The BORDLINE® M7 DC static converter is a compact, rugged unit developed to feed air compressor of breaking system of the vehicle.

**System overview**
The BORDLINE® M7 DC converter is based on modern IGBT technology.

The system is composed by:
- N° 1 input filter that allows connecting the unit directly to the line voltage
- N° 1 DC/AC inverter with adjustable output voltage and frequency 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 output). Its function is to protect the unit when an energy transient occurs on the power line.

**3ph inverter (750 Vdc/380 Vac 42 Hz 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
- Output: 380 Vac 42 Hz 3ph
- Ethernet diagnostic
- Full digital control
- Underfloor installation

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**Technical data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>BORDLINE® M7 DC_750V</th>
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</thead>
<tbody>
<tr>
<td>Input voltages</td>
<td>750 Vdc (525 Vdc - 975 Vdc)</td>
</tr>
<tr>
<td>Output voltage</td>
<td>380 Vac 42 Hz 3ph</td>
</tr>
<tr>
<td>Output power</td>
<td>8,7 kVA</td>
</tr>
<tr>
<td>Protection degree</td>
<td>IP65</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>987 x 280 x 425 mm</td>
</tr>
<tr>
<td>Ambient temperatures</td>
<td>-25°C +70°C</td>
</tr>
<tr>
<td>Weight</td>
<td>70 kg</td>
</tr>
<tr>
<td>Communication interface</td>
<td>Ethernet</td>
</tr>
</tbody>
</table>
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 underfloor 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, check alarms history and firmware upload.

Application example

BORDLINE® M7 DC_750V is mounted in metro cars running in Lille (France). ABB converter has been designed for a revamping project of metro coaches commissioned by Lille railway operator (Transpole).