

Energy ActionSystem Model 3300-9x12 Lithium Ion Capacitor Development Shelf

- Custom Configurations Available to Meet Your Application Requirement!

INTRODUCTION

The Lithium Ion Capacitor (LiC) Development Shelf provides a series connection of up to 9 LiC modules (108 LiC cells) along with associated protection, monitoring, and cell balancing circuitry that can be incorporated into a larger system design or used by itself in applications requiring high power, high energy LiC energy storage. **LiC systems are ideal for applications that require bidirectional high power pulses, very low leakage, very high cycle life, and exceptional energy density.** Figure 1 is a picture of the LiC Development Shelf.

A block diagram of the Lithium Ion Capacitor Development Shelf is shown in Figure 2. The series connected LiC modules can be operated between 238VDC and 410VDC. The Capacitor Module Controller provides LiC cell balancing and fault monitoring that is accessible via a CAN bus interface. Overcurrent protection is provided by a series connected fuse. Remote connection of the LiC bank and soft start is accomplished via on-board switches that are controlled through the Fault Monitoring Board. The Fault Monitoring Board has a fiber serial interface to allow for remote control of the switches and remote monitoring of under/over voltage and module over temperature faults. The development shelf is intended to ease the incorporation of LiC modules into a system application. The shelf is designed for easy mounting in a commercially available equipment rack. Custom configurations are available upon request.



Figure 1

LiC Development Shelf Specifications:

Energy Storage:

- 9 Modules each containing 12 LiCs. 108 total LiC cells
- Each LiC super capacitor: 3300F, $\pm 200A$ continuous
- Stack Operating Range: 238VDC to 410 VDC, $\pm 200A$ Cont.
- Stack Capacitance: 30.6F nominal
- Cell Balancing: Integrated with Capacitor Module Controller
- Each Capacitor Module: JMenergy ULTIMO MPA 45G275H
- Capacitor Module Controller: JMenergy NA102, power with 24V, 100mA

Protection:

- Fuse: Littlefuse L70S175, 175A
- Power Contactor: 500A max, 9-36VDC coil
- Soft Start Switch contacts: 2A max.

Sensor Feedback:

- Voltage Sensor: Isolated LEM LV-1000
- Current Sensor: LEM LA305-S, Inominal $\pm 300A$, $I_{max} \pm 500A$

Soft Start:

- Resistor: 80 Ω , 600W
- Soft Start Switch Current: <2A

Communications:

- Serial duplex fiber: fault monitor and power contactor, soft start switch control
- CAN Bus: Communications with Capacitor Module Controller

Physical:

- Dimensions: 22.6"W x 30.4"D x 11"H
- Weight: Approximately 185 lbs.

- Custom Lithium Ion Capacitor Development Shelf Configurations are available to meet your application requirements.

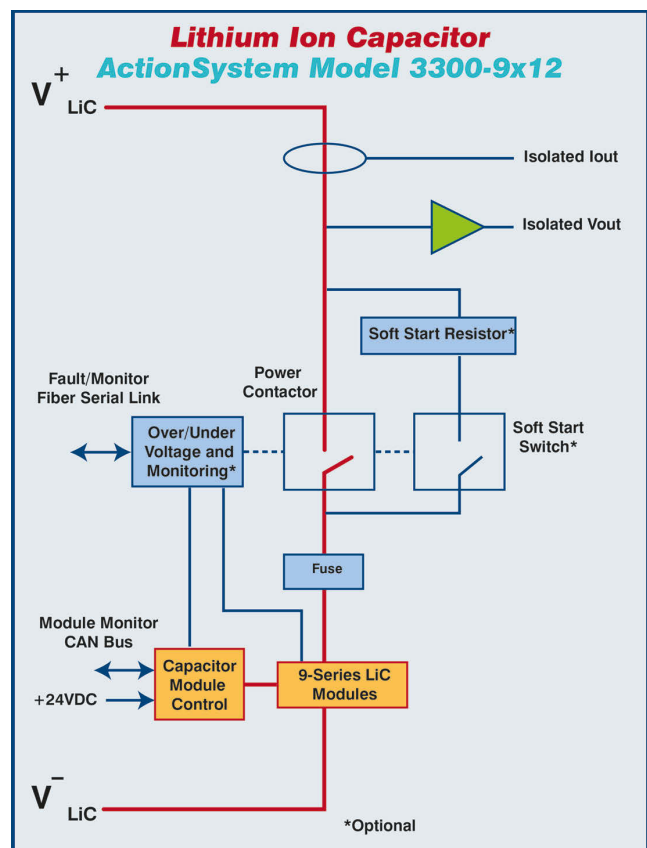


Figure 2