BATTERY CHARGER

BORDLINE® M60 AC_480V

For rolling stock applications

The BORDLINE® M60 battery charger is a compact, rugged unit developed for railway vehicles to supply DC loads and charge the batteries.

—
BORDLINE® M60 AC_480V for all rolling stock applications

System overview

The battery charger is based on IGBT technology.

BORDLINE® M60 AC contains the following functional blocks:

- Three-phase input rectifier to produce a DC intermediate bus
- DC/DC converter providing galvanic isolation
- Digital control based on microprocessor/DSP
- Customer Interface based on MVB
- Redundant cooling system

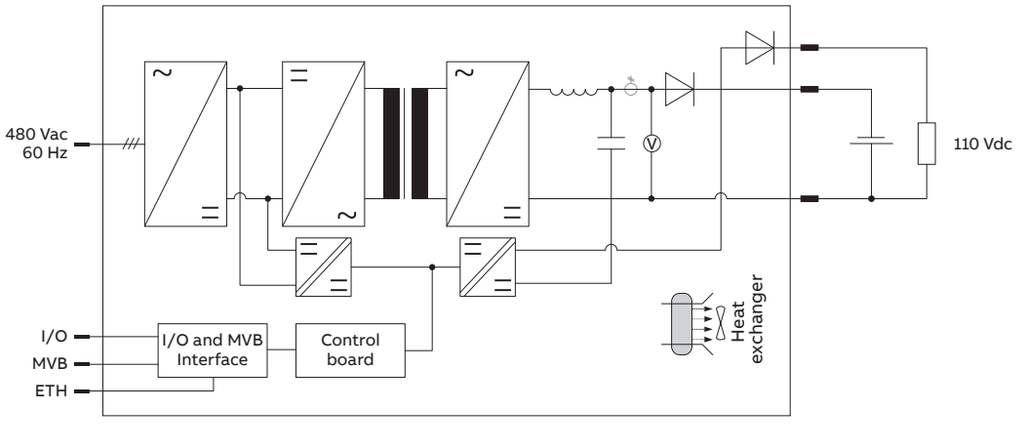
Functionality

The BORDLINE® M60 AC battery charger turns an input nominal AC voltage to a DC output to charge batteries and supply DC loads.
The converters operate at high switching frequencies allowing for low ripple voltage and compact build size.

Characteristics

- DSP technology
- Rugged design
- On board installation
- Reliable thanks to consolidated building blocks

Technical data	BORDLINE® M60 AC_480V
AC voltage input	480 Vac 60 Hz
DC voltage output, nominal	110 Vdc
DC output power	60 kW
Protection degree (rack-mounted)	IP54
Operating temperature range	-25°C .... +55°C
Diagnostic interface	Ethernet
TCMS interface	MVB
Dimensionen (L x W x H)	1000 x 1035 x 1900 mm
Weight	450 kg



—
Block diagram of
BORDLINE® M60 AC_480V

Control and monitoring
The converter is fully digital controlled by using a digital signal processor (DSP). The control unit monitors voltages, currents and internal temperatures to protect the device. External overload conditions such as short circuit, excessive ambient temperature, overvoltage are handled safely. The driver electronics supply the trigger signals for the power semiconductors and are also responsible for the protection of the power semiconductors. All outputs are short-circuit proof.

Control interface
Monitoring and configuration of the converter is provided by means of MVB interface connected to TCMS.

Cooling system
The unit is cooled by air forced cooling with internal air to water heat exchanger used to cool power semiconductors 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 on board of coaches or in the machine room in vertical position.

Diagnostics and service
The converter has been designed with highly standardized components, high reliability, excellent spare parts availability, and optimized life-cycle costs. For maintenance, a Ethernet communication interface is available.

Application example
BORDLINE® M60 AC is used in high speed trains running in Saudi Arabia. Each power head is equipped with one battery charger.

—
ABB Spa
Traction
Via Albareto 35
16153, Genova Italy
traction.converters@it.abb.com

abb.com/railway
abb.com/auxiliaryconverters

1SDC150018L0201 2018-23-07