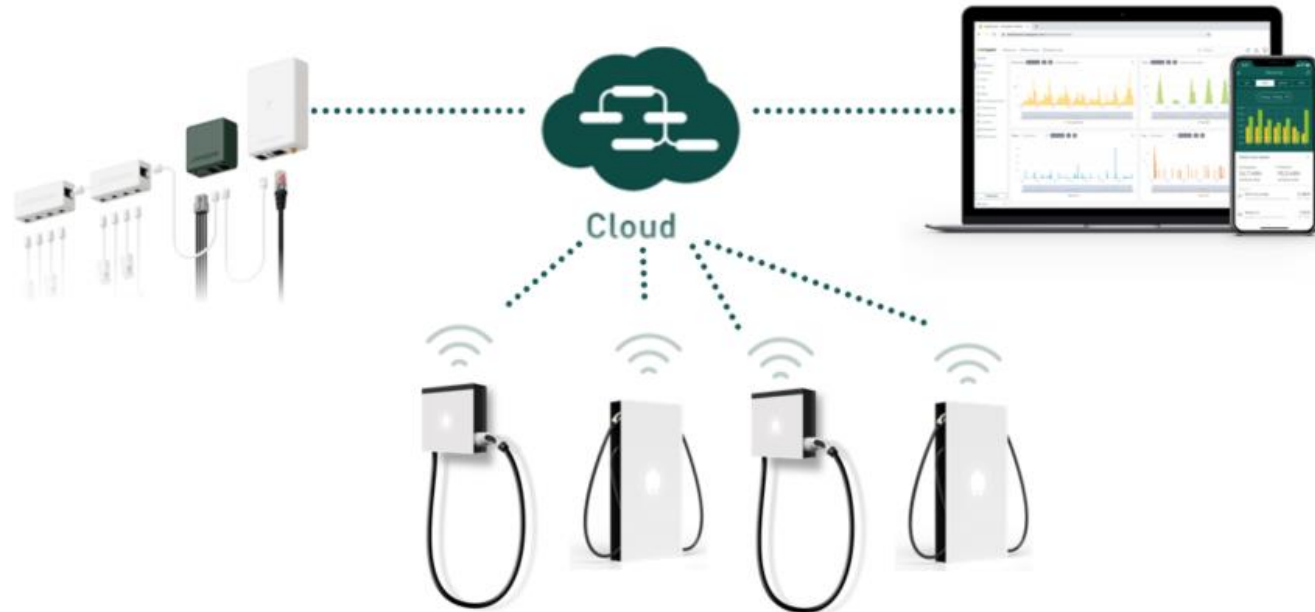
Interesting links & info

76

Interesting links for partners & installers

- Technical specifications and installation manuals: https://www.smappee.com/smappee-manuals/

- Help Center: https://support.smappee.com/hc/en-gb

- Blog: https://www.smappee.com/blog/

- FAQ: https://www.smappee.com/faq/

- **Training Platform**: https://www.smappee.com/training/

Dashboard   Partner Portal   Support   FAQ   Blog   Get Smappee   🇬🇧 English ⌄

smappee   Energy management   Charging solutions ⌄   Use cases   Compatibility   Contact us

💡 Use the search function on the Smappee website (www.smappee.com)

Thank you!
-
Questions?