COMPACT CONVERTER

BORDLINE® CC400 DC

For light rail vehicles with 600/750 Vdc line voltage



The Compact Converter BORDLINE® CC400 DC 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.

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BORDLINE® CC400 DC for light rail vehicles

Characteristics
- All power electronics (traction and auxiliary power) in one box
- Minimizes vehicle weight
- Easy maintenance
- Standard ABB modules
- Flexible mounting (roof or under-floor)

System overview
The BORDLINE® CC400 converters are compact, modular, rugged units based on modern IGBT technology and designed for LRV applications.

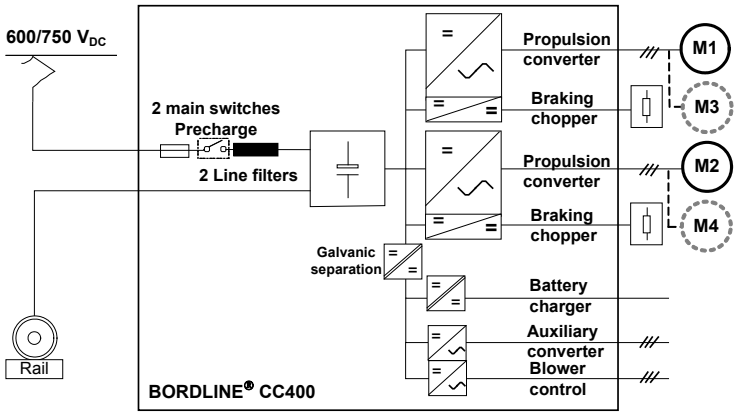
BORDLINE® CC400 Compact Converter contains:
- 2 independent propulsion converters
- 2 main switches
- 2 line filters
- 2 braking choppers
- Integrated auxiliary converter (50 Hz)
- Integrated auxiliary converter (variable speed)
- Integrated battery charger
- AC 800PEC control module

Propulsion converter
The converter can be used for high floor 'metro-type' cars (–> axle control, under-floor mounted) as well as, for low floor trams (–> no axles, individual wheel control, roof-mounted). Each propulsion converter is able to control either one or two motors and the according braking chopper. During braking operation the energy will be recuperated or, if not possible, dissipated in the resistors.

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.



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01 Bochum-Gelsenkirchener Strassenbahn AG (BOGESTRA), Germany
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02 Simplified main circuit of BORDLINE® CC400 DC

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 cooled using service water, allowing a very compact construction. The temperature of the coolant is lowered using an external heat exchanger.

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 mounting under-floor, on the roof or in the machine room (e.g. monorail) of the vehicle. Due to its modular design, it offers easy maintenance access in both cases.

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.

References

Light rail vehicles in operation or ordered in the following cities: Aarhus (DK), Baltimore (US), Basel (CH), Bergen (NO), Bochum (DE), Bologna (IT), Changchun (CN), Chengdu (CN), Changsha (CN), Detroit (US), Milwaukee (US), Croydon (GB), Dallas (US), Geneva (CH), Graz (AT), Lyon (FR), Mainz (DE), Munich (DE), Oklahoma (US), Nuremberg (DE), Potsdam (DE), Santos (BR) and Seattle (US).

Technical data	BORDLINE® CC400 DC_750V
Input voltage	600 / 750 Vdc
Propulsion output	0...500 Vac, 2 x 150 kW at wheel
Braking chopper	2 x 250 kW
Auxiliary converter	3 x 400 V / 50 Hz, 35 kVA
Blower control	3 x 400 V / 0...60 Hz, 5 kVA
Battery charger	24 / 36 / 72 / 110 Vdc, 8 kW
Vehicle control interface	CANopen, I/Os
Dimensions (L x W x H)	1600 x 1800 x 430 mm
Weight	550 kg

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

abb.com/railway
abb.com/tractionconverters

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