



SMART MANAGEMENT
VIA WEB & APP



EMERGENCY POWER
SUPPLY



'PLUG & PLAY'
INSTALLATION



IP65 RATED



EMS INTEGRATED,
UP TO 8 OPERATION
MODES



COMPATIBLE WITH
LI-ION & LEAD-ACID
BATTERY (48V)



Energy Storage System

N1 HL Series

3KW / 3.68KW / 5KW

Single Phase, 2 MPPT, Hybrid Inverter

RENAC N1 HL series Hybrid inverter is applicable with both on-grid and off-grid PV systems. It controls the flow of energy intelligently. End users can choose to charge batteries with free, clean solar electricity or grid electricity and discharge stored electricity when it is needed with flexible operation mode choices.

Model	ESC3000-DS	ESC-3680-DS	ESC5000-DS
DC Input Data			
Max. Recommended PV Power [Wp]	3900	4600	6500
Max.DC Input Voltage [V]		580	
MPPT voltage Range [V]		100 - 550	
Start-up Voltage [V]		110	
No. of MPP Trackers		2	
No. of Input Strings per Tracker		1	
Max. DC Input Current [A]		12 / 12	
DC Switch		Integrated	
AC Output Data (On-grid)			
Rated AC Power [W]	3000	3680	5000 ^{*1}
Max.output power [VA]	3000	3680	5000 ^{*1}
Max. AC Current [A]	13	16	21.7
Rated AC Voltage / Range [V]		220 / 230; 180 - 270	
Grid frequency / range [HZ]		50 / 60; ±5	
Ajustable Power Factor [cos ϕ]		0.8 leading -0.8 lagging	
Output THDi(@Rated Output)		< 3%	
Ourput DC (Battery)			
Battery Type	Lead-acid battery / lithium battery		
Recommended Battery Voltage [V]	48		
Battery Voltage Range [V]	40 - 60		
Max. Charging / Discharging Power [W]	3000		
Max. Charging / Discharging Current [A]	60		
Communication Interface	CAN		
EPS Output (With Battery)			
EPS Rated Power [W]	3000		
EPS Rated Voltage [V]	220 / 230		
EPS Rated Frequency [HZ]	50 / 60		
EPS Rated Current [A]	13		
Output THDi(@Rated Output)	< 3%		
Automatic switch time [s]	< 5		
Peak power, Duration [W, S]	4500, 10		
Efficiency			
Max.Efficiency	97.60%	97.60%	97.60%
Euro Efficiency	97.00%	97.00%	97.00%
MPPT Efficiency	99.90%	99.90%	99.90%
Battery Charge/Discharge efficiency	94.00%	94.00%	94.00%
General Data			
Size (Width*Height*Depth) [mm]	526 × 528 × 193		
Weight [KG]	29.5		
User Interface	LCD		
Communication	Ethernet (standard), RS485 or Wifi or GPRS		
Ambient Temperature Range [°C]	-25 ~ 60		
Relative Humidity	0 - 100%		
Operating Altitude [m]	≤ 4000		
Standby Self Consumption [W]	< 1		
Topology	Transformerless		
Cooling	Natural Convection		
Protection Grades	IP65		
Noise [dB]	< 35		
Warranty [years]	5 / 7 / 10		
Certifications & Standards			
Grid Regulation	G98, G99, NRS-097, MEA, PEA, AS4777, EN50438, CEI-021, EN50549, IEC61727, IEC62116, IEC60068, IEC61683		
Safety Regulation	IEC 62109-1, IEC 62109-2, IEC62040		
EMC	EN 61000-6-2, EN 61000-6-3, EN 61000-4-16, EN 61000-4-18, EN 61000-4-29		
Protection			
	* DC Insulation Monitoring	* Over-heat Protection	* DC Surge Protection
	* Input Reverse Polarity Protection	* AC Overcurrent Protection	* AC Surge Protection
	* Anti-island Protection	* AC Short-circuit Protection	
	* Residual Current Monitoring	* AC Overvoltage Protection	

^{*1}: The AC output power for VDE-AR-N 4105, VDE0126 and NRS097-2-1 is limited to 4600VA, for AS/NZS 4777.2 is limited to 4999VA & 21.7A.