

Ratio Mobi Box

MANUAL



 ratio

Thank you for choosing Ratio Mobi box io1

Manufacturer

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Preface

About this document

This manual contains technical descriptions and instructions for the following product:

Category of product	Charger for Electric Vehicles
Product name	Mobi box io1
Art. No.	313xx
Hardware version	
Serial number	

Write down the serial number of your product in the table above for future reference.

This manual contains all instructions and safety information for installation, commissioning, use and maintenance of the product.

This manual is intended for:

- the end-user who uses the charger;
- the product owner who maintains the product.

Original instructions

This manual has been translated into multiple languages. The original manual is written in UK English. All other language versions are translations of the original manual.

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Disclaimer of liability

Ratio Electric B.V. cannot be held responsible for personal injury, damage to the product or property damage caused by incorrect use, foreseeable misuse or failure to follow the instructions in this manual. This also applies to unauthorized modifications of the product and the use of non-approved spare parts, tools or accessories.

Ratio Electric B.V. reserves the right to modify this manual without notification beforehand.

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1. Safety

Please make sure you have fully read and understood the instructions in this manual before you start installing or using the product. If you fail to follow the instructions from this manual you can put persons, surroundings, the environment and the product at risk. Store this manual in an accessible place near the product for future reference.



Always comply with the information, such as labels and the nameplate, attached directly to the product and keep the information in a legible condition.

Always comply with any applicable laws and regulations that have not been accounted for in this manual.

1.1. Symbols and labels

1.1.1. Safety warnings

This manual contains safety warnings that may result in injury when ignored. Each safety warning is indicated with a signal word. The signal word corresponds with the level of risk of the described hazardous situation, see the table below.

Signal word	Risk of injury	Result when instruction is ignored or not followed correctly
 WARNING	Medium	Could result in death or serious injury
 CAUTION	Low	Could result in minor or moderate injury

Safety warnings at the start of a section, apply to the entire section.

Safety warnings that refer to a particular sentence or procedure step are embedded in the running text.

1.1.2. Notices

Messages that are not hazard-related are indicated with the signal word NOTICE. These messages do not have a safety alert symbol.

Signal word	Meaning
NOTICE	Could result in damage to the product when instruction is ignored or not followed correctly
Note	Additional information or emphasis on an instruction

1.2. Intended use

The Ratio Mobi Box is a mobile charger intended to charge electrical vehicles using power from the household power grid. The product can be operated indoors and outdoors.

Depending on the charger version, the product can be plugged into standard Plug or CEE outlets and allows you to charge your EV when there is no charge point available.

The charging current can be adapted to the circumstances and availability of power.

The product must only be operated within its performance limits and under the permitted ambient conditions, as stated in the technical specifications in chapter 3.

Safe use of the product is only guaranteed if it is used as intended.

1.3. Reasonably foreseeable misuse

The following is considered foreseeable misuse:

- Use in an environment that varies from or exceeds the given environmental conditions.
- Use that varies from or exceeds the given operating conditions.
- Failure to comply with the instructions in this manual.
- Failure to eliminate faults, malfunctions or defects of the product that impose safety risks.
- Failure to carry out the inspections and maintenance operations as described in this manual.
- Unauthorized removal or modification of parts or safety devices of the product.
- Use of spare parts or accessories that have not been approved by the manufacturer.
- Operation in a flammable and/or explosive environment.
- Operation in closed-off or poorly ventilated rooms.

1.4. Qualification of personnel

Only authorized technicians are allowed to perform maintenance on the product. They must possess the following qualifications:

- are legal of age;
- are familiar and abide by the safety instructions and sections of this manual related to maintenance of the product;
- are familiar with and abide by the applicable local, national and international laws and regulations;
- are able to recognize the possible dangers of the product and take the necessary measures to protect persons and property;
- have received adequate training in the safe maintenance of this product;

1.5. Safety precautions

Despite the safe design and construction of the product and the prescribed protective measures, the product possesses residual risks. This manual provides safety messages to indicate these risks. The formatting and appearance of safety messages that are dedicated to a particular section or sentence is explained in chapter 1.1.

Read all the safety warnings and instructions before using the product. Failure to follow the warnings and the instructions may result in electric shock, fire and/or serious injury.

WARNING

- This device should be supervised when used around children.
- Do not put fingers into the electric vehicle connector.
- Do not use this product if the flexible power cord or EV cable are frayed, have broken insulation, or any other signs of damage.
- Do not use this product if the enclosure or EV connector are broken, cracked, open, or show any other indication of damage.
- Switch off the MCB in your electrical cabinet and immediately contact Customer Support for service if at any time you think the equipment is unsafe. Do not use your Mobi Box until the problem is identified and corrected.
- Unplug the product and contact Customer Support for service if at any time you think the equipment is unsafe. Do not use your Mobi Box until the problem is identified and corrected.
- Do not modify the power plug. If the plug does not fit the outlet, try a different outlet or arrange for a grounded outlet to be installed by a technician.
- The charge cable is equipped with a grounding conductor and a grounding plug. Only use the product with a properly grounded power outlet in compliance with national and local electrical nodes.
- Do not use this product if it does not function according to the instructions in this manual. Seek advice from Ratio, your vendor, or a qualified electrician or serviceman.
- Do not remove the charging plug while a charging session is active.
- Children should not be allowed to use this product. Do not allow children to play in or around the product.
- Do not use extension cords, multi-outlet power strips, surge protectors or similar devices with the product. Use of such devices may increase the risk of electric shock or other hazards.

⚠ CAUTION

- Make certain the supply cable of the product is positioned so it will not be stepped on, tipped over, or otherwise subjected to damage or stress.
- There are no user serviceable parts inside. Refer to the Customer Support section in this manual for service information. Do not attempt to repair or service the product yourself.
- Only use this product to charge electric vehicles equipped with a conductive charge port. See the vehicle's owner's handbook to determine if the vehicle is equipped with a conductive charge port.
- Use of any adaptors is not allowed with this product.
- Only use certified type 1 or type 2 charging cables with this product.

NOTICE

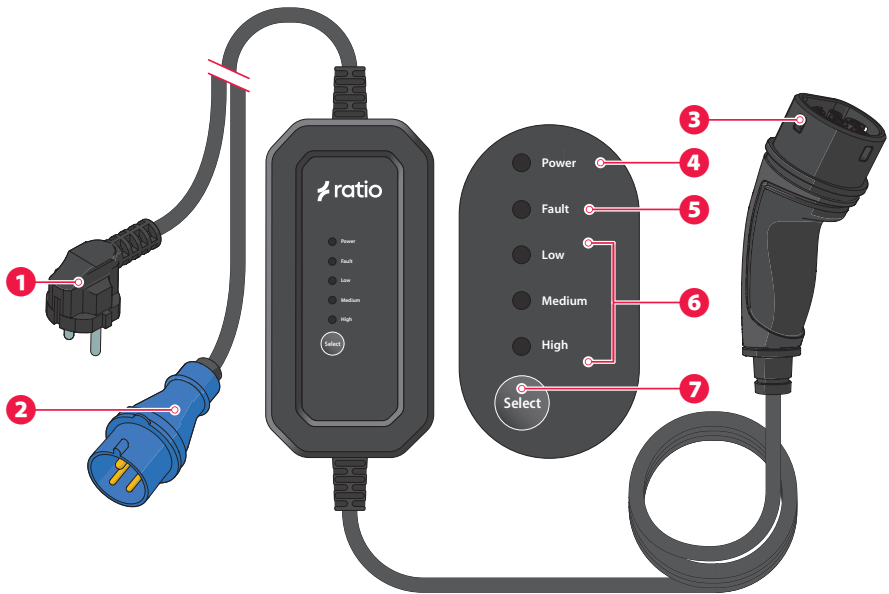
- Do not drop the product and avoid bumping.
- Do not store the product in an environment that exceeds the ambient conditions as stated in this manual.
- Do not expose the internal components product to moisture.
- Do not immerse the product in water or any other liquid.
- The charging cable is liable to get warm during normal operation.

2. Description of the product

The Mobi Box is a Mode 2 charger for charging electrical vehicles (EV) that complies with the IEC61851 standard.

The Mobi Box provides maximum security when charging your EV through a grounded power outlet or CEE power outlet.

2.1. Charger components



1 Grounded plug

2 CEE plug

3 EV charging connector

4 Power LED

5 Fault LED

6 Active charging current LEDs*

7 Charging current selector

*charging currents may differ based on region/charger version

3. Technical data

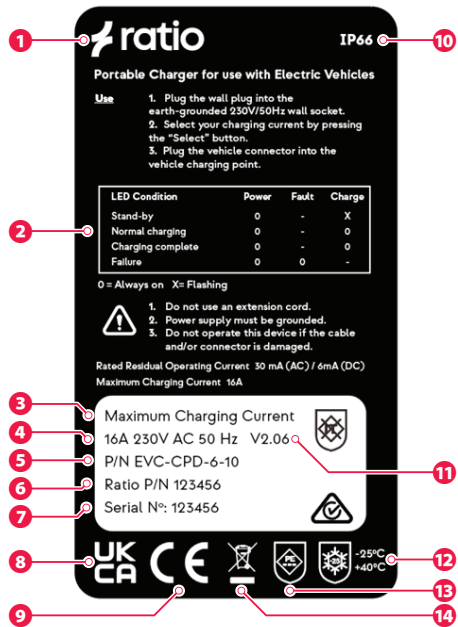
Product name	Mobi box io1
Art. no.	313xx
Charging System	IEC61851, Mode 2
EV charging connector	IEC 62196, type 1 or type 2
Wall outlet connector	IEC 60309 CEE plug Schuko plug
Power input	single-phase, 230V AC, 16A
Max charging current	16A (IEC 60309) / 13A (Schuko)*
Frequency	50 Hz \pm 5%
Protection against electric shock	Class I
Grounding safety	Earth wire detection
Protection	under- and overvoltage overcurrent
Residual current detection	AC 30mA DC 6mA
Dimensions	215 mm \times 110 mm \times 50 mm
Housing	PC/ABS-VO
Weight	4 kg (incl. cable)
IP Protection rating	IP66
Altitude	Up to 2000 m.
Ambient temperature	-25 °C to +40 °C
External magnetic field	Not exceeding five times the earth's magnetic field in any direction.
Sinusoidal wave distortion	Not exceeding 5%
Relative humidity (maximum value at 40 °C)	75%
Markings	CE
Ventilation	Not supported

*values may differ based on region/charger version

3.1. Nameplate/Marking

The product is marked in accordance with the applicable legislation requirements. The nameplate/markings is located on the bottom of the housing.

- 1 Manufacturer
- 2 LED explanation table
- 3 Maximum charging current*
- 4 Rated input power
- 5 Product number
- 6 Ratio product number
- 7 Product serial number
- 8 UKCA compliance marking
- 9 CE compliance marking
- 10 IP protection rating
- 11 Firmware/hardware version
- 12 Operating temperature range
- 13 WEEE marking
- 14 Housing material



4. Transport and storage

4.1. Transport

Transport the product in the original packaging, or suitable replacement packaging that provides adequate protection from vibrations, bumps, moisture, dust, and debris.

Be careful not to drop the product and prevent it from moving or bumping into objects while transporting.

Excessive vibrations could loosen wire connections and cause the product to malfunction.

4.2. Storage

Always disconnect the product from the power supply when storing the product.

Store the product in environmental conditions within the limits stated in chapter of 3 this manual. Store the product in the original packaging or a suitable replacement packaging to protect the product from moisture, dust, and debris.

Do not store anything on top of the product.

5. Use

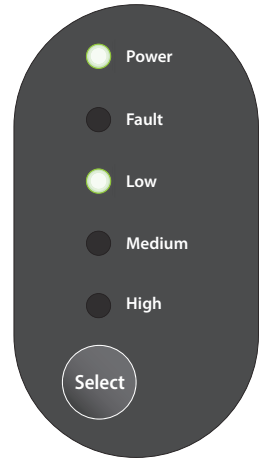
5.1. Start charging

1. Plug the power cable into a suitable grounded power outlet. The power LED lights up green to indicate the charger is powered and the active charging current LED starts blinking green.
2. Press the Select button to select the desired charging current.
3. Plug the EV charging connector into your EV.

The active charging current LED lights up green to indicate that a charging session is in progress. The charging session automatically starts with the selected current.

Note: It is not possible to change the charging current during a charging session.

Note: The charging cable is locked during charging and cannot be removed until the charging session has ended.



5.2. Stop charging

The charging session automatically stops when the EV is fully charged.

The active charging current LED switches off.

1. Unplug the EV charging connector from the EV.
2. Unplug the power plug from the power outlet.

Note: Always unplug the EV charging connector first.



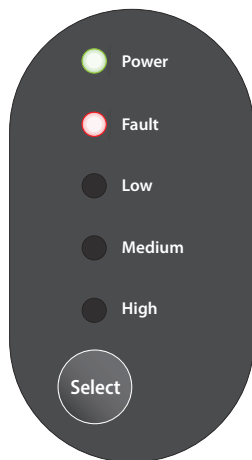
6. Troubleshooting

The charger is equipped with monitoring software that detects faults. The Fault LED lights up red when a fault has been detected.

In case of earth failure, the Fault LED lights up red as soon as the power cable is plugged into the power outlet.

- Check the charger, charge cable and connector for any visible damage.
- Make sure the power LED on the charger is on.
- Make sure that the charge cable is properly inserted and locked into your EV.
- Try charging at a lower current by pressing the Charging Current Selector on the charger.

If you cannot find the reason why your charger is not working properly, please contact your local reseller or Ratio Electric B.V.



7. Maintenance

Ratio chargers are practically maintenance-free, aside from periodic cleaning of the housing.

1. Switch off the charger before cleaning the housing.
2. Clean the Mobi Box using a soft cloth lightly moistened with mild detergent solution.

⚠ WARNING

Risk of electric shock

- Switch off the charger before cleaning the housing.
- Be careful when cleaning the inlets and socket, do not use excessive amounts of water to avoid water leaking into the charger.

NOTICE

Risk of damage to the product

- Do not use aggressive chemicals to clean the charger.
- Do not use coarse cleaning tools that may damage or scratch the surface of the charger.
- Never use any type of abrasive pad, scouring powder, or flammable solvents such as alcohol or benzene.

8. Service

To avoid risk of electric shock, only qualified electricians should perform service or maintenance on the charger. If your charger is in need of servicing, please contact Ratio, your local vendor or a qualified electrician.

9. Warranty

Ratio Electric B.V. warrants this product to be free from defects in material, manufacture and design for a period of 3 years after the date of purchase. If this product is defective in materials, manufacture or design during this warranty period, Ratio Electric B.V. will, at its option, repair or replace the product.

Repair parts and/or replacement products may be either new or reconditioned at Ratio Electric B.V. discretion.

This limited Carry-In Warranty does not include service to repair damage from improper installation, improper connections with peripherals, external electrical fault, accident, disaster, misuse, vandalism, unauthorized alteration or repair, abuse or modifications to the product not approved in writing by Ratio Electric B.V.

Any evidence of an attempt to disassemble the Mobi Box will void this warranty.

Any service repair outside the scope of this limited warranty shall be at applicable rates and terms then in effect.

10. Disposal

If the charger is defective beyond repair, or you no longer wish to use the charger, please recycle the charger according to local applicable rules and guidelines regarding the disposal of electrical devices.

FCC compliance

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This product has been designed to protect against Radio Frequency Interference (RFI). However, there are some instances where high powered radio signals or nearby RF-producing equipment (such as digital phones, RF communications equipment, etc.) could affect operation.

If interference to your charge station is suspected, we suggest the following steps be taken before consulting your Service Representative for assistance:

1. Reorient or relocate nearby electrical appliances or equipment during charging.
2. Turn off nearby electrical appliances or equipment during charging.

CAUTION

Changes or modifications to this product by other than an authorized service facility may void FCC compliance.



For more information see
our website.

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