

# QUINT4-CAP/24DC/10/8KJ - Capacity module



2320571

<https://www.phoenixcontact.com/us/products/2320571>

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QUINT capacity module, with maintenance-free energy storage based on double-layer capacitor, USB (Modbus/RTU), DIN rail mounting, input: 24 V DC, output: 24 V DC / 10 A / 8 kJ incl. mounted UTA 107 universal DIN rail adapter. The "POWER MANAGEMENT SUITE" software (Item No. 1252232) available in the download area can be used for configuration.

## Product description

The maintenance-free QUINT CAP capacity module is ideal for cyclical failures lasting up to 30 seconds. It combines an electronic switch-over unit and maintenance-free, capacitor-based energy storage in the same housing. The USB interface makes it convenient to shut down your PC.

## Your advantages

- Convenient shutdown of PCs
- Maintenance-free with a long service life
- Space savings, thanks to the compact design
- Long buffer time, thanks to high memory capacity
- Lockable USB interface for connecting to industrial PCs, for example

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2320571       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CM21          |
| Product key                          | CMUIC3        |
| GTIN                                 | 4055626246901 |
| Weight per piece (including packing) | 1,837 g       |
| Weight per piece (excluding packing) | 1,579 g       |
| Customs tariff number                | 85322900      |
| Country of origin                    | CN            |

## Technical data

### Input data

|                                                                                           |                                            |
|-------------------------------------------------------------------------------------------|--------------------------------------------|
| Input voltage                                                                             | 24 V DC (SELV)                             |
| Input voltage range                                                                       | 22.5 V DC ... 30 V DC                      |
| Fixed backup threshold                                                                    | < 22 V DC                                  |
|                                                                                           | > 30 V DC                                  |
| Current consumption $I_N$ ( $U_N$ , $I_{OUT} = I_N$ , $I_{charge} = 0$ )                  | 13.5 A (max.)                              |
| Current consumption $I_{max}$ ( $U_N$ , $I_{OUT} = I_{Stat.Boost}$ , $I_{Charge} = max$ ) | 13.5 A                                     |
| Current consumption $I_{No-Load}$ ( $U_N$ , $I_{OUT} = 0$ , $I_{charge} = 0$ )            | 0.1 A (No-load)                            |
| Current consumption $I_{charge}$ ( $U_N$ , $I_{OUT} = 0$ , $I_{charge} = max$ )           | 1 A (charging process)                     |
| Power consumption $P_{max}$ ( $U_N$ , $I_{OUT} = I_{Stat.Boost}$ , $I_{charge} = max$ )   | 324 W                                      |
| Power consumption $P_N$ ( $U_N$ , $I_{OUT} = I_N$ , $I_{charge} = 0$ )                    | 245 W                                      |
| Power consumption $P_{charge}$ ( $U_N$ , $I_{OUT} = 0$ , $I_{charge} = max$ )             | 24 W                                       |
| Buffer time                                                                               | 5 min (1 A)                                |
|                                                                                           | 30 s (10 A)                                |
|                                                                                           | 30 s (10 A)                                |
| Charging time                                                                             | approx. 22 min                             |
| Recharging time                                                                           | approx. 12 min                             |
| Inrush current                                                                            | $\leq 7$ A ( $\leq \text{--- ms}$ )        |
| Switch-on time                                                                            | 1 ms (buffer mode)                         |
| Internal input fuse                                                                       | no                                         |
| Dielectric strength                                                                       | max. 35 V DC (Reverse polarity protection) |
| Voltage drop, input/output                                                                | 0.5 V DC                                   |

### Output data

|                        |                                             |
|------------------------|---------------------------------------------|
| Efficiency             | > 97 % (with charged energy storage device) |
| Connection in parallel | no                                          |
| Connection in series   | no                                          |

### Mains operation

|                                                                               |                                          |
|-------------------------------------------------------------------------------|------------------------------------------|
| Output voltage                                                                | 24 V DC (depending on the input voltage) |
| Output current $I_N$                                                          | 10 A                                     |
| Static Boost ( $I_{Stat.Boost}$ )                                             | 12.5 A                                   |
| Output power $P_{OUT}$ ( $U_N$ , $I_{OUT} = I_N$ )                            | 240 W                                    |
| Output power $P_{OUT}$ ( $U_N$ , $I_{OUT} = I_{stat.Boost}$ )                 | 300 W                                    |
| Power dissipation No load ( $U_N$ , $I_{Out} = 0$ , $I_{Charge} = 0$ )        | 2.5 W                                    |
| Power dissipation Nominal load ( $U_N$ , $I_{Out} = I_N$ , $I_{Charge} = 0$ ) | 6 W                                      |
| Short-circuit-proof                                                           | yes (with input fuse)                    |
| Idling-proof                                                                  | yes                                      |

### Battery operation

|                      |                                    |
|----------------------|------------------------------------|
| Output voltage       | 22 V DC (typical)                  |
| Output current $I_N$ | 10 A (depending on output current) |

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|                                                                                             |        |
|---------------------------------------------------------------------------------------------|--------|
| Static Boost ( $I_{\text{Stat.Boost}}$ )                                                    | 12.5 A |
| Output power $P_{\text{OUT}}$ ( $U_{\text{N}}$ , $I_{\text{OUT}} = I_{\text{N}}$ )          | 240 W  |
| Output power $P_{\text{OUT}}$ ( $U_{\text{N}}$ , $I_{\text{OUT}} = I_{\text{stat.Boost}}$ ) | 300 W  |
| Short-circuit-proof                                                                         | yes    |
| Idling-proof                                                                                | yes    |

## Energy storage

### Input

|                  |         |
|------------------|---------|
| Nominal capacity | 0.08 Ah |
|------------------|---------|

### General

|                |                        |
|----------------|------------------------|
| Capacity       | 8 kJ                   |
| IQ-Technology  | no                     |
| Storage medium | Double-layer capacitor |
| Buffer time    | 5 min (1 A)            |
|                | 30 s (10 A)            |
|                | 30 s (10 A)            |

## Connection data

### Input

|          |     |
|----------|-----|
| Position | 1.x |
|----------|-----|

### Connection technology

|                  |                  |
|------------------|------------------|
| Position marking | 1.1 (+), 1.2 (-) |
|------------------|------------------|

### Conductor connection

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Connection method                            | Screw connection                             |
| rigid                                        | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| flexible                                     | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| flexible with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| flexible with ferrule with plastic sleeve    | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| rigid (AWG)                                  | 30 ... 12                                    |
| Stripping length                             | 6.5 mm                                       |
| Tightening torque                            | 0.5 Nm ... 0.6 Nm                            |
| Drive form screw head                        | Slotted L                                    |

### 2-conductor connection

|                                                |                                              |
|------------------------------------------------|----------------------------------------------|
| rigid                                          | 0.2 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| flexible                                       | 0.2 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| flexible with TWIN ferrule with plastic sleeve | 0.5 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |

### Output

|          |     |
|----------|-----|
| Position | 2.x |
|----------|-----|

### Connection technology

|                  |                  |
|------------------|------------------|
| Position marking | 2.1 (+), 2.2 (-) |
|------------------|------------------|

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## Conductor connection

| Connection method                            | Screw connection                             |
|----------------------------------------------|----------------------------------------------|
| rigid                                        | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| flexible                                     | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| flexible with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| flexible with ferrule with plastic sleeve    | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| rigid (AWG)                                  | 30 ... 12                                    |
| Stripping length                             | 6.5 mm                                       |
| Tightening torque                            | 0.5 Nm ... 0.6 Nm                            |
| Drive form screw head                        | Slotted L                                    |

## 2-conductor connection

|                                                |                                              |
|------------------------------------------------|----------------------------------------------|
| rigid                                          | 0.2 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| flexible                                       | 0.2 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| flexible with TWIN ferrule with plastic sleeve | 0.5 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |

## Signal

|          |     |
|----------|-----|
| Position | 3.x |
|----------|-----|

## Conductor connection

| Connection method                            | Push-in connection                           |
|----------------------------------------------|----------------------------------------------|
| rigid                                        | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| flexible                                     | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| flexible with ferrule without plastic sleeve | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| flexible with ferrule with plastic sleeve    | 0.2 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| rigid (AWG)                                  | 24 ... 18                                    |
| Stripping length                             | 8 mm                                         |

## Interfaces

|                      |                            |
|----------------------|----------------------------|
| Interface            | USB (Modbus/RTU)           |
| Number of interfaces | 1                          |
| Connection method    | MINI-USB Type B            |
| Position             | 5.x                        |
| Locking              | Screw                      |
| Transmission physics | USB 2.0                    |
| Topology             | Point-to-point             |
| Transmission speed   | 9600 baud                  |
| Transmission length  | max. 5 m                   |
| Access time          | ≤ 2 s                      |
| Chipset              | Silicon Labs CP2104-F03-GM |
| Electrical isolation | Yes, UL approved           |

## Signaling

Signal state Remote

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|                           |                                                |
|---------------------------|------------------------------------------------|
| Connection labeling       | 3.5                                            |
| Channel                   | DI (digital input)                             |
| State (configurable)      | Remote                                         |
| State condition           | Remote                                         |
| Low signal                | <3 k $\Omega$ to SGnd                          |
| High signal               | open (>470 k $\Omega$ between Remote and SGnd) |
| Signal - state assignment | low - active                                   |
| Reference potential       | 3.6 (SGnd, identical to 1.2, 2.2)              |

## Signal state Alarm

|                                |                                   |
|--------------------------------|-----------------------------------|
| Connection labeling            | 3.3                               |
| Channel                        | DO (digital output)               |
| Switching output               | Transistor                        |
| State (configurable)           | Group alarm                       |
| State condition (configurable) | Alarm                             |
| Output voltage                 | 24 V ( $U_N$ - 1 V (typical))     |
| Output can be loaded           | max. 20 mA                        |
| State - signal assignment      | active - low                      |
| Reference potential            | 3.6 (SGnd, identical to 1.2, 2.2) |
| LED status indicator           | red (Alarm)                       |

## Signal state UIN OK

|                                |                                          |
|--------------------------------|------------------------------------------|
| Connection labeling            | 3.1, 3.2                                 |
| Channel                        | DO (digital output)                      |
| Switching output               | Electronic relays (OptoMOS)              |
| State (configurable)           | $U_{In}$ OK                              |
| State condition (configurable) | $U_{In} > 22,5$ V DC, $U_{In} < 30$ V DC |
| Output voltage                 | max. 30 V                                |
| Output can be loaded           | 300 mA                                   |
| State - signal assignment      | active - high                            |
| LED status indicator           | green ( $U_{In}$ OK)                     |

## Signal state Ready

|                                |                                       |
|--------------------------------|---------------------------------------|
| Connection labeling            | 3.4                                   |
| Channel                        | DO (digital output)                   |
| Switching output               | Transistor                            |
| State (configurable)           | Ready                                 |
| State condition (configurable) | State of charge = 100% or buffer mode |
| Output voltage                 | 24 V ( $U_N$ - 1 V (typical))         |
| Output can be loaded           | max. 20 mA                            |
| State - signal assignment      | active - high                         |
| Reference potential            | 3.6 (SGnd, identical to 1.2, 2.2)     |
| LED status indicator           | Green (state of charge - SOC)         |

## Signal ground SGnd

|                     |     |
|---------------------|-----|
| Connection labeling | 3.6 |
|---------------------|-----|

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|                           |                                  |
|---------------------------|----------------------------------|
| Switching voltage         | 0 V                              |
| Current carrying capacity | max. 60 mA                       |
| Function                  | Signal ground                    |
| Reference potential       | 3.3 Alarm, 3.4 Ready, 3.5 Remote |

## Electrical properties

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

## Product properties

|                            |                                  |
|----------------------------|----------------------------------|
| Product type               | DC UPS with integrated capacitor |
| Product family             | QUINT capacity module            |
| MTBF (IEC 61709, SN 29500) | 2102818 h (25 °C)                |
|                            | 1387185 h (40 °C)                |
|                            | 697626 h (60 °C)                 |

## Insulation characteristics

|                     |            |
|---------------------|------------|
| Protection class    | III (SELV) |
| Degree of pollution | 2          |

## Life expectancy (electrolytic capacitors)

|      |         |
|------|---------|
| Time | 83352 h |
|------|---------|

## Dimensions

### Item dimensions

|        |        |
|--------|--------|
| Width  | 118 mm |
| Height | 130 mm |
| Depth  | 125 mm |

### Installation dimensions

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

## Mounting

|                   |                                                |
|-------------------|------------------------------------------------|
| Mounting type     | DIN rail mounting                              |
| Assembly note     | alignable: horizontally 0 mm, vertically 50 mm |
| Mounting position | horizontal DIN rail NS 35, EN 60715            |

## Material specifications

|                                                                    |       |
|--------------------------------------------------------------------|-------|
| Flammability rating according to UL 94 (housing / terminal blocks) | V0    |
| Housing material                                                   | Metal |

## Environmental and real-life conditions

### Ambient conditions

|                      |      |
|----------------------|------|
| Degree of protection | IP20 |
|----------------------|------|

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|                                                |                                                                      |
|------------------------------------------------|----------------------------------------------------------------------|
| Ambient temperature (operation)                | -25 °C ... 60 °C (> 40 °C Derating: 1 %/K)                           |
| Ambient temperature (storage/transport)        | -40 °C ... 60 °C                                                     |
| Ambient temperature (start-up type tested)     | -40 °C                                                               |
| Maximum altitude                               | ≤ 4000 m                                                             |
| Climatic class                                 | 3K3 (in acc. with EN 60721)                                          |
| Max. permissible relative humidity (operation) | ≤ 95 %                                                               |
| Shock                                          | 30g, 18 ms per spatial direction (in accordance with IEC 60068-2-27) |
| Vibration (operation)                          | 0,7g                                                                 |

## Standards and regulations

### Overvoltage category

|            |    |
|------------|----|
| UL 60950-1 | II |
|------------|----|

### Protective extra-low voltage

|                          |                              |
|--------------------------|------------------------------|
| Standard designation     | Protective extra-low voltage |
| Standards/specifications | UL 61010-2-201               |

## Approvals

### UL

|                |                       |
|----------------|-----------------------|
| Identification | UL/C-UL Listed UL 508 |
|----------------|-----------------------|

### UL

|                |                               |
|----------------|-------------------------------|
| Identification | UL/C-UL Recognized UL 60950-1 |
|----------------|-------------------------------|

### UL

|                |                                                                                  |
|----------------|----------------------------------------------------------------------------------|
| Identification | UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location) |
|----------------|----------------------------------------------------------------------------------|

### UL

|                |                            |
|----------------|----------------------------|
| Identification | CAN/CSA-C22.2 No. 107.1-01 |
|----------------|----------------------------|

### CB scheme

|                |            |
|----------------|------------|
| Identification | UL 60950-1 |
|----------------|------------|

## 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                                      |

### Noise emission

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 55016     |
|                       | EN 61000-6-3 |

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## Electrostatic discharge

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

## 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 |
|-----------------------|--------------|

## Electromagnetic HF field

|                     |                  |
|---------------------|------------------|
| Frequency range     | 80 MHz ... 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 3 - asymmetrical) |
| Comments | Criterion B                        |

## Surge voltage load (surge)

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

## Surge voltage load (surge)

|              |                                    |
|--------------|------------------------------------|
| Signal       | 1 kV (Test Level 2 - asymmetrical) |
| Comments     | Criterion B                        |
| Input/Output | 1 kV (Test Level 2 - symmetrical)  |
|              | 2 kV (Test Level 3 - asymmetrical) |

## Conducted interference

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

## Conducted interference

|                 |                     |
|-----------------|---------------------|
| Frequency range | 0.15 MHz ... 80 MHz |
| Comments        | Criterion A         |
| Voltage         | 10 V                |

## Criteria

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



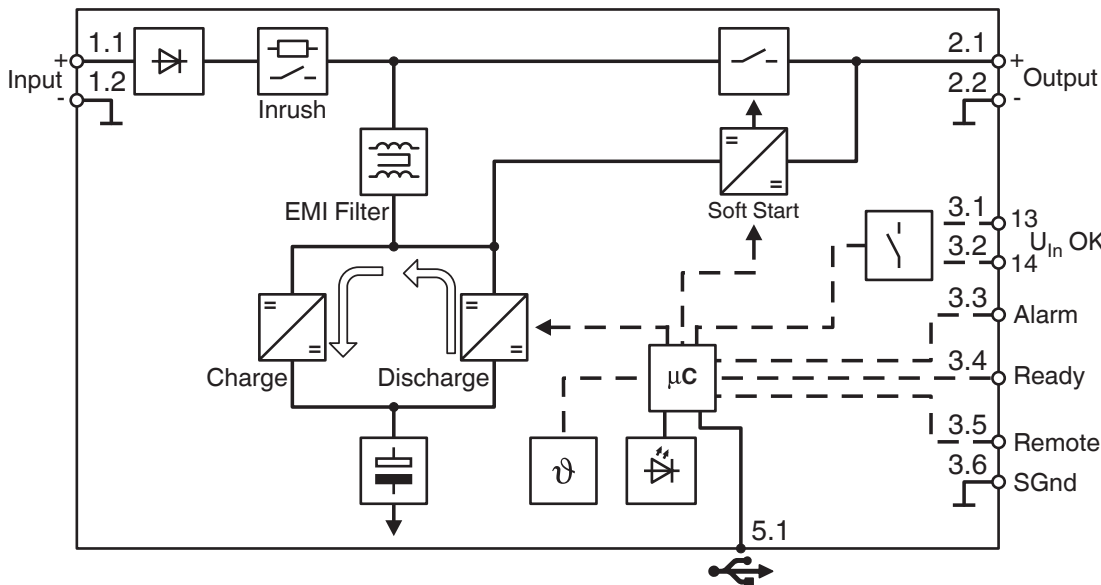
QUINT4-CAP/24DC/10/8KJ - Capacity module



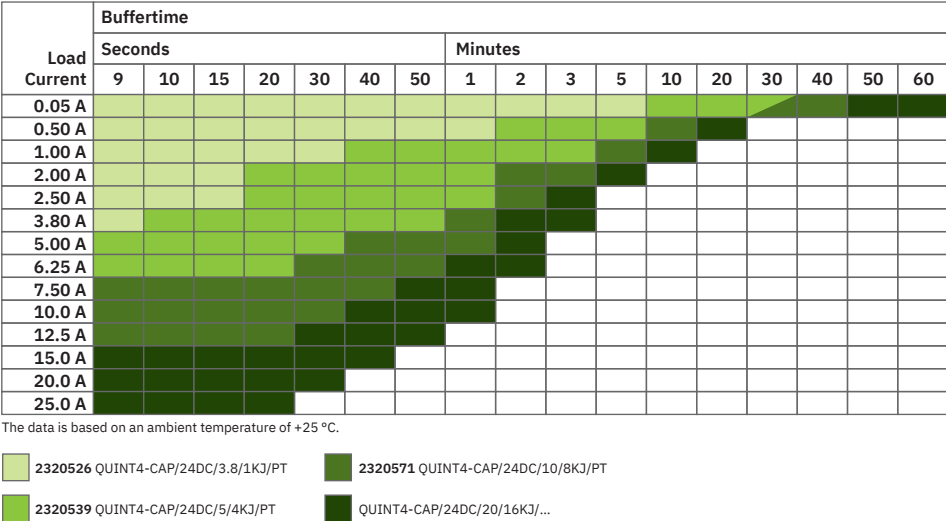
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Drawings

Block diagram



Graphic



QUINT CAP buffer times

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2320571>



**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



**EAC**

Approval ID: RU\*DE\*HB54.B05799/20



**IECEE CB Scheme**

Approval ID: DE/PTZ/0063



**cUL Listed**

Approval ID: E199827



**UL Listed**

Approval ID: E199827

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27040705 |
| ECLASS-15.0 | 27040705 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC000382 |
|----------|----------|

### UNSPSC

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

## 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.) | Diboron trioxide(CAS: 1303-86-2)           |
|                                     | Lead monoxide (lead oxide)(CAS: 1317-36-8) |
|                                     | Lead(CAS: 7439-92-1)                       |
| SCIP                                | f60b5ad5-67a9-44e9-ac7f-cb1bae63ab4d       |

### EF3.0 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 30.45 kg CO2e |
|---------|---------------|