

# PSW-H (3 kW/5 kW/6.5 kW)

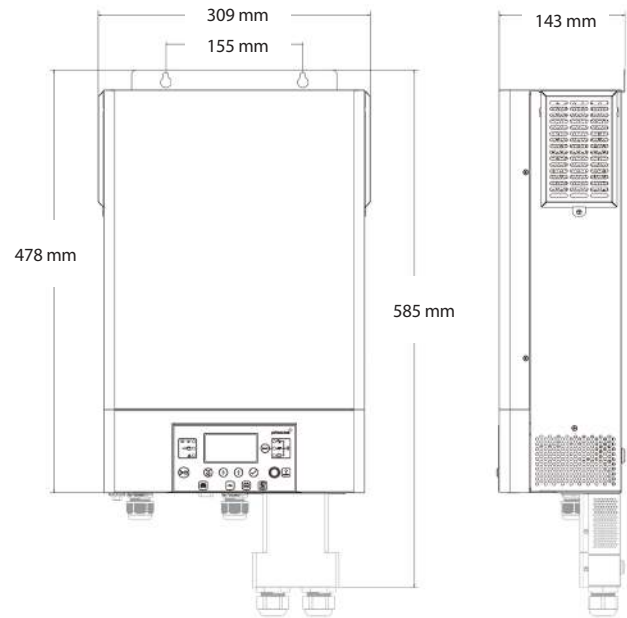
Any-Grid™ Hybrid Inverter Charger



**NEW**

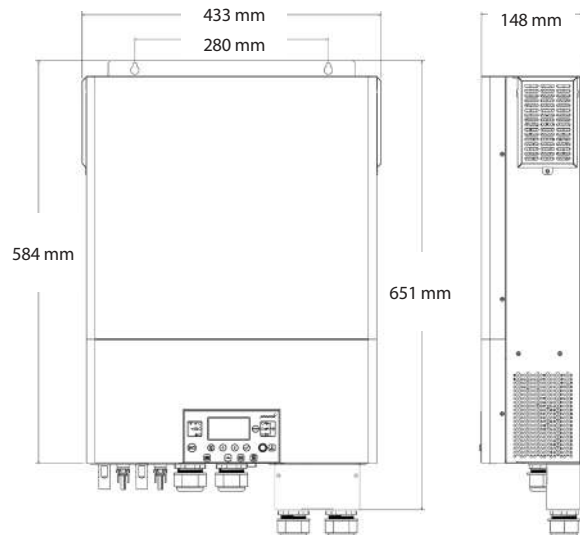


## Technical Drawing



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

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



PSW-H-5KW-120/48V and  
PSW-H-6.5KW-120/48V

\*only the PSW-H-6.5KW-120/48V model  
includes greyed out extension box

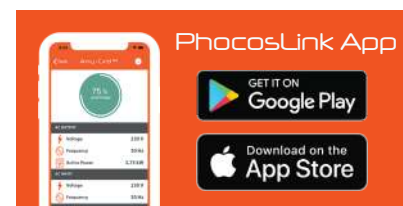
## Product Introduction

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 one to two quality, integrated MPPT charge controller(s). The controller(s) accept(s) 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 58.5 kW of synchronized AC power.



**Product Features**

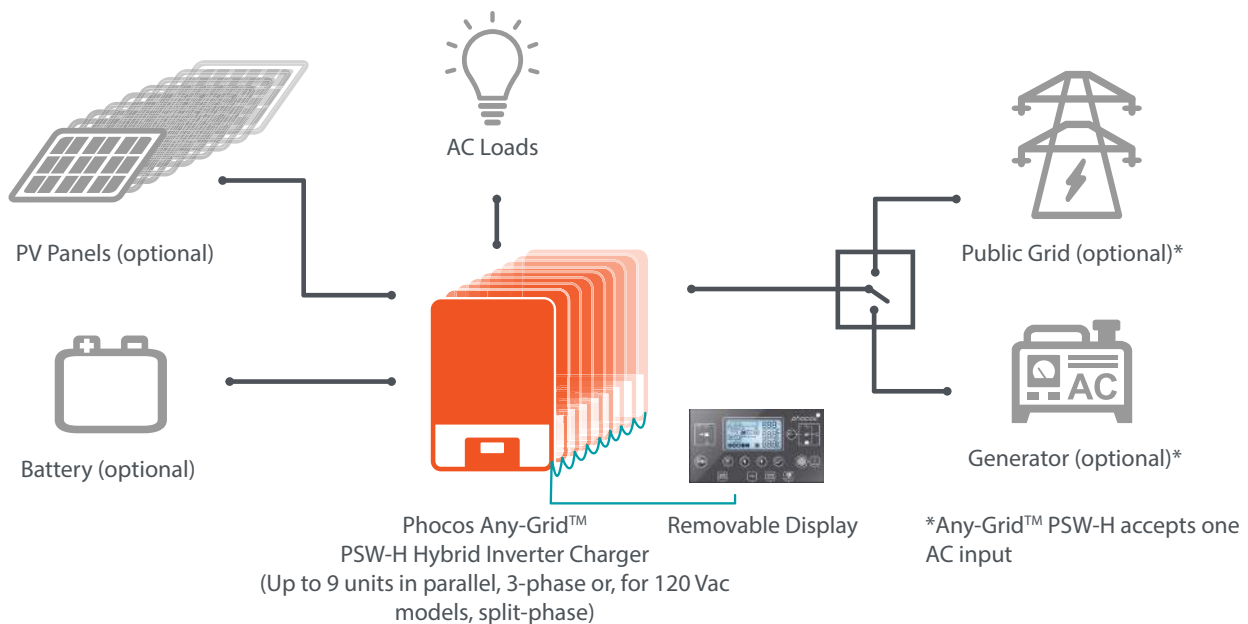
- Flexible, advanced features with options to solve many common challenges in the field
- Integrated high-voltage MPPT charge controller(s). The high-voltage PV connection means in most scenarios the PV modules can simply be connected in series of one or two strings, avoiding costly combiner boxes and string fuses or diodes, thus reducing total system cost
- Integrated AC battery charger
- Charge controller(s) function(s) even if inverter is turned off to keep batteries fully charged
- Compatible with Lithium batteries
- Functions even 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
- Compatible with Phocos Any-Bridge™ AB-PLC and PhocosLink Cloud for remote monitoring & control
- Integrated buzzer for error indications
- Galvanic isolation of battery allows positive or negative grounding of the same
- Up to 9 inverters can be connected in parallel, 3-phase or split-phase for up to 58.5 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 Inverter 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	PSW-H-6.5KW-120/48V
Output Waveform	Pure Sine Wave				
System Voltage	24 Vdc		48 Vdc		
Rated AC Output Power	3000 VA / 3000 W		5000 VA / 5000 W		6500 VA / 6500 W
Max. Charge Current (PV)	80 Adc				120 Adc
Max. Charge Current (AC)	80 Adc				120 Adc
Max. Total Charge Current	80 Adc				120 Adc
Max. AC Input Current	38.3 Aac	30 Aac	60 Aac	40 Aac	60 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)		154 Adc continuous 308 Adc surge (5s)
Max. PV Panel Voltage	250 Vdc	450 Vdc	250 Vdc x 2 (2 MPPTs)	450 Vdc	250 Vdc x 2 (2 MPPTs)
PV Panel MPP Voltage	90 ~ 230 Vdc	90 ~ 430 Vdc	90 ~ 230 Vdc x 2 (2 MPPTs)	120 ~ 430 Vdc	90 ~ 230 Vdc x 2 (2 MPPTs)
Max. Usable PV Current	22 Adc		18 Adc x 2 (2 MPPTs), 30 Adc total	22 Adc	18 Adc x 2 (2 MPPTs), 36 Adc total
Max. Usable PV Power	4000 W (2400 W for battery charging)		2400 W x 2 (2 MPPTs)	4800 W	4000 W x 2 (2 MPPTs)
Max. PV Array Power	5000 Wp		3000 Wp x 2 (2 MPPTs)	6000 Wp	5000 Wp x 2 (2 MPPTs)
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)	110 ~ 127 Vac ± 5% (adjustable)
Surge Power	2x rated power for 5 seconds				
Extensibility	Up to 9 units in parallel, 3-phase or split-phase	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	Up to 9 units in parallel, 3-phase or split-phase
Inverter Efficiency (from Battery)	> 90 % peak	> 91 % peak	> 92 % peak	> 93 % peak	> 92 % peak
Inverter Efficiency (from PV)	> 96 % peak				
Idle Self-Consumption	< 40 W on		< 58 W on	< 40 W on	< 58 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 <sup>2</sup> (AWG 0), PV: 16 mm <sup>2</sup> (AWG 4), AC: 10 mm <sup>2</sup> (AWG 7)		Battery: 50 mm <sup>2</sup> (AWG 0), PV: 16 mm <sup>2</sup> (AWG 4), AC: 16 mm <sup>2</sup> (AWG 6)	Battery: 50 mm <sup>2</sup> (AWG 0), PV: 16 mm <sup>2</sup> (AWG 4), AC: 10 mm <sup>2</sup> (AWG 7)	Battery: 70 mm <sup>2</sup> (AWG 2/0), PV: 16 mm <sup>2</sup> (AWG 4), AC: 16 mm <sup>2</sup> (AWG 6)
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	584 (651) x 433 x 148 mm / 23 (25.6) x 17 x 5.8 in (with extension box)
Weight	12 kg / 27 lbs	11.2 kg / 24.7 lbs	18 kg / 40 lbs	11.8 kg / 26 lbs	18.2 kg / 40 lbs
Ingress Protection	IP21				
Certificates	RoHS compliant	CE compliant, RoHS compliant	RoHS compliant	CE compliant, RoHS compliant	UL1741, CSA C22.2 No. 107.1-16, FCC Class A, RoHS compliant
Warranty	2 years				