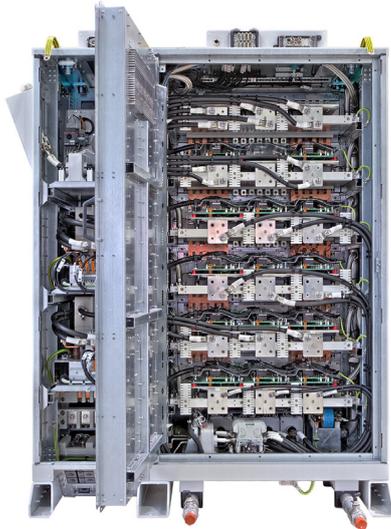


COMPACT CONVERTER

BORDLINE® CC1500 DE

For diesel-electric locomotives



BORDLINE® CC1500 DE converts diesel generator power into propulsion power for the traction motors and auxiliary power for onboard consumers (AC, DC and battery).

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BORDLINE® CC1500 DE
for diesel-electric
regional trains (DMU)

Characteristics

- Designed for cargo and passenger applications
- High energy efficiency
- Light and compact design
- Single axle control for redundancy and adhesion performance
- Adaptive switching frequency for harmonic loss reduction

System overview

BORDLINE® CC1500 DE converts the various generator voltages into drive power for the traction motors, three-phase auxiliary power supply for the locomotive and head end power (HEP) for passenger coaches (where applicable).

BORDLINE® CC1500 DE consists of:

- 1 rectifier
- 1 braking chopper
- 1 auxiliary converter for locomotive consumption
- 1 HEP (only for passenger version)
- 2 propulsion converters
- DC-link filter
- AC 800PEC control

Propulsion converter

BORDLINE® CC1500 DE is a robust and solid unit incorporating modern IGBT technology, that controls each traction motor individually. With optimized switching patterns and high switching frequency, BORDLINE® CC1500 DE generates a quasi-sinusoidal current waveform, which reduces the harmonic losses, the audible noise and the mechanical stress on the traction motor.

Auxiliary converter

The auxiliary converter module supplies the electricity requirements for the locomotive (i.e., blowers, compressor, and pumps). It also generates a current limited three-phase 60Hz output voltage directly from the DC-link voltage.



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01 EUROLIGHT
diesel-electric
locomotive
Photo: Stadler

02 Block diagram
BORDLINE® CC1500 DE

Powerful control platform

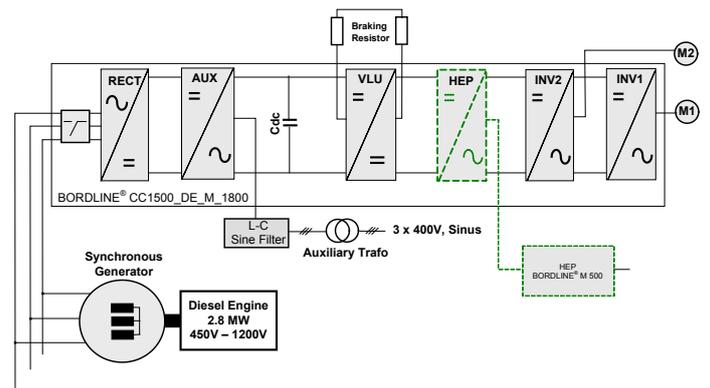
ABB traction converters are built on the AC 800PEC control platform, one of the most powerful modular controller for high-speed performance on the market. This control platform is also used in a wide range of industrial applications. The AC 800PEC software is implemented on three performance levels, thus providing an excellent range of control and communication functionality, in cycle times that extend from the sub-microsecond to the millisecond level. Compared to most other commercially available traction control systems, the modular application software in the AC 800PEC reduces train commissioning time significantly.

Cooling system

The equipment is efficiently liquid cooled, allowing for a very compact construction. The temperature of the coolant is lowered using an external heat exchanger. An internal blower provides forced air circulation inside the cubicle, and passes the losses via an internal air/liquid heat exchanger to the main cooling circuit. An additional external ventilation of the power section can thus be dispensed with.

Mechanical design

BORDLINE® CC1500 DE is housed in an IP54 cabinet, designed for mounting within the machine room. Due to its modular design, it allows for easy access for maintenance.



02

Diagnostics and service

The service-friendly modular design with highly standardized components ensures high reliability, excellent spare parts availability, and optimized life-cycle costs. The Compact Converter is delivered with BORDLINE® View, a diagnostic tool that visualizes signals, various parameters and the state of the traction system. 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.

Application example

BORDLINE® CC1500 DE is mounted in Stadler's light-weight diesel-electric locomotive EUROLIGHT for the European market. The locomotives come in freight and passenger versions.

Technical data	BORDLINE® CC1500 DE_M_1800
Generator voltage	3 x 440 - 1200 V / 22 - 90 Hz
Propulsion output	3 x 0...1200 Vac, 600 kW at wheel
Braking chopper	1050 kW
Auxiliary converter	3 x 480 V, 90 kVA
Vehicle control interface	CANopen
Mounting position	machine room
Dimensionen (L x W x H)	1350 x 850 x 1910 mm
Weight	1140 kg

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