Ion'Drive® Motive 24 V

205 Ah and 410 Ah lithium-ion battery system

An innovative battery unit for electric Material Handling Equipment

The Ion'Drive® Motive 24 V 205 Ah and the Ion'Drive® Motive 24 V 410 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®**-35 24.205MFe Super-Phosphate™ (SLFP)

- 1 **Modul'ion®**-35 is implemented in the 205 Ah version while 2 **Modul'ion®**-35 in parallel are embedded in the 410 Ah version
- 1 BMS - Battery Management System (composed of contactor, cell monitoring and balancing, communication software...) It insures that the battery operates within its limits in terms of voltage, temperature, current...

Applications

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

Features

- High energy efficiency and density
- Quick and high recharge capabilities:
  - A 12 min break allows 10% of capacity charge
- 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 (IP rating, shock and vibrations, EMC...)

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

Battery System performances	24 V 205 Ah	24 V 410 Ah
Modul'ion®-35 24.205 MFe	1	2
Voltage window (V)	16.8 - 26.6	
Nominal voltage (V)	23.1	
Rated capacity (C/5) (Ah)	195	390
Typical capacity (C/5) (Ah)	205	410
Typical energy (C/5) (Wh)	4 736	9 471
Charging time [1]	1h30	2h30
Max continuous discharge current (A)	200	
Max pulse discharge current in 5 s (A)	330	
Max charge current (A):		
• 0% - 60% SOC	205	205
• 60% - 100% SOC	103	205
Dimensions in mm (LxWxH)	718 x 210 x 624	
Weight (kg)	110	151
Operating conditions		
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	
Electrical connections		
Communication protocol	CAN OPEN	
Electrical power connection	REMA, ANDERSON...	

[1] *With appropriate charger*

saft

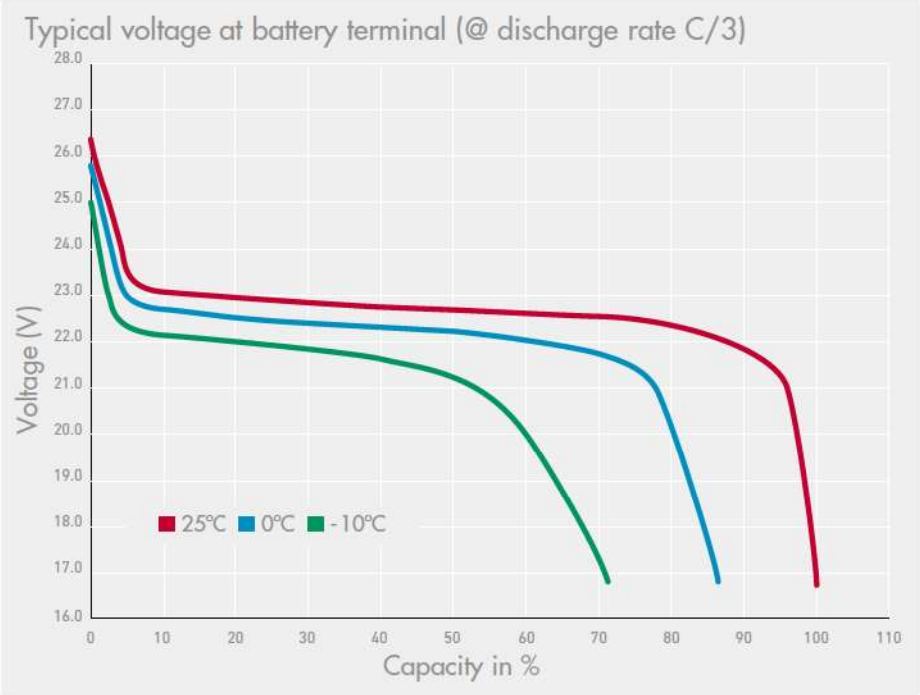
BMS Battery Management System

- 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
Electrical safety	DIN VDE V 0510-11
EMC	DIN EN 61000-4-2 DIN EN 61000-4-3 DIN EN 61000-6-2 DIN EN 61000-6-3
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

Doc No.: 21911-2-0915
Edition: September 2015

Published by the Communication Department
Photo credit: Saft
Produced in the UK by Arthur Associates Limited