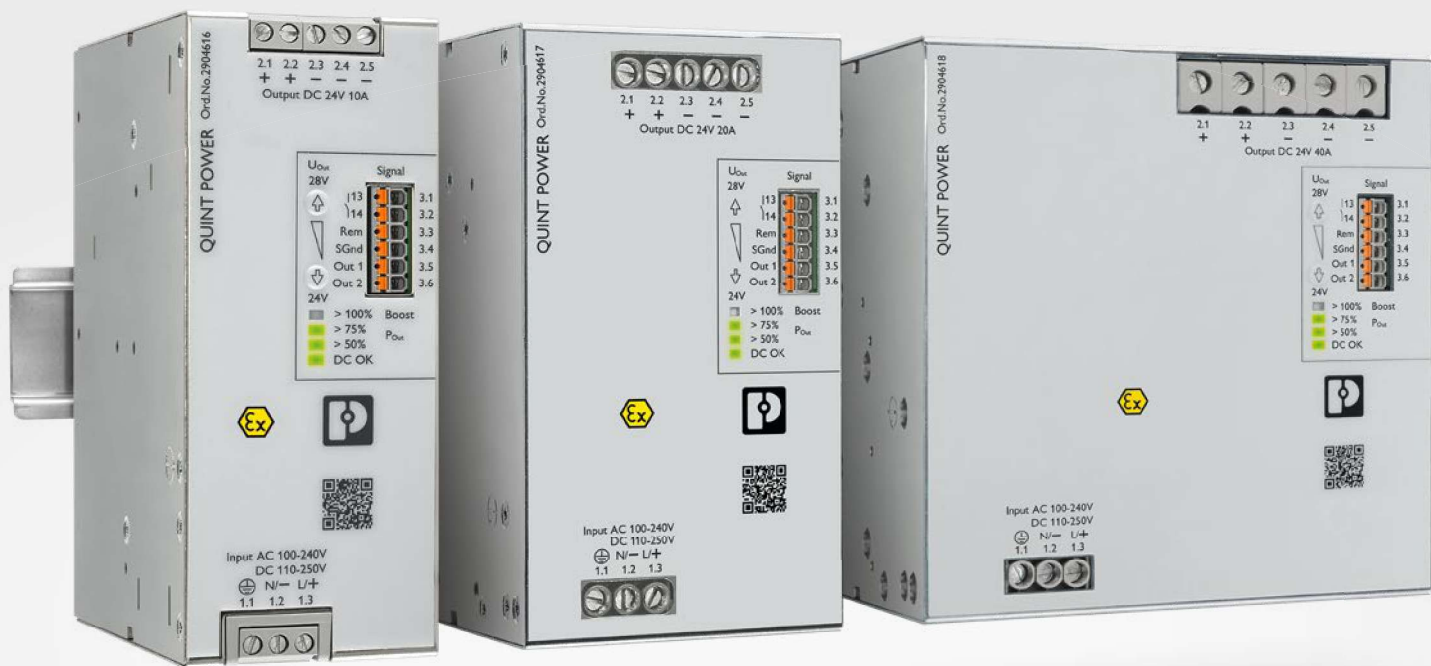


Power supply solutions

For railway technology we provide a comprehensive portfolio consisting of power supplies, DC/DC converters, redundancy modules, UPSs, and energy storage devices. With high MTBF values, a robust design, and preventive function monitoring via signal contacts, all the devices provide a high degree of availability. Important standards and requirements for rail vehicles, such as EN 50155, EN 61373, and EN 45545-2, as well as PCBs with a protective coat, are met depending on the device type.



Product lists – power supply solutions



AC/DC power supplies for preferred use in rail vehicles

Input voltage	Output voltage	Output current	EN 61373	EN 50121-3-2	EN 50155	EN 45545-2	Conformal coating	-40°C start	Type	Item no.
1 AC / 110 V DC	24 V DC	10 A	X	X	X	X	X	X	QUINT4-PS/1AC/24DC/10/+	2904616
1 AC / 110 V DC	24 V DC	20 A	X	X	X	X	X	X	QUINT4-PS/1AC/24DC/20/+	2904617
1 AC / 110 V DC	24 V DC	40 A	X	X	X	X	X	X	QUINT4-PS/1AC/24DC/40/+	2904618
1 AC / 110 V DC	24 V DC	10 A	X	X	X	X	X	1	QUINT4-PS/1AC/24DC/10/CO	2904625
1 AC	24 V DC	3.8 A	X	X				1	QUINT4-PS/1AC/24DC/3.8/PT	2909577
1 AC	24 V DC	5 A	X	X	X	X	X	1	QUINT-PS/1AC/24DC/5/CO	2320908
3 AC	24 V DC	40 A	X	X	X	X	X	1	QUINT4-PS/3AC/24DC/40/CO	1783052
3 AC	24 V DC	20 A	X	X	X	X	X	1	QUINT4-PS/3AC/24DC/20/CO	1343940
3 AC	24 V DC	20 A	X	X	X	X		1	QUINT4-PS/3AC/24DC/20/IOL	1151048
3 AC	24 V DC	40 A	X	X	X	X		1	QUINT4-PS/3AC/24DC/40/IOL	1151047

Legend: 1 = -40°C start, type-tested



DC/DC converter for preferred use on railway vehicles

Input voltage	Output voltage	Output current	EN 45545-2	EN 50155	EN 61373	EN 50121-3-2	Protective coating	-40°C start, type-tested	Type	Item no.
12 ... 24 V DC	24 V DC	1.3 A	X			X		X	QUINT4-PS/12-24DC/24DC/1.3/PT	1066716
24 V DC	24 V DC	5 A	X		X	X	X	X	QUINT4-PS/24DC/24DC/5/PT/CO	2910132
24 V DC	24 V DC	10 A			X	X	X	X	QUINT4-PS/24DC/24DC/10/PT/CO	2910133
24 V DC	24 V DC	20 A			X	X	X	X	QUINT4-PS/24DC/24DC/20/SC/+	1046881
24 V DC	24 V DC	5 A			X	X		X	QUINT-PS/24DC/48DC/5	2320128
48 ... 110 V DC	24 V DC	2.5 A			X	X		X	QUINT4-PS/48-110DC/24DC/2.5/PT	1066708
60 ... 72 V DC	24 V DC	10 A	X	X	X	X	X	X	QUINT-PS/60-72DC/24DC/10/CO	2905011
96 ... 110 V DC	24 V DC	10 A	X	X	X	X	X	X	QUINT-PS/96-110DC/24DC/10/CO	2905012

Product lists – power supply solutions



AC/DC power supplies with unique properties for railway infrastructure

Input voltage	Output voltage	Output current	EN 50121-3-2	EN 50121-4	EN 50121-5	16.7 Hz	-40°C, start type-tested	Protective coating	See key	Type	Item no.
1 AC	5 V DC	5 A	X	X	X	X	X		2, 3	QUINT4-PS/1AC/5DC/5/PT	2904595
1 AC	12 V DC	2.5 A	X	X	X	X	X		2, 3	QUINT4-PS/1AC/12DC/2.5/PT	2904605
1 AC	12 V DC	7.5 A	X	X	X	X	X		2, 3	QUINT4-PS/1AC/12DC/7.5/PT	2904607
1 AC	12 V DC	15 A	X	1	1	X	X			QUINT4-PS/1AC/12DC/15	2904608
1 AC	24 V DC	1.3 A	X	X	X	X	X		2, 3	QUINT4-PS/1AC/24DC/1.3/PT	2909575
1 AC	24 V DC	2.5 A	X	X	X	X	X		2, 3	QUINT4-PS/1AC/24DC/2.5/PT	2909576
1 AC	24 V DC	2.5 A	X	X	X	X	X	X	2, 3	QUINT4-SYS-PS/1AC/24DC/2.5/SC	2904614
1 AC	24 V DC	3.8 A	X	X	X	X	X		2, 3	QUINT4-PS/1AC/24DC/3.8/PT	2909577
1 AC	24 V DC	5 A	X	1	1	X	X			QUINT4-PS/1AC/24DC/5	2904600
1 AC	24 V DC	10 A	X	1	1	X	X			QUINT4-PS/1AC/24DC/10	2904601
1 AC	24 V DC	10 A	X	X	1	X	X	X		QUINT4-PS/1AC/24DC/10/+	2904616
1 AC	24 V DC	20 A	X	1	1	X	X			QUINT4-PS/1AC/24DC/20	2904602
1 AC	24 V DC	20 A	X	X	1	X	X	X	1, 4	QUINT4-PS/1AC/24DC/20/+	2904617
1 AC	24 V DC	40 A	X	1	1	X	X			QUINT4-PS/1AC/24DC/40	2904603
1 AC	24 V DC	40 A	X	1	1	X	X			QUINT4-PS/1AC/24DC/40/+	2904618
1 AC	48 V DC	10 A	X	1	1	X	X			QUINT4-PS/1AC/48DC/10	2904611
1 AC	48 V DC	10 A	X	X	1	X	X	X		QUINT4-PS/1AC/48DC/10/CO	2904626
1 AC	48 V DC	20 A	X	1	1	X	X			QUINT4-PS/1AC/48DC/20	2904612
1 AC	110 V DC	4 A	X			X	X			QUINT4-PS/1AC/110DC/4	2904613
3 AC	24 V DC	10 A	X	1	1		X			QUINT4-PS/3AC/24DC/10	2904621
3 AC	24 V DC	20 A	X	1	1		X			QUINT4-PS/3AC/24DC/20	2904622
3 AC	24 V DC	40 A	X	1	1		X			QUINT4-PS/3AC/24DC/40	2904623
3 AC	24 V DC	20 A	X	1	1		X	X		QUINT4-PS/3AC/24DC/20/CO	1343940
3 AC	24 V DC	40 A	X	1	1		X	X		QUINT4-PS/3AC/24DC/40/CO	1783052
3 AC	24 V DC	20 A	X	1	1		X			QUINT4-PS/3AC/24DC/20/IOL	1151048
3 AC	24 V DC	40 A	X	1	1		X			QUINT4-PS/3AC/24DC/40/IOL	1151047

Legend: 1 = see Attachment 1; 2 = 3.1 kV withstand voltage input/output/housing; 3 = protection class II; 4 = SIL 3, HFT 1 in accordance with IEC 61508 with regard to overvoltage at the output (2x OVP)



DC/DC converters with unique properties for railway infrastructure

Input voltage	Output voltage	Output current	EN 50121-3-2	EN 50121-4	EN 50121-5	3.1 kV ¹⁾	EN 50124-1	Type	Item no.
24 ... 48 V DC	48 V DC (max. 56 V DC)	2 A	X	X	X	X	X	QUINT4-PS/24-48DC/48DC/2/PT	1098676
1 AC 400 V DC	48 V DC	5 A	X	X	X		X	TRIO-PS-2G/230AC-400DC/48DC/5	1157806

¹⁾ 3.1 kV withstand voltage resistant input/output/housing

Product list – UPS and energy storage devices

All modules are subject to shock and vibration testing in accordance with EN 61373. Refer to the following table for the status of railway conformity for the respective products. All modules meet the vibration resistance requirements in accordance with EN 61373. Fire protection qualification for the energy storage units can only be achieved via an external fire protection housing (greater than or equal to E10).

Conformity for EMC and environmental conditions must be evaluated together with the power supply used and in relation to the application. You are welcome to contact us for further information.

UPSs and energy storage systems with special properties for railroads






Function	Nominal voltage (Input / output)	Nominal current	Energy	EN 61373	EN 50121-3-2	Type	Item no.
Capacity module	24 V DC / 24 V DC	5 A	4 kJ	X		QUINT4-CAP/24DC/5/4kJ	2320539
Capacity module	24 V DC / 24 V DC	10 A	8 kJ	X		QUINT4-CAP/24DC/10/8kJ	2320571
Capacity module	24 V DC / 24 V DC	20 A	16 kJ	X		QUINT4-CAP/24DC/20/16kJ/USB	1065635
Uninterruptible power supply	24 V DC / 24 V DC	10 A		X	X	QUINT4-UPS/24DC/24DC/10	2907066
Uninterruptible power supply	24 V DC / 24 V DC	20 A		X	X	QUINT4-UPS/24DC/24DC/20	2907071

Application example

Phoenix Contact offers a modular system for uninterruptible power supply solutions that can be supplemented with a wide range of products. In this example, our heavy-duty connectors act as a robust interface. The power supply converts the three-phase current to 24 V, and an uninterruptible power supply is connected downstream for energy storage. Our electronic circuit

breakers protect the individual load circuits against overload and short circuit. Stainless steel marking labels complete the modular system.

