

Power supply unit - STEP3-PS/1AC/24DC/2.5/PT - 1088491

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Primary-switched power supply unit, STEP POWER, Push-in connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 2.5 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



Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 890227
GTIN	4055626890227
Weight per Piece (excluding packing)	200.000 g
Weight per piece (including packing)	249.000 g
Custom tariff number	85044030
Country of origin	Vietnam

Technical data

Dimensions

Width	54 mm
Height	90 mm
Depth	61 mm
	55 mm (Device depth (DIN rail mounting))

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Dimensions

Horizontal pitch	3 Div. (DIN 43880)
Installation distance right/left	0 mm / 0 mm
Installation distance top/bottom	30 mm / 30 mm

Ambient temperature (operation)	-10 °C ... 70 °C (Derating: > 50 °C; 2 %/K)
Ambient temperature (start-up type tested)	-25 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Maximum altitude	≤ 4000 m (> 2000 m, Derating: 10 %/1000 m)
Vibration (operation)	< 15 Hz, amplitude ±2.5 mm (according to IEC 60068-2-6)
	15 Hz ... 150 Hz, 2.3g, 90 min.
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Degree of pollution	2
Climatic class	3K3 (EN 60721)
Overvoltage category (EN 61010-1)	II (≤ 4000 m)
Overvoltage category (EN 62477-1)	III (≤ 2000 m)

Input data

Input voltage range	100 V AC ... 240 V AC -15 % ... +10 %
	110 V DC ... 250 V DC -20 % ... +40 %
Derating	< 100 V AC ... 85 V AC (1 %/V)
	< 110 V DC ... 88 V DC (1 %/V)
Frequency range (f _N)	50 Hz ... 60 Hz ±10 %
Typical national grid voltage	120 V AC
	230 V AC
Voltage type of supply voltage	AC/DC
Current consumption	1.2 A (100 V AC)
	0.64 A (240 V AC)
	0.61 A (110 V DC)
	0.26 A (250 V DC)
Discharge current to PE	< 0.25 mA
Mains buffering time	typ. 25 ms (120 V AC)
	typ. 130 ms (230 V AC)
Switch-on time	typ. 2 s
Inrush current	typ. 28 A
Inrush current integral (I ² t)	typ. 0.9 A ² s
Type of protection	Transient surge protection
Protective circuit/component	Varistor
Device mains fuse	4 A internal (device protection), slow-blow
Recommended breaker for input protection	6 A ... 16 A (Characteristics B, C, D, K)

Output data

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Output data

Nominal output voltage	24 V DC
Setting range of the output voltage (U_{Set})	22 V DC ... 27 V DC (> 24 V DC, constant capacity restricted)
Nominal output current (I_N)	2.5 A
Control deviation	< 0.5 % (Static load change 10 % ... 90 %)
	< 3 % (Dynamic load change 10 % ... 90 %, (10 Hz))
	< 0.1 % (change in input voltage ± 10 %)
Short-circuit-proof	yes
No-load proof	yes
Residual ripple	typ. 100 mV _{pp}
Connection in parallel	yes, for increasing power and redundancy with diode
Connection in series	yes, for increased efficiency
Feedback voltage resistance	≤ 35 V DC
Protection against overvoltage at the output (OVP)	< 35 V DC
Rise time	typ. 100 ms ($U_{Out} = 10$ % ... 90 %)
Derating	> 50 °C ... 70 °C (2 % / K)
Crest factor	typ. 3,4
	typ. 4.08
Output power	60 W
Minimum no-load power dissipation	< 0.21 W (120 V AC)
Maximum power dissipation in no-load condition	< 0.21 W (230 V AC)
Minimum nominal load power dissipation	< 6.8 W (120 V AC)
Power loss nominal load max.	< 6.2 W (230 V AC)

General

Net weight	200 g
Environmental protection directive	RoHS Directive 2011/65/EU
	WEEE
	Reach
Efficiency	> 89 % (120 V AC)
	> 90 % (230 V AC)
MTBF (IEC 61709, SN 29500)	> 3440000 h (25 °C)
	> 2000000 h (40 °C)
	> 1370000 h (50 °C)
Insulation voltage input/output	4 kV AC (type test)
	3.75 kV AC (routine test)
Degree of protection	IP20
Protection class	II (in closed control cabinet)
Efficiency Level	VI
Housing material	Polycarbonate
Foot latch material	Polyamid
Mounting position	horizontal DIN rail NS 35, EN 60715

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Technical data

General

Assembly instructions	alignable: 0 mm horizontally, 30 mm vertically
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Input connection data

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section solid	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Flexible conductor cross section (ferrule with plastic sleeve)	0.2 mm ² ... 1 mm ²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.5 mm ² ... 2.5 mm ²
Conductor cross section AWG	24 ... 14 (Cu)

Output connection data

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section solid	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Flexible conductor cross section (ferrule with plastic sleeve)	0.2 mm ² ... 1 mm ²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.5 mm ² ... 2.5 mm ²
Conductor cross section AWG	24 ... 14 (Cu)

LED signaling

Types of signaling	LED
U _{Out}	> 0,9 x U _N (U _N = 24 V DC) (LED lights up green)
	< 0,9 x U _N (U _N = 24 V DC) (LED off)

Standards

Standard designation	Electrical safety
Standards/regulations	IEC 61010-1 (SELV)
Standard designation	Safety extra-low voltage
Standards/regulations	IEC 61010-1 (SELV)
	IEC 61010-2-201 (PELV)
Standard designation	Safe isolation
Standards/regulations	IEC 61558-2-16
Standard designation	Low-voltage power supplies, DC output
Standards/regulations	EN 61204-3
Standard designation	Safety requirements for electrical equipment for measurement, control, and laboratory use
Standards/regulations	IEC 61010-1
Standard designation	Safety of electrical devices for household use and similar purposes
Standards/regulations	DIN EN 60335-1

Conformance/approvals

Designation	UL
Identification	UL 1310 Class 2 Power Units

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Conformance/approvals

Designation	UL
Identification	UL/C-UL Listed UL 61010-1
Designation	UL
Identification	UL/C-UL Listed UL 61010-2-201
Designation	UL
Identification	UL/C-UL Listed ANSI/UL 121201 Class I, Division 2, Groups A, B, C, D (Hazardous Location)

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Conducted noise emission	EN 55016
	EN 61000-6-3 (Class B)
Noise emission	EN 55016
	EN 61000-6-3 (Class B)
Harmonic currents	EN 61000-3-2
	EN 61000-3-2 (Class A)
Flicker	EN 61000-3-3
Electrostatic discharge	EN 61000-4-2
Contact discharge	6 kV (Test Level 3)
Discharge in air	8 kV (Test Level 3)
Electromagnetic HF field	EN 61000-4-3
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)	EN 61000-4-4
Input	asymmetrical 4 kV (Test Level 4)
Output	asymmetrical 2 kV (Test Level 3)
Comments	Criterion A
Surge voltage load (surge)	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 B
Conducted interference	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz
Voltage	10 V (Test Level 3)
Comments	Criterion A

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Technical data

EMC data

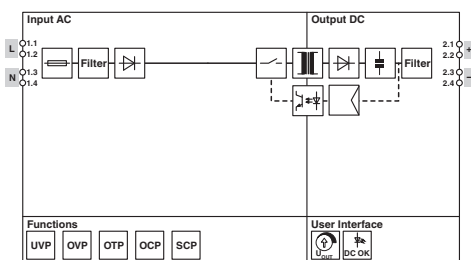
Voltage dips	EN 61000-4-11
Voltage	230 V AC
Frequency	50 Hz
Voltage dip	70 %
Number of periods	25 periods
Additional text	Class 3
Comments	Criterion A
Voltage dip	40 %
Number of periods	10 periods
Additional text	Class 3
Comments	Criterion A
Voltage dip	0 %
Number of periods	1 period
Additional text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

Environmental Product Compliance

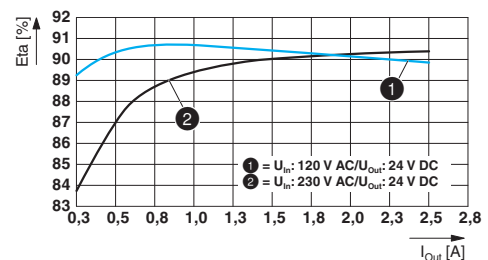
REACH SVHC	Lead 7439-92-1
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Drawings

Block diagram

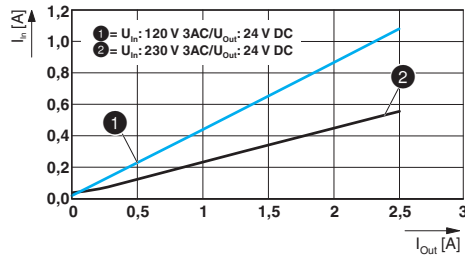


Diagram

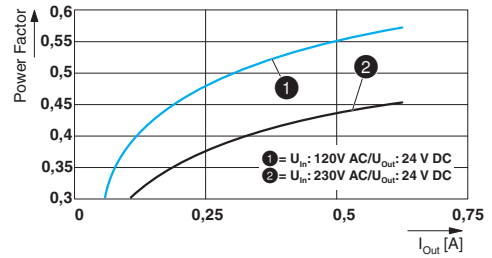


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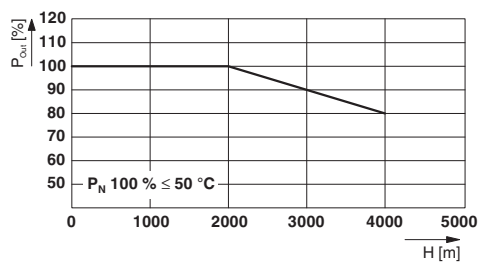
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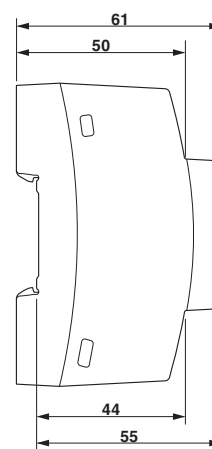
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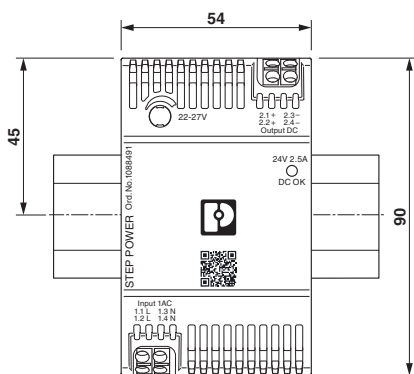
Diagram



Dimensional drawing

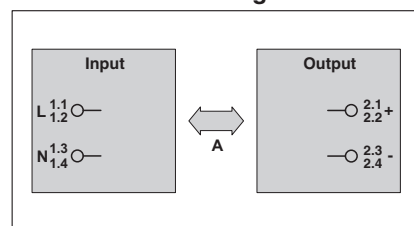


Dimensional drawing



Schematic diagram

Housing



Classifications

eCl@ss

eCl@ss 10.0.1	27040701
eCl@ss 11.0	27040701
eCl@ss 9.0	27040701

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Approvals

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cULus Listed / cULus Listed

Ex Approvals

cULus Listed

Approval details

cULus Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
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cULus Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	Comp Statement
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Accessories

Accessories

Redundancy module

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



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

Sealing plugs

Closing cap - STEP3 SEALING PLUG - 1175957



Sealing plug for protection against manipulation (adjustment of the DC output voltage) by sealing off the potentiometer opening