3. M20 EX SV
Primary Li-MnO₂ battery

9 V lithium primary battery with ATEX/IECEx certified cells

Saft’s 3.M20 EX SV battery is based on ATEX/IECEx certified D size Li-MnO₂ cells with spiral electrode design. It is designed for integration into intrinsically safe equipment used in Ex atmosphere at temperatures up to +72 °C.

Benefits
- High drain and pulse capability
- High voltage response, stable even after long dormant periods
- High capacity even at high current and low temperature
- High energy density
- Low self-discharge compatible with long shelf-life of 10+ years (less than 1% after 1 year of storage at +20 °C)
- Superior resistance to corrosion

Key features
- Three ATEX/IECEx certified Saft M20 EX SV cells [6] in 351P configuration and side-to-side orientation
- Safe, hermetic and non-pressurized cell construction with glass-to-metal seal, safety vent and stainless steel container
- Pack assembly with minimum separation distances and materials according to IEC 60079-11 [6]
- ATEX/IECEx certified fuse [7]
- Restricted for transport (class 9)
- Manufactured in Germany

Designed to meet all major quality, safety and environment standards
- Safety: UL 1642 (File MH 61234), IEC 60086-4
- Transport: UN 3090 and 3091
- ATEX/IECEx: IEC 60079-0 and -11 [6]
- Quality: IEC 80079-34, ISO 9001, Saft World Class continuous program
- Environment: ISO 14001, RoHS and REACH compliant

Typical applications
- Tracking of dangerous goods
- Data loggers and wireless automation in Ex atmosphere
- Gas and oil tank level monitoring

Electrical characteristics
[Typical values related to batteries stored up to one year at +30 °C max]
Typical capacity [at 150 mA, +20 °C, 6.0 V cut-off] [1] 12.4 Ah
Open circuit voltage 9.6 V
Nominal voltage [under 1 mA, at +20 °C] 9.0 V
Nominal energy [at 150 mA, +20 °C, 6.0 V cut-off voltage] 105 Wh
Maximum continuous discharge current [2] 1.0 A

Operating conditions
Operating temperature range -40 °C / +72 °C (-40 °F / +161 °F)
Storage temperatures Recommended +30 °C (+86 °F) max

Physical characteristics
Length [max] 105.0 mm / 4.14 in
Width [max] 36.5 mm / 1.44 in
Height (max) 67.0 mm / 2.64 in
Battery case Shrink sleeve
Terminals Cables with optional connectors
Battery weight 380 g
Li metal content 10.5 g

References
Saft part No. [4] with 1 A fuse, no connector 4432180146

[2] Hold current of the fuse at +72 °C. Higher currents are possible for pulses, at lower temperatures or with different types of fuses. Consult Saft.
[4] Other versions with different part numbers are available on request. Consult Saft.
[5] More information about the ATEX/IECEx certificates of the cells can be found in the data sheet of the Saft M20 EX SV cell.
[6] Note that the 3.M20 EX SV battery is not ATEX/IECEx certified. Based on the ATEX/IECEx certificates of the cells, certification of the customized pack is usually done as part of the equipment in which the battery is to be integrated.
[7] Different or additional current limiting elements can be integrated on request. Consult Saft.