



Sol-Ark

12K-P

Spec Sheet



Battery (optional)		Output Power 9000W	
Type		Lead-Acid or Li-Ion	
Nominal DC Input		48V	
Capacity		50 — 9900Ah	
Voltage Range		43.0 — 63.0V	
Continuous Battery Charging Output		185A	
Charging Curve		3-Stage w/ Equalization	
Grid to Batt Charging Efficiency		96.0%	
External Temperature Sensor		Included	
Current Shunt for Accurate % SOC		Integrated	
External Gen Start Based on Voltage or %SOC		Integrated	
Communication to Lithium Battery		CanBus & RS485	

Solar		Input Power 12000W	
Max Allowed PV Power		6500W + 6500W = 13000W	
Max PV Power Delivered to Battery & AC Outputs		12000W	
Max DC Voltage (Voc)		500V @ 18A, 450V @ 20A	
MPPT Voltage Range		150-425V	
Starting Voltage		125V	
Number of MPPT		2	
Max Solar Strings Per MPPT		2	
Max DC Current per MPPT (Self Limiting)		20A	
Max AC Coupled Input (Micro/String Inverters)		9600W	

General	
Dimensions (H x W x D)	30.0" x 18.3" x 10.0"
Weight	78 lbs
Enclosure	NEMA 3R
Ambient Temperature	-25-55°C, >45°C Derating
Installation Style	Wall-Mounted
Wi-Fi & LAN Communication	Included
Standard Warranty (verified by HALT Testing)	10 Years

AC		Output Power 9kW On-Grid & Off-Grid	
Connections		120/240/208V Split Phase	
Continuous AC Power to Grid (On-Grid)		9000W 37.5A-L (240V)	
Continuous AC Power to Load (Off-Grid)		9000W 37.5A-L (240V)	
Surge AC Power 10sec		16,000VA L-L (240V)	
Surge AC Power 100ms		25,000VA L-L(240V)	
Parallel Stacking		Yes	
Frequency		60/50Hz	
Continuous AC Power with Grid or Generator		15120W 63A L-L (240V)	
CEC Efficiency		96.5% (Peak 97.5%)	
Idle Consumption Typical—No Load		60W	
Sell Back Power Modes		Limited to Household/Fully Grid-Tied	
Design (DC to AC)		Transformerless DC	
Response Time (Grid-Tied to Off-Grid)		4ms	
Power Factor		+/- 0.9 - 1.0	

Protections & 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, IEE-E1547a-2003/2014, FCC 15 Class B, UL1741SA,	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	Integrated
PV Input Lightning Protection	Integrated
PV String Input Reverse Polarity Protection	Integrated
AC Output Breakers - 63A	Integrated
250A Battery Breaker / Disconnect	Integrated
Surge Protection	DC Type II / AC Type II

Design Type	DC Transformerless						AC Coupled	
	Sol-Ark 12K	Sol-Ark 8K	Sol-Ark 5K	Generac PWRcell 7.6 +4XS2500	SolarEdge Energy Hub 7.6 32xP400	Panasonic (Daifon) 2xH5001	Enphase 2x10 +36xIQ7P	Tesla 2x Powerwall2 + String Inv
Brand & Model MSRP Price Solar PV Continuous Power Inverter AC Continuous Power Inverter Battery Continuous Power Off Grid Inverter AC Peak Power (5s)	\$6,900	\$6,100	\$4,500	\$6,500	\$7,600	\$6,200	\$28,700	\$19,400
	12KW	9KW	6.5KW	11KW	7.6KW	2x6KW	10.4KW	12KW
	9KW	8KW	5KW	7.6KW	7.6KW	2x5KW	10.4KW	2x5KW
	9KW	8KW	5KW	9KW	6.1KW	2x5.5KW	2x3.8KW	2x5KW
System Idle Power AC to DC Charger	16KW	16KW	16KW	12KW	6.9KW	13KW	8.8KW	14KW
	60W	60W	60W			200W		78W
	185A	185A	120A	6.7KW	5KW?	120A	N/A	N/A
	color touch	color touch	color touch	Text	Text	Text	X	X
User Interface PV to Batt Efficiency @ 65% AC to Batt Efficiency @ 65% Batt to AC Efficiency @ 65%	97.5%	97.5%	97.5%	92.0%	92.5%	91.0%	92.0%	92.5%
	96.0%	96.0%	96.0%	93.0%	93.5%	90.0%	95.0%	95.0%
	95.5%	95.5%	95.5%	93.0%	93.5%	90.0%	95.0%	95.0%
	96.5%	96.5%	96.5%	95.5%	98.0%	95.5%	97.0%	97.0%
On Grid PV to AC Efficiency @ CEC								
Time of Use or Off Grid PV -> Batt -> AC Losses @ 65% Grid Failure UPS Transfer Time Low Cost Easy Install	7%	7%	7%	15%	14%	19%	13%	13%
	4ms	4ms	4ms	1000ms	3000ms	20ms	2000ms	2000ms
	✓	✓	✓	✓	✓	✓	✓	✓
	10 yr	5/10 yr	5 yr	10 yr	12/20/25 yr	10 yr	10 yr	10 yr
AC Coupling to existing Inverters Parallel Stacking 120/240/208V 3Phase Generator Charging	✓	✓	✓	X	✓	✓	✓	✓
	✓	X	X	X	✓	✓	✓	✓
	✓	X	X	✓	X	X	X	✓
	✓	✓	✓	X	X	X	X	X
AC Load Shedding for TOU & Off Grid California & HECO (Grid Sell) NEC UL1699B Arc Fault Outdoor Enclosure	✓	✓	X	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	X	✓	✓
	✓	✓	✓	✓	✓	X	✓	✓
	✓	✓	✓	✓	✓	X	✓	✓
Battery Bank	20KWh 6000cycles +\$13K	20KWh +\$13K	20KWh +\$13K	18KWh 3500c +\$13K	2x9.8KWh 3000c +\$12K	18KWh 3000c +\$15K	21.0KWh 6000cycles	28KWh 3500cycles