# TRIO-PS/1AC/24DC/10 - Power supply

2866323

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Primary-switched TRIO POWER power supply for DIN rail mounting, input: 1-phase, output: 24 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

ELEKTROGERÄTE RÜCKNAHME

## Commercial data

| | |
|---|---|
| Item number | 2866323 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CM11 |
| Product key | CMPT13 |
| GTIN | 4046356046657 |
| Weight per piece (including packing) | 1,554 g |

| | |
|---|---|
| Weight per piece (excluding packing) | 1,400 g |
| Customs tariff number | 85044095 |
| Country of origin | CN |

# 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 (Derating < 90 V AC: 2,5 %/V) |
| Derating | < 90 V AC (2.5 %/V) |
| Input voltage range AC | 85 V AC ... 264 V AC (Derating < 90 V AC: 2,5 %/V) |
| Electric strength, max. | 300 V AC |
| Voltage type of supply voltage | AC |
| Inrush current | < 15 A |
| Inrush current integral ($I^2t$) | 0.7 $A^2s$ |
| AC frequency range | 45 Hz ... 65 Hz |
| Mains buffering time | > 24 ms (120 V AC) |
| | > 24 ms (230 V AC) |
| Current consumption | 3 A (100 V AC) |
| | 1.5 A (240 V AC) |
| Nominal power consumption | 272 VA |
| Protective circuit | Transient surge protection; Varistor |
| Power factor | 0.99 |
| Typical response time | < 1 s |
| Input fuse | 6.3 A (slow-blow, internal) |
| Permissible backup fuse | B10 B16 |
| Recommended breaker for input protection | 10 A ... 16 A (Characteristics B, C, D, K) |
| Discharge current to PE | < 3.5 mA |

## Output data

| | |
|---|---|
| Efficiency | 89 % (for 230 V AC and nominal values) |
| Output characteristic | U/I |
| Nominal output voltage | 24 V DC ±1 % |
| Setting range of the output voltage ($U_{Set}$) | 22.5 V DC ... 29.5 V DC (> 24 V DC, constant capacity restricted) |
| Nominal output current ($I_N$) | 10 A ($U_{OUT}$ = 24 V DC) |
| Derating | 55 °C ... 70 °C (2.5 %/K) |
| Feedback voltage resistance | 35 V DC |
| Protection against overvoltage at the output (OVP) | < 35 V DC |
| Max. capacitive load | unlimited |
| Active current limitation | Approx. 14 A (for short-circuit) |
| 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 | < 10 $mV_{PP}$ |
| Output power | 240 W |
| Peak switching voltages nominal load | < 50 $mV_{PP}$ |

| | |
|---|---|
| Maximum no-load power dissipation | 6.7 W |
| Power loss nominal load max. | 30 W |
| 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 mm² |
| Conductor cross-section, rigid max. | 2.5 mm² |
| Conductor cross-section flexible min. | 0.2 mm² |
| Conductor cross-section flexible max. | 2.5 mm² |
| 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. | 0.2 mm² |
| Conductor cross-section, rigid max. | 2.5 mm² |
| Conductor cross-section flexible min. | 0.2 mm² |
| Conductor cross-section flexible max. | 2.5 mm² |
| 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 |

## 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 x $U_N$: 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) |

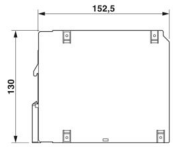
## Product properties

| | |
|---|---|
| Product type | Power supply |
| Product family | TRIO POWER |
| MTBF (IEC 61709, SN 29500) | > 981000 h (40 °C) |

Insulation characteristics

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

## Dimensions

| | |
|---|---|
| Dimensional drawing |   |
| Width | 60 mm |
| Height | 130 mm |
| Depth | 152.5 mm |

Installation dimensions

| | |
|---|---|
| Installation distance right/left | 0 mm / 0 mm |
| Installation distance top/bottom | 50 mm / 50 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 | 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

| | |
|---|---|
| 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) |
| 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/C-UL listed UL 508 |
| | UL/C-UL Recognized UL 60950-1 |

Conformity/Approvals

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

## 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 |

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 |

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 | 4 kV (Test Level 4 - asymmetrical) |
| Signal | 2 kV (Test Level 3 - asymmetrical) |
| 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) |

Conducted interference

| | |
|---|---|
| Frequency range | 0.15 MHz ... 80 MHz |
| Comments | Criterion A |
| Voltage | 10 V (Test Level 3) |

Voltage dips

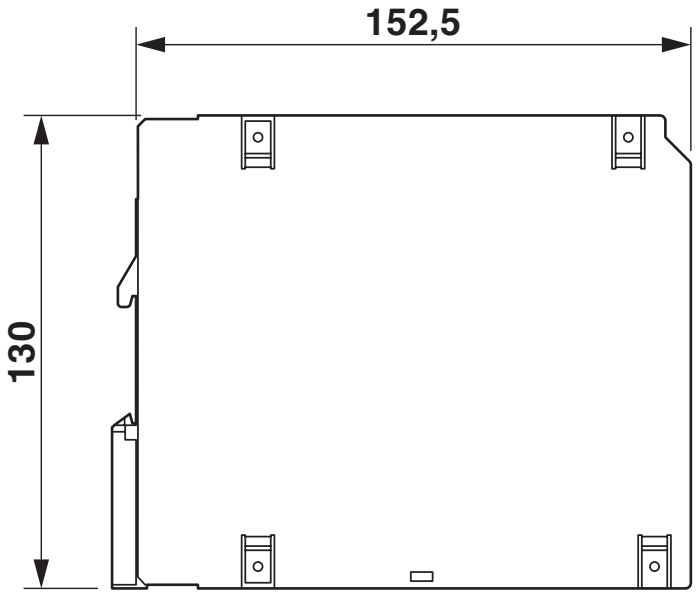
| | |
|---|---|
| Standards/regulations | EN 61000-4-11 |

Emitted interference

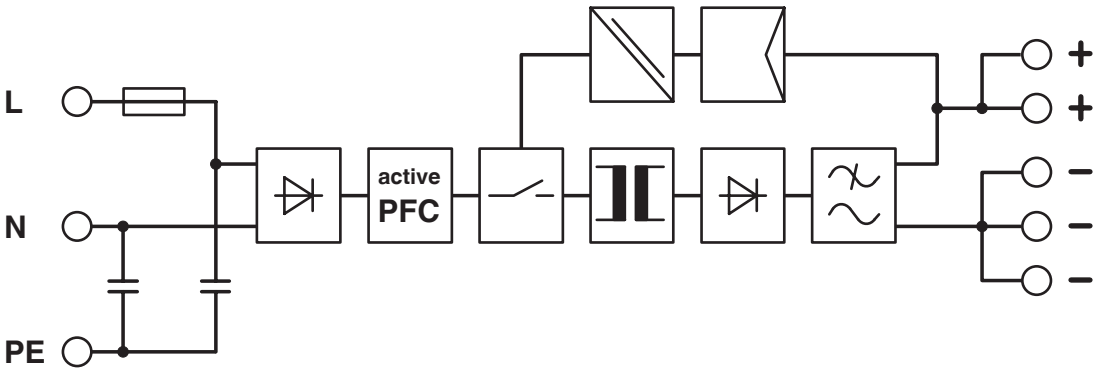
| | |
|---|---|
| Standards/regulations | EN 61000-6-3 |
| Radio interference voltage in acc. with EN 55011 | EN 55011 (EN 55022) Class B, area of application: Industry and residential |
| Emitted radio interference in acc. with EN 55011 | EN 55011 (EN 55022) Class B, area of application: Industry and residential |

## Drawings

Dimensional drawing




Block diagram



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2866323

**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: 16-193-00

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27040701 |

### ETIM

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

### UNSPSC

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

## 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 | 061338d1-7936-40eb-b79e-d37d0dc74e3b |

EF3.1 Climate Change

| | |
|---|---|
| CO2e kg | 38.393 kg CO2e |

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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com