



Enerdrive

DRIVING YOUR ENERGY NEEDS

Battery & Installation System For Li-Ion Battery Banks.

Available in 100Ah, 200Ah, 400Ah & 500Ah capacities, Enerdrive has a battery to suit nearly every application.

Lithium Ion batteries have a high energy density and are perfect for cyclic applications. They offer savings of up to 70% in volume and weight compared to traditional lead-acid batteries. Lithium Ion batteries offer ultra-fast charging and discharging, high efficiency and three times as many charging cycles (2000 full cycles) compared to traditional lead acid batteries.

Enerdrive's Lithium-iron-phosphate (LiFePO4) is the safest of the mainstream li-ion battery types. The nominal voltage of each cell is 3.2V. A 12,8V Enerdrive battery therefore consists of 4 cells connected in series.

All lithium Ion batteries require a battery management system (BMS). There is no way around this. There are numerous examples of catastrophic failures where no BMS has been used.

All Enerdrive Lithium Ion batteries contain an internal (BMS). This system monitors each cell internally and balances the cells during charge to level the state of charge of all cells in the pack. It also protects each cell in the battery from going outside its safe voltage range.

Included in the construction of the battery case is a unique battery cable coupling system. This aircraft designed system integrates the battery pack to Enerdrives Lithium Installation Kit.

The installation kit incorporates the Enerdrive Advanced BMS Rely Driver, ePRO monitor, Main DC Fuse and a load disconnect latching relay. This kit is connected to the battery and designed to work hand in hand with the batteries internal BMS system for controlling charging and discharging sources for ultimate protection of your investment.

Many companies will just sell you the battery and if lucky, you will get a BMS incorporated. They neglect to tell you that disconnecting loads and charging sources at the critical times requires more equipment to be installed to manage these operations.



Enerdrive have designed and created a COMPLETE Battery & Installation System so your Li-ion battery bank is fully protected and designed to give maximum performance and longevity.



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Enerdrive Lithium Ion Installation Kit Mounted on Zinc Power Coated Plate

High Cell Voltage Situations - 4 Contacts are supplied to use for External Relay Control of Charging Sources.

- 2 x Normally Open Contacts (1 amp Max) each - used to operate Relays connected to Chargers, Solar or a DC/AC relay connected to Combi Units.
- 1 x Normally Closed Contact (5 amp Max) - used to operate Relays connected to Chargers, Solar or a DC/AC relay connected to Combi Units.
- 1 x Normally Closed Contact (10 amp Max) - used to operate Field wire of Alternator, Requirements of Alternator must be assessed to see if this is suitable as will not suit all applications

Advanced BMS Relay Driver

Low State of charge (SOC%) Relay Cut Out.

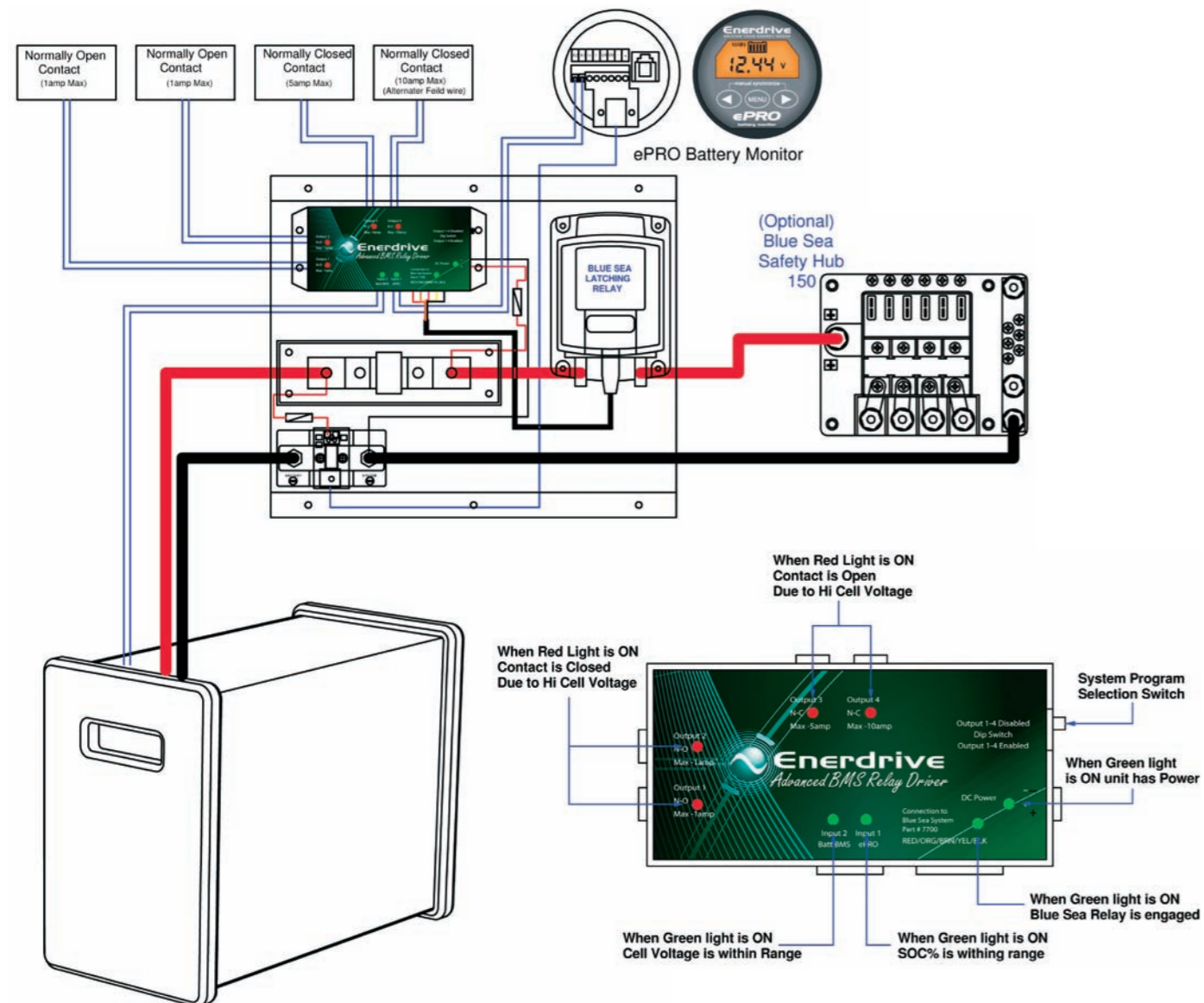
The system is designed to disconnect the battery if it has been drained to a pre-set capacity. When the monitor registers the low SOC% set point, it will disengage the Blue Sea Latching Relay to prevent further discharge and/or damage to the battery. To

charge the battery from this state, turn off all loads, manually engage the latching relay by pressing the Yellow button on top of the relay and turn on the charging source/s. If the ePRO monitor does not register a minimum 1% increase in the SOC% within 6 minutes, the relay will disengage again to protect the battery. If this happens, re-engage the relay and continue charging. When the monitor registers 1% SOC% increase above the pre-set low capacity point, the system will stay active. Keep the charging source/s running to fully charge the battery. Once the capacity reaches 30% SOC, you may reactivate the loads.

System Program Selection Switch

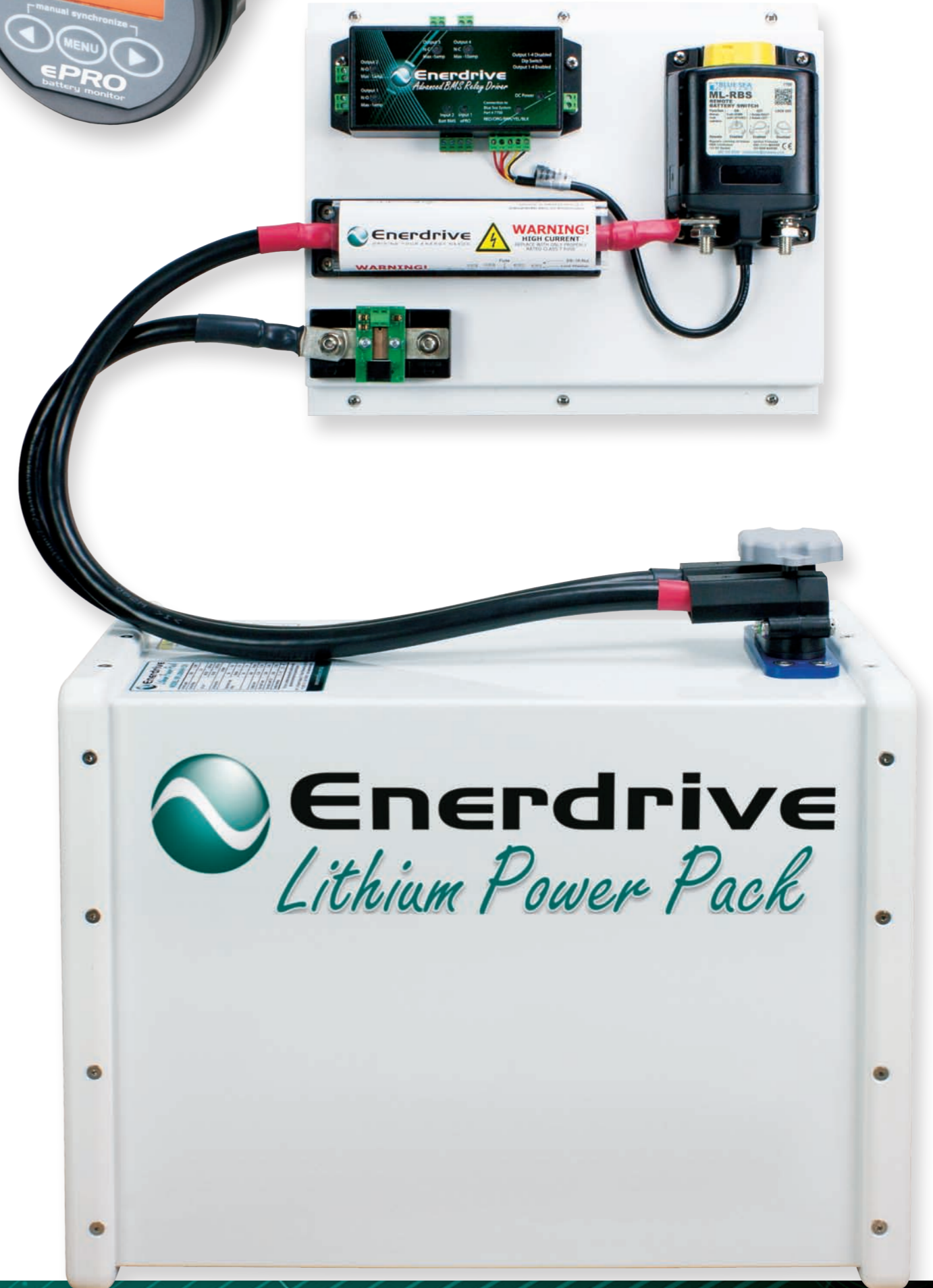
The Enerdrive Advanced BMS Relay Driver has 2 pre-programmed settings. Output 1-4 Disabled; is programmed if you do not wish to use the Output contacts. If the battery SOC% is Low or Cell Voltage is high, the Blue Sea relay will disengage, turning off the whole system to protect the Battery.

Output 1 - 4 Enabled; is programmed if you wish to utilise the Output contacts. Using the program allows you to have the charging sources run through external relays allowing the BMS to isolate the charging source in the event of a cell voltage being too high without turning the whole electrical system Off. In the event of low SOC% the Blue Sea relay will still be disengaged to protect the battery.



Battery Monitor Supplied

The ePRO Battery Monitor is supplied as part of the installation kit and is pre-programmed by Enerdrive with all of the alarm set points to match the specific installation. The meter will show all of the relative information like Volts, Amps, Amp-hours, Percentage State of Charge & Time to go. It will also record all of the history data of the Lithium Ion, Deepest Discharge, Battery Cycles, Hi/Low Voltage & Amps, All Alarm History Etc. This is a critical part of the Lithium Ion installation kit and a must have for any battery system.



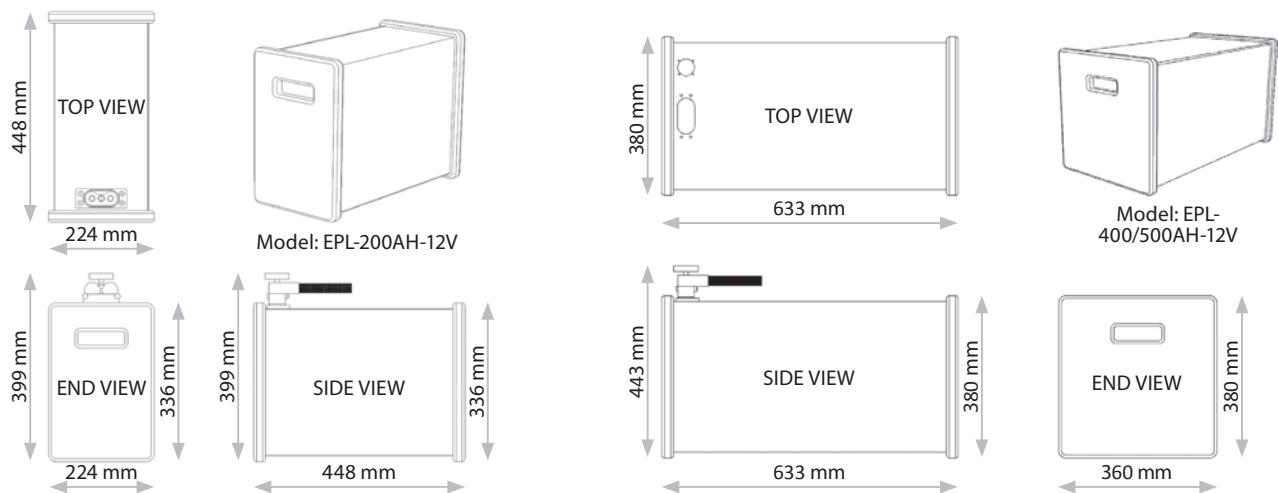
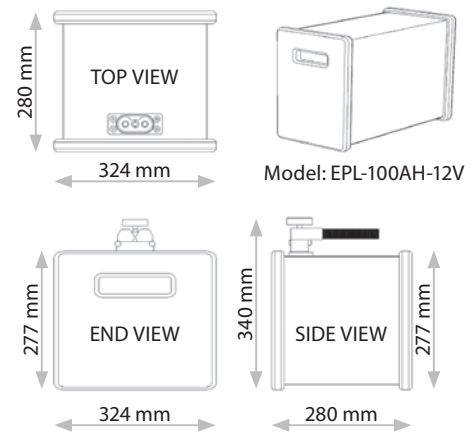
Specifications

	Model: EPL-100AH-12V		Model: EPL-200AH-12V		Model: EPL-400/500AH-12V	
Nominal Capacity	100Ah	1280Wh	200Ah	2560Wh	400/500Ah	5120/6400Wh
Nominal Voltage	12.8V		12.8V		12.8V	
Life Cycles*	80% DOD	≥2000 Cycles	80% DOD	≥2000 Cycles	80% DOD	≥1500Cycles
Self-discharge Rate	≤3%		≤3%		≤3%	
Weight	23kg		35kg		75kg	
Dimensions-mm LxWxH	280 x 324 x 277mm		448 x 224 x 336mm		630 x 360 x 380mm	
	Mode: CC-CV		Mode: CC-CV		Mode: CC-CV	
Max & Min Voltage:	Charge: 15.2V Discharge: 11.5V		Charge: 15.2V Discharge: 11.5V		Charge: 15.2V Discharge: 11.5V	
Standard Current	Charge: 0.3C,30A Discharge: 0.3C,30A		Charge: 0.3C,60A Discharge: 0.3C,60A		Charge: 0.3C,120A/150A Discharge: 0.3C,120A/150A	
Max Constant Current	Charge: 3C,300A Discharge: 3C,300A		Charge: 3C,600A Discharge: 3C,600A		Charge: 0.3C,1200A/1500A Discharge: 0.3C,1200A/1500A	
Max Impulse Current (10s)	Charge: 3C,300A Discharge: 5C,5000A		Charge: 3C,600A Discharge: 5C,1000A		Charge: 3C,1200A/1500A Discharge: 5C,2000A/2500A	
Operatng Temperature	Charge: 0°C- 45°C Discharge: -20°C-+60°C		Charge: 0°C- 45°C Discharge: -20°C-+60°C		Charge: 0°C- 45°C Discharge: -20°C-+60°C	

*Life cycles is a prediction only under perfect conditions real world applications and environment may change these figures.

Cell Balancing & Protection Info

Nominal Cell Voltage:	3.2-3.4V
Bypass Voltage:	3.60V (Bypass shunt will switch on)
Max. Bypass Current:	800mA for 100/200Ah & 2A for 400/500Ah
Power Consumption:	2.5mA @ 3.2V
LED Indicators:	Green (ON=OK), Red (ON=Bypass active) Not viewable in battery box
Safety Limits:	2.6V < OK < 4.0V
Current Loop Relay:	Normally closed when cell voltage is within the safety limits.
Max Signal current:	100mA (non-polarized) maximum
Max height above terminal bolts:	zero
Environmental:	Epoxy encapsulated against dust and moisture ingress.
Gold plated negative terminal	



Dealer: