

Three Phase PV String Inverter

3-15 kW Low-voltage Series



The Afore Three-phase string inverters Low-voltage Series are designed for commercial and power plant PV system applications, rating from 3kW to 15kW. All models with aluminum housings which is anodized, increasing durability and effectively prevents corrosion. Equipped with external inductors, ensure efficient heat dissipation, which significantly improves the reliability and extends the life of the inverters.

The inverter menu is activated by sensor touch buttons. Communication implements are via the Wi-Fi module (can be changed to Ethernet / GPRS). Check the system status anytime and anywhere via online portal APP.



MPPT Range
Wide MPPT Range



PV OVERSIZE
1.5 Times PV Oversize



UNIBODY
One-piece
Aluminum Housing



PROTECTION
Build-in SPD Type II



SMART
Smart IV Curve Scanning



UPDATE
Remote Firmware Update

Quick Arc Fault circuit interruption (Optional)



Multiple intelligent protections

WiFi standard



Compatible with bifacial modules

Compact design



String level monitoring

Technical Data

	BNT003KTA	BNT004KTA	BNT005KTA	BNT006KTA	BNT008KTA	BNT010KTA	BNT012KTA	BNT015KTA
PV Input Data								
Max. DC Power (W)	5100	6000	7500	9000	12000	15000	18000	22500
Max. DC Voltage (V)	750							
MPPT Voltage Range (V)	150 - 600							
MPPT Full Power Voltage Range (V)	220 - 600						330 - 600	
Rated Input Voltage (V)	380				400			
Start-up Voltage (V)	150							
Max. Input Current (A)	15 x 2			20 + 32		32 x 2		
Max. Short Current (A)	25 x 2			30 x 48		48 x 2		
No. of MPP Tracker / No. of PV String	2/2			2/3		2/4		
Input Connector Type	MC4							
AC Output Data								
Max. Output Power (VA)	3300	4400	5500	6600	8800	11000	13200	16500
Nominal Output Power (W)	3000	4000	5000	6000	8000	10000	12000	15000
Max. Output Current (A)	10.5	13.5	17	21.5	27	30	32	40
Nominal Output Voltage (V)	3P+N+PE/3P+PE 133/ 220 or 230							
Grid Voltage Range	180-260Vac (According to local standard)							
Nominal Output Frequency (Hz)	50/ 60							
Grid Frequency Range	45-55 / 55-65Hz (According to local standard)							
Output Power Factor	1 default (adjustable from 0.8 leading to 0.8 lagging)							
Output Current THD	<3%							
Efficiency								
Max. Efficiency	97.50%			98.00%		98.10%	98.00%	98.40%
Euro Efficiency	97.00%	97.40%		97.50%			97.80%	
Protection								
PV Reverse Polarity Protection	YES							
PV Insulation Resistance Detection	YES							
AC Short Circuit Protection	YES							
AC Over Current Protection	YES							
AC Over Voltage Protection	YES							
Anti-Islanding Protection	YES							
Residual Current Detection	YES							
Over Temperature Protection	YES							
Integrated DC switch	YES							
Surge Protection	Integrated (Type II)							
Smart IV Curve Scanning	YES							
Quick Arc Fault Circuit Interruption	Optional							
General Data								
Dimensions (W x H x D, mm)	370 x 510 x 167			370 x 510 x 192			370 x 535 x 192	
Weight (kg)	16	16	17	19				
Protection Degree	IP65							
Enclosure Material	Aluminum							
Ambient Temperature Range (°C)	-25 - +60							
Humidity Range	0 - 100%							
Topology	Transformerless							
Communication Interface	RS485 / WiFi / Wire Ethernet / GPRS (optional)							
Cooling Concept	Convection				Intelligent fan cooling			
Noise Emission (db)	<30			<40			<51	
Night Power Consumption (W)	<1							
Max. Operation Altitude (m)	2000							
Certifications and Standards								
EMC Standard	EN/IEC 61000-6-2, EN/IEC 61000-6-3, EN61000-3-2, EN61000-3-3, EN61000-3-11, EN61000-3-12							
Safety Standard	IEC 60068, UL1741, EN62109							
Grid-connection	IEEE1547, CSA C22, EN50549, VDE4105, VDE0126, RD1699, ABNT NBR16149 & 16150, AS4777.2, NB/T32004, G98/G99, IEC61727							

Three Phase PV String Inverter

17-30 kW Low-voltage Series



The Afore Three-phase string inverters Low-voltage Series are designed for commercial and power plant PV system applications, rating from 17kW to 30kW. All models with aluminum housings which is anodized, increasing durability and effectively prevents corrosion. Equipped with external inductors, ensure efficient heat dissipation, which significantly improves the reliability and extends the life of the inverters.

The inverter menu is activated by sensor touch buttons. Communication implements are via the Wi-Fi module (can be changed to Ethernet / GPRS). Check the system status anytime and anywhere via online portal APP.

Max. 20A String Current Up To 20A	Max. 1.5 Max. 1.5 Time PV Oversize Input	PROTECTION Multiple Intelligent Protections	ANTI-FLOW Anti-Feed-in Function	Wi-Fi Wi-Fi Standard, Ethernet/GPRS Optional	CONFIGURATION Quick & Easy Config. via Wi-Fi	MODBUS MODBUS Communication Ready
---	--	---	---	--	--	---

MPPT efficiency > 99.9%	IP 68 Cooling Fan
Intelligent Temperature Control System	Type II DC & AC lightning protection
Active and reactive power compensation, adjust power factor	AC output 1.1x continuous operation

Technical Data	BNT017KTA	BNT020KTA	BNT025KTA	BNT030KTA
PV Input Data				
Max. DC Power (W)	25500	30000	37500	45000
Max. DC Voltage (V)			750	
MPPT Voltage Range (V)			200 - 700	
MPPT Full Power Voltage Range (V)	310 - 600	320 - 600		300 - 600
Rated Input Voltage (V)			400	
Start-up Voltage (V)	150		200	
Max. Input Current (A)	38 x 2	38 x 3	40 x 3	38 x 4
Max. Short Current (A)	48 x 2	48 x 3	48 x 3	48 x 4
No. of MPP Tracker / No. of PV String	2 / 5	3 / 6	3 / 7	4 / 8
Input Connector Type			MC4	
AC Output Data				
Max. Output Power (VA)	18700	22000	27500	33000
Nominal Output Power (W)	17000	20000	25000	30000
Max. Output Current (A)	48	60	80	96
Nominal Output Voltage (V)			3P+N+PE/3P+PE 133/ 220 or 230	
Grid Voltage Range			180-260Vac (According to local standard)	
Nominal Output Frequency (Hz)			50/60	
Grid Frequency Range			45-55 / 55-65Hz (According to local standard)	
Output Power Factor			1 default (adjustable from 0.8 leading to 0.8 lagging)	
Output Current THD			<3%	
Efficiency				
Max. Efficiency			98.40%	
Euro Efficiency	98.00%			98.10%
Protection				
PV Reverse Polarity Protection			YES	
PV Insulation Resistance Detection			YES	
AC Short Circuit Protection			YES	
AC Over Current Protection			YES	
AC Over Voltage Protection			YES	
Anti-Islanding Protection			YES	
Residual Current Detection			YES	
Over Temperature Protection			YES	
Integrated DC switch			YES	
Surge Protection			Integrated (Type II)	
General Data				
Dimensions (W x H x D, mm)	450 x 485 x 210		710 x 470 x 236	
Weight (kg)	26		44	51
Protection Degree			IP65	
Enclosure Material			Aluminum	
Ambient Temperature Range (°C)			-25 - +60	
Humidity Range			0-100 %	
Topology			Transformerless	
Communication Interface			RS485 / WiFi / Wire Ethernet / GPRS (optional)	
Cooling Concept			Intelligent Fan Cooling	
Noise Emission (db)		<51		<55
Night Power Consumption (W)			<1	
Max. Operation Altitude (m)			2000	
Certifications and Standards				
EMC Standard	EN/IEC 61000-6-2, EN/IEC 61000-6-3, EN61000-3-2, EN61000-3-3, EN61000-3-11, EN61000-3-12			
Safety Standard	IEC 60068, UL1741, EN62109			
Grid-connection	IEEE1547, CSA C22, EN50549, VDE4105, VDE0126, RD1699, ABNT NBR16149 & 16150, AS4777.2, NB/T32004, G98/G99, IEC61727			














Three Phase PV String Inverter

40-60 kW Low-voltage Series



The Afore Three-phase string inverters Low-voltage Series are designed for commercial and power plant PV system applications, rating from 40kW to 60kW. All models with aluminum housings which is anodized, increasing durability and effectively prevents corrosion. Equipped with external inductors, ensure efficient heat dissipation, which significantly improves the reliability and extends the life of the inverters.

The inverter menu is activated by sensor touch buttons. Communication implements are via the Wi-Fi module (which can be changed to Ethernet / GPRS). Check the system status anytime and anywhere via online portal or APP.

 SMART Intelligent string monitoring, Smart I-V curve scan	 PROTECTION Type II DC & AC Lighting Protection	 Max. 38A String Current Up to 38A	>1.5 icon" data-bbox="275 725 308 770"/> >1.5 PV OVERSIZE >1.5 Time PV Oversize Input	 POWER FACTOR Active and Reactive Power Compensation	 ANTI-FLOW Anti-Feed-in Function		
IP68 Cooling Fan 		Compatible with 210 Solar Panel & bifacial module 		Arc Fault Circuit Interrupter (AFCI) (Optional) 		AC output 1.1x continuous operation 	
		Multiple Intelligent Protections 		Remote firmware upgrade with simple operation 		DC side supports "Y" connector 	
				Supports aluminium wire access to reduce cost 			

Technical Data	BNT040KTA	BNT050KTA	BNT060KTA
PV Input Data			
Max. DC Power (W)	60000	75000	90000
Max. DC Voltage (V)		750	
MPPT Voltage Range (V)		200 - 750	
MPPT Full Power Voltage Range (V)		300 - 750	
Rated Input Voltage (V)		400	
Start-up Voltage (V)		200	
Max. Input Current (A)		38 x 6	
Max. Short Current (A)		48 x 6	
No. of MPP Tracker / No. of PV String		6/12	
Input Connector Type		MC4	
AC Output Data			
Max. Output Power (VA)	44000	55000	66000
Nominal Output Power (W)	40000	50000	60000
Max. Output Current (A)	120	143	158
Nominal Output Voltage (V)	3P+N+PE /3P+PE 133/230		
Grid Voltage Range	180Vac-260Vac (according to local standard)		
Nominal Output Frequency (Hz)	50/60		
Grid Frequency Range	45-55Hz/54-66Hz(according to local standard)		
Output Power Factor	1 default (adjustable from 0.8 leading to 0.8 lagging)		
Output Current THD	<3%		
Efficiency			
Max. Efficiency		99.00%	
Euro Efficiency	93.00%		98.40%
Protection			
PV Reverse Polarity Protection		YES	
PV Insulation Resistance Detection		YES	
AC Short Circuit Protection		YES	
AC Over Current Protection		YES	
AC Over Voltage Protection		YES	
Anti-Islanding Protection		YES	
Residual Current Detection		YES	
Over Temperature Protection		YES	
Integrated DC switch		YES	
Surge Protection		Integrated (Type II)	
Smart IV Curve Scanning		YES	
Quick Arc Fault Circuit Interruption		Optional	
General Data			
Dimensions (W x H x D, mm)		979 x 610 x 310	
Weight (kg)	72		76
Protection Degree		IP65	
Enclosure Material		Aluminum	
Ambient Temperature Range (°C)		-25 to 60	
Humidity Range		0 -100%	
Topology		Transformerless	
Communication Interface		RS485 / WiFi / Wire Ethernet / GPRS (optional)	
Cooling Concept		Intelligent fan cooling	
Noise Emission (db)	55		<60
Night Power Consumption (W)		<1	
Max. Operation Altitude (m)		≤4000	
Certifications and Standards			
EMC Standard	EN/IEC 61000-6-2, EN/IEC 61000-6-3, EN61000-3-2, EN61000-3-3, EN61000-3-11, EN61000-3-12		
Safety Standard	IEC 60068, UL1741, EN62109		
Grid-connection	IEEE1547, CSA C22, EN50549, VDE4105, VDE0126, RD1699, ABNT NBR16149 & 16150, AS4777.2, NB/T32004, G98/G99, IEC61727		

Three Phase Hybrid Storage Inverter

3-17 kW Delta Voltage Series



The Afore three phase storage inverters delta voltage series are designed to increase energy independence for homeowners and commercial users. The power range is from 3.0kW to 17kW, compatible with high voltage batteries.

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

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



WIDE RANGE
Voltage Range
(150-800V)



100% UNBALANCE
Support Unbalance Load



Max. 1.5
1.5 Times PV Oversize



Max. 40A
String Current Up To 40A



<10 ms
UPS FUNCTION
Switch Time < 10ms



INPUT
Support Generator

Support for Time-of-use Optimization

Configurable Operation Modes

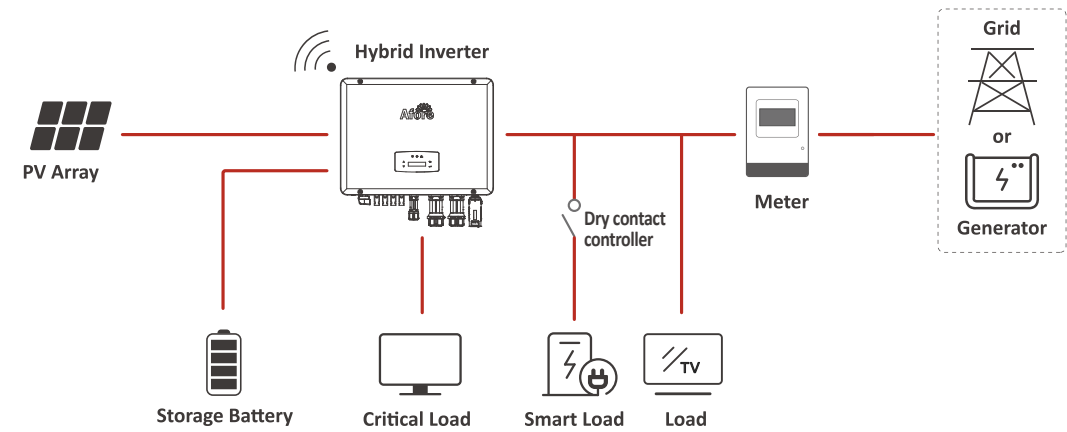
AFCI (Optional) & Rapid Shutdown Ready

Build in Anti-feed-in Function

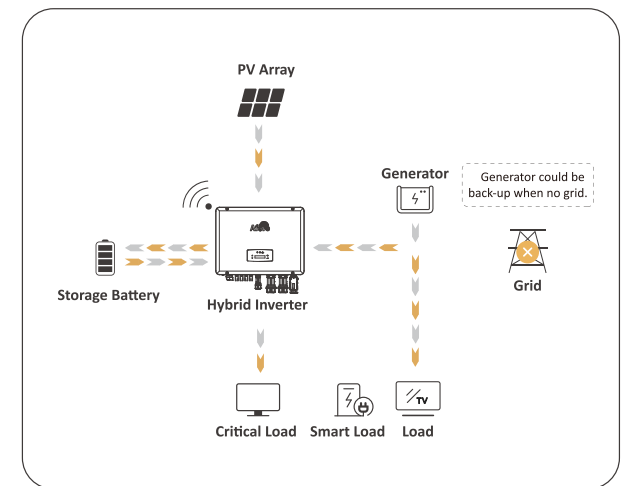
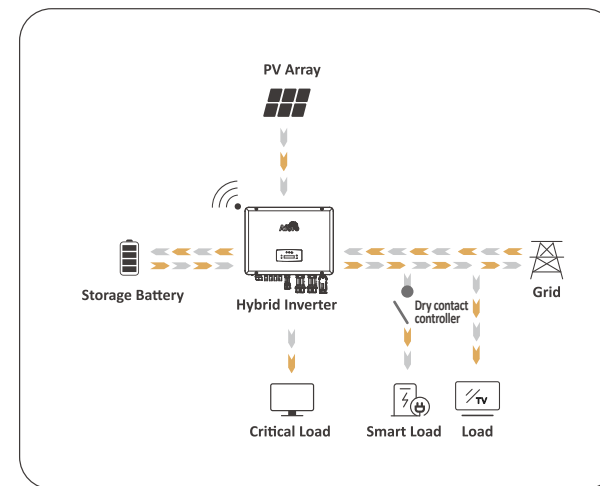
100% unbalanced output, each phase;
200% unbalanced output, each phase (Below 10kW)

Smart Monitoring & Remote Firmware Upgrade

For New Storage System:

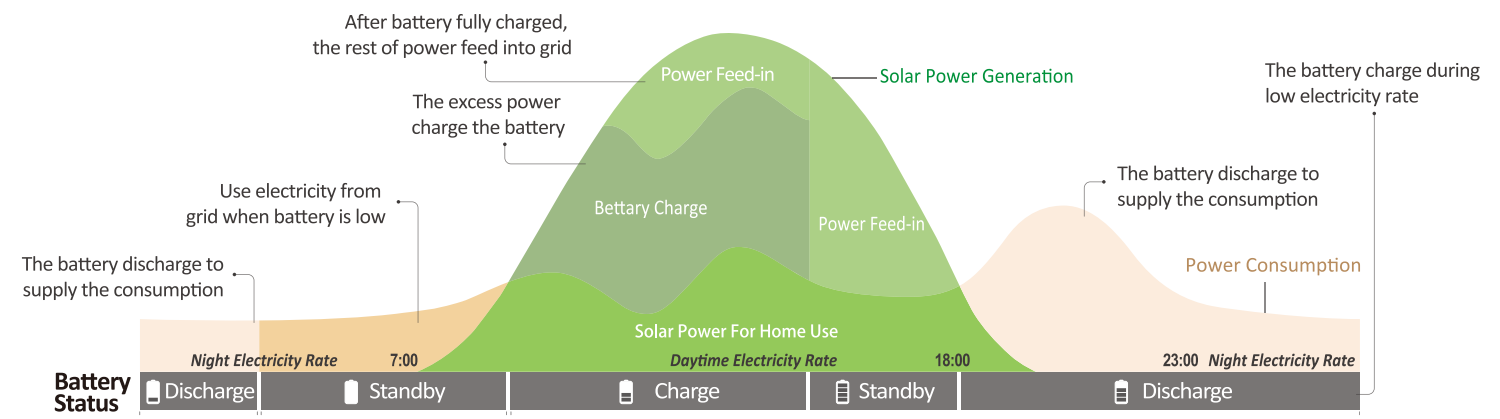


Optimizing Self-Consumption (on-grid) + Emergency Power Supply (off-grid)



Optimizing Self-Consumption Mode

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



■ Technical Data	AF3K-THA	AF4K-THA	AF5K-THA	AF6K-THA	AF3K-THC	AF4K-THC
PV Input						
Max. DC Input Power (kW)	5	6	7.5	9	5	6
Max. PV Voltage (V)	1000					
Rated DC Input Voltage (V)	400					
DC Input Voltage Range (V)	150-1000					
MPPT Voltage Range (V)	150-850					
Full MPPT Range(V)	200-850					
Start-up Voltage (V)	160					
Max. DC Input Current (A)	20x2					
Max. Short Current(A)	30x2					
No. of MPPT Tracker / Strings	2/2					
Battery Port						
Battery Nominal Voltage (V)	200	200	200	250	100	100
Battery Voltage Range (V)	150-600			80-600		
Max. Charge/Discharge Current (A)	30			50		
Max. Charge/Discharge Power (kW)	3	4	5	6	3	4
Charging Curve	3 Stages					
Compatible Battery Type	Li-ion / Sodium-ion battery					
AC Grid						
Nominal AC Output Power (W)	3000	4000	5000	6000	3000	4000
Max. AC Input/Output Power (kVA)	4.5 / 3.3	6 / 4.4	7.5 / 5.5	9 / 6.6	4.5 / 3.3	6 / 4.4
Max. AC Output Current (A)	10.5	13.5	17	21.5	10.5	13.5
Nominal AC Voltage (V)	3P+N+PE/3P+PE 133/ 220 or 230					
Nominal AC Frequency (Hz)	50/60					
Power Factor	1 (-0.8-0.8) adjustable					
Current THD (%)	<3%					
AC Load Output (Back-up)						
Nominal Output Power (VA)	3000	4000	5000	6000	3000	4000
Nominal Output Voltage (V)	3P+N+PE/3P+PE 133/230					
Nominal Output Frequency (Hz)	50/60					
Nominal Output Current (A)	7.6	10.1	12.6	15.1	7.6	10.1
Peak Output Power	3300VA, 60s	4400VA, 60s	5500VA, 60s	6600VA, 60s	3300VA, 60s	4400VA, 60s
THDV (with linear load)	<3%					
Switching Time (ms)	<10					
Efficiency						
Europe Efficiency	97.50%					
Max. Efficiency	98.00%	98.20%	98.30%	98.00%	98.00%	98.20%
Battery Charge/Discharge Efficiency	98.00%					
Protection						
Reverse Polarity Protection	Yes					
Over Current / Voltage Protection	Yes					
Anti-islanding Protection	Yes					
AC Short-circuit Protection	Yes					
Leakage Current Detection	Yes					
Ground Fault Monitoring	Yes					
Grid Monitoring	Yes					
Enclosure Protect Level	IP65					
General Data						
Dimensions (W x H x D, mm)	558 x 535 x 260 mm					
Weight (kg)	29kg					
Topology	Transformerless					
Cooling Concept	Natural Convection	Intelligent Fan				
Relative Humidity	0-100%					
Operating Temperature Range (°C)	-25 to 60 °C					
Operating Altitude (m)	<4000					
Noise Emission (dB)	<30					
Standby Consumption (W)	<5					
Display & Communication Interfaces	LCD, LED, RS485, CAN, Wi-Fi, GPRS, 4G					
Certification & Approvals	NRS097, G98/G99, EN50549-1, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2					
EMC	EN61000-6-2, EN61000-6-3					

■ Technical Data	AF5K-THC	AF6K-THC	AF8K-THA	AF10K-THA	AF12K-THA	AF15K-THA	AF17K-THA	
PV Input								
Max. DC Input Power (kW)	7.5	9	12	15	18	22.5	25.5	
Max. PV Voltage (V)	1000							
Rated DC Input Voltage (V)	400							
DC Input Voltage Range (V)	150-1000							
MPPT Voltage Range (V)	150-850							
Full MPPT Range(V)	200-850			250-850		300-850		
Start-up Voltage (V)	160							
Max. DC Input Current (A)	20x2		20+32		32x2		40x2	
Max. Short Current(A)	30x2		30+48		48x2		60x2	
No. of MPPT Tracker / Strings	2/2		2/3		2/4		2/4	
Battery Port								
Battery Nominal Voltage (V)	150	150	200	250	300	350	400	
Battery Voltage Range (V)	80-600			150-600				
Max. Charge/Discharge Current (A)	50			60				
Max. Charge/Discharge Power (kW)	5	6	8	10	12	15	17	
Charging Curve	3 Stages							
Compatible Battery Type	Li-ion / Sodium-ion battery							
AC Grid								
Nominal AC Output Power (W)	5000	6000	8000	10000	12000	15000	17000	
Max. AC Input/Output Power (kVA)	7.5 / 5.5	9 / 6.6	12 / 8.8	15 / 11	18 / 13.2	22.5 / 16.5	25.5 / 18.7	
Max. AC Output Current (A)	17	21.5	27	30	32	40	48	
Nominal AC Voltage (V)	3P+N+PE/3P+PE 133/ 220 or 230							
Nominal AC Frequency (Hz)	50/60							
Power Factor	1 (-0.8-0.8) adjustable							
Current THD (%)	<3%							
AC Load Output (Back-up)								
Nominal Output Power (VA)	5000	6000	8000	10000	12000	15000	17000	
Nominal Output Voltage (V)	3P+N+PE/3P+PE 133/230							
Nominal Output Frequency (Hz)	50/60							
Nominal Output Current (A)	12.6	15.1	20.1	25.1	30.1	37.6	42.7	
Peak Output Power	5500VA, 60s	6600VA, 60s	8800VA, 60s	11000VA, 60s	13200VA, 60s	16500VA, 60s	18700VA, 60s	
THDV (with linear load)	<3%							
Switching Time (ms)	<10							
Efficiency								
Europe Efficiency	97.50%			97.80%		98.00%		98.10%
Max. Efficiency	98.20%	98.30%		98.50%				
Battery Charge/Discharge Efficiency	98.00%							
Protection								
Reverse Polarity Protection	Yes							
Over Current / Voltage Protection	Yes							
Anti-islanding Protection	Yes							
AC Short-circuit Protection	Yes							
Leakage Current Detection	Yes							
Ground Fault Monitoring	Yes							
Grid Monitoring	Yes							
Enclosure Protect Level	IP65							
General Data								
Dimensions (W x H x D, mm)	558 x 535 x 260 mm							
Weight (kg)	29kg					36kg		
Topology	Transformerless							
Cooling Concept	Intelligent Fan							
Relative Humidity	0-100%							
Operating Temperature Range (°C)	-25 to 60 °C							
Operating Altitude (m)	<4000							
Noise Emission (dB)	<30			<40				
Standby Consumption (W)	<5							
Display & Communication Interfaces	LCD, LED, RS485, CAN, Wi-Fi, GPRS, 4G							
Certification & Approvals	NRS097, G98/G99, EN50549-1, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2							
EMC	EN61000-6-2, EN61000-6-3							