

# TRIO-PS/ 1AC/12DC/ 5 - Power supply unit



2866475

<https://www.phoenixcontact.com/us/products/2866475>

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Primary-switched TRIO POWER power supply for DIN rail mounting, input: 1-phase, output: 12 V DC/5 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                          | 2866475             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | CM11                |
| Product key                          | CMPT12              |
| Catalog page                         | Page 172 (C-6-2015) |
| GTIN                                 | 4046356153751       |
| Weight per piece (including packing) | 638.4 g             |
| Weight per piece (excluding packing) | 500 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 ( $I^2t$ )       | < 0.5 A <sup>2</sup> s                                      |
| AC frequency range                       | 45 Hz ... 65 Hz                                             |
| Mains buffering time                     | > 26 ms (120 V AC)<br>> 100 ms (230 V AC)                   |
| Current consumption                      | 1.1 A (100 V AC)<br>0.5 A (240 V AC)                        |
| Nominal power consumption                | 112.5 VA                                                    |
| Protective circuit                       | Transient surge protection; Varistor                        |
| Power factor (cos phi)                   | 0.64                                                        |
| Typical response time                    | < 1 s                                                       |
| Permissible backup fuse                  | B6 B10 B16                                                  |
| Recommended breaker for input protection | 6 A ... 16 A (Characteristics B, C, D, K)                   |
| Discharge current to PE                  | < 3.5 mA                                                    |

### Output data

|                                                    |                                                                                                                                               |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Efficiency                                         | > 83 % (for 230 V AC and nominal values)                                                                                                      |
| Output characteristic                              | U/I                                                                                                                                           |
| Nominal output voltage                             | 12 V DC $\pm$ 1 %                                                                                                                             |
| Setting range of the output voltage ( $U_{Set}$ )  | 10 V DC ... 18 V DC (> 12 V DC, constant capacity restricted)                                                                                 |
| Nominal output current ( $I_N$ )                   | 5 A (-25 °C ... 55 °C)                                                                                                                        |
| Derating                                           | 55 °C ... 70 °C (2.5 %/K)                                                                                                                     |
| Feedback voltage resistance                        | 25 V DC                                                                                                                                       |
| Protection against overvoltage at the output (OVP) | < 25 V DC                                                                                                                                     |
| Max. capacitive load                               | unlimited                                                                                                                                     |
| Active current limitation                          | Approx. 5.9 A (in the event of a short-circuit)                                                                                               |
| Control deviation                                  | < 1 % (change in load, static 10 % ... 90 %)<br>< 2 % (change in load, dynamic 10 % ... 90 %)<br>< 0.1 % (change in input voltage $\pm$ 10 %) |
| Residual ripple                                    | < 20 mV <sub>PP</sub>                                                                                                                         |
| Output power                                       | 60 W                                                                                                                                          |
| Peak switching voltages nominal load               | < 100 mV <sub>PP</sub>                                                                                                                        |
| Maximum no-load power dissipation                  | 0.9 W                                                                                                                                         |
| Power loss nominal load max.                       | 11 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.   | 0.2 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              |

## 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) | > 1853000 h (40 °C) |

## Insulation characteristics

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

## Dimensions

|        |        |
|--------|--------|
| Width  | 32 mm  |
| Height | 130 mm |
| Depth  | 115 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 instructions   | 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)<br>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) |

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|                                                                                                                    |                            |
|--------------------------------------------------------------------------------------------------------------------|----------------------------|
| Standard – Limitation of mains harmonic currents                                                                   | EN 61000-3-2               |
| Standard - Electrical safety                                                                                       | EN 60950-1/VDE 0805 (SELV) |
|                                                                                                                    | EN 61558-2-17              |
| 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           |
| 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)

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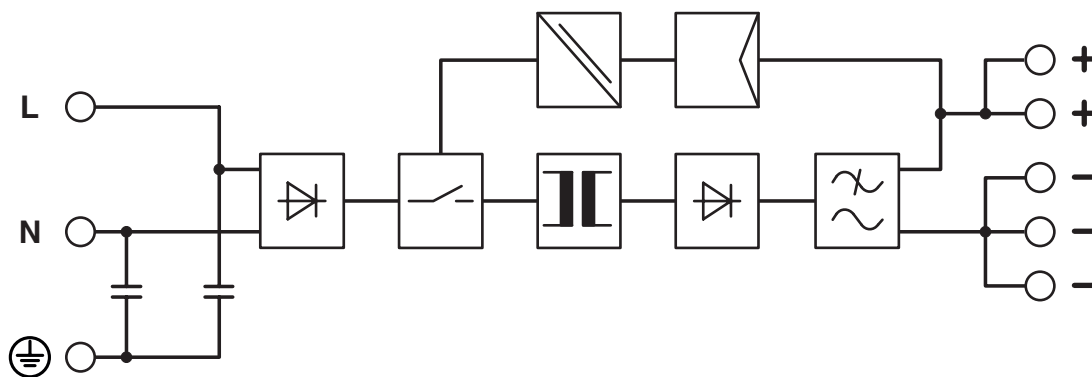


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## Drawings

Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2866475>



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



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



**EAC**  
Approval ID: EAC-Zulassung



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



**UL Listed**  
Approval ID: FILE E 123528



**cUL Listed**  
Approval ID: FILE E 123528



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

**cULus Recognized**

**cULus Listed**



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## Classifications

### ECLASS

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

### ETIM

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

### 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                                | b85212f4-6940-4567-95cf-e0b95150b85b |

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## Accessories

### VIP-2/SC/PDM-2/24 - Potential distributors

2315269

<https://www.phoenixcontact.com/us/products/2315269>



VARIOFACE module, with two equipotential busbars (P1, P2) for potential distribution, for mounting on NS 35 rails. Module width: 70.4 mm

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### VIP-3/PT/PDM-2/24 - Potential distributors

2903798

<https://www.phoenixcontact.com/us/products/2903798>



VARIOFACE module with push-in connection and two equipotential busbars (P1, P2) for potential distribution, for mounting on NS 35 rails. Module width: 57.1 mm

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## 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

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## 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

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