Impianto agrivoltaico
G R _ M A N D A S
della potenza di 26,576 MWp DC (26,025 MW AC in immissione)

REGIONE AUTONOMA DELLA SARDEGNA

COMUNI DI GESICO E MANDAS

STUDIO DI IMPATTO AMBIENTALE

Elaborato:

137PRG653D 00

Datasheet Sistema di accumulo

Settembre 2023

PROPONENTE:

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Energy Storage System Products Catalogue

SUNGROW
Clean power for all

EUROPE

2021 / 2022

ST2752UX

Liquid Cooling Energy Storage System

Preliminary

LOW COSTS

- Highly integrated ESS for easy transportation and O&M
- All pre-assembled, no battery module handling on site
- 8 hour installation to commission, drop on a pad and make electrical connections

SAFE AND RELIABLE

- DC electric circuit safety management includes fast breaking and anti-arc protection
- Multi level battery protection layers formed by discreet standalone systems offer impeccable safety

EFFICIENT AND FLEXIBLE

- Intelligent liquid cooling ensures higher efficiency and longer battery cycle life
- Modular design supports parallel connection and easy system expansion
- IP55 outdoor cablinet and optional C5 anti-corrosion

SMART AND ROBUST

- Fast state monitoring and faults record enables pre-alarm and faults location
- Integrated battery performance monitorinig and logging

EUROPE

Type designation	ST2752UX
Battery Data	
Cell type	LFP
Battery capacity (BOL)	2752 kWh
System output voltage range	1300 – 1500 V
General Data	
Dimensions of battery unit (W * H * D)	9340*2520*1730 mm
Weight of battery unit	26,000 kg
Degree of protection	IP 55
Operating temperature range	-30 to 50 ℃ (> 45 ℃ derating)
Relative humidity	0 ~ 95 % (non-condensing)
Max. working altitude	3000 m
Cooling concept of battery chamber	Liquid cooling
Fire safety standard/Optional	Deluge sprinker heads (standard), Fused sprinkler heads (optional), NFPA69 explosion prevention and ventillation IDLH gases (optional)
Communication interfaces	RS485, Ethernet
Communication protocols	Modbus RTU, Modbus TCP
Compliance	CE, IEC 62477-1, IEC 61000-6-2, IEC61000-6-4, IEC62619
2 HOURS APPLICATION-ST2752UX*4-5000UD-MV	
BOL kWh (DC/AC LV Side)	11,008 kWh DC / 10,379 kWh AC
ST2752UX Quantity	4
PCS Model	SC5000UD-MV
4 HOURS APPLICATION-ST2752UX*8-5000UD-MV	
BOL kWh (DC/AC LV Side)	22,016 kWh / 21,448 kWh
ST2752UX Quantity	8
PCS Model	SC5000UD-MV
Grid Connection Data	
Max.THD of current	< 3 % (at nominal power)
DC component	< 0.5 % (at nominal power)
Power factor	> 0.99 (at nominal power)
Adjustable power factor	1.0 leading – 1.0 lagging
Nominal grid frequency	50 / 60 Hz
Grid frequency range	45 – 55 Hz / 55 – 65 Hz
Transformer	
Transformer rated power	5,000 kVA
LV/MV voltage	0.95 kV / 33 kV
Transformer cooling type	ONAN (Oil Natural Air Natural)
Oil type	Mineral oil (PCB free) or degradable oil on request

SC2000UD

Power Conversion System

HIGH YIELD

- Advanced three-level technology, max. efficiency 99%
- Effective forced air cooling, no derating up to 45°C
- Wide DC voltage operation window, full power operation at 1500 V

SMART O&M

- Modular design,easy for maintenance
- IP65 protection degree, easy for outdoor installation
- C5 anti-corrosion degree, adjust to applications close to the sea

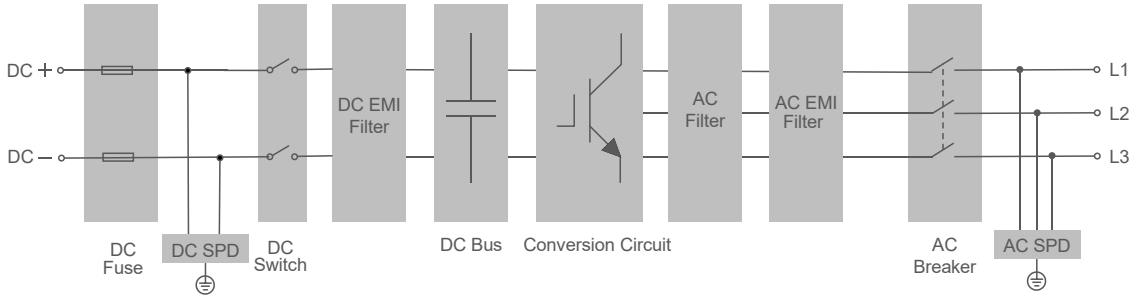
FLEXIBLE APPLICATION

- Bidirectional power conversion system with full four-quadrant operation
- Compatible with high voltage battery system, low system cost
- Battery charge & dis-charge management and black start function integrated

GRID SUPPORT

- Compliant with CE, IEC 62477, IEC 61000 and grid regulations
- Fast active/reactive power response
- L/HVRT, L/HFRT, soft start/stop, specified power factor control and reactive power support

CIRCUIT DIAGRAM



EUROPE

System Type	SC2000UD
DC side	
Max. DC voltage	1500 V
Min. DC voltage	1150 V
DC voltage range	1150 – 1500 V
Max. DC current	1935 A
No. of DC inputs	1
AC side (Grid)	
AC output power	2000 kVA @ 45 ℃/ 2200 kVA @ 30 ℃
Max. AC output current	1443 A @ 45 ℃ / 1587 A @ 30 ℃
Nominal AC voltage	800 V
AC voltage range	704 – 880 V
Nominal grid frequency / Grid frequency range	50 Hz / 45 – 55 Hz, 60 Hz / 55 – 65 Hz
Harmonic (THD)	< 3 % (at nominal power)
Power factor at nominal power / Adjustable power factor	>0.99 / 1 leading – 1 lagging
Adjustable reactive power range	-100 % – 100 %
Feed-in phases / AC connection	3 / 3-PE
AC side (Off-Grid)	
Nominal AC voltage	800 V
AC voltage range	704 – 880 V
AC voltage Distortion	< 3 % (Linear load)
DC voltage component	< 0.5 % Un (Linear balance load)
Unbalance load Capacity	100 %
Nominal Voltage frequency / Voltage frequency range	50 Hz / 45 – 55 Hz, 60 Hz / 55 – 65 Hz
Efficiency	
Max. efficiency / European efficiency	99 % / 98.5 %
Protection	
DC input protection	Load break switch + fuse
AC output protection	Circuit breaker
Surge protection	DC Type II / AC Type II
Grid monitoring / Ground fault monitoring	Yes / Yes
Insulation monitoring	Yes
Overheat protection	Yes
General Data	
Dimensions (W*H*D)	1080*2400*1400 mm
Weight	1500 kg
Topology	Transformerless
Degree of protection	IP65
Operating ambient temperature range	-35 to 60 ℃ (> 45 ℃ derating)
Allowable relative humidity range	0 – 100 %
Cooling method	Temperature controlled forced air cooling
Max. operating altitude	4000 m (> 2000 m derating)
Display	LED, WEB HMI
Communication	RS485, CAN, Ethernet
Compliance	CE, IEC 62477-1, IEC 61000-6-2, IEC61000-6-4
Grid support	L/HVRT, L/HFRT, active & reactive power control and power ramp rate control, Volt-var, Volt-watt, Frequency-watt

SC5500UD-MV/SC6300UD-MV/ SC6900UD-MV

Power Conversion System

HIGH YIELD

- Advanced three-level technology, max. efficiency 99%
- Effective forced air cooling, no derating up to 45°C
- Wide DC voltage operation window, full power operation at 1500V

SMART O&M

- Modular design, easy for maintenance
- IP65 protection degree, easy for outdoor installation
- Optional C5 anti-corrosion degree, adjust to applications close to the sea

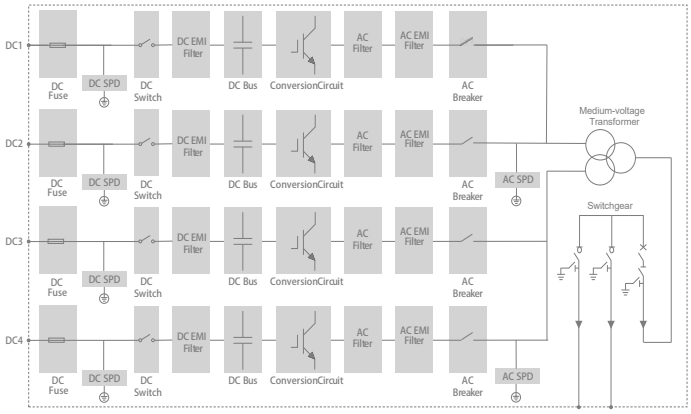
FLEXIBLE APPLICATION

- Bidirectional power conversion system with full four-quadrant operation
- Compatible with high voltage battery system, low system cost
- Battery charge & dis-charge management and black start function integrated

GRID SUPPORT

- Compliant with CE, IEC 62477, IEC 61000 and grid regulations
- Fast active/reactive power response
- L/HVRT, L/HFRT, soft start/stop, specified power factor control and reactive power support

CIRCUIT DIAGRAM



EUROPE

System Type	SC5500UD-MV	SC6300UD-MV	SC6900UD-MV
DC side			
Max. DC voltage		1500 V	
Min. DC voltage	800 V	915 V	1000 V
DC voltage range	800 – 1500 V	915 – 1500 V	1000 – 1500 V
Max. DC current		1935 A * 4	
No. of DC inputs		4	
AC side (Grid)			
AC output power	5500 kVA @ 45 ℃ 6050 kVA @ 30 ℃	6300 kVA @ 45 ℃ 6930 kVA @ 30 ℃	6900 kVA @ 45 ℃ 7590 kVA @ 30 ℃
Max. AC output current		6348 A	
Nominal AC voltage	550 V	630 V	690 V
AC voltage range	484 – 605 V	554 – 693 V	586.5 – 759 V
Nominal grid frequency / Grid frequency range		50 Hz / 45 – 55 Hz, 60 Hz / 55 – 65 Hz	
Harmonic (THD)		< 3 % (at nominal power)	
Power factor at nominal power / Adjustable power factor		>0.99 / 1 leading – 1 lagging	
Adjustable reactive power range		-100 % – 100 %	
Feed-in phases / AC connection		3 / 3-PE	
AC side (Off-Grid)			
Inverter port nominal AC voltage	550 V	630 V	690 V
Inverter port AC voltage range	484 – 605 V	554 – 693 V	586.5 – 759 V
AC voltage distortion		< 3 % (Linear load)	
DC voltage component		< 0.5 % Un (Linear balance load)	
Unbalance load capacity		100 %	
Nominal Voltage frequency / Voltage frequency range		50 Hz / 45 – 55 Hz, 60 Hz / 55 – 65 Hz	
Efficiency			
Inverter Max. efficiency		99.0 %	
Transformer			
Transformer rated power	5500 kVA	6300 kVA	6900 kVA
Transformer max. power	6050 kVA	6930 kVA	7590 kVA
LV / MV voltage	0.55 kV / (20 – 35) kV	0.63 kV / (20 – 35) kV	0.69 kV / (20 – 35) kV
Transformer vector		Dy11y11	
Transformer cooling type		ONAN	
Oil type		Mineral oil(PCB free) or degradable oil on request	
Protection			
DC input protection		Load break switch + fuse	
Inverter output protection		Circuit breaker	
AC output protection		Circuit breaker	
Surge protection		DC Type II / AC Type II	
Grid monitoring / Ground fault monitoring		Yes / Yes	
Insulation monitoring		Yes	
Overheat protection		Yes	
General Data			
Dimensions (W*H*D)		12192*2896*2438 mm (480''*114.0''*96.0'')	
Weight		27000 kg (59525 lbs)	
Degree of protection		IP54 (Inverter: IP65)	
Operating ambient temperature range		-35 to 60 ℃ (> 45 ℃ derating)	
Allowable relative humidity range		0 – 100 %	
Cooling method		Temperature controlled forced air cooling	
Max. operating altitude		1000 m (Standard) / > 1000 m (Optional)	
Display		LED, WEB HMI	
Communication		RS485, CAN, Ethernet	
Compliance		CE, IEC 62477-1, IEC 61000-6-2, IEC61000-6-4	
Grid support		L/HVRT, L/HFRT, active & reactive power control and power ramp rate control, Volt-var, Volt-watt, Frequency-watt	