

UNO2-PS/1AC/48DC/240W - Power supply



1110155

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Primary-switched power supply unit UNO POWER, Screw connection, DIN rail mounting, input: 1-phase, output: 48 V DC / 5 A, adjustable from 42 V DC ... 56 V DC

Product description

UNO POWER power supplies with basic functionality.

Thanks to their high power density, compact UNO POWER power supplies offer the ideal solution for loads up to 960 W, particularly in compact control boxes. The power supply units are available in various performance classes and overall widths. Their high degree of efficiency and low idling losses ensure a high level of energy efficiency.

Your advantages

- Save space in the control cabinet with an extremely narrow overall width of just 45 mm
- Save energy, thanks to a high degree of efficiency
- Outdoor installation possible, with a wide temperature range of -25°C ... +70°C
- Simple output voltage monitoring, thanks to the floating DC OK relay contact



Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 1110155 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CM15 |
| Product key | CMPV14 |
| GTIN | 4063151024840 |
| Weight per piece (including packing) | 888 g |
| Weight per piece (excluding packing) | 855 g |

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| | |
|-----------------------|----------|
| Customs tariff number | 85044095 |
| Country of origin | TH |

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 % |
| Derating | < 90 V AC (1 %/V) |
| Typical national grid voltage | 120 V AC 230 V AC |
| Voltage type of supply voltage | AC |
| Inrush current | typ. 10 A (at 25 °C) |
| Inrush current integral (I^2t) | < 0.05 A ² s |
| Frequency range (f_N) | 50 Hz ... 60 Hz \pm 10 % |
| Mains buffering time | typ. 20 ms (120 V AC) typ. 20 ms (230 V AC) |
| Current consumption | 2.6 A (100 V AC) 2.2 A (120 V AC) 1.16 A (230 V AC) 1.2 A (240 V AC) |
| Protective circuit | Transient surge protection; Varistor, gas-filled surge arrester |
| Switch-on time | typ. 530 ms |
| Device mains fuse | 5 A internal (device protection), fast-blow |
| Recommended breaker for input protection | 10 A ... 16 A (Characteristic B, C, D, K or comparable) |
| Discharge current to PE | < 3.5 mA |

Output data

| | |
|--|--|
| Efficiency | typ. 91.5 % (120 V AC) typ. 93 % (230 V AC) |
| Nominal output voltage | 48 V DC |
| Setting range of the output voltage (U_{Set}) | 42 V DC ... 56 V DC (\geq 48 V DC, constant capacity restricted < 48 V DC, constant current restricted) |
| Nominal output current (I_N) | 5 A |
| Short-circuit-proof | yes |
| No-load proof | yes |
| Crest factor | typ. 1.637 (120 V AC) typ. 1.54 (230 V AC) |
| Output power (P_N) | 240 W |
| Connection in parallel | yes, for redundancy |
| Connection in series | yes, for increased output voltage |
| Feedback voltage resistance | \leq 60 V DC |
| Protection against overvoltage at the output (OVP) | \leq 60 V DC |
| Residual ripple | typ. 50 mV _{pp} (with nominal values) |

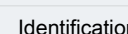
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| | |
|--|---|
| Control deviation | < 1 % (change in load, static 10 % ... 90 %) |
| | < 3 % (change in load, dynamic 10 % ... 90 %) |
| | < 0.1 % (change in input voltage ± 10 %) |
| Rise time | < 1 s ($U_{Out} = 10$ % ... 90 %) |
| Minimum no-load power dissipation | < 2.9 W (120 V AC) |
| Maximum no-load power dissipation | < 3 W (230 V AC) |
| Minimum nominal load power dissipation | < 23 W (120 V AC) |
| Power loss nominal load max. | < 19 W (230 V AC) |
| Integrated fuse protection | no |
| Fuse protection (secondary side) | electronic |

Connection data

Input

| | |
|----------------|--|
| Position | 1.x |
| Identification | 1.1 () FS L), 1.3 (N) |

Conductor connection

| | |
|--|---|
| Connection method | Screw connection |
| rigid | 0.2 mm ² ... 2.5 mm ² |
| flexible | 0.2 mm ² ... 2.5 mm ² |
| flexible with ferrule without plastic sleeve | 0.25 mm ² ... 2.5 mm ² |
| flexible with ferrule with plastic sleeve | 0.25 mm ² ... 2.5 mm ² |
| AWG | 24 ... 14 (Cu) |
| Stripping length | 6.5 mm |
| Tightening torque | 0.5 Nm ... 0.6 Nm |
| | 4 lb _f -in. ... 5 lb _f -in. |
| Drive form screw head | Slotted L |

Output

| | |
|----------------|----------------------------|
| Position | 2.x |
| Identification | 2.1, 2.2 (+), 2.3, 2.4 (-) |

Conductor connection

| | |
|--|---|
| Connection method | Screw connection |
| rigid | 0.2 mm ² ... 2.5 mm ² |
| flexible | 0.2 mm ² ... 2.5 mm ² |
| flexible with ferrule without plastic sleeve | 0.25 mm ² ... 2.5 mm ² |
| flexible with ferrule with plastic sleeve | 0.25 mm ² ... 2.5 mm ² |
| rigid (AWG) | 24 ... 14 (Cu) |
| AWG | 24 ... 14 (Cu) |
| Stripping length | 6.5 mm |
| Tightening torque | 0.5 Nm ... 0.6 Nm |
| | 4 lb _f -in. ... 5 lb _f -in. |
| Drive form screw head | Slotted L |

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Signal

| | |
|----------------|--------------------|
| Position | 3.x |
| Identification | 3.1 (13), 3.2 (14) |

Conductor connection

| | |
|--|--|
| Connection method | Screw connection |
| rigid | 0.2 mm ² ... 2.5 mm ² |
| flexible | 0.2 mm ² ... 2.5 mm ² |
| flexible with ferrule without plastic sleeve | 0.25 mm ² ... 2.5 mm ² |
| flexible with ferrule with plastic sleeve | 0.25 mm ² ... 2.5 mm ² |
| AWG | 24 ... 14 (Cu) |
| Stripping length | 6.5 mm |
| Tightening torque | 0.5 Nm ... 0.6 Nm 4 lb _F -in. ... 5 lb _F -in. |
| Drive form screw head | Slotted L |

Signaling

LED signaling

| | |
|--|--|
| Types of signaling | DC OK LED - signal state operation ($U_N = 48 \text{ V DC}$, $I_{Out} = I_N$) |
| Function | Visual operating state display |
| Color | green |
| LED off | Supply voltage input AC not present (Off) |
| LED on (green), DC OK | $U_{OUT} \geq 0.9 \times U_N$ ($U_N = 48 \text{ V DC}$) (On (green), DC OK) |
| LED on (flashing green) DC OK < 0.9 x UN | $U_{OUT} > 60 \text{ V DC}$ (on (flashing green)) |

Signal output Relay 13/14

| | |
|----------------------------------|---|
| Position | 3.x |
| Type of signaling | DC OK switch contact - signal state operation ($U_N = 48 \text{ V DC}$, $I_{Out} = I_N$) |
| Position marking | 3.1 (13), 3.2 (14) |
| Function | Operating state forwarding |
| Switch contact (floating) | OptoMOS |
| Switching voltage | max. 30 V AC/DC max. 60 V DC |
| Current carrying capacity | max. 50 mA |
| State condition (Contact closed) | $U_{OUT} \geq 0.9 \times U_N$ ($U_N = 48 \text{ V DC}$) (Contact closed) |
| State condition (Contact open) | $U_{OUT} < 42 \text{ V DC}$ (Contact open) $U_{OUT} > 60 \text{ V DC}$ (Contact open) |

Electrical properties

| | |
|---------------------------------|---|
| Number of phases | 1 |
| Insulation voltage input/output | 4 kV AC (type test) 3 kV AC (routine test) |
| Insulation voltage input / PE | 3.5 kV AC (type test) |

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| | |
|--|--------------------------|
| | 2.4 kV AC (routine test) |
|--|--------------------------|

Product properties

| | |
|------------------------------------|---------------------------|
| Product type | Power supply |
| Product family | UNO POWER |
| MTBF (IEC 61709, SN 29500) | > 1000000 h (25 °C) |
| | > 550000 h (40 °C) |
| | > 280000 h (55 °C) |
| Environmental protection directive | RoHS Directive 2011/65/EU |
| | WEEE |
| | Reach |

Insulation characteristics

| | |
|-----------------------------------|----------------------|
| Protection class | I |
| Overvoltage category (EN 61010-1) | II (≤ 3000 m) |
| Overvoltage category (EN 62477-1) | III (≤ 3000 m) |
| Degree of pollution | 2 |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Temperature | 40 °C |
| Additional text | 120 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Temperature | 40 °C |
| Additional text | 230 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Temperature | 40 °C |
| Additional text | 120 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Temperature | 40 °C |
| Additional text | 230 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Temperature | 40 °C |
| Additional text | 120 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Temperature | 40 °C |
| Additional text | 230 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Temperature | 25 °C |
| Additional text | 120 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-------------|-------|
| Temperature | 25 °C |
|-------------|-------|

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| | |
|-----------------|----------|
| Additional text | 230 V AC |
|-----------------|----------|

Dimensions

Item dimensions

| | |
|--|---|
| Width | 45 mm |
| Height | 130 mm |
| Depth | 129 mm |
| Depth (Device depth (DIN rail mounting)) | 125 mm (Device depth (DIN rail mounting)) |

Installation dimensions

| | |
|--|---------------|
| Installation distance right/left (active, passive) | 0 mm / 0 mm |
| Installation distance top/bottom (active, passive) | 30 mm / 30 mm |

Mounting

| | |
|-------------------------|--|
| Mounting type | DIN rail mounting |
| Assembly note | alignable: 0 mm horizontally, 30 mm vertically |
| Mounting position | horizontal DIN rail NS 35, EN 60715 |
| With protective coating | no |

Material specifications

| | |
|--|---|
| Flammability rating according to UL 94 | V0 (Housing, terminal blocks) |
| Housing material | Metal |
| Housing material | Aluminum (AlMg3) / sheet steel, zinc-plated |
| Hood version | Stainless steel |
| Side element version | Aluminum |
| Foot latch material | Sheet steel, zinc-plated |

Environmental and real-life conditions

Ambient conditions

| | |
|--|---|
| Degree of protection | IP20 IP20 |
| Ambient temperature (operation) | -25 °C ... 70 °C (> 55 °C Derating: 2.5 %/K) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Ambient temperature (start-up type tested) | -40 °C |
| Maximum altitude | ≤ 3000 m (> 2000 m, Derating: 10 %/1000 m) |
| Climatic class | 3K22 (in accordance with EN 60721) |
| Max. permissible relative humidity (operation) | ≤ 95 % (at 25 °C, non-condensing) |
| Shock (operation) | 18 ms, 30g, per spatial direction (IEC 60068-2-27) |
| Vibration (operation) | 10 Hz ... 50 Hz, amplitude ±0.2 mm (IEC 60068-2-6) 50 Hz ... 150 Hz, 2.3g, 90 min. |
| Temp code | T4 (-25°C ... +70°C; >55°C, derating: 2.5 %/K) |

Standards and regulations

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

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| | |
|--------------------------|--|
| 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) |
| | IEC 61010-2-201 (PELV) |

Safe isolation

| | |
|--------------------------|-----------------|
| Standard designation | Safe isolation |
| Standards/specifications | IEC 61558-2-16 |
| | IEC 61010-2-201 |

Limitation of harmonic line currents

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

Mains voltage dips

| | |
|--------------------------|---|
| Standard designation | Requirement of the semiconductor industry with regard to mains voltage dips |
| Standards/specifications | SEMI F47 - 0706 (180 V AC) |

Approvals

UL

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

UL

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

UL

| | |
|----------------|---|
| Identification | UL/C-UL Listed ANSI/UL 121201 Class I, Division 2, Groups A, B, C, D (Hazardous Location) |
|----------------|---|

SIQ

| | |
|----------------|--|
| Identification | CB scheme (IEC 61010-1, IEC 61010-2-201) |
|----------------|--|

EMC data

| | |
|-------------------------------|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Low Voltage Directive | Conformance with Low Voltage Directive 2014/35/EC |

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| | |
|-------------------------------------|--|
| Interference emission | Interference emission in accordance with EN 61000-6-3 (residential and commercial) and EN 61000-6-4 (industrial) |
| EMC requirements for noise immunity | EN 61000-6-2 |
| Conducted noise emission | |
| Standards/regulations | EN 55016 EN 61000-6-3 (Class B) |
| Noise emission | |
| Standards/regulations | EN 55016 EN 61000-6-3 (Class B) |
| 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 |
| Frequency range | 0 kHz ... 2 kHz |
| 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 (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 |
| Fast transients (burst) | |
| Input | 4 kV (Test Level 4 - asymmetrical) |
| Output | 2 kV (Test Level 3 - asymmetrical) |
| Comments | Criterion A |
| Surge voltage load (surge) | |
| Standards/regulations | EN 61000-4-5 |

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Surge voltage load (surge)

| | |
|----------|------------------------------------|
| Input | 2 kV (Test Level 4 - symmetrical) |
| | 4 kV (Test Level 4 - asymmetrical) |
| Output | 1 kV (Test Level 3 - symmetrical) |
| | 2 kV (Test Level 3 - asymmetrical) |
| Comments | Criterion A |

Conducted interference

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

Conducted interference

| | |
|-----------------|---------------------|
| Input/Output | 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 / 30 periods |
| Comments | Criterion A |
| Voltage dip | 40 % |
| Number of periods | 12 periods |
| Additional text | Test Level 2 |
| Comments | Criterion A |
| Voltage dip | 0 % |
| Number of periods | 1 period |
| Additional text | Test Level 2 |
| Comments | Criterion B |

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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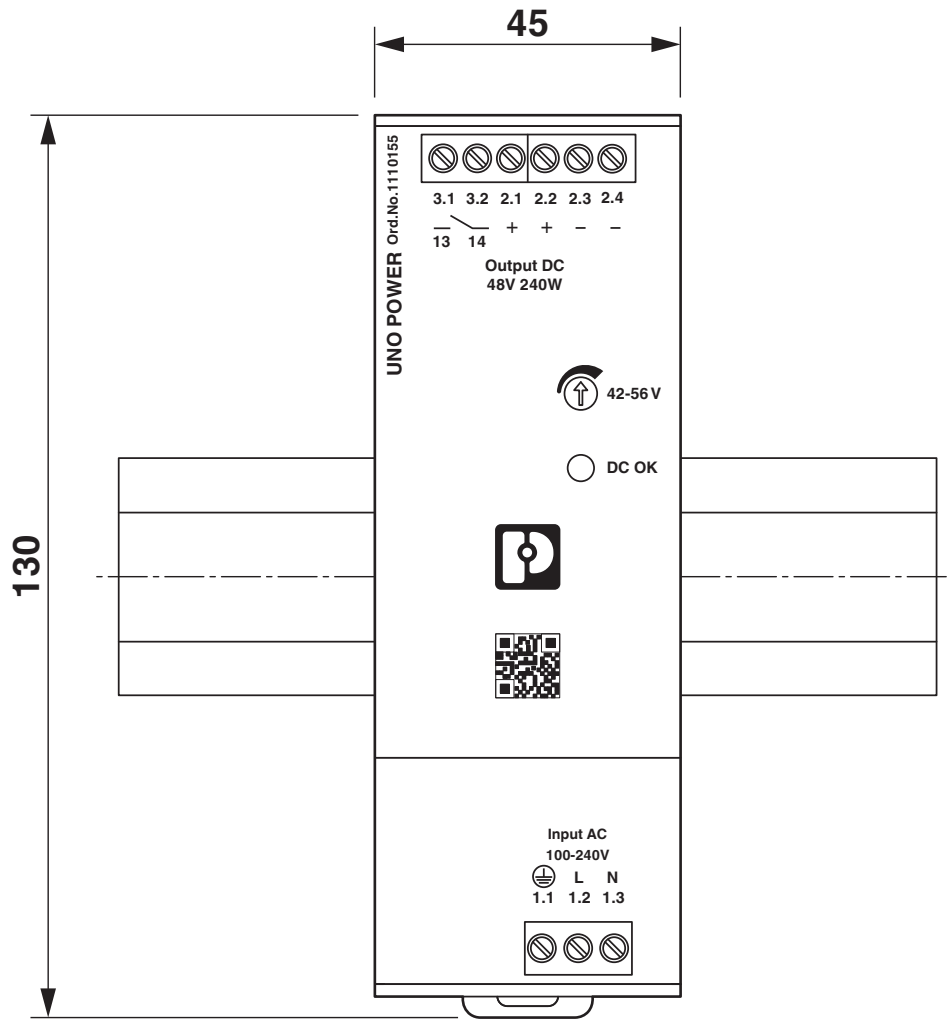


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Drawings

Dimensional drawing



Device dimensions (dimensions in mm)

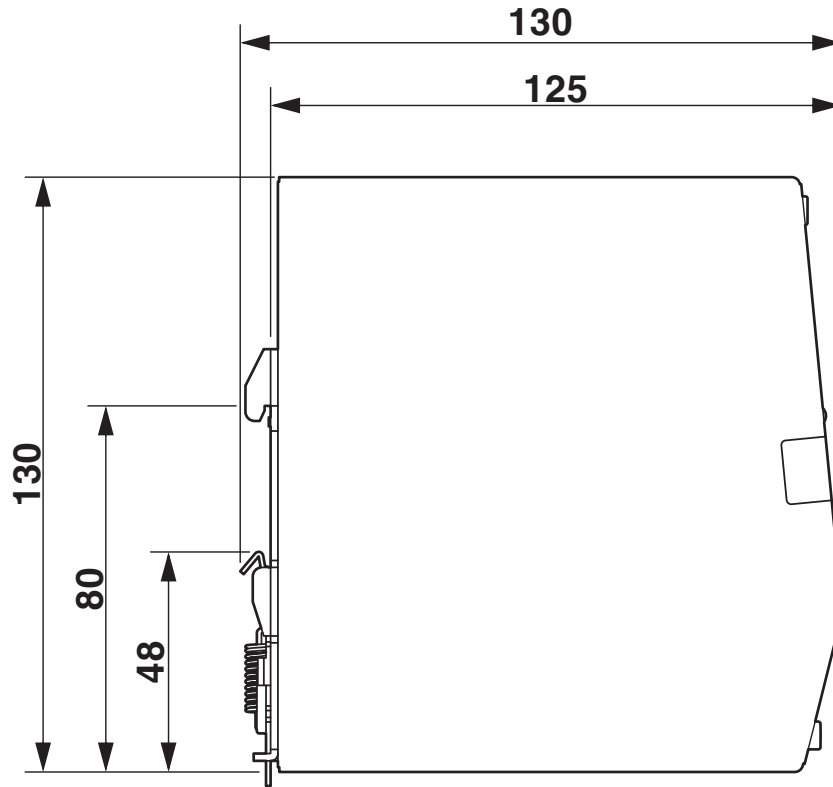
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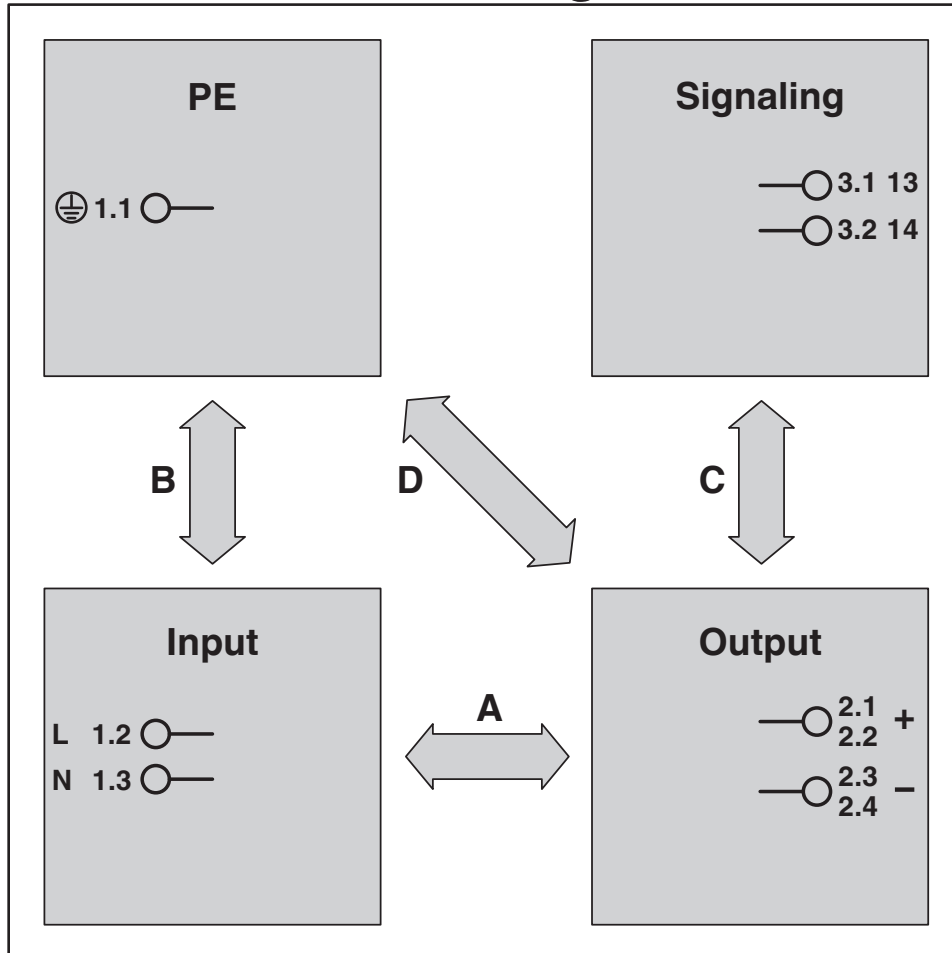
Dimensional drawing



Device dimensions (dimensions in mm)

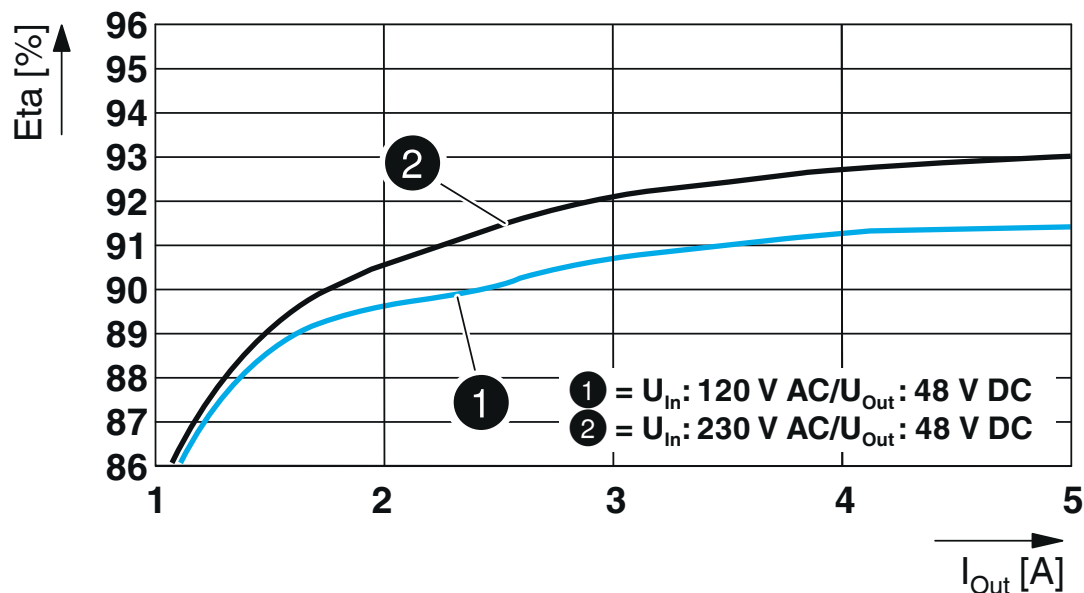
Schematic diagram

Housing



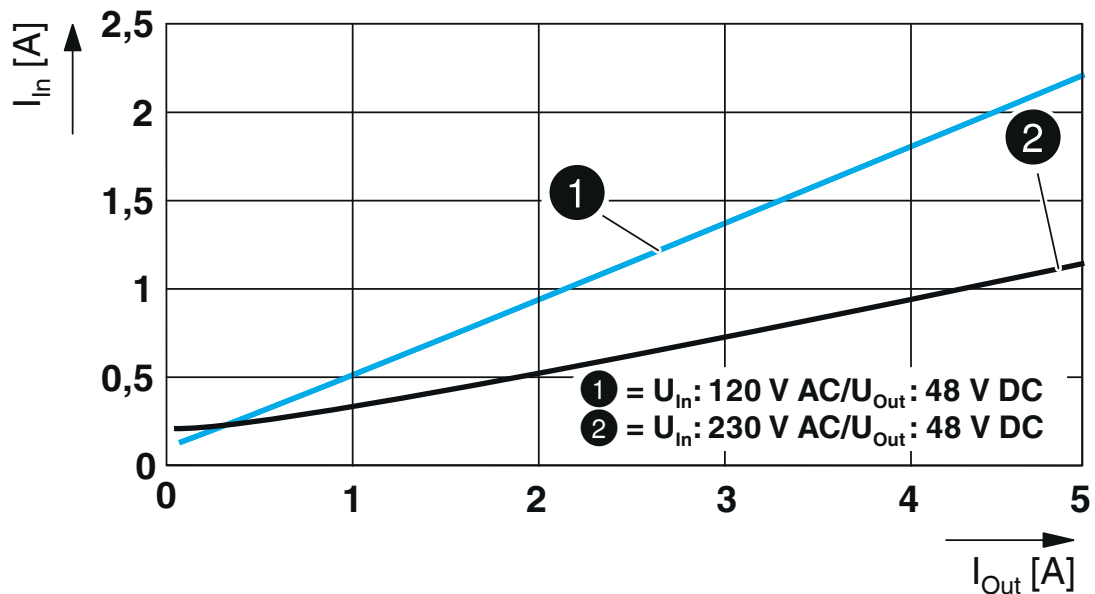
Test sections, insulation voltage

Diagram

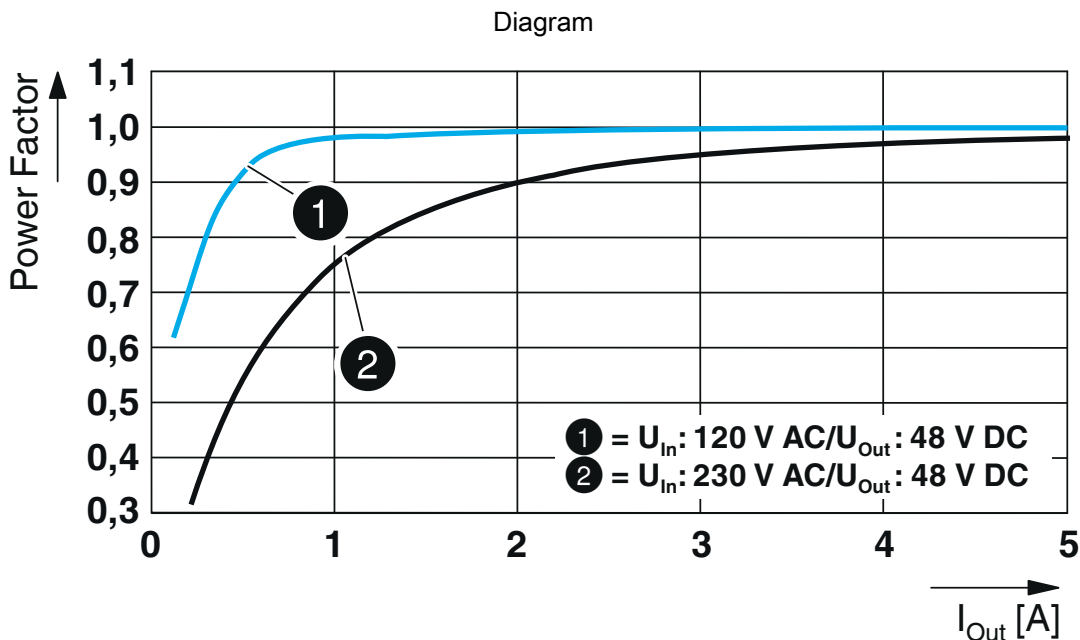


Efficiency

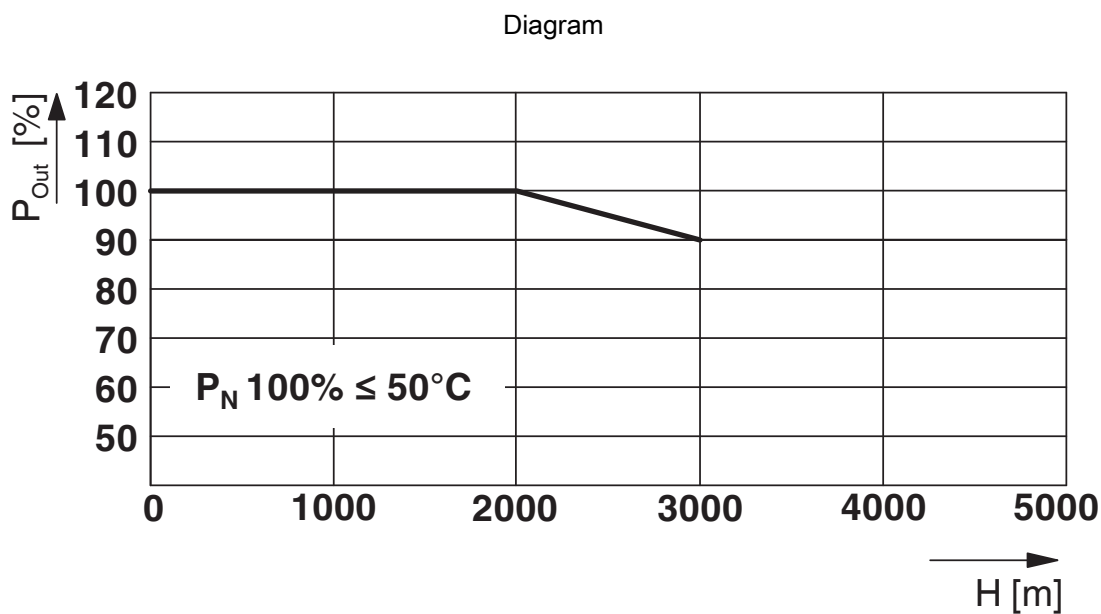
Diagram



Input current/output current



Power factor



Output power/installation altitude

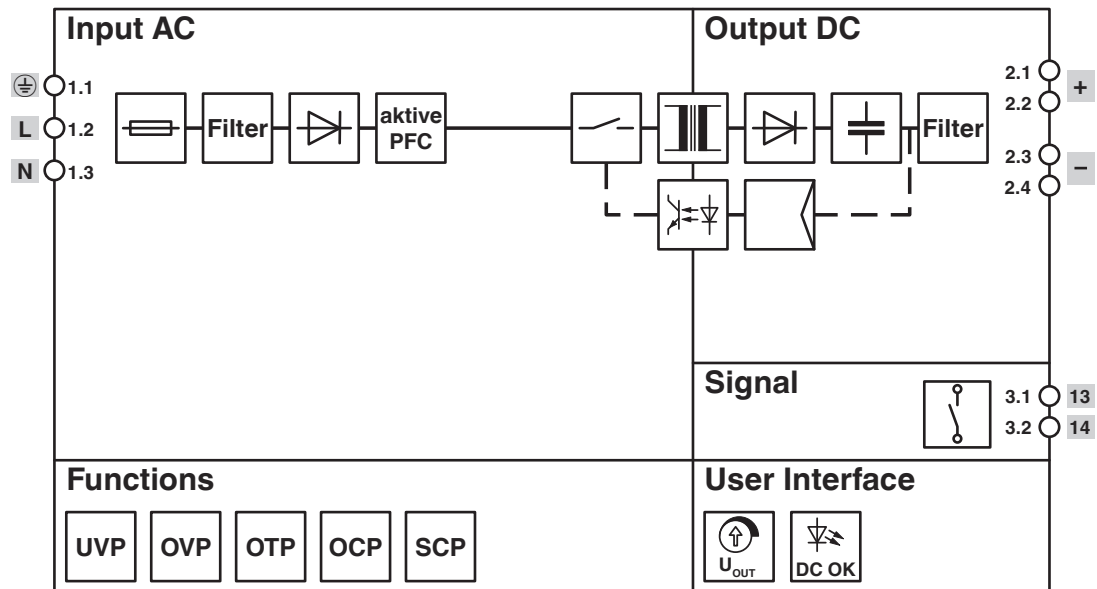
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Block diagram



Block diagram

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Approvals

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cULus Listed

Approval ID: FILE E 123528



EAC

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



cULus Listed

Approval ID: FILE E 199827

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Classifications

ECLASS

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

ETIM

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

UNSPSC

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

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Environmental product compliance

EU RoHS

| | |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 6(c), 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 | 847686ff-a535-406c-ad8b-e752f6e6b481 |

EF3.1 Climate Change

| | |
|---------|----------------|
| CO2e kg | 26.528 kg CO2e |
|---------|----------------|

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