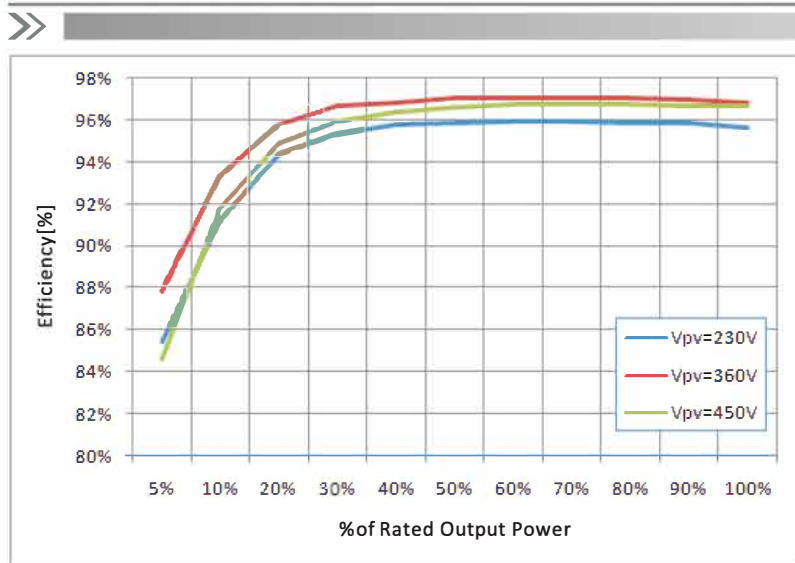


MASS ENERGY INVERTER 1-Phase String Inverter

1100TL/1600TL/2200TL/2700TL/3000TL



Efficiency Curve

High-yield

- Max 97.2% efficiency
- Real time precise MPPT algorithm for max harvest
- Wide input voltage operation range

All in one, flexible and economical system solution

- Free site selection due to IP65
- Easy installation and maintenance due to "Plug & Play" connection
- Interface selection – Wi-Fi / RS485 / GPRS
- 4" LCD display

Low maintenance cost

- Detachable cover for easy installation
- Rust-free Aluminum covers
- Flexible monitoring solution
- Multi function relay can be configured to show various inverter information

Intelligent grid management

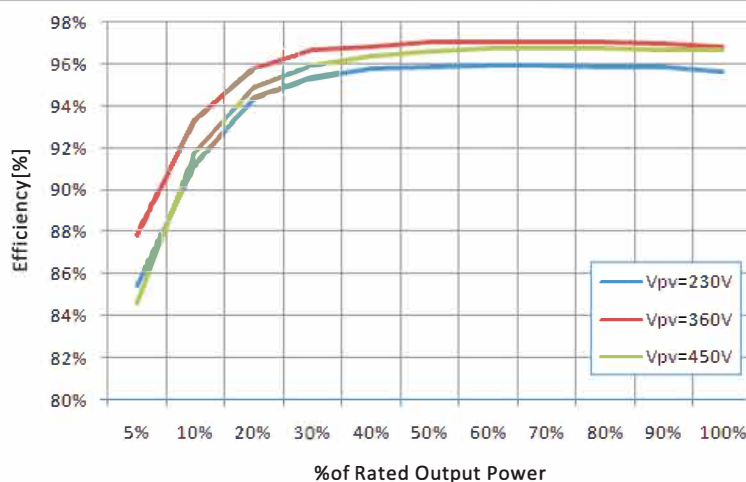
- Reactive power capability
- Self power reducer when over frequency
- Remote active/reactive power limit control

1100TL/1600TL/2200TL/2700TL/3000TL

Technical Data		SOFAR 1100TL	SOFAR 1600TL	SOFAR 2200TL	SOFAR 2700TL	SOFAR 3000TL
Input(DC)						
Max.Input Power		1100W	1600W	2200W	2700W	3000W
Number of MPPT/String per MPPT		1/1				
Max. input voltage		450V	500V			550V
Start-up input voltage		100V	120V			
Rated input voltage		360V				
MPPT voltage range		80-450 V	100-500 V			100-550 V
Full load DC voltage range		110-450 V	165-450 V	170-500 V	200-500 V	
Max. input current		10A		13A	13.5A	15A
Output(AC)						
Rated Power		1000VA	1500VA	2000VA	2500VA	2900VA
Max.AC Power		1000VA	1500VA	2000VA	2500VA	2900VA
Max.AC Output Current		4.5A	7A	9.5A	11.5A	13A
Nominal Grid Voltage		230V				
Grid Voltage Range		180~270 V(According to local standard)				
Nominal Frequency		50/60Hz				
Grid frequency Range		47~53 / 57~63Hz (According to local standard)				
THDi		<3%				
Power factor		1 (adjustable +/-0.8)				
Grid connection		Single phase				
Power Limit export		Zero export or adjustable power limit export				
Efficiency						
Max.efficiency			97%		97.1%	97.2%
Euro efficiency		95.2%	95.9%	96.1%	96.4%	96.5%
MPPT adaptation efficiency		>99.5%				
Standard						
EMC		EN 61000-6-1,EN61000-6-2,EN 61000-6-3,EN 61000-6-4				
Safety standards		IEC 62109-1,IEC 62109-2				
Grid standards		AS 4777, VDE V 0124-100, VDE V 0126-1-1, VDE-AR-N 4105, EN50438, G83/2, C10/11, RD1699				
Protection						
Anti-Islanding Protection		Yes				
DC Reverse Polarity Protection		Yes				
Over Temp Protection		Yes				
Leakage Current Protection		Yes				
Over Voltage Protection		Yes				
Over Current Protection		Yes				
Earth Fault Protection		Yes				
Communication						
Standard Communication Mode		wifi,RS485,GPRS(optional),SD card				
Operation Data Storage		25 years				
I/O		Yes				
General Date						
DC Switch		optional				
Ambient temperature range		-25°C...+60°C				
Topology		Transformerless				
Cooling		Natural				
Allowable relative humidity range		0...95% no condensing				
Max.operating altitude		2000m				
Noise		<25db@1m				
Degree of Protection(per IEC 60529)		IP65				
Dimension		405*314*135mm				
Weight		11kg			12kg	
Self-consumption at night		<1w				
Display		LCD display				
Warranty		5years				

MASS ENERGY INVERTER 1-Phase String Inverter

3000TLM/3680TLM/4000TLM/4600TLM/5000TLM/6000TLM



Efficiency Curve

High-yield

- Max 97.6% efficiency
- Real time precise MPPT algorithm for max harvest
- Wide input voltage operation range

All in one, flexible and economical system solution

- Free site selection due to IP65
- Easy installation and maintenance due to "Plug & Play" connection
- Interface selection – Wi-Fi / RS485 / GPRS
- 4" LCD display

Low maintenance cost

- Detachable cover for easy installation
- Rust-free Aluminum covers
- Flexible monitoring solution
- Multi function relay can be configured to show various inverter information

Intelligent grid management

- Reactive power capability
- Self power reducer when over frequency
- Remote active/reactive power limit control

MASS ENERGY INVERTER 1-Phase String Inverter

>> 3000TLM / 3680TLM / 4000TLM / 4600TLM / 5000TLM / 6000TLM

Technical Data		SOFAR 3000TLM	SOFAR 3680TLM	SOFAR 4000TLM	SOFAR 4600TLM	SOFAR 5000TLM	SOFAR 6000TLM
Input(DC)							
Max.Input power	3100W	3800W	4160W	4800W	5200W	6300W	
Max DC power for single MPPT	2000(200V-500V)	2400(200V-500V)	2600(200V-500V)	3000(200V-500V)		3150(250V-520V)	
Number of independent MPPT	2						
Number of DC inputs	1 for each MPPT						
Max. input voltage	600V						
Start-up input voltage	100V	120V					
Rated input voltage	360V						
MPPT voltage range	80V-580V	100V-580V					
Full load DC voltage range	160V-520V	165V-520V			175V-520V	250V-520V	
Max. input current per MPPT	10A/10A	12A/12A	13A/13A	15A/15A			
Input short circuit current for each MPPT	12A	14A	16A	18A			
Output(AC)							
Rated power	3000VA	3680VA	4000VA	4600VA	5000VA	6000VA	
Max. AC power	3000VA	3680VA	4000VA	4600VA	5000VA	6000VA	
Max. output current	13A	16A	17.5A	20A	22A	26A	
Nominal Grid Voltage	230V						
Grid Voltage Range	180~270 V(According to local standard)						
Nominal Frequency	50/60Hz						
Grid frequency range	47~53 / 57~63Hz (According to local standard)						
Active power adjustable range	0~100%						
THDi	<3%						
Power factor	1 (adjustable +/-0.8)						
Power Limit export	Zero export or adjustable power limit export						
Performance							
Max.efficiency	97.6%						
Weighted eff. (EU/CEC)	97.1%/97.3%						
Self-consumption at night	<1W						
Feed-in start power	20W						
MPPT efficiency	>99.5%						
Protection							
DC reverse polarity protection	Yes						
DC switch	optional						
Protection class /overvoltage category	I/III						
Input / output MOV (III)	Yes						
Safety protection	Anti islanding, RCMU, Ground fault monitoring						
Certification	CE, CGC, AS4777,AS3100,VDE 4105,C10-C11,G83/G59 (more available on request)						
Communication							
Power management unit	According to certification and request						
Standard Communication Mode	wifi,RS485,GPRS(optional),SD card						
Operation Data Storage	25 years						
General data							
Ambient temperature range	-25℃...+60℃						
Topology	Transformerless						
Degree of protection	IP65						
Allowable relative humidity range	0...95% no condensing						
Max.operating altitude	2000m						
Noise	<25dB						
Weight	18kg		19kg				
Cooling	Natural						
Dimension	344*478*170mm						
Display	LCD display						
Warranty	5years						

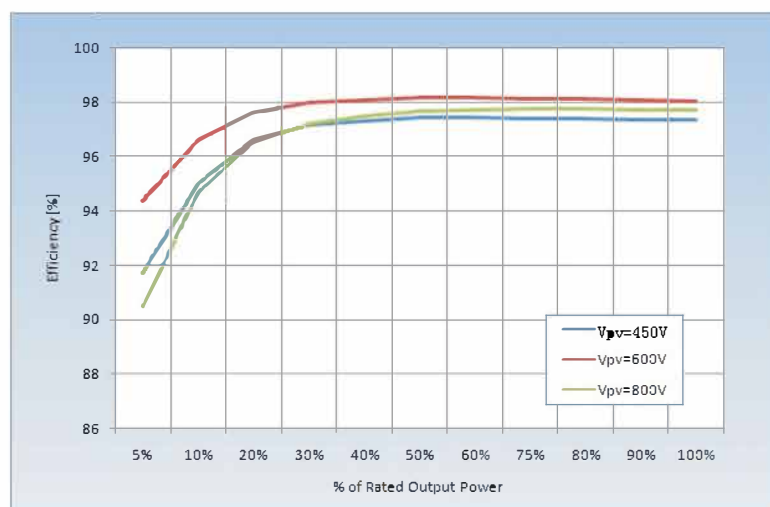


AS4777 G83/2 G59/3

CE, CQC, IEC, VDE-AR-N4105 / VDE-0126, EMC, C10/11, EN50438, RD1669, CEI 0-21

MASS ENERGY INVERTER 3-Phase String Inverter

4.4KTL-X/5.5KTL-X/6.6KTL-X/8.8KTL-X/11KTL-X/12KTL-X



Efficiency Curve

High-yield

- Max 98.3% efficiency
- Real time precise MPPT algorithm for max harvest
- Wide input voltage operation range from 160V to 960V

All in one, flexible and economical system solution

- DC switch
- 4 inch screen, English display
- Optimum selection for big PV plants, commercial buildings...

Low maintenance cost

- High power density
- Rust-free aluminum covers
- Flexible monitoring solution
- Small size, Light weight

Intelligent grid management

- Reactive power adjustable
- Self power reducer when over frequency
- Remote active/reactive power limit control

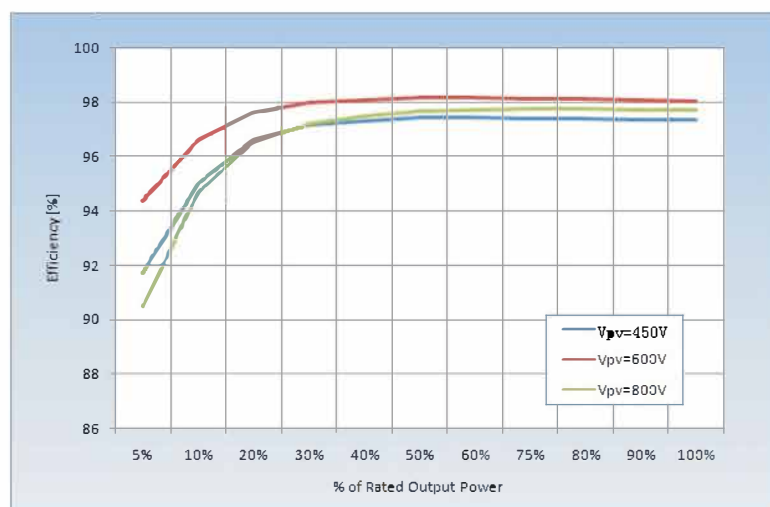
MASS ENERGY INVERTER 3-Phase String Inverter

>> 4.4KTL-X/5.5KTL-X/6.6KTL-X/8.8KTL-X/11KTL-X/12KTL-X

Technical Data		SOFAR 4.4KTL-X	SOFAR 5.5KTL-X	SOFAR 6.6KTL-X	SOFAR 8.8KTL-X	SOFAR 11KTL-X	SOFAR 12KTL-X
Input(DC)							
Typical PV Power	4800W	6000W	7200W	9600W	12000W	14400W	
Max DC power per MPPT	2640W	3300W	3960W	5280W	6600W	7200W	
Number of independent MPPT	2						
Number of DC inputs	1 for each MPPT						
Max. input voltage	1000V						
Start-up input voltage	180V						
Rated input voltage	600V						
MPPT voltage range	160V-960V						
Full load DC voltage range	190V-850V	240V-850V	290V-850V	380V-850V	480V-850V	575V-850V	
Max. input current per MPPT	11A/11A						
Input short circuit current for each MPPT	14A						
Output(AC)							
Rated power	4000VA	5000VA	6000VA	8000VA	10000VA	12000VA	
Max. AC power	4400VA	5500VA	6600VA	8800VA	11000VA	13200VA	
Max. output current	6.4A	8.0A	9.6A	12.8A	15.9A	19.1A	
Nominal Grid Voltage	3/N/PE,220/380		3/N/PE,230/400		3/N/PE,240/415		
Grid Voltage Range	184V-276V(According to local standard)						
Nominal Frequency	50/60Hz						
Grid frequency range	50Hz, +/-5Hz (According to local standard)						
Active power adjustable range	0~100%						
THDi	<3%						
Power factor	1 (adjustable +/-0.8)						
Performance							
Max.efficiency	98%			98.3%			
Weighted eff. (EU/CEC)	97.5%			98%			
Self-consumption at night	<1W						
Feed-in start power	45W						
MPPT efficiency	>99.5%						
Protection							
DC reverse polarity protection	Yes						
DC switch	Yes						
Safety protection	Anti islanding, RCMU, Ground fault monitoring						
Certification	CE, CGC, AS4777,AS3100,VDE4105,C10-C11,G83/G59(more available on request)						
Communication							
Power management unit	According to certification and request						
Standard Communication Mode	wifi (optional), GPRS(optional),SD card ,RS485						
Operation Data Storage	25 years						
General data							
Ambient temperature range	-25°C...+60°C						
Topology	Transformerless						
Degree of protection	IP65						
Allowable relative humidity range	0...95% no condensing						
Max.operating altitude	2000m						
Noise	<29dB						
Weight	21kg			22kg			
Cooling	Natural						
Dimension	483*452*200mm						
Display	LCD display						
Warranty	5years						

MASS ENERGY INVERTER 3-Phase String Inverter

10000TL/15000TL/17000TL/20000TL



Efficiency Curve

High-yield

- Max 98.2% efficiency
- Real time precise MPPT algorithm for max harvest
- Wide input voltage operation range from 250V to 960V

All in one, flexible and economical system solution

- DC switch
- DC surge protection device (option)
- AC surge protection device (option)
- Power management unit
- Optimum selection for big PV plants, commercial buildings...

Low maintenance cost

- Detachable cover for easy installation
- Rust-free aluminum covers
- Flexible monitoring solution
- Multi function relay can be configured to show various inverter information

Intelligent grid management

- ZVRT support
- Reactive power adjustable
- Self power reducer when over frequency
- Remote active/reactive power limit control

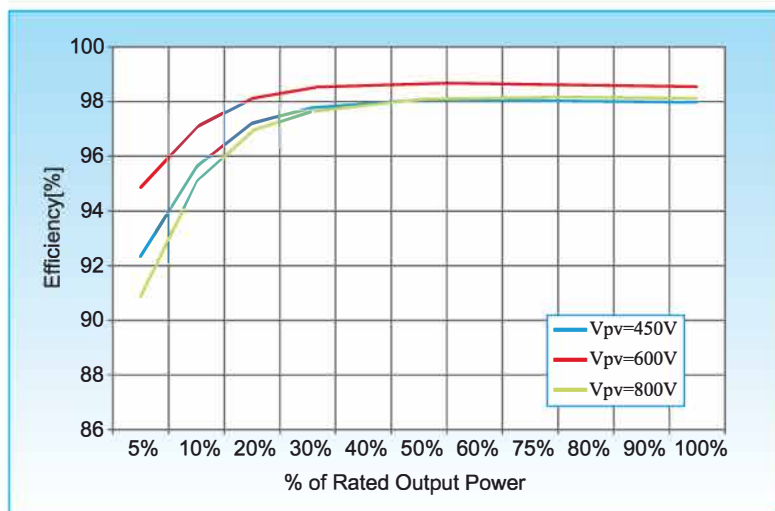
MASS ENERGY INVERTER 3-Phase String Inverter

10000TL / 15000TL / 17000TL / 20000TL

Technical Data		SOFAR 10000TL	SOFAR 15000TL	SOFAR 17000TL	SOFAR 20000TL
Input(DC)					
Max.Input power		10400W	15600W	17700W	20800W
Max DC power for single MPPT		6750(450V-850V)	10500(500V-850V)	10500(500V-850V)	12000(500V-850V)
Number of independent MPPT		2			
Number of DC inputs		2 for each MPPT		2 for each MPPT	
Max. input voltage		1000V			
Start-up input voltage		350V			
Rated input voltage		600V			
MPPT voltage range		250V-960V			
Full load DC voltage range		350V-850V	370V-850V	420V-850V	430V-850V
Max. input current per MPPT		15A/15A	21A/21A	21A/21A	24A/24A
Input short circuit current for each MPPT		20A	27A	27A	30A
Output(AC)					
Rated power(@230V,50Hz)		10000VA	15000VA	17000VA	20000VA
Max. AC power		10000VA	15000VA	17000VA	20000VA
Max. output current		15A	22A	25A	29A
Nominal Grid Voltage		3/N/PE,220/380 or 3/N/PE,240/415 or 3/N/PE,230/400			
Grid Voltage Range		180V ~ 270V			
Nominal Frequency		50/60Hz			
Grid frequency range		47~53 / 57~63Hz (According to local standard)			
Active power adjustable range		0~100%			
THDi		<3%			
Power factor		1(Adjustable +/-0.8)			
Performance					
Max efficiency		98.2%			
Weighted eff. (EU/CEC)		97.6%/97.8%	97.9%/98%	97.9%/98%	98%/98.1%
Self-consumption at night		<1W			
Feed-in start power		45W			
MPPT efficiency		>99.5%			
Protection					
DC reverse polarity protection		Yes			
DC switch		Yes			
Protection class /overvoltage category		I/III			
Input/output SPD(II)		Optional			
Safety protection		Anti islanding, RCMU, Ground fault monitoring			
Certification		CE, CGC, AS4777,AS3100,VDE4105,C10-C11,G59(more available on request)			
Communication					
Power management unit		According to certification and request			
Standard Communication Mode		RS485, Wifi (optional), GPRS(optional),SD card, Multi-function relay			
Operation Data Storage		25 years			
General data					
Ambient temperature range		-25°C...+60°C			
Topology		Transformerless			
Degree of protection		IP65			
Allowable relative humidity range		0...95% no condensing			
Max.operating altitude		2000m			
Noise		<45dB			
Weight		45kg	45kg	48kg	48kg
Cooling		Natural	Natural	Natural	Natural
Dimension		707*492*240mm			
Display		LCD display			
Warranty		5years			

MASS ENERGY INVERTER 3-Phase String Inverter

30000TL/33000TL/40000TL



Efficiency Curve

High-yield

- Max 98.7% efficiency
- Real time precise MPPT algorithm for max harvest
- Wide input voltage operation range from 250V to 960V

All in one, flexible and economical system solution

- DC switch
- DC surge protection device (option)
- AC surge protection device (option)
- Built-in PV Combiner
- Power management unit
- Optimum selection for big PV plants, commercial buildings...

Low maintenance cost

- Detachable cover for easy installation
- Rust-free aluminum covers
- Flexible monitoring solution
- Multi function relay can be configured to show various inverter information

Intelligent grid management

- ZVRT support
- Reactive power adjustable
- Self power reducer when over frequency
- Remote active/reactive power limit control

MASS ENERGY INVERTER 3-Phase String Inverter

30000TL/33000TL/40000TL

Technical Data	SOFAR 30000TL	SOFAR 33000TL	SOFAR 40000TL
Input(DC)			
Max.Input power	30720W	34000W	40800W
Max DC power for single MPPT	18000W(480V-800V)	20000W(480V-800V)	20400W(570V-800V)
Number of independent MPPT	2		
Number of DC inputs	4 for each MPPT		
Max. input voltage	1000V		
Start-up input voltage	350V		
Rated input voltage	600V	600V	700V
MPPT voltage range	250V-960V		
Full load DC voltage range	480V-800V	480V-800V	560V-800V
Max. input MPPT current	64A(32A/32A)	70A(35A/35A)	70A(35A/35A)
Max. input current per string	12A		
Output(AC)			
Rated power(@230V,50Hz)	27600W	30000W	36000W
Max. AC power	30000VA	33000VA	40000VA
Max. output current	43A	48A	48A
Nominal Grid Voltage	3/N/PE,3/PE,230/400Vac	3/N/PE,3/PE,230/400Vac	3/N/PE, 277/480Vac OR 3/PE, 277/480Vac
Grid Voltage Range	180Vac-270Vac	180Vac-270Vac	245Vac-305Vac
Nominal Frequency	50/60Hz		
Grid frequency range	47~53 / 57~63Hz (According to local standard)		
Active power adjustable range	0~100%		
THDi	<3%		
Power factor	1(Adjustable +/-0.8)		
Performance			
Max efficiency	98.5%	98.5%	98.7%
European weighted efficiency	98.2%	98.2%	98.4%
Self-consumption at night	<1W		
Feed-in start power	45W		
MPPT efficiency	>99.5%		
Protection			
DC reverse polarity protection	Yes		
DC switch	Yes		
Protection class /overvoltage category	I/III		
Input/output SPD(II)	Optional		
Safety protection	Anti islanding, RCMU, Ground fault monitoring		
Certification	CE,CGC,ZVRT,AS4777,AS3100,VDE4105,C10-C11,G59(more available on request)		
Communication			
Power management unit	According to certification and request		
Standard Communication Mode	RS485, Wifi (optional),GPRS(optional), SD card, Multi-function relay		
Operation Data Storage	25 years		
General data			
Ambient temperature range	-25°C...+60°C		
Topology	Transformerless		
Degree of protection	IP65		
Allowable relative humidity range	0...95% no condensing		
Max.operating altitude	3000m		
Noise	<30dB	<45dB	<45dB
Weight	50kg		
Cooling	Natural	Fan	Fan
Dimension	708.8*492*258mm		
Display	LCD display		
Warrantv	5years		

ENERGY STORAGE SYSTEM

ME 3000SP



Easy installation

- Compatible with existing grid-tied PV inverters.
- No need to upgrade distribution system.
- Uses a split-core CT, no need to disconnect the electrical grid at all.

Simple and Reliable

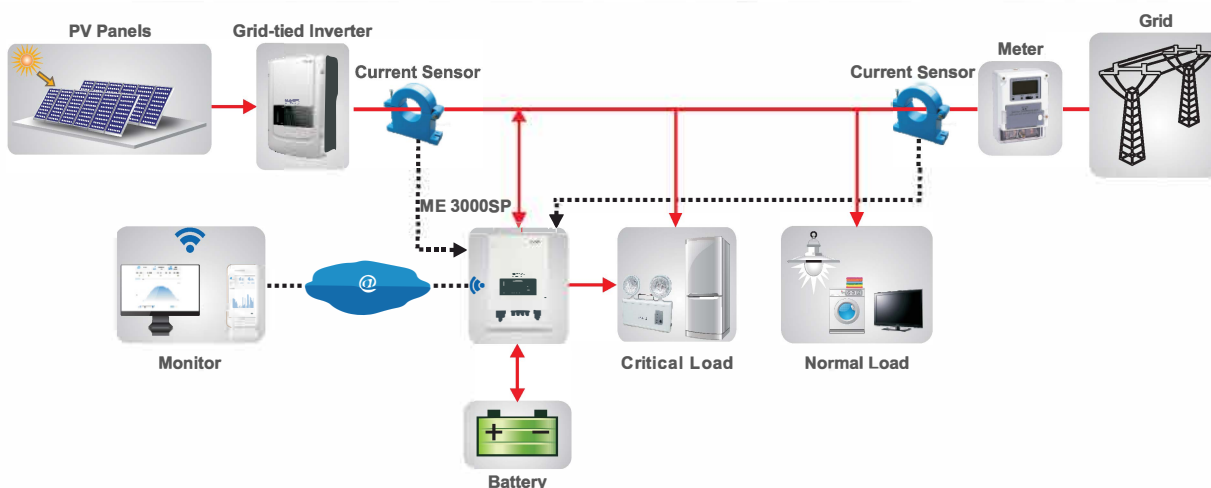
- Exchanges energy via the electrical grid, no coupling with PV inverter, mature technology, simple and reliable.
- Can integrate with all grid-tied renewable systems, including solar, wind, fuel cell etc.

Flexible solution

- Provides a full solution for energy consumers to maximize the use of their generated solar energy.
- Increases self-consumption rate (from 20% to 70%).
- User-adjustable battery charging current suits different types of batteries.

Multiple modes

- Supports stand alone mode (like UPS), Ensure the safe operation of critical load.
- Programmable multiple operations modes: Grid tie, Off grid, and grid-tie with backup.



ENERGY STORAGE SYSTEM

>> ME 3000SP

Technical Data

ME 3000SP

BATTERY PARAMETERS

Battery Type	Lead-acid,Lithium-ion
Nominal battery voltage	48V
Battery voltage range	42-58V
Recommended battery capacity	200Ah (100~500Ah optional)
Recommended Storage capacity	9.6kWh
Max.Charging Current	60A
Charging Current Range	0-60A(Programmable)
Charging curve	3-stage adaptive with maintenance
Max.Discharging Current	60A
Electronic protection	OCP OTP OVP
Short circuit protection	Fuse (100A)
Discharge times (Hour)	Po=1kVA9.6h Po=3kVA3.2h
Depth of discharge	Lithium : 0~80%DOD adjustable Lead-acid:0~50%DOD adjustable

AC PARAMETERS

Max.Output Power	3kVA
Rated Input/Output Voltage	230V
Max.Input/Output Current	13A
AC Input/Voltage Range	180V-270V
Grid Frequency Range	44~55Hz / 54~66Hz
THD	<3%
Power Factor	1(Adjustable +/-0.8)
Connection phase	single
Current(inrush)	0.8A/1us
Maximum output fault current	100A/1us
Maximum output overcurrent protection	13A

SYSTEM PARAMETERS

Max.Charging Efficiency	94.1%
Max.Discharging Efficiency	94.3%
Stanby Losses	<5W
Topology	High Frequency Isolated Transformer
Degree Of Protection	IP65
Safety Protection	Anti islanding, RCMU, Ground Fault Monitoring
Certification	AS4777,VDE0126-1-1,G83/2,C10/11,RD1699,UTEC15-712-1,EN50438,VDE-AR-N4105
Communication	WiFi,RS485,CAN2.0

ENVIRONMENTAL

Ambient temperature range	-25°C...+60°C (Above 45°Derating)
Allowable Relative Humidity Range	0... 100%, No Condensing
Protective Class	Class I
Max.Operating Altitude	2000m
Current Senor Connection	external

GENERAL DATA

Noise	<25dB
Weight	16kg
Cooling	Natural
Dimension(W*H*D)	532*360*173mm
Display	LCD display
Warranty	5 Years (Optional: extension to 10 years)

Emergency Power Supply

EPS rated power	3000VA
EPS rated voltage, Frequency	230V,50/60Hz
EPS rated current	13A
Total harmonic distortion	<3%
Switch time	<3s



AS4777 G83/2 G59/3

CE, CQC, IEC, VDE-AR-N4105 / VDE- 0126, EMC, C10/11, EN50438, RD1669, CEI 0-21