



Phocos Any-Grid™ series

Any-Grid™ PSW-H use with lithium battery models:
Hubble AM-2, AM-4, X-100 and X-101

Applicable for Any-Grid™ models

**48 Vdc: PSW-H-5kW-230/48V, PSW-H-5kW-120/48V,
PSW-H-6.5kW-120/48V**

**24 Vdc: PSW-H-3KW-230/24V and
PSW-H-3KW-120/24V**

Setup guide



1.0 Introduction

This guide outlines the recommended settings and establishing communication for operation of one or more Any-Grid™ PSW-H-5kW-230/48V, PSW-H-5kW-120/48V or PSW-H-6.5kW-120/48V hybrid inverter chargers with Hubble AM-2, X-100 and X-101 battery units, referred to in this guide as “battery units”. PSW-H-3KW-230/24V and PSW-H-3KW-120/24V are only compatible with the Hubble AM-4 battery units. All connected batteries must be of the same model name.

Note that the charge/discharge settings are automatically negotiated with the battery if this guide is used and do not need to be changed.

The Any-Grid must be installed according to the Any-Grid PSW-H “User and Installation Manual” included with every Any-Grid PSW-H unit and available online at www.phocos.com. The battery terminals of the Any-Grid must be connected to the battery units according to the Hubble installation manual at the appropriate step mentioned in the chapter 5.0 of this manual.

WARNING: Be sure to read and respect the warnings in the installation manuals of the Any-Grid, the battery units and any other connected equipment. The installation must be conducted by a trained professional.

2.0 Requirements

The following is required to proceed with this guide:

- 48 Vdc battery: Any-Grid PSW-H-5KW-230/48V, PSW-H-5KW-120/48V or PSW-H-6.5KW-120/48V
or
24 Vdc battery: Any-Grid PSW-H-3KW-230/24V and PSW-H-3KW-120/24V
- Hubble Cloudlink device
- Hubble Cloudlink communication cable included with Cloudlink device (6-pin RJ-12 to 8-pin RJ-45 connectors):



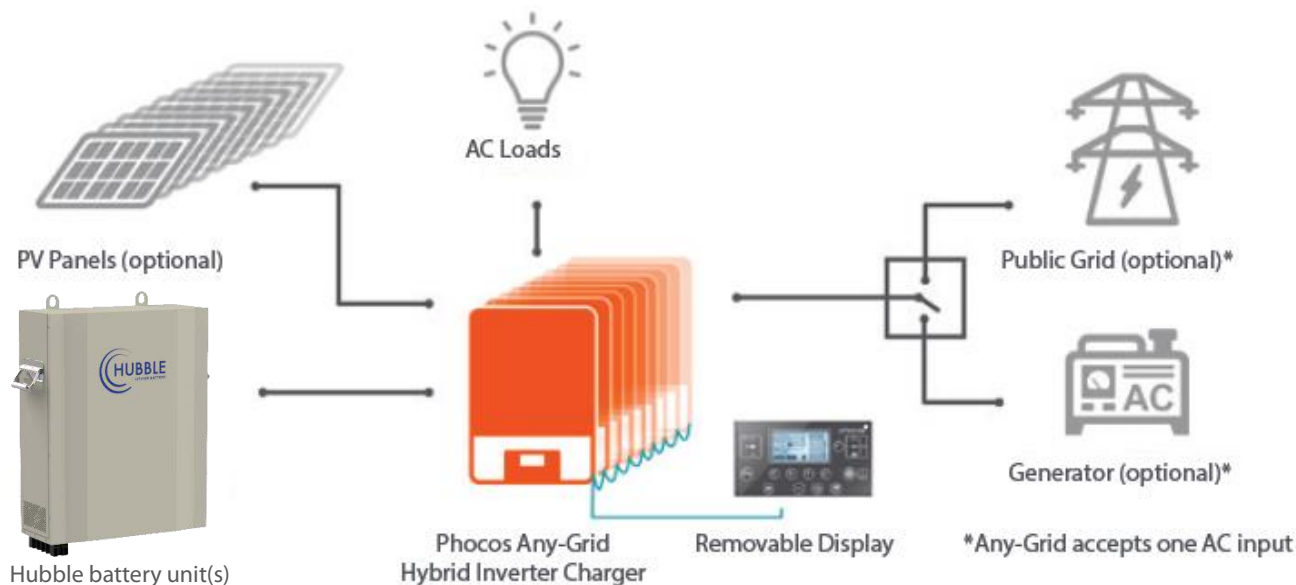
WARNING: Make sure to use the correct battery to Any-Grid cable. Any damage to the PSW-H or battery due to incorrect wiring, cable orientation or use of an incorrect cable is not covered by any warranty.

- Hubble CAN Bus cable included with Cloudlink device:



- Hubble battery unit(s)

3.0 System Overview



4.0 Battery Sizing

To maintain the full battery warranty, each battery unit should be sized not to exceed 100 Adc continuous charge / discharge current and 125 Adc peak for up to 100 ms. It is thus strongly recommended to use at least 1.5 battery units in parallel to deliver both sufficient continuous current and peak current for a single PSW-H-5KW at full power. Per PSW-H-6.5KW-120/48V use at least 2 battery units. Use at least 1.8 AM-4 battery units per PSW-H-3KW unit. Of course, when using a single PSW-H at full power, this means using at least two battery units. Using fewer batteries per inverter may void your Hubble battery warranty and disrupt service by the battery automatically disconnecting from the Any-Grid(s).

The batteries must be wired in parallel to form a single large battery bank when using multiple Any-Grids. All Any-Grids must be connected to a single battery array made up of a maximum of 15 battery units.

5.0 Battery Communication Cable Installation and Powering On

CAUTION: Before connecting the battery units to the Any-Grid(s), please follow the installation instructions in this chapter step by step. The battery, AC input source, AC output loads and PV input must remain disconnected until instructed otherwise.

1. Ensure the battery units are all turned off.
2. Set the address DIP switches on the battery units according to the battery manual (location circled below):



3. Ensure the battery units are still turned off. Connect the Any-Grid(s) to the battery power (positive and negative) terminals with the correct polarity.
CAUTION: If the correct polarity of the battery is not observed, the Any-Grid and the battery may be damaged, this is not covered by warranty.

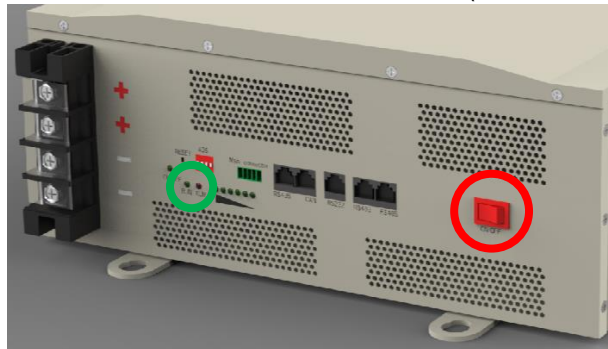
Plug the RJ-12 end of the battery communication cable into the Cloudlink device's "S" port and the RJ-45 side

into the Any-Grid display panel's "RS-232" port:

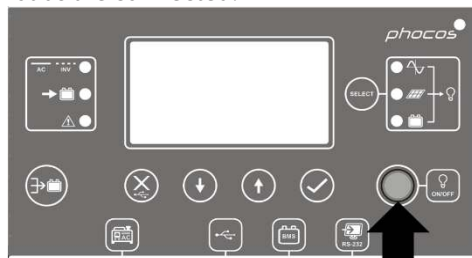


For systems with multiple Any-Grids, this connection (marked red) can be made with any of the inverters, but only a single unit. Remember, all Any-Grids in a synchronised system must be connected to a single battery bank.

4. Using the provided RJ45 cable with the Cloudlink, plug in the CAN Bus cable into the "CAN" port of the Hubble battery and the other end into the "CAN" port of the Cloudlink device.
5. Ensure the battery units are wired as outlined in the Hubble battery manual. Turn on each of the battery units with the power button (circled below in red) and ensure the "RUN" LED blinks is green for all battery units and that the "ALM" LED is turned off (circled below in green):



6. Turn the "ON/OFF" load power button of the Any-Grid(s) to the ON position (depressed), but make sure no loads are connected:



The Any-Grid(s) should now be running, the display(s) on.

7. Please refer to the setup guide for the Cloudlink on the Hubble website for setup procedure of the Cloudlink device at www.hubblelithium.co.za.
8. When the Cloudlink setup is complete, and if no errors are present on the Any-Grid(s) and any of the battery unit(s), turn on the load breaker, followed by the PV and finally the AC source breaker (if present in the system).

The commissioning battery unit(s) and Any-Grid(s) is now complete.

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