tecned s-flow

TECNED S-FLOW is a professional **48 V sodium-ion energy storage module** engineered for **thermal stability, predictable lifetime behavior, and long-term operational reliability**.

The polyanionic sodium-ion chemistry (NFPP) provides a **low intrinsic thermal risk** and stable performance across a wide temperature range, supporting **safe indoor installation**.



Applications: residential and small commercial ESS, backup and emergency power, self-consumption and load support, fixed 48 V DC systems, and projects where lithium-ion is restricted or less suitable. Supports **cyclic and stand-by operation**.

Each module integrates a **professional BMS** for voltage, current, and temperature supervision, protection against abnormal conditions, and controlled reconnection within safe limits.

System integration is supported via **CAN bus and RS485**, enabling compatibility with external energy management systems without closed ecosystem dependency.

The design features a **48 V modular architecture**, industrial metal enclosure, fixed electrical connections, and a compact form factor optimized for technical rooms.

Indoor installation is supported using standard electrical safety measures, subject to local regulations.

Enhanced Safety : NFPP chemistry is inherently safe and does not support thermal runaway, effectively preventing fires or explosions.

No special fire suppression systems are required beyond standard electrical safety measures, subject to local regulations and project-specific risk assessment.

tecned S-FLOW – Technical Data

Parameter	Specification	Parameter	Specification
Battery chemistry	Sodium-ion/NFPP /polyanionic	Battery management	Integrated module-level BMS
Intended application	Fixed ESS & backup	Over-charge protection	63.2 V
Nominal system voltage	48 V DC	Charge reconnect voltage	62.0 V
Nominal capacity	100 Ah	Over-discharge protection	35.2 V
Nominal energy	≈ 4.8–5.0 kWh	Discharge reconnect voltage	36.0 V
Max charge voltage (>0 °C)	≤ 62.0 V	Charge current protection	110 / 120 / 160 A
Max charge voltage (0…−10 °C)	≤ 57.0 V	Discharge current protection	110 / 120 / 160 A
Max charge voltage (−10…−20 °C)	≤ 54.0 V	High-temperature protection	55 °C
Discharge cut-off voltage	≥ 36.0 V	Temperature reconnects	50 °C
Balancing voltage	56.0 ± 0.2 V	Cell balancing current	500 ± 50 mA
Internal resistance	< 50 mΩ	Communication interfaces	CAN bus, RS485
Recommended discharge current	≤ 33 A	Enclosure material	Industrial metal housing
Max continuous discharge current	≤ 100 A	Cooling method	Passive
Max charge current (10–35 °C)	≤ 50 A	Dimensions (W×D×H)	442 × 480 × 177 mm
Charge current (0–10 °C)	< 25 A	Weight	45 ± 0.1 kg
Charge current (−20…0 °C)	< 10 A	Terminal type	OT terminals
Charge temperature range	−20 °C to +45 °C	Ingress protection	IP35
Discharge temperature range	−40 °C to +60 °C	Installation orientation	Fixed, indoor
Cycle life @100 % DoD	≈ 3,500 cycles	Series connection	Not permitted
Cycle life @80 % DoD	≈ 6,000 cycles	Parallel connection	Up to 16 modules
Cycle life @50 % DoD	≈ 9,000 cycles	Storage temperature	−10 °C to +40 °C
Cycle life @30 % DoD	> 12,000 cycles	Self-discharge rate	< 2 % per month
Typical design life	> 15 years*	Compliance framework	CE (LVD, EMC, RoHS)

TECNED S-FLOW is designed in accordance with applicable EU Directives and IEC standards for stationary energy storage systems, including IEC 62933 and IEC 62619. CE conformity is provided via EU Declaration of Conformity.



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