

BA 685B

Military rechargeable Li-ion battery

14.6V high energy Li-ion battery with high performance and **reliability**

Saft's BA 685B battery is compatible with military applications requiring safety, reliability, long operating life under cycling conditions and offers excellent performance in temperature environments from -35°C to $+60^{\circ}\text{C}$.



Benefits

- Excellent operating lifetime in calendar and cycling with a very stable internal resistance
- Long shelf life with extremely low capacity loss in storage
- Smaller environmental footprint than other technologies

Key features

- High energy density (133 Wh/l and 117 Wh/kg)
- Cycle life more than 1800 cycles at 100% DoD at C/2 discharge, C/ charge
- ABS NATO green casing
- Ingress protection (IP 68)
- Operates in any orientation
- Maintenance free
- No memory effect
- **Manufactured in the EU**

Designed to meet all major quality, safety and environmental standards

- Safety: UL 1642 and IEC 62133-2:2017
- Transport: UN 3480, UN 38.3
- Quality: ISO 9001:2009
- Environment: ISO 14001, RoHS and REACH compliant

Typical applications

- Combat net radio
- Tactical radio
- Laser designator
- Surveillance equipment

Electrical characteristics

Typical capacity (at C/5 rate, $+20^{\circ}\text{C}$, 2.5V cut-off) ⁽ⁱ⁾	13.6 Ah
Nominal voltage	14.6 V
Nominal energy	198.5 Wh
Recommended maximum discharge current ⁽ⁱⁱ⁾ (limited by the electronic protection circuit)	Continuous 5.0 A ^(iv) ($+20^{\circ}\text{C}$)

Physical characteristics (sleeved cell)

Length (maximum)	259.0 mm
Width (maximum)	79.0 mm
Height (maximum including terminals)	73.0 mm
Typical weight	1700 g
Volume (including terminals)	1.49 l
IEC battery designation	41NP/79/259/73-2
Saft internal battery designation	4s2p MP176065 xlr
Saft part number	08643X
NATO / OTAN stock number (NSN)	6140-14-529-5973

Operating conditions

Typical cut-off voltage	10.0 V
Charging method	Constant current/Constant voltage
Charging voltage	$16.8 \pm 0.05\text{V}$
Maximum continuous charge current ⁽ⁱⁱⁱ⁾	5.0 A ^(iv) ($\sim 1\text{C}$ rate)
Operating temperatures	Charge ⁽ⁱⁱⁱ⁾ -30°C to $+60^{\circ}\text{C}$ Discharge ⁽ⁱⁱⁱ⁾ -35°C to $+60^{\circ}\text{C}$
Storage & transportation temperatures	Recommended $+10^{\circ}\text{C}$ to $+30^{\circ}\text{C}$ Allowable -40°C to $+60^{\circ}\text{C}$

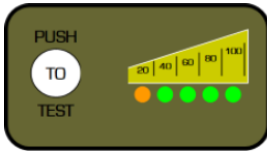
[i] Can vary depending on temperature and discharge rate

[ii] Can vary depending on temperatures. Consult Saft

[iii] For optimised charging below 0°C and above $+60^{\circ}\text{C}$, consult Saft

[iv] Limited by the electronic protection circuit

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Independent five segment fuel gauge

- Asses and verify the batteries state of charge at any time.
- Verify the state of charge prior to transportation or use.
- The fuel gauge does not use battery energy while the display is inactive

Electronic Protection Circuit

Built-in protection devices at battery and cell level ensures safe operation and user safety in case of abusive or extreme conditions. These conditions include, but are not limited to;

- Exposure to excessive heat
- Sustained exposure to direct sunlight
- External short circuit
- Overcharging the battery (resettable)
- Over discharging the battery (resettable)
- Mechanical damage

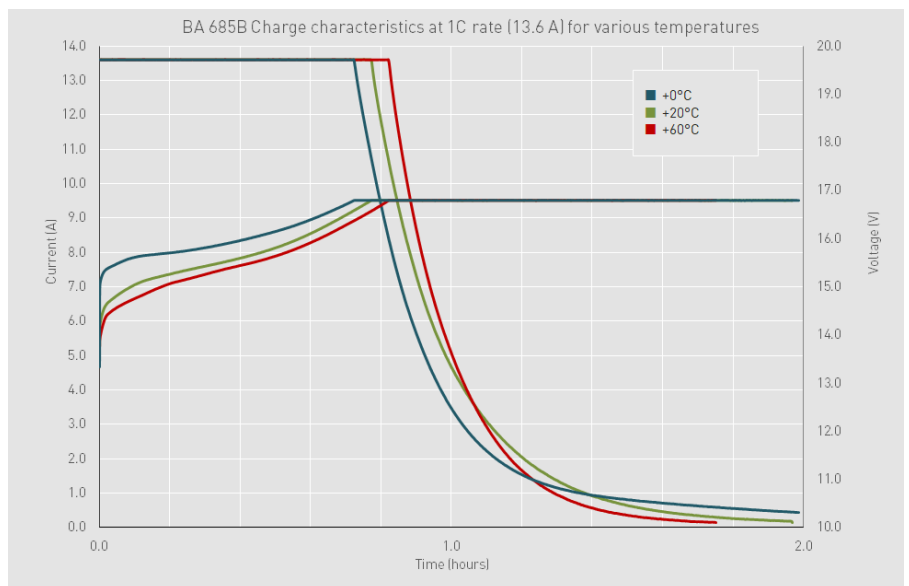
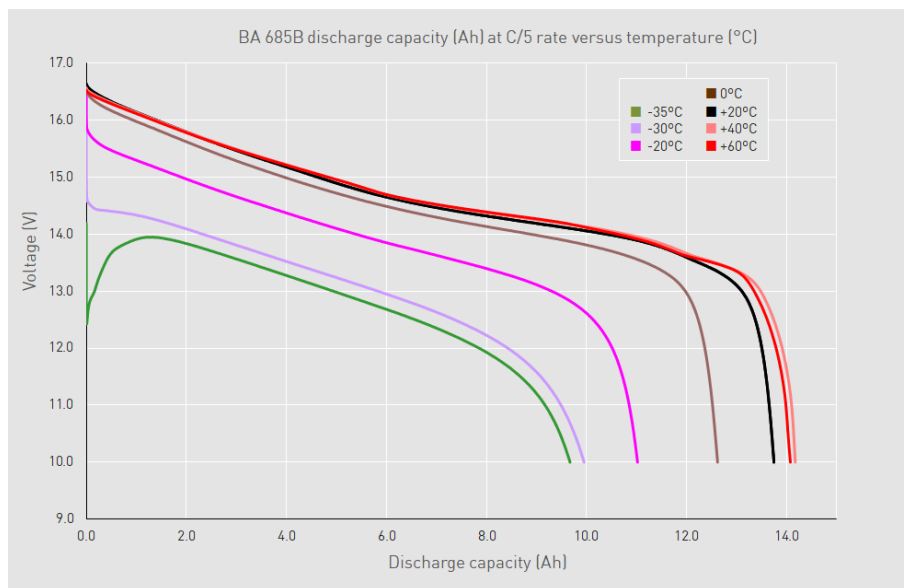
Transport and Storage

- The storage area should be clean, cool (preferably between +10°C and +30°C), dry and ventilated
- For long-term storage, keep the battery state of charge within a 30% to 15% range.

Warnings

- Do not crush, short-circuit, incinerate, dismantle, immerse in any liquid or heat above +85°C
- Observe charging conditions at all times
- Do not solder or weld directly to battery terminals
- Do not disassemble
- Do not disable, disconnect or modify the electronic protection circuit

Environmental requirement	MIL-STD reference
High Temperature	MIL-STD 810E, 501.3 (+60°C)
Low Temperature	MIL-STD 810E, 502.3 (-20°C)
Vibration	MIL-STD 810C, 514.2 H
Shock	MIL-STD 810E, 516.4
Salt Fog	MIL-STD 810E, 509.3 I
Immersion	MIL-STD 810E, 512.3
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Saft's Part Number	08643X



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