



Installation manual Compleo PRO plus

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1 General information

1.1 Introduction

Before starting the assembly and installation of the charging station, read this instruction manual carefully and follow the instructions.

If you have received the installation manual in digital form, print out the document. Keep the manual stored at a safe place to have it at hand for any further reference.

1.2 Intended use

The charging station is designed for charging electric and plug-in hybrid vehicles according to charging mode 3. The charging station is mounted on a wall or on a charging column. Any other usage is considered to be improper and is not permitted.

The charging station Compleo PRO plus is suitable for all electric vehicles with a type 2 connection. The charging station Compleo PRO plus without a firmly attached charging cable can also be used for electric vehicles with a type 1 connection, if a corresponding adapter cable according to IEC 62196-2 is used.

Persons who, due to their physical, sensory or mental abilities or their inexperience or ignorance, are unable to operate the charging station safely shall not use the charging station without the supervision or instruction of a responsible person.

1.3 Target group

This document is intended for qualified electricians and qualified construction workers (Chapter 3.3).

Assembly and electrical installation of the Compleo PRO plus may only be performed by qualified electricians.

The construction of a foundation for the charging station may only be carried out by qualified construction workers.

2 Safety

2.1 Signal words

 **WARNING:** Indicates a hazard with a medium level of risk which, if not avoided, could result in serious injury or death.

 **CAUTION:** Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Note: Indicates additional information, which are not hazard related.

2.2 Safety instructions

- Observe all local legal regulations for the installation of charging stations and low voltage systems, as well as for fire and acci-

dent prevention. Pay particular attention to DIN VDE 0100-722 and DIN VDE 0105-100.

- Ensure that there is no voltage present before starting work.
- Observe the 5 safety rules according to DIN VDE 0105-100.
- If it rains when installing the charging station, make sure to protect the charging station from water.
- Do not use explosive or readily flammable substances in the vicinity of the charging station.
- Make sure that neither children nor pets come near the connected charging cable. Never let children play with the charging station.
- Any changes to the charging station are not permitted. There is a risk of electric shock and damage to the charging station. Any changes to the charging station will void the warranty with immediate effect.
- Before commissioning and before each charging procedure, check the charging station and in particular the charging cable and contacts for possible damage.
- Do not use a damaged charging cable. There is a risk of an electric shock!
- Never repair defective charging cables yourself.
- If the charging station is damaged during assembly or installation, the charging station must not be put into operation. Replacement is necessary.
- Check before each charging procedure, whether the vehicle inlet is damaged. Do not connect a charging cable to a damaged vehicle inlet.
- Ensure that the contacts of the charging plugs do not come into contact with heat sources, dirt or water.
- Never put your fingers in the socket of the charging station.
- Do not step on the charging cable or bend it.
- Do not pull the plug out of the socket by the cable. Pulling on the charging cable may damage the charging cable or the locking mechanism.
- Never remove the charging cable by force. Dangerous arcs can cause serious injury or death.
- Unroll the charging cable completely to avoid overheating.
- Use only standard-compliant charging cables (according to EN 62196-1, EN 62196-2 and EN 50620).
- Do not use the charging cable with an extension cord or adapter.

- Ensure that the charging cable, when connected to the charging station and the vehicle, does not block any paths.
- Pay attention to the charging cable lying on the ground when the charging cable is connected to the vehicle and charging station. There is a risk of tripping.
- Always make sure to remove the charging cable from the vehicle before driving off.
- Never immerse the charging cable in water or any other liquids.
- No liability will be accepted for damage during transport if the product is transported in anything other than the original packaging.
- At all times, observe the local safety regulations for the country in which you operate the device.

3 Assembly

3.1 Choice of location

- The unit must not be installed in explosive atmosphere areas (EX areas).
- The charging station must not be installed in areas prone to flooding or earthquakes.
- If possible, mount the charging station protected from direct sunlight.
- The charging station must not be installed in places where it blocks escape routes or passages for people.
- The charging station must not be installed in places where it is exposed to direct water jets (e.g. high-pressure cleaners or car washes).
- Observe the permissible ambient conditions (see chapter 6).

3.2 Mounting of the wall charging station

The following accessories are required:

- 4 screws, 8 mm, suitable for dowels 8 x 40 mm
- 4 dowels, 8 x 40 mm
- 4 metal washers
- 4 M4 screws, for fastening the plastic cover
- 4 plastic washers for the metric screws
- 4 plastic plugs for closing the holes in the plastic cover

When mounting the wall-mounted charging station, ensure that the wall surface is even. The wall must have sufficient load-bearing capacity. The distance from each hole (center) to the outer wall of the all-metal housing is 22 mm. Proceed as follows to mount the wall charging station:

1. Drill 4 holes with a diameter of 8 mm in a

square arrangement at a distance of 456 mm.

2. Insert the 4 dowels.
3. Open the housing of Compleo PRO plus.
4. On the bottom of the case, you will find the 10 mm holes in the four corners for mounting the housing.
5. Fasten the housing with all four screws and washers.

3.3 Mounting of the charging column

In order to mount the charging column, a foundation must first be laid. This preparatory work must be carried out by a commissioned construction company.

3.3.1 Use of the prefabricated foundation

In the simplest case, use our prefabricated foundation. This significantly simplifies the mounting of the charging column. In this prefabricated foundation two empty pipes and the foundation plate with four threaded rods are already cast. The shape of the prefabricated foundation may differ from the shape in Figures 1 and 2. The shape and dimensions of the foundation plate, which you can see in Figure 4, are decisive.

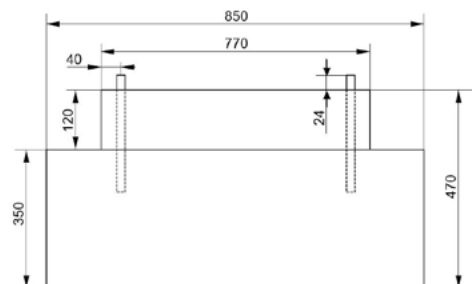


Figure 1: Prefabricated foundation - side view

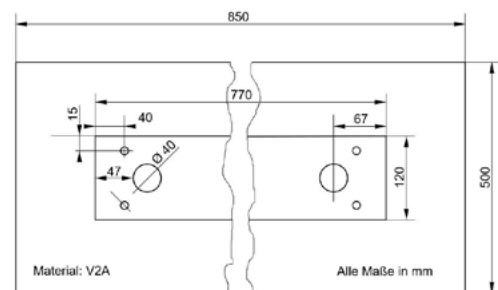


Figure 2: Prefabricated foundation - top view

For the use of the prefabricated foundation proceed as follows:

1. For the prefabricated foundation, dig an excavation pit with a minimum area of 110 x 90 cm and a minimum depth of 60 cm.
2. Make a compacted gravel bed.

3. Pull only one supply cable at a time through the empty conduits in the prefabricated foundation.
4. Bring the prefabricated foundation into position so that the upper edge of the foundation plate coincides with the top edge of the finished floor.
5. Underlay the prefabricated foundation and level the foundation with a spirit level.

3.3.2 Casting of an own foundation with foundation plate

If you want to pour your own foundation, use our foundation plate. It already has the right size, the hole for the empty pipe is already there and the threaded rods are fixed in the right place.

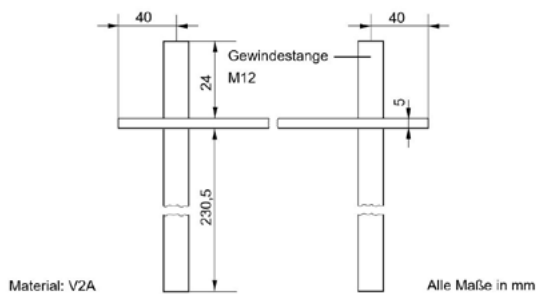


Figure 3: Foundation plate - side view

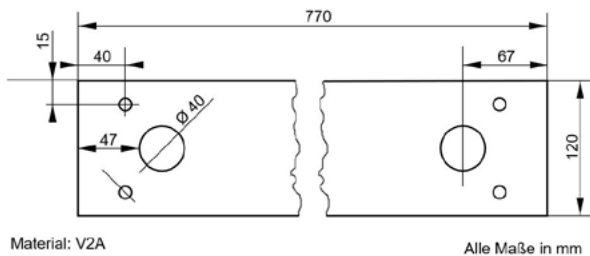


Figure 4: Foundation plate - top view

For pouring your own foundation with foundation plate proceed as follows:

1. For the foundation, dig a excavation pit with a minimum area of 110 x 90 cm and a minimum depth of 60 cm.
2. Make a firm gravel bed.
3. Fix the foundation plate in the desired position. The short ends of the threaded rod stand vertically upwards. The upper edge of the foundation plate corresponds to the top edge of the finished floor.
4. Pull only one supply cable at a time through the empty conduits.
5. Insert the empty conduits about 5 cm through the holes in the foundation plate and fix the empty conduits.
6. Lay the empty pipes as required.

7. Align the foundation plate with the spirit level.
8. Pour out the excavation pit so that the concrete is in complete contact with the underside of the foundation plate. The upper side of the foundation plate must not be covered with concrete.

3.3.3 Casting of an own foundation without foundation plate

To cast your own foundation without foundation plate, proceed as follows:

1. For the foundation, dig an excavation pit with a minimum area of 100 x 90 cm and a minimum depth of 60 cm.
2. Position and fix the empty pipes in the correct place. The distances between the empty pipes can be found in Figure 4: Foundation plate - top view.
3. Pull only one supply cable at a time through the empty conduits.
4. Pour out the excavation pit so that you obtain an even mounting surface.

4 Electrical connection

4.1 Conditions for the electrical connection

Specifications for the sub-distribution:

- Each charging point must have its own supply line with appropriate fuse protection.
- All variants of Compleo PRO plus require a suitable circuit breaker.
- All variants of Compleo PRO plus require a suitable residual current circuit breaker. Since Compleo PRO plus already has a DC fault detection > 6 mA, a cost-intensive RCD type A (EV) or type B is not needed.
- If possible, use an overvoltage protection in the sub-distribution.

Usable cable cross-sections:

- Use the cable cross-sections given in the table. If you require larger cable cross-sections, please specify them when ordering or contact us.
- When using a rigid cable, a maximum cross-section of 10 mm² is possible with the Compleo PRO plus, 22 kW, while only 6 mm² is possible with a flexible cable.

4.2 Electrical connection of the wall charging station

Proceed as follows for the electrical connection of the wall charging station:

1. Connect the supply cable to the charging station. Follow the instructions in chapter 4.1.
2. Place the plastic cover on the housing.

3. Fasten the plastic cover on the sides using the four metric screws.
4. Insert the 4 plugs into the holes of the plastic cover.

4.3 Electrical connection of the charging column

When electrically connecting the charging column, it must be observed whether or not a foundation plate is integrated in the foundation. If a foundation plate is integrated in the foundation, proceed as follows:

1. Pull the supply cables through the legs of the charging column.
2. Place the charging column in the right position on the foundation plate.
3. Fasten the charging column base with the four supplied M12 nuts.
4. Connect the supply cable according to the power class.

If no foundation plate is integrated in the foundation, proceed as follows:

1. Pull the supply cables through the legs of the charging column.
2. Place the charging column on the foundation and align the charging column.
3. Use the charging column base as a drilling template and fasten the charging station with four suitable dowels, washers and screws.
4. Connect the supply cable according to the power class.

Terminal assignment X1.1 and X1.2 for supply cable, cable cross sections and fuse protection

Performance class per charging point		3,7 kW, 16 A	4,6 kW, 20 A	7,4 kW, 16 A
Conduc- tor	Number	Color		
L	1	brown or black	brown or black	brown or black
N	2	blue	blue	blue
PE	3	green/ yellow	green/ yellow	green/ yellow

Supply cable per charging point	NYM-J 3x 2,5 mm ²	NYM-J 3x 2,5 mm ²	NYM-J 3x 6 mm ²
Circuit breaker per charging point	C 16 A, 1-pole	C 20 A, 1-pole	C 32 A, 1-pole
RCD in sub-distribution per charging point	Type A 0,03 A/ 25 A	Type A 0,03 A/ 25 A	Type A 0,03 A/ 40 A

Terminal assignment X2.1 and X2.2 for firmly attached charging cable

Leistungsklasse	3,7 kW, 16 A	4,6 kW, 20 A	7,4 kW, 16 A
Conductor	Number	Color	

L	1	brown or black	brown or black	brown or black
N	2	blue	blue	blue
PE	3	green/yellow	green/yellow	green/yellow
CP	4	black/white	black/white	black/white

Terminal assignment X1 for supply cable, cable cross sections and fuse protection

Performance class per charging point		11 kW, 3x 16 A	22 kW, 3x 32 A
Conductor	Number	Color	
L1	1	brown	brown
L2	2	black	black
L3	3	grey	grey
N	4	blue	blue
PE	5	green/yel-low	green/yel-low

Supply cable per charging point	NYM-J 5x 2,5 mm ²	NYM-J 5x 6 mm ²
Circuit breaker per charging point	C 16 A, 3-pole	C 32 A, 3-pole
RCD in sub-distribution per charging point	Type A 0,03 A/ 25 A	Type A 0,03 A/ 40 A

Terminal assignment X2.1 and X2.2 for firmly attached charging cable

Performance class		11 kW, 3x 16 A	22 kW, 3x 32 A
Conductor	Number	Color	
L1	1	brown	brown
L2	2	black	black
L3	3	grey	grey
N	4	blue	blue
PE	5	green/yel- low	green/yel- low
CP	6	black/white	black/white

5 Safety tests

After the electrical connection of the charging station, carry out the necessary safety tests:

- Before commissioning the charging station, check the effectiveness of the protective measures of the complete system according to the applicable national and local regulations.
- The measuring instruments used must comply with national regulations.
- Among other things, the Gossen Metrawatt PROFITEST MTECH+ protective measures tester with manufacturer no. M520R is required for testing the charging station. Alternatively, use the Metrel MI 3152 EurotestXC ST. If none of the test devices is available to you, the missing tests must be performed by a Compleo specialist partner.
- Enter the result of the test in a test report. A test report can be obtained from Compleo Connect GmbH upon request.
- Give the test report to the customer, who will send it to the manufacturer.

6 Technical data

Charging class 11 kW

Type	Wallbox or charging column
Number of charging points	2
Charging capacity per charging point	11 kW
Voltage	230 V
Amperage	16 A
Phases	3-phase
Authorization	App, RFID
Socket	Type 2
Ladekabel	Type 2, firmly attached
Dimensions wallbox (H x W x D)	560 x 560 x 220 mm
Weight wallbox	approx. 18,5 kg
Dimensions charging column (H x W x D)	1455 x 770 x 189 mm
Weight charging column	approx. 33 kg
Load contactor	4-pole, 40 A
Control fuse	1-pole, B6
Integrated fuses	RCM-module – DC fault current detection 6 mA contactor monitoring Lock release module
RCD	Not integrated (required in sub-distribution, recommended protection: type A 0.03 A / 40 A)
Maximum back-up fuse	Not integrated (required in sub-distribution, recommended protection: B16 A for 11 kW)
DC tripping current $I_{\Delta dc}$	0,006 A
Housing lockable	Double-bit lock
Energy meter	Yes
OCPP connections	OCPP 1.6 JSON
Interfaces (internal)	RS485
Interfaces (external)	Ethernet RJ45, GSM/UMTS
Logs (internal)	Modbus RTU
Logs (external)	Modbus TCP, OCPP 1.6 JSON
Adjustable	Yes (digital input, Modbus TCP and OCPP 1.6 JSON)
State according to EN 61851-1	State D with ventilation is not supported.
Storage temperature range	-30°C to +70°C
Operating temperature range (not compliant with german calibration law)	-25 to +55°C 
Operating temperature range (compliant with german calibration law)	-25 to +40°C 
Rel. humidity	5 to 95 % (non-condensing)
Protection class	I

Protection degree	IP54
Mechanical impact protection	IK 8
Rated voltage U_n	230 V / 400 V AC
Rated operational voltage U_e	220/380 - 240/415 V 3N
Rated insulation voltage U_i	500 V
Rated impulse withstand voltage U_{imp}	4 kV
Overvoltage category	Category III
Rated current of a circuit I_{nc}	16 A fused on the load side, 6 A fused on the control side
Rated peak withstand current I_{pk}	<6 kA
Rated short-time withstand current I_{cw}	6 A
Rated conditional short-circuit current I_{cc}	16 A
Rated frequency f_n	50 Hz
Pollution degree	3
System according to type of earth connection	TN or TT
Installation site	Indoor and outdoor installation
EMC classification	Class B
Mechanical ambient conditions according to MessEV (compliant with german calibration law)	M1
Electromagnetic ambient conditions according to MessEV (compliant with german calibration law)	E1

Charging class 22 kW

Type	Wallbox or charging column
Number of charging points	2
Charging capacity per charging point	22 kW
Voltage	400 V
Amperage	32 A
Phases	3-phase
Authorization	App, RFID
Socket	Type 2
Ladekabel	Type 2, firmly attached
Dimensions wallbox (H x W x D)	560 x 560 x 220 mm
Weight wallbox	approx. 18,5 kg
Dimensions charging column (H x W x D)	1455 x 770 x 189 mm
Weight charging column	approx. 33 kg
Load contactor	4-pole, 40 A
Control fuse	1-pole, B6
Integrated fuses	RCM-module – DC fault current detection 6 mA contactor monitoring Lock release module
RCD	Not integrated (required in sub-distribution, recommended protection: type A 0.03 A / 40 A)
Maximum back-up fuse	Not integrated (required in sub-distribution, recommended protection: B32 A for 22 kW)
DC tripping current $I_{\Delta dc}$	0,006 A
Housing lockable	Double-bit lock
Energy meter	Yes
OCPP connections	OCPP 1.6 JSON
Interfaces (internal)	RS485
Interfaces (external)	Ethernet RJ45, GSM/UMTS
Logs (internal)	Modbus RTU
Logs (external)	Modbus TCP, OCPP 1.6 JSON
Adjustable	Yes (digital input, Modbus TCP and OCPP 1.6 JSON)
State according to EN 61851-1	State D with ventilation is not supported.
Storage temperature range	-30°C to +70°C
Operating temperature range (not compliant with german calibration law)	-25 to +55°C 
Operating temperature range (compliant with german calibration law)	-25 to +40°C 
Rel. humidity	5 to 95 % (non-condensing)
Protection class	I
Protection degree	IP54

Mechanical impact protection	IK 8
Rated voltage U_n	230 V / 400 V AC
Rated operational voltage U_e	220/380 - 240/415 V 3N
Rated insulation voltage U_i	500 V
Rated impulse withstand voltage U_{imp}	4 kV
Overvoltage category	Category III
Rated current of a circuit I_{nc}	32 A fused on the load side, 6 A fused on the control side
Rated peak withstand current I_{pk}	<6 kA
Rated short-time withstand current I_{cw}	6 A
Rated conditional short-circuit current I_{cc}	32 A
Rated frequency f_n	50 Hz
Pollution degree	3
System according to type of earth connection	TN or TT
Installation site	Indoor and outdoor installation
EMC classification	Class B
Mechanical ambient conditions according to MessEV (compliant with german calibration law)	M1
Electromagnetic ambient conditions according to MessEV (compliant with german calibration law)	E1

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