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

Residential Hybrid Three Phase Inverter



FLEXIBLE APPLICATION

- DC 13.5A current input, compatiable 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

ENERGY INDEPENDENCE

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

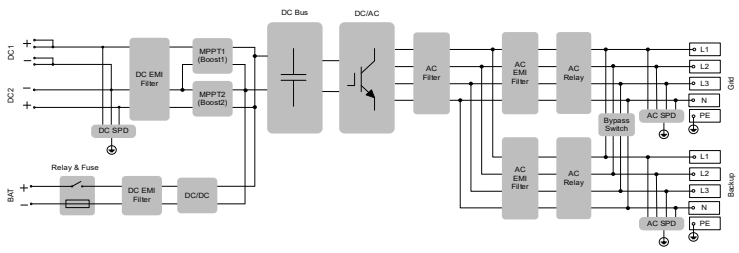
SMART MANAGEMENT

- 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

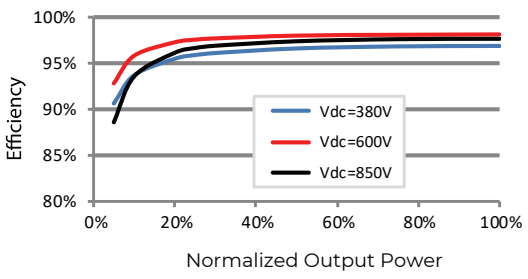
EASY INSTALLATION

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

CIRCUIT DIAGRAM



EFFICIENCY CURVE (SH5.0RT)



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SUNGROW
Clean power for all

Type designation	SH5.0RT-20	SH6.0RT-20	SH8.0RT-20	SH10RT-20
PV Input				
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			
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
Rated 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 during on grid mode	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	Master-slave mode / 2			
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			

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Type designation	SH5.0RT-20	SH6.0RT-20	SH8.0RT-20	SH10RT-20
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.

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