

SONO  MOTORS

# THE SONO WALLBOX



SONO MOTORS

The First Affordable Wallbox  
for Bidirectional Charging





## PREFACE

# What Does the Mobility of the Future Look Like?

**AND HOW CAN IT BE IMPROVED AND MADE MORE SUSTAINABLE IN THE INTEREST OF THE PLANET AND ITS INHABITANTS? SOME YEARS AGO, WE ASKED OURSELVES EXACTLY THAT. OUR ANSWER IS THE SION – AN ELECTRIC CAR THAT CHARGES ITSELF AND CAN BE SHARED WITH OTHERS.**

A key unique selling point for the Sion is bidirectional charging. To make this possible, a wallbox is required that connects the house and the vehicle to one another. To date, there is no product on the market that is entirely suitable for our area of application. We're going to change this with the new Sono wallbox!

The development of the Sono wallbox means that we are once again doing pioneering work and offering you the first affordable wall-mounted charging station for bidirectional charging. From a technical point of view, the Sono wallbox supports both vehicle-to-home (V2H) and vehicle-to-grid (V2G). The Sion thus becomes a mobile electricity storage unit. At times when your PV system is generating little to no energy, this can be taken from the Sion to supply your home.

Our new Sono wallbox makes bidirectional charging affordable. This is our contribution to a future with 100 % renewable energy sources.

## A POWER PLANT ON WHEELS

# What is Bidirectional Charging?

**BIDIRECTIONAL CHARGING ENABLES THE SION TO NOT ONLY ABSORB AND STORE POWER, BUT ALSO TO DELIVER IT.**

The Sion is equipped with a standard European household socket (Schuko), which can be used for all common electronic devices with up to 3.7 kW. The Sion can deliver even more power when using a Type 2 plug. You will also be able to power other electric cars and high-voltage devices with up to 11 kW.

In the future, it will also be possible to supply the home with energy stored in the Sion in combination with the Sono wallbox and a home energy management system (HEMS). The Sion thus serves as a mobile home storage unit and power plant simultaneously.





### DON'T SAVE JUST POWER

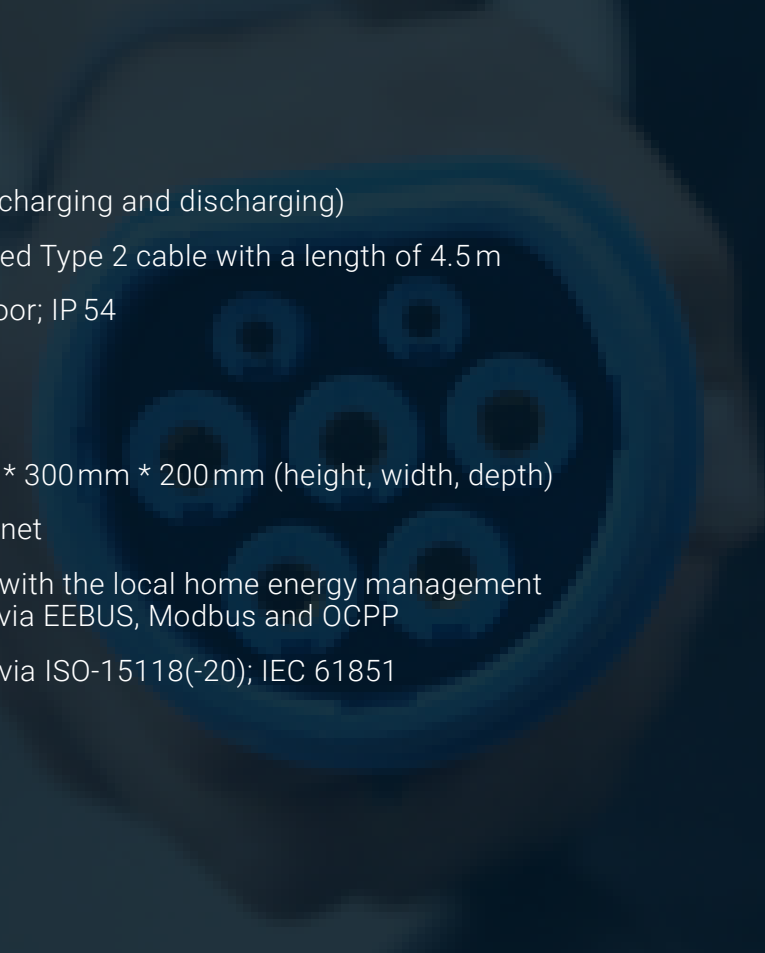
## What's So Special About the Wallbox?

Bidirectional DC wallboxes available on the market up to this point are relatively more expensive, as they contain an inverter to convert the direct current from the vehicle's battery into alternating current, in order to feed it back into the house.

By integrating the inverter into the Sion's on-board charger (OBC), we can massively reduce the costs for the wallbox. We assume a cost saving of up to 70% compared to currently available DC wallboxes.

**EVERYTHING AT A GLANCE**

# Specifications



<b>Power</b>	up to 11 kW AC (charging and discharging)
<b>Cable</b>	comes with a fixed Type 2 cable with a length of 4.5 m
<b>Installation</b>	indoor and outdoor; IP 54
<b>Residual Current Device (RCD)</b>	$I_{\Delta n} DC \leq 6 \text{ mA}$
<b>Weight</b>	approx. 5 kg
<b>Dimensions</b>	approx. 400 mm * 300 mm * 200 mm (height, width, depth)
<b>Connectivity</b>	WLAN and Ethernet
<b>Control Interfaces</b>	communication with the local home energy management system (HEMS) via EEBUS, Modbus and OCPP
<b>Charging Protocols</b>	communication via ISO-15118(-20); IEC 61851

**CONNECT SIMPLY**

# Application Cases

**VEHICLE-TO-HOME (V2H)**

V2H means that your Sion can be used as a mobile storage unit for a building connected to the grid. So surplus electricity from a rooftop photovoltaic (PV) system, for example, that cannot be consumed by the 'household' can be stored temporarily in the vehicle's battery. At times when the PV system is generating no or only a little energy, this stored energy can then be retrieved from the Sion to supply the house with energy.

**VEHICLE-TO-GRID (V2G)**

The vehicle is connected to the grid either directly or indirectly via a structure such as a building and the stored energy is thereby fed back into the national grid. Instead of switching wind turbines off in times of energy surplus, the excess energy could temporarily be stored in the vehicle's battery. In addition, peak loads can be cushioned by a network of electric cars. In the long term, V2G is another piece of the puzzle for a future with 100% renewable energy sources.

Please note that the commissioning and operation of energy generation plants and energy storage systems is regulated in Germany and Europe. When dealing with bidirectional vehicles, the regulatory framework is unfortunately still very patchy. Local grid distribution operators decide on operating permits and must currently be contacted individually.

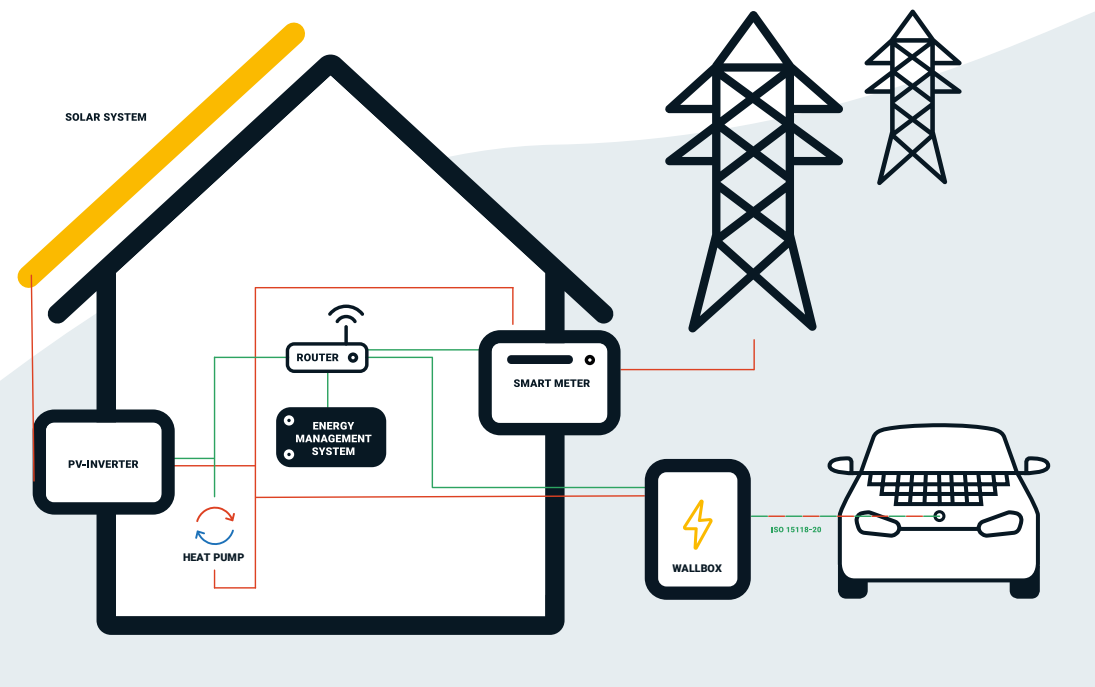
## SION@HOME

# How Will the Sion Be Linked to Your Home?

## A HOME ENERGY MANAGEMENT SYSTEM (HEMS) CONTROLS WHEN THE VEHICLE IS CHARGED AND DISCHARGED.

The HEMS monitors the house's grid connection point. If the PV system generates more electricity than the house consumes, the Sion is charged. If the PV system does not generate enough electricity to supply the house's energy consumption, the additional energy required is fed into the house via the Sion. In this case, no more energy is fed into the house than is necessary, i.e. no energy is released into the national grid.

The wallbox is equipped with various interfaces to enable integration into the local HEMS: Modbus, OCPP, EEBUS (planned). Communication takes place via ethernet or wifi.



- Electricity Supply
- Data Communication

## CERTIFICATION

# In Which Countries Will The Sono Wallbox Be Certified?

- Germany (VDE-AR-N 4105, DIN EN 50549, VDE0124-100)\*
- Spain (RD 1600, UNE 206006, UNE 206007)\*
- Italy (CEI 0-21)\*
- France (UTE-C15-712-1)\*
- Netherlands (EN-50549-1)\*
- Austria (TOR-Erzeuger D4, VDE-AR-N 4105)\*
- Switzerland (DIN V VDE V 0126-1-1, VDE-AR-N 4105)\*

\*according to latest standards



**SONO**

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**MELDE DICH HIER ZU  
UNSEREM NEWSLETTER AN.**





All details provided for Sono Motors' products are preliminary. Information about the vehicle is based on the Sion prototype's current planning and technology at the time of publication (of this document). Errors are explicitly reserved. The products described here are subject to change as part of the ongoing development of our products. We do not accept any liability for errors or inaccurate information. © Sono Motors 2021

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