

# QUINT-BUFFER/24DC/24DC/40 - Buffer module



2320393

<https://www.phoenixcontact.com/us/products/2320393>

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QUINT buffer module with maintenance-free capacitor-based energy storage for DIN rail mounting, decoupled input: 24 V DC, decoupled output: 24 V DC/40 A, with integrated SFB (Selective Fuse Breaking) Technology, including mounted UTA 107 universal DIN rail adapter

## Product description

Short-term mains interruptions are bridged by QUINT BUFFER, a maintenance-free capacitor-based buffer module with SFB technology (selective fuse breaking technology). Systems can therefore also run in unstable networks or, in the event of longer failures, are correctly shut down after all relevant process data is saved. The buffer module also acts as a energy storage device for peak loads and for tripping fuses. For function monitoring, an active switching output and a control lamp are used. With the integrated diode, loads can be divided into buffered and unbuffered loads. The buffer time is thus extended and the buffered loads are protected against errors in the internal network.

## Your advantages

- Longer buffer time, thanks to integrated decoupling function
- Robust due to reliable supply at temperatures from -25°C to +80°C
- Saves space: electronic switchover unit and energy storage in the same housing
- Flexible – supports operation in auto mode as well as manual adjustment

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2320393       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CM20          |
| Product key                          | CMUQE3        |
| GTIN                                 | 4046356554114 |
| Weight per piece (including packing) | 1,490.9 g     |
| Weight per piece (excluding packing) | 1,306 g       |
| Customs tariff number                | 85322200      |
| Country of origin                    | CN            |

## Technical data

### Input data

|                                |                                                                          |
|--------------------------------|--------------------------------------------------------------------------|
| Input voltage                  | 24 V DC                                                                  |
| Input voltage range            | 18 V DC ... 30 V DC                                                      |
| Input voltage range DC         | 18 V DC ... 30 V DC                                                      |
| Voltage type of supply voltage | DC                                                                       |
| Buffer period                  | 0.2 s (40 A)<br>8 s (1 A)                                                |
| Current consumption            | 0.1 A (No-load)<br>0.7 A (charging process)<br>45 A (Conduction current) |
| Reverse polarity protection    | yes                                                                      |
| Charging delay                 | no                                                                       |
| Fixed backup threshold         | < 20 V DC (< 22 V; < 24 V; < 26 V)                                       |
| Variable connect threshold     | (U <sub>IN</sub> - 1 V)/0.1 s                                            |
| Protective circuit             | Transient surge protection                                               |

### Output data

|                                             |                                                                               |
|---------------------------------------------|-------------------------------------------------------------------------------|
| Efficiency                                  | > 99 % (Mains operation, with charged energy storage)                         |
| Nominal output voltage                      | 24 V DC (depending on the input voltage)                                      |
| Nominal output current (I <sub>N</sub> )    | 40 A                                                                          |
| Output current limit                        | 45 A (According to current limitation of the power supply connected upstream) |
| Selective Fuse Breaking (I <sub>SFB</sub> ) | 120 A (12 ms)                                                                 |
| Derating                                    | 60 °C ... 80 °C (2.5 %/K)                                                     |
| Output power                                | max. 960 W                                                                    |
| Power loss nominal load max.                | 8 W                                                                           |
| Power dissipation battery operation         | 48 W                                                                          |
| Power dissipation                           | 8 W (Normal operation)<br>48 W (buffer mode)                                  |
| Protective circuit                          | Transient surge protection                                                    |
| Connection in parallel                      | yes, for increasing the buffer time and for redundancy                        |
| Connection in series                        | no                                                                            |

### Mains operation

|                                          |                       |
|------------------------------------------|-----------------------|
| Nominal output voltage                   | 24 V DC               |
| Output voltage range                     | 18 V DC ... 30.5 V DC |
| Nominal output current (I <sub>N</sub> ) | 40 A                  |

### Battery operation

|                                          |                         |
|------------------------------------------|-------------------------|
| Nominal output voltage                   | 24 V DC                 |
| Output voltage range                     | 19.2 V DC ... 27.6 V DC |
| Nominal output current (I <sub>N</sub> ) | 40 A                    |

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Signal: Power Good signal output active (high = buffer module charged)

|                         |            |
|-------------------------|------------|
| Output description      | Power Good |
| Output voltage          | + 24 V     |
| Continuous load current | 20 mA      |

## Energy storage

|                    |                        |
|--------------------|------------------------|
| Charging current   | 600 mA                 |
| Nominal capacity   | 0.1 Ah                 |
| Battery technology | UPS-CAP                |
| Memory medium      | Electrolytic capacitor |
| IQ technology      | no                     |

## 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>  |
| Conductor cross-section AWG min.      | 8                   |
| 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>  |
| Conductor cross-section AWG min.      | 8                   |
| 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

|                                       |                     |
|---------------------------------------|---------------------|
| Conductor cross-section, rigid min.   | 0.2 mm <sup>2</sup> |
| Conductor cross-section, rigid max.   | 4 mm <sup>2</sup>   |
| Conductor cross-section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross-section flexible max. | 2.5 mm <sup>2</sup> |

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|                                  |        |
|----------------------------------|--------|
| Conductor cross-section AWG min. | 24     |
| Conductor cross-section AWG max. | 12     |
| Screw thread                     | M4     |
| Tightening torque, min           | 0.5 Nm |
| Tightening torque max            | 0.6 Nm |

## Signaling

|                    |                         |
|--------------------|-------------------------|
| Types of signaling | LED                     |
|                    | Active switching output |

Signal output: Power Good signal output active (high = buffer module charged)

|                        |                                 |
|------------------------|---------------------------------|
| Status display         | LED "Power Good", green         |
| Note on status display | Buffer module is loaded: LED ON |
| Color                  | green                           |
| Note on status display | Buffer module is loaded: LED ON |

## Electrical properties

|                                            |       |
|--------------------------------------------|-------|
| Insulation voltage input, output / housing | 500 V |
|--------------------------------------------|-------|

## Product properties

|                            |                    |
|----------------------------|--------------------|
| Product type               | Buffer module      |
| IQ technology              | no                 |
| MTBF (IEC 61709, SN 29500) | > 902000 h (40 °C) |

### Insulation characteristics

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

## Dimensions

|                  |          |
|------------------|----------|
| Width            | 64 mm    |
| Height           | 130 mm   |
| Depth            | 125 mm   |
| Horizontal pitch | 3.6 Div. |

### Installation dimensions

|                                  |               |
|----------------------------------|---------------|
| Installation distance right/left | 0 mm / 0 mm   |
| Installation distance top/bottom | 50 mm / 50 mm |

### Alternative assembly

|        |        |
|--------|--------|
| Width  | 122 mm |
| Height | 130 mm |
| Depth  | 67 mm  |

## Mounting

|               |                                                |
|---------------|------------------------------------------------|
| Mounting type | DIN rail mounting                              |
| Assembly note | alignable: horizontally 0 mm, vertically 50 mm |

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|                   |                                     |
|-------------------|-------------------------------------|
| Mounting position | horizontal DIN rail NS 35, EN 60715 |
|-------------------|-------------------------------------|

## Material specifications

|                      |                                               |
|----------------------|-----------------------------------------------|
| Housing material     | Metal                                         |
| Hood version         | Galvanized sheet steel, free from chrome (VI) |
| Side element version | Aluminum (AlMg3)                              |

## Environmental and real-life conditions

### Ambient conditions

|                                                |                                                                                            |
|------------------------------------------------|--------------------------------------------------------------------------------------------|
| Degree of protection                           | IP20                                                                                       |
| Ambient temperature (operation)                | -25 °C ... 80 °C                                                                           |
| Ambient temperature (storage/transport)        | -40 °C ... 85 °C                                                                           |
| Maximum altitude                               | 2000 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)<br>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 – Safety extra-low voltage                                                                                              | EN 60950-1 (SELV) and EN 60204 (PELV) |
| Standard - Safe isolation                                                                                                        | DIN VDE 0106-101                      |
| Standard - Safety of transformers                                                                                                | EN 61558-2-17                         |

## Approvals

|              |                                                                                  |
|--------------|----------------------------------------------------------------------------------|
| UL approvals | UL/C-UL Recognized UL 60950-1                                                    |
|              | UL Listed UL 508                                                                 |
|              | UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location) |

## EMC data

|                               |                                                   |
|-------------------------------|---------------------------------------------------|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU         |
| Low Voltage Directive         | Conformance with Low Voltage Directive 2014/35/EC |
| Noise immunity                | EN 61000-6-2:2005                                 |

### 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          |

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## Electromagnetic HF field

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

## Electromagnetic HF field

|                     |                  |
|---------------------|------------------|
| Frequency range     | 80 MHz ... 1 GHz |
| Test field strength | 20 V/m           |
| Frequency range     | 1 GHz ... 6 GHz  |
| Test field strength | 10 V/m           |
| 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 A                        |

## Surge voltage load (surge)

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

## Surge voltage load (surge)

|          |                                    |
|----------|------------------------------------|
| Input    | 1 kV (Test Level 2 - symmetrical)  |
|          | 2 kV (Test Level 3 - 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

|                     |                     |
|---------------------|---------------------|
| Input/output/signal | asymmetrical        |
| Frequency range     | 0.15 MHz ... 80 MHz |
| Comments            | Criterion A         |
| Voltage             | 10 V (Test Level 3) |

## 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 |

## Criteria

|             |                                                        |
|-------------|--------------------------------------------------------|
| Criterion A | Normal operating behavior within the specified limits. |
|-------------|--------------------------------------------------------|

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|             |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| Criterion B | Temporary impairment to operational behavior that is corrected by the device itself. |
|-------------|--------------------------------------------------------------------------------------|

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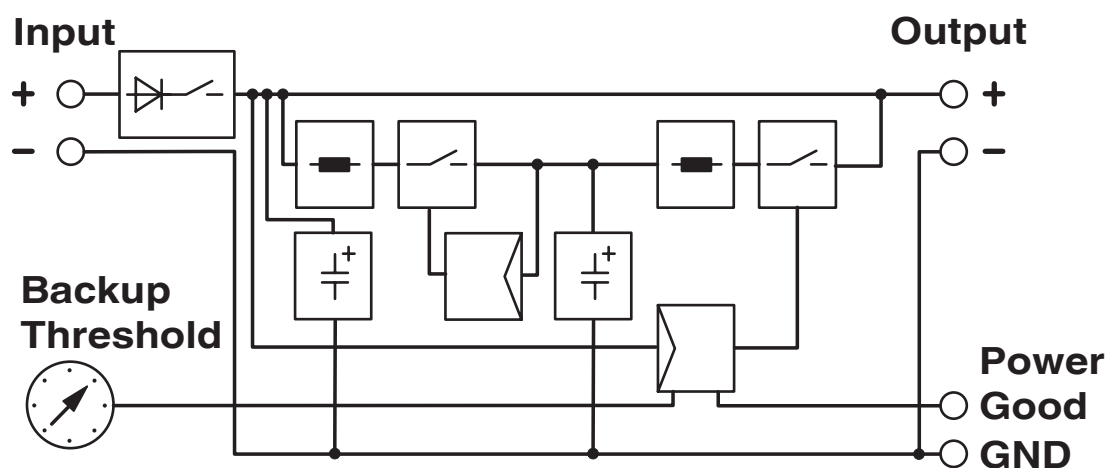
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## Drawings

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



**LR**  
Approval ID: LR22136091TA



**BV**  
Approval ID: 41516/B0 BV



**UL Listed**  
Approval ID: E123528



**cUL Listed**  
Approval ID: FILE E 123528

**ABS**  
Approval ID: 22-2244289-PDA

| DNV                     |                       |                       |                   |                      |
|-------------------------|-----------------------|-----------------------|-------------------|----------------------|
| Approval ID: TAA0000265 |                       |                       |                   |                      |
|                         | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
| keine                   |                       |                       |                   |                      |
|                         | 500 V                 | 41 A                  | -                 | - 6                  |



**IECEE CB Scheme**  
Approval ID: DE/PTZ/0072

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**cUL Listed**

Approval ID: E199827



**UL Listed**

Approval ID: E199827

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27040692 |
| ECLASS-15.0 | 27040692 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC002850 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 26111700 |
|-------------|----------|

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## Environmental product compliance

### EU RoHS

|                                         |              |
|-----------------------------------------|--------------|
| Fulfills EU RoHS substance requirements | Yes          |
| Exemption                               | 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                                | c72f0142-7ac0-4303-9168-ccebf715f445 |

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