

QUINT-PS/1AC/CO – Single Phase DIN Rail Power Supply

 [perle.com/products/industrial-power-supply/quint-1-phase-xt.shtml](https://www.perle.com/products/industrial-power-supply/quint-1-phase-xt.shtml)

For extreme ambient conditions

- 24V DC Output Voltage
- Output Amps: 5, 10, or 20 Amps
- Output Watts: 120, 240, or 480 W
- Single-phase AC or DC input
- Input Voltage Range: 85 to 264 V AC and 96 to 430 V DC



The QUINT-PS/1AC/CO Industrial Power Supply is specifically designed to operate in hazardous industrial locations and extreme ambient conditions. With numerous certifications, including ATEX and ANSI/ISA 12.12 Class 1 Division 2, you are ensured safe and reliable operation in locations where flammable gases, liquids or vapors are handled, processed or used. In addition, the PCB coating protects against dust, corrosive gases, and 100% humidity as well as failures caused by corrosion-related creepage currents and electrochemical migration.

Industrial operating temperature of -40°C to +70°C

Equipment found in traffic management, oil and gas pipelines, weather tracking, industrial and outdoor applications must function in temperatures that cannot be supported by a commercial power supplies. The components protected within a wide temperature range of -40°C to 70°C, the QUINT-PS/1AC/CO Industrial Power Supply is ideal for use with equipment subjected to harsh environments and severe temperatures.

QUINT-PS/1AC/CO DIN Rail Power Supplies offer a range of rugged AC or DC to 24V DC Converters built to meet the high stability and efficiency expectations of industrial, machine automation and process control environments. They also feature the unique combination of preventive function monitoring and power reserve in an incredibly compact size. These Switching (switch mode) Power Supplies ensure 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, QUINT Industrial Power Supplies are designed to meet the needs of your industrial application.

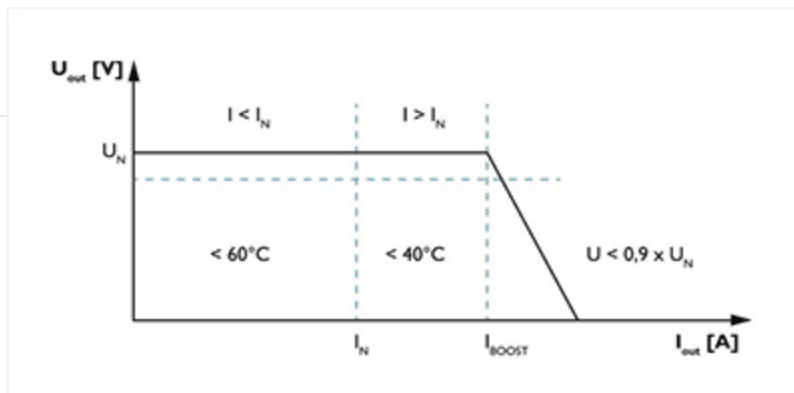
18 to 29.5 V DC Adjustable Output Voltage Range

Using the rotary potentiometer on the front face of the QUINT power supply, the output voltage can be optimally adjusted to meet specific application environment requirements. For example, you can easily adjust to compensate for a voltage drop caused by a long cable length.

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 QUINT supplies up to 50% additional current without a voltage drop.

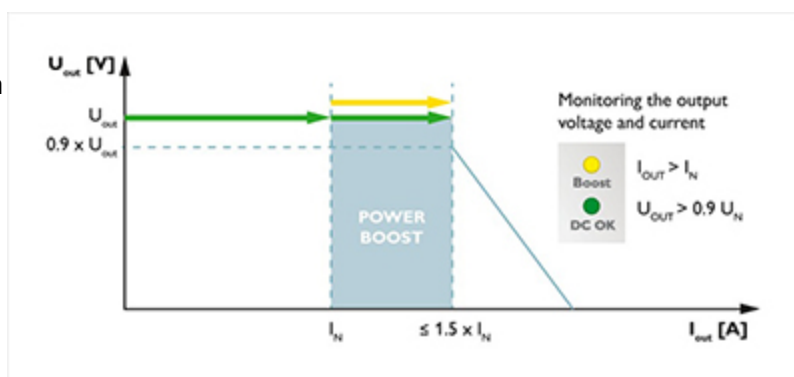
This is useful when it is not possible to predict which loads will be switched on at the same time or high switch-on currents of capacitive loads have to be absorbed without voltage dips.



Preventive function monitoring reports critical operating states before they occur

With a QUINT 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, the 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.

SFB (Selective Fuse Breaking) Technology

SFB Technology can be used to quickly and reliably trip miniature circuit breakers and fuses connected on the secondary side. In the event of a short circuit on the secondary side, the QUINT supplies up to 6 times the nominal current for 15 ms. Faulty current paths are switched off selectively, the fault is located, and important system parts remain in operation. Loads that are connected in parallel are still supplied with energy ensuring continued operation of these system parts.

- 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 a QUINT DIN Rail Power Supply

- Shipbuilding
- Railways
- Medical applications
- DeviceNet environments
- 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 a QUINT Industrial Power Supply

- High MTBF (Mean Time Between Failure) values
- Robust input side: high noise immunity, integrated gas-filled surge arrester (up to 6 kV), and ≥ 20 ms mains failure buffer time
- Narrow, slim-line design saves space in the control box
- Voltage Isolation input/output: 4 kV AC
- Protections: Short-circuit, Overload, Over voltage, Over-temperature
- Shipbuilding Approvals
- Medical Approvals
- Railway Approvals
- DeviceNet Certified

	QUINT-PS/ 1AC/24DC/20/CO - 23208988	QUINT-PS/ 1AC/24DC/ 5/CO - 23209088	QUINT-PS/ 1AC/24DC/10/CO - 23209118
Environmental Product Compliance			
REACH SVHC	Lead 7439-92-1	Lead 7439-92-1	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 25;	Environmentally Friendly Use Period = 25;	Environmentally Friendly Use Period = 25;
General			
Net weight	1.7 kg	0.7 kg	1.1 kg
Efficiency	> 93 % (for 230 V AC and nominal values)	> 90 % (for 230 V AC and nominal values)	> 92.5 % (for 230 V AC and nominal values)
Insulation voltage input/output	4 kV AC (type test) 2 kV AC (routine test)	4 kV AC (type test) 2 kV AC (routine test)	4 kV AC (type test) 2 kV AC (routine test)

Insulation voltage input / PE	3.5 kV AC (type test)	3.5 kV AC (type test)	3.5 kV AC (type test)
	2 kV AC (routine test)	2 kV AC (routine test)	2 kV AC (routine test)
Insulation voltage output / PE	500 V DC (routine test)	500 V DC (routine test)	500 V DC (routine test)
Protection class	I	I	I
Degree of protection	IP20	IP20	IP20
MTBF (IEC 61709, SN 29500)	> 900000 h (25 °C)	> 1134000 h (25 °C)	> 940000 h (25 °C)
	> 520000 h (40 °C)	> 635000 h (40 °C)	> 530000 h (40 °C)
			> 230000 h (60 °C)
Mounting position	horizontal DIN rail NS 35, EN 60715	horizontal DIN rail NS 35, EN 60715	horizontal DIN rail NS 35, EN 60715
Assembly instructions	alignable: P _N ≥50%, 5 mm horizontally, 15 mm next to active components, 50 mm vertically alignable: P _N <50%, 0 mm horizontally, 40 mm vertically top, 20 mm vertically bottom	alignable: P _N ≥50%, 5 mm horizontally, 15 mm next to active components, 50 mm vertically alignable: P _N <50%, 0 mm horizontally, 40 mm vertically top, 20 mm vertically bottom	alignable: P _N ≥50%, 5 mm horizontally, 15 mm next to active components, 50 mm vertically alignable: P _N <50%, 0 mm horizontally, 40 mm vertically top, 20 mm vertically bottom
Standards and Regulations			
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU	Conformance with EMC Directive 2014/30/EU	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011 (EN 55022)	EN 55011 (EN 55022)	EN 55011 (EN 55022)
Noise immunity	EN 61000-6-2:2005	EN 61000-6-2:2005	EN 61000-6-2:2005
Connection in acc. with standard	CSA	CSA	CSA
Standards/regulations	EN 61000-4-2	EN 61000-4-2	EN 61000-4-2
Contact discharge	4 kV (Test Level 2)	4 kV (Test Level 2)	4 kV (Test Level 2)
Standards/regulations	EN 61000-4-3	EN 61000-4-3	EN 61000-4-3
Frequency range	80 MHz ... 1 GHz	80 MHz ... 1 GHz	80 MHz ... 1 GHz
Test field strength	10 V/m (Test Level 3)	10 V/m (Test Level 3)	10 V/m (Test Level 3)
Frequency range	1.4 GHz ... 2 GHz	1.4 GHz ... 2 GHz	1.4 GHz ... 2 GHz
Test field strength	3 V/m (Test Level 2)	3 V/m (Test Level 2)	3 V/m (Test Level 2)

Comments	Criterion B	Criterion B	Criterion B
Standards/regulations	EN 61000-6-3	EN 61000-6-3	EN 61000-6-3
	EN 61000-4-6	EN 61000-4-6	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz	0.15 MHz ... 80 MHz	0.15 MHz ... 80 MHz
Voltage	10 V (Test Level 3)	10 V (Test Level 3)	10 V (Test Level 3)
Low Voltage Directive	Conformance with LV directive 2006/95/EC	Conformance with LV directive 2006/95/EC	Conformance with LV directive 2006/95/EC
Standard - Electrical safety	IEC 60950-1/VDE 0805 (SELV)	IEC 60950-1/VDE 0805 (SELV)	IEC 60950-1/VDE 0805 (SELV)
Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)	EN 50178/VDE 0160 (PELV)	EN 50178/VDE 0160 (PELV)
Standard – Safety extra-low voltage	IEC 60950-1 (SELV) and EN 60204-1 (PELV)	IEC 60950-1 (SELV) and EN 60204-1 (PELV)	IEC 60950-1 (SELV) and EN 60204-1 (PELV)
Standard - Safe isolation	DIN VDE 0100-410	DIN VDE 0100-410	DIN VDE 0100-410
Standard – Limitation of mains harmonic currents	EN 61000-3-2	EN 61000-3-2	EN 61000-3-2
Standard - Equipment safety	BG (design tested)	BG (design tested)	BG (design tested)
Shipbuilding approval	DNV GL (EMC B, only with upstream filter)	DNV GL (EMC A)	DNV GL (EMC B), ABS, LR, RINA, NK, BV
UL approvals	UL/C-UL listed UL 508	UL/C-UL listed UL 508	UL/C-UL listed UL 508
	UL/C-UL Recognized UL 60950-1	UL/C-UL Recognized UL 60950-1	UL/C-UL Recognized UL 60950-1
	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location)	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location)	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location)
DeviceNet approval	DeviceNet™ Power Supply Conformance Tested	DeviceNet™ Power Supply Conformance Tested	DeviceNet™ Power Supply Conformance Tested
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)	18 ms, 30g, in each space direction (according to IEC 60068-2-27)	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, amplitude ±2.5 mm (according to IEC 60068-2-6)	< 15 Hz, amplitude ±2.5 mm (according to IEC 60068-2-6)

	15 Hz ... 150 Hz, 2.3g, 90 min.	15 Hz ... 150 Hz, 2.3g, 90 min.	15 Hz ... 150 Hz, 2.3g, 90 min.
Approval - requirement of the semiconductor industry with regard to mains voltage dips	SEMI F47-0706 Compliance Certificate	SEMI F47-0706 Compliance Certificate	SEMI F47-0706 Compliance Certificate
Information technology equipment - safety (CB scheme)	IEC 60950-1 (2 nd Edition)	IEC 60950-1 (2 nd Edition)	IEC 60950-1 (2 nd Edition)
Rail applications	EN 50121-4	EN 50121-4	EN 50121-4
Noxious gas test	ISA-S71.04-1985 G3 Harsh Group A	ISA-S71.04-1985 G3 Harsh Group A	ISA-S71.04-1985 G3 Harsh Group A
ATEX	□ II 3 G Ex nA nC IIC T4 Gc	□ II 3 G Ex nA nC IIC T4 Gc	□ II 3 G Ex nA nC IIC T4 Gc
	SIQ 14 ATEX 137 X	TÜV 11 ATEX 555674 X	TÜV 11 ATEX 079480 X
IECEX	Ex nA nC IIC T4 Gc	Ex nA nC IIC T4 Gc	Ex nA nC IIC T4 Gc
	IECEX SIQ 14.0001X	IECEX TUN 11.0002X	IECEX TUN 11.0007X
Overvoltage category (EN 62477-1)	III	III	III
Connection data, input			
Connection method	Screw connection	Pluggable screw connection	Pluggable screw connection
Conductor cross section solid min.	0.2 mm ²	0.2 mm ²	0.2 mm ²
Conductor cross section solid max.	6 mm ²	2.5 mm ²	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²	0.2 mm ²	0.2 mm ²
Conductor cross section flexible max.	4 mm ²	2.5 mm ²	2.5 mm ²
Conductor cross section AWG min.	18	20	16
Conductor cross section AWG max.	10	12	12
Stripping length	7 mm	7 mm	7 mm
Screw thread	M4	M3	M3

Output data

Setting range of the output voltage (U_{Set})	18 V DC ... 29.5 V DC (> 24 V DC, constant capacity restricted)	18 V DC ... 29.5 V DC (> 24 V DC, constant capacity restricted)	18 V DC ... 29.5 V DC (> 24 V DC, constant capacity restricted)
Nominal output current (I_N)	20 A (-25 °C ... 60 °C, $U_{OUT} = 24$ V DC)	5 A (-25 °C ... 60 °C, $U_{OUT} = 24$ V DC)	10 A (-25 °C ... 60 °C, $U_{OUT} = 24$ V DC)
POWER BOOST (I_{Boost})	26 A (-25°C ... 40°C permanent, $U_{OUT} = 24$ V DC)	7.5 A (-25°C ... 40°C permanent, $U_{OUT} = 24$ V DC)	15 A (-25°C ... 40°C permanent, $U_{OUT} = 24$ V DC)
Selective Fuse Breaking (I_{SFB})	120 A (12 ms)	30 A (12 ms)	60 A (12 ms)
Derating	60 °C ... 70 °C (2.5%/K)	60 °C ... 70 °C (2.5%/K)	60 °C ... 70 °C (2.5%/K)
Connection in parallel	Yes, for redundancy and increased capacity	Yes, for redundancy and increased capacity	Yes, for redundancy and increased capacity
Connection in series	yes	yes	yes
Feedback resistance	max. 35 V DC	max. 35 V DC	max. 35 V DC
Protection against surge voltage on the output	< 32 V DC	< 32 V DC	< 32 V DC
Control deviation	< 1 % (change in load, static 10 % ... 90 %)	< 1 % (change in load, static 10 % ... 90 %)	< 1 % (change in load, static 10 % ... 90 %)
	< 2 % (change in load, dynamic 10 % ... 90 %)	< 2 % (change in load, dynamic 10 % ... 90 %)	< 2 % (change in load, dynamic 10 % ... 90 %)
	< 0.1 % (change in input voltage ± 10 %)	< 0.1 % (change in input voltage ± 10 %)	< 0.1 % (change in input voltage ± 10 %)
Residual ripple	< 30 mV _{PP} (with nominal values)	< 40 mV _{PP} (with nominal values)	< 50 mV _{PP} (with nominal values)
Output power	480 W	120 W	240 W
Typical response time	< 0.6 s	< 0.15 s	< 0.15 s
Maximum power dissipation in no-load condition	8 W	3 W	9.1 W
Power loss nominal load max.	40 W	15 W	22 W
Connection data for signaling			
Conductor cross section solid min.	0.2 mm ²	0.2 mm ²	0.2 mm ²
Conductor cross section solid max.	6 mm ²	2.5 mm ²	2.5 mm ²
Conductor cross section flexible	0.2 mm ²	0.2 mm ²	0.2 mm ²

Conductor cross section flexible max.	4 mm ²	2.5 mm ²	2.5 mm ²
Conductor cross section AWG min.	18	20	16
Conductor cross section AWG max.	10	12	12
Screw thread	M4	M3	M3
Dimensions			
Width	90 mm	40 mm	60 mm
Height	130 mm	130 mm	130 mm
Depth	125 mm	125 mm	125 mm
Width with alternative assembly	122 mm	122 mm	122 mm
Height with alternative assembly	130 mm	130 mm	130 mm
Depth with alternative assembly	93 mm	43 mm	63 mm
Weight per piece	1700.0 GRM	700.0 GRM	1100.0 GRM
Input data			
Nominal input voltage range	100 V AC ... 240 V AC	100 V AC ... 240 V AC	100 V AC ... 240 V AC
	110 V DC ... 250 V DC	110 V DC ... 250 V DC	110 V DC ... 250 V DC
Input voltage range	85 V AC ... 264 V AC	85 V AC ... 264 V AC	85 V AC ... 264 V AC
	90 V DC ... 410 V DC +5 % (UL 508: ≤ 250 V DC)	90 V DC ... 410 V DC +5 % (UL 508: ≤ 250 V DC)	90 V DC ... 410 V DC +5 % (UL 508: ≤ 250 V DC)
Dielectric strength maximum	300 V AC	300 V AC	300 V AC
AC frequency range	45 Hz ... 65 Hz	45 Hz ... 65 Hz	45 Hz ... 65 Hz
Frequency range DC	0 Hz	0 Hz	0 Hz
Discharge current to PE	< 3.5 mA	< 3.5 mA	< 3.5 mA
Current consumption	5.1 A (120 V AC)	1.2 A (120 V AC)	2.2 A (120 V AC)
	2.3 A (230 V AC)	0.6 A (230 V AC)	1.3 A (230 V AC)
	4.9 A (110 V DC)	1.3 A (110 V DC)	2.5 A (110 V DC)
	2.4 A (220 V DC)	0.6 A (220 V DC)	1.2 A (220 V DC)

Inrush surge current	< 20 A	< 15 A	< 15 A
Mains buffering	typ. 32 ms (120 V AC)	typ. 55 ms (120 V AC)	typ. 36 ms (120 V AC)
	typ. 32 ms (230 V AC)	typ. 55 ms (230 V AC)	typ. 36 ms (230 V AC)
Input fuse	12 A (slow-blow, internal)	5 A (slow-blow, internal)	10 A (slow-blow, internal)
Choice of suitable circuit breakers	10 A ... 16 A (AC: Characteristics B, C, D, K)	6 A ... 16 A (AC: Characteristics B, C, D, K)	10 A ... 20 A (AC: Characteristics B, C, D, K)
Type of protection	Transient surge protection	Transient surge protection	Transient surge protection
Protective circuit/component	Varistor, gas-filled surge arrester	Varistor	Varistor, gas-filled surge arrester

Connection data, output

Connection method	Screw connection	Pluggable screw connection	Pluggable screw connection
Conductor cross section solid min.	0.2 mm ²	0.2 mm ²	0.2 mm ²
Conductor cross section solid max.	6 mm ²	2.5 mm ²	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²	0.2 mm ²	0.2 mm ²
Conductor cross section flexible max.	4 mm ²	2.5 mm ²	2.5 mm ²
Conductor cross section AWG min.	12	20	16
Conductor cross section AWG max.	10	12	12
Stripping length	7 mm	7 mm	7 mm
Screw thread	M4	M3	M3

Ambient conditions

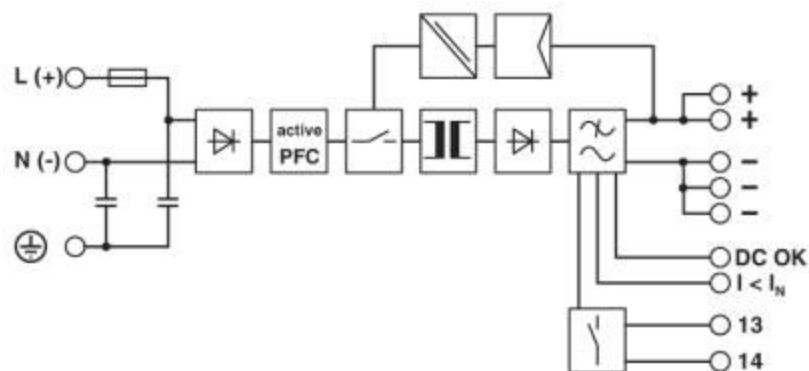
Degree of protection	IP20	IP20	IP20
Ambient temperature (operation)	-40 °C ... 70 °C (> 60 °C Derating: 2.5 %/K)	-40 °C ... 70 °C (> 60 °C Derating: 2.5 %/K)	-40 °C ... 70 °C (> 60 °C Derating: 2.5 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C	-40 °C ... 85 °C	-40 °C ... 85 °C

Max. permissible relative humidity (operation)	100 % (at 25 °C, non-condensing)	100 % (at 25 °C, non-condensing)	100 % (at 25 °C, non-condensing)
Climatic class	3K3 (in acc. with EN 60721)	3K3 (in acc. with EN 60721)	3K3 (in acc. with EN 60721)
Degree of pollution	2	2	2
Installation height	6000 m	5000 m	5000 m

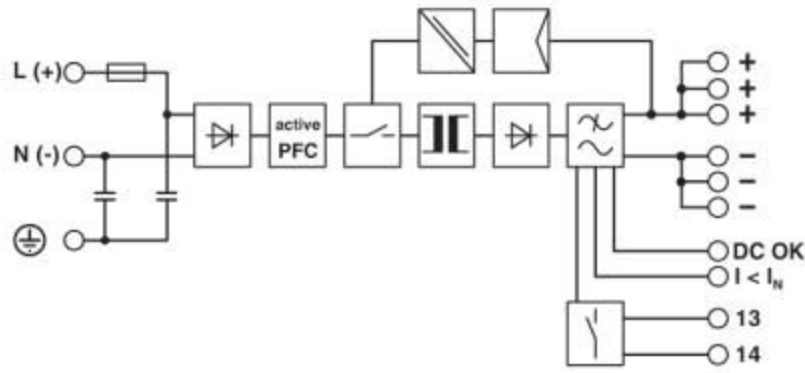
Approvals




- ABS
- DNV GL
- BV
- RINA
- cUL Recognized
- cUL Listed
- IECEE CB Scheme
- LR
- UL Listed
- IECEE CB Scheme
- cULus Listed
- UL Recognized
- EAC
- cULus Recognized
- NK
- CSA
- Bauartgeprüft

QUINT-PS/1AC/24DC/5/CO Industrial Power Supply Block Diagram



QUINT-PS/1AC/24DC/10/CO and QUINT-PS/1AC/24DC/20/CO Industrial Power Supply Block Diagram



Part Number	Product Name	Input Voltage Range	Output Voltage (V DC)	Output Range (V DC)	Output Current (Amps)	Output Power (Watts)	Dimensions (W x H x D)
 23209088	QUINT-PS/1AC/24DC/5/CO	85 ... 264 V AC 86 ... 430 V DC	24	18 ... 29.5 V DC	5	120	40 x 130 x 125
 23209118	QUINT-PS/1AC/24DC/10/CO	85 ... 264 V AC 86 ... 430 V DC	24	18 ... 29.5 V DC	10	240	60 x 130 x 125
 23208988	QUINT-PS/1AC/24DC/20/CO	85 ... 264 V AC 86 ... 430 V DC	24	18 ... 29.5 V DC	20	480	90 x 130 x 125