



LIGHTWEIGHTENERGY

The Driving Force

**LITHIUM-ION
ENERGY SYSTEMS**

MARINE

Perfect
energy solutions
for Ships
and Yachts



OUR ADVANTAGES AT A GLANCE

LIGHTWEIGHT ENERGY develops and distributes Energy Management Systems for Power Appliances on the basis of Lithium-Ion Technology.

ELECTRICAL PROPULSION SYSTEM

An electrical power system for your boat offers a radical improvement in comfort. With no more heavy vibrations from a Diesel Engine, you are left with an incredibly smooth and quiet performance.

- Emission - Free
- Silent Operation
- Vibration - Free

ON BOARD ELECTRICITY

Also, the demand for on-board electrical power systems is becoming ever greater. Air Conditioning, Cooking and other such Electrical Appliances dramatically increase the demand on stored energy. The consequence is big and heavy battery plates. This is where the Lithium-Technology from Lightweight Energy comes into its own.

The High-Tech Energy Storage System offers the following advantages over Lead Batteries:

- 3 – 5 Times Lighter
- 3 – 5 Times More Compact
- 5 – 10 Times the Life Expectancy

Through modular building techniques, LIGHTWEIGHT ENERGY offers the complete solution for saving electrical energy in even the tightest of corners and all with the least possible weight.

SECURITY

Security for our customers is of the utmost importance here at LIGHTWEIGHT ENERGY. We guarantee this most important aspect of our Product through the following measures:

- All Security Systems are implemented twice
- Integrated Short-Circuit Protection
- A choice of 100% safe Cell Technology. 100% means it has
 - Passed a Penetration Test
 - Passed an Overloading Test
 - Passed a Short-Circuit Test

TECHNOLOGY

Lithium Iron-Phosphate offers some fundamental advantages in comparison to other Lithium-Based Technologies:

- 100% Security in all applications
- A higher life-expectancy cycle
- Higher density of energy
- Lower Costs



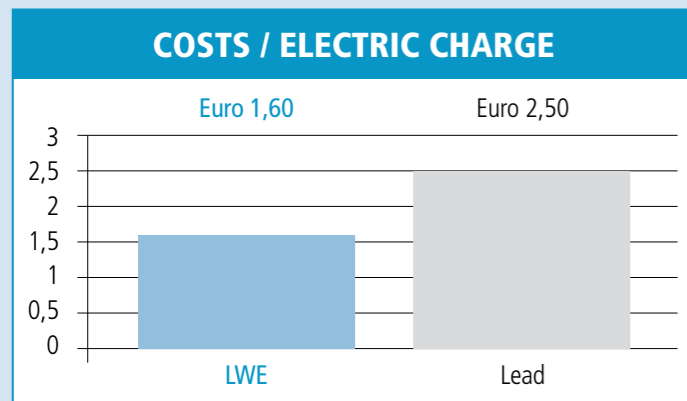
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LITHIUM-ION ENERGY SYSTEMS

LWE HIGH POWER MODULE

LIGHTWEIGHT ENERGY is one of the few companies who, in the modern World of modern Lithium-Technology, can talk about "classics". The high power module has proved itself on the market over the last 4 years and has performed exceptionally. The value of Lithium Technology has proved its worth time and time again. The current life-expectancy is 1500 cycles which far exceeds the life-expectancy of lead batteries.



The informative display offers you readily available information about your system's current condition. You can find



- Voltage
 - Current
 - Temperature
 - Capacity
- and all in real-time on your energy storage system.

The Individual Cell Observation offers you not only an important security feature, but also an increase in capacity and life-expectancy through integrated cell-balancing. The connector of your battery is a further milestone in Battery Technology. Not only is a high-current discharge made possible, the battery management system data is also provided through an interface. Therefore with an external display, you can – irrespective of where you or your boat are situated – read the status of your Energy Storage Device.



WHAT'S NEW? AT A GLANCE

SLIDE N' RIDE

Created for each other, the Slide "n" Ride Rack system is compatible with the HIGH PERFORMANCE MODULES from LIGHTWEIGHT ENERGY and offers ground breaking advantages in many areas. As high performing and



light that Lithium-Technology is, the Batteries need to be handled correctly and not be over or under charged. Everything that's needed for a sure and user-friendly performance, is built into the Racks.

The Advantages:

- Integrated deactivation for both Motor and On-board Electricity
- Carries Out Communication
- Easy Installation
- Easy Maintenance
- The Outage in the Rack offers connection to other energy sources (Solar, Generator or Land Electricity)



PRIME PROFESSIONAL

... If you're looking for a better performance.



The highly resilient Systems from LIGHTWEIGHT ENERGY's Prime Series are best for the high performance users, who need a high performance over a short period of time.

LITHIUM 4 ALL

A Quantum Leap in Technology is the revolutionary LITHIUM 4 ALL – its appearance can be compared to that of a traditional Lead Battery ... Seen 1000 times, Installed 1000 times. Every Operator is able to use a positive or negative terminal. The complex electronics are hidden and you can just concentrate on the most important aspect – Fun with your Boat.



SPEZIFIKATIONS

AT A GLANCE

		HIGH PERFORMANCE MODULE			
		HPM24060-7	HPM24060-8	HPM24090-7	HPM24090-8
General	Notation	HPM24060-7	HPM24060-8	HPM24090-7	HPM24090-8
	Cell Chemistry	Lithium Eisenphosphat LiFePO4			
	Normal Capacity	60 Ah	60 Ah	90 Ah	90 Ah
	Tolerance	+/- 5%			
	Life-Expectancy ¹	1000 – 2500 Zyklen			
Electrical	Nominal Voltage	23,8 V	27,2 V	23,8 V	27,2 V
	Minimum Voltage	17,5 V	20,0 V	17,5 V	20,0 V
	Maximum Voltage	26,1 V	29,8 V	26,1 V	29,8 V
	Discharge Current	120 A	120 A	180 A	180 A
	Maximum Discharge Current over a short time period ²	180 A	180 A	270 A	270 A
	Energy Density	65 Wh/kg	67 Wh/kg	73 Wh/kg	74 Wh/kg
	Stackable until	1000V	1000V	1000V	1000V
	Self – Discharge	1 Ah/Day			
	BMS with cell balancing	yes			
	Environment	Max discharge temperature	60 °C		
Min discharge temperature		-10 °C			
Max loading temperature		40 °C			
Min loading temperature		-10 °C			
Max Storage temperature		45 °C			
Min Storage temperature		5 °C			
Air Humidity Range		0 – 90%			
Dimensions	Temperature Cut-Off	80 °C			
	Height [mm]	237	237	252	252
	Width [mm]	122	122	152	152
	Length [mm]	500	600	555	615
	Volume [L]	14,5	17,3	21,2	23,5
	Weight [kg]	20	22	29	33
Protection	Class of protection (nach IEC 536)	Class of protection III			
	Class of protection (nach IEC 529)	IP 54 (connector plugged in)			
	Security	save according VDE 0160 und VDE 0805			

¹ Depth of discharge: 75%, remaining capacity after lifetime: 80%. Values vary due to surrounding conditions

² maximum 10 seconds

		LITHIUM 4 ALL		PRIME PROFESSIONAL
		Lithium 4 all 24090	Lithium 4 all 12180	Prime Professional 48030
General	Notation	Lithium 4 all 24090	Lithium 4 all 12180	Prime Professional 48030
	Cell Chemistry	Lithium Eisenphosphat LiFePO4		
	Normal Capacity ³	90 Ah	180 Ah	30 Ah
	Tolerance	+/- 5%		
	Life-Expectancy ⁴	1000 – 2500 Zyklen		
Electrical	Nominal Voltage	27,2 V	13,6 V	51,0 V
	Minimum Voltage	20,0 V	10,0 V	40 V
	Maximum Voltage	29,8 V	15,2 V	57,0 V
	Discharge Current	90 A	180 A	90 A
	Maximum Discharge Current over a short time period ⁵	90 A	180 A	150 A ⁶
	Energy Density	74 Wh/kg	74 Wh/kg	83 Wh/kg
	Stackable until	48 V		1000 V
	Self – Discharge	1 Ah/Day		1 Ah/Tag
	BMS with cell balancing	yes		
	Environment	Max discharge temperature	60 °C	
Min discharge temperature		-10 °C		-10 °C
Max loading temperature		40 °C		40 °C
Min loading temperature		-10 °C		-10 °C
Max Storage temperature		45 °C		45 °C
Min Storage temperature		5 °C		5 °C
Air Humidity Range		0 – 90%		0 – 90%
Dimensions	Temperature Cut-Off	80 °C		80 °C
	Height [mm]	268	268	308
	Width [mm]	356,5	356,5	122
	Length [mm]	302,0	302	544
	Volume [L]	28,0	28,0	20
	Weight [kg]	33,0	33,0	20
Protection	Class of protection (nach IEC 536)	Class of protection III		Class of protection III
	Class of protection (nach IEC 529)	IP 65		IP 54
	Security	save according VDE 0160 und VDE 0805	save according VDE 0160 und VDE 0805	save according VDE 0160 und VDE 0805

³ measured at 0,5C

⁴ Depth of discharge: 75%, remaining capacity after lifetime: 80%. Values vary due to surrounding conditions

⁵ maximum 10 seconds

⁶ dependent on cooling condition

		SLIDE N' RIDE								
		Slide n' Ride						Connector Box		
Product	SNR	SNR	SNR	SNR	SNR	SNR	AB1	AB1	ABX	
		500-200-7	80-80-7	X-7	500-200-8	80-80-8	X-8	500-200	80-80	
Stackable until	500 V	80 V	500 V	500 V	80 V	500 V	500 V	80 V	500 V	
Current max	200	80	200	200	80	200	200	80	200	
Width	157	157	157	157	157	157	146	146	146	
Length	700	700	700	768	768	768	101	101	101	
Height	268	268	268	268	268	268	268	268	268	

		RANGE OF USE		
		Lithium 4 all	High Performance Modul	Anschlussbox
High tension – High Performance Applications			X	XX
Drive over 48V, 90A			XX	XX
Auxillary propulsion On-board Electricity (bis 48V, 90A)		XX	X	

X = suitable

XX = very suitable



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Lightweight Energy GmbH
High-Tech Energy Systems

A-4615 Holzhausen
Kirchenstrasse 12
Phone: +43 (7243) 54836-0
Fax: +43 (7243) 51507
www.lightweight-energy.com