

Power supply unit - STEP3-PS/1AC/24DC/4/PT - 1140066

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Primary-switched power supply unit, STEP POWER, Push-in connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 4 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 063151 089115 |
| GTIN | 4063151089115 |
| Weight per Piece (excluding packing) | 255.000 g |
| Weight per piece (including packing) | 300.000 g |
| Custom tariff number | 85044030 |
| Country of origin | Vietnam |

Technical data

Dimensions

| | |
|--------|--|
| Width | 72 mm |
| Height | 90 mm |
| Depth | 61 mm |
| | 55 mm (Device depth (DIN rail mounting)) |

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Technical data

Dimensions

| | |
|----------------------------------|--------------------|
| Horizontal pitch | 4 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 | 1.07 A (100 V AC) |
| | 0.47 A (240 V AC) |
| | 0.97 A (110 V DC) |
| | 0.41 A (250 V DC) |
| Discharge current to PE | < 0.25 mA |
| Mains buffering time | typ. 20 ms (120 V AC) |
| | typ. 20 ms (230 V AC) |
| Switch-on time | typ. 2 s |
| Inrush current | typ. 37 A |
| Inrush current integral (I ² t) | typ. 0.4 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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Technical data

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) | 4 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. 150 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. 1.74 |
| | typ. 2.08 |
| Output power | 96 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 | < 7 W (120 V AC) |
| Power loss nominal load max. | < 5.7 W (230 V AC) |

General

| | |
|------------------------------------|-------------------------------------|
| Net weight | 255 g |
| Environmental protection directive | RoHS Directive 2011/65/EU |
| | WEEE |
| | Reach |
| Efficiency | > 93 % (120 V AC) |
| | > 94 % (230 V AC) |
| MTBF (IEC 61709, SN 29500) | > 1350000 h (25 °C) |
| | > 750000 h (40 °C) |
| | > 488000 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 |
|-----------------------|--|

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/C-UL Listed UL 61010-1 |

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Technical data

Conformance/approvals

| | |
|----------------|---|
| 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 A |
| Conducted interference | EN 61000-4-6 |
| Frequency range | 0.15 MHz ... 80 MHz |
| Voltage | 10 V (Test Level 3) |
| Comments | Criterion A |
| Voltage dips | EN 61000-4-11 |
| Voltage | 230 V AC |

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Technical data

EMC data

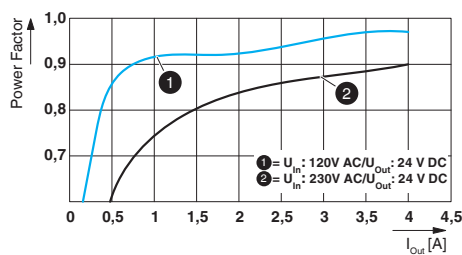
| | |
|-------------------|--|
| Frequency | 50 Hz |
| Voltage dip | 70 % |
| Number of periods | 25 periods |
| Additional text | Class 3 |
| Comments | Criterion A |
| Voltage dip | 40 % |
| Number of periods | 10 periods |
| Additional text | Class 3 |
| Comments | Criterion B |
| Voltage dip | 0 % |
| 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

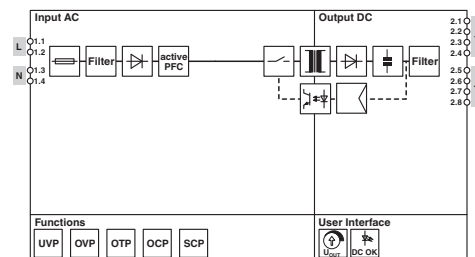
| | |
|------------|----------------|
| REACH SVHC | Lead 7439-92-1 |
|------------|----------------|

Drawings

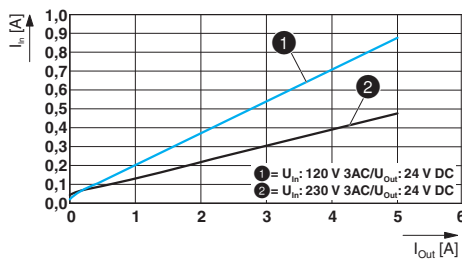
Diagram



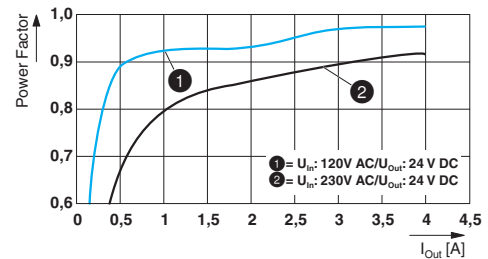
Block diagram



Diagram

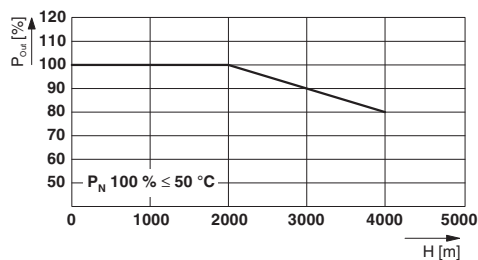


Diagram

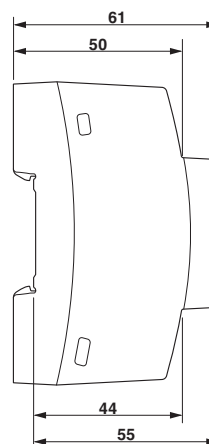


Power supply unit - STEP3-PS/1AC/24DC/4/PT - 1140066

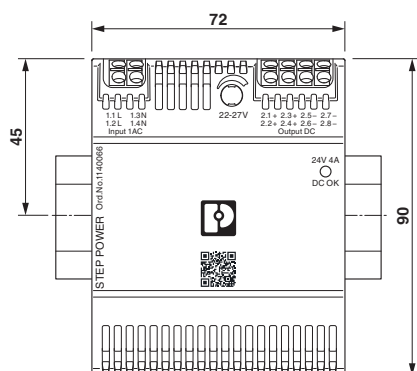
Diagram



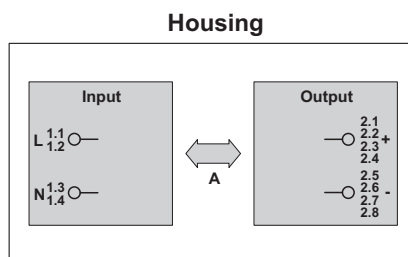
Dimensional drawing



Dimensional drawing



Schematic diagram



Classifications

eCl@ss

| | |
|---------------|----------|
| eCl@ss 10.0.1 | 27040701 |
| eCl@ss 11.0 | 27040701 |
| eCl@ss 9.0 | 27040701 |

Approvals

Approvals

Approvals

cULus Listed / cULus Listed

Ex Approvals

cULus Listed

Power supply unit - STEP3-PS/1AC/24DC/4/PT - 1140066

Approvals

Approval details

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

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

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