



## ENERGY STORAGE SOLUTIONS

Residential

Commercial & Industrial

Utility



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Household  
Energy Storage  
**SOLUTIONS**

**North  
America  
YEAR 2022**



# 01 THE COMPANY

## 10 Years of research and development in ESS Solutions

AlphaESS is an **energy storage company established in 2012**. It is one of the few companies in the industry with over a decade of experience dedicated exclusively to manufacturing energy storage systems using lithium-ion technology. All key components are engineered and produced in-house.



## Global Player , Local Presence

AlphaESS is a global industry player with over 10 subsidiaries and service centers spread around world.

Our production facilities are in China, Malaysia and Australia with an overall manufacturing capacity around 4 GWh per year.

Starting in 2022, Alpha launched its US operations based out of Denver, Colorado.



## Global Cumulative Sales Performance

**3+ GWh**  
of cumulative Sales

**83+ Countries**  
global footprints

**75,000+**  
systems sold globally

## Awards & Achievements



Top Brand PV  
(Storage)



Reddot Design  
Award



ees & THE smarterE  
award finalist



2021 TOP 5 Residential  
ESS Provider in Germany

## SMILE SP / SPB SERIES 7.6 kW and 9.6 kW ESS SYSTEMS

**SGS Certified**  
North American Standard


- UL1741 for Inverters/Converters
- UL1973 for Stationary Batteries
- UL9540 for Energy Storage System
- UL9540A for Thermal Runaway Fire Propagation in ESS

**CEC Listed**  
Eligible for SGIP Incentives




## DC COUPLE SMILE SP SERIES


The AlphaESS **SMILE SP series** is a **DC coupled energy storage solution**. SMILE SP's unique design provides the highest system efficiency, practical installation, least cost options and functions as a flexible backup solutions in case of power outages.




**SMILE SP SERIES  
HYBRID INVERTER**  
7.6 kW or 9.6 kW




**8.2 kWh  
BATTERY MODULE**  
( EXTENDABLE TO 49.2 kWh )



**AUTO-  
TRANSFORMER**



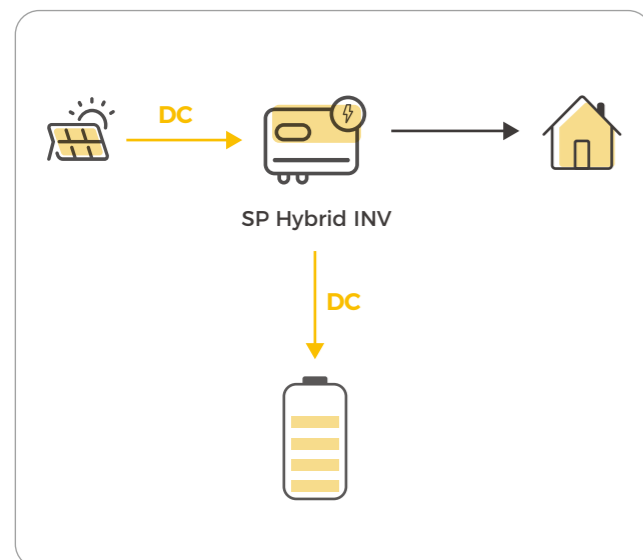
**GRID  
CT METER**

Backed by: **Munich RE** 

★ ★ **10** ★ ★  
— YEARS —  
**WARRANTY**

### ➤ Highest Efficiency

The SP hybrid inverter takes DC power directly from the PV array to charge the battery without any power conversion during the charging process. In addition, the 250v battery DC voltage also makes the charge& discharge much more efficient.




### ➤ Easiest Install & Least Cost

The SP hybrid inverter has 4 MPPTs and a Tigo RSD transmitters **inbuilt in the system**, enabling installers to easily complete installations without the need for additional solar inverters or external RSD boxes.

**In-built**

**4**  
MPPT

**Tigo**  
RSD Transmitter

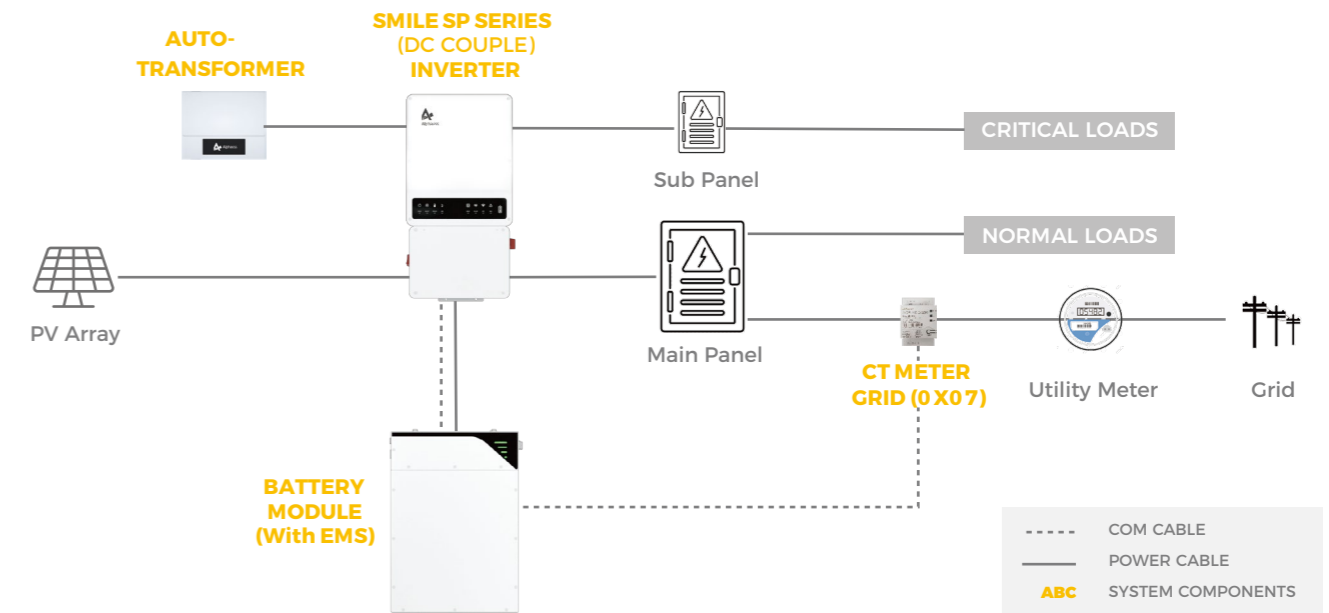


TS4 Flex MLPE
RSD Only
TS4-A-F (single panel MLPE)
TS4-A-2F (2 panel MLPE)
RSD + Module Level Monitoring
TS4-A-S
RSD + Optimization + Module Level Monitoring
TS4-A-O

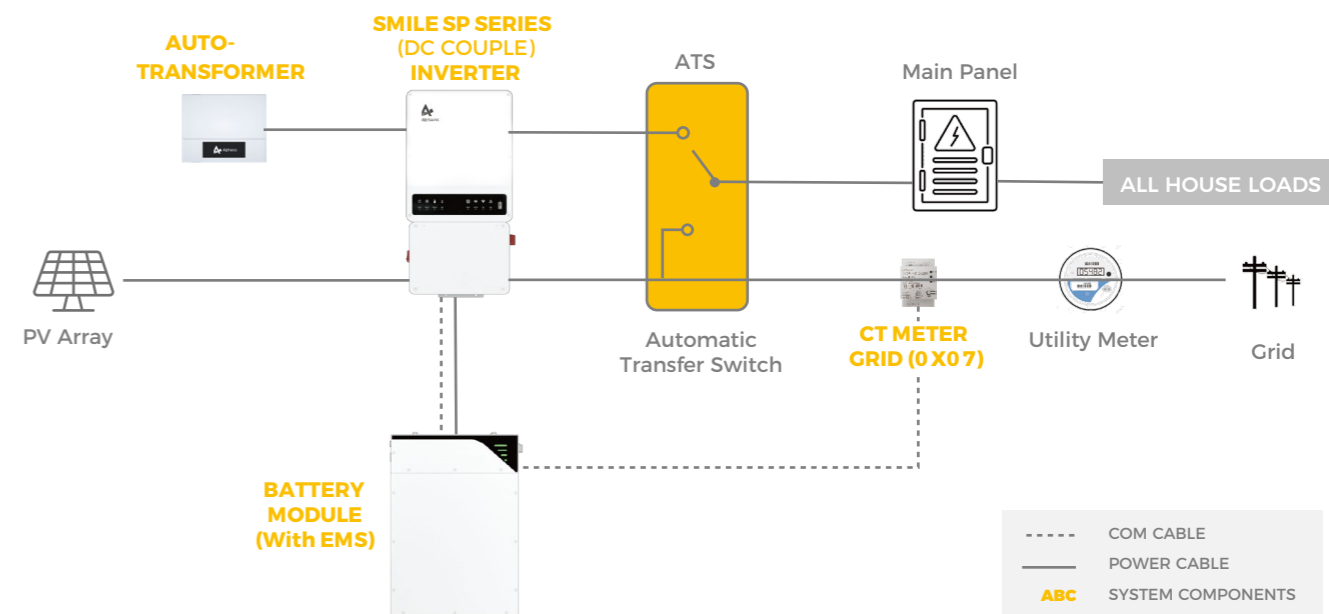
### ➤ Most Flexible

Homeowners choose between two different power back-up solutions. **Critical loads** only by choosing select circuits on a sub-panel, or **full home back-up** by installing an ATS (Eaton or Cummins).

#### SUB-PANEL BACK UP




#### WHOLE HOME BACK UP




## AC COUPLE SMILE SPB SERIES


The AlphaESS **SMILE SPB series** is an **AC-Coupled energy storage solution**. Its intelligent system design enables perfect compatibility with any third-party solar inverters. It is a perfect solution for retrofitting to existing solar installations as well as new ones, thanks to its capability to integrate with all major inverter brands.



**SMILE SPB SERIES  
BATTERY INVERTER**  
7.6 kW or 9.6 kW



**8.2 kWh  
BATTERY MODULE**  
( EXTENDABLE TO 49.2 kWh )




**AUTO-  
TRANSFORMER**



**GRID  
CT METER**



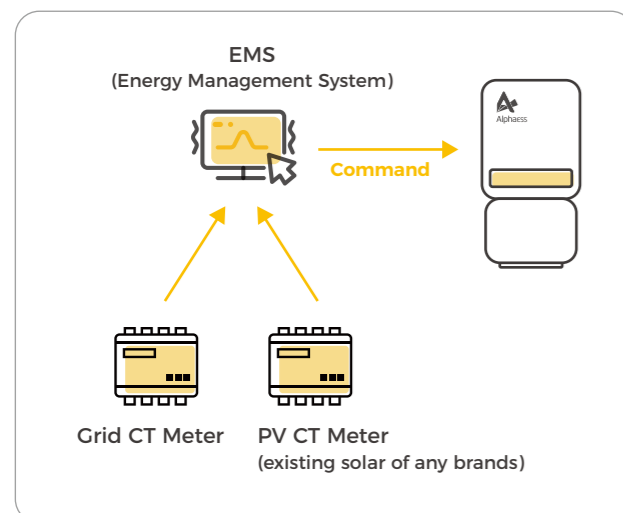
**PV  
CT METER**

Backed by: **Munich RE** 

★ ★ **10** ★ ★  
- YEARS -  
**WARRANTY**

### ➤ Easiest Retrofit

The SPB Series eliminates any compatibility issues between existing solar systems and the new battery system. An intelligent EMS will manage communication between CT meters, with grid-forming capability to ensure seamless transition to off-grid mode in case of power outages.



### ➤ Most Adaptable

The SMILE SPB series works with all popular inverter brands on the market. The EMS is programmed to ensure seamless communication between all equipment.





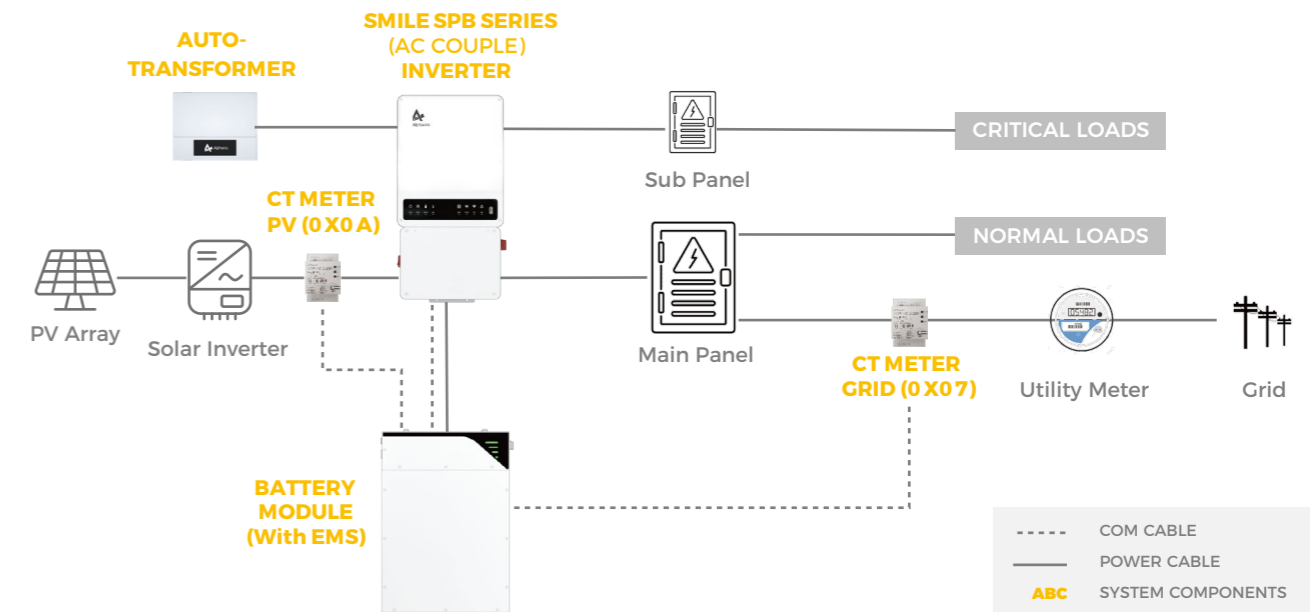


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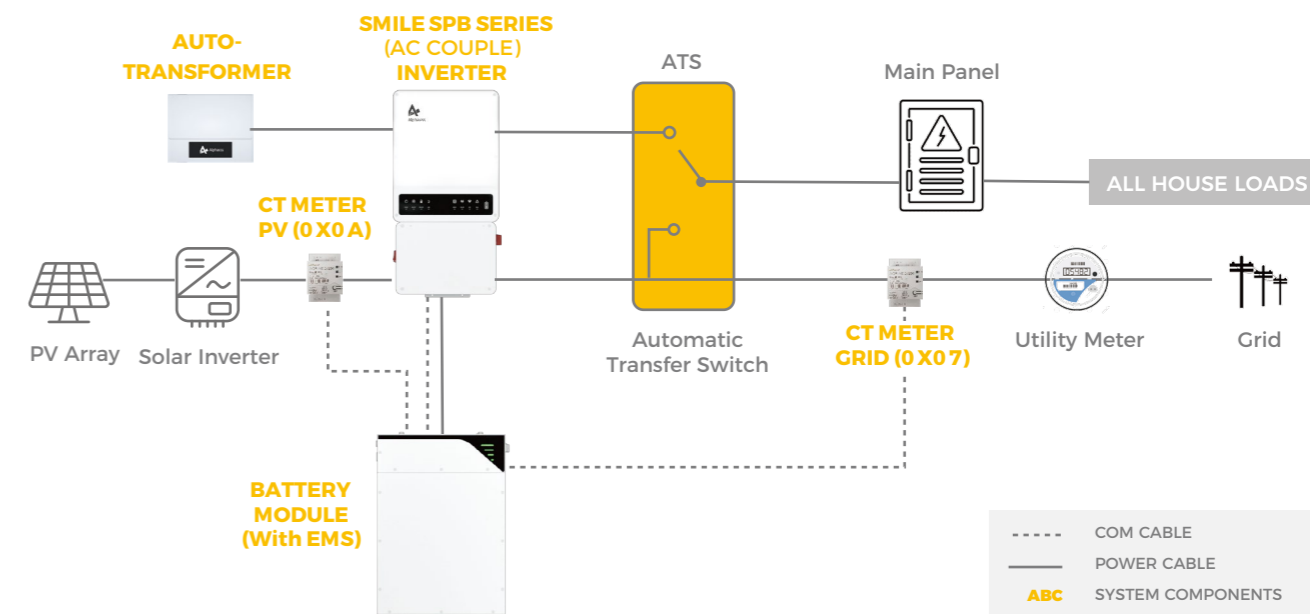
### ➤ Most Flexible

Homeowners choose between two different power back-up solutions. **Critical loads** only by choosing select circuits on a sub-panel, or **full home back-up** by installing an ATS (Eaton or Cummins).

#### SUB-PANEL BACK UP



#### WHOLE HOME BACK UP





## Higher Power Output

The AlphaESS SMILE-SP/SPB Series single inverter output power is larger than most other inverters found on the market.

Homeowners can power large electrical appliances whether in on or off-grid mode. This also allows for better participation in demand response programs guaranteeing faster pay back periods on the equipment investments

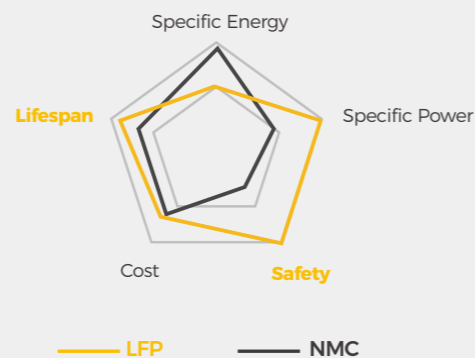
Model	On-grid	Off-grid
AlphaESS SMILE-SP/B9.6	9.6 kW	11.52 kW (60 secs)
Enphase Encharge 10	3.84 kW	5.7 kW (10s)
Powerwall 2	5 kW	7 kW
Generac PWRcell	7.6 kW	9 kW



## Safer Battery Chemistry

Compared to the NMC chemistry, LFP has much better Safety and Lifespan features which homeowners care the most.

Products	Chemistry
AlphaESS SMILE-BAT-8.2PHA	LFP
Powerwall	NMC
LG Chem Resu	NMC
Enphase Encharge 10	LFP



## Slower Capacity Degradation

Like any battery powered device, solar batteries' capacity decreases over time.

LFP batteries have longer lifespans than other chemistries, and with Alpha ESS advanced BMS, batteries degrade only at 2% every year.

The Alpha warranty is also backed by renown re-insurance company MUNICH RE.

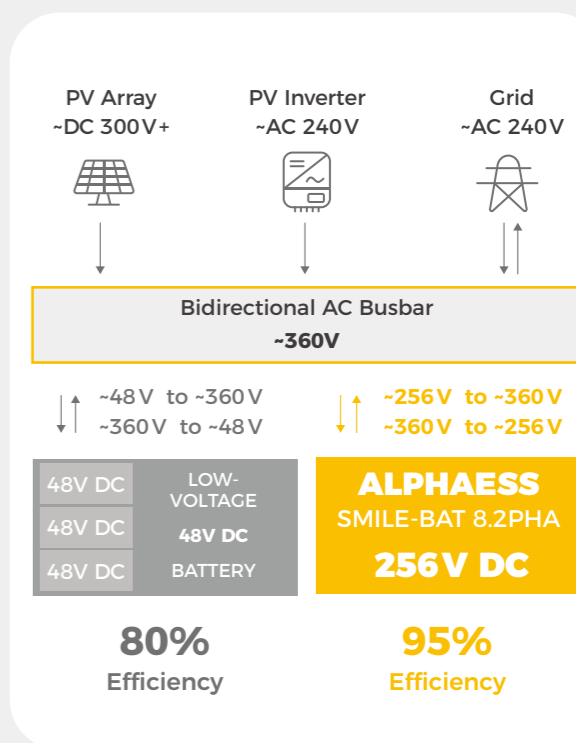
Brand	Retained Capacity @10th year
AlphaESS SMILE-SP/B9.6	80%
Powerwall	70%
LG Chem Resu	60%
Enphase Encharge 10	70%



## Higher Round-Trip Efficiency

The AlphaESS SMILE-SP/SPB Series have a battery voltage of **256V DC** which is close to the AC BUSBAR voltage of the inverter, this largely reduces energy losses during every charge / discharge.

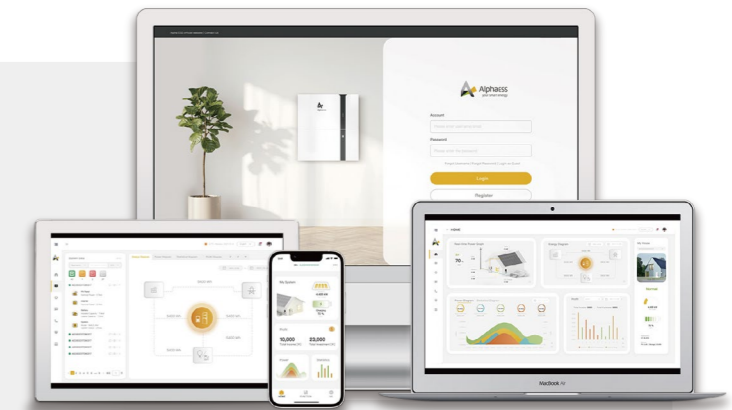
The **48V battery systems** commonly found in the market would face **significant voltage step ups / downs** during every charge / discharge which would lead to **major energy losses**.





**ALPHACLOUD**  
Energy Management & Monitoring Platform

**Monitoring & Optimizing Your Energy 24/7**



Once you purchase an AlphaESS energy storage system, AlphaCloud will allow you to manage your energy from anywhere anytime, and it's lifetime free.

AlphaCloud provides you with a comprehensive view of your energy ecosystem. It enables you to see in real-time the amount of your PV generation, your energy consumption, your battery energy and to set your preferences to optimize for energy independence and saving.

The AlphaCloud Energy Management & Monitoring System is a **powerful platform** built on Microsoft Azure.

AlphaESS offers two account options depending on the user:

❖ **Homeowner**

Homeowners have access to all household's energy data from their mobile device, allowing them to monitor and change settings to meet their home power needs.

❖ **Installer**

Installers can remotely monitor and provide basic service to the systems with access to specific back-end data.

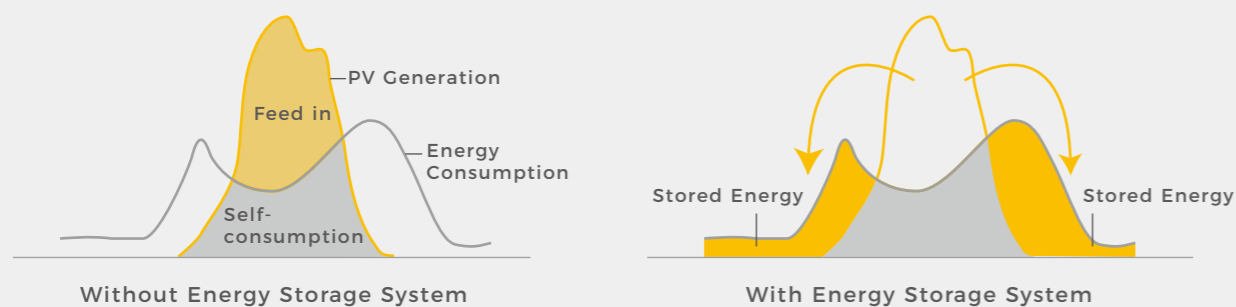
**CELLPHONE, TABLET, LAPTOP, COMPUTERS**

**Wherever you want to see!**

The Alpha Cloud app is available on Apple and Android devices.



## ➤ Self-consumption



A typical household consumes more energy during the morning and evening times. However, rooftop solar systems generate most of the energy during the middle of the day, so all surplus power is either wasted or sold back to the grid with very low value to the homeowner.

AlphaESS SMILE SP/SPB Series intelligently stores surplus generated power during the day so that the homeowners can benefit from the clean energy at times most convenient.

## ➤ Virtual Power Plants



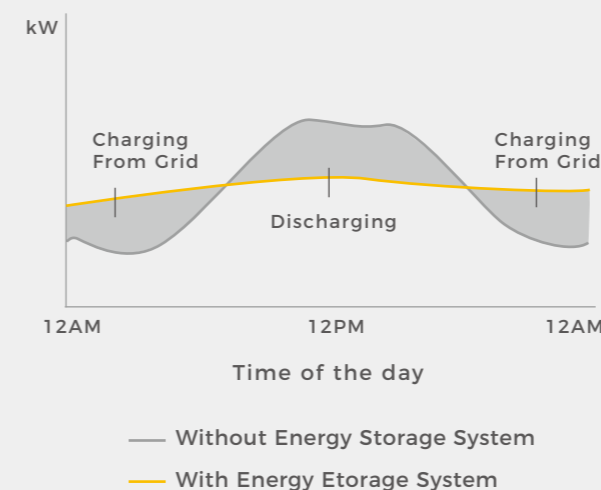
Virtual Power Plants (VPP) are comprised of a fleet of residential solutions and other DERs operating as one system controlled by software aggregators. The network responds to different kinds of demand response requests from the utility, benefiting both the homeowners and others connected to the local grid. AlphaESS has a proven track record with VPPs in international markets. The SP/SPB systems are compatible with VPPs in North America.

## ➤ Energy Resilience

Power outages occur frequently in North America from forest fires, hurricanes or other extreme weather events. It can take days or even weeks for the utility power to be restored. AlphaESS SP/SPB series are the perfect solutions to mitigate outages by providing continuous clean, safe and reliable electricity to homes.



## ➤ Load Shifting



### User-end: Load shifting

Save money by avoiding peak electricity rates by storing electricity during off-peak times and discharging stored energy during peak times.

### Transmission & distribution: Peak shaving

Avoid substation and power line upgrades by providing a fast and responsive emission free solution to variable load peaks.

# 07 THE PRODUCTS - SPECIFICATION

SYSTEM MODEL	SMILE-SP7.6	SMILE-SP9.6	SMILE-SPB7.6	SMILE-SPB9.6
<b>PV String Input Data</b>				
Max PV Input Power (W)	11400	15000	NOT APPLICABLE	
Max. PV Input Voltage (V)*2	600			
MPPT Operating Voltage Range (V)*3	80-550			
Start-up Voltage (V)	95			
Number of MPPTs	4			
Max. Input Current per MPPT (A)	12.5			
Max. Short Circuit Current per MPPT (A)	15.2			
<b>AC Output Data (On-grid)</b>				
Max. Apparent Power Output to Grid (VA)	7600	9600	7600	96
Max. Apparent Power from Grid (VA)	9120	9600	9120	9600
Output Voltage Range (Vac)	211 to 264 @240			
Nominal AC Grid Frequency (Hz)	60			
Max. AC Current Output to Utility Grid (A)	31.7	40	31.7	40
Max. AC Current From Utility Grid (A)	38	40	38	40
Power Factor	-1 (Adjustable from 0.8 leading to 0.8 lagging)			
Max. Total Harmonic Distortion	<3%			
<b>AC Output Data (Back-up)</b>				
Max. Output Apparent Power@240V (VA)	7600 (9120@60sec)	9600 (11520@60sec)*	7600 (9120@60sec)	9600 (11520@60sec)*
Max. Output Current@240V (A)	31.7	40	31.7	40
Nominal Output Voltage L1-L2/L-N (Vac)	240 / 120			
Nominal Output Frequency (Hz)	60			
Output THDv (@Linear Load)	<3%			

<b>System Battery Technical Specifications</b>				
System Battery Module Model	SMILE-BAT-8.2PHA ( With EMS )			
Chemistry	LFP (LiFePO4)			
Nominal Capacity (kWh)	8.2			
Usable Capacity (kWh)	7.8			
Depth of Discharge (DoD)	95%			
Nominal Voltage (V)	256			
Max. Charging/Discharging Current (A)	38.4			
Operating Temperature Range	-10°C~ 50°C (14°F ~ 122°F)			
<b>Battery Capacity Extension Information</b>				
Extension Battery Module Model	SMILE-BAT-8.2PHA ( Without EMS )			
Extension Battery Module Capacity (kWh)	8.2			
Max. Additional Battery Modules	5 Units			
<b>System Mechanical Specifications</b>				
Components	Inverter Module	Battery Module	Auto - Transformer	CT Meter
Weight (lbs)	70.5	178.7	48.5	Light
Dimension (W*H*D)	16.3 in × 31.1 in × 6.9 in (415 mm × 791 mm × 175 mm)	22.8 in × 31.3 in × 9.0 in (580 mm × 800 mm × 230 mm)	13.6 in × 10.9 in × 6.8 in (345 mm × 277 mm × 174 mm)	2.13 in × 3.65 in × 2.05 in (54.1 mm × 92.6 mm × 52 mm)
IP Protection	IP65			IP21

\* When at least one additional battery module is added, otherwise it would be 9.83 kW.