

Lithium Power Cabinets

Lithium-ion Energy Storage & Power Management



The world's leading battery manufacturer

High Power Modules

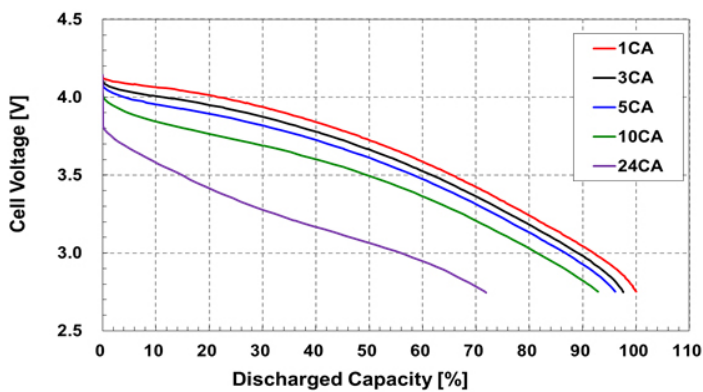
LIM25H modules have exceptionally high power capabilities. This makes them ideal for applications that require large amounts of electricity to be supplied or stored within timescales from seconds up to a few minutes.

Industry leading cycling capability means that these modules can provide highly cost effective alternatives to non-electrochemical storage such as capacitors and rotary systems.

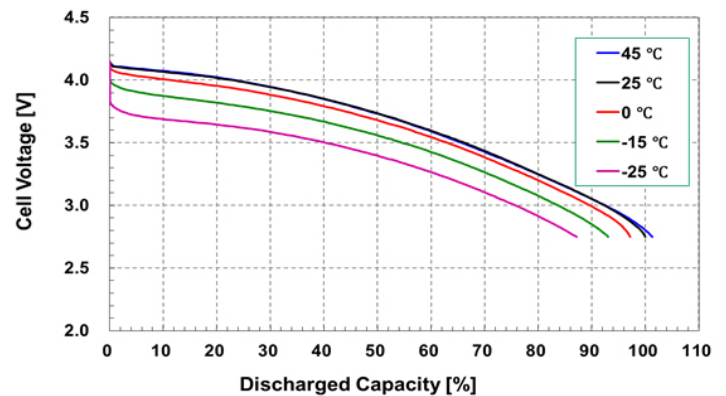


Model Name	Nominal Voltage (Volts)	Operating Voltage Range (Volts)	Capacity 1-hr rate to 22.0V @ 25°C (Ah)	Maximum Discharge Current (Amps)	Continuous Current (Amps)	Dimensions (mm)			Weight (kg)	Cycles	Cooling Method	Transportation (UN38.3 approved)
						Length (±3)	Width (±3)	Height (±3)				
LIM25H-8S1-F1	28.8	22.0 - 33.6	25	600	75	440	219	128	17.5	20000	Forced air	Certified
LIM25H-8S2-F2	28.8	22.0 - 33.6	25	600	35	437	219	128	17	20000	Convection	Certified
LIM25H-12S1-F1	43.2	33.0 - 50.4	25	600	75	620	219	128	28	20000	Forced air	Certified
LIM25H-12S1-F2	43.2	33.0 - 50.4	25	600	35	617	219	128	27.5	20000	Convection	Certified

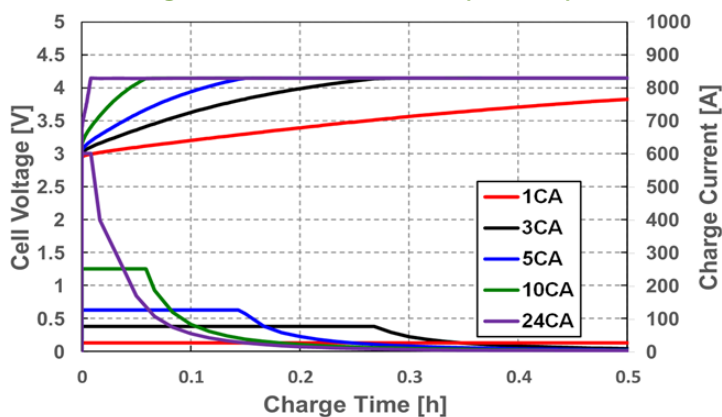
Discharge Performance @25°C (LIM25H)



Discharge Performance @1CA (LIM25H)



Charge Performance @25°C (LIM25H)



High Energy Modules

LIM50EN modules have high specific energy, while maintaining premium power capability. Their ability to accept charge extends to sub-zero temperatures making them a highly flexible electrical storage medium.

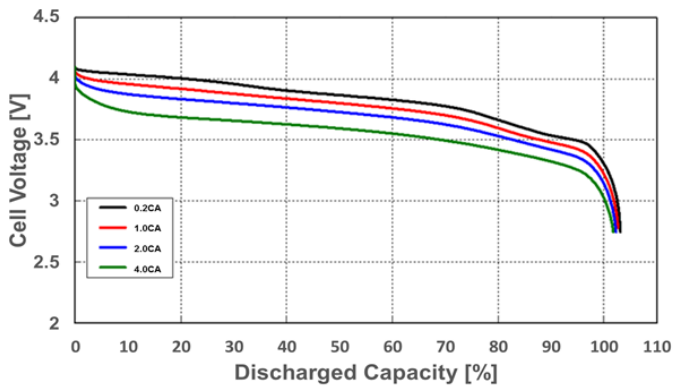
Low maintenance and easy substitution for conventional batteries provides a seamless upgrade pathway for a wide range of uses.

More than 15 years of experience in high voltage and grid connected batteries provide an ideal platform for rapid deployment of new systems.

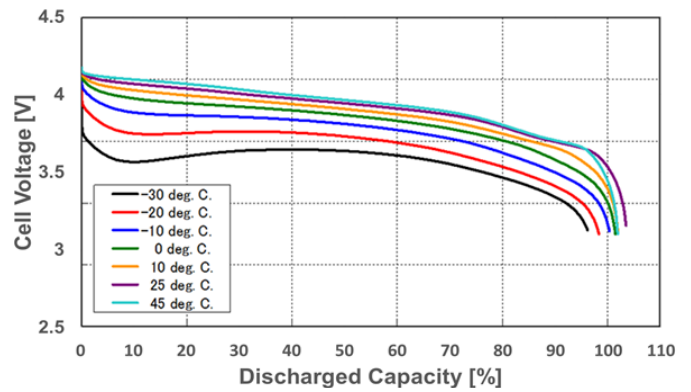


Model Name	Nominal Voltage (Volts)	Operating Voltage Range (Volts)	Capacity 1-hr rate to 22.0V @ 25°C (Ah)	Maximum Discharge Current (Amps)	Continuous Current (Amps)	Dimensions (mm)			Weight (kg)	Cycles	Cooling Method	Transportation (UN38.3 approved)
						Length (±3)	Width (±3)	Height (±3)				
LIM50EN-8S2-F2	29.6	22.0 - 32.8	47.5	300	200	440	219	128	17	11000	Convection	Certified
LIM50EN-12S2-F2	44.4	33.0 - 49.2	47.5	300	200	617	219	128	27	11000	Convection	Certified

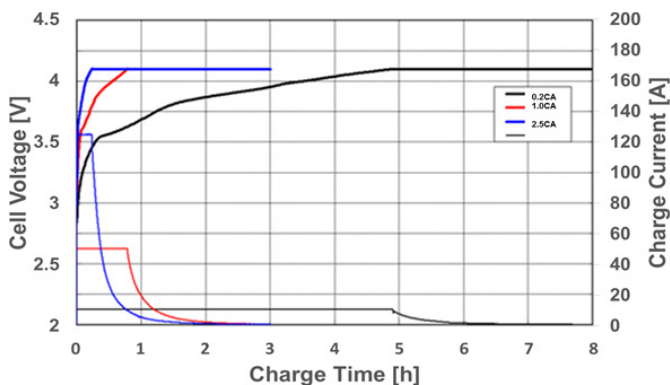
Discharge Performance @25°C (LIM50H)



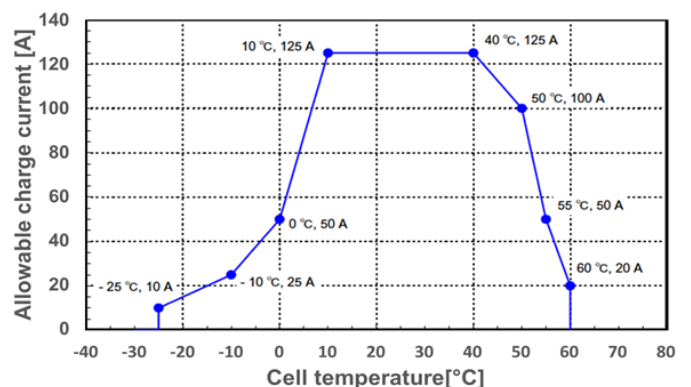
Discharge Performance @1CA (LIM50H)



Charge Performance @25°C (LIM50H)

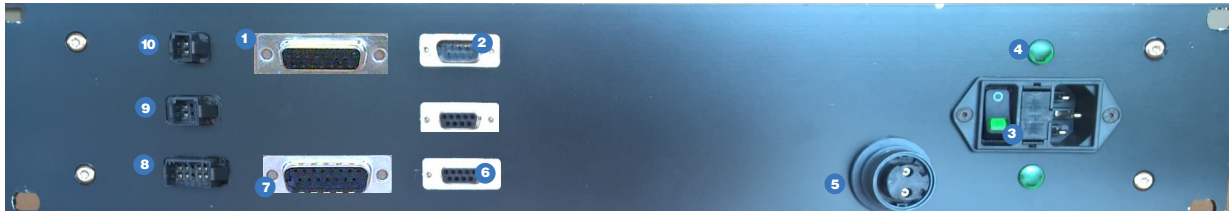


Charge Temperature Limits (LIM50H)

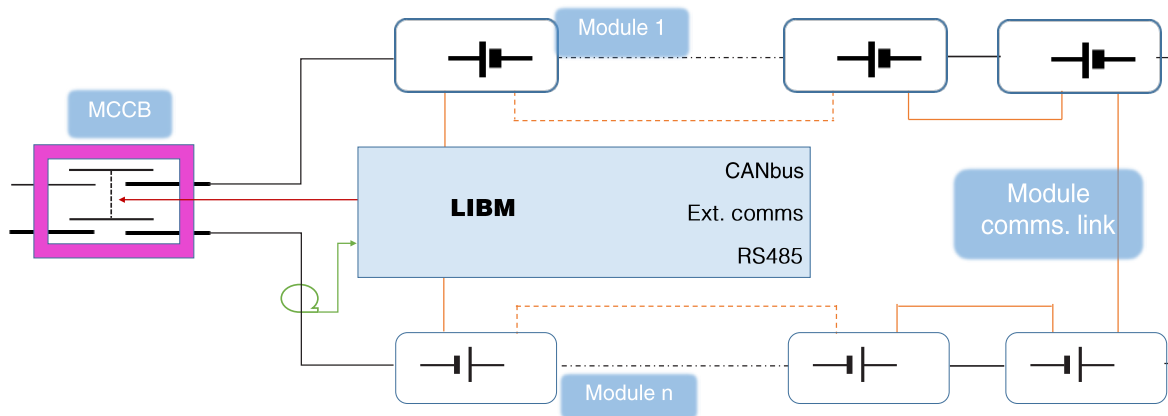


Lithium-ion Battery Mangement Panel (LIBM)

- LIBM features:
 - Control unit measures cell voltages, temperatures & current within the cabinet. It processes this data to maintain uniform state of charge & confirm the condition of the battery.
 - Raw data & status information is available for export & interaction with customer equipment. Information is presented on CANbus 2.0b, RS485 communications protocols & via volt-free contact setting.
 - Interacts with a Moulded Case Circuit Breaker (MCCB) device within the cabinet to provide overall protection in the event of non-conforming operating conditions.
 - Mounted within a 19" 2U box
 - Configured from standard options depending on the requirements of a particular application



- | | | |
|------------------------|-----------------------------|------------------------------|
| 1. Volt free outputs | 5. 24V DC input | 9. Module comms loop input |
| 2. RS485 comms socket | 6. CANbus comms sockets | 10. Module comms loop output |
| 3. 220V AC power input | 7. Service socket | |
| 4. Power indicator | 8. MCCB & current interface | |



Typical LIBM Configurations

Component	Code	Feature
Power supply	AC	220V AC input switched & fused IEC socket feeding dual 24V power supplies within the LIBM case. Operation of each power supply is confirmed by LED
	DC	24V DC input Internally fused socket supplies power directly to LIBM circuits
LIBM composition	S	Single string controller - provides control for 1 string of modules within a cabinet or rack
	D	Dual string controller - provides control for 2 strings of modules within a cabinet or rack
	M	Master controller - provides coordination of multiple parallel string controllers
	H	Hybrid controller - contains 1 string controller and one master controller
Communications	C	All LIBM units are provided with RS485 & twin CANbus 2.0b D-Shell sockets. An additional socket provides communication to a service tool.
	VF	Volt free output contacts are provided in addition to comms sockets for the setting of alarm conditions
	MC	An additional pair of CANbus 2.0b sockets is available on Master LIBM controllers for independent communication
Fan power	FP	Where modules are fitted with cooling fans a 24V power socket controlled by LIBM is provided
Example configuration		LIBM/AC/D/VF/- has a 220V AC input socket supplying two LIBM within a single case. The box has one RS485, 2 CANbus & 1 volt free contact port

Energy Storage Cabinets

- Lithium ion Energy or Power modules are configured to specific application requirements within industry standard 19" Cabinets
- LIBM controllers provide full monitoring, control & data communications configurable to customer networks
- DC current connection is achieved via 2 or 3 pole (centre tap) connection to a MCCB isolators
- All cabinets have a footprint of 800mm length x 600mm width for simple floor design

1. Lithium-ion Battery Management Panel (LIBM)
2. MCCB
3. Lithium-ion modules



Contact Yuasa Sales Engineers for assistance and to define your optimum energy storage cabinet.

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Cabinet Reference	Operating Voltage Range	MCCB Rating (A)	Discharge Power (kW)	Capacity (kWh) @0.5C Rate	Height (mm)	Weight (kg)	Module Strings Per Cabinet	Terminals Per String	Thermal Management	Control Power Supply (Volts)	Mobility	Doors
LM50E/-/12/40/1/3/N/AC/W/G	430-590	40	17.2	25.2	400	400	1	3	convection	220 AC	movable	Glass
LM50E/2/10/40/2/2/N/DC/S/P	408-558	250	204	47.6	2200	800	2	2	convection	24 DC	static	Steel
LM25H/-/11/40/2/2/N/AC/S/P	396-554	400	475	19.8	2200	780	2	2	convection	220 AC	static	Steel
LM25H/2/16/400/1/3/F/DC/S/P	696-974	400	420	15.6	1950	600	1	3	Fan circulation	24 DC	static	Steel

Cabinet references are derived from the standard components used to produce application specific configurations:

Typical Cabinet Configurations

Component	Code	Feature
Lithium-ion cell type	LM50E LM40E LM25H	Lithium-ion metal oxide high energy cell with 50Ah capacity Lithium-ion metal oxide high energy cell with 40Ah capacity Lithium-ion metal oxide high power cell with 25Ah capacity
Complement of 8 cell modules	0-26	Number of standard 8 cell modules contained in each battery series string
Complement of 12 cell modules	0-26	Number of standard 12 cell modules contained in each battery series string
MCCB current rating	25-630	Nominal current rating (In) for circuit breaker of each battery string
Module strings	1-4	Number of individual series strings of modules contained in the cabinet
Terminals per string	2 3	Connections supplied from positive & negative ends of each battery string via a MCCB Connections supplied from positive, negative & centre points of each battery string via a MCCB
Thermal management	N F	Normal convection provided by air flow through channels between cells Fan forced airflow through channels between cells
LIBM power supply	AC DC	220V AC input to internal DC power converters 24V DC input direct to battery management system
Cabinet mobility	S W	Cabinet is stationary Cabinet has limited mobility provided by castors
Cabinet doors	P	Perforated steel front and back doors

Cat. No. LIT055 09/16

E. & O. E.



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