

QUINT4-ORING/12-24DC/2X20/2X20 - Redundancy module



1088207

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Active redundancy module QUINT ORING with decoupling MOSFET, ACB Technology, DIN rail mounting, 12 V DC ... 24 V DC, 2x 20 A, 2x 20 A

Your advantages

- Service life of the redundant solution is doubled, thanks to uniform distribution of the load
- Save energy
- Permanent monitoring of redundancy
- Consistent redundancy up to the load

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Technical data

Input data

Nominal input voltage range	12 V DC ... 24 V DC
Input voltage range	8 V DC ... 29.5 V DC
Voltage type of supply voltage	DC
Nominal input current (I_N)	2x 20 A
Static Boost ($I_{Stat.Boost}$)	2x 25 A
Dynamic Boost ($I_{Dyn.Boost}$)	2x 30 A (5 s)
Selective Fuse Breaking (I_{SFB})	2x 120 A (15 ms)
Reverse polarity protection	< yes60 V DC
Intended listed circuit breaker for input protection	60 V DC 16 A (Characteristic B, C)
Voltage drop, input/output	typ. 0.1 V ($I_{OUT} = 20$ A)

Output data

Efficiency	typ. 98.5 % (12 V DC)
	typ. 99 % (24 V DC)
Nominal output voltage	$U_{in} - 0.1$ V
Nominal output current (I_N)	2x 20 A
	1x 40 A
Static Boost ($I_{Stat.Boost}$)	2x 25 A
	1x 50 A
Dynamic Boost ($I_{Dyn.Boost}$)	2x 30 A (5 s)
	1x 60 A (5 s)
Selective Fuse Breaking (I_{SFB})	2x 120 A (15 ms)
	1x 240 A (15 ms)
Connection in series	no
Feedback voltage resistance	≤ 32 V DC
Protection against overvoltage at the output (OVP)	≤ 32 V DC
Power loss nominal load max.	11.7 W ($I_{OUT} = 40$ A)
	12.7 W ($I_{OUT} = 40$ A)

Signal relay 13/14

Connection labeling	3.1, 3.2
Switch contact (floating)	floating
Maximum contact load	30 V DC
	100 mA
Signal option	Redundancy OK

Signal relay 23/24

Connection labeling	3.3, 3.4
Switch contact (floating)	floating
Maximum contact load	30 V DC

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	100 mA
Signal option	ACB OK

Connection data

Input

Position	1.x
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Conductor connection

Connection method	Screw connection
rigid	0.5 mm ² ... 16 mm ²
flexible	0.5 mm ² ... 16 mm ²
flexible with ferrule without plastic sleeve	0.5 mm ² ... 16 mm ²
flexible with ferrule with plastic sleeve	0.5 mm ² ... 16 mm ²
rigid (AWG)	20 ... 16
Stripping length	10 mm
Tightening torque	1.2 Nm ... 1.6 Nm
Drive form screw head	Slotted L

Output

Position	2.x
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Conductor connection

Connection method	Screw connection
rigid	0.5 mm ² ... 16 mm ²
flexible	0.5 mm ² ... 16 mm ²
flexible with ferrule without plastic sleeve	0.5 mm ² ... 16 mm ²
flexible with ferrule with plastic sleeve	0.5 mm ² ... 16 mm ²
rigid (AWG)	20 ... 6
Stripping length	10 mm
Tightening torque	1.2 Nm ... 1.6 Nm
Drive form screw head	Slotted L

Signal

Position	3.x
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Conductor connection

Connection method	Push-in connection
rigid	0.2 mm ² ... 1.5 mm ²
flexible	0.2 mm ² ... 1.5 mm ²
flexible with ferrule without plastic sleeve	0.2 mm ² ... 1.5 mm ²
flexible with ferrule with plastic sleeve	0.2 mm ² ... 0.75 mm ²
rigid (AWG)	24 ... 16
Stripping length	8 mm

Signaling

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LED signaling

Types of signaling	DC OK (green)
Signal threshold	Redundancy OK (LED lights up green)
	$I < I_n$ (LED lights up green)
	ACB OK (LED lights up green)
	ACB OK (sources are slightly asymmetrical) (LED lights up green and yellow)
	Sources are asymmetrical (LED flashing red)

Electrical properties

Insulation voltage input, output / housing	600 V AC
	850 V DC

Product properties

Product type	Redundancy module
Product family	QUINT ORING
MTBF (IEC 61709, SN 29500)	> 1792000 h (25 °C)
	> 1007000 h (40 °C)
	> 460000 h (60 °C)
Environmental protection directive	RoHS Directive 2011/65/EU
	WEEE
	Reach
LED	yes

Data management status

Article revision	00
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Insulation characteristics

Protection class	III
Degree of pollution	2

Life expectancy (electrolytic capacitors)

Current	40 A
Temperature	40 °C
Time	224000 h
Additional text	12 V DC

Life expectancy (electrolytic capacitors)

Current	40 A
Temperature	40 °C
Time	182000 h
Additional text	24 V DC

Dimensions

Item dimensions

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Width	46 mm
Height	130 mm
Depth	132 mm
	125 mm (Device depth (DIN rail mounting))

Item dimensions with alternative mounting

Width	122 mm
Height	130 mm
Depth	49 mm

Installation dimensions

Installation distance right/left	5 mm / 5 mm
Installation distance top/bottom	50 mm / 50 mm

Mounting

Mounting type	DIN rail mounting
Assembly note	alignable: $P_N \geq 50\%$, 5 mm horizontally, 15 mm next to active components, 50 mm vertically alignable: $P_N < 50\%$, 0 mm horizontally, 40 mm vertically top, 20 mm vertically bottom
Mounting position	horizontal DIN rail NS 35, EN 60715

Material specifications

Flammability rating according to UL 94 (housing / terminal blocks)	V0
Housing material	Metal
Type of housing	Aluminum (AlMg3)
Hood version	Galvanized sheet steel, free from chrome (VI)
Side element version	Aluminum

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C (> 60 °C Derating: 2,5 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	5000 m
Max. permissible relative humidity (operation)	≤ 100 % (at 25 °C, non-condensing)
Shock (operation)	18 ms, 30g, per spatial direction (IEC 60068-2-27)
Vibration (operation)	< 15 Hz, amplitude ±2.5 mm (IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g, 90 min.

Standards and regulations

Electrical safety

Standard designation	Electrical safety (of control and regulation devices)
Standards/specifications	IEC 61010-1

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Protective extra-low voltage

Standard designation	Protective extra-low voltage
Standards/specifications	EN 61010-1 (SELV)

Protective extra-low voltage

Standard designation	Protective extra-low voltage
Standards/specifications	IEC 61010-2-201 (PELV)

Approvals

Shipbuilding

Identification	DNV
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UL

Identification	UL Listed UL 61010-1
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UL

Identification	UL Listed UL 61010-2-201
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UL

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

Identification	CAN/CSA-C22.2 No. 61010-1-12
Identification	CAN/CSA C22.2 No. 61010-2-201:18

ATEX

Identification	⊕ II 3 G Ex ec nC IIC T4 Gc
	DEKRA 22ATEX0104 X

IECEX

Identification	Ex ec nC IIC T4 Gc
	IECEX DEK 22.0089X

UKEX

Identification	⊕ II 3 G Ex ec nC IIC T4 Gc
	DEKRA 22UKEX6029X

EMC data

Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
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
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 55016
	EN 61000-6-3 (Class B)

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Noise emission	Additional basic standard EN 61000-6-5 (immunity in power station)
Noise emission	EN 55016
	EN 61000-6-3 (Class B)
DNV GL conducted interference	Class B
Additional text	Bridge and deck area
DNV GL noise radiation	Class B
Additional text	Bridge and deck area

Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Contact discharge	6 kV (Test Level 3)
Discharge in air	8 kV (Test Level 3)
Comments	Criterion B

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	2 kV (Test Level 3 - asymmetrical)
Output	2 kV (Test Level 3 - asymmetrical)
Signal	2 kV (Test Level 4 - asymmetrical)
Comments	Criterion A

Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
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Surge voltage load (surge)

Input	0.5 kV (Test Level 2 - symmetrical)
	1 kV (Test Level 2 - asymmetrical)
Output	0.5 kV (Test Level 2 - symmetrical)
	1 kV (Test Level 2 - asymmetrical)
Comments	Criterion B

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)

Criteria

Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

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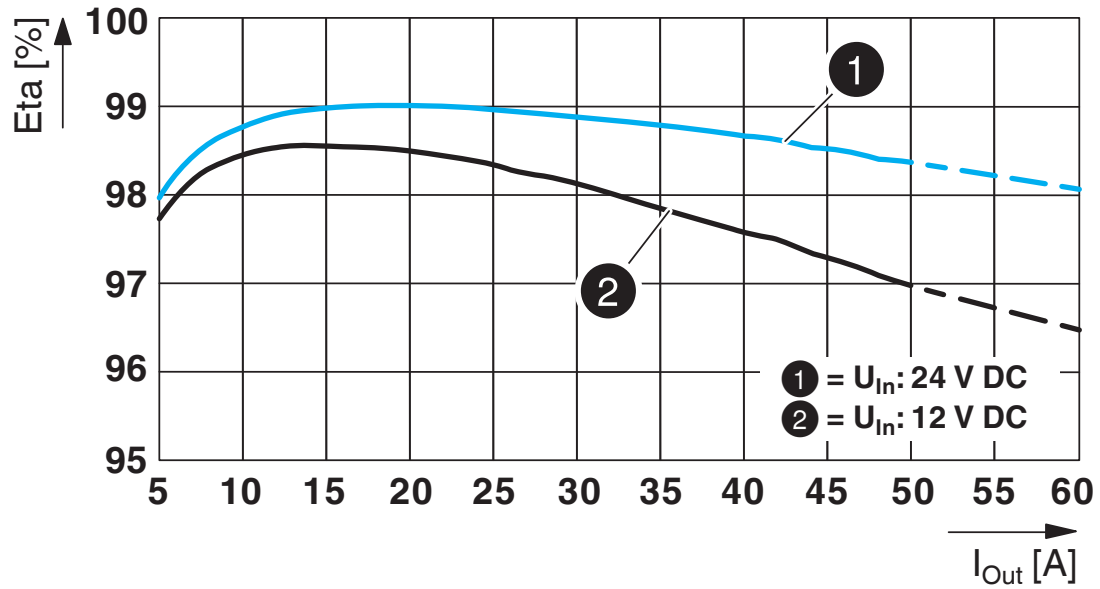


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Drawings

Diagram

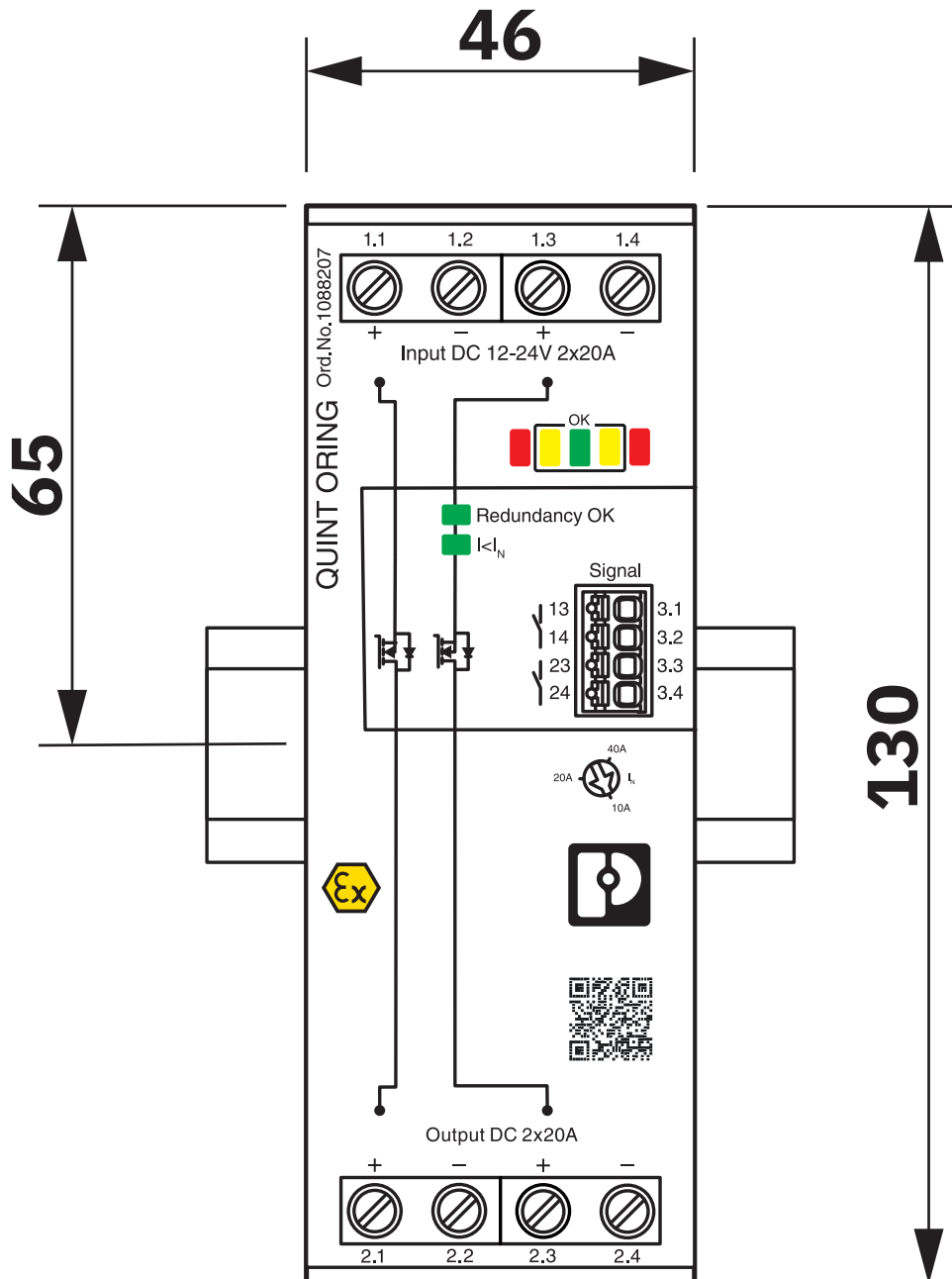


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Dimensional drawing



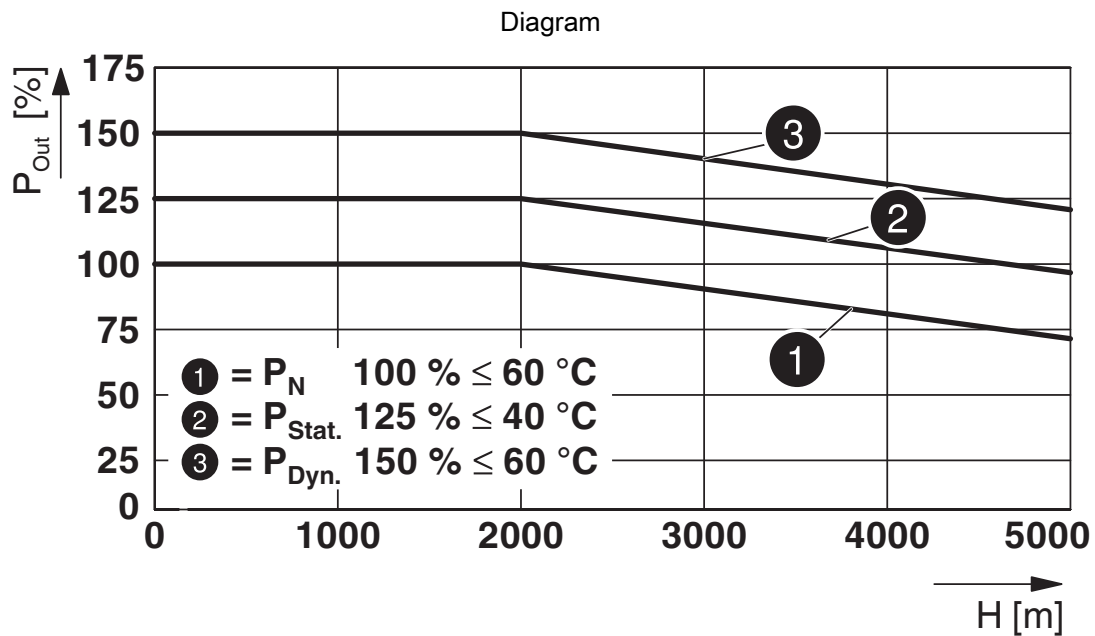
Device dimensions (dimensions in mm)

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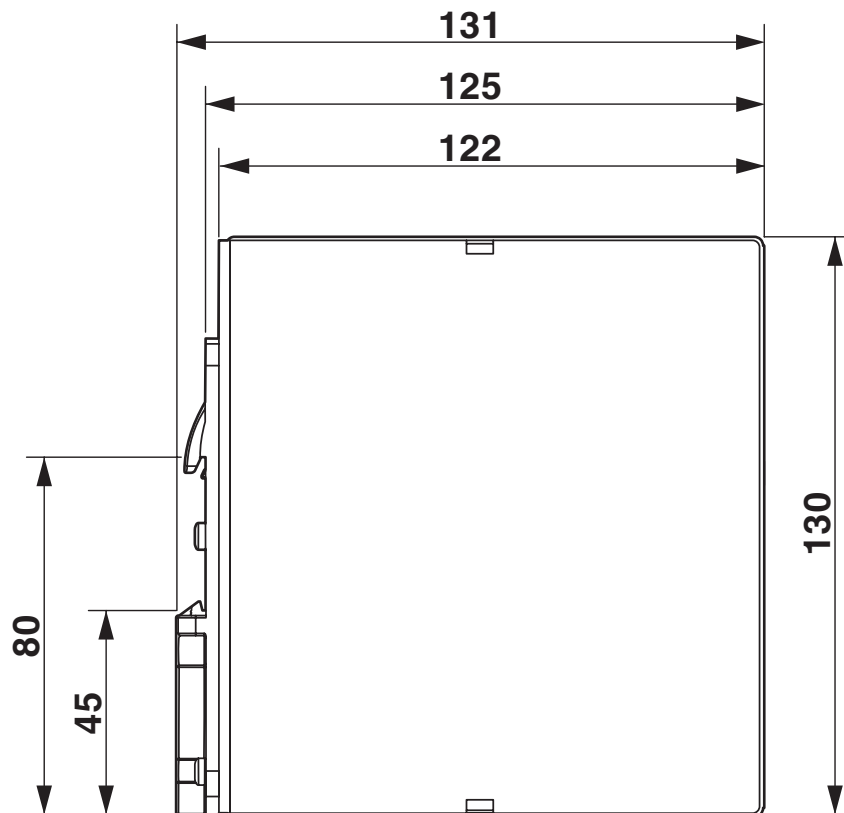
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Output power/installation altitude

Dimensional drawing



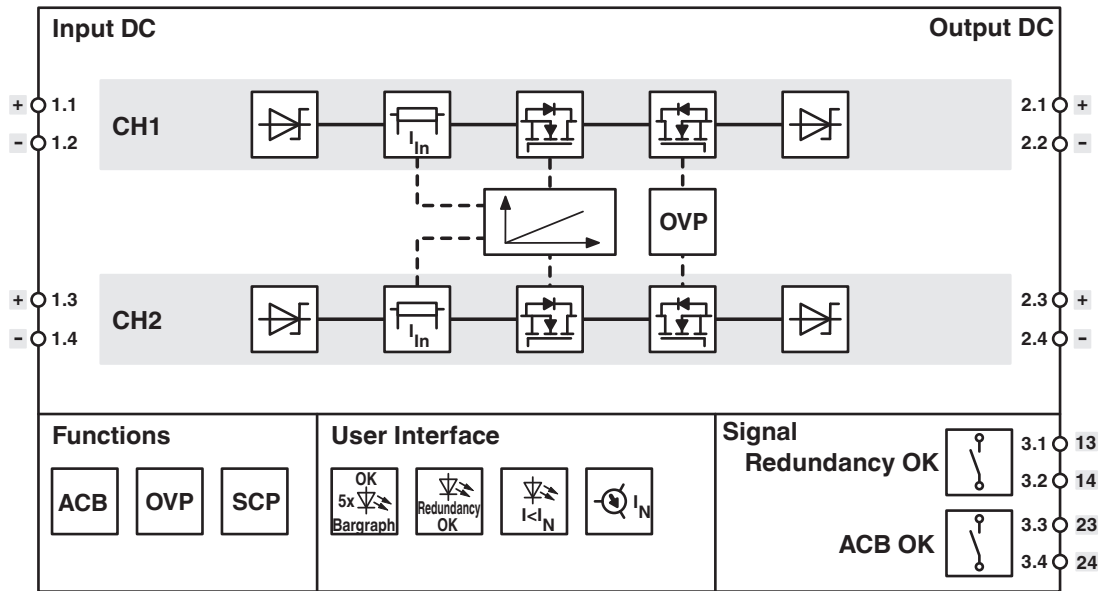
Device dimensions (dimensions in mm)

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Block diagram



Block diagram

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Approvals

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IECEE CB Scheme
Approval ID: DK-114506-UL



cULus Listed
Approval ID: FILE E 123528

DNV

Approval ID: TAA000011F



cULus Listed
Approval ID: FILE E 199827

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Classifications

ECLASS

ECLASS-11.0	27371010
ECLASS-12.0	27371010
ECLASS-13.0	27371010

ETIM

ETIM 9.0	EC000683
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UNSPSC

UNSPSC 21.0	32151500
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(a)-I, 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	f5592357-816c-4903-b5ef-957dbc72b1ce

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