

# 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

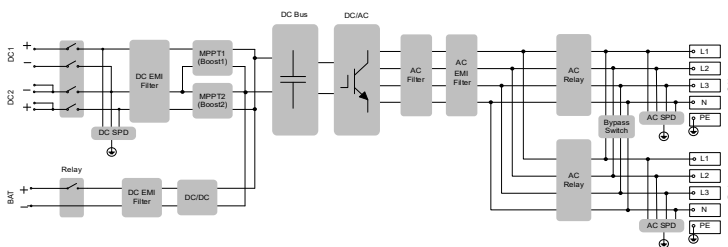
- Seamless transition to backup mode for protection against power outages
- Fast charging / discharging to meet the demand of higher consumption



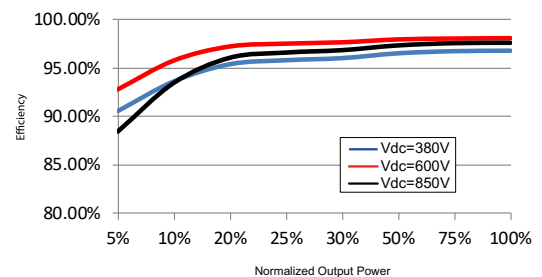
## EASY INSTALLATION

- 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.ORT-20	SH6.ORT-20	SH8.ORT-20	SH10RT-20
<b>PV Input</b>				
Recommended max. PV input power	7500 W	9000 W	12000 W	15000 W
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	
MPP voltage range	150 V – 950 V	200 V – 950 V	200 V – 950 V	200 V – 950 V
No. of independent MPP inputs			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)
Short-circuit current of PV input	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	
<b>Battery Data</b>				
Battery type			Lithium battery	
Battery voltage			150V - 600V	
Max charge / discharge current			30A ** / 30A **	
Max charge / discharge power	7500W / 6000W	9000W / 7200W	10600W / 10600W	10600W / 10600W
<b>AC Input and Output</b>				
Max. AC input power to battery	11600W	14000W	18600W	20600W
Max. AC power from grid	12500W	15000W	18600W	20600W
Rated AC output power	5000W	6000W	8000W	10000W
Rated AC output apparent power	5000VA	6000VA	8000VA	10000VA
Max. AC output current	7.6A	9.1A	12.1A	15.2A
Rated AC voltage		3 / N / PE, 220 / 380 V; 230 / 400 V		
AC voltage range		270 - 480V		
Rated grid frequency		50Hz		
Grid frequency range		45 - 55Hz		
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		
<b>Backup Data</b>				
Rated voltage		3 / N / PE, 220 Vac / 230 Vac		
Frequency range		50Hz		
Total harmonic factor output voltage (Linear load)		2%		
Switch time to emergency mode		<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 during on grid mode		3 x 18.5A		
<b>Efficiency</b>				
Max. efficiency / European efficiency	98% / 97.2%	98.2% / 97.5%	98.4% / 97.9%	98.4% / 97.9%
<b>Protection &amp; Function</b>				
Grid monitoring			Yes	
DC reverse polarity protection			Yes	
AC short-circuit 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	
<b>General Data</b>				
Topology (solar / battery)		Transformerless / Transformerless		
Degree of protection		IP65		
Dimensions (W * H * D)		460mm×540mm×170mm		
Weight		27kg		
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		
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) / Evo2 Compatible (Battery)		
AC connection type		Plug and play connector		
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			

\*: 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. \*\*\*\*: Peak power only for Resistive loads. Detail refer to SHRT backup output power document.

# 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

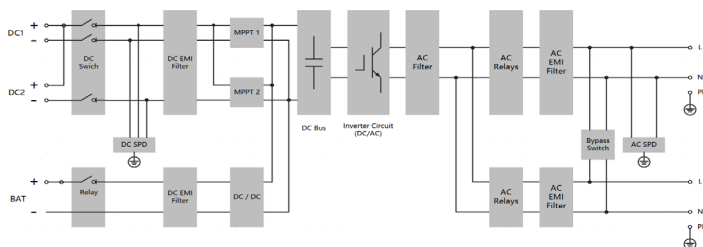
- Plug and play installation
- iSolarCloud monitoring available on App and Web
- Lightweight and compact, optimized for heat-dissipation



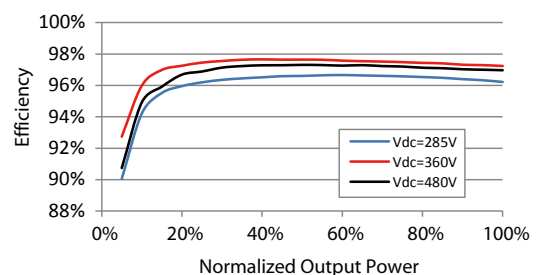
## SMART MANAGEMENT

- 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
<b>Input (DC)</b>					
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				
<b>Battery data</b>					
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				
<b>Input / output (AC)</b>					
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				
<b>Backup data (on grid mode)</b>					
Max. output power for backup load *****	6000 W				
Max. output current for backup load *****	27.3 A				
<b>Backup data (off-grid mode)</b>					
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				
<b>Efficiency</b>					
Max. efficiency / European efficiency	97.4 % / 97.0 %	97.5 % / 97.1 %	97.6 % / 97.2 %	97.7% / 97.3%	97.7 % / 97.3 %
<b>Protection &amp; Function</b>					
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				
<b>General data</b>					
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 <sup>2</sup> ) / Evo2 Compatible (Battery, Max.6 mm <sup>2</sup> )				
AC connection type	Plug and Play (Grid Max.16mm <sup>2</sup> , Backup Max.6mm <sup>2</sup> )				
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



# SBR064/096/128/160/ 192/224/256

Baterie LFP de înaltă tensiune



## PERFORMANȚĂ RIDICATĂ

- Curent continuu de încărcare și descărcare de până la 30 A, cu eficiență ridicată
- Până la 100% energie utilizabilă



## SIGURANȚĂ

- Baterie litiu-fier-fosfat
- Proiectare cu protecție în mai multe stadii, plus certificare autorizată



## FLEXIBILITATE








- Poate fi extinsă în timpul duratei de viață
- Suportă 2-8 module pe unitate, interval de capacitate 6,4-25,6 kWh



## INSTALARE UȘOARĂ

- Instalare compactă și ușoară, poate fi realizată de o singură persoană
- Conectare Plug and Play fără cablare între module



Desemnare tip	SBR064 <sup>3</sup>	SBR096	SBR128	SBR160	SBR192	SBR224	SBR256
Proprietăți tehnice	 2 module	 3 module	 4 module	 5 module	 6 module	 7 module	 8 module
<b>Datele sistemului</b>							
Tipul bateriei	Celulă prismatică LiFePO4						
Modulul bateriei	3,2 kWh, 33 kg						
Energie (utilizabilă) <sup>1</sup>	6,4 kWh	9,6 kWh	12,8 kWh	16 kWh	19,2 kWh	22,4 kWh	25,6 kWh
Tensiune nominală	128 V	192 V	256 V	320 V	384 V	448 V	512 V
Tensiune de funcționare	108 – 146 V	162 – 219 V	216 – 292 V	270 – 365 V	324 – 438 V	378 – 511 V	432 – 584 V
Putere c.c. nominală	3,84 kW	5,76 kW	7,68 kW	9,60 kW	11,52 kW	13,44 kW	15,36 kW
Curent max. de încărcare/descărcare: continuu	30 A						
Capacitate descărcare	DOD max. 100 % (configurabil)						
Curent de scurtcircuitare	3500 A						
Afișaj	Indicator SOC, indicator de stare						
Interfața de comunicare	CAN						
<b>Protecție</b>							
Protecție la supratensiune / subtensiune	Da						
Protecție la supracurent	Da						
Protecție la supratemperatură / subtemperatură	Da						
Disjunctur c.c.	Da						
<b>Date generale</b>							
Dimensiuni (L*Î*A)	625*545*330 mm	625*545*330 mm	625*675*330 mm	625*805*330 mm	625*935*330 mm	625*1065*330 mm	625*1195*330 mm
Greutate	89 kg	114 kg	147 kg	180 kg	213 kg	246 kg	279 kg
Locul de instalare	Interior / Exterior						
Metodă de montare	Suport de podea						
Intervalul de temperaturi pentru mediul de funcționare	Încărcare: de la 0 la 50 °C Descărcare: de la -20 la 50 °C						
Grad de protecție	IP55						
Intervalul de umiditate relativă permis	0% până la 95% (fără condens)						
Altitudine max. de funcționare	4000 m						
Metodă de răcire	Convecție naturală						
Certificate	CE, CEC, IEC 62619, IEC 62040, UN38.3, VDE 2510-50, IEC62477, IEC63056, IEC61000, UKCA						
Garanție <sup>2</sup>	10 ani						

<sup>1</sup> Condiții de testare: 25 °C, capacitate descărcare 100 % (DOD), încărcare și descărcare 0,2C

<sup>2</sup> Consultați scrisoarea de garanție a bateriei pentru aplicațiile condiționate.

<sup>3</sup> SBR064 constă din 2 module de baterii și 1 modul gol.