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

2904614

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Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

Product description

The QUINT POWER power supply has been specially developed for supplying power to compatible Phoenix Contact products via the T-bus DIN rail connector. Furthermore, it can be directly latched onto the DIN rail. The device features a protective coating and has IECEx, ATEX, and HazLoc approvals. The OVP (overvoltage protection) of <30 V DC protects your system against voltage increases. In the event of an error, the output is switched off to protect the loads against overvoltages. The output circuit is decoupled by a MOSFET.

Your advantages

- Also for operation in potentially explosive areas (zone 2)
- Optionally for supplying devices via the TBUS DIN rail connector
- Preventive function monitoring indicates critical operating states before errors occur
- Starting of heavy loads with dynamic boost
- High efficiency and long service life, with low power dissipation and low heating

Commercial data

Item number	2904614
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM10
Product key	CMPI13
GTIN	4055626255651
Weight per piece (including packing)	357.6 g
Weight per piece (excluding packing)	360 g
Customs tariff number	85044095
Country of origin	VN

Technical data

Input data

AC operation

Nominal input voltage range	100 V AC ... 240 V AC
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	typ. 10 A (at 25 °C)
Inrush current integral (I^2t)	typ. 0.1 A^2s
Inrush current limitation	10 A
Frequency range (f_N)	50 Hz ... 60 Hz ±10 %
	16.7 Hz (acc. to EN 50163)
Mains buffering time	typ. 31 ms (120 V AC)
	typ. 31 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	69 VA
Protective circuit	Transient surge protection; Varistor
Typical response time	500 ms
Input fuse	4 A (slow-blow, internal)
Recommended breaker for input protection	6 A ... 16 A (Characteristic B, C, D, K or comparable)
Discharge current to PE	< 0.25 mA (264 V AC, 60 Hz)
	< 0.22 mA

DC operation

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

Output data

Efficiency	typ. 93 % (120 V AC)
	typ. 94 % (230 V AC)
Nominal output voltage	24 V DC
Setting range of the output voltage (U_{Set})	24 V DC ... 27 V DC (constant capacity)
Nominal output current (I_N)	2.5 A
Static Boost ($I_{Stat.Boost}$)	3.125 A (≤ 40°C)
Dynamic Boost ($I_{Dyn.Boost}$)	4 A (≤ 60 °C (on ≤ 5 s/off ≥ 5 s))

Feedback voltage resistance	≤ 32 V DC
Protection against overvoltage at the output (OVP)	≤ 30 V DC ±2 %
Control deviation	< 0.5 % (Static load change 10 % ... 90 %)
	< 2 % (Dynamic load change 10 % ... 90 %, (10 Hz))
	< 0.25 % (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
	96 W
Maximum no-load power dissipation	< 1 W (120 V AC)
	< 1 W (230 V AC)
Power loss nominal load max.	< 5 W (120 V AC)
	< 4 W (230 V AC)
Crest factor	typ. 1.8 (120 V AC)
	typ. 1.84 (230 V AC)
Rise time	50 ms (U_{Out} = 10 % ... 90 %)
Fuse protection (secondary side)	electronic

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
Single conductor/terminal point, stranded, with ferrule, min.	0.25 mm²
Single conductor/terminal point, stranded, with ferrule, 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	90.00 kHz ... 110.00 kHz (Auxiliary converter stage)
	50.00 kHz ... 195.00 kHz (Main converter stage)
	60.00 kHz ... 360.00 kHz (PFC stage)

Product properties

Product type	Power supply
Product family	QUINT POWER
MTBF (IEC 61709, SN 29500)	> 2000000 h (25 °C)
	> 1161000 h (40 °C)

	> 514000 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	323000 h
Additional text	120 V AC

Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	40 °C
Time	346000 h
Additional text	230 V AC

Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	25 °C
Time	915000 h
Additional text	120 V AC

Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	25 °C
Time	980000 h
Additional text	230 V AC

Dimensions

Width	40 mm
Height	99 mm
Depth	114 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 right/left (active, passive)	0 mm / 0 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
With protective coating	yes

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)	5 Hz ... 100 Hz resonance search 2.3g, 90 min., resonance frequency 2.3g, 90 min. (according to DNV GL Class C)
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

UL approvals	UL 121201 & CSA C22.2 No. 213-17 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location)

ATEX

Identification	UL 21 ATEX 2597 X
	Ⓔx II 3 G Ex ec nC IIC T4 Gc

IECEx

Identification	IECEx ULD 21.0023X
	Ex ec nC IIC T4 Gc

UKEX

Identification	UL21UKEX2208X

UL

Identification	UL Listed UL 61010-1

UL

Identification	UL Listed UL 61010-2-201

UL

Identification	UL 1310 Class 2 Power Units

UL

Identification	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
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 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)
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

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/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 / 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

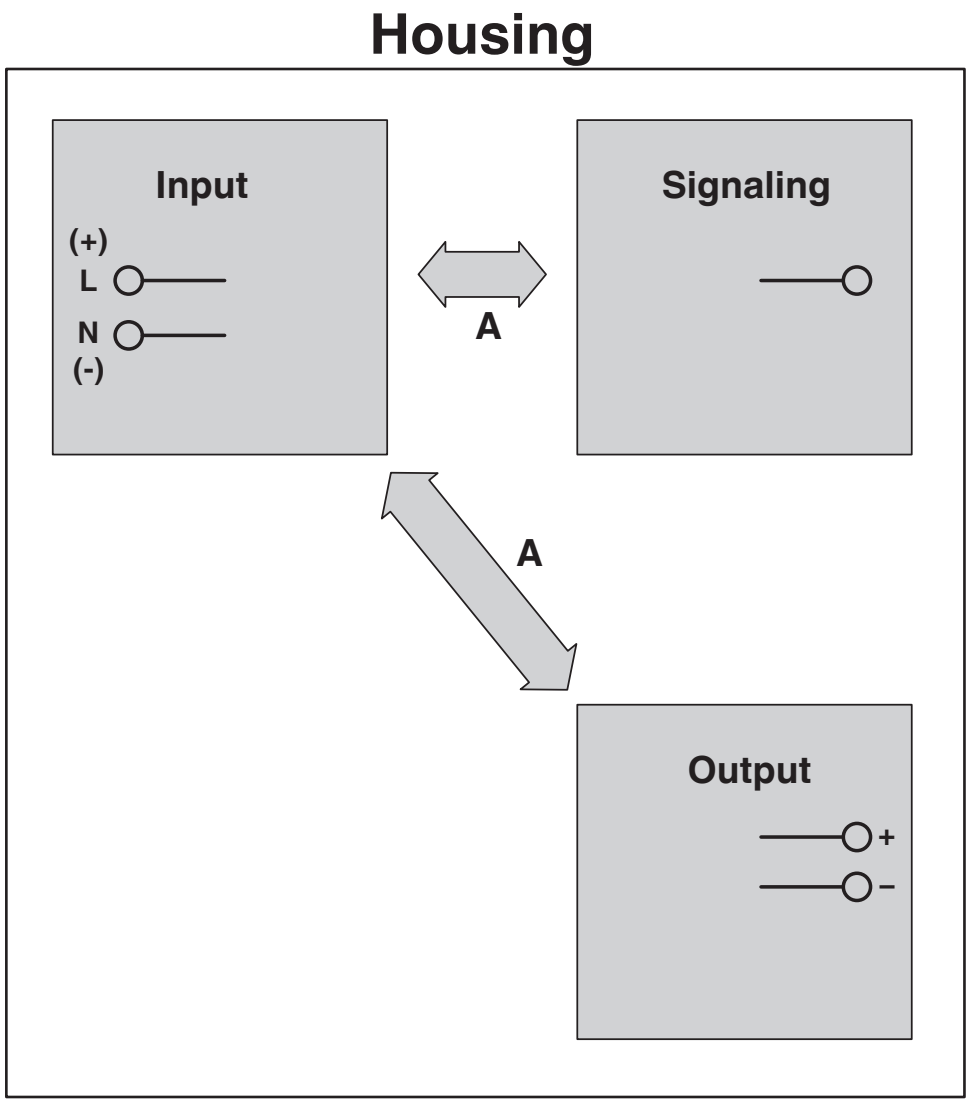
Standards/regulations	EN 61000-4-18
Voltage	1 kV (symmetrical)
	2.5 kV (asymmetrical)
	1 kV (symmetrical)
Comments	Criterion A

Criteria

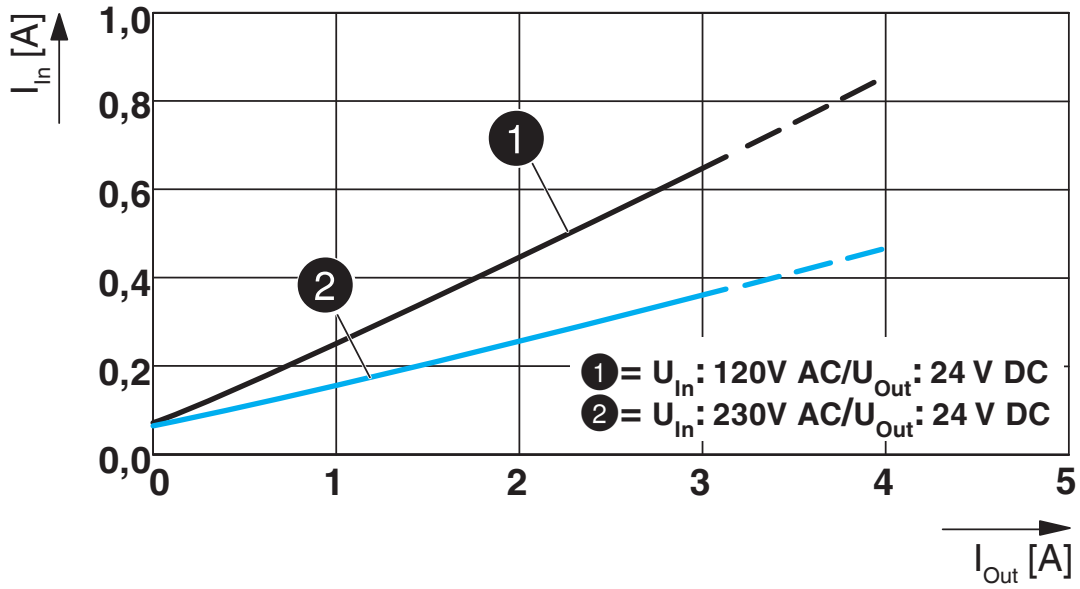
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.
Criterion C	Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by actuating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

Drawings

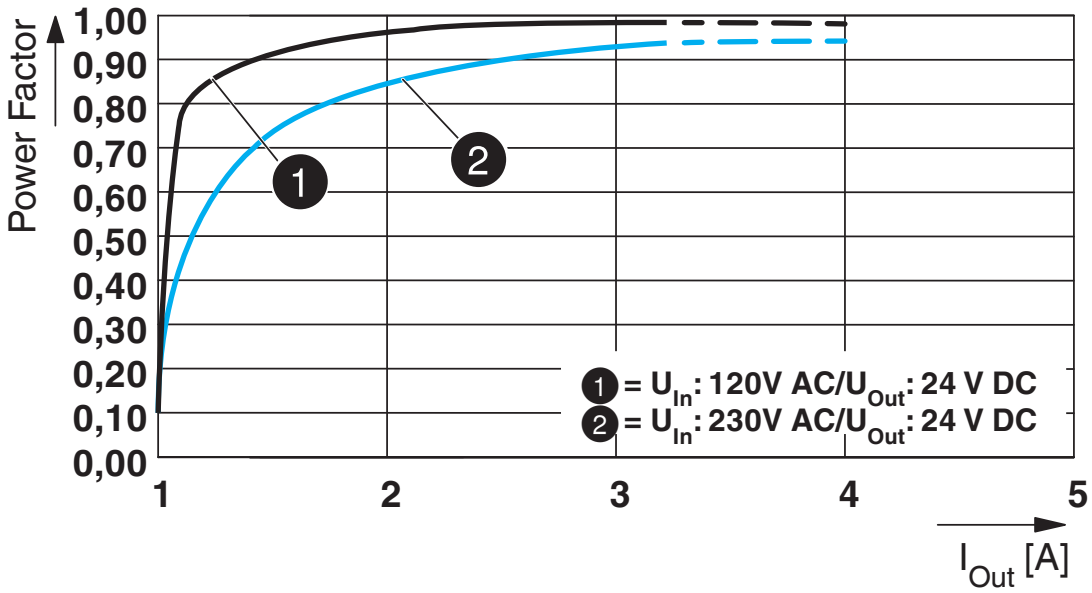
Schematic diagram



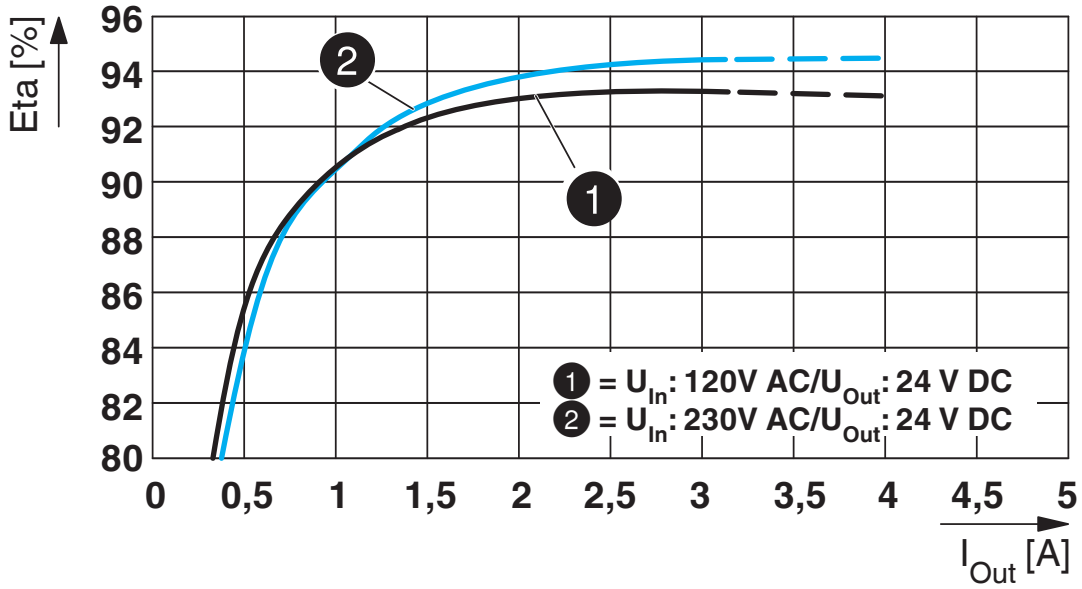
Diagram



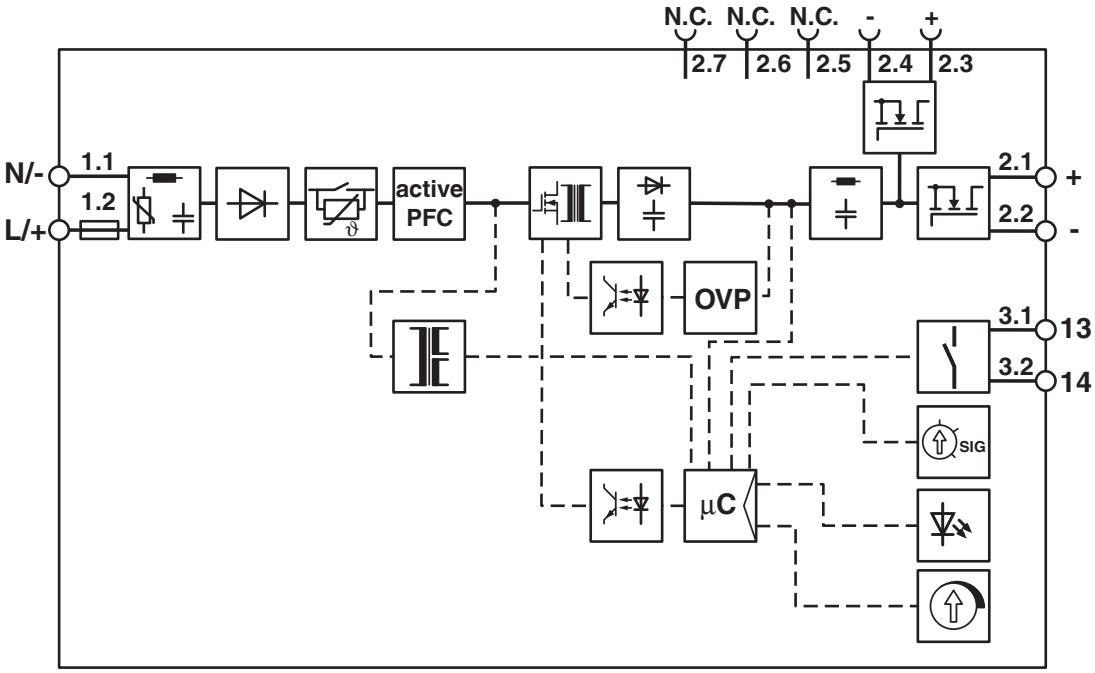
Diagram



Diagram



Block diagram



Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2904614

IECEE CB Scheme
Approval ID: DK-116799-A1-UL

cULus Listed
Approval ID: FILE E 123528

DNV
Approval ID: TAA00001YD

Type approved
Approval ID: SI-SIQ BG 005/109

BV
Approval ID: 44621/B0 BV

IECEx
Approval ID: IECEx ULD 21.0023X

ATEX
Approval ID: UL 21 ATEX 2597X

cULus Listed
Approval ID: FILE E 199827

UKCA-EX
Approval ID: UL21UKEX2208X

INMETRO
Approval ID: DNV 24.0254 X

Classifications

ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	27040701

ETIM

ETIM 10.0	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)

EF3.1 Climate Change

CO2e kg	6.998 kg CO2e

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