

# LS ULTRACAPACITOR MODULE

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## User Manual

Part No. : LSU M 016R2C 0500F EA PO  
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# LS Ultracapacitor Module

## User Manual

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## Overview

The LS 16.2V / 500F Ultracapacitor Modules have high energy and low ESR to meet energy storage and power delivery requirements.

The cells used in the modules have 2.7 V maximum voltage rating and are connected in series to get higher operating voltage of modules. To meet the long cycle life requirements, the cells operate under 2.7V. In addition, all the cells are balanced by balancing circuit connected parallel to each cell.

Item		Value	Comments
Rated Capacitance	F	500	3000F unit 6 series
Max. Voltage	V	16.2	2.7V/cell
ESR(DC)	m $\Omega$	2.4 (Max.)	
Max. continuous Current	A	100	$\Delta T = 15^{\circ}\text{C}$
Ambient Temp.	$^{\circ}\text{C}$	-40 ~ 65	Storage @ -40 ~ 70
Ambient Humidity	%	0 ~ 95	Storage @ 0 ~ 100
Weight	kg	5.1	
Dimension-W	mm	416.2 $\pm$ 1.0	
Dimension-L	mm	67.2 $\pm$ 1.0	
Dimension-H	mm	156.7 $\pm$ 1.0	Up to top plate
Dimension-H	mm	174.7 $\pm$ 1.0	Up to output terminal

## Description

### Identification of features

- Product Image



<Fig. 1> Product Image

## Part Description

### •Output terminal

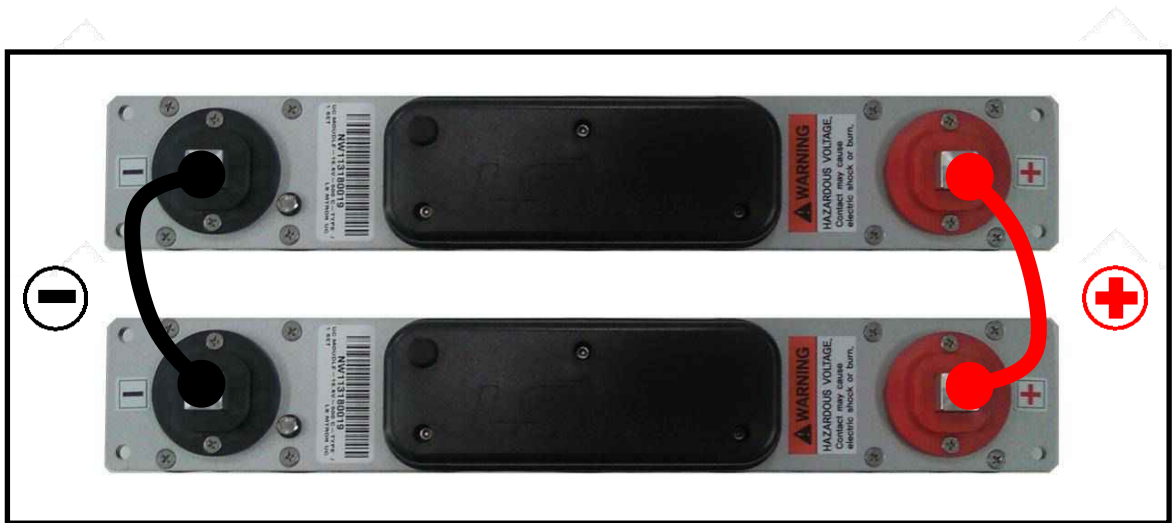
- They are designed to connect directly to a ring or a bus bar. The positive and negative terminals have each hole for the screw. The positive terminal threaded size is M8, and the negative terminal threaded size is M10. Wave washers are required to ensure long term, reliable connections. When implementing torque to the terminals, it is suggested to apply the maximum torque for the M8(or M10) bolt and screw hole. Because the modules have a very low ESR, total ESR will be affected by a ring lug, bus bar or torque. Therefore, it needs more attention to assemble the modules.

## System Design

- Module to module connections



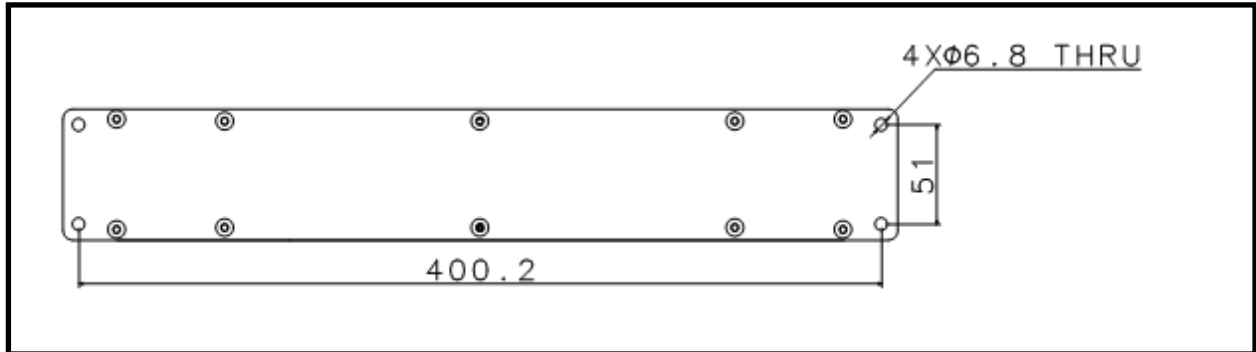
< Fig. 2 > Series Connection of Modules



< Fig. 3 > Parallel Connection of Modules

## Mounting

Fig. 4 shows the mounting positions of the module.



<Fig. 4> Mounting Positions

## Maintenance

### **Power Rating**

The rated voltage and current of the module max 16.2V and 100A. If the applied voltage is over 16.2V, charging the module should be stopped. And the allowable low voltage level of the module depends on the user's requirements, but full discharging to 0V does not affect the module performance.

### **Temperature**

The module has its optimal operating temperature range of -40 to 65. Over 70°C, charging and discharging should be stopped to expect its performance and life cycle.

### **Maintenance**

The module has its expected life cycle over 10years at normal conditions. However the life cycle of the module may be decreased in high temperature condition or over voltage charging.

If following abnormal module performances are detected, operation should be stopped and checking the electrical & mechanical connections is recommended.

- Monitoring high temperature in normal operating conditions
- Internal resistance increase or initial voltage drop increase
- Deformation of the module case



## Contact Information

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Appendix

