

# Components for EVSE charging systems



## Bals Elektrotechnik Simply. Well. Connected.

made  
in  
Germany



## Over half a century competence and experience

Bals is a quality brand for innovation, reliability and service worldwide. For more than 60 years we have been producing connectors for the world market. From the very first day to the present, we rely on the highest quality "Made in Germany". Our plants in Kirchhundem-Albaum and Freiwalde have highly qualified, motivated teams, state-of-the-art production facilities and high-performance logistics.



Our product range ranges from plugs, phase inverters and couplings, through sockets and distribution combinations to special plug-in devices. Numerous certifications of domestic and foreign test institutes as well as utility models and patents document the high technical standard of our products. A special quality feature and exclusively developed by Bals is the maintenance-free quick-connect technology QUICK-CONNECT.

## Two modern factories One consistent quality standard

From the beginning the headquarters of our company is located in Kirchhundem-Albaum (North-Rhine-Westphalia). Product development, marketing and sales, as well as administration are located here. The factory in Freiwalde (Brandenburg), built in 1994 and expanded many times since, has state-of-the-art production facilities for fully-automatic manufacturing of unique plugs and sockets as well as a highly-effective logistics centre.



## Plugs and sockets for the world market

As an independent, medium-sized, family-owned company, we produce standardised industrial plugs and sockets acc. to IEC 60309 1-2 as well as charging components and distributors for the global market. We set new technical standards with innovations and ground-breaking, partially patented new developments such as MULTI-GRIP or QUICK-CONNECT. Our products are sold in more than 80 countries.



## Our responsibility to the highest quality

Quality does not permit any compromise. This has always been the maxim at Bals. The ISO-9001-certified production process in all factories ensures the well-known high product quality. This proof of quality is reflected in patents, certificates from German and foreign testing institutes, as well as the specification of Bals products by highly renowned companies. Innovation is an important quality benchmark for us. This way, we are always setting new standards with intelligent solutions that bring the user sustainable advantages.

## Simple definition of our part numbers for charging cables

Our part numbers have a meaningful structure. This provides our customers with a logical ordering system/order number which describes the electrical design, colours and length of the charging cable.

This is explained below using an example:

Charging cable (cable length: 5m) with charging connector, mode 3, type 2, 1-phase, 20A for fixed installation



**E-329010 - 050**

Cable length (customer request)

**0 1 0**

Colour of top shell

Colour of middle shell

Colour of bottom shell

Type of plug connector



**Charging cable with charging connector,  
mode 3, type 2, 1-phase, 20A,  
for fixed installation, cable type: flat**

- EV side: 20A 1-phase type 2 charging connector
- EVCS side: cut off clean
- Resistance: 680  $\Omega$  in charging connector
- Color of connectors: blue
- Cable variant: 3x2.5+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable  $\varnothing$ : approx. 11 mm
- Max. capacity: 3,7kW

Version	Part No.
Cable length 4,0m	<b>E-329010-040</b>
Cable length 5,0m	<b>E-329010-050</b>



**Charging cable with charging connector,  
mode 3, type 2, 1-phase, 20A,  
for fixed installation, cable type: coiled**

- EV side: 20A 1-phase type 2 charging connector
- EVCS side: cut off clean
- Resistance: 680  $\Omega$  in charging connector
- Color of connectors: blue
- Cable variant: 3x2.5+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable  $\varnothing$ : approx. 11 mm
- Max. capacity: 3,7kW

Version	Part No.
Working length 4,0m	<b>E-329010-G040</b>
Working length 5,0m	<b>E-329010-G050</b>



**Charging cable with charging connector,  
mode 3, type 2, 1-phase, 32A,  
for fixed installation, cable type: flat**

- EV side: 32A 1-phase type 2 charging connector
- EVCS side: cut off clean
- Resistance: 220  $\Omega$  in charging connector
- Color of connectors: blue
- Cable variant: 3G6+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable  $\varnothing$ : approx. 14 mm
- Max. capacity: 7,4kW

Version	Part No.
Cable length 4,0m	<b>E-330010-040</b>
Cable length 5,0m	<b>E-330010-050</b>



**Charging cable with charging connector,  
mode 3, type 2, 1-phase, 32A,  
for fixed installation, cable type: coiled**

- EV side: 32A 1-phase type 2 charging connector
- EVCS side: cut off clean
- Resistance: 220  $\Omega$  in charging connector
- Color of connectors: blue
- Cable variant: 3G6+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable  $\varnothing$ : approx. 14 mm
- Max. capacity: 7,4kW

Version	Part No.
Working length 4,0m	<b>E-330010-G040</b>
Working length 5,0m	<b>E-330010-G050</b>



**Charging cable with charging connector, mode 3, type 1, 1-phase, 20A, for fixed installation, cable type: flat**

- EV side: 20A 1-phase type 1 charging connector
- EVCS side: cut off clean
- Resistance: integrated circuit of the total resistance between CS and PE in type 1 charging connector
- Color of connectors: blue
- Cable variant: 3x2.5+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable ø: approx. 11 mm

Version	Part No.
Cable length 4,0m	<b>E-322010-040</b>
Cable length 5,0m	<b>E-322010-050</b>



**Charging cable with charging connector, mode 3, type 2 to type 1, 1-phase, 20A, for fixed installation, cable type: coiled**

- EV side: 20A 1-phase type 1 charging connector
- EVCS side: cut off clean
- Resistance: integrated circuit of the total resistance between CS and PE in type 1 charging connector
- Color of connectors: blue
- Cable variant: 3x2.5+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable ø: approx. 11 mm

Version	Part No.
Working length 4,0m	<b>E-322010-G040</b>
Working length 5,0m	<b>E-322010-G050</b>



**Charging cable with charging connector, mode 3, type 2 to type 1, 1-phase, 32A, for fixed installation, cable type: flat**

- EV side: 32A 1-phase type 1 charging connector
- EVCS side: cut off clean
- Resistance: integrated circuit of the total resistance between CS and PE in type 1 charging connector
- Color of connectors: blue
- Cable variant: 3G6+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable ø: approx. 14 mm

Version	Part No.
Cable length 4,0m	<b>E-323010-040</b>
Cable length 5,0m	<b>E-323010-050</b>



**Charging cable with charging connector, mode 3, type 2 to type 1, 1-phase, 32A, for fixed installation, cable type: coiled**

- EV side: 32A 1-phase type 1 charging connector
- EVCS side: cut off clean
- Resistance: integrated circuit of the total resistance between CS and PE in type 1 charging connector
- Color of connectors: blue
- Cable variant: 3G6+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable ø: approx. 14 mm

Version	Part No.
Working length 4,0m	<b>E-323010-G040</b>
Working length 5,0m	<b>E-323010-G050</b>



**Charging cable with charging connector,  
mode 3, type 2, 3-phase, 20A,  
for fixed installation, cable type: flat**

- EV side: 20A 3-phase type 2 charging connector
- EVCS side: cut off clean
- Resistance: 680  $\Omega$  in charging connector
- Color of connectors: blue
- Cable variant: 5G2.5+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable  $\varnothing$ : approx. 13 mm
- Max. capacity: 11kW

Version	Part No.
Cable length 4,0m	<b>E-331010-040</b>
Cable length 5,0m	<b>E-331010-050</b>



**Charging cable with charging connector,  
mode 3, type 2, 3-phase, 20A,  
for fixed installation, cable type: coiled**

- EV side: 20A 3-phase type 2 charging connector
- EVCS side: cut off clean
- Resistance: 680  $\Omega$  in charging connector
- Color of connectors: blue
- Cable variant: 5G2.5+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable  $\varnothing$ : approx. 13 mm
- Max. capacity: 11kW

Version	Part No.
Working length 4,0m	<b>E-331010-G040</b>
Working length 5,0m	<b>E-331010-G050</b>



**Charging cable with charging connector,  
mode 3, type 2, 3-phase, 32A,  
for fixed installation, cable type: flat**

- EV side: 32A 3-phase type 2 charging connector
- EVCS side: cut off clean
- Resistance: 220  $\Omega$  in charging connector
- Color of connectors: blue
- Cable variant: 5G6+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable  $\varnothing$ : approx. 17 mm
- Max. capacity: 22kW

Version	Part No.
Cable length 4,0m	<b>E-332010-040</b>
Cable length 5,0m	<b>E-332010-050</b>



**Charging cable with charging connector,  
mode 3, type 2, 3-phase, 32A,  
for fixed installation, cable type: coiled**

- EV side: 32A 3-phase type 2 charging connector
- EVCS side: cut off clean
- Resistance: 220  $\Omega$  in charging connector
- Color of connectors: blue
- Cable variant: 5G6+1x0.5 mm<sup>2</sup>
- Cable colour: black
- Cable  $\varnothing$ : approx. 17 mm
- Max. capacity: 22kW

Version	Part No.
Working length 4,0m	<b>E-332010-G040</b>
Working length 5,0m	<b>E-332010-G050</b>



### Type 2 charging socket - IP20

- With screw connection for 3P+N+PE as well as PP+CP
- With easy CONTACT and silver plated contacts
- With plug interlock and appropriate actuator
- Three actuator positions possible in accordance with IEC 62196-2
- Actuator attachment: fixable plug system

We recommend control via EVCP2 controller:  
E-920000 or E-920300 (switching function)  
E-920010 or 920310 (direct function)



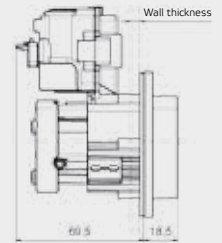
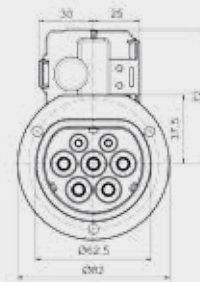
#### Version

up to 20A

up to 32A

up to 63A

#### Part No.

**E-80201-16****E-80201-32****E-80201-63**

### Type 2 charging socket - IP54

- With screw connection for 3P+N+PE as well as PP+CP
- With easy CONTACT and silver plated contacts
- With plug interlock and appropriate actuator
- Three actuator positions possible in accordance with IEC 62196-2
- Actuator attachment: fixable plug system

We recommend control via EVCP2 controller:  
E-920000 or E-920300 (switching function)  
E-920010 or 920310 (direct function)



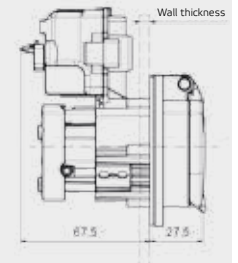
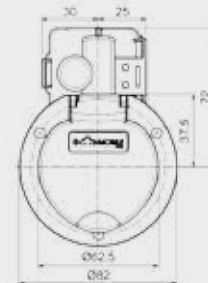
#### Version

up to 20A

up to 32A

up to 63A

#### Part No.

**E-80200-16****E-80200-32****E-80200-63**

### Type 2 charging socket - IP54

- With screw connection for 3P+N+PE as well as PP+CP
- With easy CONTACT and silver plated contacts
- With plug interlock and appropriate actuator

We recommend control via EVCP2 controller:  
E-920000 or E-920300 (switching function)  
E-920010 or 920310 (direct function)



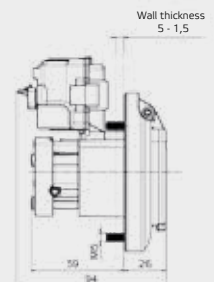
#### Version

up to 20A

up to 32A

up to 63A

#### Part No.

**E-81191-16****E-81191-32****E-81191-63**

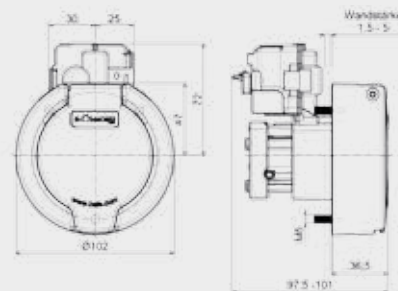
### Type 2 charging socket - IP54

- With screw connection for 3P+N+PE as well as PP+CP
- With easy CONTACT and silver plated contacts
- With plug interlock and appropriate actuator

We recommend control via EVCP2 controller:  
E-920000 or E-920300 (switching function)  
E-920010 or 920310 (direct function)



Version	Part No.
up to 20A	<b>E-81194-16</b>
up to 32A	<b>E-81194-32</b>
up to 63A	<b>E-81194-63</b>



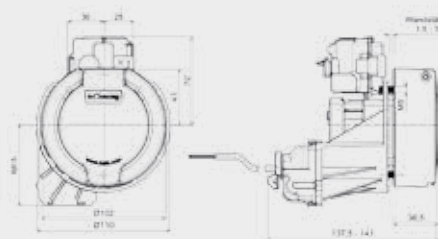
### Type 2 charging socket - IP54 with lid interlock

- With screw connection for 3P+N+PE as well as PP+CP
- With easy CONTACT and silver plated contacts
- With hinged lid interlock and appropriate actuator
- With plug interlock and appropriate actuator

We recommend control via EVCP2 controller:  
E-920200 or E-920500



Version	Part No.
up to 20A	<b>E-81192-16</b>
up to 32A	<b>E-81192-32</b>
up to 63A	<b>E-81192-63</b>



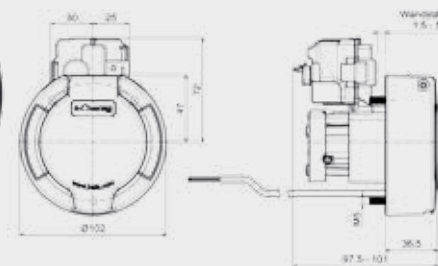
### Type 2 charging socket - IP54 RGB-LED

- With screw connection for 3P+N+PE as well as PP+CP
- With easy CONTACT and silver plated contacts
- With plug interlock and appropriate actuator
- With 2x RGB LED lighting

We recommend control via EVCP2 controller:  
E-920000 or E-920300 (switching function)  
E-920010 or 920310 (direct function)



Version	Part No.
up to 20A	<b>E-81195-16</b>
up to 32A	<b>E-81195-32</b>
up to 63A	<b>E-81195-63</b>



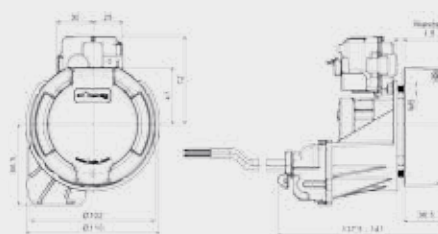
### Type 2 charging socket - IP54 with RGB-LED and lid interlock

- With screw connection for 3P+N+PE as well as PP+CP
- With easy CONTACT and silver plated contacts
- With hinged lid interlock and appropriate actuator
- With plug interlock and appropriate actuator
- With 2x RGB LED lighting

We recommend control via EVCP2 controller:  
E-920200 or E-920500  
E-920010 or 920310 (direct function)



Version	Part No.
up to 20A	<b>E-81193-16</b>
up to 32A	<b>E-81193-32</b>
up to 63A	<b>E-81193-63</b>



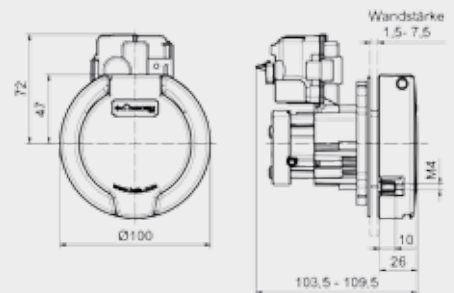
**Type 2 charging socket - IP54**

- 4-point attachment
- With screw connection for 3P+N+PE as well as PP+CP
- With easy CONTACT and silver plated contacts
- With plug interlock and appropriate actuator
- Three actuator positions possible in accordance with IEC 62196-2
- Actuator attachment: fixable plug system

We recommend control via EVCP2 controller:  
E-920000 or E-920300 (switching function)  
E-920010 or 920310 (direct function)



Version	Part No.
up to 20A	<b>E-80205-16</b>
up to 32A	<b>E-80205-32</b>
up to 63A	<b>E-80205-63</b>

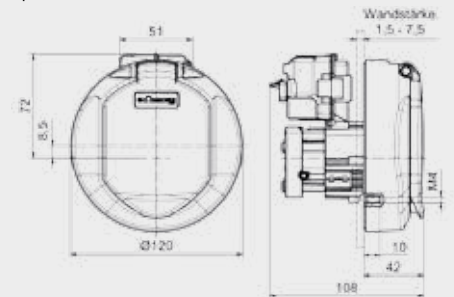
**Type 2 charging socket – IP54 with shutter**

- With screw connection for 3P+N+PE as well as PP+CP
- With easy CONTACT and silver plated contacts
- With plug interlock and appropriate actuator
- Three actuator positions possible in accordance with IEC 62196-2
- One-handed operation

We recommend control via EVCP2 controller:  
E-920000 or E-920300 (switching function)  
E-920010 or 920310 (direct function)



Version	Part No.
up to 20A	<b>E-80300-16</b>
up to 32A	<b>E-80300-32</b>
up to 63A	<b>E-80300-63</b>

**Plug holder for type 1 charging connector**

Version	Part No.
Angled	<b>E-990</b>
Straight	<b>E-991</b>

**Plug holder for type 2 charging connector**

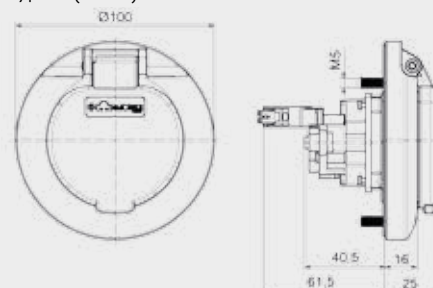
Version	Part No.
Angled	<b>E-993</b>
Straight	<b>E-992</b>

### Schuko-type charging socket

- Suitable for continuous current of 16A
- With "normally open" auxiliary contact



Version	Part No.
Type F (german)	<b>E-801911-01</b>
Type E (belg./french)	<b>E-801912-01</b>
Type J (swiss)	<b>E-801913</b>

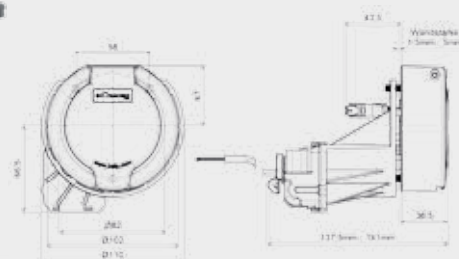


### Schuko-type charging socket with hinged lid interlock

- Suitable for continuous current of 16A
- With "normally open" auxiliary contact
- With hinged lid interlock



Version	Part No.
Type F (german)	<b>E-801921-01</b>
Type E (belg./french)	<b>E-801922-01</b>
Type J (swiss)	<b>E-801923</b>

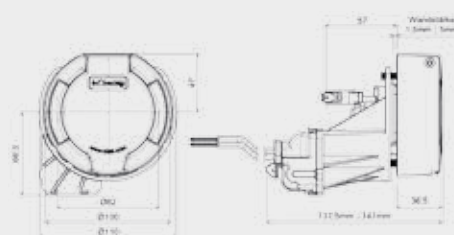


### Schuko-type charging socket with hinged lid interlock and RGB-LED

- Suitable for continuous current of 16A
- With "normally open" auxiliary contact
- With hinged lid interlock
- With 2x RGB-LED lighting



Version	Part No.
Type F (german)	<b>E-801931-01</b>
Type E (belg./french)	<b>E-801932-01</b>
Type J (swiss)	<b>E-801933</b>

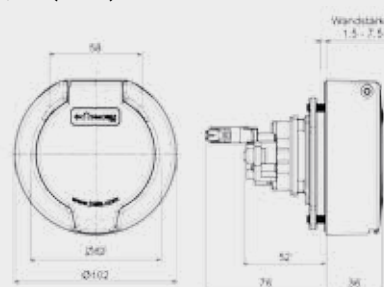


### Schuko-type charging socket

- Suitable for continuous current of 16A
- With "normally open" auxiliary contact



Version	Part No.
Type F (german)	<b>E-801941-01</b>
Type E (belg./french)	<b>E-801942-01</b>
Type J (swiss)	<b>E-801943</b>

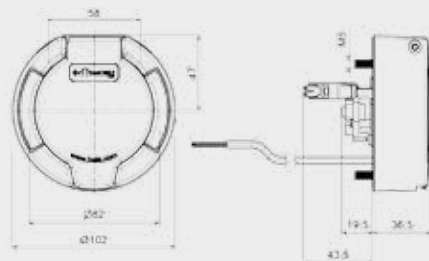


## Schuko-type charging socket with RGB-LED

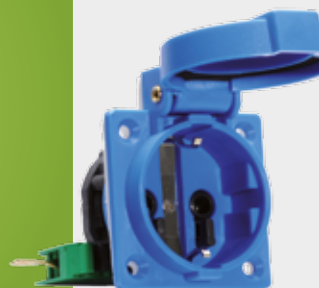
- Suitable for continuous current of 16A
- With "normally open" auxiliary contact
- With 2x RGB-LED lighting



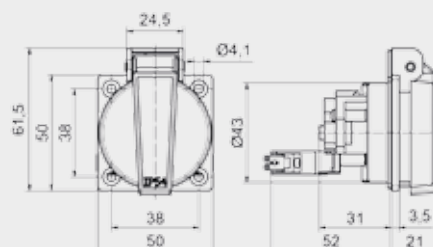
Version	Part No.
Type F (german)	<b>E-801951-01</b>
Type E (belg./french)	<b>E-801952-01</b>
Type J (swiss)	<b>E-801953</b>

16A 230V schuko-type charging socket  
Type F (german)

- Protection degree IP54
- Flange 50 x 50 mm
- With "normally open" auxiliary contact
- Suitable for continuous current of 16A



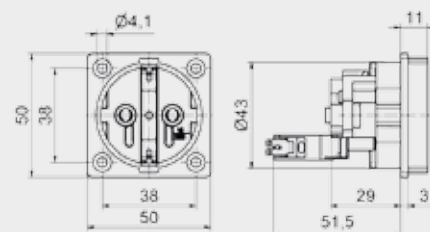
Version	Part No.
Colour: green	<b>E-71146</b>
Colour: black	<b>E-71073</b>
Colour: blue	<b>E-71184</b>

16A 230V schuko-type charging socket  
Type F (german)

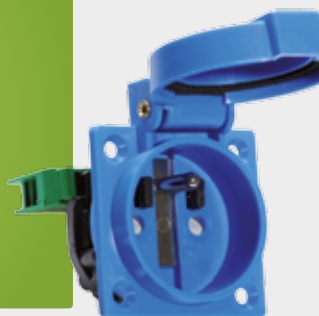
- Without hinged lid
- Flange 50 x 50 mm
- With "normally open" auxiliary contact
- Suitable for continuous current of 16A



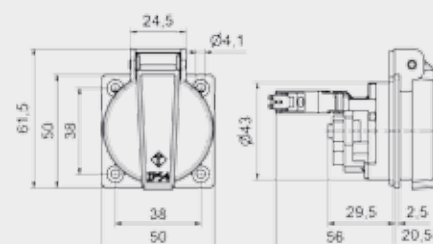
Version	Part No.
Colour: blue	<b>E-71070</b>
Colour: black	<b>E-71075</b>

16A 230V schuko-type charging socket  
Type E (belg./french)

- Protection degree IP54
- Flange 50 x 50 mm
- With "normally open" auxiliary contact
- Suitable for continuous current of 16A

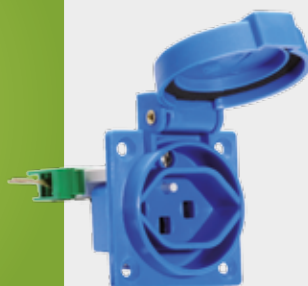


Version	Part No.
Colour: green	<b>E-71154</b>
Colour: black	<b>E-71074</b>
Colour: blue	<b>E-71067</b>

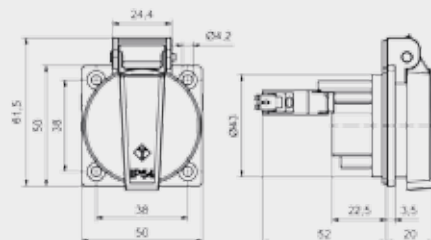


### Type 23 charging socket – type J (swiss)

- Protection degree IP54
- Flange 50 x 50 mm
- With "normally open" auxiliary contact
- Suitable for continuous current of 16A



Version	Part No.
Colour: green	E-7719
Colour: black	E-7708
Colour: blue	E-7707

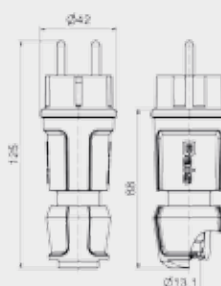


**Schuko-type charging plug 16A 230V**

- Protection degree IP54
- MULTI-GRIP Kabelverschraubung
- Spacious connection area
- Suitable for Type E



Version	Part No.
Colour: green	<b>E-7374</b>
Colour: black	<b>E-7372</b>
Colour: blue	<b>E-7370</b>

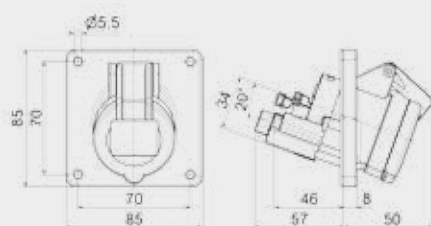


**CEE charging socket 3 pole 230V**

- With decline
- Flange 85 x 85 mm
- 70 x 70 mm drill hole
- With nickel plated contacts
- With "normally open" and "normally closed" auxiliary contact



Version	Part No.
up to 16A	E-120412
up to 32A	E-120416

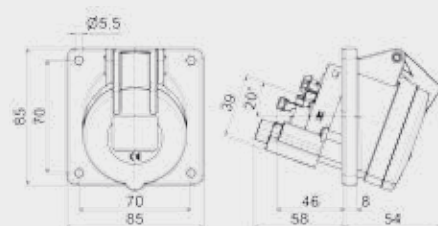


**CEE charging socket 5 pole 400V**

- With decline
- Flange 85 x 85 mm
- 70 x 70 mm drill hole
- With nickel plated contacts
- With "normally open" and "normally closed" auxiliary contact



Version	Part No.
up to 16A	E-120414
up to 32A	E-120413



## EVCP2 controller Mode 3/ type 2+

Standard functions:

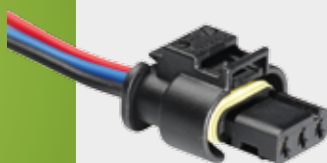
- Power supply in the event of power failure
- Integrated mains device from 230V to 12V
- Charging current adjustable from 6A - 80A by means of rotary switch
- Additional 12V outputs for peripheral devices
- Control option for RGB LED lighting/ status indicator
- Control of charging contactor and plug interlock
- Depending on the configuration, actuation of the enable input by means of:  
external signal (e.g. key switch, RFID)  
or  
constant signal for "direct charging"



Version	Part No.
"Standard" charging socket / polling via RS 485/ <b>enable input: external signal</b>	<b>E-920000</b>
"Standard" charging socket / polling via RS 485/ <b>enable input: constant enable</b>	<b>E-920010</b>
<b>Vehicle connector permanently connected to EVSE Type 1 and type 2/ polling via RS485/ enable input: external signal</b>	<b>E-920100</b>
<b>Vehicle connector permanently connected to EVSE Type 1 and type 2/ polling via RS485/ enable input: constant enable</b>	<b>E-920110</b>
"Standard" charging socket/ hinged lid interlock/ limit switch/ polling via RS485/ <b>enable input: external signal</b>	<b>E-920200</b>
"Standard" charging socket/ polling via RS 485/ analogue input <b>enable input: external signal</b>	<b>E-920300</b>
"Standard" charging socket/ polling via RS 485/ analogue input <b>enable input: constant enable</b>	<b>E-920310</b>
<b>Vehicle connector permanently connected to EVSE Type 1 and type 2/ analogue connection/ polling via RS485/ enable input: external signal</b>	<b>E-920400</b>
<b>Vehicle connector permanently connected to EVSE Type 1 and type 2/ analogue connection/ polling via RS485/ enable input: constant enable</b>	<b>E-920410</b>
"Standard" charging socket/ hinged lid interlock/ limit switch/ analogue input/ polling via RS485/ <b>enable input: external signal</b>	<b>E-920500</b>

## Connector for actuator

- With 3 single conductor
- For plug and lid interlock



Version	Part No.
Cable length 1m	<b>E-314-1000</b>
Cable length 1,7m	<b>E-314-1700</b>

## EVCS 2 tester

The EVCS 2 tester is an easy-to-handle device that can simulate the basic charging states at a charging station with a type 2 charging socket.

With the compact tester, you can ensure that the charging station is always functional – and continues to be so. You can easily simulate various coding resistances of the charging cable, changes in charge status or errors. The integrated BNC measuring output allows you to easily visualise the CP PWM signal, e.g., on an oscilloscope.

The EVCS 2 tester includes the following functions

- Specification of the charging cable coding for simulating the maximum charging current
- Test of the PE connection between PWM and vehicle plug
- Simulation of an interruption of the PE protective conductor
- Simulation of the vehicle states
- Display of the PWM signal (CP measurement socket)
- Phase sequence indicator L1, L2, L3

- Rotary field indicator
- Test sockets (simulation of external leakage currents)

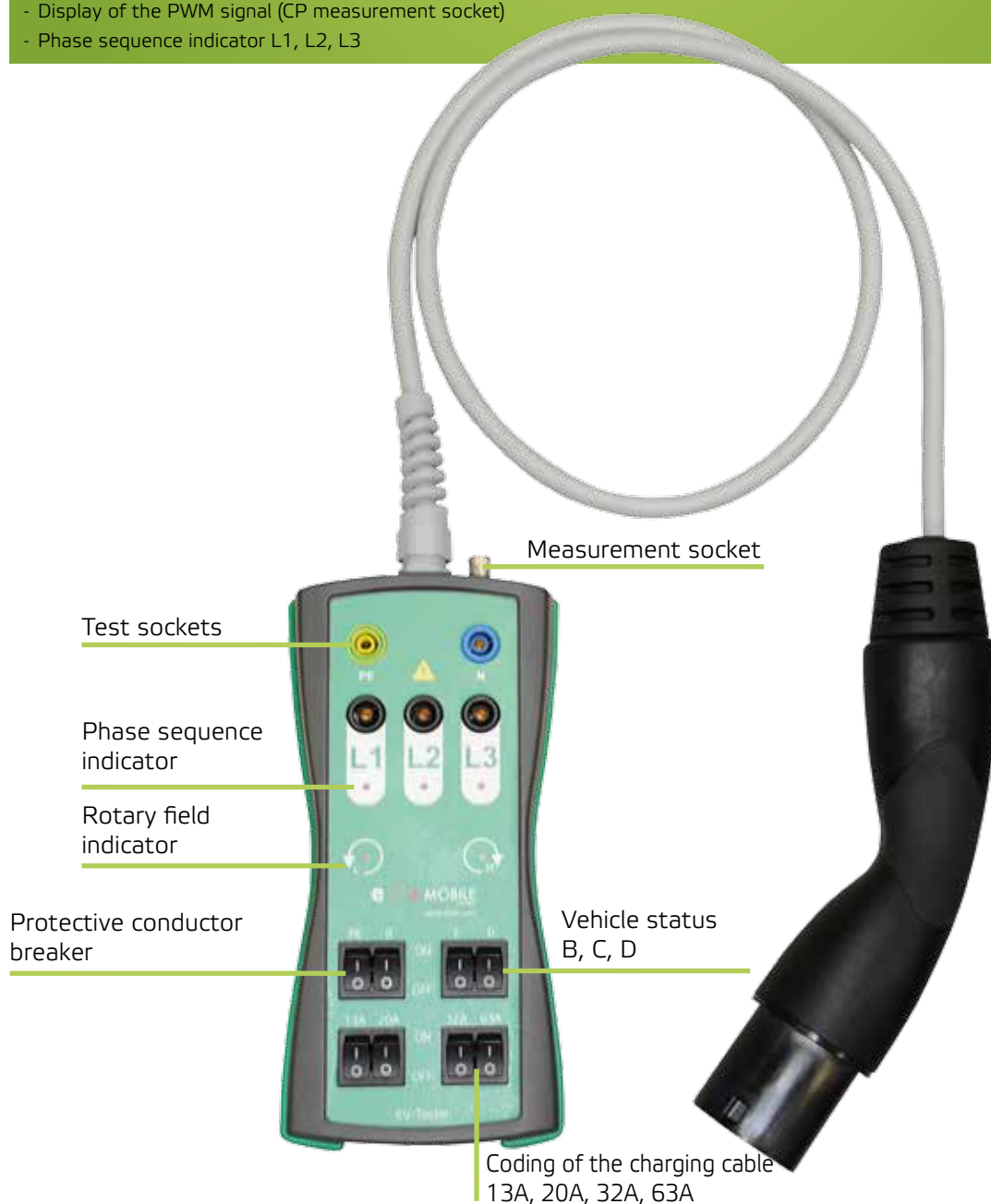
### Equipment

- Dimensions H x W x D: 205 x 105 x 40 mm
- Plastic housing with rubber-coated sides
- Plug: type 2 charging plug with 1 m connection cable
- Colour: green/ black

### Optional

- With type 3 version **Part No. E-996**

### Part no. E-994





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