

# Three Phase Hybrid Storage Inverter

## 3-15 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 15kW, compatible with high voltage (80-600V) 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.

The Afore energy storage inverter features Smart Electricity Pricing & Automation, an energy management tool based on real-time electricity pricing strategies. It continuously monitors electricity price fluctuations and dynamically adjusts device operation accordingly. Operating 24/7 fully automatically without the need for manual intervention, it helps users optimize their electricity usage and reduce energy costs.



## AI EMS

## Electricity Pricing & Automation



## WIDE RANGE

Voltage Range  
(80-600V)



## PV OVERSIZE

### 1.5 Times PV Oversize



## MAX. 18.5Ad

## String Current Up To 18.5A



## UPS FUNCTION

Switch Time < 10ms



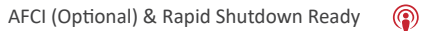
## COMPACT

### Compact Design



## GENERATOR

## Generator Backup Support



data archiving, report generation, and language selection (e.g. Polish language).

## ■ Technical Data

| ■ Technical Data                           | AF3K-MTH+                                                                     | AF4K-MTH+ | AF5K-MTH+ | AF6K-MTH+ | AF8K-MTH+ | AF10K-MTH+ | AF12K-MTH+ | AF15K-MTH+ |
|--------------------------------------------|-------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|------------|------------|------------|
| PV Input                                   |                                                                               |           |           |           |           |            |            |            |
| Max. DC Input Power (kW)                   | 5                                                                             | 6         | 7.5       | 9         | 12        | 15         | 18         | 22.5       |
| Max. PV Voltage (V)                        | 1000                                                                          |           |           |           |           |            |            |            |
| Rated DC Input Voltage (V)                 | 620                                                                           |           |           |           |           |            |            |            |
| DC Input Voltage Range (V)                 | 90-1000                                                                       |           |           |           |           |            |            |            |
| MPPT Voltage Range (V)                     | 90 - 950                                                                      |           |           |           |           |            |            |            |
| Start-up Voltage (V)                       | 110                                                                           |           |           |           |           |            |            |            |
| Max. DC Input Current (A)                  | 18.5 x2                                                                       |           |           |           |           |            |            |            |
| Max. Short Current(A)                      | 25 x2                                                                         |           |           |           |           |            |            |            |
| No. of MPPT Tracker / Strings              | 2/2                                                                           |           |           |           |           |            |            |            |
| Battery Port                               |                                                                               |           |           |           |           |            |            |            |
| Battery Nominal Voltage (V)                | 350                                                                           | 350       | 350       | 350       | 350       | 350        | 450        | 500        |
| Battery Voltage Range (V)                  | 80 -600                                                                       |           |           |           |           |            |            |            |
| Max. Charge/Discharge Current (A)          | 30                                                                            |           |           |           |           |            |            |            |
| Max. Charge/Discharge Power (kW)           | 3                                                                             | 4         | 5         | 6         | 8         | 10         | 12         | 15         |
| Charging Curve                             | 3 Stages                                                                      |           |           |           |           |            |            |            |
| Compatible battery Type                    | Li-ion / Lead-acid / Sodium metal chloride battery/Lithium - iron - phosphate |           |           |           |           |            |            |            |
| Compatible with Afore HA3 Series batteries | Yes                                                                           |           |           |           |           |            |            |            |

|                                                                                                                                                               | AF3K-MTH+                                                                                                                                                                                              | AF4K-MTH+   | AF5K-MTH+   | AF6K-MTH+   | AF8K-MTH+   | AF10K-MTH+ | AF12K-MTH+   | AF15K-MTH+   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|------------|--------------|--------------|
| AC Grid                                                                                                                                                       |                                                                                                                                                                                                        |             |             |             |             |            |              |              |
| Nominal AC Output Power (kW)                                                                                                                                  | 3                                                                                                                                                                                                      | 4           | 5           | 6           | 8           | 10         | 12           | 15           |
| 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    | 18 / 13.2    | 22.5 / 16.5  |
| Max. AC Output Current (A)                                                                                                                                    | 5.3                                                                                                                                                                                                    | 7           | 8.5         | 10.5        | 13.5        | 17         | 21.5         | 27           |
| Nominal AC Voltage (V)                                                                                                                                        | 230/400                                                                                                                                                                                                |             |             |             |             |            |              |              |
| Nominal AC Frenquency (Hz)                                                                                                                                    | 50 / 60                                                                                                                                                                                                |             |             |             |             |            |              |              |
| Nominal AC Current (A)                                                                                                                                        | 4.4                                                                                                                                                                                                    | 5.8         | 7.3         | 8.7         | 11.6        | 14.5       | 17.4         | 21.8         |
| Power Factor                                                                                                                                                  | 1(- 0.8 to +0.8) adjustable                                                                                                                                                                            |             |             |             |             |            |              |              |
| THDi (%)                                                                                                                                                      | < 3%                                                                                                                                                                                                   |             |             |             |             |            |              |              |
| Number of powered phases                                                                                                                                      | 3                                                                                                                                                                                                      |             |             |             |             |            |              |              |
| AC Load Output (Back-up)                                                                                                                                      |                                                                                                                                                                                                        |             |             |             |             |            |              |              |
| Nominal Output Power (kVA)                                                                                                                                    | 3                                                                                                                                                                                                      | 4           | 5           | 6           | 8           | 10         | 12           | 15           |
| 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       | 17.4         | 21.8         |
| Peak Output Power                                                                                                                                             | 3.3kVA, 60s                                                                                                                                                                                            | 4.4kVA, 60s | 5.5kVA, 60s | 6.6kVA, 60s | 8.8kVA, 60s | 11kVA, 60s | 13.2kVA, 60s | 16.5kVA, 60s |
| THDV (with linear load)                                                                                                                                       | < 3%                                                                                                                                                                                                   |             |             |             |             |            |              |              |
| THDi                                                                                                                                                          | < 3%                                                                                                                                                                                                   |             |             |             |             |            |              |              |
| Switching Time (ms)                                                                                                                                           | < 10                                                                                                                                                                                                   |             |             |             |             |            |              |              |
| Three-phase backup power supply                                                                                                                               | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Efficiency                                                                                                                                                    |                                                                                                                                                                                                        |             |             |             |             |            |              |              |
| Europe Efficiency                                                                                                                                             |                                                                                                                                                                                                        |             |             | 97.50 %     |             |            |              |              |
| Max. Efficiency                                                                                                                                               | 98.00 %                                                                                                                                                                                                |             |             |             |             | 98.20 %    |              | 98.30 %      |
| Battery Charge/Discharge Efficiency                                                                                                                           |                                                                                                                                                                                                        |             |             | 98.00 %     |             |            |              |              |
| Protection                                                                                                                                                    |                                                                                                                                                                                                        |             |             |             |             |            |              |              |
| Reverse Polarity Protection                                                                                                                                   |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| Over Current / Voltage Protection                                                                                                                             |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| Anti-islanding Protection                                                                                                                                     |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| AC Short-ciruit Protection                                                                                                                                    |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| Residual current detection                                                                                                                                    |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| Ground Fault Monitoring                                                                                                                                       |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| Grid Monitoring                                                                                                                                               |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| DC insulation resistance monitoring                                                                                                                           |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| Leakage current monitoring                                                                                                                                    |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| DC Switch                                                                                                                                                     |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| Overheat protection                                                                                                                                           |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| Intelligent I-V curve monitoring                                                                                                                              |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| AC/DC surge protection                                                                                                                                        |                                                                                                                                                                                                        |             |             | Type II     |             |            |              |              |
| Enclosure Protect Level                                                                                                                                       |                                                                                                                                                                                                        |             |             | IP66        |             |            |              |              |
| Power Curve Derating under Overload Conditions (Power Limiter)                                                                                                |                                                                                                                                                                                                        |             |             | Yes         |             |            |              |              |
| General Data                                                                                                                                                  |                                                                                                                                                                                                        |             |             |             |             |            |              |              |
| Dimensions (W x H x D, mm)                                                                                                                                    | 370 x 598.5 x 192mm                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Weight (kg)                                                                                                                                                   | 22kg                                                                                                                                                                                                   |             |             |             |             |            |              |              |
| Topology                                                                                                                                                      | Transformerless                                                                                                                                                                                        |             |             |             |             |            |              |              |
| Cooling Concept                                                                                                                                               | Intelligent fan*                                                                                                                                                                                       |             |             |             |             |            |              |              |
| Relatively Humidity                                                                                                                                           | 0 -100 %                                                                                                                                                                                               |             |             |             |             |            |              |              |
| Operating Temperature Range (°C)                                                                                                                              | - 25 to + 60 °C                                                                                                                                                                                        |             |             |             |             |            |              |              |
| Operating Altitude (m)                                                                                                                                        | < 4000                                                                                                                                                                                                 |             |             |             |             |            |              |              |
| Standby Consumption (W)                                                                                                                                       | < 5                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Display & Communication Interfaces                                                                                                                            | LCD, LED, RS485, CAN, Wi-Fi, GPRS, 4G, Sunspec, Modbus RTU                                                                                                                                             |             |             |             |             |            |              |              |
| Certification & Approvals                                                                                                                                     | NCRfG, EN50549-1, IEC62109-1, IEC62109-2, IEC62477-1, EN61000-6-1, EN61000-6-2, EN61000-6-3, IEC61000-4-16, IEC61000-4-18, IEC61000-4-29, IEC61727, IEC62116, compliance with EN50438, PTPIREE, IRIESD |             |             |             |             |            |              |              |
| VPP Function                                                                                                                                                  | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Control operation modes                                                                                                                                       | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Integrated compatibility with energy storage systems                                                                                                          | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Collection and local visualization of electrical energy production data from the installation                                                                 | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Data transmission through a communication module LSW-5 compliant with the RED 2014/53/EU Directive and EN 18031-1 standard                                    | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Warranty                                                                                                                                                      | 10 years with the possibility of extension                                                                                                                                                             |             |             |             |             |            |              |              |
| Energy Management System (EMS)                                                                                                                                | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Display                                                                                                                                                       | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Possibility to select the menu language depending on the country: e.g. Polish language                                                                        | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| Management of PV operation, battery charging and discharging processes, and building energy consumption control.                                              | Yes                                                                                                                                                                                                    |             |             |             |             |            |              |              |
| *Smart Cooling – proprietary cooling technology using an intelligently controlled fan working in conjunction with a heat sink for efficient heat dissipation. |                                                                                                                                                                                                        |             |             |             |             |            |              |              |