

# Three Phase Hybrid Storage Inverter

3-30 kW

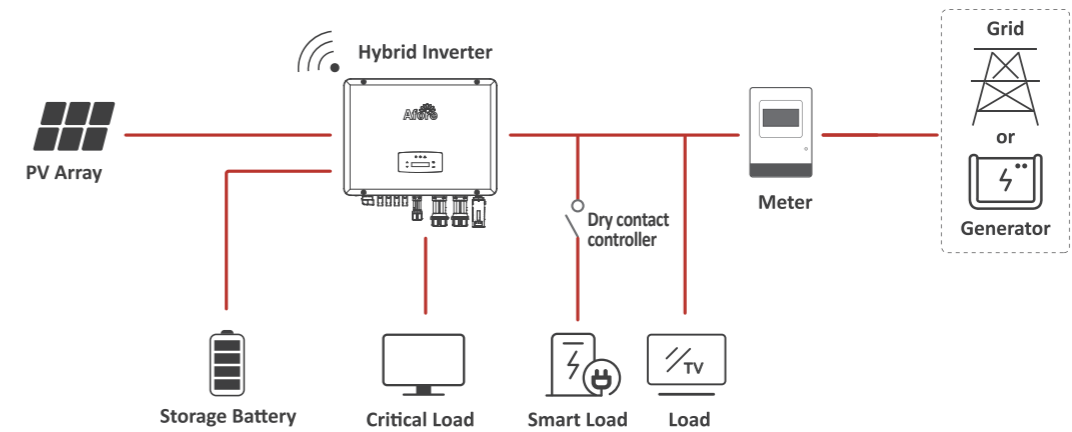


The Afore AF series three phase storage inverters are designed to increase energy independence for homeowners and commercial users. The power range is from 3.0kW to 30kW, compatible with high voltage (150-800V) batteries.

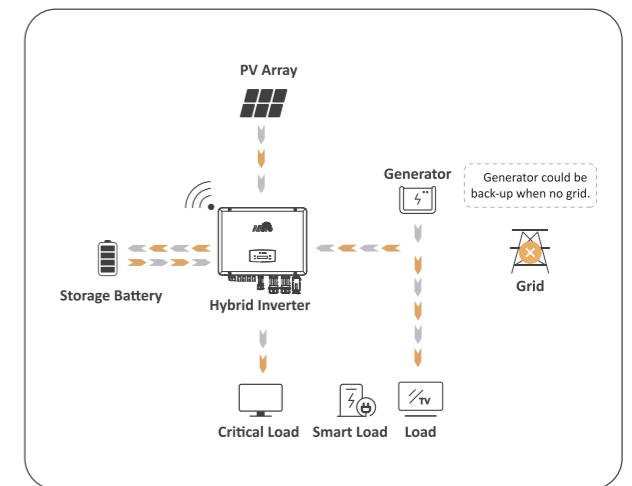
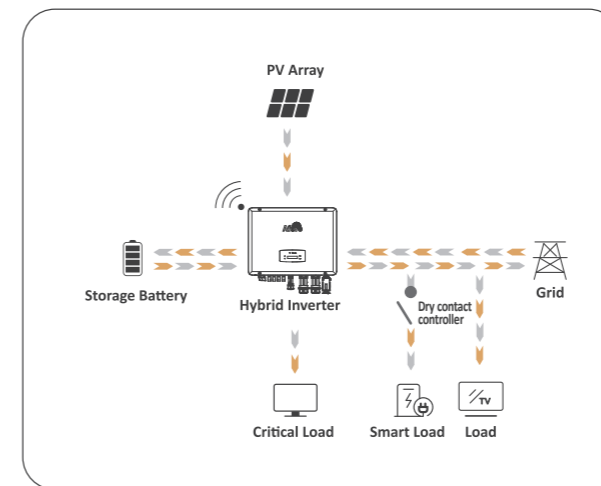
Energy management is based on time-of-use and demand charge rate structures, significantly reduce the amount of energy purchased from public grid.

Thanks for the UPS function (switch time < 10ms), that enables the crucial loads power on during outages. Additionally, under the backup operation mode, the inverter provides you up to 150% peak output overloading.

For New Storage System:

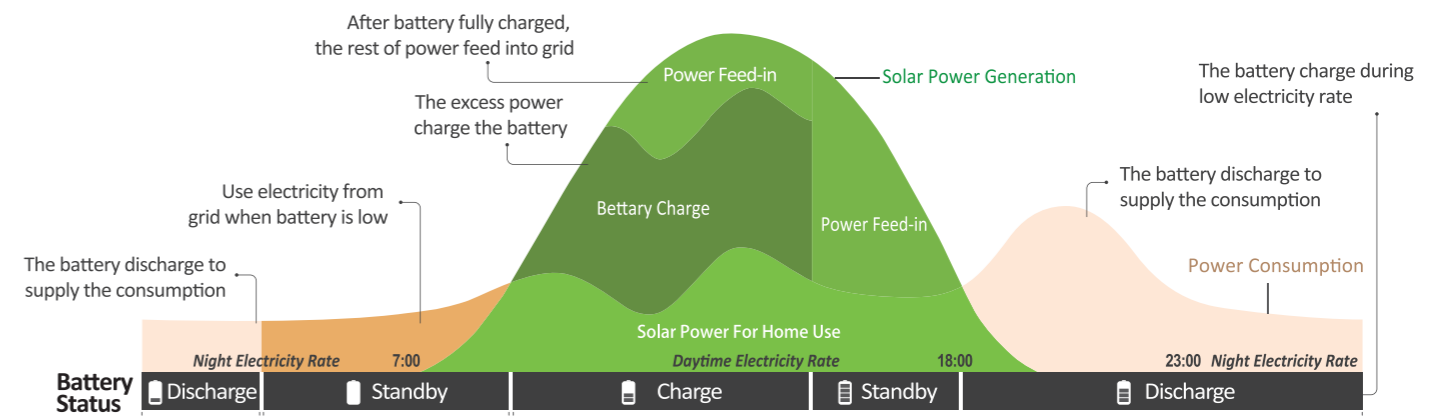















Optimizing Self-Consumption (on-grid) + Emergency Power Supply (off-grid)



## Optimizing Self-Consumption Mode

With energy storage system installed, users may also be able to change from a flat rate electricity tariff to a time-of-use tariff. For the areas and regions, where peak shaving can be applied.



|  |  |  |  |   |   |  |
|--|--|--|--|---|---|--|
| <br><b>SODIUM METAL CHLORIDE BATTERY</b><br>Support Sodium metal chloride battery | <br><b>WIDE RANGE</b><br>Voltage Range (150-800V) | <br><b>100% UNBALANCE</b><br>Support Unbalance Load | <br><b>Max. 1.5</b><br>PV OVERSIZE<br>1.5 Times PV Oversize                         | <br><b>Max. 40A</b><br>MAX. 40A <sub>dc</sub><br>String Current Up To 40A | <br><b>&lt;10 ms</b><br>UPS FUNCTION<br>Switch Time < 10ms | <br><b>INPUT</b><br>Support Generator |
| Support for Time-of-use Optimization    |  |  | Build in Anti-feed-in Function    |   |   |  |
| Configurable Operation Modes    |  |  | 100% unbalanced output, each phase;<br>200% unbalanced output, each phase (≤ 10kW)  |   |   |  |
| AFCI (Optional) & Rapid Shutdown Ready    |  |  | Smart Monitoring & Remote Firmware Upgrade    |   |   |  |

| ■ Technical Data                    | AF3K-TH  | AF4K-TH     | AF5K-TH     | AF6K-TH         | AF8K-TH     | AF10K-TH     |
|-------------------------------------|--|-------------|-------------|-----------------|-------------|--------------|
| <b>PV Input</b>                     |  |             |             |                 |             |              |
| Max. DC Input Power (kW)            | 5  | 6           | 7.5         | 9               | 12          | 15           |
| Max. PV Voltage (V)                 | 1000   |             |             |                 |             |              |
| Rated DC Input Voltage (V)          | 620  |             |             |                 |             |              |
| DC Input Voltage Range (V)          | 150-1000   |             |             |                 |             |              |
| MPPT Voltage Range (V)              | 150-850  |             |             |                 |             |              |
| Full MPPT Range(V)                  | 200-850  |             | 250-850     |                 | 300-850     |              |
| Start-up Voltage (V)                | 160  |             |             |                 |             |              |
| Max. DC Input Current (A)           | 20x2   |             |             |                 |             |              |
| Max. Short Current(A)               | 30x2   |             |             |                 |             |              |
| No. of MPPT Tracker / Strings       | 2/2  |             |             |                 |             |              |
| <b>Battery Port</b>                 |  |             |             |                 |             |              |
| Battery Nominal Voltage (V)         | 200  | 200         | 200         | 250             | 300         | 400          |
| Battery Voltage Range (V)           | 150-800  |             |             |                 |             |              |
| Max. Charge/Discharge Current (A)   | 30   |             |             |                 |             |              |
| Max. Charge/Discharge Power (kW)    | 3  | 4           | 5           | 6               | 8           | 10           |
| Charging Curve                      | 3 Stages   |             |             |                 |             |              |
| Compatible Battery Type             | Li-ion / Lead-acid / Sodium metal chloride battery   |             |             |                 |             |              |
| <b>AC Grid</b>                      |  |             |             |                 |             |              |
| Nominal AC Output Power (kW)        | 3  | 4           | 5           | 6               | 8           | 10           |
| Max. AC Input/Output Power (kVA)    | 4.5 / 3.3  | 6 / 4.4     | 7.5 / 5.5   | 9 / 6.6         | 12 / 8.8    | 15 / 11      |
| Max. AC Output Current (A)          | 5.3  | 7           | 8.5         | 10.5            | 13.5        | 17           |
| Nominal AC Voltage (V)              | 230/400  |             |             |                 |             |              |
| Nominal AC Frequency (Hz)           | 50/60  |             |             |                 |             |              |
| Power Factor                        | 1 (-0.8-0.8) adjustable  |             |             |                 |             |              |
| Current THD (%)                     | <3%  |             |             |                 |             |              |
| <b>AC Load Output (Back-up)</b>     |  |             |             |                 |             |              |
| Nominal Output Power (VA)           | 3000   | 4000        | 5000        | 6000            | 8000        | 10000        |
| Nominal Output Voltage (V)          | 230/400  |             |             |                 |             |              |
| Nominal Output Frequency (Hz)       | 50/60  |             |             |                 |             |              |
| Nominal Output Current (A)          | 4.4  | 5.8         | 7.3         | 8.7             | 11.6        | 14.5         |
| Peak Output Power                   | 3300VA, 60s  | 4400VA, 60s | 5500VA, 60s | 6600VA, 60s     | 8800VA, 60s | 11000VA, 60s |
| THDV (with linear load)             | <3%  |             |             |                 |             |              |
| Switching Time (ms)                 | <10  |             |             |                 |             |              |
| <b>Efficiency</b>                   |  |             |             |                 |             |              |
| Europe Efficiency                   | 97.50%   |             |             |                 |             |              |
| Max. Efficiency                     | 98.00%   |             |             | 98.20%          |             |              |
| Battery Charge/Discharge Efficiency | 98.00%   |             |             |                 |             |              |
| <b>Protection</b>                   |  |             |             |                 |             |              |
| Reverse Polarity Protection         | Yes  |             |             |                 |             |              |
| Over Current / Voltage Protection   | Yes  |             |             |                 |             |              |
| Anti-islanding Protection           | Yes  |             |             |                 |             |              |
| AC Short-circuit Protection         | Yes  |             |             |                 |             |              |
| Leakage Current Detection           | Yes  |             |             |                 |             |              |
| Ground Fault Monitoring             | Yes  |             |             |                 |             |              |
| Grid Monitoring                     | Yes  |             |             |                 |             |              |
| Enclosure Protect Level             | IP65   |             |             |                 |             |              |
| AC/DC surge protection              | Type II  |             |             |                 |             |              |
| <b>General Data</b>                 |  |             |             |                 |             |              |
| Dimensions (W x H x D, mm)          | 558 x 535 x 260 mm   |             |             |                 |             |              |
| Weight (kg)                         | 29kg   |             |             |                 |             |              |
| Topology                            | Transformerless  |             |             |                 |             |              |
| Cooling Concept                     | Natural Convection   |             |             | Intelligent Fan |             |              |
| Relatively Humidity                 | 0-100%   |             |             |                 |             |              |
| Operating Temperature Range (°C)    | -25 to 60 °C   |             |             |                 |             |              |
| Operating Altitude (m)              | <4000  |             |             |                 |             |              |
| Noise Emission (dB)                 | <30  |             |             |                 |             |              |
| Standby Consumption (W)             | <5   |             |             |                 |             |              |
| Display & Communication Interfaces  | LCD, LED, RS485, CAN, Wi-Fi, GPRS, 4G  |             |             |                 |             |              |
| Certification & Approvals           | NRS097, G98/G99, EN50549-1, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2 |             |             |                 |             |              |
| EMC                                 | EN61000-6-2, EN61000-6-3   |             |             |                 |             |              |

| ■ Technical Data                    | AF12K-TH   | AF15K-TH     | AF17K-TH     | AF20K-TH        | AF25K-TH     | AF30K-TH     |
|-------------------------------------|--|--------------|--------------|-----------------|--------------|--------------|
| <b>PV Input</b>                     |  |              |              |                 |              |              |
| Max. DC Input Power (kW)            | 18   | 22.5         | 25.5         | 30              | 37.5         | 45           |
| Max. PV Voltage (V)                 | 1000   |              |              |                 |              |              |
| Rated DC Input Voltage (V)          | 620  |              |              |                 |              |              |
| DC Input Voltage Range (V)          | 150-1000   |              |              |                 |              |              |
| MPPT Voltage Range (V)              | 150-850  |              |              |                 |              |              |
| Full MPPT Range(V)                  | 500-850  |              |              |                 |              |              |
| Start-up Voltage (V)                | 160  |              |              |                 |              |              |
| Max. DC Input Current (A)           | 20x2   | 20+32        | 32x2         | 40x2            |              |              |
| Max. Short Current(A)               | 30x2   | 30+48        | 48x2         | 60x2            |              |              |
| No. of MPPT Tracker / Strings       | 2/2  | 2/3          | 2/4          | 2/4             |              |              |
| <b>Battery Port</b>                 |  |              |              |                 |              |              |
| Battery Nominal Voltage (V)         | 450  | 500          | 400          | 500             | 500          | 550          |
| Battery Voltage Range (V)           | 150-800  |              |              |                 |              |              |
| Max. Charge/Discharge Current (A)   | 30   | 50           | 50           | 50              | 60           | 60           |
| Max. Charge/Discharge Power (kW)    | 12   | 15           | 17           | 20              | 25           | 30           |
| Charging Curve                      | 3 Stages   |              |              |                 |              |              |
| Compatible Battery Type             | Li-ion / Lead-acid / Sodium metal chloride battery   |              |              |                 |              |              |
| <b>AC Grid</b>                      |  |              |              |                 |              |              |
| Nominal AC Output Power (kW)        | 12   | 15           | 17           | 20              | 25           | 30           |
| Max. AC Input/Output Power (kVA)    | 18 / 13.2  | 22.5 / 16.5  | 25.5 / 18.7  | 30 / 22         | 37.5 / 27.5  | 45 / 33      |
| Max. AC Output Current (A)          | 21.5   | 27           | 30           | 32              | 40           | 48           |
| Nominal AC Voltage (V)              | 230/400  |              |              |                 |              |              |
| Nominal AC Frequency (Hz)           | 50/60  |              |              |                 |              |              |
| Power Factor                        | 1 (-0.8-0.8) adjustable  |              |              |                 |              |              |
| Current THD (%)                     | <3%  |              |              |                 |              |              |
| <b>AC Load Output (Back-up)</b>     |  |              |              |                 |              |              |
| Nominal Output Power (VA)           | 12000  | 15000        | 17000        | 20000           | 25000        | 30000        |
| Nominal Output Voltage (V)          | 230/400  |              |              |                 |              |              |
| Nominal Output Frequency (Hz)       | 50/60  |              |              |                 |              |              |
| Nominal Output Current (A)          | 17.4   | 21.8         | 24.7         | 29              | 36.3         | 43.5         |
| Peak Output Power                   | 13200VA, 60s   | 16500VA, 60s | 18700VA, 60s | 22000VA, 60s    | 27500VA, 60s | 33000VA, 60s |
| THDV (with linear load)             | <3%  |              |              |                 |              |              |
| Switching Time (ms)                 | <10  |              |              |                 |              |              |
| <b>Efficiency</b>                   |  |              |              |                 |              |              |
| Europe Efficiency                   | 97.50%   |              | 97.80%       |                 | 98.10%       |              |
| Max. Efficiency                     | 98.30%   |              |              | 98.50%          |              |              |
| Battery Charge/Discharge Efficiency | 98.00%   |              |              |                 |              |              |
| <b>Protection</b>                   |  |              |              |                 |              |              |
| Reverse Polarity Protection         | Yes  |              |              |                 |              |              |
| Over Current / Voltage Protection   | Yes  |              |              |                 |              |              |
| Anti-islanding Protection           | Yes  |              |              |                 |              |              |
| AC Short-circuit Protection         | Yes  |              |              |                 |              |              |
| Leakage Current Detection           | Yes  |              |              |                 |              |              |
| Ground Fault Monitoring             | Yes  |              |              |                 |              |              |
| Grid Monitoring                     | Yes  |              |              |                 |              |              |
| Enclosure Protect Level             | IP65   |              |              |                 |              |              |
| AC/DC surge protection              | Type II  |              |              |                 |              |              |
| <b>General Data</b>                 |  |              |              |                 |              |              |
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| Cooling Concept                     | Natural Convection   |              |              | Intelligent Fan |              |              |
| Relatively Humidity                 | 0-100%   |              |              |                 |              |              |
| Operating Temperature Range (°C)    | -25 to 60 °C   |              |              |                 |              |              |
| Operating Altitude (m)              | <4000  |              |              |                 |              |              |
| Noise Emission (dB)                 | <40  |              |              |                 |              |              |
| Standby Consumption (W)             | <5   |              |              |                 |              |              |
| Display & Communication Interfaces  | LCD, LED, RS485, CAN, Wi-Fi, GPRS, 4G  |              |              |                 |              |              |
| Certification & Approvals           | NRS097, G98/G99, EN50549-1, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2 |              |              |                 |              |              |
| EMC                                 | EN61000-6-2, EN61000-6-3   |              |              |                 |              |              |