

# TRIO-PM/1AC/24DC/2500W - Power supply



1635194

<https://www.phoenixcontact.com/us/products/1635194>

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Primary-switched power supply unit TRIO POWER, Screw connection, CAN bus, Panel mounting, input: 1-phase, output: 24 V DC / 104 A, adjustable from 24 V DC ... 28 V DC

## Product description

The TRIO POWER power supply units for panel mounting offer high power of up to 2.5 kW in a compact housing. With their flexible panel mounting and comprehensive functions, the robust power supply units can be used in a wide range of applications, such as machine building, robotics, or battery storage systems. The integrated O-ring diode enables a simple parallel connection and thus an increase in power without additional components. Extensive monitoring solutions via LEDs, a CAN bus interface, and remote access also facilitate monitoring and settings on the power supply unit.

## Your advantages

- High power density and high efficiency with a compact design
- Robust and reliable due to dynamic boost with a powerful output characteristic curve
- Smart diagnostics with comprehensive monitoring via LED signaling and CAN bus interface
- Easy power increase with parallel connection with integrated O-ring diode
- Customized use through flexible panel mounting options

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1635194       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CM32          |
| Product key                          | CMHW13        |
| GTIN                                 | 4067923157835 |
| Weight per piece (including packing) | 2,392 g       |
| Weight per piece (excluding packing) | 2,000 g       |
| Customs tariff number                | 85044095      |
| Country of origin                    | CN            |

## Technical data

### Input data

#### AC operation

|                                    |                                                                                                   |
|------------------------------------|---------------------------------------------------------------------------------------------------|
| Supply system configuration        | Star network (TN, TT, IT (PE))                                                                    |
| Nominal input voltage range        | 100 V AC ... 240 V AC                                                                             |
| Input voltage range                | 100 V AC ... 240 V AC -15 % ... +10 %<br>100 V AC ... 240 V AC $\pm 10$ % (UL)                    |
| Derating                           | 85 V AC ... 90 V AC ( $\leq 1350$ W)<br>90 V AC ... 180 V AC ( $\leq 1500$ W)<br>2.5 %/K, > 55 °C |
| Electric strength, max.            | 300 V AC 15 s                                                                                     |
| Typical national grid voltage      | 120 V AC<br>230 V AC                                                                              |
| Voltage type of supply voltage     | AC                                                                                                |
| Inrush current                     | < 15 A (115 V AC, 25 °C)<br>< 40 A (230 V AC, 25 °C)                                              |
| Inrush current integral ( $I^2t$ ) | < 3364 A <sup>2</sup> s                                                                           |
| Frequency range ( $f_N$ )          | 50 Hz ... 60 Hz $\pm 5$ %                                                                         |
| Mains buffering time               | typ. 10 ms (120 V AC)<br>typ. 10 ms (230 V AC@80% load)                                           |
| Buffer time                        | typical 16 ms (120 V AC)<br>typical 16 ms (230 V AC@80% load)                                     |
| Current consumption                | 16.7 A (100 V AC)<br>20 A (85 V AC)<br>15 A (180 V AC)<br>11.7 A (230 V AC)<br>max. 18 A (UL)     |
| Protective circuit                 | Transient protection                                                                              |
| Power factor                       | 0.97 (230 V AC)                                                                                   |
| Device mains fuse                  | 25 A internal (device protection)                                                                 |
| Discharge current to PE            | < 2 mA                                                                                            |

#### DC operation

|                             |                                        |
|-----------------------------|----------------------------------------|
| Nominal input voltage range | 140 V DC ... 340 V DC                  |
| Input voltage range         | 140 V DC ... 340 V DC -15 %; +10 %     |
| Derating                    | 140 V DC ... 250 V DC ( $\leq 1500$ W) |
| Current consumption         | 13.8 A (120 V DC)<br>7.6 A (350 V DC)  |

### Output data

|            |                                                |
|------------|------------------------------------------------|
| Efficiency | typ. 92 % (120 V AC)<br>typ. 93.5 % (230 V AC) |
|------------|------------------------------------------------|

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|                                                    |                                                                                                                                                 |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal output voltage                             | 24 V DC                                                                                                                                         |
| Setting range of the output voltage ( $U_{Set}$ )  | 24 V DC ... 28 V DC (> 24 V DC, constant capacity restricted)                                                                                   |
| Nominal output current ( $I_N$ )                   | 104 A                                                                                                                                           |
| Dynamic Boost ( $I_{Dyn.Boost}$ )                  | max. 145.8 A (5 s)                                                                                                                              |
| Short-circuit-proof                                | yes                                                                                                                                             |
| No-load proof                                      | yes                                                                                                                                             |
| Crest factor                                       | typ. 1.43 (120 V AC)<br>typ. 1.44 (230 V AC)                                                                                                    |
| Output power                                       | max. 1500 W (< 180 V AC)                                                                                                                        |
| Output power ( $P_N$ )                             | 2500 W                                                                                                                                          |
| Output power ( $P_{Dyn.Boost}$ )                   | max. 3500 W (5 s)                                                                                                                               |
| Connection in parallel                             | yes, for increased efficiency and redundancy                                                                                                    |
| Connection in series                               | yes, for increased output voltage (observe SELV limit)<br>max. 2                                                                                |
| Feedback voltage resistance                        | $\leq 35$ V DC                                                                                                                                  |
| Protection against overvoltage at the output (OVP) | $\leq 35$ V DC                                                                                                                                  |
| Residual ripple                                    | typ. 240 mV <sub>pp</sub> (maximum)                                                                                                             |
| Control deviation                                  | < 0.5 % (change in load, static 10 % ... 90 %)<br>< 5 % (change in load, dynamic 10 % ... 90 %)<br>< 0.5 % (change in input voltage $\pm 10$ %) |
| Rise time                                          | $\leq 100$ ms ( $U_{Out} = 10$ % ... 90 %)                                                                                                      |
| Minimum no-load power dissipation                  | < 17.67 W (120 V AC)                                                                                                                            |
| Maximum no-load power dissipation                  | < 10.75 W (230 V AC)                                                                                                                            |
| Minimum nominal load power dissipation             | < 138.32 W (120 V AC)                                                                                                                           |
| Power loss nominal load max.                       | < 175.36 W (230 V AC)                                                                                                                           |
| Integrated fuse protection                         | no                                                                                                                                              |
| Fuse protection (secondary side)                   | electronic                                                                                                                                      |

## Connection data

### Input

|          |     |
|----------|-----|
| Position | 1.x |
|----------|-----|

### Connection technology: Positions

|                  |                                                                                                                      |
|------------------|----------------------------------------------------------------------------------------------------------------------|
| Position marking | 1.1 (L/+), 1.2 (N/-), 1.3 (⊕  ) |
|------------------|----------------------------------------------------------------------------------------------------------------------|

### Conductor connection

|                                                               |                                           |
|---------------------------------------------------------------|-------------------------------------------|
| Connection method                                             | Screw connection                          |
| rigid (Terminal block)                                        | 1.3 mm <sup>2</sup> ... 3 mm <sup>2</sup> |
| rigid (recommended)                                           | 2.5 mm <sup>2</sup> (recommended)         |
| flexible (Klemme)                                             | 1.3 mm <sup>2</sup> ... 3 mm <sup>2</sup> |
| flexible (empfohlen)                                          | 2.5 mm <sup>2</sup> (recommended)         |
| flexible with ferrule without plastic sleeve (Terminal block) | 1.3 mm <sup>2</sup> ... 3 mm <sup>2</sup> |
| flexible with ferrule without plastic sleeve (recommended)    | 2.5 mm <sup>2</sup> (recommended)         |
| flexible with ferrule with plastic sleeve (Terminal block)    | 1.3 mm <sup>2</sup> ... 3 mm <sup>2</sup> |

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|                                                         |                                                     |
|---------------------------------------------------------|-----------------------------------------------------|
| flexible with ferrule with plastic sleeve (recommended) | 2.5 mm <sup>2</sup> (recommended)                   |
| AWG (Terminal block)                                    | 18 ... 12 (Cu)                                      |
| AWG (recommended)                                       | 14 (recommended)                                    |
| Stripping length (starr/flexibel)                       | 10 mm (Rigid/flexible/ferrule)                      |
| Tightening torque (EU)                                  | 1.13 Nm ... 1.47 Nm                                 |
| Tightening torque ( )                                   | 10 lb <sub>F</sub> -in. ... 13 lb <sub>F</sub> -in. |

## Output

|          |     |
|----------|-----|
| Position | 2.x |
|----------|-----|

## Connection technology: Positions

|                  |                  |
|------------------|------------------|
| Position marking | 2.1 (+), 2.2 (-) |
|------------------|------------------|

## Conductor connection

|                                   |                                                           |
|-----------------------------------|-----------------------------------------------------------|
| Connection method                 | Screw connection (Busbar)                                 |
| rigid (Terminal block)            | 0.2 mm <sup>2</sup> ... 35 mm <sup>2</sup>                |
| rigid (recommended)               | 35 mm <sup>2</sup> (recommended)                          |
| flexible (Klemme)                 | 0.2 mm <sup>2</sup> ... 35 mm <sup>2</sup>                |
| flexible (empfohlen)              | 35 mm <sup>2</sup> (recommended)                          |
| AWG (Terminal block)              | 6 ... 2 (Cu)                                              |
| AWG (recommended)                 | 2 (recommended)                                           |
| Stripping length (starr/flexibel) | 10 mm (rigid/flexible/ring cable lug/fork-type cable lug) |
| Tightening torque (EU)            | 3 Nm                                                      |

## Signal, communication

|          |          |
|----------|----------|
| Position | 3.x, 4.x |
|----------|----------|

## Connection technology: Positions

|                  |                        |
|------------------|------------------------|
| Position marking | 3.1 - 3.10, 4.1 - 4.10 |
|------------------|------------------------|

## Conductor connection

|                                                               |                                                  |
|---------------------------------------------------------------|--------------------------------------------------|
| Connection method                                             | 2x 10-pos. pin strip                             |
| rigid (Terminal block)                                        | 0.1 mm <sup>2</sup> ... 0.4 mm <sup>2</sup>      |
| rigid (recommended)                                           | 0.34 mm <sup>2</sup> (recommended)               |
| flexible (Klemme)                                             | 0.1 mm <sup>2</sup> ... 0.4 mm <sup>2</sup>      |
| flexible (empfohlen)                                          | 0.34 mm <sup>2</sup> (recommended)               |
| flexible with ferrule without plastic sleeve (Terminal block) | 0.1 mm <sup>2</sup> ... 0.4 mm <sup>2</sup> (Cu) |
| flexible with ferrule without plastic sleeve (recommended)    | 0.34 mm <sup>2</sup> (recommended)               |
| flexible with ferrule with plastic sleeve (Terminal block)    | 0.1 mm <sup>2</sup> ... 0.4 mm <sup>2</sup>      |
| flexible with ferrule with plastic sleeve (recommended)       | 0.34 mm <sup>2</sup> (recommended)               |
| AWG (Terminal block)                                          | 30 ... 22 (Cu)                                   |
| AWG (recommended)                                             | 22 (recommended)                                 |

## Interfaces

### CAN-Bus

|           |         |
|-----------|---------|
| Interface | CAN bus |
|-----------|---------|

|                       |                                           |
|-----------------------|-------------------------------------------|
| Number of interfaces  | 1                                         |
| Connection method     | 10-pos. system connector                  |
| Supported protocols   | CAN 2.0A, CAN 2.0B                        |
| Locking               | Locking clip                              |
| Transmission physics  | wired                                     |
| Topology              | Daisy Chain                               |
| Transmission speed    | 250 kbps                                  |
| Transmission length   | max. 20 m                                 |
| Termination resistor  | 120 $\Omega$ (Terminating the end device) |
| Number of bus devices | max. 16                                   |

## Signaling

### LED signaling

|                         |                                                                                                                                                                                    |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Types of signaling      | LED DC OK - signal state operation ( $U_N = 24 \text{ V DC}$ , $I_{Out} = I_N$ )                                                                                                   |
| Function                | Visualization of the operating state of the DC output voltage (DC OK)                                                                                                              |
| Color                   | Red, green (multicolor LED)                                                                                                                                                        |
| LED off                 | Supply voltage input AC not present (Off)                                                                                                                                          |
| LED on (green), DC OK   | $U_{OutSet} \times 0.95 < U_{Out} < U_{OutSet} \times 1.05$ and $I_{Out} < I_N$ (On (green), DC OK)                                                                                |
| LED on (flashing green) | $U_{OutSet} \times 1.05 < U_{Out} < U_{OutSet} \times 1.1$ or $U_{OutSet} \times 0.9 < U_{Out} < U_{OutSet} \times 0.95$ or $I_N < I_{Out} < I_N \times 1.1$ (on (flashing green)) |
| LED on (red)            | $U_{OutSet} \times 0.9 > U_{Out}$ or $U_{OutSet} \times 1.1 < U_{Out}$ or $I_{Out} > I_N \times 1.1$ , continuously for 6 s (on (red))                                             |

### LED signaling

|                         |                                                                                |
|-------------------------|--------------------------------------------------------------------------------|
| Types of signaling      | LED OVP - signal state operation ( $U_N = 24 \text{ V DC}$ , $I_{Out} = I_N$ ) |
| Function                | Visualization of the surge protection operating state (OVP)                    |
| Color                   | Red, green (multicolor LED)                                                    |
| LED off                 | Supply voltage input AC not present (Off)                                      |
| LED on (green)          | $U_{Out} < U_{OutSet} \times 1.1$ (on (green))                                 |
| LED on (flashing green) | $U_{OutSet} \times 1.1 < U_{Out} < OVP$ (on (flashing green))                  |
| LED on (red)            | $U_{Out} > OVP$ (on (red))                                                     |

### LED signaling

|                         |                                                                                |
|-------------------------|--------------------------------------------------------------------------------|
| Types of signaling      | LED OCP - signal state operation ( $U_N = 24 \text{ V DC}$ , $I_{Out} = I_N$ ) |
| Function                | Visualization of the overcurrent protection operating state (OCP)              |
| Color                   | Red, green (multicolor LED)                                                    |
| LED off                 | Supply voltage input AC not present (Off)                                      |
| LED on (green)          | $I_{Out} < I_N \times 1.1$ (on (green))                                        |
| LED on (flashing green) | $I_N \times 1.1 < I_{Out} < I_N \times 1.3$ (on (flashing green))              |
| LED on (red)            | $I_{Out} > I_N \times 1.3$ continuously for 6 s (on (red))                     |

### LED signaling

|                    |                                                                                |
|--------------------|--------------------------------------------------------------------------------|
| Types of signaling | LED OTP - signal state operation ( $U_N = 24 \text{ V DC}$ , $I_{Out} = I_N$ ) |
| Function           | Visualization of the overtemperature protection operating state                |

|                         |                                                            |
|-------------------------|------------------------------------------------------------|
|                         | (OTP)                                                      |
| Color                   | Red, green (multicolor LED)                                |
| LED off                 | Supply voltage input AC not present                        |
| LED on (green)          | $T_{Amb} < OTP - 10\text{ °C}$ (on (green))                |
| LED on (flashing green) | $OTP - 10\text{ °C} < T_{Amb} < OTP$ (on (flashing green)) |
| LED on (red)            | $OTP < T_{Amb}$ (on (red))                                 |

## LED signaling

|                    |                                                                               |
|--------------------|-------------------------------------------------------------------------------|
| Types of signaling | LED FAN - signal state operation ( $U_N = 24\text{ V DC}$ , $I_{Out} = I_N$ ) |
| Function           | Visualization of the operating state of the fan (in operation or malfunction) |
| Color              | Red, green (multicolor LED)                                                   |
| LED on (green)     | FAN normal operation (on (4 x LED green))                                     |
| LED on (red)       | FAN failure (on (4 x LED red))                                                |

## LED signaling

|                      |                                                                               |
|----------------------|-------------------------------------------------------------------------------|
| Types of signaling   | LED SCP - signal state operation ( $U_N = 24\text{ V DC}$ , $I_{Out} = I_N$ ) |
| Function             | Visualization of the short-circuit protection operating state (SCP)           |
| Color                | Red, green (multicolor LED)                                                   |
| LED on (flowing red) | Short circuit (on (4 x LED red continuous))                                   |

## LED signaling

|                          |                                                                                         |
|--------------------------|-----------------------------------------------------------------------------------------|
| Types of signaling       | LED Charging Mode – signal state operation ( $U_N = 24\text{ V DC}$ , $I_{Out} = I_N$ ) |
| Function                 | Visualization of the charging mode                                                      |
| Color                    | Red, green (multicolor LED)                                                             |
| LEDs on (green flashing) | Charging mode activated (on (4 x LED green flashing))                                   |

## Signal state

|                 |                                                                               |
|-----------------|-------------------------------------------------------------------------------|
| State condition | $0.95 \cdot U_{OutSet} < U_{Out} < 1.05 \cdot U_{OutSet}$ and $I_{Out} < I_N$ |
|-----------------|-------------------------------------------------------------------------------|

## Signal output DC OK

|                                  |                                                                                            |
|----------------------------------|--------------------------------------------------------------------------------------------|
| Position                         | 4.x                                                                                        |
| Type of signaling                | DC OK switch contact - signal state operation ( $U_N = 24\text{ V DC}$ , $I_{Out} = I_N$ ) |
| Position marking                 | 4.1 (13), 4.2 (14)                                                                         |
| Function                         | Operating state forwarding                                                                 |
| Switch contact (floating)        | Optocoupler                                                                                |
| Switching voltage                | max. 30 V DC (SELV)                                                                        |
| Current carrying capacity        | max. 10 mA                                                                                 |
| State condition (Contact closed) | $U_{out} < 18\text{ V DC}$ (Contact closed)                                                |
| State condition (Contact open)   | $U_{out} > 18\text{ V DC}$ (Contact open)                                                  |

## Electrical properties

|                                 |                          |
|---------------------------------|--------------------------|
| Number of phases                | 1                        |
| Insulation voltage input/output | 4 kV AC (type test)      |
|                                 | 1.5 kV AC (routine test) |

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## Product properties

|                                    |                           |
|------------------------------------|---------------------------|
| Product type                       | Power supply              |
| Product family                     | TRIO POWER                |
| MTBF (IEC 61709, SN 29500)         | > 500000 h (25 °C)        |
|                                    | > 250000 h (40 °C)        |
|                                    | > 100000 h (55 °C)        |
| Environmental protection directive | RoHS Directive 2011/65/EU |
|                                    | Reach                     |

## Insulation characteristics

|                                       |                      |
|---------------------------------------|----------------------|
| Protection class                      | I                    |
| Overvoltage category (EN 61010-1)     | III ( $\leq 2000$ m) |
|                                       | II ( $\leq 5000$ m)  |
| Overvoltage category (EN 61010-2-201) | III ( $\leq 2000$ m) |
|                                       | II ( $\leq 5000$ m)  |
| Degree of pollution                   | 2                    |

## Life expectancy (electrolytic capacitors)

|                 |         |
|-----------------|---------|
| Temperature     | 25 °C   |
| Additional text | 8 years |

## Dimensions

### Item dimensions

|        |        |
|--------|--------|
| Width  | 108 mm |
| Height | 41 mm  |
| Depth  | 322 mm |

## Mounting

|                         |                                                                                                                                                                                     |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mounting type           | Panel mounting                                                                                                                                                                      |
| Assembly note           | Side mounting: 3 x M4 screws - installation depth < 4 mm<br>Back mounting: 4 x M4 screws - installation depth < 3 mm<br>Mounting with mounting adapter UWA 20/13 (item no. 1697537) |
| With protective coating | no                                                                                                                                                                                  |

## Material specifications

|                                        |                                               |
|----------------------------------------|-----------------------------------------------|
| Flammability rating according to UL 94 | V0 (Housing, terminal blocks)                 |
| Housing material                       | Steel sheet, zinc-plated                      |
| Hood version                           | Galvanized sheet steel, free from chrome (VI) |
| Side element version                   | Galvanized sheet steel, closed                |

## Environmental and real-life conditions

### Ambient conditions

|                                 |                                              |
|---------------------------------|----------------------------------------------|
| Degree of protection            | IP20                                         |
| Ambient temperature (operation) | -20 °C ... 70 °C (>55 °C Derating: 3,33 %/K) |

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|                                                |                                                                                          |
|------------------------------------------------|------------------------------------------------------------------------------------------|
| Ambient temperature (storage/transport)        | -40 °C ... 85 °C                                                                         |
| Ambient temperature (start-up type tested)     | -40 °C                                                                                   |
| Maximum altitude                               | ≤ 5000 m                                                                                 |
| Maximum altitude (Output power derating)       | > 2000 m (Derating: 10%/1000 m)                                                          |
| Max. permissible relative humidity (operation) | ≤ 95 % (at 25 °C, non-condensing)                                                        |
| Shock (operation)                              | 11 ms, 15g, per spatial direction (IEC 60068-2-27)                                       |
| Vibration (operation)                          | 10 Hz ... 18.2 Hz, amplitude ±0.75 mm (IEC 60068-2-6)<br>18.2 Hz ... 150 Hz, 1g, 90 min. |
| Noise level                                    | < 60 dB (1 m)                                                                            |

## Standards and regulations

### Safety of power supply units up to 1100 V (insulation distances)

|                          |                                                                  |
|--------------------------|------------------------------------------------------------------|
| Standard designation     | Safety of power supply units up to 1100 V (insulation distances) |
| Standards/specifications | DIN EN 61558-2-16                                                |

### Electrical safety

|                          |                        |
|--------------------------|------------------------|
| Standard designation     | Electrical safety      |
| Standards/specifications | IEC 61010-2-201 (SELV) |

### Safety for measurement, control, and laboratory equipment

|                          |                                                                   |
|--------------------------|-------------------------------------------------------------------|
| Standard designation     | Safety for equipment for measurement, control, and laboratory use |
| Standards/specifications | IEC 61010-1                                                       |

### Protective extra-low voltage

|                          |                                              |
|--------------------------|----------------------------------------------|
| Standard designation     | Protective extra-low voltage                 |
| Standards/specifications | IEC 61010-1 (SELV)<br>IEC 61010-2-201 (PELV) |

### Safe isolation

|                          |                 |
|--------------------------|-----------------|
| Standard designation     | Safe isolation  |
| Standards/specifications | IEC 61010-2-201 |

### Limitation of harmonic line currents

|                          |                                      |
|--------------------------|--------------------------------------|
| Standard designation     | Limitation of harmonic line currents |
| Standards/specifications | EN 61000-3-2                         |

### Mains variation/undervoltage

|                          |                              |
|--------------------------|------------------------------|
| Standard designation     | Mains variation/undervoltage |
| Standards/specifications | SEMI F47 - 0706              |

## Approvals

### UL

|                |                           |
|----------------|---------------------------|
| Identification | UL/C-UL Listed UL 61010-1 |
|----------------|---------------------------|

### UL

|                |                               |
|----------------|-------------------------------|
| Identification | UL/C-UL Listed UL 61010-2-201 |
|----------------|-------------------------------|

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## UL

|                |                             |
|----------------|-----------------------------|
| Identification | UL/C-UL Approved UL 62368-1 |
|----------------|-----------------------------|

## 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                                                                         |
| Noise immunity                      | Immunity in accordance with EN 61000-6-1 (residential),<br>EN 61000-6-2 (industrial) |

## Conducted noise emission

|                       |                        |
|-----------------------|------------------------|
| Standards/regulations | EN 55016               |
|                       | EN 61000-6-4 (Class A) |

## Noise emission

|                       |                        |
|-----------------------|------------------------|
| Standards/regulations | EN 55016               |
|                       | EN 61000-6-4 (Class A) |

## Harmonic currents

|                       |                        |
|-----------------------|------------------------|
| Standards/regulations | EN 61000-3-2           |
|                       | EN 61000-3-2 (Class A) |
| Frequency range       | 0 kHz ... 2 kHz        |

## Flicker

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-3-3 |
|                       | EN 61000-3-3 |

## Electrostatic discharge

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

## Electrostatic discharge

|                   |                     |
|-------------------|---------------------|
| Contact discharge | 4 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 (Test Level 3) |
| Frequency range     | 1 GHz ... 6 GHz       |
| Test field strength | 10 V/m (Test Level 3) |
| Comments            | Criterion A           |

## Fast transients (burst)

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

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## Fast transients (burst)

|          |                                  |
|----------|----------------------------------|
| Input    | asymmetrical 2 kV (Test Level 3) |
| Output   | asymmetrical 2 kV (Test Level 3) |
| Signal   | asymmetrical 1 kV (Test Level 3) |
| Comments | Criterion B                      |

## Surge voltage load (surge)

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-5 |
|-----------------------|--------------|

## Surge voltage load (surge)

|          |                                   |
|----------|-----------------------------------|
| Input    | symmetrical 2 kV (Test Level 4)   |
|          | asymmetrical 4 kV (Test Level 4)  |
| Output   | symmetrical 0.5 kV (Test Level 2) |
|          | asymmetrical 1 kV (Test Level 2)  |
| Signal   | asymmetrical 1 kV (Test Level 2)  |
| Comments | Criterion B                       |

## Conducted interference

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-6 |
|-----------------------|--------------|

## Conducted interference

|                     |                     |
|---------------------|---------------------|
| Input/output/signal | asymmetrical        |
| Frequency range     | 0.15 MHz ... 80 MHz |
| Comments            | Criterion A         |
| Voltage             | 10 V (Test Level 3) |

## Voltage dips

|                       |               |
|-----------------------|---------------|
| Standards/regulations | EN 61000-4-11 |
| Voltage               | 230 V AC      |
| Frequency             | 50 Hz         |
| Voltage dip           | 70 %          |
| Number of periods     | 25 periods    |
| Additional text       | Class 3       |
| Comments              | Criterion A   |
| Voltage dip           | 40 %          |
| Number of periods     | 10 periods    |
| Additional text       | Class 3       |
| Comments              | Criterion B   |
| Voltage dip           | 0 %           |
| Number of periods     | 1 period      |
| Additional text       | Class 3       |
| Comments              | Criterion A   |

## Criteria

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

# TRIO-PM/1AC/24DC/2500W - Power supply



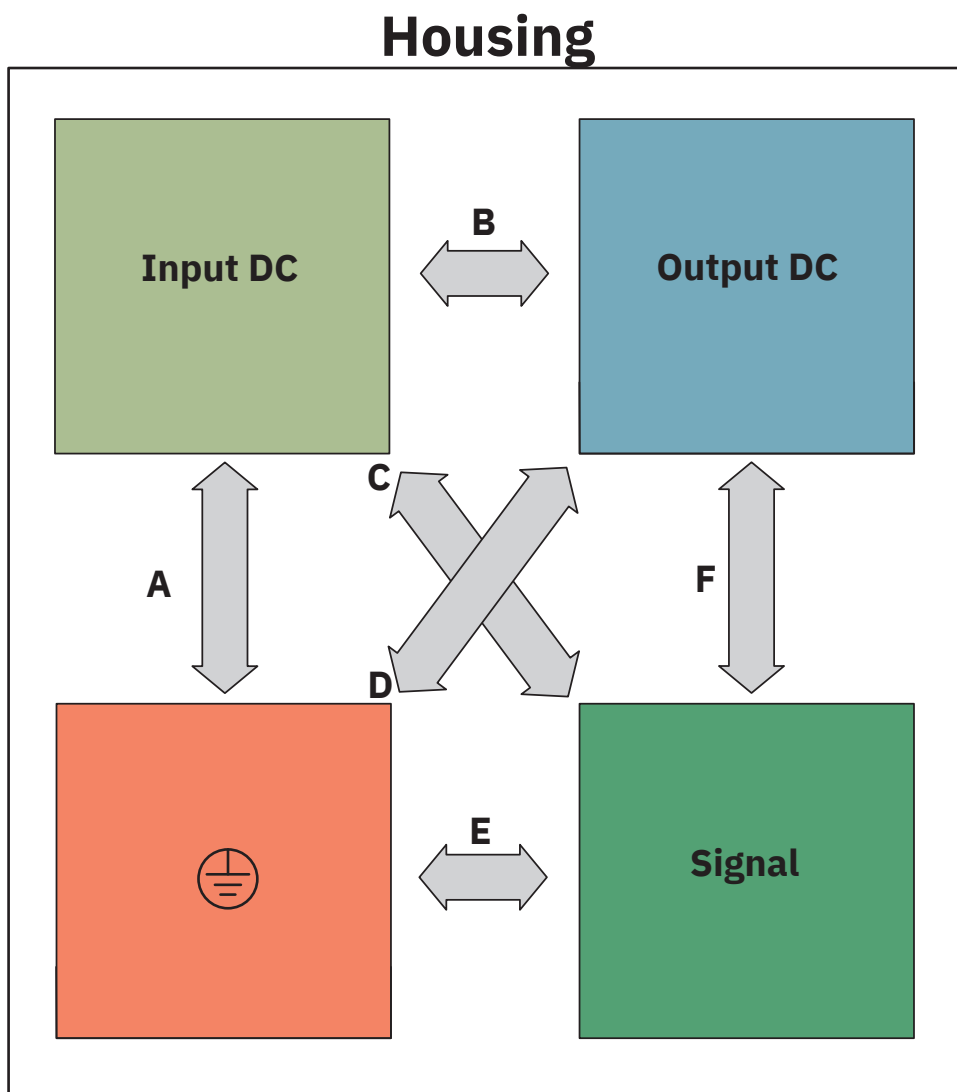
1635194

<https://www.phoenixcontact.com/us/products/1635194>

|             |                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | by the device itself.                                                                                                                                      |
| Criterion C | Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by actuating the operating elements. |

## Drawings

Schematic diagram



Test sections, insulation voltage

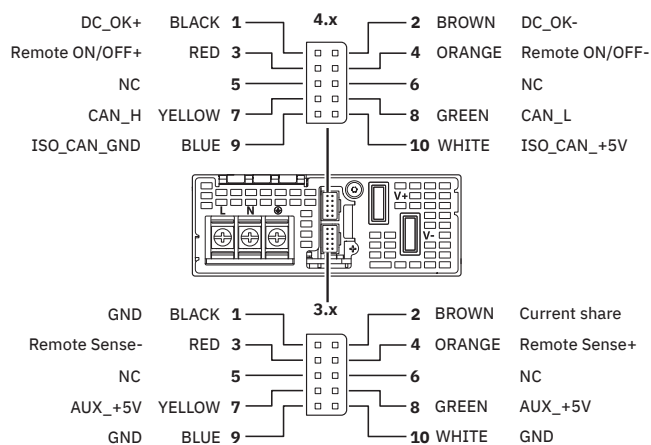
# TRIO-PM/1AC/24DC/2500W - Power supply

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<https://www.phoenixcontact.com/us/products/1635194>

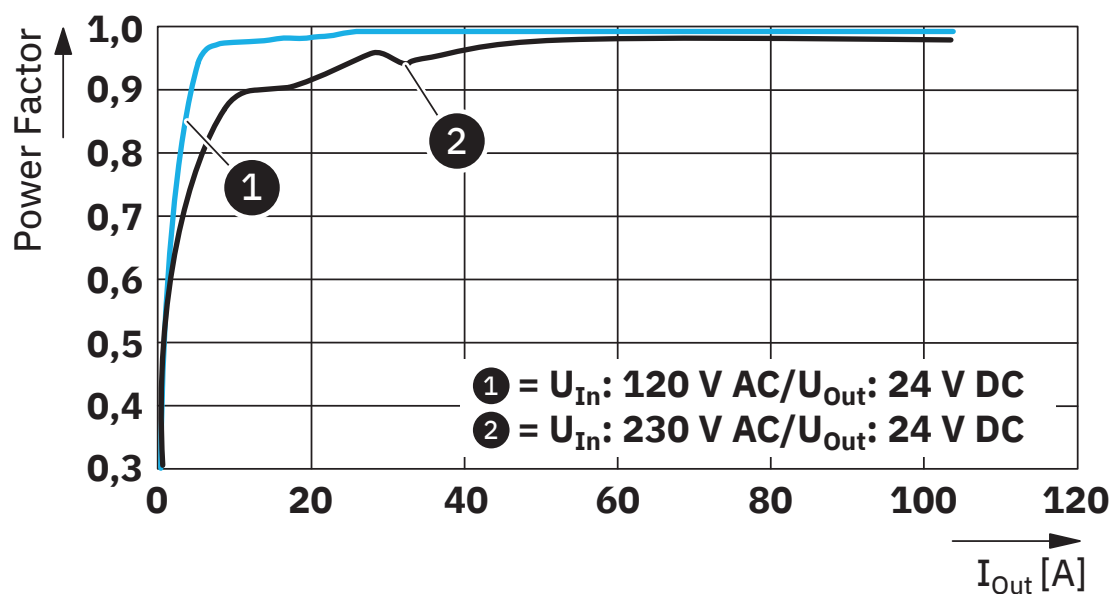


Schematic diagram



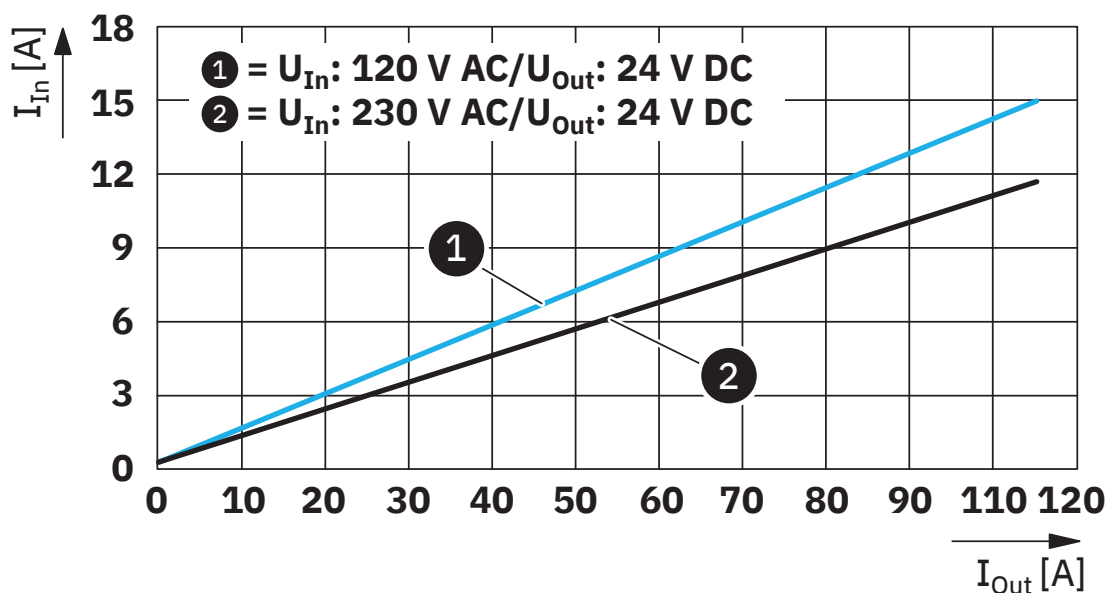
Signal assignment for data cable

Diagram



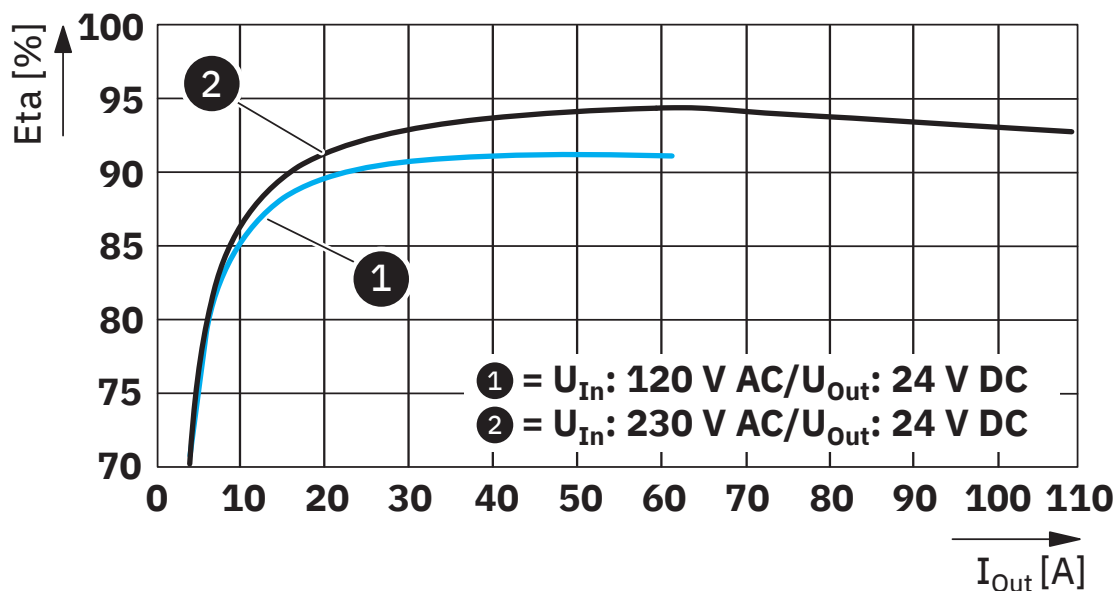
Power factor

Diagram

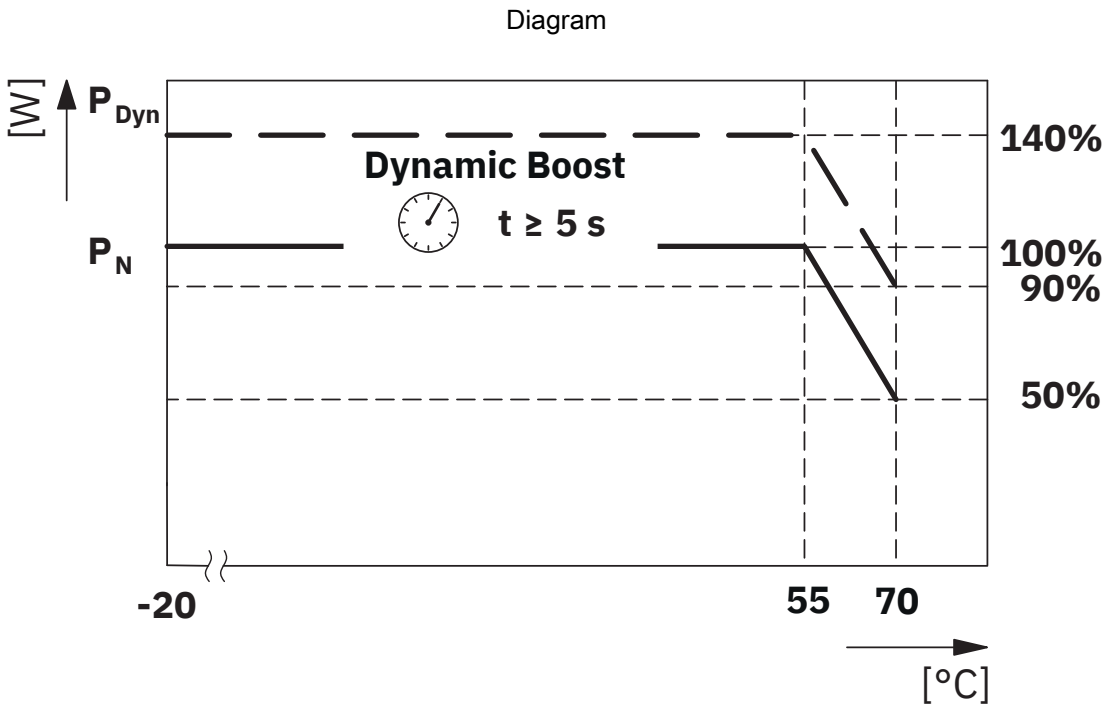


Input current/output current

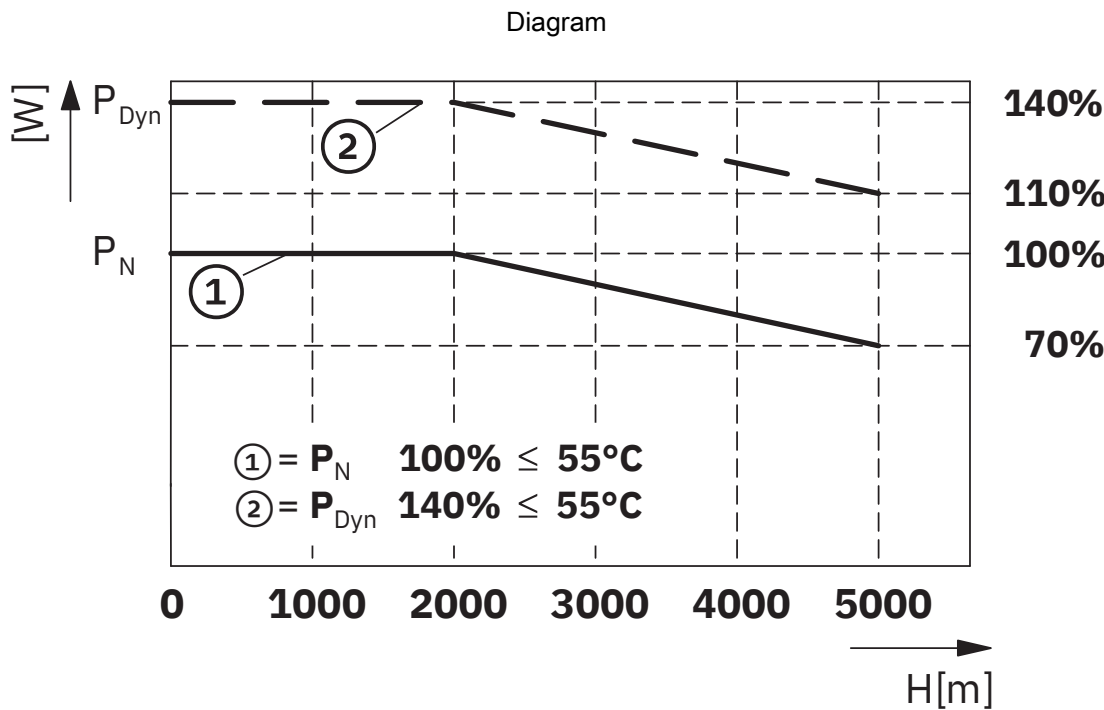
Diagram



Efficiency



Temperature-dependent derating



Altitude-dependent derating

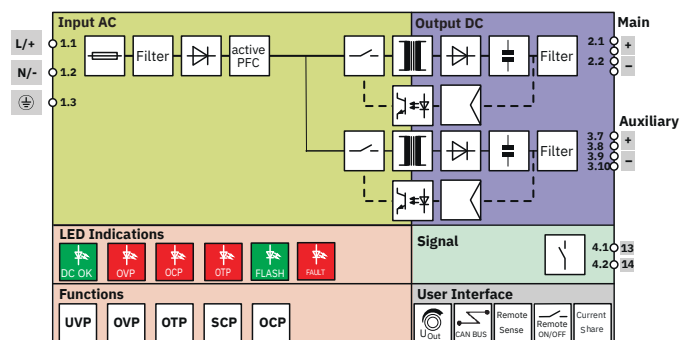
# TRIO-PM/1AC/24DC/2500W - Power supply

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Block diagram



Block diagram

# TRIO-PM/1AC/24DC/2500W - Power supply



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## Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1635194>



**IECEE CB Scheme**

Approval ID: DK-149995-UL



**cULus Recognized**

Approval ID: E211944-20240314



**cULus Listed**

Approval ID: E123528-20240426

# TRIO-PM/1AC/24DC/2500W - Power supply



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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27040701 |
| ECLASS-15.0 | 27040701 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002540 |
|-----------|----------|

### UNSPSC

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

# TRIO-PM/1AC/24DC/2500W - Power supply



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## Environmental product compliance

### EU RoHS

|                                         |              |
|-----------------------------------------|--------------|
| Fulfills EU RoHS substance requirements | Yes          |
| Exemption                               | 6(c), 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) |
|-------------------------------------|----------------------|

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