

AUXILIARY CONVERTER

BORDLINE® M60 DC_3kV

For passenger coaches



The BORDLINE® M60 DC static converter is a compact, rugged unit developed to feed auxiliary services of coaches (HVAC, other AC loads, DC loads and batteries).

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System overview

The BORDLINE® M60 DC converter is based on modern IGBT technology.

The system is composed by:

- N° 1 input filter that allows connecting the unit directly to the line voltage
- N° 1 DC/AC inverter to supply three-phase loads
- N°1 DC/DC converter to charge the batteries and supply low voltage loads

Functionality

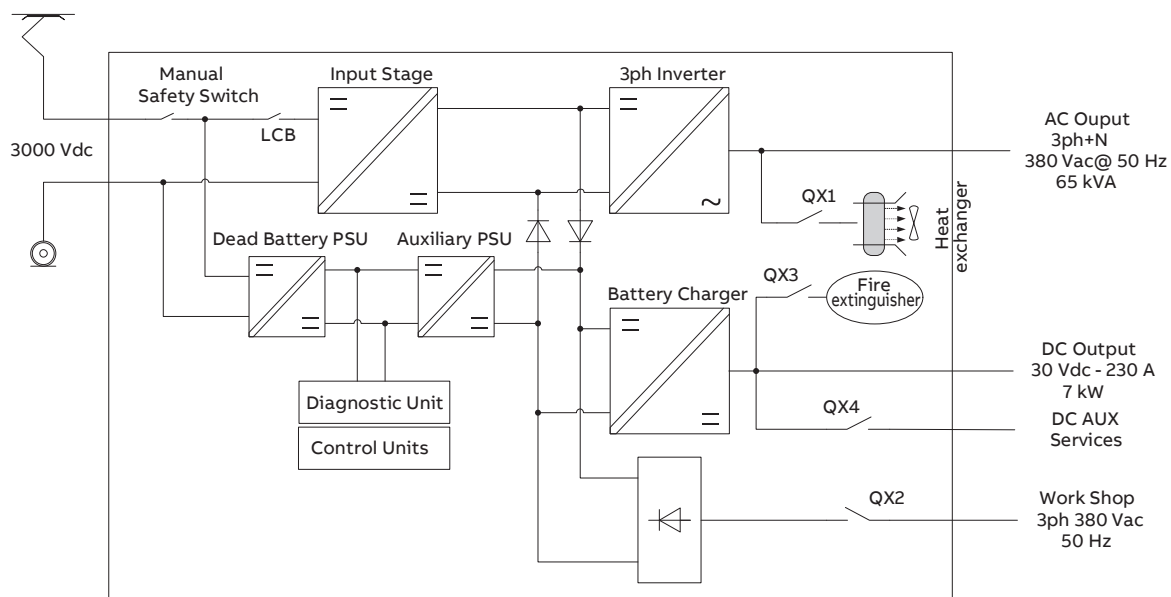
The converter is powered by the catenary line through an integrated input filter. Its function is to protect the unit when an energy transient occurs on the power line. A patented DC/DC converter provide galvanic insulation between converter input and output. An autostarter system is provided to switch on the converter when the battery voltage is insufficient or totally absent. The three-phase inverter, due to the installed sine filter, generates a sine wave three-phase voltage at the converter output. A V/F control is implemented to limit the inrush current when a heavy load is powered. An insulated DC/DC converter is available to convert the 700 Vdc bus in a 24 Vdc to supply low voltage loads and charge the battery. Each module includes all components for the specific function to simplify maintenance. The substitution of fault module solves the problem in the section.

The quick release system (cooling and powers connections) minimizes time of service and not working vehicle too. The use of modular technology and liquid cooled system allows to obtain an excellent ratio between dimensions and weight.

Characteristics

- IGBT technology
- Integrated sine filter
- Fed by 3000 Vdc catenary (2000 Vdc - 4000 Vdc)
- Modular concept with independent and extractable modules
- Integral liquid cooling system with fast on/fast off pipes connections
- Safety earth switching
- Easy and fast maintenance
- Auto extinguishing system (optional)

Technical data	BORDLINE® M60 DC_3kV
Input voltage	3000 Vdc (2000 Vdc - 4000 Vdc)
AC output voltage	380 Vac 50 Hz 3ph+N
AC nominal power	65 kVA + 2,5 kVA
DC loads and battery charger	300 A at 24 Vdc
Protection degree	IP45 + IP20
Dimensions (L x W x H)	1400 x 695 x 1650 mm.
Ambient temperatures	-25°C +50°C
Weight	1000 kg
Communication interface	USB



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01 Block diagram of
BORDLINE® M60 DC_3kV

Control and monitoring

A USB connection for local monitoring and diagnostic data download is available.

Cooling system

The converter is cooled by liquid cooling with fast on/fast off system without liquid leakage.

Mechanical design

The metal structure, based on stainless steel material, has been designed to be mounted inside the coach.

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. It permits to monitor converter status, check alarms history and firmware upload.

Application example

BORDLINE® M60 DC_3kV is mounted on regional coaches running in Italy. ABB converter has been designed for retrofit program.