

BATTERY CHARGER

BORDLINE® M6 AC_210V

For high-speed trains



The BORDLINE® M6 AC battery charger is a compact, rugged unit to generate supply voltage for rail vehicles.

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BORDLINE® M6 AC_210V
for rolling stock
applications

System overview

The BORDLINE® M6 AC converter is based on thyristor technology.

The system is composed by:

- Full controlled rectifier thyristor bridge
- EMI filter
- Control/Communication unit

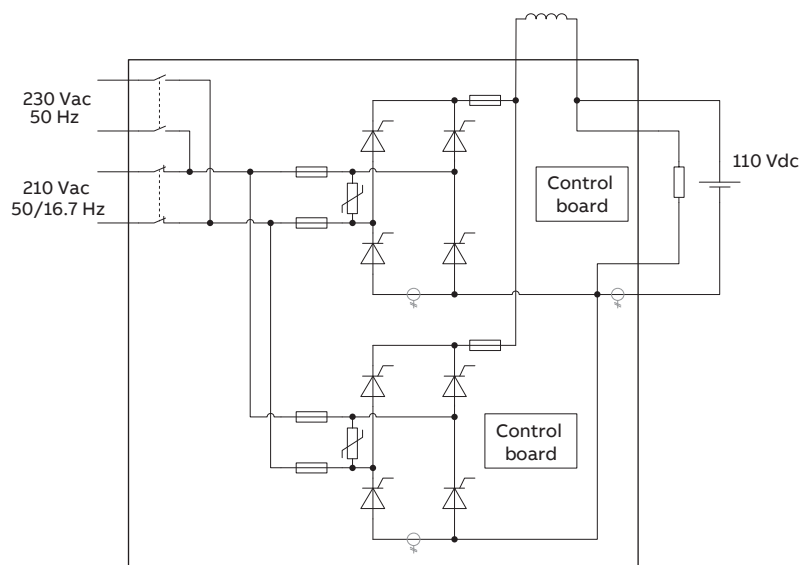
Functionality

The BORDLINE® M6 AC battery charger feeds from the heating transformer inside the locomotive (210 Vac 1ph 50 Hz, 210 Vac 1ph 16,7 Hz) to generate a 110 Vdc voltage to charge the batteries and supply the DC loads of the vehicle. The battery charger is based on a single-phase full controlled rectifier thyristor bridge without galvanic insulation. The battery charger is made by two modules to guarantee warm redundancy. Each battery charger module provides dead battery start functionality. A battery temperature compensation is implemented. Two separate outputs supply DC loads and charge the batteries.

Characteristics

- DSP technology
- Compact and robust design
- Warm redundancy
- Three input voltages (210 Vac 1ph 50 Hz, 210 Vac 1ph 16,7 Hz, 230 Vac 1ph 50 Hz - limit 12 A)
- Workshop supply
- Dead battery start-up
- Air forced cooling
- CANopen interfaces for TCMS; USB interfaces for diagnostic
- 19" Rack mounting
- High reliability thanks to consolidated building blocks

Technical data	BORDLINE® M6 AC_210V
Input voltages	210 Vac 1ph 50 Hz
	210 Vac 1ph 16,7 Hz
	230 Vac 1ph 50 Hz
Output voltage	110 Vdc (96 Vdc to 128 Vdc)
DC output power	6,4 kW
Protection degree	IP20
Dimensions (L x W x H)	450 x 483 x 486 mm
Ambient temperatures	-40°C +55°C (start-up 70°C)
Weight	44 kg
DSP Technology	



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Block diagram of
BORDLINE® M6 AC_210V

Control and monitoring

Each battery charger module is full digital controlled (DSP technology). The monitoring of the converter is supported by CANopen interface. A free voltage contact output signal (from relay) provides information (battery charger operating) to the train diagnostic system.

Cooling system

The unit is cooled by air forced externally. The battery charger is located inside an electrical cabinet with ventilation of filtered air.

Mechanical design

The converter is suitable to be mounted on board inside a 19 inch rack. All electrical interfaces are located in the back for easy and fast connection.

Diagnostics and service

The service-friendly modular design with highly standardized components ensures high reliability, excellent spare parts availability, and optimized life cycle costs. For maintenance, a diagnostic interface (USB) is available in order to monitor converter status and alarms history.

Application example

BORDLINE® M6 AC is installed in the power head of high-speed train revamped by ABB and running in Sweden and Norway.