

# Power supply unit - QUINT-PS-3X400-500AC/24DC/ 5 - 2938594

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)




DIN rail power supply unit 24 V DC/5 A, primary switched-mode, 3-phase.

## Product Description

QUINT POWER is the powerful 60 - 960 W DC power supply unit for universal use. With its wide-range input, single and three-phase versions, and international approval package, this solution is unrivalled. QUINT POWER provides reliable power supply: generously dimensioned capacitors ensure mains buffering of over 20 ms at full load. Full output power is provided by all three-phase devices, even in the event of a permanent phase failure. The Power Boost power reserve easily starts loads with high inrush currents and ensures that fuses are reliably tripped. Preventive function monitoring diagnoses impermissible operating states and minimizes downtimes in your system. Remote monitoring is provided by an active transistor switching output and a floating relay contact. All devices are idling-proof and short-circuit-proof, and are available with a regulated and adjustable output voltage of 12, 24, and 48 V DC with output currents of 2.5, 5, 10, 20, 30, and 40 A. Power supply units for use in Ex zone 2, uninterruptible solutions, AS-i power supply units, and a QUINT diode complete this comprehensive product range.



## Key Commercial Data

|              |   |
|--------------|---|
| Packing unit | 1 pc  |
| GTIN         | <br>4 017918 908362 |
| GTIN         | 4017918908362   |

## Technical data

### Dimensions

|                                  |        |
|----------------------------------|--------|
| Width                            | 70 mm  |
| Height                           | 130 mm |
| Depth                            | 125 mm |
| Width with alternative assembly  | 122 mm |
| Height with alternative assembly | 73 mm  |
| Depth with alternative assembly  | 130 mm |

### Ambient conditions

|   |  |
|---|--|
| Degree of protection                    | IP20   |
| Ambient temperature (operation)         | -25 °C ... 70 °C (> 60 °C Derating: 2.5 %/K) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C                             |

# Power supply unit - QUINT-PS-3X400-500AC/24DC/ 5 - 2938594

## Technical data

### Ambient conditions

|  |                                 |
|--|---------------------------------|
| Max. permissible relative humidity (operation) | 95 % (at 25 °C, non-condensing) |
| Degree of pollution                            | 2                               |

### Input data

|                                     |   |
|-------------------------------------|---|
| Nominal input voltage range         | 3x 400 V AC ... 500 V AC                        |
| Input voltage range                 | 3x 320 V AC ... 575 V AC (for all three phases) |
|                                     | 450 V DC ... 800 V DC                           |
| AC frequency range                  | 45 Hz ... 65 Hz                                 |
| Frequency range DC                  | 0 Hz  |
| Discharge current to PE             | < 3.5 mA  |
| Current consumption                 | approx. 3x 0.36 A (400 V AC)                    |
|                                     | 3x 0.34 A (480 V AC)                            |
| Nominal power consumption           | 147 W   |
| Inrush surge current                | < 15 A (typical)                                |
| Mains buffering                     | > 50 ms (400 V AC)                              |
|                                     | > 50 ms (480 V AC)                              |
| Input fuse                          | 5 A (slow-blow, internal)                       |
| Choice of suitable circuit breakers | 3x 6 A ... 16 A (Characteristics B, C, D, K)    |
| Type of protection                  | Transient surge protection                      |
| Protective circuit/component        | Varistor  |

### Output data

|   |   |
|---|---|
| Nominal output voltage                            | 24 V DC $\pm$ 1 %                               |
| Setting range of the output voltage ( $U_{Set}$ ) | 22.5 V ... 28.5 V                               |
| Nominal output current ( $I_N$ )                  | 5 A (up to 60 °C)                               |
| POWER BOOST ( $I_{Boost}$ )                       | 7.5 A   |
| Derating  | 60 °C ... 70 °C (2.5%/K)                        |
| Connection in parallel                            | Yes, for redundancy and increased capacity      |
| Connection in series                              | yes   |
| Feedback resistance                               | 35 V DC   |
| Active current limitation                         | Approx. $I_{BOOST} = 7.5$ A (for short-circuit) |
| Control deviation                                 | < 1 % (change in load, static 10 % ... 90 %)    |
|   | < 2 % (change in load, dynamic 10 % ... 90 %)   |
|   | < 0.1 % (change in input voltage $\pm$ 10 %)    |
| Residual ripple                                   | < 10 mV <sub>PP</sub> (with nominal values)     |
| Output power                                      | 120 W   |
| Typical response time                             | < 1 s   |
| Peak switching voltages nominal load              | < 140 mV <sub>PP</sub> (20 MHz)                 |
| Maximum power dissipation in no-load condition    | < 3 W   |
| Power loss nominal load max.                      | < 17 W  |

### General

# Power supply unit - QUINT-PS-3X400-500AC/24DC/ 5 - 2938594

## Technical data

### General

|                                 |  |
|---------------------------------|--|
| Net weight                      | 0.95 kg  |
| Operating voltage display       | Green LED                                      |
| Efficiency                      | > 88 %   |
| Insulation voltage input/output | 4 kV AC (type test)                            |
|                                 | 2 kV AC (routine test)                         |
| Insulation voltage input / PE   | 3.5 kV AC (type test)                          |
|                                 | 2 kV AC (routine test)                         |
| Insulation voltage output / PE  | 500 V DC (routine test)                        |
| Protection class                | I (with PE connection)                         |
| Degree of protection            | IP20   |
| MTBF (IEC 61709, SN 29500)      | > 500000 h                                     |
| Mounting position               | horizontal DIN rail NS 35, EN 60715            |
| Assembly instructions           | alignable: horizontally 0 mm, vertically 50 mm |

### Connection data, input

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Screw connection    |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.    | 2.5 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> |
| Conductor cross section AWG min.      | 24                  |
| Conductor cross section AWG max.      | 12                  |
| Stripping length                      | 8 mm                |
| Screw thread                          | M3                  |

### Connection data, output

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Screw connection    |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.    | 2.5 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> |
| Conductor cross section AWG min.      | 24                  |
| Conductor cross section AWG max.      | 12                  |
| Stripping length                      | 8 mm                |
| Screw thread                          | M3                  |

### Signaling

|                           |  |
|---------------------------|--|
| Output name               | DC OK active                             |
| Output description        | $U_{OUT} > 0.9 \times U_N$ : High signal |
| Maximum switching voltage | $\leq 24$ V                              |
| Output voltage            | + 24 V DC (Signal)                       |
| Maximum inrush current    | $\leq 40$ mA                             |

# Power supply unit - QUINT-PS-3X400-500AC/24DC/ 5 - 2938594

## Technical data

### Signaling

|                                       |  |
|---------------------------------------|--|
| Continuous load current               | ≤ 40 mA  |
| Status display                        | "DC OK" LED green  |
| Note on status display                | $U_{OUT} < 0.9 \times U_N$ : LED flashing                  |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup>  |
| Conductor cross section solid max.    | 2.5 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>  |
| Conductor cross section AWG min.      | 24   |
| Conductor cross section AWG max.      | 12   |
| Tightening torque, min                | 0.5 Nm   |
| Tightening torque max                 | 0.6 Nm   |
| Screw thread                          | M3   |
| Output name                           | DC OK floating   |
| Output description                    | Relay contact, $U_{OUT} > 0.9 \times U_N$ : Contact closed |
| Maximum switching voltage             | ≤ 30 V AC/DC   |
| Maximum inrush current                | ≤ 1 A  |
| Continuous load current               | ≤ 1 A  |
| Status display                        | "DC OK" LED green  |

### Standards and Regulations

|                                   |  |
|-----------------------------------|--|
| Electromagnetic compatibility     | Conformance with EMC directive 89/336/EC           |
| Noise emission                    | EN 55011 (EN 55022)                                |
| Noise immunity                    | EN 61000-6-2:2005                                  |
| Connection in acc. with standard  | CUL  |
| Standards/regulations             | EN 61000-4-2                                       |
| Contact discharge                 | 8 kV   |
| Standards/regulations             | EN 61000-4-3                                       |
| Frequency range                   | 80 MHz ... 2 GHz                                   |
| Test field strength               | 10 V/m   |
| Standards/regulations             | EN 61000-4-4                                       |
| Comments                          | Criterion B  |
| Standards/regulations             | EN 61000-4-5                                       |
| Signal                            | 1 kV (level 2 - asymmetrical: conductor to ground) |
| Standards/regulations             | EN 61000-6-3                                       |
|                                   | EN 61000-4-6                                       |
| Frequency range                   | 0.15 MHz ... 80 MHz                                |
| Voltage                           | 10 V   |
| Standards/regulations             | EN 61000-4-11                                      |
| Standard - Safety of transformers | EN 61558-2-17                                      |
| Standard - Electrical safety      | EN 60950-1/VDE 0805 (SELV)                         |
|                                   | EN 61558-2-17                                      |

# Power supply unit - QUINT-PS-3X400-500AC/24DC/ 5 - 2938594

## Technical data

### Standards and Regulations

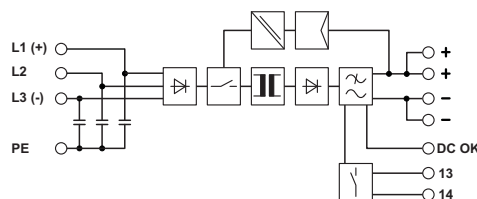
|  |  |
|--|--|
| Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations | EN 50178/VDE 0160 (PELV)   |
| Standard – Safety extra-low voltage  | EN 60950-1 (SELV)  |
|  | EN 60204 (PELV)  |
| Standard - Safe isolation  | DIN VDE 0100-410   |
| Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment               | EN 50178   |
| Standard – Limitation of mains harmonic currents   | EN 61000-3-2   |
| Standard - Equipment safety  | GS (tested safety)   |
| Shipbuilding approval  | DNV GL (EMC A), ABS  |
| 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) |
| 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.  |
| Information technology equipment - safety (CB scheme)  | CB Scheme  |
| Overvoltage category (EN 62477-1)  | III  |

### Environmental Product Compliance

|            |   |
|------------|---|
| REACH SVHC | Lead 7439-92-1  |
| China RoHS | Environmentally Friendly Use Period = 25;   |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

## Drawings

Block diagram



## Approvals

### Approvals

#### Approvals

PRS / DNV / GL / ABS / UL Listed / UL Recognized / cUL Recognized / IECCE CB Scheme / cUL Listed / SEMI F47 / EAC / EAC / cULus Recognized / cULus Listed

# Power supply unit - QUINT-PS-3X400-500AC/24DC/ 5 - 2938594

## Approvals

Ex Approvals


UL Listed / cUL Listed / cULus Listed


### Approval details


|                 |  |   |                   |
|-----------------|--|---|-------------------|
| PRS             |  | <a href="http://www.prs.pl/">http://www.prs.pl/</a>   | TE/2104/880590/16 |
| DNV             |  | <a href="http://exchange.dnv.com/tari/">http://exchange.dnv.com/tari/</a>   | E-13904           |
| GL              |  | <a href="http://exchange.dnv.com/tari/">http://exchange.dnv.com/tari/</a>   | 43332-02 HH       |
| ABS             |  | <a href="http://www.eagle.org/eagleExternalPortalWEB/">http://www.eagle.org/eagleExternalPortalWEB/</a>   | 15-HG1384628-PDA  |
| UL Listed       |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 123528     |
| UL Recognized   |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 211944     |
| cUL Recognized  |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 211944     |
| IECEE CB Scheme |  | <a href="http://www.iecee.org/">http://www.iecee.org/</a>   | SI-864            |
| cUL Listed      |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 123528     |
| SEMI F47        |  |   | SEMI F47          |


# Power supply unit - QUINT-PS-3X400-500AC/24DC/ 5 - 2938594

## Approvals

|     |   |               |
|-----|---|---------------|
| EAC |  | EAC-Zulassung |
|-----|---|---------------|

|     |   |                          |
|-----|---|--------------------------|
| EAC |  | RU C-<br>DE.A*30.B.01082 |
|-----|---|--------------------------|

|                  |   |  |
|------------------|---|--|
| cULus Recognized |  |  |
|------------------|---|--|

|              |   |  |
|--------------|---|--|
| cULus Listed |  |  |
|--------------|---|--|

Phoenix Contact 2018 © - all rights reserved  
<http://www.phoenixcontact.com>

PHOENIX CONTACT GmbH & Co. KG  
Flachmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>