

# QUINT4-S-ORING/12-24DC/1X40 - Redundancy module



2907752

<https://www.phoenixcontact.com/de/products/2907752>

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Active QUINT single redundancy module for DIN rail mounting, input: 12 V DC ... 24 V DC, output: 12 V DC ... 24 V DC / 1 x 40 A, incl. mounted UTA 107/30 universal DIN rail adapter

## Product description

Active redundancy module for superior system availability and maximum operational reliability. QUINT S-ORING enables the separate structuring of a redundant system. In combination with the new QUINT POWER power supply, the redundant system is monitored continuously.

## Your advantages

- Consistent redundancy up to the load
- Input voltage and decoupling section monitored on a permanent basis
- Save energy by decoupling with MOSFET

## Commercial data

Item number	2907752
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CG
Product key	CMRI43
GTIN	4055626231907
Weight per piece (including packing)	616,2 g
Weight per piece (excluding packing)	561,01 g
Customs tariff number	85371091
Country of origin	CN

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## Technical data

### Input data

#### DC operation

Nominal input voltage range	12 V DC ... 24 V DC
Input voltage range	8 V DC ... 30 V DC (SELV)
Typical national grid voltage	12 V DC 24 V DC
Voltage type of supply voltage	DC
Current consumption	40 A
Static Boost ( $I_{Stat.Boost}$ )	45 A
Dynamic Boost ( $I_{Dyn.Boost}$ )	60 A (5 s)
Selective Fuse Breaking ( $I_{SFB}$ )	215 A (15 ms)
Reverse polarity protection	yes, < 60 V
Nominal input current ( $I_N$ )	40 A (-40 °C ... 60 °C)
Input current $I_{Static}$	45 A (40 °C)
Input current $I_{Dynamic}$	60 A (5 s)
Input current $I_{SFB}$	215 A (15 ms)
Transient surge protection	Varistor
Voltage drop, input/output	0.1 V DC

### Output data

Efficiency	typ. 99.1 % (12 V DC)
	typ. 99.3 % (24 V DC)
Nominal output voltage	$U_{In} - 0,1$ V DC
Nominal output current ( $I_N$ )	40 A
Static Boost ( $I_{Stat.Boost}$ )	45 A
Dynamic Boost ( $I_{Dyn.Boost}$ )	60 A (5 s)
Selective Fuse Breaking ( $I_{SFB}$ )	215 A (15 ms)
Derating	60 °C ... 70 °C (2.5 %/K)
Power loss nominal load max.	6.5 W ( $I_{OUT} = 40$ A)
	6 W ( $I_{OUT} = 40$ A)
Connection in series	no

#### Signal: OK, 13/14

Output description	Group contact
Maximum switching voltage	max. 30 V AC/DC
Maximum inrush current	≤ 100 mA (short-circuit-proof)

#### Signal relay 13/14

Default	open
Additional text	$U_{IN} < 8$ V DC

#### Signal relay 13/14

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Default	closed
Additional text	$U_{IN} > 8 \text{ V DC}$

## Signal relay 13/14

Default	open
Additional text	Redundancy module defective

## Connection data

### Input

Connection method	Screw connection
Conductor cross-section, rigid min.	0.5 mm <sup>2</sup>
Conductor cross-section, rigid max.	16 mm <sup>2</sup>
Conductor cross-section flexible min.	0.5 mm <sup>2</sup>
Conductor cross-section flexible max.	16 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule with plastic sleeve, min.	0.5 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule with plastic sleeve, max.	16 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule without plastic sleeve, min.	0.5 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule without plastic sleeve, max.	16 mm <sup>2</sup>
Conductor cross-section AWG min.	20
Conductor cross-section AWG max.	6
Stripping length	10 mm
Screw thread	M4
Tightening torque, min	1.2 Nm
Tightening torque max	1.5 Nm

### Output

Connection method	Screw connection
Conductor cross-section, rigid min.	0.5 mm <sup>2</sup>
Conductor cross-section, rigid max.	16 mm <sup>2</sup>
Conductor cross-section flexible min.	0.5 mm <sup>2</sup>
Conductor cross-section flexible max.	16 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule with plastic sleeve, min.	0.5 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule with plastic sleeve, max.	16 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule without plastic sleeve, min.	0.5 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule without plastic sleeve, max.	16 mm <sup>2</sup>
Conductor cross-section AWG min.	20
Conductor cross-section AWG max.	6
Stripping length	10 mm
Screw thread	M4

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Tightening torque, min	1.2 Nm
Tightening torque max	1.5 Nm

## Signal

Connection method	Push-in connection
Conductor cross-section, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid max.	1.5 mm <sup>2</sup>
Conductor cross-section flexible min.	0.2 mm <sup>2</sup>
Conductor cross-section flexible max.	1.5 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule with plastic sleeve, min.	0.2 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule with plastic sleeve, max.	0.75 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule without plastic sleeve, min.	0.2 mm <sup>2</sup>
Single conductor/flexible terminal point with ferrule without plastic sleeve, max.	1.5 mm <sup>2</sup>
Conductor cross-section AWG min.	24
Conductor cross-section AWG max.	16
Stripping length	8 mm

## Signaling

Types of signaling	Relay contact, floating, current limited
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Signal output: OK, 13/14

$U_{in} < 8 \text{ V DC}$	LED off, input voltage not present or short circuit at redundancy module output
$U_{in} > 8 \text{ V DC}$	LED lights up green, input voltage present
Redundancy modul faulty	LED lights up red, redundancy module needs to be factory tested

## Electrical properties

Insulation voltage input, output / housing	500 V DC
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## Product properties

Product type	Redundancy module
Product family	QUINT S-ORING
MTBF (IEC 61709, SN 29500)	> 25297000 h (25 °C)
	> 15153000 h (40 °C)
	> 7449000 h (60 °C)
LED	yes

## Insulation characteristics

Protection class	III
Degree of pollution	2

## Life expectancy (electrolytic capacitors)

Current	40 A
Temperature	40 °C

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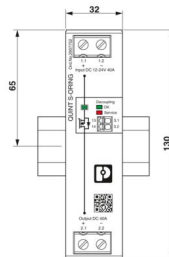
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Time	186000 h
Additional text	12 V DC

## Life expectancy (electrolytic capacitors)

Current	40 A
Temperature	40 °C
Time	123000 h
Additional text	24 V DC

## Dimensions

Dimensional drawing	
Width	32 mm
Height	130 mm
Depth	125 mm

## Installation dimensions

Installation distance right/left	0 mm / 0 mm
Installation distance top/bottom	40 mm / 20 mm

## Alternative assembly

Width	122 mm
Height	130 mm
Depth	35 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
Housing material	Aluminum / stainless steel
Type of housing	Aluminum (AlMg3)
Hood version	Galvanized sheet steel, free from chrome (VI)

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## 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 (> 2000 m, observe derating)
Climatic class	3K22 (in accordance with EN 60721-3-3)
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, amplitude ±2.5 mm (according to IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g, 90 min.
Temp code	T4 (-25 ... +70 °C; > 60 °C, Derating: 2,5 %/K)

## Standards and regulations

Standard - Electrical safety	IEC 62368-1
Standard – Safety extra-low voltage	IEC 62368-1

## Approvals

Shipbuilding approval	DNV, NK
UL approvals	UL/C-UL listed UL 508
	UL/C-UL Recognized UL 60950-1
	UL 121201 & CSA C22.2 No. 213-17 Class I, Division 2, Groups A, B, C, D T4 (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
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

### 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 power station)
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### Noise emission

Standards/regulations	EN 55016
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	EN 61000-6-3 (Class B)
DNV GL conducted noise emissions	
DNV	Class A
Additional text	Area power distribution
DNV GL noise radiation	
DNV	Class B
Additional text	Bridge and deck area
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 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
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 B
Surge voltage load (surge)	
Standards/regulations	EN 61000-4-5
Surge voltage load (surge)	
Input	1 kV (Test Level 3 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Output	1 kV (Test Level 3 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Signal	1 kV (Test Level 2 - asymmetrical)
Comments	Criterion A
Conducted interference	

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Standards/regulations	EN 61000-4-6
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## Conducted interference

Input/output/signal	asymmetrical
Frequency range	0.15 MHz ... 100 MHz
Comments	Criterion A
Voltage	20 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.

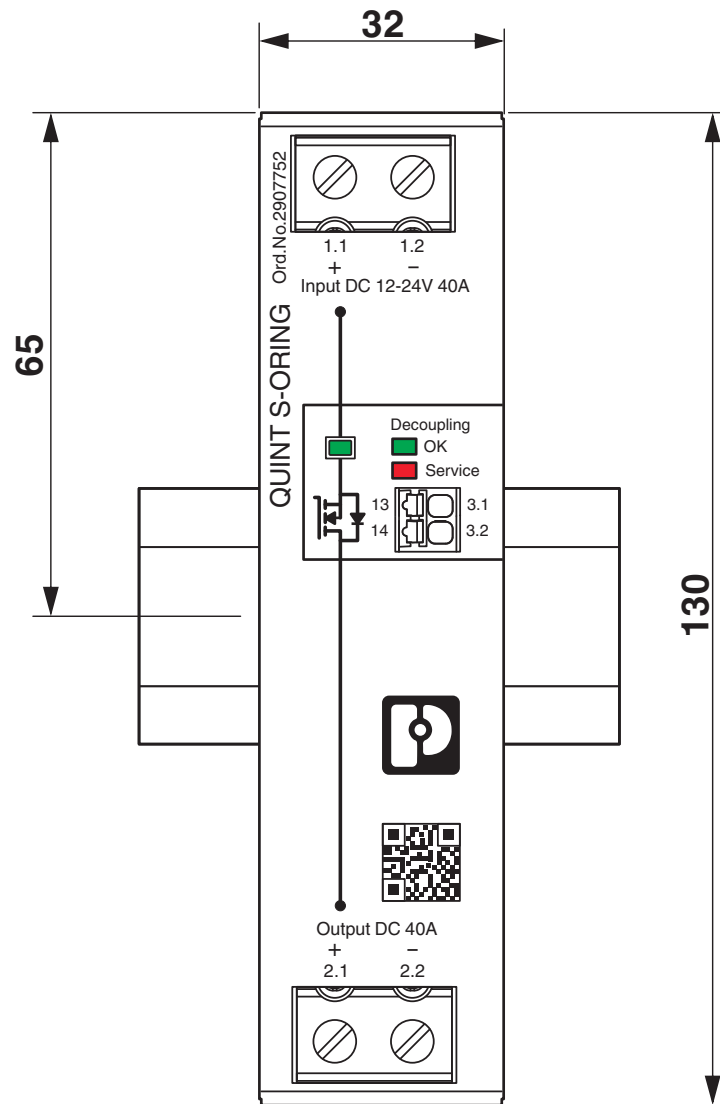
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## Drawings

Dimensional drawing



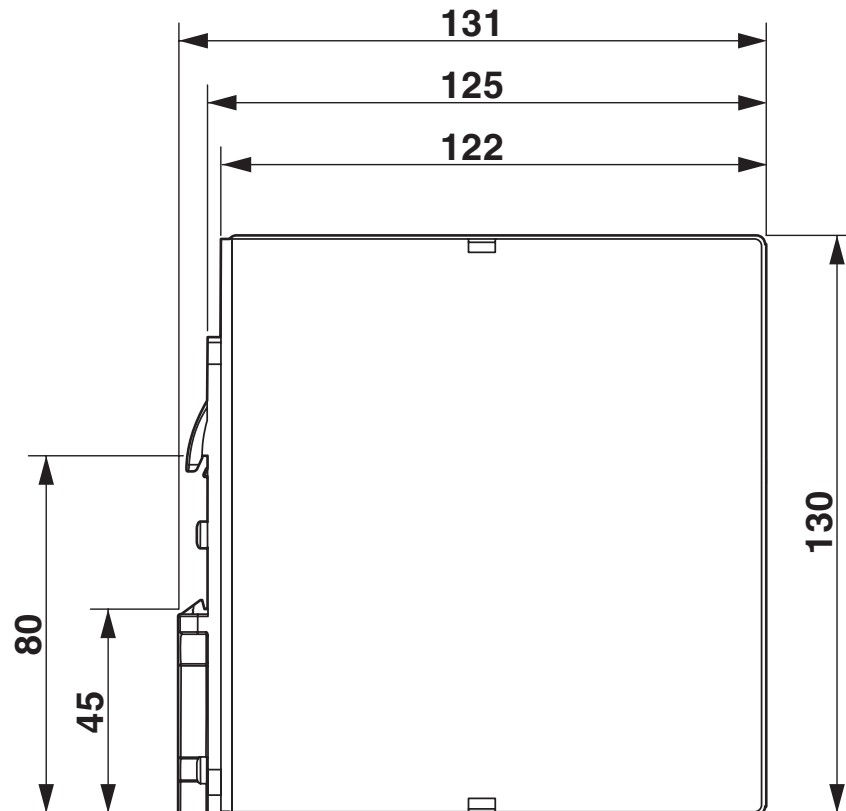
Dimensions, front view (in mm)

# QUINT4-S-ORING/12-24DC/1X40 - Redundancy module

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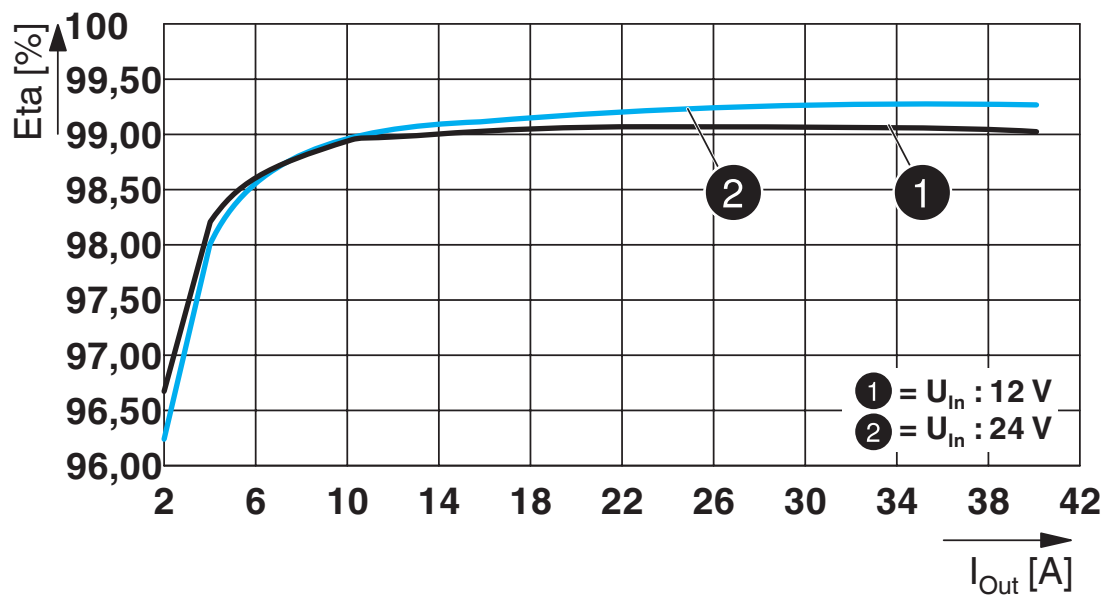
<https://www.phoenixcontact.com/de/products/2907752>

Dimensional drawing



Dimensions, side view (in mm)

Diagram



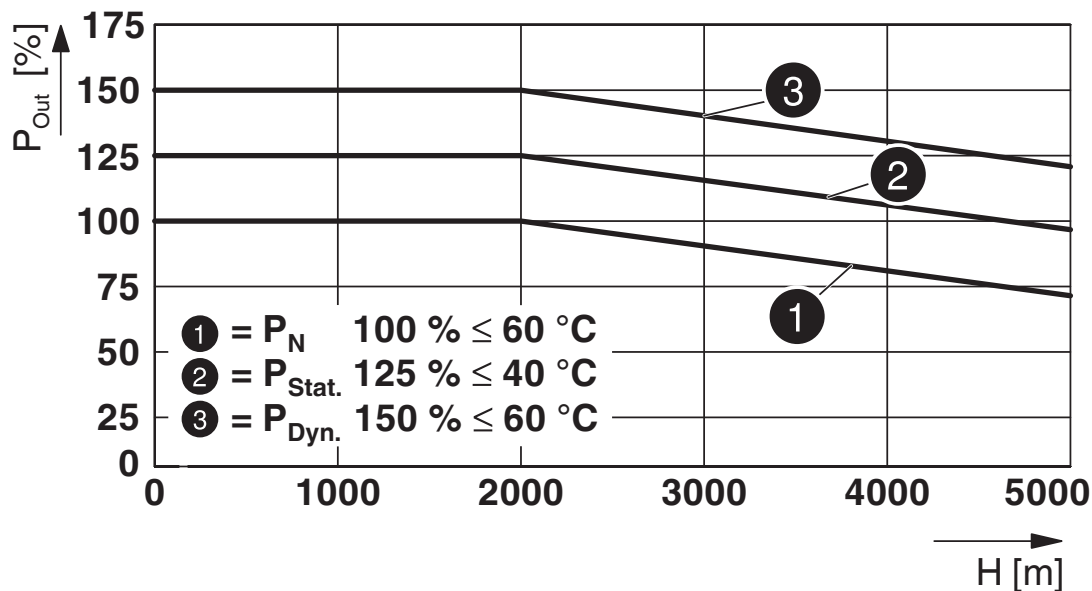
Efficiency

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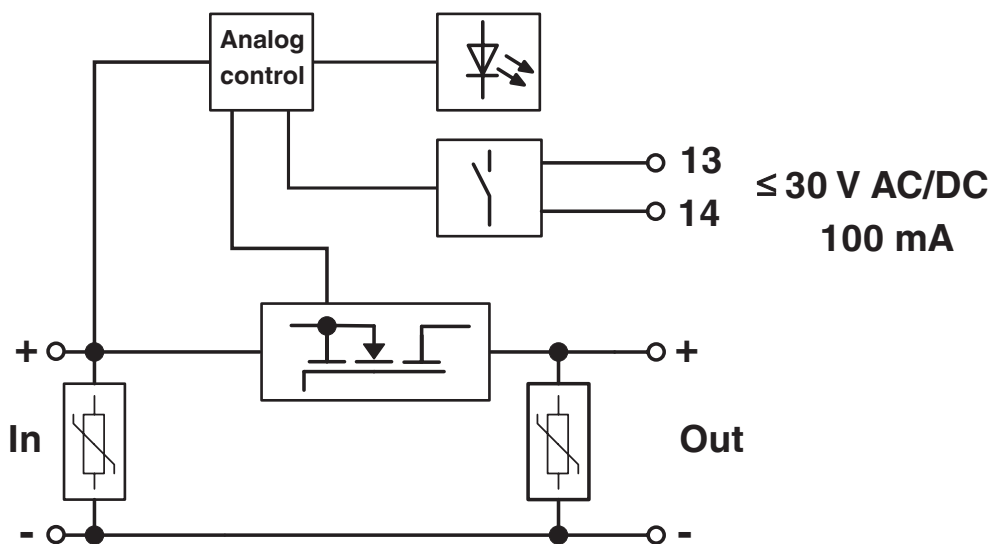
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Diagram



Altitude-dependent derating

Block diagram



Block diagram

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## Approvals

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**cUL Recognized**  
Approval ID: E211944



**UL Recognized**  
Approval ID: E211944



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



**UL Listed**  
Approval ID: E123528



**cUL Listed**  
Approval ID: E123528

**DNV**

Approval ID: TAA000011F



**IECEE CB Scheme**  
Approval ID: DE/PTZ/0048



**NK**  
Approval ID: TA25015M



**UL Recognized**  
Approval ID: E211944



**IECEE CB Scheme**  
Approval ID: DE/PTZ/0048



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

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**cUL Recognized**  
Approval ID: E211944



**cUL Listed**  
Approval ID: E123528



**UL Listed**  
Approval ID: E123528



**NK**  
Approval ID: TA25015M

**DNV**

Approval ID: TAA000011F



**cUL Listed**  
Approval ID: E199827



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## Classifications

### ECLASS

ECLASS-13.0	27371010
ECLASS-15.0	27371010

### ETIM

ETIM 10.0	EC002878
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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(c), 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	f95a055e-5565-4aa1-a507-6e9152c5cfef

### EF3.1 Climate Change

CO2e kg	13,17 kg CO2e
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