

QUINT4-PS/1AC/2X15DC/2/PT - Power supply



2904596

<https://www.phoenixcontact.com/us/products/2904596>

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Primary-switched power supply unit QUINT POWER, Push-in connection, DIN rail mounting, input: 1-phase, output: 15 V DC / 2 A

Product description

In the power range of up to 100 W, QUINT POWER provides superior system availability in the smallest size. Preventative function monitoring and exceptional power reserves are available for applications in the low-power range.

Your advantages

- Starting of heavy loads with dynamic boost
- Preventive function monitoring indicates critical operating states before errors occur
- High efficiency and long service life, with low power dissipation and low heating
- Space savings in the control cabinet, thanks to a narrow, slim-line design
- Fast and easy startup, thanks to tool-free Push-in connection technology

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2904596 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CM10 |
| Product key | CMPI12 |
| GTIN | 4055626255743 |
| Weight per piece (including packing) | 360 g |
| Weight per piece (excluding packing) | 370 g |
| Customs tariff number | 85044095 |
| Country of origin | VN |

Technical data

Input data

AC operation

| | |
|--|--|
| Input voltage range | 100 V AC ... 240 V AC -15 % ... +10 % |
| Electric strength, max. | 300 V AC 30 s |
| Typical national grid voltage | 120 V AC |
| | 230 V AC |
| Voltage type of supply voltage | AC |
| Inrush current | < 15 A (at 25 °C) |
| Inrush current integral (I^2t) | < 0.03 A ² s |
| Inrush current limitation | < 5 A |
| Frequency range (f_N) | 50 Hz ... 60 Hz -10 % ... +10 % |
| Mains buffering time | typ. 32 ms (120 V AC) |
| | typ. 32 ms (230 V AC) |
| Current consumption | 0.69 A (100 V AC) |
| | 0.59 A (120 V AC) |
| | 0.31 A (230 V AC) |
| | 0.31 A (240 V AC) |
| Nominal power consumption | 96.3 VA |
| Protective circuit | Transient surge protection; Varistor |
| Typical response time | 300 ms |
| Input fuse | 3.15 A (slow-blow, internal) |
| Recommended breaker for input protection | 6 A ... 16 A (Characteristic B, C or comparable) |
| Discharge current to PE | < 0.25 mA (264 V AC, 60 Hz) |
| | < 0.17 mA |

DC operation

| | |
|------------------------------------|---------------------------------------|
| Input voltage range | 110 V DC ... 250 V DC -20 % ... +10 % |
| Voltage type of supply voltage | DC |
| Inrush current integral (I^2t) | < 0.03 A ² s |
| Inrush current limitation | < 5 A |
| Current consumption | 0.61 A (110 V DC) |
| | 0.27 A (250 V DC) |

Output data

| | |
|-----------------------------------|------------------------|
| Efficiency | typ. 88.8 % (120 V AC) |
| | typ. 89.4 % (230 V AC) |
| Nominal output voltage | ± 15 V DC |
| Nominal output current (I_N) | 2 A (+) |
| | 1.4 A (-) |
| Static Boost ($I_{Stat.Boost}$) | 2.5 A ((+) ≤ 40 °C) |
| Dynamic Boost ($I_{Dyn.Boost}$) | 4 A ((+) ≤ 60 °C, 5 s) |

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| | |
|--|---|
| Feedback voltage resistance | ≤ 25 V DC |
| Protection against overvoltage at the output (OVP) | ≤ 18 V DC |
| Control deviation | < 0.5 % (Static load change 10 % ... 90 %) |
| | < 2 % (Dynamic load change 10 % ... 90 %, (10 Hz)) |
| | < 0.1 % (change in input voltage ±10 %) |
| Residual ripple | < 60 mV _{PP} (with nominal values) |
| Short-circuit-proof | yes |
| No-load proof | yes |
| Output power | 51 W |
| | 58.5 W |
| | 81 W |
| Maximum no-load power dissipation | < 1.4 W (120 V AC) |
| | < 2 W (230 V AC) |
| Power loss nominal load max. | < 6.6 W (120 V AC) |
| | < 6.1 W (230 V AC) |
| Crest factor | typ. 1.8 (120 V AC) |
| | typ. 2.2 (230 V AC) |
| Rise time | 50 ms (U _{Out} = 10 % ... 90 %) |
| Connection in parallel | yes, for redundancy and increased capacity |
| Connection in series | yes |
| Signal (configurable) | |
| Digital | 0 V DC 15 V DC 24 mA |
| Default | 15 V DC 24 mA 15 V DC for U _{Out} > 0.9 x U _{Set} |

Connection data

Input

| | |
|---|----------------------|
| Connection method | Push-in connection |
| Conductor cross-section, rigid min. | 0.2 mm ² |
| Conductor cross-section, rigid max. | 2.5 mm ² |
| Conductor cross-section flexible min. | 0.2 mm ² |
| Conductor cross-section flexible max. | 2.5 mm ² |
| Single conductor/terminal point, stranded, with ferrule, min. | 0.25 mm ² |
| Single conductor/terminal point, stranded, with ferrule, max. | 2.5 mm ² |
| Conductor cross-section AWG min. | 24 |
| Conductor cross-section AWG max. | 14 |
| Stripping length | 10 mm |

Output

| | |
|---------------------------------------|---------------------|
| Connection method | Push-in connection |
| Conductor cross-section, rigid min. | 0.2 mm ² |
| Conductor cross-section, rigid max. | 2.5 mm ² |
| Conductor cross-section flexible min. | 0.2 mm ² |
| Conductor cross-section flexible max. | 2.5 mm ² |

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| | |
|---|----------------------|
| Single conductor/terminal point, stranded, with ferrule, min. | 0.25 mm ² |
| Single conductor/terminal point, stranded, with ferrule, max. | 2.5 mm ² |
| Conductor cross-section AWG min. | 24 |
| Conductor cross-section AWG max. | 14 |
| Stripping length | 10 mm |

Signal

| | |
|---|----------------------|
| Connection method | Push-in connection |
| Conductor cross-section, rigid min. | 0.2 mm ² |
| Conductor cross-section, rigid max. | 2.5 mm ² |
| Conductor cross-section flexible min. | 0.2 mm ² |
| Conductor cross-section flexible max. | 2.5 mm ² |
| Single conductor/terminal point, stranded, with ferrule, min. | 0.25 mm ² |
| Single conductor/terminal point, stranded, with ferrule, max. | 2.5 mm ² |
| Conductor cross-section AWG min. | 24 |
| Conductor cross-section AWG max. | 14 |
| Stripping length | 10 mm |

Signaling

| | |
|--------------------|-----|
| Types of signaling | LED |
|--------------------|-----|

Signal output

| | |
|-----------|--|
| P_{Out} | $> P_{Thr}$ (LED lights up yellow, output power $> P_{Thr}$, depending on the rotary selector switch setting) |
| U_{Out} | $> 0.9 \times U_{Set}$ (LED lights up green) |
| | $< 0.9 \times U_{Set}$ (LED flashes green) |

Electrical properties

| | |
|---------------------------------|--|
| Number of phases | 1 |
| Insulation voltage input/output | 4 kV AC (type test) |
| | 3 kV AC (routine test) |
| Switching frequency | 4.00 kHz ... 70.00 kHz (Auxiliary converter stage) |
| | 80.00 kHz ... 190.00 kHz (Main converter stage) |
| | 30.00 kHz ... 150.00 kHz (PFC stage) |

Product properties

| | |
|----------------------------|-----------------------|
| Product type | Power supply |
| Product family | QUINT POWER |
| MTBF (IEC 61709, SN 29500) | > 1284000 h (25 °C) |
| | > 644000 h (40 °C) |
| | > 231000 h (60 °C) |

Insulation characteristics

| | |
|-----------------------------------|----------------------|
| Protection class | II |
| Overvoltage category (EN 61010-1) | II (≤ 5000 m) |
| Overvoltage category (EN 62477-1) | III (≤ 2000 m) |

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| | |
|---------------------|---|
| Degree of pollution | 2 |
|---------------------|---|

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Current | 2 A |
| Temperature | 40 °C |
| Time | 56000 h |
| Additional text | 120 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Current | 2 A |
| Temperature | 40 °C |
| Time | 65000 h |
| Additional text | 230 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Current | 2 A |
| Temperature | 25 °C |
| Time | 168000 h |
| Additional text | 120 V AC |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Current | 2 A |
| Temperature | 25 °C |
| Time | 195000 h |
| Additional text | 230 V AC |

Dimensions

| | |
|--------|--------|
| Width | 45 mm |
| Height | 106 mm |
| Depth | 90 mm |

Installation dimensions

| | |
|--|---------------------------------------|
| Installation distance right/left (active) | 15 mm / 15 mm ($P_{Out} \geq 50\%$) |
| Installation distance right/left (passive) | 5 mm / 5 mm ($P_{Out} \geq 50\%$) |
| Installation distance right/left (active, passive) | 0 mm / 0 mm ($P_{Out} \leq 50\%$) |
| Installation distance top/bottom (active) | 30 mm / 30 mm ($P_{Out} \geq 50\%$) |
| Installation distance top/bottom (passive) | 30 mm / 30 mm ($P_{Out} \geq 50\%$) |
| Installation distance top/bottom (active, passive) | 30 mm / 30 mm ($P_{Out} \leq 50\%$) |

Mounting

| | |
|-------------------------|-------------------|
| Mounting type | DIN rail mounting |
| With protective coating | no |

Material specifications

| | |
|--|---------|
| Flammability rating according to UL 94 (housing / terminal blocks) | V0 |
| Housing material | Plastic |

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| | |
|-----------------|---------------|
| Type of housing | Polycarbonate |
| Hood version | Polycarbonate |

Environmental and real-life conditions

Ambient conditions

| | |
|--|--|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -25 °C ... 70 °C (> 60 °C Derating: 2,5 %/K) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Ambient temperature (start-up type tested) | -40 °C |
| Maximum altitude | ≤ 5000 m (> 2000 m, observe derating) |
| Climatic class | 3K22 (in accordance with EN 60721-3-3) |
| Max. permissible relative humidity (operation) | ≤ 95 % (at 25 °C, non-condensing) |
| Shock | 18 ms, 30g, in each space direction (according to IEC 60068-2-27) |
| Vibration (operation) | < 15 Hz, ±2.5 mm amplitude; 15 Hz ... 100 Hz: 2.3 g 90 Min. (in accordance with IEC 60068-2-6) |
| Temp code | T4 (-25 ... +70 °C; > 60 °C, Derating: 2,5 %/K) |

Standards and regulations

| | |
|--|------------------------|
| Rail applications | EN 50121-3-2 |
| | EN 50121-4 |
| | EN 50121-5 |
| | IEC 62236-3-2 |
| | IEC 62236-4 |
| | IEC 62236-5 |
| Standard – Limitation of mains harmonic currents | EN 61000-3-2 |
| Standard – Safety extra-low voltage | IEC 61010-1 (SELV) |
| | IEC 61010-2-201 (PELV) |
| Standard - Safe isolation | IEC 61558-2-16 |
| | IEC 61010-2-201 |
| Standard - safety for equipment for measurement, control, and laboratory use | IEC 61010-1 |
| | IEC 61010-2-201 (SELV) |
| Standard - Safety of transformers | EN 61558-2-16 |

Approvals

| | |
|--------------|---|
| SIQ | CB-Scheme (IEC 61010-1, IEC 61010-2-201) |
| UL approvals | UL Listed UL 61010-1 |
| | UL Listed UL 61010-2-201 |
| | UL 1310 Class 2 Power Units |
| | UL 121201 & CSA C22.2 No. 213-17 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location) |

EMC data

| | |
|-------------------------------|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
|-------------------------------|---|

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| | |
|-----------------------------------|--|
| Interference emission | Interference emission in accordance with EN 61000-6-3 (residential and commercial) and EN 61000-6-4 (industrial) |
| Noise immunity | Immunity in accordance with EN 61000-6-1 (residential), EN 61000-6-2 (industrial), and EN 61000-6-5 (switching devices), IEC/EN 61850-3 (power supply) |
| EMC requirements for power supply | IEC 61850-3 (G,H) |
| | EN 61000-6-5 (switching devices) |

Conducted noise emission

| | |
|-----------------------|------------------------|
| Standards/regulations | EN 55016 |
| | EN 61000-6-3 (Class B) |

Noise emission

| | |
|-----------------------|---|
| Standards/regulations | Additional basic standard EN 61000-6-5 (immunity in switching devices), IEC/EN 61850-3 (power supply) |
|-----------------------|---|

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 | 8 kV (Test Level 4) |
| Discharge in air | 15 kV (Test Level 4) |
| Comments | Criterion A |

Electromagnetic HF field

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-3 |
|-----------------------|--------------|

Electromagnetic HF field

| | |
|---------------------|-----------------------|
| Frequency range | 80 MHz ... 1 GHz |
| Test field strength | 20 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 | 4 kV (Test Level 4 - asymmetrical) |
| Output | 4 kV (Test Level 4 - asymmetrical) |
| Signal | 4 kV (Test Level 4 - asymmetrical) |
| Comments | Criterion A |

Surge voltage load (surge)

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

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) |
| Signal | 0.5 kV (Test Level 2 - symmetrical) |
| | 1 kV (Test Level 2 - asymmetrical) |
| Comments | Criterion A |

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) |

Power frequency magnetic field

| | |
|-----------------------|-----------------|
| Standards/regulations | EN 61000-4-8 |
| Frequency | 16.67 Hz |
| | 50 Hz |
| | 60 Hz |
| Test field strength | 100 A/m |
| Additional text | 60 s |
| Comments | Criterion A |
| Frequency | 50 Hz |
| | 60 Hz |
| Frequency range | 50 Hz ... 60 Hz |
| Test field strength | 1 kA/m |
| Additional text | 3 s |
| Frequency | 0 Hz |
| Test field strength | 300 A/m |
| Additional text | DC, 60 s |

Voltage dips

| | |
|-----------------------|---------------|
| Standards/regulations | EN 61000-4-11 |
|-----------------------|---------------|

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| | |
|-------------------|--------------------------|
| Voltage | 100 V AC |
| Frequency | 60 Hz |
| Voltage dip | 70 % |
| Number of periods | 0.5 / 1 / 30 periods |
| Additional text | Test Level 2 |
| Comments | Criterion A |
| Voltage dip | 40 % |
| Number of periods | 5 / 10 / 50 periods |
| Additional text | Test Level 2 |
| Comments | Criterion B |
| Voltage dip | 0 % |
| Number of periods | 0.5 / 1 / 5 / 50 periods |
| Additional text | Test Level 2 |
| Comments | Criterion B |

Pulse-shape magnetic field

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-9 |
| Test field strength | 1000 A/m |
| Comments | Criterion A |

Attenuated sinusoidal oscillations (ring wave)

| | |
|-----------------------|---|
| Standards/regulations | EN 61000-4-12 |
| Input | 2 kV (symmetrical) 4 kV (asymmetrical) |
| Comments | Criterion A |

Asymmetrical conducted disturbance variables

| | |
|-----------------------|---|
| Standards/regulations | EN 61000-4-16 |
| Test level 1 | 16.67 Hz 50 Hz 60 Hz 150 Hz 180 Hz (Test Level 3) |
| Voltage | 30 V (10 s) |
| Test level 2 | 16.67 Hz 50 Hz 60 Hz (Test Level 2) |
| Voltage | 300 V (1 s) |
| Comments | Criterion A |

Attenuated oscillating wave

| | |
|-----------------------|---|
| Standards/regulations | EN 61000-4-18 |
| Voltage | 1 kV (symmetrical) 2.5 kV (asymmetrical) 1 kV (symmetrical) |
| Comments | Criterion A |

Criteria

| | |
|-------------|--|
| Criterion A | Normal operating behavior within the specified limits. |
| Criterion B | Temporary impairment to operational behavior that is corrected by the device itself. |
| Criterion C | Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by |

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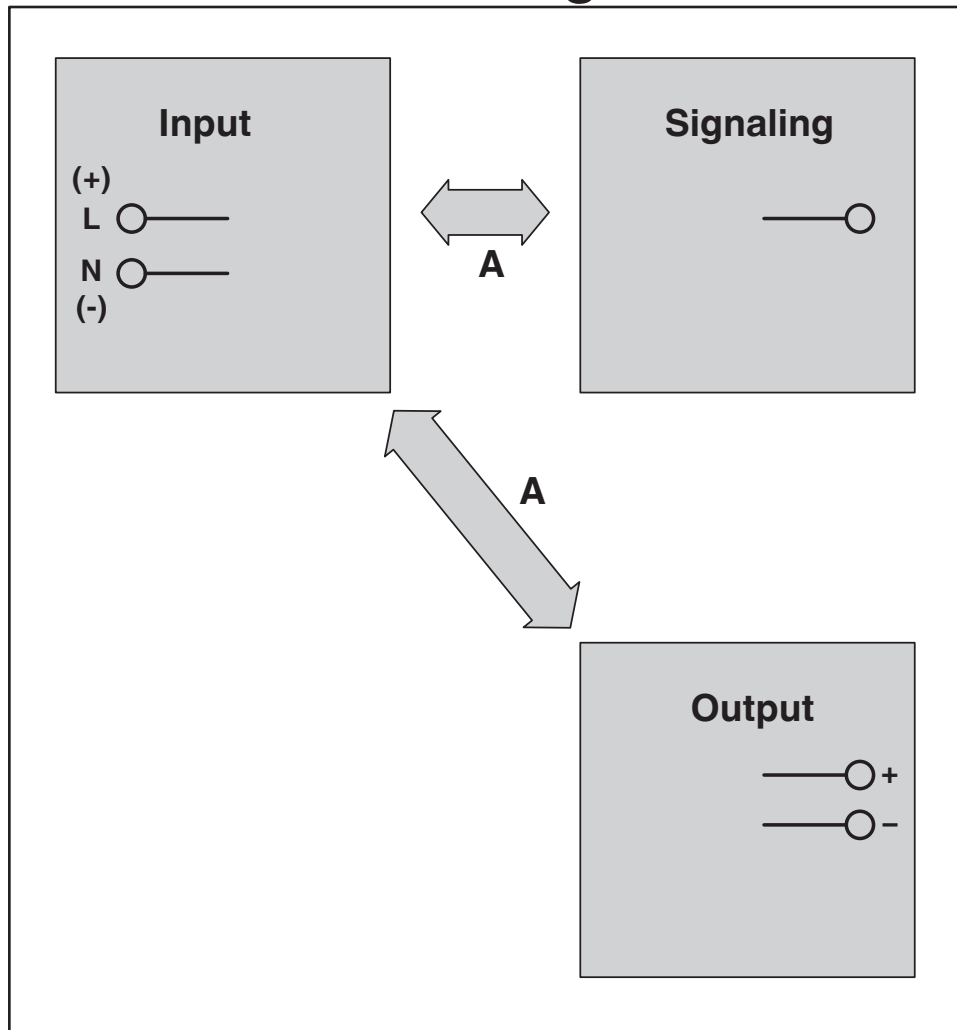
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actuating the operating elements.

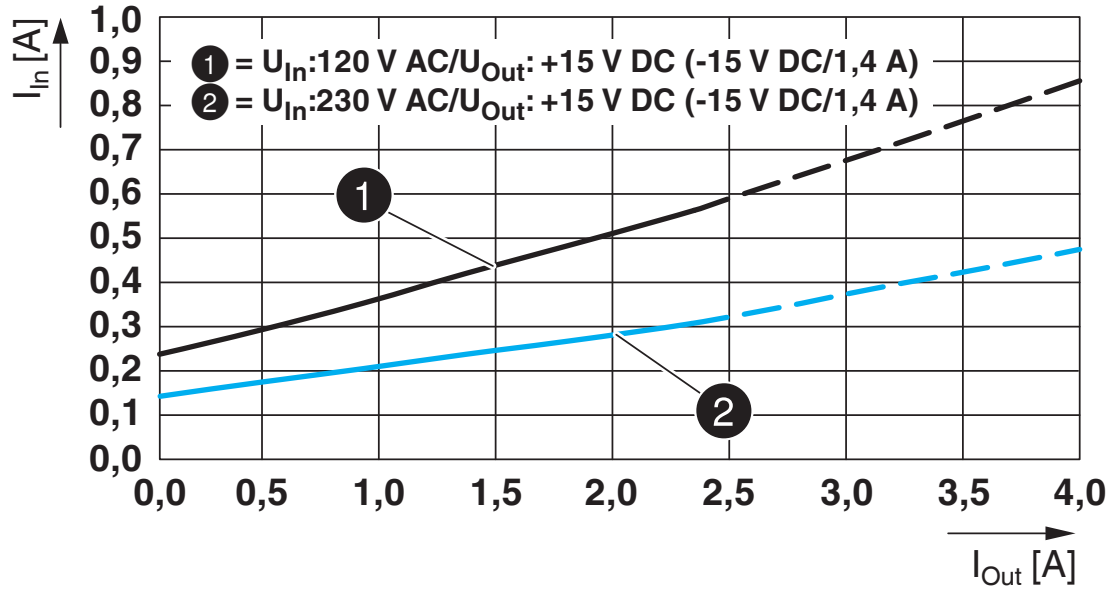
Drawings

Schematic diagram

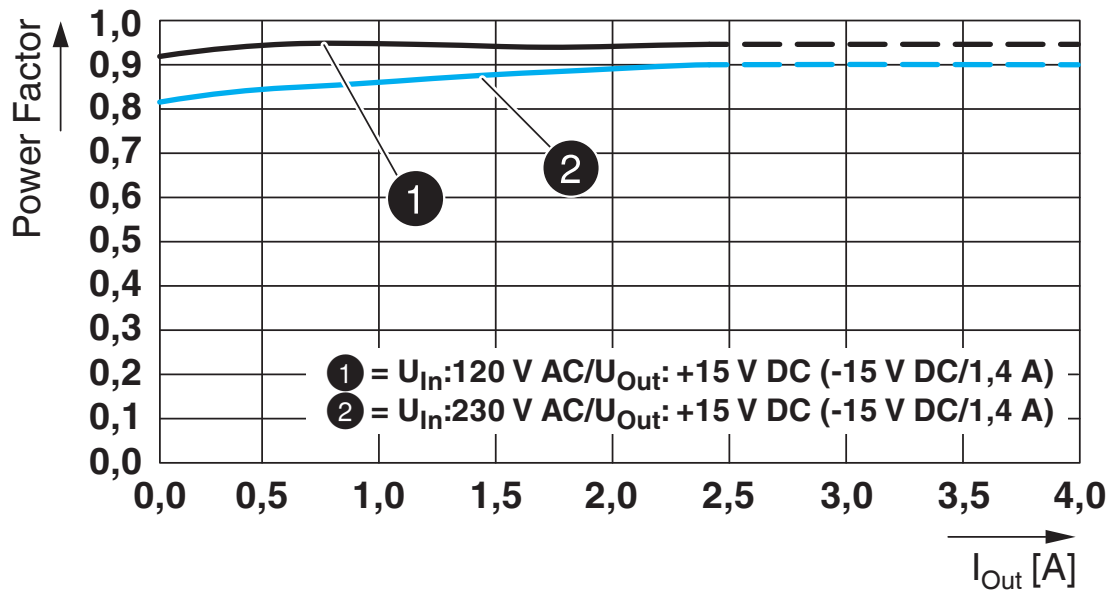
Housing



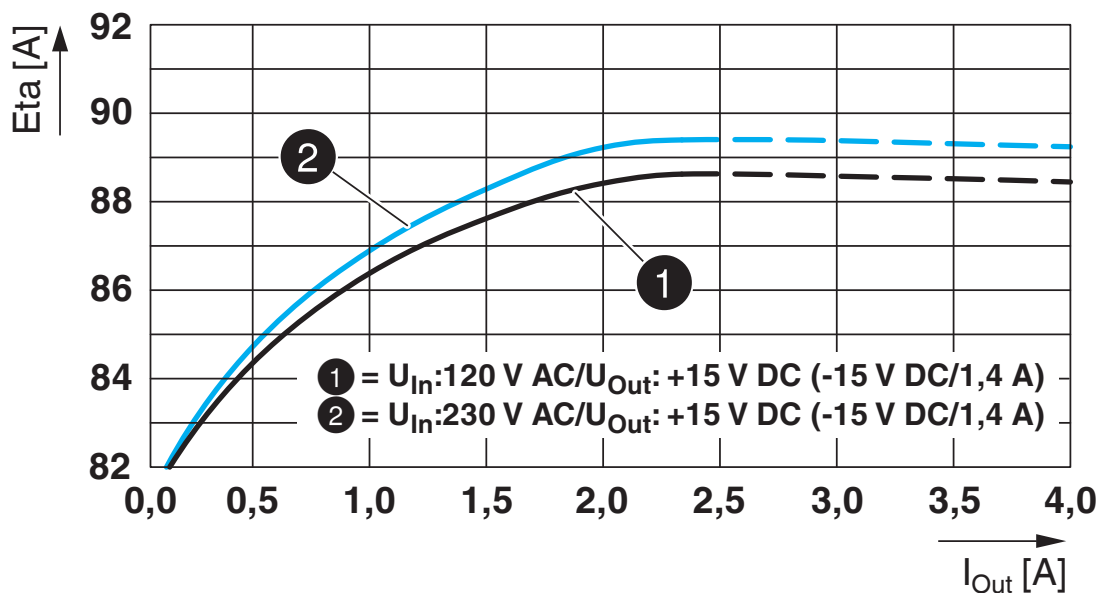
Diagram



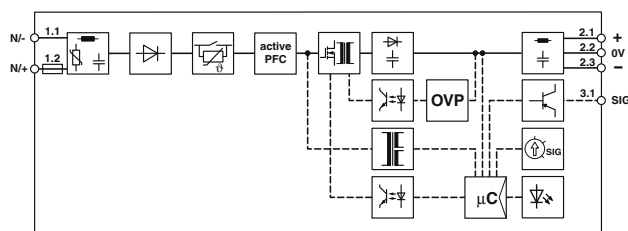
Diagram



Diagram



Block diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2904596>

DNV

Approval ID: TAA00001YD



IECEE CB Scheme

Approval ID: SI-8828



cULus Listed

Approval ID: E123528



Type approved

Approval ID: SI-SIQ BG 005/100



LR

Approval ID: LR22472797TA



BV

Approval ID: 44621/B1 BV



cULus Listed

Approval ID: E199827

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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(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 | b94c37dc-3090-4462-a273-c341dd223391 |

EF3.1 Climate Change

| | |
|---------|---------------|
| CO2e kg | 7.385 kg CO2e |
|---------|---------------|

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