

PSW-H (3 kW/5 kW)

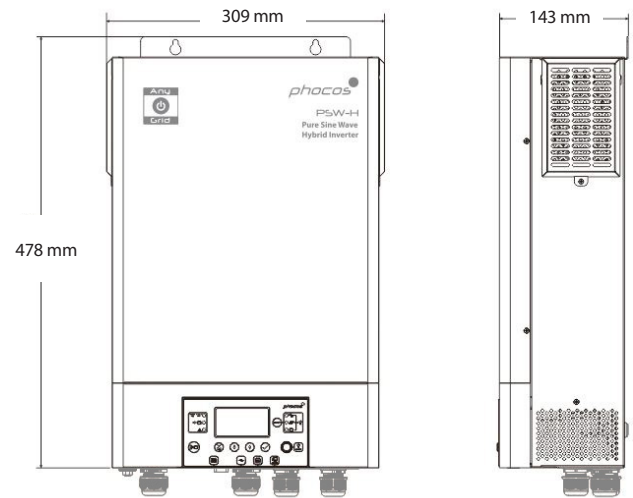
Any-Grid™ Hybrid Inverter Charger



NEW

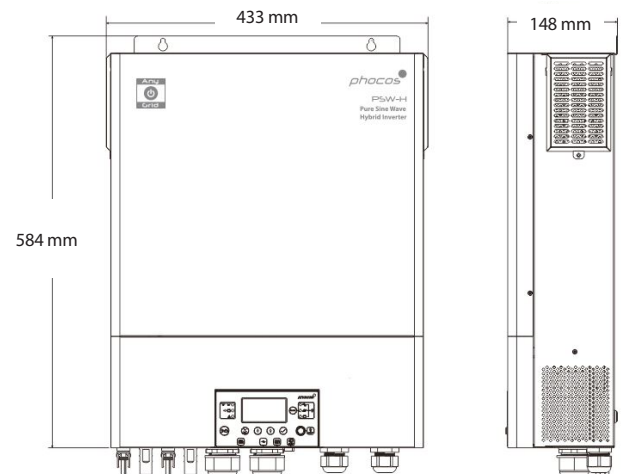


Technical Drawing



230 Vac models and
PSW-H-3KW-120/24V*

*only the PSW-H-3KW-120/24V model
includes greyed out cable glands



PSW-H-5KW-120/48V

Product Introduction

The Phocos Any-Grid™ PSW-H Inverter Charger Series (Pure Sine Wave Hybrid) represents Phocos' most versatile line of inverters/chargers. Flexibility and reliability are key characteristics of this product line, with a strong potential for cost saving opportunities in real world conditions. The Any-Grid PSW-H converts DC (Direct Current) energy into AC (Alternating Current), with multiple advantages beyond standard inverters. This product includes an integrated MPPT charge controller and can function as an AC to DC battery charger, which provides flexible energy access solutions in a broad range of applications.

The battery can be charged from solar and/or an AC source (public grid or generator), with easily programmable priorities. The Any-Grid PSW-H can function without an AC source or alternatively even without solar, as a pure uninterruptible power supply (UPS). When the utility grid or AC generator fails, the Any-Grid PSW-H immediately switches to 'Off-Grid' mode within 10 ms (typical, in UPS mode) to securely power the loads at all times. Solar can be set as the priority energy source to save electricity costs.

The Any-Grid PSW-H can function in a battery-free mode. In this mode, for installations with stable public grids, grid energy consumption can be reduced without the need to invest in a costly battery bank. Additionally, power can be supplied directly to loads from the grid and solar simultaneously.

This unit comes with a quality, integrated MPPT charge controller. The controller accepts particularly high PV voltages, allowing many PV modules to be connected in series, decreasing installation cost and avoiding combiner boxes. Up to 9 inverters can be connected parallel, 3-phase or split-phase for up to 45 kW of synchronized AC power.



Product Features

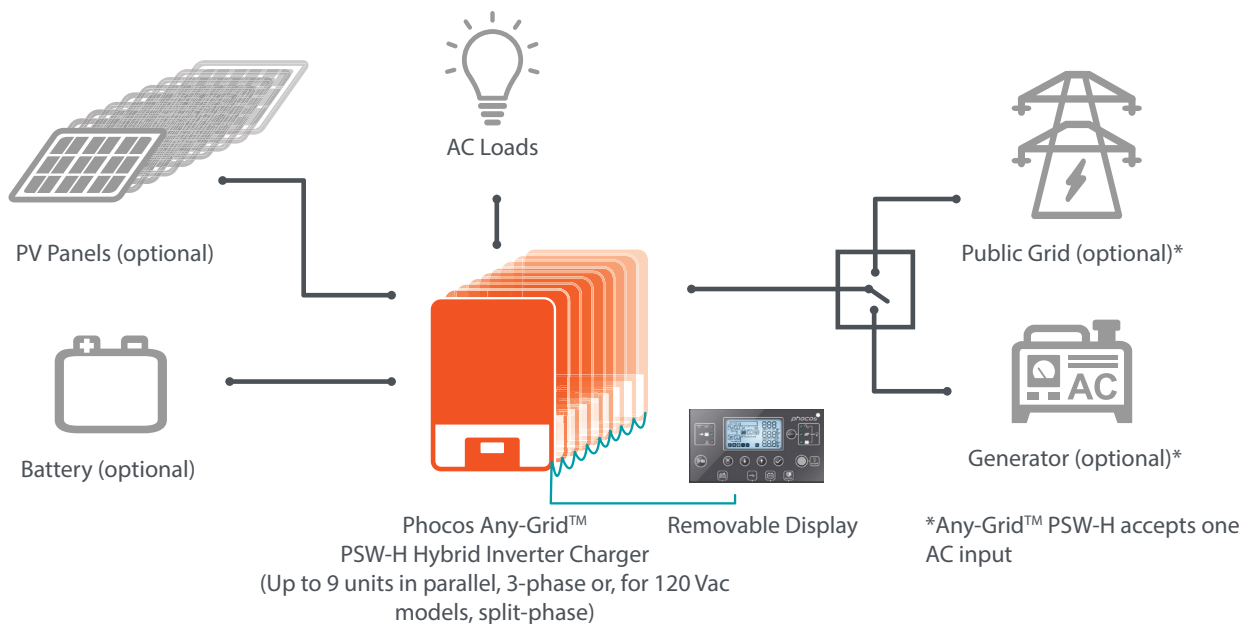
- Flexible, advanced features with options to solve many common challenges in the field
- Integrated high-voltage MPPT charge controller. The high-voltage PV connection means in most scenarios the PV modules can simply be connected in series of one or two strings, avoiding costly combiner boxes and string fuses or diodes, thus reducing total system cost
- Integrated AC battery charger
- Charge controller functions even if inverter is turned off to keep batteries fully charged
- Compatible with Lithium batteries
- Functions without an expensive battery to reduce energy consumption from the grid with minimal investment
- Detachable display / communication unit with 6 LEDs and an intuitive LCD screen
- High level of connectivity: BLE, USB-OTG (on-the-go), CAN Bus, RS-485, RS-232, relay for generator start
- Datalogger with up to 60 days of data storage
- Store or load parameters via USB for quick configuration
- Integrated buzzer for error indications
- Galvanic isolation of battery allows positive or negative grounding
- Up to 9 inverters can be connected in parallel, 3-phase or split-phase for up to 45 kW of synchronized AC power
- Washable filter reduces dust buildup in the inverter
- Grid feed-in option is code-protected to avoid accidental feed-in



What is Any-Grid™?

Traditionally, the energy industry defines power systems relative to their access to the grid as Off-Grid or On-Grid. At Phocos, we believe energy access should be available under 'Any-Grid' conditions whether you have full or partial access to renewable energy and/or grid power, and if energy sources are unreliable. The Phocos Any-Grid Hybrid Inverter Charger Series provides flexible energy access solutions that optimize the use of locally available energy resources that can adapt as access to resources changes over time.

Any-Grid™ PSW-H (Off-Grid and/or On-Grid) Capability



Technical Data

Type	PSW-H-3KW-120/24V	PSW-H-3KW-230/24V	PSW-H-5KW-120/48V	PSW-H-5KW-230/48V
Output Waveform	Pure Sine Wave			
System Voltage	24 Vdc		48 Vdc	
Rated AC Output Power	3000 VA / 3000 W		5000 VA / 5000 W	
Max. Charge Current (PV)	80 Adc			
Max. Charge Current (AC)	80 Adc			
Max. Total Charge Current	80 Adc			
Max. AC Input Current	38.3 Aac	30 Aac	63 Aac	40 Aac
Float Charge	27.6 Vdc (adjustable)		55.2 Vdc (adjustable)	
Boost Charge	28.8 Vdc (adjustable)		57.6 Vdc (adjustable)	
Equalization Charge	29.6 Vdc (adjustable)		59.2 Vdc (adjustable)	
Deep-Discharge Protection	22 Vdc (adjustable)		44 Vdc (adjustable)	
Reconnect Level	27.1 Vdc (adjustable)		54.7 Vdc (adjustable)	
Overvoltage Protection	33 Vdc		66 Vdc	
Undervoltage Protection	18.8 Vdc		37.5 Vdc	
Battery Discharge Current Requirement	168 Adc continuous 336 Adc surge (5s)		140 Adc continuous 280 Adc surge (5s)	
Max. PV Panel Voltage	250 Vdc	450 Vdc	250 Vdc x 2 (2 MPPTs)	450 Vdc
PV Panel MPP Voltage	90 ~ 230 Vdc	90 ~ 430 Vdc	90 ~ 230 Vdc x 2 (2 MPPTs)	120 ~ 430 Vdc
Max. Usable PV Power	4000 W (2400 W for battery charging)		4800 W	
Max. PV Array Power	5000 Wp		6000 Wp	
AC Frequency	50 / 60 Hz auto recognition			
AC Output Voltage	110 ~ 127 Vac ± 5% (adjustable)	220 ~ 240 Vac ± 5% (adjustable)	110 ~ 127 Vac ± 5% (adjustable)	220 ~ 240 Vac ± 5% (adjustable)
Surge Power	2x rated power for 5 seconds			
Extensibility	Up to 9 units in parallel or 3-phase	Up to 9 units in parallel, 3-phase or split-phase		Up to 9 units in parallel or 3-phase
Inverter Efficiency (from Battery)	> 90 % peak	> 91 % peak	> 90 % peak	> 93 % peak
Inverter Efficiency (from PV)	> 96 % peak			
Idle Self-Consumption	< 40 W on			
Grounding	Galvanically isolated battery allows positive or negative battery grounding			
Ambient Temperature	-10 to +50 °C			
Storage Temperature & Humidity	-15 to +60 °C, 5-95 % (non-condensing)			
Max. Altitude	4,000 m above sea level, 1 % power de-rating per 100m above 1,000 m above sea level			
Battery Type	Lead acid (gel, AGM, flooded), Lithium			
Datalogger	60 days			
Max. Wire Cross Section	Battery: 50 mm ² (AWG 0), PV: 16 mm ² (AWG 4), AC: 10 mm ² (AWG 7)		Battery: 50 mm ² (AWG 0), PV: 16 mm ² (AWG 4), AC: 16 mm ² (AWG 6)	Battery: 50 mm ² (AWG 0), PV: 16 mm ² (AWG 4), AC: 10 mm ² (AWG 7)
Dimensions (WxHxD)	478 x 309 x 143 mm / 18.8 x 12.2 x 5.6 in		584 x 433 x 148 mm / 23 x 17 x 5.8 in	478 x 309 x 143 mm / 18.8 x 12.2 x 5.6 in
Weight	12 kg / 27 lbs	11.2 kg / 24.7 lbs	18 kg / 40 lbs	11.8 kg / 26 lbs
Ingress Protection	IP21			
Certificates	CE compliant, RoHS compliant			
Warranty	2 years			

CE EG-Konformitätserklärung
EC-Declaration of Conformity

Manufacturer:

Phocos AG, Magirus-Deutz Strasse 12, D-89077 Ulm

Designation of products:

PSW-H-3KW-230/24V PSW Pure Sine Wave Hybrid Inverter, 3000W, 24V, 230V, 80A MPPT, RoHS

The above mentioned products comply with the essential requirements, which are specified in the following directives. Conformity with these rules is verified by compliance with the following standards:

2014/35/EU Low voltage (LVD)
EN 62109-1: 2010
EN 62109-2: 2011

2014/30/EU Electromagnetic compatibility (EMC)
EN 61000-6-4:2007+A1:2011
EN 61000-3-12:2011
EN 61000-3-11:2000
EN 61000-6-2:2005+AC:2005
EN 61000-4-2:2009
EN 61000-4-3:2006+A1:2008+A2:2010
EN 61000-4-4:2012
EN 61000-4-5:2014+A1:2017
EN 61000-4-6:2014
EN 61000-4-8:2010
EN 61000-4-34:2007+A1:2009

2011/65/EU Restriction of the use of certain hazardous substances (RoHS)
EN 50581:2012

Documentation evidencing conformity with the requirements of the directives is kept available for inspection at the manufacturer's address.

23. July 2019



James Polcyn, CEO

CE EG-Konformitätserklärung
EC-Declaration of Conformity

Manufacturer:

Phocos AG, Magirus-Deutz Strasse 12, D-89077 Ulm

Designation of products:

PSW-H-5KW-230/48V PSW Pure Sine Wave Hybrid Inverter, 5000W, 48V, 230V, 80A MPPT, RoHS

The above mentioned products comply with the essential requirements, which are specified in the following directives. Conformity with these rules is verified by compliance with the following standards:

2014/35/EU Low voltage (LVD)
EN 62109-1: 2010
EN 62109-2: 2011

2014/30/EU Electromagnetic compatibility (EMC)
EN 61000-6-4:2007+A1:2011
EN 61000-3-12:2011
EN 61000-3-11:2000
EN 61000-6-2:2005+AC:2005
EN 61000-4-2:2009
EN 61000-4-3:2006+A1:2008+A2:2010
EN 61000-4-4:2012
EN 61000-4-5:2014+A1:2017
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22. July 2019



James Polcyn, CEO