

AUXILIARY CONVERTER

# BORDLINE® M8 DC\_750V

## For light rail vehicles (LRVs)



The BORDLINE® M8 DC static converter is a compact, rugged unit developed to feed air compressors of the tram.

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BORDLINE® M8 DC\_750V  
for LRV

### System overview

The BORDLINE® M8 DC converter is based on modern IGBT technology.

The system is composed by:

- N° 1 input filter for the catenary voltages (750 Vdc)
- N° 1 DC/AC inverter with adjustable output frequency up to 50Hz (400 Vac 50 Hz 3ph) to supply air compressor

### HV Input Filter (750 Vdc)

The converter is powered by the catenary line through an Input Filter (no galvanic insulation is provided between converter input and MV output) – the filter working range is between 525 Vdc and 975 Vdc and it is protected by an external fuse.

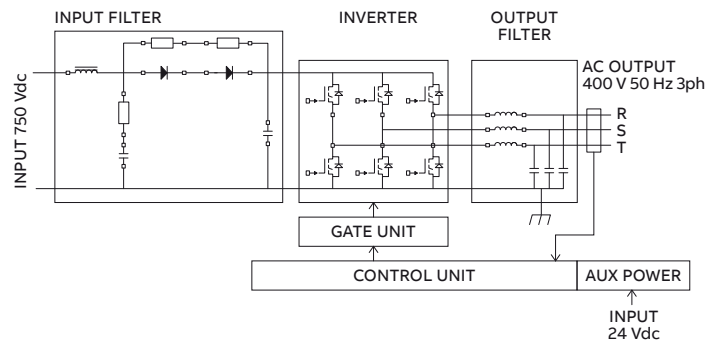
### 3Ph inverter (750 Vdc/380 Vac 50Hz 3Ph)

The three-phase inverter, due to the installed sine-filter, generates a sine wave three-phase voltage at the converter output. A V/F control is implemented to limit the inrush current when a heavy load is powered (e.g. compressors). The nominal output power is 8,7 kVA with a 23 kVA peak up to 10 sec.

### Characteristics

- IGBT technology
- Compact and robust design
- Integrated sine filter
- Fed by 750 Vdc catenary (525 Vdc - 975 Vdc)
- Output: 400 Vac 50 Hz 3ph
- Ethernet diagnostic
- Full digital control
- Underfloor installation

Technical data	BORDLINE® M8 DC_750V
Input voltage	750 Vdc (525 Vdc - 975 Vdc)
Output voltage	400 Vac 50 Hz 3ph
Protection degree	IP65
Dimensions (L x W x H)	990 x 430 x 423 mm
Ambient temperatures	-25°C +70°C
Weight	< 80 kg
Communication interface	Ethernet



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01 Tramways, Turkey  
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02 Block diagram of  
BORDLINE® M8 DC\_750V

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### Control and monitoring

The converter is full digital controlled (DSP technology). The monitoring of the converter is supported by Ethernet interface (via RJ-45 connector). A web server, compatible with the most common browsers (e.g. Internet Explorer), on the diagnostic board provides monitoring of converter status.

### Cooling system

The converter is cooled by natural convection.

### Mechanical design

The metal structure is stainless steel with IP65 protection and it has been designed for a roof mounting. The converter has been designed for a reliable outdoor application, for an easy diagnostic status when installed in the vehicle and an easy maintenance in the lab.

### 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 a diagnostic interface (Ethernet) is available. It permits to monitor converter status and alarms history.

### Application example

BORDLINE® M8 DC\_750V is mounted on trams running in Istanbul. ABB converter has been designed for a new tramway design project.