

# CHARX PS/3AC/500DC/20KW - DC power module



1158272

<https://www.phoenixcontact.com/in/products/1158272>

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CHARX power advanced, Fast charging module for setting up DC charging stations, 19" rack mounting, input: 3-phase, output: 150 V DC...500 V DC / 0 A...66 A



## Product description

The highly efficient power electronics system for rack mounting from Phoenix Contact features a high degree of investment security. It enables the cost-effective operation of your DC charging infrastructure for the fast charging of electric vehicles. The modular and scalable system is optimized for DC charging with high voltages and currents. Each system cabinet can provide a charging power of up to 350 kW.

## Your advantages

- Low installation costs with Plug and Play and efficient operation due to the high degree of efficiency
- Save space with the innovative design and high power density
- Scalable power for each charging point with the flexible assembly of system cabinets and connection of power modules
- The operation of large charging parks in the megawatt range is made possible by connecting multiple system cabinets together

## Commercial data

Item number	1158272
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	CMER3E
GTIN	4063151163952
Weight per piece (including packing)	17,500 g
Weight per piece (excluding packing)	16,900 g
Country of origin	CN

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## Technical data

### Input data

#### Digital

Nominal power consumption	22170 VA
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#### AC operation

Input voltage range	3x 340 V AC ... 440 V AC
Input frequency	3x 50 Hz 60 Hz $\pm 10$ %
Input current	3x 32 A (400 V AC) 3x 32 A (400 V AC)
Rated short-time current carrying capacity ( $I_{CW}$ )	10 kA
Rated peak withstand current ( $I_{PK}$ )	17 A
Duration ( $I_{CW}$ )	60 ms
Inrush current limitation	< 5 A (500 V DC)
Short-circuit current rating (SCCR)	10 kA
Power factor (cos phi)	0.99
Total distortion (THDi)	0.02 %
Supply system configuration	Star network (TN, TT, IT (PE))

#### DC operation

Input voltage range	300 V DC ... 600 V DC
Derating	< 350 V DC (60 W/V DC)
Nominal input voltage range	350 V DC ... 500 V DC
Input current	3x 20 A (DC)
Supply system configuration	DC grid

### Output data

Efficiency	> 96.5 % (400 V AC, 50 % < $P_{Out}$ < 100 %) > 97 % (600 V DC, $P_{Out}$ > 50 %)
Output voltage range	150 V DC ... 500 V DC
Output current range	0 A ... 66 A
Nominal power	20 kW
Power dissipation standby	< 5 W
Protection against overvoltage at the output (OVP)	> 550 V DC
Derating	> 45 °C (2.5 %/K)
Control deviation	< 1 % (Current deviation Static load change 20 % ... 100 %) $\pm 0.2$ % (Input voltage change $\pm 20$ %)
Switch-on delay	< 2 s
Overshoot behavior	< 1 % (Switch-on procedure)

### Connection data

#### Input

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Designation	Input
Connection technology	
Position marking	2x L1, 2x L2 (PE), 2x L2, 2x L3 (PE), 2x L3, 2x L1 (PE)
Conductor connection	
Connection method	Push-in connection
rigid	6 mm <sup>2</sup> ... 10 mm <sup>2</sup>
flexible	6 mm <sup>2</sup>
flexible with ferrule without plastic sleeve	6 mm <sup>2</sup>
flexible with ferrule with plastic sleeve	6 mm <sup>2</sup>
rigid (AWG)	10 ... 8 (Cu)
AWG	10
Stripping length	10 mm (rigid/flexible)
	10 mm (Ferrule)

## Output

Designation	Output
Connection technology	
Position marking	1x +/-, 1x +/-, 1x +/-
Conductor connection	
Connection method	Push-in connection
rigid	6 mm <sup>2</sup> ... 10 mm <sup>2</sup>
flexible	6 mm <sup>2</sup>
flexible with ferrule without plastic sleeve	6 mm <sup>2</sup>
flexible with ferrule with plastic sleeve	6 mm <sup>2</sup>
rigid (AWG)	10 ... 8 (Cu)
Stripping length	10 mm (rigid/flexible)
	10 mm (Ferrule)

## Interfaces

### CAN-Bus

Specification	CANopen standard
Interface	CAN bus
Number of interfaces	1
Connection method	2x RJ45
Supported protocols	CAN 2.0B
Locking	Locking clip
Transmission physics	wired
Topology	Daisy Chain
Transmission speed	125 kbps (GCP Protocol)
	500 kbps (BCT Protocol)
	1
Transmission length	max. 20 m

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Termination resistor	120 $\Omega$ (Terminating the end device)
Number of power modules as CAN bus devices	max. 48 (GCP Protocol)
	max. 32 (BCT Protocol)

## Electrical properties

Number of phases	3
Insulation voltage input/output	4240 V DC (Reinforced insulation)
Insulation voltage input, output / housing	2614 V DC (Basic insulation)
Insulation voltage input, output/signal, communication	4242 V DC (Reinforced insulation)
Insulation voltage signal, communication/housing	707 V DC (Basic insulation)

## Product properties

Product type	DC power module
Product family	CHARX power advanced
Volumetric flow	160 m <sup>3</sup> /h (45 °C)
Flow direction	from front to back

## Insulation characteristics

Protection class	I
Pollution degree	2

## Dimensions

### Item dimensions

Width	483 mm
Height	89 mm
Depth	540 mm
Rack unit	2 U

## Mounting

Mounting type	19" rack mounting
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## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 60 °C
Overtemperature protection (OTP)	> 65 °C (Hysteresis 5 K)
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	≤ 95 % (non-condensing)
Noise level	< 65 dB (1 m)

## Standards and regulations

### Overvoltage category

IEC 60664-1	III (AC/DC rectified from < 300 V AC)
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	II (DC)
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## Electric vehicle conductive charging system - Part 1: General requirements

Standard designation	Electric vehicle conductive charging system - Part 1: General requirements
Standards/specifications	IEC 61851-1

## Electric vehicle conductive charging system - Part 21-2: EMC requirements for off board electric vehicle charging systems

Standard designation	Electric vehicle conductive charging system - Part 21-2: EMC requirements for off board electric vehicle charging systems
Standards/specifications	IEC 61851-21-2

## Electric vehicle conductive charging system – Part 23: DC electric vehicle charging station

Standard designation	Conductive charging systems for electric vehicles – Part 23: DC supply equipment for electric vehicles
Standards/specifications	IEC 61851-23

## Safety requirements for power electronic converter systems and equipment - Part 1: General

Standard designation	Safety requirements for power electronic converter systems and equipment - Part 1: General
Standards/specifications	IEC 62477-1

## Standard for Safety for Electric Vehicle (EV) Charging System Equipment

Standard designation	Standard for Safety for Electric Vehicle (EV) Charging System Equipment
Standards/specifications	UL 2202

## Power conversion equipment

Standard designation	Power conversion equipment
Standards/specifications	CSA C22.2 No. 107.1-16

## EMC data

EMC requirements for noise emission	EN 61000-6-3
EMC requirements for noise immunity	EN 61000-6-2

# CHARX PS/3AC/500DC/20KW - DC power module

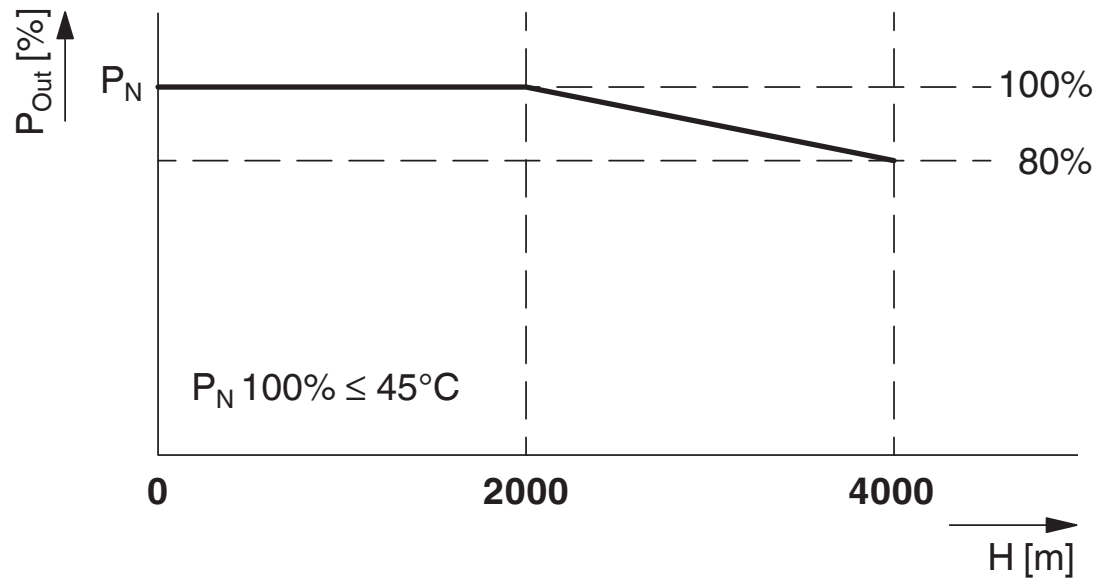


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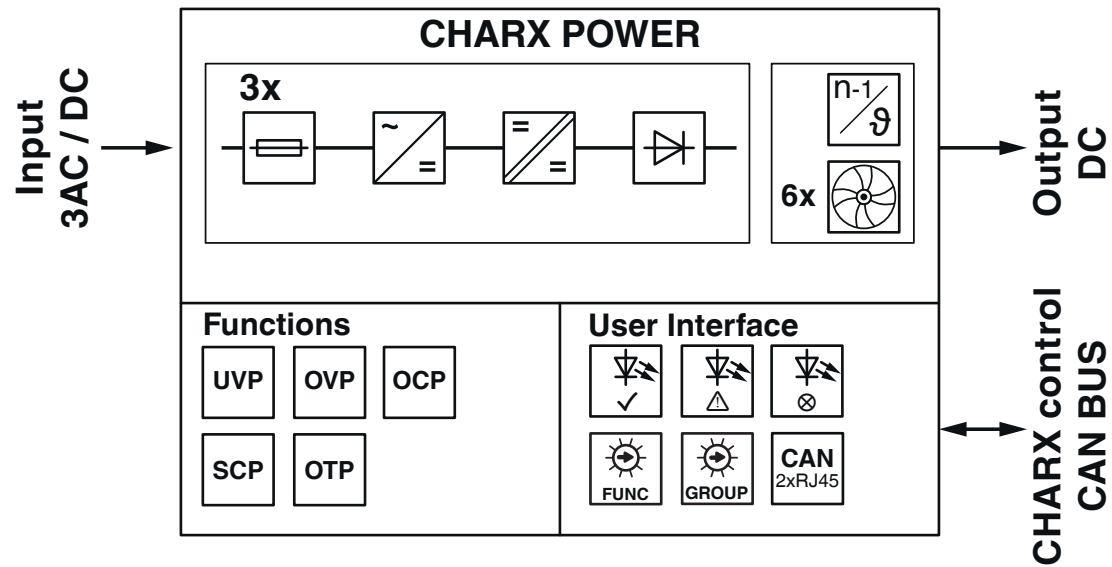
<https://www.phoenixcontact.com/in/products/1158272>

## Drawings

Diagram

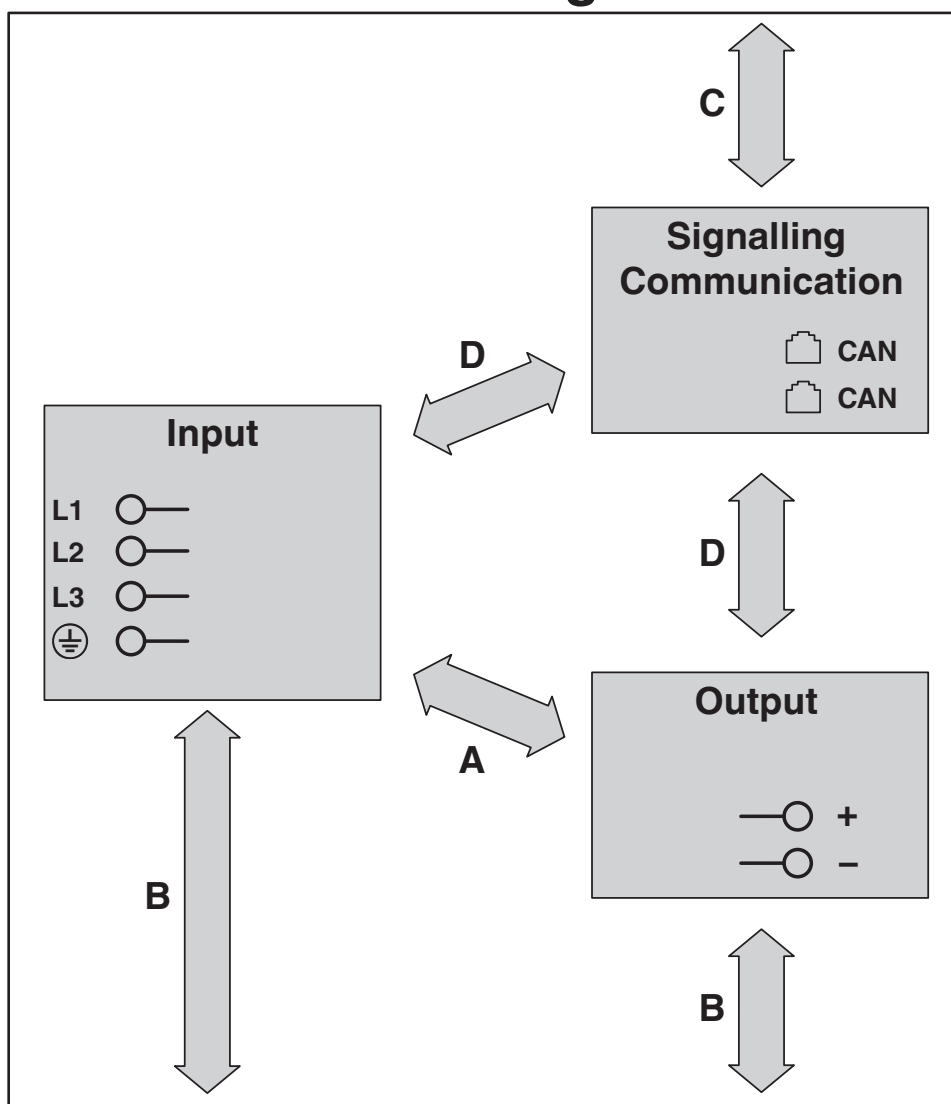


Block diagram



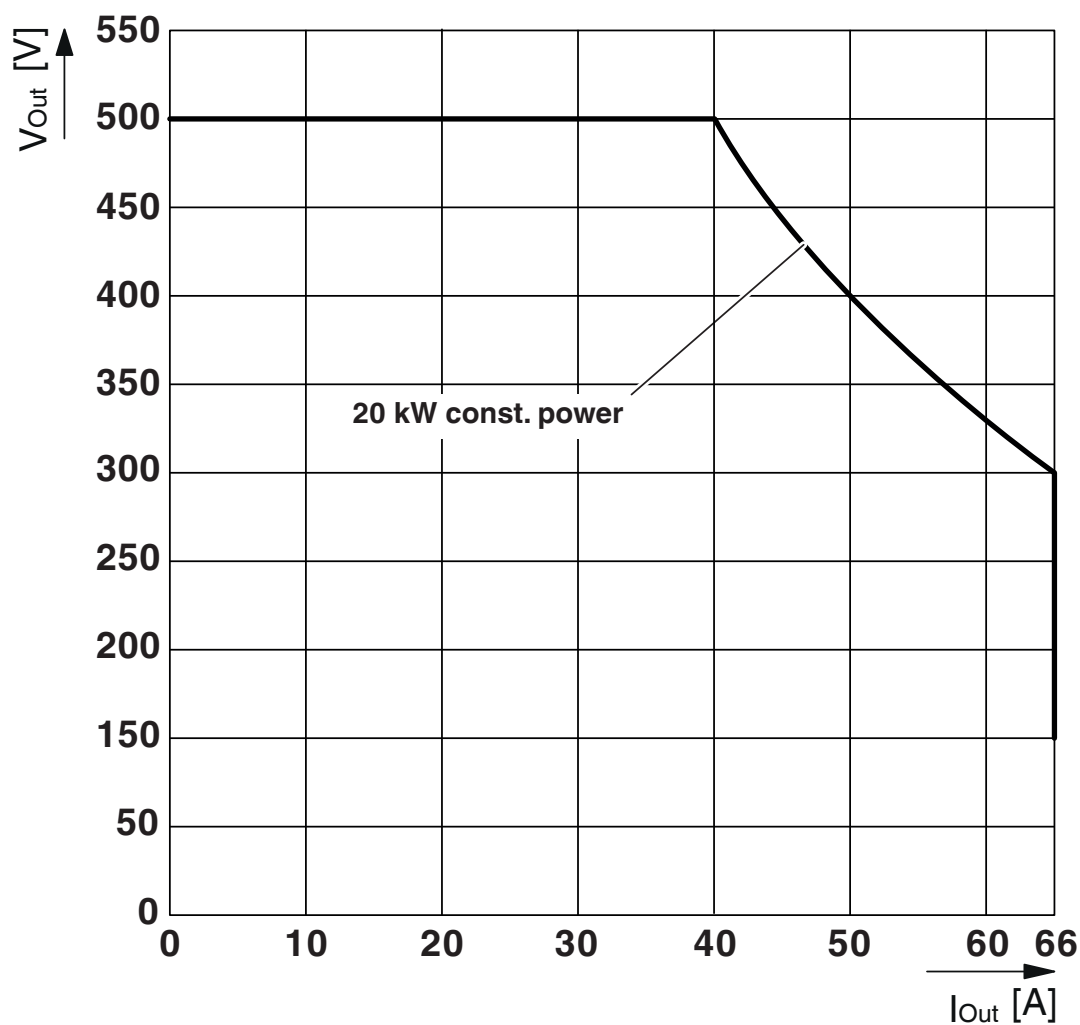
Schematic diagram

## Housing



Diagram

## CHARX PS-3AC/500DC/20kW





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## Approvals

📄 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/in/products/1158272>



**EAC**

Approval ID: RU\*DE\*01.B.02076/21

**TÜV SÜD cUS**

Approval ID: U10 029429 0032



**IECEE CB Scheme**

Approval ID: DE 3 A0030

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## Classifications

### ECLASS

ECLASS-11.0	27040701
ECLASS-13.0	27040701

### ETIM

ETIM 9.0	EC002540
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I
China RoHS	
Environment friendly use period (EFUP)	EFUP-25
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)

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## Accessories

### EV-PLCC-AC1-DC1 - DC charging controller

1624130

<https://www.phoenixcontact.com/in/products/1624130>



Programmable charging controller for DC and AC charging of electric vehicles in accordance with IEC 61851-1,-23, DIN SPEC 70121, and CHAdeMO, with integrated cellular modem

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### EV-T2M4CC-DC250A-5,0M70ESBK11 - DC charging cable

1107339

<https://www.phoenixcontact.com/in/products/1107339>



CHARX connect standard, CCS type 2, DC charging cable, up to 500 A in Boost mode, 250 A Permanent, 1000 V DC, with vehicle charging connector and open cable end, cable: 5 m, black, straight, with connected PP contact, with replaceable mating face frame, with analog temperature sensors, PHOENIX CONTACT logo, IEC 62196-3, for charging electric vehicles (EV) with direct current (DC)

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## EV-T1G2CC-DC200A-5,0M1ASBK11 - DC charging cable

1051695

<https://www.phoenixcontact.com/in/products/1051695>



CHARX connect standard, CCS type 1, DC charging cable, up to 500 A in Boost mode, 200 A Permanent, 1000 V DC, with vehicle charging connector and open cable end, cable: 5 m, black, straight, with charging connector holder, with analog temperature sensors, PHOENIX CONTACT logo, SAE J1772, IEC 62196-3, for charging electric vehicles (EV) with direct current (DC)

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## EEM-PM157-SLP - Measuring device

1269236

<https://www.phoenixcontact.com/in/products/1269236>



Direct current energy meter with direct measurement up to 1000 V / 650 A, with RS-485 interfaces for the programming software and the DC charging controller, correction of charging cable losses, operating temperature up to +80°C, certified in accordance with measuring and calibration law

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## EV-RFID-ELT-IP65 - RFID device

1309687

<https://www.phoenixcontact.com/in/products/1309687>



CHARX control modular, RFID device, for connection to CHARX control modular AC charging controllers, in housing

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## WP 6185-WHPS - Web panel

1290807

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IP66 Touch panel with 18.5-inch widescreen (16:9) HD, PCAP display, Software: Qt Browser

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## RIF-1-BPT/2X21 - Relay base

2900931

<https://www.phoenixcontact.com/in/products/2900931>



Relay base RIF-1..., for miniature power relay with 1 or 2 changeover contacts or solid-state relays of the same design, Push-in connection, plug-in option for input/interference suppression modules, for mounting on NS 35/7,5

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