

M110-LS83 Battery Module



PRODUCT SPECIFICATION SHEET

For models M110-LS83 and M110-L083

Aquion Energy's M-Line Battery Module is a modular building block for clean energy storage systems. The M110-LS83 and M110-L083 are composed of twelve S30-0080 Battery Stacks connected in parallel and come pre-wired as plug-and-play battery banks.

Based on Aquion's safe, clean, and sustainable Aqueous Hybrid Ion (AHI™) technology, the S30-0080 Stack is the only Cradle to Cradle Certified™ energy storage product on the market. 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 M-Line Battery Module 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 (kWh)		Charge Duration (h)				
		4	8	10	12	20
Discharge Duration (h)	4	14.9	17.8	18.8	19.4	21.2
	8	15.7	19.7	21.0	21.8	24.2
	12	16.4	20.9	22.3	23.3	26.1
	20	18.4	24.1	25.9	27.1	30.6

Embodied Capacity (Ah)		Charge Duration (h)				
		4	8	10	12	20
Discharge Duration (h)	4	344.4	420.0	446.4	464.4	510.0
	8	363.6	444.0	472.8	490.8	538.8
	12	375.6	458.4	487.2	507.6	555.6
	20	391.2	477.6	507.6	528.0	579.6



PHYSICAL CHARACTERISTICS

Height	1,159 mm (45.6")
Width	1,321 mm (52.0")
Depth	1,016 mm (40.0")
Weight	1,504 kg (3,315 lbs)

OPERATION & PERFORMANCE

Cycle Life	3,000 cycles (to 70% retained capacity)
Operating Temperature	-5°C to 40°C ambient
Voltage Range	40.0 to 57.6 V
Nominal Voltage	48 V
Continuous Power	8.1 kW
Peak Power	9.6 kW
Continuous Current	204 A
Onboard Sensing	M110-LS83: voltage, current, temperature M110-L083: none
Usable Depth of Discharge	100%
Round Trip Efficiency	>90%

CERTIFICATIONS

Sustainability	Cradle to Cradle Certified™ Bronze product (component S30-0080 Battery Stacks only)
UL Recognition	UL recognition in process
CE Recognition	CE marked
Shipping Testing	ISTA testing in process
IP Rating	IP2X

WARRANTY

Limited Warranty	5-year full plus 3-year prorated
------------------	----------------------------------

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://info.aquionenergy.com/download-specs>.

Cradle to Cradle Certified™ is a certification mark licensed by the Cradle to Cradle Products Innovation Institute.

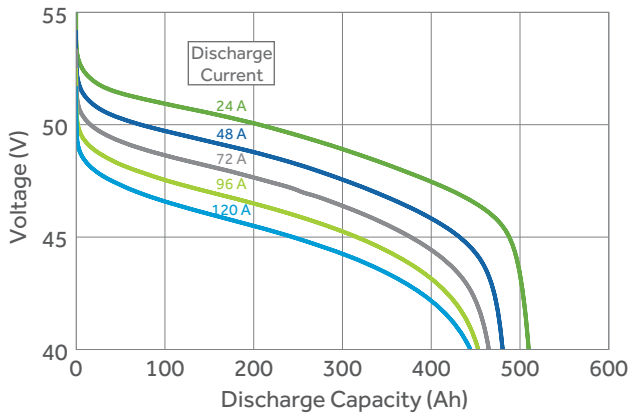
M-Line Battery Module

Models M110-LS83 and M110-L083

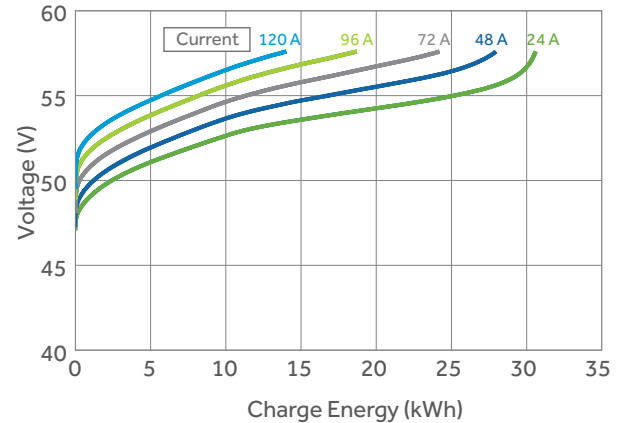


PERFORMANCE AT CONSTANT CURRENT DISCHARGE

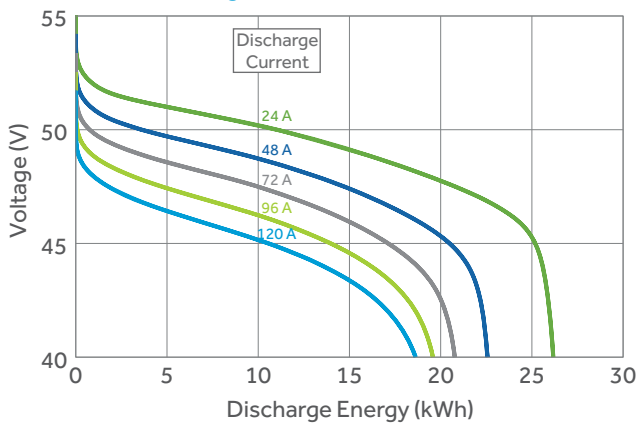
Voltage vs. Discharge Capacity
(from 10-hour charge)



Voltage vs. Charge Energy



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



Round Trip Energy Efficiency

Discharge Current (A)	Charge Current (A)				
	24	48	72	96	120
24	90%	90%	89%	88%	87%
48	88%	88%	87%	86%	85%
72	87%	87%	86%	85%	84%
96	85%	85%	84%	83%	82%
120	83%	83%	82%	81%	80%



CRADLE TO CRADLE CERTIFIED™ BRONZE PRODUCT

Cradle to Cradle Certified™ is a multi-attribute certification program that assesses products and materials for safety to human & environmental health, design for future use cycles, and sustainable manufacturing. Cradle to Cradle Certified™ products are evaluated for material health, material reutilization, renewable energy use and carbon management, water stewardship, and social fairness. The Aquion S20-P080, S20-P08F, and S30-0080 are the only energy storage products or batteries that have met these requirements. Please see www.c2ccertified.org for more details on specific program requirements.

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://info.aquionenergy.com/download-specs>.

Cradle to Cradle Certified™ is a certification mark licensed by the Cradle to Cradle Products Innovation Institute.