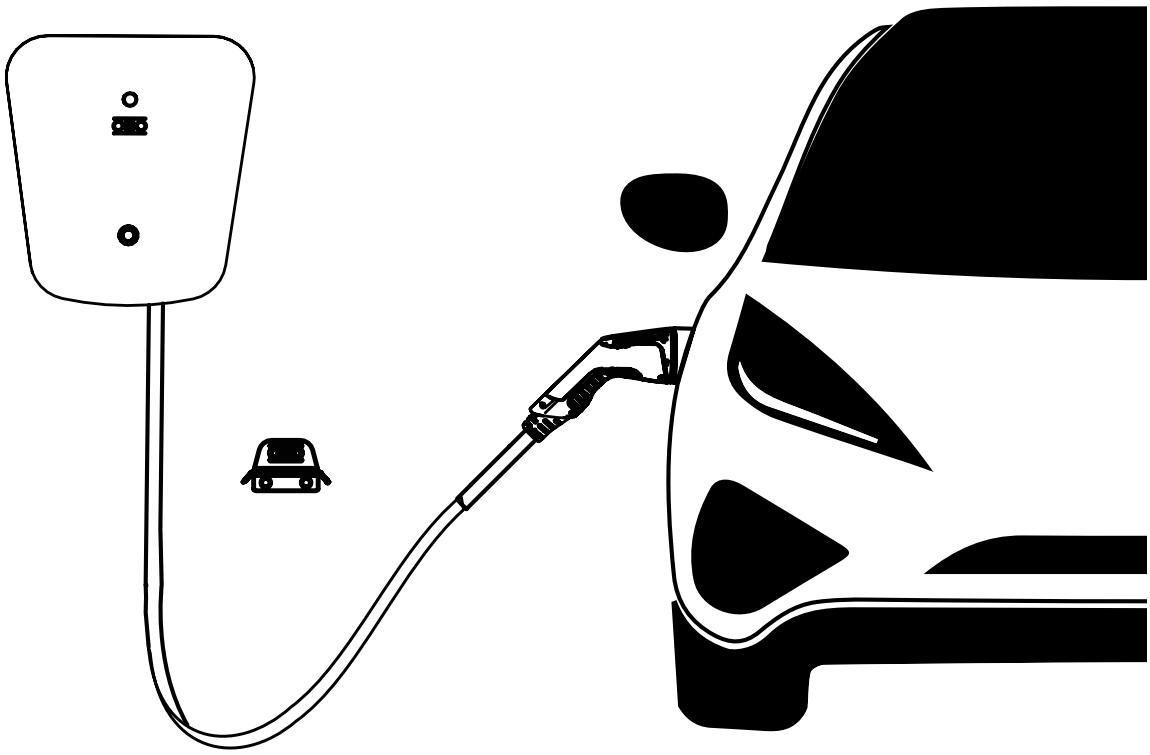


Operating instructions

Ion Basic charging station
Ion Key charging station
Ion Basic Protect charging station
Ion Key Protect charging station

OBO BETTERMANN

Ion Basic charging station
Ion Key charging station
Ion Basic Protect charging station
Ion Key Protect charging station*Operating instructions*

Table of contents

1 About these instructions

1.1 Target group

These instructions describe how you can charge your electric vehicle using the Ion charging station from OBO. The instructions are intended for the operators of the Ion charging stations Basic, Key, Basic Protect and Key Protect.

1.2 Relevance of these instructions

These instructions are based on the standards valid at the time of compilation (February 2022).

Please read the instructions carefully before using the charging station. We will not accept any warranty claims for damage caused through non-observance of these instructions.

Any images are intended merely as examples. Mounting results may look different.

All the documents supplied with the product must be stored in an easily accessible location, so as to be available when information is required. The current version of the operating instructions can also be opened using the QR code on the charging station.

1.3 Types of warning information

DANGER

Type of risk!
Shows a risky situation. If the safety instruction is not observed, fatal injuries will occur.

WARNING

Type of risk!
Shows a risky situation. If the safety instruction is not observed, then serious or fatal injuries may occur.

CAUTION

Type of risk!
Shows a risky situation. If the safety instruction is not observed, then medium or minor injuries may occur.

ATTENTION

Type of risk!
Shows a hazardous situation. If the safety instruction is not observed, then damage to the product or the surroundings may occur.

Note! *Indicates important information or assistance.*

1.4 Depiction conventions

Explanation of the depictions used:

Correct use

Incorrect use

1.5 Basic standards and regulations

– IEC 61851-1

– IEC 62196-2

1.6 Applicable documents

– Declaration of conformity

– Mounting instructions, Ion charging stations (for electrical installation engineers)

2 Intended use

As a sole charging point, the Ion charging station is only intended for charging electric vehicles in private areas with restricted access, e.g. private land. The charging station is only suitable for permanent mounting on the wall in interior or protected exterior areas. Charging takes place according to Mode 3 in accordance with IEC 61851-1 with a type 2 connector for charging single-phase, dual-phase or triple-phase electrical vehicles with 11 kW/16 A (factory setting).

Charging electric vehicles with gassing batteries is not permitted.

The charging station is not designed for any use other than that described here. If the charging station is used for another purpose, then this shall render all liability, warranty and damage claims null and void.

3 Safety

3.1 General safety information

Observe the following general safety information:

– Contact with electrical current can lead to an electric shock. Only electrical technicians may open the charging station and carry out electrical work.

– If the device presents defects or damage, then this can cause a fire or people could be injured by an electric shock. Only use devices in perfect condition. If you detect defects or damage, then switch off/de-energise the charging station using the building s fuse.

– Keep children and animals away from the system.

– People with heart pacemakers or defibrillators may not work on, or be located in the vicinity of, charging systems and their equipment, e.g. for maintenance purposes or for troubleshooting.

3.2 Safety stickers

List of safety stickers attached to the device and their meaning:

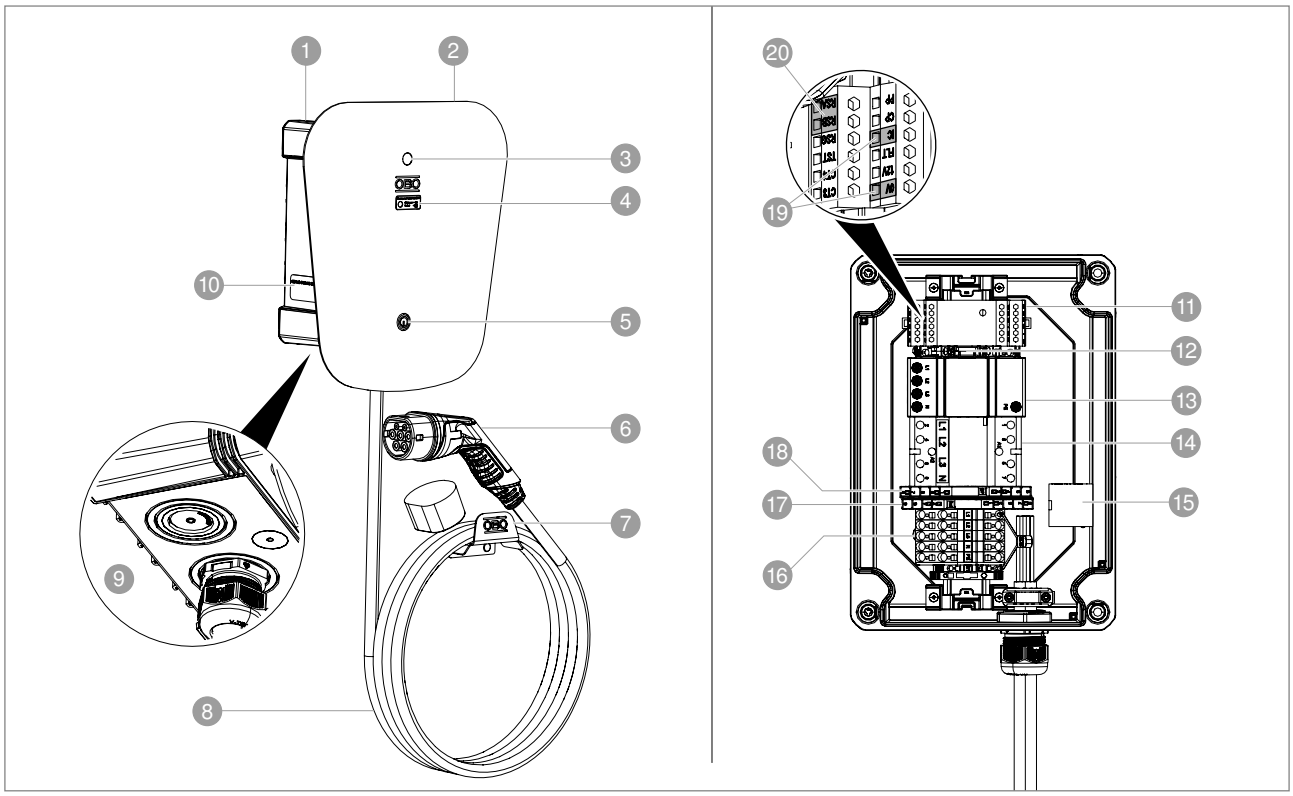
Danger of electrical voltage!
Ensure de-energisation before working on the device.

Electrical technician!
Only electrical technicians may mount and connect the device.

Protection class!
The device corresponds to Protection Class 1 according to DIN EN 61140 (VDE 0140-1).

4 Product overview

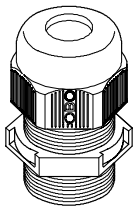
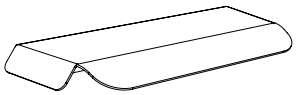
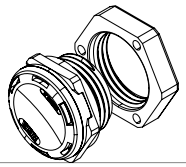
The Ion charging station series comprises 4 different models. The charging station possesses different features, depending on the model.



Component/charging station		Ion Basic charging station	Ion Key charging station	Ion Basic Protect charging station	Ion Key Protect charging station
1	Charging station	✓	✓	✓	✓
2	Front panel	✓	✓	✓	✓
3	Charging station status LED	✓	✓	✓	✓
4	Surge protection status LED	×	×	✓	✓
5	On/off switch without authorisation	✓	×	✓	×
	On/off switch with authorisation (key switch)	×	✓	×	✓
6	Charging connector, type 2	✓	✓	✓	✓
7	Wall bracket, charging cable	✓	✓	✓	✓
8	Charging cable, 5 m	✓	✓	✓	✓
9	Cable entry for supply cable	✓	✓	✓	✓
10	Ion charging station rating plate with QR code	✓	✓	✓	✓
11	Charging controller, Mode 3	✓	✓	✓	✓
12	Safety fuse 1 A 250 VAC 5x20	✓	✓	✓	✓
13	Surge protection, power line V10 Compact	×	×	✓	✓
14	Installation protection	✓	✓	✓	✓
15	Fault current monitoring DC	✓	✓	✓	✓
16	Connection terminals	✓	✓	✓	✓
17	Surge protection, data line MDP 5 V	×	×	✓	✓
18	Surge protection, data line MDP 12 V	×	×	✓	✓

Component/charging station		Ion Basic charging station	Ion Key charging station	Ion Basic Protect charging station	Ion Key Protect charging station
19	Potential-free enabling contact (e.g. for PV systems, ripple controller)	✓	✓	✓	✓
20	Modbus RTU interface (e.g. connection to external controller)	✓	✓	✓	✓

4.1 Accessories

Figure	Designation	Item no.
	M25/M32 cable gland for power supply cable and M12 cable gland for data cable	Contained in scope of supply
	Weather protection roof for Basic/Key charging station	Available separately: 6570105
	Weather protection roof for Basic Protect/Key Protect charging station	Available separately: 6570107
	M20 pressure compensation element	Supplied with weather protection cover, otherwise available separately: 2034680

4.2 Product description

The Ion charging stations are intended for charging electric vehicles in private areas as a sole charging point. The charging stations possess the following functions and equipment features:

– Charging according to Mode 3 in accordance with IEC 61851-1
– 5 m charging cable with type 2 charging connector
– Single-, dual- and triple-phase charging
– Suitable for TN and TT networks
– Integrated temperature monitoring
– DC fault current monitoring
– Status information via LED display
– Optionally with key switch for authorisation
– Optionally with full range surge protection
– Including cable bracket
– Prewired, ready for connection
– Potential-free enabling contact, e.g. for PV systems, ripple controller
– Limitation of the charging power to a fixed value, factory setting 11 kW, maximum output 22 kW
– Modbus RTU protocol via RS-485 interface for bidirectional communication

4.2.1 LED status display

LED display	Description	Meaning
	Blue, pulsing	Ready for charging, vehicle can be connected
	Blue, continuous	Connected with the vehicle, but charging operation not started or completed
	Green, continuous	Charging vehicle
	Red, pulsing	Error, charging operation interrupted
	No light	Device switched off

Tab. 1: LED status display

5 Mounting and installation

The charging station may only be mounted and connected, opened or modified by an electrical technician.

The appropriate mounting and installation instructions for electrical installation engineers are included with the product.

6 Charging an electric vehicle

WARNING

Risk of electric shock!
If the device presents defects or damage, then this can cause a fire or people could be injured by an electric shock. Only use devices in perfect condition to charge electric vehicles. Do not touch the contact pins of the charging cable.

Note! *If the temperature of the charging station rises above 60 °C, the charging operation is interrupted automatically until the charging station has cooled down to 40 °C.*

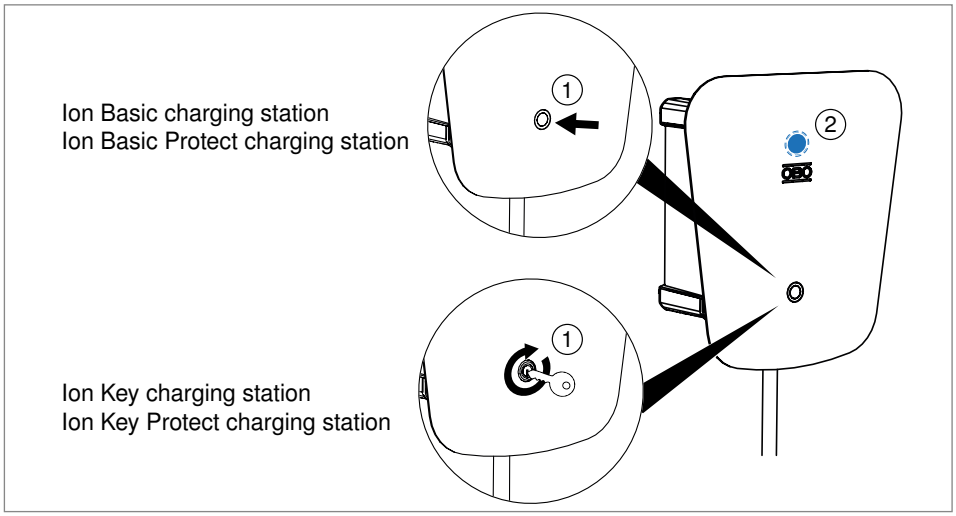


Fig. 1: Switching on the charging station

1. Switch on the charging station using the on/off switch or key switch ①.
   ➔ Status LED flashes blue ②.

CAUTION

Risk of tripping!
A cable lying around poses a risk of tripping. Keep children away from the charging electric vehicle. Use the cable bracket when the charging operation has been completed.

2. Unwind the charging cable fully.
3. Remove the protective cap of the charging connector.

ATTENTION

Damage to the charging cable/charging connector!
The charging cable may not be subject to tension. Park the vehicle as close to the charging station as possible so that the charging cable is not taut. No adapter connectors or extensions may be used.

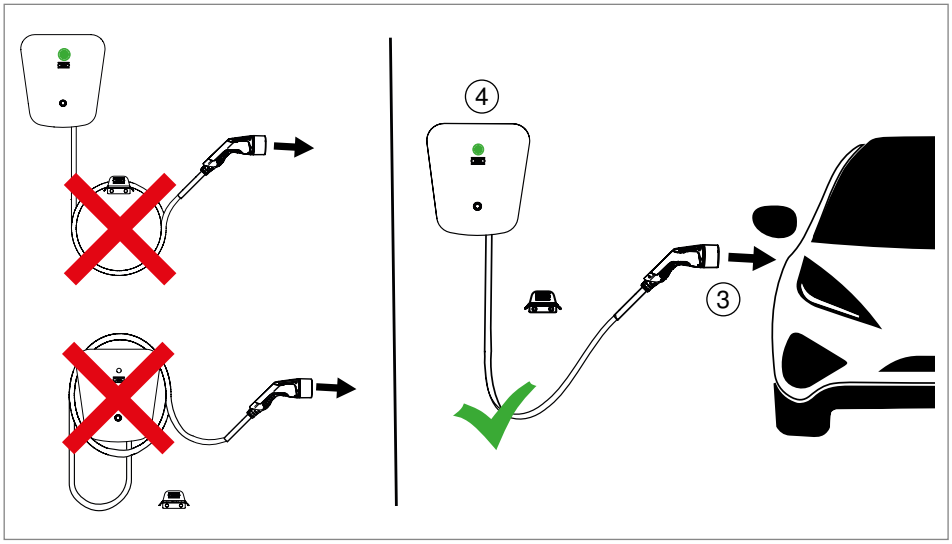


Fig. 2: Charging an electric vehicle

4. Connect the charging connector to the electric vehicle ③.
   ➔ Status LED is continuously blue.

ATTENTION

Damage to the charging station!
During the charging operation, the charging station may not be switched on/off multiple times using the on/off switch or key switch. Always start, interrupt and end the charging operation using the function of the electric vehicle.

ATTENTION

Damage to the charging station!
The vehicle may not be moved during the charging operation.

5. Start the charging operation on the vehicle.
   ➔ Status LED is continuously green ④ and there is a clicking noise.

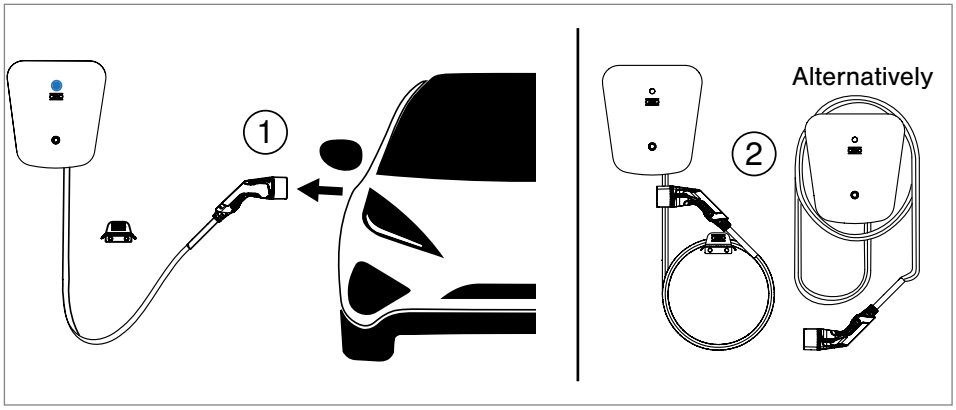


Fig. 3: Ending the charging operation

Note! *The vehicle ends the charging operation automatically. Status LED is continuously blue again.*

6. Release the charging connector from the vehicle ① and reattach the protective cap.
7. Wind the charging cable on the cable bracket without kinks ②.

Optional

8. Switch off the charging station using the on/off switch, in order to avoid current consumption in standby mode.

7 Cleaning the charging station

ATTENTION

Damage to property!
Abrasive cleaning agents or sponges can damage the housing of the charging station. Do not use aggressive cleaning agents or solvents, sponges or water jets to clean the charging station.

– The surface of the charging station can be cleaned with a dry cloth.
– In the case of stronger contamination, use a moistened, well-wrung cloth.

8 Troubleshooting

Error	Possible cause	Troubleshooting options
Status LED does not light up	Charging station is not switched on.	Switch on the charging station using the on/off switch or key switch.
	Charging station is not powered.	Check the FI switch/fuse.
	Charging station has overheated.	Remove the charging cable from the vehicle, switch off the charging station using the on/off switch or key switch. Restart the charging operation after 2 hours.
	Charging station is defective.	Contact the electrical technician/installation engineer.
	Safety fuse has tripped.	Contact the electrical technician/installation engineer.
Status LED continuously red	Charging operation cancelled. Charging station requires spatial ventilation.	Remove the charging cable from the vehicle. Ensure sufficient ventilation.
Status LED flashes red slowly	System error or faulty vehicle communication.	Contact the electrical technician/installation engineer.
Status LED flashes red rapidly	DC fault current detected.	Vehicle-side electronic error.
SPD LED is red	Integrated surge protection V10 Compact is defective. Charging station continues to function but without surge protection.	Contact the electrical technician/installation engineer.
Unknown error	–	Switch off the charging station, switch off the fuse in the building installation. Contact the electrical technician/installation engineer.

9 Maintaining the charging station

For safe charging station operation, the following maintenance work and checks must be carried out:

Check/maintenance	Interval	Execution of
Visual inspection/checking of the correct function	During use	Operator/user
Function check of the fault current protection device	Every 6 months	Electrical technician
Insulation check on the charging cable*	Every 6 months	Electrical technician
Inspection according to DGUV regulation 3/ VDE 0105-100	Annually or when the system is changed	Electrical technician

*With the Ion Basic Protect and Ion Key Protect charging station variants, the surge protection installed in the charging station must be disconnected before the inspection.

9.1 Checking the function

The perfect function of the charging station can be checked using the following sequence:

1. Switch on the charging station.
   ➔ Status LED flashes blue.
2. Connect the charging connector to the vehicle.
   ➔ Status LED is continuously blue.
3. Start the charging operation on the vehicle.
   ➔ Status LED is continuously green and there is a clicking noise.
4. Ending of the charging operation by the vehicle.
   ➔ Status LED is continuously blue.
5. Disconnect the charging connector from the vehicle.
   ➔ Status LED flashes blue.

10 Dismantling the charging station

The charging station may only be dismantled by an electrical technician.

11 Disposing of the charging station

Comply with the local waste disposal regulations.

– Product: As electrical waste
– Packaging: As household waste

12 FAQs – frequently asked questions

1. **Can the user mount the Ion charging station themselves?**
   ➔ No, the electrical installation of the Ion charging station must always be performed by a qualified electrical technician. Only then is electrically safe operation guaranteed.
2. **How must the Ion charging station be protected electrically?**
   ➔ The Ion charging station must be fully protected in the building installation. Always observe all the local regulations on the operation of electrical devices.
3. **Is single-phase operation of the Ion charging station possible?**
   ➔ Yes, every model of the Ion charging station can be operated in single-phase mode.
4. **The Ion charging station does not function (no LED display). How can I work out what is wrong?**
   ➔ Check the miniature circuit breaker and error current protection switch in the building installation. With regard to the status LED, also consult „8 Troubleshooting“ on page 12.
5. **The charging power of the Ion charging station is lower than expected. What could be the reason?**
   ➔ Check whether a limitation of the charging power was set in the vehicle (refer to the operating instructions of the vehicle to be charged).

13 Technical data

	Ion Basic charging station	Ion Key charging station	Ion Basic Protect charging station	Ion Key Protect charging station
Dimensions [mm]	330 x 300 x 127 mm		370 x 340 x 136 mm	
Mounting type	Wall mounting			
Charging power, max.	22 kW, 3-phase			
Charging current [A]	6...32 A			
Charging voltage [V]	230/400 V			
Charging cable length	5 m			
Charging connector	Type 2			
DC error current protection	6 mA			
Operating temperature	–25 °C... +50 °C			
Number of usable phases	max. 3			
Max. conductor cross-section, single-wire/fine-wire	10 mm²			
Max. conductor cross-section with wire-end ferrule	6 mm²			
Charging station protection class	IP66			
Protection class of cable with protective cap	IP54			
Protection class without protective cap	IP44			
Impact resistance	IK08			
Communication	Modbus RTU protocol via RS-485 interface			
Potential-free enabling contact	IC/0 V closed: Not ready for operation, charging not possible IC/0 V open: Ready for operation, charging possible			

Notes

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Building Connections

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