



## The Mc Energy battery energy storage system

The Mc Energy system architecture allows you to almost instantaneously connect your Mc Energy battery energy storage system to the AC 50/60Hz grid. Based on your requirements you can add a dedicated amount of storage power and use the system as backup power for medical applications, shore power solution, peak shaving application, microgrid development or grid resilience. Each system is capable and standard equipped for island mode, black starts or even as a UPS (uninterrupted power supply)

### Ready to use

Each system is plug-and-play usable. Just offload the fully 100% charged battery pack with the GridConn unit, connect the system to the grid and you can store your energy and use it at any time you want.

### Safety

The system is safe. Only thoroughly tested NiMH battery packs are used without any risk on thermal runaway events, fire risks, explosions or release of toxic gases. Each Mc Energy system is equipped with state-of-the-art safety systems like fire detection and extinguishing, gas detection, temperature monitoring, has a dry firefighting water connection and it is even earth quake proof up to 2g in each direction!

### Scalable

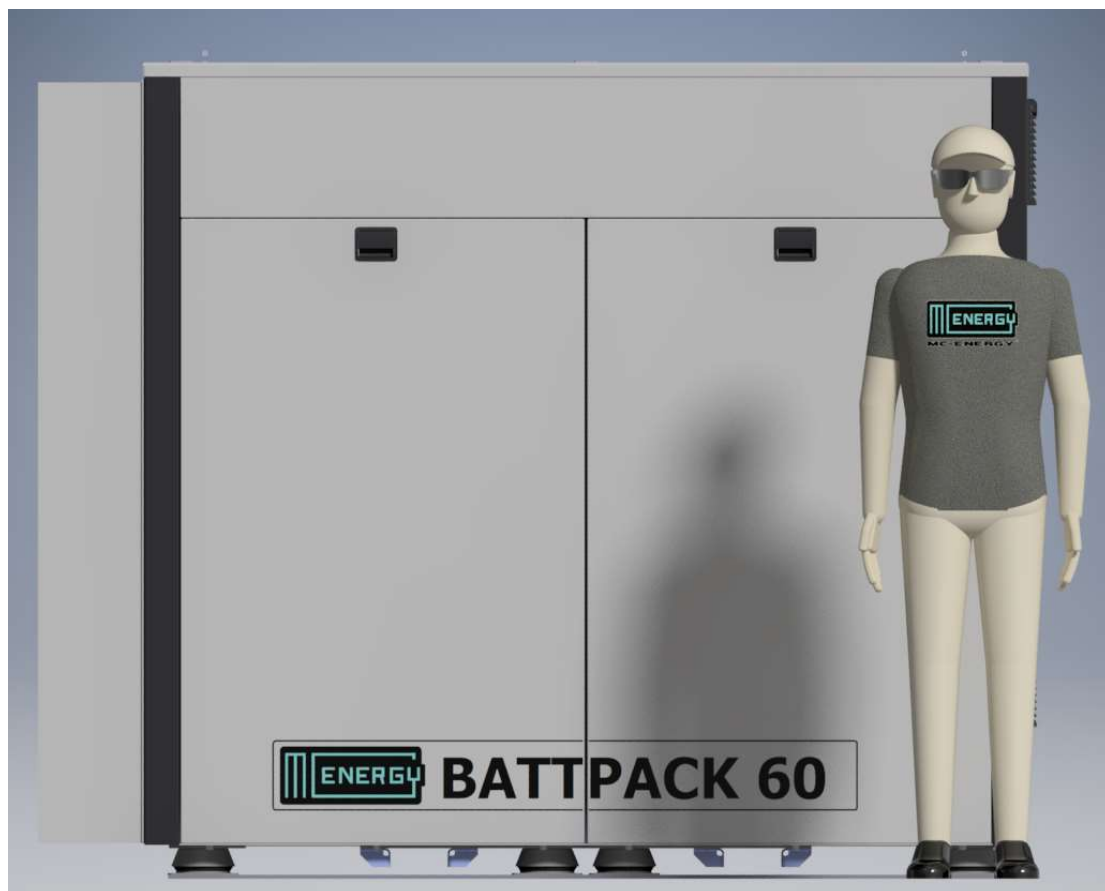
The Mc Energy system is highly scalable. You have a GridConn system running with a BattPack connected and you want to connect an additional BattPack? Just open the hatch on your GridConn unit and plug-in your next BattPack. It is automatically recognized by the energy management system and instantly expands and uses the additional kWh storage power.

### Environmentally friendly

The NiMH batteries can easily be refilled when reached 80% of their capacity. By refilling the battery's electrolyte with  $H_2$  the batteries are like new again and can be charged up to 100%. This saves a huge amount of battery waste over the total battery life cycle.

### Technical features

The system is portable by using the forklift pockets or the lifting lugs. It has a wide grid voltage range from 380V...460V and operates both on 50Hz and 60Hz grid networks. The advanced fresh air routine refreshes the air every hour and has an integrated air conditioning system for keeping the batteries in their optimal temperature environment. The HMI (touch screen) allows a full control over the system. Per battery string one DC/DC converter controls the balance of the batteries for charge and discharge operations. The system works with a transformer connection to prevent high switching frequencies on the primary side.



*Energy storage is in our DNA*

*The information in this document is proprietary to Mc Energy BV. All specifications and data are approximate, may change without notice and are subject to certain operating environments, assumptions and other conditions. The image shown is for information purposes only. This document does not constitute an offer, commitment, representation, guarantee or warranty of any kind and the configuration and performance of any energy storage related solution or service provided shall be determined in a final purchase agreement. This document may not be reproduced or distributed in whole or in part to or by a third party.*



	GridConn + BattPack60 <sup>1</sup>	GridConn + BattPack72
<b>PERFORMANCE</b>		
Embedded energy	60kWh	72kWh
Grid connection size	Min 16A	Min 16A
AC net voltage range	380V-400V-440V-460V-480V	380V-400V-440V-460V-480V
Grid frequency	50Hz/60Hz	50Hz/60Hz
C-rate charge/discharge	2C	0,5C
Battery chemistry	NiMH	NiMH
Battery configuration	1 parallel-connected rack	1 parallel-connected rack
Internal DC voltage	Nominal: 600VDC	
DC current	Max 200A	
Monthly self discharge	<1%	
Calendar life	20 years <sup>2</sup>	
Cycling life	8000 cycles before recharge <sup>3</sup>	
Recommended range of operation at 25°C	10%-98% state of charge	
<b>Controls and connectivity</b>		
Communication protocol	ModBus/TCP-IP	
Storage module	Cell temperature, cell pressure, voltage level, balancing status	
Monitoring functions	Voltage, current, SOC, SOH alarms, warning, contactor status, internal system temperature, gas (H <sub>2</sub> ) detection, fire detection	
Control functions	Precharge, switching and rack isolation, emergency stop, UPS mode, Island mode, full slave mode	
Cell balancing	Passive	
Connectivity	Ethernet/3G/4G/5G	
<b>Safety features</b>		
Protection	Emergency stop, breaker, fuse, fire protection, alarm and trip, gas detection, dry fire fighting water inlet, earth quake proof (up to 2G in all directions)	
Lockout mechanism	Pad-lockable door and pad-lockable DC switches	
Fire protection	Integrated firepro protection	
Gas detection	For H <sub>2</sub> (Optional)	
<b>Container &amp; Environment</b>		
Operating humidity	0%-100%	
Storage and operating temperature range	-20°C to +55°C (Arctic configuration: -40°C to +30°C)	
Operating altitude	<1000 m ASL <sup>4</sup>	
Cooling system	Air conditioned, fully self contained	
Dimensions	950x2200x1950 (wxdxh in mm)	
Weight	2500Kgs	
<b>Certification &amp; Standards</b>		
Cells	CE	
Module and BMS	CE (Bureau Veritas type approval pending)	
Rack	CE (Bureau Veritas type approval pending)	
Container	CE	

<sup>1</sup> Most common configuration

<sup>2</sup> With refillable batteries and compliance with product manual having a maintenance procedure in place

<sup>3</sup> At an SOC of 20-80%

<sup>4</sup> High altitude solutions available upon request

*Energy storage is in our DNA*

The information in this document is proprietary to Mc Energy BV. All specifications and data are approximate, may change without notice and are subject to certain operating environments, assumptions and other conditions. The image shown is for information purposes only. This document does not constitute an offer, commitment, representation, guarantee or warranty of any kind and the configuration and performance of any energy storage related solution or service provided shall be determined in a final purchase agreement. This document may not be reproduced or distributed in whole or in part to or by a third party.