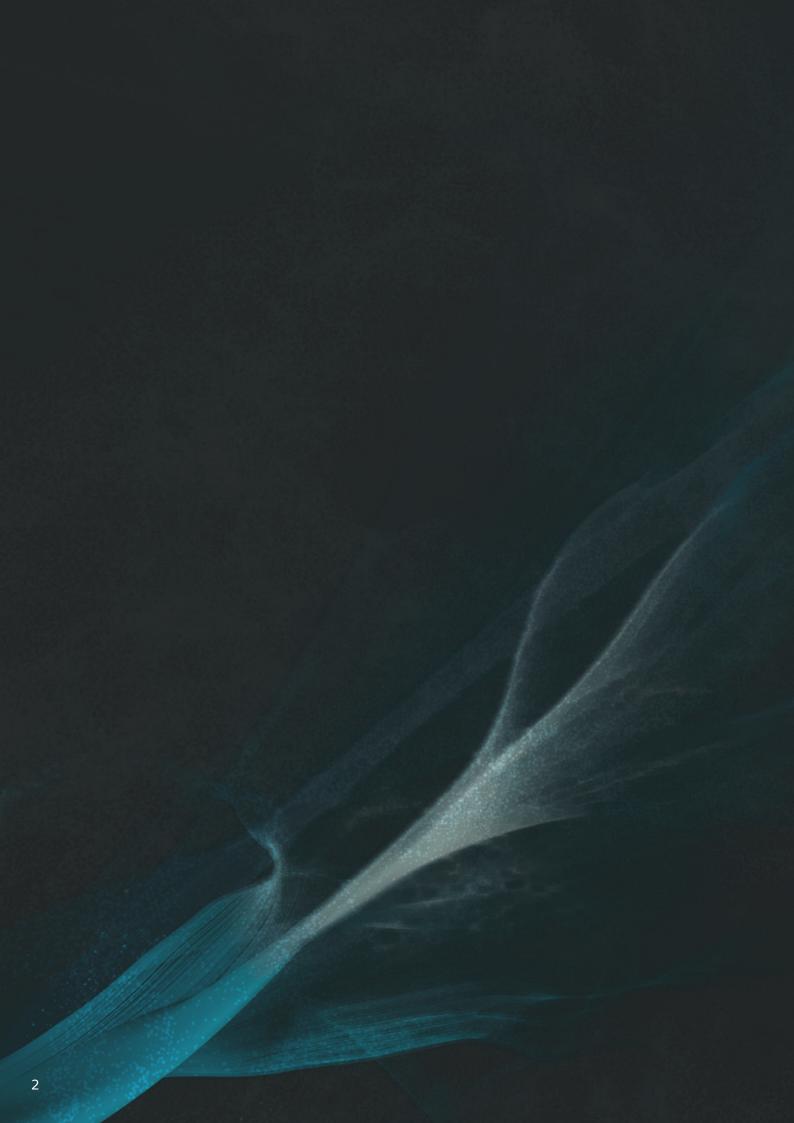
CONSUMER ENERGY BANKS

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.



Afore

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









Low voltage battery LFP 5 kWh



WARRANTY

10-year warranty as standard



PARALLEL WORK

Possibility to connect up to 4 batteries to one parallel box



LOW VOLTAGE BATTERY

Dedicated to a single-phase inverter



BATTERY PACK EFFICIENCY

High battery pack efficiency above 95%



LONG LIFE CYCLE

Rechargeable no less than 6000 cycles



INTELLIGENT MANAGEMENT

Possibility of remote management



LFP TECHNOLOGY

Battery made in LFP technology



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)	А	50 / 50
Continuous charging current	А	75
Continuous discharging current	А	100
Battery power	kW	2.56
Depth of discharge (DOD)	%	90
Cycle life	-	6000 ≤
DC disconnect	-	Contactor, fuse
вмѕ		Battery 5 kWh
Communication	-	CAN
Communication General parameters	-	CAN Battery 5 kWh
	-	
General parameters	-	Battery 5 kWh
General parameters Protection rating	- - - °C	Battery 5 kWh IP54
General parameters Protection rating Warranty		Battery 5 kWh IP54 10 years
General parameters Protection rating Warranty Operating temperature	°C	Battery 5 kWh IP54 10 years -10 ~ +50
General parameters Protection rating Warranty Operating temperature Operating temperature (recommended)	°C	Battery 5 kWh IP54 10 years -10 ~ +50 +15 ~ +30
General parameters Protection rating Warranty Operating temperature Operating temperature (recommended) Humidity	°C °C %	Battery 5 kWh IP54 10 years -10 ~ +50 +15 ~ +30 5 ~ 95
General parameters Protection rating Warranty Operating temperature Operating temperature (recommended) Humidity Altitude	°C °C % m	Battery 5 kWh IP54 10 years -10 ~ +50 +15 ~ +30 5 ~ 95 < 2000
General parameters Protection rating Warranty Operating temperature Operating temperature (recommended) Humidity Altitude number of batteries connected in parallel	°C °C % m	Battery 5 kWh IP54 10 years -10 ~ +50 +15 ~ +30 5 ~ 95 < 2000 12
General parameters Protection rating Warranty Operating temperature Operating temperature (recommended) Humidity Altitude number of batteries connected in parallel Cooling	°C % m pcs.	Battery 5 kWh IP54 10 years -10 ~ +50 +15 ~ +30 5 ~ 95 < 2000 12 Natural convection
General parameters Protection rating Warranty Operating temperature Operating temperature (recommended) Humidity Altitude number of batteries connected in parallel Cooling Weight	°C °C % m pcs. - kg	Battery 5 kWh IP54 10 years -10 ~ +50 +15 ~ +30 5 ~ 95 < 2000 12 Natural convection 51
General parameters Protection rating Warranty Operating temperature Operating temperature (recommended) Humidity Altitude number of batteries connected in parallel Cooling Weight Dimensions (width x height x depth)	°C °C % m pcs. - kg	Battery 5 kWh IP54 10 years -10 ~ +50 +15 ~ +30 5 ~ 95 < 2000 12 Natural convection 51

 $^{^{\}star}$ 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



WARRANTY

10-year warranty as standard



PARALLEL WORK

Possibility to connect up to 4 batteries to one parallel box



HIGH VOLTAGE BATTERY

Dedicated to a three-phase inverter



DISCHARGE LEVEL

Utilization of 90% of the available capacity



LONG LIFE CYCLE

Rechargeable no less than 6000 cycles



INTELLIGENT MANAGEMENT

Possibility of remote management



LFP TECHNOLOGY

Battery made in LFP technology



MODERN DESIGN

Housing that fits into any interior

A STATE OF THE STA			The Sales of the Sales	NEST SERVICE
Electrical parameters		Battery 6 kWh	Battery 10 kWh	Battery 15 kWh
Battery type	1		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	А		40 / 40	
Battery power	kW	3.07	5.37	7.68
Depth of discharge (DOD)	%		90	
Cycle life	-		6000 ≤	
DC disconnect	-		Contactor, fuse	
вмѕ		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.	1 1 1 1 1 1 1	10	
Cooling	-		Natural convection	
Weight	kg	74	105	143
Dimensions (width x height x depth)	mm	654 x 9	71 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

PARALLEL BOX







HV Parallel Box



WARRANTY

10-year warranty as standard



INTELLIGENT MANAGEMENT

Possibility of remote management



PARALLEL WORK

Possibility to install 3 devices in cascade



COMPACT HOUSING

Small housing of the device



LARGE RANGE OF CONFIGURATIONS

Capacity of stored energy from 5 kWh to 150 kWh



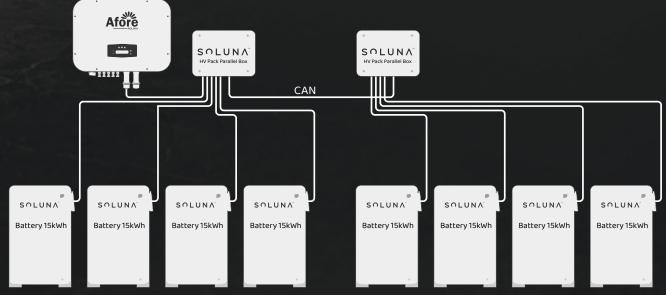
MODERN DESIGN

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)	А	50
Max. output current	А	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 × 232.4 × 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







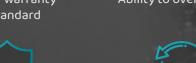
Single-phase hybrid inverter ATON 1.5-3.6 kW

Seria SL



WARRANTY

10-year warranty as standard



PROTECTION RATING IP65

High resistance to weather conditions



OVERSIZE

Ability to oversize x 1.5



UPS FUNCTION

Transfer time < 10 ms



AFCI

Arc detection (optional)



PARALLEL WORK

Possibility of parallel operation of 6 devices



HIGH EFFICIENCY

97.6% charge and discharge efficiency



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		.5	5.4
Max. voltage	V			5!	50		
Range voltage MPPT	V				500		
MPPT voltage range at full power	V	90 - 500	120 - 500	150 - 500	170 - 500	90 - 500	210 - 500
Nominal voltage	V	10/15/20		36	50		
Start voltage	V			10	00		
Max. current MPPT	А		18.5	5 x 1		18.5 x 2	18.5 x 1
Maximum short-circuit current MPPT	А	4371	26	x1		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			5	1.2		
Battery range voltage	V				- 60		
Compatible battery types					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		1.0	17.0
Max. power	kVA	1.5	2.0	2.5		.0	3.6
Nominal current	A	6.9 / 6.6	9.1 / 8.7	11.4 / 10.9		/ 13.1	16.4 / 15.7
Nominal voltage	V				- 253		
Nominal frequency	Hz				/60		
Power factor	-				0.8 / +0.8)		
THD	%				3		
Efficiency	1 0/	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	9	7.10
Efficiency MAKS	%				.60		
Efficiency charge battery with PV	%				3.10		
AC power efficiency from batteries	%	AF1.5K-SL-1	AF2K-SL-1	96 AF2.5K-SL-1	.80 af3k-sl-1	AFOK CI	AF3.6K-SL-1
Output parameters AC (BACK-UP)	A	7.0	10.0	12.0		AF3K-SL I.O	17.0
Max. current	kW	1.5	2.0	2.5	!	.0 .0	3.6
Max. power Maximum peak current (10min)	A	10.5 / 10.0	13.7 / 13.1	17.3 / 16.6		.0 / 19.6	24.6 / 23.5
Maximum peak power (10min)	kW	2.3	3.0	3.8		.5	5.4
Nominal voltage	V	2.5] 3.0		/ 230	.5	JT
Nominal frequency	Hz				/ 60		
Switching time	-				nless		
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				Y.	es		
Security overcurrent/overvoltage	T -			Y	es		
Security before island work	- 1			Y	es		
Security against AC short circuit	-			Y	es		
Residual current detection				Y	es		
Earth fault monitoring	-			Y	es		
Insulation resistance detection	-			Y	es		
AFCI detection	-				es		
Surge protection (AC/DC)					III / type III)		
Protection degree	-				IEMA4X		
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				70 x 192		
Weight	kg				3.5		
Topology	-				rmerless		
Cooling					nt cooling		
Humidity	%				100		
Range working temperature	°C				do 60		
Max. Operation Altitude	m HD				000		
Noise level	dB				25		
Standby consumption	W				10		
Installation					mount		
Communication with RSD	<u> </u>		1.60-1		SPEC	DC 4C	
Display & Communication			ECD, L	.ED, RS485, C	AN, WIFI, GP	KS, 4G	
Certification							
NRS097, G98, EN50549-1, NCRFG, C10/C11, AS4777.2, V		1/10E VDE01	16 1 <u>5661400</u>	1 IECC 2100	2 ENC1000	C 2 ENCIN	00 6 3



Three-phase hybrid inverter ATON 3.6-6 kW

Seria SL



WARRANTY

10-year warranty as standard



PROTECTION RATING IP65

High resistance to weather conditions



OVERSIZE

Ability to oversize x 1.5



UPS FUNCTION

Transfer time < 10 ms



HIGH EFFICIENCY

98% charge and discharge efficiency



UNBALANCE PHASE

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	43 11/4 (1)		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	А	18.5 x 2						
Maximum short-circuit current MPPT	А	26 x 2						
Number of MPPTs / Number of PV strings	1	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	4.8		
Max. charge / discharge current	A			80				
Nominal voltage battery	V			51.2				
Battery range voltage	V	0.00		40 - 60				
Compatible battery types	10-0			ithium / Lead-ac	id			
Grid parameters AC (ONGRID)		AF3.6K-SL	AF4K-SL	AF4.6K-SL	AF5K-SL	AF6K-SL		
Max. current	А	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	10.17 13.7	15.2/17:4	207 - 253		27.37 20.1		
9	Hz			50 / 60				
Nominal frequency Power factor	IIIZ	THE REAL PROPERTY.		.999 (-0.8 / +0.8	2)			
	%			.0+ 1 6.0-) eee.c < 3	»)			
THD	76	AF3.6K-SL	AF4K-SL		AF5K-SL	AF6K-SL		
Efficiency	0/	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)	-		Ye	s (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				Transformerles	S			
Cooling	-		<u>Ir</u>	itelligent coolir	ng			
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			I CD LED G	351131 LC RS485, CAN, WiF	i GPRS 4G			
				to 105, C/ tiv, WII	,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, 			
Certification								



Three-phase hybrid inverter ATON 4-6 kW

Seria SLP



WARRANTY

10-year warranty as standard



PROTECTION RATING IP65

High resistance to weather conditions



OVERSIZE

Ability to oversize x 1.5



UPS FUNCTION

Transfer time < 10 ms



HIGH EFFICIENCY

98% charge and discharge efficiency



UNBALANCE PHASE

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	А	18.5 x 2								
Maximum short-circuit current MPPT	A	26 x 2								
Number of MPPTs / Number of PV strings		59/2012		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	А			120						
Nominal voltage battery	V			51.2						
Battery range voltage	V			40 - 60						
Compatible battery types			Li	thium / Lead-ac	id					
Grid parameters AC (ONGRID)		AF4K-SLP	AF4.6K-SLP	AF5K-SLP	AF5.5K-SLP	AF6K-SLP				
Max. current	А	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	А	18.2 / 17.4	21.0 / 20.0	22.8 / 21.8	25.0 / 24.0	27.3 / 26.1				
Nominal voltage	V	2000		207 - 253						
Nominal frequency	Hz			50 / 60						
Power factor	-		C	.999 (-0.8 / +0.8	3)					
THD	%	2 2 3 3 5 5 5		< 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	А	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)	А	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	s (type III / type	: 111)					
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						
<u> </u>	-			ransformerles	S					
Topology			Ir	itelligent coolir	ng					
		Intelligent cooling								
Topology	- %		0 - 100							
Topology Cooling Humidity	- % °C			0 - 100 -25 do 60						
Topology Cooling Humidity Range working temperature										
Topology Cooling Humidity	°C			-25 do 60						
Topology Cooling Humidity Range working temperature Max. Operation Altitude Noise level	°C			-25 do 60 < 4000						
Topology Cooling Humidity Range working temperature Max. Operation Altitude	°C m dB			-25 do 60 < 4000 < 25						
Topology Cooling Humidity Range working temperature Max. Operation Altitude Noise level Standby consumption	°C m dB			-25 do 60 < 4000 < 25 < 10						
Topology Cooling Humidity Range working temperature Max. Operation Altitude Noise level Standby consumption	°C m dB W			-25 do 60 < 4000 < 25 < 10 Wall mount	i, GPRS, 4G					



Three-phase hybrid inverter ATON 3-12 kW

Seria THP



WARRANTY

10-year warranty as standard



PROTECTION RATING IP65

High resistance to weather conditions



OVERSIZE

Ability to oversize x 1.5



UPS FUNCTION

Transfer time < 10 ms



HIGH EFFICIENCY

98% charge and discharge efficiency



UNBALANCE PHASE

Parameters input DC	10 (7 -	AF3K-THP	AF4K-THP	AF5K-THP	АҒ6К-ТНР	AF8K-THP	AF10K-THP	AF12K-THP
Max. power	kW	5	6	7.5	9	12	15	18
Max. voltage	V			, ,,,	1000		13	
Rated voltage	v				620			
Range voltage	v				150 - 1000			
Range voltage MPPT	V				150 - 850			
MPPT voltage range at full power	v	74.2	200 - 850)	250 - 850	300 - 850	500 -	- 850
Start voltage	V				160			
Max. current MPPT	A	T-10			20 x 2			
Maximum short-circuit current MPPT	А				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 -	
Max. charge / discharge current	A	100			50			
Max. charge / discharge power	kW	3	4	5	6	8	10	12
Charging curve	-200	150			3 Stages			
Compatible battery types	- 11			Lith	ium/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	А	5.3	7	8.5	10.5	13.5	17	21.5
Nominal voltage	V		9 9 9 9		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							
Nominal frequency	Hz				50/60			
Nominal current	Α	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	3.00		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)	-				type II / ty			
General parameters		AF3K-THP	AF4K-THP	AF5K-THP	AF6K-THP		AF10K-THP	AF12K-THP
Dimensions (width x height x depth)	mm			55	8 x 535 x 2	60		
Weight	kg				29			
Topology	-				nsformerl			
Cooling	-			Inte	lligent coc	oling		
Humidity	%				0 - 100			
Range working temperature	°C				-25 ~ 60			
Max. Operation Altitude	m				< 4000			
Noise level	dB				< 40			
Standby consumption	W				< 5			
Display & Communication	-		LC	D, LED, RS4			4G	
Communication with RSD	-				SUNSPEC			
Certification								
NRS097, G98/G99, EN50549-1, NCRFG, C10/C11, AS4777	.2, VDE-A	R-N4105, V	DE0126, IE	EC62109-1,	IEC62109-2	2, EN61000)-6-2, EN61	000-6-3

^{*}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



WARRANTY

10-year warranty as standard



PROTECTION RATING IP65

High resistance to weather conditions



OVERSIZE

Ability to oversize x 1.5



UPS FUNCTION

Transfer time < 10 ms



HIGH EFFICIENCY

98% charge and discharge efficiency



UNBALANCE PHASE

Payamataya innut DC		AF15K-TH	AF17K-TH	AF20K-TH	AF25K-TH	АҒЗОК-ТН	АҒЗ6К-ТН	AF40K-TH	AF50K-TH
Parameters input DC Max. power	kW	22.5	25.5	30	37.5	45	54	60 60	75
Max. voltage	V	22.5	25.5	30		00] 37	00	/3
Rated voltage	V	_			62				
Range voltage	v				150 -				
Range voltage MPPT	V				150 -				
MPPT voltage range at full power	V					- 850			
Start voltage	V				16				
Max. current MPPT	A	20 + 32	32	x 2	40			40 x 4	
Maximum short-circuit current MPPT	А	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	АҒЗОК-ТН	AF36K-TH	AF40K-TH	AF50K-TH
Nominal voltage battery	V	500	400	50	00	550		500	
Battery range voltage	V	P 3 3 3 3			150 -	800			
Max. charge / discharge current	А	888 T N	50		6	0		120	
Max. charge / discharge power	kW	15	17	20	25	30	36	40	50
Charging curve	-	441	11.02		3 St	ages			
Compatible battery types	1	(B) (S)			Lithium/	Lead-acid			
Grid parameters AC (ONGRID)		AF15K-TH	AF17K-TH	AF20K-TH	AF25K-TH	АҒЗОК-ТН	АҒЗ6К-ТН	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	А	27	30	32	40	48	60.06	66.77	83.38
Nominal voltage	V				230 /	400			7 7 1 5
Nominal frequency	Hz				50	60			
Power factor	-				1 (-0.8	3 -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 /				
Nominal frequency	Hz				50,	60			
Nominal current	Α	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				< C				
Efficiency		AF15K-TH	AF17K-TH		AF25K-TH	AF30K-TH	AF36K-TH		AF50K-TH
Efficiency EURO	%	97.50	!	80	98.00	98.10	98.20		.30
Efficiency MAKS	%	98.30	98	.30		.50		98.60	
Efficiency charge / discharge battery	%	98.00			.00			99.00	
Security		AF15K-TH	AF17K-TH	AF20K-TH	AF25K-TH		AF36K-TH	AF40K-TH	AF50K-TH
Security against DC reverse polarity	-					es			
Security overcurrent / overvoltage	<u> </u>					es			
Security before island work	-					es			
Security against AC short circuit						es es			
Residual current detection Earth fault monitoring						es es			
Network monitoring						es es			
Protection degree					IP				
Surge protection (AC/DC)						II / type II)			
General parameters		AF15K-TH	AF17K-TH	AF20K-TH	AF25K-TH			AF40K-TH	AF50K-TH
Dimensions (width x height x depth)	mm	THE TOTAL THE		8 x 535 x 2				'9 x 610 x 3	
Weight	kg		29		3	6		70	
Topology					<u> </u>	merless			
Cooling	-					nt cooling			
Humidity	%					100			
Range working temperature	°C				-25				
Max. Operation Altitude	m					000			
Noise level	dB			< 40				< 60	
Standby consumption	W			< 5				< 100	
Display & Communication	-			LCD, LE	D, RS485, V	/iFi, <u>CAN, G</u>	SPRS, 4G		
Communication with RSD	- 1					SPEC			
Certification									
NRS097, G98/G99, EN50549-1, NCRFG, C10/C11, AS477	7.2, VDE-	AR-N4 <u>105.</u>	VDE0126,	IEC62109-	1, IEC6 <u>210</u> 9	9-2, <u>EN610</u>	00- <u>6-2, E</u> N	161000-6-	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)

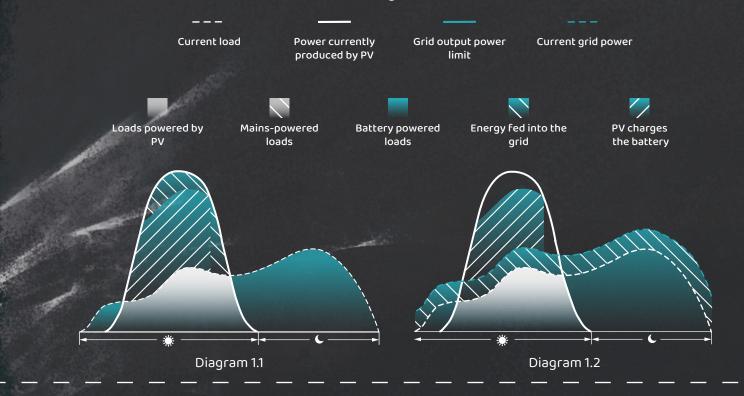
The energy produced by the installation is first used to meet current consumption. When the photovoltaic installation does not produce enough energy to supply the loads on an ongoing basis, the necessary power will be taken from the grid. This mode has the ability to set the power and time of supplying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

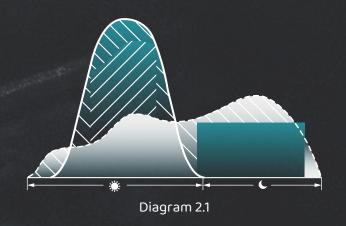
PRIORITY SALE MODE (diagram 3.1)

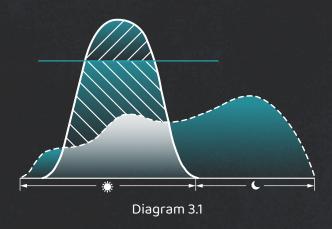
The energy produced by the photovoltaic installation is first transferred to meet current consumption, and then it is sold to the grid. This mode allows you to set the maximum output power to the grid, after reaching which the surplus is transferred to the battery.

F HYBRID INVERTERS

Legend







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)

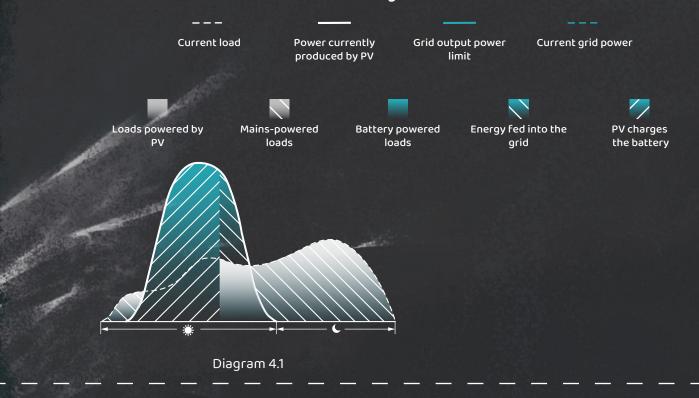
If a particular battery requires safe charging, this mode - in case of low voltage or SOC (battery level of charge) - will slowly charge the battery until it reaches a safe value. When the battery reaches a safe level, it will start charging in the standard way.

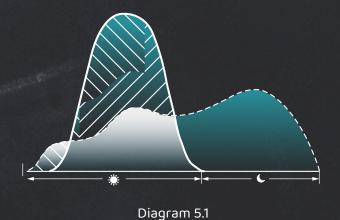
OFF GRID MODE (diagram 6.1)

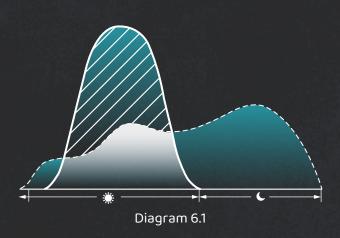
This mode will switch to off-grid mode in case of a shutdown or abnormal operation of the public grid. The energy produced by the installation powers the loads first and then the battery. When the photovoltaic installation does not produce enough energy to meet the current consumption, the power needed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

F HYBRID INVERTERS

Legend







ACCOUPLE 4-30kW





AC Couple single phase 4-6 kW

Seria SL



SMOOTH SWITCH

Between the EPS and the grid



INTELLIGENT SOFTWARE

Remote software update



A 08 MUMIXAM

Charge and discharge current



PROTECTION RATING IP65

High resistance to weather conditions



HIGH EFFICIENCY

97.6% charge and discharge efficiency



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.

Delland		AF4K-SL-0	AF4.6K-SL-0	AF5K-SL-0	AF6K-SL-0
Battery	kW	4.0	4.6	5.0	6.0
Max. charge / discharge power	A	4.0	12		6.0
Max. charge / discharge current	V	_	51		
Nominal voltage	V		40 -		
Range voltage	V		Lithium / I		
Compatible battery types					aren el a
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	F375-00-0	220 /		
Nominal frequency	Hz		50/		
Power factory	-	3500000	0.999 (-0		
THD	%		<		
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	Α	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 /		
Nominal frequency	Hz		50 /		
Switching time	S		Seam		
THD	%		<		
Efficiency		AF4K-SL-0	AF4.6K-SL-0	AF5K-SL-0	AF6K-SL-0
Efficiency MAKS	%		97.		
AC power efficiency from batteries	%	-	96.		
Security		AF4K-SL-0	AF4.6K-SL-0	AF5K-SL-0	AF6K-SL-0
Security overcurrent / overvoltage	-		Ye		
Security before island work	-		Ye		
Security against AC short circuit	-		Ye	es	
Residual current detection	-		Ye		
Earth fault monitoring	-		Υe	es	
Insulation resistance detection	-	4	Υ€	es	
Protection degree	-		IP65 / N	EMA4X	
General parameters		AF4K-SL-0	AF4.6K-SL-0	AF5K-SL-0	AF6K-SL-0
Dimensions (width x height x depth)	mm		370 x 53	35 x 192	
Weight	kg		20		
Topology	-		Transfor		
Cooling	-		Intelligen	t cooling	
Humidity	%		0 - ′	100	
Range working temperature	°C		-25 ·		
Max. Operation Altitude	m		< 40	000	
Noise level	dB		<2	25	
Standby consumption	W		<1	10	
Installation	- 1		Wall n	nount	
Communication with RSD	-		SUNS	SPEC	
Display & Communication	-	LC	CD, LED, RS485, W	i-Fi, CAN, GPRS, 4	lG
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



INTELLIGENT SOFTWARE

Remote software update



MAXIMUM 80 A

Charge and discharge current



PROTECTION RATING IP65

High resistance to weather conditions



HIGH EFFICIENCY

97.6% charge and discharge efficiency



MODERN DESIGN

New functional unibody

What is AC Couple?

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Battery		AF3K-TH-0	AF4K-TH-0	AF5K-TH-0	AF6K-TH-0	AF8K-TH-0	AF10K-TH-0	AF12K-TH-0
Nominal voltage	Ιv	AI SIL III O	200	Al Sit III o	250	300	400	450
Range voltage	V		200		150 - 800] 300	100	130
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 7 3.3	7 / 7.7	3 / 3.3	3 Stages	0 / 0.0	10 / 11	12 / 13.2
Compatible battery types			l o:	ad-acid Lith	nium-ion, So	dium-chlor	ida	
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
	kW	3	4	5 5	6	8	10	12
Nominal output power	kVA	4.5/3	6/4	7.5 / 5	9/6	12 / 8	15 / 10	18 / 12
Max. input power								
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		100000			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	А	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	%	78.	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			
					Yes			
Security overcurrent / overvoltage	-							
Security overcurrent / overvoltage Security before island work					Yes			
	-				Yes Yes			
Security before island work	-	_						
Security before island work Security against AC short circuit	-				Yes			=
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring	-				Yes Yes			=
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring		Ξ			Yes Yes Yes			Ξ
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring	-	Ξ			Yes Yes Yes Yes			Ξ
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class	-			O\	Yes Yes Yes Yes IP65	AC)		Ξ
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category	-	AF3K-TH-O	AF4K-TH-O		Yes Yes Yes Yes IP65 Class I /C III (Main <i>I</i>		AF10K-TH-0	AF12K-TH-0
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters	- - - - - - - -	AF3K-TH-O	AF4K-TH-0	AF5K-TH-0	Yes Yes Yes Yes IP65 Class I /C III (Main <i>I</i>	AF8K-TH-0	AF10K-TH-0	AF12K-TH-0
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth)		AF3K-TH-O	AF4K-TH-0	AF5K-TH-0	Yes Yes Yes Yes IP65 Class I /C III (Main A	AF8K-TH-0	AF10K-TH-0	AF12K-TH-0
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight		AF3K-TH-O	АF4К-ТН-О	AF5K-TH-0	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 15	AF8K-TH-0	AF10K-TH-0	AF12K-TH-0
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology		AF3K-TH-O		АF5К-ТН-0 3 Тга	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 19	AF8K-TH-0 92		
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling	kg - -	AF3K-TH-O		AF5K-TH-0	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 19 20.8 ansformerle	AF8K-TH-0 92	AF10K-TH-0	
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity	kg - - - %	AF3K-TH-0		АF5К-ТН-0 3 Тга	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 19 20.8 ansformerle	AF8K-TH-0 92		
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature	kg - - % °C	AF3K-TH-O		АF5К-ТН-0 3 Тга	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 19 20.8 ansformerla 0 - 100 -25 ~ 60	AF8K-TH-0 92		
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude	kg - - % °C m	AF3K-TH-O		АF5К-ТН-0 3 Тга	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 19 20.8 ansformerle 0 - 100 -25 ~ 60 < 4000	AF8K-TH-0 92		
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude Noise level	kg - - % °C m dB	AF3K-TH-O		АF5К-ТН-0 3 Тга	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 19 20.8 ansformerle 0 - 100 -25 ~ 60 < 4000 < 40	AF8K-TH-0 92		
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude Noise level Standby consumption	kg - - % °C m	AF3K-TH-O	Natural co	AF5K-TH-0 3: Tra onvection	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 19 20.8 ansformerle 0 - 100 -25 ~ 60 < 4000 < 40 < 5	AF8K-TH-0 92 ess Int	elligent cool	
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude Noise level Standby consumption Display & Communication	kg - - % °C m dB	AF3K-TH-O	Natural co	AF5K-TH-0 3: Tra onvection	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 19 20.8 ansformerle 0 - 100 -25 ~ 60 < 4000 < 40	AF8K-TH-0 92 ess Int	elligent cool	
Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude Noise level Standby consumption	kg - - % °C m dB W		Natural co L	AF5K-TH-0 3° Transported to the second secon	Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-TH-0 70 x 497 x 19 20.8 ansformerle 0 - 100 -25 ~ 60 < 4000 < 40 < 5	AF8K-TH-0 D2 ess Inte	elligent cool	

 $^{^{\}star} \text{The above parameters are indicative and subject to change. Detailed information at the address-www.soluna.com.pl}\\$



AC Couple three phase 15-30 kW

Seria TH



SMOOTH SWITCH

Between the EPS and the grid



INTELLIGENT SOFTWARE

Remote software update



MAXIMUM 80 A

Charge and discharge current



PROTECTION RATING IP65

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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						
Range voltage	v	500 550 150 - 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	
	NVV	13 / 10.3	17 / 10.7	3 Stages	25 21.5	30 / 33	
Charging curve	-		Load acid Lib		lium chlorido		
Compatible battery types	CONTRACTOR OF STREET	Lead-acid, Lithium-ion, Sodium-chloride					
Grid parameters AC (ONGRID)	kW	AF15K-TH-0 15	AF17K-TH-0 17	AF20K-TH-0 20	AF25K-TH-0 25	AF30K-TH-0 30	
Nominal output power					-		
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	-	100000		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	Α	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	
Efficiency MAKS Security	%	AF15K-TH-0	98.30 AF17K-TH-0	AF20K-TH-0	98. AF25K-TH-0	50 AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity	% -	AF15K-TH-0		AF20K-TH-0 Yes			
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage	- -	AF15K-TH-0					
Efficiency MAKS Security Security against DC reverse polarity	- - -	AF15K-TH-O		Yes			
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit	% - - - -	AF15K-TH-O		Yes Yes			
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection	% - - - -	AF15K-TH-O		Yes Yes Yes			
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit	% - - - - -	AF15K-TH-O		Yes Yes Yes Yes			
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection	%	AF15K-TH-0		Yes Yes Yes Yes Yes			
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring	%	AF15K-TH-0		Yes Yes Yes Yes Yes Yes			
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring	%	AF15K-TH-0		Yes Yes Yes Yes Yes Yes Yes Yes			
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree		AF15K-TH-O	AF17K-TH-0	Yes Yes Yes Yes Yes Yes Yes Yes Yes	AF25K-TH-0		
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class		AF15K-TH-0	AF17K-TH-0	Yes Yes Yes Yes Yes Yes Yes Yes Class I	AF25K-TH-0	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category			AF17K-TH-0 O AF17K-TH-0	Yes Yes Yes Yes Yes Yes IP65 Class I	AF25K-TH-0 C) AF25K-TH-0	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters	- - - - - - - - - - -		AF17K-TH-0 O AF17K-TH-0	Yes Yes Yes Yes Yes Yes Yes IP65 Class I VC III (Main Ad	AF25K-TH-0 C) AF25K-TH-0	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth)	- - - - - - - -		AF17K-TH-0 O AF17K-TH-0 5 29	Yes Yes Yes Yes Yes Yes Yes IP65 Class I VC III (Main Ad	AF25K-TH-0 C) AF25K-TH-0 O 31	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight	- - - - - - - -		AF17K-TH-0 AF17K-TH-0 5 29	Yes Yes Yes Yes Yes Yes Yes IP65 Class I VC III (Main AGE AF 20K-TH-0	AF25K-TH-0 AF25K-TH-0 O 31	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology	- - - - - - - -		AF17K-TH-0 AF17K-TH-0 5 29	Yes Yes Yes Yes Yes Yes Yes IP65 Class I VC III (Main Adaptor Af20K-TH-0 Tansformerles	AF25K-TH-0 AF25K-TH-0 O 31	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling	- - - - - - - - mm kg -		AF17K-TH-0 AF17K-TH-0 5 29	Yes Yes Yes Yes Yes Yes Yes IP65 Class I VC III (Main Ad AF20K-TH-0 558 x 535 x 26	AF25K-TH-0 AF25K-TH-0 O 31	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity	- - - - - - - - - kg - - - %		AF17K-TH-0 AF17K-TH-0 5 29	Yes Yes Yes Yes Yes Yes Yes IP65 Class I VC III (Main Ad AF20K-TH-0 58 x 535 x 26	AF25K-TH-0 AF25K-TH-0 O 31	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature	- - - - - - - - mm kg - - %		AF17K-TH-0 AF17K-TH-0 5 29	Yes Yes Yes Yes Yes Yes Yes Yes IP65 Class I VC III (Main Ad AF20K-TH-0 58 x 535 x 26 ransformerles relligent cooli 0 - 100 -25 ~ 60	AF25K-TH-0 AF25K-TH-0 O 31	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude Noise level	- - - - - - - - - - % °C		AF17K-TH-0 AF17K-TH-0 5 29	Yes Yes Yes Yes Yes Yes Yes IP65 Class I VC III (Main Ad AF20K-TH-0 -58 x 535 x 26 ransformerles celligent cooli 0 - 100 -25 ~ 60 < 4000	AF25K-TH-0 AF25K-TH-0 O 31	AF30K-TH-0	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude	- - - - - - - - - - % °C m		AF17K-TH-0 AF17K-TH-0 5 29 Ti	Yes Yes Yes Yes Yes Yes Yes Yes IP65 Class I VC III (Main Adaptor Afformer lestelligent cooli 0 - 100 -25 ~ 60 < 4000 < 400	AF25K-TH-0 AF25K-TH-0 O 30 SS ng	AF30K-TH-0	

CertificationNRS97, G98/G99, EN50549-1, C10/C11, AS 4777, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3

 $^{{}^{\}star}\text{The above parameters are indicative and subject to change. Detailed information at the address-www.soluna.com.pl}$



AC Couple three phase 3-12 kW

Seria THP



SMOOTH SWITCH

Between the EPS and the grid



INTELLIGENT SOFTWARE

Remote software update



MAXIMUM 80 A

Charge and discharge current



PROTECTION RATING IP65

High resistance to weather conditions



HIGH EFFICIENCY

97.6% charge and discharge efficiency



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	AISK IIII O	100	Al Sit IIII O	150	200	250	300
Range voltage	V		100	80 - 600	150	200	120 -	
Max. charge / discharge current	A			00 000	50		120	000
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 / 3.3	7/ 7.7	3 7 3.3	3 Stages	0 / 0.0	10 / 11	12 / 13.2
Compatible battery types	-		اما	ad-acid Lith	nium-ion, So	dium-chloc	ide	
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	3.3	,	0.5	230 / 400	15.5	1/	21.5
Nominal frequency	Hz				50 / 60			
Power factor	112				1 (-0.8 - 0.8)			
	%	-			< 3			
THD Output parameters AC (BACK-UP)	/0	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	VA	3000	4000	3000	230 / 400	8000	10000	12000
	Hz				50 / 60			_
Nominal frequency	A	4.4	5.8	7.3	8.7	11.6	14.5	17.4
Nominal current	- -	3300	4400	7.3 5500	6600	8800	11000	13200
Maximum peak power (60s)	- %	3300	4400	3300	< 3	8800	11000	13200
THDV (with linear load)					<10			
Switching time Efficiency	ms	AF3K-THP-0	AF4K-THP-0	AF5K-THP-0	AF6K-THP-0	AFOL TUD O	AF10K-THP-0	AF12K-THP-0
		AF3K-THP-U	AFAK-I HP-U	AF5K-1HP-0	I AF6K-THP-U	AF8K-THP-U	AFTUK-THP-U	AF12K-THP-U
	0/					00		06.50
Efficiency MAKS	%	VESK-THD-U	98.	.00		1.1	.20	98.30
Efficiency MAKS Security	%	AF3K-THP-0			AF6K-THP-0	1.1		
Efficiency MAKS Security Security against DC reverse polarity	% - -	AF3K-THP-0	98.	.00	AF6K-THP-0 Yes	1.1	.20	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage	% - -	AF3K-THP-0	98.	.00	AF6K-THP-0 Yes Yes	1.1	.20	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work	% - - -	AF3K-THP-0	98.	.00	AF6K-THP-0 Yes Yes Yes	1.1	.20	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit	% - - - -	AF3K-THP-0	98.	.00	AF6K-THP-0 Yes Yes Yes Yes	1.1	.20	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection	% - - - -	AF3K-THP-0	98.	.00	AF6K-THP-0 Yes Yes Yes Yes Yes Yes	1.1	.20	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring	% - - - - -	AF3K-THP-0	98.	.00	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes Yes	1.1	.20	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring	% - - - - - -	AF3K-THP-0	98.	.00	AF6K-THP-0 Yes	1.1	.20	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree	% - - - - - - -	AF3K-THP-0	98.	.00	AF6K-THP-0 Yes	1.1	.20	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class	% - - - - - - -	AF3K-THP-0	98.	OO AF5K-THP-0	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes Yes Yes Class I	AF8K-THP-0	.20	
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category	%		98. AF4K-THP-0	OO AF5K-THP-O	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes Class I	AF8K-THP-0	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters			98.	OO AF5K-THP-O O\ AF5K-THP-O	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes Class I /C III (Main A	AF8K-THP-0	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth)	- - - - - - - -		98. AF4K-THP-0	OO AF5K-THP-O O\ AF5K-THP-O	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes IP65 Class I /C III (Main A	AF8K-THP-0	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight			98. AF4K-THP-0	OO AF5K-THP-O O\ AF5K-THP-O	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-THP-0 S8 x 535 x 26	AC) AF8K-THP-0	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology	- - - - - - - - mm kg		98. AF4K-THP-0	OO AF5K-THP-0 O\ AF5K-THP-0 55	Yes Yes Yes Yes Yes Yes Yes Yes Yes Class I C III (Main A AF6K-THP-0 S8 x 535 x 26 29 ansformerle	AC) AFBK-THP-0 AC) AFBK-THP-0 60	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling	- - - - - - - - mm kg -		98. AF4K-THP-0	OO AF5K-THP-0 O\ AF5K-THP-0 55	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-THP-0 58 x 535 x 26 29 ansformerle	AC) AFBK-THP-0 AC) AFBK-THP-0 60	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity	- - - - - - - - - kg - - - %		98. AF4K-THP-0	OO AF5K-THP-0 O\ AF5K-THP-0 55	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-THP-0 58 x 535 x 26 29 ansformerle elligent coo	AC) AFBK-THP-0 AC) AFBK-THP-0 60	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature	- - - - - - - - - - - - %		98. AF4K-THP-0	OO AF5K-THP-0 O\ AF5K-THP-0 55	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-THP-0 58 x 535 x 26 29 ansformerle elligent coo 0 - 100 -25 ~ 60	AC) AFBK-THP-0 AC) AFBK-THP-0 60	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude	- - - - - - - - mm kg - - - %		98. AF4K-THP-0	OO AF5K-THP-0 O\ AF5K-THP-0 55	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-THP-0 58 x 535 x 26 29 ansformerle elligent coo 0 - 100 -25 ~ 60 < 4000	AC) AFBK-THP-0 AC) AFBK-THP-0 60	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude Noise level	- - - - - - - - - - - % «C m		98. AF4K-THP-0	OO AF5K-THP-0 O\ AF5K-THP-0 55	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-THP-0 58 x 535 x 26 29 ansformerle elligent coo 0 - 100 -25 ~ 60 < 4000 < 400	AC) AFBK-THP-0 AC) AFBK-THP-0 60	.20 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude Noise level Standby consumption	- - - - - - - - mm kg - - - %		98. AF4K-THP-0 AF4K-THP-0	OO AF5K-THP-0 ON AF5K-THP-0 55	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-THP-0 68 x 535 x 26 29 ansformerle elligent coo 0 - 100 -25 ~ 60 < 4000 < 40 < 5	AC) AFBK-THP-0 AC) AFBK-THP-0 SO Soling	20 AF10K-THP-0 AF10K-THP-0	AF12K-THP-0
Efficiency MAKS Security Security against DC reverse polarity Security overcurrent / overvoltage Security before island work Security against AC short circuit Residual current detection Earth fault monitoring Network monitoring Protection degree Protection class Overvoltage category General parameters Dimensions (width x height x depth) Weight Topology Cooling Humidity Range working temperature Max. operation altitude Noise level	- - - - - - - - - - % «C m		98. AF4K-THP-0 AF4K-THP-0	OO AF5K-THP-0 ON AF5K-THP-0 55	AF6K-THP-0 Yes Yes Yes Yes Yes Yes Yes IP65 Class I /C III (Main A AF6K-THP-0 58 x 535 x 26 29 ansformerle elligent coo 0 - 100 -25 ~ 60 < 4000 < 400	AC) AFBK-THP-0 AC) AFBK-THP-0 SO Soling	20 AF10K-THP-0 AF10K-THP-0	AF12K-THP-0

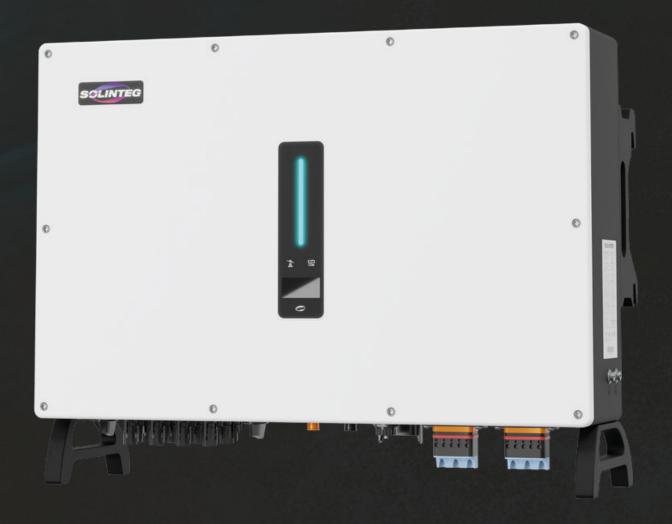
*The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl

NRS97, G98/G99, EN50549-1, C10/C11, AS 4777, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2, EN61000-6-2, EN61000-6-3

HYBRID INVERTER SOLINTEG

4-20kW







Three-phase hybrid inverter SOLINTEG 4-12 kW



WARRANTY

5-year warranty as standard



UNBALANCE PHASE

Supporting an uneven load of 110%



200% POWER FOR 60S

Prevention of inverter overload when starting devices



PARALLEL WORK

Possibility of parallel operation of 10 devices



LOW START VOLTAGE

erter overload Voltage excitation g devices at 135V



"BREATHING"

LIGHT

EL WORK

Simply displays the current status of the device



HIGH EFFICIENCY

98.2% charge and discharge efficiency



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			13	5		
Max. input voltage DC	V			100	00		
Nominal input voltage ²	V			62	20		
Range voltage MPPT ³	V		120 - 950			200 - 950	
Number MPPT				2	2		
Number of MPPT inputs	pcs.			1/	1		
Max. input current	А			15 :	x 2		
Max. short-circuit current	Α	15000		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	403 (50.4)	400000000000000000000000000000000000000	135 -			
Max. charge / discharge current	А			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 power⁴	kVA	8.0	10.0	12.0	16.0	1	6.5
Max. battery charging power	kW	4.0	5.0	6.0	8.0	10.0	12.0
Nominal voltage	V	COMPANY.	3L/N/	PE220/380;	230 / 400 ; 2	40 / 415	
Nominal frequency	Hz	MEDICAL CO.		50 /			
Max. input current	А	6.7	8.3	10.0	13.3	16.5	20.0
Power factor	%	9	3.3	1(-0.8			
THD	%	10000		<			
DCI	%	No.		< (
Back-up power		MHT-4K-25	MHT-5K-25	MHT-6K-25		MHT-10K-25	MHT-12K-2
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
	_	0.7	6.5	10.0 <1		10.5	20.0
Switching time	ms V		2/N/C	PE;220/380;		40 / 41E	
Nominal output voltage			3/N/F			40 / 415	
Nominal output frequency	Hz	0.60	10.60	50 /		20.00	20.00
Peak output power⁵	kVA/s	8,60	10, 60	12,60	16, 60	20, 60	20,60
THD	%	MALIT ALCOS	MHT-5K-25	<	~	LANUE AOM OF	LAULT 42K 2
Efficiency	0/	MH1-4K-25		MH1-6K-25	MH1-8K-25	MHT-10K-25	MH1-12K-2
Max. efficiency	% %		98.1 97.3			98.2 97.4	
Efficiency EURO	70	MHT-4K-25		MHT-6K-25	MUIT OK OF		AND TANK OF
Protection		MH1-4K-25	MH1-5K-25			MH1-10K-25	MH 1-12K-2
DC reverse polarity protection				Υe			
Battery input reverse connection protection	10000			Ye			
Insulation resistance protection	<u> </u>			Y€			
Surge protection	-			Υe			
Over-temperature protection	<u> </u>			Υe			
Residual current protection	-			Ye			
Islanding protection	-	Yes					
AC over-voltage protection	-			Yε			
Overload protection	-	Yes					
AC short-circuit protection	-	Yes					
				PV II ;			
Over voltage category						MHT-10K-25	MHT-12K-2
Over voltage category General parameters		MHT-4K-25	MHT-5K-25	MHT-6K-25		Piliti lok 23	
	mm	MHT-4K-25	MHT-5K-25	534 x 41	18 x 210	PHILI TOR 25	
General parameters	mm kg	MHT-4K-25	MHT-5K-25		18 x 210	PHILI ION 23	
General parameters Dimensions (width x height x depth)		MHT-4K-25	MHT-5K-25	534 x 41	18 x 210 .0	MITT TOX 23	
General parameters Dimensions (width x height x depth) Weight		MHT-4K-25	MHT-5K-25	534 x 41 26	18 x 210 .0 ears	Pitt Tok 23	
General parameters Dimensions (width x height x depth) Weight Warranty		MHT-4K-25	MHT-5K-25	534 x 41 26 5 ye	18 x 210 0 ears 55	PHI TOK 23	
General parameters Dimensions (width x height x depth) Weight Warranty Protection rating	kg - -	MHT-4K-25	MHT-5K-25	534 x 47 26 5 ye IPe	18 x 210 .0 ears 55 15	Tok 23	
General parameters Dimensions (width x height x depth) Weight Warranty Protection rating Standby Self-consumption	kg - -	MHT-4K-25	MHT-5K-25	534 x 41 26 5 ye IP6 <1	18 x 210 0 ears 55 15 merless	Tok 23	
General parameters Dimensions (width x height x depth) Weight Warranty Protection rating Standby Self-consumption Topology Operating temperature range	kg - - W -	MHT-4K-25	MHT-5K-25	534 x 41 26 5 ye IP6 <1 Transfor	8 x 210 .0 ears 55 5 merless +60	J. 10K 23	
General parameters Dimensions (width x height x depth) Weight Warranty Protection rating Standby Self-consumption Topology Operating temperature range Humidity	kg - - W - °C	MHT-4K-25		534 x 41 26 5 ye 1Pe <1 Transfor -30 ~	8 x 210 .0 .65 55 merless +60		
General parameters Dimensions (width x height x depth) Weight Warranty Protection rating Standby Self-consumption Topology Operating temperature range Humidity Altitude	kg - - W - °C %	MHT-4K-25		534 x 41 26 5 ye 1P0 41 Transfor -30 ~ 00 (power de	18 x 210 .0 .0 .55 .5 .merless +60 100 rating > 300		
General parameters Dimensions (width x height x depth) Weight Warranty Protection rating Standby Self-consumption Topology Operating temperature range Humidity Altitude Cooling	kg - - W - °C % m	MHT-4K-25		534 x 41 26 5 ye 1P6 <1 Transfor -30 ~ 0 ~ 00 (power de	8 x 210 .0 ears 55 15 merless +60 100 rating > 300 povection		
General parameters Dimensions (width x height x depth) Weight Warranty Protection rating Standby Self-consumption Topology Operating temperature range Humidity Altitude Cooling Noise level	kg - - W - °C %	MHT-4K-25		534 x 41 26 5 ye 1Pe 1 Transfor -30 ~ 0 ~ 1 00 (power ded Natural co	8 x 210 .0 .0 .55 .5 .merless +60 100 .rating > 300 .onvection		
General parameters Dimensions (width x height x depth) Weight Warranty Protection rating Standby Self-consumption Topology Operating temperature range Humidity Altitude Cooling Noise level Display	kg - - W - °C % m	MHT-4K-25	300	534 x 41 26 5 ye 1Pe <1 Transfor -30 ~ 0 ~1 00 (power der Natural co	8 x 210 .0 .0 .55 .15 .merless .+60 .100 .rating > 300 .onvection .25 & LED)Om)	
General parameters Dimensions (width x height x depth) Weight Warranty Protection rating Standby Self-consumption Topology Operating temperature range Humidity Altitude Cooling Noise level	kg - - W - °C % m	MHT-4K-25	300	534 x 41 26 5 ye 1Pe 1 Transfor -30 ~ 0 ~ 1 00 (power ded Natural co	8 x 210 .0 .0 .55 .15 .merless .+60 .100 .rating > 300 .onvection .25 & LED)Om)	

 $^{{}^{\}star}\text{The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl.}$

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



UNBALANCE PHASE

Supporting an uneven load of 110%



200% POWER FOR 60S

Prevention of inverter overload when starting devices



PARALLEL WORK

Possibility of parallel operation of 10 devices



LOW START VOLTAGE

Voltage excitation at 135V



"BREATHING" LIGHT

Simply displays the current status of the device



HIGH EFFICIENCY

98.4% charge and discharge efficiency



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		13	35		
Max. input voltage DC	V	1000				
Nominal input voltage²	V	620				
Range voltage MPPT³	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			x 2		
Battery		MHT-10K-40	MHT-12K-40	MHT-15K-40	MHT-20K-40	
Battery voltage range	V			- 850		
Max. charge / discharge current	A	40/40				
Battery type	-	MHT-10K-40	Lithun MHT-12K-40	n (BMS) MHT-15K-40	MHT-20K-40	
Grid	kW	10.0	12.0	15.0	20.0	
Nominal output power	kVA	11.0	13.2	16.5 / 15.0 ¹⁾	22.0	
Max apparent output power	kVA	20.0	24.0	30.0	30.0	
Max apparent input power⁴	kW	10.0	12.0	15.0	20.0	
Max. battery charging power Nominal voltage	V		3L / N / PE220 / 380 ;			
Nominal frequency	Hz			/ 60		
Max. input current	A	16.5	20.0	25.0 / 21.7 ²⁾	33.5	
Power factor	%	10.5		/+0.8)	33.3	
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	5	
Nominal output frequency	Hz			/ 60		
Peak output power⁵	kVA/s	20,	, 60		, 60	
THD	%			3		
Efficiency	0/	MHT-10K-40	MHT-12K-40	MHT-15K-40	MHT-20K-40	
Max. efficiency	% %			3.4		
Efficiency EURO	%	MHT-10K-40	9. MHT-12K-40	7.5 MHT-15K-40	MHT-20K-40	
Protection Of solvers applicative acategories		МП1-10К-40		es	MH1-20K-40	
DC reverse polarity protection Battery input reverse connection protection	-			es es		
Insulation resistance protection				es		
Surge protection	- 1			es		
Over-temperature protection	- 1			es		
Residual current protection	- 1			es		
Islanding protection	- I	Yes				
AC over-voltage protection	- 1	Yes				
Overload protection	- 1	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			18 x 210		
Weight	kg	2	.8		31	
Warranty	-			ears 		
Protection rating	-			65		
Standby Self-consumption	W			15		
Topology				rmerless		
Operating temperature range	°C			- +60 100		
Humidity	%			100		
Altitude	m			rating > 3000m)		
Cooling	dB			nt cooling 40		
Noise level	UB					
Display		OLED & LED				
Communication ————————————————————————————————————						
Communication Certification	-			i / LAN (Optional)		

IEC/EN 62109, IEC/EN 61000, EN50549-1, TOR generator type A, VDE-AR-N-4105

 $^{{}^{\}star}\text{The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl.}$

The above parameters are indicative and subject to change. Detailed information at the address - www.soluna.com.pl.
 Max. operating DC voltage is 950V, max. withstanding DC voltage is 1000V.
 The maximum MPPT voltage and operating voltage upper limit will be reduced to 900 V when inverter connects and works with battery.
 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.
 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.
 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.

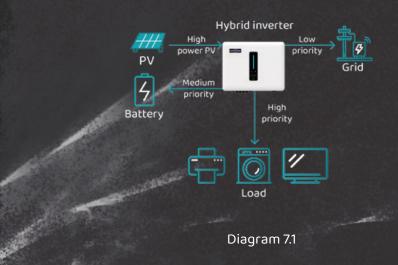
ECONOMY MODE

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



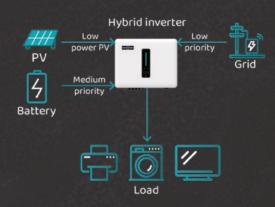


Diagram 7.2

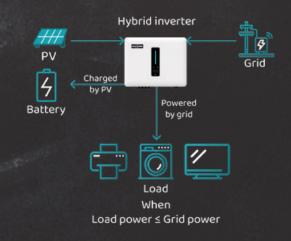


Diagram 8.1

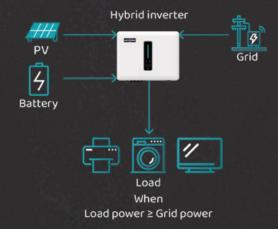
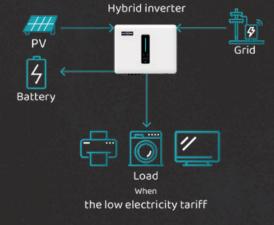
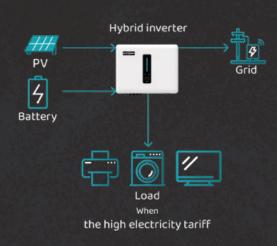


Diagram 8.2





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Diagram 9.1 Diagram 9.2

OPERATING MODES O

SOLINTEG INVERTERS

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.

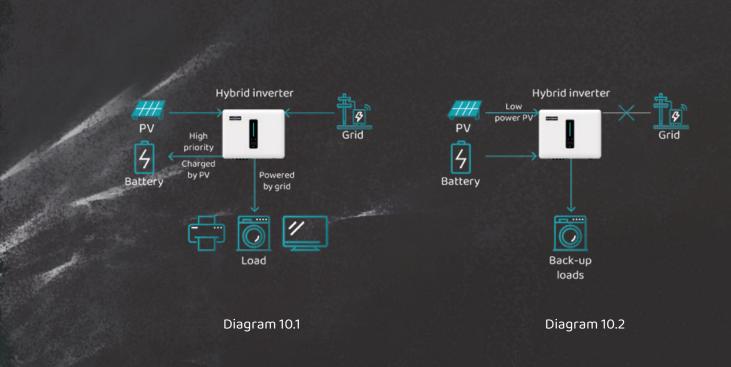
OFF-GRID MODE (diagram 10.2)
If the grid fails and the PV power is insufficient to cover the load demand, the storage powers the loads connected to the Back-up output.

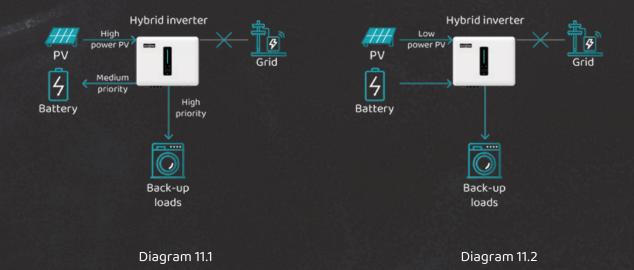
OFF-GRID MODE

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





CONNECTION DIAGRAMS

Diagram with a single-phase hybrid inverter

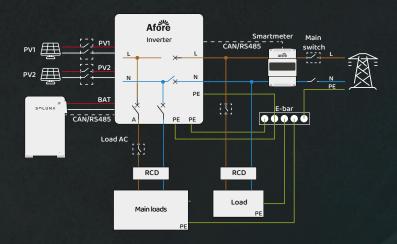


Diagram with a three-phase hybrid inverter

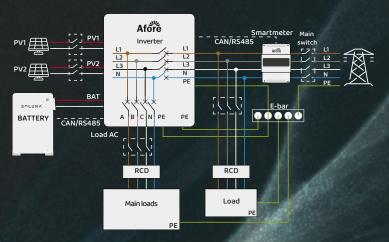
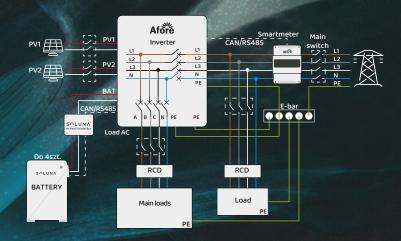


Diagram with a thee-phase hybrid inverter when using parallel Analogous diagram with single-phase connection





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OUR PARTNERS



SOLA KSTAR