

## On-grid Inverters

# 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.



SMART MANAGEMENT  
VIA WEB & APP



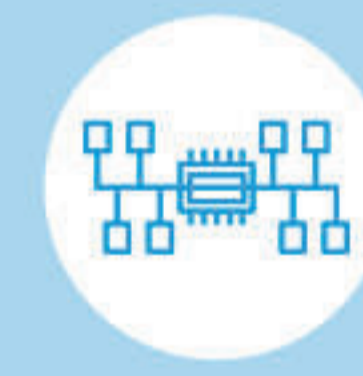
EMERGENCY POWER  
SUPPLY



'PLUG & PLAY'  
INSTALLATION



IP65 RATED



EMS INTEGRATED,  
UP TO 8 OPERATION  
MODES



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



Model	ESC3000-DS	ESC3680-DS	ESC5000-DS
<b>DC Input Data</b>			
Max. Recommended PV Power [Wp]	6600	6600	8000
Max. DC Input Voltage [V]		580	
MPPT Voltage Range		100 ~ 550	
Start-up Voltage [V]		110	
No. of MPP Trackers		2	
No. of Input Strings per Tracker		1	
Max. DC Input Current [A]		13.5 / 13.5	
Max. Short-circuit Current per MPPT [A]		17 / 17	
DC Switch		Integrated	
<b>AC Output Data(On-grid)</b>			
Rated AC Power [W]	3000	3680	5000 <sup>[1]</sup>
Max. Output Power [VA]	3000	3680	5000 <sup>[1]</sup>
Max. AC Current [A]	13	16	21.7
Rated AC Voltage / Range [V]		220 / 230; 180 ~ 270	
Grid Frequency / Range [Hz]		50 / 60; ±5	
Adjustable Power Factor [cosφ]		0.8 leading ~ 0.8 lagging	
Output THDi (@Rated Output)		< 3%	
<b>Battery Data</b>			
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	
<b>EPS Output(With Battery)</b>			
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	
<b>Efficiency</b>			
Max. Efficiency	97.60%	97.60%	97.60%
Euro Efficiency	97.00%	97.00%	97.00%
Battery Charge / Discharge Efficiency	94.00%	94.00%	94.00%
<b>General Data</b>			
Size (Width*Height*Depth) [mm]		526 x 528 x 193	
Weight [kg]		29.5	
User Interface		LCD	
Communication		RS485 (Standard), 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	
<b>Certifications &amp; Standards</b>			
Grid Regulation	G98, G99, NRS-097, MEA, PEA, AS 4777, EN 50438, CEI - 021, EN 50549, IEC 61727, IEC 62116, IEC 60068, IEC 61683		
Safety Regulation	IEC 62109-1, IEC 62109-2, IEC 62040		
EMC	EN 61000-6-2, EN 61000-6-3, EN 61000-4-16, EN 61000-4-18, EN 61000-4-29		
<b>Protection</b>			
	<ul style="list-style-type: none"> <li>• DC Insulation Monitoring</li> <li>• Input Reverse Polarity Protection</li> <li>• Anti-island Protection</li> <li>• Residual Current Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Over-heat Protection</li> <li>• AC Overcurrent Protection</li> <li>• AC Short-circuit Protection</li> <li>• AC Overvoltage Protection</li> </ul>	<ul style="list-style-type: none"> <li>• DC Surge Protection</li> <li>• AC Surge Protection</li> </ul>

[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.