



SoLVESS-42-3

Advanced Lithium

42 VDC Modules

DESCRIPTION

The SoLVESS-42-3 Series-operated Low Voltage Energy Storage System is optimized for series operation to provide high voltages in electric vehicle, hybrid and other applications, by using several lower-voltage battery modules which are interconnected from both a power and communication perspective. The SoLVESS system was originally developed for airborne vehicle applications where very low weight, high energy storage and extreme reliability are key factors. The base module for the system consists of a single 75 Ah integrated module which is controlled with sophisticated power electronics for safety, performance and life. In addition to being used as a single module, the SoLVESS system can be connected in series with dozens of other SoLVESS modules to provide high power or high energy storage for numerous applications.

The modules are designed to output 42 VDC peak, 37 VDC nominal. A 270 volt system is therefore constructed with seven (7) modules in series. The modular design allows systems to be build from 42 to over 500 volts. The batteries connect to a single master controller which is available in an identical package to simplify mechanical engineering efforts. The master controller includes contactors, fusing and charge control. The available energy from each battery module is 2.7 kWh. The module is housed in a ruggedized aluminum chassis and features several face-plate configurations with a variety of connectors including quick-connect wiring that allows rapid setup and plug-and-play operation.

The SoLVESS system utilizes CanBus to monitor pack and cell parameters. Other communication options are available.

FEATURES

• Third Generation lithium ion cell technology	Enhanced battery life
• Patented control electronics	Optimal safety and performance
• Data bus options: CAN, ethernet, USB,	External monitoring and diagnostics for SOC, SOL and remote operation
• High rate cell balancing	Optimal life and performance
• Easily configurable	Matches any size application
• Multiple module configurations allow for hot	Easy system maintenance
• Rugged aluminum chassis construction	System durability
• Electronically controlled charge monitoring	Battery life, performance and safety

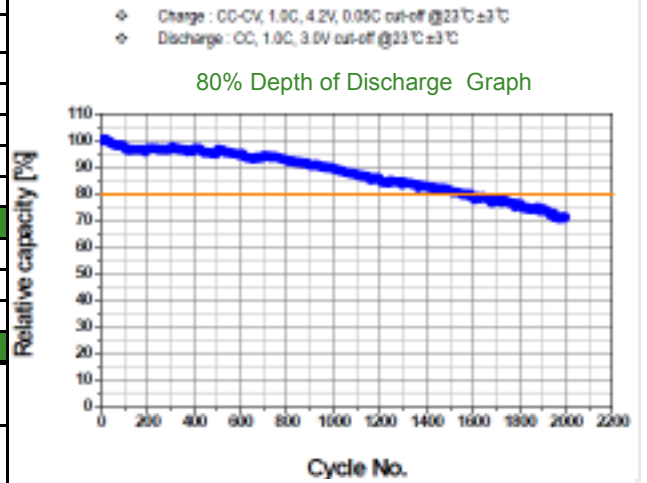


MODULE BASE SPECIFICATIONS

Module Specification	Value	Unit
Operating Voltage Range	30-42	VDC
Nominal Voltage	37	VDC
Rated Capacity	2.78	kWh
Maximum Current	200+	Amps
Weight	25 (55)	Kg (Lbs)
Size (L x W x H)	333 x 155 x 356 mm	

Direct replacement for Lead Acid or Nickel Cadmium with reduced size, weight and maintenance for cell towers and solar systems

General	
Cell Chemistry	Lithium-Ion Polymer (High Rate)
Cell Capacity	75 [Ah]
Battery Configuration	12 Series Modules (or more)
Cell Configuration (Module Level)	10-cells series, (10S1P)
Cell Heaters	None
Total Module Weight	~ 25 kg (55 lbs)
Module Physical Dimension	6.10"w, 14.84"h, 12.7"d
Subsystem Voltage	
Nominal Terminal Voltage	37 [VDC]
Maximum Terminal Voltage	42.5 [VDC]
Minimum Terminal Voltage	30.0 [VDC]
Discharge	
Maximum Discharge Current { System - Software }	200 [A] Continuous
Discharge Current Protection (System - Hardware)	Fuse @ 350 [A] (Fast Blow)
Charge	
Maximum Charge Current { System - Software }	200 [A]
Internal Charge Current Regulator	None
Maximum Charge Voltage	[42.5 V] (Automatic Limit)
Temperature Ranges	
Discharge Temperature	0 [°C] to 60 [°C]
Charging Temperature	0 [°C] to 45 [°C]
Storage @ 50 % SOC	-20 [°C] to 25 [°C]
Charge Safety	<0 [°C] & > 55 [°C] (Pack disables charging)
Temperature Accuracy	+/- 5 [°C]
Cell Balancing	
Scheme:	Passive cell balancing (Resistive)
Cell Balancing Current:	0.5 [A] Nominal
Cell Balancing Occurrence:	Charge, Idle
Communication Protocols	
External Communication Interface:	CANBus/ModBUS



Cycle Life - Depth of Discharge (DOD)

- 100% DOD provides ~800 cycles
- 80% DOD provides ~ 1400 Cycles
- 20% DOD provides ~ 5000 Cycles