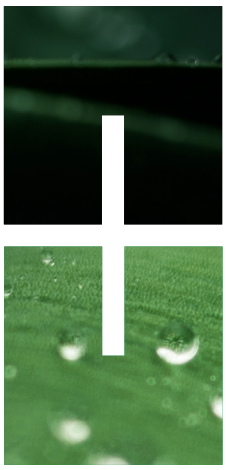
TAB

Li-ion batteries

e.motive



TAB E.MOTIVE

Power up your fleet with TAB e.motive batteries, designed to deliver unmatched performance, safety, and efficiency for forklifts and industrial vehicles. Our advanced features ensure maximum uptime, seamless operations, and the ultimate protection for your investment.

Why Choose TAB e.motive?

Maximum Uptime:
Keep your fleet moving with innovative opportunity charging and real-time monitoring.

Unrivaled Safety:
Industry-leading fire suppression and deep discharge prevention.

Smart Energy Management:
Intelligent features like Sleep Mode extend battery life and reduce operational costs.

Future-Ready Technology:
IoT-enabled monitoring ensures you stay ahead of the competition.

Power your forklifts smarter.
Choose TAB e.motive batteries.

ECOLOGY & PLANET

- TAB e.motive batteries are designed for a sustainable future of our planet
- No liquid acids in case of accidents
- Smaller CO2 footprint
- Better energy efficiency due to lower charging losses

ADVANTAGES

No need for central charging station

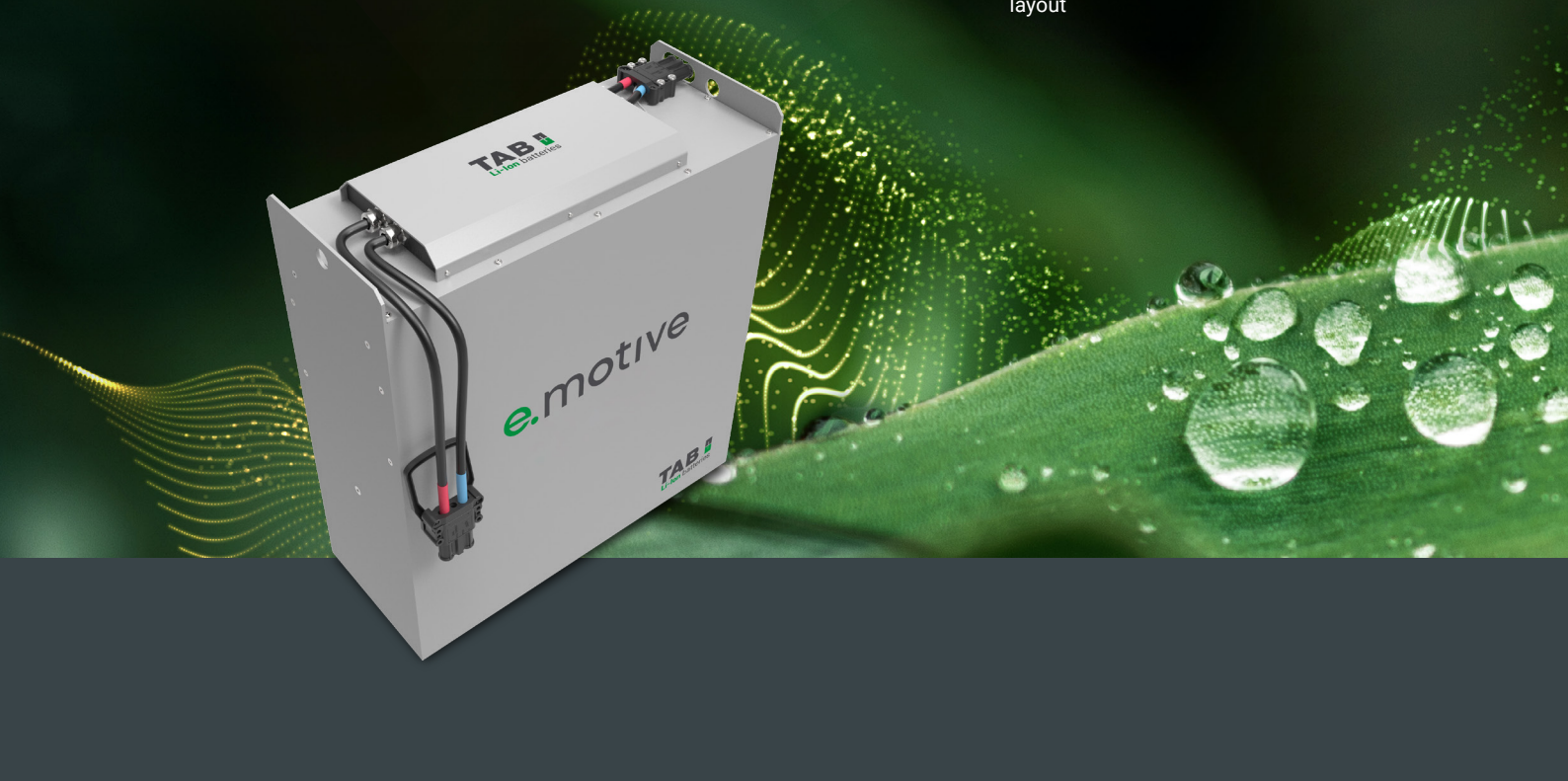
More flexibility to decentralized charging stations (in case with onboard charger)

No explosion hazard and no odours due to gassing

Longer operating terms and higher productivity due to fast and opportunity charging

The TAB Li-ion battery system is absolutely maintenance free

No need for security distance to charging facilities - opens new possibilities when planning site layout



ADVANTAGES OF LI-ION VS. LEAD-ACID BATTERIES

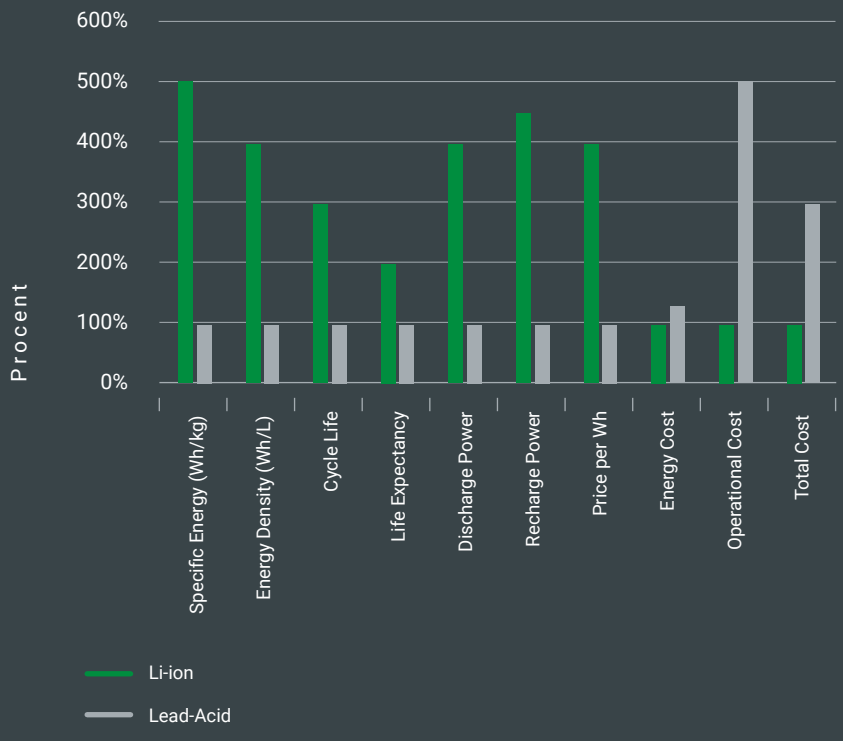
Compared with lead-acid, a Li-ion battery does not require any maintenance and produces no toxic emissions.

Fast (<2 hours) and flexible charging, opportunity charging and two-times longer battery life than lead-acid batteries will increase productivity of your equipment and will take your business to the next level of efficiency.

CHARACTERISTICS	Lead-Acid Batteries	TAB Li-ion batteries
MAINTENANCE	Maintenance required Extra cost	No maintenance No extra cost
CHARGING TIME	8-10 hours 2 or more batteries per truck required for continuous operation	Less than 2 hours 1 battery per truck is enough for continuous operation
OPPORTUNITY CHARGING	No Lower fleet availability due to charging breaks	Yes 100% fleet availability
BATTERY LIFE	1500 charge/discharge cycles Periodic battery replacement	3000 charge/discharge cycles No need to replace batteries
DANGEROUS SUBSTANCES	Yes Battery room is required	No, environmentally friendly Safe and clean technology Battery room is not required
ELECTRICITY CONSUMPTION	Consumes 35% more energy Higher electricity costs	Consumes 35% less energy Lower electricity costs

LI-ION VS. LEAD-ACID BATTERY TOTAL COST

LI-ION VS. LEAD-ACID BATTERY TECHNOLOGY



LI-ION BATTERY

- Operating time approx. 21-22 h
- Fast/Opportunity charging time approx. 2-3 h

LEAD-ACID BATTERY

- Operating time approx. 8 h
- Charging time/rest periods approx. 8 h

TAB SERVICE SOFTWARE

- Real time data logging
- Battery parameter configuration
- Battery monitoring
- Real time diagnostics
- Firmware updating
- Ensuring operational safety

TAB IOT CLOUD BATTERY MONITORING

Battery management IoT Cloud service application for performance improvement and longer service life of the battery.

ADVANTAGES FOR USERS

- **MONITORING AND DIAGNOSTICS:**
  Cloud web application for real time remote monitoring of the battery conditions via GSM/Lte/Wi-Fi.
- **PROGNOSTICS:**
  Predictive diagnostics early detection of error and failures.
- **FAULT DETECTION AND PREDICTION:**
  Higher vehicle availability due to fewer unplanned breakdowns.
- **EVALUATION AND OPTIMIZATION:**
  Higher vehicle availability due to optimized charging times.
- **NEXT-LEVEL OF CONNECTIVITY & MONITORING:**
  IoT Online Monitoring + SIM Card Enjoy a **5-year warranty** and gain **real-time visibility** into your battery's health and forklift operations. With **seamless remote monitoring**, optimize your fleet's performance and **reduce downtime** like never before.

TAB BMS
(BATTERY MANAGEMENT SYSTEM)

MAIN FUNCTIONS
- 12V, 24V and 48V Single unit system
- Master-Slave configuration for High voltage batteries
- LCD Touch screen information display
- Battery monitoring and protection
- Safety improvement

MONITORING
- Cell voltage
- Cell temperature
- Cell resistance
- Battery current
- BMS temperature
- SOC (State of Charge) calculation
- High resolution current measurement

CONTROL
- Safety devices
- Pre-charge circuit
- Standby mode
- Sleeping mode

BALANCING
- 1.3A passive balancing per cell
- 100% cell availability

PROGNOSTIC
- SOH (State of Health) calculation
- Remaining energy/capacity
- Time until Full / Time until Empty

PROTECTION
- Over-voltage
- Under-voltage
- Over temperature
- Over current
- Under temperature charge protection
- Sleep mode
- Lock mode
- LOWSOC function

COMMUNICATION
- Galvanically isolated user defined multi-purpose digital input/output
- Additional user defined relays and digital inputs/outputs on master-slave configurations
- Galvanically isolated RS-485 communication
- Galvanically isolated CAN with 100, 125, 250, 500, 1 MHz bit-rate selection
- CAN to Charger communication

PRODUCT RANGE

PRODUCT SOLUTION	Li-ion
TEHNOLOGY	LiFePO4
VOLTAGE RANGE	12V-96V
CAPACITY RANGE	50Ah to 1400Ah
ENERGY	1,2 - 115,2 kWh
DESIGN LIFE (Cycle DOD 80%)	3000+
OPERATION TEMPERATURE	-20/+55 °C
CHARGING TEMPERATURE	0/+50 °C
STORAGE TEMPERATURE	-20/+60 °C
CHARGING TIME	2h-Fast Charging , 4h-Normal Charging
PROTECTION INDEX	IP54 (IP65 optional)
BATTERY DIMENSION	DIN, BS, Additional Weighted, Customized
BATTERY WEIGHT	Customized
BATTERY SOCKET	DIN 160/320 A
BATTERY CHARGER	TAB Li-ion Charger
BATTERY MANAGEMENT SYSTEM	Integrated TAB BMS, (Data Logger Optional)
COMMUNICATION	CAN, RS485, Customized
STANDARDS/CERTIFICATES	UN 38.3, IEC 62619, ISO 9001

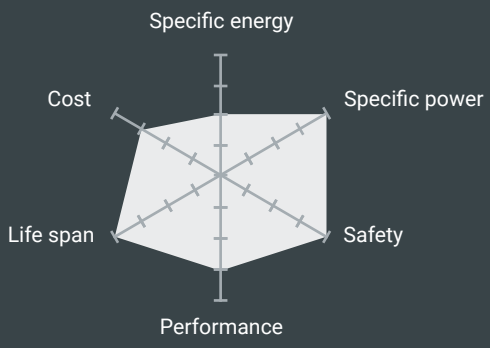
With its "PLUG AND PLAY" support, straight-forward replacement for most lead-acid batteries is possible. Normally, no modifications to forklift are needed.

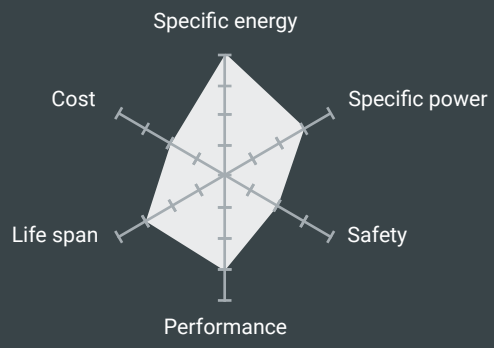
ADDITIONAL FUNCTIONS

- **Charge/Discharge main connector**
- **LOWSOC function**
- **IoT online + SIM card**
- **Automatic Fire Suppression Systems**
- **Sleep mode**
- **Lock mode**

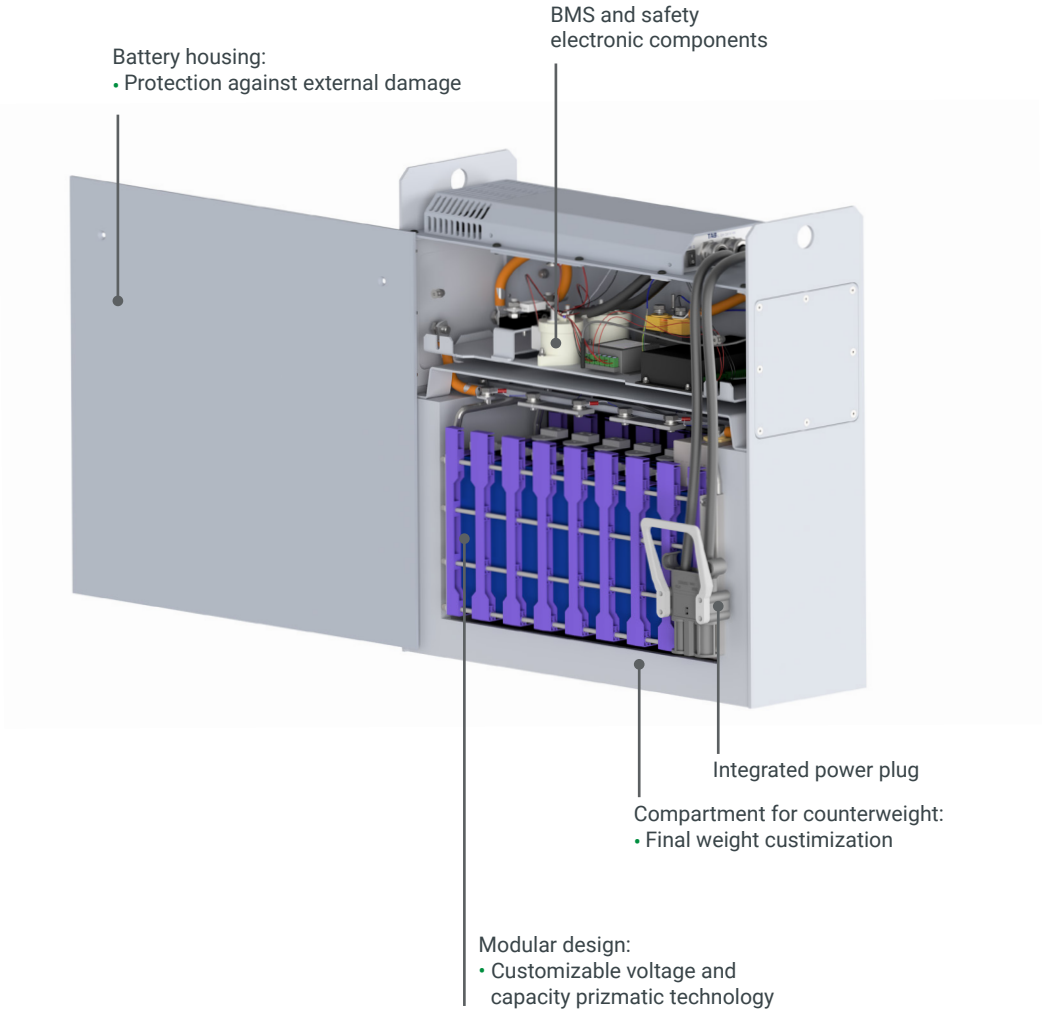
TECHNOLOGY

LFP – LITHIUM IRON PHOSPHATE (LIFEPO4)	NMC-LITHIUM NICKEL MANGANESE COBALT
Good thermal stability	Higher operating voltage
Long cycle life	Low cost
High power rating	Low internal resistance
Safe	Higher operating voltage





BATTERY COMPONENTS



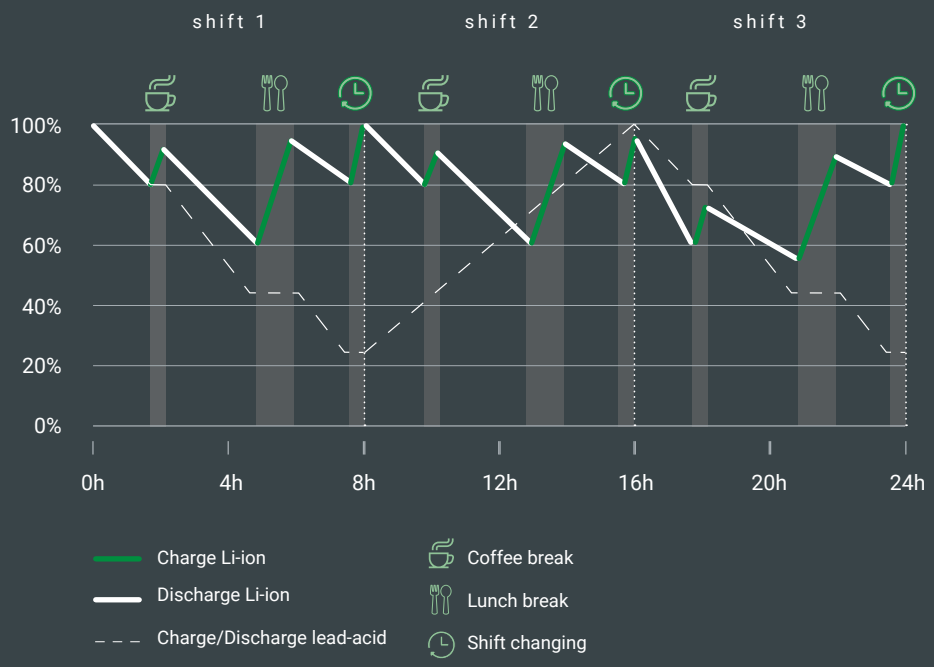
CUSTOM BATTERIES FOR VARIOUS APPLICATIONS

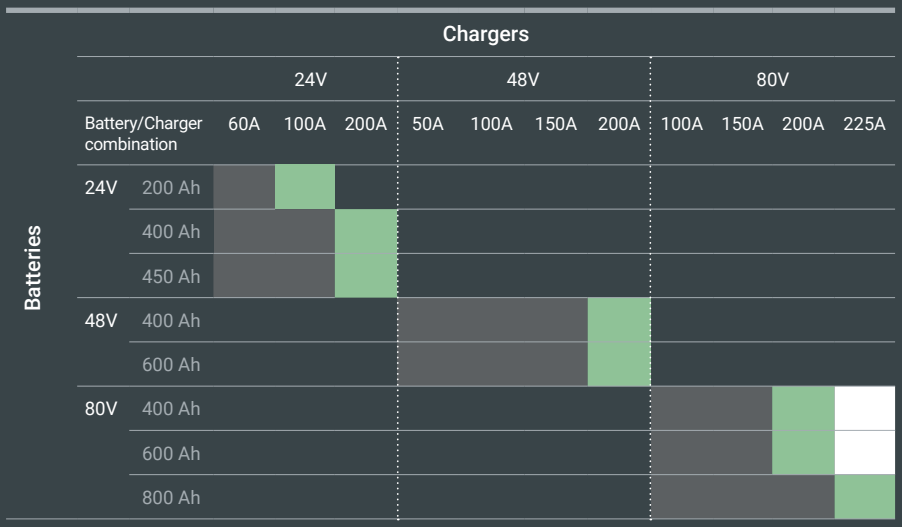
- Light EV
- Cleaning machines
- Cranes and lifts
- Robots
- Industrial drones
- Trains
- Utility vehicle
- Boats
- Mining equipment
- Agriculture

OPPORTUNITY CHARGING

TAB Battery Chargers offer the advantage of fast and opportunity charging. Combination of fast and opportunity charging enables multi-shift operation.

STATE OF CHARGE

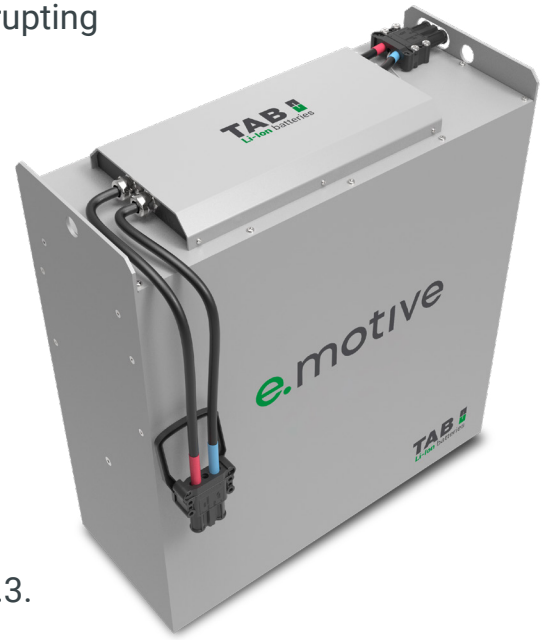




SMART CHARGING AND DISCHARGING

Dual Main Connector System:
Unlike conventional batteries, TAB e.motive batteries feature **dedicated charging and discharging connectors**, allowing for **opportunity charging** without disrupting operations.

No more unnecessary connector disconnections.
Only efficient and continuous power supply.



SAFETY FEATURES

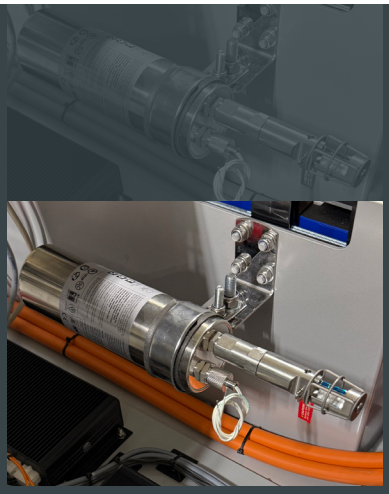
Modules and cells are certified according to UN38.3.

ACTIVE SAFETY

- Undervoltage and overvoltage protection
- Battery protected with high power contactors
- CAN controlled charging process
- Pilot contacts for anti-sparking

PASSIVE SAFETY

- Thick battery box walls
- IP54 or IP65 protection
- Fuses on main powertrain
- Short circuit protection
- Overcurrent protection



ADVANCED SAFETY MECHANISM

NEW: Automatic Fire Suppression System (FIREPRO Aerosol)

Safety is non-negotiable. Our state-of-the-art **aerosol-based fire suppression system** automatically activates in case of a **thermal runaway**, offering **unparalleled protection** against fire hazards.

EFFICIENCY-BOOSTING SMART FEATURES

NEW: Sleep Mode

Why waste energy when your forklift is idle? Our **automatic sleep mode** powers down the battery after a preset **inactivity period**, preventing unnecessary discharge and **maximizing battery efficiency.**

NEW: Lock Mode

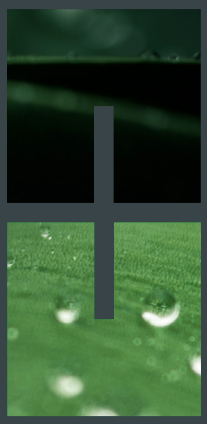
Security and control in one function. When the **battery reaches 1% SOC**, it automatically shuts down to prevent further discharge. Do you need to turn it on again to be able to drive the forklift to the charging point? Simply use the additional button to turn on the battery which gives you another option to operate/drive the forklift with a discharged battery by connecting it to one of our certified chargers (AXIMA, FRONIUS, ZIVAN, S.P.E., BASSI, ATIB, MINIT), which ensures a safe and controlled charging process. the function increases safety and prevents deep discharge of the batteries.

ENHANCED BATTERY PROTECTION & LONGLIVETY

LOWSOC Function

Stay ahead of power depletion or deeply discharged batteries. Our digital **output warning system** signals when the **state of charge (SOC) is low**, preventing deep discharge. Ideal for vehicles **without CAN communication**, this feature safeguards your battery's lifespan.

PURE ENERGY, BRIGHT FUTURE



TAB Tovarna Akumulatorskih Baterij, d.d. Polena 6, SI-2392 Mezica, Slovenia
Tel: +386 2 87 02 300 Web: www.tab.si E-mail: info@tab.si

TAB Li-ion batteries

V6_02_2025_EN (AV)