

# TRIO-PS/1AC/48DC/ 5 - Power supply unit



2866491

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Primary-switched TRIO POWER power supply for DIN rail mounting, input: 1-phase, output: 48 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                          | 2866491             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | CM11                |
| Product key                          | CMPT14              |
| Catalog page                         | Page 173 (C-6-2015) |
| GTIN                                 | 4046356288378       |
| Weight per piece (including packing) | 1,523.5 g           |
| Weight per piece (excluding packing) | 1,400 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 ( $I^2t$ )       | < 0.7 A <sup>2</sup> s                                      |
| AC frequency range                       | 45 Hz ... 65 Hz   |
| Mains buffering time                     | > 15 ms (120 V AC)<br>> 16 ms (230 V AC)                    |
| Current consumption                      | 2.5 A (120 V AC)<br>1.3 A (230 V AC)                        |
| Nominal power consumption                | 282 VA  |
| Protective circuit                       | Transient surge protection; Varistor                        |
| Power factor (cos phi)                   | 0.96  |
| Typical response time                    | < 1 s   |
| 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                             | 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 ( $I_N$ )                   | 5 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 5.7 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                                    | < 50 mV <sub>PP</sub>   |
| Output power                                       | 240 W   |
| Peak switching voltages nominal load               | < 50 mV <sub>PP</sub>   |
| Maximum no-load power dissipation                  | 7 W   |
| Power loss nominal load max.                       | 28 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) | > 1337000 h (40 °C) |

## Insulation characteristics

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

## Dimensions

|        |          |
|--------|----------|
| 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 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 | 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)

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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  |
| Input                 | 2 kV (Test Level 3 - symmetrical)<br>4 kV (Test Level 4 - asymmetrical) |
| Output                | 1 kV (Test Level 2 - symmetrical)<br>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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## 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

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