

Technical specifications	MGHE240100 24 V / 100 Ah	MGHE240150 24 V / 150 Ah	MGHE240200 24 V / 200 Ah	MGHE240300 24 V / 300 Ah
Technology	Lithium-Ion NMC			
Cell configuration	7S32P	7S48P	7S64P	7S96P
Nominal voltage	25.2 V			
Nominal capacity	100 Ah	150 Ah	200 Ah	300 Ah
Nominal energy	2.5 kWh	3.7 kWh	5.0 kWh	7.5 kWh
Specific energy <sup>1</sup>	159 Wh/kg	167 Wh/kg	175 Wh/kg	182 Wh/kg
Weight	15.7 kg	22.4 kg	28.6 kg	41.5 kg
<b>Cycle life <sup>2</sup></b>				
DOD 75 % - Economic mode	3000			
DOD 95 % - Performance mode	2000			
<b>Discharge</b>				
Discharge cut-off voltage	21.0 V			
Recommended discharge current	30 A (0.3 C)	45 A (0.3 C)	60 A (0.3 C)	60 A (0.2 C)
Continuous discharge current	100 A (1.0 C)	150 A (1.0 C)	200 A (1.0 C)	210 A (0.7 C)
Maximum discharge current <sup>3</sup>	200 A (2.0 C)	300 A (2.0 C)	400 A (2.0 C)	450 A (1.5 C)
Internal fuses <sup>4</sup>	150 A	250 A	300 A	
<b>Charge</b>				
Maximum charge voltage	29.4 V			
Recommended charge current	30 A (0.3 C)	45 A (0.3 C)	60 A (0.3 C)	60 A (0.2 C)
Continuous charge current	100 A (1.0 C)	150 A (1.0 C)	200 A (1.0 C)	210 A (0.7 C)
Maximum charge current <sup>3</sup>	150 A (1.5 C)	225 A (1.5 C)	300 A (1.5 C)	300 A (1.0 C)
<b>Configuration</b>				
Series configuration	Yes, up to 16			
Parallel configuration	Yes, unlimited			
Redundant mode	Yes Using multiple Master BMSs			
<b>Environmental</b>				
Operating temperature charge	0 to +45°C			
Operating temperature discharge	-20 to +55°C			
Storage temperature	-20 to +45°C			
Humidity (non-condensing)	≤ 95 %			
<b>Mechanical</b>				
Power connections	M8 stud, max. 15 Nm			
IP-Protection class	IP20		IP40	
Cooling	Air, forced (2x fan inside)		Air, convection (no fans)	
Dimensions ( l x h x w )	362x214x193 mm	362x284x193 mm	362x355x193 mm	366x497x193 mm
<b>Safety</b>				
Battery Management System	Integrated slave BMS			
Balancing	Passive			
Compatible BMS master	MG Master LV, MG Master HV <sup>5</sup>			
Communication	CAN-Bus ( RJ45 or M12 connection)			
<b>Standards</b>				
EMC: Emission	EN-IEC 61000-6-3:2007/A1:2011/C11:2012			
EMC: Immunity	EN-IEC 61000-6-1:2007			
Low voltage directive	EN-IEC 60335-1:2012/A11:2014			

<sup>1</sup> Including BMS and enclosure.

<sup>2</sup> End-of-Life is 70% of initial capacity at 25 °C.

<sup>3</sup> Duration is depending on battery temperature.

<sup>4</sup> Fuses can be replaced with dummy fuses for high power and high voltage applications. In this case the batteries need to be fused elsewhere in the circuit.

<sup>5</sup> For systems >144 V, order the M12, HV version.

# HE Series

## High Energy Lithium-Ion batteries



- ▶ Superior energy density for lightweight applications
- ▶ Low voltage from 24 V up to 96 V
- ▶ High voltage scalable up to 470 V
- ▶ Plug and Play installation
- ▶ Scalable system design
- ▶ Redundant option
- ▶ NMEA2000 compatible



**Marine**  
Electric propulsion  
Aux. battery bank

**Industrial**  
Peak shaving  
UPS systems

**Off-grid/Solar**  
Self-consumption  
Off-grid solutions

**Automotive**  
Mobile power sources  
Electric mobility

## HE Series

The HE battery series is based on a high energy density battery cell. This means more energy in less weight. The integrated battery management system brings the highest standard on safety and gives insight in the status of the battery. Flexibility in system configuration is created by a modular design. On a system level voltages up to 470 V and capacity up to 720 kWh can be created.



HE battery modules 2.5 up to 7.2 kWh

- ▶ Superior energy density
- ▶ Low voltage solutions: 24 V up to 96 V
- ▶ High voltage solutions: Up to 470 V
- ▶ Redundant option
- ▶ Plug and Play installation: Automatic configuration
- ▶ NMEA2000 compatible



## High voltage systems

The HE batteries are available in a high voltage version (HV). This makes it possible to connect these batteries in series up to 16 modules. This configuration can be used in UPS systems, propulsion applications and solar energy storage.

## M12 and RJ45

The communication connections between the batteries and Master unit can be established with either economical RJ45 cables or more robust M12 cables. Up to 96 V both options are available. In the range higher than 96 V only the M12 option is available.



## Safety

Each battery module comes with an integrated battery management system (BMS). This is an intelligent electronic module (slave BMS), that measures all cell voltages and temperatures to control balancing on both battery cell and module level. The battery modules communicate by a galvanic isolated CAN-Bus with the MG Master LV or HV (master BMS), which collects and monitors the status of all battery modules. If the measured values from a battery module exceed the limit, the MG Master will automatically take action to protect the connected battery modules.

## Battery management controllers

Protecting, monitoring and controlling a battery system is very important to create a safe, reliable and easy-to-use system. The MG Master LV or HV is the safety and control unit of the battery system. It protects the connected battery modules against over-charging, over-discharging, over-temperature, under-temperature and controls the balancing of the battery cells. Besides a safety function, the MG Master LV or HV monitors and tracks other important parameters to give insight in the battery status and energy consumption. MG's battery system CAN-bus protocol can be used to communicate with other equipment and multi functional display's (MFD's) by NMEA2000 and web interface. The MG Master LV and HV ensure an easy and proper installation. Thanks to the built-in safety components a reliable installation is guaranteed.

### MG Master LV



12 V to 96 V  
150 A to 1000 A

### MG Master HV



144 V to 800 V  
300 A and 500 A

## Energy storage systems

System flexibility is one of the main key features of all MG products. Combining HE series batteries together with one of the Master BMSs creates a powerful system for a complete range of applications. Redundant systems can be made by connecting multiple Master BMSs in parallel to increase system reliability and capacity.

## System example: 48 V / 400 Ah / 20 kWh / 115 kg

