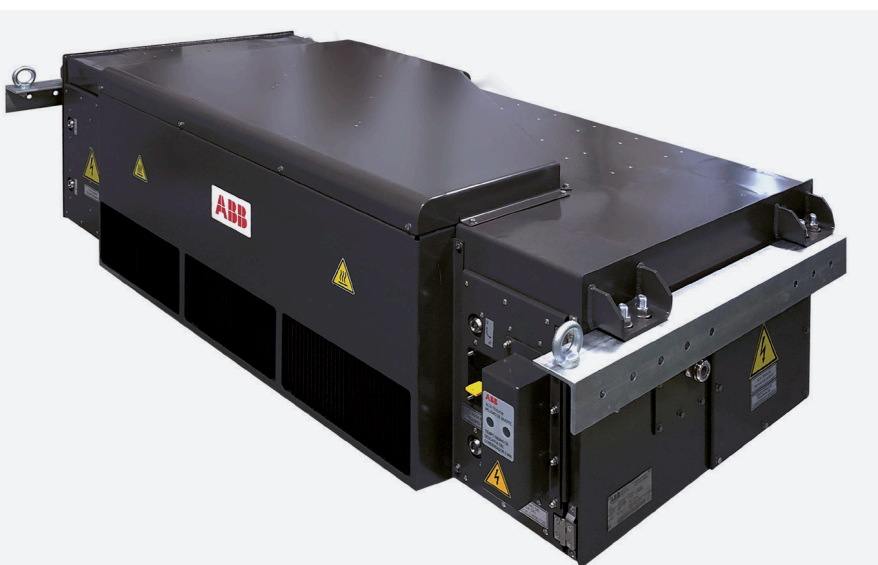


AUXILIARY CONVERTER

BORDLINE® M50 DC_1500V_U

For metro cars



The BORDLINE® M50 DC static converter is a compact, rugged unit developed to feed auxiliary services of metro cars and supply DC loads.

System overview

The BORDLINE® M50 DC converter is based on modern IGBT technology.

The system is composed by:

- DC/DC high voltage converter directly supplied by the catenary to generate a galvanic isolated and regulated DC-Link
- N° 1 DC/AC inverter (DC-Link/220 Vac 60 Hz 3ph - 50 kVA) to supply AC loads
- N° 1 BORDLINE® BC Battery charger (DC-Link/110 Vdc – 8.5 kW)

Functionality

A DC/DC high voltage converter is directly supplied by the catenary to generate a galvanic isolated and regulated DC-Link.

A not isolated 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 (e.g. compressor).

One battery charger module (BORDLINE® BC) is available to supply DC electronic loads of the vehicle at 110 Vdc.

The battery charger module can be also supplied by 230 Vac 60Hz.

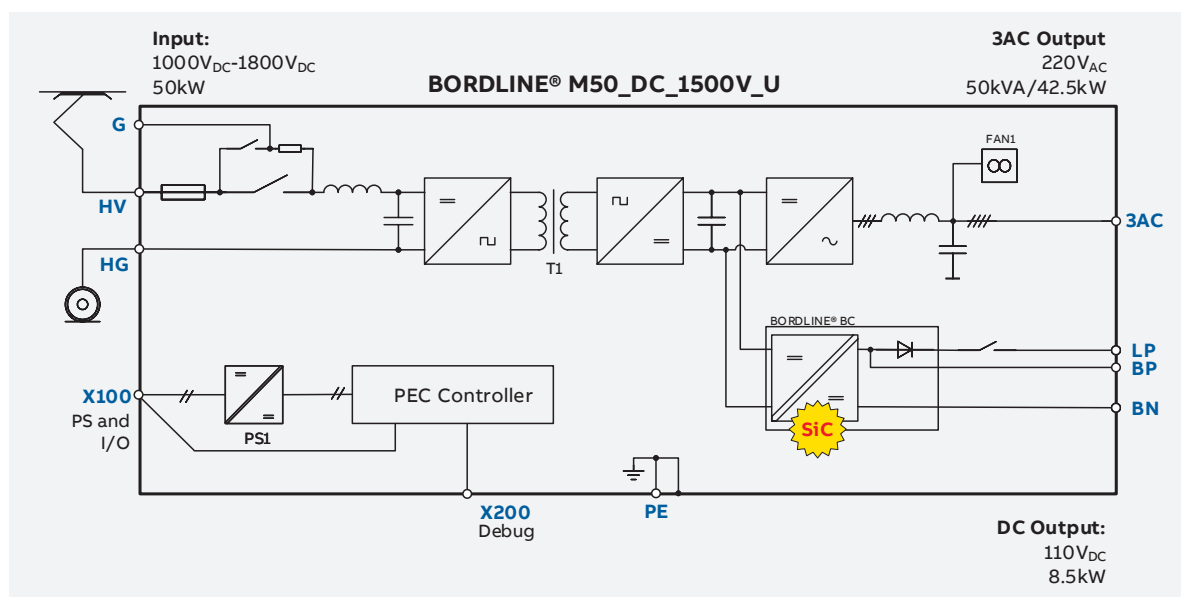
The BORDLINE® M converter can be used, optionally, to obtain an AC distribution train bus. Up to 6 converters can be synchronized and connected in parallel, independently of the distance between converters.

Characteristics

- IGBT technology
- Compact and robust design
- Integrated sine filter
- Fed by 1500 Vdc catenary (1000 Vdc - 1950 Vdc)
- Integrated battery charger module (BORDLINE® BC)
- CANOpen communication bus
- Full digital control
- Underfloor installation

Technical data

Input Voltages	1500 Vdc (1000 Vdc - 1950 Vdc)
Output Voltages	220 Vac 60 Hz 3ph – 50 kVA 110 Vdc - 8.5 kW
Protection degree	IP65
Operating temperature range	-20°...+40°C
Communication Interface	CANOpen
Dimensions	2000 x 845 x 560 mm
Weight	400-425 kg



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Control and monitoring

Control system of BORDLINE® M auxiliary converter is based on the AC800 PEC control platform. AC800 PEC controller is a modular high speed programmable and measurement device, which is used widely in several industrial & traction control applications.

The operating conditions of the converter as well as various analogue values can be transmitted as outputs over the bus. A CANOpen interfaces is available to communicate to TCMS.

Cooling system

The converter is cooled by forced air. The internally mounted fan and the air duct are integral parts of the onboard converter. A thermal monitoring device protects the converter from becoming overheated.

Mechanical design

The metal structure, based on galvanized aluminum material, has been designed for IP65 protection and to be mounted on metro cars (underfloor). The complete equipment contains replaceable modules. All power modules are single and independent LRUs which contains all active component Each LRU can be easily removed outwards and upwards.

Diagnostics and service

The service-friendly modular design with highly standardized components ensures high reliability, excellent spare parts availability, and optimized lifecycle costs.

For maintenance a diagnostic interface (Ethernet) is available. Further data can be obtained using a standard PC and the BORDLINE® View, a diagnostic tool that includes an advanced self-diagnosis function, which provides advice and instructions for service and repair.

Application example

BORDLINE® M50 DC_1500V are designed to be mounted on Medellin metro cars for a revamping project.