

TRIO-PS/3AC/24DC/10 - Power supply unit



2866459

<https://www.phoenixcontact.com/in/products/2866459>

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Primary-switched TRIO POWER power supply for DIN rail mounting, input: 3-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

Commercial Data

| | |
|--------------------------------------|---------------------|
| Item number | 2866459 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales Key | CMP |
| Product Key | CMPT33 |
| Catalog Page | Page 177 (C-6-2013) |
| GTIN | 4046356046701 |
| Weight per Piece (including packing) | 1,469.2 g |
| Weight per Piece (excluding packing) | 1,300 g |
| Customs tariff number | 85044083 |
| Country of origin | CN |

Technical Data

Input data

AC operation

| | |
|---|--|
| Nominal input voltage range | 2x / 3x 400 V AC ... 500 V AC |
| Input voltage range | 3x 320 V AC ... 575 V AC 2x 360 V AC ... 575 V AC (for 2-phase operation) |
| Input voltage range AC | 3x 320 V AC ... 575 V AC 2x 360 V AC ... 575 V AC (for 2-phase operation) |
| Voltage type of supply voltage | AC |
| Inrush current | < 15 A |
| Inrush current integral (I^2t) | 0.2 A ² s |
| AC frequency range | 45 Hz ... 65 Hz |
| Mains buffering time | > 20 ms (3x 400 V AC) |
| Current consumption | 3x 0.6 A (400 V AC) 3x 0.5 A (480 V AC) |
| Nominal power consumption | 456 VA |
| Protective circuit | Transient surge protection; Varistor |
| Power factor (cos phi) | 0.59 |
| Typical response time | < 1 s |
| Strike voltage of gas-filled surge arrester (input to PE) | < |
| Input fuse | < |
| Permissible backup fuse | B6 B10 B16 |
| Permissible DC backup fuse | < |
| Recommended breaker for input protection | < 6 A ... 16 A (Characteristics B, C, D, K) |
| Recommended fuse for input protection | < |
| Discharge current to PE | < 3.5 mA |

Output data

| | |
|--|---|
| Efficiency | 88.5 % (at 400 V AC and nominal values) |
| Output characteristic | U/I |
| Nominal output voltage | 24 V DC \pm 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. 15 A |
| 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 | < 10 mV _{PP} |

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| | |
|--------------------------------------|--|
| Output power | 240 W |
| Peak switching voltages nominal load | < 30 mV _{PP} |
| Maximum no-load power dissipation | 7.5 W |
| Power loss nominal load max. | 34 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 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. | 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 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. | 16 |
| Conductor cross section AWG max. | 12 |
| 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} > 21.5 V: LED lights up |

Electrical properties

| | |
|---------------------------------|---------------------|
| Insulation voltage input/output | 4 kV AC (type test) |
|---------------------------------|---------------------|

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

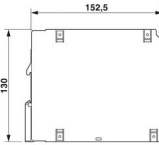
Product properties

| | |
|----------------------------|--------------|
| Product type | Power supply |
| Product family | TRIO POWER |
| MTBF (IEC 61709, SN 29500) | > 1156000 h |

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

| | |
|-------------------------|--|
| Assembly instructions | alignable: horizontally 0 mm, vertically 50 mm |
| Mounting position | horizontal DIN rail NS 35, EN 60715 |
| With protective coating | No |

Material specifications

| | |
|----------------------|--------------------------|
| Color | aluminium |
| 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 |

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| | |
|--|--|
| 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

| | |
|-------------------------------------|---|
| 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

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-2 |
|-----------------------|--------------|

Electrostatic discharge

| | |
|-------------------|---------------------|
| Contact discharge | 8 kV (Test Level 4) |
| 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 |

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| | |
|---------------------|-----------------|
| 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 |
| 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 |

Criteria

| | |
|-------------|--|
| Criterion A | Normal operating behavior within the specified limits. |
| Criterion B | Temporary impairment to operational behavior that is corrected by the device itself. |

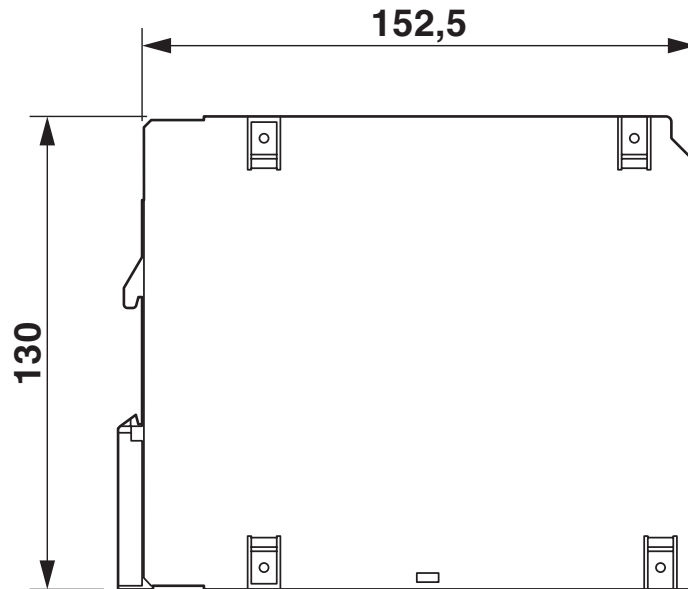
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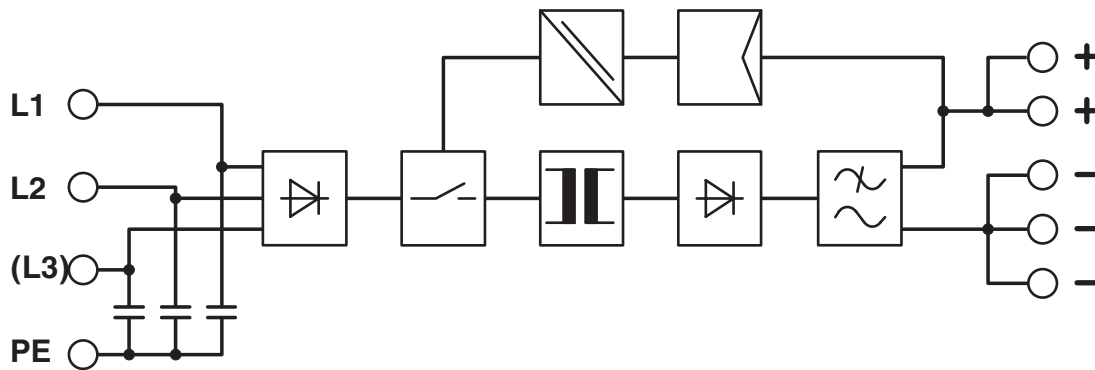
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Drawings

Dimensional drawing



Block diagram



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Approvals



cUL Recognized
Approval ID: FILE E 211944



UL Recognized
Approval ID: FILE E 211944



EAC
Approval ID: EAC-Zulassung



EAC
Approval ID: EAC-Zulassung



UL Listed
Approval ID: FILE E 123528



cUL Listed
Approval ID: FILE E 123528



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



UL Recognized
Approval ID: FILE E 211944



cUL Recognized
Approval ID: FILE E 211944



cUL Listed
Approval ID: FILE E 123528



UL Listed
Approval ID: FILE E 123528



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

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EAC

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



EAC

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Classifications

ECLASS

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

ETIM

| | |
|----------|----------|
| ETIM 8.0 | EC002540 |
|----------|----------|

UNSPSC

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

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Environmental Product Compliance

| | |
|------------|--|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 25; |
| | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

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Accessories

UWA 182/52 - Mounting adapter

2938235

<https://www.phoenixcontact.com/in/products/2938235>



Universal wall adapter for securely mounting the device in the event of strong vibrations. The device is screwed directly onto the mounting surface. The universal wall adapter is attached on the top/bottom.

UTA 107 - DIN rail adapter

2853983

<https://www.phoenixcontact.com/in/products/2853983>



Universal DIN rail adapter, for screwing on switchgear

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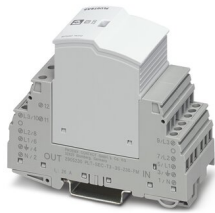
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PLT-SEC-T3-3S-230-FM - Type 3 surge protection device

2905230

<https://www.phoenixcontact.com/in/products/2905230>



Plug-in device protection, according to type 3/class III, for 3-phase power supply networks with separate N and PE (5-conductor system: L1, L2, L3, N, PE), with integrated surge-proof fuse and remote indication contact.

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

2907916

<https://www.phoenixcontact.com/in/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

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