

# Ion'Drive® Motive 24 V

## 82 Ah and 164 Ah lithium-ion battery system

An innovative battery unit for electric Material Handling Equipment

The Ion'Drive® Motive 24 V 82 Ah and the Ion'Drive® Motive 24 V 164 Ah batteries, with high number of cycles, fast charging and minimum maintenance bring forklift performances to a premium level.

The batteries use standard **Modul'ion®-14** 24.82 MFe Super-Phosphate™ (SLFP)

- 1 **Modul'ion®-14** is implemented in the 82 Ah version while 2 **Modul'ion®-14** in parallel are embedded in the 164 Ah version
- 1 BMS - Battery Management System (composed of contactor, cell monitoring and balancing, communication software)

### Applications

- Material Handling Equipment: pedestrian and stand on pallet trucks, reach stacker

### Features

- Quick and high recharge capabilities:
  - From 0 - 60% SOC, a 6 min break allows 10% of capacity charge
  - A 1h10 charge allows to reach (0 to 90% SOC
- Minimal maintenance (no water topping up) and emission-free (zero gassing)
- CAN bus communication with host vehicle for accurate battery data/telemetry
- Robust construction withstanding industrial vehicle standards

### Benefits

- Enhanced cycling performance improves TCO of vehicle
- Longer operating hours with constant performance
- Fast charging optimizes use of vehicle during its work shift
- Avoid battery swapping costs and time, additional battery, maintenance room and equipment
- Compatibility with telemetry enables optimized fleet management and planning
- Environmentally friendly



Performances of each battery system	24 V 82 Ah	24 V 164 Ah
Modul'ion®-14 24.82 MFe	1	2
Voltage window (V)	16.8 - 26.6	
Nominal voltage (V)	23.1	
Rated capacity (C/5) (Ah)	78	156
Typical capacity (C/5) (Ah)	82	164
Typical energy (C/5) (Wh)	1 894	3 788
Charging time*	1h10	
Max continuous discharge current (A)	100	
Max pulse discharge current in 5 s (A)	300	
Max charge current (A):		
• 0% - 90% SOC	90	162
• 90% - 100% SOC	82	90
Dimensions in mm (LxWxH)	648 x 156 x 627	
Weight (kg)	51	71
<b>Operating conditions</b>		
System operating temperature	-20°C to +45°C (-4°F to 113°F)	
Temperature for transport and storage	-40°C to +50°C (-40°F to 122°F)	
Protection class of the battery box	IP65	
<b>Electrical connections</b>		
Communication protocol	CAN OPEN	
Electrical power connection	REMA, ANDERSON	

\*0 to 90% SOC with appropriate charger



**SAFT**

## BMS Battery Management System

- The BMS operates with CAN OPEN by default.  
Other communication protocols that can be implemented are CAN J1939, CANOPEN, MODBUS  
Compatible with Modbus thanks to dedicated gateway
- Communication protocol carrying:
  - State Of Charge (SOC)
  - State Of Health (SOH)
  - Operating limits (Current in charge, discharge, voltage, peak or continuous)
  - Real time data (temperature, current)

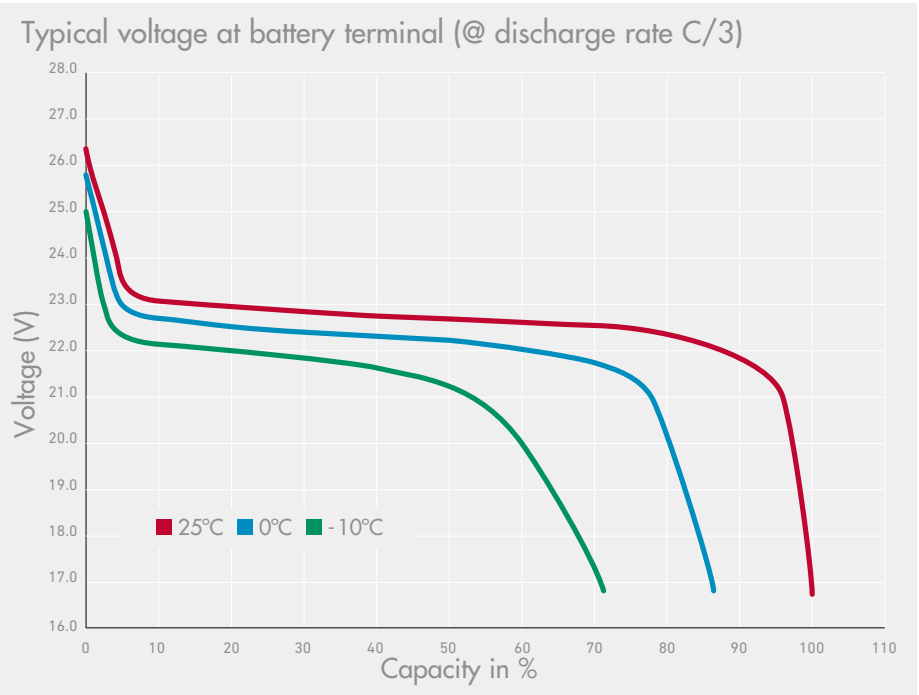
## Safety

- Stringent design rules and qualification
- Implementation of redundant safety features
  - at cell level (e.g. shutdown effect separator, mechanical vent)
  - at module level (e.g. electronic board, voltage and temperature monitoring, balancing) and
  - at battery level (e.g. electronic board, power switch, current sensor)



## Compliance to standards

Cell safety	UL 1642 / UN 3480 Class 9
Module safety	EN 50 178
Shock and vibration	DIN EN 60068-2-27 / DIN EN 60068-2-6
IP Protection	NF EN 60 529
Electrical safety	DIN VDE V 0510-11 DIN EN 61000-4-2 DIN EN 61000-4-3 DIN EN 61000-6-2 DIN EN 61000-6-3
EMC	
Transportation qualification	UN 3480 – Class 9 category II



Contact Technical Support for the performance of your specific configuration  
Data are typical value, please consult Saft for battery sizing upon specific profile



## Saft

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