



## SOL-ARK 8K

**More Affordable:  
5-15% less solar panels &  
5-20% less batteries than others!**

World's Most Efficient Battery Inverter



**S&P GLOBAL PLATTS**  
GLOBAL ENERGY AWARDS  
2018 FINALIST



## R esilient

- EMP/Solar Flare/Lightning Hardened to 2X military levels (MIL-STD-461G)
- 4ms Instant Battery Backup

## A ffordable

- Expandable PV: 1.5KW to 11KW
- Batteries: Optional, 12KWh to 48KWh
- Payback Period = 7.5 years

## I nnovative

- Most Efficient Battery Based Solar Storage Inverter in the World
- Affordable Solar Storage
- Easiest All in One Install and User Interface
- Smart Load: automatic On/Off Grid



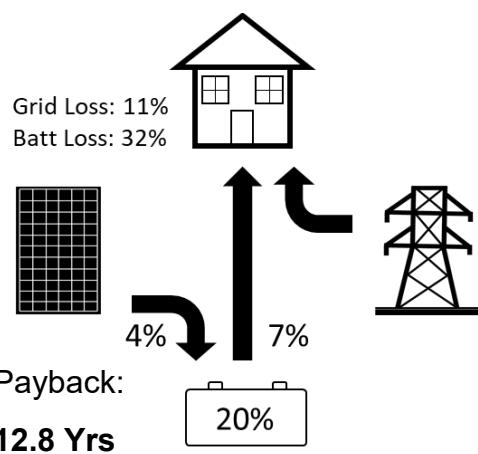
## S ustainable

- Lifespan: Panels = 50yrs
- Sol-Ark is a Solar Powered Generator made from Recyclable Materials
- Infinitely Recyclable Low Cost Batteries

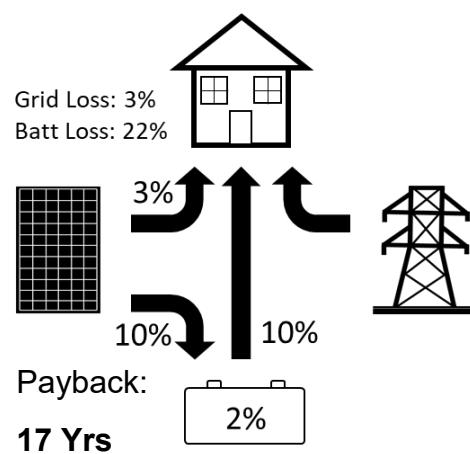
## E fficient

- Saves \$4,000 on solar and \$1,500 on batteries on average

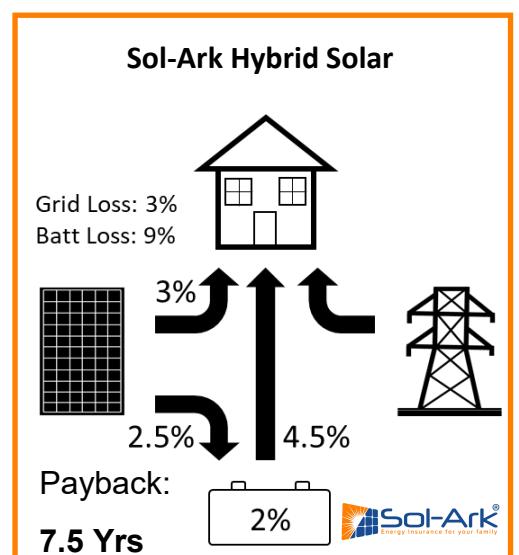
Traditional Solar



Hybrid Solar



Sol-Ark Hybrid Solar



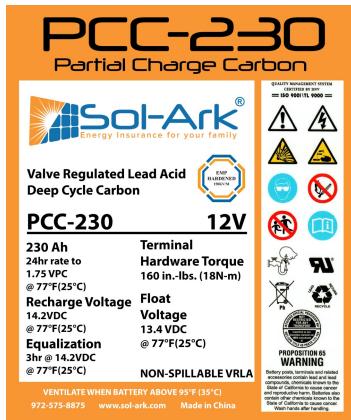
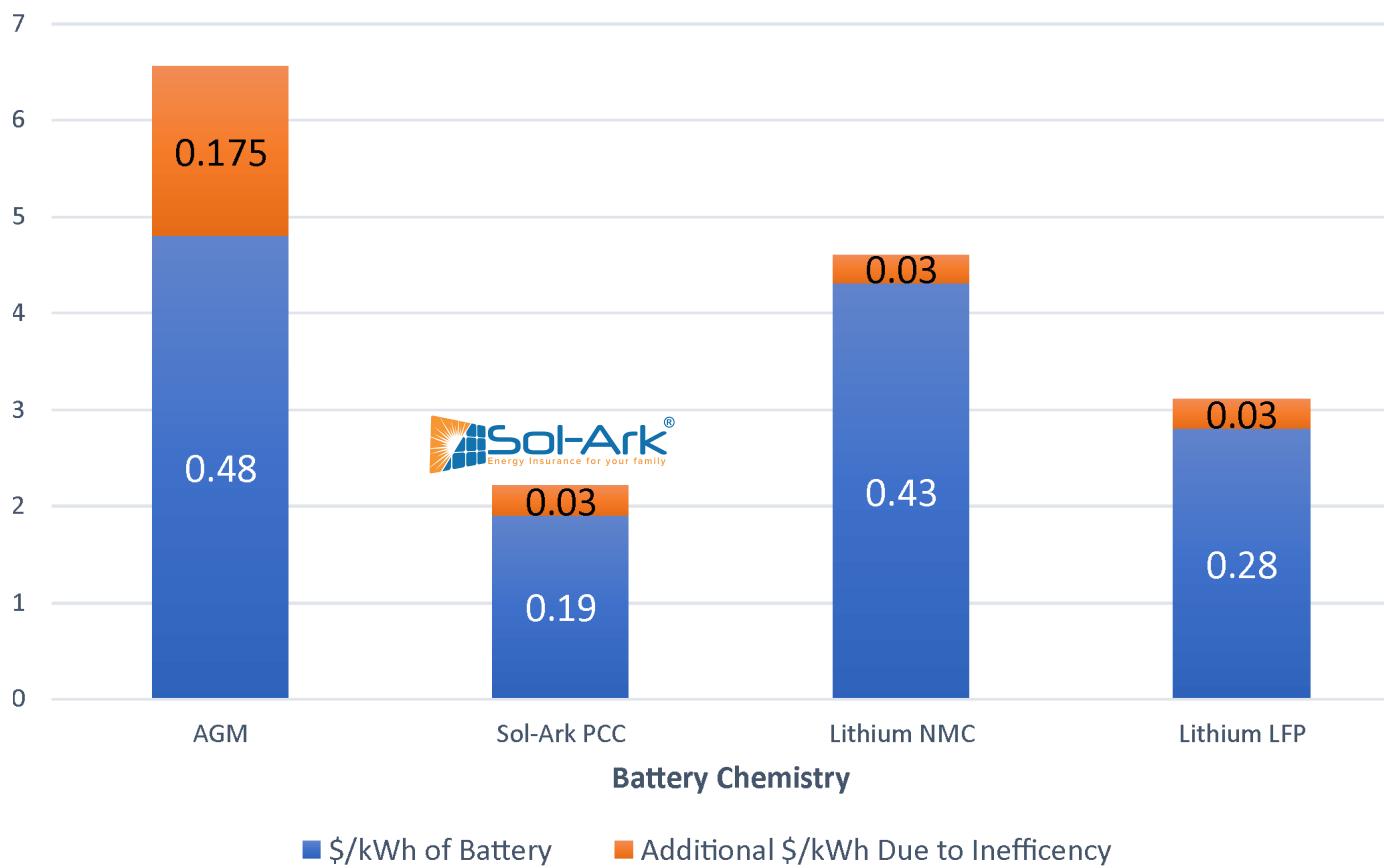
# Solar Batteries made Affordable

	Lead Acid (thick plate)			Lithium		
	Wet	AGM	PCC AGM	LFP	LiOn / NMC	Li Polymer
Round Trip Efficiency	80%	88%	98%	98%	98%	98%
Round Trip Losses w/ Sol-Ark	20%	12%	2%	2%	2%	2%
10KWh Cost (MSRP)	\$1,600	\$1,800	\$2,100	\$8,500	\$6,500	\$4,500
Off Grid Real World Cycles 50% DoD	1300	750	2400	6000	3000	1500
Off Grid Years @ 50% DoD	3.6	2.1	6.6	16.4	8.2	4.1
On Grid Years	9	7	12	15	12	9
Cost Per KWh Cycle	\$0.25	\$0.48	\$0.18	\$0.28	\$0.43	\$0.60
Cost of Oversizing 10KW PV @ \$4/W	\$8,000	\$4,800	\$800	\$800	\$800	\$800

Good for Emergency Backup

Good for Daily Cycling

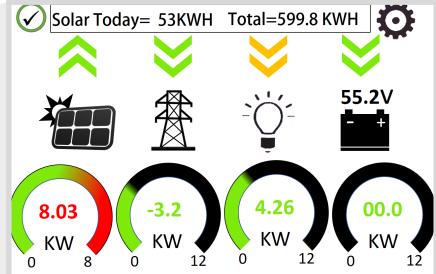
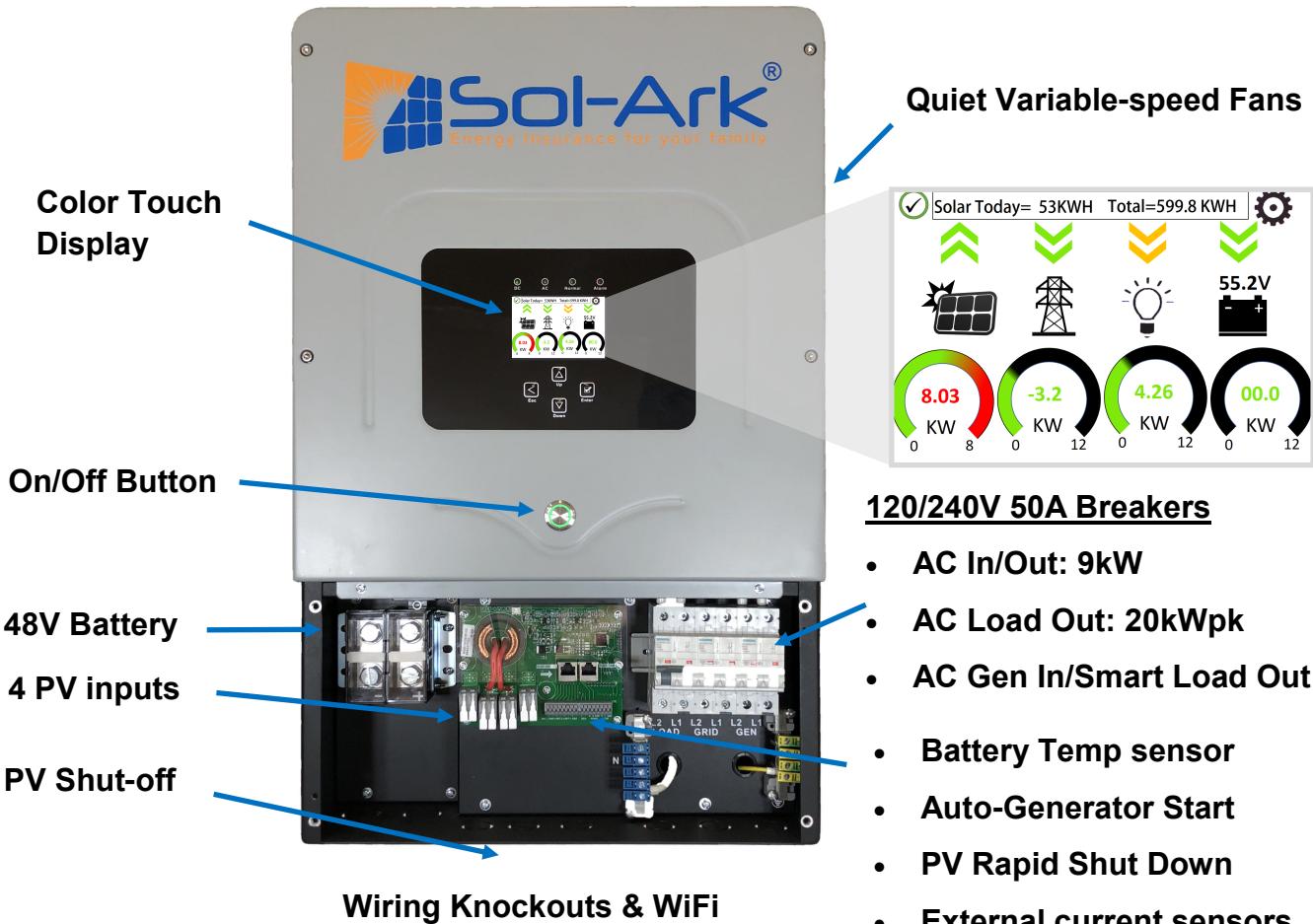
## Battery Chemistry Cost Comparison



### Sol-Ark's PCC-230 Battery: Partial Charge Carbon Sealed AGM

- ◊ 11 kWh bank w/ 4 batteries 48V
- ◊ 3000 cycles @ 50% DOD (7+ years, 12 years On Grid)
- ◊ Excellent Partial State of Charge, 5 year warranty
- ◊ UL 1989
- ◊ 12.7" x 22" x 6.1" (320 x 559 x 154mm)
- ◊ 160 Lbs

# Battery Solar made Simple



## 120/240V 50A Breakers

- AC In/Out: 9kW
- AC Load Out: 20kWpk
- AC Gen In/Smart Load Out
- Battery Temp sensor
- Auto-Generator Start
- PV Rapid Shut Down
- External current sensors
- Battery communication

- **Grid Tied Mode:** Sell your power to the Grid
- **Meter Zero Mode:** Zero your whole home power
- **Time of Use:** Use batteries to avoid \$\$\$\$ power
- **120 / 240 / 208V**
- **Smart Load:** Programable Loads for high power off-grid items saves battery capacity
- **AC Coupling:** add backup to 7kW of existing Grid Tie installs
- **Peak Shaving:** Reduces peak demand charges

## EMP/CME/LIGHTNING PROTECTION

- ◊ Protect your system and appliances from EMP/Solar Flare/Lightning at 2X military requirements

## Wireless Monitoring & Remote Software updates



## Competitor Comparison

## Sol-Ark-8K-48-ST Specifications

### Solar

Max allowed PV Power	11000W
Max allowed PV Power per MPPT	6000W
Max DC voltage	500V
MPPT voltage range	150-425V
Starting voltage	175V
Number of MPPT	2
Solar Strings per MPPT	2
Max DC current per MPPT	18A (self limiting)
Max AC Coupled Input (Micro/String Inverters)	7,000W
Max Combined Solar Input (DC+AC)	13,000W

### AC Output

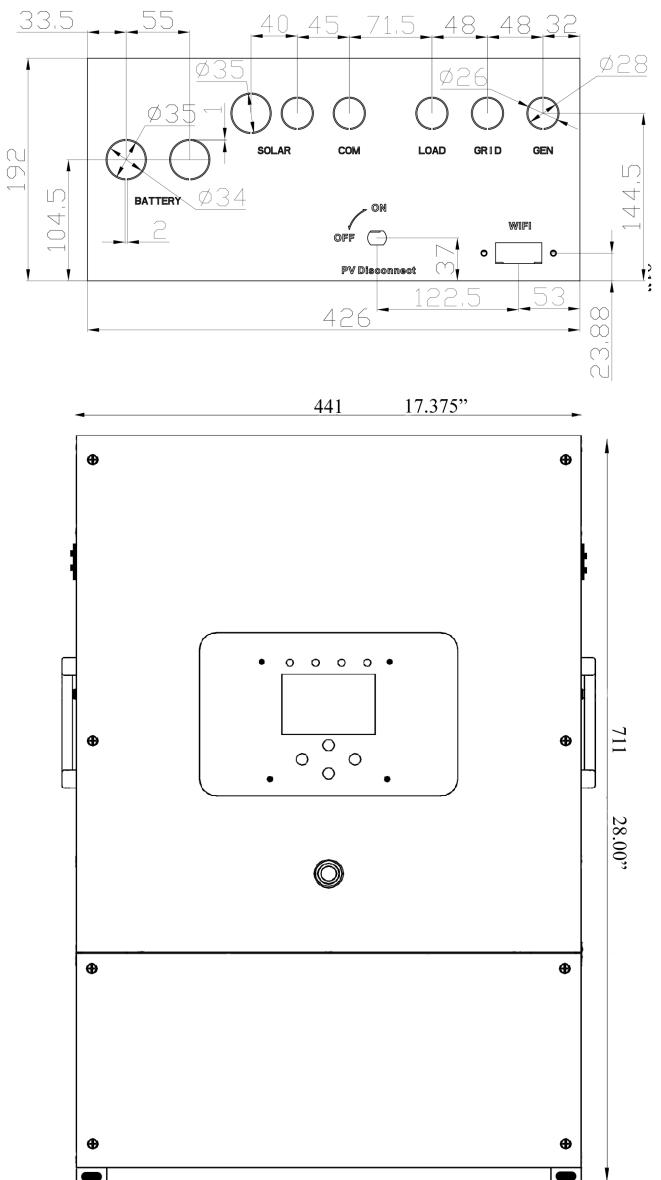
Connections	120/240V split phase
Continuous AC power on Solar or Battery	9000W 37.5A L-L (240V) 4800W 40A L-N (120V)
Surge AC power 5sec	20,000VA L-L (240V) 10,000VA L-N (120V)
Frequency	60/50Hz
Continuous AC power with Grid or Generator	12000W 50A L-L (240V) 6000W 50A L-N (120V)
CEC Efficiency	96.5% (Peak 97.5%)
Idle Consumption typical – no load	60W
Sell back power modes	Limited to Household or Full Grid-Tied
Design (DC to AC)	Transformerless DC
Response Time (Grid-Tied to Off-Grid)	4ms
Power Factor	+0.9 - 1.0

### Battery (optional)

Type	Lead-Acid or Li-Ion
Nominal DC Input	48V
Capacity	90 – 2000Ah
Voltage Range	41.0 – 59.0V
Continuous Battery charging output	190A
Charging curve	3-stage w/ equalization
Grid to Battery Charging Efficiency	96.0%
External temperature sensor	included
Current shunt for accurate % SOC	integrated
External Generator Start based on voltage or % SOC	integrated
Communication to Lithium battery	CanBus & RS485

### General

Dimensions (H x W x D)	28.0" x 17.375" x 9.37"
Weight	75 lbs
Enclosure	NEMA type 1 (Indoor Use)
Ambient Temperature (4 variable speed fans)	-25 to 55C, >45C derating
Display	Color touch screen
Wi-Fi Communication (monitoring or SW updates)	integrated
Snap on sensors for limited selling to Household	included
Standard Warranty	5 years
Optional Extended Warranty	10 years



### Protection & Certifications

Electronics certified safety by SGS labs to NEC & UL specs – NEC 690.4B & NEC 705.4/6	Yes
Grid Sell Back – UL1741-2010/2018, IEEE1547a-2003/2014, FCC 15 class B, (April 2019: UL1741SA, CA Rule 21, HECO Rule 14H)	Yes
PV DC disconnect switch – NEC 240.15	integrated
Ground Fault Detection – NEC 690.5	integrated
PV rapid shutdown control – NEC 690.12	integrated
PV Arc Fault detection – NEC 690.11/ UL1699B	integrated
PV input lightning protection	integrated
AC input/output 50A breakers	integrated
Battery overcurrent fuse	integrated
User wiring enclosure w/ ¼" & 1" knock-outs	integrated
Solar Flare/EMP Hardened to 2015 MIL-STD-461G (Independently tested June 2018)	optional