

# QUINT4-PS/1AC/24DC/3.8/SC Single-Phase DIN Rail Power Supply

 [perle.com/products/industrial-power-supply/quint-ps-1ac-24dc-3.8-sc-29045998.shtml](https://www.perle.com/products/industrial-power-supply/quint-ps-1ac-24dc-3.8-sc-29045998.shtml)

## 24V Industrial Power Supply for Regulated AC/DC or DC/DC Conversion

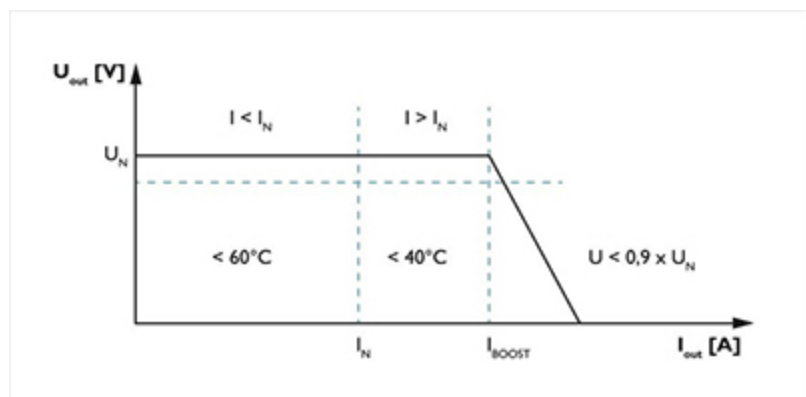
- 24 V DC Output Voltage
- Adjustable Output Voltage Ranges: 24 to 28 V DC
- 3.8 Amps
- 91.2 Watts
- Single phase AC or DC Input
- Input Voltage Range: 85 ... 264 V AC and 88 ... 350 V DC



The **QUINT4-PS/1AC/24DC/3.8/SC Industrial Power Supply** is rugged AC to DC and DC to DC Converter built to meet the high stability and efficiency expectations of industrial, machine automation and process control environments. It also features the unique combination of preventive function monitoring and power reserve in an incredibly compact size. This Switching (switch mode) Power Supply ensures a regulated output voltage even in the event of voltage fluctuations in the power supply network. During parallel operation, and when connected to different phases, loads are reliably supplied even in the event of problems with the input voltage. With all required safety certifications to support ITE (Information Technology Equipment), ruggedized packaging, extended operating temperatures, high peak load capabilities and high isolation voltages, this QUINT Industrial Power Supply is designed to meet the need of your industrial application.

### POWER BOOST: reliably start difficult loads

A high degree of flexibility is required to configure, optimize and expand large systems. To optimally adapt a system or machine to your requirements, a power reserve in the power supply unit is crucial. The QUINT4-PS/1AC/24DC/3.8/SC supplies up to 50% additional current without a voltage drop. This is useful when it is not possible to predict which loads will be switched on at the same time or high

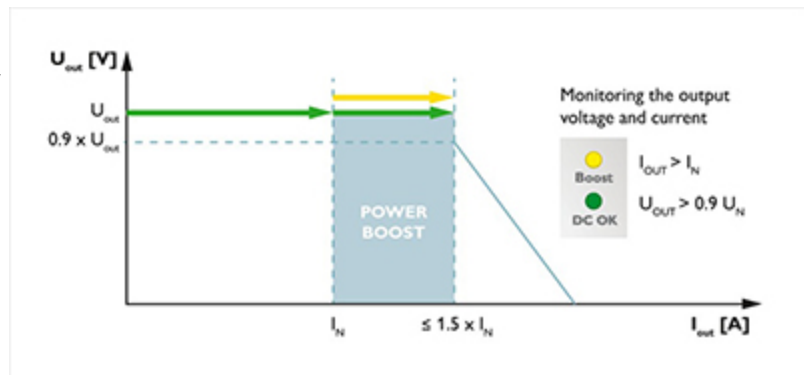


switch-on currents of capacitive loads have to be absorbed without voltage dips. You can use the dynamic boost to supply 185% of the nominal current for 5 seconds when starting up heavy loads.

## Preventive function monitoring reports critical operating states before they occur

With the QUINT4-PS/1AC/24DC/3.8/SC Industrial Power Supply, the output voltage and output current are constantly monitored. Preventive function monitoring visualizes critical operating states and indicates them locally and remotely to the controller as follows:

- Via LED
- Via floating relay contact
- Via active switching output



## High efficiency and low no load power consumption

Compared with other products on the market, this QUINT Industrial Power Supply provides excellent energy savings. With a very low no load power consumption and high efficiency at nominal load, just a small amount of electrical energy is converted into undesired heat energy making these very ECO friendly power supplies.

- Tripping circuit breakers: The circuit breaker is typically tripped by the high SFB current within 3 to 5 ms. As a result, any voltage dips for loads connected in parallel are avoided.
- Tripping a fuse: Fuses are tripped by melting the predetermined breaking point inside the fuse capsule. The tripping characteristic of the fuse is described by the melting integral ( $I^2t$ ). A high current is crucial in order to achieve a very short tripping time.

## Ideal application environments for the QUINT4-PS/1AC/24DC/3.8/SC DIN Rail Power Supply

- Shipbuilding
- machine building
- automated production process
- industrial control, automation, assembly, and test equipment
- building control, security and surveillance, and climate control systems.
- power countless industrial automation devices such as sensors, controllers and valves

## Other reasons to choose the QUINT4-PS/1AC/24DC/3.8/SC Industrial Power Supply

- Shipbuilding Approvals
- Adjustable Output Voltage Ranges: the output voltage can be optimally adjusted to meet specific application environment requirements, such as compensating for a voltage drop caused by a long cable length.
- Robust input side: high noise immunity, integrated gas-filled surge arrester (up to 6 kV), and  $\geq 20$  ms mains failure buffer time
- Configurable signaling of DC OK or selectable power thresholds

- Space savings in the control box, thanks to a narrow, slim-line design
- Voltage Isolation input/output: 4 kV AC
- Protections: Short-circuit, Overload, Over voltage, Over-temperature
- To ensure maximum availability all models have high MTBF (Mean Time Between Failure) values.

## Industrial Class 2 Power Supply

With the NEC designation as a **Class 2 Power Supply**, all regulations address the wiring requirements (wire size and insulation, wire derating factors, overcurrent protection limits and methods of wiring installation) between the output of the supply and the input of the load are met by this QUINT. The output voltage and power delivery capabilities of this Class 2 power supply will lower the risk of fire initiation and electrical shocks, which allows for lower cost wiring methods to be employed when installing an electrical system in a building.

### Environmental Product Compliance

|            |   |
|------------|---|
| China RoHS | Environmentally Friendly Use Period = 25; |
|------------|---|

### General

|            |          |
|------------|----------|
| Net weight | 0.296 kg |
|------------|----------|

|            |                        |
|------------|------------------------|
| Efficiency | typ. 92.8 % (120 V AC) |
|            | typ. 93.7 % (230 V AC) |

|                                 |                        |
|---------------------------------|------------------------|
| Insulation voltage input/output | 4 kV AC (type test)    |
|                                 | 3 kV AC (routine test) |

|                  |    |
|------------------|----|
| Protection class | II |
|------------------|----|

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

|                            |                     |
|----------------------------|---------------------|
| MTBF (IEC 61709, SN 29500) | > 1272000 h (25 °C) |
|                            | > 690000 h (40 °C)  |
|                            | > 271000 h (60 °C)  |

|                       |                   |
|-----------------------|-------------------|
| Assembly instructions | DIN rail mounting |
|-----------------------|-------------------|

### Standards and Regulations

|                               |   |
|-------------------------------|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
|-------------------------------|---|

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

|                   |                     |
|-------------------|---------------------|
| Contact discharge | 4 kV (Test Level 2) |
|-------------------|---------------------|

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

|                 |                |
|-----------------|----------------|
| Frequency range | 80 MHz - 1 GHz |
|-----------------|----------------|

|  |  |
|--|--|
| Test field strength  | 10 V/m (Test Level 3)  |
| Frequency range  | 1.4 GHz ... 2 GHz  |
| Test field strength  | 3 V/m (Test Level 2)   |
| Standards/regulations  | EN 61000-4-4   |
| Comments   | Criterion B  |
| Standards/regulations  | EN 61000-4-6   |
| Frequency range  | 0.15 MHz ... 80 MHz  |
| Voltage  | 10 V (Test Level 3)  |
| Conducted noise emission                                       | EN 55016 EN 61000-6-4 (Class A)  |
| Standards/regulations  | EN 61000-4-8   |
|  | EN 61000-4-11  |
|  | EN 61000-4-9   |
|  | EN 61000-4-12  |
|  | EN 61000-4-18  |
| Standard - Safety of transformers                              | EN 61558-2-16  |
| Standard - Electrical safety                                   | IEC 61010-2-201 (SELV)   |
| Standard - power supply devices for low voltage with DC output | EN 61204-3   |
| Standard – Safety extra-low voltage                            | IEC 61010-1 (SELV)   |
|  | IEC 61010-2-201 (PELV)   |
| Standard - Safe isolation                                      | IEC 61558-2-16   |
|  | IEC 61010-2-201  |
| Standard – Limitation of mains harmonic currents               | EN 61000-3-2   |
| UL approvals   | UL Listed UL 61010-1   |
|  | UL Listed UL 61010-2-201   |
|  | UL 1310 Class 2 Power Units  |
|  | ANSI/UL 121201 Class I, Division 2, Groups A, B, C, D (Hazardous Location) |

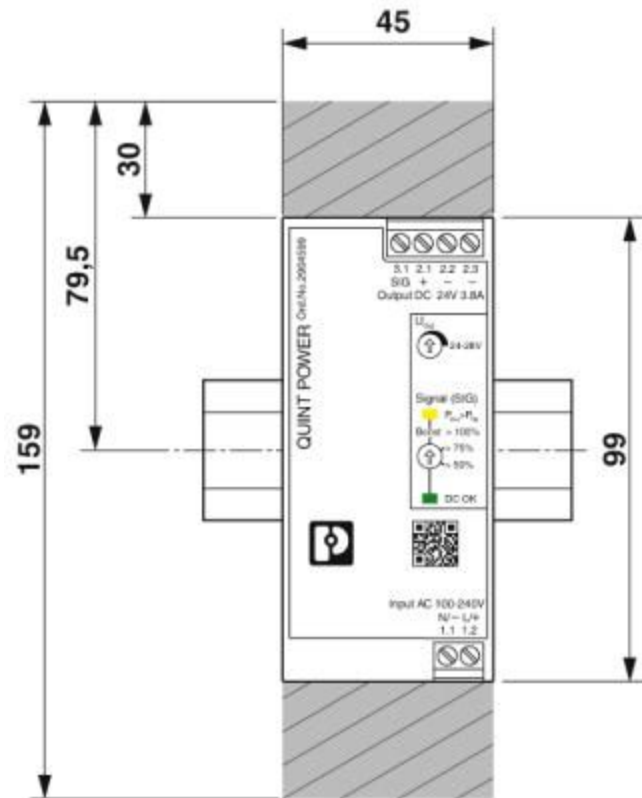
|   |   |
|---|---|
| Vibration (operation)                             | < 15 Hz, $\pm 2.5$ mm amplitude; 15 Hz ... 100 Hz: 2.3 g 90 Min. (in accordance with IEC 60068-2-6) |
| Overvoltage category (EN 61010-1)                 | II ( $\leq 5000$ m)   |
| Overvoltage category (EN 62477-1)                 | III ( $\leq 2000$ m)  |
| <b>Connection data, input</b>                     |   |
| Connection method                                 | Screw connection  |
| Conductor cross section solid min.                | 0.14 mm <sup>2</sup>  |
| Conductor cross section solid max.                | 2.5 mm <sup>2</sup>   |
| Conductor cross section flexible min.             | 0.14 mm <sup>2</sup>  |
| Conductor cross section flexible max.             | 2.5 mm <sup>2</sup>   |
| Conductor cross section AWG min.                  | 26  |
| Conductor cross section AWG max.                  | 14  |
| Stripping length                                  | 8 mm  |
| <b>Output data</b>                                |   |
| Nominal output voltage                            | 24 V DC   |
| Setting range of the output voltage ( $U_{Set}$ ) | 24 V DC ... 28 V DC (constant capacity)   |
| Nominal output current ( $I_N$ )                  | 3.8 A   |
| Dynamic Boost ( $I_{Dyn.Boost}$ )                 | 7 A ( $\leq 60$ °C (5 s))   |
| Derating  | > 60 °C (2.5%/K)  |
| Connection in parallel                            | Yes, for redundancy and increased capacity  |
| Connection in series                              | yes   |
| Feedback resistance                               | $\leq 35$ V DC  |
| Protection against surge voltage on the output    | $\leq 32$ V DC  |
| Control deviation                                 | < 0.5 % (Static load change 10 % ... 90 %)  |
|   | < 3 % (Dynamic load change 10 % ... 90 %, (10 Hz))  |
|   | < 0.2 % (change in input voltage $\pm 10$ %)  |
| Residual ripple                                   | < 45 mV <sub>PP</sub> (with nominal values)   |

|  |                  |
|--|------------------|
| Maximum power dissipation in no-load condition | < 1 W (120 V AC) |
|  | < 1 W (230 V AC) |
| Power loss nominal load max.                   | < 7 W (120 V AC) |
|  | < 6 W (230 V AC) |

**Connection data for signaling**

|                                       |                      |
|---------------------------------------|----------------------|
| Connection method                     | Screw connection     |
| Conductor cross section solid min.    | 0.14 mm <sup>2</sup> |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup>  |
| Conductor cross section flexible min. | 0.14 mm <sup>2</sup> |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup>  |
| Conductor cross section AWG min.      | 26                   |
| Conductor cross section AWG max.      | 14                   |
| Stripping length                      | 8 mm                 |

**Dimensions**



|                                       |  |
|---------------------------------------|--|
| Height                                | 99 mm  |
| Depth                                 | 90 mm  |
| Weight per piece                      | 380.0 GRM  |
| <b>Input data</b>                     |  |
| Input voltage range                   | 100 V AC ... 240 V AC -15 % ... +10 %            |
|                                       | 110 V DC ... 250 V DC -20 % ... +40 %            |
| Dielectric strength maximum           | 300 V AC 30 s                                    |
| Discharge current to PE               | < 0.25 mA (264 V AC, 60 Hz)                      |
| Current consumption                   | 1 A (100 V AC)                                   |
|                                       | 0.83 A (120 V AC)                                |
|                                       | 0.46 A (230 V AC)                                |
|                                       | 0.44 A (240 V AC)                                |
| Nominal power consumption             | 104 VA   |
| Inrush surge current                  | typ. 13 A (at 25 °C)                             |
| Mains buffering                       | typ. 35 ms (120 V AC)                            |
|                                       | typ. 35 ms (230 V AC)                            |
| Input fuse                            | 3.15 A (slow-blow, internal)                     |
| Choice of suitable circuit breakers   | 6 A ... 16 A (Characteristic B, C or comparable) |
| Type of protection                    | Transient surge protection                       |
| Protective circuit/component          | Varistor   |
| <b>Connection data, output</b>        |  |
| Connection method                     | Screw connection                                 |
| Conductor cross section solid min.    | 0.14 mm <sup>2</sup>                             |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup>                              |
| Conductor cross section flexible min. | 0.14 mm <sup>2</sup>                             |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup>                              |
| Conductor cross section AWG min.      | 26   |
| Conductor cross section AWG max.      | 14   |
| Stripping length                      | 8 mm   |

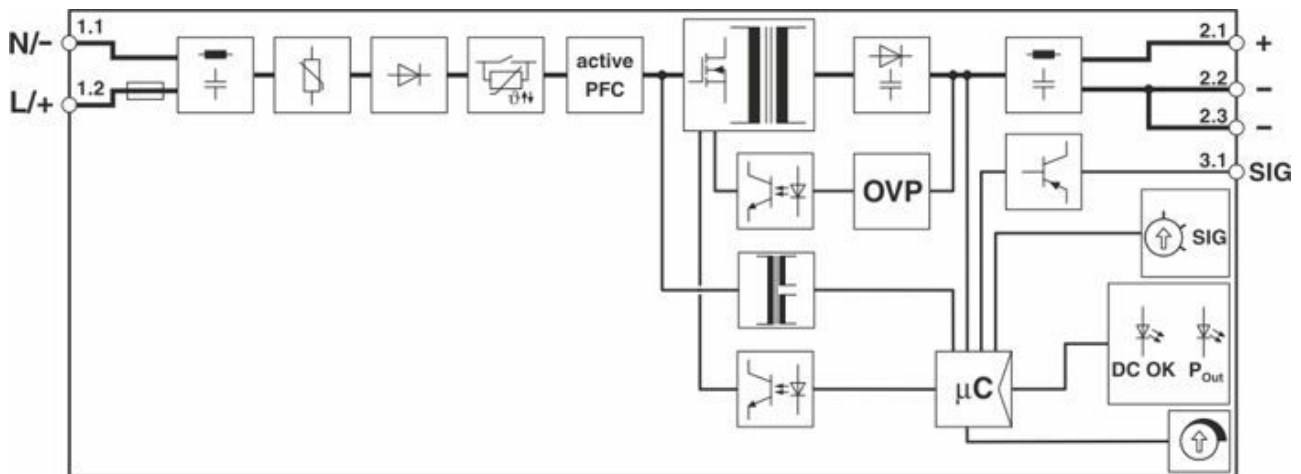
## Ambient conditions

|  |  |
|--|--|
| Degree of protection                           | IP20   |
| Ambient temperature (operation)                | -25 °C ... 70 °C (> 60 °C Derating: 2.5 %/K) |
| Ambient temperature (start-up type tested)     | -40 °C                                       |
| Ambient temperature (storage/transport)        | -40 °C ... 85 °C                             |
| Max. permissible relative humidity (operation) | ≤ 95 % (at 25 °C, non-condensing)            |
| Climatic class                                 | 3K3 (in acc. with EN 60721)                  |
| Degree of pollution                            | 2  |
| Installation height                            | ≤ 5000 m (> 2000 m, observe derating)        |

## Approvals

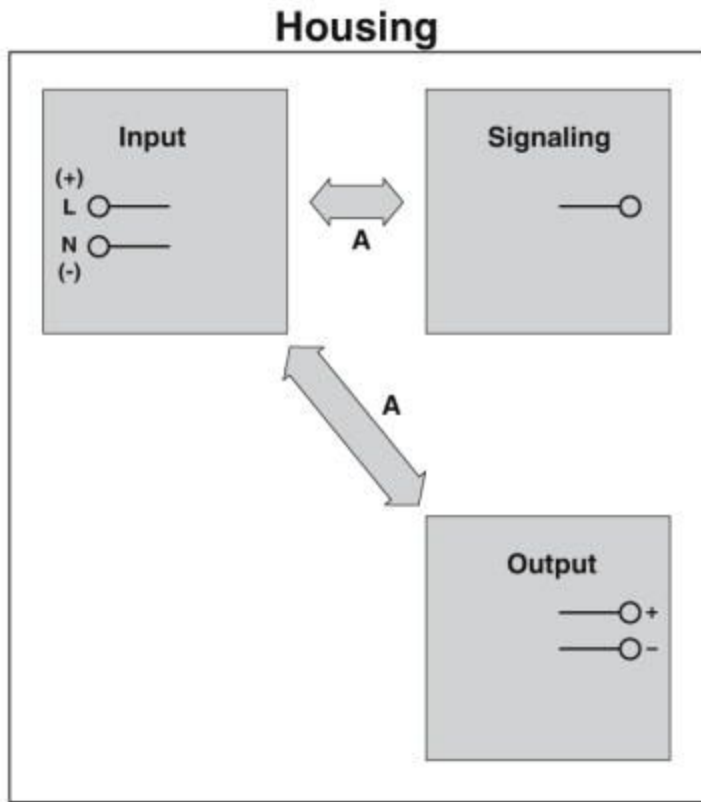
- cULus Listed
- DNV GL
- EAC
- cUL Listed
- IECCE CB Scheme
- UL Listed

## QUINT-1-Phase Industrial Power Supply Block Diagram

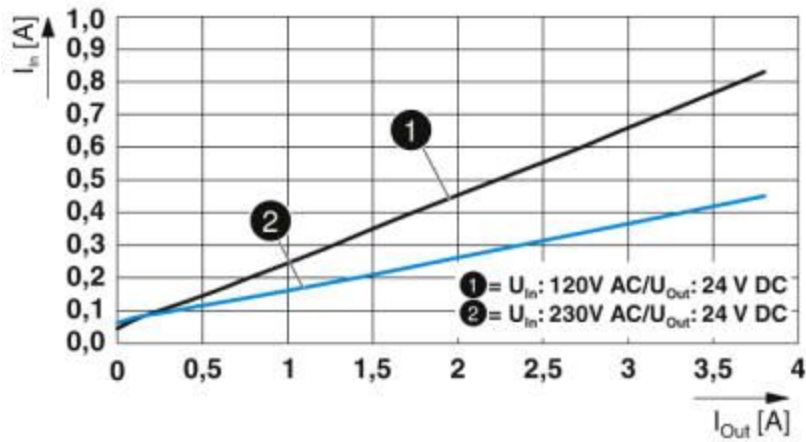


## Schematic diagram

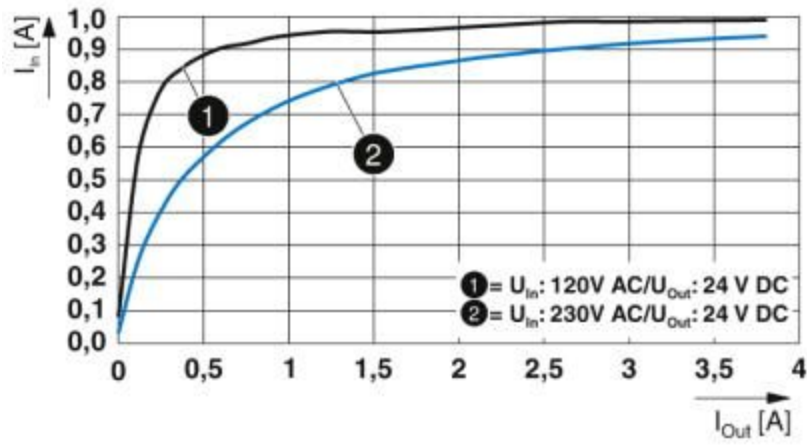




Input current vs output current



Power factor diagram



Efficiency diagram

