

# Evolution<sup>®</sup> 2.1 kWh

## 48 V - 2.1 kWh lithium-ion module for telecom

Evolution<sup>®</sup> 2.1 kWh module is suitable for reliable power back up, to replace conventional batteries or for integration in new telecom sites.

Evolution<sup>®</sup> 2.1 kWh module is suitable for all telecom sites and environments; no matter whether your equipment is inside or outside, on-grid or off-grid, in a hot place or a cold one, in a nearby site or a remote location. It is the perfect product to replace conventional lead acid batteries in existing installations or to be integrated into new telecom sites.

### Applications

- BTS (Base Transceiver Stations)
- BSC (Base Station Controllers)
- MSC (Mobile Switching Centers)
- Small cells for LTE (Long Term Evolution)
- ANT (Access Node Terminal)
- CO (Central Offices)

### Features

- Excellent cycling capability
- Small and lightweight product
- Charge and discharge at C rate
- High round-trip efficiency (better than 95%)
- Embedded electronics for remote supervision
- Large operating temperature window
- Maintenance free
- Calendar life exceeding 20 years
- Communication through RS485 / Modbus

### Benefits

- Compact, low weight package
- Low TCO
- Same life as telecom equipment
- No need for any maintenance
- Fully recyclable materials



Nominal characteristics	
Voltage (V)	48
Typical capacity C <sub>8</sub> at + 25°C/+ 77°F (Ah)	44
Rated capacity C <sub>8</sub> at + 25°C/+ 77°F (Ah)	42.9
Typical energy C <sub>8</sub> at + 25°C/+ 77°F (Wh)	2 100
Volumetric energy density (Wh/l)	82
Gravimetric energy density (Wh/kg)	106
Physical characteristics	
Width	223 mm / 8.78"
Height	260 mm / 10.2"
Depth	438 mm / 17.2"
Weight	20 kg / 44 lbs
IP Level	IP43
Electrical characteristics	
Voltage window (V)	42.0 to 56.0
Charge voltage range (V)	52.0 to 56.0
Max. continuous discharge current (A)	44
Typical recharge time	1h (up to 90% SOC)
Max. charging current (A)	up to 42
Round trip efficiency (Wh)	> 95%
Operating conditions	
Calendar life (+ 20°C/+ 68°F)	20 years
Calendar life (+ 40°C/+ 104°F)	> 10 years
Cycle life (+ 20°C/+ 68°F)	80% DOD: 4 300 cycles 50% DOD: 8 200 cycles
Operating temperature	- 40°C to + 75°C - 40°F to + 167°F
Storage duration	
(+ 15°C/+ 35°C) (+ 59°F/+ 95°F)	12 months (no electrical maintenance)



**SAFT**

## Same life expectancy as telecom equipment

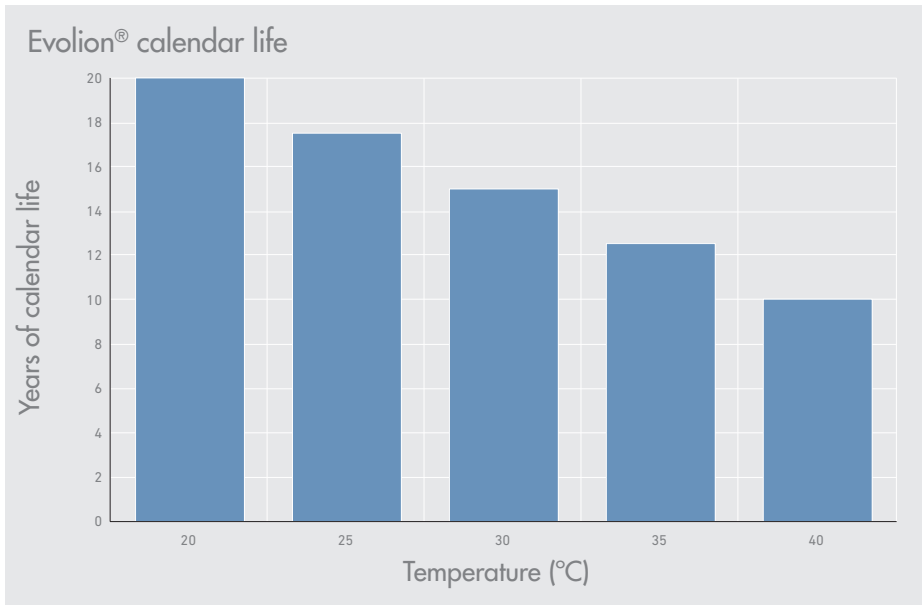
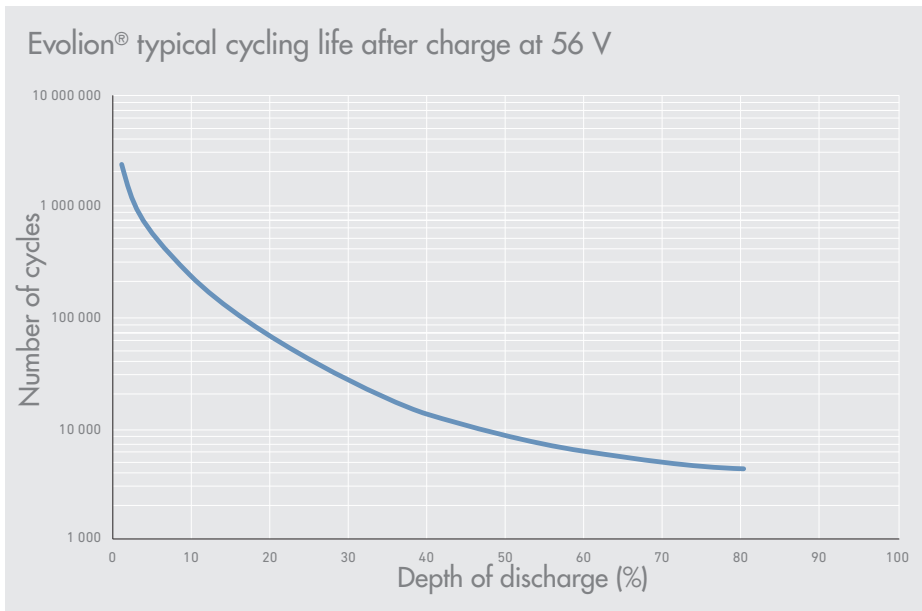
Evolution® has the same life expectancies as the telecom equipment it serves\*:

- Long float life:
  - 20 years at + 20°C (+ 68°F)
  - More than 10 years at + 40°C (+104°F)
- High cycle life (20°C):
  - 4 300 cycles 80% DOD
  - 8 200 cycles 50% DOD

\*Actual results will depend on customer specific use case

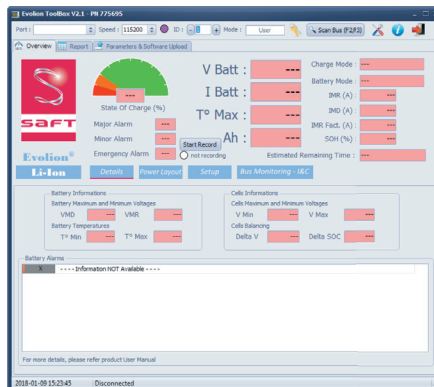
## Saft Li-ion batteries are tested and certified in order to comply to major telecom quality, safety and environmental standards

- Safety: UL 1642
- GR3150 L3
- Transport: UN 3480, IEC 62281
- Quality: ISO 9001, ISO 14001
- EMC: ETSI 300 386, IEC 61000, GR1089 L3
- ROHS



## Supervision software: Evolution® toolbox

Evolution® toolbox is a software that allows the operator to perform setup, commissioning, local supervision, diagnostic and status monitoring



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