Fuel Cell DC/DC Converter (FCDD)

Standard Features

- Completely qualified
- Remotely controllable
- Easy programmable
- Low noise
- High efficiency
- High reliability
- Low life cycle costs
- Short circuit protected

Support Service

- Complete Integrated Logistic Support (ILS)

State of the art submarines having DC-mains as their primary source are today more and more fitted out with Fuel Cells as their Air-Independent Propulsion (AIP) System. These Systems require their own right sized controllable power supply to be integrated within the DC-main supply.

All parameters of the FCDD for driving a motor can be programmed by a parameterization console integrated in the Local Operation Plant (LOP). A certain number of parameters are factory settings to be programmed by using a password. Output over current and short current detection as well as the general remote control of a number of equipment parameters via the interfaced ship control system are given.
### Fuel Cell DC/DC Converter (FCDD)

#### Bulletin 6420

**External Communication**
- Digital and analog

**Physical Characteristics**
- **Dimensions (H x W x D) mm**
  - 1800x1200x600 (1800x2000x600)
- **Weight (kg)**
  - 800 kg (1400 kg)
- **Protection Grade**
  - IP 23 / IP 43
- **Cooling**
  - Seawater cooled with integrated water/air heat exchanger

**Environmental Characteristics**
- **Operation Temperature**
  - 0°C to +50°C
- **Storage Temperature**
  - -30°C to +70°C
- **Relative Humidity**
  - Max. 90%
- **Shock**
  - Half sinus 22g for 30 ms
- **EMI/EMC**
  - MIL-STD 461E: CE101, CE102; RE 101, RE102

### Electrical Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>120 kW (240 kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage</td>
<td>210 - 290 VDC</td>
</tr>
<tr>
<td>Dynamic Range</td>
<td>160 - 360 VDC</td>
</tr>
<tr>
<td>Input Current</td>
<td>0 - 560 A (0 - 1120 A)</td>
</tr>
<tr>
<td>Voltage Spikes</td>
<td>400 V for 0.1 ms</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>520 - 750 VDC</td>
</tr>
<tr>
<td>Output Current</td>
<td>0 - 216 A (0 - 432 A)</td>
</tr>
<tr>
<td>Efficiency</td>
<td>93.5% at 100% load</td>
</tr>
<tr>
<td>Output Power</td>
<td>120 kW (240 kW)</td>
</tr>
<tr>
<td>External Communication</td>
<td>Digital and analog</td>
</tr>
</tbody>
</table>

### 240 kW Version - Fuel Cell DC/DC Converter

![Image of 240 kW Fuel Cell DC/DC Converter]

**Specification subject to change without notice**