

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

Residential Hybrid Single Phase Inverter



FLEXIBLE APPLICATION

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

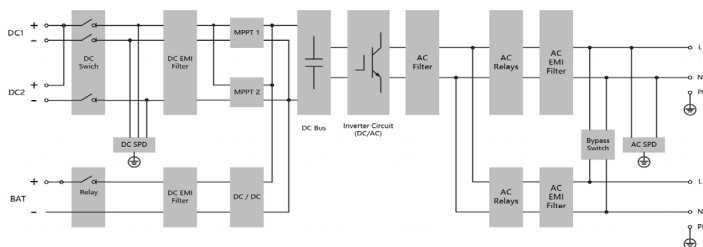
- Plug and play installation
- iSolarCloud monitoring available on App and Web
- Lightweight and compact, optimized for heat-dissipation



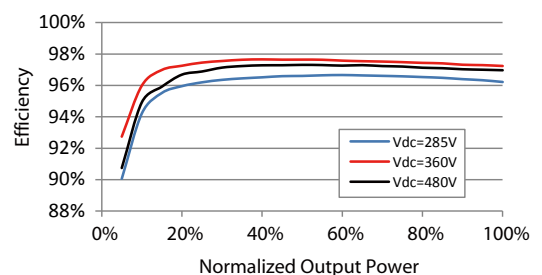
SMART MANAGEMENT

- Real time data (10 seconds refresh sample)
- 24/7 live online monitoring 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 *	4500 Wp	5400 Wp	6000 Wp	7500 Wp	9000 Wp
Max. PV input voltage **			600 V		
Min. PV input voltage / Startup input voltage			40 V / 50 V		
Rated PV input voltage			360 V		
MPPT operating voltage range ***			40 V – 560 V		
No. of independent MPP trackers			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			20 A		
Battery data					
Battery type			Li-ion battery		
Battery voltage range			80 V - 460 V		
Max. charge **** / discharge current ****			30 A / 30 A		
Max. charge / discharge power			6600 W		
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 V / 230 V / 240 V		
AC voltage range			154 V – 276 V		
Rated grid frequency			50 Hz / 60 Hz		
Grid frequency range			45 Hz – 55 Hz / 55 Hz – 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		
Backup data (on grid mode)					
Max. output power for backup load *****			6000 W		
Max. output current for backup load *****			27.3 A		
Backup data (off-grid mode)					
Rated voltage			220 V / 230 V / 240 V (± 2 %)		
Rated frequency			50 Hz / 60 Hz (± 0.2 %)		
THDV(@Linear load)			< 2 %		
Backup switch time			< 10 ms		
Rated output power	3000W / 3000VA	3680W / 3680VA	4000 W / 4000 VA	5000W / 5000VA	6000W / 6000VA
Peak output power			8400 VA, 10s		
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 %
Protection & Function					
Grid monitoring			Yes		
DC reverse polarity protection			Yes		
AC short-circuit protection			Yes		
Leakage current protection			Yes		
DC switch(solar)			Yes		
Surge protection			DC Type II / AC Type II		
PID Zero			Yes		
Parallel operation on grid port / Max. No of inverters			Master-slave mode / 3		
Optimizer compatibility *****			Optional		
General data					
Topology (Solar / Battery)			Transformerless / Transformerless		
Degree of protection			IP65		
Dimensions (W * H * D)			490 mm * 340 mm * 170 mm		
Weight			18.5 kg		
Mounting method			Wall-mounting bracket		
Operating ambient temperature range			-25 °C - 60 °C		
Allowable relative humidity range			0 % – 100 %		
Cooling method			Natural convection		
Max. operating altitude			4000 m		
Noise (typical)			< 45 dB (A)		
Display			LED digital display & LED indicator		
Communication			RS485 / Ethernet / WLAN / CAN		
DI / DO			DI * 4 / DO * 1 / DRM		
DC connection type			MC4 (PV, Max.6 mm ²) / Evo2 Compatible (Battery, Max.6 mm ²)		
AC connection type			Plug and Play (Grid Max.16mm ² , Backup Max.6mm ²)		
Grid compliance			IEC/EN 62109-1, IEC/EN 62109-2, IEC 62116, IEC 61727, IEC/EN 61000-3-11, IEC/EN 61000-3-12, EN 62477-1, AS/NZS 4777.2:2020, EN 50549-1, CEI 0-21, G 98 / G 99, UNE 217002:2020, NTS V2 TypeA, C10/26		

* Max. input PV power is 13,000 Wp ** Input voltage exceeding the MPPT operating voltage range triggers inverter protection *** Please refer to the user manual for the full load MPPT voltage range **** Depending on the connected battery ***** Please refer to the user manual and modify the settings based on actual load power ***** Calculated based on 220V grid voltage ***** For optimizer compatibility, please consult Sungrow before placing an order



SH5.0/6.0/8.0/10RT-20

Residential Hybrid Three Phase Inverter



FLEXIBLE APPLICATION

- DC 13.5A current input, compatible with high-power PV module
- Supports parallel connection with master-slave controlling
- Provides 100% power to unbalance loads in backup mode
- Supports application in retrofit scenario



SMART MANAGEMENT

- Compatible with AC EV Charger for green energy to EV
- 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



ENERGY INDEPENDENCE

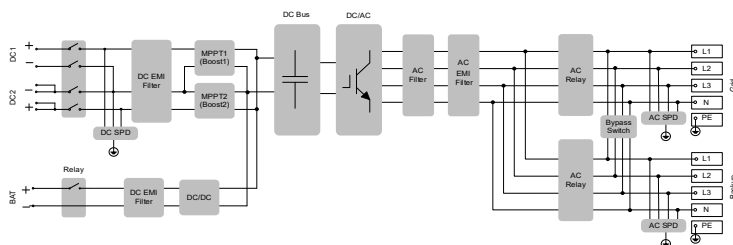
- Seamless transition to backup mode for protection against power outages
- Fast charging / discharging to meet the demand of higher consumption



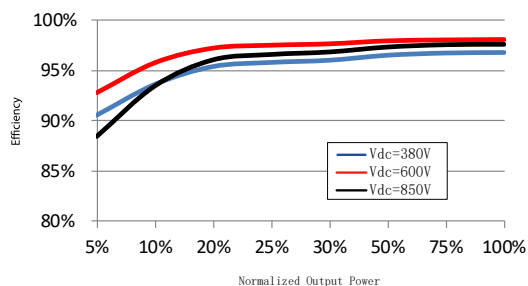
EASY INSTALLATION

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

CIRCUIT DIAGRAM



EFFICIENCY CURVE (SH5.0RT)



Type designation	SH5.0RT-20	SH6.0RT-20	SH8.0RT-20	SH10RT-20
PV Input				
Recommended max. PV input power	7500 Wp	9000 Wp	12000 Wp	15000 Wp
Max. PV input voltage *	1000 V			
Min. PV input voltage / Startup input voltage	150 V / 180 V	200 V / 250 V	200 V / 250 V	200 V / 250 V
Rated PV input voltage	600 V			
MPPT operating voltage range **	150 V – 950 V	200 V – 950 V	200 V – 950 V	200 V – 950 V
No. of independent MPP trackers	2			
No. of PV strings per MPPT	1 / 1	1 / 1	1 / 1	1 / 2
Max. PV input current	27 A (13.5 A / 13.5 A)	27 A (13.5 A / 13.5 A)	27 A (13.5 A / 13.5 A)	40.5 A (13.5 A / 27 A)
Max. DC short-circuit current	36 A (18 A / 18 A)	36 A (18 A / 18 A)	36 A (18 A / 18 A)	54 A (18 A / 36 A)
Max. current for input connector	30 A			
Battery data				
Battery type	Li-ion battery			
Battery voltage range	150V - 600V			
Max. charge *** / discharge current ***	30 A / 30 A			
Max charge / discharge power	7500W / 6000W	9000W / 7200W	10600W / 10600W	10600W / 10600W
Input / Output (AC)				
Max. AC power from grid	12500 W	15000 W	18600 W	20600 W
Rated AC output power	5000 W	6000 W	8000 W	10000 W
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
Rated AC voltage	3 / N / PE, 220 V / 380 V; 230 V / 400 V			
AC voltage range	270 V - 480 V			
Rated grid frequency	50 Hz			
Grid frequency range	45 Hz - 55 Hz			
Harmonic (THD)	< 3 % (of rated power)			
DC current injection	< 0.5 % In			
Power factor at Rated power / Adjustable power factor	> 0.99 / 0.8 leading to 0.8 lagging			
Feed-in phases / Connection phases	3 / 3			
Backup data (on grid mode)				
Max. output power for backup load ****	16500 W			
Max. output current for backup load	3 * 25 A			
Backup data (off grid mode)				
Rated voltage	3 / N / PE, 220 Vac / 230 Vac			
Rated frequency	50 Hz			
THDV(@Linear load)	2 %			
Backup switch time	<20ms			
Rated output power	5000W / 5000VA	6000W / 6000VA	8000W / 8000VA	10000W / 10000VA
Peak output power *****	6000W / 6000VA, 5min 10000W / 10000VA, 10s	7200W / 7200VA, 5min 10000W / 10000VA, 10s	12000W / 12000VA 5min	12000W / 12000VA 5min
Peak output power on single phase *****	2000 VA (≥9.6kWh)	2200 VA (≥12.8kWh)	2700 VA (≥12.8kWh)	3400 VA (≥12.8kWh)
Rated output current for backup load	3 * 18.5 A			
Efficiency				
Max. efficiency / European efficiency	98% / 97.2%	98.2% / 97.5%	98.4% / 97.9%	98.4% / 97.9%
Protection & Function				
Grid monitoring	Yes			
DC reverse polarity protection	Yes			
AC short-circuit protection	Yes			
Leakage current protection	Yes			
DC switch (solar)	Yes			
DC overcurrent protection (Battery)	Yes			
Surge protection	DC Type II / AC Type II			
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)	460 mm * 540 mm * 170 mm			
Weight	27 kg			
Mounting method	Wall-mounting bracket			
Operating ambient temperature range	-25 ℃ - 60 ℃			
Allowable relative humidity range (non-condensing)	0 % - 100 %			
Cooling method	Natural convection			
Max. operating altitude	4000 m			
Noise (Typical)	30 dB(A)			
Display	LED			
Communication	RS485, WLAN, Ethernet, CAN, 4 × DI, 1 × DO			
DI/DO	DI*4 / DO*1 / DRM			
DC connection type	MC4 (PV, Max.6 mm²) / Evo2 Compatible (Battery, Max.6 mm²)			
AC connection type	Plug and play connector (Grid Max.10 mm², Backup Max.6 mm²)			
Compliance	IEC / EN 62109-1/-2, IEC / EN 61000-6-1/2/3/4, EN 62477-1, IEC 61727, IEC 62116, IEC 61683, VDE-AR-N-4105, AS/NZS 4777.2:2020, EN50549-1, NRS 097-2-1, TOR Generator Type A, OVE-Richtlinie R25, NC RfG PTPIREE,PSE 2018, EIFS 2018:2, PPDS4, NTS 631 V2.0, UNE217002, RD 1699, CEI 0-21			

* Input voltage exceeding the MPPT operating voltage range triggers inverter protection ** Please refer to the user manual for the full load MPPT voltage range
 *** Depending on the connected battery **** Please refer to the user manual and modify the settings based on actual load power ***** Can be reached only if PV and battery power is sufficient ***** Peak power only for Resistive loads. Detail refer to SHRT backup output power document.

SH15/20/25T

Hybrid Three Phase Inverter



FULL BACKUP

- Built-in 63 A bypass for whole home backup
- 10 ms seamless switch
- Peak output up to 36500 VA (10 s) in backup mode (SH25T)



FLEXIBLE APPLICATION

- Support 100 % unbalance output in backup and on grid mode
- Max. 16 A DC input current per string
- 50 A fast charge / discharge current



FRIENDLY INSTALLATION

- Plug & Play installation
- Quiet operation for indoor or outdoor installation



SAFE AND DURABLE

- Support precise AFCI
- IP65/C5



Type designation	SH15T		SH20T		SH25T	
Input (DC)						
Recommended max. PV input power	30000 Wp		40000 Wp		50000 Wp	
Max. PV input voltage *			1000 V			
Min. PV input voltage / Startup input voltage			150 V / 180 V			
Rated PV input voltage			600 V			
MPPT operating voltage range **			150 V - 950 V			
No. of independent MPP trackers			3			
No. of PV strings per MPPT			2 / 2 / 1			
Max. PV input current			80 A (32 A / 32 A / 16 A)			
Max. DC short-circuit current			100 A (40 A / 40 A / 20 A)			
Max. current for input connector			30 A			
Battery data						
Battery type			Li-ion battery			
Battery voltage range			100 V - 700 V			
Max. charge / discharge current ***			50 A / 50 A			
Max. charge / discharge power	30000 W / 15000 W		30000 W / 20000 W		30000 W / 25000 W	
Input and Output (AC)						
Max. AC power from grid ****			43000 VA			
Rated AC output power	15000 W		20000 W		25000 W	
Max. AC output apparent power	15000 VA		20000 VA		25000 VA	
Max. AC output current	22.8 A		30.4 A		37.9 A	
Rated AC voltage	3 / N / PE, 220 V / 380 V ; 230 V / 400 V; 240 V / 415 V					
AC voltage range	270 V - 480 V					
Rated grid frequency	50 Hz / 60 Hz					
Grid frequency range	45 Hz - 55 Hz / 55 Hz - 65 Hz					
Harmonic (THD)	< 3 % (of rated power)					
Power factor at rated power / Adjustable power factor	> 0.99 / 0.8 leading to 0.8 lagging					
Feed-in phases / connection phases	3 / 3-N-PE					
Backup data(on grid mode)						
Max. output power for backup load ****			43000 W			
Max. output current for backup load			3 * 63 A			
Backup data(off-grid mode)						
Rated voltage	3 / N / PE, 220 / 380 V; 230 / 400 V; 240 / 415 V (± 2 %)					
Rated frequency	50 Hz / 60 Hz (± 0.2 %)					
THDV (@Linear load)	2 %					
Backup switch time	< 10 ms					
Rated output power	15000 W / 15000 VA		20000 W / 20000 VA		25000 W / 25000 VA	
Peak output power *****	25500 W / 25500 VA ,10 s		32000 W / 32000 VA ,10 s		36500 W / 36500 VA ,10 s	
Efficiency						
Max. efficiency / European efficiency	98.1 % / 97.6 %				98.2 % / 97.8 %	
Protection & Function						
Grid monitoring	Yes					
DC reverse polarity protection	Yes					
AC short-circuit protection	Yes					
Leakage current protection	Yes					
DC switch (solar)	Yes					
Surge protection	DC Type II / AC Type II					
PID zero	Yes					
Battery input reverse polarity protection	Yes					
General data						
Topology (solar / battery)	Transformerless / Transformerless					
Degree of protection	IP65					
Dimensions (W * H * D)	620 mm * 480 mm * 245 mm					
Weight	38 kg				40 kg	
Mounting method	Wall-mounting bracket					
Operating ambient temperature range	-25 °C - 60 °C					
Allowable relative humidity range(Non-condensing)	0 % - 100 %					
Cooling method	Natural convection				Fan cooling	
Max. operating altitude	2000 m					
Noise(Typical)	35 dB (A)				50 dB (A)	
Display	LED					
Communication	RS485, WLAN, Ethernet, CAN					
DI / DO	DI * 4 / DO * 2 / DRMO					
DC connection type	MC4 compatible connector (PV,Max.6 mm²) /Plug and play connector (battery, Max.10 mm²)					
AC connection type	Plug and play connector (Max.16 mm²)					
Compliance	IEC / EN 62109, IEC 61000-6, EN 62477-1, IEC 61727, IEC 62116, IEC 62920, EN 55011, CISPR 11, VDE-AR-N-4105, EN 50549-1, NRS 097, AS/NZS 4777.2:2020, TOR Type A, R25, CFI 0-21					

* Input voltage exceeding the MPPT operating voltage range triggers inverter protection

** Please refer to the user manual for the full load MPPT voltage range

*** Depending on the connected battery

**** Please refer to the user manual and modify the settings based on actual load power

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

