Saft M 20 EX SV
Primary Li-MnO\textsubscript{2} cell

3 V lithium manganese dioxide D-size spiral cell certified for ATEX applications

Saft’s M 20 EX SV cell is ideally suited for applications requiring high energy and long operating life, with stable voltage under high discharge in - 40°C / + 72°C environment. The cell is certified according to ATEX and IECEx for use in potentially explosive atmospheres.

**Benefits**
- High drain / high pulse capability
- High voltage response, stable during most of the lifetime of the application even after long dormant periods
- High capacity and very high pulse capability
- Low self-discharge compatible with long operating life (less than 1% after 1 year of storage at + 20°C)
- ATEX and IECEx certified
- Superior resistance to corrosion
- Low magnetic signature

**Key features**
- Spiral construction
- Hermetic construction with glass-to-metal seal
- Stainless steel container
- Integrated safety vent
- Non-corrosive electrolyte
- Non-pressurized at room temperature
- Restricted for transport (Class 9)
- Made in Germany

**Designed to meet all major quality, safety and environmental standards**
- Safety: UL 1642 (File MH 61234)
- ATEX/IECEx: IEC 60079-0, IEC 60079-11
- Transport: UN 3090 and UN 3091
- Military: VG96915 part 2 and part 154
- Quality: ISO 9001, Saft World Class Continuous program
- Environment: ISO 14001

**Typical applications**
- Smart gas meters
- Gas and oil tank level monitoring
- Leak detectors
- Portable gas detectors
- Petrochemical facilities
- Mining applications

**Electrical characteristics**

<table>
<thead>
<tr>
<th>[Typical values relative to cells stored up to one year at + 30°C max]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal capacity (at 150 mA, + 20°C, 2.0 V cut-off) (1)</td>
</tr>
<tr>
<td>Open circuit voltage (at + 20°C)</td>
</tr>
<tr>
<td>Nominal voltage (under 1 mA at + 20°C)</td>
</tr>
<tr>
<td>Nominal energy (at 150 mA, + 20°C, 2.0 V cut-off)</td>
</tr>
<tr>
<td>Pulse capacity (2)(3) up to 8.0 A</td>
</tr>
</tbody>
</table>

**Operating conditions**

<table>
<thead>
<tr>
<th>Operating temperature range</th>
<th>Recommended</th>
<th>Allowable (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 40°C / + 72°C (- 40°F / + 161°F)</td>
<td>- 55°C to + 90°C (- 67°F / + 194°F)</td>
<td></td>
</tr>
</tbody>
</table>

**ATEX properties**

<table>
<thead>
<tr>
<th>Cell marking</th>
<th>II 2G</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-type examination certificate nb</td>
<td>BVS 12 ATEX E 026 U(5)</td>
</tr>
<tr>
<td>IECEx Certificate of Conformity nb</td>
<td>IECEx BVS 15.0121 U(5)</td>
</tr>
<tr>
<td>Short circuit current (max)</td>
<td>59 A + 25°C (+ 77°F)</td>
</tr>
<tr>
<td>Ri (min)</td>
<td>45 m Ω + 40°C (+ 104°F)</td>
</tr>
<tr>
<td>Max surface temperature (4)</td>
<td>+ 112°C + 72°C (+ 161°F)</td>
</tr>
<tr>
<td>Temperature class</td>
<td>T4</td>
</tr>
</tbody>
</table>

**Physical characteristics**

| Diameter (max) | 34.2 mm (1.35 in) |
| Height for the tabbed version (max) | 61.5 mm (2.42 in) |
| Typical weight | 115 g |
| Li metal content | approx. 3.5 g |

(1) Dependent upon current drain, temperature and cut-off.
(2) Limitation of the max. current to a lower level, e.g. by a series resistor, may be necessary depending on the electrical properties of the device and the desired level of protection (IA, IB, IC) and the explosion group (IIA, IIB, IIC).
(3) To maintain cell heating within safe limits. Battery packs may imply lower level of maximum current and may request specific thermal protection. Consult Saft.
(4) Long time storage at high temperature may affect performances. Consult Saft.
(5) Owner of the certificate: Friemann & Wolf Batterietechnik GmbH.
(6) During the 3 mΩ short-circuit test according to IEC 60079-11.
Termination & part numbers

1. + tab (radial tab on the positive terminal): 4142180403
2. C tab (radial tabs on the positive & negative terminals): 4142180203
3. Z tab (radial tabs on the positive and negative terminals): 4142180703
4. End caps: 4142187103

Storage

- The storage area should be clean, cool (preferably not exceeding + 30°C), dry and ventilated.

Warning

- Fire, explosion and burn hazard.
- Do not recharge, short circuit, crush, disassemble, heat above +100°C (+212°F), incinerate, or expose contents to water.
- Do not solder directly to the cell (use tabbed cell versions instead).
- Do not obstruct venting mechanism.