

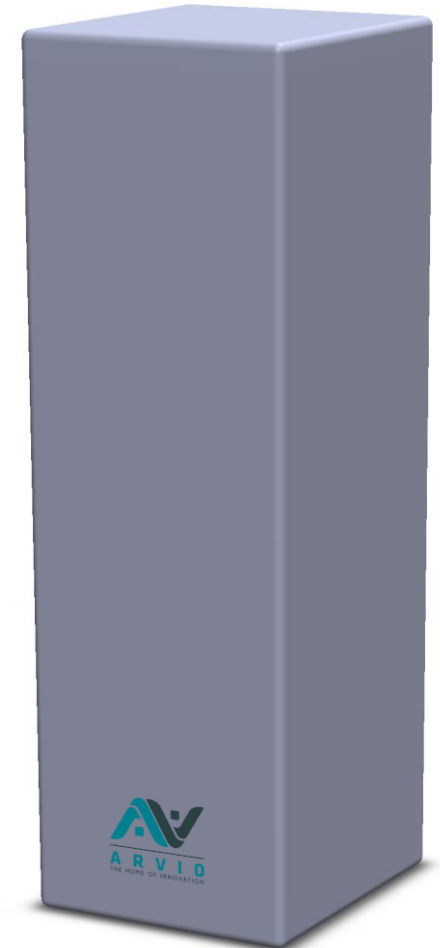


High Capacity Energy Storage Products

Technical Specification
UCB2.3V2.2k to UCB27.6V2.2k

2.2kWh series
& parallel connected
Ultra Capacitor Battery

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11/23 Cook Rd
Mitcham 3132
Melbourne, VIC
Australia



Item	Parameter Specification	Module							Unit
		UCB2.3V2.2k	UCB4.6V2.2k	UCB6.9V2.2k	UCB9.2V2.2k	UCB13.8V2.2k	UCB18.4V2.2k	UCB27.6V2.2k	
Energy Storage Module	Ultra Capacitor Battery								
Anode surface area		640,000	640,000	640,000	640,000	640,000	640,000	640,000	640,000m ²
Nominal energy 100% capacity (2.5V to 1.55V @ C4) +0/-5%		2.26	2.26	2.26	2.26	2.26	2.26	2.26	2.26 kWh
Nominal energy 98% capacity (2.5V to 1.8V @ C4) +0/-5%		2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21 kWh
Cells		24	24	24	24	24	24	24	24 cells
Cells in series per module		1	2	3	4	6	8		12 cells
Module Weight		43	43	43	43	43	43	43	43 kg
Short Circuit Current for 440VDC series connected module systems		1250	1250	1250	1250	1250	1250	1250	800 A
Short Circuit Current for 700VDC series connected module systems		800	800	800	800	800	800	800	800 A
Continuous Current based on terminal limits		800	800	800	800	800	800	800	800 A
Available Continuous Power for 800A fused modules		1.8	3.6	5.5	7.3	11.0	14.7		22.0 kWp
Peak A for unfused option upto 1,000V series connected*		4800	1250	1250	1250	1250	1200		800 A
Maximum voltage		700	700	700	700	700	700		700 V
Available peak power for unfused modules		11.0	5.7	8.6	11.5	17.2	22.0		22.0 kWp
Charging(CC-CV) & Discharging	Recomm. Max. (A) no fuse	1500	1000	1000	1000	1000	1000		800 A
	Charging Upper Limit Voltage	2.8	5.6	8.4	11.2	16.8	22.4		33.6 V
	Charging float Voltage	2.6	5.2	7.8	10.4	15.6	20.8		31.2 V
	Nominal Voltage	2.3	4.6	6.9	9.2	13.8	18.4		27.6 V
	Discharging Cut-off V	1.5	3	4.5	6	9	12		18 V
	Discharging Cut-off V recomm.	1.8	3.6	5.4	7.2	10.8	14.4		21.6 V
Charging / discharging Time	Standard	45	45	45	45	45	45		45 minutes
	Quick-acting** @ 20°C	75	38	25	19	12	9		6 minutes
Nominal Capacity	2.50 to 1.55V @ C4	1039.2	519.6	346.4	259.8	173.2	129.9		86.6 Ah
Arc flash energy calculation		3.241	3.241	3.241	3.241	3.241	3.241		2.074cal/cm ²
Prospective fault current	After fuses	625	625	625	625	625	625		400 A
Fault current	Before fuses	13.1	5.5	5.4	5.2	5.0	4.7		4.3 kA

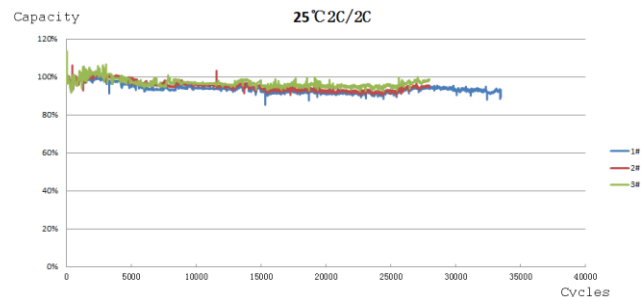
* Consideration of the "cal/cm²" value should be made based on relevant local standards for the installation. Operating this unit with no fuse protection is only for professional use by highly experienced persons.

** Consideration to be given to heat dissipation. Refer to manufacturer for advice when charging at high rates.

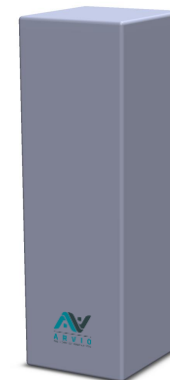
*** See reasonable use policy and warranty statement for details of warranty.

Specifications may change without notice 30/7/2019

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Energy Storage Module	Ultra Capacitor Battery								
Balancers		4	4	6	4	6	8	12	Qty
Balancing energy maximum		3	12	18	12	18	24	36	W
Balancer consumption in use		0.05	0.2	0.3	0.2	0.3	0.4	0.6	W
Balancer consumption idle		0.02	0.08	0.12	0.08	0.12	0.16	0.24	W
Series connected modules	Dynamic balancing. Bring all modules to within $\Delta 0.1V$ before connecting balancing leads.	2 - 350							Modules
Auto Balancing between Modules		$\Delta 300mV$ 1A $\Delta 1V$ 3A							A
Balancer accuracy		10							mV
Balancer efficiency @ 1A		94							%
Balancing range		1.8-5.0							V
Module Operation Ambient T	Cell Charging / discharging	-50 ~ 60							$^{\circ}C$
	Balancer	-40 ~ 80							$^{\circ}C$
Module Storage Ambient T	Cell Short-term (within 1 month)	-20 ~ 45							$^{\circ}C$
	Cell Long term (within 1 year)	-20 ~ 20							$^{\circ}C$
	Balancer	-40 ~ 100							$^{\circ}C$
Storage Humidity		< 70							%
Module Dimension		233x210x665 (WxDxH)							mm
Terminals		2 (1 +ve, 1-ve)							qty
Terminal size		22mm solid copper conductor							type
Balancing linking connections		2							qty
Design Cycle Life with 3 average cycles per day @ 25 $^{\circ}C$		25,000 - 35,000							cycles
Design Cycle Life with 1 average cycles per day @ 55 $^{\circ}C$		4,000 - 6,000							cycles
Warranty with >85% original capacity @ 25 $^{\circ}C$ @ 3 cycles per day		10							yrs
Warranty with >85% original capacity @ 55 $^{\circ}C$ @ 1 cycle per day		10							yrs
General tolerances for values in this document		+/- 5							%
Round trip efficiency	2C	96.5							%
	1C	97.5							%
	C4	98.5							%



Cycle vs Capacity test



Classification: UN3481
ABS UL94-HB Casing
H: 665mm
W: 210mm
D: 233mm

