

# Supercapacitor cabinets for UPS systems



Three string XLM-62 supercapacitor module cabinet shown above



Eaton's supercapacitor module systems are highly reliable and flexible energy storage solutions that provide fast responding very high peak power in a small footprint. These systems use the [XLM-62 module](#) as a core building block with 10 units wired in series to increase distribution voltages and can be integrated with large UPS systems.

#### Benefits of supercapacitors:

- **Long lifetime:** millions of charge/discharge cycles, providing up to 20 year life at +30 °C
- **Maintenance free:** supercapacitors are virtually maintenance free and do not require complex battery management systems
- **Safe and Green:** by using organic materials, there are no additional hazards requiring additional containment and helps provide "worry free" operation
- **Scalability:** simply add strings (10 modules per string) in parallel to meet load (kW) or backup time (sec) requirements
- **Fast Recharge:** module strings can be charged at double the rate of Li-ion solutions to provide greater system availability of managing repeated power disruptions
- **Wide operating temperatures:** supercapacitors can be operated from -40 °C to +65 °C with predictable effects on lifetime
- **Superior reliability:** the highest availability and response is ideal for mission critical loads

Technical specifications	2 String cabinet	3 String cabinet
Operating voltage range	600 Vdc – 300 Vdc	600 Vdc – 300 Vdc
Dimensions in inches (W x D x H)	23.2" x 31" x 88"	30.2" x 31" x 88"
Weight (kg)	545	730
Maximum power	300 kW	300 kW
Useable energy within operating voltage	3298 kW-sec	4947 kW-sec
Maximum charge current	100 A	150 A
Temperature range	-40 °C to +65 °C	-40 °C to +65 °C



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## Additional information on Eaton's supercapacitor modules

### Management system

- The XLM-62 has an integrated balancing system using simple resistors within the module to balance the voltage on the individual cells to help the module achieve long lifetimes
- Each module is equipped with an overvoltage alarm that alerts when an individual cell has been overcharged
- With this management structure, the XLM modules provide 98% round-trip energy efficiency

### Protection

- Each cabinet has a main Vdc molded case circuit breaker (MCCB) as a main disconnect in combination with Bussmann series high speed fuses to limit fault current
- The MCCB has a 48 Vdc shunt trip with auxiliary contacts while the fuses have open fuse indicators as an add-on accessory
- The current limiting fuses ensure let through currents are reduced during short circuit conditions and helps reduce unnecessary arc flash hazards

### Configurations and integration

- XLCM is designed to UL1778 to support pairing with UPS installations and systems
- The chart below indicates backup discharge or autonomy times when paired with with a 3-phase UPS when the XLM-62 modules are at end-of-life conditions and supporting 100% load
- Contact Eaton [click here](#) for additional information on backup times and pairing with a UPS.

Run time at end of life (in seconds)	Output power rating in kW (100% full load rating, 95% inverter efficiency, 0.9 power factor & 560 - 350 Vdc voltage window for inverter)														
	40	60	80	100	150	200	250	300	400	500	600	750	825	1000	1200
Number of supercapacitor strings															
1	27	17	12												
2	55	36	27	21	13										
3	85	55	41	32	21	15									
4		75	55	44	28	21	16								
5			70	55	36	26	21	17							
6				67	44	32	27	21	15						
8					60	43	35	28	21	16					
10					74	55	44	36	26	21	16				
12						67	53	44	32	25	21	16			
16								60	44	35	28	22	20	16	
20									55	44	36	28	26	21	17
24										67	53	44	35	31	26

For more information visit:  
[www.eaton.com/supercapacitors](http://www.eaton.com/supercapacitors)

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