



TSW3224 / TSW4048



True Sine Wave Output

120/240 VAC Split-phase Operation
or 120 VAC at Twice the Current
or 230VAC 50Hz from the same unit

200% Surge Power Capacity

Parallel Stacking of Multiple Inverters

High Current 4-stage Charging for
Maximum Battery Life & Storage

Efficiency 93% for 24V, 94% for 48V

2 Line LCD Shows Major Parameters

Optional Network Communications

- Remote Internet Monitoring
- Ethernet to Local Computers

OFF-GRID, TRUE SINE WAVE SPLIT-PHASE, STACKABLE INVERTER/CHARGER

The TSW TrueSineWave™ Inverter / Charger

The Apollo Solar TSW3224 / 4048 include a DC to AC true sine wave inverter, battery charger, and AC transfer switch in a compact modular housing. The TSW is the ideal solution for residential and commercial off-grid systems in the 2kW-12kW range.

Specified by Installers, Required by End-Users

The TSW3224 / 4048 meet specifications provided by installers, distributors, and dealers and required by end-users of battery-based PV power systems. The result is a single box that provides 120 and 240 volt AC power at 60Hz as well as 230 VAC at 50Hz. With a compact footprint and modest weight, the Apollo Solar TSW Inverter also provides ease of installation in tight spaces.

120/240 Volt AC Split-Phase Input and Output

No external transformers are required for step-up, step-down, or balancing, thus, saving added costs, installation time, and several points of efficiency. The output provides 240 volts for well pumps, appliances, or shop tools while providing 120 volts for standard circuits. 75% unbalanced loads are handled as well. The input can accept the line or 240 volt AC generators. The output can be wired for single 230/240VAC output or for single 120VAC output at twice the current. The option to select 230VAC or 240VAC and to select 50Hz or 60Hz is provided by internal switches.

200% Surge Power Capacity, Starts a 3HP Motor

Over 200% of the rated power is available to allow for intermittent loads for short periods, like starting a 3HP motor, without interrupting sensitive computer loads.

Parallel Stacking of Multiple Inverters

The TSW Inverters can be wired in parallel to provide additional output current.

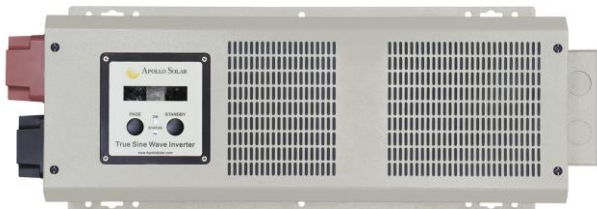
Efficient Multi-stage Battery Charging

Power factor corrected, the high-current battery-charging circuit optimizes the efficient use of energy from generator or line input. The 4-stage charging algorithm--Bulk, Absorb, Float, Equalize--maximizes both battery life and storage capacity.

Advanced Apollo Solar Data Communications

Monitoring of energy used, battery state-of-charge, and system performance is included. The ASNET port provides networking capability of multiple units, access to the T80/T80HV MPPT Turbocharger Controllers. Remote system monitoring on a local Ethernet and/or on the Internet is provided via the Apollo Solar Communications Gateway and even from sites lacking telephone landline via the Apollo Solar GSM Modem.

Apollo Solar TrueSineWave Inverters		SPECIFICATIONS	
	Model TSW3224	Model TSW4048	
Continuous Power Rating 25° C	3200 VA	4000 VA	
Nominal DC Battery Input Voltage	24 VDC	48 VDC	
Battery input current at rated power	148 Amps	92 Amps	
Nominal AC Output Voltage	Selectable 120/240 VAC Split Phase, 120VAC single phase or 230VAC single phase		
Surge Power Peak (1ms)	120VAC: 80A, 240VAC: 41A	120VAC: 80A, 240VAC: 41A	
Surge Power RMS (100ms)	120VAC: 52A, 240VAC: 37A	120VAC: 52A, 240VAC: 37A	
Overload Capacity from 25°C start			
7 Seconds:	6400 VA 200%	8000 VA 200%	
30 Seconds:	4800 VA 150%	6000 VA 150%	
30 Minutes:	3840 VA 120%	4600 VA 115%	
Max Continuous AC RMS Amps Output @ 25°C	120VAC: 26A, 240VAC: 13A	120VAC: 30A, 240VAC: 15A	
Full on, No load power consumption	< 29 Watts	< 35 Watts	
Search mode power consumption	~ 4.5 Watts	~ 4.5 Watts	
Inverter Efficiency (Peak)	93%	94%	
Total Harmonic Distortion	Typical: 3.5%, Maximum: 5% (True sine wave)		
Output Voltage Regulation	+/- 3%		
AC Output Frequency	50 or 60Hz +/-1% (Switch Selectable)		
AC Input Frequency Range for Charge Mode	46 to 55Hz at 50Hz, 55 to 65 Hz at 60Hz Nominal		
AC Input Voltage Range for Charge Mode	L-N 80–150VAC for 120VAC, L-L:160–270VAC for 240VAC		
AC Input Maximum Current	120VAC: 26A, 240VAC: 13A	120VAC: 40A, 240VAC: 16A	
DC Input Range	21.0 to 35.0 VDC	42.0 to 70.0 VDC	
Continuous Battery Charger Output at 25°C	100 amps DC	70 amps DC	
Five Stage Battery Charger Output	Bulk, Absorb, Float, Equalize & Standby		
Battery Charging Power Factor Corrected	>0.92		
Battery Charge temperature compensation	With external temperature sensor		
Transfer relay capability	40 Amps per leg; 8 to 16 ms transfer time		
Operating Temperature Range	-20°C to +45°C		
Overtemperature Protection	Sensors on MOSFETs, Transformer and Battery		
Certification	UL 1741		
Warranty	5 Years		
Weight	22.23kg, 49 lbs. (25.4kg, 56 lbs shipping weight)		
Size	572x229x184mm, 22.5"x9"x7.25" (686x330x305mm, 27"x13"x12" shipping box)		
Enclosure	Powder coated steel		
Cooling	Variable Speed, Temperature controlled fans		
Data Communication	ASNET (RS-485) and CANBUS		
OPTIONAL ACCESSORIES			
Charge Controllers	Apollo Solar T80 and T80HV TurboCharger provide optimum charging from PV arrays.		
Ethernet / Internet Monitoring	Optional Communication Gateway provides full data monitoring from any computer.		
Inverter Switchgear Module	Optional Switchgear Module includes all the DC and AC circuit breakers required.		



LCD display is easily rotated to read out in either vertical or horizontal installation.



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