

# Aspen 48S-2.2 Battery



## PRODUCT SPECIFICATION SHEET

Aquion Energy's Aspen 48S-2.2 battery is a modular building block for clean energy storage systems. Based on Aquion's safe, clean, and sustainable Aqueous Hybrid Ion (AHI™) technology, the Aspen 48S-2.2 is engineered to meet Cradle to Cradle certification standards. Designed for years of hassle-free operation in stationary, long-duration applications, AHI batteries are optimized for storing energy for residential, off-grid, and microgrid applications. The Aspen 48S-2.2 delivers an unmatched combination of performance, safety, and environmental sustainability in a cost-effective battery platform.

## PRODUCT PERFORMANCE

Testing performed at 30°C

Embodied Energy (Wh)		Charge Current (A)				
		2	4	6	8	10
Discharge Current (A)	2	2,358	2,204	1,963	1,725	1,478
	4	2,209	1,993	1,839	1,617	1,387
	6	2,081	1,879	1,674	1,491	1,294
	8	1,961	1,788	1,600	1,430	1,246
	10	1,858	1,695	1,525	1,368	1,197

Embodied Capacity (Ah)		Charge Current (A)				
		2	4	6	8	10
Discharge Current (A)	2	47.8	44.0	39.4	35.4	31.0
	4	45.8	41.9	37.5	33.7	29.5
	6	44.7	40.7	36.4	32.7	28.6
	8	43.0	39.5	35.3	31.7	27.7
	10	41.3	38.2	34.2	30.6	26.8



## OPERATION & PERFORMANCE

Nominal Energy (10-hour charge/20-hour discharge)	2.2 kWh
Nominal Voltage	48 V
Cycle Life	3,000 cycles (to 70% retained capacity)
Ambient Operating Temperature	-5°C to 40°C
Voltage Range	40.0 to 59.5 V
Peak Power	1.0 kW
Continuous Current	20 A
Usable Depth of Discharge	100%

## WARRANTY

Limited Warranty	8 years: 5 years full + 3 years prorated
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## PHYSICAL CHARACTERISTICS

Height	935 mm (36.8")
Width	330 mm (13.0")
Depth	310 mm (12.2")
Weight	118 kg (260 lbs)

## CERTIFICATIONS

Sustainability	Cradle to Cradle Certified™ Bronze product
UL	UL recognized
CE	CE marked
Shipping Testing	Modified ISTA 3H
IP Rating	IP22

Performance characteristics based on testing conducted by Aquion Energy. Performance may vary depending on use, conditions, and application. For the most up-to-date specification, visit <http://aquionenergy.com>.

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## PERFORMANCE AT CONSTANT CURRENT DISCHARGE

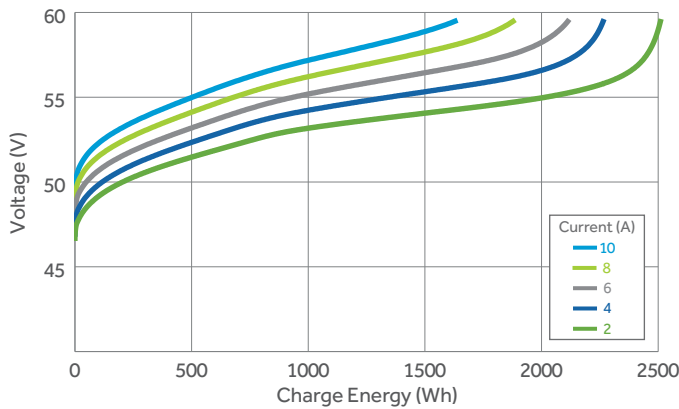
### Nominal Energy & Capacity by Charge and Discharge Duration

Wh & Ah		10-hour Charge	
		Wh	Ah
Discharge Duration (hr)	4	1,600	37.2
	8	1,780	39.4
	10	1,840	40.0
	12	1,900	40.6
	20	2,200	42.3

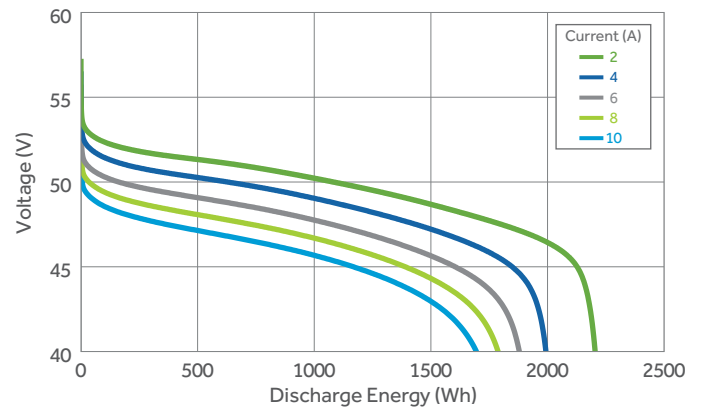
### Round Trip Energy Efficiency

RTE (%)		Charge Current (A)				
		2	4	6	8	10
Discharge Current (A)	2	90	90	89	88	87
	4	88	88	87	86	85
	6	87	87	86	85	84
	8	85	85	84	83	82
	10	83	83	82	81	80

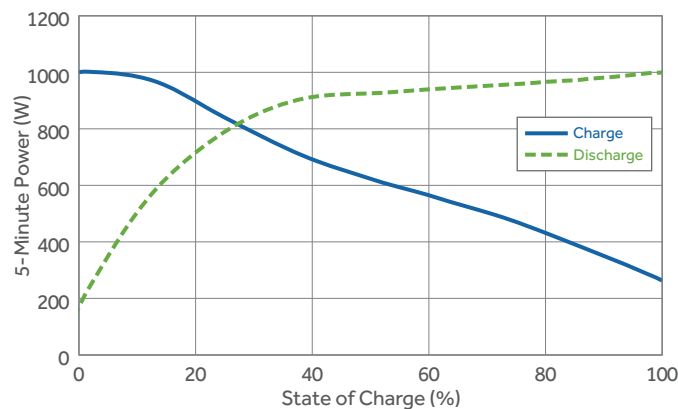
### Voltage vs. Charge Energy



### Voltage vs. Discharge Energy (from 10-hour charge)



### 5-Minute Peak Power



## CRADLE TO CRADLE CERTIFIED™ BRONZE



Aquion batteries are the first and only batteries in the world to be Cradle to Cradle Certified™, an esteemed quality mark for products made from sustainable materials and manufacturing processes. Cradle to Cradle Certified™ is a certification mark licensed by the Cradle to Cradle Products Innovation Institute. Visit [www.c2ccertified.org](http://www.c2ccertified.org) for more details.

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