

## Overview

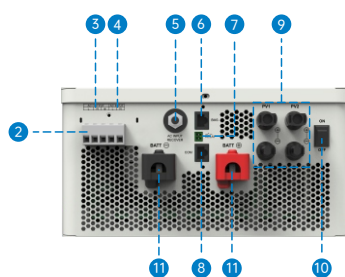
The HP-AHP20A series is a high-frequency inverter charger. It supports multiple charging options, including utility, diesel generator, and solar. It is designed for utility bypass, inverter output, and energy management. The advanced DSP chip, along with its control algorithm, ensures rapid response times, reliability, and high conversion efficiency. Customers can efficiently utilize energy by flexibly switching between solar and utility power using customized settings. This high-quality product provides a stable power supply and is suitable for hybrid power generation systems that combine solar, utility, and oil engine sources. It meets the application requirements for customers seeking cost-effective residential power supply solutions.

## Features

- Pure sine wave output
- Supports battery or non-battery modes
- PFC technology reduces the demand on the power grid capacity
- Advanced MPPT technology, with max. tracking efficiency higher than 99.5%
- Supports two PV inputs to improve PV utilization
- Supports charging from multiple types of generators
- Battery charging or discharging current limits are compatible with various types of batteries
- Adjustable maximum utility charging current for flexible configuration of utility charging power
- Large size LCD display for better status monitoring
- RS485 communication interface with optional 4G, WiFi, or TCP modules for remote monitoring
- Comprehensive electronic protections
- -20°C~+50°C operating temperature range to meets more environment requirements
- AC output supports parallel operation, standard configuration of 12 units in parallel
- AC output parallel operation supports single-phase and three-phase settings
- With the function of historical data recording, storage capacity for 25,000 records (the interval time of 1~3600 seconds settable)

## Appearance

• HP2021-AH0725P20A / HP3521-AH1225P20A / HP3541-AH0625P20A/HP2041-AH0425P20A / HP5541-AH1025P20A



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|------------------|-------------------------------------------------------|---------------------------------|
| ① LCD            | ⑤ Utility over-current protector                      | ⑨ PV terminals                  |
| ② Terminal cover | ⑥ BMS port (RJ45, with isolation design)              | ⑩ Power switch                  |
| ③ AC input port  | ⑦ Dry contact interface                               | ⑪ Battery terminals             |
| ④ AC output port | ⑧ RS485 port (RJ45, with isolation design) 5VDC/200mA | ⑫ Parallel connection interface |

# Specifications

| Model                                    | HP2021-AH0725P20A                                                                                                                              | HP3521-AH1225P20A | HP3541-AH0625P20A                                                                               | HP5541-AH1025P20A | HP2041-AH0425P20A |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------|-------------------|-------------------|
| <b>Utility input</b>                     |                                                                                                                                                |                   |                                                                                                 |                   |                   |
| Utility Voltage                          | 80VAC ~ 140VAC (Default)                                                                                                                       |                   |                                                                                                 |                   |                   |
| Utility Frequency                        | 45Hz~65Hz                                                                                                                                      |                   |                                                                                                 |                   |                   |
| Maximum Utility Charging Current         | 70A                                                                                                                                            | 110A              | 60A                                                                                             | 100A              | 40A               |
| Switch Response Time                     | Switch Response Time – Inverter to Utility: 10ms<br>Switch Response Time – Utility to Inverter (when the load power is higher than 100W): 20ms |                   |                                                                                                 |                   |                   |
| <b>Inverter output</b>                   |                                                                                                                                                |                   |                                                                                                 |                   |                   |
| Inverter Rated Power (@30°C)             | 2000W                                                                                                                                          | 3500W             |                                                                                                 | 5500W             | 2000W             |
| 3-second Transient Surge Output Power    | 4000W                                                                                                                                          | 7000W             |                                                                                                 | 8500W             | 4000W             |
| Inverter Output Voltage                  | 110/120VAC±3%                                                                                                                                  |                   |                                                                                                 |                   |                   |
| Inverter Frequency                       | 50/60Hz±0.2%                                                                                                                                   |                   |                                                                                                 |                   |                   |
| Output Voltage Waveform                  | Pure sine wave                                                                                                                                 |                   |                                                                                                 |                   |                   |
| Load Power Factor                        | 0.2 - 1(VA ≤ Rated output power)                                                                                                               |                   |                                                                                                 |                   |                   |
| THDu (Total Harmonic Voltage Distortion) | ≤3% (24V resistive load)                                                                                                                       |                   | ≤3% (48V resistive load)                                                                        |                   |                   |
| Maximum Load Efficiency                  | 88%                                                                                                                                            | 89%               | 90%                                                                                             | 92%               | 90%               |
| Maximum Inverter Efficiency              | 92%                                                                                                                                            | 93%               | 93%                                                                                             | 94%               | 92%               |
| Parallel Function                        | Yes, 12 units in standard, 16 units at most                                                                                                    |                   |                                                                                                 |                   |                   |
| <b>Solar controller</b>                  |                                                                                                                                                |                   |                                                                                                 |                   |                   |
| PV Maximum Open-circuit Voltage          | 250V (At minimum operating environment temperature)<br>220V (At 25°C)                                                                          |                   |                                                                                                 |                   |                   |
| MPPT Voltage Range                       | 65V ~ 200V                                                                                                                                     |                   |                                                                                                 |                   |                   |
| PV Maximum Input Power                   | 3000W                                                                                                                                          | 4000W             | 4000W                                                                                           | 6000W             | 3000W             |
| MPPT Input Channels                      | Two ways                                                                                                                                       |                   |                                                                                                 |                   |                   |
| PV Maximum Input Current                 | Two ways, 2x10A                                                                                                                                | Two ways, 2x20A   |                                                                                                 | Two ways, 2x30A   | Two ways, 2x10A   |
| PV Maximum Short-circuit Current         | Two ways, 2x12A                                                                                                                                | Two ways, 2x22A   |                                                                                                 | Two ways, 2x33A   | Two ways, 2x12A   |
| PV Maximum Charging Current              | 70A                                                                                                                                            | 120A              | 60A                                                                                             | 100A              | 40A               |
| MPPT Maximum efficiency                  | ≥99.5%                                                                                                                                         |                   |                                                                                                 |                   |                   |
| <b>Battery</b>                           |                                                                                                                                                |                   |                                                                                                 |                   |                   |
| Battery Rated Voltage                    | 24VDC                                                                                                                                          |                   | 48VDC                                                                                           |                   |                   |
| Battery Work Voltage Range               | 21.6VDC ~ 32.0VDC                                                                                                                              |                   | 43.2VDC ~ 60.0VDC                                                                               |                   |                   |
| Battery Maximum Charging Current         | 70A                                                                                                                                            | 120A              | 60A                                                                                             | 100A              | 40A               |
| <b>Others</b>                            |                                                                                                                                                |                   |                                                                                                 |                   |                   |
| No-load Losses                           | <1.0 A                                                                                                                                         | <1.1A             | <0.6A                                                                                           | <1.1 A            |                   |
|                                          | Test condition: Utility, PV and Load are not connected, AC output is ON, fan stops, @24V input                                                 |                   | Test condition: Utility, PV and Load are not connected, AC output is ON, fan stops, @48V input  |                   |                   |
| Standby Current                          | ≤0.8A                                                                                                                                          | ≤0.8A             | ≤0.5A                                                                                           | <0.75A            | <0.9A             |
|                                          | Test condition: Utility, PV and Load are not connected, AC output is OFF, fan stops, @24V input                                                |                   | Test condition: Utility, PV and Load are not connected, AC output is OFF, fan stops, @48V input |                   |                   |
| Work Temperature Range                   | -20°C ~ +50°C<br>(When the environment temperature exceeds 30°C, the actual output power is reduced appropriately)                             |                   |                                                                                                 |                   |                   |
| Storage Temperature Range                | -25°C ~ +60°C                                                                                                                                  |                   |                                                                                                 |                   |                   |
| Enclosure                                | IP20                                                                                                                                           |                   |                                                                                                 |                   |                   |
| Relative Humidity                        | < 95% (N.C.)                                                                                                                                   |                   |                                                                                                 |                   |                   |
| Altitude                                 | <4000M (If the altitude exceeds 2000 meters, the actual output power is reduced appropriately)                                                 |                   |                                                                                                 |                   |                   |
| <b>Mechanical parameters</b>             |                                                                                                                                                |                   |                                                                                                 |                   |                   |
| Dimension(mm) (Length x Width x Height)  | 654×291.4×163                                                                                                                                  | 679×291.4×163     | 679×291.4×163                                                                                   | 761×361.4×179     | 654×291.4×163     |
| Mounting size(mm) (Length x Width)       | 617x200                                                                                                                                        | 642x200           | 642x200                                                                                         | 704x200           | 617x 200          |
| Mounting hole size                       | Φ9mm/Φ10mm                                                                                                                                     |                   |                                                                                                 |                   |                   |
| Net Weight                               | 14.6 Kg                                                                                                                                        | 16.9 Kg           | 16.5Kg                                                                                          | 20.5Kg            | 13.3 Kg           |