

# Energy Storage Redefined!

## MPA SERIES HYBRID SUPERCAPACITOR LOW VOLTAGE MODULES



### Low-Voltage HSC Modules

Musashi's MPA Series HSC Low-Voltage Modules incorporate our Hybrid SuperCapacitor Prismatic Cells in convenient series-connected module configurations to deliver unparalleled high-power density energy storage to meet the diverse needs of an electrified world.

### Key Benefits


- Series-connected high capacity, high power cells (12V/24V/36V)
- Support 182V maximum by connecting up to 4 modules
- Applicable for high-current use with parallel connection of modules
- Quick charge/discharge with high current
- Maximum instant charge/discharge current >500A
- Automatic cell voltage balancing function (inter-cells, inter-modules)
- No external power supply required
- Low power consumption: <20µA (during Sleep mode)
- Includes basic communication: Charge, Discharge and Temperature Alarms; Wake-Up Request
- High reliability, high durability, high safety



**High Power Density**



**High Cycle Life**

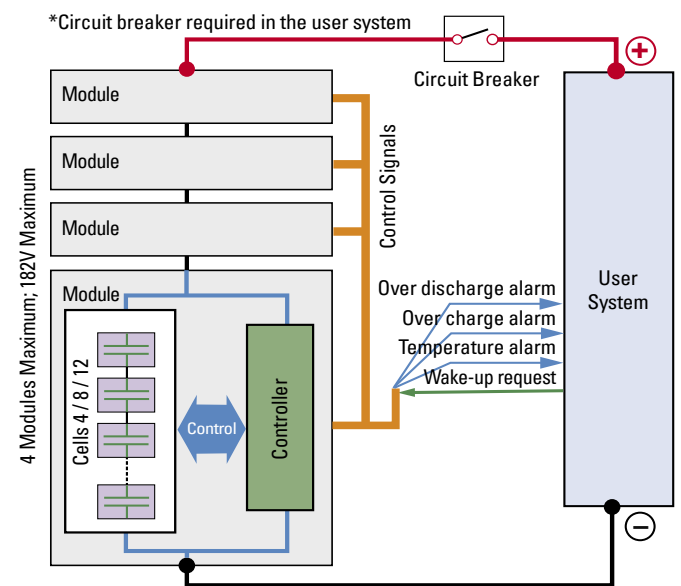


**Long Product Life**



**Safe and Reliable**

### Connection Example



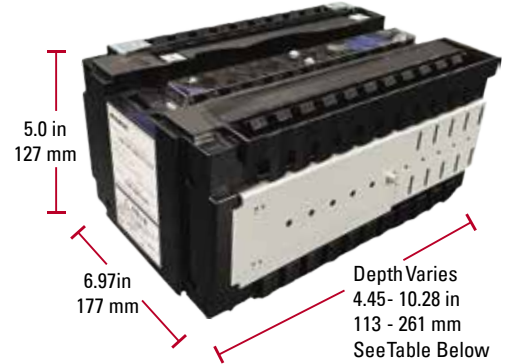
# MPA SERIES

## HYBRID SUPERCAPACITOR LOW VOLTAGE MODULES

# Specification Overview

## Highlights

- Wide operating temperature range without performance degradation (-30°C to 70°C)
- High safety (no thermal runaway concerns); protects from electrical shock during installation
- Minimal self-discharge (voltage drop at 10,000 hours less than 5%)
- Attractive Total Cost of Ownership with a 15-year lifespan



Model	Cell Type	No. of Cells	Rated Voltage Range	Capacitance	Internal Resistance	Weight	Dimensions in / mm		
			DCV	F	mΩ	lbs / kg	Width	Height	Depth
MPA15G825N	CPQ3300SD 3300F	4	8.8 ~ 15.2	750	4	5.75 / 2.6	6.97 / 177	5.0 / 127	4.45 / 113
MPA30G413N		8	17.6 ~ 30.4	375	8	9.94 / 4.5			7.36 / 187
MPA45G275N		12	26.4 ~ 45.6	250	12	13.44 / 6.1			10.28 / 261
MPA15G1025P	CPP4100SA 4100F	4	8.8 ~ 15.2	950	6	5.5 / 2.5	6.97 / 177	5.0 / 127	4.45 / 113
MPA30G513P		8	17.6 ~ 30.4	475	11	9.5 / 4.3			7.36 / 187
MPA45G342P		12	26.4 ~ 45.6	316.7	16	13 / 5.9			10.28 / 261

## Specifications

<b>Charge/discharge current - continuous</b>	60A	Ambient temperature at 25°C; 3300F convection cooled
<b>Max charge/discharge current (&lt; ca 5 sec)</b>	>500A	Depends on use conditions. Please consult us.
<b>Maximum module series counts</b>	Up to 4 modules	Maximum 182.4V
<b>Environmental conditions</b>	Operating temp range	-30°C ~ 70°C (Cell) Depends on use conditions. Please consult us.
	Storage temp range	-40°C ~ 80°C (0°C-35°C recommended) Higher temperature, faster deterioration
	Relative humidity range	20% ~ 90% (non-condensing)
<b>Insulation voltage</b>	AC2000V 50Hz 1 minute	
<b>Balancing scheme</b>	Resistive discharge	
<b>Power Consumption</b>	<20μA	Under Sleep Condition

## Function

<b>Cell monitoring</b>	Each cell voltage, cell temperature at the center of a module	
<b>Automatic voltage balancing</b>	Cell voltage balancing, (Intra- and Inter-module)	
<b>Data communication</b>	All cell voltage and alarm status in series-connected modules communicate via RS-485	
<b>Detection of abnormality</b>	Signal Output	Over charge alarm
		Over discharge alarm
		Temperature alarm
		Error output (Simultaneous with above alarms)
<b>Control inputs</b>	Wake-up request	