LS ULTRACAPACITOR MODULE

User Manual

Part No. : LSU M 016R8L 0058F EA
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LS Ultracapacitor Module

User Manual

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Overview

The LS 16.8V/58.3F Ultracapacitor Modules have high energy and low ESR to meet energy storage and power delivery requirements.

The cells used in the modules have 2.8 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 2.8V. In addition, all the cells are balanced by balancing circuit connected parallel to each cell.

Specification item		LS Mtron
CAPACITANCE	Nominal (F)	58F
	Tolerance	+10%/-5%
VOLTAGE	Max.	16.8V DC
	Rated	16.0V DC
RESISTANCE	ESR, DC	22mΩ
	Tolerance	Max.
CURRENT	Leakage current	5mA
	Max. continuous current	20A
	Short Circiut Current	763A
	Max Peak Current(3s)	119A [3s discharging to 1/2V_R]
	Max Usage Current(10s)	44A [10s discharging to 1/2V_R]
TEMPERATURE	Operating temp.	-40 ~ +65 ℃
	Storage temp.	-40 ~ +70 ℃
TEMP. CHARACTERISTICS (vs. @25 ℃)	Capacitance change	+/-5% (@ -40 ~ 65 ℃)
	Internal resistance change	+150% (@ -40 ~ 65 ℃)
ENERGY	Emax (Wh/kg)	3.81Wh/kg
LIFESPAN (Life test) 10year/max voltage/25℃	Capacitance change	30% decrease
	Internal resistance change	100% increase
CYCLE Cycled under CC at 25℃(500K.)	Capacitance change	30% decrease
	Internal resistance change	100% increase
Balancing	Active	2.8V OVP
	Passive	500Ω / cell
Isolation Voltage	2.5kV DC	60s

※ Capacitance 20% decrease at 16V(rated voltage)/25 ℃/10year.
※ Available energy is 2.1Wh at 16V(rated voltage)/58F.

Description

Identification of features

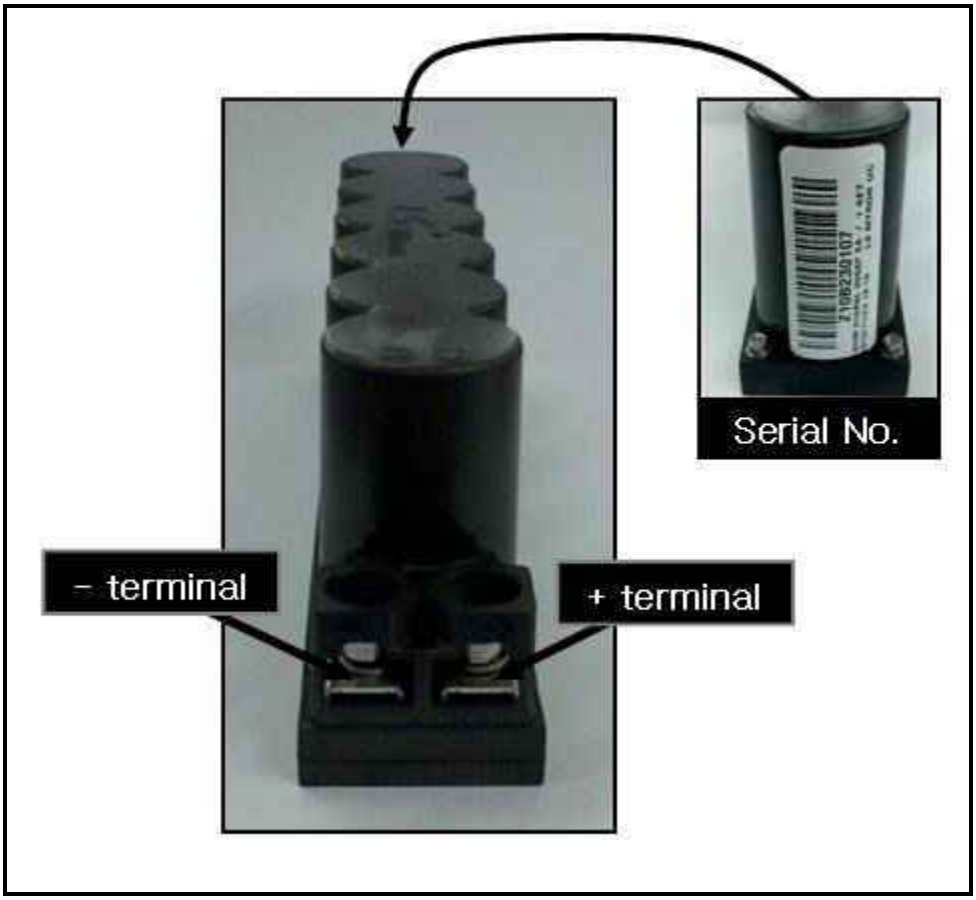
▪ Product Image

<Fig. 1> Product Image

Part Description

- Output Terminals

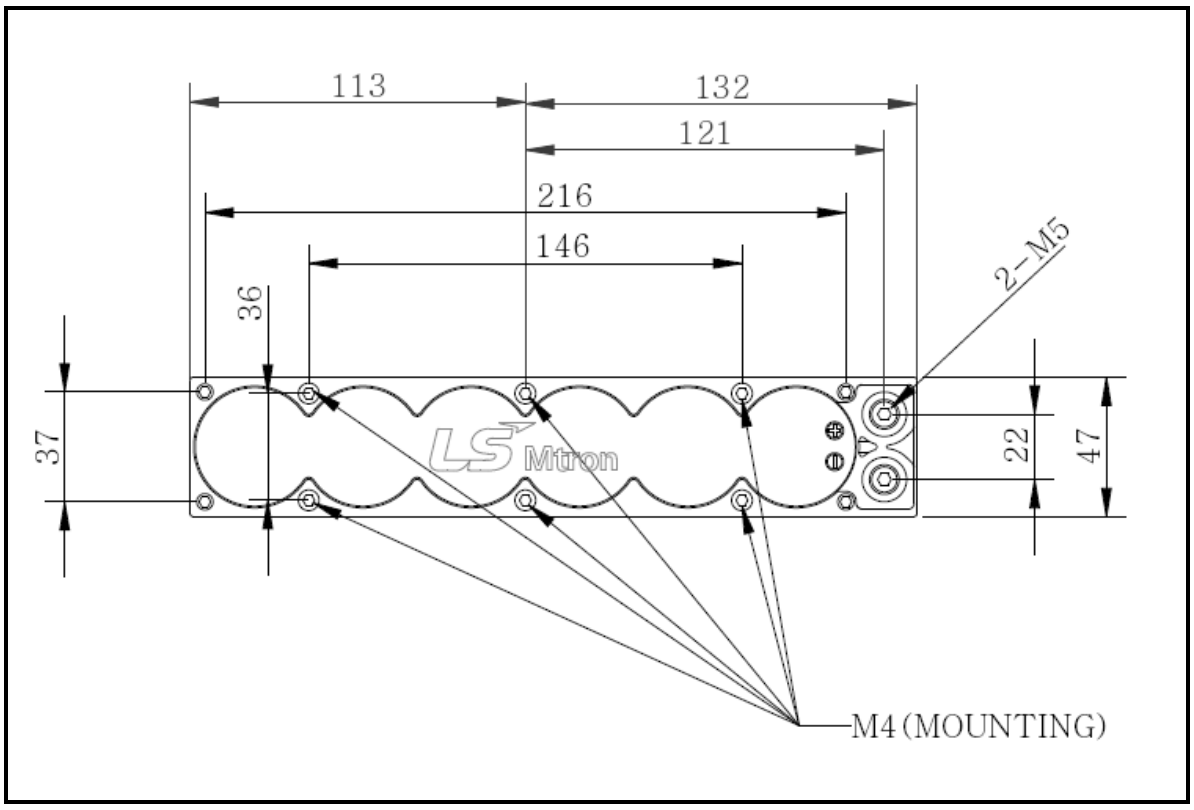
- They are designed to connect directly to a ring or a bus bar. The positive and negative terminals have each hole for the screw. The threaded size is M5. Wave washers are required to ensure long term, reliable connections. When implementing torque to the terminals, it is suggested to apply the maximum torque for the M5 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.



<Fig. 2> + / - terminals

Mounting

<Fig. 3> shows the mounting positions of the module.



<Fig. 3> Mounting Positions

Maintenance

Power Rating

The rated voltage and max rated current of the module 16.8V and 20A.(at room temperature) If the applied voltage is over 16.8V, charging the module should be stopped. 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℃, charging and discharging should be stopped to avoid a reduction of the lifetime and available energy.

Maintenance

At normal conditions the module has a lifetime of 10 years with power loss of 20%. 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

Storage

The module can be stored in original package, discharged, in a dry place. Observe the maximum storage temperature as stated in the specifications. Discharge used module prior to stock or shipment.

Applications

- Pitch control system for Wind Turbine (Approved for rotating environment)

- Photovoltaic & Solar light

- Power Quality Solution (UPS)

Contact Information

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Appendix I