

## Power supply unit - STEP-PS/ 1AC/12DC/3 - 2868570

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Primary-switched STEP POWER power supply for DIN rail mounting, input: 1-phase, output: 12 V DC/3 A

### Product Description

STEP POWER power supplies for installation distributors

The STEP POWER power supply range was developed especially for building automation. The low idling losses and high degree of efficiency ensure maximum energy efficiency. They allow flexible use and can be snapped onto the DIN rail or screwed onto an even surface.

### Why buy this product

- ✓ Flexible mounting by simply snapping onto the DIN rail or screwing onto a level surface
- ✓ Reliable power supply thanks to high MTBF (mean time between failures) of more than 500,000 hours and U/I characteristic curve
- ✓ Energy savings thanks to maximum energy efficiency and incredibly low idling losses



### Key Commercial Data

|                                      |                                                                                                         |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit                         | 1 STK                                                                                                   |
| GTIN                                 | <br>4 046356 309578 |
| GTIN                                 | 4046356309578                                                                                           |
| Weight per Piece (excluding packing) | 190.000 g                                                                                               |
| Custom tariff number                 | 85044030                                                                                                |
| Country of origin                    | Poland                                                                                                  |

### Technical data

#### Dimensions

|        |       |
|--------|-------|
| Width  | 54 mm |
| Height | 90 mm |
| Depth  | 61 mm |

#### Ambient conditions

|                                 |                                              |
|---------------------------------|----------------------------------------------|
| Degree of protection            | IP20                                         |
| Ambient temperature (operation) | -25 °C ... 70 °C (> 55° C derating : 2.5%/K) |

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## Technical data

### Ambient conditions

|                                                |                                   |
|------------------------------------------------|-----------------------------------|
| Ambient temperature (storage/transport)        | -40 °C ... 85 °C                  |
| Max. permissible relative humidity (operation) | ≤ 95 % (at 25 °C, non-condensing) |
| Noise immunity                                 | EN 61000-6-2:2005                 |

### Input data

|                                     |                                           |
|-------------------------------------|-------------------------------------------|
| Nominal input voltage range         | 100 V AC ... 240 V AC                     |
| Input voltage range                 | 85 V AC ... 264 V AC                      |
|                                     | 95 V DC ... 250 V DC                      |
| AC frequency range                  | 45 Hz ... 65 Hz                           |
| Frequency range DC                  | 0 Hz                                      |
| Current consumption                 | 0.6 A (120 V AC)                          |
|                                     | 0.3 A (230 V AC)                          |
| Inrush surge current                | < 15 A (typical)                          |
| Power failure bypass                | > 26 ms (120 V AC)                        |
|                                     | > 160 ms (230 V AC)                       |
| Input fuse                          | 3.15 A (slow-blow, internal)              |
| Choice of suitable circuit breakers | 6 A ... 16 A (Characteristics B, C, D, K) |
| Type of protection                  | Transient surge protection                |
| Protective circuit/component        | Varistor                                  |

### Output data

|                                                   |                                                                 |
|---------------------------------------------------|-----------------------------------------------------------------|
| Nominal output voltage                            | 12 V DC ±1 %                                                    |
| Setting range of the output voltage ( $U_{Set}$ ) | 10 V DC ... 16.5 V DC (> 12 V DC, constant capacity restricted) |
| Nominal output current ( $I_N$ )                  | 3 A (-25 °C ... 55 °C)                                          |
|                                                   | 3.3 A (-25 °C ... 40 °C permanent)                              |
| Output current $I_{max}$                          | 4.9 A                                                           |
| Derating                                          | 55 °C ... 70 °C (2.5%/K)                                        |
| Connection in parallel                            | Yes, for redundancy and increased capacity                      |
| Connection in series                              | yes                                                             |
| Control deviation                                 | < 1 % (change in load, static 10 % ... 90 %)                    |
|                                                   | < 2 % (change in load, dynamic 10 % ... 90 %)                   |
|                                                   | < 0.1 % (change in input voltage ±10 %)                         |
| Residual ripple                                   | < 40 mV <sub>PP</sub> (20 MHz)                                  |
| Output power                                      | 36 W                                                            |
| Typical response time                             | < 0.5 s                                                         |
| Peak switching voltages nominal load              | < 35 mV <sub>PP</sub> (20 MHz)                                  |
| Maximum power dissipation in no-load condition    | < 0.5 W                                                         |
| Power loss nominal load max.                      | 6.4 W                                                           |

### General

|                           |           |
|---------------------------|-----------|
| Net weight                | 0.19 kg   |
| Operating voltage display | Green LED |

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## Technical data

### General

|                                 |                                                |
|---------------------------------|------------------------------------------------|
| Efficiency                      | > 85 % (for 230 V AC and nominal values)       |
| Insulation voltage input/output | 4 kV AC (type test)                            |
|                                 | 3.75 kV AC (routine test)                      |
| Protection class                | II (in closed control cabinet)                 |
|                                 | > 1689000 h (40°C)                             |
| Mounting position               | horizontal DIN rail NS 35, EN 60715            |
| Assembly instructions           | Alignable: 0 mm horizontally, 30 mm vertically |

### Connection data, input

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Screw connection    |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup> |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup> |
| Conductor cross section AWG min.      | 24                  |
| Conductor cross section AWG max.      | 12                  |
| Stripping length                      | 6.5 mm              |
| Screw thread                          | M3                  |

### Connection data, output

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Screw connection    |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup> |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup> |
| Conductor cross section AWG min.      | 24                  |
| Conductor cross section AWG max.      | 12                  |
| Stripping length                      | 6.5 mm              |
| Screw thread                          | M3                  |

### Standards and Regulations

|                                   |                                                                   |
|-----------------------------------|-------------------------------------------------------------------|
| Electromagnetic compatibility     | Conformance with EMC Directive 2014/30/EU                         |
| Shock                             | 18 ms, 30g, in each space direction (according to IEC 60068-2-27) |
| Noise immunity                    | EN 61000-6-2:2005                                                 |
| Connection in acc. with standard  | CUL                                                               |
| Standards/regulations             | EN 61000-4-2                                                      |
|                                   | EN 61000-4-3                                                      |
|                                   | EN 61000-4-4                                                      |
|                                   | EN 61000-4-5                                                      |
|                                   | EN 61000-4-6                                                      |
|                                   | EN 61000-4-11                                                     |
| Standard - Safety of transformers | EN 61558-2-16                                                     |

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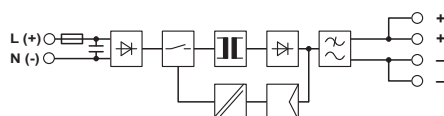
### Technical data

#### Standards and Regulations

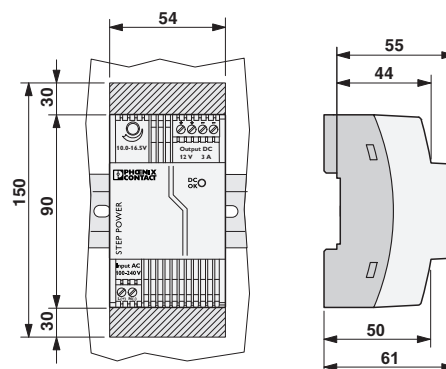
|                                                                                                                                  |                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Standard - Electrical safety                                                                                                     | IEC 60950-1/VDE 0805 (SELV)                                                      |
| Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations | EN 50178/VDE 0160 (PELV)                                                         |
| Standard – Safety extra-low voltage                                                                                              | IEC 60950-1 (SELV) and EN 60204-1 (PELV)                                         |
| Standard - Safe isolation                                                                                                        | DIN VDE 0100-410                                                                 |
| Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment               | EN 50178                                                                         |
| Standard – Limitation of mains harmonic currents                                                                                 | EN 61000-3-2                                                                     |
| Shipbuilding approval                                                                                                            | Germanischer Lloyd (EMC 1), ABS, NK                                              |
| UL approvals                                                                                                                     | UL/C-UL listed UL 508                                                            |
|                                                                                                                                  | UL/C-UL Recognized UL 60950                                                      |
|                                                                                                                                  | UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location) |
|                                                                                                                                  | NEC Class 2 as per UL 1310                                                       |
| Vibration (operation)                                                                                                            | < 15 Hz, amplitude $\pm 2.5$ mm (according to IEC 60068-2-6)                     |
|                                                                                                                                  | 15 Hz ... 150 Hz, 2.3g, 90 min.                                                  |
| Low Voltage Directive                                                                                                            | Conformance with LV directive 2006/95/EC                                         |
| Information technology equipment - safety (CB scheme)                                                                            | CB Scheme                                                                        |
| Rail applications                                                                                                                | EN 50121-4                                                                       |

### Drawings

Block diagram

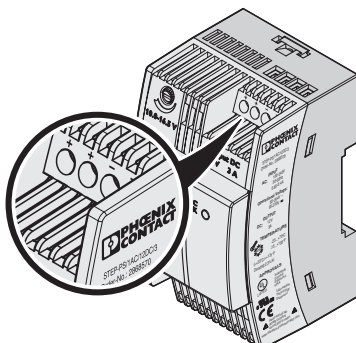


Dimensional drawing

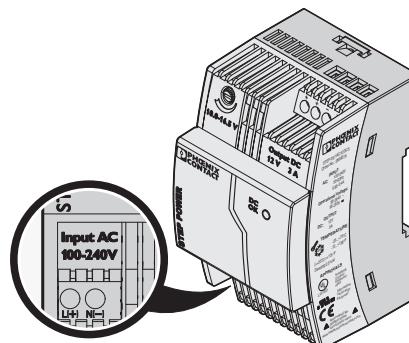


## Power supply unit - STEP-PS/ 1AC/12DC/3 - 2868570

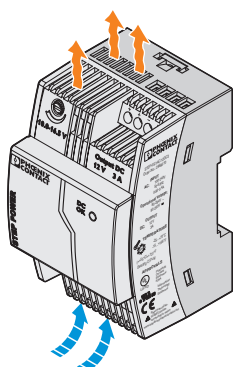
Schematic diagram



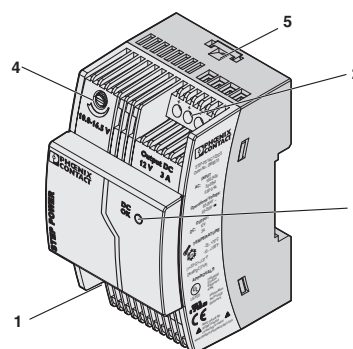
Schematic diagram



Schematic diagram



Schematic diagram



## Classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27040702 |
| eCl@ss 4.1 | 27040702 |
| eCl@ss 5.0 | 27242213 |
| eCl@ss 5.1 | 27242213 |
| eCl@ss 6.0 | 27049002 |
| eCl@ss 7.0 | 27049002 |
| eCl@ss 8.0 | 27049002 |
| eCl@ss 9.0 | 27040701 |

### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC001039 |
| ETIM 3.0 | EC001039 |
| ETIM 4.0 | EC002540 |
| ETIM 5.0 | EC002540 |
| ETIM 6.0 | EC002540 |

## Power supply unit - STEP-PS/ 1AC/12DC/3 - 2868570

### Classifications

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211502 |
| UNSPSC 7.0901 | 39121004 |
| UNSPSC 11     | 39121004 |
| UNSPSC 12.01  | 39121004 |
| UNSPSC 13.2   | 39121004 |

### Approvals

#### Approvals

##### Approvals

UL Recognized / UL Listed / cUL Recognized / cUL Listed / GL / NK / IECCEB Scheme / EAC / EAC / ABS / cULus Recognized / cULus Listed

##### Ex Approvals

UL Listed / cUL Listed / cULus Listed

#### Approval details

|                |                                                                                     |                                                                                                                                                       |               |
|----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| UL Recognized  |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 214596 |
| UL Listed      |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 123528 |
| cUL Recognized |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 214596 |
| cUL Listed     |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 123528 |
| GL             |  | <a href="http://www.gl-group.com/newbuilding/approvals/index.html">http://www.gl-group.com/newbuilding/approvals/index.html</a>                       | 59365-08 HH   |

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### Approvals

|                  |                         |                                                                                                                                                       |                          |
|------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| NK               | <b>ClassNK</b>          | <a href="http://www.classnk.or.jp/hp/en/">http://www.classnk.or.jp/hp/en/</a>                                                                         | 09A024                   |
| IECEE CB Scheme  | <b>CB<br/>scheme</b>    | <a href="http://www.iecee.org/">http://www.iecee.org/</a>                                                                                             | DK-36104-M1-UL           |
| EAC              | <b>EAC</b>              |                                                                                                                                                       | EAC-Zulassung            |
| EAC              | <b>EAC</b>              |                                                                                                                                                       | RU C-<br>DE.A*30.B.01082 |
| ABS              |                         | <a href="http://www.eagle.org/eagleExternalPortalWEB/">http://www.eagle.org/eagleExternalPortalWEB/</a>                                               | 08-<br>HG383002-3-PDA    |
| cULus Recognized | <b>cULus<br/>LISTED</b> | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> |                          |
| cULus Listed     |                         |                                                                                                                                                       |                          |