

Installation
electrotechnical expertise



Only for electricians

Mounting instructions

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



Ion Basic charging station

Ion Key charging station

Ion Basic Protect charging station

Ion Key Protect charging station

Mounting instructions

1	About these instructions.	5
1.1	Target group	5
1.2	Relevance of these instructions.	5
1.3	Types of warning information	5
1.4	Basic standards and regulations	6
1.5	Applicable documents	6
2	Intended use	6
3	Safety	6
3.1	General safety information	6
3.2	Personal protective equipment	7
3.3	Safety stickers	7
4	Necessary tools.	7
5	Product overview	8
5.1	Accessories	9
5.2	Product description	9
6	Mounting and installation	14
6.1	Criteria for location selection	14
6.2	Preparations for mounting	15
6.3	Mounting the charging station.	16
6.4	Connecting the charging station	18
6.5	Mounting the data cable	20
6.6	Mounting the pressure compensation element	21
6.7	Mounting the cable bracket	23
6.8	Adjusting the charging current/DIP switch configuration	23
6.9	Mounting the weather protection roof	25
6.10	Modifying the software configuration	26
6.11	Controlling the charging station externally via Modbus RTU	27
6.12	Closing the charging station	28
7	Checking the function	28
8	Charging an electric vehicle	28
9	Troubleshooting	29
10	Maintaining the product	29
10.1	Performing a software update.	30
11	Dismantling the product	30
12	Disposing of the product.	30
13	FAQs – frequently asked questions	31
14	Technical data.	31

1 About these instructions



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1.1 Target group

These instructions are intended for electricians. The charging station may only be mounted and connected, opened or modified by an electrician.

1.2 Relevance of these instructions

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

Please read the instructions carefully before starting mounting. 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 mounting instructions can also be opened using the QR code on the charging station.

In these instructions, cables and lines are referred to simply as cables.

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 Basic standards and regulations

- IEC 61851-1
- IEC 62196-2

1.5 Applicable documents

- Declaration of conformity
- Instruction manual for the Ion charging stations

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. Ensure de-energisation before working on the device.
- If the device presents defects or damage, then this can cause a fire or people could be injured by an electric shock. Only mount flawless devices.
- 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 Personal protective equipment

List of personal protective equipment to be used:



Wear safety shoes!

Wear suitable safety shoes during transport and mounting, in order to avoid contusions or crushing injuries.

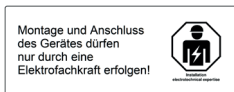
3.3 Safety stickers

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).

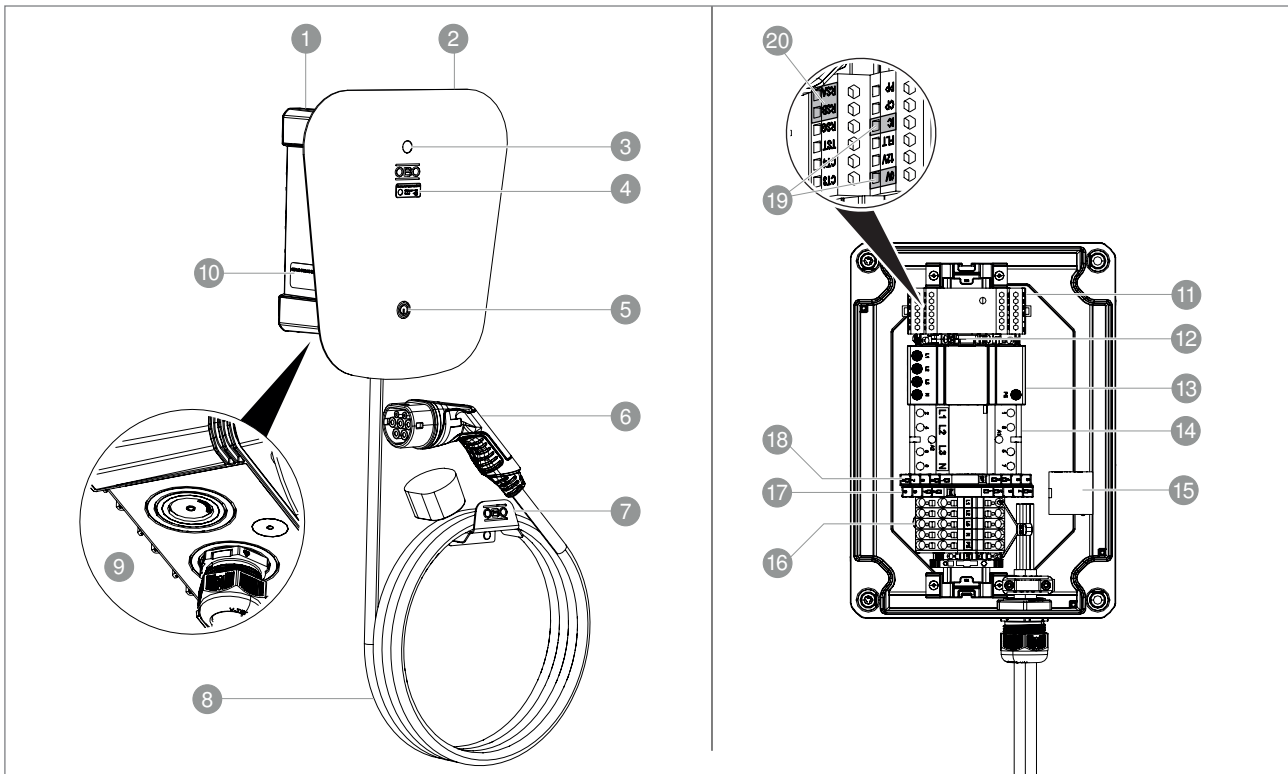
4 Necessary tools

List of required tools:

- Drill
- Screwdriver
- Possibly stripping tool
- Possibly crimping tool

5 Product overview

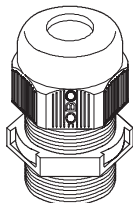
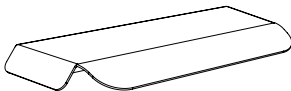
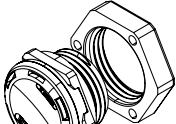
The Ion charging station series comprises 4 different models. The charging station possesses different features, depending on the model.



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	Error 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)	✓	✓	✓	✓

5.1 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

5.2 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 error 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

5.2.1 Charging power and requirements for the supply line

Current [A]	Charging power [kW]			Min. cross-section, feed line [mm ²]	Max. feed line length [m]
	1-phase	2-phase	3-phase		
6	1.4	2.8	4.2	1.5	50
8	1.8	3.6	5.5	1.5	50
10	2.3	4.6	6.9	1.5	50
13	3.0	6.0	9.0	1.5	37
16	3.6	7.4	11.0	2.5	51
20	4.6	9.2	13.8	4.0	65
24	–*	11.0	16.5	4.0	51
32	–*	14.7	22.0	6.0	45

*In Germany, single-phase charging is permitted up to a maximum of 4.6 kW.

5.2.2 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

5.2.3 Potential-free enabling contact for Ion Basic charging stations

The Ion Basic charging station can be activated using an enabling contact through external units such as photovoltaic inverter, ripple controller, timer, external key switch/numeric lock/RFID module. The enabling contact is a potential-free input on the charging controller between the IC and 0 V screw terminals.

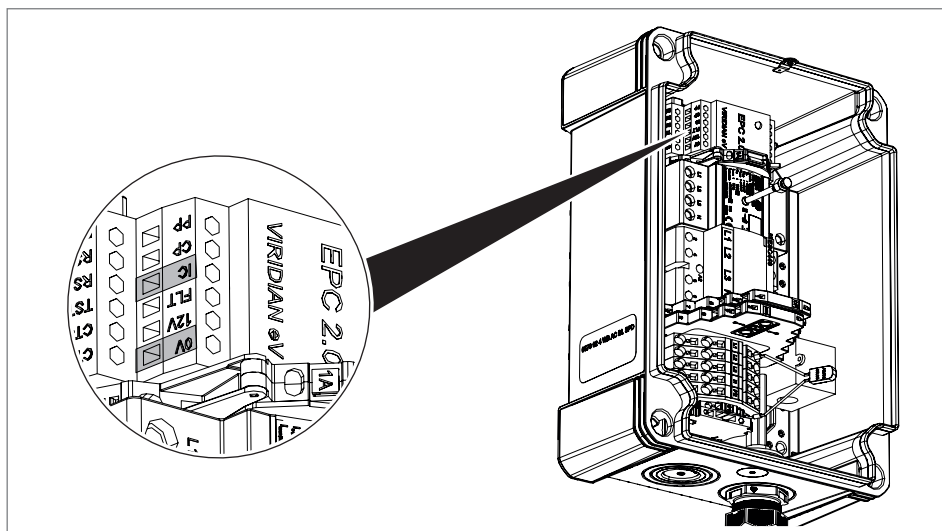


Fig. 1: IC and 0 V screw terminals on the charging controller

Note This feature is not available when the charging station is switched off.

Enabling contact status	Function
IC/0 V closed	Not ready for operation, charging not possible
IC/0 V open	Ready for operation, charging possible

Tab. 2: Enabling contact logic

Outside the device, ensure safe electrical separation. If IC/0 V is closed, a resistance of < 100 ohm must be guaranteed. The cable length/ cross-sections must be selected appropriately.

Feature	Value
Screw connections	0.5 Nm tightening torque
Cable cross-section	0.5–2.5 mm ²
Stripping	10 mm

Tab. 3: Technical data, IC/0 V cable connection

Static, PV-optimised charging with enabling contact

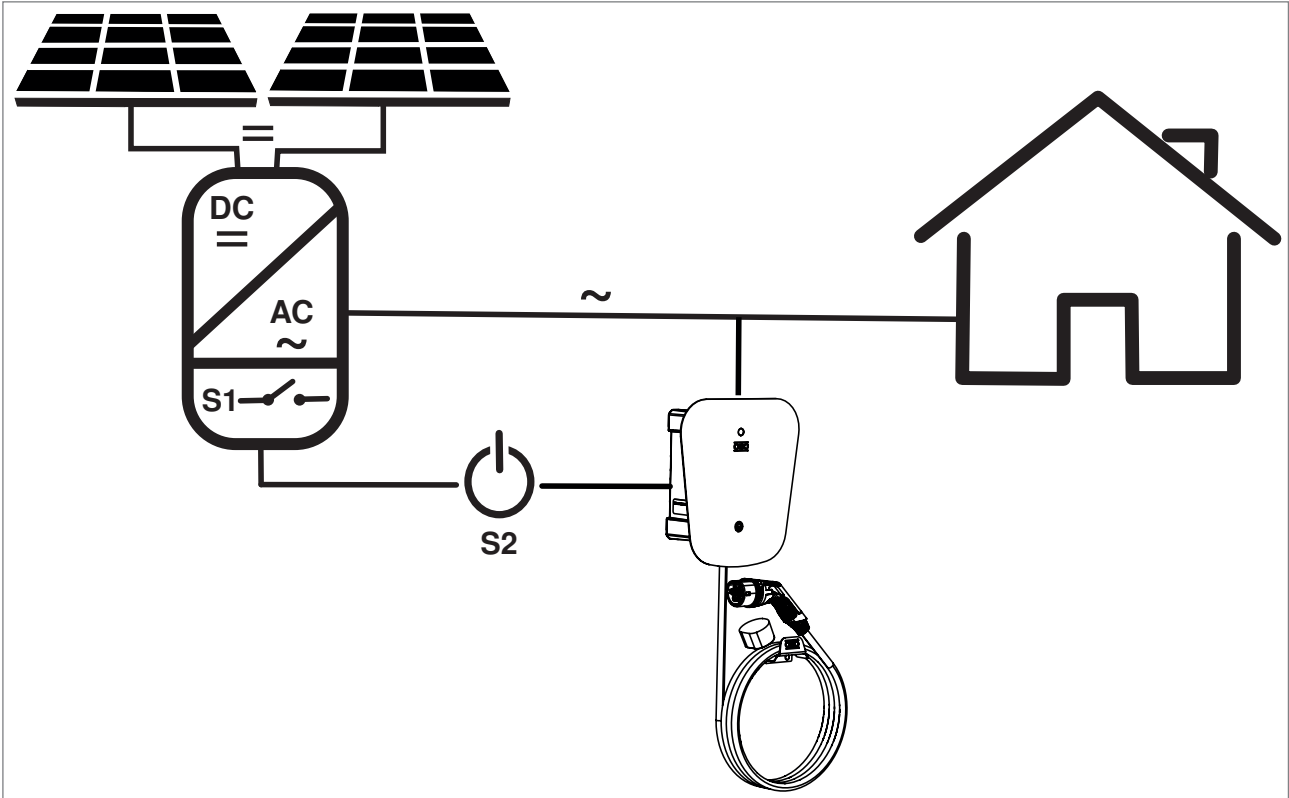


Fig. 2: Application example of static PV-optimised charging

With static, PV-optimised charging with enabling contact, the IC/0 V input from the Ion Basic to the inverter (e.g. Fronius, Kostal) is activated. If sufficient solar power is available, then the inverter allows the charging operation.

Switch status	Function
S1 opened	Solar power available (e.g. > 7 A)
S1 closed	Solar power low (e.g. < 7 A)

Tab. 4: S1 switch for exchange between enabling contact and inverter

Optionally, the enabling contact can be activated by the customer (user), e.g. using a surface-mounted changeover switch (S2) or added:

Switch status	Function
S2 opened	Charging without solar power
S2 closed	Charge with solar power available

Tab. 5: S2 switch for activation (charging instantly) by user

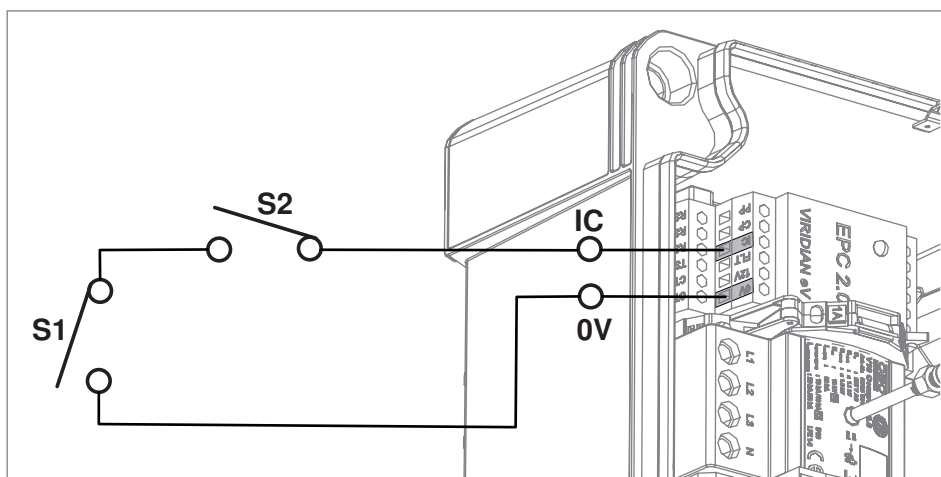


Fig. 3: Example concept for simple PV-optimised charging

5.2.4 Adjusting the charging power with resistors

Alternatively, the charging power can be adjusted between 0V/IC using resistors, e.g. for DIY applications of external charging power limits, etc. We recommend limiting the charging power using DIP switches, see „Tab. 7: DIP switch configuration“ on page 24, for standard applications. Resistors are not included in the scope of delivery.

Charging power	Resistance (tolerance $\leq 1\%$, 63 mW)
6 A	191 Ω
10 A	249 Ω
16 A	348 Ω
20 A	432 Ω
25 A	536 Ω
32 A	732 Ω

Tab. 6: Charging power dependent on the resistance

5.2.5 Maximum charging power when using the enabling contact

If the enabling contact is used, multiple aspects have weightings of different strengths on reaching the maximum charging power. With the Modbus settings, the configuration of the DIP switch cannot be overwritten and, with the DIP switch, no higher charging currents can be configured than those that actually arrive at the IC/0 V input.

The following settings are checked:

1. Status of the IC/0 V input
2. DIP switch setting
3. Modbus-RTU activation

However, only the smallest enabled/set charging power is communicated to the vehicle.

Example:

IC/0 V: 16 A (348 Ω), DIP: 14 A, Modbus 32 A

The car can be charged with a maximum of 14 A.

6 Mounting and installation

6.1 Criteria for location selection

When selecting the mounting location, observe the following criteria, in order to guarantee safe operation of the charging station:

- Take into account the risk of flooding, local fire prevention measures, accident prevention regulations and rescue routes at the location.
- Do not mount the charging station in potentially explosive areas, and areas with direct sunlight, heat or water jets.
- Ambient temperature -10 °C to 50 °C .
- Mount the charging station at a maximum geographic mounting height of 2,000 m above sea level.
- Do not mount the charging station in the vicinity of sources of interference or heat, such as frequency converters. These can interfere with the operation of the charging station.
- Mount the charging station on a wall in interior areas or protected exterior areas. To protect the charging station, mount the separately available weather protection roof in the protected exterior area. During mounting in the protected exterior area, you should also use the pressure compensation element (contained in the scope of delivery of the weather protection roof).
- If strong temperature deviations and heat bridges are to be expected in interior areas, then a pressure compensation element must also be used here, in order to avoid the formation of condensation in the charging unit. The pressure compensation unit must be ordered separately (item no. 2034680).
- Only mount the charging unit on a flat surface made of concrete, tiles or other non-combustible materials. When mounting on wood, mount additional protection made of a non-combustible material, e.g. metal plate, between the charging station and the wooden substrate. Mounting on lightweight construction walls is not permitted.
- Observe the load capacity of the wall upon which the charging station is mounted.
- The technical data of the charging station and the network data at the mounting location must agree.
- Only mount the charging station in a vertical position and observe the minimum distances to other components or walls and the maximum distance between the charging station and the electric vehicle.
- In addition, choose the position of the charging station in agreement with the user. In so doing, observe the position of the charging point on the car and the normal parking behaviour, in order to guarantee a sufficient cable length.

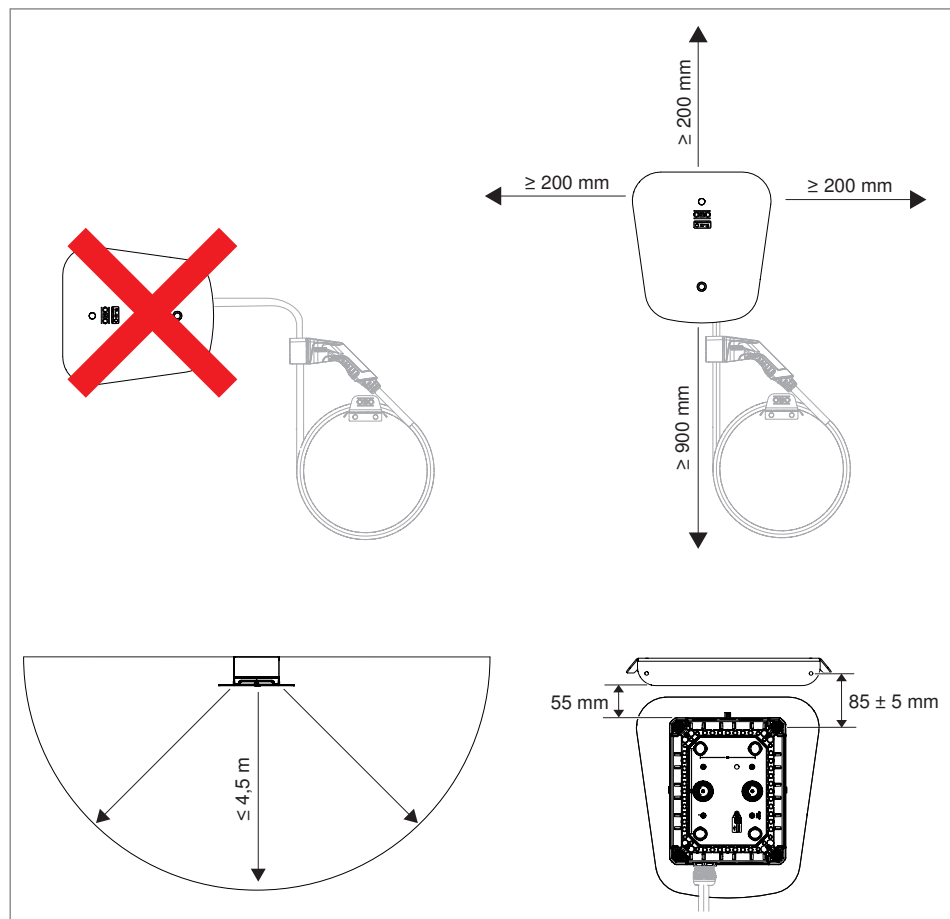


Fig. 4: Distances to be maintained

6.2 Preparations for mounting

Before mounting the charging station, the following preparatory work must be performed:

- Installation of an additional circuit breaker with a C trigger characteristic in the building installation. This must be selected according to the output of the charging station.
- Installation of an additional type A fault current protection switch (RDC) in the building installation.
- Preparation of the supply line.
- Preparation of the data cable (Modbus), if necessary, installation of a terminating resistor (e.g. 150 ohm).
- If no Modbus communication is currently required, then preparation with a pipe or duct, etc. is recommended for later installation.
- Preparation of the enabling contact (see „5.2.3 Potential-free enabling contact for Ion Basic charging stations“ on page 11).

Note! *Additional lightning protection measures may be required, depending on the installation conditions, e.g. supply line lengths of over 10 m.*

Note! *The on-site factors must always be taken into account during installation. If the installation conditions change, it may also be necessary to adjust the installation of the charging station.*

6.3 Mounting the charging station

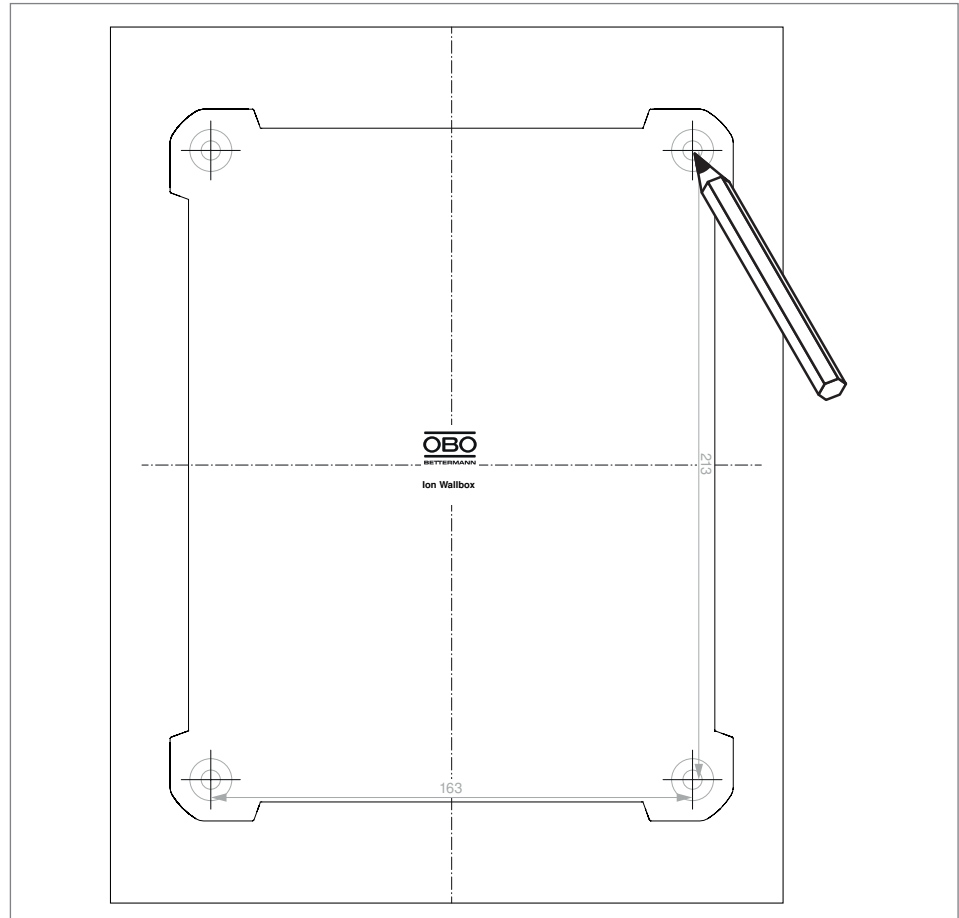


Fig. 5: Drawing on the drill holes

1. Draw on the fastening points using the appropriate drilling template (see Appendix) and pre-drill, \varnothing 6.3 mm.

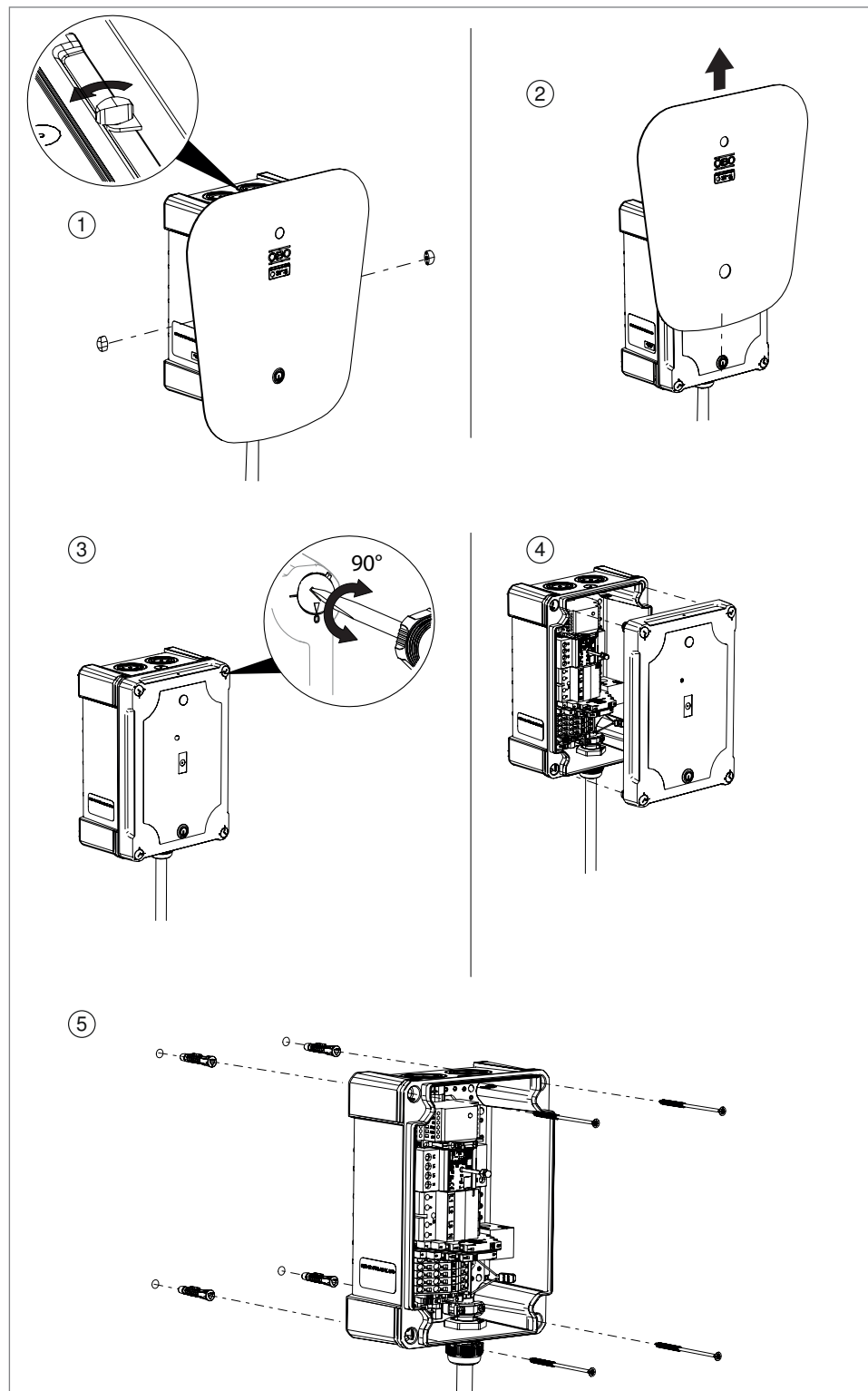


Fig. 6: Removing the front panel

2. Slacken the screws of the front panel ① and carefully remove the front panel ②, in order to avoid scratching the switch or light conductor. **Note!** The switch and the light conductor can be pushed in slightly to dismantle the front panel.
3. Turn the cover screws of the charging station to the 0 position and carefully remove the cover ③.
4. Pull out the plug contacts of the switch and place the cover to one side ④.
5. Mount the charging station on the wall with the matching fastening material ⑤.

Note! The scope of delivery contains fastening material for brickwork.

- If necessary, mount the pressure compensation element, see „6.6 Mounting the pressure compensation element“ on page 21.

6.4 Connecting the charging station



Risk of electric shock!

Work on energised parts poses the risk of an electric shock with lethal injuries. Before connecting the charging station, de-energisation must be guaranteed by switching off the miniature circuit breaker. The voltage may only be turned on again when the charging station is fully mounted with a panel.

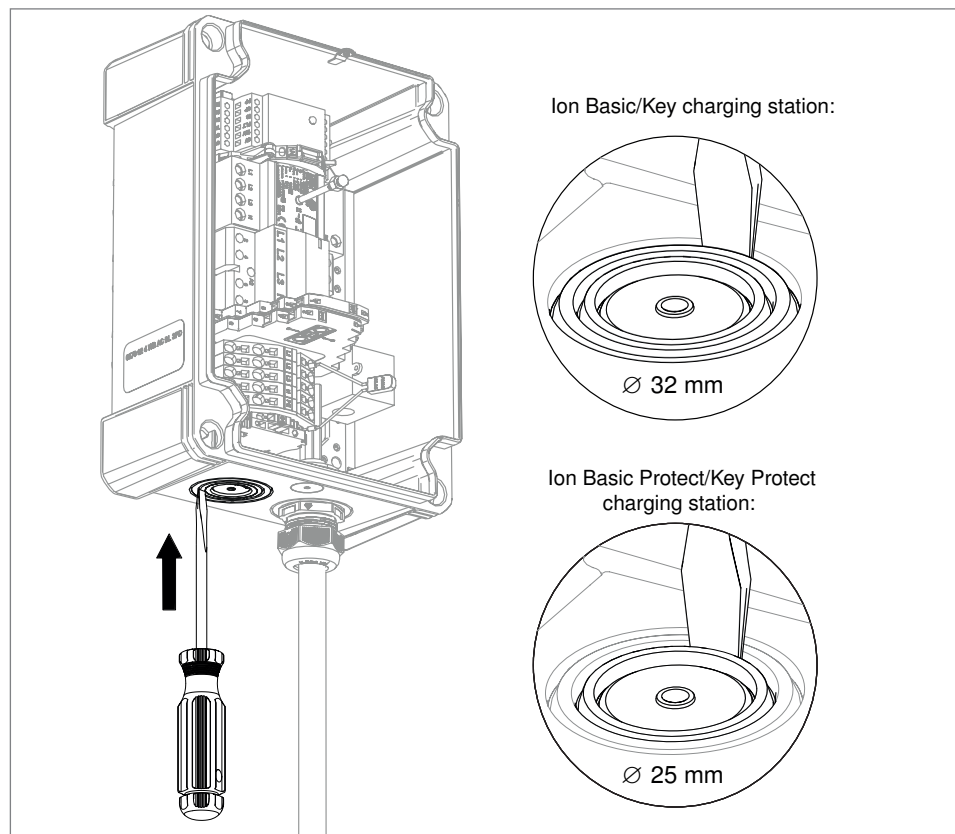


Fig. 7: Opening a knock-out entry

Note! The supply cable can be run into the charging station from above or below through a knock-out entry. If the weather protection roof is mounted, the supply cable is ideally inserted from below.

- Break out the knock-out entry to insert the supply cable with a slotted screwdriver.

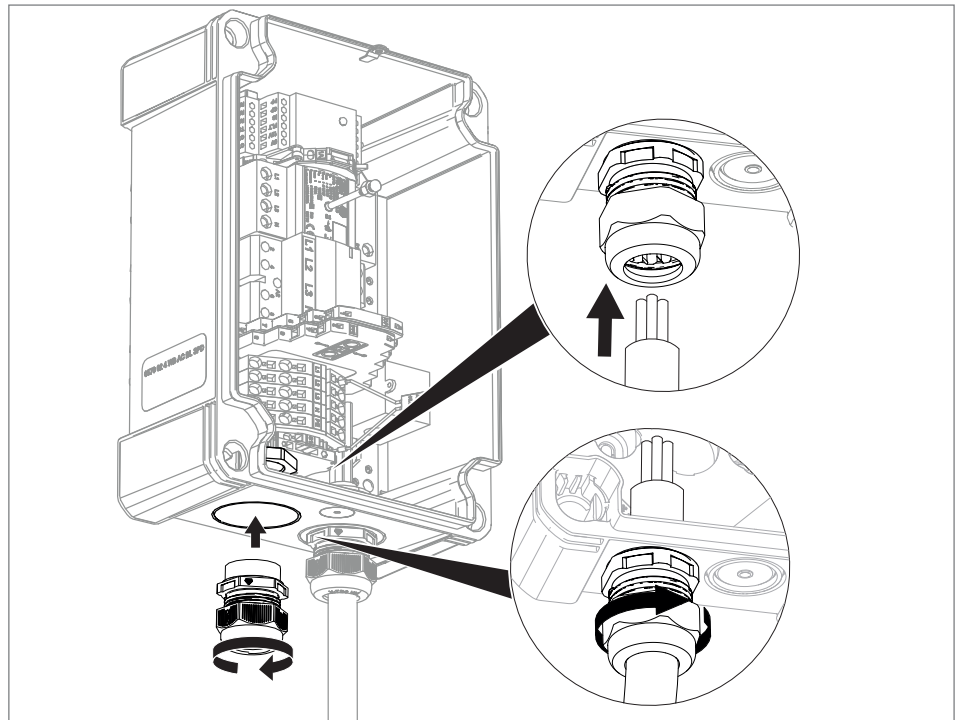


Fig. 8: Inserting a cable gland

2. Mount the supplied cable gland in the knock-out entry.
3. Insert the supply cable into the charging station through the cable gland.

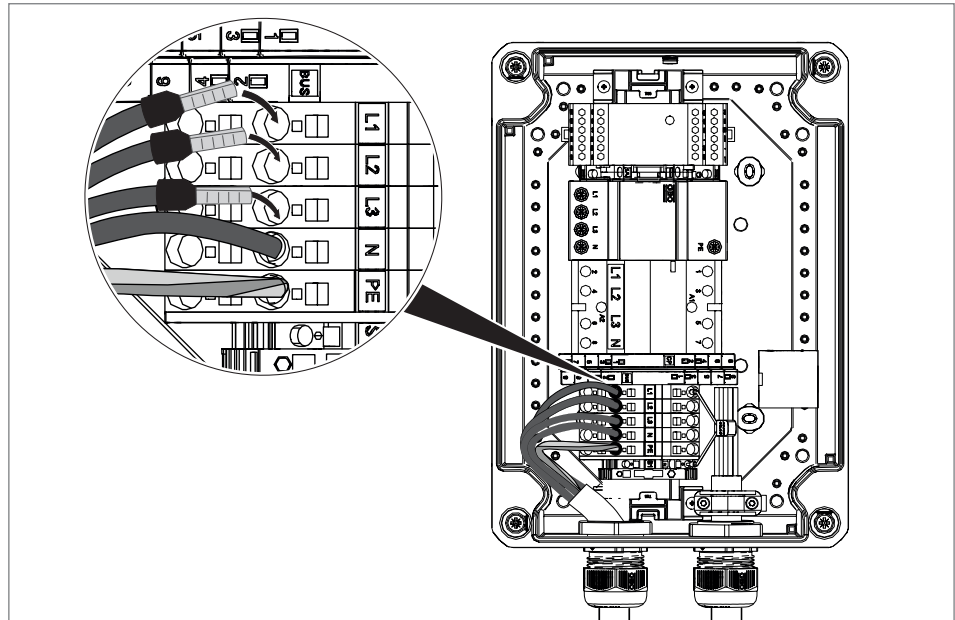


Fig. 9: Connecting the supply cable

4. Connect the supply cable to the plug-in terminals. With flexible cables, use wire-end ferrules.
5. Check the charging controller and supply cable for correct earthing.

Using Modbus communication

6. Insert the two-wire data cable with supplied M12 cable gland into the charging station and connect to the RSA and RSB inputs of the charging controller.

Using the enabling contact

7. Insert the two-wire data cable with supplied M12 cable gland into the charging station and connect to the IC and 0 V inputs of the charging controller.

Note! *If the Modbus communication is used simultaneously, the charging controller can be connected to the higher-level system via a four-wire data cable.*

6.5 Mounting the data cable

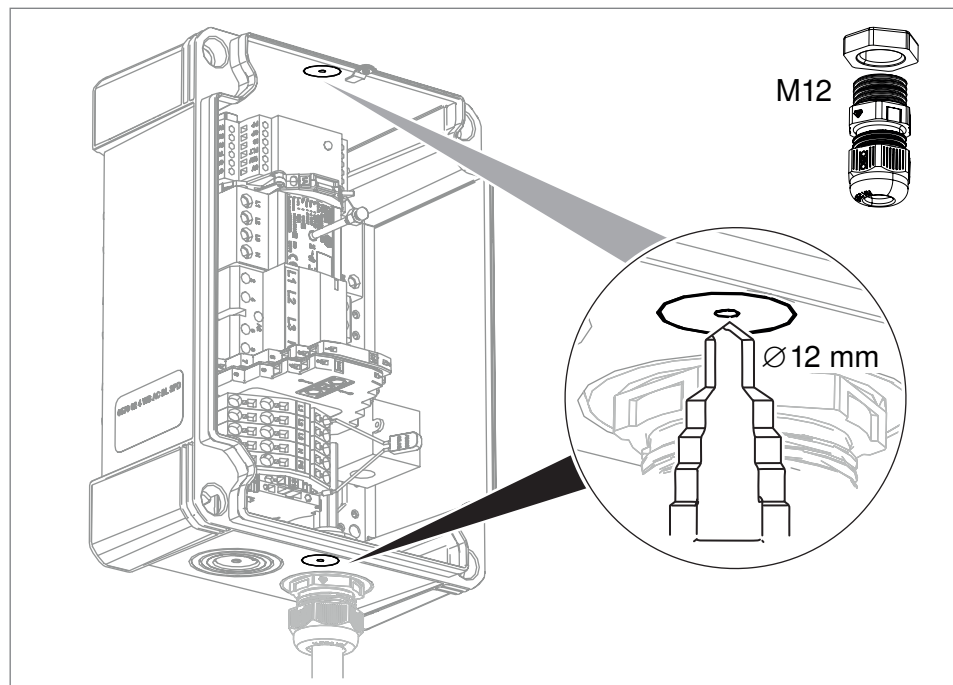


Fig. 10: Drilling the M12 opening

Note! *The data cable can be inserted into the charging station from above or below, depending on whether a pressure compensation element is mounted in one of the openings.*

1. Drill the opening for the M12 cable gland from the outer side of the box using a stepped drill. Take great care not to damage the devices inside.

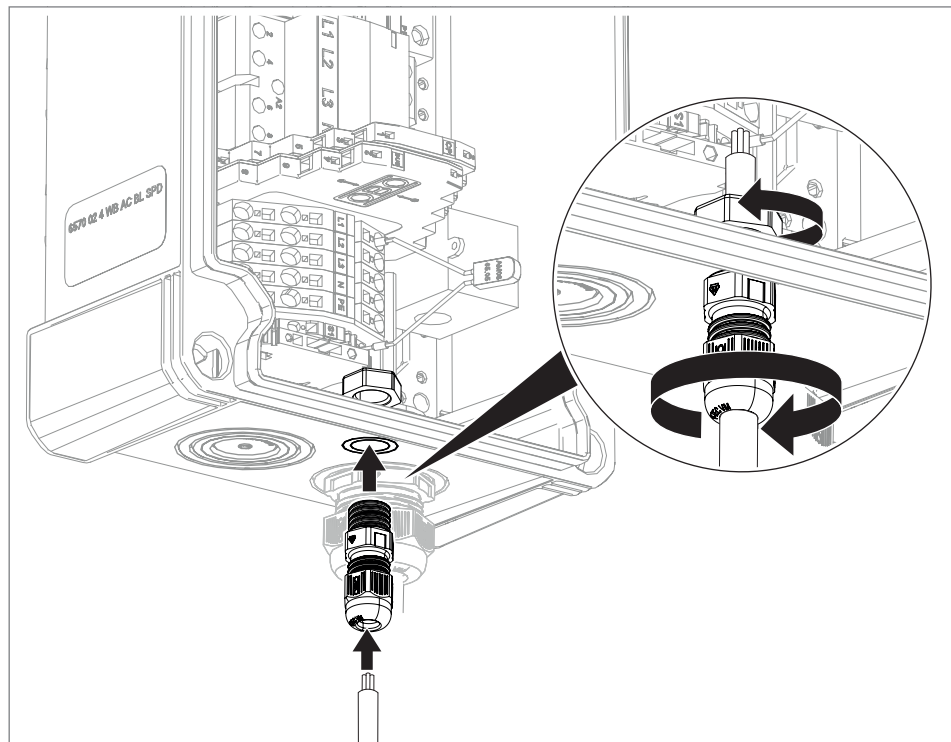


Fig. 11: Inserting a data cable

2. Mount the supplied M12 cable gland in the drilled opening.
3. Insert the data cable into the charging station through the cable gland.
4. Connect the data cable to the RSA and RSB inputs.

6.6 Mounting the pressure compensation element

If the weather protection roof is mounted in the protected exterior area, then the supplied M20 pressure compensation element must also be mounted. If strong temperature deviations and heat bridges are to be expected in interior areas, then a pressure compensation element must also be used here, in order to avoid the formation of condensation in the charging unit.

Note! *The M20 pressure compensation element can be inserted into the charging station from above or below, depending on whether an M12 cable gland for one data cable is mounted in one of the openings.*

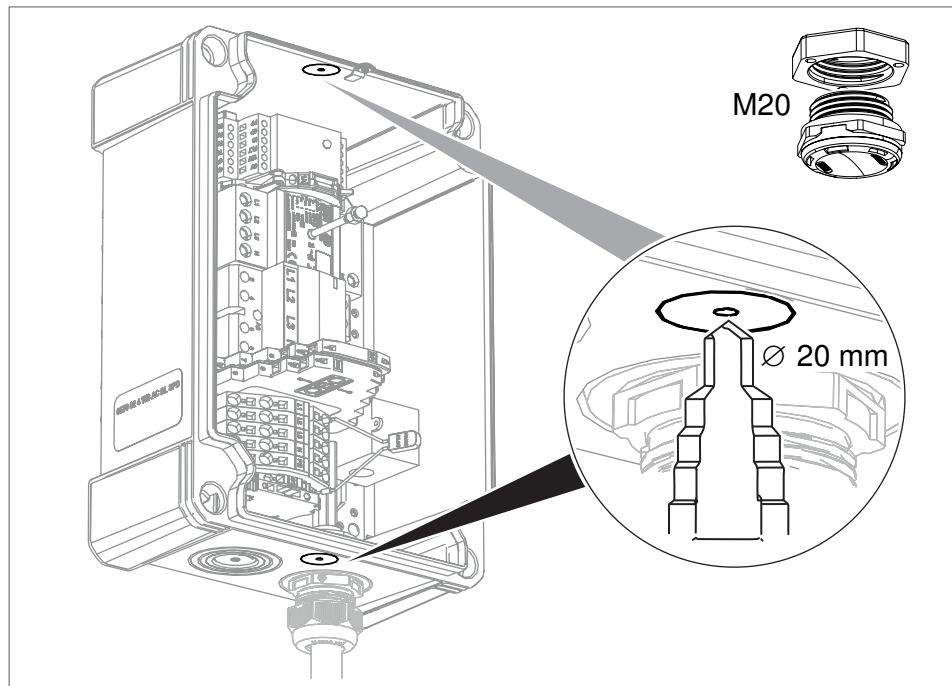


Fig. 12: Drilling the M20 opening

1. Drill the opening for the M20 pressure compensation element from the outer side of the box using a stepped drill. Take great care not to damage the devices inside.

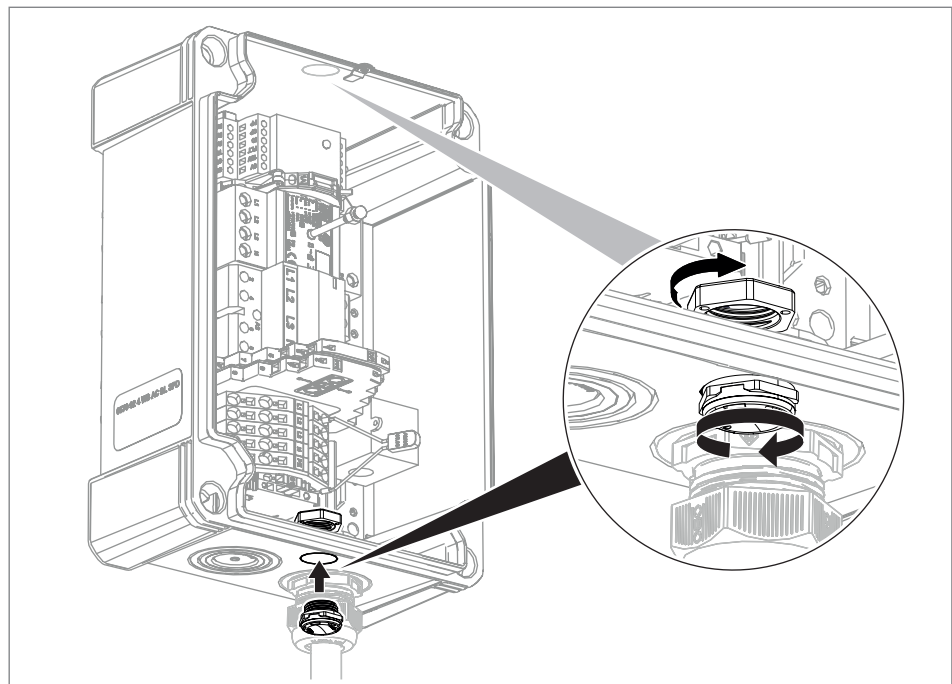


Fig. 13: Mounting the pressure compensation element

2. Mount the pressure compensation element in the drilled opening.

6.7 Mounting the cable bracket

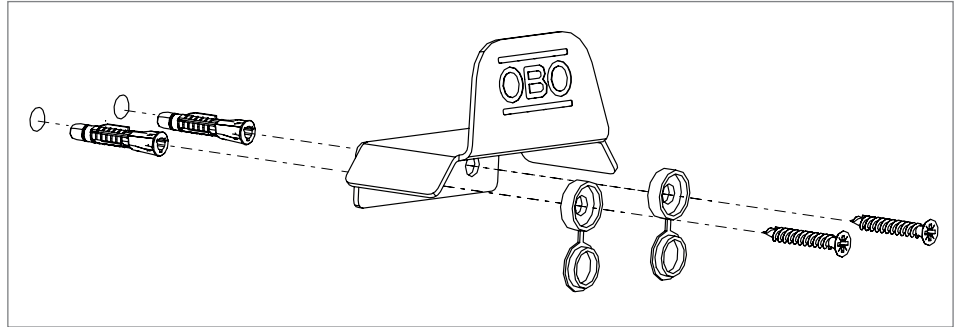


Fig. 14: Mounting the cable bracket

1. Draw the drill holes for the cable bracket and pre-drill them.
2. Mount the cable bracket on the wall with the matching fastening material.
Note! *The scope of delivery contains fastening material for brickwork.*

6.8 Adjusting the charging current/DIP switch configuration

The charging current is set to 16 A at the factory. The current limit can be set to 6–32 A using the DIP switches of the charging controller.

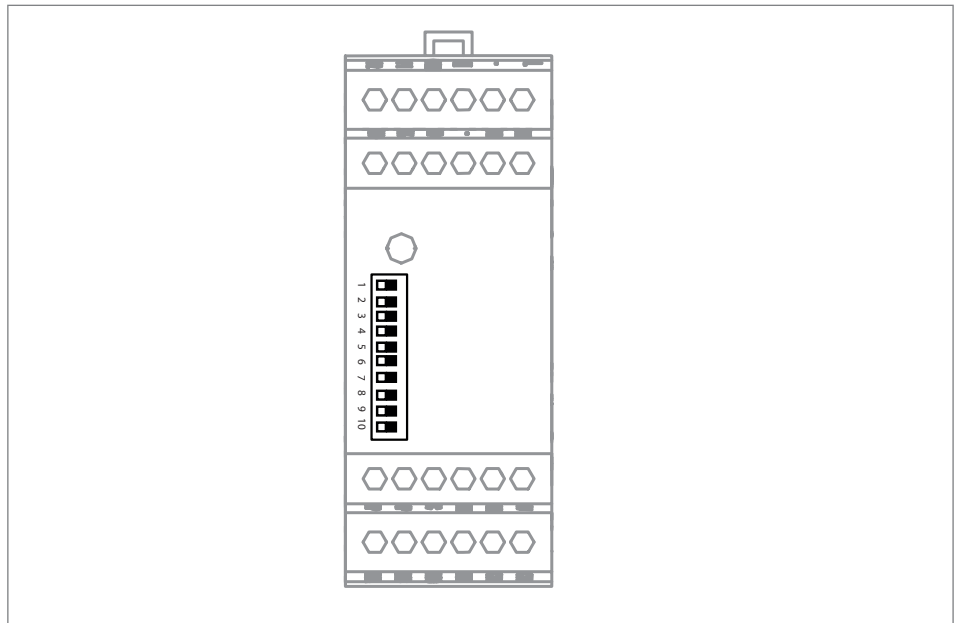


Fig. 15: DIP switch configuration

3. Using a screwdriver, lift the front cover of the charging controller.
4. Move the DIP switches into position according to „Tab. 7: DIP switch configuration“ on page 24 for the desired charging current.

Note! *The DIP switch configuration has priority over any adjustments made to the software configuration.*

Mounting and installation

Max. charging current [A]	DIP switch							
	1	2	3	4	5	6	7-10	
6	1	0	1	0	0	0	x	—
7	0	1	1	0	0	0	x	—
8	1	1	1	0	0	0	x	—
9	0	0	0	1	0	0	x	—
10	1	0	0	1	0	0	x	—
11	0	1	0	1	0	0	x	—
12	1	1	0	1	0	0	x	—
13	0	0	1	1	0	0	x	—
14	1	0	1	1	0	0	x	—
15	0	1	1	1	0	0	x	—
16	0	0	0	0	0	0	x	Default
17	0	0	0	0	1	0	x	—
18	1	0	0	0	1	0	x	—
19	0	1	0	0	1	0	x	—
20	1	1	0	0	1	0	x	—
21	0	0	1	0	1	0	x	—
22	1	0	1	0	1	0	x	—
23	0	1	1	0	1	0	x	—
24	1	1	1	0	1	0	x	—
25	0	0	0	1	1	0	x	—
26	1	0	0	1	1	0	x	—
27	0	1	0	1	1	0	x	—
28	1	1	0	1	1	0	x	—
29	0	0	1	1	1	0	x	—
30	1	0	1	1	1	0	x	—
31	0	1	1	1	1	0	x	—
32	1	0	0	0	0	0	x	—
Reset	1	1	1	1	1	1	x	LED purple steady
Not permitted	0	1	0	0	0	x	x	LED orange steady
	1	1	0	0	0	x	x	
	0	0	1	0	0	x	x	
	1	1	1	1	0	x	x	
	1	1	1	1	1	x	x	

Tab. 7: DIP switch configuration

6.9 Mounting the weather protection roof

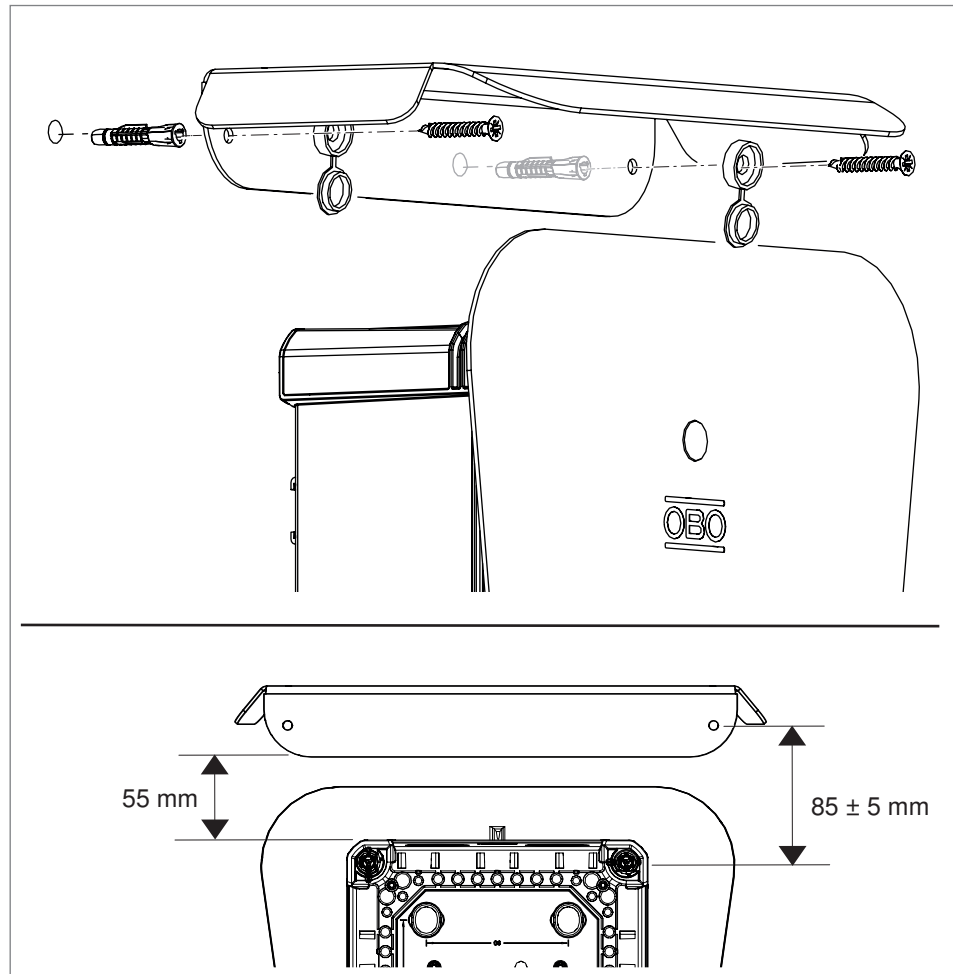


Fig. 16: Mounting the weather protection roof

5. Draw on the drill holes for the weather protection roof, ensuring that the stated distances are maintained.
6. Pre-drill the drill holes.
7. Mount the weather protection roof on the wall with the matching fastening material.

Note! *The scope of delivery contains fastening material for brickwork.*

6.10 Modifying the software configuration

The power output of the charging station can be modified or the charging operation blocked using a software configuration. Changes can be made according to the Modbus register map.

MODBUS Register Map						
Index	Read	Write	Function	Values	Default value	Length
40001	Y	Y	R	0–255	0	16-bit
40002	Y	Y	G	0–255	0	16-bit
40003	Y	Y	B	–255	0	16-bit
40004	Y	Y	LED control register	0 = Default automatic 1 = Colour and brightness set by RGB registers	0	16-bit
40006	Y	Y	Charge disable	0 = State C disable, 1 = Auto start charging, 2 = Writing to this register in state B or A will allow charge point to enter state C once and value will automatically return to 0	40014 RV	16-bit
40007	Y	Y	Active charging current	0.6–32 A Allotted current to advertise to EV	fallback @ start-up	16-bit
40012	Y	N	Active state	0=A 1=B 2=C 3=D 4=F	N/A	16-bit
40014	Y	Y	Charge disable behaviour on power loss	0 = State C disabled	1	16-bit
40015	Y	N	Error code	See error code table A	N/A	16-bit
40017	Y	N	EVSE advertised current	The current being advertised to the EV at this moment in time		16-bit
40022	Y	Y	Baud rate	1,200, 2,400, 4,800, 9,600, 19,200, 57,600	19,200	16-bit
40023	Y	Y	Parity	0 = none 1 = even 2 = odd	1	16-bit
40024	Y	Y	Slave address	If address bits are set to 1,1 slave address, the value is 1–255	101	16-bit
40029	Y	Y	Comms time-out	If no data received within XmS default to Fallback Current, 0 =no time out Allowed values 1,000–60,000	0	16-bit
40031	Y	Y	Fallback current	0–32 - Current to advertise on comms loss	16	16-bit
40045	Y	Y	Maximum charging current	6–32 Maximum current EVSE is capable of based on wiring and components	16	16-bit
General		Stop bits = 1 Data bits = 8				

Tab. 8: Modbus Register Map

Error code register							
MSB							LSB
8	7	6	5	4	3	2	1
Reserved	Reserved	Reserved	Reserved	Reserved	Failed diode check	DC residual current fault	RCM self test fail

Tab. 9: Error Code Register

Note! *A secure connection to a smart meter gateway or the integration of energy management systems on the charging station may require additional technical expansions (modules, SW updates), according to the system.*

6.11 Controlling the charging station externally via Modbus RTU

The Ion Basic charging station can be controlled via Modbus RTU. The charging station is compatible with the following systems (controller not contained in scope of delivery):

- Vertex Controller-based systems of make Smart1 Solutions GmbH
- Controllers from ASKI GmbH
- "Miniserver" control device with Modbus extension of make Loxone GmbH
- "IO-Server" control device with Modbus bridge of make COMEXIO GmbH

Systems based on the above-mentioned controllers can allow dynamic load management, dynamic PV-optimised charging and digital authentication (via web/app).

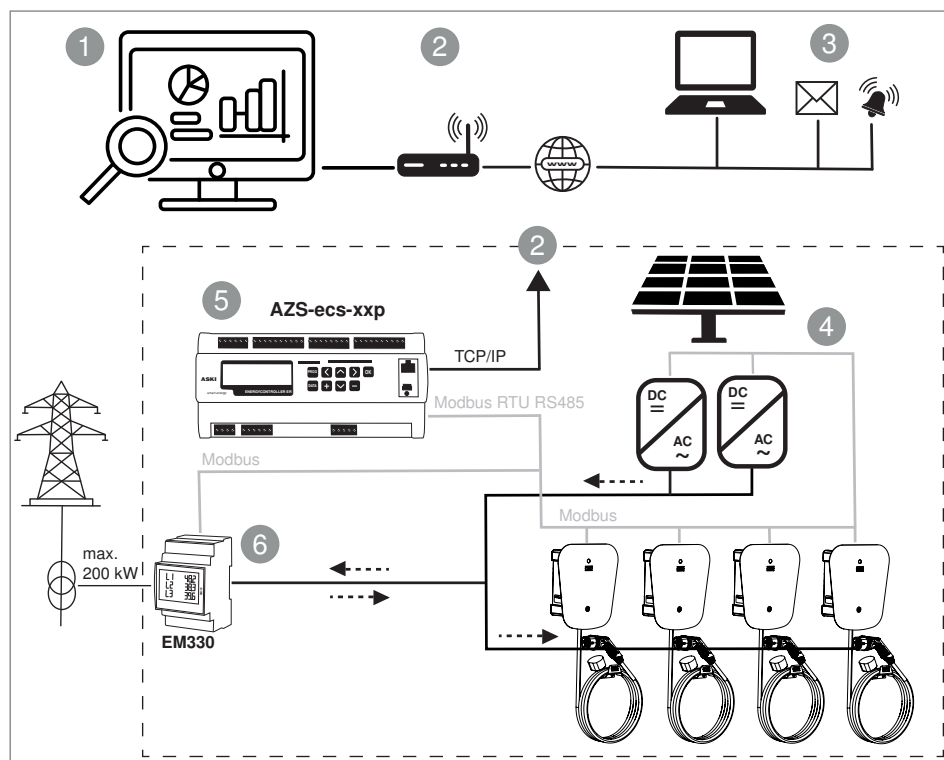


Fig. 17: Application example: Activation via Modbus RTU

Modbus elements	
1	Monitoring and energy data management
2	Network
3	Internet (remote maintenance, alarming, data transmission, etc.)
4	50 KW PV system with 2 inverters
5	Energy Controller of make ASKI
6	Modbus converter meter EM330

1. Make the necessary Modbus settings according to „6.10 Modifying the software configuration“ on page 26.

2. Make the basic settings with QModMaster or other Modbus programs via a PC with Modbus/USB interfaces.

3. Enter the "slave address" in tab 40024.
4. Switch the charging station off and on again.

6.12 Closing the charging station

1. Reattach the plug contacts of the switch on the cover.
2. Attach the cover and, using a slotted screwdriver, turn the fastening screws to the I position.
3. Carefully attach the front panel and screw it tight, in order to avoid scratching the switch or light conductor.
Note! *Switch and light conductor can be pushed in slightly to mount the front panel.*
4. Energise the building installation again.

7 Checking the function

The flawless 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.

Note! *If there is a malfunction of the charging station, see „9 Troubleshooting“ on page 29.*

8 Charging an electric vehicle

The operation of the charging station is described in the operating instructions of the Ion charging station. Observe the enclosed operating instructions of the charging station.

9 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 Customer Service.
	Safety fuse has tripped.	Replace the safety fuse (ESKA 521.017).
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 Customer Service.
Status LED flashes red rapidly	DC error current detected.	Vehicle-side electronic error. Remove the charging cable from the vehicle. Switch the vehicle off. Switch the charging station off. Restart the charging operation. If the error occurs again, contact Customer Service.
SPD LED is red	Integrated surge protection V10 Compact is defective. Charging station continues to function but without surge protection.	Replace the surge protection. Switch off the charging station in advance and ensure de-energisation. See also the mounting instructions for the V10 Compact. After a device exchange, the whole system must be inspected, see Chapter „10 Maintaining the product“ on page 29
Life Control 5096786 testing device has no signal	Integrated surge protection MDP 5/12 is defective.	Replace the surge protection. Switch off the charging station in advance and ensure de-energisation. After a device exchange, the whole system must be inspected, see Chapter „10 Maintaining the product“ on page 29

Contact Customer Service for the necessary spare parts.

10 Maintaining the product

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 error 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

Check/maintenance	Interval	Execution of
Inspection and possible exchange of a defective V10 Compact surge protection device on the Ion Basic Protect charging station and Ion Key Protect charging station	Every 2 years or after a lightning strike	Electrical technician
Inspection (with Life Control 5096786) and, if necessary, possible exchange of a defective MDP 5/12 surge protection device on the Ion Basic Protect charging station and Ion Key Protect charging station	Every 2 years or after a lightning strike	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.

10.1 Performing a software update

The software of the Ion charging station requires an update according to the valid regulations. Should a software update of the charging station be necessary in future, then the update can be performed in the following manner.

Note! *The update takes place using an Atmel device programmer and a programming adapter. Programming can be carried out with programming devices, which are compatible with Atmel processors.*

1. Remove the charging controller from the charging station.
2. Open the rear side of the charging controller. To do this, pull the edges of the rear side outward.
3. Take the chipset out of the housing and separate the two.
4. Connect the programming adapter to the CPU board.
5. Carry out the update from the connected computer. This can be done directly from the Atmel Studio programming environment or with PowerShell programming commands on the set-up laptop.

Note! *In this case, the charging controller is supplied with power directly from the programming adapter.*

6. Reassemble the charging controller and connect in the charging station.

11 Dismantling the product

Dismantling of the charging station takes place in the reverse order to mounting.

12 Disposing of the product



Comply with the local waste disposal regulations.

- Product: As electrical waste
- Packaging: As household waste

13 FAQs – frequently asked questions

1. 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.

2. Is single-phase operation of the Ion charging station possible?

→ Yes, every model of the OBO charging station can be operated in single-phase mode.

3. 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 „9 Troubleshooting“ on page 29.

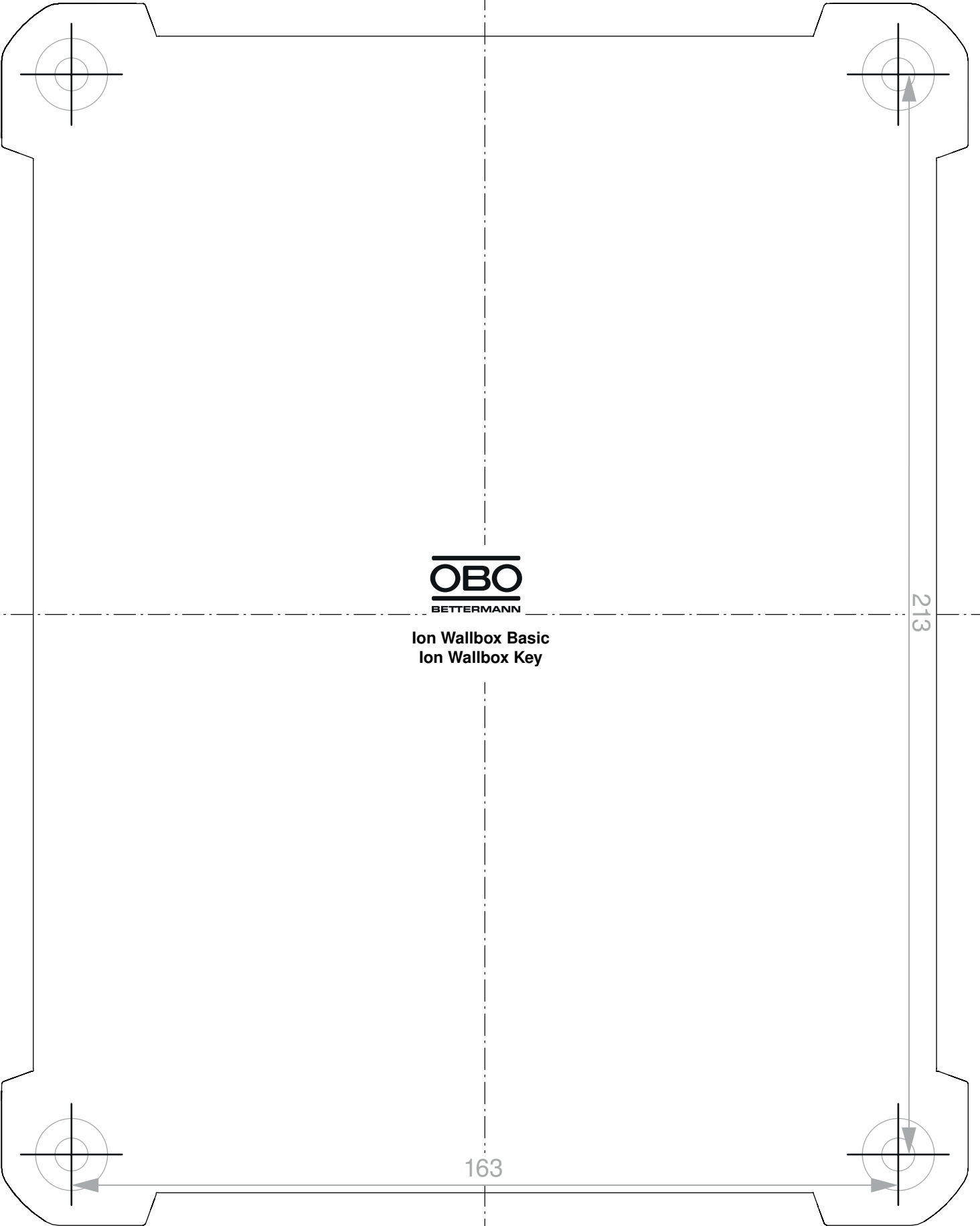
The charging power of the Ion charging station is lower than expected. What could be the reason?

→ Check whether a limitation of the charging power was set in the vehicle (refer to the operating instructions of the vehicle to be charged). If this is not the case, check whether a current limitation was set during the installation of the charging station . See also „6.8 Adjusting the charging current/DIP switch configuration“ on page 23.

14 Technical data

	Basic charging station	Key charging station	Basic Protect charging station	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	-10 °C... +50 °C			
Number of usable phases	max. 3			
Max. conductor cross-section, single-wire/fine-wire	10 mm ²			
Max. conductor cross-section with wire-end ferrule	6 mm ²			
Charging station protection class	IP66			
Protection class of cable with protective cap	IP54			
Protection class of cable 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			

Tab. 10: Technical data



Ion Wallbox Basic
Ion Wallbox Key

213

163

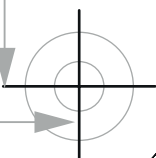
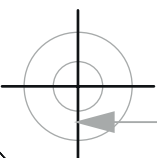
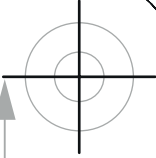
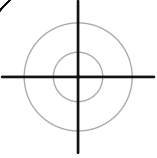




Ion Wallbox Basic Protect
Ion Wallbox Key Protect

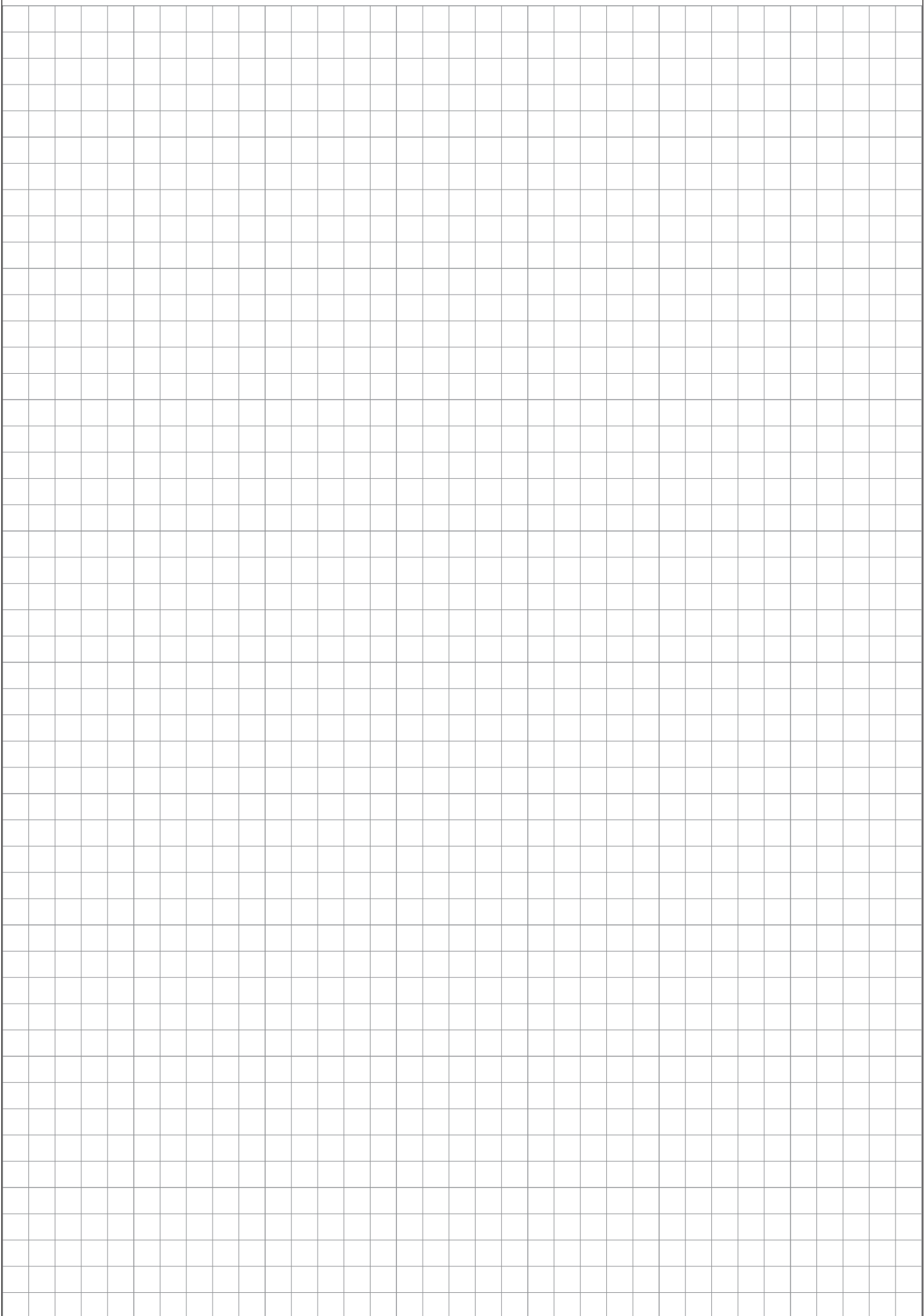
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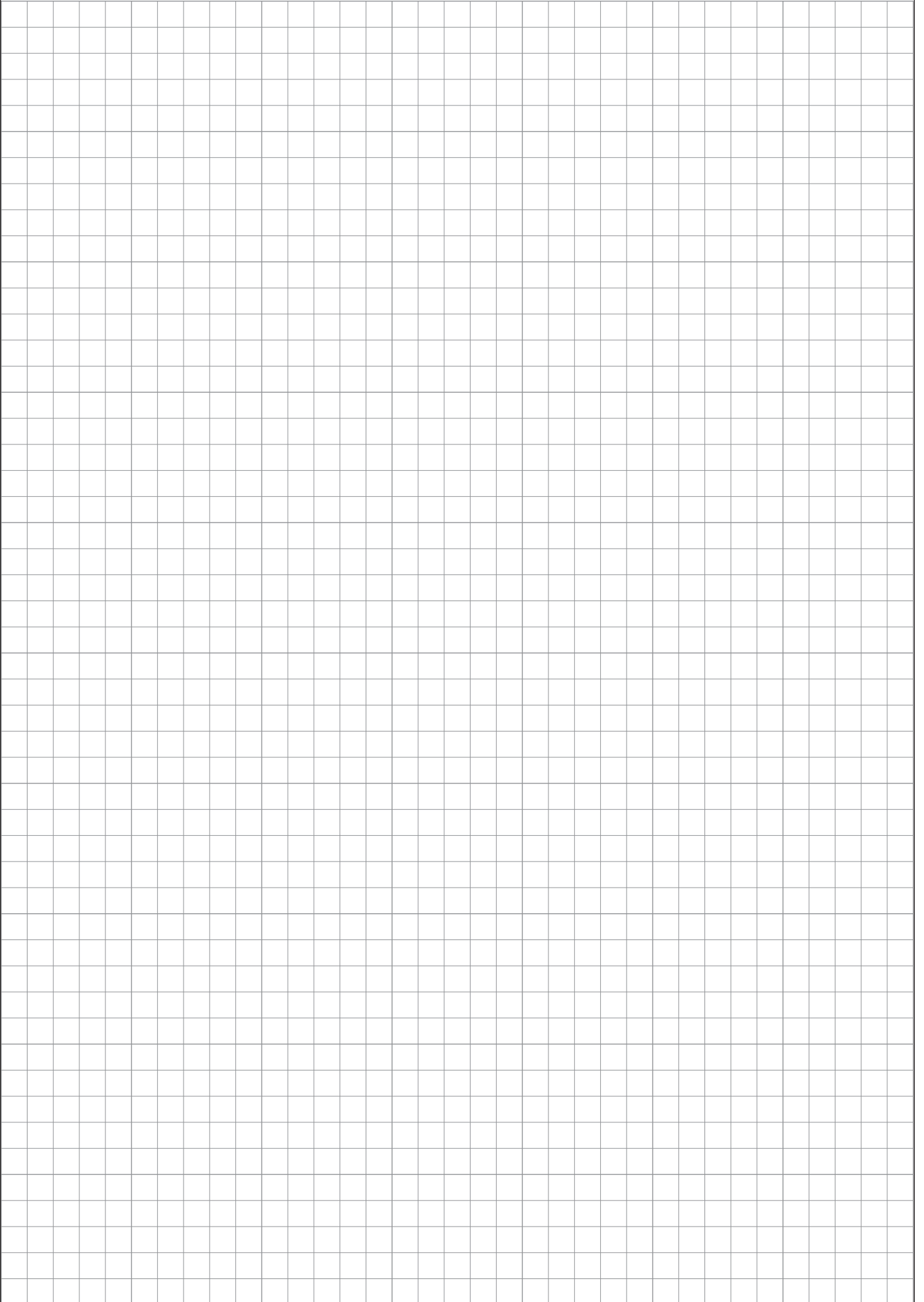




Notes



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Building Connections

