



Saft Evolion[®] batteries help Ausonia deliver effective hybrid power solution for off-grid telecom sites



Case study

Hybrid Integrated Module (HIM) combines DC generator with Saft Li-ion batteries for optimized, energy-efficient Base Transceiver Station (BTS) power solution.

Major fuel savings

Leading genset manufacturer Ausonia is integrating Saft's Evolion[®] lithium-ion (Li-ion) telecom batteries into its innovative Hybrid Integrated Module (HIM), designed to provide reliable and cost-effective power for off-grid cellular Base Transceiver Station (BTS) applications. The Ausonia HIM includes a variable-speed diesel DC generator which simultaneously charges the Evolion[®] battery and powers the site load. When the battery is fully charged, the generator shuts down and the battery takes over as the primary source of power.

By reducing the genset runtime to typically four hours per day, the HIM offers a huge improvement in fuel consumption – typically 74% lower than a standard AC generator operating 24/7. It also reduces CO₂ emissions while increasing refuelling and service intervals.

The Evolion[®] battery systems serve off-grid telecom applications by:

- reliably delivering power in potentially remote off-grid locations, with an operating temperature range of – 40°C to + 75°C,
- operating with high cycle life: 4300 cycles at 80%DOD,
- providing maintenance-free operation with sealed design.



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Compact, lightweight design

Ausonia's HIM is designed for fast handling and deployment. It comprises three independent, hot-swappable packs (generator, battery, fuel tank), each weighing just 500 kg and sized for easy transportation. The design eliminates AC/DC rectifiers and battery packs inside the BTS, while the ability of Evolion® batteries to operate in extreme temperatures reduces the need for air conditioning.

Each HIM is fitted with between four and six 48 V Evolion® modules, each with a nominal capacity of 77 Ah and connected in parallel according to the site load. Evolion's compact and lightweight design enables it to deliver the maximum energy from the limited space available within telecom cabinets.

Other key features of the Evolion® modules include:

- high charging current acceptance of up to 90%, recovered after 2.5 hours
- very high round-trip efficiency of 95% plus
- wide operating temperature range of - 40°C to + 75°C
- deep cycling
- no need for external cooling or heating
- waterproof up to 6 inches
- designed for massive paralleling.

Ausonia currently manages more than 80% of the Italian off-grid market, with all four of Italy's telecom operators. The company plans to swap this entire fleet over to the HIM solution, and sees great potential for the hybrid solution globally.

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Our primary battery requirements for the HIM concept were low weight and compact dimensions, combined with fast charging, deep cycling capability, long cycle life and the ability to function reliably over a wide range of operating temperatures. Saft has developed the Evolion® battery to meet all these criteria, so it was the ideal choice.

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Francesco Di Noto
Ausonia Program Director



Saft Evolion® telecom batteries – key benefits

- Four to ten times lighter and 15% to 50% smaller than conventional batteries, depending on application
- Long service life:
 - float life of 20 years at + 20°C; more than 10 years at + 40°C
 - cycle life of 4300 cycles at 80% DoD, 8200 cycles at 50% DoD
- Sealed unit requires no maintenance
- Single battery type meets wide variety of telecom cycling and floating application needs.



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