

QUINT4-PS/1AC/24DC/2.5/SC Single-Phase DIN Rail Power Supply

 [perle.com/products/industrial-power-supply/quint-ps-1ac-24dc-2.5-sc-29045988.shtml](https://www.perle.com/products/industrial-power-supply/quint-ps-1ac-24dc-2.5-sc-29045988.shtml)

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

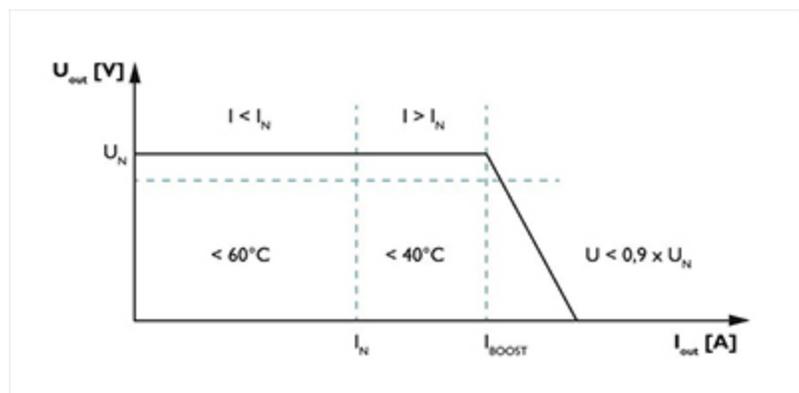
- 24 V DC Output Voltage
- Adjustable Output Voltage Ranges: 24 to 28 V DC
- 2.5 Amps
- 60 Watts
- Single phase AC or DC Input
- Input Voltage Range: 85 ... 264 V AC and 88 ... 350 V DC



The **QUINT4-PS/1AC/24DC/2.5/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

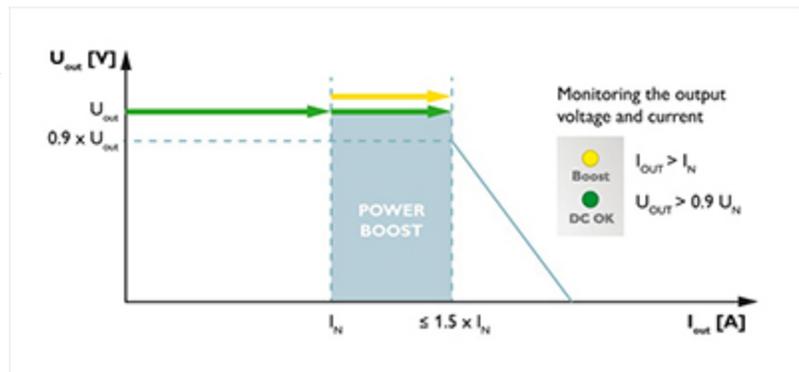
A high degree of flexibility is required to configure, optimize and expand large systems. To optimally adapt a system or machine to your requirements, a power reserve in the power supply unit is crucial. The QUINT4-PS/1AC/24DC/2.5/SC supplies up to 50% additional current without a voltage drop. This 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. With the QUINT Power Boost function a static boost will continuously provide up to 125% of the nominal current. In addition, you can use the dynamic boost to supply 200% 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/2.5/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/2.5/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/2.5/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 ≥ 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;
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General

Net weight	0.244 kg
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Efficiency	typ. 91.9 % (120 V AC)
	typ. 92.6 % (230 V AC)

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

Protection class	II
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Degree of protection	IP20
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MTBF (IEC 61709, SN 29500)	> 1347000 h (25 °C)
	> 734000 h (40 °C)
	> 295000 h (60 °C)

Assembly instructions	DIN rail mounting
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Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
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Standards/regulations	EN 61000-4-2
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Contact discharge	4 kV (Test Level 2)
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Standards/regulations	EN 61000-4-3
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Frequency range	80 MHz - 1 GHz
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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 61000-4-16
	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

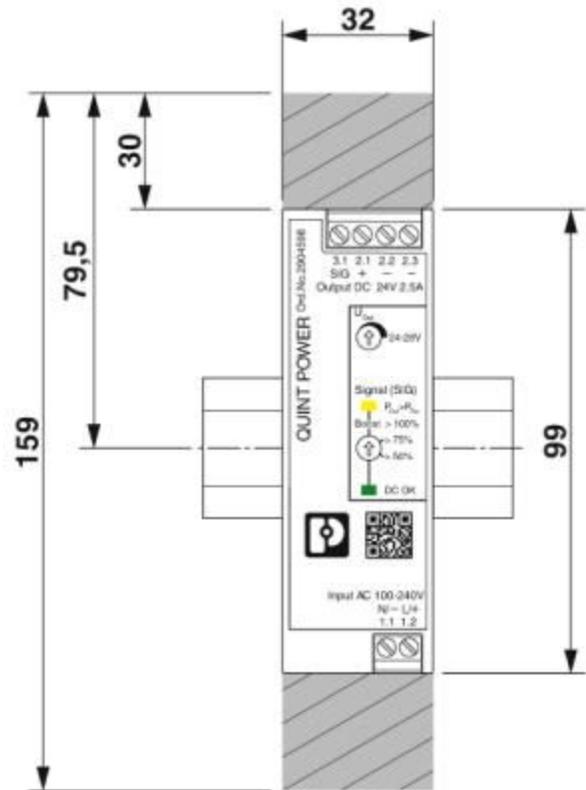
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Vibration (operation)	< 15 Hz, ± 2.5 mm amplitude; 15 Hz ... 100 Hz: 2.3 g 90 Min. (in accordance with IEC 60068-2-6)
Overvoltage category (EN 61010-1)	II (≤ 5000 m)
Overvoltage category (EN 62477-1)	III (≤ 2000 m)
Connection data, input	
Connection method	Screw connection
Conductor cross section solid min.	0.14 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.14 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	26
Conductor cross section AWG max.	14
Stripping length	8 mm
Output data	
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)	2.5 A
Static Boost ($I_{Stat.Boost}$)	3.125 A (≤ 40 °C)
Dynamic Boost ($I_{Dyn.Boost}$)	5 A (≤ 60 °C (5 s), Input <150 V AC Derating 0.5 %/V)
Derating	> 60 °C (2.5%/K)
Connection in parallel	Yes, for redundancy and increased capacity
Connection in series	yes
Feedback resistance	≤ 35 V DC
Protection against surge voltage on the output	≤ 32 V DC
Control deviation	< 0.5 % (Static load change 10 % ... 90 %)
	< 2 % (Dynamic load change 10 % ... 90 %, (10 Hz))
	< 0.1 % (change in input voltage ± 10 %)
Residual ripple	< 40 mV _{rms} (with nominal values)

Output power	60 W
Typical response time	500 ms
Maximum power dissipation in no-load condition	< 1 W (230 V AC)
	< 1 W (120 V AC)
Power loss nominal load max.	< 5 W (230 V AC)
	< 5 W (120 V AC)

Connection data for signaling

Connection method	Screw connection
Conductor cross section solid min.	0.14 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.14 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	26
Conductor cross section AWG max.	14
Stripping length	8 mm

Dimensions



Width	32 mm
Height	99 mm
Depth	90 mm
Weight per piece	313.1 GRM

Input data

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	0.85 A (100 V AC)
	0.7 A (120 V AC)
	0.39 A (230 V AC)
	0.37 A (240 V AC)
Nominal power consumption	71 VA

Inrush surge current typ. 10 A (at 25 °C)

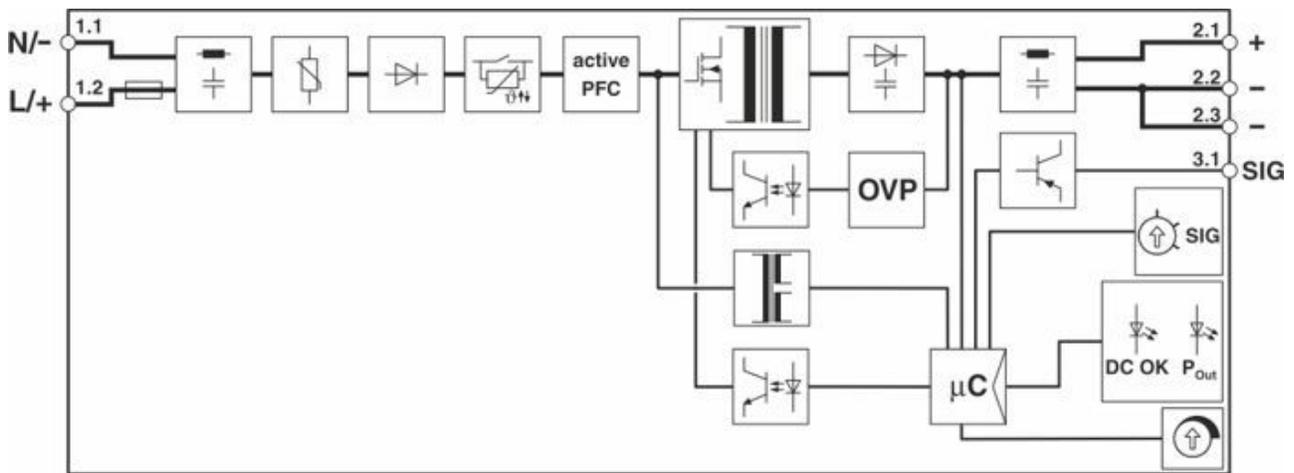
Mains buffering typ. 54 ms (120 V AC)

	typ. 54 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
Connection data, onput	
Connection method	Screw connection
Conductor cross section solid min.	0.14 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.14 mm ²
Conductor cross section flexible max.	2.5 mm ²
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)

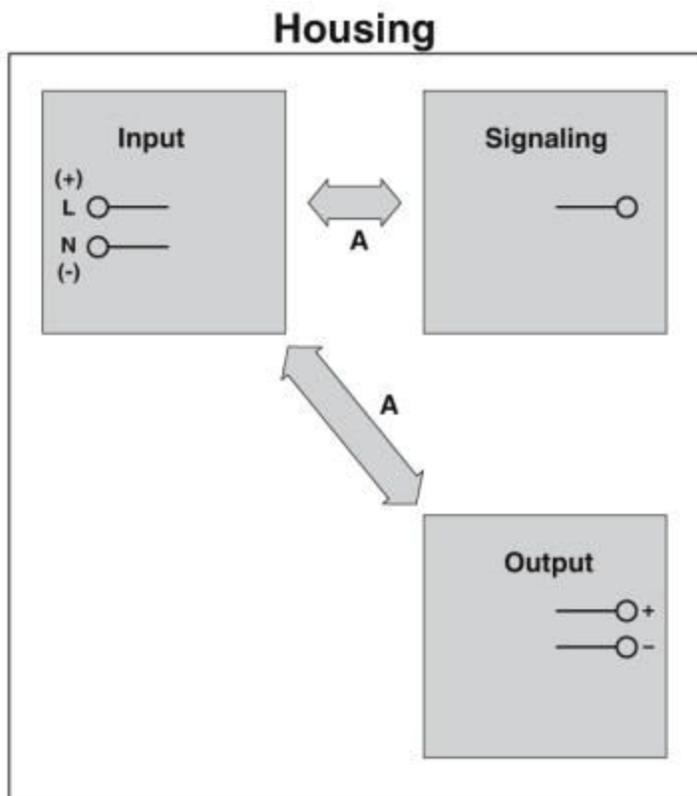
Approvals

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

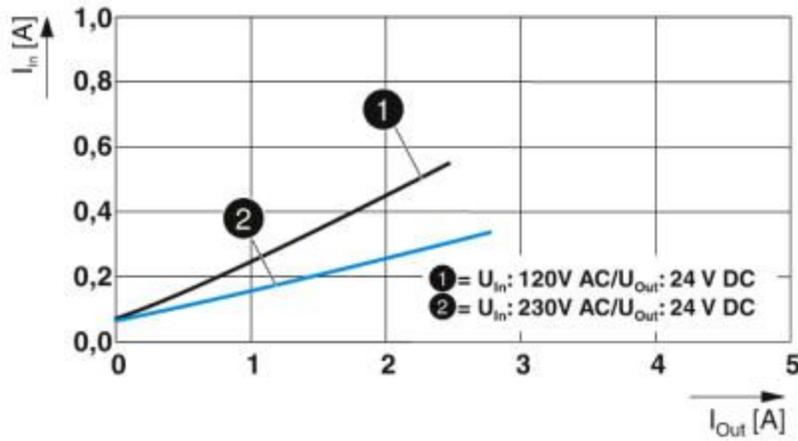
QUINT-1-Phase Industrial Power Supply Block Diagram



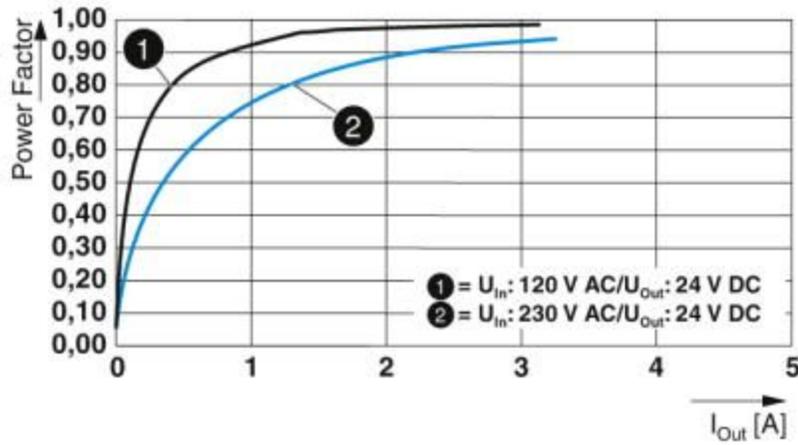
Schematic diagram



Input current vs output current



Power factor diagram



Efficiency diagram

