P-CHARGE

Operating Instructions Status as of 08/2016

P-CHARGE Wallbox Duo

Compact design for wall mounting for various areas of application

Please keep these instructions for future reference.

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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 Wallbox. Please follow these instructions carefully in order to avoid accidents and errors.

PLEASE NOTE: Please ensure that you are fully conversant with the operating instructions prior to using the device.
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-friendliness, to increase safety and to simplify maintenance. Prior to initiating a charging session for the first time at the wallbox, the EWS-box buffer is charged as power backup. All keys on the user console are backlit at this point and cannot yet be operated manually! The power-backup PCB is charged after 3-5 mins and you can use the Wallbox for charging an electric vehicle. Charging from the buffer is initiated if the Wallbox is 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 final state of the Wallbox Duo which can then be restored following a power outage.

2. Safety instructions

- Use only approved and undamaged charging cables
- Extension cables must not be used for charging
- Route all cables so as to avoid creating a tripping hazard
- Ensure that only designated plugs are inserted into the relevant socket-outlets
- In the event of malfunction, the operation must be restarted by qualified personnel only
- Charging at defective socket-outlets is prohibited
- Modifications, maintenance and repair work is to be performed by qualified technical personnel only
- Do not use scrubbing powder or detergents with abrasive particles to clean the device
- SSL Energie GmbH accepts no liability for damage caused due to lack of adherence to the guidelines when handling electric current. Use of the Wallbox is at your own risk.

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 given in the operating instruction is checked regularly for correctness and is updated as required. Corrections are included in subsequent versions of the document.

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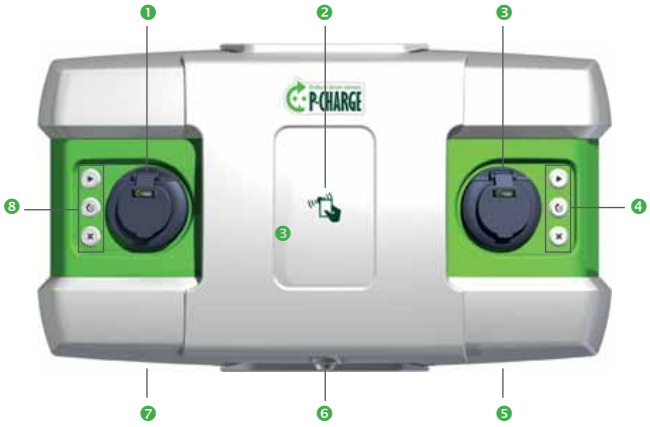

1. Left charging socket
2. RFID card reader (according to model)
3. Right charging socket
4. Control elements right charging socket
5. Filter fleece
6. Locking system
7. Filter fleece
8. Control elements left charging socket

1. RCBO left
2. Identification plate
3. RCBO right
4. Button 4
5. Button 5
6. Button 6
7. Meter right side
8. Control fuse
9. Meter left side
10. Button 3
11. Button 2
12. Button 1

3. Correct use of the Wallbox Duo

3.1 OVERVIEW AND STRUCTURE OF THE WALLBOX DUO

Here you can see the P-CHARGE Wallbox Duo with an explanation of the individual components. To open the housing cover, insert key into the push cylinder of the locking system and turn this to the left or to the right. The system is unlocked when the cylinder slides forwards. The housing cover can then be pulled forwards at the lower end and lifted off. To close the wallbox, replace the housing lid from above, turn the key in the lock back to the original position and push in the locking cylinder.

3.2 THE CONTROL ELEMENTS

This is a short description of the user elements and of the buttons for the opened Wallbox.

Button	Name	Function
Button 1	Start button left charging socket	Start of charging process at left charging socket
Button 2	Optimized charging[1] Left charging socket	Begins charging process "Optimized charging"*
Button 3	Stop button left charging socket	Start of charging process at left charging socket
Button 4	Start button right charging socket	Start of charging process at right charging socket
Button 5	Optimized charging[1] right charging socket	Begins charging process "Optimized charging"*
Button 6	Stop button right charging socket	Start of charging process at right charging socket

[1] Only with server operation

* „OPTIMIZED CHARGING"

The function "Optimized charging" means that the charging procedure is controlled according to the previously defined parameters and is saved to a server by the user. These parameters may, for example, apply to the use of economical, night-time energy or time-apportioned / prioritized fleet management. This functionality is only available if the Wallbox is connected to a server.

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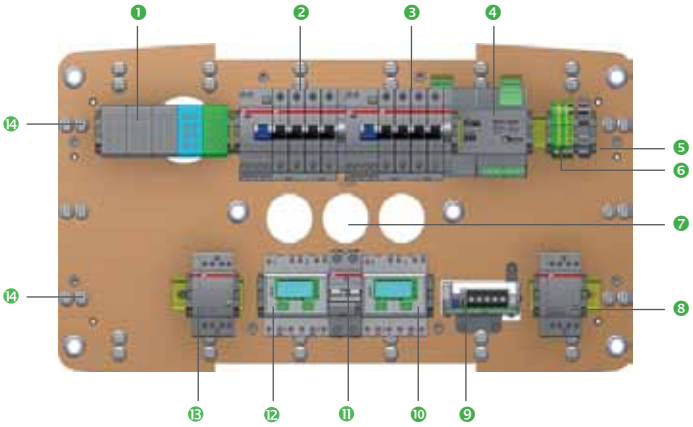
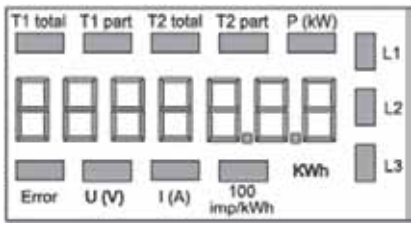


1. Main connection terminals
2. RCD left charging socket
3. RCBO right charging socket
4. EWS-Box P
5. Ventilator terminals
6. PE terminals
7. Cable duct 3 x M50
8. Contactor right charging socket
9. Power supply unit
10. Digital meter right charging socket
11. Control fuse
12. Digital meter left charging socket
13. Contactor left charging socket
14. Clips for cable laying



Digital meter

Picture similar to original product

3.3 ELECTRICAL COMPONENTS

The image below shows the carrier plate with an overview of the electronic components. To access the carrier plate, remove the cover of the Wallbox, loosen the 8 screws from the housing and work the housing off to the front. To protect the cabling the housing cover hangs securely on the strain relief.

DIGITAL METER

Integrated digital meters present many options for the control of energy consumption. As well as electrical energy consumed in kWh, the current values for voltage, current and ouput are displayed both in individual phases and as an overall total. Navigation through the meter menu is with the arrow keys ▼ and ▶ on the front of the meter.

Here is an explanation of the meter functionality and of the individual displays.

T1TOTAL:	Shows total energy consumption for Tarif 1
T1PART:	Shows partial energy consumption for Tarif 1 This value can be reset
T2TOTAL:	Shows total energy consumption for Tarif 2
T2PART:	Shows partial energy consumption for Tarif 2 This value can be reset
P(KW):	Shows current output per phase or of all phases together
U(V):	Shows voltage per phase
I(A):	Shows current per phase
100 IMP/KWH:	Pulsation according to output
KWH:	Consumption is displayed in kWh units
L1 / L2 / L3:	With P-, U-, I- or error message the relative phase is displayed
ERROR:	With missing phases or incorrect polarity The corresponding phase is additionally displayed

3.4 SOCKET EQUIPMENT

In its basic design, the P-CHARGE Wallbox is fitted with two Type 2 socket outlets (IEC, 62196). This enables charging of an electric vehicle in accordance with IEC 61851-1 Mode 3. The Wallbox communicates with the vehicle via signal contacts PP and CP. Each charging socket has a separate RCBO, active energy meter and protection. The charging cable is locked into the charging socket at the start of the charging process to secure the cable against unauthorized disconnection. The locking device is deactivated as soon as the cable is removed from the vehicle (loss of pilot signal) and the charging socket is switched to power-off.

CHARGING SOCKET IEC 62196-2 TYP2

- Charging current: 16A
- Number of poles 3P+N+PE+PP+CP
- Start output: 11kW

4. Charging the electric vehicle with the P-CHARGE Wallbox Duo

Depending on the configuration, the Wallbox can be activated via an RFID reader or with no prior authorization. The unit can also be operated in "Optimized charging" mode. In the following section, the process is outlined from a user perspective.

4.1 RFID (RADIO FREQUENCY IDENTIFICATION)

RFID mode allows the owner of a designated card to initiate the charging of a vehicle without needing cash. Only users with authorized RFID cards (on the HTML page) can initiate a charging process. The RFID mode is not, however, a billing method in itself. If you have access to the HTML page yourself, you can authorize and program RFID cards required for individual users.

The activation of RFID cards can also be time-limited (e.g. from 1st January 2012 until 31st December 2013).

You can reference details as to the layout of the HTML page in the *"P-CHARGE EWS Box Quick guide to operations"* in *Chapter 2 / Configuration of the LAN connection:*

To activate your RFID card, please refer again to the *"P-CHARGE EWS Box Quick guide to operations"* under *Chapter 3 / Settings*.

To block or cancel lost RFID cards, please refer to the *"P-CHARGE EWS Box Quick guide to operations"* to log in to the HTML page and tag these in the "blocked cards" field.

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START CHARGING PROCESS:
STEP 1
To start a charging session, hold the RFID card up to the card reader for approx. 3 seconds.

STEP 2
Plug in your cable to the selected outlet. You may plug in your cable prior to registering an RFID card.

STEP 3
The Start button 1 or 4, begins to flash. Press the flashing button to begin the charging process. The button is backlit in green throughout the entire charging process.

TERMINATE CHARGING PROCESS:
STEP 1
To end a charging session, hold the RFID card up to the card reader for approx. 3 seconds. This must be the same card as was used to initiate the charging session.

STEP 2
Then press the Stop button,
i.e. Button 3 or 6 and the session will end. The plug may now be removed from the socket.

STEP 3
The socket is now free and available for a new charging session.

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4.2 AUTHORIZATION-FREE CHARGING

PLEASE NOTE: Neither payment nor user identification is required in this mode to initiate or end a charging session!
The charging session is started and terminated in the same way.
Each user has free access to all charging sockets!

All users have free access to all charging outlets.

START CHARGING PROCESS:
STEP 1
To start a charging session, plug the cable for the electric vehicle into the appropriate charging socket.

STEP 2
The Start button 1 or 4, begins to flash. Press this button to start the session. The button is backlit in green throughout the entire session.

TERMINATE CHARGING PROCESS:
STEP 1
To end the vehicle charging session, press the Stop button 3 or 6 and remove the plug from the charging socket.

STEP 2
The charging session is terminated and the outlet is now available for further use.

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4.3 OPTIMIZED CHARGING

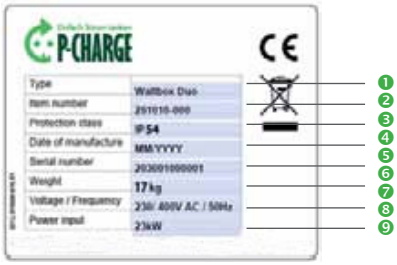
As described in *3.2 / Control elements* you will need connection to a server. This can be achieved by connecting the EWS Box to a web-capable computer using a LAN cable. Configure the HTML page as described in the "P-CHARGE EWS Box Quick guide to operations" in Chapter 2 / Configuring a LAN connection.

START CHARGING PROCESS:
STEP 1
To start a charging session, plug the cable for the electric vehicle into the appropriate charging socket.

STEP 2
Select the charging process "Optimized charging" by pressing Button 2 or 5. Depending on the parameters set for server connection, the charging session may not begin immediately but only then when the parameters have been fulfilled.
The button is backlit in orange for the duration of the charging process.

TERMINATE CHARGING PROCESS:
STEP 1
The charging process is terminated automatically. This applies either when the battery of the electric vehicle is fully charged, or once the parameters in the server settings can no longer be met.

STEP 2
The cable plug can now be removed from the socket and the outlet becomes available for further charging sessions.



Diagr. Example identification plate

1. Wallbox type
2. Item number
3. Safety class
4. Date of manufacture
5. Serial number
6. Weight
7. Input voltage / Frequency
8. Input power

5. Technical data and notes

5.1 MECHANICAL DATA

The P-CHARGE Wallbox has an innovative Twinsheet plastic housing. The robust, modular design allows for easy access to the electrical components by service technicians. The Wallbox Duo has the following dimensions:

Height	Breadth	Depth	Weight
335 mm	700 mm	170 mm	c.25 kg

5.2 ELECTRICAL DATA

Nominal voltage	230 / 400 V AC
Nominal frequency	50 Hz
Charging capacity per outlet	11 kW (max. 2x11 kW possible)
Fault current protection with over-current release	RCBO Type A, C Characteristic C, Rated residual current IΔn 30 mA
Installation contactor	Rating operating voltage 440 V. Rated operating current 24 A
Energy meter pulse counter with S0 interface	Alternating current 3 x 65 A 1000 impulse/kWh, Accuracy class 1/B
Power supply/control voltage	Output voltage 12 V, nominal power 36W

5.3 IDENTIFICATION PLATE

The identification plate contains important information relating to the Wallbox. The cover flap of the Wallbox must be removed as described in "*3.1* of the *Overview and Construction of the Wallbox*"

5.4 COMMUNICATION VIA EWS BOX

The communication of the Wallbox Duo with the electric vehicle takes place via the integrated SSL Energie EWS Box-P
The EWS Box P communication module undertakes all control- and signaling functions necessary, in accordance with IEC 61851 Mode 3, for the connection of an electric vehicle (EV) to a cable-linked supply unit. Parameters for a self-sufficient or for a systems-integrated operation can be configured via HTML pages. The RFID cards can be activated or blocked on the HTML page. You can find more related information at:
https://www.ssl-energie.de/service/downloads/.

5.5 ENVIRONMENTAL CONDITIONS

The charging station is designed for installation and for orderly use in public areas. With its innovative Twinsheet plastic housing the device fulfils the criteria for installation in exterior locations.

Protection class	IP 44
Temperature range	-25 to +40°C
Air humidity	5% to 95%

5.6 SERVICE NOTES

The Wallbox Duo 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. Calibrated (MID) digital meters are integrated into the P-CHARGE Wallbox Duo. 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 that a complete functionality audit of the P-CHARGE Standalone be carried out every 6 months to ensure the best possible performance of the device. Please note that these tasks should be carried out by trained, technical personnel only.

5.7 IN THE EVENT OF AN ERROR / PROBLEM

In the event of an error, Button 3 or Button 6 is permanently backlit in red until the error is corrected.

- **POWER FAILURE:** In the event of power failure, the charging station automatically shuts down. Once power is re-established, the charging station restarts by restoring the status saved at the point of outage. The power backup board in the EWS Box must, however, now be recharged. This can take approx 2-3 minutes. The Wallbox is then fully functional. The control elements are back lit while the power backup is charging.
- **LOSS OF CARD:** Anyone finding a lost card effectively has authorization to use it at the corresponding charging pillar, so please advise your customers to be prudent. In the event of loss, your customer will require a new card, however, lost cards cannot be cancelled.
- **ERROR: INVALID CONFIGURATION:** In this case please log into the HTML page as Administrator and configure your EWS Box under Menu item "Installations", according to your required parameters. Under Menu Item "Maximum current (A)" enter the applicable Current Value for your system and save this to the settings.
- **ERROR: VENTILATION NOT SUPPORTED:** The ventilation system you are using is not supported by the EWS Box. Please change the ventilation system! It could, however, be the case that the respective ventilation system is not yet activated in the settings on the HTML page. Log in to the HTML page as Administrator and change the setting "System parameter - Ventilation" under Menu Item "Installations" Please also check the connection between the ventilator contactor and the contactor terminal X102
- **ERROR: LOCKING / UNLOCKING:** In the event that the following error message occurs, please check the connection to the socket actuator. The plug may have been incorrectly inserted in the bushing or the connection of the locking device to the EWS Box pins may not be correct. Please contact your service partner if there appear to be no issues with the connection.
- **ERROR: ACTIVATE CONTACTOR:** Here there is a faulty contact in the EWS Box in the contactor terminal X102 EF 1 or contactor EF 2. It may be necessary to disconnect and reconnect these. Also possible is that the charging contactor return signal to the X401 for EV 1 and X402 for EV 2 is failing due to an incorrect connection / contact at the Pins 15.
- **ERROR: CHARGING INTERRUPTED (METER):** This error is displayed if, for example, the meter S0+ or S0 output has no or an incorrect contact. Please check your plug connection at the meter and also at Pins 4 or 10 at connections X401 / X402. Please contact your service partner if there appear to be no issues with the connection.
- **CHARGING CONNECTION RCD / OUTAGE RCD SWITCH:** Remove plug from the charging socket and re-insert the RCD. Plug the cable back into the socket.

- **ERROR: CURRENT VALUE CABLE / INTERRUPTED CHARGE - CABLE:** Either an incompatible cable has been used with an incorrect resistance code or the cable is defect. Replace the charging cable with a correct / functioning cable.
- **IN THE EVENT OF OTHER ERRORS:** In each case, please restart the charging station by switching off at the main switch and on again after approx. 30 seconds.

Please reference the exact positions at the EWS Box in the *EWS-Box Quick guide to operations / HTML configuration*. You can find more related information at:
https://www.ssl-energie.de/service/downloads/

6. Annex

THE FOLLOWING STANDARDS WERE APPLIED:

EN 61439-1	Low voltage switchgear assembly
EN 61439-5	Switchgear assembly in public power distribution networks
EN 61000-6-3	Electromagnetic tolerance (EMV)
EN 61000-4-3	Electromagnetic tolerance (EMV) HF irradiation
EN 61000-4-2	Electrostatic discharge
EN 61000-2-2	Voltage harmonics
EN 61000-4-11	Voltage dips at at AC-supply
EN 60950-1	Product safety
EN60950-22	Product safety (Equipment for external locations)
EN 61851-1	Electrical equipment for electric street vehicles – Conductive charging systems for electric vehicles. Part 1 General requirements
EN 61851-22:2002	EMV test on conductive charging systems for electric vehicles

7. Supplementary material

Supplementary documentation to the Wallbox Duo can be found on our website under the following link:

https://www.ssl-energie.de/service/downloads/

8. Contact data

ADDRESS OF THE MANUFACTURER:

SSL Energie GmbH
Donaupark 13
93309 Kehlheim

ADDRESS OF THE SERVICE PARTNER:

(Please enter contact details for the service partner here)

SERIAL NUMBER:

(Please refer to the identification plate on your charging station and enter the serial no. here)