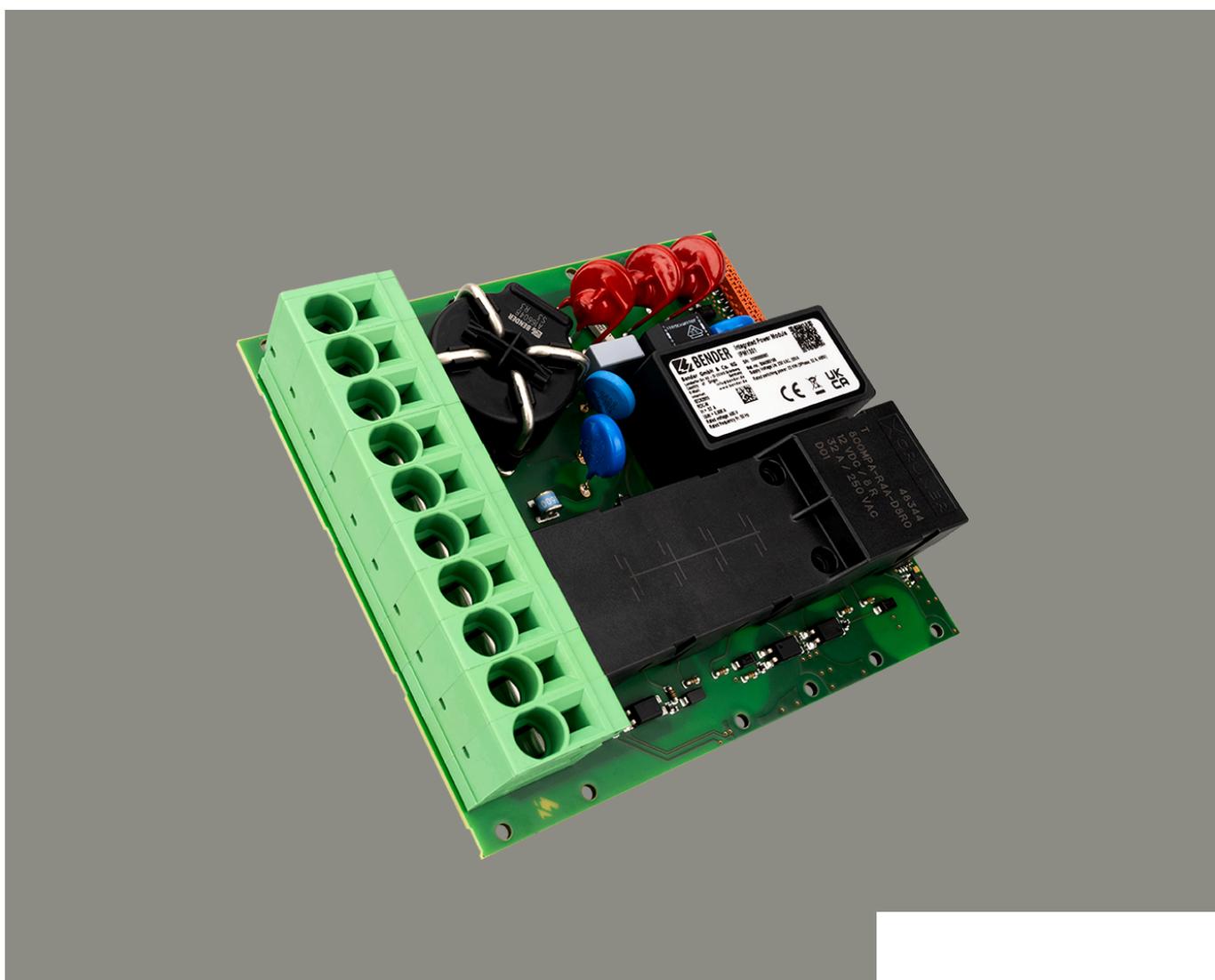


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# IPM1300

Integrated power module for charge controllers





### Device features

- 22 kW power relay
- Surge Protection Device (SPD)
- integrated DC power supply, including a ICC1314 charge controller
- integrated residual current transformer for DC fault current monitoring
- integrated temperature sensors
- 20-pole connector for connection to the charge controller by using a connection cable
- PE monitoring

### Intended use

The IPM1300 integrated power module, referred to as power module in the following, is a component for the set-up of Mode 3 charging stations for electric vehicles (EV). It is intended exclusively for use with Bender charge controllers as an accessory. Any other use than that described in this manual is regarded as improper.

This document is to be used together with the manual D00520 for the following charge controllers:

Type	Part No.	Link to manual
ICC1314-Connect-Plus-G1	B94060030	
ICC1314- Companion-G1	B94060031	

### Functional description

The power module is an assembly that expands the functional range of the charge controller. The assembly combines many individual components of a Mode 3 charging unit.

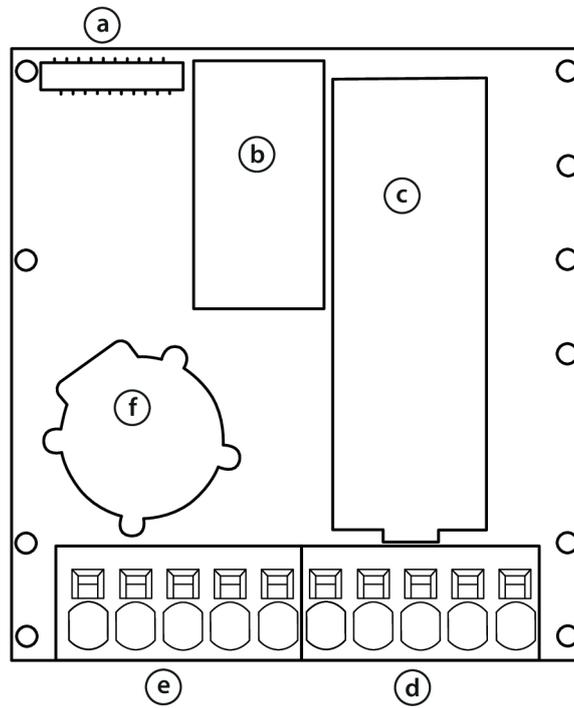
A connection to the charge controller via a 20 pole connection cable, enables the power module to combine important components of an AC charging system that are required by standards according to IEC 61851-1.

The integrated monitoring of the DC residual current means that an RCD type A in the charging system is sufficient.

### General functions

- The IPM1300 contains an integrated DC voltage supply. It is supplied by the AC network connection. The ICC1314 charge controller is supplied with power via a 20 pole connection cable. No separate voltage supply is required.
- The device can be used for charging systems with up to 22 kW of charging capacity. The charge controller controls the charging process in the charging system and thereby the main relay of the power module.
- The signal of the integrated residual current transformer is evaluated by the charge controller. The measuring current transformer and charge controller together form a 6 mA DC residual current detecting device according to IEC 62955. (*Reference to chapter "DC residual current monitoring module (RDC-M)" in the ICC1314 manual*)
- The residual current transformer is connected in such a way that monitoring of the PE connection in the direction of the infrastructure is possible. No additional wiring is required on the charge controller.
- To monitor the 3-phase system, the power module provides the charge controller with information about faults in the rotating field. Further evaluation takes place in the charge controller.
- The device supplements the charge controller with additional temperature sensors for recording the current PCB temperature. Based on these, the charge controller can adjust the charge current depending on the temperature.
- The power module supplements the charge controller with a three-phase switching element. It is activated by a control signal from the charge controller.
- A normatively required monitoring of the Weld Check is integrated in the power module. The evaluation takes place in the charge controller.

**View of device**

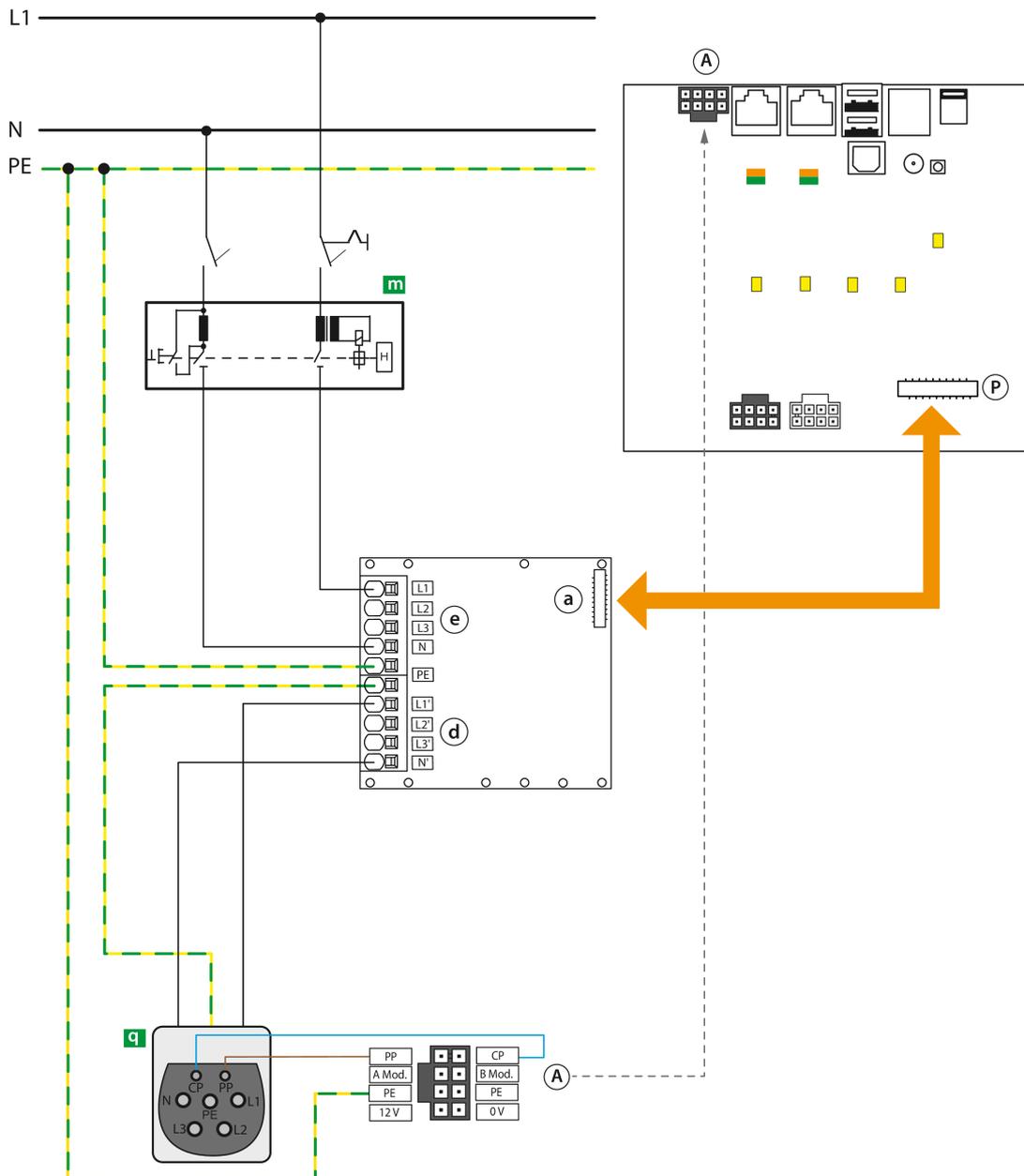


- a Charge controller connection, 20 pole
- b 12 V power supply unit
- c Main relay
- d Connection, type 2 connector
- e AC network connection
- f Measuring current transformer

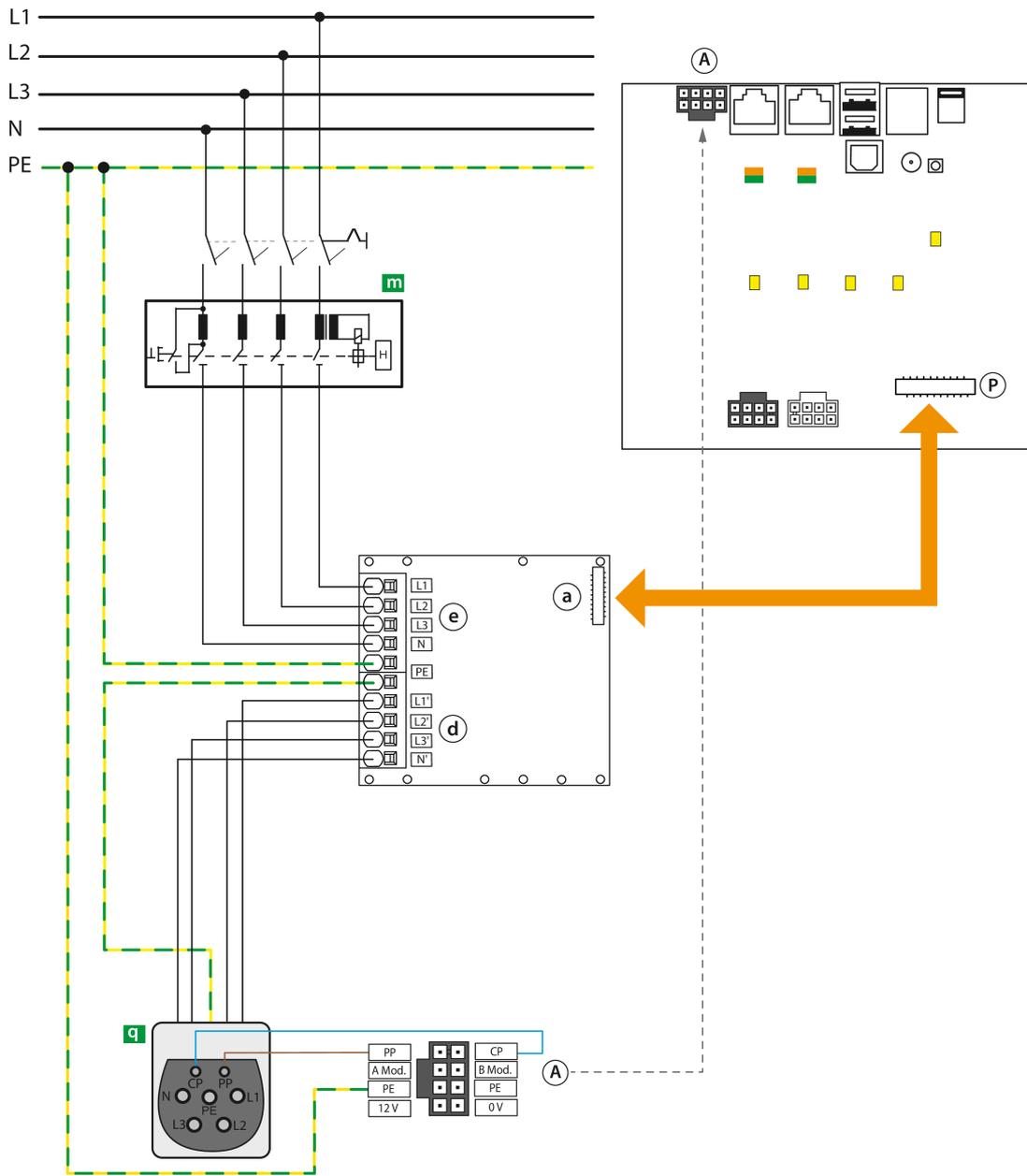
### Connection type 2 plug

The following wiring diagrams illustrate the wiring options of the power module to the ICC1314 charge controller.

#### Single phase connection



**Three phase connection**



**Legend for both connection options**

A*	12 V, PE, Modbus meter, CP, PP (Molex Nano-Fit 105310-3508)	d	Connection type 2 connector
P*	Connection integrated power module (IPM) 20-pole	e	AC network connection
		<b>m</b>	RCD Type A
a	Charge controller connection 20 pole	<b>q</b>	Type 2 socket or fixed charging cable

\* Refers to ICC1314

## Technical Data

### Insulation coordination acc. to IEC 60664-1 or IEC 60664-3

Rated voltage	250 V
Overvoltage category (terminal e)	III
Pollution degree	2
Rated impulse voltage	4 kV
Operating altitude	≤ 2000 m above mean sea level

### AC network connection, single-phase / three-phase (terminal block e (L1, L2, L3, N, PE))

Nominal voltage	220...230 V / 400 V
Nominal voltage tolerance	198...253 V / 343...400 V
Nominal voltage tolerance*	208...253 V / 361...440 V
max. Charging current	1 x 32 A / 3 x 32 A
max. Charging power	7.3 kW / 22 kW
Frequency	50 Hz
max. self-consumption	7 W
Short-circuit current carrying capacity	
$I_{nc}$	3 kA
$I^2t$	50 kA <sup>2</sup> s
$I_p$ (IEC 62955)	1.85 kA
$I^2t$ (IEC 62955)	4.5 kA <sup>2</sup> s

\* when using PE monitoring

### Connection, type 2-socket AC single-phase / three-phase (terminal block d (L1, L2, L3, N, PE))

Nominal voltage	230 V / 400 V
max. Charging current	1 x 32 A / 3 x 32 A
max. Charging power	7.3 kW / 22 kW
Frequency	50 Hz

### Cable lengths/ cable types Terminal blocks e and d

Connection type	Push-wire terminal
<b>Connection data*</b>	
rigid/ flexible	2.5...16 mm <sup>2</sup>
flexible with ferrule without plastic sleeve	2.5...16 mm <sup>2</sup>
flexible with ferrule with plastic sleeve	2.5...10 mm <sup>2</sup>
Stripping length	18 mm
Charging cable length max. (terminal d)	< 10 m

\* Depends on the power capacity connected to the power module

### Connection charge controller a

Permissible connection plug/ connector system*	Micromatch
Connection cable length	< 0.3 m

\* can be ordered separately (see chapter "Ordering information", page 6)

- The plug-in system on the IPM board and on the charge controller can withstand 5 plugging cycles.
- The plug on the connection cable is intended for single insertion.

## Environment

Operating temperature -25...+65 °C

### Classification of climatic conditions acc. to IEC 60721

stationary use (IEC 60721-3-3)	3K22
Transport (IEC 60721-3-2)	2K11
Long-term storage (IEC 60721-3-1)	1K21

### Classification of mechanical conditions acc. to IEC 60721

stationary use (IEC 60721-3-3)	3M11
Transport (IEC 60721-3-2)	2M4
Long-term storage (IEC 60721-3-1)	1M2

## Other

Protection class	IP00
Weight	ca. 470 g

## Standards and approvals

The IPM1300 has been developed in compliance with the following standards:

- IEC 62955
- DIN EN IEC 61851-1
- DIN EN IEC 61851-21-2
- IEC 61439-1
- DIN EN 61439-7
- IEC 61439-7



## Declarations of conformity

### EU Declaration of conformity

The device is in compliance with the following directives:

- Low Voltage Directive (2014/35/EU)
- Directive on Electromagnetic Compatibility (2014/30/EU)

### UK Declaration of Conformity

The device is in compliance with the following regulations:

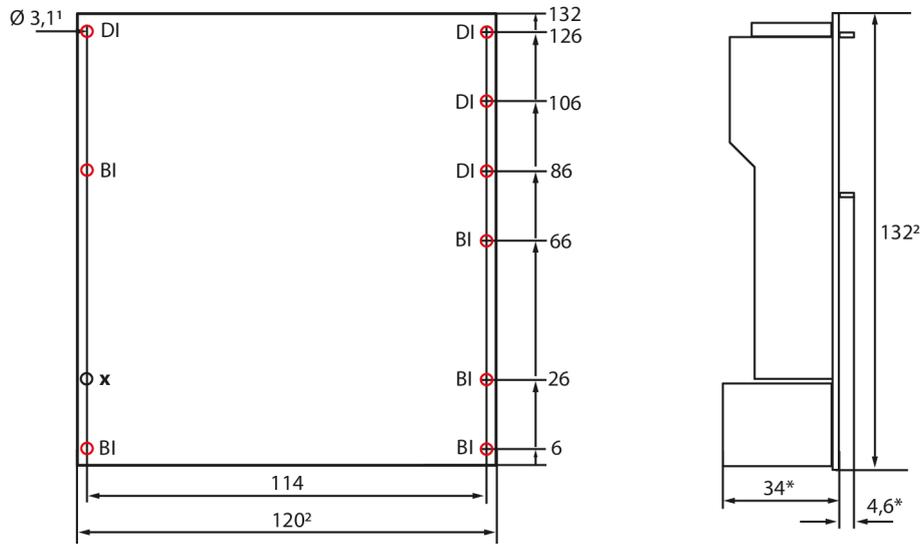
- Electromagnetic Compatibility Regulations 2016
- Electrical Equipment (Safety) Regulations 2016

## Ordering information

Type	Part number	Manual no.
IPM1300	B94060198	D00462

Connection kit	Content / Quantity	Article no.
Connection cable for IPM	Length 0,2 m/ 0,3 m	on request

**Dimension diagram**



Dimensions in mm

\* max.

<sup>1</sup> ± 0.1 mm

<sup>2</sup> ± 0.2 mm - or all other dimensions according to DIN ISO 2768-f

x not recommended, only insulated

**i** Red markings: possible fixing points

**i** Recommendation for fastening:

- Pan head screws: 4 x M 2.5
- Torque: 0.36 Nm



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Subject to change!  
The specified standards take into account the  
edition valid until 10.2025 unless otherwise  
indicated.