

# TRIO-PS/1AC/48DC/10 - Power supply



2866501

<https://www.phoenixcontact.com/us/products/2866501>

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Primary-switched TRIO POWER power supply for DIN rail mounting, input: 1-phase, output: 48 V DC/10 A

## Product description

TRIO POWER power supplies with standard functionality

TRIO POWER is particularly suited to standard machine production, thanks to 1- and 3-phase versions up to 960 W. The wide-range input and the international approval package enable worldwide use.

The robust metal housing, the high electric strength, and the wide temperature range ensure a high level of power supply reliability.

## Your advantages

- Use the third negative terminal block as a grounding terminal block and minimize installation costs
- Rugged design with metal housing and wide temperature range from -25 to +70°C
- Maximum operational reliability thanks to high MTBF (mean time between failures) of more than 500,000 hours and high dielectric strength of up to 300 V AC
- Compensation of voltage drops by means of output voltage that can be adjusted on the front

## Commercial data

Item number	2866501
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM11
Product key	CMPT14
GTIN	4046356287364
Weight per piece (including packing)	2,063.5 g
Weight per piece (excluding packing)	1,900 g
Customs tariff number	85044095
Country of origin	CN

## Technical data

### Input data

Nominal input voltage range	100 V AC ... 240 V AC
Input voltage range	85 V AC ... 264 V AC (derating < 90 V AC: 2.5 % per Kelvin)
Derating	< 90 V AC (2.5 %/V)
Input voltage range AC	85 V AC ... 264 V AC (derating < 90 V AC: 2.5 % per Kelvin)
Electric strength, max.	300 V AC
Voltage type of supply voltage	AC
Inrush current	< 15 A
Inrush current integral ( $I^2t$ )	< 1.4 A <sup>2</sup> s
AC frequency range	45 Hz ... 65 Hz
Mains buffering time	> 13 ms (120 V AC) > 18 ms (230 V AC)
Current consumption	4.6 A (120 V AC) 2.4 A (230 V AC)
Nominal power consumption	556 VA
Protective circuit	Transient surge protection; Varistor
Power factor (cos phi)	0.96
Typical response time	< 1 s
Permissible backup fuse	B16
Recommended breaker for input protection	16 A (Characteristics B, C, D, K)
Discharge current to PE	< 3.5 mA

### Output data

Efficiency	> 91 % (for 230 V AC and nominal values)
Output characteristic	U/I
Nominal output voltage	48 V DC $\pm$ 1 %
Setting range of the output voltage ( $U_{Set}$ )	30 V DC ... 56 V DC (> 48 V DC, constant capacity restricted)
Nominal output current ( $I_N$ )	10 A (-25 °C ... 55 °C)
Derating	55 °C ... 70 °C (2.5 %/K)
Feedback voltage resistance	60 V DC
Protection against overvoltage at the output (OVP)	< 60 V DC
Max. capacitive load	unlimited
Active current limitation	Approx 11.4 A (in the event of a short-circuit)
Control deviation	< 1 % (change in load, static 10 % ... 90 %) < 2 % (change in load, dynamic 10 % ... 90 %) < 0.1 % (change in input voltage $\pm$ 10 %)
Residual ripple	< 50 mV <sub>PP</sub>
Output power	480 W
Peak switching voltages nominal load	< 50 mV <sub>PP</sub>
Maximum no-load power dissipation	8 W
Power loss nominal load max.	49 W

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Rise time	< 2 ms ( $U_{OUT}$ (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 <sup>2</sup>
Conductor cross-section, rigid 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.	14
Stripping length	9 mm
Screw thread	M2,5
Tightening torque, min	0.4 Nm
Tightening torque max	0.5 Nm

### Output

Connection method	Screw connection
Conductor cross-section, rigid min.	0.5 mm <sup>2</sup>
Conductor cross-section, rigid max.	6 mm <sup>2</sup>
Conductor cross-section flexible min.	0.5 mm <sup>2</sup>
Conductor cross-section flexible max.	4 mm <sup>2</sup>
Conductor cross-section AWG min.	20
Conductor cross-section AWG max.	10
Stripping length	14 mm
Screw thread	M3
Tightening torque, min	0.4 Nm
Tightening torque max	0.5 Nm

## Signaling

Types of signaling	LED
Operating voltage display	Green LED

### Signal output

Status display	"DC OK" LED green
Note on status display	$U_{OUT} < 0.9 \times U_N$ : LED flashing

## Electrical properties

Insulation voltage input/output	4 kV AC (type test)
	2 kV AC (routine test)
Insulation voltage output / PE	500 V DC (type test)
Insulation voltage input / PE	2 kV AC (type test)
	2 kV AC (routine test)

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## Product properties

Product type	Power supply
Product family	TRIO POWER
MTBF (IEC 61709, SN 29500)	> 1168000 h (40 °C)

## Insulation characteristics

Protection class	I (with PE connection)
Overvoltage category	III
Degree of pollution	2

## Dimensions

Width	115 mm
Height	130 mm
Depth	152.5 mm

## Mounting

Mounting type	DIN rail mounting
Assembly note	alignable: horizontally 0 mm, vertically 50 mm
Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	no

## Material specifications

Housing material	Metal
Type of housing	Steel sheet, zinc-plated
Side element version	Aluminum

## 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	15g in all directions in acc. with 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	EN 60950-1/VDE 0805 (SELV) EN 61558-2-17

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Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment	EN 50178
Standard – Safety extra-low voltage	EN 60950-1 (SELV)
	EN 60204 (PELV)
Standard - Safe isolation	DIN VDE 0100-410

## Approvals

UL approvals	UL Listed UL 508
	UL/C-UL Recognized UL 60950-1

## Conformity/Approvals

SIL in accordance with IEC 61508	0
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## EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
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

## Electrostatic discharge

Standards/regulations	EN 61000-4-2
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## 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
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## 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
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## Fast transients (burst)

Input	4 kV (Test Level 4 - asymmetrical)
Output	4 kV (Test Level 4 - asymmetrical)
Signal	2 kV (Test Level 3 - asymmetrical)

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Comments	Criterion A
Surge voltage load (surge)	
Standards/regulations	EN 61000-4-5
Surge voltage load (surge)	
Input	2 kV (Test Level 3 - symmetrical)
	4 kV (Test Level 4 - asymmetrical)
Output	1 kV (Test Level 2 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Comments	Criterion A
Conducted interference	
Standards/regulations	EN 61000-4-6
Conducted interference	
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)
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, area of application: Industry and residential
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential

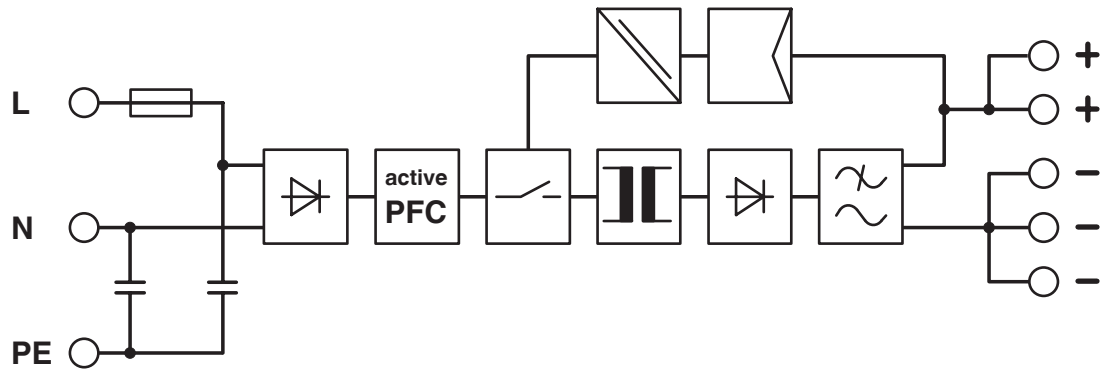
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## Drawings

Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2866501>



**cUL Recognized**  
Approval ID: FILE E 211944



**UL Recognized**  
Approval ID: E211944



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



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



**UL Listed**  
Approval ID: E123528



**cUL Listed**  
Approval ID: E123528

### CoC / Compliance Statement

Approval ID: 17-149-00

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## Classifications

### ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	27040701

### ETIM

ETIM 10.0	EC002540
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### UNSPSC

UNSPSC 21.0	39121000
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## 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	fda03d7b-e668-42c1-9bfd-1104e5c8c17f

### EF3.1 Climate Change

CO2e kg	50.981 kg CO2e
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