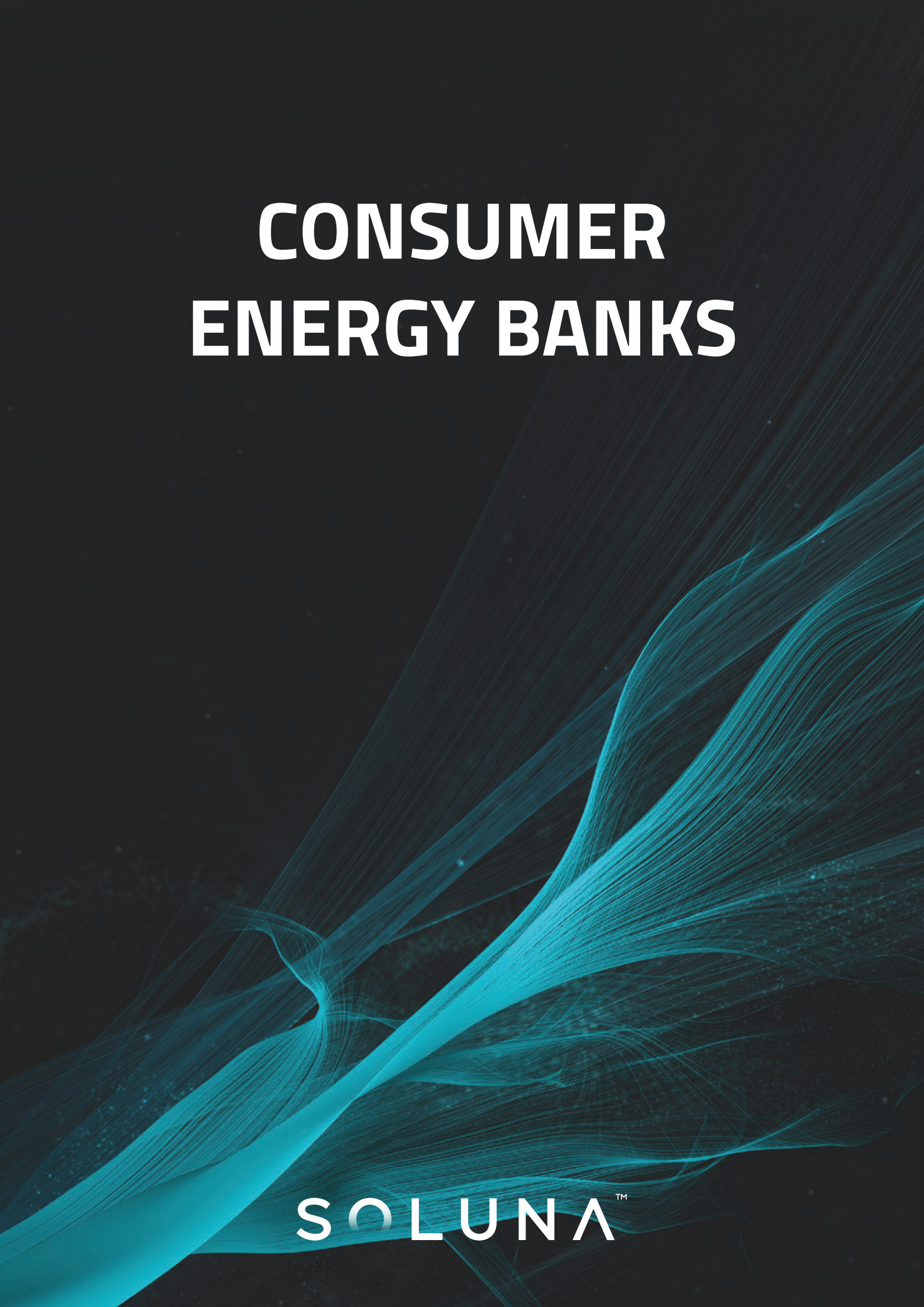
# CONSUMER ENERGY BANKS



SOLUNA™

# BATTERY

It used to be believed that the storage of surplus energy is a solution for those who live in remote places and do not have access to the power grid, but with the development of technology, this classification becomes somewhat simplified. Home energy storage is also chosen by people who value independence from the ideological point of view - the changing legal regulations regarding settlements with operators do not provide a certainty on which energy independence can be built, which is why more and more installations are equipped with an additional, specific „helper", which is battery. Then, regardless of whether the reason for dissatisfaction with the network connection is the fact of giving away one's energy under unfavorable conditions or a mundane network failure; The benefits of photovoltaics can be felt at any time of the day or night.



# HYBRID INVERTERS

Therefore, a hybrid installation becomes the ideal solution. The Afore Aton hybrid inverter (15-year warranty) or Solinteg (5-year warranty) and compatible Soluna batteries (10-year warranty) are able to meet the energy needs of most households. The benefit of having a hybrid installation is absolute user safety, based on three pillars. Depending on the adopted mode of operation of the inverter, the energy produced by the photovoltaic modules and then converted by the inverter into alternating current first satisfies the so-called current consumption, then transfers surpluses to the energy storage to use it, e.g. at night, and finally sends the remaining overproduction to the grid based on the agreed settlement system with the recipient.

Regardless of what motivation - ideological, ecological or economic - drives the future owners of home mini power plants, the hybrid installation is the unrivaled leader among the available options. It allows you to enjoy the full possibilities offered by photovoltaics.

# BATTERY
# 5-15 kWh


SOLUNA
SOLUNA


# Low voltage battery LFP 5 kWh

**WARRANTY**

10-year warranty as standard

**LOW VOLTAGE BATTERY**

Dedicated to a single-phase inverter

**LONG LIFE CYCLE**

Rechargeable no less than 6000 cycles

**LFP TECHNOLOGY**

Battery made in LFP technology

**PARALLEL WORK**

Possibility to connect up to 4 batteries to one parallel box

**BATTERY PACK EFFICIENCY**

High battery pack efficiency above 95%

**INTELLIGENT MANAGEMENT**

Possibility of remote management

**MODERN DESIGN**

Housing that fits into any interior

| Electrical parameters | | Battery 5 kWh |
|---|---|---|
| Battery type | - | LFP |
| Total energy capacity | kWh | 5.12 |
| Usable energy capacity | kWh | 4.6 |
| Battery capacity (nominal) | Ah | 100 |
| Voltage range (usable) | V | 48~57.6 |
| Nominal voltage | V | 51.2 |
| Charge / discharge current (nominal) | A | 50 / 50 |
| Continuous charging current | A | 75 |
| Continuous discharging current | A | 100 |
| Battery power | kW | 2.56 |
| Depth of discharge (DOD) | % | 90 |
| Cycle life | - | 6000 ≤ |
| DC disconnect | - | Contactor, fuse |
| **BMS** | | **Battery 5 kWh** |
| Communication | - | CAN |
| **General parameters** | | **Battery 5 kWh** |
| Protection rating | - | IP54 |
| Warranty | - | 10 years |
| Operating temperature | °C | -10 ~ +50 |
| Operating temperature (recommended) | °C | +15 ~ +30 |
| Humidity | % | 5 ~ 95 |
| Altitude | m | < 2000 |
| number of batteries connected in parallel | pcs. | 12 |
| Cooling | - | Natural convection |
| Weight | kg | 51 |
| Dimensions (width x height x depth) | mm | 595 x 438 x 165 |
| **Reliability & Certification** | | |
| CE, RoHS, UL 1642, UN38.3 | | |

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl


# High voltage battery LFP 6-15 kWh

10 years

**WARRANTY**

10-year warranty as standard

High

**HIGH VOLTAGE BATTERY**

Dedicated to a three-phase inverter

6000

**LONG LIFE CYCLE**

Rechargeable no less than 6000 cycles

LFP

**LFP TECHNOLOGY**

Battery made in LFP technology

**PARALLEL WORK**

Possibility to connect up to 4 batteries to one parallel box

**DISCHARGE LEVEL**

Utilization of 90% of the available capacity

**INTELLIGENT MANAGEMENT**

Possibility of remote management

**MODERN DESIGN**

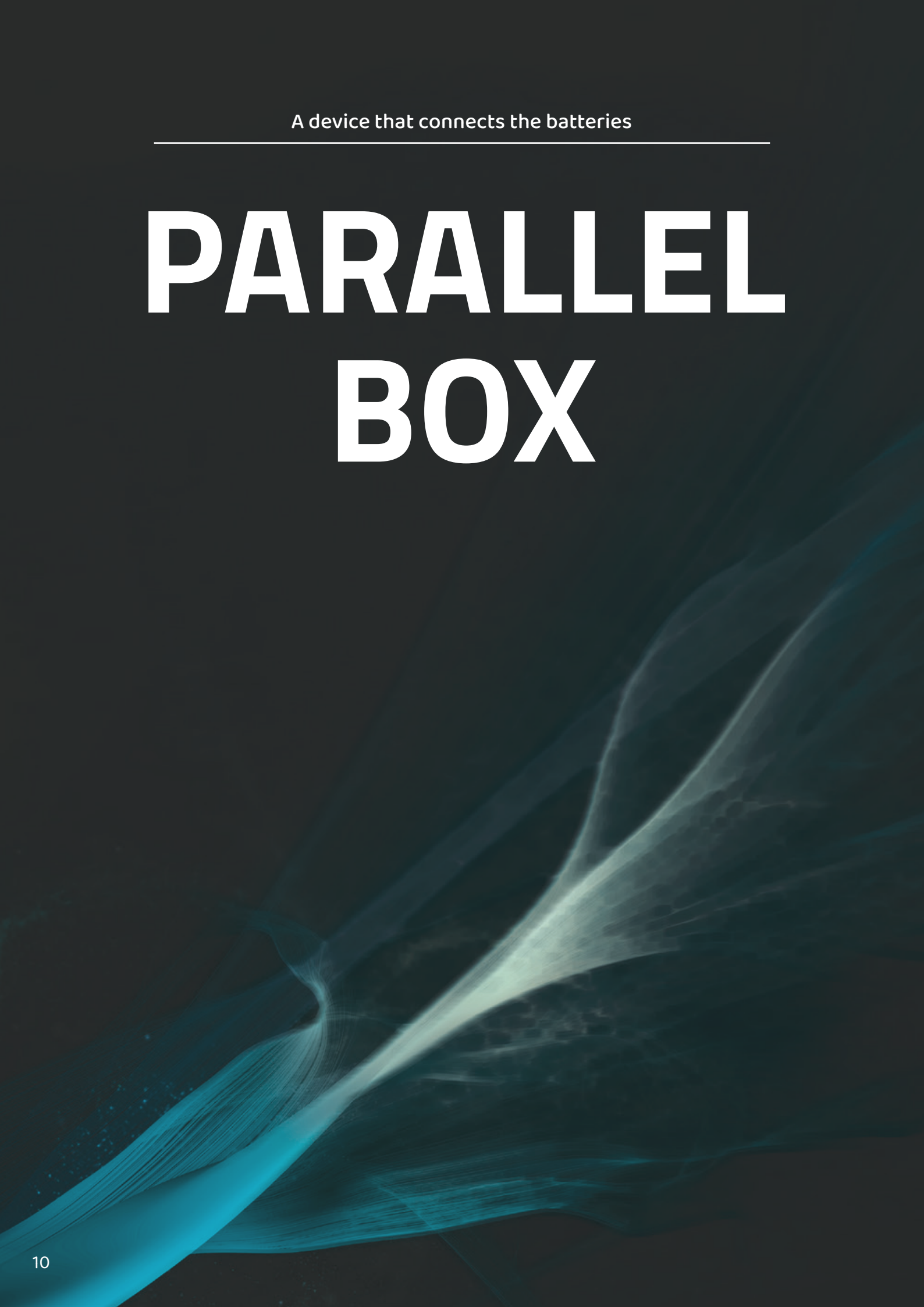
Housing that fits into any interior

| Electrical parameters | | Battery 6 kWh | Battery 10 kWh | Battery 15 kWh |
|---|---|---|---|---|
| Battery type | - | LFP | | |
| Total energy capacity | kWh | 6 | 10 | 15 |
| Usable energy capacity | kWh | 5.4 | 9 | 13.5 |
| Battery capacity (nominal) | Ah | 40 | | |
| Voltage range (usable) | V | 134.4 - 168 | 235.2 - 294 | 336 - 420 |
| Nominal voltage | V | 153.6 | 268.8 | 384 |
| Charge voltage | V | 168 | 294 | 420 |
| Discharge cut-off voltage | V | 134.4 | 235.2 | 360 |
| Max. charge/discharge current | A | 40 / 40 | | |
| Battery power | kW | 3.07 | 5.37 | 7.68 |
| Depth of discharge (DOD) | % | 90 | | |
| Cycle life | - | 6000 ≤ | | |
| DC disconnect | - | Contactor, fuse | | |
| **BMS** | | **Battery 6 kWh** | **Battery 10 kWh** | **Battery 15 kWh** |
| Communication | - | CAN | | |
| **Parametry ogólne** | | **Battery 6 kWh** | **Battery 10 kWh** | **Battery 15 kWh** |
| Protection rating | - | IP54 | | |
| Warranty | - | 10 years | | |
| Operating temperature | °C | -10 ~ +50 | | |
| Operating temperature (recommended) | °C | +15 ~ +30 | | |
| Humidity | % | 5 - 95 | | |
| Altitude | m | < 2000 | | |
| number of batteries connected in parallel | pcs. | 10 | | |
| Cooling | - | Natural convection | | |
| Weight | kg | 74 | 105 | 143 |
| Dimensions (width x height x depth) | mm | 654 x 971 x 227 | | 654 x 1205 x 227 |
| **Reliability & Certification** | | | | |
| CE, IEC 62619, UL1642, UL 1973, UN 38.3, UL9540A | | | | |

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl

A device that connects the batteries

# PARALLEL BOX




SOLUNA
HV Pack Parallel Box
PC
Pack 3 CAN
Pack 4 CAN


# HV Parallel Box

**WARRANTY**

10-year warranty
as standard

**PARALLEL WORK**

Possibility to install
3 devices in cascade

**LARGE RANGE OF CONFIGURATIONS**

Capacity of stored energy
from 5 kWh to 150 kWh

**INTELLIGENT MANAGEMENT**

Possibility of remote
management

**COMPACT HOUSING**

Small housing of the
device

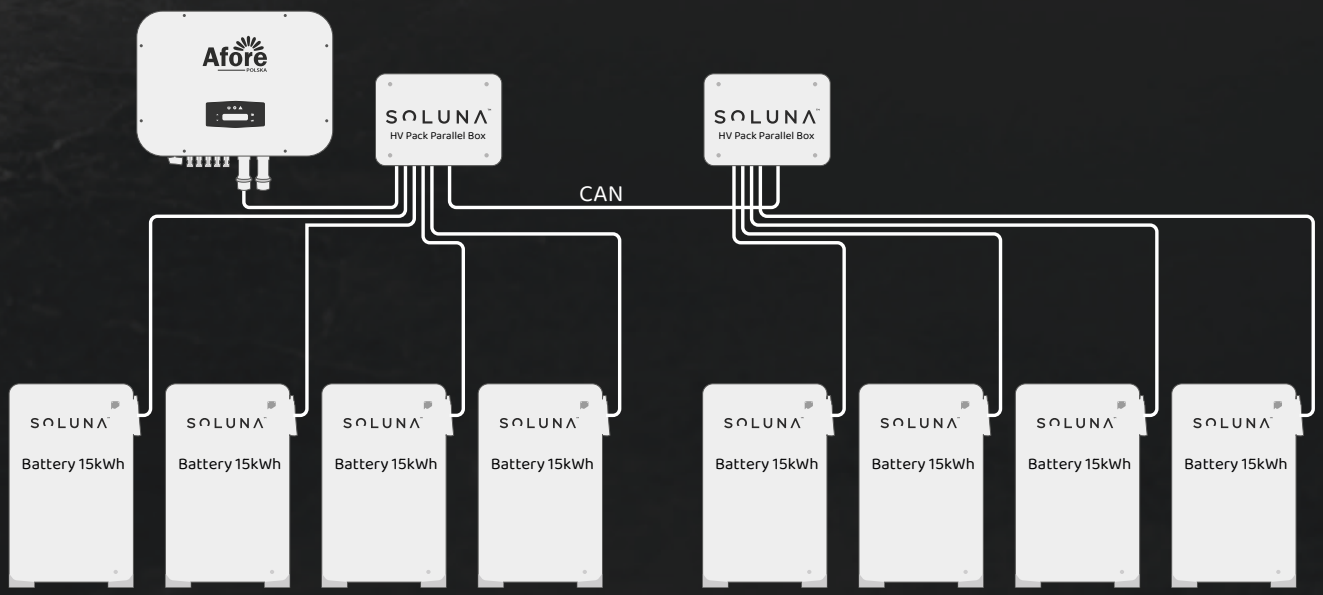
**MODERN DESIGN**

Housing that fits into
any interior

PARALLEL BOX is a device dedicated to AFORE or SOLINTEG hybrid inverters whose owners have additional appetites for storing the energy produced. PARALLEL allows you to combine two to four pieces of batteries that will create a modular energy storage. For example: SOLUNA batteries in our offer have a maximum capacity of 15 kWh, so using PARALLEL we can construct a warehouse with a total capacity of 60 kWh.

| **Electrical parameters** | | **HV Parallel Box** | |
|---|---|---|---|
| Working voltage | VDC | 530 | |
| Max. input current (4x) | A | 50 | |
| Max. output current | A | 175 | |
| Input wires (4) | mm2 | 10 | |
| Output wires | mm2 | 35 | |
| **General parameters** | | **HV Parallel Box** | |
| General operating temperature range | °C | -20 ~ +50 | |
| Battery operating temperature range | °C | -20 ~ +60 | |
| Humidity | % | 5-95 | |
| Communication port type | - | RS45 (P) | |
| Input communication port | pcs. | 4 | |
| Output communication port | pcs. | 2 | |
| **Others** | | **HV Parallel Box** | |
| Protection rating | - | IP54 | |
| Warranty | - | 10 years | |
| Weight | kg | 3.5 | |
| Number of batteries supported per parallel | pcs. | 4 | |
| Number of batteries supported per inverter | pcs. | 12 (battery 5 kWh) | 10 (battery 6/10/15 kWh) |
| Dimensions (width x height x depth) | mm | 332.4 x 232.4 x 86.2 | |

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl




**1 Parallel Box supports up to 4 Soluna batteries of the same capacity**

# HYBRID INVERTER

## AFORE

# 1.5-50kW


Afore
ATON
Afore


# Single-phase hybrid inverter ATON 1.5-3.6 kW

## *Seria SL*

**WARRANTY**

10-year warranty as standard

**OVERSIZE**

Ability to oversize x 1.5

**AFCI**

Arc detection (optional)

**HIGH EFFICIENCY**

97.6% charge and discharge efficiency

**PROTECTION RATING IP65**

High resistance to weather conditions

**UPS FUNCTION**

Transfer time < 10 ms

**PARALLEL WORK**

Possibility of parallel operation of 6 devices

**MODERN DESIGN**

New functional unibody

| Parameters input DC | | AF1.5K-SL-1 | AF2K-SL-1 | AF2.5K-SL-1 | AF3K-SL-1 | AF3K-SL | AF3.6K-SL-1 |
|---|---|---|---|---|---|---|---|
| Max. power | kW | 2.3 | 3.0 | 3.8 | 4.5 | | 5.4 |
| Max. voltage | V | 550 | | | | | |
| Range voltage MPPT | V | 80 - 500 | | | | | |
| MPPT voltage range at full power | V | 90 - 500 | 120 - 500 | 150 - 500 | 170 - 500 | 90 - 500 | 210 - 500 |
| Nominal voltage | V | 360 | | | | | |
| Start voltage | V | 100 | | | | | |
| Max. current MPPT | A | 18.5 x 1 | | | | 18.5 x 2 | 18.5 x 1 |
| Maximum short-circuit current MPPT | A | 26 x 1 | | | | 26 x 2 | 26 x 1 |
| Number of MPPTs / Number of PV strings | - | 1 / 1 | | | | 2 / 2 | 1 / 1 |
| **Battery** | | **AF1.5K-SL-1** | **AF2K-SL-1** | **AF2.5K-SL-1** | **AF3K-SL-1** | **AF3K-SL** | **AF3.6K-SL-1** |
| Max. charge / discharge power | kW | 1.5 | 2.0 | 2.5 | 3.0 | | 3.6 |
| Max. charge / discharge current | A | 40 | 50 | 63 | 80 | | |
| Nominal voltage battery | V | 51.2 | | | | | |
| Battery range voltage | V | 40 - 60 | | | | | |
| Compatible battery types | - | Lithium / Lead-acid | | | | | |
| **Grid parameters AC (ONGRID)** | | **AF1.5K-SL-1** | **AF2K-SL-1** | **AF2.5K-SL-1** | **AF3K-SL-1** | **AF3K-SL** | **AF3.6K-SL-1** |
| Max. current | A | 7.0 | 10.0 | 12.0 | 14.0 | | 17.0 |
| Max. power | kVA | 1.5 | 2.0 | 2.5 | 3.0 | | 3.6 |
| Nominal current | A | 6.9 / 6.6 | 9.1 / 8.7 | 11.4 / 10.9 | 13.7 / 13.1 | | 16.4 / 15.7 |
| Nominal voltage | V | 207 - 253 | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | |
| Power factor | - | 0.999 (-0.8 / +0.8) | | | | | |
| THD | % | < 3 | | | | | |
| **Efficiency** | | **AF1.5K-SL-1** | **AF2K-SL-1** | **AF2.5K-SL-1** | **AF3K-SL-1** | **AF3K-SL** | **AF3.6K-SL-1** |
| Efficiency EURO | % | 96.70 | | | 96.80 | 97.10 | |
| Efficiency MAKS | % | 97.60 | | | | | |
| Efficiency charge battery with PV | % | 98.10 | | | | | |
| AC power efficiency from batteries | % | 96.80 | | | | | |
| **Output parameters AC (BACK-UP)** | | **AF1.5K-SL-1** | **AF2K-SL-1** | **AF2.5K-SL-1** | **AF3K-SL-1** | **AF3K-SL** | **AF3.6K-SL-1** |
| Max. current | A | 7.0 | 10.0 | 12.0 | 14.0 | | 17.0 |
| Max. power | kW | 1.5 | 2.0 | 2.5 | 3.0 | | 3.6 |
| Maximum peak current (10min) | A | 10.5 / 10.0 | 13.7 / 13.1 | 17.3 / 16.6 | 20.5 / 19.6 | | 24.6 / 23.5 |
| Maximum peak power (10min) | kW | 2.3 | 3.0 | 3.8 | 4.5 | | 5.4 |
| Nominal voltage | V | 220 / 230 | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | |
| Switching time | - | Seamless | | | | | |
| THD | % | < 3 | | | | | |
| **Security** | | **AF1.5K-SL-1** | **AF2K-SL-1** | **AF2.5K-SL-1** | **AF3K-SL-1** | **AF3K-SL** | **AF3.6K-SL-1** |
| Security against DC reverse polarity | - | Yes | | | | | |
| Security overcurrent/overvoltage | - | Yes | | | | | |
| Security before island work | - | Yes | | | | | |
| Security against AC short circuit | - | Yes | | | | | |
| Residual current detection | - | Yes | | | | | |
| Earth fault monitoring | - | Yes | | | | | |
| Insulation resistance detection | - | Yes | | | | | |
| AFCI detection | - | Yes | | | | | |
| Surge protection (AC/DC) | - | Yes (type III / type III) | | | | | |
| Protection degree | - | IP 65 / NEMA4X | | | | | |
| **General parameters** | - | **AF1.5K-SL-1** | **AF2K-SL-1** | **AF2.5K-SL-1** | **AF3K-SL-1** | **AF3K-SL** | **AF3.6K-SL-1** |
| Dimensions (heigh x width x depth) | mm | 535 x 370 x 192 | | | | | |
| Weight | kg | 18.5 | | | | | |
| Topology | - | Transformerless | | | | | |
| Cooling | - | Intelligent cooling | | | | | |
| Humidity | % | 0 - 100 | | | | | |
| Range working temperature | °C | -25 do 60 | | | | | |
| Max. Operation Altitude | m | < 4000 | | | | | |
| Noise level | dB | < 25 | | | | | |
| Standby consumption | W | < 10 | | | | | |
| Installation | - | Wall mount | | | | | |
| Communication with RSD | - | SUNSPEC | | | | | |
| Display & Communication | - | LCD, LED, RS485, CAN, WiFi, GPRS, 4G | | | | | |

**Certification**

NRS097, G98, EN50549-1, NCRfG, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3

*The above parameters are indicative and may change. Detailed information at: www.soluna.com.pl.


# Three-phase hybrid inverter ATON 3.6-6 kW

## *Seria SL*

10 years

**WARRANTY**

10-year warranty as standard

1.5x

**OVERSIZE**

Ability to oversize x 1.5

98

**HIGH EFFICIENCY**

98% charge and discharge efficiency

IP65

**PROTECTION RATING IP65**

High resistance to weather conditions

**UPS FUNCTION**

Transfer time < 10 ms

**UNBALANCE PHASE**

Supporting an uneven relationship

| Parameters input DC | | AF3.6K-SL | AF4K-SL | AF4.6K-SL | AF5K-SL | AF6K-SL |
|---|---|---|---|---|---|---|
| Max. power | kW | 5.4 | 6.0 | 6.9 | 7.5 | 9.0 |
| Max. voltage | V | 550 | | | | |
| Range voltage MPPT | V | 80 - 500 | | | | |
| MPPT voltage range at full power | V | 110 - 500 | 120 - 500 | 130 - 500 | 150 - 500 | 170 - 500 |
| Nominal voltage | V | 360 | | | | |
| Start voltage | V | 100 | | | | |
| Max. current MPPT | A | 18.5 x 2 | | | | |
| Maximum short-circuit current MPPT | A | 26 x 2 | | | | |
| Number of MPPTs / Number of PV strings | - | 2 / 2 | | | | |
| **Battery** | | **AF3.6K-SL** | **AF4K-SL** | **AF4.6K-SL** | **AF5K-SL** | **AF6K-SL** |
| Max. charge / discharge power | kW | 3.6 | 4.0 | 4.6 | 4.8 | |
| Max. charge / discharge current | A | 80 | | | | |
| Nominal voltage battery | V | 51.2 | | | | |
| Battery range voltage | V | 40 - 60 | | | | |
| Compatible battery types | - | Lithium / Lead-acid | | | | |
| **Grid parameters AC (ONGRID)** | | **AF3.6K-SL** | **AF4K-SL** | **AF4.6K-SL** | **AF5K-SL** | **AF6K-SL** |
| Max. current | A | 17.0 | 19.0 | 22.0 | 23.0 | 28.0 |
| Max. power | kVA | 3.6 | 4.0 | 4.6 | 5.0 | 6.0 |
| Nominal current | A | 16.4 / 15.7 | 18.2 / 17.4 | 21.0 / 20.0 | 22.8 / 21.8 | 27.3 / 26.1 |
| Nominal voltage | V | 207 - 253 | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | |
| Power factor | - | 0.999 (-0.8 / +0.8) | | | | |
| THD | % | < 3 | | | | |
| **Efficiency** | | **AF3.6K-SL** | **AF4K-SL** | **AF4.6K-SL** | **AF5K-SL** | **AF6K-SL** |
| Efficiency EURO | % | 97.10 | | | | |
| Efficiency MAKS | % | 97.60 | | | | |
| Efficiency charge battery with PV | % | 98.10 | | | | |
| AC power efficiency from batteries | % | 96.80 | | | | |
| **Output parameters AC (BACK-UP)** | | **AF3.6K-SL** | **AF4K-SL** | **AF4.6K-SL** | **AF5K-SL** | **AF6K-SL** |
| Max. current | A | 17.0 | 19.0 | 22.0 | 23.0 | 28.0 |
| Max. power | kW | 3.6 | 4.0 | 4.6 | 5.0 | 6.0 |
| Maximum peak current (10min) | A | 24.6 / 23.5 | 27.3 / 26.1 | 31.4 / 30.0 | 34.1 / 32.7 | 41.0 / 39.2 |
| Maximum peak power (10min) | kW | 5.4 | 6.0 | 6.9 | 7.5 | 9.0 |
| Nominal voltage | V | 220 / 230 | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | |
| Switching time | - | Seamless | | | | |
| THD | % | < 3 | | | | |
| **Security** | | **AF3.6K-SL** | **AF4K-SL** | **AF4.6K-SL** | **AF5K-SL** | **AF6K-SL** |
| Security against DC reverse polarity | - | Yes | | | | |
| Security overcurrent/overvoltage | - | Yes | | | | |
| Security before island work | - | Yes | | | | |
| Security against AC short circuit | - | Yes | | | | |
| Residual current detection | - | Yes | | | | |
| Earth fault monitoring | - | Yes | | | | |
| Insulation resistance detection | - | Yes | | | | |
| AFCI detection | - | Yes | | | | |
| Surge protection (AC/DC) | - | Yes (type III / type III) | | | | |
| Protection degree | - | IP 65 / NEMA4X | | | | |
| **General parameters** | - | **AF3.6K-SL** | **AF4K-SL** | **AF4.6K-SL** | **AF5K-SL** | **AF6K-SL** |
| Dimensions (heigh x width x depth) | mm | 535 x 370 x 192 | | | | |
| Weight | kg | 20.5 | | | | |
| Topology | - | Transformerless | | | | |
| Cooling | - | Intelligent cooling | | | | |
| Humidity | % | 0 - 100 | | | | |
| Range working temperature | °C | -25 do 60 | | | | |
| Max. Operation Altitude | m | < 4000 | | | | |
| Noise level | dB | < 25 | | | | |
| Standby consumption | W | < 10 | | | | |
| Installation | - | Wall mount | | | | |
| Communication with RSD | - | SUNSPEC | | | | |
| Display & Communication | - | LCD, LED, RS485, CAN, WiFi, GPRS, 4G | | | | |
| **Certification** | | | | | | |
| NRS097, G98, EN50549-1, NCRfG, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3 | | | | | | |

*The above parameters are indicative and may change. Detailed information at: www.soluna.com.pl.


# Three-phase hybrid inverter ATON 4-6 kW

## *Seria SLP*

10 years

**WARRANTY**

10-year warranty as standard

1.5x

**OVERSIZE**

Ability to oversize x 1.5

98.2

**HIGH EFFICIENCY**

98% charge and discharge efficiency

IP65

**PROTECTION RATING IP65**

High resistance to weather conditions

**UPS FUNCTION**

Transfer time < 10 ms

**UNBALANCE PHASE**

Supporting an uneven relationship

| Parameters input DC | | AF4K-SLP | AF4.6K-SLP | AF5K-SLP | AF5.5K-SLP | AF6K-SLP |
|---|---|---|---|---|---|---|
| Max. power | kW | 6.0 | 6.9 | 7.5 | 8.3 | 9.0 |
| Max. voltage | V | 550 | | | | |
| Range voltage MPPT | V | 80 - 500 | | | | |
| MPPT voltage range at full power | V | 120 - 500 | 130 - 500 | 150 - 500 | 160 - 500 | 170 - 500 |
| Nominal voltage | V | 360 | | | | |
| Start voltage | V | 100 | | | | |
| Max. current MPPT | A | 18.5 x 2 | | | | |
| Maximum short-circuit current MPPT | A | 26 x 2 | | | | |
| Number of MPPTs / Number of PV strings | - | 2 / 2 | | | | |
| **Battery** | | **AF4K-SLP** | **AF4.6K-SLP** | **AF5K-SLP** | **AF5.5K-SLP** | **AF6K-SLP** |
| Max. charge / discharge power | kW | 4.0 | 4.6 | 5.0 | 5.5 | 6.0 |
| Max. charge / discharge current | A | 120 | | | | |
| Nominal voltage battery | V | 51.2 | | | | |
| Battery range voltage | V | 40 - 60 | | | | |
| Compatible battery types | - | Lithium / Lead-acid | | | | |
| **Grid parameters AC (ONGRID)** | | **AF4K-SLP** | **AF4.6K-SLP** | **AF5K-SLP** | **AF5.5K-SLP** | **AF6K-SLP** |
| Max. current | A | 19.0 | 22.0 | 23.0 | 26.0 | 28.0 |
| Max. power | kVA | 4.0 | 4.6 | 5.0 | 5.5 | 6.0 |
| Nominal current | A | 18.2 / 17.4 | 21.0 / 20.0 | 22.8 / 21.8 | 25.0 / 24.0 | 27.3 / 26.1 |
| Nominal voltage | V | 207 - 253 | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | |
| Power factor | - | 0.999 (-0.8 / +0.8) | | | | |
| THD | % | < 3 | | | | |
| **Efficiency** | | **AF4K-SLP** | **AF4.6K-SLP** | **AF5K-SLP** | **AF5.5K-SLP** | **AF6K-SLP** |
| Efficiency EURO | % | 97.10 | | | | |
| Efficiency MAKS | % | 97.60 | | | | |
| Efficiency charge battery with PV | % | 98.10 | | | | |
| AC power efficiency from batteries | % | 96.80 | | | | |
| **Output parameters AC (BACK-UP)** | | **AF4K-SLP** | **AF4.6K-SLP** | **AF5K-SLP** | **AF5.5K-SLP** | **AF6K-SLP** |
| Max. current | A | 19.0 | 22.0 | 23.0 | 26.0 | 28.0 |
| Max. power | kW | 4.0 | 4.6 | 5.0 | 5.5 | 6.0 |
| Maximum peak current (10min) | A | 27.3 / 26.1 | 31.4 / 30.0 | 34.1 / 32.7 | 37.8 / 36.1 | 41.0 / 39.2 |
| Maximum peak power (10min) | kW | 6.0 | 6.9 | 7.5 | 8.3 | 9.0 |
| Nominal voltage | V | 220 / 230 | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | |
| Switching time | - | Seamless | | | | |
| THD | % | < 3 | | | | |
| **Security** | | **AF4K-SLP** | **AF4.6K-SLP** | **AF5K-SLP** | **AF5.5K-SLP** | **AF6K-SLP** |
| Security against DC reverse polarity | - | Yes | | | | |
| Security overcurrent/overvoltage | - | Yes | | | | |
| Security before island work | - | Yes | | | | |
| Security against AC short circuit | - | Yes | | | | |
| Residual current detection | - | Yes | | | | |
| Earth fault monitoring | - | Yes | | | | |
| Insulation resistance detection | - | Yes | | | | |
| AFCI detection | - | Yes | | | | |
| Surge protection (AC/DC) | - | Yes (type III / type III) | | | | |
| Protection degree | - | IP 65 / NEMA4X | | | | |
| **General parameters** | - | **AF4K-SLP** | **AF4.6K-SLP** | **AF5K-SLP** | **AF5.5K-SLP** | **AF6K-SLP** |
| Dimensions (heigh x width x depth) | mm | 535 x 370 x 192 | | | | |
| Weight | kg | 20.5 | | | | |
| Topology | - | Transformerless | | | | |
| Cooling | - | Intelligent cooling | | | | |
| Humidity | % | 0 - 100 | | | | |
| Range working temperature | °C | -25 do 60 | | | | |
| Max. Operation Altitude | m | < 4000 | | | | |
| Noise level | dB | < 25 | | | | |
| Standby consumption | W | < 10 | | | | |
| Installation | - | Wall mount | | | | |
| Communication with RSD | - | SUNSPEC | | | | |
| Display & Communication | - | LCD, LED, RS485, CAN, WiFi, GPRS, 4G | | | | |
| **Certification** | | | | | | |
| NRS097, G98, EN50549-1, NCRfG, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3 | | | | | | |

*The above parameters are indicative and may change. Detailed information at: www.soluna.com.pl.


# Three-phase hybrid inverter ATON 3-12 kW

## *Seria THP*

10 years

**WARRANTY**

10-year warranty as standard

1.5x

**OVERSIZE**

Ability to oversize x 1.5

98.2

**HIGH EFFICIENCY**

98% charge and discharge efficiency

IP65

**PROTECTION RATING IP65**

High resistance to weather conditions

**UPS FUNCTION**

Transfer time < 10 ms

**UNBALANCE PHASE**

Supporting an uneven relationship

| Parameters input DC | | AF3K-THP | AF4K-THP | AF5K-THP | AF6K-THP | AF8K-THP | AF10K-THP | AF12K-THP |
|---|---|---|---|---|---|---|---|---|
| Max. power | kW | 5 | 6 | 7.5 | 9 | 12 | 15 | 18 |
| Max. voltage | V | 1000 | | | | | | |
| Rated voltage | V | 620 | | | | | | |
| Range voltage | V | 150 - 1000 | | | | | | |
| Range voltage MPPT | V | 150 - 850 | | | | | | |
| MPPT voltage range at full power | V | 200 - 850 | | | 250 - 850 | 300 - 850 | 500 - 850 | |
| Start voltage | V | 160 | | | | | | |
| Max. current MPPT | A | 20 x 2 | | | | | | |
| Maximum short-circuit current MPPT | A | 30 x 2 | | | | | | |
| Number of MPPTS / Number of PV strings | - | 2 / 2 | | | | | | |
| **Battery** | | **AF3K-THP** | **AF4K-THP** | **AF5K-THP** | **AF6K-THP** | **AF8K-THP** | **AF10K-THP** | **AF12K-THP** |
| Nominal voltage battery | V | 100 | | | 150 | 200 | 250 | 300 |
| Battery range voltage | V | 80 - 600 | | | | | 120 - 650 | |
| Max. charge / discharge current | A | 50 | | | | | | |
| Max. charge / discharge power | kW | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
| Charging curve | - | 3 Stages | | | | | | |
| Compatible battery types | - | Lithium / Lead-acid | | | | | | |
| **Grid parameters AC (ONGRID)** | | **AF3K-THP** | **AF4K-THP** | **AF5K-THP** | **AF6K-THP** | **AF8K-THP** | **AF10K-THP** | **AF12K-THP** |
| Nominal power output | kVA | 3 | 4 | 5 | 6 | 9 | 10 | 12 |
| Max. power input / output | kVA | 4.5 / 3.3 | 6 / 4.4 | 7.5 / 5.5 | 9 / 6.6 | 12 / 8.8 | 15 / 11 | 18 / 13.2 |
| Max. current output | A | 5.3 | 7 | 8.5 | 10.5 | 13.5 | 17 | 21.5 |
| Nominal voltage | V | 230 / 400 | | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | | |
| Power factor | - | 1 (-0.8 -0.8) | | | | | | |
| THD | % | < 3 | | | | | | |
| **Output parameters AC (BACK-UP)** | | **AF3K-THP** | **AF4K-THP** | **AF5K-THP** | **AF6K-THP** | **AF8K-THP** | **AF10K-THP** | **AF12K-THP** |
| Nominal power | VA | 3000 | 4000 | 5000 | 6000 | 8000 | 10000 | 12000 |
| Nominal voltage | V | 230 / 400 | | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | | |
| Nominal current | A | 4.4 | 5.8 | 7.3 | 8.7 | 11.6 | 14.5 | 17.4 |
| Maximum peak power (60 s) | VA, s | 3300 | 4400 | 5500 | 6600 | 8800 | 11000 | 13200 |
| THDV (with linear load) | % | < 3 | | | | | | |
| Switching time | s | < 0.01 | | | | | | |
| **Efficiency** | | **AF3K-THP** | **AF4K-THP** | **AF5K-THP** | **AF6K-THP** | **AF8K-THP** | **AF10K-THP** | **AF12K-THP** |
| Efficiency EURO | % | 97.50 | | | | | | |
| Efficiency MAKS | % | 98.00 | | | | 98.20 | | 98.30 |
| Efficiency charge / discharge battery | % | 98.00 | | | | | | |
| **Security** | | **AF3K-THP** | **AF4K-THP** | **AF5K-THP** | **AF6K-THP** | **AF8K-THP** | **AF10K-THP** | **AF12K-THP** |
| Security against DC reverse polarity | - | Yes | | | | | | |
| Security overcurrent / overvoltage | - | Yes | | | | | | |
| Security before island work | - | Yes | | | | | | |
| Security against AC short circuit | - | Yes | | | | | | |
| Residual current detection | - | Yes | | | | | | |
| Earth fault monitoring | - | Yes | | | | | | |
| Network monitoring | - | Yes | | | | | | |
| Protection degree | - | IP65 | | | | | | |
| Surge protection (AC/DC) | - | Yes (type II / type II) | | | | | | |
| **General parameters** | | **AF3K-THP** | **AF4K-THP** | **AF5K-THP** | **AF6K-THP** | **AF8K-THP** | **AF10K-THP** | **AF12K-THP** |
| Dimensions (width x height x depth) | mm | 558 x 535 x 260 | | | | | | |
| Weight | kg | 29 | | | | | | |
| Topology | - | Transformerless | | | | | | |
| Cooling | - | Intelligent cooling | | | | | | |
| Humidity | % | 0 - 100 | | | | | | |
| Range working temperature | °C | -25 ~ 60 | | | | | | |
| Max. Operation Altitude | m | < 4000 | | | | | | |
| Noise level | dB | < 40 | | | | | | |
| Standby consumption | W | < 5 | | | | | | |
| Display & Communication | - | LCD, LED, RS485, WiFi, CAN, GPRS, 4G | | | | | | |
| Communication with RSD | - | SUNSPEC | | | | | | |
| **Certification** | | | | | | | | |
| NRS097, G98/G99, EN50549-1, NCRfG, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3 | | | | | | | | |

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl


# Three-phase hybrid inverter ATON 15-50 kW

## *Seria TH*

10 years

**WARRANTY**

10-year warranty
as standard

1.5x

**OVERSIZE**

Ability to oversize x 1.5

98.2

**HIGH EFFICIENCY**

98% charge and discharge efficiency

IP65

**PROTECTION RATING IP65**

High resistance to weather conditions

**UPS FUNCTION**

Transfer time < 10 ms

**UNBALANCE PHASE**

Supporting an uneven relationship

| Parameters input DC | | AF15K-TH | AF17K-TH | AF20K-TH | AF25K-TH | AF30K-TH | AF36K-TH | AF40K-TH | AF50K-TH |
|---|---|---|---|---|---|---|---|---|---|
| Max. power | kW | 22.5 | 25.5 | 30 | 37.5 | 45 | 54 | 60 | 75 |
| Max. voltage | V | 1000 | | | | | | | |
| Rated voltage | V | 620 | | | | | | | |
| Range voltage | V | 150 - 1000 | | | | | | | |
| Range voltage MPPT | V | 150 - 850 | | | | | | | |
| MPPT voltage range at full power | V | 500 - 850 | | | | | | | |
| Start voltage | V | 160 | | | | | | | |
| Max. current MPPT | A | 20 + 32 | 32 x 2 | | 40 x 2 | | 40 x 4 | | |
| Maximum short-circuit current MPPT | A | 30 + 48 | 48 x 2 | | 60 x 2 | | 48 x 4 | | |
| Number of MPPTS / Number of PV strings | - | 2 / 3 | 2 / 4 | | | | 4 / 8 | | |
| **Battery** | | **AF15K-TH** | **AF17K-TH** | **AF20K-TH** | **AF25K-TH** | **AF30K-TH** | **AF36K-TH** | **AF40K-TH** | **AF50K-TH** |
| Nominal voltage battery | V | 500 | 400 | 500 | | 550 | 500 | | |
| Battery range voltage | V | 150 - 800 | | | | | | | |
| Max. charge / discharge current | A | 50 | | | 60 | | 120 | | |
| Max. charge / discharge power | kW | 15 | 17 | 20 | 25 | 30 | 36 | 40 | 50 |
| Charging curve | - | 3 Stages | | | | | | | |
| Compatible battery types | - | Lithium / Lead-acid | | | | | | | |
| **Grid parameters AC (ONGRID)** | | **AF15K-TH** | **AF17K-TH** | **AF20K-TH** | **AF25K-TH** | **AF30K-TH** | **AF36K-TH** | **AF40K-TH** | **AF50K-TH** |
| Nominal power output | kVA | 15 | 17 | 20 | 25 | 30 | 36 | 40 | 50 |
| Max. power input / output | kVA | 22.5 / 16.5 | 25.5 / 18.7 | 30 / 22 | 37.5 / 27.5 | 45 / 33 | 72 / 39.6 | 80 / 44 | 100 / 55 |
| Max. current output | A | 27 | 30 | 32 | 40 | 48 | 60.06 | 66.77 | 83.38 |
| Nominal voltage | V | 230 / 400 | | | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | | | |
| Power factor | - | 1 (-0.8 -0.8) | | | | | | | |
| THD | % | < 3 | | | | | | | |
| **Output parameters AC (BACK-UP)** | | **AF15K-TH** | **AF17K-TH** | **AF20K-TH** | **AF25K-TH** | **AF30K-TH** | **AF36K-TH** | **AF40K-TH** | **AF50K-TH** |
| Nominal power | VA | 15000 | 17000 | 20000 | 25000 | 30000 | 36000 | 44000 | 55000 |
| Nominal voltage | V | 230 / 400 | | | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | | | |
| Nominal current | A | 21.8 | 24.7 | 29 | 36.3 | 43.5 | 52.2 | 58 | 72.5 |
| Maximum peak power (60 s) | VA, s | 16500 | 18700 | 22000 | 27500 | 33000 | 39600 | 44000 | 55000 |
| THDV (with linear load) | % | < 3 | | | | | | | |
| Switching time | s | < 0.01 | | | | | | | |
| **Efficiency** | | **AF15K-TH** | **AF17K-TH** | **AF20K-TH** | **AF25K-TH** | **AF30K-TH** | **AF36K-TH** | **AF40K-TH** | **AF50K-TH** |
| Efficiency EURO | % | 97.50 | 97.80 | | 98.00 | 98.10 | 98.20 | 98.30 | |
| Efficiency MAKS | % | 98.30 | 98.30 | | 98.50 | | 98.60 | | |
| Efficiency charge / discharge battery | % | 98.00 | 98.00 | | | | 99.00 | | |
| **Security** | | **AF15K-TH** | **AF17K-TH** | **AF20K-TH** | **AF25K-TH** | **AF30K-TH** | **AF36K-TH** | **AF40K-TH** | **AF50K-TH** |
| Security against DC reverse polarity | - | Yes | | | | | | | |
| Security overcurrent / overvoltage | - | Yes | | | | | | | |
| Security before island work | - | Yes | | | | | | | |
| Security against AC short circuit | - | Yes | | | | | | | |
| Residual current detection | - | Yes | | | | | | | |
| Earth fault monitoring | - | Yes | | | | | | | |
| Network monitoring | - | Yes | | | | | | | |
| Protection degree | - | IP65 | | | | | | | |
| Surge protection (AC/DC) | - | Yes (type II / type II) | | | | | | | |
| **General parameters** | | **AF15K-TH** | **AF17K-TH** | **AF20K-TH** | **AF25K-TH** | **AF30K-TH** | **AF36K-TH** | **AF40K-TH** | **AF50K-TH** |
| Dimensions (width x height x depth) | mm | 558 x 535 x 260 | | | | | 979 x 610 x 310 | | |
| Weight | kg | 29 | | | 36 | | 70 | | |
| Topology | - | Transformerless | | | | | | | |
| Cooling | - | Intelligent cooling | | | | | | | |
| Humidity | % | 0 - 100 | | | | | | | |
| Range working temperature | °C | -25 ~ 60 | | | | | | | |
| Max. Operation Altitude | m | < 4000 | | | | | | | |
| Noise level | dB | < 40 | | | | | < 60 | | |
| Standby consumption | W | < 5 | | | | | < 100 | | |
| Display & Communication | - | LCD, LED, RS485, WiFi, CAN, GPRS, 4G | | | | | | | |
| Communication with RSD | - | SUNSPEC | | | | | | | |

**Certification**

NRS097, G98/G99, EN50549-1, NCRfG, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl

# OPERATING MODES O

## AFORE INVERTERS

Afore hybrid inverters have several operating modes that maximize the current yields depending on the settings, quality of current production and energy access. In the event of a power outage, the inverter, thanks to variable operating modes, will allow for continuity of production and will not expose the user to its interruption. Optimizing the operation of the inverter is a milestone towards the goal of the most efficient use of available energy.

### SELF-USE MODE (Basic Mode, diagram 1.1)

The energy produced by the installation is first transferred to meet current consumption, and then to the battery. Excess energy is returned to the public grid. When the public grid is abnormal, the power transfer will be in grid off mode.

### (STABILIZATION OF POWER FROM THE NETWORK, diagram 1.2)

The energy produced by the installation is first used to meet current consumption. Surpluses are returned to the public grid with a constant value around the clock, e.g. 1 kWh. Excess energy is transferred to the battery.

### TIME MODE (diagram 2.1)

The energy produced by the installation is first used to meet current consumption. When the photovoltaic installation does not produce enough energy to supply the loads on an ongoing basis, the necessary power will be taken from the grid. This mode has the ability to set the power and time of supplying the current consumption from the battery and the ability to set the power and time of battery charging by the photovoltaic installation, as well as charging the battery from the network.

### PRIORITY SALE MODE (diagram 3.1)

The energy produced by the photovoltaic installation is first transferred to meet current consumption, and then it is sold to the grid. This mode allows you to set the maximum output power to the grid, after reaching which the surplus is transferred to the battery.

# F HYBRID INVERTERS

**Legend**

Current load

Power currently produced by PV

Grid output power limit

Current grid power

Loads powered by PV

Mains-powered loads

Battery powered loads

Energy fed into the grid

PV charges the battery

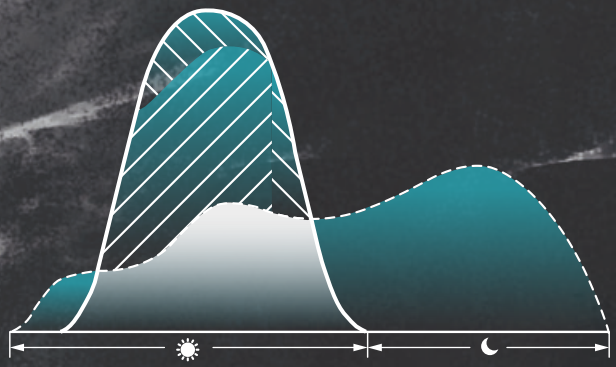


Diagram 1.1

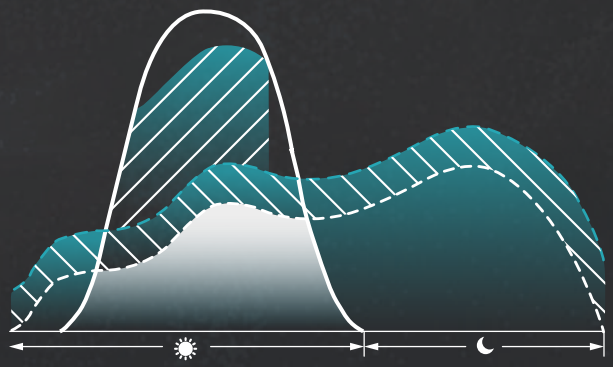


Diagram 1.2

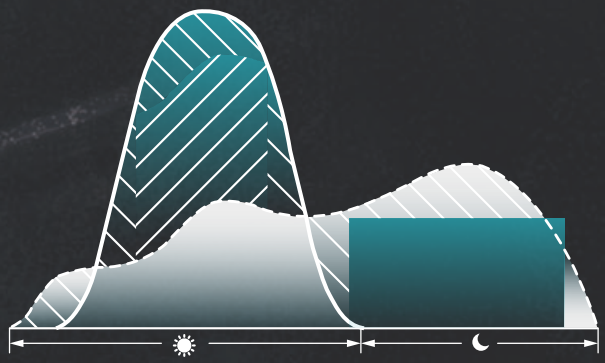


Diagram 2.1

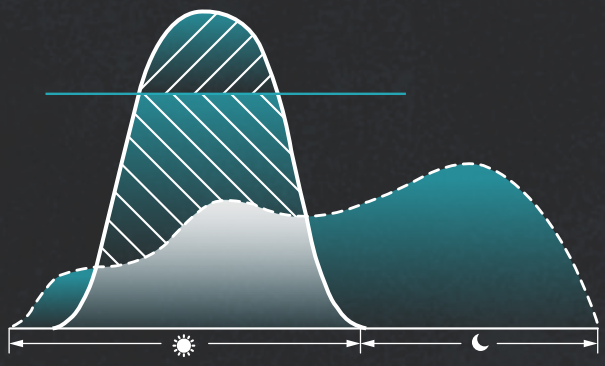


Diagram 3.1

# OPERATING MODES O

## AFORE INVERTERS

### FULL BATTERY MODE (diagram 4.1)

This mode works well for frequent power outages. The energy produced by the installation first supplies the battery, which is discharged only when the grid is turned off. When the photovoltaic installation does not produce enough energy to meet the current consumption, the power needed will be taken from the public grid.

### SAFE CHARGING MODE (diagram 5.1)

If a particular battery requires safe charging, this mode - in case of low voltage or SOC (battery level of charge) - will slowly charge the battery until it reaches a safe value. When the battery reaches a safe level, it will start charging in the standard way.

### OFF GRID MODE (diagram 6.1)

This mode will switch to off-grid mode in case of a shutdown or abnormal operation of the public grid. The energy produced by the installation powers the loads first and then the battery. When the photovoltaic installation does not produce enough energy to meet the current consumption, the power needed will be taken from the battery.

# F HYBRID INVERTERS

**Legend**

Current load

Power currently produced by PV

Grid output power limit

Current grid power

Loads powered by PV

Mains-powered loads

Battery powered loads

Energy fed into the grid

PV charges the battery

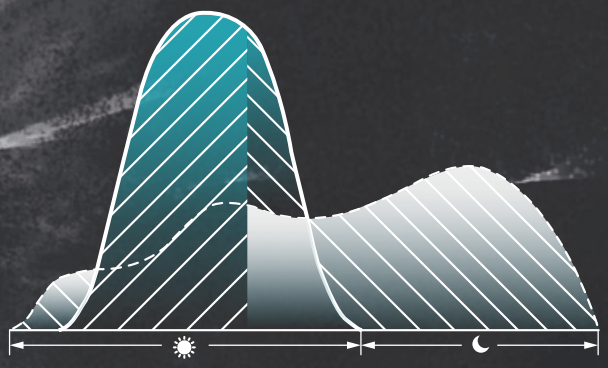


Diagram 4.1

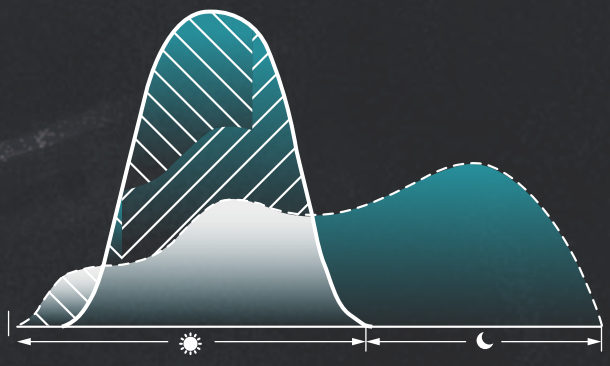


Diagram 5.1

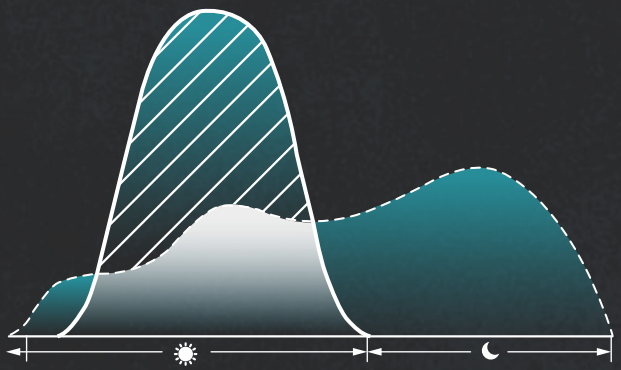


Diagram 6.1

Possibility of connecting the battery to the existing ON-GRID installation

# AC COUPLE

# 4-30kW


Afore
ATON
SERIES


# AC Couple single phase 4-6 kW

## *Seria SL*

**SMOOTH SWITCH**

Between the EPS and the grid

**MAXIMUM 80 A**

Charge and discharge current

**HIGH EFFICIENCY**

97.6% charge and discharge efficiency

**INTELLIGENT SOFTWARE**

Remote software update

**PROTECTION RATING IP65**

High resistance to weather conditions

**MODERN DESIGN**

New functional unibody

## What is AC Couple?

AC COUPLE is a device that looks like an inverter. It is an alternative solution for owners of grid inverters who have decided - additionally - to store surplus energy, and do not want to incur the costs of replacing the inverter with a hybrid one. The use of AC COUPLE in tandem with a grid inverter will allow you to enjoy the advantages of a hybrid installation, without having to invest in a hybrid inverter and - de facto - leaving the previously used on-grid inverter useless.

| **Battery** | | AF4K-SL-0 | AF4.6K-SL-0 | AF5K-SL-0 | AF6K-SL-0 |
|---|---|---|---|---|---|
| Max. charge / discharge power | kW | 4.0 | 4.6 | 5.0 | 6.0 |
| Max. charge / discharge current | A | 120 | | | |
| Nominal voltage | V | 51.2 | | | |
| Range voltage | V | 40 - 60 | | | |
| Compatible battery types | - | Lithium / Lead-acid | | | |
| **Grid parameters AC (ONGRID)** | | **AF4K-SL-0** | **AF4.6K-SL-0** | **AF5K-SL-0** | **AF6K-SL-0** |
| Max. current | A | 19.0 | 22.0 | 23.0 | 28.0 |
| Max. power | kVA | 4.0 | 4.6 | 5.0 | 6.0 |
| Nominal current | A | 18.2 / 17.4 | 21.0 / 20.0 | 22.8 / 21.8 | 41.0 / 39.2 |
| Nominal voltage | V | 220 / 230 | | | |
| Nominal frequency | Hz | 50 / 60 | | | |
| Power factory | - | 0.999 (-0.8 - 0.8) | | | |
| THD | % | < 3 | | | |
| **Output parameters AC (BACK-UP)** | | **AF4K-SL-0** | **AF4.6K-SL-0** | **AF5K-SL-0** | **AF6K-SL-0** |
| Max. current | A | 19 | 22 | 23 | 28 |
| Max. power | kVA | 4.0 | 4.6 | 5.0 | 6.0 |
| Maximum peak current | A | 27.3 / 26.1 | 31.4 / 30.0 | 34.1 / 32.7 | 41.0 / 39.2 |
| Maximum peak power | kVA | 6.0 | 6.9 | 7.5 | 9.0 |
| Nominal voltage | V | 220 / 230 | | | |
| Nominal frequency | Hz | 50 / 60 | | | |
| Switching time | s | Seamless | | | |
| THD | % | < 3 | | | |
| **Efficiency** | | **AF4K-SL-0** | **AF4.6K-SL-0** | **AF5K-SL-0** | **AF6K-SL-0** |
| Efficiency MAKS | % | 97.60 | | | |
| AC power efficiency from batteries | % | 96.80 | | | |
| **Security** | | **AF4K-SL-0** | **AF4.6K-SL-0** | **AF5K-SL-0** | **AF6K-SL-0** |
| Security overcurrent / overvoltage | - | Yes | | | |
| Security before island work | - | Yes | | | |
| Security against AC short circuit | - | Yes | | | |
| Residual current detection | - | Yes | | | |
| Earth fault monitoring | - | Yes | | | |
| Insulation resistance detection | - | Yes | | | |
| Protection degree | - | IP65 / NEMA4X | | | |
| **General parameters** | | **AF4K-SL-0** | **AF4.6K-SL-0** | **AF5K-SL-0** | **AF6K-SL-0** |
| Dimensions (width x height x depth) | mm | 370 x 535 x 192 | | | |
| Weight | kg | 20.5 | | | |
| Topology | - | Transformerless | | | |
| Cooling | - | Intelligent cooling | | | |
| Humidity | % | 0 - 100 | | | |
| Range working temperature | °C | -25 ~ 60 | | | |
| Max. Operation Altitude | m | < 4000 | | | |
| Noise level | dB | < 25 | | | |
| Standby consumption | W | < 10 | | | |
| Installation | - | Wall mount | | | |
| Communication with RSD | - | SUNSPEC | | | |
| Display & Communication | - | LCD, LED, RS485, Wi-Fi, CAN, GPRS, 4G | | | |
| **Certification** | | | | | |
| NRS97, G98/G99, EN50549-1, C10/C11, AS 4777, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3 | | | | | |

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl


# AC Couple three phase 3-12 kW

## *Seria TH*

**SMOOTH SWITCH**

Between the EPS and the grid

**MAXIMUM 80 A**

Charge and discharge current

**HIGH EFFICIENCY**

97.6% charge and discharge efficiency

**INTELLIGENT SOFTWARE**

Remote software update

**PROTECTION RATING IP65**

High resistance to weather conditions

**MODERN DESIGN**

New functional unibody

## What is AC Couple?

AC COUPLE is a device that looks like an inverter. It is an alternative solution for owners of grid inverters who have decided - additionally - to store surplus energy, and do not want to incur the costs of replacing the inverter with a hybrid one. The use of AC COUPLE in tandem with a grid inverter will allow you to enjoy the advantages of a hybrid installation, without having to invest in a hybrid inverter and - de facto - leaving the previously used on-grid inverter useless.

| **Battery** | | AF3K-TH-0 | AF4K-TH-0 | AF5K-TH-0 | AF6K-TH-0 | AF8K-TH-0 | AF10K-TH-0 | AF12K-TH-0 |
|---|---|---|---|---|---|---|---|---|
| Nominal voltage | V | 200 | | | 250 | 300 | 400 | 450 |
| Range voltage | V | 150 - 800 | | | | | | |
| Max. charge / discharge current | A | 30 | | | | | | |
| Max. charge / discharge power | kW | 3 / 3.3 | 4 / 4.4 | 5 / 5.5 | 6 / 6.6 | 8 / 8.8 | 10 / 11 | 12 / 13.2 |
| Charging curve | - | 3 Stages | | | | | | |
| Compatible battery types | - | Lead-acid, Lithium-ion, Sodium-chloride | | | | | | |
| **Grid parameters AC (ONGRID)** | | AF3K-TH-0 | AF4K-TH-0 | AF5K-TH-0 | AF6K-TH-0 | AF8K-TH-0 | AF10K-TH-0 | AF12K-TH-0 |
| Nominal output power | kW | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
| Max. input power | kVA | 4.5 / 3 | 6 / 4 | 7.5 / 5 | 9 / 6 | 12 / 8 | 15 / 10 | 18 / 12 |
| Max. output current | A | 5.3 | 7 | 8.5 | 10.5 | 13.5 | 17 | 21.5 |
| Nominal voltage | V | 230 / 400 | | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | | |
| Power factor | - | 1 (-0.8 - 0.8) | | | | | | |
| THD | % | < 3 | | | | | | |
| **Output parameters AC (BACK-UP)** | | AF3K-TH-0 | AF4K-TH-0 | AF5K-TH-0 | AF6K-TH-0 | AF8K-TH-0 | AF10K-TH-0 | AF12K-TH-0 |
| Nominal power | VA | 3000 | 4000 | 5000 | 6000 | 8000 | 10000 | 12000 |
| Nominal voltage | V | 230 / 400 | | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | | |
| Nominal current | A | 4.4 | 5.8 | 7.3 | 8.7 | 11.6 | 14.5 | 17.4 |
| Maximum peak power (60s) | - | 3300 | 4400 | 5500 | 6600 | 8800 | 11000 | 13200 |
| THDV (with linear load) | % | < 3 | | | | | | |
| Switching time | ms | < 10 | | | | | | |
| **Efficiency** | | AF3K-TH-0 | AF4K-TH-0 | AF5K-TH-0 | AF6K-TH-0 | AF8K-TH-0 | AF10K-TH-0 | AF12K-TH-0 |
| Efficiency MAKS | % | 98.00 | | | | 98.20 | | 98.30 |
| **Security** | | AF3K-TH-0 | AF4K-TH-0 | AF5K-TH-0 | AF6K-TH-0 | AF8K-TH-0 | AF10K-TH-0 | AF12K-TH-0 |
| Security against DC reverse polarity | - | Yes | | | | | | |
| Security overcurrent / overvoltage | - | Yes | | | | | | |
| Security before island work | - | Yes | | | | | | |
| Security against AC short circuit | - | Yes | | | | | | |
| Residual current detection | - | Yes | | | | | | |
| Earth fault monitoring | - | Yes | | | | | | |
| Network monitoring | - | Yes | | | | | | |
| Protection degree | - | IP65 | | | | | | |
| Protection class | - | Class I | | | | | | |
| Overvoltage category | - | OVC III (Main AC) | | | | | | |
| **General parameters** | | AF3K-TH-0 | AF4K-TH-0 | AF5K-TH-0 | AF6K-TH-0 | AF8K-TH-0 | AF10K-TH-0 | AF12K-TH-0 |
| Dimensions (width x height x depth) | mm | 370 x 497 x 192 | | | | | | |
| Weight | kg | 20.8 | | | | | | |
| Topology | - | Transformerless | | | | | | |
| Cooling | - | Natural convection | | | | Intelligent cooling | | |
| Humidity | % | 0 - 100 | | | | | | |
| Range working temperature | °C | -25 ~ 60 | | | | | | |
| Max. operation altitude | m | < 4000 | | | | | | |
| Noise level | dB | < 40 | | | | | | |
| Standby consumption | W | < 5 | | | | | | |
| Display & Communication | - | LCD, LED, RS485, Wi-Fi, CAN, GPRS, 4G | | | | | | |
| **Certification** | | | | | | | | |
| NRS97, G98/G99, EN50549-1, C10/C11, AS 4777, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3 | | | | | | | | |

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl


# AC Couple three phase 15-30 kW

## *Seria TH*

**SMOOTH SWITCH**

Between the EPS and the grid

**MAXIMUM 80 A**

Charge and discharge current

**HIGH EFFICIENCY**

97.6% charge and discharge efficiency

**INTELLIGENT SOFTWARE**

Remote software update

**PROTECTION RATING IP65**

High resistance to weather conditions

**MODERN DESIGN**

New functional unibody

## What is AC Couple?

AC COUPLE is a device that looks like an inverter. It is an alternative solution for owners of grid inverters who have decided - additionally - to store surplus energy, and do not want to incur the costs of replacing the inverter with a hybrid one. The use of AC COUPLE in tandem with a grid inverter will allow you to enjoy the advantages of a hybrid installation, without having to invest in a hybrid inverter and - de facto - leaving the previously used on-grid inverter useless.

| **Battery** | | AF15K-TH-0 | AF17K-TH-0 | AF20K-TH-0 | AF25K-TH-0 | AF30K-TH-0 |
|---|---|---|---|---|---|---|
| Nominal voltage | V | 500 | | | | 550 |
| Range voltage | V | 150 - 800 | | | | |
| Max charge / discharge current | A | 50 | | | 60 | |
| Max. charge / discharge power | kW | 15 / 16.5 | 17 / 18.7 | 20 / 22 | 25 / 27.5 | 30 / 33 |
| Charging curve | - | 3 Stages | | | | |
| Compatible battery types | - | Lead-acid, Lithium-ion, Sodium-chloride | | | | |
| **Grid parameters AC (ONGRID)** | | **AF15K-TH-0** | **AF17K-TH-0** | **AF20K-TH-0** | **AF25K-TH-0** | **AF30K-TH-0** |
| Nominal output power | kW | 15 | 17 | 20 | 25 | 30 |
| Max. input power | kVA | 22.5 / 15 | 25.5 / 17 | 30 / 20 | 37.5 / 25 | 45 / 30 |
| Max. output current | A | 27 | 30 | 32 | 40 | 48 |
| Nominal voltage | V | 230 / 400 | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | |
| Power factor | - | 1 (-0.8 - 0.8) | | | | |
| THD | % | < 3 | | | | |
| **Output parameters AC (BACK-UP)** | | **AF15K-TH-0** | **AF17K-TH-0** | **AF20K-TH-0** | **AF25K-TH-0** | **AF30K-TH-0** |
| Nominal power | VA | 15000 | 17000 | 20000 | 25000 | 30000 |
| Nominal voltage | V | 230 / 400 | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | |
| Nominal current | A | 21.8 | 24.8 | 29 | 36.3 | 43.5 |
| Maximum peak power (60s) | - | 16500 | 18700 | 22000 | 27500 | 33000 |
| THDV (with linear load) | % | < 3 | | | | |
| Switching time | ms | < 10 | | | | |
| **Efficiency** | | **AF15K-TH-0** | **AF17K-TH-0** | **AF20K-TH-0** | **AF25K-TH-0** | **AF30K-TH-0** |
| Efficiency MAKS | % | 98.30 | | | 98.50 | |
| **Security** | | **AF15K-TH-0** | **AF17K-TH-0** | **AF20K-TH-0** | **AF25K-TH-0** | **AF30K-TH-0** |
| Security against DC reverse polarity | - | Yes | | | | |
| Security overcurrent / overvoltage | - | Yes | | | | |
| Security before island work | - | Yes | | | | |
| Security against AC short circuit | - | Yes | | | | |
| Residual current detection | - | Yes | | | | |
| Earth fault monitoring | - | Yes | | | | |
| Network monitoring | - | Yes | | | | |
| Protection degree | - | IP65 | | | | |
| Protection class | - | Class I | | | | |
| Overvoltage category | - | OVC III (Main AC) | | | | |
| **General parameters** | | **AF15K-TH-0** | **AF17K-TH-0** | **AF20K-TH-0** | **AF25K-TH-0** | **AF30K-TH-0** |
| Dimensions (width x height x depth) | mm | 558 x 535 x 260 | | | | |
| Weight | kg | 29 | | | 36 | |
| Topology | - | Transformerless | | | | |
| Cooling | - | Intelligent cooling | | | | |
| Humidity | % | 0 - 100 | | | | |
| Range working temperature | °C | -25 ~ 60 | | | | |
| Max. operation altitude | m | < 4000 | | | | |
| Noise level | dB | < 40 | | | | |
| Standby consumption | W | < 5 | | | | |
| Display & Communication | - | LCD, LED, RS485, Wi-Fi, CAN, GPRS, 4G | | | | |
| **Certification** | | | | | | |
| NRS97, G98/G99, EN50549-1, C10/C11, AS 4777, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3 | | | | | | |

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl


# AC Couple three phase 3-12 kW

## *Seria THP*

**SMOOTH SWITCH**

Between the EPS and the grid

**MAXIMUM 80 A**

Charge and discharge current

**HIGH EFFICIENCY**

97.6% charge and discharge efficiency

**INTELLIGENT SOFTWARE**

Remote software update

**PROTECTION RATING IP65**

High resistance to weather conditions

**MODERN DESIGN**

New functional unibody

## What is AC Couple?

AC COUPLE is a device that looks like an inverter. It is an alternative solution for owners of grid inverters who have decided - additionally - to store surplus energy, and do not want to incur the costs of replacing the inverter with a hybrid one. The use of AC COUPLE in tandem with a grid inverter will allow you to enjoy the advantages of a hybrid installation, without having to invest in a hybrid inverter and - de facto - leaving the previously used on-grid inverter useless.

| **Battery** | | AF3K-THP-0 | AF4K-THP-0 | AF5K-THP-0 | AF6K-THP-0 | AF8K-THP-0 | AF10K-THP-0 | AF12K-THP-0 |
|---|---|---|---|---|---|---|---|---|
| Nominal voltage | V | 100 | | | 150 | 200 | 250 | 300 |
| Range voltage | V | 80 - 600 | | | | | 120 - 650 | |
| Max. charge / discharge current | A | 50 | | | | | | |
| Max. charge / discharge power | kW | 3 / 3.3 | 4 / 4.4 | 5 / 5.5 | 6 / 6.6 | 8 / 8.8 | 10 / 11 | 12 / 13.2 |
| Charging curve | - | 3 Stages | | | | | | |
| Compatible battery types | - | Lead-acid, Lithium-ion, Sodium-chloride | | | | | | |
| **Grid parameters AC (ONGRID)** | | AF3K-THP-0 | AF4K-THP-0 | AF5K-THP-0 | AF6K-THP-0 | AF8K-THP-0 | AF10K-THP-0 | AF12K-THP-0 |
| Nominal output power | kW | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
| Max. input power AC | kVA | 4.5 / 3 | 6 / 4 | 7.5 / 5 | 9 / 6 | 12 / 8 | 15 / 10 | 18 / 12 |
| Max. output current AC | A | 5.3 | 7 | 8.5 | 10.5 | 13.5 | 17 | 21.5 |
| Nominal voltage | V | 230 / 400 | | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | | |
| Power factor | - | 1 (-0.8 - 0.8) | | | | | | |
| THD | % | < 3 | | | | | | |
| **Output parameters AC (BACK-UP)** | | AF3K-THP-0 | AF4K-THP-0 | AF5K-THP-0 | AF6K-THP-0 | AF8K-THP-0 | AF10K-THP-0 | AF12K-THP-0 |
| Nominal power | VA | 3000 | 4000 | 5000 | 6000 | 8000 | 10000 | 12000 |
| Nominal voltage | V | 230 / 400 | | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | | |
| Nominal current | A | 4.4 | 5.8 | 7.3 | 8.7 | 11.6 | 14.5 | 17.4 |
| Maximum peak power (60s) | - | 3300 | 4400 | 5500 | 6600 | 8800 | 11000 | 13200 |
| THDV (with linear load) | % | < 3 | | | | | | |
| Switching time | ms | < 10 | | | | | | |
| **Efficiency** | | AF3K-THP-0 | AF4K-THP-0 | AF5K-THP-0 | AF6K-THP-0 | AF8K-THP-0 | AF10K-THP-0 | AF12K-THP-0 |
| Efficiency MAKS | % | 98.00 | | | | 98.20 | | 98.30 |
| **Security** | | AF3K-THP-0 | AF4K-THP-0 | AF5K-THP-0 | AF6K-THP-0 | AF8K-THP-0 | AF10K-THP-0 | AF12K-THP-0 |
| Security against DC reverse polarity | - | Yes | | | | | | |
| Security overcurrent / overvoltage | - | Yes | | | | | | |
| Security before island work | - | Yes | | | | | | |
| Security against AC short circuit | - | Yes | | | | | | |
| Residual current detection | - | Yes | | | | | | |
| Earth fault monitoring | - | Yes | | | | | | |
| Network monitoring | - | Yes | | | | | | |
| Protection degree | - | IP65 | | | | | | |
| Protection class | - | Class I | | | | | | |
| Overvoltage category | - | OVC III (Main AC) | | | | | | |
| **General parameters** | | AF3K-THP-0 | AF4K-THP-0 | AF5K-THP-0 | AF6K-THP-0 | AF8K-THP-0 | AF10K-THP-0 | AF12K-THP-0 |
| Dimensions (width x height x depth) | mm | 558 x 535 x 260 | | | | | | |
| Weight | kg | 29 | | | | | | |
| Topology | - | Transformerless | | | | | | |
| Cooling | - | Intelligent cooling | | | | | | |
| Humidity | % | 0 - 100 | | | | | | |
| Range working temperature | °C | -25 ~ 60 | | | | | | |
| Max. operation altitude | m | < 4000 | | | | | | |
| Noise level | dB | < 40 | | | | | | |
| Standby consumption | W | < 5 | | | | | | |
| Display & Communication | - | LCD, LED, RS485, Wi-Fi, CAN, GPRS, 4G | | | | | | |
| **Certification** | | | | | | | | |
| NRS97, G98/G99, EN50549-1, C10/C11, AS 4777, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3 | | | | | | | | |

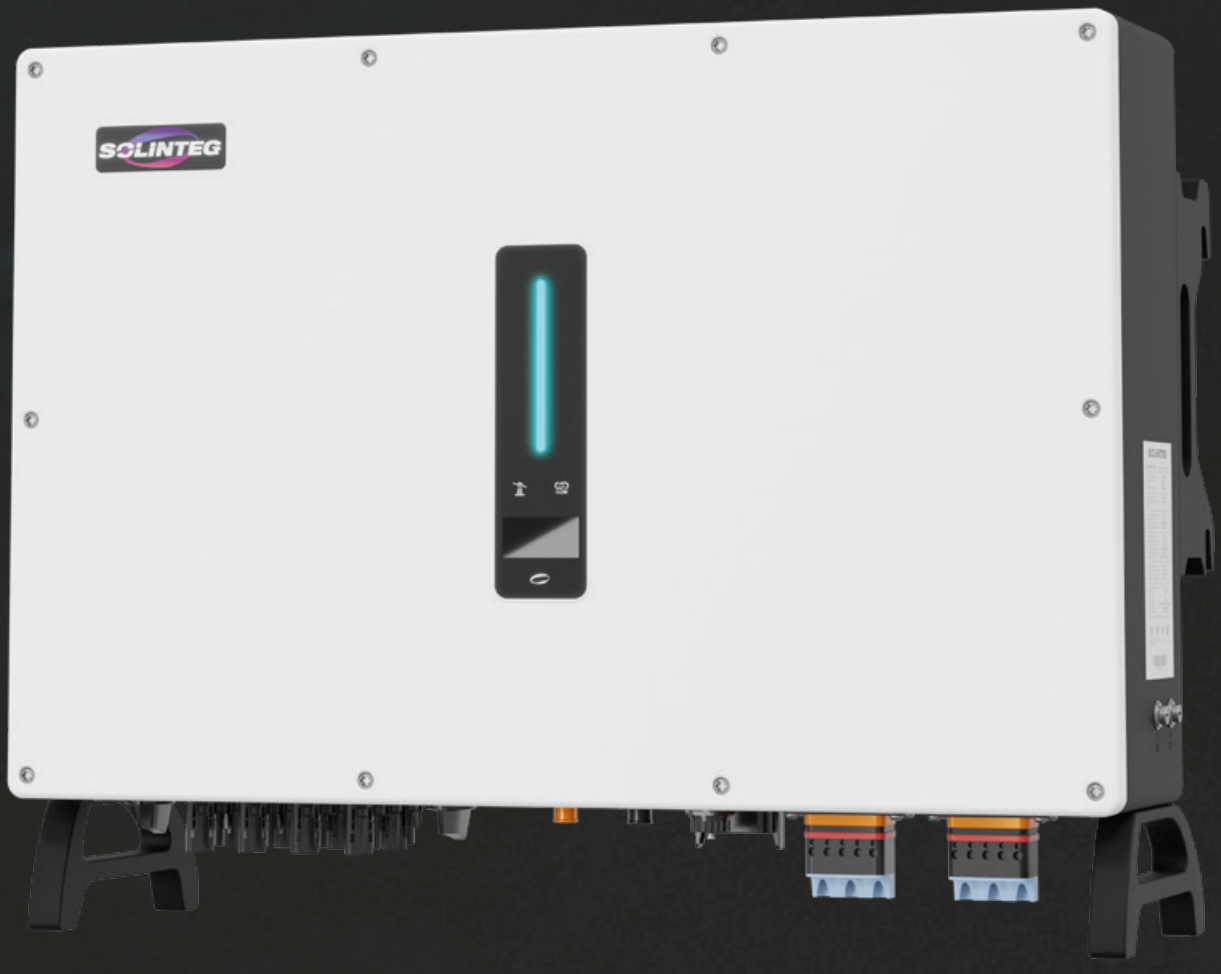
* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl

# HYBRID INVERTER

## SOLINTEG

# 4-20kW


SOLINTEG


SOLINTEG


# Three-phase hybrid inverter SOLINTEG 4-12 kW

**WARRANTY**

5-year warranty as standard

**200% POWER FOR 60S**

Prevention of inverter overload when starting devices

**LOW START VOLTAGE**

Voltage excitation at 135V

**HIGH EFFICIENCY**

98.2% charge and discharge efficiency

**UNBALANCE PHASE**

Supporting an uneven load of 110%

**PARALLEL WORK**

Possibility of parallel operation of 10 devices

**„BREATHING" LIGHT**

Simply displays the current status of the device

**Current 25A**

| Electrical parameters | | MHT-4K-25 | MHT-5K-25 | MHT-6K-25 | MHT-8K-25 | MHT-10K-25 | MHT-12K-25 |
|---|---|---|---|---|---|---|---|
| Max. power | kW | 6.0 | 7.5 | 9.0 | 12.0 | 15.0 | 18.0 |
| Start voltage | V | 135 | | | | | |
| Max. input voltage DC | V | 1000 | | | | | |
| Nominal input voltage[2] | V | 620 | | | | | |
| Range voltage MPPT[3] | V | 120 - 950 | | | 200 - 950 | | |
| Number MPPT | - | 2 | | | | | |
| Number of MPPT inputs | pcs. | 1 / 1 | | | | | |
| Max. input current | A | 15 x 2 | | | | | |
| Max. short-circuit current | A | 20 x 2 | | | | | |
| **Battery** | | **MHT-4K-25** | **MHT-5K-25** | **MHT-6K-25** | **MHT-8K-25** | **MHT-10K-25** | **MHT-12K-25** |
| Battery voltage range | V | 135 - 750 | | | | | |
| Max. charge / discharge current | A | 25 / 25 | | | | | |
| Battery type | - | Lithum (BMS) | | | | | |
| **Grid** | | **MHT-4K-25** | **MHT-5K-25** | **MHT-6K-25** | **MHT-8K-25** | **MHT-10K-25** | **MHT-12K-25** |
| Nominal output power | kW | 4.0 | 5.0 | 6.0 | 8.0 | 10.0 | 12.0 |
| Max. apparent output power | kVA | 4.4 | 5.5 | 6.6 | 8.8 | 11.0 | 13.2 |
| Max apparent input power[4] | kVA | 8.0 | 10.0 | 12.0 | 16.0 | 16.5 | |
| Max. battery charging power | kW | 4.0 | 5.0 | 6.0 | 8.0 | 10.0 | 12.0 |
| Nominal voltage | V | 3L / N / PE220 / 380 ; 230 / 400 ; 240 / 415 | | | | | |
| Nominal frequency | Hz | 50 / 60 | | | | | |
| Max. input current | A | 6.7 | 8.3 | 10.0 | 13.3 | 16.5 | 20.0 |
| Power factor | % | 1 (-0.8 / +0.8) | | | | | |
| THD | % | < 3 | | | | | |
| DCI | % | < 0.5 | | | | | |
| **Back-up power** | | **MHT-4K-25** | **MHT-5K-25** | **MHT-6K-25** | **MHT-8K-25** | **MHT-10K-25** | **MHT-12K-25** |
| Nominal output power | kW | 4.0 | 5.0 | 6.0 | 8.0 | 10.0 | 12.0 |
| Max. apparent power output | kVA | 4.4 | 5.5 | 6.6. | 8.8 | 11.0 | 13.2 |
| Max. output current | A | 6.7 | 8.3 | 10.0 | 13.3 | 16.5 | 20.0 |
| Switching time | ms | < 10 | | | | | |
| Nominal output voltage | V | 3 / N / PE ; 220 / 380 ; 230 / 400 ; 240 / 415 | | | | | |
| Nominal output frequency | Hz | 50 / 60 | | | | | |
| Peak output power[5] | kVA / s | 8, 60 | 10, 60 | 12, 60 | 16, 60 | 20, 60 | 20, 60 |
| THD | % | **< 3** | | | | | |
| **Efficiency** | | **MHT-4K-25** | **MHT-5K-25** | **MHT-6K-25** | **MHT-8K-25** | **MHT-10K-25** | **MHT-12K-25** |
| Max. efficiency | % | 98.1 | | | 98.2 | | |
| Efficiency EURO | % | 97.3 | | | 97.4 | | |
| **Protection** | | **MHT-4K-25** | **MHT-5K-25** | **MHT-6K-25** | **MHT-8K-25** | **MHT-10K-25** | **MHT-12K-25** |
| DC reverse polarity protection | - | Yes | | | | | |
| Battery input reverse connection protection | - | Yes | | | | | |
| Insulation resistance protection | - | Yes | | | | | |
| Surge protection | - | Yes | | | | | |
| Over-temperature protection | - | Yes | | | | | |
| Residual current protection | - | Yes | | | | | |
| Islanding protection | - | Yes | | | | | |
| AC over-voltage protection | - | Yes | | | | | |
| Overload protection | - | Yes | | | | | |
| AC short-circuit protection | - | Yes | | | | | |
| Over voltage category | - | PV II ; AC III | | | | | |
| **General parameters** | | **MHT-4K-25** | **MHT-5K-25** | **MHT-6K-25** | **MHT-8K-25** | **MHT-10K-25** | **MHT-12K-25** |
| Dimensions (width x height x depth) | mm | 534 x 418 x 210 | | | | | |
| Weight | kg | 26.0 | | | | | |
| Warranty | - | 5 years | | | | | |
| Protection rating | - | IP65 | | | | | |
| Standby Self-consumption | W | < 15 | | | | | |
| Topology | - | Transformerless | | | | | |
| Operating temperature range | °C | -30 ~ +60 | | | | | |
| Humidity | % | 0 ~ 100 | | | | | |
| Altitude | m | 3000 (power derating > 3000m) | | | | | |
| Cooling | - | Natural convection | | | | | |
| Noise level | dB | < 25 | | | | | |
| Display | - | OLED & LED | | | | | |
| Communication | - | CAN, RS485, WiFi / LAN (Optional) | | | | | |
| **Certification** | | | | | | | |
| IEC/EN 62109, IEC/EN 61000, EN50549-1, TOR generator type A, VDE-AR-N-4105 | | | | | | | |

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl.

[2] Max. operating DC voltage is 950V, max. withstanding DC voltage is 1000V.

[3] The maximum MPPT voltage and operating voltage upper limit will be reduced to 900 V when inverter connects and works with battery.

[4] Max apparent power from the grid means the maximum power imported from the utility grid used to satisfy the backup loads and charge the battery.

[5] The output power will exceed the rated value only when the power in the PV array is sufficient, and the duration of the overload is related to the overload power.


# Three-phase hybrid inverter SOLINTEG 10-20 kW

**WARRANTY**

5-year warranty as standard

**200% POWER FOR 60S**

Prevention of inverter overload when starting devices

**LOW START VOLTAGE**

Voltage excitation at 135V

**HIGH EFFICIENCY**

98.4% charge and discharge efficiency

**UNBALANCE PHASE**

Supporting an uneven load of 110%

**PARALLEL WORK**

Possibility of parallel operation of 10 devices

**„BREATHING" LIGHT**

Simply displays the current status of the device

**Current 40A**

| Electrical parameters | | MHT-10K-40 | MHT-12K-40 | MHT-15K-40 | MHT-20K-40 |
|---|---|---|---|---|---|
| Max. power | kW | 15.0 | 18.0 | 22.5 | 30.0 |
| Start voltage | V | 135 | | | |
| Max. input voltage DC | V | 1000 | | | |
| Nominal input voltage[2] | V | 620 | | | |
| Range voltage MPPT[3] | V | 200 - 950 | | | |
| Number MPPT | - | 2 | | | |
| Number of MPPT inputs | pcs. | 2 / 2 | | | |
| Max. input current | A | 30 x 2 | | | |
| Max. short-circuit current | A | 40 x 2 | | | |
| **Battery** | | **MHT-10K-40** | **MHT-12K-40** | **MHT-15K-40** | **MHT-20K-40** |
| Battery voltage range | V | 135 - 850 | | | |
| Max. charge / discharge current | A | 40 / 40 | | | |
| Battery type | - | Lithum (BMS) | | | |
| **Grid** | | **MHT-10K-40** | **MHT-12K-40** | **MHT-15K-40** | **MHT-20K-40** |
| Nominal output power | kW | 10.0 | 12.0 | 15.0 | 20.0 |
| Max. apparent output power | kVA | 11.0 | 13.2 | 16.5 / 15.0[1)] | 22.0 |
| Max apparent input power[4] | kVA | 20.0 | 24.0 | 30.0 | 30.0 |
| Max. battery charging power | kW | 10.0 | 12.0 | 15.0 | 20.0 |
| Nominal voltage | V | 3L / N / PE220 / 380 ; 230 / 400 ; 240 / 415 | | | |
| Nominal frequency | Hz | 50 / 60 | | | |
| Max. input current | A | 16.5 | 20.0 | 25.0 / 21.7[2)] | 33.5 |
| Power factor | % | 1 (-0.8 / +0.8) | | | |
| THD | % | < 3 | | | |
| DCI | % | < 0.5 | | | |
| **Back-up power** | | **MHT-10K-40** | **MHT-12K-40** | **MHT-15K-40** | **MHT-20K-40** |
| Nominal output power | kW | 10.0 | 12.0 | 15.0 | 20.0 |
| Max. apparent power output | kVA | 11.0 | 13.2 | 16.5 | 22.0 |
| Max. output current | A | 16.5 | 20.0 | 25.0 | 33.5 |
| Switching time | ms | < 10 | | | |
| Nominal output voltage | V | 3 / N / PE ; 220 / 380 ; 230 / 400 ; 240 / 415 | | | |
| Nominal output frequency | Hz | 50 / 60 | | | |
| Peak output power[5] | kVA / s | 20, 60 | | 25 , 60 | |
| THD | % | **< 3** | | | |
| **Efficiency** | | **MHT-10K-40** | **MHT-12K-40** | **MHT-15K-40** | **MHT-20K-40** |
| Max. efficiency | % | 98.4 | | | |
| Efficiency EURO | % | 97.5 | | | |
| **Protection** | | **MHT-10K-40** | **MHT-12K-40** | **MHT-15K-40** | **MHT-20K-40** |
| DC reverse polarity protection | - | Yes | | | |
| Battery input reverse connection protection | - | Yes | | | |
| Insulation resistance protection | - | Yes | | | |
| Surge protection | - | Yes | | | |
| Over-temperature protection | - | Yes | | | |
| Residual current protection | - | Yes | | | |
| Islanding protection | - | Yes | | | |
| AC over-voltage protection | - | Yes | | | |
| Overload protection | - | Yes | | | |
| AC short-circuit protection | - | Yes | | | |
| Over voltage category | - | PV II ; AC III | | | |
| **General parameters** | | **MHT-10K-40** | **MHT-12K-40** | **MHT-15K-40** | **MHT-20K-40** |
| Dimensions (width x height x depth) | mm | 534 x 418 x 210 | | | |
| Weight | kg | 28 | | 31 | |
| Warranty | - | 5 years | | | |
| Protection rating | - | IP65 | | | |
| Standby Self-consumption | W | < 15 | | | |
| Topology | - | Transformerless | | | |
| Operating temperature range | °C | -30 ~ +60 | | | |
| Humidity | % | 0 ~ 100 | | | |
| Altitude | m | 3000 (power derating > 3000m) | | | |
| Cooling | - | Intelligent cooling | | | |
| Noise level | dB | < 40 | | | |
| Display | - | OLED & LED | | | |
| Communication | - | CAN, RS485, WiFi / LAN (Optional) | | | |
| **Certification** | | | | | |
| IEC/EN 62109, IEC/EN 61000, EN50549-1, TOR generator type A, VDE-AR-N-4105 | | | | | |

* The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl.
[2] Max. operating DC voltage is 950V, max. withstanding DC voltage is 1000V.
[3]The maximum MPPT voltage and operating voltage upper limit will be reduced to 900 V when inverter connects and works with battery.
[4] Max apparent power from the grid means the maximum power imported from the utility grid used to satisfy the backup loads and charge the battery.
[5] The output power will exceed the rated value only when the power in the PV array is sufficient, and the duration of the overload is related to the overload power.
1) AS 4777.2: 15.0kVA; 2) AS 4777.2: 21.7A

# OPERATING MODES O

## SOLINTEG INVERTERS

### GENERAL MODE

**PRODUCTION > CONSUMPTION** (diagram 7.1)
If the photovoltaic installation generates enough power to cover the current load, then the energy goes first to the load, and its surplus to the energy storage or the power grid, respectively.

PRODUCTION < CONSUMPTION (diagram 7.2)
If the currently generated power is not sufficient to cover the current consumption, the deficit is supplemented successively from: energy storage >> power grid.

### PEAK LOAD SHIFTING MODE

LOAD ≤ **GRID** (diagram 8.1)
If the power of the receivers is lower than the power of the set grid, the PV energy first charges the batteries, while the receivers are powered from the grid. When the battery is charged, the energy from the PV installation together with the grid supplies the receivers.

**LOAD** ≥ GRID (diagram 8.2)
If the power of the receivers is lower than the power of the set grid, the PV energy first charges the batteries, while the receivers are powered from the grid. When the battery is charged, the energy from the PV installation together with the grid supplies the receivers.

### ECONOMY MODE

BATTERY CHARGING MODE (diagram 9.1)
This mode allows you to optimize electricity costs for tariffs available in your country. Allows timed charging of the battery from the grid or PV.

BATTERY DISCHARGE MODE (diagram 9.2)
At certain times, e.g. at the time of high electricity price tariff, energy from the energy storage will power the loads of devices or may be resold to the grid.

# F HYBRID INVERTERS

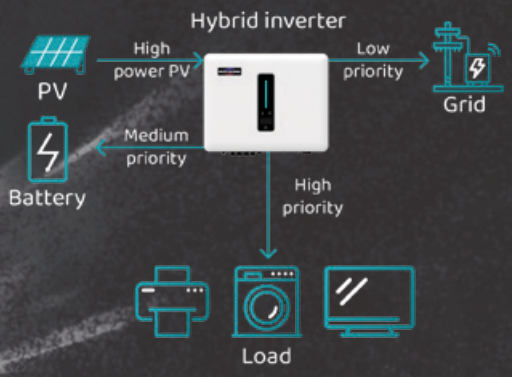



Diagram 7.1

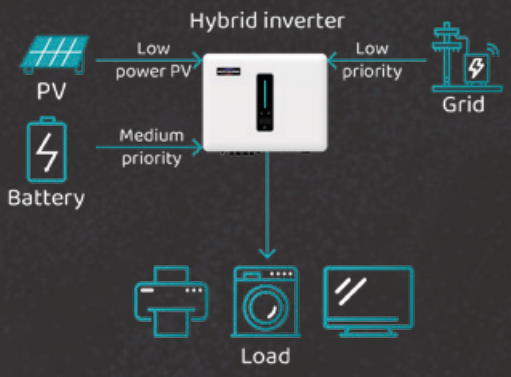



Diagram 7.2

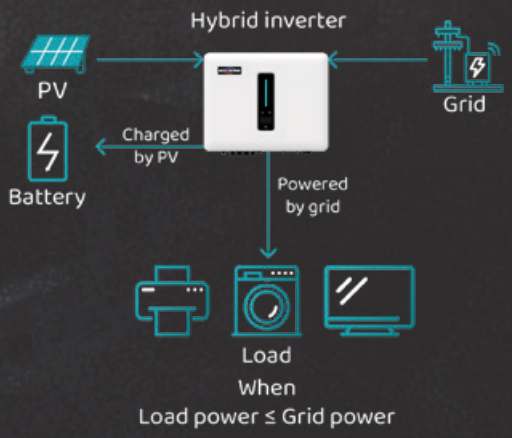



Diagram 8.1

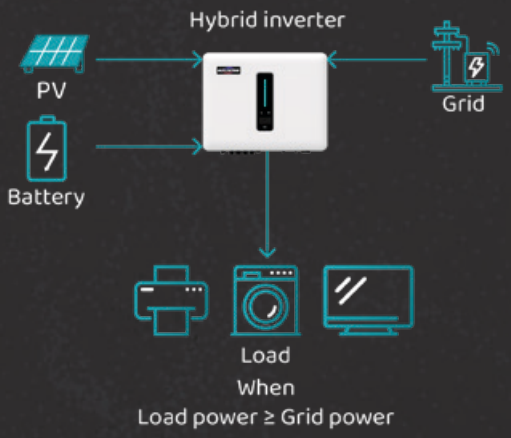



Diagram 8.2

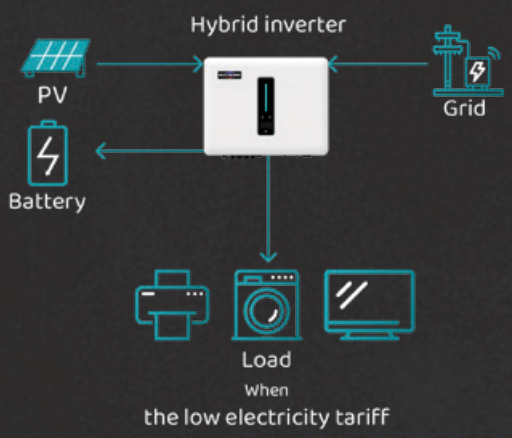



Diagram 9.1

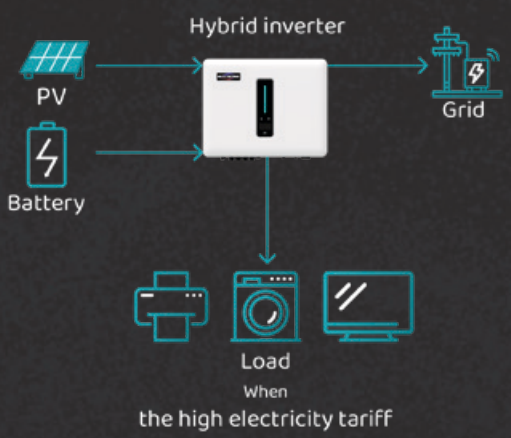



Diagram 9.2

# OPERATING MODES O



### UPS MODE

GRID MODE (diagram 10.1)
In this mode, the battery has priority, the PV energy charges the batteries first. The receivers are powered from the mains. The battery will not discharge as long as the network is connected.

OFF-GRID MODE (diagram 10.2)
If the grid fails and the PV power is insufficient to cover the load demand, the storage powers the loads connected to the Back-up output.

### OFF-GRID MODE

**PRODUCTION** > LOAD (diagram 11.1)
In the case of a sufficient amount of energy from PV, the receivers are supplied first, the surplus energy is stored in the battery.

PRODUCTION < **LOAD** (diagram 11.2)
When the power from the PV is not sufficient, the battery together with the PV powers the receivers connected to it back-up outputs.

# F HYBRID INVERTERS

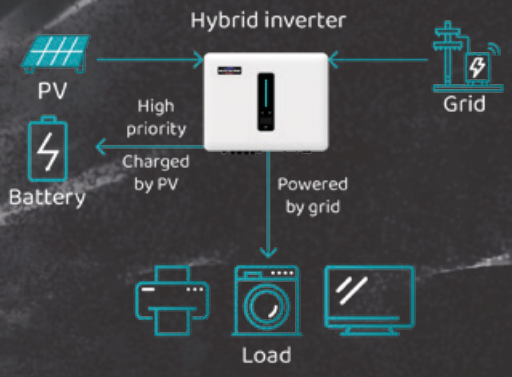



Diagram 10.1

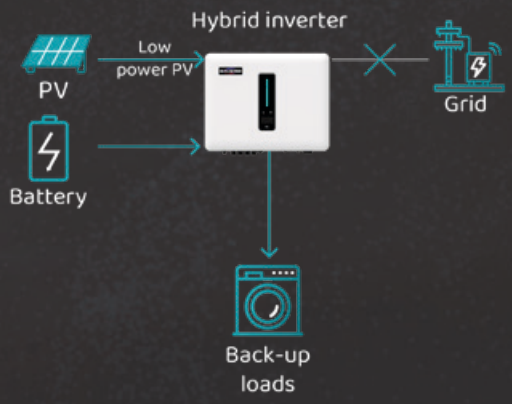



Diagram 10.2

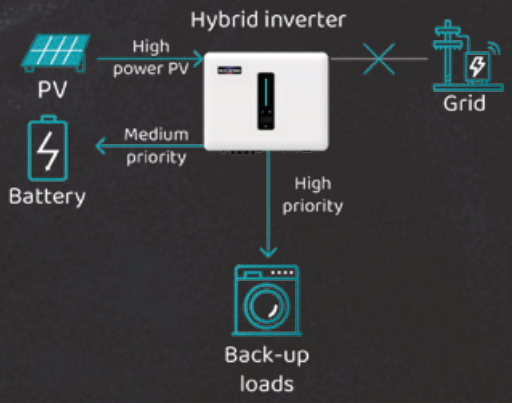



Diagram 11.1

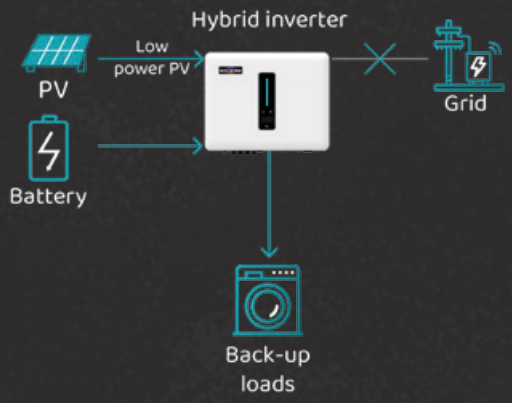
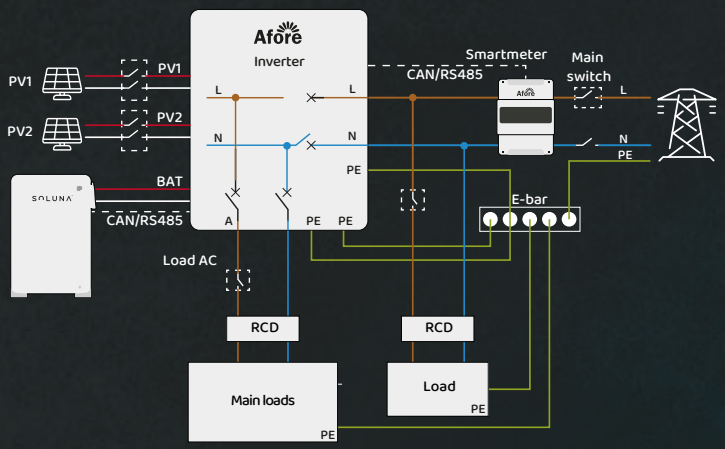


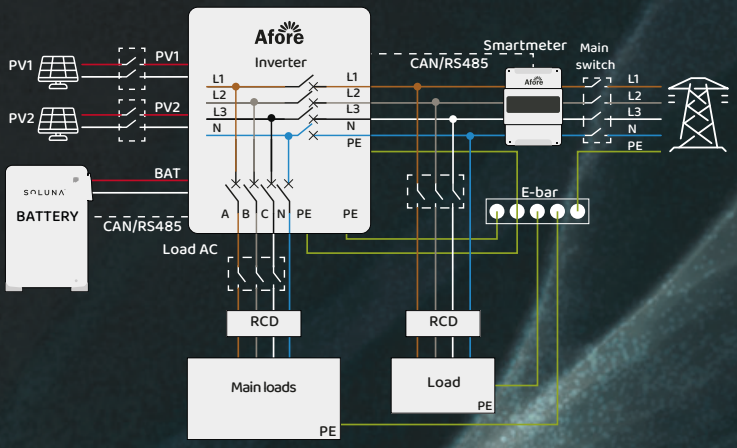

Diagram 11.2

# CONNECTION DIAGRAMS

## Diagram with a single-phase hybrid inverter

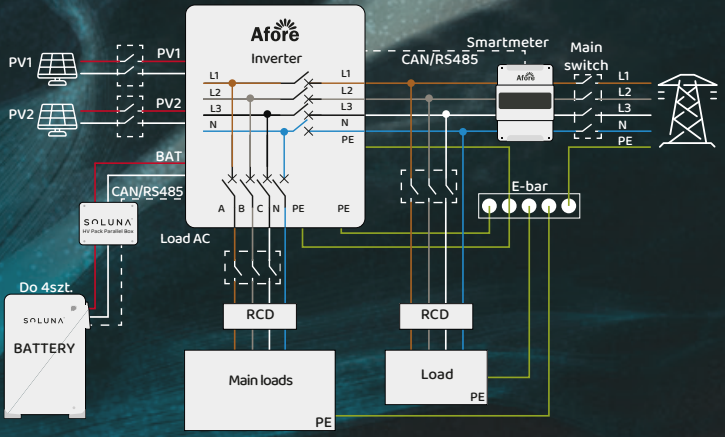



## Diagram with a three-phase hybrid inverter




## Diagram with a thee-phase hybrid inverter when using parallel

Analogous diagram with single-phase connection



23.04.2024

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