

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



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 distribution boards

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.

Your advantages

- 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

Commercial data

Item number	2868570
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM13
Product key	CMPS12
Catalog page	Page 285 (C-4-2019)
GTIN	4046356309578
Weight per piece (including packing)	240 g
Weight per piece (excluding packing)	190 g
Customs tariff number	85044095
Country of origin	VN

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Technical data

Input data

AC operation

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
Input voltage range AC	85 V AC ... 264 V AC
Input voltage range DC	95 V DC ... 250 V DC
Voltage type of supply voltage	AC/DC
Inrush current	< 15 A (typical)
Inrush current integral (I^2t)	< 0.6 A ² s
AC frequency range	45 Hz ... 65 Hz
Frequency range DC	0 Hz
Mains buffering time	typ. 26 ms (120 V AC) typ. 160 ms (230 V AC)
Current consumption	0.6 A (120 V AC) 0.3 A (230 V AC)
Nominal power consumption	71.7 VA
Protective circuit	Transient surge protection; Varistor
Power factor (cos phi)	0.59
Typical response time	< 0.5 s
Input fuse	3.15 A (slow-blow, internal)
Recommended breaker for input protection	6 A ... 16 A (Characteristics B, C, D, K)

Output data

Efficiency	> 85 % (for 230 V AC and nominal values)
Output characteristic	U/I
Nominal output voltage	12 V DC
Setting range of the output voltage (U_{Set})	10 V DC ... 16.5 V DC (> 12 V DC, constant capacity restricted)
Output current I_{max}	4.9 A
Nominal output current (I_N)	3 A (-25 °C ... 55 °C) 3.3 A (-25 °C ... 40 °C permanent)
Derating	55 °C ... 70 °C (2.5 %/K)
Feedback voltage resistance	≤ 25 V DC
Protection against overvoltage at the output (OVP)	< 25 V DC
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 _{PP} (20 MHz)
Output power	36 W
Peak switching voltages nominal load	< 35 mV _{PP} (20 MHz)
Maximum no-load power dissipation	< 0.5 W

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Power loss nominal load max.	6.4 W
Rise time	< 0.5 s (U_{OUT} (10 % ... 90 %))
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes

Connection data

Input

Connection method	Screw connection
Conductor cross section, rigid min.	0.2 mm ²
Conductor cross section, rigid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	6.5 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Output

Connection method	Screw connection
Conductor cross section, rigid min.	0.2 mm ²
Conductor cross section, rigid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	6.5 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Signaling

Types of signaling	LED
Operating voltage display	Green LED

Signal output: LED status indicator

Status display	"DC OK" LED green
Note on status display	$U_{OUT} > 10.8$ V: LED on

Electrical properties

Number of phases	1.00
Insulation voltage input/output	4 kV AC (type test)
	3.75 kV AC (routine test)
Insulation voltage output / PE	500 V DC (routine test)

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Insulation voltage input/output	3.75 kV AC (routine test)
	4 kV AC (type test)
Insulation voltage input / PE	3.5 kV AC (type test)
	2 kV AC (routine test)

Product properties

Product type	Power supply
Product family	STEP POWER
MTBF (IEC 61709, SN 29500)	> 1689000 h (40 °C)

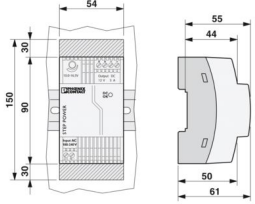
Data management status

Article revision	05
------------------	----

Insulation characteristics

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

Dimensions

Dimensional drawing	
Width	54 mm
Height	90 mm
Depth Device depth (DIN rail mounting)	55 mm (Device depth (DIN rail mounting))
Horizontal pitch	3 Div.

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 note	alignable: 0 mm horizontally, 30 mm vertically
Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	No

Material specifications

Housing material	Plastic
Housing material	Polycarbonate
Foot latch material	POM (Polyoxymethylene)

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 55° C derating : 2.5%/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Climatic class	3K3 (in acc. with EN 60721)
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Vibration (operation)	< 15 Hz, amplitude ±2.5 mm (according to IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g, 90 min.

Standards and regulations

Rail applications	EN 50121-4
Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)
Standard – Limitation of mains harmonic currents	EN 61000-3-2
Standard - Electrical safety	IEC 62368-1 (SELV)
Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment	EN 50178
Standard – Safety extra-low voltage	IEC 62368-1 (SELV) und EN 60204-1 (PELV)
Standard - Safe isolation	DIN VDE 0100-410
Standard - Safety of transformers	EN 61558-2-16

Approvals

CSA	CSA-C22.2 No. 107.1-01
Shipbuilding approval	DNV GL (EMC B) ABS, NK
UL approvals	UL/C-UL listed UL 508 UL/C-UL Recognized UL 60950-1 UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location) NEC Class 2 as per UL 1310

Conformity/Approvals

SIL in accordance with IEC 61508	0
----------------------------------	---

EMC data

Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
EMC requirements for noise emission	EN 61000-6-3 EN 61000-6-4
EMC requirements for noise immunity	EN 61000-6-1 EN 61000-6-2
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU

Electrostatic discharge

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Standards/regulations	EN 61000-4-2
Electrostatic discharge	
Contact discharge	8 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
Frequency range	1 GHz ... 2 GHz
Test field strength	10 V/m
Frequency range	2 GHz ... 3 GHz
Test field strength	10 V/m
Comments	Criterion A
Fast transients (burst)	
Standards/regulations	EN 61000-4-4
Fast transients (burst)	
Input	4 kV (Test Level 4 - asymmetrical)
Output	2 kV (Test Level 3 - asymmetrical)
Comments	Criterion A
Surge voltage load (surge)	
Standards/regulations	EN 61000-4-5
Surge voltage load (surge)	
Input	1 kV (Test Level 2 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Output	0.5 kV (Test Level 1 - symmetrical)
	0.5 kV (Test Level 1 - asymmetrical)
Comments	Criterion B
Conducted interference	
Standards/regulations	EN 61000-4-6
Conducted interference	
Frequency range	10 kHz ... 15 kHz
	10 kHz ... 15 kHz
Comments	Criterion A
	Criterion A
Voltage	3 V (Test Level 2)
	3 V (Test Level 2)

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Conducted interference

Frequency range	10 kHz ... 15 kHz
	10 kHz ... 15 kHz
Comments	Criterion A
	Criterion A
Voltage	3 V (Test Level 2)
	3 V (Test Level 2)

Voltage dips

Standards/regulations	EN 61000-4-11
-----------------------	---------------

Emitted interference

Standards/regulations	EN 61000-6-3
Radio interference voltage in acc. with EN 55011	EN 55011 (EN 55022) class B used in industry and residential area / EMC 1
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) class B used in industry and residential area / EMC 1

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

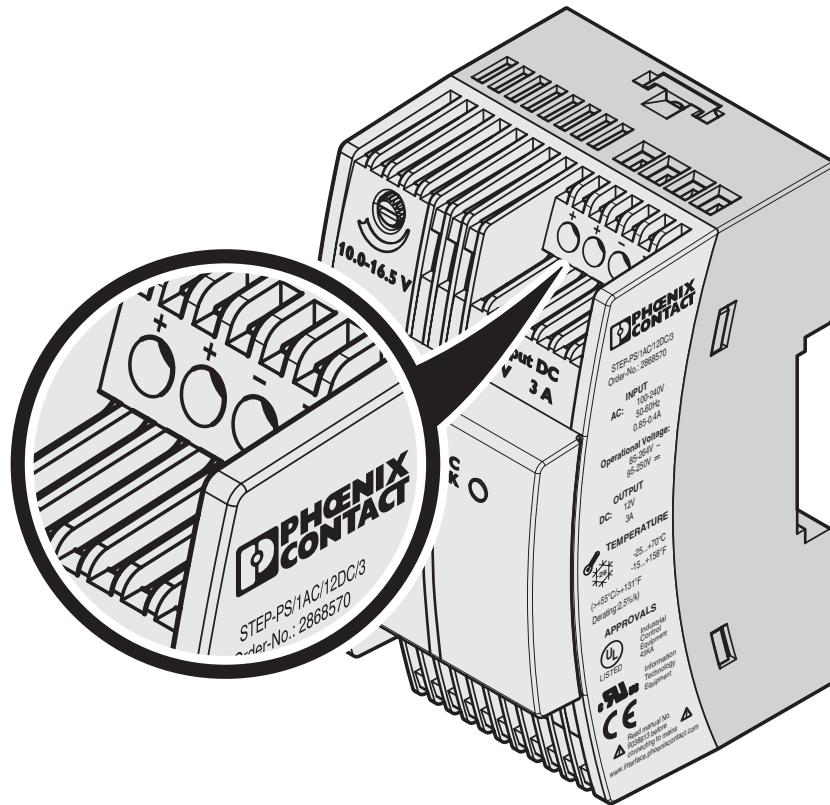


2868570

<https://www.phoenixcontact.com/us/products/2868570>

Drawings

Schematic diagram



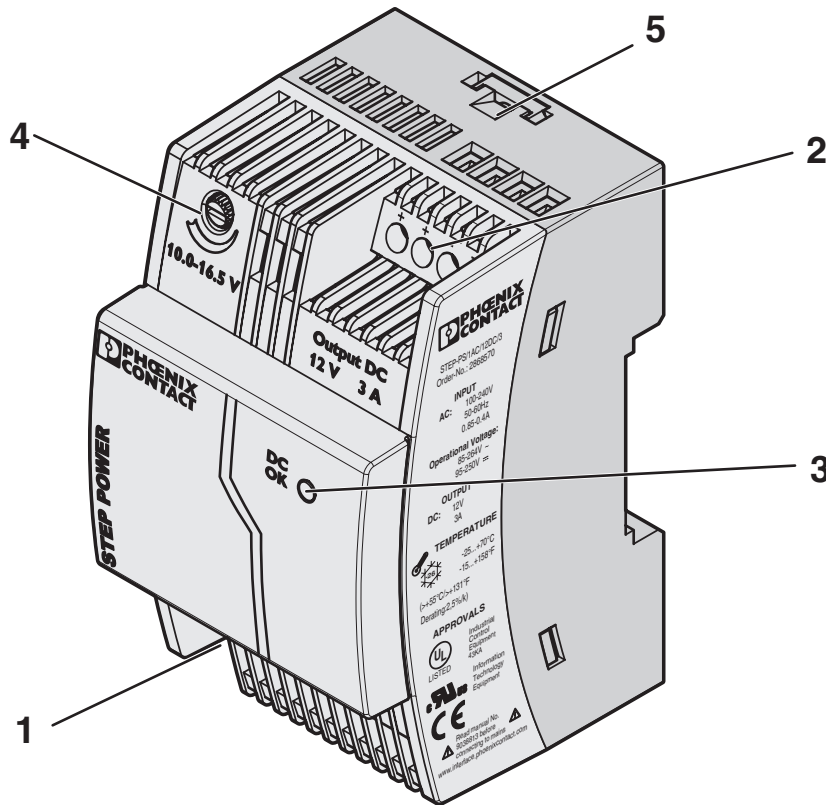
STEP-PS/ 1AC/12DC/3 - Power supply unit



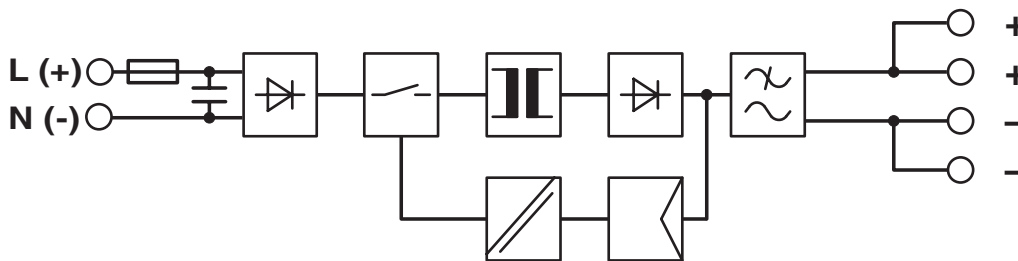
2868570

<https://www.phoenixcontact.com/us/products/2868570>

Schematic diagram



Block diagram



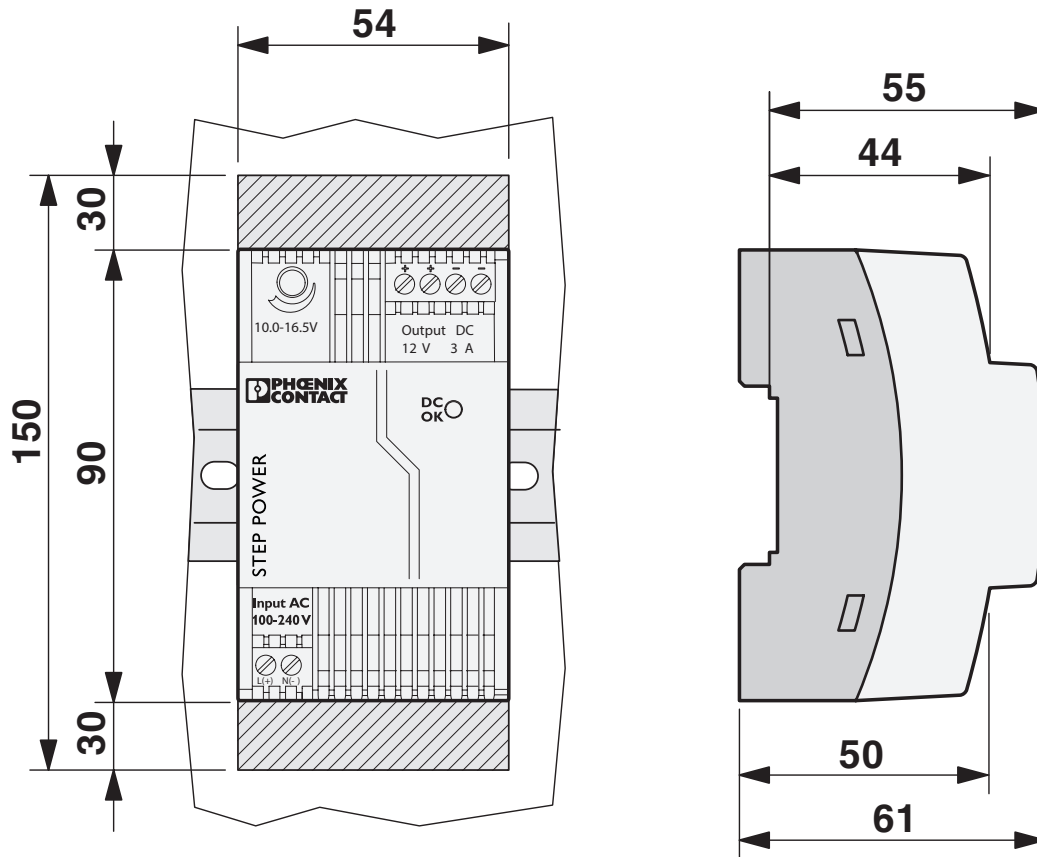
STEP-PS/ 1AC/12DC/3 - Power supply unit



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Dimensional drawing



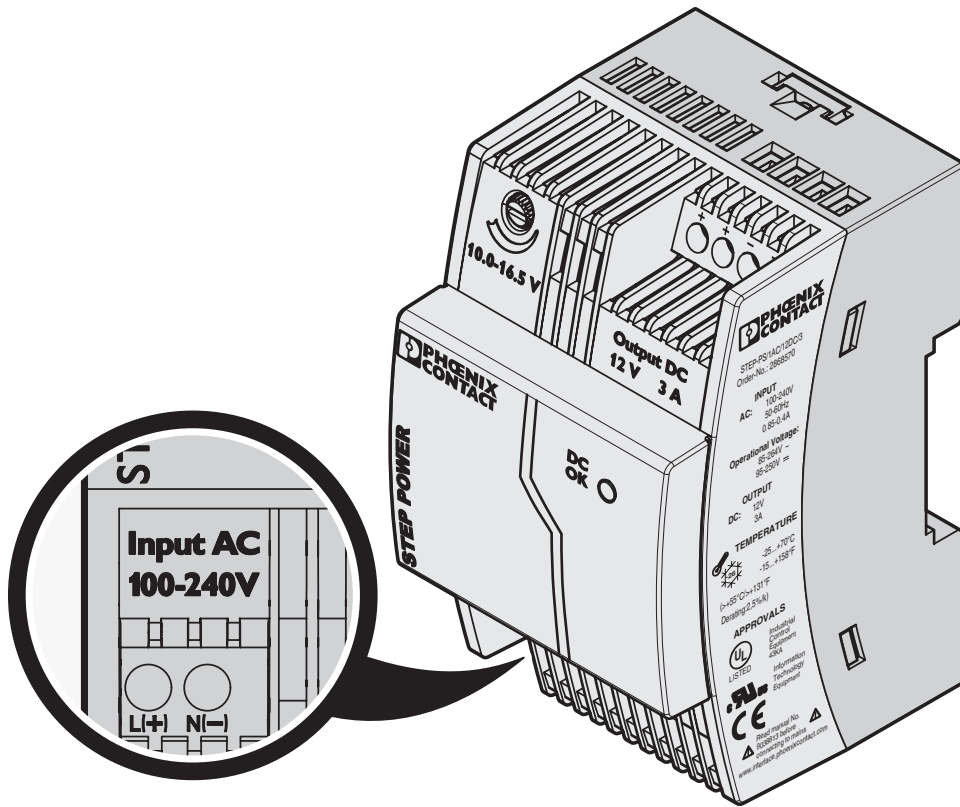
STEP-PS/ 1AC/12DC/3 - Power supply unit



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Schematic diagram



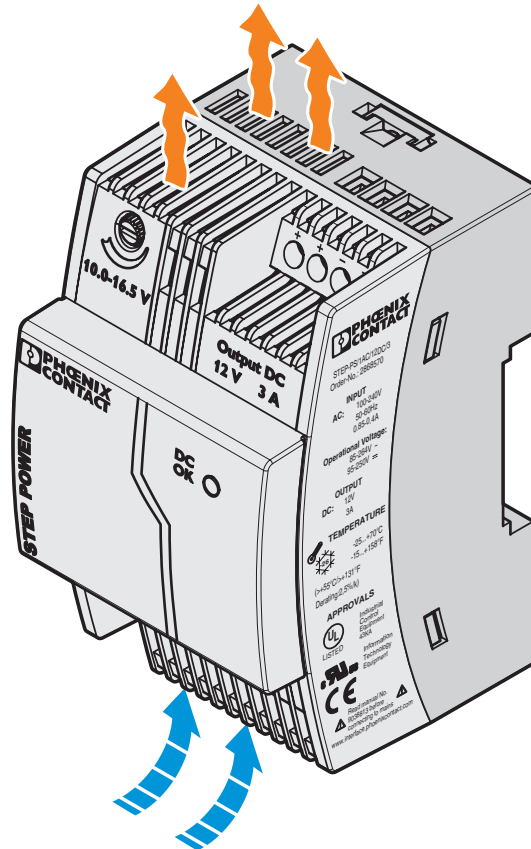
STEP-PS/ 1AC/12DC/3 - Power supply unit

2868570

<https://www.phoenixcontact.com/us/products/2868570>



Schematic diagram



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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2868570>



cUL Recognized
Approval ID: FILE E 214596



UL Recognized
Approval ID: FILE E 214596



IECEE CB Scheme
Approval ID: DK-36104-M1-UL



EAC
Approval ID: EAC-Zulassung



NK
Approval ID: TA19644M



EAC
Approval ID: RU S-DE.BL08.W.00764



UL Listed
Approval ID: E123528



cUL Listed
Approval ID: E123528

ABS

Approval ID: 23-2446587-PDA

DNV

Approval ID: TAA00001YD



IECEE CB Scheme
Approval ID: DE/PTZ/0102

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

ABS

Approval ID: 18-HG1797199_PDA



cUL Listed

Approval ID: E199827



UL Listed

Approval ID: E199827

cULus Recognized

cULus Listed

cULus Listed

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Classifications

ECLASS

ECLASS-11.0	27040701
ECLASS-12.0	27040701
ECLASS-13.0	27040701

ETIM

ETIM 9.0	EC002540
----------	----------

UNSPSC

UNSPSC 21.0	39121000
-------------	----------

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-25
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	5cd6ed21-e331-4bd0-b872-5594f2b7e394

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



2868570

<https://www.phoenixcontact.com/us/products/2868570>

Accessories

PLT-SEC-T3-230-FM-UT - Type 3 surge protection device

2907919

<https://www.phoenixcontact.com/us/products/2907919>



Type 2/3 surge protection, consisting of protective plug and base element with screw connection. For single-phase power supply network with integrated status indicator and remote signaling. Nominal voltage: 230 V AC/DC

PLT-SEC-T3-24-FM-UT - Type 3 surge protection device

2907916

<https://www.phoenixcontact.com/us/products/2907916>



Type 3 surge protection, consisting of protective plug and base element, with integrated status indicator and remote signaling for single-phase power supply networks. Nominal voltage: 24 V AC/DC

Phoenix Contact 2024 © - all rights reserved

<https://www.phoenixcontact.com>

Phoenix Contact USA

586 Fulling Mill Road

Middletown, PA 17057, United States

(+717) 944-1300

info@phoenixcon.com