

P R
B X

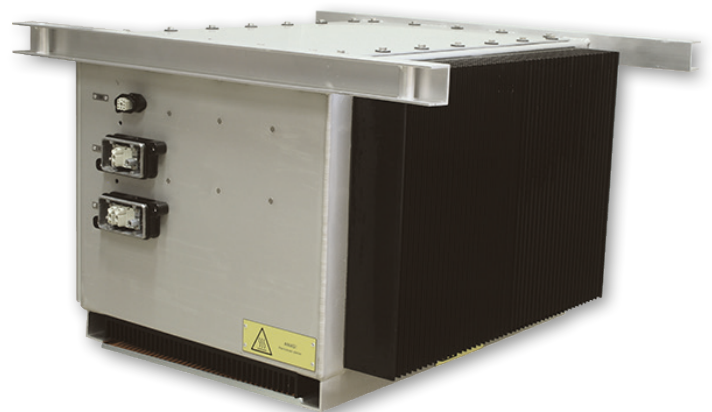
POWERBOX
ENR10000 Series



On-board battery chargers for railway and light-rail applications

Trains are packed with equipment that require backup energy to power safety and operational systems when not powered by the power line, or in the case of an emergency. The power required to backup such equipments varies from a few watts to multi-kilowatts, and similarly chargers vary in size from micro-chargers contained within host equipments to large power units the size of a fridge situated beneath wagons or in the electrical equipment compartment.

Previous generations of trains and rolling stock equipment used Lead Acid batteries, whereas newer generations generally use Nickel Cadmium types. When designing new equipment, power designers often specify the type of charger required, but in the case of refurbishments it may be considered prudent to install the same charger on all trains and to profile their output characteristics once installed – the same charger but with built-in flexibility.



POWERBOX ENR10000 Series

Further, the variety of systems requiring to be powered and charged require that the output of the battery charger is able to cover a wide range of applications.

Designing power solutions for railway use since 1974, Powerbox (PRBX) has a long expertise in designing power solutions for demanding applications and has developed several battery chargers for railway applications. Trains have a very long life and railway operators frequently modernize rolling-stock and track-side equipment. In the case of passenger wagons, space is very important for the passenger comfort, so room for extra equipment is often very limited, especially when a high power battery charger e.g. 10kW is required. The solution is to install the battery charger underneath the floor outside of the passengers' compartment, but meaning that the equipment will be exposed to onerous conditions.

To support this application PRBX has developed a rugged platform, the ENR10000 that is able to deliver an output power of up to 10kW within a voltage output range of 112-124VDC. The ENR10000 is able to charge lead-acid and NiCa batteries, and it includes all the required protection. The ENR10000 is powered by a 3 phase power (400VAC nominal)

Robustness is a must and the ENR10000 battery charger is enclosed in a robust IP55 metal case that has large heatsinks for improved cooling. The mechanical strength is in accordance with IEC61373 Category 1, Class B, and the unit also complies with the safety standard EN50155. Last but not least, the platform developed for the ENR10000 can be transposed to suit any specific format required by train operators when refurbishing their equipment.

Input

- Nominal input voltage 400VAC nominal - 3 phase
- Input frequency range 47 - 63 Hz.

Outputs

- Adjustable output voltage 112-124VDC
- Output current 75A
- Output power 10kW
- Output short-circuit protected
- Output overvoltage protected

Environmental

- Environmental compliance and safety in accordance to EN50155
- Operating temperature -40°C to +70°C

EMC

- EMC Compliance in accordance to EN50121-2-1

Electrical Design

- Separate charging output with independent adjustable current limiting
- Charging of Lead Acid and NiCa batteries
- Softstart by electronic inrush current limiting
- Thermal shut down at max 90°C with automatically recovery
- Unit switch of at input under/overvoltage with automatic recovery

Mechanical

- Mechanical strength acc. to IEC61373 Cat. 1 Class B
- Terminal block termination

Optional features

- Temperature compensated charging with external sensor
- Fan or convection cooling depending on protection class and mounting. Charger fail alarm output
- Decoupling diode in DC output
- Connector terminations
- Adjustable charging voltage

About Powerbox

Founded in 1974, with headquarters in Sweden and operations in 15 countries across four continents, Powerbox serves customers all around the globe. The company focuses on four major markets - industrial, medical, transportation/railway and defense - for which it designs and markets premium quality power conversion systems for demanding applications. Powerbox's mission is to use its expertise to increase customers' competitiveness by meeting all of their power needs. Every aspect of the company's business is focused on that goal, from the design of advanced components that go into products, through to high levels of customer service. Powerbox is recognized for technical innovations that reduce energy consumption and its ability to manage full product lifecycles while minimizing environmental impact. Powerbox is a Cosel Group Company.

For more information

Visit www.prbx.com