Power Module

Scalable and modular Lithium-Ion energy storage system

PowerTech systems

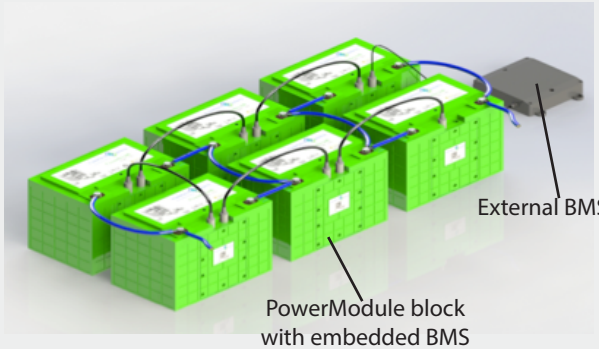
PowerModule® : **Modular, Smart, Secure** and **efficient** storage energy solution.

Design

Each **PowerModule** block embeds a **Lithium Fer Phosphate (LiFePO4) battery** plus an **internal BMS** which controls its own operation (temperature, high and low voltage cut-off, etc.).

PowerModule blocks are inter-connected trough a private and secured bus. An **external BMS** is tied to the system and coordinates PowerModules behavior (high-level monitoring balancing), safety (power contactor) and external communication with upstream devices.

.



Key advantages

- **"Plug-and-Play"** and flexible system **:** Easy and quick deployment
- **Scalable system :** Up to 255 PowerModule items can be assembled in serial and/or parallel to fullfill the most complex appplications
- **Smart monitoring** and management
- **Safe and robust** technology (IP protection level : 56)
- **External communication** bus (CAN) available
- **High lifespan and number of cycles**
- **Certification : CE, UN 38.3, RoHS**

PowerModule Technical Specifications

Nominal voltage	12.8 V
Nominal capacity (C/5, 23 °C)	110 Ah (1.408 KWh)
Weight (+/- 2 %)	15.7 Kg
Dimensions (L x l x H)	260 x 172 x 225 mm
Power connector	Female M8 x 1.25
Specific energy	90 Wh/Kg
Energy density	141 Wh/l
Continuous discharge current (23 °C)	150 A
Maximum discharge current (30 s)	300 A
Cut-off voltage (BMS)	10 V
Maximum charge voltage (CV)	14.6 V
Floating charge voltage	<13.4 V
Continuous charge voltage	50 A (0.5C)
Internal resistance	6 mOhm

Technical features of external BMS

- **Monitoring** of each PowerModule block : current, power, voltage, PCB temperature, cell temperature, State of Charge (SOC), Contactor states, etc...
- **Realtime communication** of alerts, warning and status messages using bus **CAN 2B** for external devices
- **Intra module balancing** between each cell. This feature is launched as soon a voltage difference >30mV is detected for 2 cells in a same PowerModule.
- **Inter module balancing** is launched by external BMS as soon a voltage difference > 100mV is detected between two or more PowerModule
- Automatic cut-off triggered by alert events, ie : over-current, over-charge, over-temperature, etc.
- **Power contactor management** by external BMS.
- **Analog 5V signal** for **SOC measurement**

APPLICATIONS

- Electrical vehicles and utilities
- Solar and wind energy storage
- Marine
- UPS, power backup
- Medical equipment
- Street lightning
- CCTV and security camera
- Telecom
- • •

Further information at : **www.powertechsystems.eu**
or contact our commercial office :
+33 954 051 619 or **info@powertechsystems.eu**

Power Module

Scalable and modular Lithium-Ion energy storage system

Main CAN messages available

Main system status messages

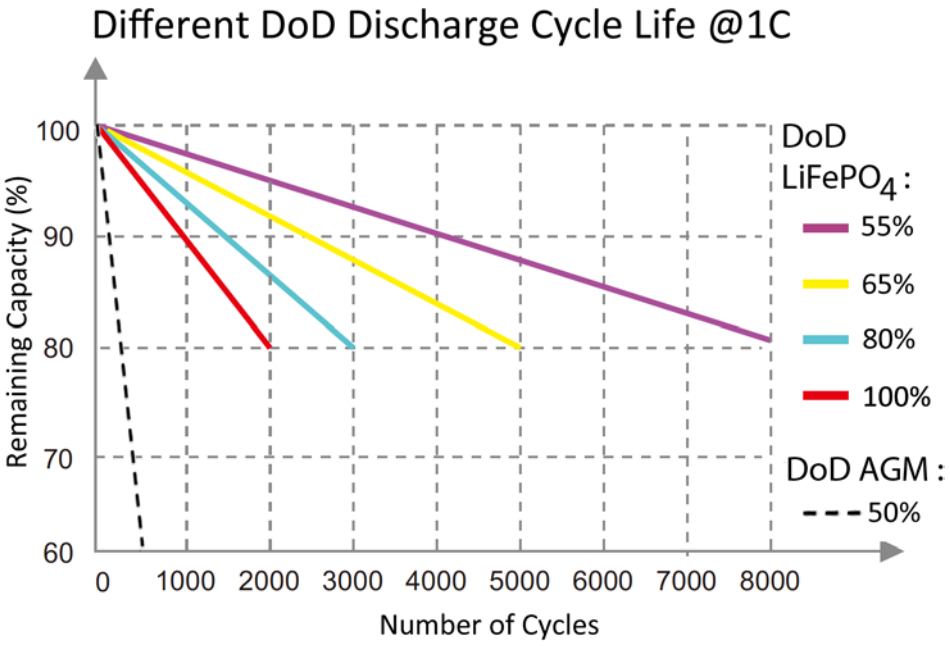
State of Charge (SOC)	0 - 100 %
Real time voltage and current	in V and A
Max charge and discharge current	in A
Module temperature	in °C
Min cell and max cell voltage	in mV
Electric insulation level	in mV
ID of elligibles modules for inter balancing	List of ID

Module status messages

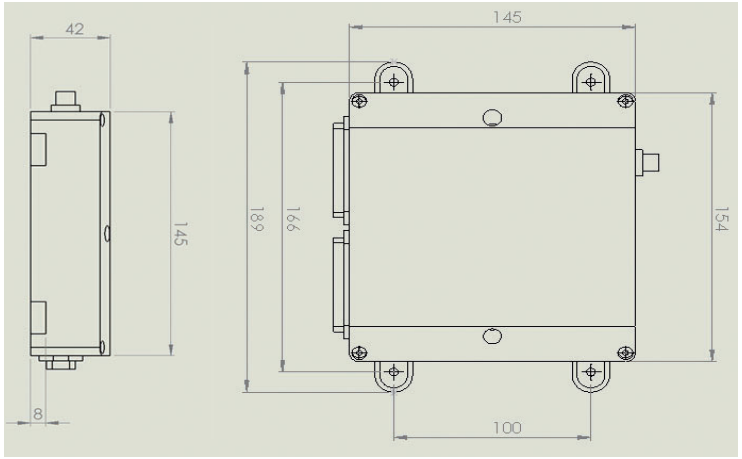
Realtime charge and discharge current	en A
State of Charge (SOC)	de 0 à 100 %
Cell and BMS temperature	en °C
Voltage value for each cell	en mV

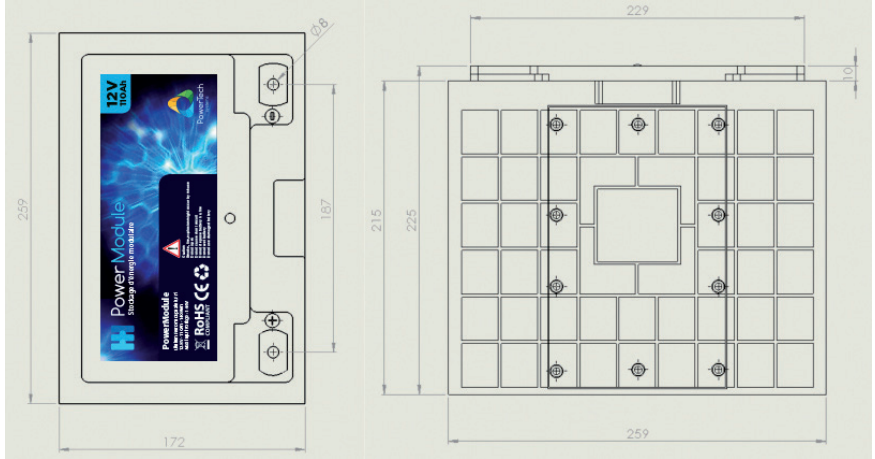
Warning and alarms

No communication between Powermodule blocs
SOC difference betwenn powermodule blocs
Over-temperature warning and alarm
Over-voltage warning and alarm
Deep discharge alarm
Over current and over voltage alarms



BMS and PowerModule casing dimensions





PowerTech systems

PowerTech Systems SAS
Technoparc - Espace Cristal
22 Rue Gustave Eiffel
78300 POISSY - France

SAS au capital de 50 000 Euros
SIREN : 793926577 – TVA : FR33793926577

www.powertechsystems.eu
+33 954 051 619
info@powertechsystems.eu