



## trak | powerpack lion

Lithium-Ion-  
Retrofit-Solution

Maintenance  
and emission  
free

Low  
operational  
cost,  
High system  
efficiency

# 7

good reasons for  
trak | powerpack lion

General  
upgradeability,  
Plug & drive

High degree  
of vehicle  
availability,  
24/7 operation

Dense service  
network in  
almost all  
of europe

Safety

Transparency  
and  
user friendly



## trak | powerpack lion

### Components

trak | powerpack lion is a modular energy system based on lithium technology. The LION powerpack can be mounted into existing material handling equipment which was originally designed for lead-acid batteries.

- Modular energy system
- Based on Lithium technology
- Designed to replace lead-acid-batteries
- Doesn't require changes on vehicle side (Plug'n Play)

For the best performance HOPPECKE concentrated on an advanced system concept of battery and appropriate charger.

trak | powerpack lion comprises all necessary components to replace lead-acid-batteries and chargers

### LION battery

Depending on the work pattern and vehicle parameters you can choose from a wide range of 24 V, 48 V and 80 V batteries.

- 3.1 - 36.9 kWh
- UN38.3 transport certificate
- Smart battery management system
- High performance Lithium cells

### Adapter components

Since the LION batteries differ in dimensions from Pb-batteries, the LION battery comes in a tray built to the dimensions of the machine's battery compartment.

- Safe positioning
- Steel plates to match batteries min. weight
- Wide range of adapter cable

### Charger

The charger range was designed to charge the LION batteries with the highest efficiency possible by establishing a communication between battery and charger.

- Smart link to battery
- Boost function for rapid charging
- Up- and downward compatibility

## trak | powerpack lion

### Features

All system features are especially designed to ensure a smooth and safe operation.

#### Product Range

24 V	48 V	80 V
120 Ah   3.1 kWh	240 Ah   12.4 kWh	360 Ah   24.6 kWh
240 Ah   6.2 kWh	360 Ah   18 kWh	480 Ah   36.9 kWh
360 Ah   9.2 kWh	480 Ah   24.6 kWh	
480 Ah   12.3 kWh		

Via the battery's infrared interface the software will analyse the data logged and provide essential information to the batteries „health“ and usage.

#### Remote Control:

- Magnetic attachment to cockpit
- Battery status
- On/Off switch

#### IP 54 rated steel case:

- Containing LFP cells controlled by a sophisticated battery management system

#### Battery HMI:

- Battery status (SOC, service mode etc.)
- On/Off switch
- IR interface

#### Adapter Tray:

- Easy replacement
- Matched weight

#### Battery charger:

- HF charger

#### Separate plug for easy charging options:

- On battery top
- On either of the tray sides
- On machine body



Figure 1: On battery top



Figure 2: On either of the tray sides

## trak | charger HF lion

### Features

Smart linked charger range for efficient and fast charging.

- Fast charging
- Opportunity charging

#### Product Range

E 24 V / 70 A	D 48 V / 120 A	D 80 V / 160 A
E 24 V / 100 A	D 48 V / 200 A	D 80 V / 200 A
D 24 V / 120 A	D 48 V / 240 A	D 80 V / 240 A
D 24 V / 200 A	D 48 V / 300 A	D 80 V / 300 A
D 24 V / 240 A		
D 24 V / 300 A		



#### Charger HMI:

- Battery Status
- Charging Status
- On/off Switch
- IR-Interface
- Service Menu

#### Power boost (optional):

- Boosted charger power during first part of charging
- Available only with corresponding charger
- Refer to mix and match table (page 9)

## trak | charger HF lion

Boost operation for fast opportunity charging and reduced total charging time.

#### Boost Matrix

System-combinations		Chargers															
		24 V						48 V				80 V					
		70	100	120	200	240	300	120	200	240	300	160	200	240	300		
Batteries	24 V	120	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-
		240	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-
		360	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-
		480	■	■	■	■	■	-	-	-	-	-	-	-	-	-	-
	48 V	240	-	-	-	-	-	■	■	■	■	-	-	-	-	-	-
		360	-	-	-	-	-	■	■	■	■	-	-	-	-	-	-
		480	-	-	-	-	-	■	■	■	■	-	-	-	-	-	-
		80 V	360	-	-	-	-	-	-	-	-	■	■	■	■	-	-
	480	-	-	-	-	-	-	-	-	-	■	■	■	■	-	-	

- Optional boost feature (select appropriate connector!)
- Standard configuration
- possible if requested (adaptor cable or larger connector on battery needed!)

## Software

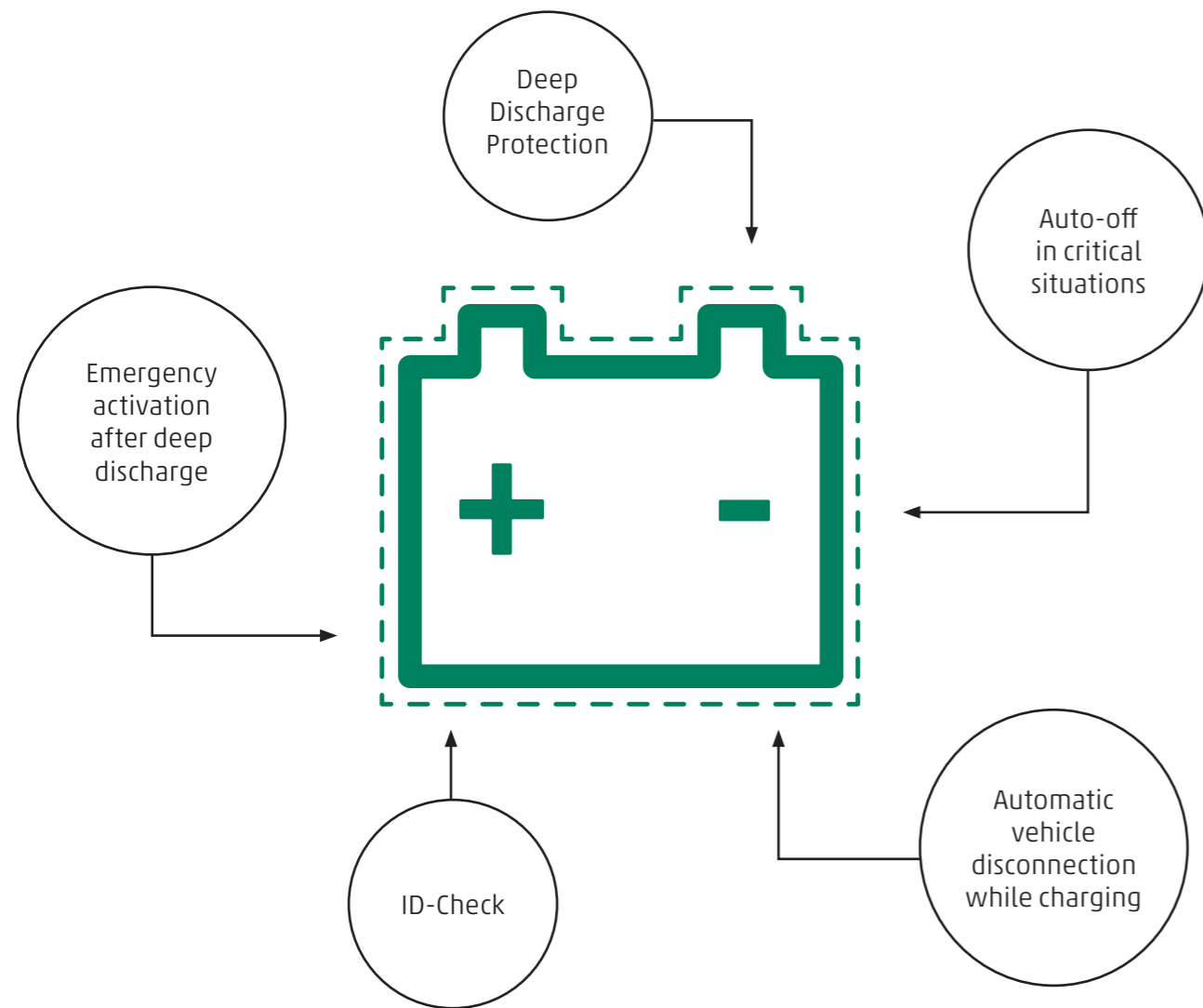
### Hoppecke Energy Management Software (HEMS)

The HEMS analyses all data provided by battery and charger. It shows all information of battery usage and health status. Also all battery and charger parameters can be read out and set by connecting to the HEMS.

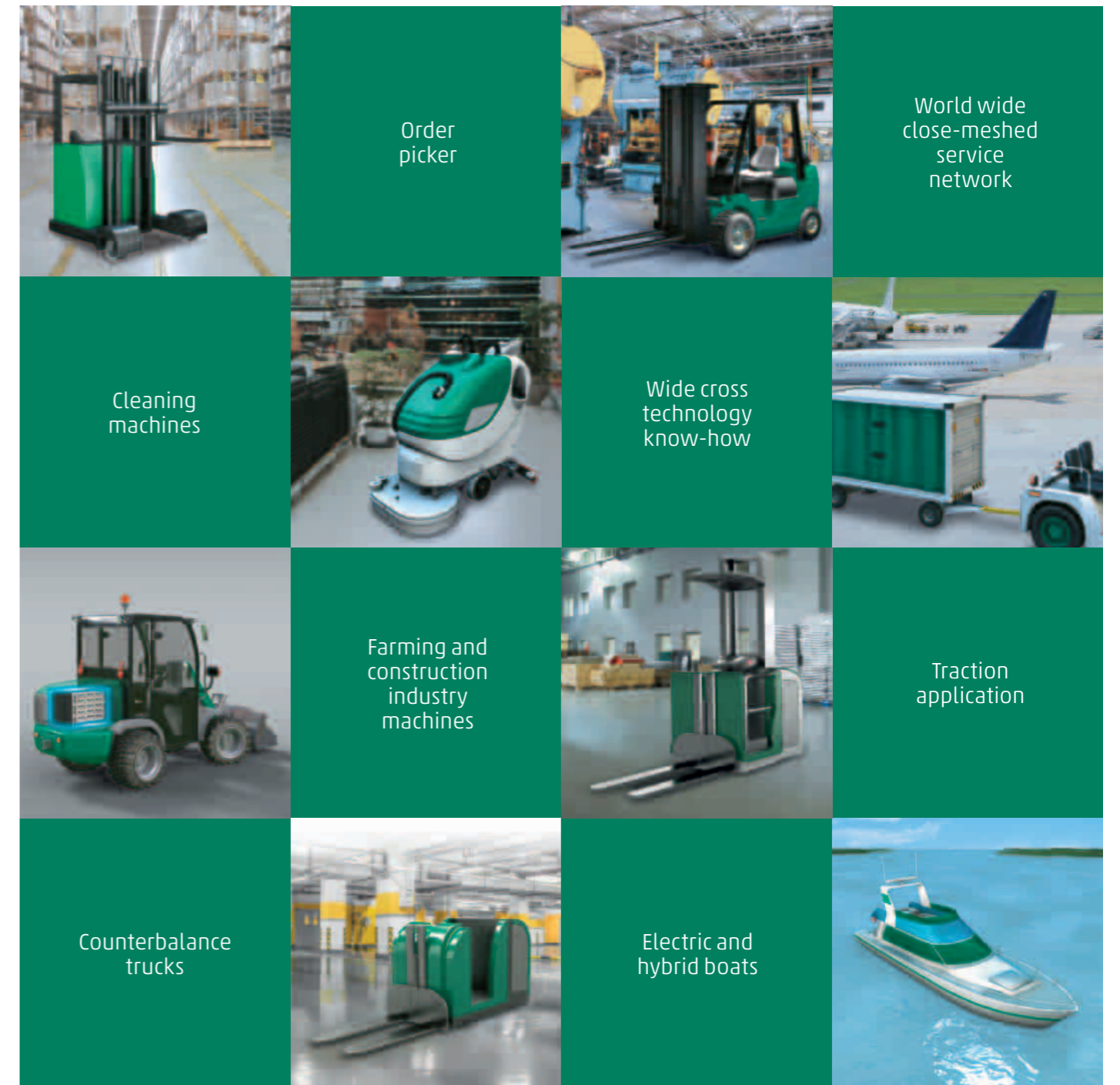
- Data collection: system data, load profile recorder, real time data, lifetime analyses, temperature recorder
- Data manager
- Visualization tool
- Service settings

## Safety Battery Management System (BMS)

The Battery Management System monitors each individual cell 24 h on 365 days to ensure highest operational safety.



## Typical sectors of application



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