

## AUXILIARY CONVERTER

# BORDLINE® M130 AC

## Auxiliary converter for rolling stock applications



BORDLINE® M130 AC converts the power from the 25 kV / 50 Hz line into 415 V<sub>AC</sub>, three-phase auxiliary power for running auxiliaries of rolling stock applications.

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01 Auxiliary converter  
BORDLINE® M130 AC

### System overview

Incoming single-phase supply (25 kV / 50 Hz) from the catenary is stepped down by the on-board traction transformer (1000 V<sub>AC</sub>) and fed to the BORDLINE® M130 AC auxiliary converter. The auxiliary converter delivers the required power for the auxiliaries in the locomotive.

Each auxiliary converter BORDLINE® M130 AC contains the following main parts:

- AC/DC rectifier module
- Intermediate DC-link filter
- IGBT based DC to AC inverter.
- Three phase sine filter module.
- PEC80 (PP D234A) control module.

### Auxiliary converter

BORDLINE® M130 AC auxiliary converters are compact rugged units equipped with state-of-the-art IGBT based Power Electronic Building Blocks (PEBBs), specially designed for use in railway vehicles. These PEBB modules, together with their hardware managers, provide a modular and reliable solution for auxiliary applications.

With optimized switching patterns and switching frequency, BORDLINE® M130 AC generates a sinusoidal voltage waveform, which reduces the harmonic losses, the audible noise and the mechanical stress on the motor.

### Characteristics

- Air cooled Power Electronic Building Blocks (PEBB)
- AC/DC half controlled asymmetric rectifier
- Auxiliary control platform (PEC80)
- IGBT based Three Phase Inverter with sine filter
- Energy efficient power conversion
- Closed IP54 Power cabinet
- Service-friendly construction with 'handy' modular building blocks

Technical data	BORDLINE® M130 AC
AC voltage input	1000 V <sub>AC</sub>
Auxiliary output	3 x 415 V <sub>AC</sub> , sine wave, 50 Hz, 130 kVA
Bus Interface	CANopen / MVB
Dimensions (L x W x H)	1160 x 1020 x 1830 mm



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01 Indian Railways locomotive  
02 Blockdiagram BORDLINE® M130

### Powerful control platform

ABB's control platform PEC80 (PP D234A) is used in all auxiliary converters, as well as in a wide range of industrial applications.

The auxiliary converter has a powerful processor paired with an intelligent control and real time monitoring system best suited for traction applications.

### Control Interface

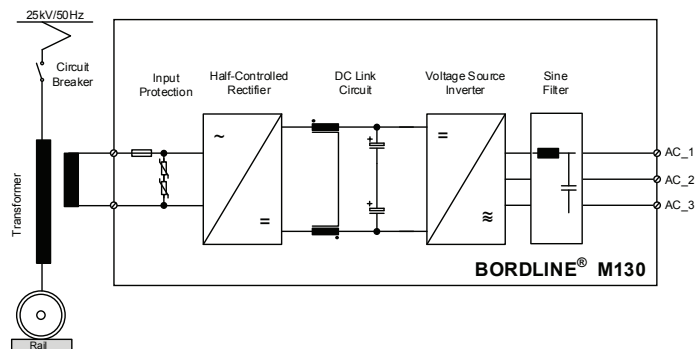
The auxiliary converter is compatible with CANopen and MICAS-S2 or TCN based vehicle control unit through Multifunctional Vehicle Bus (MVB) interface via OGF/EMD/ESD.

### Cooling system

The equipment is efficiently air cooled. An internal blower provides forced air circulation inside the cubicle.

### Mechanical design

BORDLINE® M130 AC is housed in an IP54 compartment for control electronics, power modules, power supplies, switch gear, sine filter capacitor, resistors and internal churning fans, designed for mounting in the machine room. Due to its modular design, it allows easy maintenance access.



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### Diagnostic and service

The service-friendly modular design with highly standardized components ensures high reliability, excellent spare parts availability, and optimized life-cycle costs. The auxiliary converter is delivered with BORDLINE® View, a diagnostic tool that visualizes signals, various parameters and the state of the converter. It consists of an advanced self-diagnosis function, which provides advice and instructions for service and repair. BORDLINE® View is easy to use and runs on a standard PC.

### Example of application

BORDLINE® M130 AC is in operation in the locomotives of Indian Railways.

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