

COMPACT CONVERTER

BORDLINE® CC400 DC

For light rail vehicles with 600/750 Vdc line voltage



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BORDLINE® CC400 DC
for light rail vehicles

Characteristics

- All power electronics (traction and auxiliary power) in one box
- Ultra-low noise operating mode
- Easy maintenance
- Standard ABB modules
- Redundant propulsion control

System overview

The BORDLINE® CC400 DC converters are compact, modular, rugged units based on modern IGBT technology and designed for light rail vehicle applications.

BORDLINE® CC400 DC Compact Converter contains:

- 2 independent propulsion converters
- 2 main switches
- 2 line filters
- 2 braking choppers
- Auxiliary converter with external transformer
- 2 battery chargers
- 2 AC 800PEC control modules

Propulsion converter

Each propulsion converter is able to control two motors and the according braking chopper. During braking operation the energy will be recuperated or, if the line is not receptive, dissipated in the resistors.

The Compact Converter

BORDLINE® CC400 converts 600 Vdc or 750 Vdc line voltage into propulsion power to control and drive the traction motors and auxiliary power to supply the onboard loads.

Auxiliary converter

The auxiliary converter provides a three-phase sinusoidal AC voltage output and a DC voltage output for charging the battery. Both outputs are galvanically insulated from the DC line voltage.

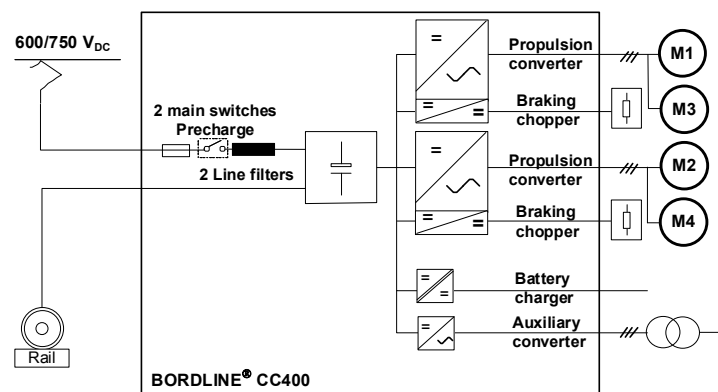
Powerful control platform

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.



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01 Baltimore light rail vehicle
02 Simplified main circuit of BORDLINE® CC400 DC



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Cooling system

The equipment is efficiently cooled using forced air. The air-flow has been optimized to its fullest extent to provide an ultra low-noise operating mode.

Mechanical design

The BORDLINE® CC400 is housed in an IP65 aluminum cabinet, which results in a very low overall weight. The equipment is designed for under-floor mounting. Due to its modular design, it offers easy maintenance access.

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 examples

Baltimore's entire fleet of fifty-three light rail vehicles, operated by Maryland Transit Administration (MTA) will be refurbished. The modernization includes the replacement of the existing traction equipment, using BORDLINE® CC400 DC for propulsion with an integrated battery charger, and the supply of a new Train Control Management System (including both hardware and software). In addition to the converters, ABB will design and supply new electrical distribution and control panels, including ABB low voltage components and high-speed. The new traction system will offer higher reliability and higher energy efficiency, as well as a more comfortable ride for the passengers.

Technical data	BORDLINE® CC400 DC_750V_U_800
Input voltage	600 / 750 Vdc
Propulsion output	0...545 Vac, 2 x 400 kW at wheel
Braking chopper	2 x 850 kW
Auxiliary converter	3 x 208 V / 60 Hz, 90 kVA
Battery charger	39 Vdc, 2 x 11 kW
Vehicle control interface	CANopen, MVB, I/Os
Mounting position	underfloor
Dimensionen (LxWxH)	2000 x 1700 x 460 mm
Weight	800 kg

ABB Switzerland Ltd
Traction
Austrasse
5300 Turgi, Switzerland
sales.traction@ch.abb.com

abb.com/railway
abb.com/tractionconverters

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