

# QUINT4-PS/1AC/12DC/2.5/PT - Power supply



2904605

<https://www.phoenixcontact.com/us/products/2904605>

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Primary-switched power supply unit QUINT POWER, Push-in connection, DIN rail mounting, input: 1-phase, output: 12 V DC / 2.5 A, adjustable from 12 V DC ... 15 V DC

## Product description

Our small QUINT POWER power supplies cover the power range from 30 to 100 W. These compact power supplies provide you with a perfect combination of preventive function monitoring and exceptional power reserves in a compact size.

## 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	2904605
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM10
Product key	CMPI12
GTIN	4055626255736
Weight per piece (including packing)	238 g
Weight per piece (excluding packing)	238 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 60 s
Typical national grid voltage	120 V AC
	230 V AC
Voltage type of supply voltage	AC
Inrush current	typ. 11.3 A (at 25 °C)
Inrush current integral ( $I^2t$ )	< 0.1 A <sup>2</sup> s
Inrush current limitation	< 11.3 A
Frequency range ( $f_N$ )	50 Hz ... 60 Hz -10 % ... +10 %
	16.7 Hz (acc. to EN 50163)
Mains buffering time	typ. 54 ms (120 V AC)
	typ. 54 ms (230 V AC)
Current consumption	0.44 A (100 V AC)
	0.35 A (120 V AC)
	0.19 A (230 V AC)
	0.2 A (240 V AC)
Nominal power consumption	32.8 VA
Protective circuit	Transient surge protection; Varistor
Typical response time	500 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)
	< 0.16 mA

#### DC operation

Input voltage range	110 V DC ... 250 V DC -20 % ... +40 %
Voltage type of supply voltage	DC
Current consumption	0.4 A (110 V DC)
	0.17 A (250 V DC)

### Output data

Efficiency	typ. 89.5 % (120 V AC)
	typ. 90.9 % (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 ( $I_N$ )	2.5 A
Static Boost ( $I_{Stat.Boost}$ )	3.125 A ( $\leq 40$ °C)
Dynamic Boost ( $I_{Dyn.Boost}$ )	4.5 A ( $\leq 60$ °C (5 s))
Feedback voltage resistance	$\leq 25$ V DC

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Protection against overvoltage at the output (OVP)	≤ 18 V DC
Control deviation	< 0.2 % (Static load change 10 % ... 90 %)
	< 2 % (Dynamic load change 10 % ... 90 %, (10 Hz))
	< 0.1 % (change in input voltage ±10 %)
Residual ripple	< 30 mV <sub>PP</sub> (with nominal values)
Short-circuit-proof	yes
No-load proof	yes
Output power	30 W
	38 W
	54 W
Maximum no-load power dissipation	< 0.4 W (230 V AC)
	< 0.5 W (120 V AC)
Power loss nominal load max.	< 3.5 W (120 V AC)
	< 3 W (230 V AC)
Crest factor	typ. 1.89 (120 V AC)
	typ. 1.97 (230 V AC)
Rise time	50 ms (U <sub>Out</sub> = 10 % ... 90 %)
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes
Fuse protection (secondary side)	electronic
Signal (configurable)	
Digital	0 V DC 12 V DC 24 mA
Default	12 V DC 24 mA 12 V DC for U <sub>Out</sub> > 0.9 × U <sub>Set</sub>

## Connection data

### Input

Connection method	Push-in connection
Conductor cross-section, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid max.	2.5 mm <sup>2</sup>
Conductor cross-section flexible min.	0.2 mm <sup>2</sup>
Conductor cross-section flexible max.	2.5 mm <sup>2</sup>
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, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid max.	2.5 mm <sup>2</sup>
Conductor cross-section flexible min.	0.2 mm <sup>2</sup>
Conductor cross-section flexible max.	2.5 mm <sup>2</sup>

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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

## Signal

Connection method	Push-in connection
Conductor cross-section, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid max.	2.5 mm <sup>2</sup>
Conductor cross-section flexible min.	0.2 mm <sup>2</sup>
Conductor cross-section flexible max.	2.5 mm <sup>2</sup>
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

## Signaling

Types of signaling	LED
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## 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)	$> 1848000$ h (25 °C)
	$> 1060000$ h (40 °C)
	$> 459000$ h (60 °C)

## Insulation characteristics

Protection class	II
Overvoltage category (EN 61010-1)	II ( $\leq 5000$ m)
Overvoltage category (EN 62477-1)	III ( $\leq 2000$ m)

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Degree of pollution	2
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## Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	40 °C
Time	149000 h
Additional text	120 V AC

## Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	40 °C
Time	211000 h
Additional text	230 V AC

## Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	25 °C
Time	424000 h
Additional text	120 V AC

## Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	25 °C
Time	609000 h
Additional text	230 V AC

## Dimensions

Width	22.5 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
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)
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
EMC requirements for noise emission	EN 61000-6-3
	EN 61000-6-4

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EMC requirements for noise immunity	EN 61000-6-1
	EN 61000-6-2
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 X)
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)

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Output	4 kV (Test Level X - asymmetrical)
Signal	4 kV (Test Level X - 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)
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

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
Voltage	100 V AC
Frequency	60 Hz
Voltage dip	70 %

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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

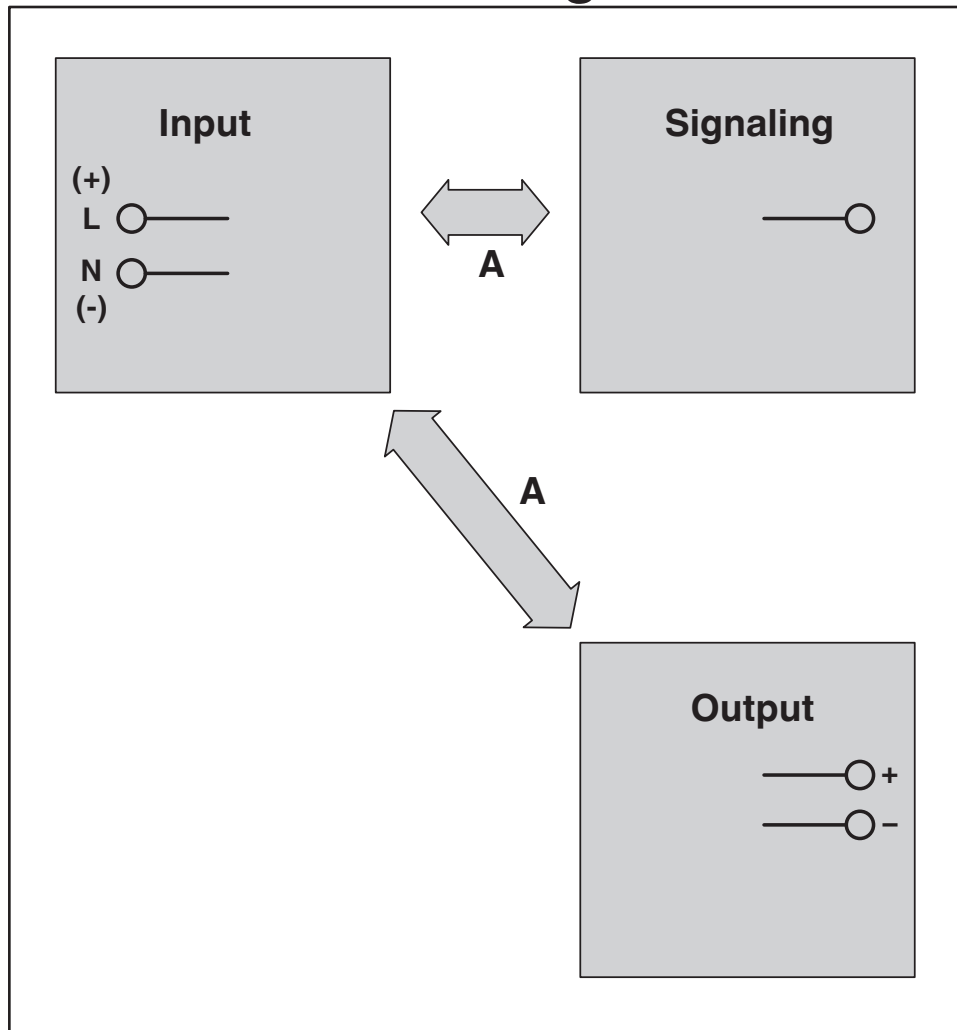
## Criteria

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 actuating the operating elements.

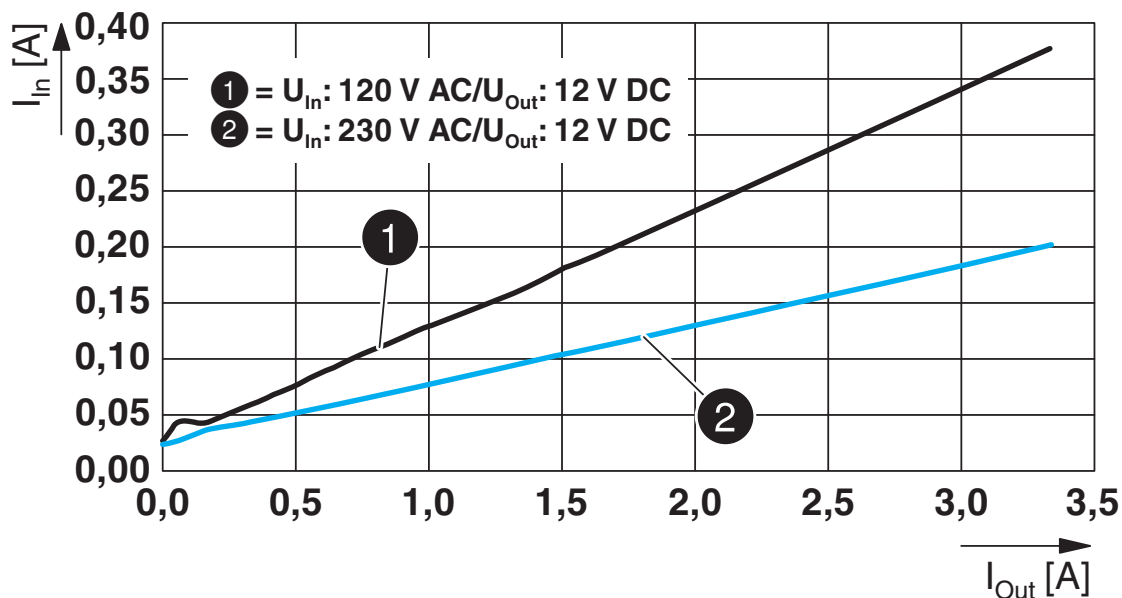
Drawings

Schematic diagram

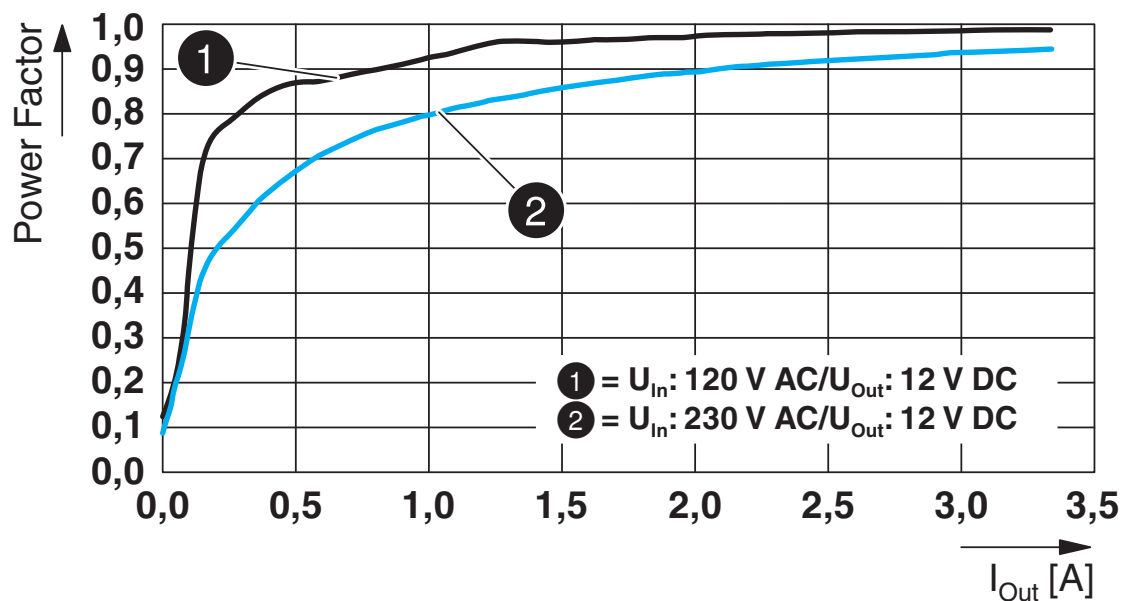
# Housing



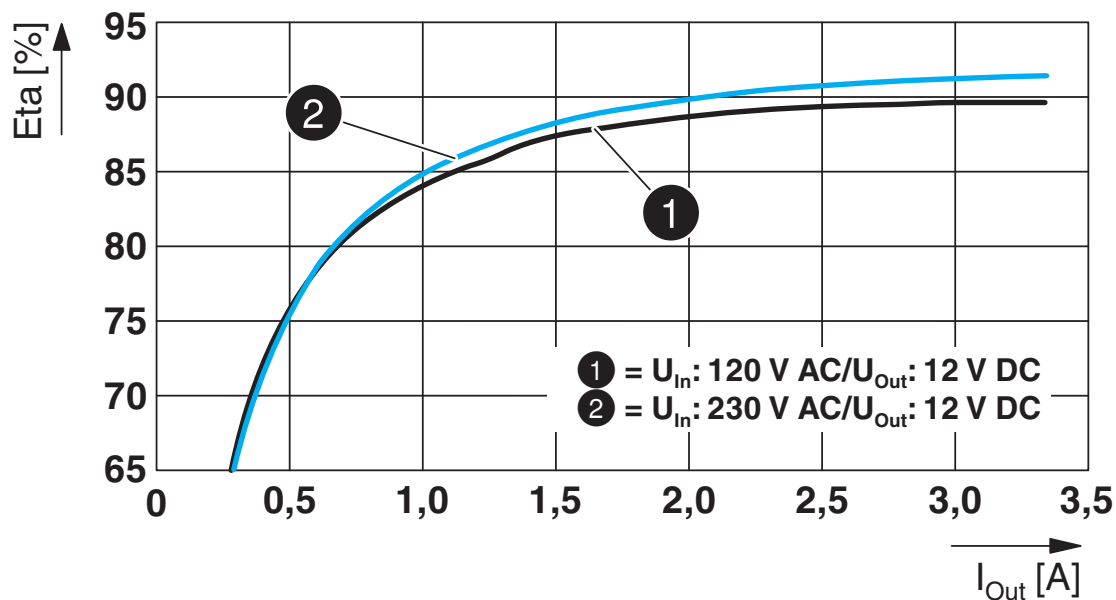
Diagram



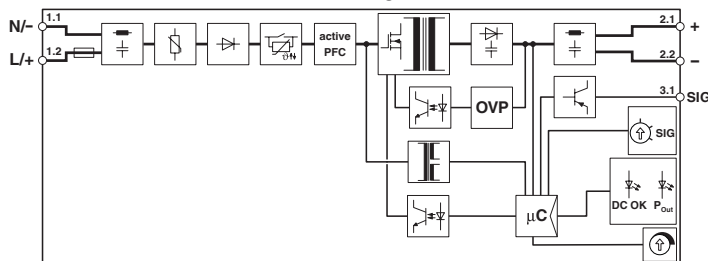
Diagram



Diagram



Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2904605>



**IECEE CB Scheme**

Approval ID: SI-12497



**EAC**

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



**UL Listed**

Approval ID: E123528



**cUL Listed**

Approval ID: E123528



**EAC**

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

**DNV**

Approval ID: TAA00001YD



**Type approved**

Approval ID: SI-SIQ BG 005/116 A1



**cUL Listed**

Approval ID: E199827



**UL Listed**

Approval ID: E199827

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## Classifications

### ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	27040701

### ETIM

ETIM 10.0	EC002540
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	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	7e45f34c-a43d-4b9e-8db2-85dc0f50096f

### EF3.1 Climate Change

CO2e kg	4.626 kg CO2e
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