CONTACT :

DEALER
CONTACT
INFORMATION

SCAN FOR TECHNICAL SPECIFICATIONS

MG RS SERIES

RELATED MG PRODUCTS

- MG Master LV & HV
- HE Series
- LFP Series
- Energy Monitor

MG Energy Systems | Foeke Sjoerdswei 3 | 8914 BH Leeuwarden | The Netherlands
www.mgenergysystems.eu | sales@mgenergysystems.eu

RS Series

CERTIFIED BY DNV·GL MARITIME

IEC 62619
EN 62620

MG

RS Series

The RS Series lithium-ion battery offers high performance together with high safety. This battery module contains a professional liquid thermal management system and a unique patented cell level propagation protection system. The combination of these safety and performance features make the RS battery suitable for large energy storage applications as well as smaller peak power packs. The high performance rate of the RS Series makes the battery module suitable for hybrid or electric vehicles, vessels and industrial machinery.

- Liquid thermal management
- Cell level Propagation Protection System
- Pressure relief valve with gas exhaust
- Robust enclosure with high IP-rating
- High cycle life
- Low common mode capacity
- High voltage interlock circuit
- Integrated redundant BMS

HIGH PERFORMANCE BATTERY

The improved thermal management features guarantee the high performance quality of the RS Series. The RS battery module is equipped with a unique fluid based thermal management system on cell level. The integrated liquid cooling system actively cools each cell individually. In this way, all battery cells are kept within a predefined temperature window. The thermal management system maintains an equal temperature across the whole system, even with multiple modules. The uniform temperature is important to handle peak charges and discharges in short periods.

THERMAL MANAGEMENT

- Individual cell cooling
- Uniform battery temperature
- High cooling capacity
- Cell-to-cell propagation protection system
- High peak charge and discharge cycles

SAFETY ++

LIQUID COOLING

Each battery module of the RS Series contains a unique cell-to-cell propagation protection. An active and passive protection barrier is integrated in the advanced cell cassette design. There is a cold plate between each individual battery cell, which prevents direct temperature propagation from one cell to neighbouring cells. Additionally, the unique liquid cooling system actively prevents thermal propagation inside the battery module. The rise in temperature of the battery cells is smaller compared to air cooled modules. Also, a module with higher temperature is cooled down much faster and is quickly ready for the next charge or discharge cycle.

EXHAUST SYSTEM

An automatic pressure relief exhaust connection is fitted in each RS battery. In case of a thermal runaway event, the exhaust system channels the released gasses to a safe area.

PROPAGATION PROTECTION SYSTEM

The battery enclosure includes a PPS connection. In case of a single cell thermal runaway event, this propagation protection system fills the battery with a fluid to remove the heat as quickly as possible. By doing so, this mechanism prevents other cells from overheating. This solution mitigates the risk of large uncontrolled battery fires.

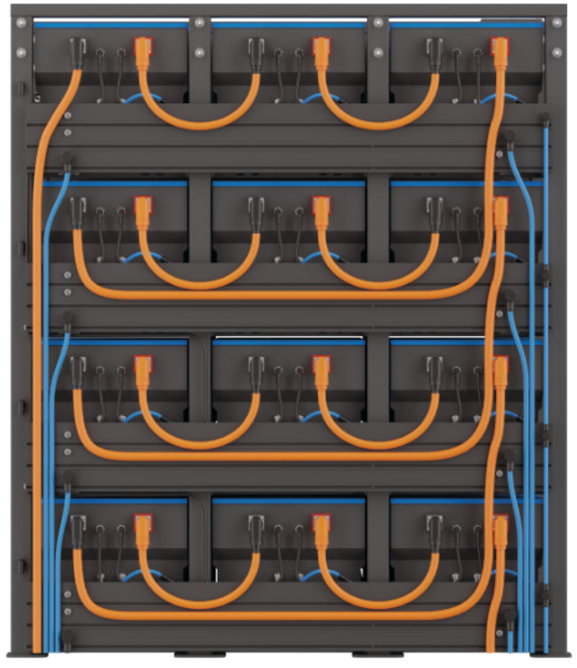
REDUNDANT BMS

An additional redundant BMS, with an independent hardwired protection mechanism, is installed in each RS battery. This is a second stage of protection which measures cell voltages and temperatures independently from the main BMS. With its hardwired connection to the Master BMS it switches off the battery system to a safe state in case any other protection system fails. In this way, maximum safety is guaranteed.

RACK SYSTEM

A modular rack, specially designed for multiple RS battery modules is available. This compact RS rack system provides an easy to install and complete solution. The exhaust ducting and liquid cooling manifolds are already integrated. This rack is designed with a slide-in mechanism, in such a way that only front access is needed. This makes it possible to have an easy and front-side-only installation. Because of the modular design, the rack can be configured in different dimensions. The rack is offered as a kit, which makes it suitable for use in existing spaces in any application. In other words, minimal integration engineering is required.

- Modular design
- Integrated exhaust system
- Offered as a kit
- Liquid cooling and PPS manifolds
- Module slide-in
- Easy front-only installation



MODELS

The RS Series consists of four different models, varying in voltage and capacity. This makes the series suitable for a broad range of applications. The modular and compact design makes system integration more flexible, with a voltage range from 48 Vdc up to 900 Vdc. All models have the same enclosure dimensions, safety features and components.

RS12S4P	RS14S3P	RS16S3P	RS24S2P
44 Vdc 8.4 kWh	51 Vdc 7.4 kWh	58 Vdc 8.4 kWh	88 Vdc 8.4 kWh

Robust enclosure

Steel high IP rated enclosure to protect the battery cells from moisture and mechanical abuse.

Power connections

High Voltage Interlock Loop (HVIL).

CAN-Bus

Data connection to MG Master BMS.

Liquid cooling

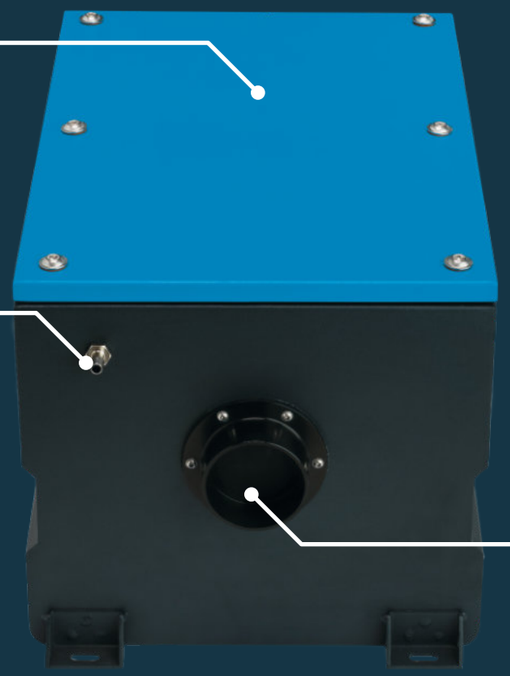
Cooling connections to provide high performance and safety.

Lithium-ion NMC

High performance lithium-ion battery cell.

PPS

Patented Propagation Protection System (PPS).



Gas exhaust

Gas exhaust including pressure relief.

CERTIFICATION

The RS Series battery modules are tested to comply with several type approvals and standards. For marine applications the modules have the DNV-GL type approval. This type approval consists of several mechanical, thermal and electrical tests and also requires a quality system, audits and functional safety on product level.

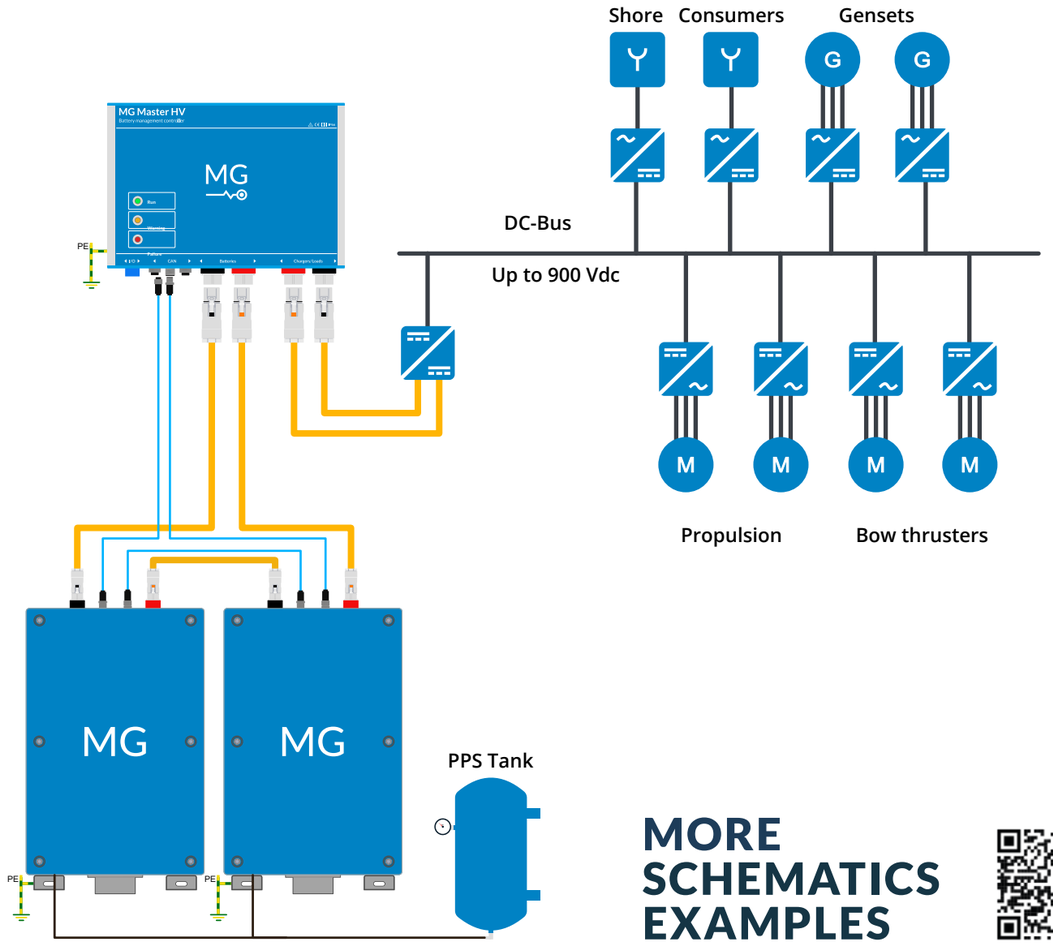
In addition, the battery modules are tested following the UN38.3 transportation tests for lithium-ion batteries and the IEC-EN 62619 and IEC-EN 62620. These standards include safety and performance tests on both cell and module level including the battery management system.

CE | IEC 62619 EN 62620 | UN38.3 | DNV-GL | LLOYDS in progress

SCAN FOR MORE TECHNICAL SPECIFICATIONS

RS
System Integration

System flexibility is one of the key features of all MG products. Combine the RS Series batteries together with one or more MG Masters and create a powerful system for a complete range of applications. The RS battery modules can be connected in series and in parallel to meet the required system voltage and capacity. The possible voltage range for a single string is 44 Vdc up to 900 Vdc. Connect multiple strings in parallel to increase the capacity of your battery bank.



MORE SCHEMATICS EXAMPLES

ELECTRIC PROPULSION

PEAK SHAVING

MOBILE POWER PACK

GENERATOR REPLACEMENT

HYBRID SYSTEMS

MG BATTERY SYSTEM

Each battery system consists of the following

One or multiple battery modules

One or multiple Master BMSs
(MG Master LV or MG Master HV)

>1 MWh
SYSTEM CAPACITY

UP TO 900 Vdc
HIGH VOLTAGE SOLUTIONS

CONNECT YOUR RS

SYSTEM CONNECTIVITY

The RS battery system provides power and energy to a range of different electric drives, DC/DC converters, chargers, generators and even hydrogen stacks. Different voltages and capacities can be created to comply with the application and power component requirements. EMS and PMS integration is easy because several data communication interfaces are available such as NMEA2000, J1939 and MOD-Bus TCP.

SMARTLINK

The MG SmartLink MX and PLC provide the necessary controls to start, stop and reset the battery system. It also makes combined battery data available in such a way that parallel connected systems are shown as one battery bank. The SmartLink supports interfacing to a list of common chargers and electric drives. This makes direct control possible, without additional EMS or PMS. Redundant system functionality is applied as a standard.

MG ENERGY PORTAL

Remotely monitor and control your battery system with the MG Energy Portal. This web-based platform gives direct insight into all relevant data and essential battery parameters of your installation. It shows historical battery usage and the performance of each individual battery.