

Saft M 20 EX SV

Primary Li-MnO₂ 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) IEC 60086-4
- 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

(Typical values relative to cells stored up to one year at + 30°C max)

Nominal capacity [at 150 mA, + 20°C, 2.0 V cut-off] ⁽¹⁾	12.4 Ah
Open circuit voltage [at + 20°C]	3.2 V
Nominal voltage [under 1 mA at + 20°C]	3.0 V
Nominal energy [at 150 mA, + 20°C, 2.0 V cut-off]	35 Wh
Pulse capacity ⁽²⁾⁽³⁾	up to 8.0 A
Recommended maximum continuous discharge current ^{(2) (3)}	3.5 A

Operating conditions

Operating temperature range	- 40°C / + 72°C (- 40°F / + 161°F)
Storage temperatures	Recommended + 30°C (+ 86°F) max
	Allowable ⁽⁴⁾ - 55°C to + 90°C (- 67°F / + 194°F)

ATEX properties

Cell marking	Ex II 2G
EC-type examination certificate nb	BVS 12 ATEX E 026 U ⁽⁵⁾
IECEx Certificate of Conformity nb	IECEx BVS 15.0121 U ⁽⁵⁾

	+ 25°C (+ 77°F)	+ 40°C (+ 104°F)	+ 72°C (+ 161°F)
Short circuit current (max)	59 A	63 A	66 A
Ri (min)	45 m Ω	41 m Ω	35 m Ω
Max surface temperature ⁽⁶⁾	+ 112 °C	+ 113°C	+ 116°C
Temperature class	T4	T4	T4

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.

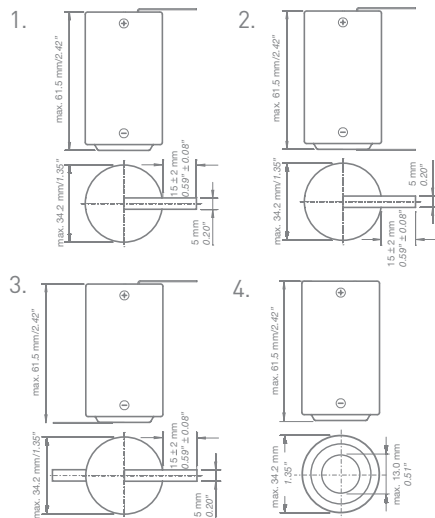
⁽⁶⁾ During the 3 mΩ short-circuit test according to IEC 60079-11.



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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



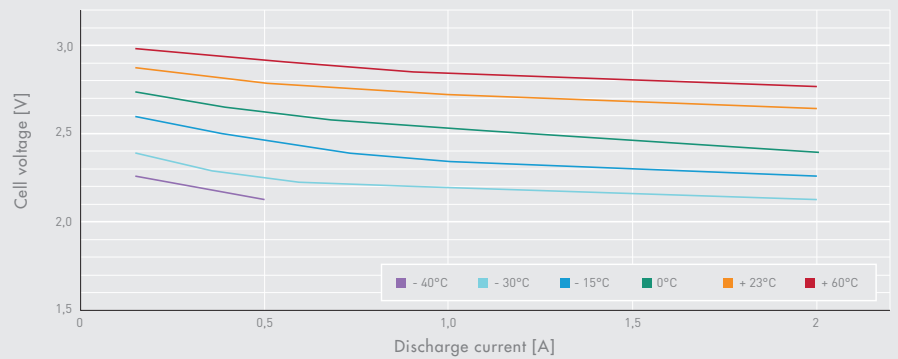
Storage

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

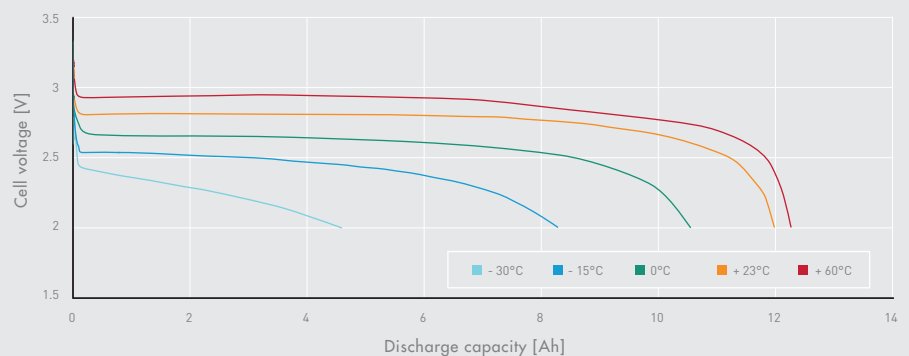
Warning

- 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.

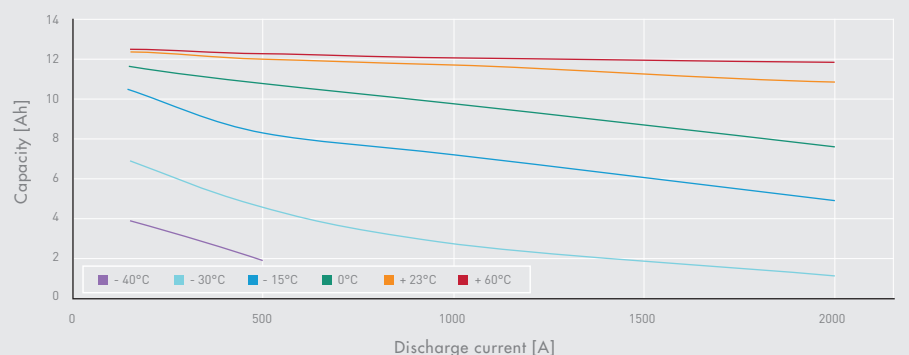
Mid-discharge voltage vs. current at various temperatures



Discharge curves at 500 mA at various temperatures



Capacity vs. current at various temperatures



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