

## AUXILIARY CONVERTER

# BORDLINE® M55 DC\_750V

For light rail vehicles with 600/750 Vdc train line voltage



The BORDLINE® M55 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.

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BORDLINE® M55 DC\_750  
for passenger coaches

### System overview

The BORDLINE® M55 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® M55 DC 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

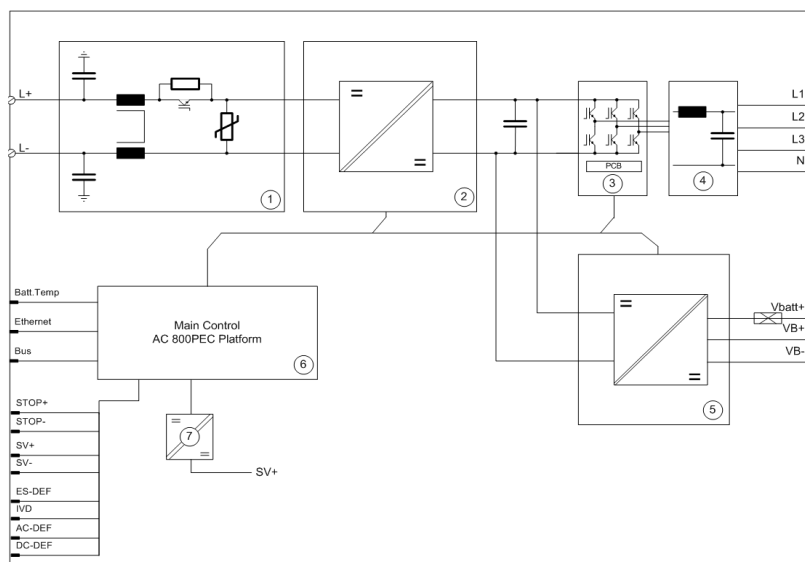
The DC/DC converter (2) generates the DC voltage for the regulated intermediate DC link. The transformer ensures the galvanic separation of the output voltage from the overhead conductor voltage.

### 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.



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Block diagram for  
BORDLINE® M55 DC\_750V

### Control and monitoring

The main control is based on ABB's AC 800PEC control platform electronics and is structured so that each 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 a 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.).

| Technical data        | BORDLINE® M55 DC_750V     |
|-----------------------|---------------------------|
| Train line voltage    | 600 / 750 Vdc             |
| Three-Phase AC output | 3 x 400 V / 50 Hz, 55 kVA |
| DC output             | 24 Vdc, 12 kW             |
| DC output options     | 6 / 48 / 72 / 110 Vdc     |
| BUS interface         | CAN, MVB                  |
| Product options       | Flat battery device       |
| Dimensions (LxWxH)    | 1800 x 756 x 450 mm       |
| Weight                | < 320 kg                  |