

# Power supply unit - QUINT4-PS/1AC/12DC/7.5/PT



2904607

<https://www.phoenixcontact.com/pc/products/2904607>

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Primary-switched power supply unit, QUINT POWER, Push-in connection, DIN rail mounting, input: 1-phase, output: 12 V DC / 7.5 A

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## 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

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## Commercial Data

Item number	2904607
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CMPI12
Catalog Page	Page 253 (C-4-2019)
GTIN	4055626255767
Weight per Piece (including packing)	374.7 g
Weight per Piece (excluding packing)	307.07 g
Customs tariff number	85044030
Country of origin	DE

## Technical Data

### Input data

#### AC operation

Input voltage range	100 V AC ... 240 V AC -15 % ... +10 %
Electric strength, max.	300 V AC 60 s
Typical national grid voltage	120 V AC
	230 V AC
Voltage type of supply voltage	AC/DC
Inrush current	typ. 11.4 A (at 25 °C)
Inrush current integral ( $I^2t$ )	< 0.2 A <sup>2</sup> s
Inrush current limitation	< 11.4 A
Frequency range ( $f_N$ )	50 Hz ... 60 Hz -10 % ... +10 %
Mains buffering time	typ. 48 ms (120 V AC)
	typ. 48 ms (230 V AC)
Current consumption	1 A (100 V AC)
	0.85 A (120 V AC)
	0.46 A (230 V AC)
	0.44 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 % ... +40 %
Voltage type of supply voltage	AC/DC
Current consumption	0.92 A (110 V DC)
	0.4 A (250 V DC)

### Output data

Efficiency	typ. 91.5 % (120 V AC)
	typ. 92.5 % (230 V AC)
Nominal output voltage	12 V DC
Setting range of the output voltage ( $U_{Set}$ )	12 V DC ... 15 V DC (constant capacity)
Nominal output current ( $I_N$ )	7.5 A
Dynamic Boost ( $I_{Dyn.Boost}$ )	12.75 A ( $\leq 60$ °C (5 s))
Feedback voltage resistance	$\leq 25$ V DC
Protection against overvoltage at the output (OVP)	$\leq 18$ V DC
	< 0.3 % (Static load change 10 % ... 90 %)

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Control deviation	< 3 % (Dynamic load change 10 % ... 90 %, (10 Hz))
	< 0.1 % (change in input voltage $\pm 10$ %)
Residual ripple	< 35 mV <sub>PP</sub> (with nominal values)
Short-circuit-proof	yes
No-load proof	yes
Output power	90 W
	150 W
Maximum no-load power dissipation	< 0.6 W (230 V AC)
	< 0.6 W (120 V AC)
Power loss nominal load max.	< 8.1 W (120 V AC)
	< 7.1 W (230 V AC)
Crest factor	typ. 1.57 (120 V AC)
	typ. 1.67 (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 12 V DC 24 mA
Default	12 V DC 24 mA 12 V DC for $U_{Out} > 0.9 \times U_{Set}$

## Connection data

### Input

Connection method	Push-in connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid 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>
Single conductor/terminal point, stranded, with ferrule, min.	0.25 mm <sup>2</sup>
Single conductor/terminal point, stranded, with ferrule, max.	2.5 mm <sup>2</sup>
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 solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid 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>
Single conductor/terminal point, stranded, with ferrule, min.	0.25 mm <sup>2</sup>
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Stripping length	10 mm
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Stripping length	10 mm

## LED signaling

Types of signaling	LED
	Floating signal contact
	Active signal output Out1 (digital, configurable)
	Active signal output Out2 (analog, configurable)
	Remote contact
	Signal ground SGnd

## 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)

## Electrical properties

Number of phases	1.00
Insulation voltage input/output	4 kV AC (type test)
	3 kV AC (routine test)
Switching frequency	4 kHz ... 70 kHz (Auxiliary converter stage)
	80 kHz ... 190 kHz (Main converter stage)
	30 kHz ... 150 kHz (PFC stage)

## Product properties

Product type	Power supply
MTBF (IEC 61709, SN 29500)	$> 1221000$ h (25 °C)
	$> 671000$ h (40 °C)
	$> 248000$ h (60 °C)

## Insulation characteristics

Protection class	II
Degree of pollution	2

## Life expectancy (electrolytic capacitors)

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Current	7.5 A
Temperature	40 °C
Time	96000 h
Additional text	120 V AC

## Life expectancy (electrolytic capacitors)

Current	7.5 A
Temperature	40 °C
Time	145000 h
Additional text	230 V AC

## Life expectancy (electrolytic capacitors)

Current	7.5 A
Temperature	25 °C
Time	280000 h
Additional text	120 V AC

## Life expectancy (electrolytic capacitors)

Current	7.5 A
Temperature	25 °C
Time	430000 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

Inflammability class in acc. with UL 94 (housing / terminal blocks)	V0
Housing material	Plastic
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	3K3 (in acc. with EN 60721)
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)

## Standards and regulations

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

### Overvoltage category

EN 61010-1	II (≤ 5000 m)
EN 62477-1	III (≤ 2000 m)

## Approval data

SIQ	CB-Scheme (IEC 61010-1, IEC 61010-2-201)
UL approvals	UL Listed UL 61010-1
	UL Listed UL 61010-2-201
	ANSI/UL 121201 Class I, Division 2, Groups A, B, C, D (Hazardous Location)

### Conformity/Approvals

SIL in accordance with IEC 61508	0
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## EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
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
EMC requirements, power plant	IEC 61850-3

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	EN 61000-6-5
Conducted noise emission	EN 55016
	EN 61000-6-3 (Class B)
Interference emission	Noise emission according to EN 61000-6-3 (residential and commercial) and EN 61000-6-4 (industrial)
Noise emission	Additional basic standard EN 61000-6-5 (immunity in power station), IEC/EN 61850-3 (energy supply)
Noise emission	EN 55016
	EN 61000-6-3 (Class B)
Noise immunity	Immunity according to EN 61000-6-1 (residential), EN 61000-6-2 (industrial), and EN 61000-6-5 (power station equipment zone), IEC/EN 61850-3 (energy supply)

## 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
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## 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
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## 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



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## Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
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
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## Conducted interference

I/O/S	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
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 %

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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

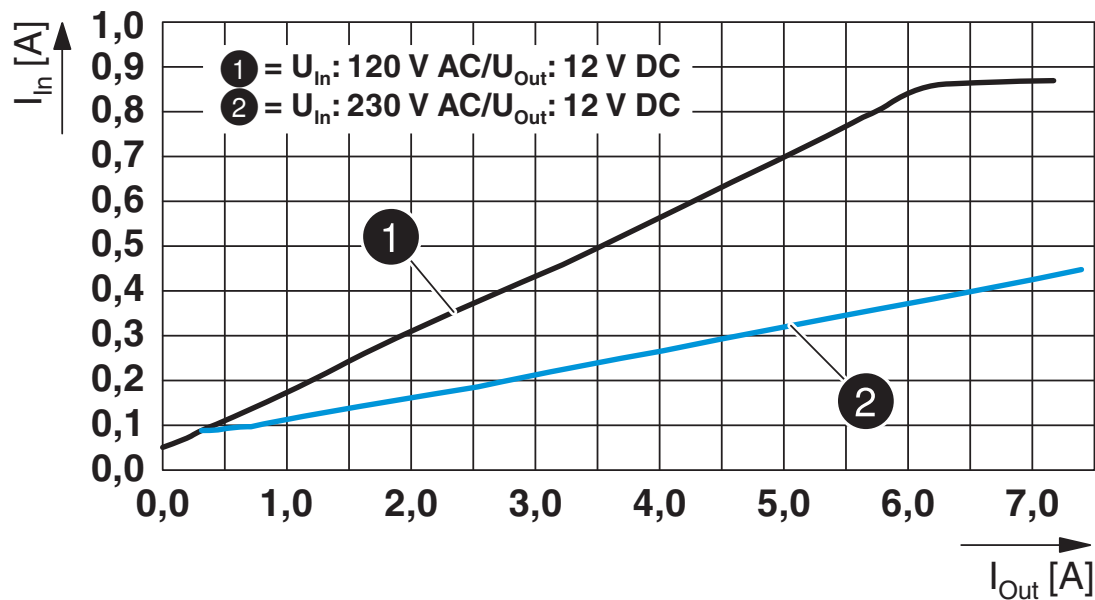
Standards/regulations	EN 61000-4-16
Test level 1	16.67 Hz 50 Hz 60 Hz 150 Hz 180 Hz (Test Level 3)
Voltage	30 V (10 s)
Test level 2	16.67 Hz 50 Hz 60 Hz (Test Level 2)
Voltage	300 V (1 s)
Comments	Criterion A

## Attenuated oscillating wave

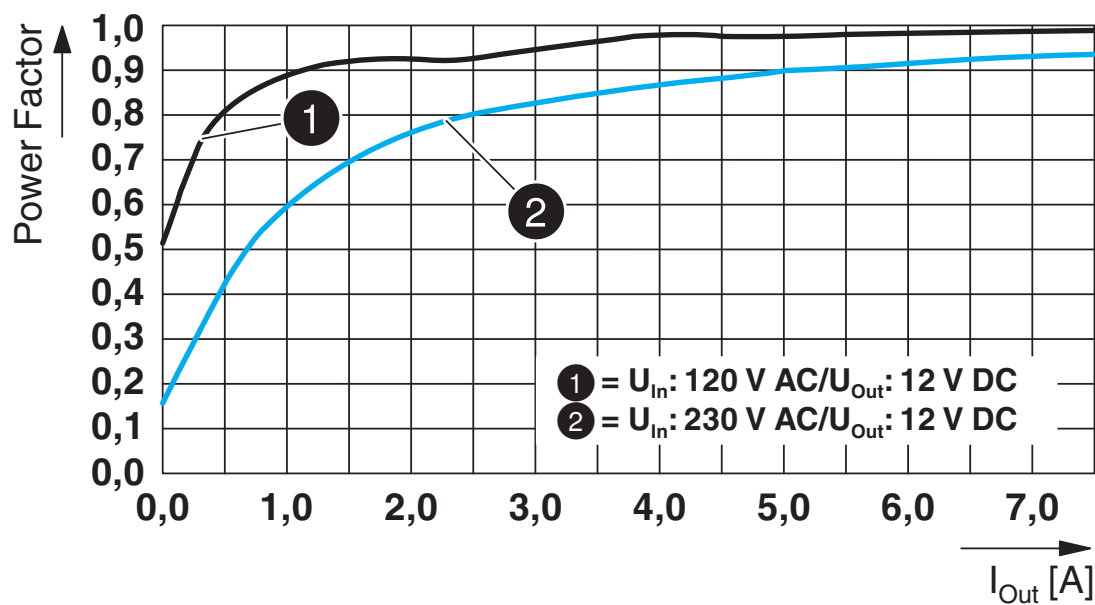
Standards/regulations	EN 61000-4-18
Voltage	1 kV (symmetrical) 2.5 kV (asymmetrical) 1 kV (symmetrical)
Comments	Criterion A
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.
Criterion C	Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by actuating the operating elements.

## Drawings

Diagram

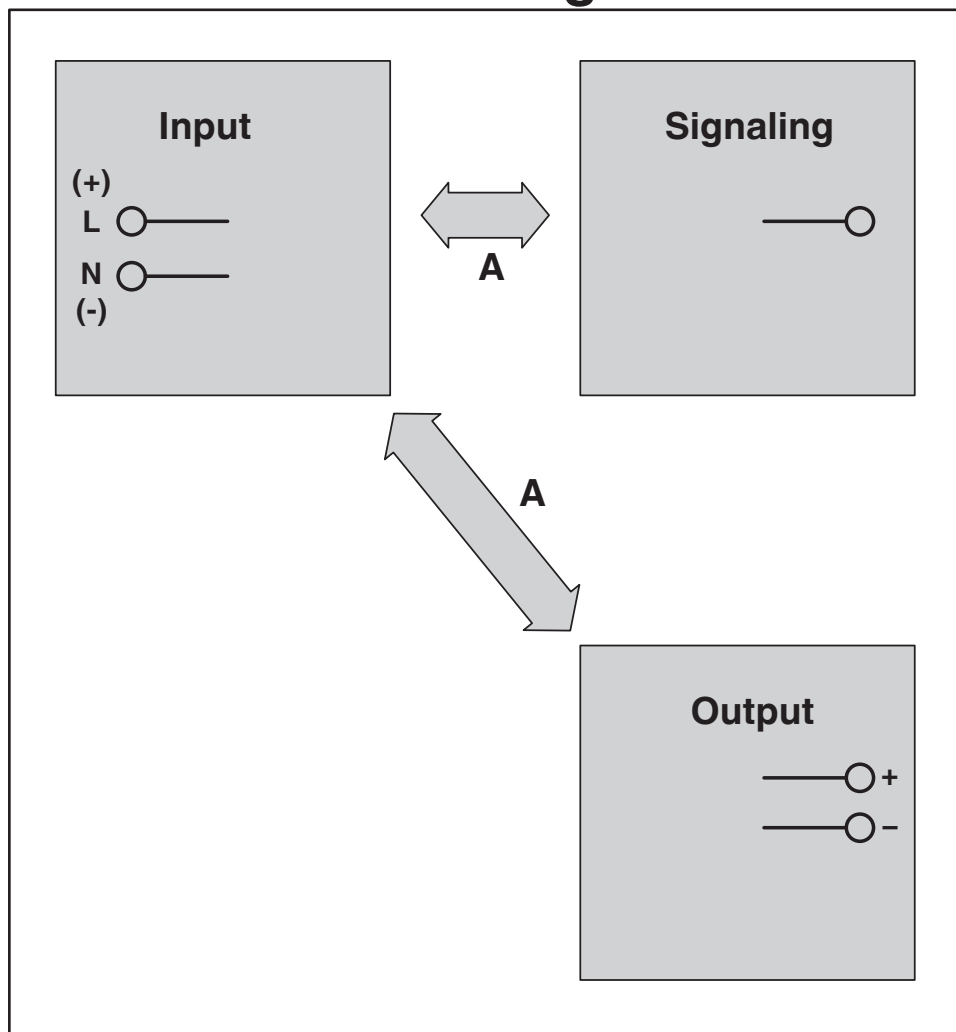


Diagram

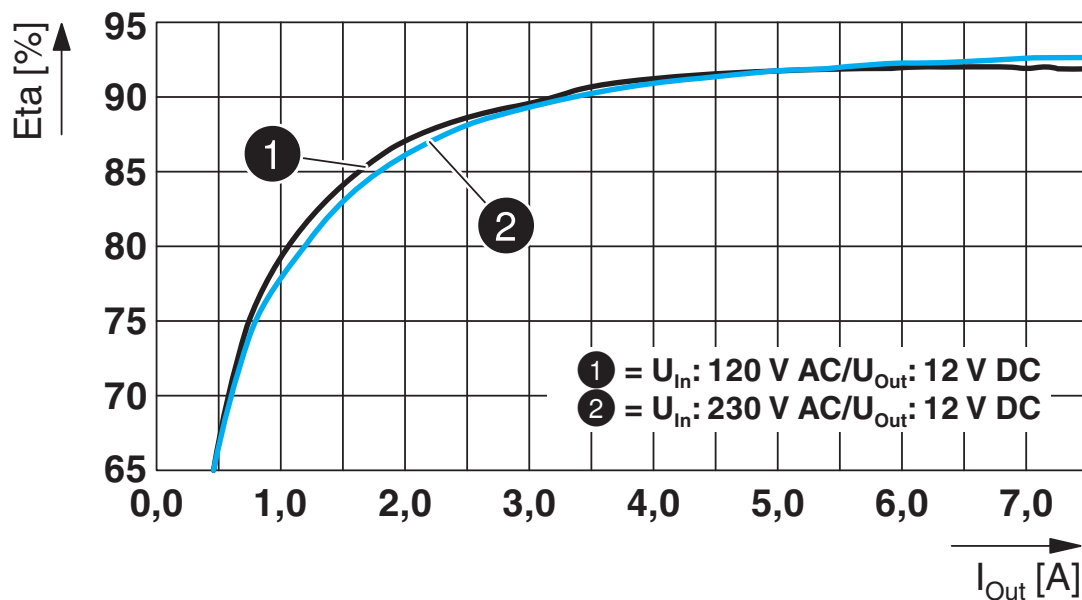


Schematic diagram

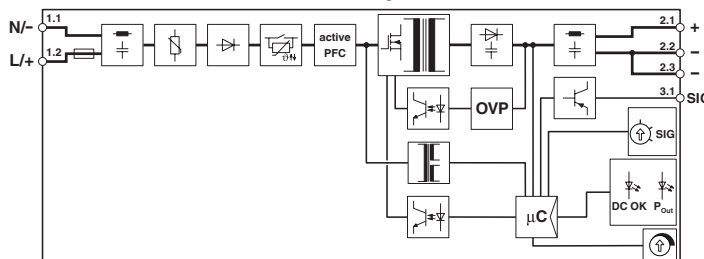
## Housing



Diagram



Block diagram



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## Approvals



**IECEE CB Scheme**  
Approval ID: SI-7008



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



**DNV GL**  
Approval ID: TAA00001SN



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



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



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



**IECEE CB Scheme**  
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**cUL Listed**  
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**DNV GL**  
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**EAC**  
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**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



**cUL Listed**

Approval ID: FILE E 199827

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## Classifications

### ECLASS

ECLASS-9.0	27040701
ECLASS-10.0.1	27040701
ECLASS-11.0	27040701

### ETIM

ETIM 8.0	EC002540
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental Product Compliance

REACH SVHC

Lead 7439-92-1

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## Accessories

### Screwdriver

Screwdriver - SF-SL 0,4X2,0-60 - 1212546

<https://www.phoenixcontact.com/pc/products/1212546>



Screwdriver, flat bladed, size: 0.4 x 2.0 x 60 mm, 2-component grip, with non-slip grip

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### Type 3 surge protection device

Type 3 surge protection device - PLT-SEC-T3-230-FM-UT - 2907919

<https://www.phoenixcontact.com/pc/products/2907919>



Type 2/3 surge protection, consisting of protective plug and base element with screw connection. For single-phase power supply network with integrated status indicator and remote signaling. Nominal voltage: 230 V AC/DC

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## Type 3 surge protection device

Type 3 surge protection device - PLT-SEC-T3-24-FM-UT - 2907916

<https://www.phoenixcontact.com/pc/products/2907916>



Type 3 surge protection, consisting of protective plug and base element, with integrated status indicator and remote signaling for single-phase power supply networks. Nominal voltage: 24 V AC/DC

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## Type 3 surge protection device

Type 3 surge protection device - PLT-SEC-T3-230-FM-PT - 2907928

<https://www.phoenixcontact.com/pc/products/2907928>



Type 2/3 surge protection, consisting of protective plug and base element with Push-in connection. For single-phase power supply network with integrated status indicator and remote signaling. Nominal voltage: 230 V AC/DC

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## Type 3 surge protection device

Type 3 surge protection device - PLT-SEC-T3-24-FM-PT - 2907925

<https://www.phoenixcontact.com/pc/products/2907925>



Type 3 surge protection, consisting of protective plug and base element, with integrated status indicator and remote signaling for single-phase power supply networks. Nominal voltage: 24 V AC/DC

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