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

1170954

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Primary-switched power supply unit, STEP POWER, Push-in connection, Push-in connection, DIN rail mounting, input: 1-phase, output: 5 V DC / 3 A

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

Order Key	1170954
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	CMP
Product Key	CMPH11
GTIN	4063151195915
Weight per Piece (including packing)	92.5 GRM
Weight per Piece (excluding packing)	82.9 GRM
Customs tariff number	85044030
Country of origin	VN

Technical Data

Input data

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^2s
Frequency range (f_N)	50 Hz ... 60 Hz ±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)
Protective circuit	Transient surge protection; Varistor
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
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	> 82 % (120 V AC)
	> 82.5 % (230 V AC)
Efficiency Level	VI
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
	typ. 4.2
Connection in parallel	yes, for increasing power and redundancy with diode
Connection in series	yes, for increased output voltage
Feedback voltage resistance	≤ 10 V DC
Protection against overvoltage at the output (OVP)	< 10 V DC
Residual ripple	typ. 150 mV_{PP}
Control deviation	< 1.5 % (Static load change 10 % ... 90 %)
	< 5 % (Dynamic load change 10 % ... 90 %, (10 Hz))
	< 0.1 % (change in input voltage ±10 %)

Rise time	typ. 100 ms (U_{Out} = 10 % ... 90 %)
Minimum no-load power dissipation	< 0.1 W (120 V AC)
Maximum power dissipation in no-load condition	< 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

Conductor connection

Connection method	Push-in connection
rigid	0.2 mm² ... 2.5 mm²
flexible	0.2 mm² ... 2.5 mm²
flexible with ferrule without plastic sleeve	0.5 mm² ... 2.5 mm²
flexible with ferrule with plastic sleeve	0.2 mm² ... 1 mm²
rigid (AWG)	24 ... 14 (Cu)
Stripping length	10 mm

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Stripping length	10 mm

Input

Connection method	Push-in connection
Conductor cross section solid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Flexible conductor cross section (ferrule with plastic sleeve)	0.2 mm² ... 1 mm²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.5 mm² ... 2.5 mm²
Conductor cross section AWG	24 ... 14 (Cu)
Stripping length	10 mm

Output

Connection method	Push-in connection
Conductor cross section solid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Flexible conductor cross section (ferrule with plastic sleeve)	0.2 mm² ... 1 mm²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.5 mm² ... 2.5 mm²
Conductor cross section AWG	24 ... 14 (Cu)
Stripping length	10 mm

LED signaling

Types of signaling	LED
U_{Out}	> 0.9 x U_N (U_N = 5 V DC) (LED lights up green)

Electrical properties

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

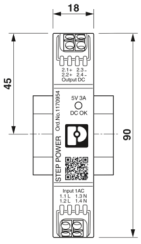
Product properties

MTBF (IEC 61709, SN 29500)	> 2746000 h (25 °C)
	> 1439000 h (40 °C)
	> 913000 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

Dimensional drawing	
Width	18 mm
Height	90 mm
Depth	55 mm (Device depth (DIN rail mounting))
Horizontal pitch	1 Div. (DIN 43880)

Installation dimensions

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

Mounting

Mounting type	DIN rail mounting
Assembly instructions	alignable: 0 mm horizontally, 30 mm vertically
Mounting position	horizontal DIN rail NS 35, EN 60715

Material specifications

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

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)

Overvoltage category

EN 62477-1	III (≤ 2000 m)

Electrical safety

Standards/specifications	IEC 61010-1 (SELV)

Protective extra-low voltage

Standards/specifications	IEC 61010-1 (SELV)
	IEC 61010-2-201 (PELV)

Safe isolation

Standards/specifications	IEC 61558-2-16

Low-voltage power supplies, DC output

Standards/specifications	EN 61204-3

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

Standards/specifications	IEC 61010-1

Household and similar electrical appliances - Safety

Standards/specifications	DIN EN 60335-1

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

Standards/specifications	IEC 61851-21-2

Approval data

UL

Identification	UL 1310 Class 2 Power Units

UL

Identification	UL/C-UL Listed UL 61010-1

UL

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

UL

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

EMC data

Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 55016
	EN 61000-6-3 (Class B)
Interference emission	Noise emission according to EN 61000-6-3 (residential and commercial) and EN 61000-6-4 (industrial)
Noise emission	EN 55016
	EN 61000-6-3 (Class B)
Noise immunity	EN 61000-6-2:2005

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

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

Electromagnetic HF field

Frequency range	80 MHz ... 1 GHz
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

Fast transients (burst)

Input	asymmetrical 4 kV (Test Level 4)
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

Conducted interference

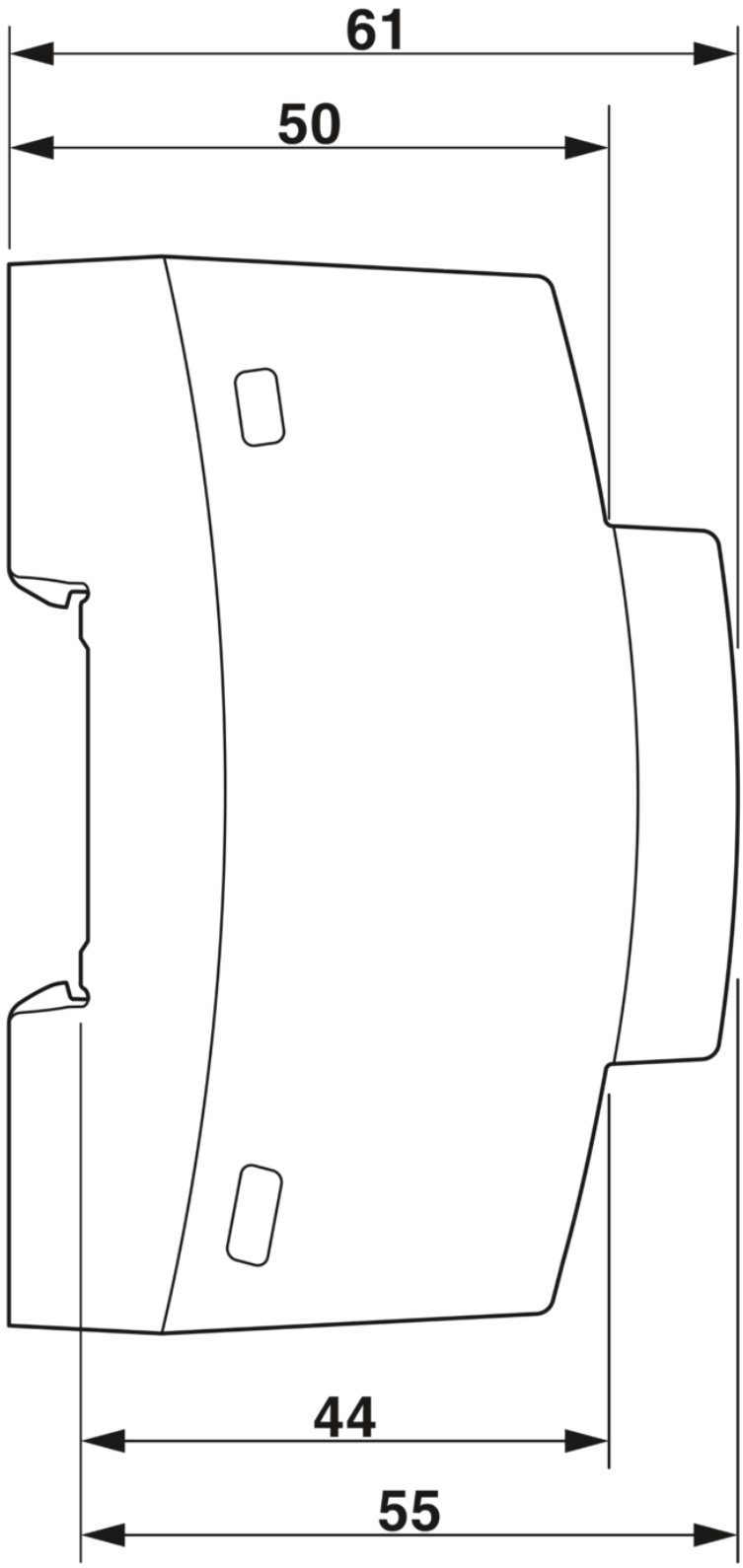
Input/Output	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)

Voltage dips

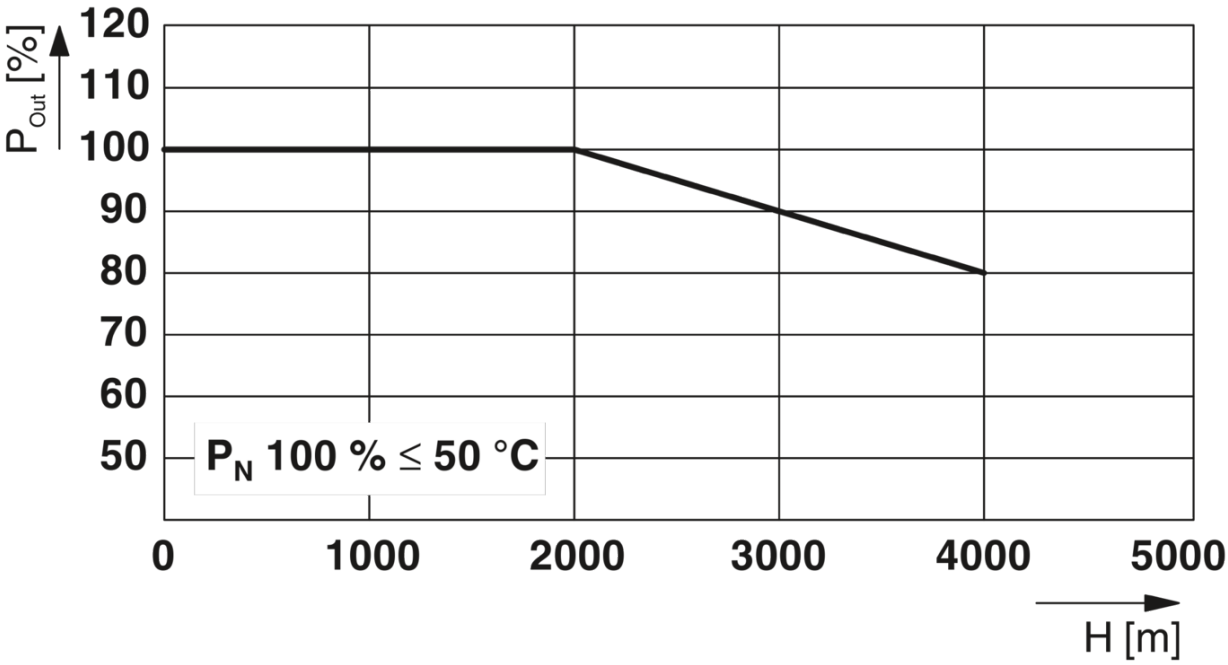
Standards/regulations	EN 61000-4-11
Voltage	230 V AC
Frequency	50 Hz
Voltage dip	70 %
Number of periods	25 periods
Additional text	Class 3
Comments	Criterion A
Voltage dip	40 %
Number of periods	10 periods
Additional text	Class 3
Comments	Criterion A
Voltage dip	0 %
Number of periods	1 period
Additional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

Drawings

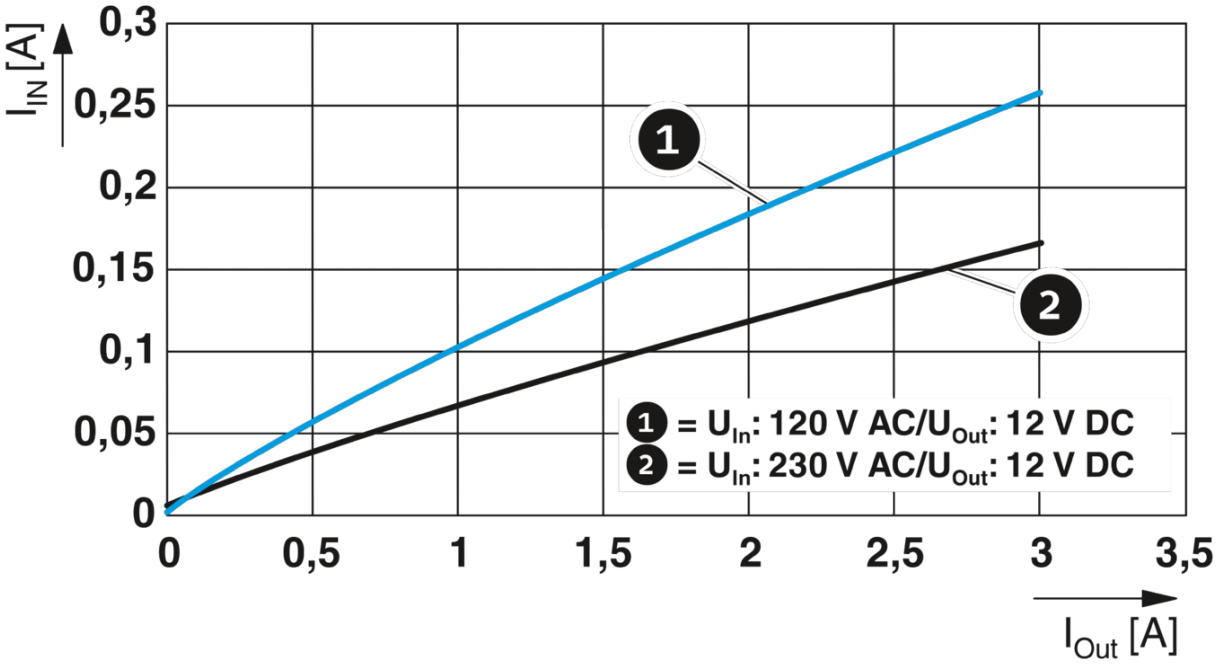
Dimensional drawing



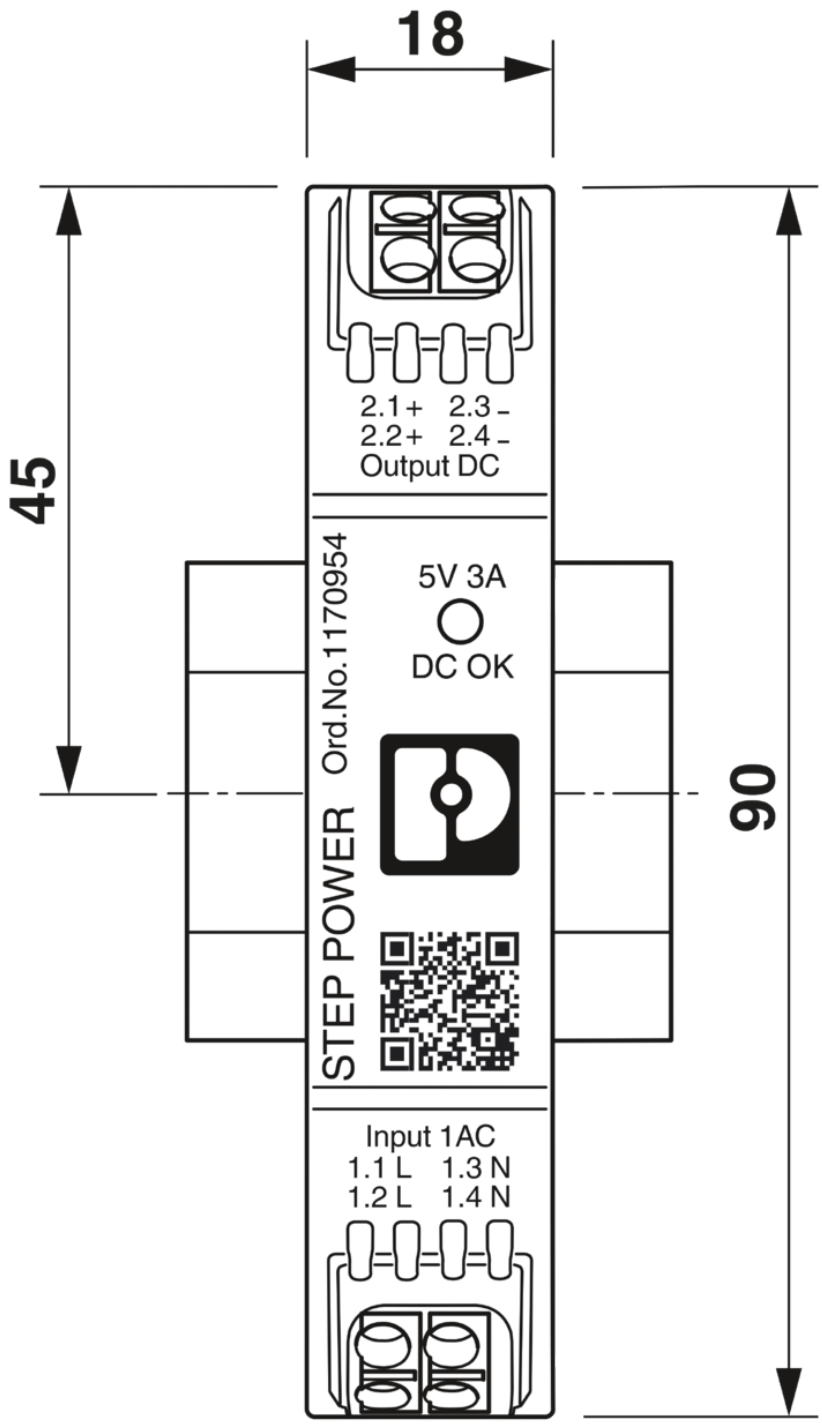
Diagram



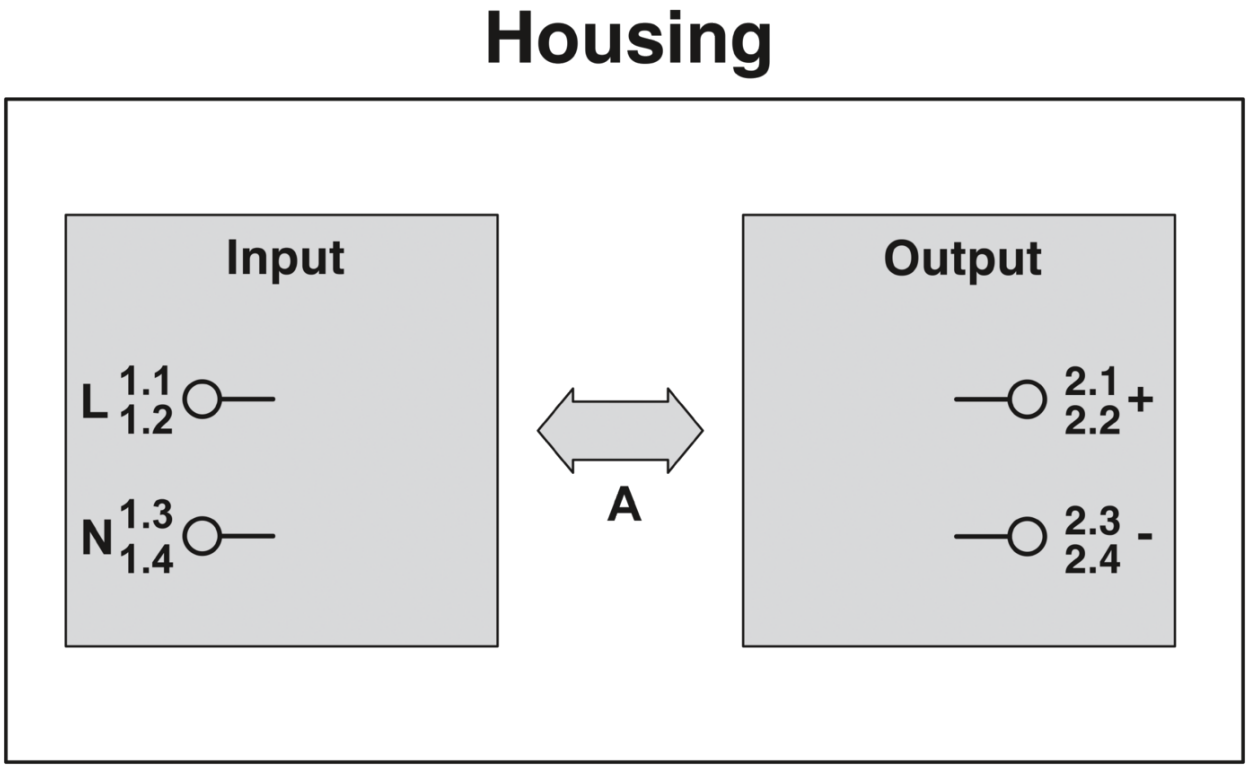
Diagram



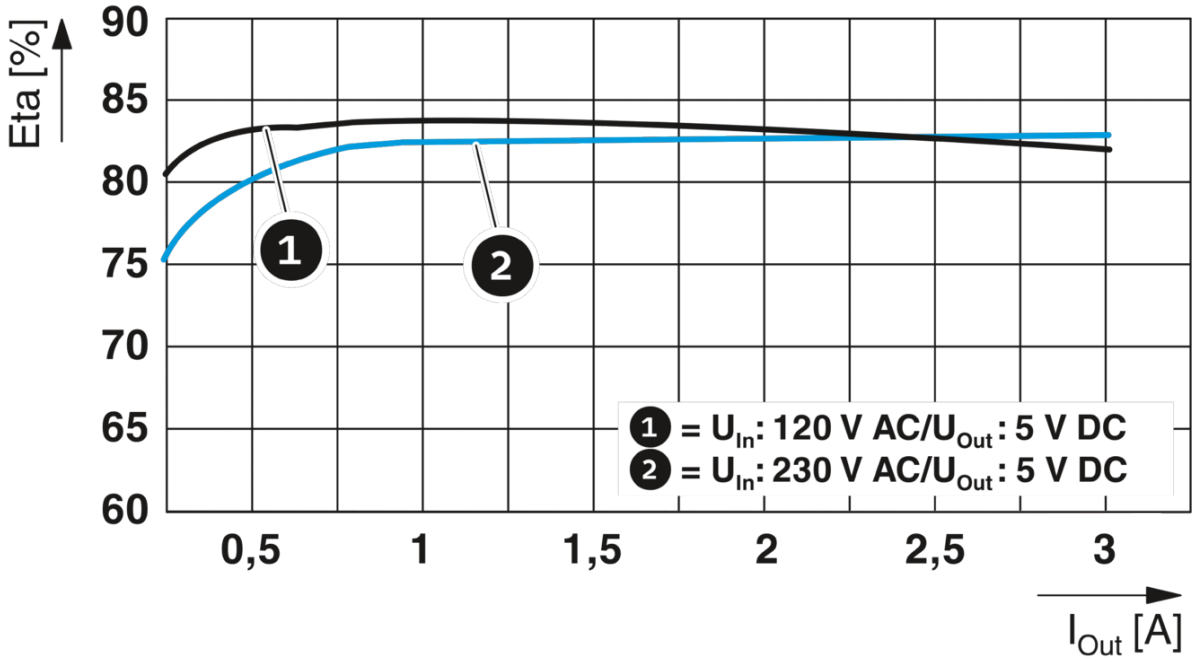
Dimensional drawing



Schematic diagram



Diagram



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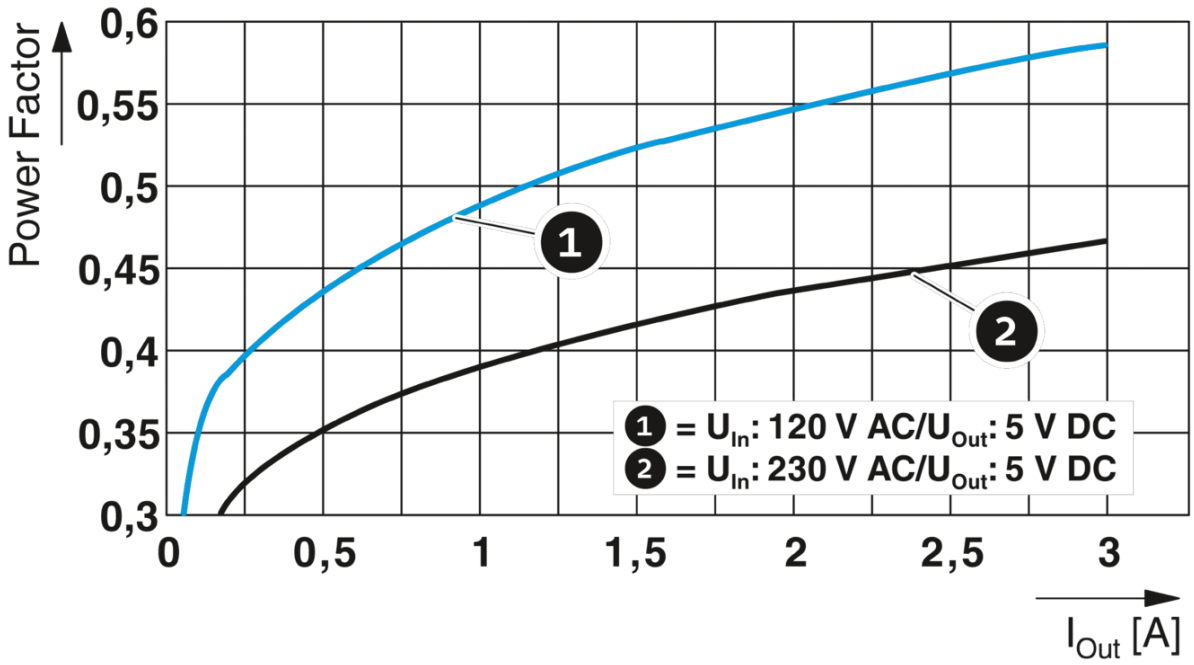
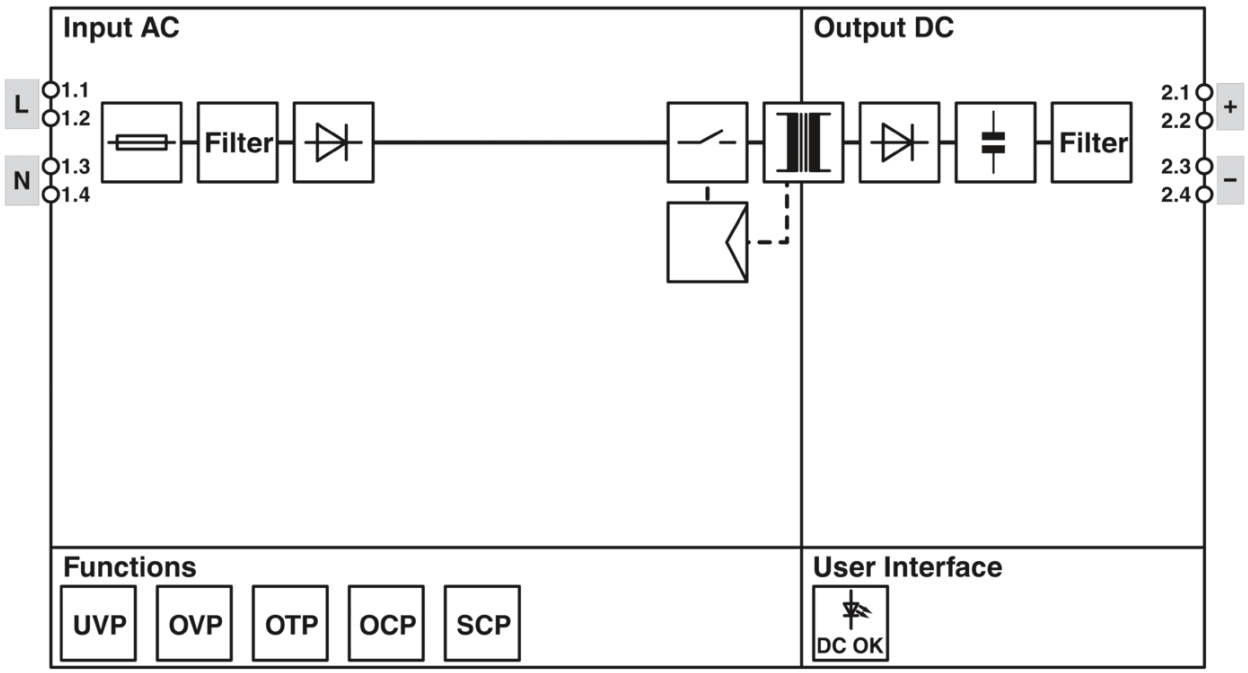


Block diagram



Approvals

IECEE CB Scheme

cULus Listed

EAC

EAC

cULus Listed

Classifications

ECLASS

ECLASS-9.0	27040701
ECLASS-11.0	27040701

Environmental Product Compliance

REACh SVHC	Lead 7439-92-1

Accessories

Electronic housing

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

Electronic housing

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

Redundancy module - STEP-DIODE/5-24DC/2X5/1X10 - 2868606

Redundancy module, 5 ... 24 V DC, 2x 5 A, 1x 10 A

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