

SH3.0/3.6/4.0/5.0/6.0RS

Residential Hybrid Single Phase Inverter



FLEXIBLE APPLICATION

- 80~460 V wide battery voltage range
- Ideal for both retrofitting and new installations
- Built-in smart PID recovery function



ENERGY INDEPENDENCE

- Seamless transition to backup mode, for protection against power outages
- Fast Charging or discharging, enabling higher self-consumption results
- Built-in EMS with advanced customization



USER FRIENDLY SETUP

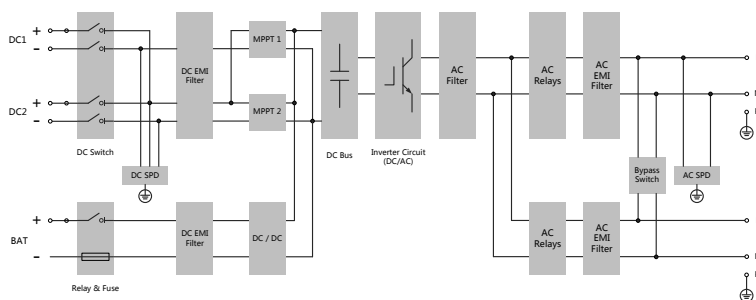
- Plug and play installation
- iSolarCloud monitoring available on App and Web
- Lightweight and compact, optimized for heat-dissipation



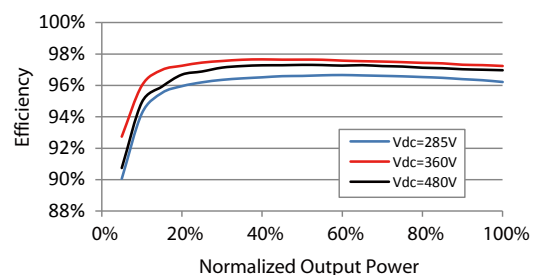
SMART MANAGEMENT

- Real time data (10 seconds refresh sample)
- 24/7 live monitoring both online and with integrated display
- Online IV curve scan and diagnosis

CIRCUIT DIAGRAM



EFFICIENCY CURVE (SH6.0RS)



Type designation	SH3.0RS	SH3.6RS	SH4.0RS	SH5.0RS	SH6.0RS
Input (DC)					
Recommended max. PV input power	10000 Wp	10700 Wp	11000 Wp	12000 Wp	13000 Wp
Max. PV input voltage	600 V				
Min. PV input voltage / Startup input voltage	40 V / 50 V				
Rated PV input voltage	360 V				
MPP voltage range	40V – 560 V				
No. of independent MPP inputs	2				
No. of PV strings per MPPT	1/1				
Max. PV input current	32 A (16 A/16 A)				
Max. DC short-circuit current	40 A (20 A/20 A)				
Max. current for input connector	20A				
Battery Data					
Battery type	Li-ion battery				
Battery voltage	80V - 460V				
Max charge / discharge current	30A / 30A				
Max charge / discharge power	6600W				
Input / Output (AC)					
Max. AC power from grid	10000 VA	10700 VA	11000 VA	12000 VA	13000 VA
Rated AC output power	3000 W	3680 W	4000 W	5000 W	6000 W
Max. AC output apparent power	3000 VA	3680 VA	4000 VA	5000 VA	6000 VA
Max. AC output current	13.7 A	16 A	18.2 A	22.8 A	27.3A
Rated AC voltage	220 / 230 / 240 V				
AC voltage range	154 V – 276 V				
Rated grid frequency	50 Hz / 60 Hz				
Grid frequency range	45 – 55 Hz / 55 – 65 Hz				
Harmonic (THD)	<3 % (of rated power)				
Power factor at Rated power / Adjustable power factor	>0.99 at default value at rated power				
Feed-in phases / connection phases	1 / 1				
Efficiency					
Max. efficiency / European efficiency	97.4 % / 97.0 %	97.5 % / 97.1 %	97.6 % / 97.2 %	97.7 % / 97.3 %	97.7 % / 97.3 %
Backup Data (on grid mode)					
Rated output power for backup load	6000 W				
Rated output current for backup load	27.3 A				
Backup Data (off-grid mode)					
Rated voltage	220 V / 230 V / 240 V (±2 %)				
Frequency range	50 Hz / 60 Hz (±0.2 %)				
Output voltage harmonic (THD)	< 2 %				
Switch time to emergency mode	< 10 ms				
Rated output power	3000W / 3000VA	3680W / 3680VA	4000 W / 4000 VA	5000W / 5000VA	6000W / 6000VA
Peak output power	8400 VA, 10s				
Protection & Function					
Grid monitoring	Yes				
DC reverse polarity protection	Yes				
AC short-circuit protection	Yes				
Leakage current protection	Yes				
DC switch(solar)	Yes				
DC fuse(battery)	Yes				
Surge Protection	DC Type II / AC Type II				
PID recovery function	Yes				
Parallel operation on grid port / Max. No of inverters	Master-slave mode / 5				
Battery input reverse polarity protection	Yes				
General Data					
Topology (Solar / Battery)	Transformerless / Transformerless				
Degree of protection	IP65				
Dimensions (W * H * D)	490 * 340 * 170 mm				
Weight	18.5 kg				
Mounting method	Wall-mounting bracket				
Operating ambient temperature range	-25 °C to 60 °C				
Allowable relative humidity range	0 % – 100 %				
Cooling method	Natural convection				
Max. operating altitude	4000 m				
Noise emission	< 45dB(A)				
Display	LED digital display & LED indicator				
Communication	RS485 / Ethernet / WLAN / CAN				
DI / DO	DI * 4 / DO * 1 / DRM				
DC connection type	MC4 (PV) / Sunclix (Battery)				
AC connection type	Plug and Play				
Grid compliance	IEC/EN 62109-1, IEC/EN 62109-2, IEC62116, IEC61727, IEC/EN 61000-3-11, IEC/EN 61000-3-12, EN 62477-1, AS/NZS 4777.2:2020, EN 50549-1, CEI 0-21, G98 / G99, UNE 217002:2020, NTS V2 TypeA, C10/26				



SH3K6/SH4K6

Hybrid Inverter

SUNGROW

Clean power for all



FLEXIBLE APPLICATION

- Convenient for new installation and retrofit
- Compatible with both lithium-ion and lead-acid batteries
- Energy trading ready with 3rd-party EMS to maximise ROI



SAFE AND RELIABLE

- Built-in surge arresters and residual current protection
- Durable finish with high anti-corrosion enclosure



SMART MANAGEMENT

- High self-consumption with optimised built-in EMS
- Free online monitoring to enhance energy management for end user, installer and retailer
- Remote firmware update and customisable settings



EASY INSTALLATION

- Custom-fit mounting plate with built-in level
- Fast and easy commissioning via front panel LCD or App
- Lightweight and compact



Type designation	SH3K6	SH4K6
PV Input Side Data		
Max. PV input power		6500 W
Max. PV input voltage		600 V
Startup voltage		125 V
Nominal input voltage		360 V
MPP voltage range		125 V – 560 V
MPP voltage range for nominal power	180 V – 520 V	220 V – 520 V
No. of MPPTs		2
Max. number of PV strings per MPPT		1 / 1
Max. PV input current		22 A (11 A / 11 A)
Max. current for input connector		12 A
Short-circuit current of PV input		24 A (12 A / 12 A)
AC Input and Output Data		
Nominal AC output power to grid	3680 W	4600 W
Max. AC output apparent power to grid	3680 VA	4600 VA
Max. AC input power from grid	3000 W	3000 W
Nominal AC output current	16 A	20 A
Max. AC output current	16 A	20 A
Nominal AC voltage		230 Vac
AC voltage range	180 Vac – 276 Vac (this may vary with grid standards)	
Nominal grid frequency	50 Hz	
Grid frequency range	45 Hz – 55 Hz (this may vary with grid standards)	
THD (Total Harmonic Distortion)	< 3 % (of nominal power)	
DC current injection	< 0.5 % (of nominal current)	
Power factor	> 0.99 at default value at nominal power (adj. 0.8 overexcited / leading–0.8 underexcited / lagging)	
Protection		
Anti-islanding protection		Yes
AC short circuit protection		Yes
Leakage current protection		Yes
DC switch (solar)		Yes
DC fuse (solar)		No
DC fuse (battery)		Yes
Overvoltage Category	III [MAINS], II [PV] [BATTERY]	
Battery Data		
Battery type	Li-ion battery / Lead-acid battery	
Battery voltage	48 V (32 V–70 V)	
Max. charge / discharge current	65 A / 65 A	
System Data		
Max. efficiency		> 97.7 %
European efficiency	> 97.0 %	> 97.2 %
Max. charge / discharge efficiency		> 94.0 %
Isolation method (solar)	Transformerless	
Isolation method (battery)	HF	
Ingress protection rating	IP65	
Night power consumption	< 1 W	
Operating ambient temperature range	-25 °C to 60 °C (> 45 °C derating)	
Allowable relative humidity range	0 %–100 %	
Cooling method	Natural convection	
Max. operating altitude	2000 m	
Display	Graphic LCD	
Communication	2 × RS485, Wi-Fi (optional), CAN, Ethernet	
Analogue inputs	PT1000	
Power management	1 × Digital Output	
Earth alarm	1 × Digital Output, email, buzzer inside	
PV connection type	MC4	
AC connection type	Plug and play connector	
Certification	VDE-AR-N-4105, DIN VDE0126-1-1, G83/2, G59/3, CEI 0-21, IEC 62109-1, IEC62109-2, EN 62477-1, EN 61000-6-1/-3	
Mechanical Data		
Dimensions (W * H * D)	457 mm * 515 mm * 170 mm	
Mounting method	Wall-mounting bracket	
Weight	22 kg	



Residential Hybrid Single Phase Inverter for Low Voltage Battery



FLEXIBLE APPLICATION

- Convenient for new installation and retrofit
- Compatible with both lithium-ion and leadacid batteries
- Energy trading ready with 3rd-party EMS to maximise ROI

SAFE AND RELIABLE

- Built-in surge arresters and residual current protection
- Durable finish with high anti-corrosion enclosure

SMART MANAGEMENT

- High self-consumption with optimised built-in EMS
- Free online monitoring to enhance energy management for end user, installer and retailer
- Remote firmware update and customisable settings

EASY INSTALLATION

- Custom-fit mounting plate with built-in level
- Fast and easy commissioning via front panel LCD or App
- Lightweight and compact

Type designation	SH5K-20	
DC Input Data		
Max. PV input power	6500 W	
Max. PV input voltage	600 V	
Startup voltage	125 V	
Nominal input voltage	350 V	
MPP voltage range	125 V-560 V	
MPP voltage range for nominal power	240 V-520 V	
No. of MPP	2	
Max. number of PV strings per MPPT	1/1	
Max. PV input current	22 A (11 A / 11 A)	
Max. current for input connector	24 A (12 A / 12 A)	
Short-circuit current of PV input	24 A (12 A / 12 A)	
AC Input and Output Data		
Max. AC input power	3000 W	
Nominal AC output power	4990 W	
Nominal AC output current	21.6 A	
Max. AC output apparent power	5000 VA	
Max. AC output current	21.7 A	
Nominal AC voltage	230 Vac	
AC voltage range	180 Vac-276 Vac (this may vary with grid standards)	
Nominal grid frequency	50 Hz	
Grid frequency range	45 Hz-55 Hz (this may vary with grid standards)	
THD (Total Harmonic Distortion)	<3 % (of nominal power)	
DC current injection	<0.5 % (of nominal current)	
Power factor	>0.99 at default value at nominal power (adj. 0.8 overexcited / leading to 0.8 underexcited / lagging)	
Protection		
Anti-islanding protection	Yes	
AC short circuit protection	Yes	
Leakage current protection	Yes	
DC switch (solar)	No	
DC fuse (battery)	Yes	
Overvoltage Category	III [MAIN], II [PV] [BATTERY]	
Battery Data		
Battery type	Li-ion* battery / Lead-acid battery	
Battery voltage	48 V (32 V-70 V)	
Max. charge / discharge current	65 A / 65 A	
System Data		
Max. efficiency	> 97.7 %	
Max. European efficiency	> 97.2 %	
Max. charge / discharge efficiency	> 94.0 %	
Isolation method (solar)	Transformerless	
Isolation method (battery)	HF	
Ingress protection rating	IP65	
Operating ambient temperature range	-25 °C-60 °C (>45 °C derating)	
Relative humidity range	0-100 %	
Cooling method	Natural convection	
Max. operating altitude	2000 m	
Display	Graphic LCD	
Communication	2 × RS485, WiFi (optional) , CAN, Ethernet	
Analogue input	PT1000	
Power management	1 × Digital Output	
Earth alarm	Email, buzzer inside	
PV connection type	MC4	
AC connection type	Clamping yoke connector	
Certification	AS4777, IEC 62109-1, IEC62109-2, IEC62477-1, IEC 62040-1, EN 61000-6-1/-3	
Mechanical Data		
Dimensions (W * H * D)	457 mm * 515 mm * 170 mm	
Mounting method	Wall-mounting bracket	
Weight	22 kg	

*: sungrow provides Samsung SDI battery as standard solution.

Note: SH5K-20 needs extra backup box outside when switching a system from on-grid to off-grid.

Residential Hybrid Single Phase Inverter for Low Voltage Battery



FLEXIBLE APPLICATION

- Convenient for new installation and retrofit
- Compatible with both lithium-ion and lead-acid batteries
- Energy trading ready with 3rd-party EMS to maximise ROI

SAFE AND RELIABLE

- Built-in surge arresters and residual current protection
- Durable finish with high anti-corrosion enclosure

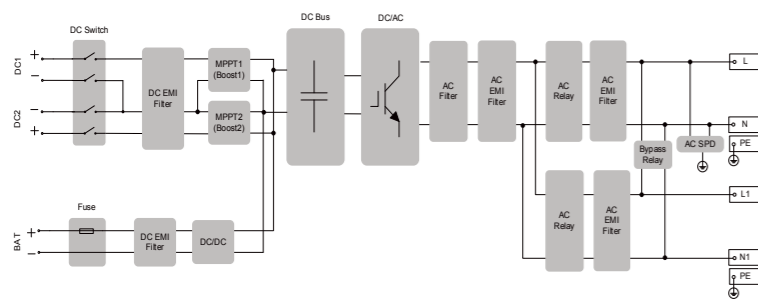
SMART MANAGEMENT

- High self-consumption with optimised built-in EMS
- Free online monitoring to enhance energy management for end user, installer and retailer
- Remote firmware update and customisable settings

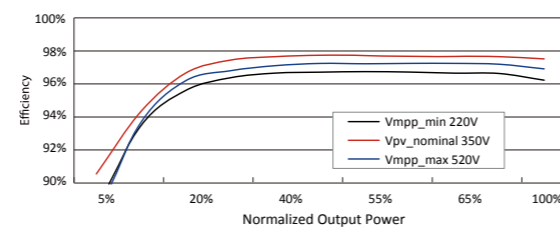
EASY INSTALLATION

- Cleaner and simpler install with EPS built-in to inverter
- Custom-fit mounting plate with built-in level
- Fast and easy commissioning via front panel LCD or App

CIRCUIT DIAGRAM



EFFICIENCY CURVE



Type designation	SH5K-30	
DC Input Data		
Max. PV input power	6500 W	
Max. PV input voltage	600 V	
Startup voltage	125 V	
Nominal input voltage	350 V	
MPP voltage range	125 V – 560 V	
MPP voltage range for nominal power	240 V – 520 V	
No. of MPPTs	2	
Max. number of PV strings per MPPT	1/1	
Max. PV input current	22 A (11 A / 11 A)	
Max. current for input connector	12 A	
Short-circuit current of PV input	24 A (12 A / 12 A)	
AC Input and Output Data		
Nominal AC output power	5000 W *1	
Nominal AC output current	22.7 A *2	
Max. AC output apparent power	5000 VA	
Max. AC output current	22.7 A *2	
Max. AC input power	8000 W	
Max. AC input current	36.4 A *3	
Nominal AC voltage	220 Vac / 230 Vac / 240 Vac	
AC voltage range	176 Vac~276 Vac	
Nominal grid frequency	50 Hz / 60 Hz	
Grid frequency range	45~55 Hz / 55~65 Hz (this may vary with grid standards)	
THD (Total Harmonic Distortion)	<3 % (of nominal power)	
DC current injection	<0.5 % (of nominal current)	
Power factor	>0.99 at default value at nominal power (adj. 0.8 overexcited / leading to 0.8 underexcited / lagging)	
Protection		
Anti-islanding protection	Yes	
AC short circuit protection	Yes	
Leakage current protection	Yes	
DC switch (solar)	Optional	
DC fuse (battery)	Yes	
Overvoltage Category	III [MAIN], II [PV] [BATTERY]	
Battery Data		
Battery type	Li-ion* battery / Lead-acid battery	
Battery voltage	48 V (32 V~70 V)	
Max. charge / discharge current	65 A / 65 A	
System Data		
Max. efficiency	> 97.7 %	
Max. European efficiency	> 97.1 %	
Max. charge / discharge efficiency	> 94.0 %	
Isolation method (solar)	Transformerless	
Isolation method (battery)	HF	
Ingress protection rating	IP65	
Operating ambient temperature range	-25 °C~60 °C (>45 °C derating)	
Relative humidity range	0%~100%	
Cooling method	Natural convection	
Max. operating altitude	2000m	
Display	Graphic LCD	
Communication	2 × RS485, WiFi, CAN, Ethernet	
Power management	1 × Digital Output	
Earth alarm	Email, buzzer inside	
PV connection type	MC4	
AC connection type	Clamping yoke connector	
Certification	AS4777, IEC 62109-1, IEC62109-2, IEC62477-1, IEC 62040-1, EN 61000-6-1/-3, ABNT NBR 16149: 2013 ABNT NBR 16150: 2013	
Mechanical Data		
Dimensions (W * H * D)	457 mm * 515 mm * 170 mm	
Mounting method	Wall-mounting bracket	
Weight	22 kg	

*: sungrow provides Samsung SDI battery as standard solution.

*1: AS4777 : 4990 W, 4990 VA

*2: AS4777 : 21.7 A

*3: AS4777 : 34.8 A

SH5.0/6.0/8.0/10RT

Residential Hybrid Three Phase Inverter



FLEXIBLE APPLICATION

- 150–600V wide battery voltage range
- Supports parallel connection with master-slave controlling
- Provides 100% power to unbalance loads in backup mode



ENERGY INDEPENDENCE

- Seamless transition to backup mode for protection against power outages
- Fast charging / discharging to meet the demand of higher consumption



SMART MANAGEMENT

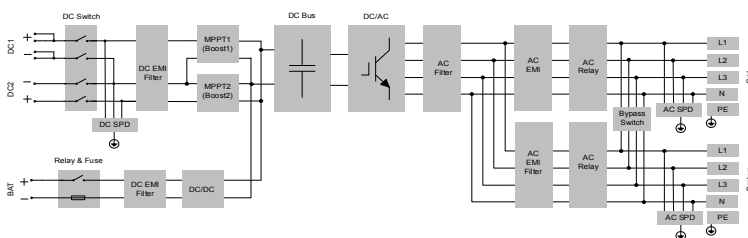
- High self-consumption with optimised built-in EMS
- Free online monitoring to enhance energy management for end user, installer and retailer
- Remote firmware update and customisable settings



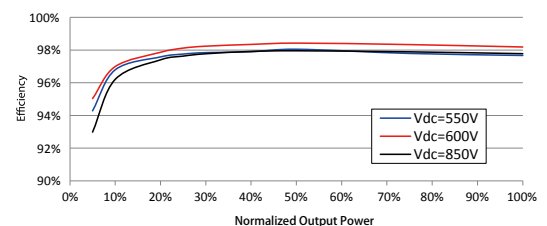
EASY INSTALLATION

- Unique push-in connectors for time-saving installation
- Touch free commissioning with smartphone
- Lightweight and compact

CIRCUIT DIAGRAM



EFFICIENCY CURVE



Type designation	SH5.0RT	SH6.0RT	SH8.0RT	SH10RT
PV Input				
Max. PV input power	7500 W	9000 W	12000 W	15000 W
Max. PV input voltage			1000 V	
Startup voltage	180 V	250 V	250 V	250 V
Nominal input voltage			600 V	
MPP voltage range	150 V – 950 V	200 V – 950 V	200 V – 950 V	200 V – 950 V
MPP voltage range for nominal power	210 V – 850 V	250 V – 850 V	330 V – 850 V	280 V – 850 V
No. of MPPTs			2	
Max. number of PV strings per MPPT	1 / 1	1 / 1	1 / 1	1 / 2
Max. PV input current	25A (12.5A / 12.5A)	25A (12.5A / 12.5A)	25A (12.5A / 12.5A)	37.5A (12.5A / 25A)
Max. current for input connector			16 A	
Short-circuit current of PV input	32 A (16 A / 16 A)	32 A (16 A / 16 A)	32 A (16 A / 16 A)	48 A (16 A / 32 A)
AC Input and Output				
Max. AC input power from grid	12500 W	15000 W	18600 W	20600 W
Nominal AC output power	5000 W	6000 W	8000 W	10000 W
Nominal AC output current	7.3 A	8.7 A	11.6 A	14.5 A
Max. AC output apparent power	5000 VA	6000 VA	8000 VA	10000 VA
Max. AC output current	7.6 A	9.1 A	12.1 A	15.2 A
Nominal AC voltage		3 / N / PE, 220 / 380 V; 230 / 400 V; 240 / 415 V		
AC voltage range		270 – 480 V		
Nominal grid frequency / Grid frequency range		50 Hz / 45 – 55 Hz, 60 Hz / 55 – 65 Hz		
THD		<3 % (of nominal power)		
DC current injection		<0.5 % I _n		
Power factor		>0.99 / 0.8 leading to 0.8 lagging		
Protection & Function				
LVRT			Yes	
Anti-islanding protection			Yes	
AC short circuit protection			Yes	
Leakage current protection			Yes	
DC switch (solar)			Yes	
DC fuse (battery)			Yes	
Overvoltage category		III [MAINS], II [PV] [BATTERY]		
SPD		DC Type II / AC Type II		
Battery input reverse polarity protection			Yes	
Parallel operation on grid port / Max. No. of inverters		Master-slave mode / 5* (need same inverters type)		
Battery Data				
Battery type		Li-ion battery		
Battery voltage		150 V – 600 V		
Max charge / discharge current		30 A** / 30 A**		
Max charge / discharge power	7500 W / 6000 W	9000 W / 7200 W	10600 W / 10600 W	10600 W / 10600 W
System Data				
Max. efficiency	98.0 %	98.2 %	98.4 %	98.4 %
European efficiency	97.2 %	97.5 %	97.9 %	97.9 %
Isolation method (solar / battery)		Transformerless / Transformerless		
Degree of protection		IP65		
Operating ambient temperature range		-25 °C – 60 °C		
Allowable relative humidity range (non-condensing)		0% – 100%		
Cooling method		Natural convection		
Max. operating altitude		4000 m (>3000 m derating)		
Noise (Typical)		30dB (A)		
Display		LED		
Communication		RS485, WLAN, Ethernet, CAN, 4*DI, 1*DO		
DC connection type		MC4 (PV) / Sunclix (Battery)		
AC connection type		Plug and play connector		
Compliance		IEC / EN 62109, IEC / EN 61000-6, EN 62477-1, IEC 61727, IEC 62116, IEC 61683, VDE-AR-N-4105, AS/NZS 4777.2, EN50549-1, NRS 097-2-1, TOR Generator Type A		
Mechanical Data				
Dimensions (W * H * D)		460 * 540 * 170 mm		
Mounting method		Wall-mounting bracket		
Weight		27 kg		
Backup Data				
Nominal voltage		3 / N / PE, 220 / 380 V; 230 / 400 V; 240 / 415 V		
Frequency range		50 Hz / 60 Hz		
Total harmonic factor output voltage (Linear load)		2 %		
Switch time to emergency mode		< 20ms		
Nominal output power	5000 W / 5000 VA	6000 W / 6000 VA	8000 W / 8000 VA	10000 W / 10000 VA
Peak output power ***	6000 W / 6000 VA, 5min 10000 W / 10000 VA, 10s	7200 W / 7200 VA, 5min 10000 W / 10000 VA, 10s	12000 W / 12000 VA, 5min	12000 W / 12000 VA, 5min
Rated output current for backup load during on grid mode		3 * 18.5 A		

*: Germany is available for 2 inverters parallel in maximum if no ripple control is used in system **: Depending on the connected battery

***: Can be reached only if PV and battery power is sufficient.

SC50HV

SUNGROW

For 1500 Vdc System



HIGH YIELD

- Advanced three-level technology, max. efficiency up to 98.6%
- Effective forced air cooling, 1.1 overload capacity, no derating up to 50°C
- Wide DC input voltage range, flexible for battery configuration

EASY O&M

- Compact design and light weight for easy installation
- Easy site commissioning & monitoring via APP

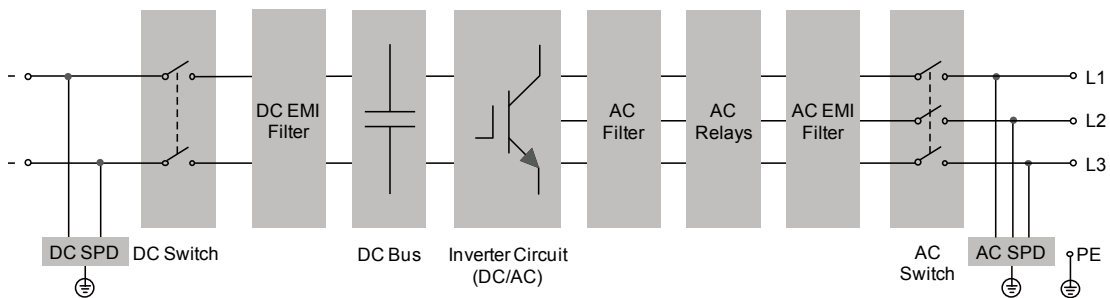
ESS APPLICATIONS

- Battery charge & discharge management integrated
- Bidirectional power conversion system with full four-quadrant operation
- Off-grid function design, can support the electrical equipment when the power grid fails
- Compatible with high voltage battery system, low system cost

GRID SUPPORT

- Compliance with IEC grid standards
- Grid support including L/HVRT, soft start/stop, specified power factor control and reactive power support

CIRCUIT DIAGRAM



Type designation	SC50HV
DC Side	
Max. DC voltage	1500 V
Min. DC voltage	580 V
DC voltage range for nominal power	580 – 1300V (@ 50 °C) / 580 – 1500V (@ 35 °C)
Max. DC current	96.6A
Max. DC power	56 kW
AC Side (Grid)	
AC output power	55 kVA @ 45 °C / 50 kVA @ 50 °C
Max. AC current	79.3 A
Nominal AC voltage	400 V
AC voltage range	360 – 440 V
Nominal grid frequency / Grid frequency range	50 Hz / 45 – 55 Hz, 60 Hz / 55 – 65 Hz
AC current THD	< 3 % (at nominal power)
DC current injection	< 0.5 % I _n
Power factor at nominal power	> 0.99
Adjustable reactive power	-100 % – 100 %
AC Side (Off-Grid)	
Nominal AC voltage	400 V ± 3 %
AC voltage THD	< 3 % (Linear load)
Nominal grid frequency / Grid frequency range	50 Hz / 45 – 55 Hz, 60 Hz / 55 – 65 Hz
AC output power	55 kVA @ 45 °C / 50 kVA @ 50 °C
Efficiency	
Max efficiency	98.6%
Protection	
Reverse polarity protection	Yes
DC switch	Yes
AC switch	Yes
Overvoltage 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)	600*800*278 mm
Weight	70 kg
Insulation method	Transformerless
Degree of protection	IP65
Operating ambient temperature range	-25 to 60 °C (> 50 °C derating)
Allowable relative humidity range (non-condensing)	0 – 100 %
Cooling concept	Temperature-controlled forced air cooling
Max. operating altitude	4000 m (> 3000 m derating)
Display	LED, Bluetooth + APP
Self-consumption at stop	< 20 W
Communication	RS485 / Ethernet / CAN
Communication protocol	Modbus-RTU / Modbus-TCP, CAN2.0B
Compliance	CE, IEC 62477, IEC 61000
Grid support	L/HVRT, active & reactive power control and power ramp rate control

