

# **VARLEY™ Li-5** **12V LITHIUM MOTORSPORT BATTERY**

## **USER MANUAL**

***DMS technologies***

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## DESCRIPTION

This **VARLEY™** Li-5 lithium motorsport battery is an engine start battery capable of the exceptional engine cranking ability expected from the **VARLEY™** brand. The battery utilises LiFePO<sub>4</sub> (lithium iron phosphate) technology, which is widely regarded to be one of the safest and longest lasting forms of lithium-ion battery available. The combination of innovative design and cutting edge engineering techniques enable the battery to deliver such impressive performance safely, reliably and in an extremely lightweight package.

**Note:** Please fully read this manual before installing or using the battery. This will ensure that maximum performance is obtained in the safest possible way.

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## SAFETY

The battery has been designed to be extremely safe and reliable when in use, transportation and storage. The following guidelines should be followed at all times to ensure that the battery, connected equipment and user are put at no undue risk of damage or injury:

- The battery is not suitable for continuous charge applications
- Recharge the battery from an alternator or with a **VARLEY™** approved lithium charger
- Stop charging if the battery becomes hot
- Fully isolate the battery when not in use
- Do not short circuit the battery
- Do not leave the battery discharged
- Do not exceed the minimum and maximum electrical and mechanical ratings defined in this manual (see below)
- Suitable for use with 12V Red Flash jump start packs

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## CHARGING

The battery is supplied in a partial state of charge. It is highly recommended that before use, it is fully recharged using a **VARLEY™** approved charger. This will ensure that maximum capacity is obtained from the start, and the life expectancy of the battery is as long as possible.

To charge the battery, simply connect a **VARLEY™** approved charger's output leads to the main battery terminals (ensuring correct polarity is observed), and switch on. Please also follow any specific instructions supplied with the charger. If the charger is suspected to be faulty in any way, refrain from using it with the battery. This battery contains electronic protection, if the battery reads 0V then charging is required.

The charge regime required by the battery is **NOT** compatible with general purpose automotive, boost or lead acid battery chargers. Chargers that are not designed for 12.8V (nominal) LiFePO<sub>4</sub> batteries **MUST NOT** be used to charge the battery, nor should the battery be charged in boost mode.

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## INSTALLATION

Due to the sealed, non-spillable nature of the battery, it may be installed in any orientation. The battery should be held securely, and use of shock/vibration absorbing foam pads is highly recommended. In addition, ensure that connecting cables are well restrained close to the battery terminals. Failure to do so may couple vibration into the internal components of the battery, leading to premature failure.

Please contact your local **VARLEY™** product supplier for further information about the range of foam pad kits and mounting brackets available for the battery.

**Note:** Failure of the battery due to excessive shock or vibration is not covered by the product warranty.

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## ELECTRICAL SPECIFICATION

The following table shows the various electrical characteristics of the battery. The minimum and maximum ratings **MUST NOT** be exceeded. Doing so may cause irreparable damage to the battery or any attached devices:

Parameter	Min.	Typ.	Max.
Voltage*	10.0V	12.8V	14.6V
Continuous Discharge Current*	-	-	80A
Peak Discharge Current **	-	-	400A
Capacity*	-	5.5Ah (70.4Wh)	-
Charge Voltage*	-	14.4V	14.6V
<b>VARLEY™</b> Approved Lithium Charger Current	-	7.5A	20A
Low Voltage Cut Off		9.5V	
Operating Temperature (Discharge)	-10°C	-	+50°C
Operating Temperature (Recharge)	0°C	-	+45°C
Storage Temperature	-20°C	-	+60°C

\*Values provided above are based on tests conducted at +23°C

\*\*Current available for 500mS down to 7.2V at 26°C after battery has been pre-conditioned

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## MECHANICAL SPECIFICATION

The following table shows the various mechanical dimensions of the battery. The maximum torque rating **MUST NOT** be exceeded:

Dimension	Value	Tolerance
Width	99mm	±2mm
Depth	95mm	±2mm
Height	82mm	±2mm
Weight	1kg	±0.1kg
Terminal Thread	M6 (Female)	-
Maximum Terminal Torque	5Nm	-

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## TRANSPORTATION

The battery is classified under the UN model regulations as class 9 dangerous goods: 'UN 3840 – LITHIUM ION BATTERIES' (or UN 3481 when packaged with a charger). Transportation of the battery must therefore adhere to the appropriate regulations for the method of transportation used. It is highly recommended that the original packaging is retained, as this may aid in compliance with the applicable regulations. Please refer to UNECE ([www.unece.org](http://www.unece.org)), or other local UN economic commission for up to date copies of the applicable regulations.

For further information or advice regarding the onward shipment of the battery, please contact your local **VARLEY™** product supplier.

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## DISPOSAL

Disposal of this product must be in accordance with all regulatory requirements. The manufacturer aims to minimise environmental impact wherever possible and suggests that this product is recycled in an appropriate manner at end of life. Under no circumstances should the battery be disposed of in fire, water or general waste.

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## WARRANTY

This product is supplied with a standard 12 month warranty against faults occurring due to manufacturing defects. This warranty does not cover faults that occur as a result of abuse, or use of the battery in a manner for which it is not intended.