4. M20 CV rhomboidal pack
Primary Li-MnO₂ battery

12 V lithium manganese dioxide battery

Saft’s M20 CV battery is based on D size Li-MnO₂ cells with spiral electrode design. It is ideally suited for applications requiring high energy with stable voltage under high discharge rate in -40 °C / +72 °C environment.

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
- No voltage delay
- Low self-discharge compatible with long shelf-life of 10+ years (less than 1% after 1 year of storage at +20 °C)

Key features
- Four M20 CV cells in 4S1P configuration and side-to-side rhomboidal arrangement
- Safe, hermetic and non-pressurized cell construction with glass-to-metal seal, safety vent and nickel-plated steel container
- Alternative version with M20 SV cells featuring stainless-steel container, superior resistance to corrosion and low magnetic signature available on request
- Integrated charge-protection diode
- Short-circuit proof due to integrated polyswitch
- Restricted for transport (class 9)
- Manufactured in Germany

Designed to meet all major quality, safety and environment standards
- Safety: IEC 60068-4
- Transport: UN 3090 and UN 3091
- Quality: ISO 9001, Saft World Class continuous program
- Environment: ISO 14001, RoHS and REACH compliant

Typical applications
- Wireless outdoor sirene

Electrical characteristics
[Typical values related to batteries stored up to one year at +30 °C max]
- Typical capacity [at 150 mA, +20 °C, 8.0 V cut-off] \(^{(1)}\) 12.5 Ah
- Open circuit voltage 12.8 V
- Nominal voltage [under 1 mA, at +20 °C] 12.0 V
- Nominal energy [at 150 mA, +20 °C, 8.0 V cut-off voltage] 140 Wh
- Maximum continuous discharge current \(^{(2)}\) 1.2 A

Operating conditions
- Operating temperature range \(^{(3)}\) -40 °C / +72 °C [-40 °F / +161 °F]
- Storage temperatures
  - Recommended +30 °C (86 °F) max
  - Allowable \(^{(3)}\) -55 °C / +90 °C (-67 °F / +194 °F)

Physical characteristics
- Length [max] 94.5 mm / 3.72 in
- Width [max] 69.0 mm / 2.72 in
- Height [max] 66.0 mm / 2.60 in
- Battery case Shrink sleeve
- Terminals Cables with optional connectors
- Battery weight 500 g
- Li metal content 14.0 g

References
Saf part No. \(^{(5)}\) with 3 cables for 3 V / 12 V output and 3-pal connector JST 03R-JWPF-VSLE-S 4442080147

\(^{(1)}\) Can vary depending on current drain, temperature and cut-off voltage.
\(^{(2)}\) Hold current of the polyswitch at +72 °C. Higher currents are possible for pulses, at lower temperatures or with different polyswitch types. Consult Saft.
\(^{(3)}\) Operating temperatures up to +85 °C can be achieved. Consult Saft.
\(^{(4)}\) Long-time storage at high temperature may affect performance. Consult Saft.
\(^{(5)}\) Other versions with different part numbers are available on request. Consult Saft.
\(^{(4)}\) Other protection elements can be integrated on request. Consult Saft.