Einfach Strom tanken
P-CHARGE

**Operating Instructions** Status as of 07/2013

# P-CHARGE STAND-ALONE[1]

## The universal charging station for electric vehicles


Please keep these instructions for future reference.

[1] The following manual also applies for the P-CHARGE Carport

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# P-CHARGE STAND-ALONE

## The universal charging station for electric vehicles

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## 1. Introduction

Thank you for choosing a SSL Energie GmbH product. This document contains important safety instructions as well as relevant information pertaining to correct use, service and maintenance of the P-CHARGE Stand-Alone. The following guidelines should be followed carefully in order to avoid accidents or the occurance of faults.

**PLEASE NOTE:** The instruction manual must be studied carefully prior to using the SSL Energie charging station. This device is designed exclusively for the charging of electrically driven vehicles. The company SSL Energie GmbH reserves the right to make technical modifications to improve user-friend- liness, to increase safety and to simplify maintenance work; Such modifica- tions may be effected up to the point at which the charging box is dispatched.
Prior to initiating a charging session for the firsttimea t the P-CHARGE Stand-Alone, the EWS-box bufferischar ged as power backup. All keys 1-4 on the user console are backlit at this point and cannot yet be operated manu- ally! The power-backup PCB is charged after 3-5 mins and you can use the Stand-Alone charging station for charging an electric vehicle. Charging from the bufferisinitia ted if the charging stationis separated from the grid supply e.g. in the event of a power outage. The power backup PCB is not designed as a charging mechanism, rather serves solely to save the finalsta te of the charging station which can then be restored following a power outage.

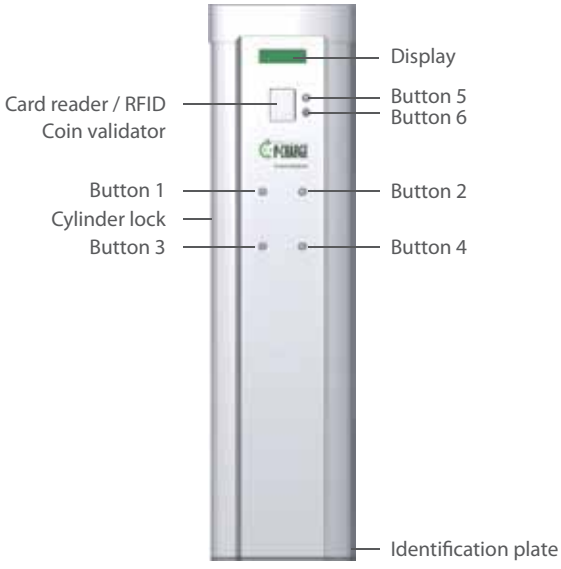
## 2. Safety instructions

- Only approved and undamaged charging cables may be used.
- Extension cables must not be used for charging.
- In the event of malfunction, the operation may be restarted by qualified personnel only (according to BGV A3, DIN VDE 0105-100 and DIN VDE 1000-10 or according to the valid national regulations).
- Charging at defective socket outlets is prohibited.
- Modification, maintenance and repair work is to be performed by qualified technical personnel only.
- The company SSL Energie GmbH shall not assume any liability in case of non-compliance with these specifications regarding the handling of electric current
- The use of the charging station is at your own risk.
- The locking system may have sharp edges

**DISCLAIMER:** Although this instruction has been carefully prepared, SSL Energie accepts no liability for the validity, accuracy, completeness or quality of the published information. Data provided in the installation manual is checked regularly for accuracy and is updated as required. Corrections are included in subsequent versions of the document.


*Picture 1: Front view Stand-Alone*

1. Machine controller (Microcontroller)
2. Button "E" (also labeled in the display as "S")
3. RFID-card reader (alternative coin validator, to be used if the button variant is not available)
4. Button 7
5. I/O circuit board
6. Power supply
7. EWS-Box 1/2 (Mode 2-Module)
8. Installation contactor, meter, combined RCD/MCB
9. Main line branch terminal
10. Installation in the circuit breaker box




*Picture 2: Exterior view Stand-Alone*

# 3. Correct use of the charging station

## 3.1. OVERVIEW AND STRUCTURE OF THE CHARGING STATION

In ***Image 1*** the P-CHARGE Stand-Alone can be seen in front view and open. The individual components are annotated. To open the charging station, insert key into the left hand cylinder lock ***(Image 2)***. Once the charging station has been unlocked, the lid can be pushed upwards and the doors can be opened.

The charging points are labeled in the following sequence (as viewed when standing directly in front of the pillar) and correspond to the user buttons in the doors:

| | |
|---|---|
| Charging point 1 | Charging point 2 |
| Charging point 3 | Charging point 4 |

## 3.2. THE CONTROL ELEMENTS

Some buttons have several uses. The respective functions can be seen in Table 1:

| Button | Standard function | PIN input | Menu |
|---|---|---|---|
| Button 1 | Socket top left | PIN – digit 1 | Cursor down |
| Button 2 | Socket top right | PIN – digit 2 | Cursor up |
| Button 3 | Socket bottom left | PIN – digit 3 | Open menu item |
| Button 4 | Socket bottom right | PIN – digit 4 | Close menu item |
| Button 5 | Language selection: Toggle between German (DE) and English (EN) | | |
| Button 6 | C (Cancel) – Escape key: Default configuration is restored | | |
| Button 7 | Reset cash box memory | | |
| The "E" button may be labeled the "S" button in the display menu. | Menu | PIN - Confirmation | Cancel Menu |

*Table 1: User component function*

*Panel-mounted socket outlet*
*IEC 62196-2 Type 2*

*Panel socket CEE*

*CEE-Panel mounted socket Quick-Connect (Camping)*

*Charging- grounded outlet*

### 3.3. THE VARIOUS SOCKET TYPES

4 different socket outlet types are available for selection when ordering. Each is installed in the charging station using an adapter plate.

#### CHARGING SOCKET IEC 62196-2 TYPE 2

- Charging current 16A / 32A
- Number of poles 3P+N+PE+PP+CP

#### PANEL SOCKET CEE

- Charging current 16A / 32A
- Number of poles: 3P+N+PE
- Auxiliary contact for plug identification

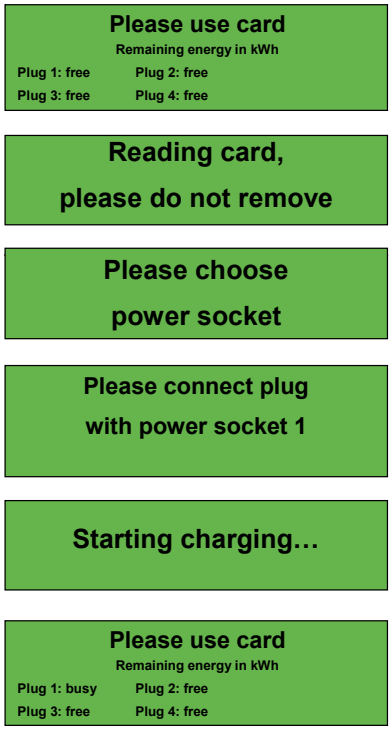
#### CEE-PANEL MOUNTED SOCKET QUICK-CONNECT (CAMPING)

- Current 16A
- Number of poles 2P+PE
- Auxiliary contact for plug identification

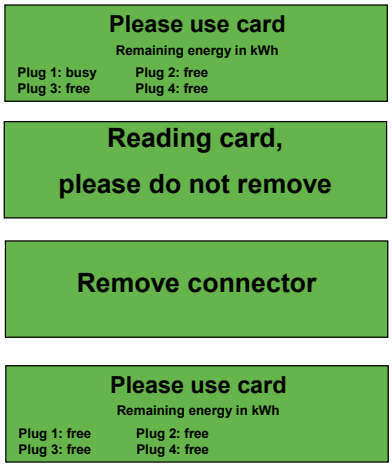
#### CHARGING- GROUNDED OUTLET

- Current 16A
- Number of poles 2P+PE
- Auxiliary contact for plug identification
- Various country norms possible

With the exception of the panel-mounted socket IEC 62196-2, all outlets are fitted with isolated contacts. These open when the plug is removed and deactivate the AC contactor (if the charging session has not been correctly terminated by the user).




*RFID*
*Step 1-6: Start charging process:*




*RFID*
*Step 1-4: Terminate charging process*

# 4. Charging of an electric vehicle from the P-CHARGE STAND-ALONE

The charging pillar can be activated in a number of different ways, e.g. by card reader, coins and buttons. If the charging station includes an integrated EWS Box, the charging process can also be managed via website. The following section describes the process of charging a vehicle.

## 4.1. RFID (RADIO FREQUENCY IDENTIFICATION)

The RFID variant enables the initiation of a charging process without cash. An RFID card can only be used to initiate a charging process if the corresponding PIN number has been stored in the system management configuration. Learn how to store an RFID card pin number in Section 5.2 under "Adv. Settings".

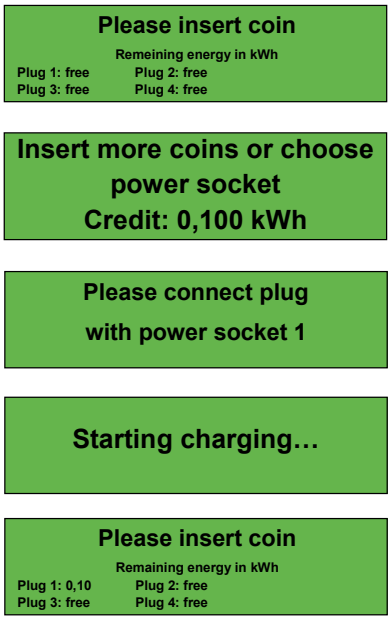
### START CHARGING PROCESS:

1. Hold up the RFID card to the RFID card reader to activate a charging session.
2. The card reader reads the RFID card.
3. Select a socket outlet.
4. Plug your charging cable into the selected charging outlet (in this case charging socket 1).
5. The charging session is activated and the battery of your vehicle is charged.
6. The battery of the electric vehicle is charged.
   The status of socket outlet 1 is then displayed as "In use".

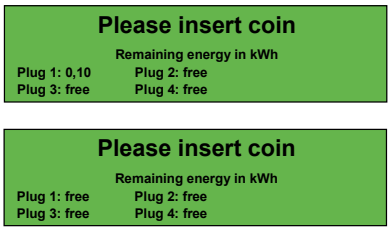
### TERMINATING THE CHARGING PROCESS:

1. The active socket outlet 1 is displayed as "In use". To terminate the charging process, hold up the same RFID card to the card reader as was used to initiate the charging session. Termination of a session with a different card is not possible!
2. The card reader reads the RFID card again.
3. The plug may now be removed from the socket.
4. Once the previously outlined steps are complete the charging socket status is displayed as "Free" and a new charging session can be activated at this socket outlet.

The activation of RFID cards can also be time limited (e.g. from 1st January, 2013 to 31st December, 2013). Guidelines to the programming of time limits can be found in Section 7.




*Coin validator*
*Step 1-5: Start charging process:*




*Coin validator*
*Step 1-2: Terminate charging process*

### 4.2. COIN VALIDATOR

This variant of the system has an integrated coin validator. The following coins can be used to activate a charging session: 10, 20, 50 cents,1 and 2 Euros.

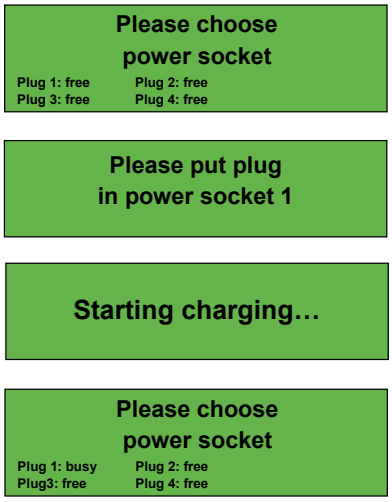
**PLEASE NOTE:** The correct amount must be inserted as the machine has no change-return function.
If the charging session is not initiated within 5 mins of payment, the coin value is lost.
If the charging cable is removed before all pre-paid electricity has been used, the surplus energy is saved and is available to the next customer free of charge!

### START CHARGING PROCESS:

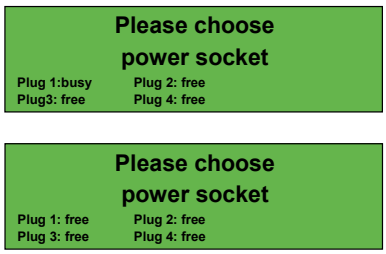
1. Coins must be inserted into the designated slot to initiate a charging session.
2. Add more coins to increase the volume of energy to be released for charging. Select a socket outlet.
3. Having made your selection, insert your charging cable into the respective socket (in this case socket 1).
4. The charging session is activated and the battery of your vehicle is charged.
5. The battery of the electric vehicle is charged. The status of socket outlet 1 displays the released volume of available energy (in this case 0.10 kWh)

### TERMINATE CHARGING PROCESS

1. Once the released volume of energy has been used for charging, the machine automatically deactivates power to the socket outlet and the cable can be removed.
2. All socket outlets are now displayed as being "Free" and a new session can be activated.




*Buttons*
*Step 1-4: Start charging process:*




*Buttons*
*Step 1-2: Terminate charging process*


## 4.3. BUTTONS

**IMPORTANT:** The button variant of the P-CHARGE Stand-Alone requires no authorization to initiate charging. This means neither identification nor payment is required to start or stop a charging session. Each user has free access to all charging sockets! Installation of this charging station in public areas is not recommended!

### START CHARGING PROCESS:

1. Select the appropriate socket outlet via buttons 1-4.
2. Plug your charging cable into the selected charging outlet (in this case charging socket 1).
3. The charging session is activated and the battery of your vehicle is charged.
4. The battery of the electric vehicle is charged. The status of Socket outlet 1 is then displayed as "In use".

### TERMINATE CHARGING PROCESS

1. To end a charging session, press the corresponding button 1-4 (in this case button 1).
2. The charging session is terminated and the cable can be removed from the socket outlet. The status of the socket outlet is displayed as "Free".

## 4.4. WEBSITE EWS BOX

By integrating the EWS Box into the P-CHARGE Stand-Alone, charging sessions must no longer be initiated directly at the charging station but can be started via the EWS Box HTML page. An appendix is included in Chapter 7 with guidelines as to the configuration and administration of the HTML page. This function is only available if the EWS-Box is connected to a server via LAN cable.

### START CHARGING PROCESS:

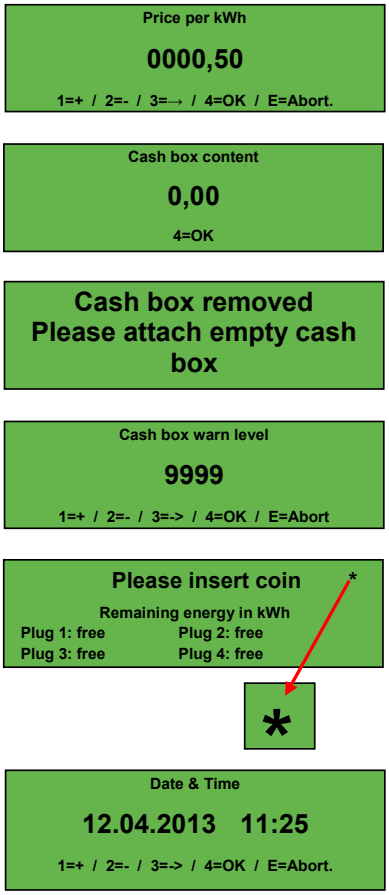
Two options are available for initiating the charging of a connected electric vehicle:

- Start (Charge): Pressing this button starts the charging session.
- Start (Optimized charging): Pressing this button initiates an optimized charging session. This functionality is only available if the EWS-Box is connected to a server.

### TERMINATE CHARGING PROCESS

To terminate a charging session, press the "Stop" button. The vehicle can then be disconnected from the charging station.

*Picture 3: Machine controller*




## 5. Customer menu

The user can change and align various parameters of the P-CHARGE via the customer menu. Various functions within the charging station can also be tested via the menu.
To enter the customer menu, open the charging station and press the "E" button at the rear of the circuit board mounted to the display, until you hear a beep. A message on the display will prompt you to enter your PIN. The default PIN on delivery is "1111". When opening the customer menu for the first time, please enter the supplied PIN using buttons 1 to 4 and press the "E" button again. If you have already been assigned a PIN, you can enter it now using the keys 1 to 4 (c.f. Section 3.2.).

### 5.1. MENU OVERVIEW

Several individual menu views from the various pillar configurations are displayed in the following section, as these can vary with the different designs. Use buttons 1 to 4 to navigate around the Service menu, as described in Chapter 3.2 / Table 1.2. In the following section the assumption is made that an online terminal is available!

### 5.2. MENU VIEW RFID/ COINS / BUTTONS

The menu is configured as follows:

**Price per kWh**
**Cash box content****
**Fill level warning****
**Date & Time**
**Contrast**
**Adv. Settings**
**Tests**
**Firmware update**
**Info**
**Language**
**Service Pin**

| | |
|---|---|
| Price per kWh* | Here the current price per kWh of electrical energy is determined and then configured on the coin variant of the charging station. |
| Cash box content* | The current content of the charging station cash box can be called up via this menu item.<br>Reset the cash box memory by pressing Button 7 on the coin collecting container (c.f. 5.3. Delete cash box content) |
| Fill level warning* | A fill level warning can be set here. The system then issues a warning notification once the defined level has been reached. The number of coins in the container is counted, not the coin value.<br>The fill level warning is displayed with a star in the top right corner. |
| Date & time | The date and time can be configured here.<br><br>*Please note: A charging station may be unusable if an incorrect date is entered, particularly if an RFID card is issued with a time limit.* |

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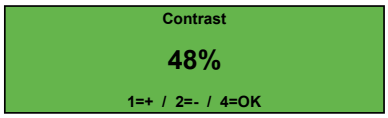
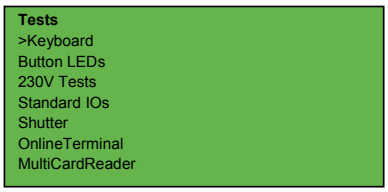
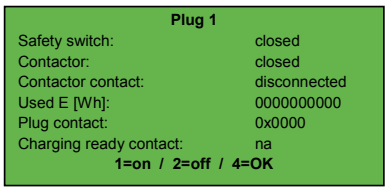
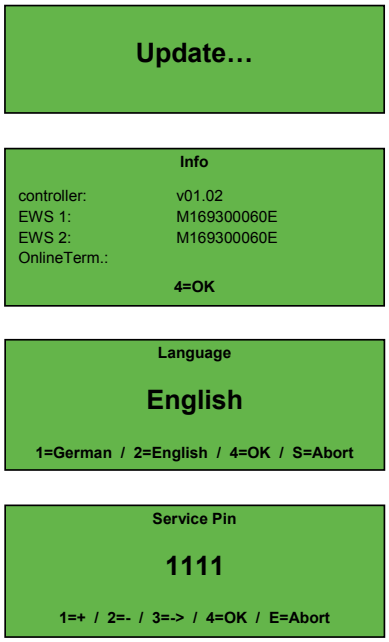


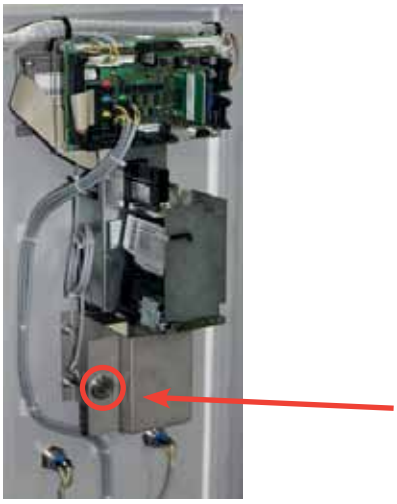





| | |
|---|---|
| Contrast | Here the display contrast can be changed if direct, bright light impairs visibility of the display. |
| Adv. Settings | **MF card PIN***:** Change your RFID PIN<br>**Access data**:** Enter SIM card PIN here along with the end time, APN address, user name and password for your internet access. The charging pillar requires this information in order to send status reports.<br>**Status report**** |
| Tests | Here the configuration functionality of the charging pillar can be tested.<br><br>**Buttons**<br>Verification and identification of the buttons:<br>Buttons are tested as follows:<br>Button 1 = Button 0<br>Button 2 = Button 1<br>Button 3 = Button 2<br>Button 4 = Button 3<br><br>**Button LEDs:** Verification of the LED button lighting.<br>Button LEDs are tested as follows:<br>Button 1 = LED 0<br>Button 2 = LED 1<br>Button 3 = LED 2<br>Button 4 = LED 3<br><br>**230V tests:** Here you can test the available socket outlets for functionality. After selecting Socket 1, the following view is displayed (as an example):<br><br>**SAFETY SWITCH**<br>closed = RCD active<br>interrupted = RCD deactivated<br><br>**CONTACTOR**<br>closed = control voltage signal at the contactor sent<br>interrupted = no control voltage signal at the contactor reported<br><br>**PROTECTIVE CONTACT**<br>closed = Response that contactor is active and has switched<br>interrupted = no response from contactor<br><br>**CONSUMED ENERGY [WH]**<br>Consumed energy is displayed in Watt hours<br><br>**PLUG CONTACT**<br>0x0000: Plug installed and inactive (not connected)<br>0x0001: Plug installed and active (connected)<br>"ni": Plug not installed<br><br>**CHARGE-READY CONTACT**<br>ni = not installed<br><br>**Standard IOs:** Here your console displays which connections are in use. 1=not in use, 0=in use! |



*Picture 4: Coin collecting tray with reset button (Similar to image)*

| | |
|---|---|
| | **Coin slot lock*:** Here you can test your coin machine for functionality; lock / unlock.<br><br>**Online-Terminal:** Here you can find information relating to your online terminal, condition, field intensity and last known errors<br><br>**Multi card reader***** Here you can test the status of your card reader |
| Firmware update | Use this menu item to keep software up to date. |
| Info | The current controlling software, the EWS Box version 1 and 2 and the status of the Online Terminal is displayed here. |
| Language | Selection of the default language to be displayed: German or English.<br>You can also use Button 5 to select a language. |
| Service-Pin | The service PIN may be changed here. The default PIN at delivery is '1111'. |

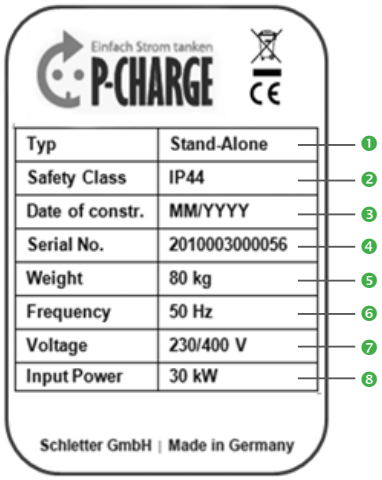
*Table 3: Explanation of menu items*

The menu items marked with,*' are only available in connection with the coin variant.
Menu items marked with ** are only available in conjunction with a modem and a SIM card.
The menu items marked with,*** are only available in connection with the RFID variant.

### 5.3. DELETE CASH BOX CONTENT

With the coin variant, the cash box content can be deleted (reset) if the fill level warning is active or if the cash box has been emptied.

Reset is with button 7, which is located on the rear (inner) side of the door to the left of the coin collecting tray. Press the button for approx. 2 seconds to delete cash box content. Reset is confirmed with an audible notification.




*Picture 5: Identification plate (image may differ from actual product)*

1. P-CHARGE charging station type
2. Protection class
3. Date of manufacture
4. Serial number
5. Weight
6. Frequency
7. Input voltage
8. Input power

# 6. Technical data and notes

## 6.1. IDENTIFICATION DATA FOR THE STAND-ALONE

### 6.1.1.MECHANICAL DATA

The P-CHARGE Stand-Alone has the following dimensions:

| | Closed | Open |
|---|---|---|
| **Height** | 1628mm | 1676mm |
| **Width** | 417mm | 417mm |
| **Depth** | 242mm | 242mm |
| **Weight** | approx. 80kg (depending on the variant) | |

*Table 4: P-CHARGE Stand-Alone mechanical data*

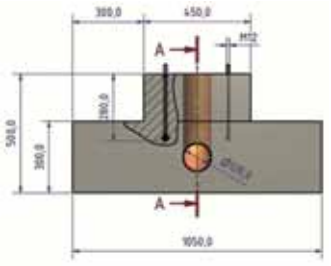
### 6.1.2. ELECTRICAL DATA

| | |
|---|---|
| **Nominal voltage** | 230/400V AC |
| **Nominal frequency** | 50 Hz |
| **Charging capacity per Charging outlet** | max. 22kW (depending on plug system) |
| **Fault current protection with over-current release** | RCBO Type A, C Characteristic C,<br>Rated residual current IΔn 30mA |
| **Installation contactor** | Rated voltage 440V<br>Rated operating current 40A |
| **Meter impulse of energy meter with SO interface** | Alternating current 32A, 1000 impulse / kWh<br>Three-phase current 65A, 100 impulse / kWh |
| **Power supply/control voltage** | Output voltage 12V/ Nominal voltage 36W |

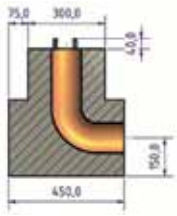
*Table 5: Stand-Alone electrical data*

### 6.1.3. IDENTIFICATION PLATE

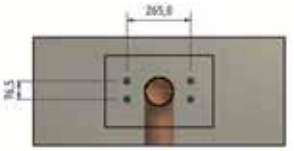
The identification plate is located (when viewed from the front) at the base of the right-hand side piece. The identification plate contains important specifications relating to the charging station and is located on the outer facing of the charging station for optimal visibility.




*Front view*

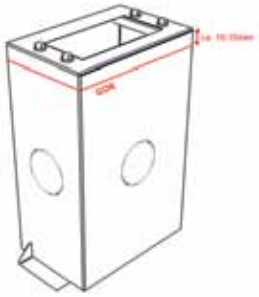



*Side view*



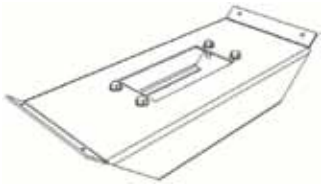

*Top view*

*Picture 6: Detail view foundation recommendation*



*Picture 7: Substructure mounting frames*

*Picture 8: Connection seal:*



*Picture 9: Carport console:*

### 6.2. FOUNDATION / ACCESSORIES

When installing a charging pillar, please ensure that the foundation has been appropriately dimensioned. The regional conditions (soil quality, ground water level, etc.) are to be considered here.

### RECOMMENDATION FOR THE DIMENSIONING OF A FOUNDATION:

In the following you can see example data for the construction of a foundation as recommended by the manufacturer!
The following cast-in-place foundation is not a base for the foundation mounting frame but should be seen as an alternative to the foundation mounting frame.

As an option the P-CHARGE foundation mounting frame can be integrated into a cast-in-place foundation. We supply the following accessories to assist you in this procedure:

### SUBSTRUCTURE MOUNTING FRAME:

Use of foundation mounting frames makes construction of a foundation easier as all nuts required for securing the pillar or running cables are already in place. The mounting frame is set in concrete. Delivery includes 4 x M12 screws and washers. The respective cover plates must be removed in order to install cable conduits.

When constructing the foundation, please ensure that the upper edge of the mounting frame protrudes approx. 10-15mm above ground level to avoid problems when opening the charging station door.

### CONNECTION SEAL:

We can supply a base plate seal as optional protection against corrosion to the interior of the charging pillar. The seal is fitted between the base plate of the pillar and the foundation. Depending on the diameter of the electrical supply cable, the cable grommets are opened with a knife

### CARPORT CONSOLE:

The carport console is compatible with carports of design B2 and B3 which are constructed using a micro-pile foundation. The cannot be used in conjunction with the B1 carport due to an incompatible design of the carport.

### 6.3. ENVIRONMENTAL CONDITIONS

The charging station is designed for installation and for orderly use in public areas. It is designed for outdoor installation in accordance with the following criteria:

| | |
|---|---|
| Type of protection | 0-95% |
| Temperature range: | 0-95% |
| Humidity: | 0-95% |

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P-CHARGE

### 6.4. SERVICE NOTES

The charging pillar is designed to require minimal maintenance. It can be cleaned with common detergents as necessary. Please avoid the use of scrubbing powders or detergents with abrasive particles.

The P-CHARGE is equipped with calibrated meters. These have a validity of 8 years and are approved for use by third parties for the calculation of energy. Once this time has elapsed, either a new meter is to be installed, or the existing device must be audited by the calibration office. The device must be calibrated regularly to ensure a consistently accurate billing process.

We recommend a complete functionality audit of the P-CHARGE Stand-Alone every 6 months to ensure the best possible performance of the device. Test the different functions using the menu item "Tests" and perform a measurement at all the socket outlets according to VDE0100. In the event of outage, operation may be re-started only by qualified a technical electrician (according to BGV A3, DIN VDE 0105-100 and DIN VDE 1000-10 or according to the valid national regulations)

### 6.5. ERROR MESSAGES / PROBLEMS

- POWER FAILURE: In the event of power failure, the charging station will automatically shut down. Once power is reestablished, the charging station will restart by restoring the status saved at the point of outage.
- RCD trip: In the event that the fault current protection switches are tripped, these must be reset manually by a service technician.
- Loss of RFID card: Anyone finding a lost RFID card has authorization to use it at the corresponding charging pillar. Users should therefore be warned in advance to take good care of their card. A lost RFID card can be blocked via the EWS Box website. Instructions to this end can be found in Section 7.
- Outlet "xy" cannot be selected / displays WP or WS: Should an unused outlet not be available for selection, then "WP" or "WS" is shown on the display behind the respective outlet. This problem occurs if the plug is removed without deactivating the outlet; the socket is reactivated for further use after 5 mins.
- In the event of other errors: First, restart the charging station. The control fuse "F0" and all RCCBs "F1, F2, F3, F4" are hereby deactivated and, after approx. 30 seconds reactivated. Should the fault remain, the next step is to check the settings in the Customer Menu, as outlined in section 5.2. Correct these if necessary. Restart the system once changes have been saved. Should the fault still remain, please contact the service partner.

**PLEASE NOTE** The exact position of the plug connections on the EWS Box can be referenced in the EWS-box Quick guide to operations / HTML configuration. This can be found via the link in Section 7 / EWS Box Quick guide to operations / HTML configuration on the SSL Energie GmbH homepage.

## 7. Annex

The following standards were applied:

| | |
|---|---|
| DIN EN 61439-1 | Low voltage switchgear assembly |
| DIN EN 61439-5 | Switchgear assembly in power distribution networks |
| EN 61000-6-3 | Electromagnetic tolerance (EMV) |
| DIN EN 61851 | Electric vehicle conductive charging systems |

The following links are found on the SSL Energie GmbH homepage.
The relevant documentation is available in the area: *Download*

**EWS Box Quick guide to operations / HTML configuration**

**EWS- Box Bedienungsanleitung**

**EWS- Box Kurzbedienungsanleitung - DE**

**EWS- Box Kurzbedienungsanleitung - EN**

## 8. List of images and tables

Einfach Strom tanken
P-CHARGE

## 9. Contact data

**ADDRESS OF THE MANUFACTURER:**

SSL Energie GmbH
Münchener Straße 1
83527 Haag i. OB

**ADDRESS OF THE SERVICE PARTNER:**

*(Please enter contact details for the service partner here)*

**SERIAL NUMBER:**

*(The serial number is found on the charging station identification plate. The identification plate is located (when viewed from the front) at the base of the right-hand side piece, see image 2)*



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