

AUXILIARY CONVERTER

BORDLINE® M30 DC_750

For light rail vehicles with 600/750 Vdc line voltage



The BORDLINE® M30 DC static converter is a compact, rugged unit used to generate onboard supply voltages for light rail vehicles. Due to its wide input voltage range, the converter works with nominal grid voltages of 600 Vdc and 750 Vdc. The integrated input filter allows the converter to be connected directly to the catenary line.

—
BORDLINE® M30 DC_750
for light rail vehicles

System overview

The BORDLINE® M30 DC static converter is realized with modern IGBT technology and provides a three-phase sinusoidal AC voltage output and a DC voltage output for charging the battery.

BORDLINE® M30 DC auxiliary converter contains:

- Input and EMC filter with input fuses (1)
- Pre-charging unit (1)
- DC/DC converter with galvanic insulation (2)
- Three-phase inverter (3) with sine-filter (4)
- DC/DC converter for battery charging (5)
- AC 800PEC main control module (6)
- Electronics power supply (7)

DC/DC converter

The DC/DC converter (2) generates the DC voltage for the regulated intermediate DC-link. The transformer ensures the galvanic separation of the output voltage from the overhead conductor voltage.

Three-phase inverter

The three-phase inverter, due to the installed sine-filter generates, a sinusoidal voltage at the converter output, which can be connected to standard three-phase motors. High overload capability and a soft-start function permit trouble-free starting of heavy loads (e.g. compressors).

Battery charger

For charging the batteries and supplying the vehicle DC loads an independent DC/DC converter (5) with galvanic insulation is available.

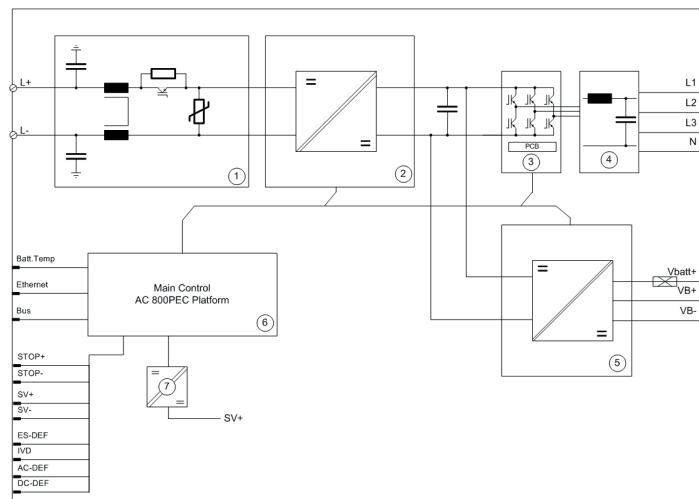
The battery is charged in accordance with an IU charging curve with temperature compensation. A separate output is provided for the vehicle DC loads.



01

01 Alstom Citadis tramway in Nice, France

02 Block diagram BORDLINE® M30 DC_750



02

Powerful control platform

The main control is based on ABB's AC 800PEC control platform electronics and is structured so that every power section (AC or DC) can work independent of each other. Both outputs are short-circuit proof. The control electronics also monitor voltages, currents and internal temperatures.

Cooling systems

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

Mechanical design

The equipment is housed in dust and waterproof cabinet (IP65) and is suitable for either roof or under-floor mounting. The auxiliary converter features a modular design. The heat sinks are partitioned so that the individual modules can be easily removed and replaced.

Diagnostics and service

The service-friendly modular design with highly standardized components ensures high reliability,

excellent spare parts availability, and optimized life-cycle costs. For maintenance, an Ethernet interface 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. All major bus systems are available (MVB, CAN, etc.).

Application example

BORDLINE® M30 DC_750 is operating in the highly successful Citadis low-floor trams in the cities of Santa Cruz de Tenerife, Montpellier, Nice, and Dublin.

Technical data	BORDLINE® M30 DC_750
DC line voltage	600/750 Vdc
Three-Phase AC output	3 x 400 V/50 Hz, 19 kVA
DC output	24 Vdc, 12 kW
DC output options	36/48/72/110 Vdc
BUS interface	CAN, MVB
Product options	Flat battery start device
Dimensions (LxWxH)	1400 x 850 x 450 mm
Weight	< 230 kg

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

abb.com/railway
abb.com/tractionconverters

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document. We reserve all rights in this document

and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB AG. Copyright© 2018 ABB All rights reserved