DATASHEET

BM-1402-010U
BM-1502-010U
VPOC™ Li-ion Battery Module

The VPOC™ Li-ion Battery Module is an integral component to the VPOC™ Shelf and provides 2.5 minutes run-time at 8kW (with two (2) BM-1402-010U modules) or 10kW (with two (2) BM-1502-010U modules). The VPOC™ Li-ion Battery Module is recharged by the VPOC™ Shelf and its charge rate can be user-defined.

Key Features

- Compact 1U Li-ion battery technology
- Easily swappable
- 2.5 minute run-time
- State of Charge (SOC) and State of Health (SOH) estimation
- Balanced-cell technology
- Li-ion battery protection
- Voltage, current, and temperature monitoring

Specifications

	BM-1402-010U	BM-1502-010U
Electrical		
Run Time	Refer to Discharge Curves below	
Maximum Output Power	4kW	5kW
Nominal voltage	237.6VDC	
Rated charge voltage	264VDC (4V / cell)	
Rated charge current	1.85A	
Max. discharge current	20A	26.3A
Li-ion battery protection	Under voltage, over voltage, over current, over temperature, and short circuit protection	
Communications	I^2C	
Physical		
Dimensions (H x W x D)	1.53” x 5.51” x 18.89” (39 mm x 140 mm x 480 mm)	
Weight	12.13 lbs (5.5 kg)	
Form Factor	1U	

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Specifications

	BM-1402-010U	BM-1502-010U
Environment		
Operating Temperature	Charge Initial Temperature: 10°C – 50°C	
	Continuous charged cell skin temperature: ≤ 50°C	
	Discharge: 10°C – 75°C (Cell skin temperature does not exceeded 75°C)	
Storage Temperature	-20°C – 60°C: maximum 1 month	
	-20°C – 45°C: maximum 3 months	
	-20°C – 20°C: maximum 6 months	
Humidity	10% – 90% relative (non-condensing)	
Altitude	Operating: 0 m – 3000 m, Storage: 0 m – 15000 m	
General		
Approvals	UL1973, UL60730, UN38.3, IEC 62133 2nd	
Warranty	2 years @ 35°C	

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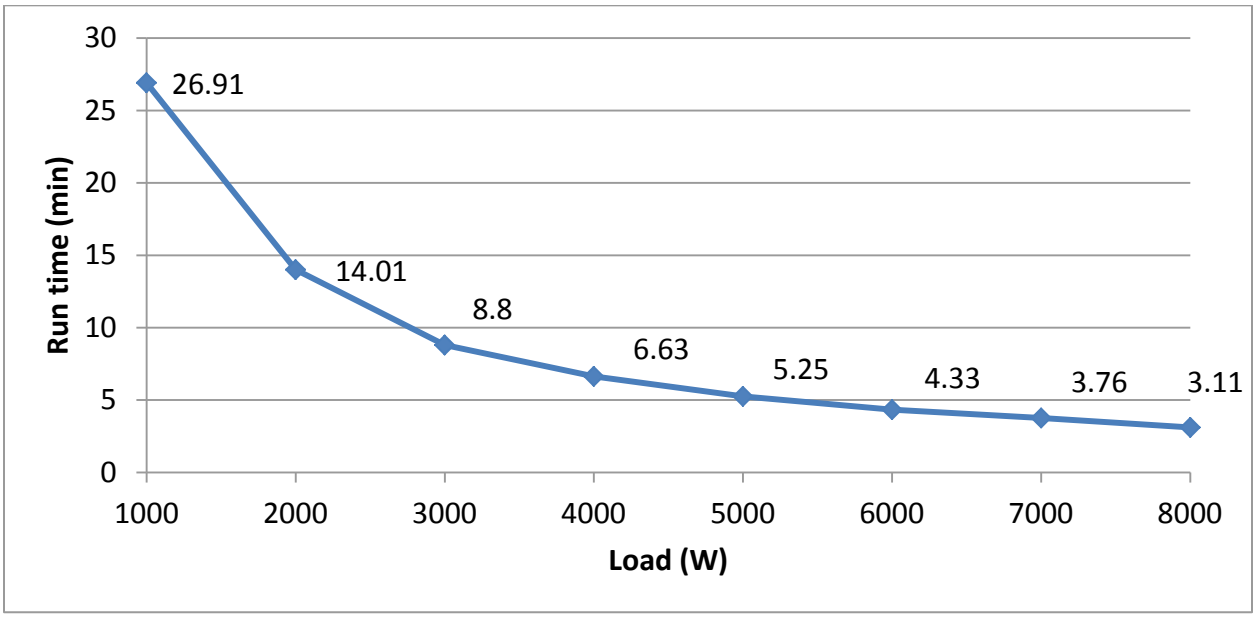
Discharge Curves

BM-1402-010U (4kW)

Discharge curve at 25°C for two (2) BM-1402-010U batteries in the VPOC™ Shelf



Load (Watts)	Run time (minutes)
1000	26.91
2000	14.01
3000	8.8
4000	6.63
5000	5.25
6000	4.33
7000	3.76
8000	3.11

Note: The performance of battery packs will vary slightly according to operating temperature, output loading, cycle count, and age of the battery packs.

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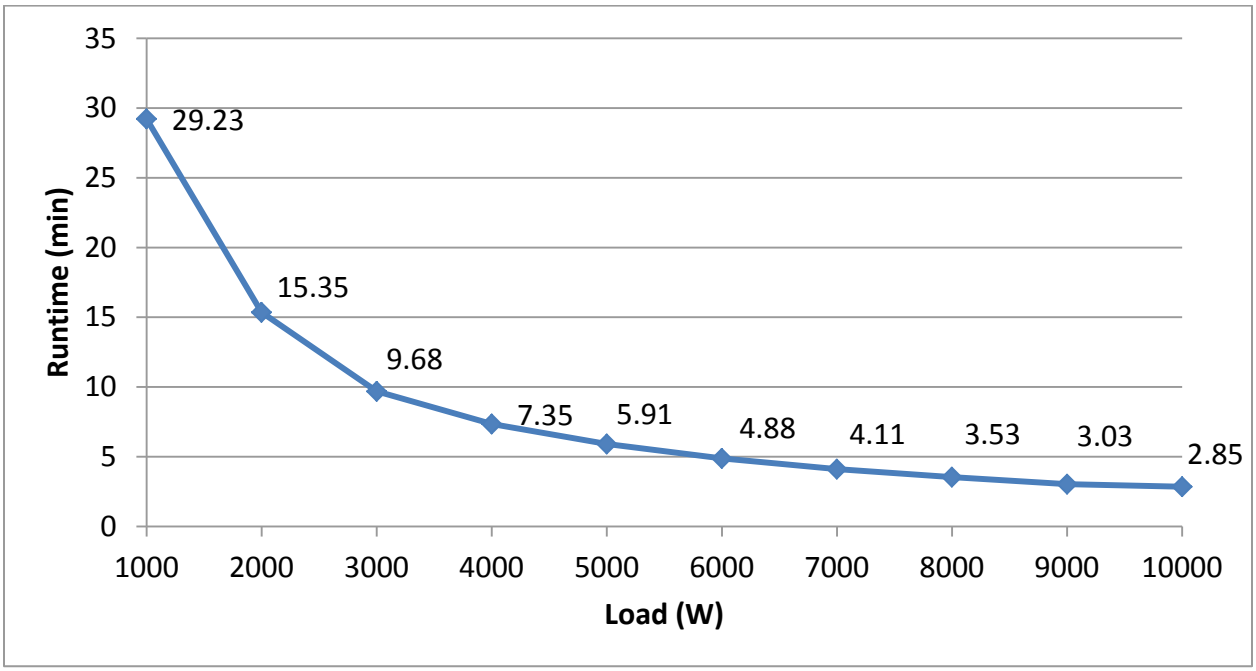
BM-1502-010U (5kW)

Discharge curve at 25°C for two (2) BM-1502-010U batteries in the VPOC™ Shelf



Load (Watts)	Run time (minutes)
1000	29.23
2000	15.35
3000	9.68
4000	7.35
5000	5.91
6000	4.88
7000	4.11
8000	3.53
9000	3.03
10000	2.85

Note: The performance of battery packs will vary slightly according to operating temperature, output loading, cycle count, and age of the battery packs.

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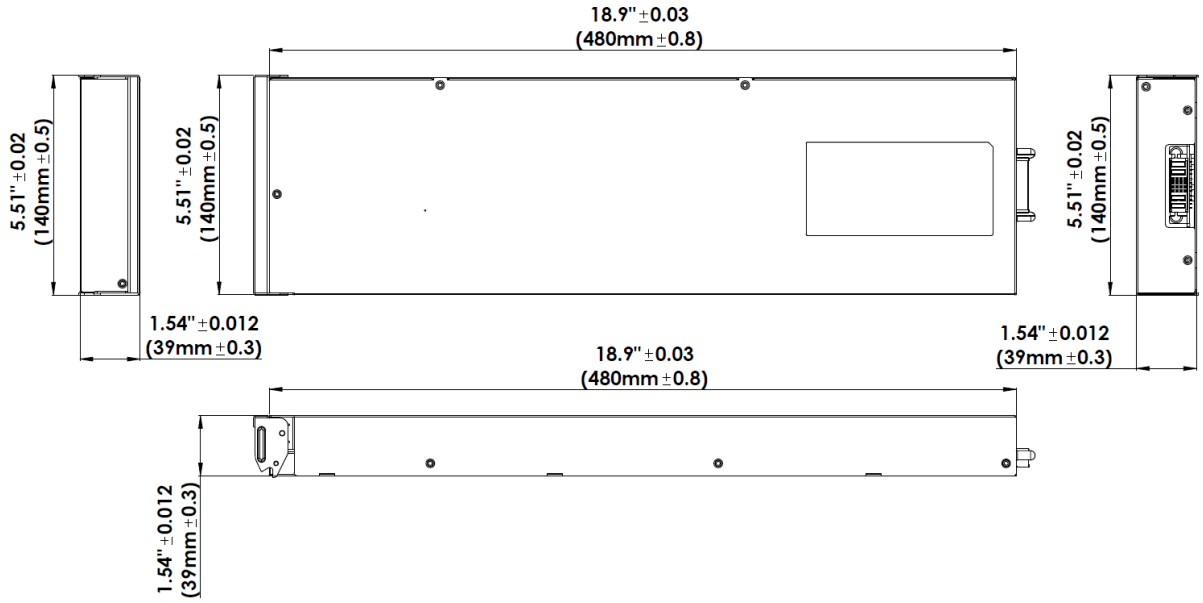
Mechanical



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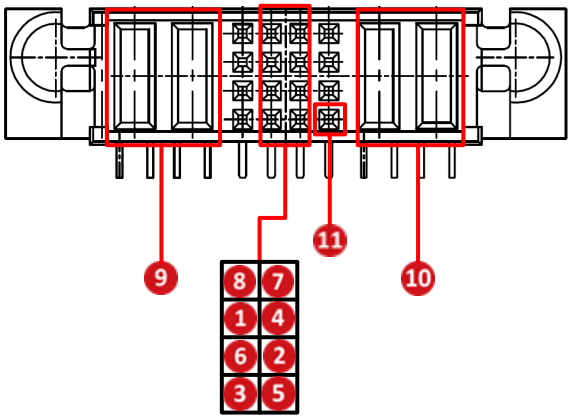
Power Connectors



1	AD_I_BATTERY	Battery module measures discharge current to power converter board Full scale: 0 – 65A corresponds to 0 – 3.3V
2	+12VDC	+12VDC, 200mA input from Host system
3	PGND	Connected to System/Host power ground
4	SDA	I^2C data interface I/O pin
5	SCL	I^2C clock interface I/O pin
6	SYS_PRES	System / Host present input • Connect to GND to enable charge / discharge FET • Connect to 3.3V (or floating) to disable charge / discharge FET
7	OP_OK	Battery pack operation output is good • Active high output from battery indicates that the battery can be discharged • Low output for indicates discharge protection (current, voltage, temperature or SYS_PRES=H)
8	ID	Slave Device ID selection input • Low input for indicating Device 1 (I2C Addr = 0x10) • High(3.3V) input for indicating Device 2 (I2C Addr = 0x11)
9	DC+	Battery Positive Terminal
10	DC-	Battery Negative Terminal
11	SGND	Connected to System/Host signal ground

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VPOC™ System Components

The VPOC™ system provides a comprehensive power management and battery backup capability based on multiple building blocks with configuration flexibility to suit specific power, size, and run-time requirements. The table below provides additional information on the different building blocks available to create a customized power solution. Please visit our website for more in-depth information or contact your local Lite-On PSS representative for support.

Component	Model Number	Description
VPOC™ Shelf	VP-3103-111U	1U VPOC™ Power Shelf with 3 slots: • VPOC™ Power Module slot (1) • VPOC™ Li-ion Battery Module slots (2)
VPOC™ Power Module	VM-3103-111U	10kW Power Module
VPOC™ PDU	RU-2020-082N	1U or 0U Cabinet PDU with 20A fuse and IEC320-C13 receptacles (6) plus IEC320-C19 receptacles (2)
	RU-2020-081N	1U or 0U expansion PDU with 20A fuse and IEC320-C13 receptacles (6) plus IEC320-C19 receptacles (2)
VPOC™ Li-ion Battery Module	BM-1402-0001	2.5 minute run-time at 4kW (2 battery units provide 2.5 minutes at 8kW)
VPOC™ Li-ion Battery Module	BM-1502-0001	2.5 minute run-time at 5kW (2 battery units provide 2.5 minutes at 10kW)
VRLA Extended Battery Module	BK-1151-010U	3U EBM equipped with VRLA batteries for 3.5 minutes run-time at 10kW
Site Management Controller	CP-13EC-010U	Rack management and control
19” Rack	KT-1942-10-1	19-inch EIA rack

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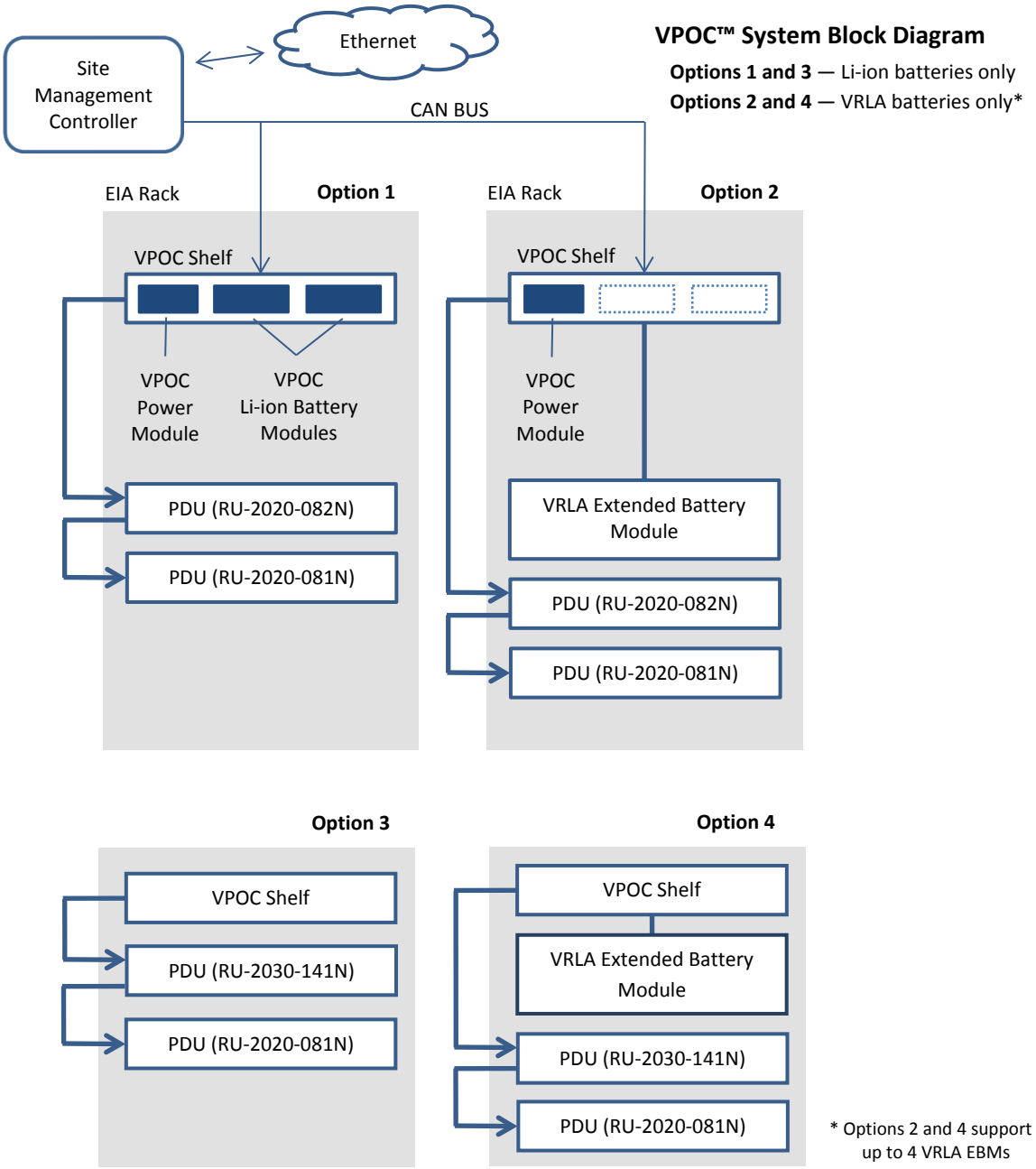
VPOC™ System Block Diagram

Options 1 and 3 — Li-ion batteries only
Options 2 and 4 — VRLA batteries only*



* Options 2 and 4 support up to 4 VRLA EBMs

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