



01. One Wall mounted HVAC unit installed on each end of the enclosure

02. Powin Control Room: DC Disconnect Cabinet, AC Load Panel, HVAC Controls, Fire Detection, Hydrogen Detection, Comms and Controls

03. Pre-integrated Cable Tray that collects the DC Cable, AC Cable and Comms to each Stack

04. Fire Suppression Canisters strategically placed above each grouping of Stacks

05. Cold HVAC Air is ducted directly to the intake fans of each Stack

06. Up to 20 Stacks in a 53' Enclosure

07. Optional, roof-mounted deflagration vents (not required for NFPA 855 compliance)

Powin’s cost effective smart enclosures are a scalable purpose-built battery solution that includes all of the balance of system (BOS) equipment that can be modified to meet local Authority Having Jurisdiction (AHJ) requirements. The thermal management of this enclosure has been meticulously designed through air ducting and HVAC, providing an optimal temperature controlled environment for the battery enabling deployment in many different geographical climate types. Powin Smart Enclosures come in 40' and 53' sizes.

FULLY INTEGRATED

- Up to 20 Stack230s or 14 Stack360s per enclosure in parallel
• Powin’s patented StackOS integrated Battery Management and Energy Management Platform
• HVAC & forced air with ducting that directly targets the stacks
• Fire suppression system that also provides detection and monitoring
• AC breaker panel for coms and aux loads
• DC Collection, cable and tray
• IP 54 rated
• Insulation options for hot and cold climates
• Isolation, and over current and fault protection
• Minimal on site installation requirements

COMMUNICATION CABINET

- Full state of awareness monitoring for fire suppression/HVAC/inverter and transformer status/E stop/UPS aux
• Switch
• Router
• UPS – Control
• Linux computer
• HMI
• Controls interface can connect to any SCADA system

		40' ENCLOSURE		53' ENCLOSURE		
		STACK230P	STACK230E	STACK230P	STACK230E	STACK360E
Electrical	DC Voltage	760 - 937 V		760 - 937 V		1,193 - 1,470 V
	Duration	1.5+ hrs	3+ hrs	1.5+ hrs	3+ hrs	3+ hrs
	Maximum DC Energy Capacity	3,188 kWh	3,257 kWh	4,554 kWh	4,652 kWh	5,029 kWh
	Rated DC Power	2,100 kW	805 kW	2,850 kW	1,150 kW	1,260 kW
	DC Energy Capacity @ Rated Power <sup>1,2</sup>	3,119 kWh	3,229 kWh	4,455 kWh	4,613 kWh	5,031 kWh
	Duration @ Rated Power	1.5 hrs	4 hrs	1.5 hrs	4 hrs	4 hrs
	Aux Load per Enclosure (Standby / Peak) <sup>3</sup>	1.5 kW / 63 kW	1.5 kW / 52 kW	2.0 kW / 69 kW	2.1 kW / 59 kW	2.7 kW / 65 kW
	Daily Aux Energy per Enclosure <sup>4,5</sup>	167 - 196 kWh	152 - 186 kWh	181 - 215 kWh	211 - 240 kWh	234 - 263 kWh
	Daily Aux Energy per Enclosure, Net of Balancing <sup>5</sup>	124 - 153 kWh	124 - 158 kWh	143 - 177 kWh	149 - 178 kWh	142 - 171 kWh
Performance & Safety	DC Round Trip Efficiency @ Rated Power	92%	94%	92%	94%	94%
	Energy Density	9.96 kWh/ft <sup>2</sup>	10.18 kWh/ft <sup>2</sup>	10.74 kWh/ft <sup>2</sup>	10.97 kWh/ft <sup>2</sup>	11.86 kWh/ft <sup>2</sup>
	Battery Chemistry	Lithium Iron Phosphate (LFP)				
	Cycle Life	4,745 - 7,300 cycles				
	Calendar Life	20 years				
	Explosion Prevention & Mitigation <sup>6</sup>	Hydrogen detection with redundant active ventilation; deflagration panels optional				
	Fire Suppression	Clean agent fire suppression system with UPS backup, strobes, horn, and FDC dry standpipe connection				
	Heating & Cooling	Dual forced air HVAC with thermostat, humidity control, & economizer				
	Codes & Compliance <sup>7</sup>	NFPA 855, NFPA 68/69, UL 1973				
	Max Number of Stacks	14		19	20	14
	Weight (Approximate)	90,500 lbs (41,050 kg)		126,415 lbs (57,461 kg)		136,315 lbs (61,691 kg)
	Enclosure Dimensions	40' L x 8' W x 9'6" H		53' L x 8' W x 9'6" H		
	Enclosure Type / Rating	NEMA 3R / IP54				
	Ambient Operating Temperature Range	-10° C to +50° C				
Software	BMS + EMS + Solar + Environmental Controls	StackOS™				
	Reporting + Optimization + Data Warehouse	StackOS+™				
	First Responder HMI	Powin for First Responders™				
	Communications Interface	Modbus TCP (MESA/Sunspec) & REST API				

1 Energy capacity is recorded at the DC bus and varies by use case; contact Powin for an accurate estimate  
 2 DC Energy Capacity for 3-hr applications: Stack230E = 3160 kWh (40 ft) | 4514 kWh (53 ft) & Stack360E = 4948 kWh (53 ft)  
 3 Peak values are atypical and assume maximum active cell balancing current within a Stack  
 4 Includes recoverable active balancing energy during charge/discharge  
 5 Assumes 1 full cycle per day; accounts for Stack-level and enclosure-level loads, including HVAC  
 6 Deflagration panels not required for NFPA 855 compliance  
 7 Current and expected