

POWER2CAR RIM + RFID

Translation of the original operating instructions



Impressum

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1. Safety

1.1 Important safety instructions ! ! !

1. The operating instructions must be read carefully and the safety, warning and hazard information must be observed.
2. Functional impairment of pacemakers and other medical aids.

1.2 Intended use

The POWER2CAR RIM is used for charging electric vehicles in accordance with IEC 62196. The product can be mounted directly on a wall or operated as a free-standing charging pole using the optional stand available from the manufacturer.

The POWER2CAR RIM has a permanently connected charging cable with a type 2 plug that must be plugged directly into the charging device of the electric vehicle.

1.3 Reasonably foreseeable misapplications

The unit is to be used exclusively for the task and environment described in the operating instructions. Lack of maintenance, incorrect or improper use or unauthorised modification can lead to destruction or malfunction. The manufacturer is not liable for any damage resulting from this and the warranty expires. The risk for this is borne solely by the operator.

1.4 Designs of the charging station and documentation

There are also different documents for the respective versions, which can be downloaded from the Internet as PDF files at www.renz.com.

POWER2CAR RIM can be used outdoors and indoors and is described in this manual. Various accessories are available for this, such as a stand.

POWER2CAR STEEL can be used outdoors and indoors. Various accessories are available for this, such as a stand. A separate manual has been prepared for this.

POWER2CAR City corresponds to POWER2CAR STEEL, but the screw-on housing and the cable holder are powder-coated. This is included in the instructions for POWER2CAR STEEL.

POWER2CAR FUEL may only be used in a covered area; separate instructions have been prepared for this.

1.5 Installation, maintenance and servicing

Work on the unit may only be carried out by persons who are familiar with it, have been informed about the dangers and have the necessary qualifications. In particular, the generally applicable safety and accident prevention regulations must be observed.

The electrical connection may only be carried out by a qualified electrician in accordance with DIN VDE 0100! In particular, the local protective measures as well as the valid VDE and EN regulations and, in the public sector, also the DGUV regulations must be observed! The corresponding safety checks must be carried out and recorded.

The commissioning of a charging station may require a permit from the responsible grid operator!

Work on the unit is only permitted when it is de-energised (mains disconnection).

1.6 Charging cable

- The charging cable may only be unplugged by pulling the plug (not the cable)!
- The charging cable must not be extended!
- Protect the plug from dirt and moisture!
- The cable must not be bent, pinched or run over!
- After charging, the charging cable must be loosely wrapped around the charging station again.
- The protective cap of the plug is to be properly pushed back onto the plug after charging.

1.7 Wire cross-section

When selecting the cross-section of current-carrying conductors, both the upstream protection and the voltage drop due to long cable lengths must be taken into account.

1.8 Liability

The function of the unit depends on many influencing variables over which the manufacturer has no control. The manufacturer cannot guarantee the functional reliability of the unit. No liability is accepted for consequential damage.

2. Disposal

If the charging station is finally taken out of service, the individual components must be disposed of properly at a recycling facility.

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3. Structure and type plate

3.1 General structure and position of the type plate

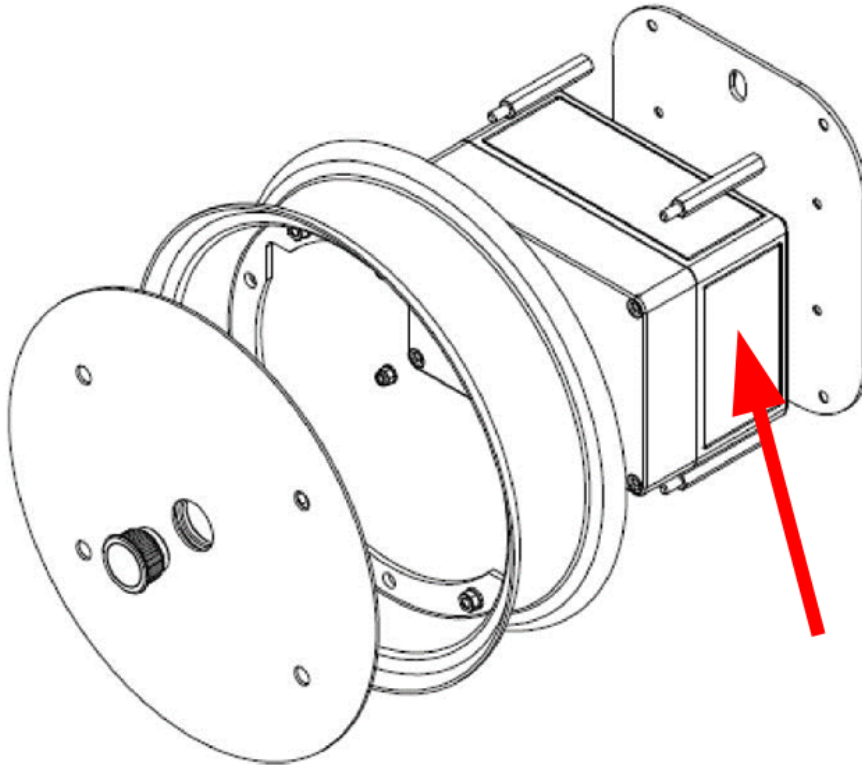


Figure 1

The POWER2CAR RIM charging station is composed of various sheet metal parts and a plastic housing that contains the electrical components. Together it makes a robust, beautifully shaped charging station.

This illustration also shows the location of the type plate. In case of questions with the technical support, the most important data for the allocation of the charging station can be read here. The type plate is located on the side of the charging station. This is shown by the red arrow.

4. Installation

4.1 Placement and surroundings of the charging station

If the POWER2CAR RIM charging station is operated without a stand, the unit must be mounted on a stable wall. The position should be selected so that the wallbox is operated free of negative external weather influences. When mounting the charging station on the wall, a height of 0.9 m from the floor to the lower edge should be maintained.

Furthermore, when selecting the position, it must be ensured that the charging station can be operated directly with the vehicle's charging connection without additional cable extensions and that no tripping hazards or similar are created by the unrolled charging cable.

4.2 Attachment

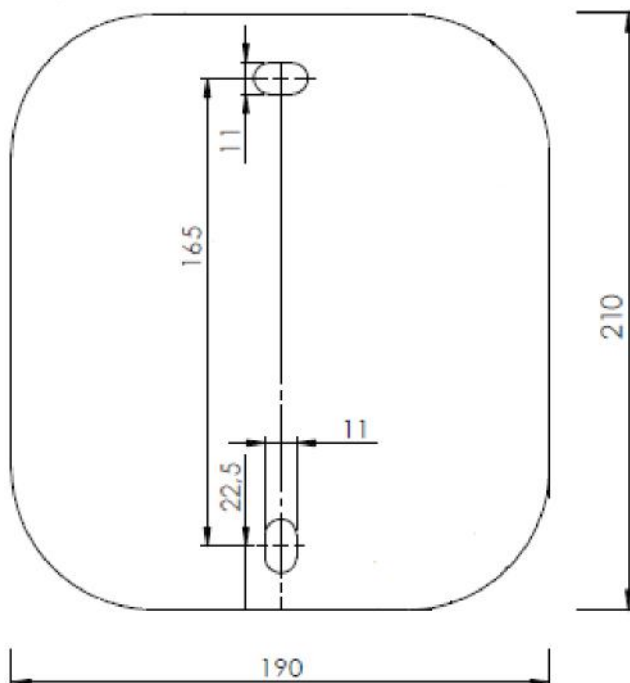


Figure 2

The unit has a stainless steel wall plate with which the unit is fixed to the wall. The unit is fixed to the wall by means of the 2 fixing holes in the wall plate using 12 mm dowels and 10 mm hexagonal wood screws.

Dowels and screws are included in the delivery of the unit.

4.3 Connection or supply line

The connection cable and the corresponding fuse protection must be determined according to the desired charging current, the cable type, the cable lengths and the local and standardised regulations.

Charging current IN	Fuse protection [A] Typ B	Minimum cross section [mm²]
10	16	5 x 2,5
16	16	5 x 2,5
Each charging point must be equipped with a separate fuse.		

Table 1

4.4 Residual current circuit breaker

The circuit must be protected by a type A residual current device (RCD) with a tripping current of 30 mA. e.g. ABB F204 A-40/0,03

This residual current circuit breaker must be installed in the house distribution before the supply line to the POWER2CAR RIM Wallbox charging station. Each charging point must be equipped with a separate residual current circuit breaker.

The charging electronics in the vehicle can generate a DC residual current which is not detected by the type A residual current circuit breaker. To protect against these DC residual currents, the POWER2CAR RIM has an integrated DC monitor. This component detects the residual currents and, in the event of a fault, triggers the residual current circuit breaker in the house distribution. This means that no universal current-sensitive residual current circuit breaker (type B) is required.

Info: Some vehicles (e.g. Renault Zoe) generate such a high fault current during the charging process that the RCD installed in the distribution system trips sporadically.

The following residual current circuit breakers are immune to these spikes and have proven themselves in practice:

Manufacturer	Typ
ABB	F204xx FS453E FS453M
Döpke	DFS 4B SK xx/0,03A DFS 4 xxx/0,03-EV

Table 2

4.5 Checking the residual current device



Figure 3

The DC monitor integrated in the POWER2CAR RIM has a test button for checking the residual current device. When pressed, a 6 mA DC residual current is generated. The DC monitor then generates an AC residual current which triggers the residual current circuit breaker in the house distribution system.

This function must be checked when the unit is put into operation and later once a year.

4.6 Electrical connection

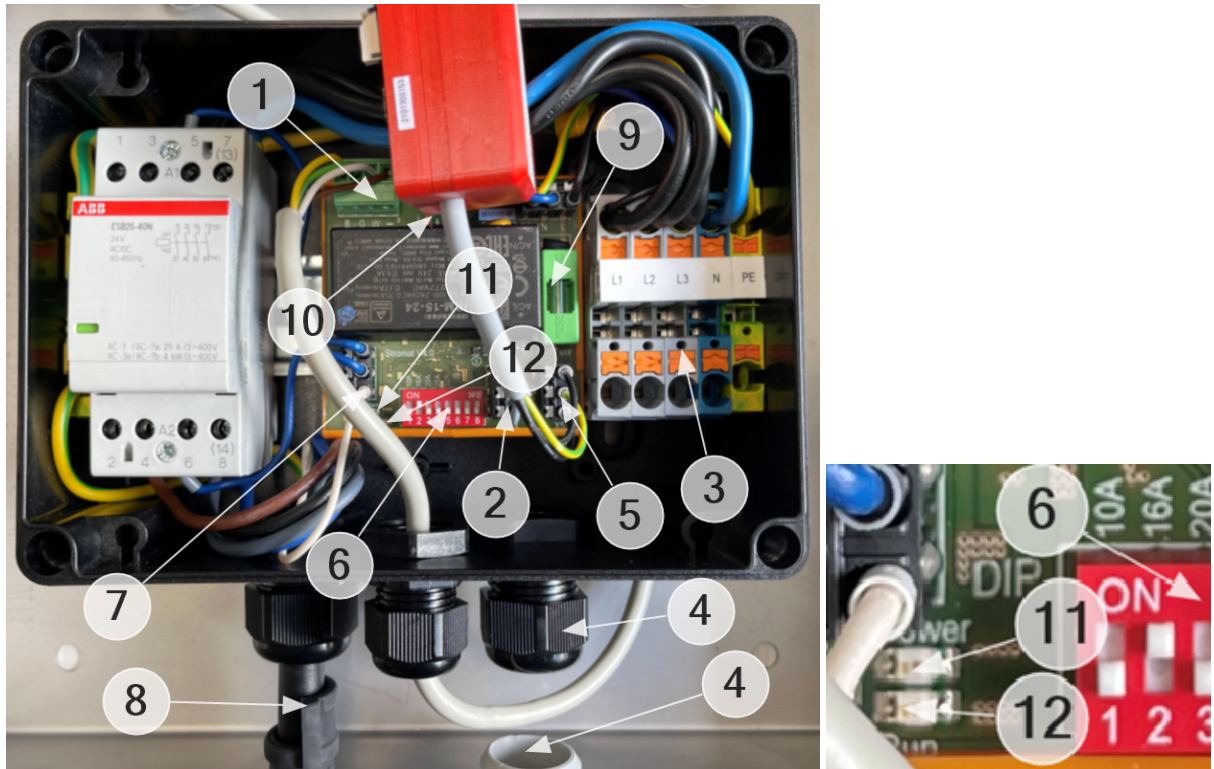


Figure 4

Nr.	Description	
1	Connection plug for signal lamp (Mounted on delivery)	<p>The supply line is inserted from below through the cable gland. The wires are to be clamped directly onto the terminal block.</p> <p>The <u>PE connection</u> is made at the <u>green - yellow</u> terminal.</p> <p>The <u>neutral conductor</u> must be connected to the <u>blue</u> terminal.</p>
2	Enable contact X4 <ul style="list-style-type: none"> - GND IN Digital Input + +24V-DC <p>Bridge between "+" and "IN" → Charging enable active.</p> <p>When using the RFID reader, the enable contact cannot be used because the RFID reader is connected to this contact.</p> <ul style="list-style-type: none"> - Orange IN Red + Brown 	
3	Mains connection <p>1-phase: L1, N, PE</p> <p>3-phase: L1, L2, L3, N, PE</p>	
4	Cable gland Connection cable	
5	Connector plug (Mounted on delivery.) Fault current circuit breaker ready mounted	

6	Dip switch (Must be set according to Table 4 during installation.) (see chapter 4.8.)	
7	Release from car (white wire) (When charging plug is in the car)	
8	Charging cable with type 2 plug (Mounted on delivery)	
9	Fine-wire fuse 5 x2 0 1A slow-blow	
10	Communication interface K1 RS485	
11	Power LED lights up Power supply o.k.	
12	Run LED flashes Processor in operation	

Table 3

4.7 Release contact

At the factory, the charging station POWER2CAR RIM is equipped with a wire jumper between "+" and "IN" of the terminal strip (table 3 no. 2) of the charge controller. On the customer side, this connection can be used for an external charging release. In this case, an external potential-free contact controls the charging release (e.g. RFID scanner or similar).

4.8 Setting the current intensity on the dip switch block

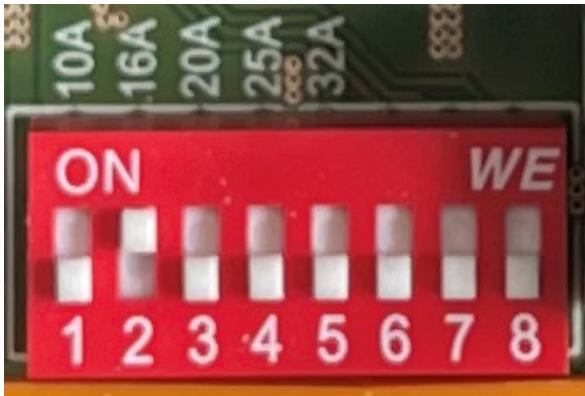


Figure 5

Component	Description
DIP	<p>Charging current setting to the vehicle DIP 1 ON, rest OFF => 10 A DIP 2 ON, rest OFF => 16 A</p> <p>Float charge DIP 6 ON, DIP 7 OFF => 6A DIP 7 ON, DIP 6 OFF => 10A</p> <p>Activation RS485 interface DIP 8 OFF => RS485 switched off DIP 8 ON => RS485 switched on</p>

Table 4

4.8.1 Charging current setting

DIP switches 1 and 2 are used to set the maximum charging current that the charging station makes available to the vehicle.

4.8.2 Trickle charge

DIP switches 6 and 7 are used to set a fixed charging current which is used when the charging station goes into the "trickle charge" function.

With trickle charging, a charging process that is currently being carried out is continued with a fixed charging current if the enable contact is opened during the charging process. Trickle charging is automatically stopped when the vehicle stops charging.

4.9 Teach RFID transponder

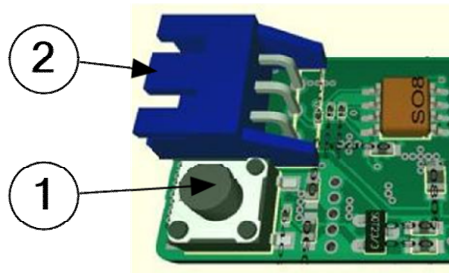


Figure 6

For this purpose, there is a teach button (1) on the RFID reader board. When the button is pressed, the reader switches to teach mode (recognisable by the fast flashing of the red LED on the reader board). In this state, the transponders to be newly taught can now be held in front of the reader. As soon as the RFID reader recognises the transponder, it is permanently stored and the teach mode is ended. Socket (2) for connection cable.

Info: Up to 60 transponders can be stored in the reader.

5. Operation

5.1 Multicolour LED

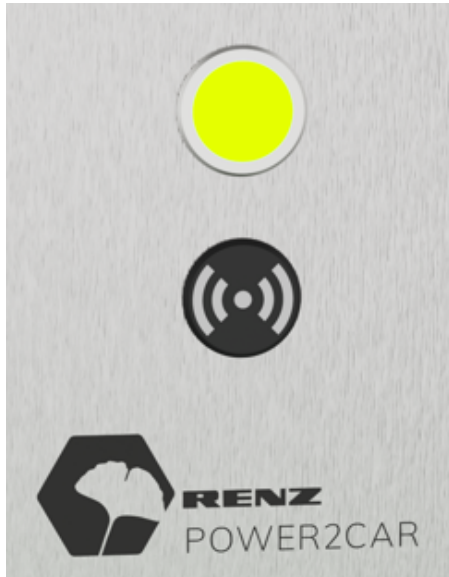


Figure 7

Colour shade	Description
Off	Lack of power supply or control fuse defective
White permanent	Ready for operation
Blue permanent	Vehicle detected
Green permanent	Charge active
Blinking green / with 2.5 sec green / 0.5 sec	Trickle charge active
Blinking green 2 sec On / 2 sec Off	Reduced charge active (due to cooling requirement)
Blinking Blue / White 1 sec Blue / 1 sec White	DIP switch set incorrectly
Blinking Blue / White 1,5 sec Blue / 0,5 sec White	Undefined voltage read in at CP contact
Blinking Blue 1 sec Blue / 1 sec Off	System error (Please contact the manufacturer!)

Table 5

5.2 Charging plug



Figure 7

The POWER2CAR RIM wallbox uses a type 2 charging plug, which is used in Europe and is supported by all common vehicles there. The associated charging cable has a length of 5m. The entire device including the plug is designed for 11 kW, 16 A.

5.3 Enabling the charging station for the charging process

Depending on the version, the charging station can be enabled.

If a wire jumper is installed at the enable contact ex works, then the charging process is permanently enabled.

In the case of RFID, the release only takes place after a taught-in RFID transponder is held in front of the RFID reader. The charging release is signalled by the front LED lighting up. If the vehicle charging is not started within 90 seconds after the release, the charging release is automatically deactivated.

5.4 Load vehicle

5.4.1 Start charging

1. To start the charging process, the POWER2CAR RIM must be ready for operation.
(LED: Permanent WHITE)
For this purpose, the charging release must be available via the release contact (X4). Jumpered in the delivery state).
2. The charging cable must be completely unwound and the protective cap of the charging plug removed.
3. The charging plug is to be plugged into the charging socket of the vehicle.
4. The vehicle recognises the connected charging station. (Multi-colour LED: permanent BLUE)
5. The charging process is started by the vehicle. (Multi-colour LED: permanent GREEN)

Info: For details on starting or stopping the charging process on the vehicle, please refer to the vehicle manufacturer's instructions.

When delivered with a wire jumper from the factory: Authentication by the user is not carried out. The charging station can be switched on or off by switching the fuse on/off.

5.4.2 End charging process

1. The charging process is terminated by the vehicle. (Multi-colour LED: OFF).
2. The charging plug must be removed from the vehicle and the protective cap must be pushed onto the charging plug.
3. The charging cable must be rolled up around the POWER2CAR RIM Wallbox charging station.

Info: For details on how to end the charging process on the vehicle, please refer to the vehicle manufacturer's instructions.

6. Maintenance

6.1 Annual

- Checking the residual current device by pressing the test button on the DC monitor.
- Checking the charging cable and charging plug for mechanical defects.
- Checking the operation of the multi-colour LED.

Danger: If the charging station is operated in public areas, additional maintenance must be carried out in accordance with the DGUV regulations!

Danger: Defective or damaged components must be replaced immediately!

Danger: Only use original spare parts!

7. Technical data

General information	
Charging plug	Typ 2 (IEC 62196)
Charging cable	5m
Charging current	10A...16A
Charging power	3,7kW...11kW

Dimensions charging station POWER2CAR RIM	
Wide	290mm
Height	290mm
Depth	120mm
Weight	7,5kg

Environmental conditions	
Temperature for storage	-30...50°C
Temperature for operation	-30...50°C
Protection class (housing)	IP65
Relative humidity	5% - 95% non-condensing

Electrical connection	
3-phase	L1, L2, L3, N, PE
Power supply	400V, 50..60Hz
Maximum current consumption	16 A
Maximum on-site fuse protection	20 A
Residual current circuit breaker	Type A 30 mA
Connection terminals	6mm ² with wire end ferrules 10mm ² without ferrules

Operation and charge monitoring	
Multicolour LED	Colours: White, green, blue

Interfaces	
Release contact	External potential-free NO contact
RS485	19200 Baud

8. EU Declaration of Conformity according to Low Voltage Directive 2014/35/EU Annex IV

Translation of the original declaration of conformity

The manufacturer / distributor

Chr. Renz GmbH
Rechbergstraße 44

D-73540 Heubach

hereby declares that the following product

Product designation:	Charging station for electric vehicles
Trade name:	POWER2CAR
Model designation:	POWER2CAR RIM
Serial number:	ab 4798001030.100001
Model designation:	POWER2CAR RIM RFID
Serial number:	ab 4798001031.100001

Conforms to the provisions of the Low Voltage Directive 2014/35/EU - including its amendments in force at the time of the declaration.

The following harmonised standards were applied:

DIN EN IEC 61851-1:2019-12

DIN EN IEC 61000-6-1:2019-11

DIN EN 61000-6-3:2011-09

The protection targets of the following further EU directives were complied with:

EMC Directive 2014/30/EU

Place: Heubach

Date: 14.10.21



(Signature) executive Director

9. Appendix Manufacturer's Warranty

The manufacturer grants the customer the manufacturer's warranty prescribed by law.

The warranty period begins when the charging station is put into operation, but no later than 3 months after dispatch by the manufacturer or dealer to the end customer.

Warranty claims can only be made if all the information and notes described in this manual are observed, e.g. chapter.

- Safety and security
- Installation
- Maintenance
- Technical documentation

An exclusion of liability applies to wearing parts. Wearing parts are the charging cable and the type 2 charging plug.

The warranty refers to the proper functioning of the charging station.

10. Appendix Service

10.1 Information, help and questions about the product

Current information on the product is provided on the „power2car.de“ website.

11. Appendix Accessories

11.1 Stand

With the stand, the POWER2CAR RIM charging station can be fixed directly to the floor. A stable surface must be available for this.

The position of the base in relation to the vehicle must be selected so that no extension cable is required for charging the vehicle.

Minimum requirement for a foundation:

Dimensions: 40 x 40 x 80 cm

Concrete quality min.: C20/25



12.Options

The charging station can be equipped with this option.

12.1 RFID reader



Charging is only enabled after a taught-in RFID transponder has been presented in front of the RFID reader.

The charging release is signalled by the front LED lighting up. If the vehicle charging is not started within 90 seconds after the release, the charging release is automatically deactivated.

Info: The scope of delivery includes three RFID transponders. Additional transponders can be obtained from the manufacturer.