



# TECHNICAL DATA SHEET

# ENSEGA

BEYOND BATTERIES

Manufactured by



Module	500Wh-12V	1.2kWh-12V	1.2kWh-24V	2.5kWh-24V
<b>Performance Specifications</b>				
<b>DC Energy</b>	500Wh	1.2kWh	1.2kWh	2.5kWh
<b>Voltage Range</b>	10.8Vdc to 15.2Vdc	10.8Vdc to 15.2Vdc	21.6Vdc to 30.4Vdc	22Vdc to 29Vdc
<b>DC Voltage (Nominal)</b>	12Vdc	12Vdc	24Vdc	24Vdc
<b>Internal Resistance</b>	<4 mΩ			
<b>Cell Specifications</b>				
<b>Technology</b>	Encapsulated Cell			
<b>Nominal Cell Voltage</b>	6.4~6.6Vdc / Cell (Encapsulated) 1/2 + 0.12V Envelope			
<b>Charge Characteristics</b>				
<b>Maximum Charge Current</b>	0.5C (20A) maximum (maximum continuous charging current) @25°C	0.5C (50A) maximum (maximum continuous charging current) @25°C	0.5C (25A) maximum (maximum continuous charging current) @25°C	50A (0.5C)
<b>Charging Method</b>	CC/CP/VP			
<b>Discharge Specifications</b>				
<b>Maximum Discharge Current</b>	0.5C (20A) maximum (maximum continuous discharging current)	0.5C (50A) maximum (maximum continuous discharging current)	0.5C (25A) maximum (maximum continuous discharging current)	50A (0.5C)
<b>Discharging Method</b>	CC/CP/VP			
<b>ENSEGA Monitoring Software</b>				
<b>Communication and Connectivity</b>	Bluetooth / Encontrol device*			WIFI / Bluetooth
<b>Module Monitoring</b>	Total Voltage, Individual Cell Voltages, Current, Temperature, Instantaneous Power, SOC and Energy Consumed.			---
<b>Alarm</b>	---			Warning alarm in the event of Over/under-Voltage, Over-Current, Over Temperature
<b>OLED Display</b>	---			Monitoring Total Voltage, Individual Cell Voltages, Current, Temperatures, SOC and Energy Consumed

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Module	500Wh-12V	1.2kWh-12V	1.2kWh-24V	2.5kWh-24V
<b>Safety Performance</b>				
<b>Short Circuit Protection</b>	Electronic Switching, Terminal Cut-off		500A, Electronics Switching, Terminal Cut-off	Electronic Switching, Terminal Cut-off
<b>Over/Under Voltage</b>	Electronic Switching, Terminal Cut-off			
<b>Over Current (Charge &amp; Discharge Current)</b>	Electronic Switching, Terminal Cut-off			
<b>Over temperature</b>	Electronic Switching, Terminal Cut-off			
<b>Cell's Imbalance ( V &gt; 1V)</b>	---	Electronic Switching, Terminal Cut-off		---



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Module	500Wh-12V	1.2kWh-12V	1.2kWh-24V	2.5kWh-24V
<b>Mechanical Specifications</b>				
Dimensions (W x H x D) cm	25 x 20 x 13	30 x 20 x 20		35 x 20 x 25
Weight (kg)	6kg	12kg		20
Module Casing Material	Plastic Casing			GI Powdered
<b>Environment Specifications</b>				
Cell Operating Temperature <sup>1</sup>	<ul style="list-style-type: none"> <li>• Charging: 0°C ~ 50°C (0°C to 10°C current limit 20A charge)</li> <li>• Discharging: -20°C ~ +55°C</li> </ul>			-20°C~ +55°C
Operating Humidity	Non-Condensing			Non-Condensing
Storage Temperature	-10°C ~ +45°C (<3 months, SOC: 20% ~ 60%)   -10°C ~ +35°C (<1 year, SOC: 30% ~ 60%)			---
<b>Module Service Life</b>				
Projected Cycle Life <sup>2</sup>	500,000 Cycles			
Projected Calendar Life <sup>3</sup>	25 Years			
Shelf Life <sup>4</sup>	10 Years	10 Years (Extendable)		10 Years
Warehousing	Can be stored at any SOC without affecting cycle life			
<b>Precautions</b>				
Alarm	In case of alarm, immediately rectify/attend to the cause of the alarm.			
Physical Damage	In case the module is physically damaged due to any event, do not install and energize the module under any circumstances and contact your re-seller.			
Short Circuit	Ensure precautions to prevent short-circuit under all circumstances.			

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Module	500Wh-12V	1.2kWh-12V	1.2kWh-24V	2.5kWh-24V
<b>Series Connection</b>	All modules must be at 100% SOC before connecting in series. Please consult your reseller when connecting the modules in series.			---
<b>Galvanic isolation</b>	When connecting to external devices ensure that galvanic isolation does not exceed 1000V.			
<b>Series - Parallel Connection</b>	Modules cannot be connected in series - parallel combination under any circumstance.			
<b>Parallel Connection</b>	All modules must be at 100% SOC before connecting in parallel. There is no limit on the number modules that can be connected in parallel.	All modules must be at 100% SOC before connecting in parallel. Please consult your reseller when connecting in parallel.	All modules must be at 100% SOC before connecting in parallel. There is no limit on the number modules that can be connected in parallel.	All modules must be at 100% SOC before connecting in parallel. There is no limit on the number modules that can be connected in parallel.

## Notes:

<sup>1</sup>The temperature range indicates the range in which the encapsulated cells can operate. The performance of the cells may vary if they are continuously operated outside a temperature range of -20°C to 55°C, and/or at C-rates higher than the maximum charge/discharge rate specified in this spec sheet. The operating temperature range of the module varies based on the application. If the module is to be operated continuously outside a temperature range of -20°C to 55°C, and/or at C-rates higher than the maximum charge/discharge rate specified in the spec sheet, please consult Emtel or its Reseller prior to deploying. Warranty conditions will apply.

<sup>2</sup>Projected life of encapsulated cells. Cycle life will vary if cycled more than 4 times a day.

<sup>3</sup>Projected Calendar life of encapsulated cells from the date of first operation.

<sup>4</sup>Shelf life is the life of the module (in years) from the date it is manufactured to the time it is first operated.

\*EN-Control is an external display used for monitoring & configuring the Module.

\*Please consult your Reseller or Emtel for warranty conditions applicable to your region. Additional terms and conditions, including a limited warranty, will apply at the time of purchase.

• Product dimensions are for reference only unless otherwise identified and may change without notice. For critical applications, please contact your Reseller.