QUINT4-PS/1AC/24DC/2.5/SC - Power supply

2904598

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Primary-switched power supply unit QUINT POWER, Screw connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 2.5 A. Alternative item: 2909576

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
- Free selection between Push-in and screw connection

Commercial data

Item number	2904598
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CMPI13
Product key	CMPI13
Catalog page	Page 251 (C-4-2019)
GTIN	4055626156040
Weight per piece (including packing)	335 g
Weight per piece (excluding packing)	335 g
Customs tariff number	85044095
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 30 s
Typical national grid voltage	120 V AC
	230 V AC
Voltage type of supply voltage	AC/DC
Inrush current	typ. 10 A (at 25 °C)
Inrush current integral (I^2t)	< 0.1 A^2s
Inrush current limitation	4.3 A (after 1 ms)
	< 10 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	0.85 A (100 V AC)
	0.7 A (120 V AC)
	0.39 A (230 V AC)
	0.37 A (240 V AC)
Nominal power consumption	71 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)
	0.22 mA (264 V AC, 60 Hz)

DC operation

Input voltage range	110 V DC ... 250 V DC -20 % ... +40 %
Voltage type of supply voltage	AC/DC
Current consumption	0.75 A (110 V DC)
	0.33 A (250 V DC)

Output data

Efficiency	typ. 91.9 % (120 V AC)
	typ. 92.6 % (230 V AC)
Output characteristic	U/I Advanced
Nominal output voltage	24 V DC
Setting range of the output voltage (U_{Set})	24 V DC ... 28 V DC (constant capacity)
Nominal output current (I_N)	2.5 A
Static Boost ($I_{Stat.Boost}$)	3.125 A (≤ 40 °C)

Dynamic Boost ($I_{Dyn.Boost}$)	5 A (≤60 °C (5 s), Input <150 V AC Derating 0.5 %/V)
Derating	> 60 °C (2.5 %/K)
Feedback voltage resistance	≤ 35 V DC
Protection against overvoltage at the output (OVP)	≤ 32 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	< 40 mV_{PP} (with nominal values)
Short-circuit-proof	yes
No-load proof	yes
Output power	60 W
	75 W
	120 W
Maximum no-load power dissipation	< 1 W (230 V AC)
	< 1 W (120 V AC)
Power loss nominal load max.	< 5 W (230 V AC)
	< 5 W (120 V AC)
Crest factor	typ. 1.69 (120 V AC)
	typ. 1,82 (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 24 V DC 30 mA
Default	24 V DC 30 mA 24 V DC for U_{Out} > 0.9 x U_{Set}

Connection data

Input

Connection method	Screw connection
Conductor cross section, rigid min.	0.14 mm²
Conductor cross section, rigid max.	2.5 mm²
Conductor cross section flexible min.	0.14 mm²
Conductor cross section flexible max.	2.5 mm²
Single conductor/terminal point, stranded, with ferrule, min.	0.25 mm²
Single conductor/terminal point, stranded, with ferrule, max.	2.5 mm²
Conductor cross section AWG min.	26
Conductor cross section AWG max.	14
Stripping length	8 mm
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Output

Connection method	Screw connection

Conductor cross section, rigid min.	0.14 mm²
Conductor cross section, rigid max.	2.5 mm²
Conductor cross section flexible min.	0.14 mm²
Conductor cross section flexible max.	2.5 mm²
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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 x U_{Set} (LED lights up green)
	< 0.9 x 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)
	30.00 kHz ... 150.00 kHz (PFC stage)
	70.00 kHz ... 150.00 kHz (Main converter stage)

Product properties

Product type	Power supply

Product family	QUINT POWER
MTBF (IEC 61709, SN 29500)	> 1347000 h (25 °C)
	> 734000 h (40 °C)
	> 295000 h (60 °C)
Environmental protection directive	RoHS Directive 2011/65/EU
	WEEE
	Reach

Insulation characteristics

Protection class	II
Degree of pollution	2

Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	40 °C
Time	148000 h
Additional text	120 V AC

Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	40 °C
Time	153000 h
Additional text	230 V AC

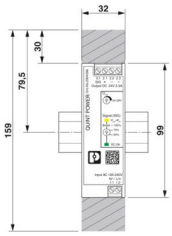
Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	25 °C
Time	419000 h
Additional text	120 V AC

Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	25 °C
Time	432000 h
Additional text	230 V AC

Dimensions

Dimensional drawing	
Width	32 mm

Height	99 mm
Depth	90 mm

Installation dimensions

Installation distance right/left (active)	15 mm / 15 mm (P_{Out} ≥50%)
Installation distance right/left (passive)	5 mm / 5 mm (P_{Out} ≥50%)
Installation distance top/bottom (active)	30 mm / 30 mm (P_{Out} ≥50%)
Installation distance top/bottom (passive)	30 mm / 30 mm (P_{Out} ≥50%)
Installation distance top/bottom (active, passive)	30 mm / 30 mm (P_{Out} ≤50 %)

Mounting

Mounting type	DIN rail mounting
Assembly note	DIN rail mounting
With protective coating	no

Material specifications

Flammability rating according to 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)
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 - Electrical safety	IEC 61010-2-201 (SELV)
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
Standard - Safety of transformers	EN 61558-2-16
Standard - power supply devices for low voltage with DC output	EN 61204-3

Overvoltage category

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

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
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

Frequency range	0 kHz ... 2 kHz

Flicker

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	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	20 V/m
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	4 kV (Test Level 4 - asymmetrical)
Signal	4 kV (Test Level 4 - asymmetrical)
Comments	Criterion B

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	2 kV (Test Level 4 - symmetrical)
	4 kV (Test Level 4 - 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
Voltage	100 V AC
Frequency	60 Hz
Voltage dip	70 %
Number of periods	0.5 / 1 / 25 periods
Additional text	Test Level 2
Comments	Criterion B
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 B

Asymmetrical conducted disturbance variables

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

Attenuated oscillating wave

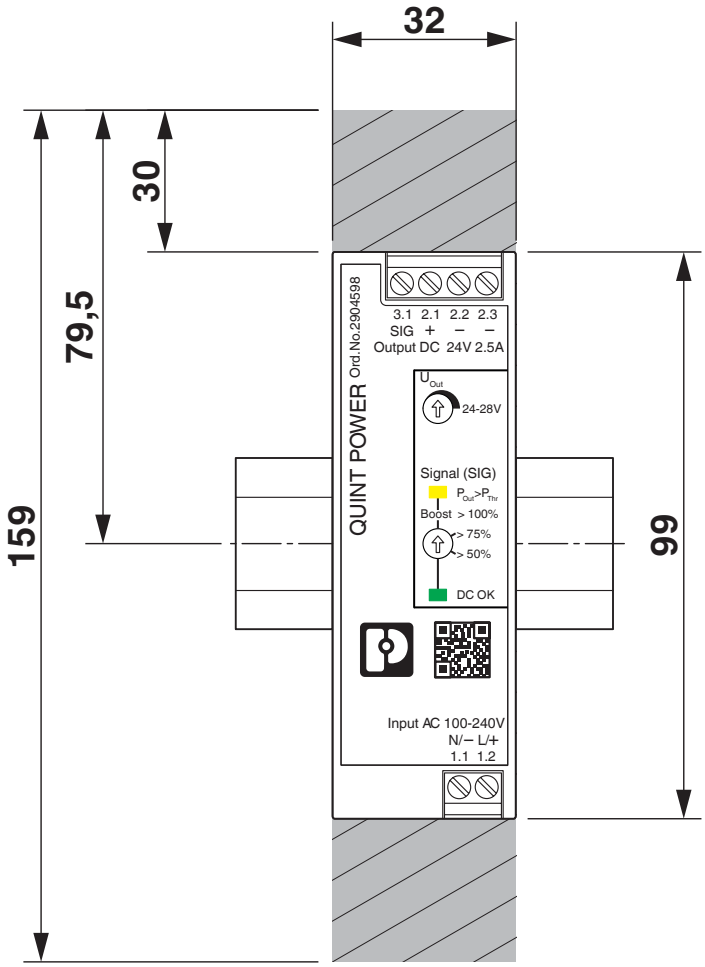
Standards/regulations	EN 61000-4-18
Input/Output/Signal	1 kV (symmetrical)
	2.5 kV (asymmetrical)
Comments	Criterion B

Criteria

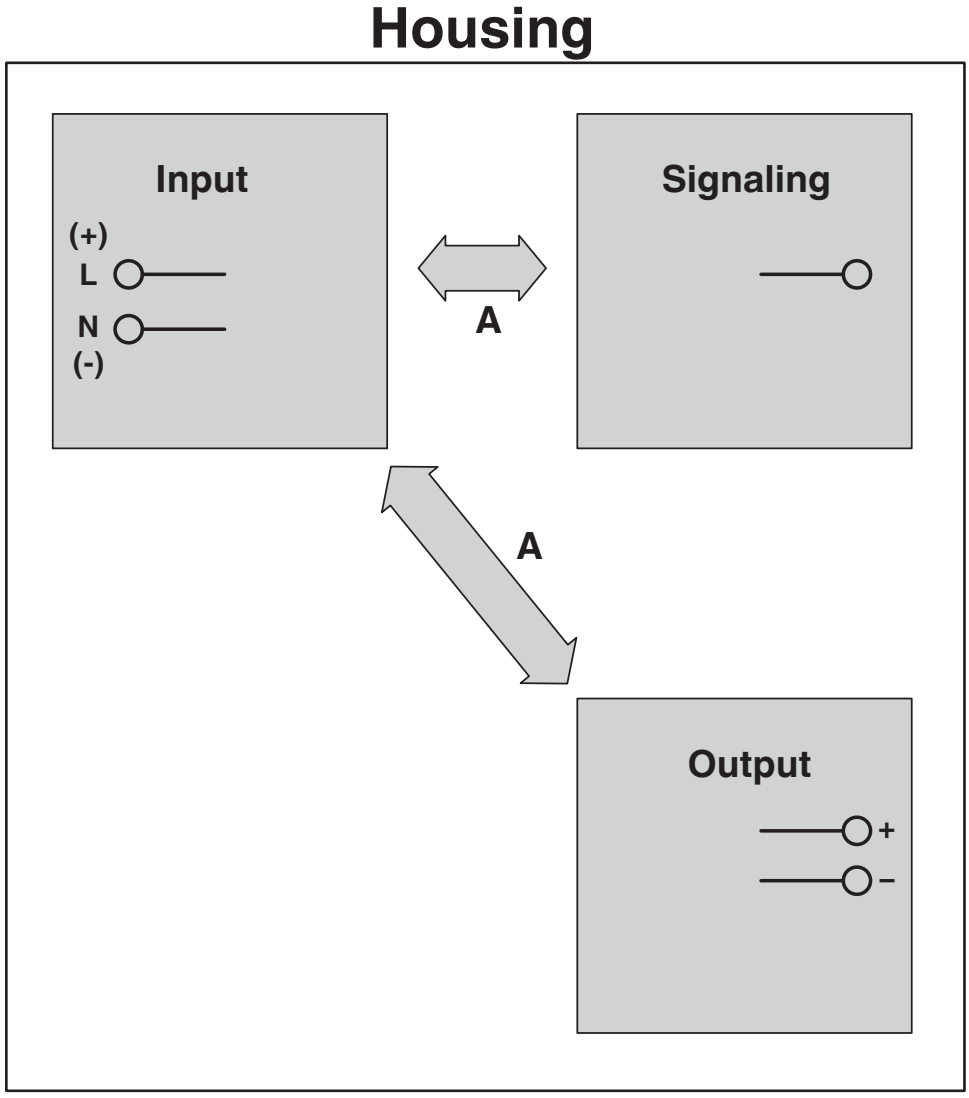
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.
Criterion C	Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by actuating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

Drawings

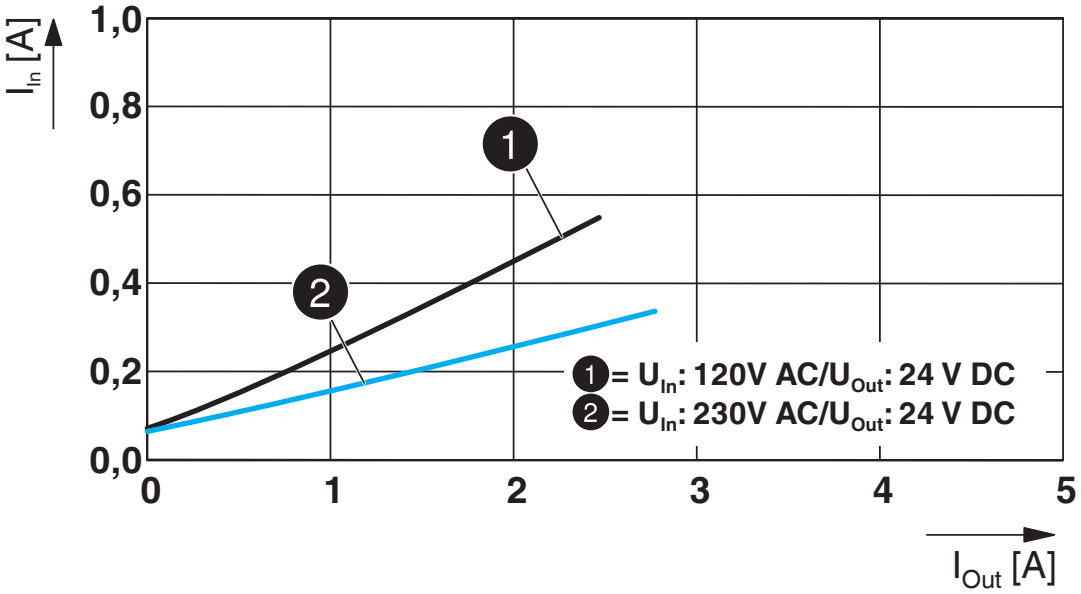
Dimensional drawing



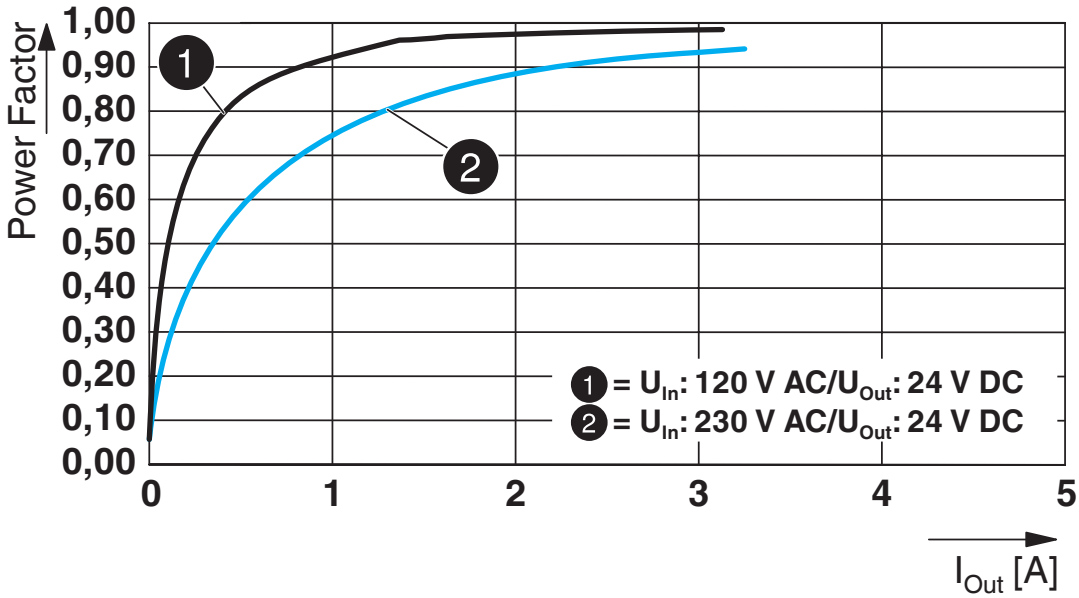
Schematic diagram



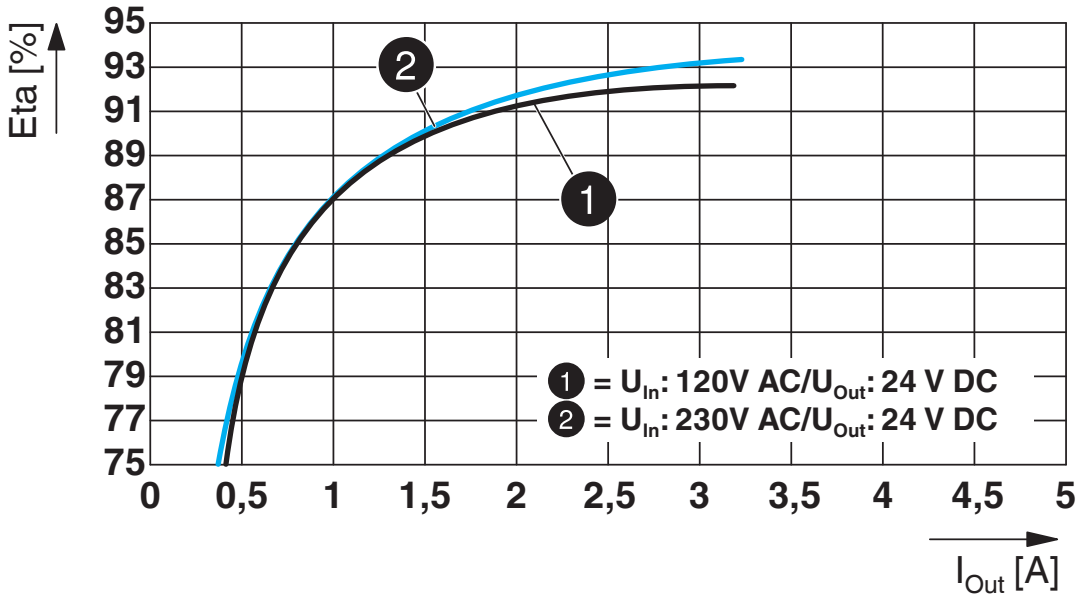
Diagram



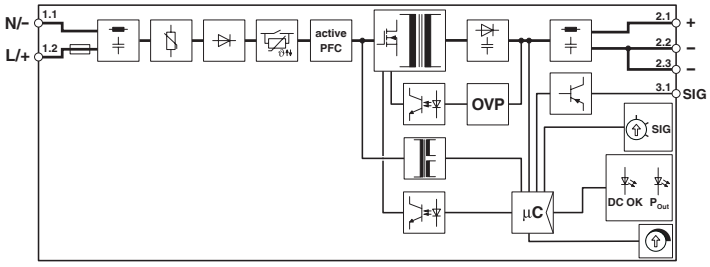
Diagram



Diagram



Block diagram



Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/gb/products/2904598

IECEE CB Scheme
Approval ID: SI-8860

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: TAA00000BV

BV
Approval ID: 44621/B0 BV

cUL Listed
Approval ID: E199827

UL Listed
Approval ID: E199827

Classifications

ECLASS

ECLASS-13.0	27040701

ETIM

ETIM 9.0	EC002540

UNSPSC

UNSPSC 21.0	39121000

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	93541367-712a-43ff-943d-708f0e440eff

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