Simple, safe, considered.

The OBO Ion charging station

Building Connections

OBO BETTERMANN

Get going towards electro-mobility!

Electro-mobility is revolutionising our world. This applies to both vehicles and the charging infrastructure. With the Ion charging station, OBO offers a reliable solution for the relaxed PV-optimised charging of electric vehicles – at home or even for the entire vehicle fleet on a company's site. The impact-resistant housing according to IK08 makes it extremely robust and, with a protection rating of IP66, it can be used in both indoor and protected outdoor areas.

Advantages of the OBO Ion charging station at a glance

- Charging according to Mode 3 in accordance with IEC 61851-1
- Single, dual and triple charging, up to 22 kW.
- Charging power can be adjusted dynamically in 1 A steps
- Permanently installed 5 m charging cable with type 2 connector for all current vehicle types, including cable holder
- Suitable for TN and TT networks
- Potential-free enabling contact, e.g. for PV systems, ripple controller, timer, RFID module and smart home technology
- Modbus RTU protocol via RS-485 interface for bi-directional communication
- Prewired and ready for connection
- With Green Zero Switch: 0.0 kW standby consumption
- Integrated temperature monitoring
- DC error current monitoring
- Status information via LED display

If necessary, with integrated surge protection according to IEC 60364-4-44

For locations with a feed line of more than 10 metres in length or without a construction-side surge arrester, OBO can offer a variant with integrated type 2 + D1 surge protection for the data cables.

Available in open or closable versions

In easily accessible car parks, the use of the variant with key switches is recommended for authorisation. The variant with pressure switch can also be used in private garages or other locations which are reliably protected against unauthorised access.

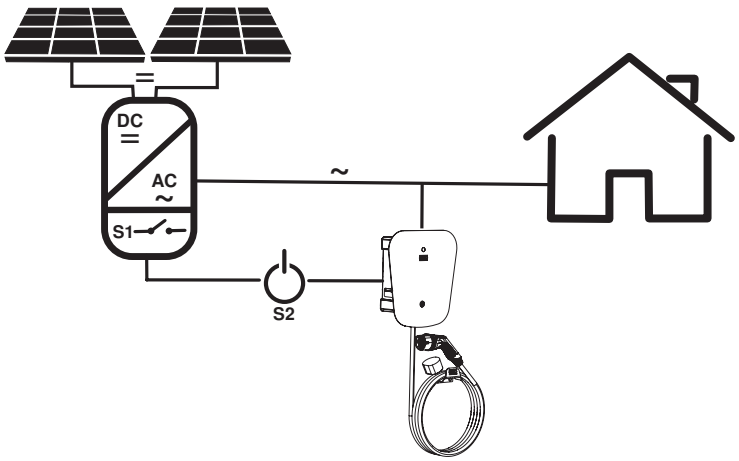
Optional protection against direct sun, wind and weather

The OBO Ion charging station is intended for indoor areas or protected outdoor areas. Should there be additional requirements on account of an exposed location, then the optionally available weather protection cover offers additional protection and comfortable use.

Static PV excess-current charging

With this variant, the charging operation of the OBO Ion charging station is controlled by an external unit, which sends an enabling signal from a previously defined PV excess-current level. These units include:

- Photovoltaic inverter
- Ripple control receiver
- Timer, key switch/numeric lock/RFID module
- Smart home technology

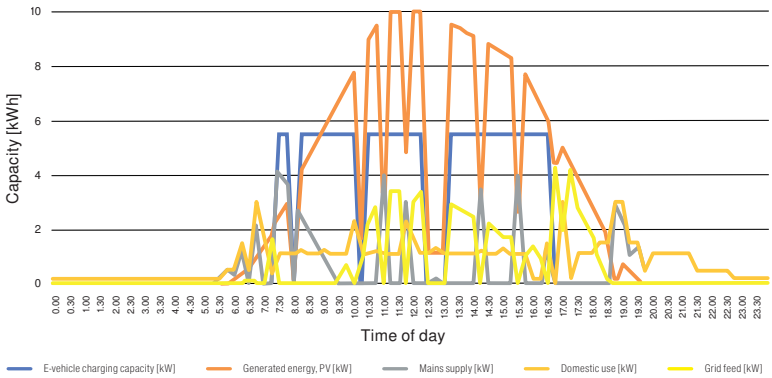


Your benefits

- Increase in autarchy +10 to 15%
- Low-cost implementation
- Refittable
- Compatibility with different inverters/smart meters

Example with 10 kW AC solar power system (summer day)

Charging into the car	44	kWh
Pure PV component	36.025	kWh
Autarchy	81.87	per cent
Charging time	9.25	h
Charging power	5.5	kW

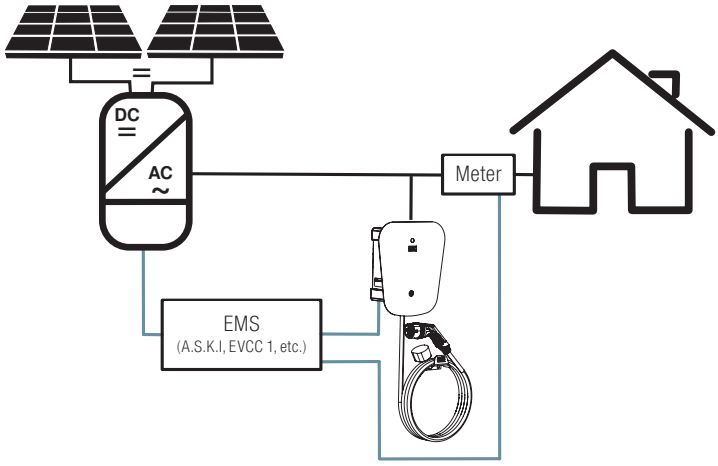


- Automatic switch-on on PV excess-current
- Automatic charging interruption on insufficient PV energy
- If necessary, a series-connected external switch (ideally IP44, wall-mounted) allows the switch-over to a loading operation irrespective of a PV status at any time

Dynamic PV excess-current charging

The OBO Ion charging station can be dynamically activated directly via external Modbus RTU 485 controllers. This means that the following functions can be controlled, amongst others:

- PV excess-current charging
- Dynamic load management
- Digital authentication via web or app

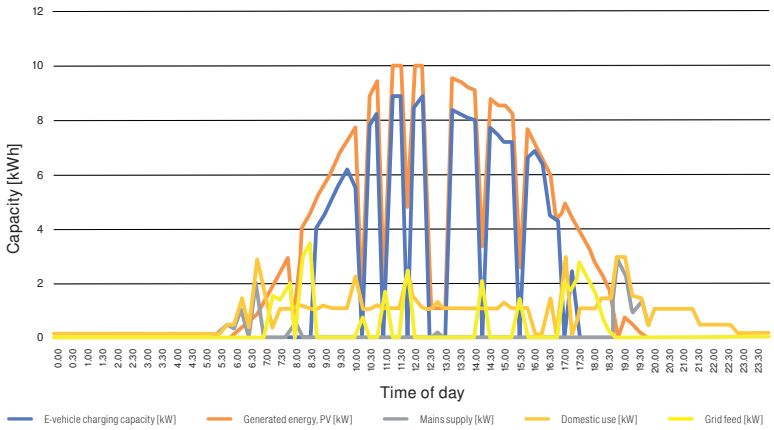


Your benefits

- Maximum autarchy up to + 30%
- Multiple charging programs
- Web/app management
- Refittable
- Compatibility with different EMS

Example with 10 kW AC solar power system (summer day)

Charging into the car	44	kWh
Pure PV component	41.15	kWh
Autarchy	93.52	per cent
Charging time	8.5	h
Charging power	Up to 9	kW



In conjunction with the optional EMS device:

- Automatic switch-on and optimised charge adjustment on PV excess current
- Automatic charging regulation and interruption on insufficient
- PV power
- Individual programming and charging times

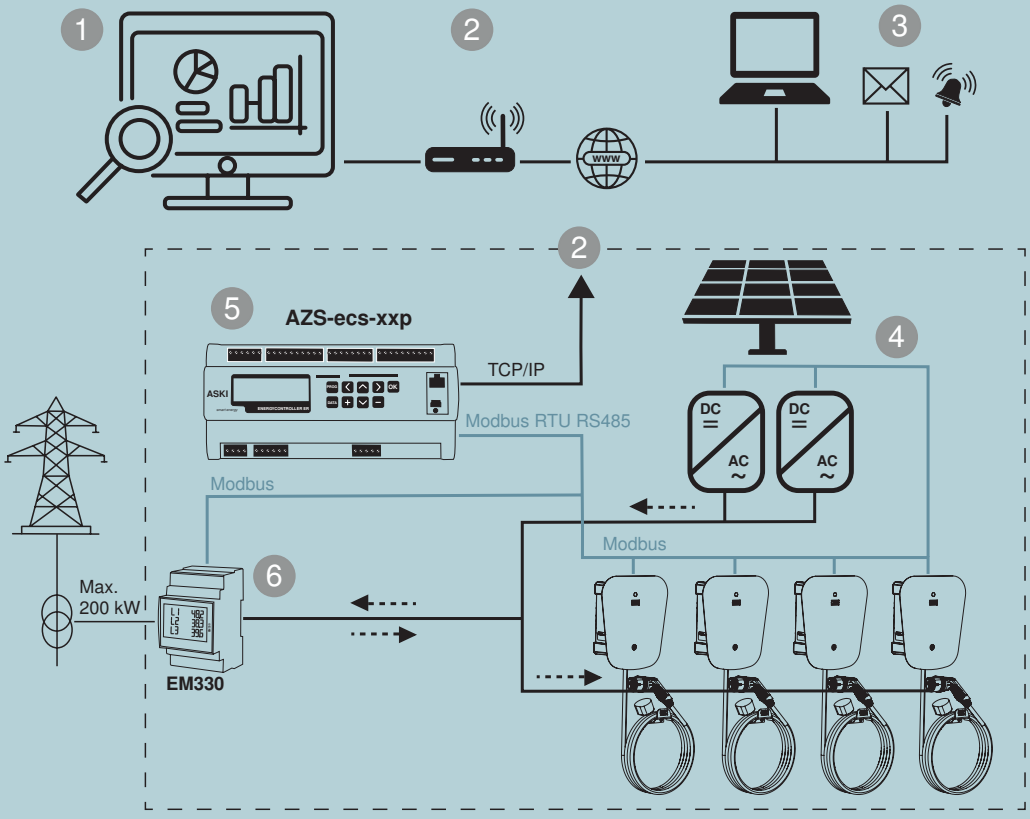
Application example

Activating the charging station externally via Modbus RTU

The charging station is compatible with the following systems (controller not contained in scope of delivery):

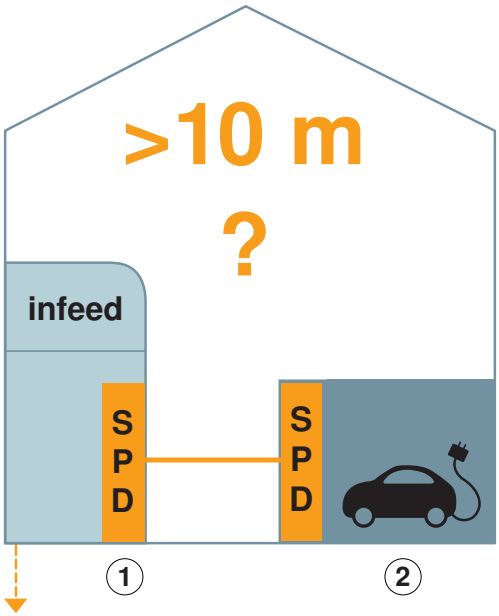
- Vertex Controller-based systems of make Smart 1 solutions GmbH
- Controllers from A.S.K.I. GmbH
- “Miniserver“ control device with Modbus extension of make Loxone GmbH
- “IO-Server“ control device with Modbus bridge of make Comexio GmbH

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



	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 A.S.K.I. GmbH
6	Modbus converter meter EM330

Surge protection:
OBO Ion Protect charging station version



IEC 60364-4-44 requires surge protection. If none exists in the building, at least one type 2 SPD must be erected at the infeed point of the system during the creation of a new circuit.

With cable lengths of over 10 metres, additional surge protection is recommended on the charging unit, which protects both the charging station and the electric vehicle.

Surge protection also applies for the data cable connection between the charging station and, for example, the PV system between the charging station and electric vehicle.

Only from OBO: The OBO Ion Protect charging station version has integrated standardised “complete surge protection“! (Data-Line and Power--Line)

To protect the current infeed

Surge protective device compact module, type 2+3

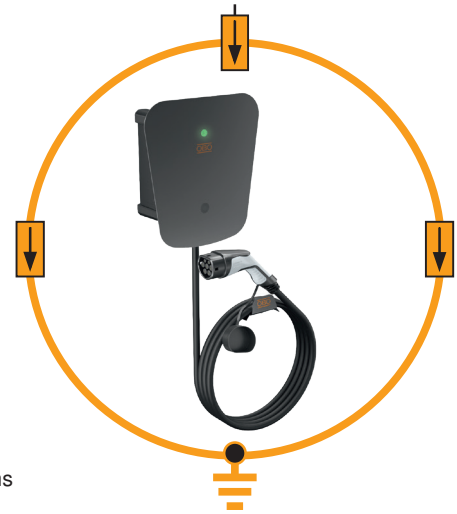
- Surge protection in sub-distributors according to IEC 60364-4-44
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor systems
- Including thermal and dynamic separating device and visual function display

For the protection of the RS-485 section between the external controller and charging station (Modbus RTU)

Series protection device, 2-pole, 12 V version

Lightning barrier with test function, 12 V version

- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and with screwless connection terminals
- Space-saving width of just 8.7 mm
- Testable protection circuit with Life Control
- High bandwidth up to 100 MHz



Series protection device, 2-pole, 5 V version

Lightning barrier with test function, 5 V version

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and with screwless connection terminals
- Space-saving width of just 8.7 mm
- Testable protection circuit with Life Control
- High frequency range of 0–100 MHz

Model overview and equipment

		Art. **6570020**	Art. **6570022**	Art. **6570024**	Art. **6570026**
	Component	Ion charging station Basic	Ion charging station Key	Ion charging station Basic Protect	Ion charging station Key Protect
1	Front panel	✓	✓	✓	✓
2	Charging station status LED	✓	✓	✓	✓
3	Surge protection Status LED	✗	✗	✓	✓
4	On/off switch without authorisation	✓	✗	✓	✗
	On/off switch with authorisation (key switch)	✗	✓	✗	✓
5	Charging connector, type 2	✓	✓	✓	✓
6	Wall bracket, charging cable	✓	✓	✓	✓
7	Charging cable, 5 m	✓	✓	✓	✓
8	Cable entry for supply cable	✓	✓	✓	✓
9	Ion charging station power plate with QR code	✓	✓	✓	✓
10	Charging controller, Mode 3	✓	✓	✓	✓
11	Safety fuse 1 A 250 VAC 5x20	✓	✓	✓	✓
12	Surge protection V10 Compact energy technology	✗	✗	✓	✓
13	Installation protection	✓	✓	✓	✓
14	Error current monitoring DC	✓	✓	✓	✓
15	Connection terminals	✓	✓	✓	✓
16	Surge protection Data technology MDP 5 V	✗	✗	✓	✓
17	Surge protection Data technology MDP 12 V	✗	✗	✓	✓

Technical data

	Charging station Basic	Charging station Key	Charging station Basic Protect	Charging station Key Protect
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 to 32 A			
Charging voltage [V]	5 m			
Charging cable length	230/400 V			
Charging connector	Type 2			
DC error current protection	6 mA			
Operating temperature	–10 °C to +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 with cable inserted	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 opened: Ready for operation, charging possible			

Charging power and requirement 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	6	9.0	1.5	37
16	3.6	7.4	11.0	2.5	51
32	7.4	14.7	22.0	6.0	45

More links to the future

We can offer you additional system solutions connected to PV-optimised charging with the Ion charging station. These include additional surge protection solutions in the low-voltage distributor, as well as solutions for the fireproof routing of cables, or a comprehensive selection of cable support systems for cable routing, for example in underground car parks.

Find more information at **obo-bettermann.com/emobility**

OBO Bettermann Holding GmbH & Co. KG
P.O. Box 1120
58694 Menden
GERMANY

Customer Service
Tel.:+49 23 73 89 - 17 00
Fax: +49 23 73 89 - 12 38
export@obo.de

www.obo-bettermann.com

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OBO BETTERMANN