# QUINT-DIODE/48DC/2X20/1X40 - Redundancy module

2320160

https://www.phoenixcontact.com/us/products/2320160

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DIN rail diode module 48 V DC/2x20 A or 1x40 A. Uniform redundancy up to the consumer.

## Product description

A safe redundant system is the result of the parallel connection of two power supply units which are decoupled from one another. To further increase system availability, QUINT DIODE provides the solution: decoupling with diode.

## Your advantages

- Flexible
- Rugged design
- Consistent redundancy up to the load

## Commercial data

| | |
|---|---|
| Item number | 2320160 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CM18 |
| Product key | CMRQ44 |
| Catalog page | Page 213 (C-6-2015) |
| GTIN | 4046356524759 |
| Weight per piece (including packing) | 878 g |
| Weight per piece (excluding packing) | 751 g |
| Customs tariff number | 85049090 |
| Country of origin | CN |

## Technical data

### Input data

DC operation

| | |
|---|---|
| Nominal input voltage range | 48 V DC |
| Input voltage range | 30 V DC ... 56 V DC |
| Voltage type of supply voltage | DC |
| Reverse polarity protection | < yes120 V |
| Nominal input current ($I_N$) | 2x 20 A (-25 °C ... 60 °C) |
| | 1x 40 A (-25 °C ... 60 °C) |
| Maximum current $I_{max}$ | 2x 30 A (-25 °C ... 40 °C) |
| | 1x 60 A (-25 °C ... 40 °C) |
| Transient surge protection | Varistor |
| Voltage drop, input/output | 0.7 V |
| Nominal input voltage range | 48 V DC |
| Input voltage range | 30 V DC ... 56 V DC |
| Input voltage range DC | 30 V DC ... 56 V DC |

### Output data

| | |
|---|---|
| Efficiency | > 97 % |
| Nominal output voltage | 48 V DC |
| Output voltage | $U_{In}$ - |
| Nominal output current ($I_N$) | 40 A (Increasing power) |
| | 20 A (Redundancy) |
| Derating | 60 °C ... 70 °C (2.5 %/K) |
| Power loss nominal load max. | 14 W ($I_{OUT}$ = 20 A) |
| Connection in series | No |
| Derating | 60 °C ... 70 °C 2.5 %/K |

### Connection data

Input

| | |
|---|---|
| Connection method | Screw connection |
| Conductor cross section, rigid min. | 0.2 mm² |
| Conductor cross section, rigid max. | 6 mm² |
| Conductor cross section flexible min. | 0.2 mm² |
| Conductor cross section flexible max. | 4 mm² |
| Conductor cross section AWG min. | 12 |
| Conductor cross section AWG max. | 10 |
| Stripping length | 8 mm |
| Screw thread | M3 |
| Tightening torque, min | 0.5 Nm |
| Tightening torque max | 0.6 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 |
| Conductor cross section AWG min. | 10 |
| 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 |

## Electrical properties

| | |
|---|---|
| Insulation voltage input, output / housing | 1000 V |

## Product properties

| | |
|---|---|
| Product type | Redundancy module |
| Product family | QUINT DIODE |
| MTBF (IEC 61709, SN 29500) | 40000000 h |
| LED | No |

Insulation characteristics

| | |
|---|---|
| Protection class | III |
| Degree of pollution | 2 |

## Dimensions

| | |
|---|---|
| Width | 50 mm |
| Height | 130 mm |
| Depth | 125 mm |
| Horizontal pitch | 2.8 Div. |

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 instructions | alignable: $P_N$ ≥50%, 5 mm horizontally, 15 mm next to active components, 50 mm vertically<br>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 | Steel sheet, zinc-plated |

## 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 |
| 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

| | |
|---|---|
| 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

| | |
|---|---|
| ATEX | Ⓔx II 3 G Ex ec IIC T4 Gc |
| | DEKRA 20ATEX0041 X |
| IECEx | Ex ec IIC T4 Gc |
| | IECEx DEK 20.0022X |

## 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 |

Electrostatic discharge

| | |
|---|---|
| Standards/regulations | EN 61000-4-2 |

Electromagnetic HF field

| | |
|---|---|
| Standards/regulations | EN 61000-4-3 |

Fast transients (burst)

| | |
|---|---|
| Standards/regulations | EN 61000-4-4 |

Surge voltage load (surge)

| | |
|---|---|
| Standards/regulations | EN 61000-4-5 |

Conducted interference

| | |
|---|---|
| Standards/regulations | EN 61000-4-6 |

Emitted interference

| | |
|---|---|
| Standards/regulations | EN 61000-6-3 |
| Radio interference voltage in acc. with EN 55011 | EN 55011 (EN 55022) Class B, area of application: Industry and residential |
| Emitted radio interference in acc. with EN 55011 | EN 55011 (EN 55022) Class B, area of application: Industry and residential |

## Classifications

### ECLASS

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

### ETIM

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|---|---|
| ETIM 9.0 | EC000683 |

### UNSPSC

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|---|---|
| UNSPSC 21.0 | 32151500 |

## Environmental product compliance

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|---|---|
| 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” |



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