

The Future of Wall-Mounted Energy Storage

The EMWALL is a lithium-free, wall-mounted energy storage system designed for both residential and business applications. Powered by Emtel Energy USA's patented graphene-based solid-state Electrostatic Long-Duration Energy Storage (**ELDES**), **EMWALL** sets a new standard in safety, performance, and sustainability

With controlled energy release spanning **12+ hours**, EMWALL is the only wall mounted unit capable of supporting off-grid functionality when paired with alternate energy inputs such as solar. Designed for maximum flexibility, resiliency, and safety, EMWALL seamlessly integrates with multiple power sources, including solar, grid, and generators, to meet diverse needs such as backup power, peak-shaving, or microgrid creation.



Unmatched Performance and Longevity:

No Thermal Runaway

The EMWALL leverages electrostatic energy storage, eliminating dangerous thermal runaway.

Near Zero Degradation

97.6% efficiency with $\geq 95\%$ after 10 years and 500,000+ cell cycles.

100% Depth of Discharge

Ensures full power availability without oversizing. No issue with black starts.



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Integrate with an alternate source for the most advanced off-grid solution



No thermal runaway risk

EMWALL	Efficiency	Aggregate Throughput (During Warranty Period)	Lifespan in Cell Cycles	Cycles Per Day	Warranty*
	97.6%	≥223 MWh (16kWh Model)	500,000	4	10 years at ≥95% Efficiency
	Depth of Discharge	Replaceable Inverter	AC/DC Coupling	Noise Output (dBA)	Duration
	100%		DC Coupled; AC Capable	<30	12+ hours



Whole Home Power that's Always Ready

No need to worry about budgeting your power usage. With EMWALL, you can power your whole home around the clock. Automatic transfer switch to seamlessly manage solar, grid and generator inputs.



Cycle 4 times per day with fast charging in between cycles



Whisper-quiet Operation



Modules maintain full efficiency without temperature control between -30°C (-22°F) and 60°C (140°F)



100% Recyclable | 80% Biodegradable



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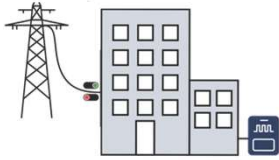
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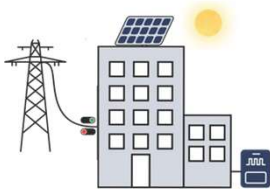
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FLEXIBLE INTEGRATION



Backup Power

EMWALL responds in nanoseconds to keep your power on without interruption during outages. Save money with time-of-use-optimization (TOU) by storing energy during non-peak hours to use it during peak times.



Partial-Grid

Utilize multiple energy inputs, all managed automatically with an internal transfer switch. EMWALL's intelligent system ensures that you utilize lower prices so you always have affordable and reliable power.



Off-Grid

Achieve energy sovereignty and see maximum ROI with a 100% sustainable microgrid system. Integrate and manage multiple sources inputs to your specifications so you are in control of your power for life.



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PERFORMANCE DATA

Energy Storage Performance Specifications

Model	8kWh-5kW	16kWh-5kW	24kWh-15kW	32kWh-15kW
DC Energy(kWh)	8	16	24	32
Max. Charging Current (Adc)	160	216	275	275
Max. Discharging Current (Adc)	160	216	275	275
Technology	Encapsulated Cell			
ESS Voltage Range	40 - 60Vdc			
Nominal Cell Voltage	6.4~6.6Vdc / Cell (Encapsulated and Envelope) 1/2 + 0.12V Envelope			
Charging Curve	3 Stages / Equalization (CC/CP/VP)			
Charging Strategy	Self-adaption to BMS			
DC Voltage (Nominal)	48Vdc			
Internal Resistance	<4mΩ			
Module Operating Temperature	-30°C (-22°F) and 60°C (140°F)			

PV String Input Data

Model	8kWh-5kW	16kWh-5kW	24kWh-15kW	32kWh-15kW
Max. Allowed PV Power (STC)	6,500 W		19,500 W	
Max. Operating Input Current/MPPT	10Adc (Self-limiting)		26Adc	
Max. Short Circuit Current/MPPT	-		44Adc	
No. of MPPT Trackers	2		3	
Strings Per MPPT Tracker	2		2	
Max AC Coupled Input	9,600 W		19,200 W	
Startup Voltage	125Vdc			
MPPT Voltage Range	150 - 500Vdc			
Rated MPPT Operating Voltage Range	175 - 425Vdc			
MAX DC Input Voltage	500Vdc			

Regions

USA

Nominal AC Voltage Output	120/240Vac
Rated Grid Frequency	60Hz



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ADVANCED FEATURES

AC Output Data				
Model	8kWh-5kW	16kWh-5kW	24kWh-15kW	32kWh-15kW
Real Power, Max Continuous	5,000 W		15,000 W	
Max. Output Current	20.8 Aac		62.5 Aac	
Real Power, Max Continuous (Batteries Only)	-		12,000 W (50A @240V)	
Peak Apparent Power (10s, off-grid)	16,000 VA @ 240V		24,000 VA @ 240V	
Peak Apparent Power (100ms, off-grid)	25,000 VA @ 240V		30,000 VA @ 240V	
Max Output Fault Current (5s)	-		94A with PV, 75A Batteries Only	
Max Output Fault Current (100ms)	104Aac		120Aac	
Max. Grid Passthrough Current	63Aac		200Aac	
Backup Transfer Time	4ms		5ms	
Stackable	-		Up to 12 in parallel	
Power Factor Output Range	+/- 0.9 adjustable			
CEC Efficiency	96.5%			
Max Efficiency	97.5%			
Design (DC to AC)	Transformerless DC			

Smart Features

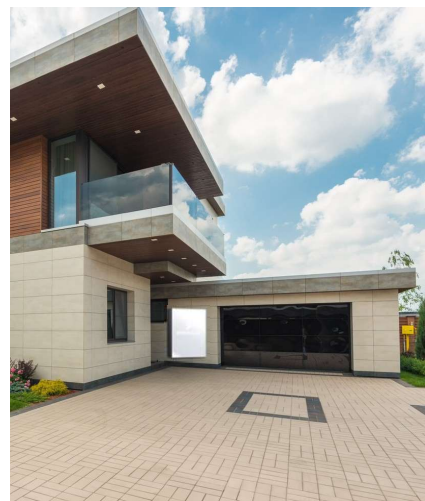
OLED Display	Monitor & Configure Module
Communication	WIFI / CANBUS / Bluetooth
Alarm	Buzzer alarm in the event of Over/under-Voltage, Over-Current, Over Temperature

Monitoring Software

Module Monitoring	Total Voltage, Individual Cell Voltages, Current, Temperatures, Instantaneous Power, SOC and Energy Consumed
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Environmental Specifications

Inverter Operating Temperature	-25°C (-13°F) ~ +55°C (+131°F)
Operating Humidity	Non-Condensing
Warehousing	Can be stored at any SOC without affecting cycle life



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MECHANICAL & SAFETY

Mechanical Specifications

Model	8kWh-5kW	16kWh-5kW	24kWh-15kW	32kWh-15kW
Dimensions (WxHxD) mm	790mm (31.1in) x 1100mm (43.3in) x 310mm (12.2in)			
Weight (kg) Module	175.5kg (387lb)	220.9kg (487 lb)	292.1kg (644lb)	337.5kg (744lb)
Module Casing Material	GI Powdered			
Installation Style	Wall Mounted			
Ingress Protection (IP) Rating	IP 65			

Equipment Protection

Battery Short Circuit Protection	Electronic Switching, Terminal Cut-off
Battery Over/Under Voltage	Electronic Switching, Terminal Cut-off
Battery Over Current	Electronic Switching, Terminal Cut-off
Integrated Safety Features	PV Polarity Reverse Connection Protection AC Output Over Current Protection - 200A AC Output Over Voltage Protection AC Output Short Circuit Protection Thermal Protection DC Terminal Insulation Impedance Monitoring DC Component Monitoring Ground Fault Detection - NEC 690.5 Power Network Monitoring Island Protection Monitoring Earth Fault Detection PV Disconnect Switch - NEC 240.15 Over voltage Load Drop Protection Residual Current (RCD) Detection TYPE II (DC), TYPE II (AC)
Surge Protection Level	

General Data

Noise	<30 dB (A)
Inverter Topology	Non-Isolated
Over Voltage Category	OVC II (DC), OVC III (AC)
Type of Cooling	75/71.7
Grid Regulation	IEC 61727, IEC 62116, CEI 0-21, EN 50549, NRS 097, RD 140, UNE 217002, OVE-Richtlinie R25, G99, VDE-AR-N 4105
Safety EMC/Standard	IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2



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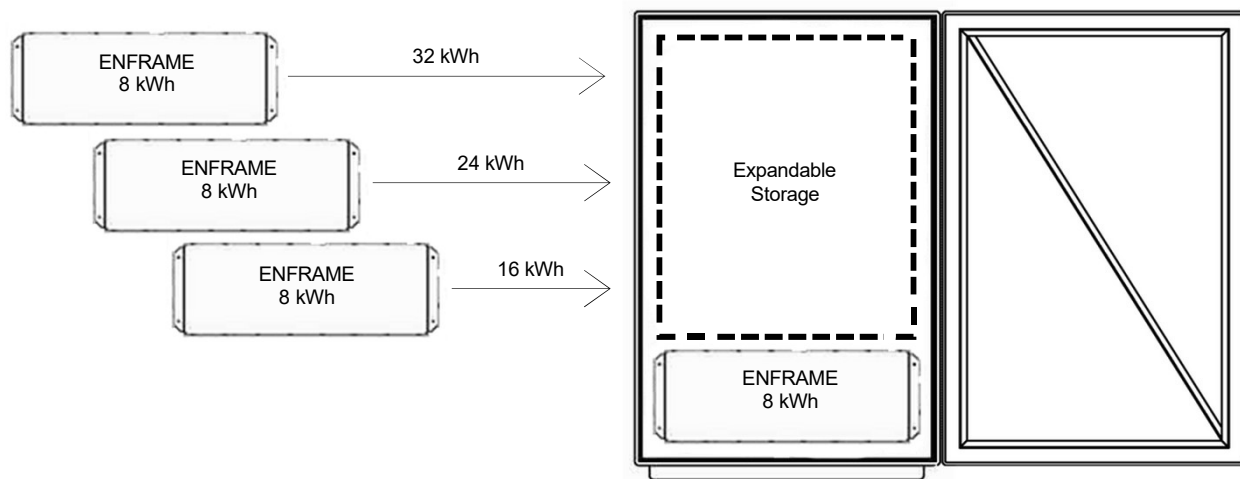
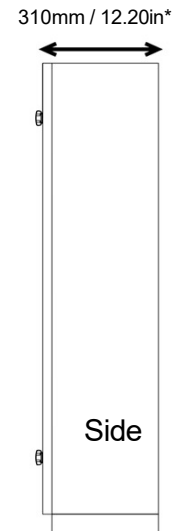
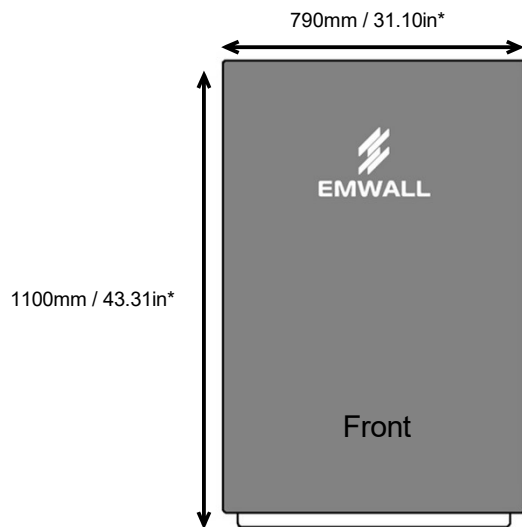
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EMWALL LAYOUT DETAILS

Energy Storage Mechanical Dimensions



*Final dimensions and weight are subject to change. Please contact Emtel Energy USA for additional information.



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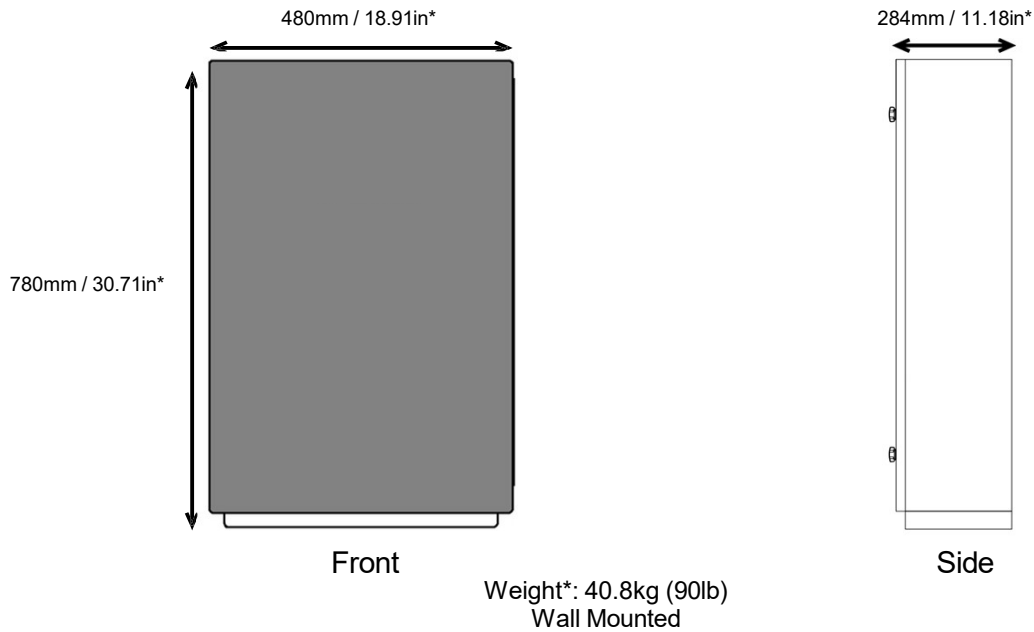
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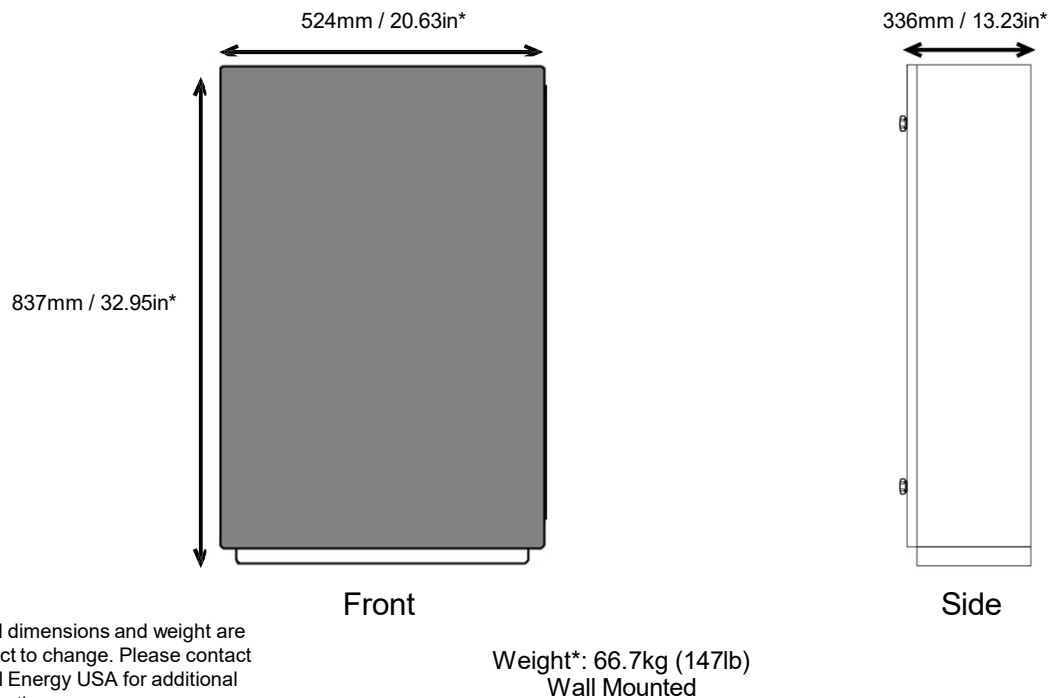
Inverter Mechanical Dimensions

Powered by 

5kW Inverter



15kW Inverter



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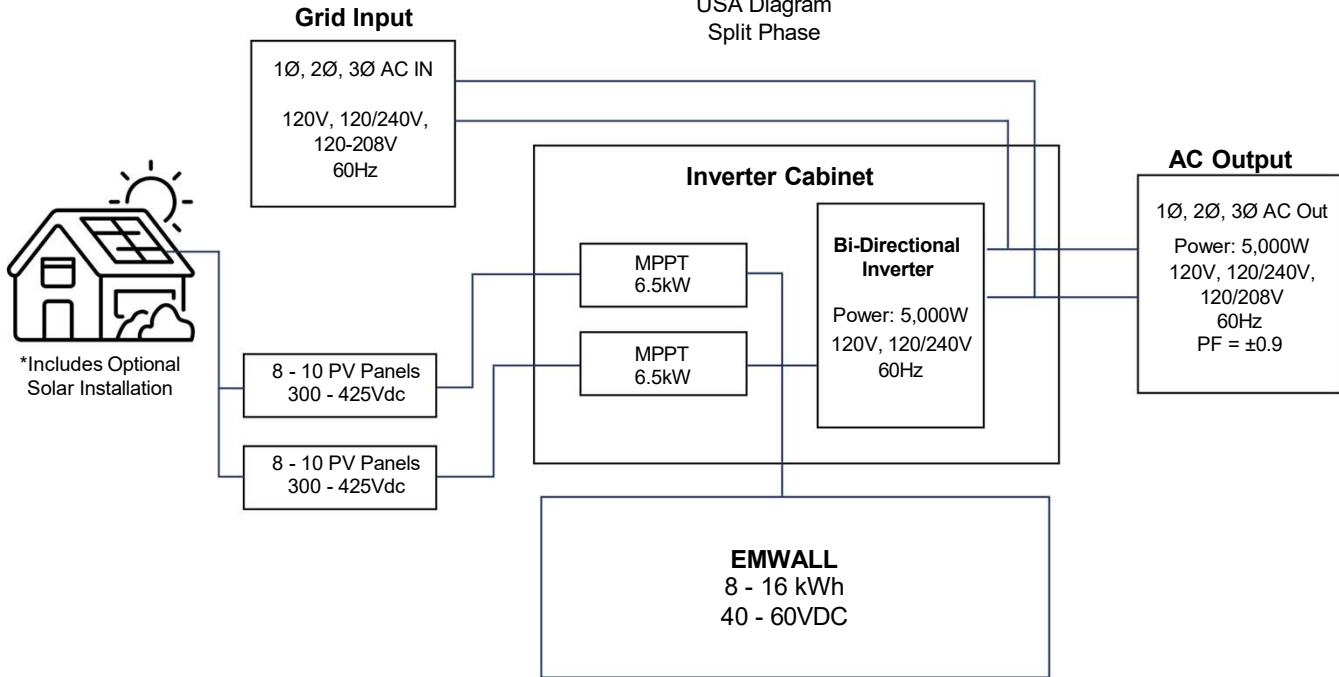
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SAMPLE MICROGRID CONFIGURATIONS

8-16kWh - 5kW

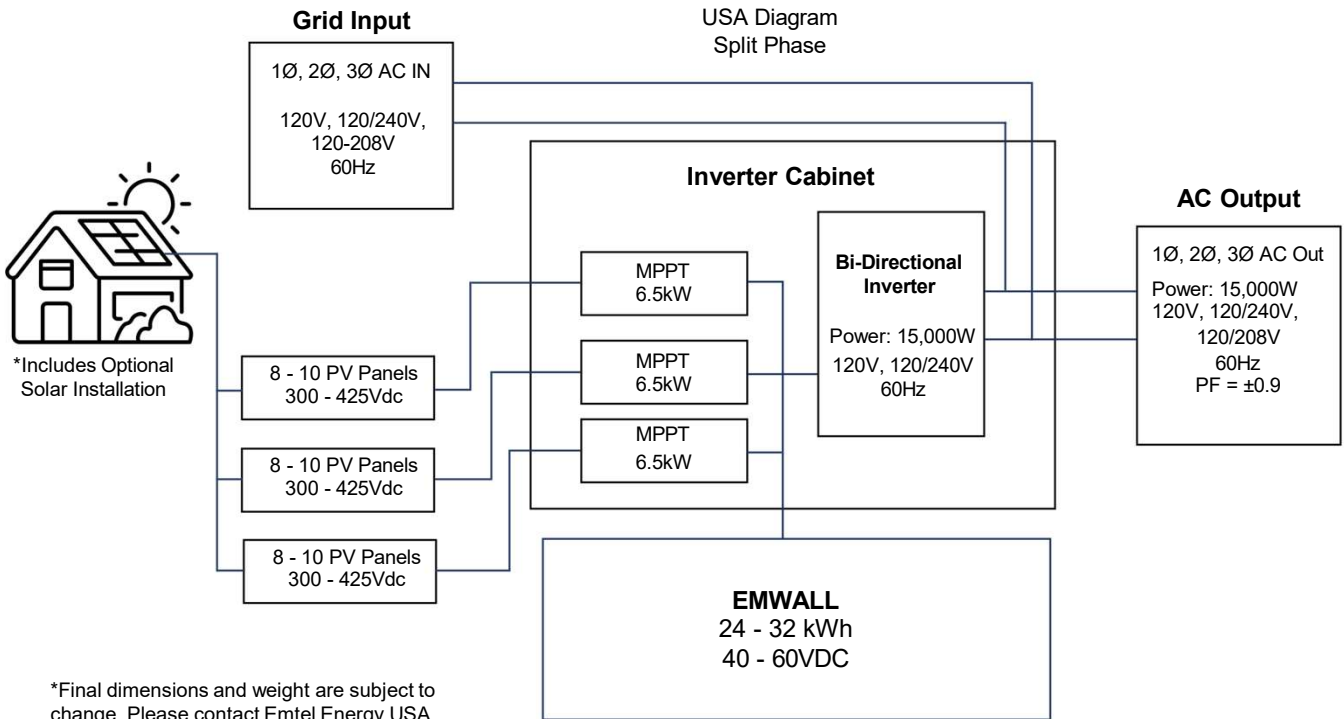
USA Diagram
Split Phase



Weight*: 175.5kg (387lb) - 220.9kg (487 lb)
Wall Mounted

24-32kWh - 15kW

USA Diagram
Split Phase



*Final dimensions and weight are subject to change. Please contact Emtel Energy USA for additional information.

Weight*: 292.1kg (644lb) - 337.5kg (744lb)
Wall or Ground Mounted



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