

# STEP3-PS/1AC/5DC/3/PT/USB-C - Power supply unit



1335698

<https://www.phoenixcontact.com/gb/products/1335698>

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Primary-switched power supply unit, STEP POWER, Push-in connection, DIN rail or direct mounting, Integrated cable groove with strain relief, input: 1-phase, output: 5 V DC / 3 A, USB-C up to 15 W

## Product description

STEP POWER power supplies for distribution boards. The STEP POWER power supplies with Push-in connection technology are the professional solution for intelligent building automation. The compact devices are economical, space-saving, and flexible in application.

## Your advantages

- Energy savings with the highest level of efficiency in no-load and part-load operation (Efficiency Level VI)
- Space savings in the control cabinet due to the narrow design combined with increased performance (up to 100%)
- Approval for household purposes (EN 60335) allows use in domestic applications
- Quick and easy startup with tool-free Push-in connection technology at a 45° angle with double terminal points
- Flexible mounting: Snap onto a DIN rail or screw onto a level surface

## Commercial data

Item number	1335698
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CMPH11
Product key	CMPH11
GTIN	4063151635381
Weight per piece (including packing)	95.5 g
Weight per piece (excluding packing)	95 g
Customs tariff number	85044095
Country of origin	VN

## Technical data

### Input data

#### AC operation

Supply system configuration	Star network (TN, TT, IT (PE))
Input voltage range	100 V AC ... 240 V AC -15 % ... +10 %
Typical national grid voltage	120 V AC 230 V AC
Voltage type of supply voltage	AC/DC
Inrush current	typ. 30 A (25 °C)
Inrush current integral ( $I^2t$ )	typ. 0.14 A <sup>2</sup> s
Frequency range ( $f_N$ )	50 Hz ... 60 Hz $\pm$ 10 %
Mains buffering time	typ. 18 ms (120 V AC) typ. 80 ms (230 V AC)
Current consumption	0.3 A (100 V AC) 0.14 A (240 V AC)
Switch-on time	typ. 2 s
Device mains fuse	1.25 A internal (device protection), slow-blow
Recommended breaker for input protection	6 A ... 16 A (Characteristics B, C, D, K)
Discharge current to PE	< 0.25 mA

#### DC operation

Input voltage range	110 V DC ... 250 V DC -20 % ... +10 %
Current consumption	0.17 A (110 V DC) 0.07 A (250 V DC)

### Output data

Efficiency	> 81.5 % (120 V AC) > 82 % (230 V AC)
Nominal output voltage	5 V DC
Nominal output current ( $I_N$ )	3 A
Short-circuit-proof	yes
No-load proof	yes
Derating	> 50 °C ... 70 °C (2 % / K)
Crest factor	typ. 3.3 typ. 4.2
Output power ( $P_N$ )	15 W
Connection in parallel	yes, for increasing power and redundancy with diode
Connection in series	yes, for increased output voltage
Feedback voltage resistance	$\leq$ 10 V DC
Protection against overvoltage at the output (OVP)	< 10 V DC
Residual ripple	typ. 80 mV <sub>PP</sub> < 1.5 % (Static load change 10 % ... 90 %)

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Control deviation	< 5 % (Dynamic load change 10 % ... 90 %, (10 Hz))
	< 0.1 % (change in input voltage $\pm 10$ %)
Rise time	typ. 100 ms ( $U_{Out} = 10$ % ... 90 %)
Minimum no-load power dissipation	< 0.1 W (120 V AC)
Maximum no-load power dissipation	< 0.1 W (230 V AC)
Minimum nominal load power dissipation	< 3.4 W (120 V AC)
Power loss nominal load max.	< 3.2 W (230 V AC)

## Connection data

### Input

Position	1.x
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### Connection technology

Position marking	1.1, 1.2 (L), 1.3, 1.4 (N)
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### Conductor connection

Connection method	Push-in connection
rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> 1 mm <sup>2</sup> (recommended)
flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> 1 mm <sup>2</sup> (recommended)
flexible with ferrule without plastic sleeve	0.5 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> 1 mm <sup>2</sup> (recommended)
flexible with ferrule with plastic sleeve	0.2 mm <sup>2</sup> ... 1 mm <sup>2</sup> 1 mm <sup>2</sup> (recommended)
rigid (AWG)	24 ... 14 (Cu) 17 (recommended)
Stripping length	10 mm (rigid/flexible) 13 mm (Ferrule with plastic sleeve)

### Output

Position	2.x
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### Connection technology

Position marking	2.1 (USB-C)
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## Signaling

### LED signaling

Types of signaling	LED
Signal threshold	> 0.9 x $U_N$ ( $U_N = 5$ V DC) (LED lights up green) < 0.9 x $U_N$ ( $U_N = 5$ V DC) (LED off)

## Electrical properties

Number of phases	1.00
Insulation voltage input/output	4 kV AC (type test)

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	3.75 kV AC (routine test)
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## Product properties

Product type	Power supply
Product family	STEP POWER
MTBF (IEC 61709, SN 29500)	> 2370000 h (25 °C)
	> 1124000 h (40 °C)
	> 643000 h (50 °C)
Environmental protection directive	RoHS Directive 2011/65/EU
	WEEE
	Reach

## Insulation characteristics

Protection class	II (in closed control cabinet)
Degree of pollution	2

## Dimensions

### Item dimensions

Width	18 mm
Height	90 mm
Depth	61 mm
	55 mm (Device depth (DIN rail mounting))

### Dimensional drawing



Horizontal pitch	1 Div. (DIN 43880)
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### Installation dimensions

Installation distance right/left	0 mm / 0 mm
Installation distance top/bottom	30 mm / 30 mm

## Mounting

Mounting type	DIN rail or direct mounting
Assembly instructions	alignable: 0 mm horizontally, 30 mm vertically
Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	No

## Material specifications

Flammability rating according to UL 94	V0 (Housing, terminal blocks, base latches)
Housing material	Plastic

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Foot latch material	Polyamid
Housing material	Polycarbonate

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-10 °C ... 70 °C (Derating: > 50 °C; 2 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Ambient temperature (start-up type tested)	-25 °C
Maximum altitude	≤ 4000 m (> 2000 m, Derating: 10 %/1000 m)
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Shock (operation)	18 ms, 30g, per spatial direction (IEC 60068-2-27)
Vibration (operation)	< 15 Hz, amplitude ±2.5 mm (IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g, 90 min.

## Standards and regulations

### Overvoltage category

EN 61010-1	II (≤ 4000 m)
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### Overvoltage category

EN 62477-1	III (≤ 2000 m)
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### Electrical safety

Standard designation	Electrical safety
Standards/specifications	IEC 61010-1 (SELV)

### Protective extra-low voltage

Standard designation	Protective extra-low voltage
Standards/specifications	IEC 61010-1 (SELV) IEC 61010-2-201 (PELV)

### Safe isolation

Standard designation	Safe isolation
Standards/specifications	IEC 61558-2-16

### Low-voltage power supplies, DC output

Standard designation	Low-voltage power supplies, DC output
Standards/specifications	EN 61204-3

### Safety requirements for electrical equipment for measurement, control, and laboratory use

Standard designation	Safety requirements for electrical equipment for measurement, control, and laboratory use
Standards/specifications	IEC 61010-1

### Household and similar electrical appliances - Safety

Standard designation	Safety of electrical devices for household use and similar purposes
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Standards/specifications	DIN EN 60335-1
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## Approvals

UL

Identification	UL 1310 Class 2 Power Units
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UL

Identification	UL/C-UL Listed UL 61010-1
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UL

Identification	UL/C-UL Listed UL 61010-2-201
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UL

Identification	UL/C-UL Listed ANSI/UL 121201 Class I, Division 2, Groups A, B, C, D (Hazardous Location)
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## EMC data

Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Interference emission	Interference emission in accordance with EN 61000-6-3 (residential and commercial) and EN 61000-6-4 (industrial)
Noise immunity	Immunity in accordance with EN 61000-6-2 (industrial)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 55016
	EN 61000-6-3 (Class B)
Noise emission	EN 55016
	EN 61000-6-3 (Class B)

## Harmonic currents

Standards/regulations	EN 61000-3-2
	EN 61000-3-2 (Class A)

## Flicker

Standards/regulations	EN 61000-3-3
Frequency range	0 kHz ... 2 kHz

## Electrostatic discharge

Standards/regulations	EN 61000-4-2
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## Electrostatic discharge

Contact discharge	6 kV (Test Level 3)
Discharge in air	8 kV (Test Level 3)
Comments	Criterion A

## Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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## Electromagnetic HF field

Frequency range	80 MHz ... 1 GHz
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Test field strength	10 V/m (Test Level 3)
Frequency range	1 GHz ... 6 GHz
Test field strength	10 V/m (Test Level 3)
Comments	Criterion A

## Fast transients (burst)

Standards/regulations	EN 61000-4-4
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## Fast transients (burst)

Input	asymmetrical 2 kV (Test Level 3)
Output	asymmetrical 2 kV (Test Level 3)
Comments	Criterion A

## Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
Input	symmetrical 2 kV (Test Level 4) asymmetrical 4 kV (Test Level 4)
Output	symmetrical 1 kV (Test Level 3) asymmetrical 2 kV (Test Level 3)
Comments	Criterion A

## Conducted interference

Standards/regulations	EN 61000-4-6
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## Conducted interference

Input/Output	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)

## Voltage dips

Standards/regulations	EN 61000-4-11
Voltage	230 V AC
Frequency	50 Hz
Voltage dip	70 %
Number of periods	25 periods
Additional text	Class 3
Comments	Criterion A
Voltage dip	40 %
Number of periods	10 periods
Additional text	Class 3
Comments	Criterion A
Voltage dip	0 %
Number of periods	1 period
Additional text	Class 3
Comments	Criterion A

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## Criteria

Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.
Criterion C	Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by actuating the operating elements.



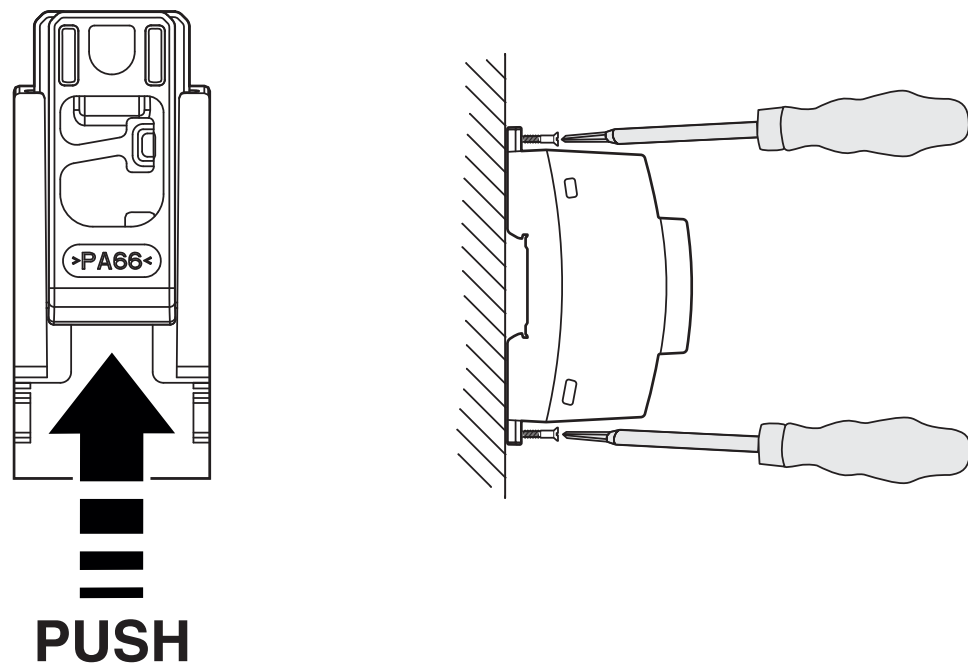
# STEP3-PS/1AC/5DC/3/PT/USB-C - Power supply unit

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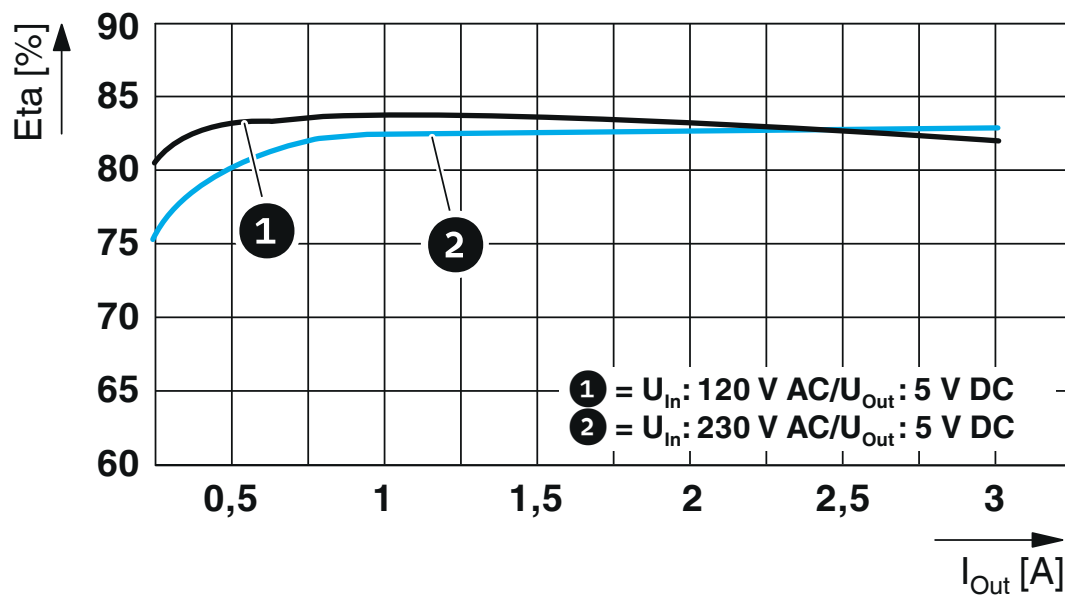
## Drawings

### Schematic diagram



### Mounting option

### Diagram



### Efficiency

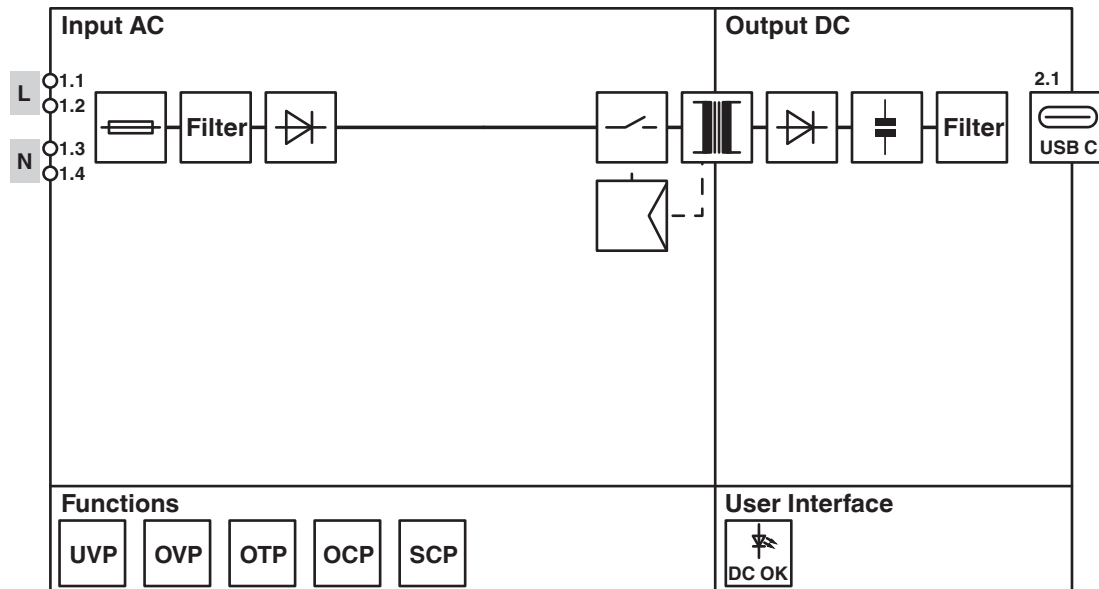
# STEP3-PS/1AC/5DC/3/PT/USB-C - Power supply unit



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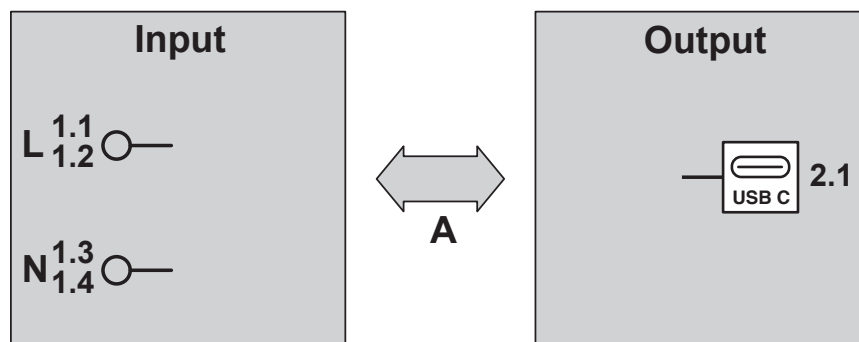
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Block diagram

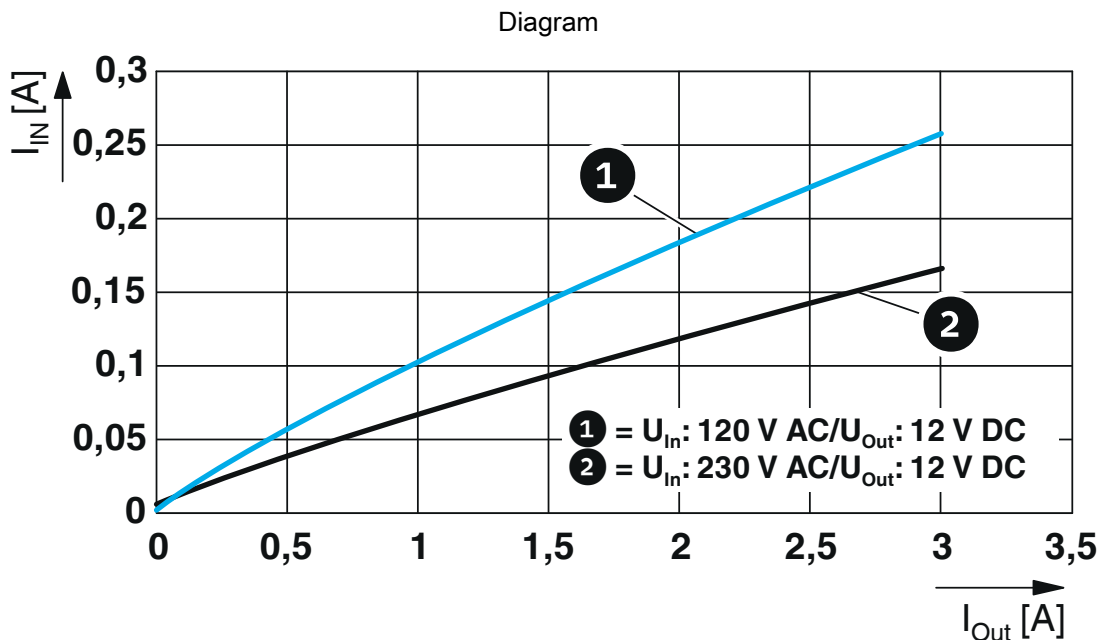


Block diagram

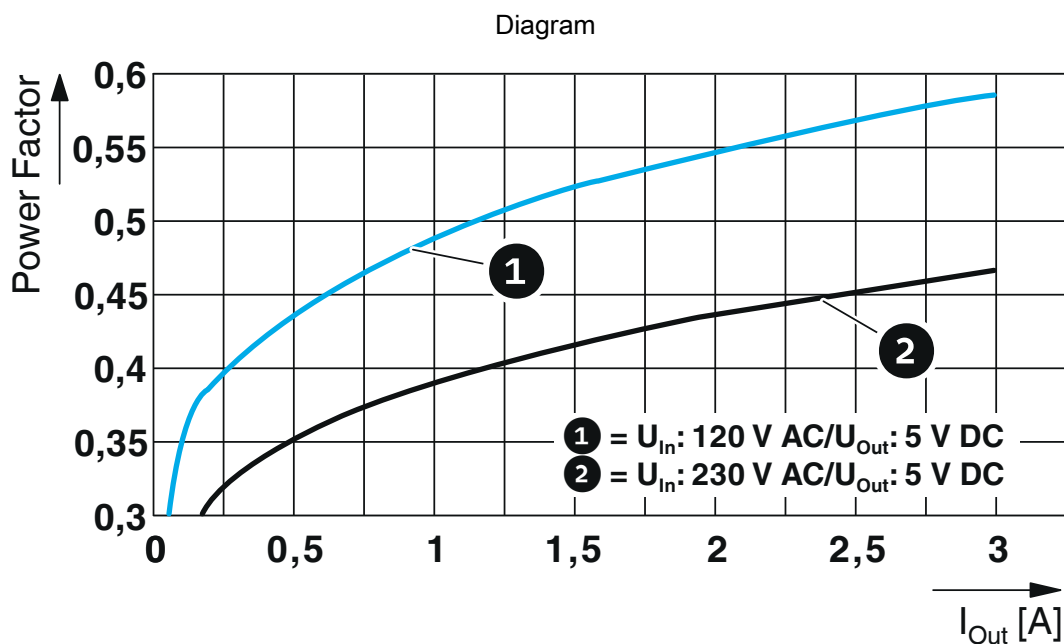
Schematic diagram



Test sections, insulation voltage



Input current/output current



Power factor

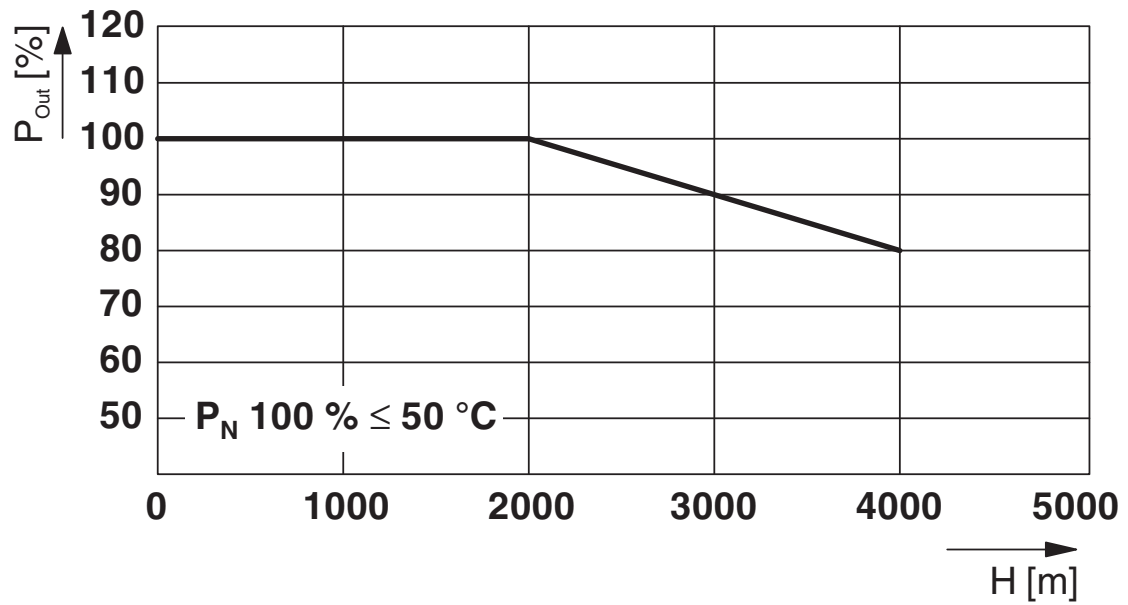
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Diagram



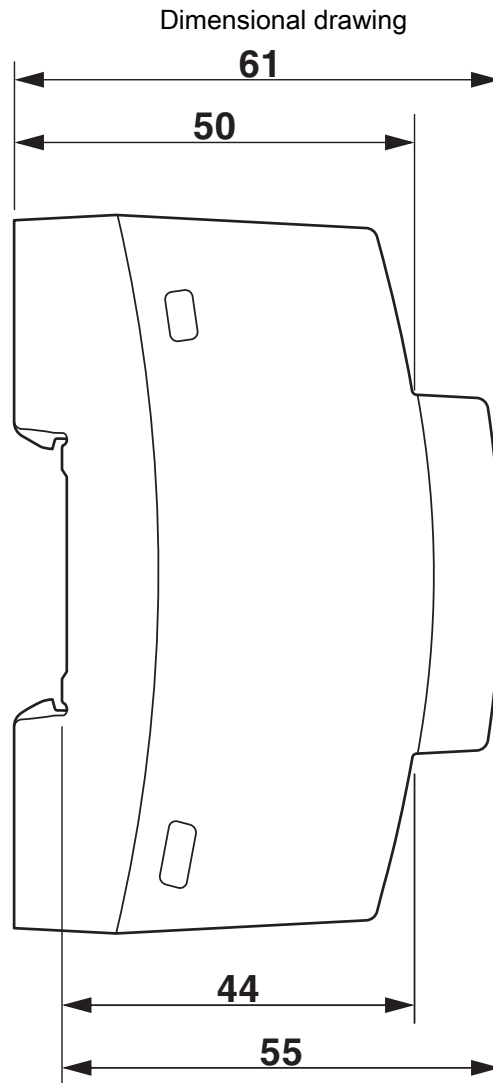
Output power/installation altitude

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Device dimensions (dimensions in mm)

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## Approvals

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**cULus Listed**

Approval ID: FILE E 123528



**cULus Listed**

Approval ID: FILE E 199827

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## Classifications

### ECLASS

ECLASS-13.0	27040701
ECLASS-11.0	27040701

### ETIM

ETIM 9.0	EC002540
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## Environmental product compliance

REACH SVHC

Lead 7439-92-1



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## Accessories

### RPI-BC 107,6 DEV-KIT KMGY - Electronic housing

2202874

<https://www.phoenixcontact.com/gb/products/2202874>



DIN rail housing for Raspberry Pi computers (suitable for Raspberry Pi A+, B+, B2, B3, B4); set consisting of lower part, upper part, cover, and PCB retainer; housing according to DIN 43880

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### RPI-BC 107,6 EXT DEV-KIT KMGY - Electronic housing

1107460

<https://www.phoenixcontact.com/gb/products/1107460>



DIN rail housing for Raspberry Pi computers (suitable for Raspberry Pi A+, B+, B2, B3, B4); set consisting of lower part, upper part, cover, perfboard, and holder for connecting the HBUS and GPIO strip; housing in accordance with DIN 43880

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