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

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
Product Key	CMRI43
Catalog Page	Page 304 (C-4-2019)
GTIN	4055626231907
Weight per Piece (including packing)	616.2 g
Weight per Piece (excluding packing)	616.2 g
Customs tariff number	85049090
Country of origin	CN

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
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	< yes60 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

Output data

Efficiency	typ. 99.1 % (12 V DC)
	typ. 99.3 % (24 V DC)
Output voltage	U_{In} -
Output voltage range	8 V DC ... 30 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

Default	closed
Additional text	U_{IN} > 8 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 mm²
Conductor cross section, rigid max.	16 mm²
Conductor cross section flexible min.	0.5 mm²
Conductor cross section flexible max.	16 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, min.	0.5 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, max.	16 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, min.	0.5 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, max.	16 mm²
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 mm²
Conductor cross section, rigid max.	16 mm²
Conductor cross section flexible min.	0.5 mm²
Conductor cross section flexible max.	16 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, min.	0.5 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, max.	16 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, min.	0.5 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, max.	16 mm²
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

Signal

Connection method	Push-in connection
Conductor cross section, rigid min.	0.2 mm²
Conductor cross section, rigid max.	1.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	1.5 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, min.	0.2 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, max.	0.75 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, min.	0.2 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, max.	1.5 mm²
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

Signal output: OK, 13/14

U_{In} < 8 V DC	LED off, input voltage not present or short circuit at redundancy module output
U_{In} > 8 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

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

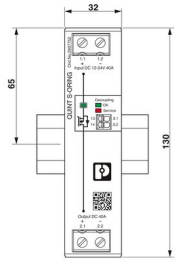
Life expectancy (electrolytic capacitors)

Current	40 A
Temperature	40 °C
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 instructions	alignable: P_N ≥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)

Housing material	Aluminum / stainless steel

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	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, amplitude ±2.5 mm (according to IEC 60068-2-6)
	15 Hz ... 150 Hz, 2.3g, 90 min.

Standards and regulations

Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)
Standard - Electrical safety	EN 60950-1/VDE 0805 (SELV)
Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment	EN 50178
Standard – Safety extra-low voltage	IEC 60950-1 (SELV) and EN 60204-1 (PELV)
Standard - Safe isolation	DIN VDE 0100-410

Approvals

Shipbuilding approval	DNV GL
UL approvals	UL/C-UL listed UL 508
	UL/C-UL Recognized UL 60950-1
	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location)

Conformity/Approvals

SIL in accordance with IEC 61508	0

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)
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 A
Additional text	Area power distribution
DNV GL noise radiation	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 B

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

Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
Input	1 kV (Test Level 4 - symmetrical)
	2 kV (Test Level 4 - asymmetrical)
Output	1 kV (Test Level 2 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Signal	1 kV (Test Level 2 - asymmetrical)
Comments	Criterion A

Conducted interference

Standards/regulations	EN 61000-4-6

Conducted interference

I/O/S	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)

Power frequency magnetic field

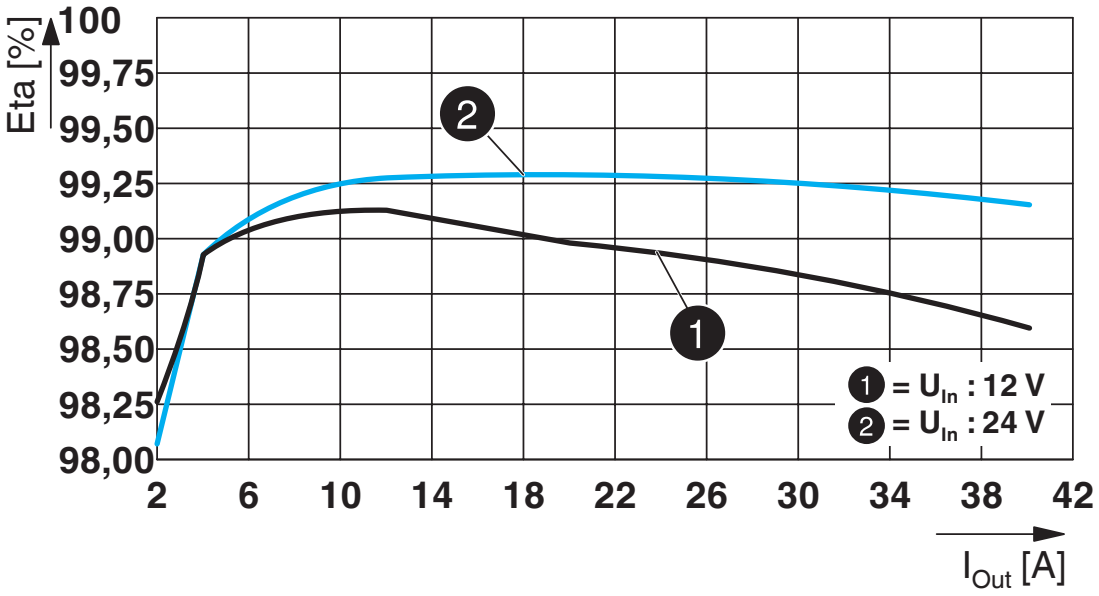
Standards/regulations	EN 61000-4-8
Frequency	16.67 Hz
	50 Hz
	60 Hz
Test field strength	30 A/m
Additional text	60 s
Comments	Criterion A

Criteria

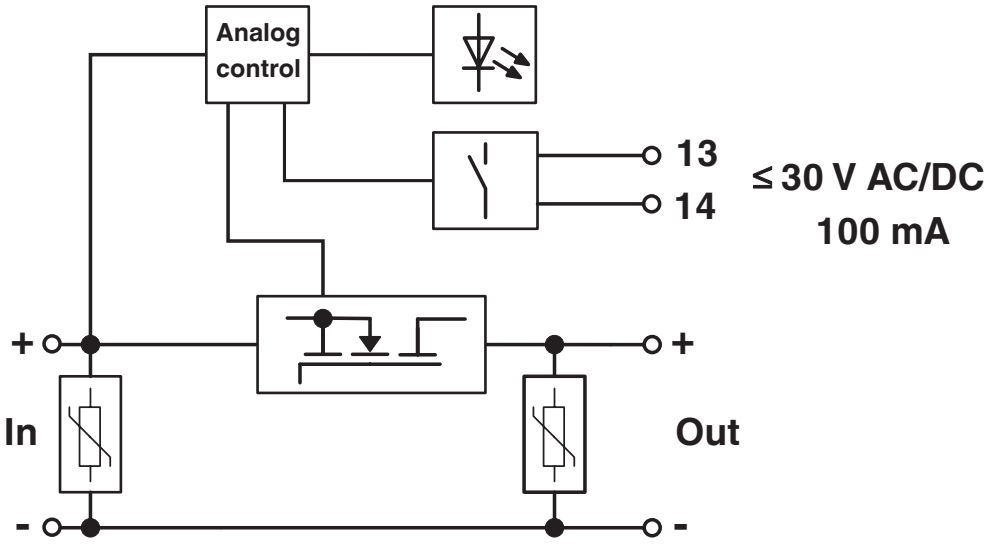
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

Drawings

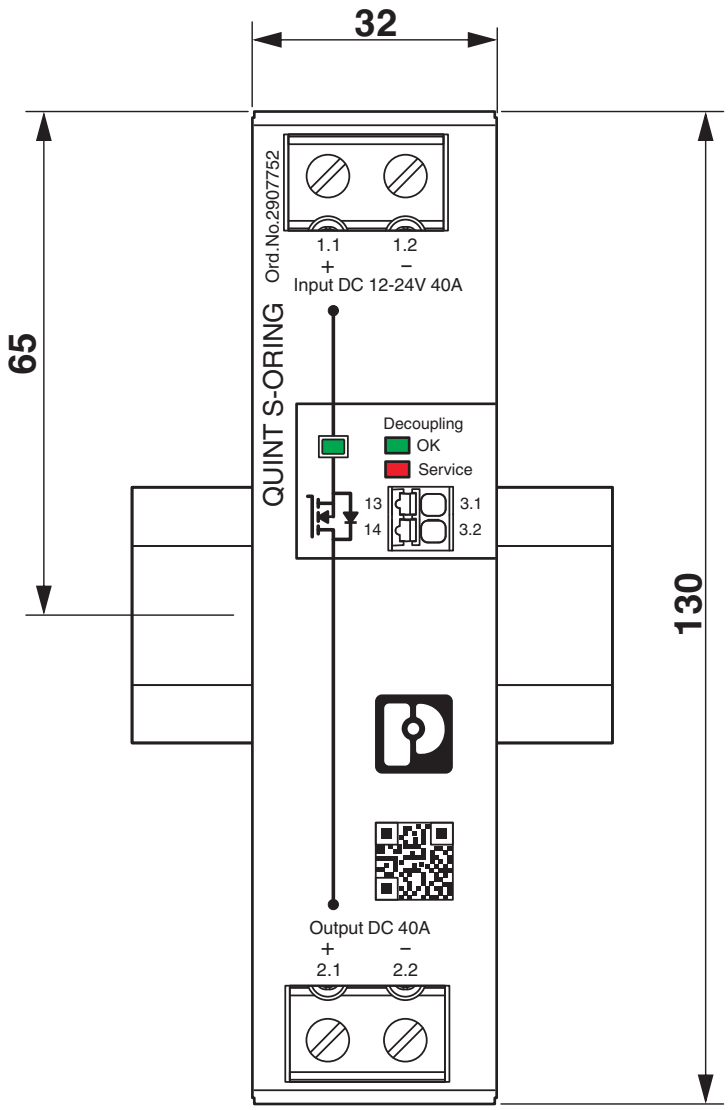
Diagram



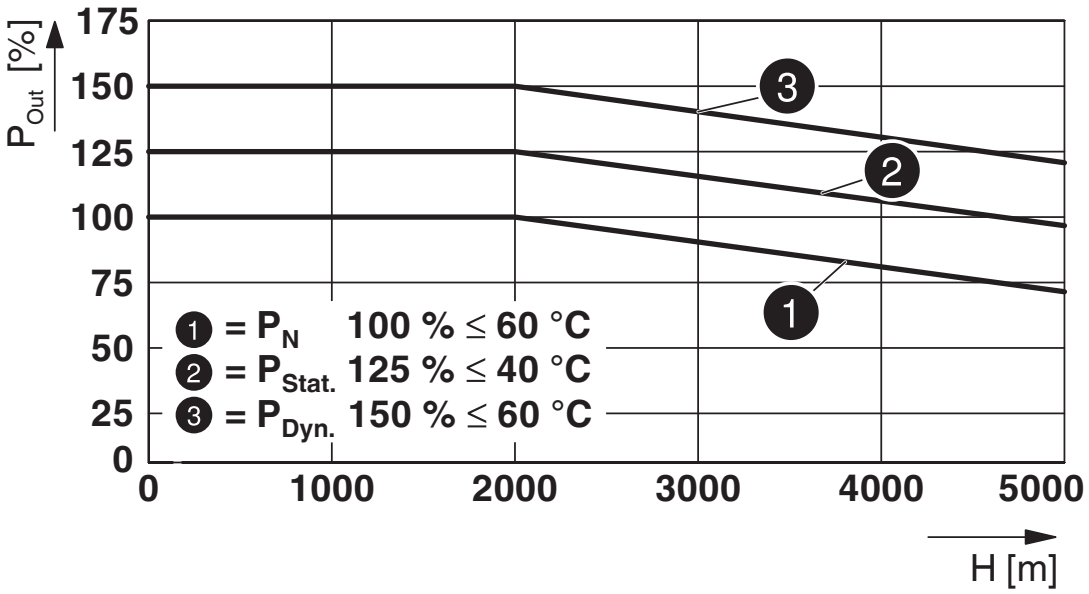
Block diagram



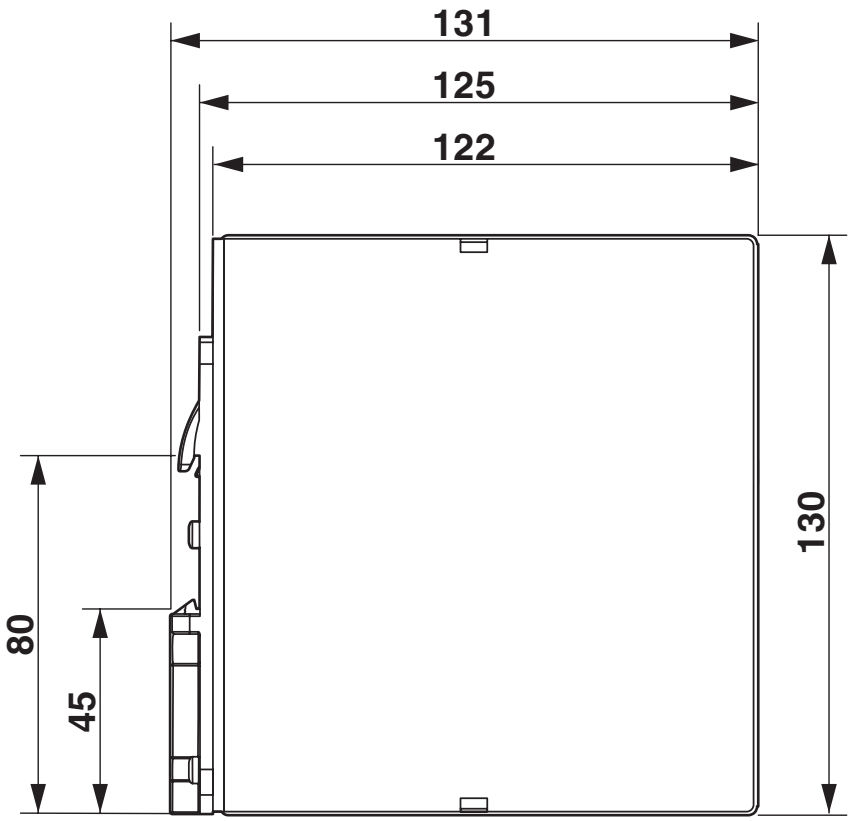
Dimensional drawing



Diagram



Dimensional drawing



Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/pc/products/2907752

cUL Recognized
Approval ID: FILE E 211944

UL Recognized
Approval ID: FILE E 211944

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

UL Listed
Approval ID: FILE E 123528

cUL Listed
Approval ID: FILE E 123528

DNV
Approval ID: TAA000011F

UL Recognized
Approval ID: FILE E 211944

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

cUL Recognized
Approval ID: FILE E 211944

cUL Listed
Approval ID: FILE E 123528

UL Listed
Approval ID: FILE E 123528

DNV
Approval ID: TAA000011F

cUL Listed
Approval ID: FILE E 199827

UL Listed
Approval ID: FILE E 199827

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Approval ID: FILE E 199827

cUL Listed
Approval ID: FILE E 199827

Classifications

ECLASS

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

ETIM

ETIM 8.0	EC000683

UNSPSC

UNSPSC 21.0	32151500

Environmental Product Compliance

REACh SVHC	Lead 7439-92-1

China RoHS	Environmentally Friendly Use Period = 25;
	For information on hazardous substances, refer to the manufacturer’s declaration available under “Downloads”

Accessories

UWA 182/52 - Mounting adapter

2938235

https://www.phoenixcontact.com/pc/products/2938235



Universal wall adapter for securely mounting the device in the event of strong vibrations. The device is screwed directly onto the mounting surface. The universal wall adapter is attached on the top/bottom.

UTA 107/30 - Mounting adapter

2320089

https://www.phoenixcontact.com/pc/products/2320089

Universal DIN rail adapter



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

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QUINT-PS-ADAPTERS7/1 - Mounting adapter

2938196

https://www.phoenixcontact.com/pc/products/2938196

Assembly adapter for QUINT-PS... power supply on S7-300 rail



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