

# SMART ENERGY FOR BETTER LIFE

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PRODUCT CATALOG 2021

**RENAC**

RENAC POWER TECHNOLOGY CO., LTD.





# ABOUT RENAC

In recent years challenges in the field of energy have become increasingly stringent and complex in terms of primary resources consumption and of pollutant emissions. Smart energy is the process of using devices and technologies for energy-efficiency while promoting eco-friendliness and driving down costs.

RENAC Power is a leading manufacturer of On Grid Inverters, Energy Storage Systems and a Smart Energy Solutions Developer. Our track record spans over more than 10 years and covers the complete value chain. Our dedicated Research and Development team plays a pivotal role in the company structure and our Engineers constantly research develop redesign and test new products and solutions aiming at constantly improving their efficiency and performance for both the residential and commercial markets.

RENAC Power inverters consistently deliver higher yields and ROI and have become the preferred choice for customers in Europe, South America, Australia and South Asia, etc.

With a clear vision and a solid range of products and solutions we remain at the forefront of Solar energy striving to support our partners addressing any commercial and business challenge.

## PROFESSIONAL

- 20+ years' experience on electronics
- EMS for various energy management scenarios
- Cell level monitoring and diagnosis on battery
- IOT and cloud computing for more flexible ESS solutions

## SAFE & RELIABLE

- 50+ International certifications
- 100+ internal rigorous testing
- Cloud Monitoring and diagnosis on system and products
- Strict selection on BOM, LiFePO4 and metal CAN battery cells

## SYSTEM SOLUTION

- All-in-one design for ESS
- Integrated solutions for PCS, BMS and Cloud platform
- EMS and Cloud platform integrate multiple scenarios
- Fully integrated energy management solutions

## PERFECT SERVICE

- 10+ global service centers
- Professional training for global partners
- Efficient service solutions by cloud platform
- Remote control and parameter setting by web and app



# RENAC

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NATURAL COOLING,  
MUTE OPERATION




REMOTE MONITORING




COMPACT SIZE



IP65 RATED



EASY INSTALLATION



BUILT-IN ZERO  
EXPORT FUNCTION  
(OPTIONAL)



On-grid Inverters

R1 MINI Series

1.1KW / 1.6KW / 2.2KW / 2.7KW / 3.3KW / 3.7KW  
Single Phase, 1 MPPT


RENAC R1 Mini Series inverters are ideal choices for residential projects with higher power density, wider input voltage range for more flexible installation and a perfect match for high power PV panels.

R1 Mini Series


Model	R1-1K1-SS	R1-1K6-SS	R1-2K2-SS	R1-2K7-SS	R1-3K3-SS	R1-3K7-SS
DC Input Data						
Max. Recommended PV Power [Wp]	1400	2400	2800	3500	4200	4800
Max.DC Input Voltage [V]	500	500	500	550	550	550
MPPT voltage Range [V]	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 550	50 ~ 550	50 ~ 550
Rated Input Voltage	360V					
Start-up Voltage [V]	70					
No. of MPP Trackers	1					
No. of Input Strings per Tracker	1					
Max. DC Input Current [A]	13.5A					
DC Switch	Optional					
AC Output Data						
Rated AC Power [W]	1100	1600	2200	2700	3300	3680
Max.output power [VA]	1100	1600	2200	2700	3300	3680
Max. AC Current [A]	4.8	7.2	9.6	12	14.4	16
Rated AC Voltage / Range [V]	220 / 230; 160 ~ 290					
Grid frequency / range [Hz]	50 / 60; ±5					
Adjustable Power Factor [cosφ]	0.8 leading ~ 0.8 lagging					
Output THDi (@Rated Output)	≤ 2%					
Efficiency						
Max.Efficiency	97.00%	97.10%	97.10%	97.30%	97.30%	97.30%
Euro Efficiency	96.50%	96.60%	96.60%	96.80%	96.80%	96.80%
MPPT Efficiency	99.90%	99.90%	99.90%	99.90%	99.90%	99.90%
General Data						
Size (Width*Height*Depth) [mm]	295 x 260 x 115			335 x 260 x 120		
Weight [KG]	6.8	6.8	6.8	6.8	6.8	7.5
User Interface	LCD					
Communication	RS485 or WIFI or GPRS					
Ambient Temperature Range [°C ]	-25 ~ 60					
Relative Humidity	0 ~ 100%					
Operating Altitude [m]	≤ 4000					
Standby Self Consumption [W]	< 0.2					
Topology	Transformerless					
Cooling	Natural Convection					
Protection Grades	IP65					
Noise [dB]	< 30					
Warranty [years]	5 / 7 / 10					
Certifications & Standards						
Grid Regulation	VDE 0126-1-1, G98, EN50549, C10 / 11, PEA, MEA, AS4777, CE10-21, IEC61727, IEC62116, IEC60068, IEC61683					
Safety Regulation	IEC 62109-1, IEC 62109-2					
EMC	EN 61000-3-2, EN 61000-3-3, EN61000-6-1, EN61000-6-3, IEC61000-4-16, IEC61000-4-18, IEC61000-4-29					
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		









NATURAL COOLING,  
MUTE OPERATION




REMOTE MONITORING




30% DC OVERSIZING



IP65 RATED



EASY INSTALLATION



BUILT-IN ZERO  
EXPORT FUNCTION  
(OPTIONAL)



On-grid Inverters

R1 Macro Series

4KW / 5KW / 6KW / 7KW / 8KW  
Single Phase, 2 MPPT


RENAC R1 Macro Series is a single-phase on-grid inverter with excellent compact size, comprehensive software and hardware technology. The R1 Macro Series offers high efficiency and class-leading functional fan-less, low-noise design.

R1 Macro Series


Model	NAC4K-DS	NAC5K-DS	NAC6K-DS	NAC7K-DS	NAC8K-DS
DC Input Data					
Max. Recommended PV Power [Wp]	5200	6500	7800	9100	10400
Max.DC Input Voltage [V]			600		
MPPT voltage Range [V]			100 ~ 550		
Rated Input Voltage			360V		
Start-up Voltage [V]			120		
No. of MPP Trackers			2		
No. of Input Strings per Tracker	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1
Max. DC Input Current [A]	13.5A / 13.5 A	13.5A / 13.5 A	13.5A / 13.5 A	20A/13.5A	20A/13.5A
DC Switch			Optional		
AC Output Data					
Rated AC Power [W]	4000	5000	6000	7000	8000
Max.output power [VA]	4400	5500	6600	7700	8000
Max. AC Current [A]	19.2	24	28.7	33.5	34.8
Rated AC Voltage / Range [V]			220 /230; 160 ~ 290		
Grid frequency / range [Hz]			50 /60; ±5		
Adjustable Power Factor [cosφ]			0.8 leading ~ 0.8 lagging		
Output THDi (@Rated Output)			≤ 2%		
Efficiency					
Max.Efficiency	97.80%	97.80%	97.80%	98.10%	98.10%
Euro Efficiency	97.20%	97.20%	97.20%	97.50%	97.50%
MPPT Efficiency	99.90%	99.90%	99.90%	99.90%	99.90%
General Data					
Size (Width*Height*Depth) [mm]			395 x 330 x 185		
Weight [KG]	12	12	12	16	16
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]			< 0.2		
Topology			Transformerless		
Cooling			Natural Convection		
Protection Grades			IP65		
Noise [dB]			< 30		
Warranty [years]			5 / 7 / 10		
Certifications & Standards					
Grid Regulation	VDE 0126-1-1, C10 / 11, G99, PEA, MEA, AS4777, EN50549, CEI0-21, EC61727, IEC62116, IEC60068, IEC61683, ABNT NBR 16150				
Safety Regulation	IEC 62109-1, IEC 62109-2				
EMC	EN 61000-3-2, EN 61000-3-3, EN 61000-3-11, EN 61000-3-12, EN 61000-6-2, EN 61000-6-3, IEC61000-4-16, IEC61000-4-18, IEC61000-4-29				
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		









NATURAL COOLING,  
MUTE OPERATION




30% DC OVERSIZING




SAFE & RELIABLE



26A INPUT CURRENT  
PER MPPT



EASY INSTALLATION



BUILT-IN ZERO  
EXPORT FUNCTION  
(OPTIONAL)



On-grid Inverters

# R1 Moto Series

7KW / 8KW/ 9KW / 10KW / 10.5KW  
Single Phase, 2 MPPT

Renac R1 Moto series inverters fully meet the market's demand for high-power single-phase residential models, and are suitable for rural houses and urban villas with larger roof areas. They can substitute to install two or more low power single-phase inverters. While ensuring the revenue of power generation, the system cost can be greatly reduced.

# R1 Moto Series

Model	R1-7K-DS	R1-8K-DS	R1-9K-DS	R1-10K-DS	R1-10K5-DS
DC Input Data					
Max. Recommended PV Power [Wp]	10050	12000	13500	15000	16000
Max.DC Input Voltage [V]			600		
MPPT voltage Range [V]			100 ~ 550		
Rated Input Voltage			360V		
Start-up Voltage [V]			120		
No. of MPP Trackers			2		
No. of Input Strings per Tracker	2 / 1	2 / 1	2 / 2	2 / 2	2 / 2
Max. DC Input Current [A]	26 / 20	26 / 20	26 / 26	26 / 26	26 / 26
DC Switch			Optional		
AC Output Data					
Rated AC Power [W]	7000	8000	9000	10000	10440
Max.output power [VA]	7700	8800	9900	10000	9570VA@220V; 10005VA@230V; 10440VA@240V
Max. AC Current [A]	33.5	36.4	41	43.5	43.5
Rated AC Voltage / Range [V]			220 / 230 / 240; 160 ~ 290		
Grid frequency / range [Hz]			50 / 60; ±5		
Adjustable Power Factor [cosφ]			0.8 leading ~ 0.8 lagging		
Output THDi (@Rated Output)			≤ 2%		
Efficiency					
Max.Efficiency	97.8%	97.8%	97.8%	98.1%	98.1%
Euro Efficiency	97.2%	97.2%	97.2%	97.5%	97.5%
MPPT Efficiency	99.9%	99.9%	99.9%	99.9%	99.9%
General Data					
Size (Width*Height*Depth) [mm]			395 x 330 x 185		
Weight [KG]			16		
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]			< 0.2		
Topology			Transformerless		
Cooling	Natural	Natural	Fan	Fan	Fan
Protection Grades		< 30	IP65		
Noise [dB]				< 40	
Warranty [years]			5 / 7 / 10		
Certifications & Standards					
Grid Regulation			EC61727, IEC62116,IEC60068, IEC61683, ABNT NBR 16150		
Safety Regulation			IEC 62109-1, IEC 62109-2		
EMC			EN 61000-3-2, EN 61000-3-3, EN 61000-3-11, EN 61000-3-12, EN 61000-6-2, EN 61000-6-3, IEC61000-4-16, IEC61000-4-18, IEC61000-4-29		
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		





NATURAL COOLING,  
MUTE OPERATION

50% DC INPUT  
OVERSIZING

REMOTE MONITORING

IP65 RATED

WIDE MPPT RANGE  
(160-950V)

BUILT-IN ZERO  
EXPORT FUNCTION  
(OPTIONAL)



On-grid Inverters

# R3 Note Series

4KW / 5KW/ 6KW / 8KW / 10KW / 12KW / 15KW  
Three Phase, 2 MPPT

RENAC R3 Note Series inverter is one of the best options available in the residential and commercial sectors by its technical strengths, which make it be one of the most productive inverters in the market. With the high efficiency of (98.3%), enhanced oversizing and overloading capabilities, R3 Note Series represents an outstanding improvement in the inverter industry.


# R3 Note Series

Model	R3-4K-DT	R3-5K-DT	R3-6K-DT	R3-8K-DT	R3-10K-DT	R3-12K-DT	R3-15K-DT
DC Input Data							
Max. Recommended PV Power [Wp]	6000	7500	9000	12000	15000	18000	22500
Max.DC Input Voltage [V]	1000	1000	1000	1000	1000	1000	1000
MPPT voltage Range [V]	160 ~ 950	160 ~ 950	160 ~ 950	250 ~ 950	250 ~ 950	250 ~ 950	250 ~ 950
Rated Input Voltage				630V			
Start-up Voltage [V]	160	160	160	200	200	200	200
No. of MPP Trackers				2			
No. of Input Strings per Tracker	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	2 / 1
Max. DC Input Current [A]	12.5 / 12.5	12.5 / 12.5	12.5 / 12.5	12.5 / 12.5	12.5 / 12.5	12.5 / 12.5	20 / 12.5
DC Switch				Integrated			
AC Output Data							
Rated AC Power [W]	4000	5000	6000	8000	10000	12000	15000
Max.output power [VA]	4400	5500	6600	8800	11000	13200	16500
Max. AC Current [A]	6.4	8	9.6	12.8	16.0	19.2	24.0
Rated AC Voltage / Range			3/PE 380 ,400 ;+/-20% ;3/N/PE 380 ,400 ;+/-20%				
Grid frequency / range [Hz]			50 / 60; ±5				
Adjustable Power Factor [cosφ]			0.8 leading ~ 0.8 lagging				
Output THDi (@Rated Output)			< 3%				
Efficiency							
Max.Efficiency	98.30%	98.30%	98.30%	98.30%	98.30%	98.30%	98.30%
Euro Efficiency	97.60%	97.60%	97.60%	97.60%	97.80%	97.80%	97.80%
MPPT Efficiency	99.90%	99.90%	99.90%	99.90%	99.90%	99.90%	99.90%
General Data							
Size (Width*Height*Depth) [mm]	455 x 390 x 160		455 x 390 x 175			455 x 390 x 190	
Weight [KG]	16.3		18.3			21.6	
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]				< 0.2			
Topology				Transformerless			
Cooling				Natural Convection			
Protection Grades				IP65			
Noise [dB]				< 30			
Warranty [years]				5 / 7 / 10			
Certifications & Standards							
Grid Regulation	C10/11, PEA, MEA, G98, G99, EN50549, CEI0-21, CEI0-16, IEC61727, IEC62116, IEC60068, IEC61683						
Safety Regulation	IEC 62109-1, IEC 62109-2						
EMC	EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12, IEC61000-4-16, IEC61000-4-18, IEC61000-4-29						
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				







# R3 LV Series




NATURAL COOLING,  
MUTE OPERATION




50% DC INPUT  
OVERSIZING




REMOTE MONITORING



IP65 RATED



SUPPORT LVRT  
AND OVRT



BUILT-IN ZERO  
EXPORT FUNCTION  
(OPTIONAL)



## On-grid Inverters

# R3 LV Series


10KW / 12KW / 15KW / 20KW  
Three Phase, 2 MPPT

RENAC R3 LV Series three-phase inverter is designed with low voltage power input small commercial PV applications. Developed as a preferable choice for South American market demand on low-voltage inverters above 10kW, it is applicable to the different grid voltage ranges in the region, which mainly cover 208V, 220V and 240V. With the Pro-LV series inverter, the system configuration can be simplified instead of installation of an expensive transformer which adversely affects the system's conversion efficiency.


Model	NAC10K-LV	NAC12K-LV	NAC15K-LV	NAC20K-LV
DC Input Data				
Max. Recommended PV Power [Wp]	16900	20800	22100	26000
Max.DC Input Voltage [V]		800		
MPPT voltage Range [V]		200 ~ 650		
Rated Input Voltage		380V		
Start-up Voltage [V]		250		
No. of MPP Trackers		2		
No. of Input Strings per Tracker	2 / 2	2 / 3	3 / 3	3 / 3
Max. DC Input Current [A]	26 / 26	26 / 30	30 / 30	30 / 30
DC Switch		Integrated		
AC Output Data				
	11000@208Vac	14000@208Vac	15000@208Vac	17000@208Vac
Rated AC Power [W]	12000@220Vac	15000@220Vac	16000@220Vac	18000@220Vac
	13000@240Vac	16000@240Vac	17000@240Vac	20000@240Vac
Max.output power [VA]	13000	16000	17000	20000
Max. AC Current [A]	32	40	43	48
Rated AC Voltage / Range [V]		150 ~ 300		
Grid frequency / range [Hz]		50 / 60; ±5		
Adjustable Power Factor [cosφ]		0.8 leading ~ 0.8 lagging		
Output THDi (@Rated Output)		< 3%		
Efficiency				
Max.Efficiency	98.30%	98.40%	98.50%	98.50%
Euro Efficiency	98.00%	98.10%	98.20%	98.20%
MPPT Efficiency	99.90%	99.90%	99.90%	99.90%
General Data				
Size (Width*Height*Depth) [mm]		660 × 460 × 255		
Weight [KG]		38		
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]		< 0.2		
Topology		Transformerless		
Cooling	Natural Convection	Natural Convection	Natural Convection	Fan Cooling
Protection Grades		IP65		
Noise [dB]		< 35		
Warranty [years]		5 / 7 / 10		
Protection				
* DC Insulation Monitoring	* Over-heat Protection		* DC Surge Protection	
	* Input Reverse Polarity Protection		* AC Overcurrent Protection	
	* Anti-island Protection		* AC Short-circuit Protection	
	* Residual Current Monitoring		* AC Overvoltage Protection	









37.5A INPUT CURRENT  
PER MPPT




50% DC OVERSIZING




SAFE & RELIABLE



MAXIMUM DC  
INPUT VOLTAGE 1100V



110% LONG-TIME  
OVERLOAD ABILITY



BUILT-IN ZERO  
EXPORT FUNCTION  
(OPTIONAL)



On-grid Inverters

# R3 Pre Series

10KW / 15KW / 17KW / 20KW / 25KW  
Three Phase, 2 MPPT

The R3 Pre series inverter is especially designed for three-phase residential and small commercial projects. With its compact design, the R3 Pre series inverter is 40% lighter than the previous generation. The maximum conversion efficiency can reach 98.5%. The maximum input current of each string reach to 20A, which can be perfectly adapted to high power module to increase the power generation.

## R3 Pre Series

Model	R3-10K-G5	R3-15K-G5	R3-17K-G5	R3-20K-G5	R3-25K-G5
DC Input Data					
Max. Recommended PV Power [Wp]	15000	22500	25500	30000	37500
Max.DC Input Voltage [V]			1100		
MPPT voltage Range [V]			150 - 1000		
Rated Input Voltage			630V		
Start-up Voltage [V]			165		
No. of MPP Trackers			2		
No. of Input Strings per Tracker	1 / 1	2 / 1	2 / 2	2 / 2	2 / 2
Max. DC Input Current [A]	20A / 20A	30A / 20A	30A / 30A	30A / 30A	30A / 30A
DC Switch			Integrated		
AC Output Data					
Rated AC Power [W]	10000	15000	17000	20000	25000
Max.output power [VA]	11000	16500	18700	22000	27500
Max. AC Current [A]	16	24	27.1	31.9	40
Rated AC Voltage / Range		3/PE 380, 400;+/-20%; 3/N/PE 380, 400;+/-20%			
Grid frequency / range [Hz]			50 / 60; ±5		
Adjustable Power Factor [cosφ]			0.8 leading ~ 0.8 lagging		
Output THDi (@Rated Output)			< 3%		
Efficiency					
Max.Efficiency	98.30%	98.30%	98.40%	98.50%	98.50%
Euro Efficiency	98.00%	98.00%	98.10%	98.20%	98.20%
MPPT Efficiency	99.90%	99.90%	99.90%	99.90%	99.90%
General Data					
Size (Width*Height*Depth) [mm]			506 × 386 × 185		
Weight [KG]			23		
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]			< 0.2		
Topology			Transformerless		
Cooling	Natural	Natural	Fan	Fan	Fan
Protection Grades			IP65		
Noise [dB]		< 30		< 45	
Warranty [years]			5 / 7 / 10		
Certifications & Standards					
Grid Regulation			IEC61727, IEC62116, IEC60068, IEC61683		
Safety Regulation			IEC 62109-1, IEC 62109-2		
EMC	EN 61000-3-2,EN 61000-3-3, EN 61000-6-2, EN 61000-6-3,EN 61000-3-11,EN 61000-3-12,IEC61000-4-16,IEC61000-4-18,IEC61000-4-29				
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		





NATURAL COOLING,  
MUTE OPERATION

50% DC INPUT  
OVERSIZING

REMOTE MONITORING

IP65 RATED

SUPPORT LVRT  
AND OVRT

BUILT-IN ZERO  
EXPORT FUNCTION  
(OPTIONAL)



On-grid Inverters

R3 Pro Series

20KW / 25KW / 30KW / 33KW  
Three Phase, 2 MPPT


RENAC Pro series inverter is especially designed for residential and small commercial projects. With its compact design, the inverter is light and easy to install. The max efficiency is 98.5%. With an advanced designed ventilation system, the inverter is able to dissipate heat efficiently.

R3 Pro Series


Model	NAC20K-DT	NAC25K-DT	NAC30K-DT	NAC33K-DT
DC Input Data				
Max. Recommended PV Power [Wp]	30000	37500	45000	49500
Max.DC Input Voltage [V]			1000	
MPPT voltage Range [V]			250 ~ 950	
Rated Input Voltage			630V	
Start-up Voltage [V]			250	
No. of MPP Trackers			2	
No. of Input Strings per Tracker	2 / 2	2 / 3	3 / 3	3 / 3
Max. DC Input Current [A]	26 / 26	26 / 30	30 / 30	30 / 30
DC Switch			Integrated	
AC Output Data				
Rated AC Power [W]	20000	25000	30000	33000
Max.output power [VA]	22000	27600	30000	33000
Max. AC Current [A]	32	40	43	48
Rated AC Voltage / Range		3/PE 380 ,400 ;+/-20% ;3/N/PE 380 ,400 ;+/-20%		
Grid frequency / range [Hz]			50 / 60; ±5	
Adjustable Power Factor [cosφ]		0.8 leading ~ 0.8 lagging		
Output THDi (@Rated Output)			< 3 %	
Efficiency				
Max.Efficiency	98.30%	98.40%	98.50%	98.50%
Euro Efficiency	98.00%	98.10%	98.20%	98.20%
MPPT Efficiency	99.90%	99.90%	99.90%	99.90%
General Data				
Size (Width*Height*Depth) [mm]		660 × 460 × 255		
Weight [KG]		38		
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]		< 0.2		
Topology		Transformerless		
Cooling	Natural Convection	Natural Convection	Natural Convection	Fan Cooling
Protection Grades		IP65		
Noise [dB]		< 35		
Warranty [years]		5 / 7 / 10		
Certifications & Standards				
Grid Regulation	PEA, MEA, EN50549, CEI0-16, CEI0-21, IEC61727, IEC62116, IEC60068, IEC61683, G99			
Safety Regulation	IEC 62109-1, IEC 62109-2			
EMC	EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12, IEC61000-4-16, IEC61000-4-18, IEC61000-4-29			









50% DC INPUT  
OVERSIZING




3-4 MPPTS




IP65 RATED



REMOTE MONITORING



STRING MONITORING  
AND SHORTER O&M TIME



REMOTE ACTIVE /  
REACTIVE POWER  
LIMIT CONTROL



On-grid Inverters

R3 Plus Series

50KW / 60KW / 70KW / 75KW / 80KW  
Three Phase, 3-4 MPPT


RENAC R3 Plus Series inverter is ideal for medium to large sized commercial projects, especially for large-scale commercial roofs and farm plants. The range applies advanced topology and innovative control technology to achieve a maximum efficiency of 99.0% and maximum long-term returns and profitability for project owners.

R3 Plus Series


Model	NAC50K	NAC60K	NAC70K	NAC75K	NAC80K
DC Input Data					
Max. Recommended PV Power [Wp]	75000	90000	105000	112500	120000
Max.DC Input Voltage [V]	1000	1100	1100	1100	1100
MPPT voltage Range [V]	200 ~ 950	200 ~ 1000	200 ~ 1000	200 ~ 1000	200 ~ 1000
Rated Input Voltage			620V		
Start-up Voltage [V]			250		
No. of MPP Trackers	3	3	4	4	4
No. of Input Strings per Tracker	4 / 4 / 4	4 / 4 / 4	3 / 3 / 3 / 3	4 / 4 / 3 / 3	4 / 4 / 3 / 3
Max. DC Input Current [A]	44/44/44	44 / 44 / 44	33 / 33 / 33 / 33	44 / 44 / 33 / 33	44 / 44 / 33 / 33
DC Switch			Integrated		
AC Output Data					
Rated AC Power [W]	50000	60000	70000	75000	80000
Max.output power [VA]	55000	66000	77000	75000	88000
Max. AC Current [A]	79.4	95.3	111.1	109	127
Rated AC Voltage / Range		3/PE 380 ,400 ;+/-20% ;3/N/PE 380 ,400 ;+/-20%			
Grid frequency / range [Hz]			50 / 60; ±5		
Adjustable Power Factor [cosφ]			0.8 leading ~ 0.8 lagging		
Output THDi (@Rated Output)			< 3%		
Efficiency					
Max.Efficiency	99.00%	99.00%	99.00%	99.00%	99.00%
Euro Efficiency	98.37%	98.37%	98.50%	98.50%	98.50%
MPPT Efficiency	99.90%	99.90%	99.90%	99.90%	99.90%
General Data					
Size(Width*Height*Depth) [mm]	630×815×260	630 × 815 × 280	640 × 841 × 285	640 × 841 × 285	640 × 841 × 285
Weight [KG]	62	63	76	79	79
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			Fan Cooling		
Protection Grades			IP65		
Noise [dB]			< 60		
Warranty [years]			5 / 7 / 10		
Certifications & Standards					
Grid Regulation			PEA, MEA, IEC61727, IEC62116		
Safety Regulation			IEC 62109-1, IEC 62109-2		
EMC			EN 61000-6-2, EN 61000-6-4		
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		









MAX.DC/AC RATIO  
UP TO 1.5




10/12 MPPTS




Smart I-V  
Curve Function



DC & AC  
TYPE II SPD



AFCI  
FUNCTION OPTIONAL



1100Vdc,  
400/500Vac



On-grid Inverters

# R3 Max Series

120KW / 150KW  
Three Phase, 10 / 12 MPPT

Renac R3 Max Series 120-150 kW three phase series string inverter adopt 10/12 MPPT design to provide a more flexible configuration scheme. The maximum input current of each string reach to 13A, which can be perfectly adapted to high power module to increase the power generation. Configuration can be easily done via Bluetooth. Smart I-V Curve Function, Night SVG Function, making the O&M easier.

# R3 Max Series

Model	R3-120K	R3-150K-HV
DC Input Data		
Max. Recommended PV Power [Wp]	180000	225000
Max.DC Input Voltage [V]		1100
MPPT voltage Range [V]		200 ~ 1000
Rated Input Voltage	620V	780V
Start-up Voltage [V]		250
No. of MPP Trackers	10	12
No. of Input Strings per Tracker	2	2
Max. DC Input Current Per MPPT [A]	26	26
DC Switch		Integrated
AC Output Data		
Rated AC Power [W]	120KW@25°C , 110KW@40°C , 100KW@50°C W	150KW@25°C , 136KW@40°C , 120KW@50°C W
Max.output power [VA]	121000	150000
Max. AC Current [A]	176.4	174.5
Rated AC Voltage / Range	3W+N+PE, 230 / 400Vac; 320 ~ 480V	3W+PE, 500Vac; 400 ~ 621V
Grid frequency / range [Hz]		50 / 60; ±5
Adjustable Power Factor [cosφ]		0.8leading ~ 0.8lagging
Output THDi (@Rated Output)		< 3%
Efficiency		
Max.Efficiency	98.70%	99.00%
Euro Efficiency	98.30%	98.50%
MPPT Efficiency	99.90%	99.90%
General Data		
Size(Width*Height*Depth) [mm]		1055 × 700 × 336
Weight [KG]	98	110
User Interface		LED Indicator, Bluetooth + APP
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		Fan Cooling
Protection Grades		IP66
Noise [dB]	≤ 60	≤ 70
Warranty [years]		5 / 7 / 10
Certifications & Standards		
Grid Regulation		IEC61727, IEC62116
Safety Regulation		IEC 62109-1, IEC 62109-2
EMC		EN 61000-6-2, EN 61000-6-4
Protection		
	* DC Insulation Monitoring	* Over-heat Protection
	* Input Reverse Polarity Protection	* AC Overcurrent Protection
	* Anti-island Protection	* AC Short-circuit Protection
	* Residual Current Monitoring	* AC Overvoltage Protection
		* DC Surge Protection
		* AC Surge Protection





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.

# N1 HL Series

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]		13.5 / 13.5	
DC Switch		Integrated	
AC Output Data (On-grid)			
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	
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	


<sup>\*1</sup>: 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.









SMART MANAGEMENT  
VIA WEB & APP




EMERGENCY POWER  
SUPPLY



IP65 RATED



'PLUG & PLAY'  
INSTALLATION



6000W CHARGING /  
DISCHARGING RATE



EMS INTEGRATED,  
UP TO 8 OPERATION  
MODES



Energy Storage System

N1 HV Series

3KW / 3.68KW / 5KW / 6KW  
Single Phase, 2 MPPT, High Voltage Hybrid Inverter

RENAC N1 HV Series hybrid inverters are compatible with 80-450V high voltage batteries. It improves the system efficiency and lower the system cost significantly. The charging/discharging power could reach 6Kw and is suitable for operation mode like VPP (Virtual Power Plant).


N1 HV Series

Model	N1-HV-3.0	N1-HV-3.68	N1-HV-5.0	N1-HV-6.0
DC Input Data				
Max. Recommended PV Power (W)	4500	5500	7500	9000
Max.DC Input Voltage (V)			600	
MPPT Voltage Range (V)			120~550	
Rated DC input voltage (V)			360	
Start-up Voltage			150	
No. of MPP Trackers			2	
No. of Input Strings per Tracker			1	
Max. DC Input Current (A)			13.5/13.5	
DC Switch			Integrated	
AC Output Data(on-grid)				
Rated AC Power (W)	3000	3680	5000*1	6000
Rated. AC Current (A)	13	16	21.7*1	26.1
Rated AC Voltage/Range (V)			220/230/240; 160-290	
Grid Frequency/ range (HZ)			50/60 ; ±5	
Ajustable Power Factor[cos φ]			0.8leading ~0.8lagging	
Output THDi(@Rated Output)(%)			<2	
Output DC( Battery)				
Battery Type			Lithium	
Battery Voltage Range (V)			80~450	
Max. Charging / Discharging Current (A)			25	
Communication Interface			CAN	
EPS Output(With Battery)				
EPS Rated Power (W)	3000	3680	5000*1	6000
EPS Rated Voltage (V)			220/230	
EPS Rated Frequency (HZ)			50/60	
EPS Rated current (A)	13	16	21.7	26.1
Output THDi(@Rated Output)(%)			<2	
Automatic Switch Time (S)			<0.5	
Peak Apparent Power(rated).Duration (S)			120% Overload.600	
Efficiency				
Max. Efficiency (%)	97.42	97.45	97.50	97.50
Euro Efficiency (%)	97.15	97.17	97.20	97.20
MPPT Efficiency (%)	99.90	99.90	99.90	99.90
Max. Battery Discharge Efficiency (%)	97.15	97.17	97.20	97.20
Protection				
DC Insulation Monitoring			Intergrated	
Input Reverse Polarity Protection			Intergrated	
Anti-island Protection			Intergrated	
Residual Current Monitoring			Intergrated	
Over-heat Protection			Intergrated	
AC Overcurrent Protection			Intergrated	
AC Short-circuit Protection			Intergrated	
AC Overvoltage Protection			Intergrated	
DC Surge Protection			Integrated(Type II)	
AC Surge Protection			Integrated(Type III)	
General Data				
Size(Width*Height*Depth mm)			506*386*170	
Weight (KG)			20	
User Interface			LED+OLED	
Communication			RS485/Meter/USB/CAN/DRM/WIFI (optional) /GPRS (optional) /4G (optional)	
Operating Temperature Range (°C )			-30 ~ 60	
Relative Humidity (%)			0-95	
Operating Altitude (m)			≤2000	
Standby Self Consumption (W)			<15 for hot standby, <3 for cold standby	
Topology			Transformerless	
Cooling			Natural Convection	
Protection Grades			IP65	
Noise (dB)			<35	
Warranty			5 /7/10 years	
Certifications & Standards				
Grid Regulation			G98,G99,NRS-097	
			MEA, PEA, AS4777, EN50549,IEC61727,CEI 0-21, IEC62116,IEC60068,IEC61683,C10/11	
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	


\*1: The AC output power for VDE-AR-N 4105, VDE0126 and NRS097-2-1 is limited to 4600VA&20A, for AS/NZS 4777.2 is limited to 4999VA & 21.7A.









MODULAR DESIGN,  
EXPANDABLE




CAPACITY UP TO  
14.32KWH




IP65 RATED



EASY INSTALLATION



SAFE AND LONG  
LIFESPAN



HIGH POWER OUTPUT  
& USABLE ENERGY  
RATIO



Energy Storage System

# PowerCase

3.58KWh / 7.16KWh / 10.74KWh / 14.32KWh  
LiFePO4 Lithium-ion Battery

RENAC PowerCase is a LiFePO4 Lithium-ion Battery system. It offers a 3.58 KWh modular that can be expanded in parallel with up to 4 batteries 14.32KWh system. The PowerCase encompasses the latest LFP technology which ensures more reliable applications under wider temperature range.

Model	PC-3.58	PC-7.16	PC-10.74	PC-14.32
Battery				
Battery Type	LiFePO4			
Battery Module [Module]	1	2	3	4
Nominal Characteristics				
Nominal Voltage [V]	51.2			
Battery Capacity [Ah]	70	140	210	280
Nominal Battery Energy [kWh]	3.58	7.16	10.74	14.32
Electrical Specification				
Voltage Range [V]	43.2 ~ 57.6			
Recommand C Rate [C]	0.5			
Max.Charging Current [A]	50	100	100	100
Max.Discharging Current [A]	50	100	100	100
Mechanical Specifications				
Net Weight [KG]	59	94	59+94	94+94
Demension [mm]	536 × 170 × 1037			
Ingress Rating	IP65			
Color	White (Customizable)			
Cooling	Natural Convection			
Communication Specifataction				
Communication Port	CAN			
Operation Conditions				
Operation Temperature Range [°C ]	0 ~ 55			
Operation Humidity	< 100%			
Altitude [m]	< 2000			
Calender Life [Cycles, °C ]	> 6000, 25			
Certification				
Safety	CE / EN62619			
EMC	EN61000			
Transport	UN38.3			
Environment	ROHS			
Protection				

- \* OverCharge / Overdischarge Protection
  - \* OverCurrent Protection
- \* Overtemperature Protection
  - \* Short Circuit Protection



LiFePO<sub>4</sub> Battery

LV 48070 PLUS



HIGH POWER DENSITY  
(3.58KWH IN COMPACT  
SIZE)



LONG LIFE WITH MORE  
THAN 6000 CYCLES



EASY INSTALLATION



FLEXIBLE MODULAR  
SYSTEM



WIDE TEMPERATURE  
TOLERANCE (-10~50°C )



HIGH EFFICIENCY  
WITH 98% CHARGE  
/DISCHARGE  
EFFICIENCY

Energy Storage System

LV 48070 Plus

3.58KWh  
LiFePO<sub>4</sub> Lithium-ion Battery



The LV 48070 Plus is a high-performance, expandable battery storage modular. It is designed with flexible combination and suitable for various energy storage applications. Additional batteries can be installed in parallel. Easy installation with 'plug and play' solution saves time and cost.

LV48070 Plus

LV48070 Plus

Nominal Voltage [V]	51.2
Nominal Capacity [kWh]	3.58
Usable Capacity [kWh]	3.2
Dimension [mm]	475 × 426 × 132
Weight [KG]	35
Discharge Voltage [V]	43.2 ~ 56.0
Charge Voltage [V]	55.2 ~ 57.6
Recommend Charge/Discharge Current [A]	35
Max.lutput Current [A]	60
Max.Output Current [A]	70
Peak Output Current [A]	100 @5S
Communication	RS485, CAN
Battery String Configuration	1 ~ 8 units in parallel
Working Temperature	0~50°C Charge -10~50°C Discharge
Shelf Temperature	-20~60°C (Recommended: 0~35°C )
Depth of Discharge	90%
Overload protection	integrated
Short-circuit protection	integrated
Power self-consumption when running	≤ 2W
Power self-consumption when standby	1W@ ≤ 48h; 0W@ > 48h
Cooling method	Nature Cooling
IP rating of enclosure	IP20
Humidity	0 ~ 85%RH
Reference to standards	CE, IEC62619, UL1642, IEC61000, UN38.3, ROHS





EMS INTEGRATED,  
VPP COMPATIBLE

SMART MANAGEMENT  
VIA WEB & APP

IP65 RATED

EXPANDABLE  
STORAGE

'PLUG & PLAY'  
INSTALLATION

6000W CHARGING /  
DISCHARGING RATE



Energy Storage System

A1 HV Series

A1-HV-3K/A1-HV-3K68 / A1-HV-5K / A1-HV-6K  
All in One ESS

The RENAC A1-HV series all-in-one ESS combines a hybrid inverter and high-voltage batteries for maximum round-trip efficiency and charge / discharge rate capacity. It is integrated in one compact and stylish unit for the easy installation.

A1 HV Series

Model	A1-HV-3.0	A1-HV-3.68	A1-HV-5.0	A1-HV-6.0
DC Input Data				
Max. Recommended PV Power [W]	3900	4600	6500	7800
Max.DC Input Voltage [V]			600	
MPPT voltage Range [V]			125 ~ 550	
Start-up Voltage [V]			120	
No. of MPP Trackers			2	
No. of Input Strings per Tracker			1	
Max. DC Input Current [A]			13 / 13	
DC Switch			Standard	
Battery Input Data				
Battery Capacity	LiFePO4 5KWH / 10KWH / 15KWH / (Maximum 3 modules of the same type)			
Battery Type	lithium battery			
Recommended Battery Voltage [VDC]	300			
Battery Voltage Range [V]	85 ~ 400			
Max. Charging / Discharging Power [W]	6000			
Max. Charging / Discharging Current [A]	25			
Communication Interface	CAN / RS485			
AC Output Data (on-grid)				
Rated AC Power [W]	3000	3680	4600	6000
Max.output power [VA]	3000	3680	5000	6000
Max. AC Current [A]	13	16	21.7	26
Rated AC Voltage / Range [V]	220 / 230; 180 ~ 270			
Grid frequency / range [Hz]	50 / 60; ±5			
Ajustable Power Factor [cos ϕ]	0.8leading ~0.8lagging			
Output THDi (@Rated Output)	< 3%			
EPS AC Output Data (Back-UP)				
EPS Rated Power [VA]	4000	4000	5000	5000
EPS Rated Voltage [V]			220 / 230	
EPS Rated Frequency [Hz]			50 / 60	
Max.Output Current [A]	17.4	17.4	21.7	21.7
Output THDi (@Rated Output)	< 2%			
Automatic switch time [s]	< 0.5			
Peak power, Duration [VA, s]	6000, 10	6000, 10	8000, 10	8000, 10
Efficiency				
Max. Efficiency	97.80%	97.80%	97.80%	97.80%
Euro Efficiency	97.00%	97.00%	97.00%	97.00%
MPPT Efficiency	99.90%	99.90%	99.90%	99.90%
Max. Battery Discharge Efficiency (BAT to AC)	97.00%	97.00%	97.00%	97.00%
General Data				
Size (Width × Height × Depth) [mm]	420 × 1470 × 185			
Weight [KG]	110			
User Interface	LCD			
Communication	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			
Safety Regulation	IEC 62109-1, IEC 62109-2, IEC62040			
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, 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		



# Smart Energy Cloud



## Titan Solar Cloud

Titan Solar Cloud provides systematic O&M management for solar projects based on the technology of IoT, big data and cloud computing.

### Systematic Solutions

Titan Solar Cloud collects comprehensive data from solar projects, including data from inverters, meteorological station, combiner box, DC combiner, electric and module strings.

### Intelligent O&M

Titan Solar Cloud platform realizes centralized O&M, including intelligent fault diagnosis, fault automatic positioning and close-cycle O&M, etc.

### Data Connection Compatibility

Titan Cloud is able to connect different brand inverters by compatible with communication agreements of more than 40 inverter brands globally.

### Group and Fleet Management

It can realize the fleet O&M management for the solar plants around the world, and is also suitable for residential solar projects after sales service. It can dispatch the service orders to the service team nearby the fault site.

## Renac Energy Management Cloud

Based on technology of Internet, cloud service and big data, RENAC energy management cloud provides systematic power station monitoring, data analysis and O&M for different energy systems to realize the maximum ROI.

### Systematic Solutions

RENAC energy cloud realizes comprehensive data collection, data monitoring on solar plant, energy storage system, gas power station, EV charges and wind projects as well as data analysis and fault diagnosis. For industrial parks, it provides analysis on energy consumption, energy distribution, energy flow and system income analysis.

### Intelligent Operation and Maintenance

This platform realizes centralized O&M, fault intelligent diagnosis, fault automatic positioning and close-cycle O&M, etc.

### Customized Function

We could provide customized function development according to specific projects and maximize benefits on various energy management.





# Accessories



## ST-Wifi-G2

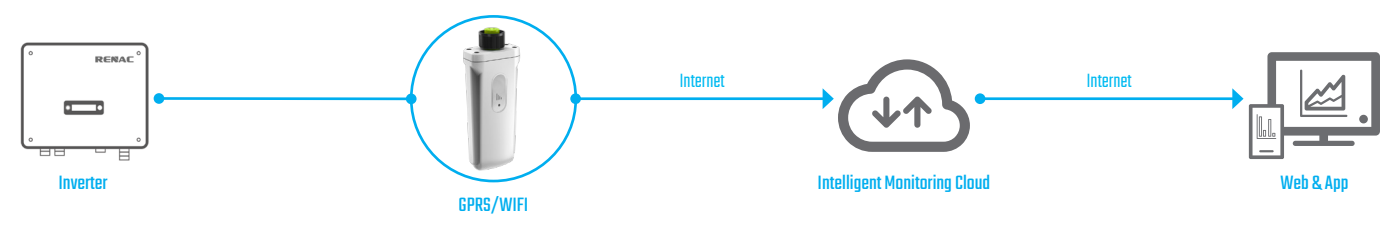
- Supporting Breakpoint Retransmission
- Easy & Quick Setup Via Bluetooth
- Wide Coverage



## ST-GPRS / ST-WIFI

- Remote monitoring via cloud platform.
- Real-time monitoring device status, between -30°C ~85°C .
- Support multiple communication protocols (standard/nonstandard).
- Strong reliability and stable operation.

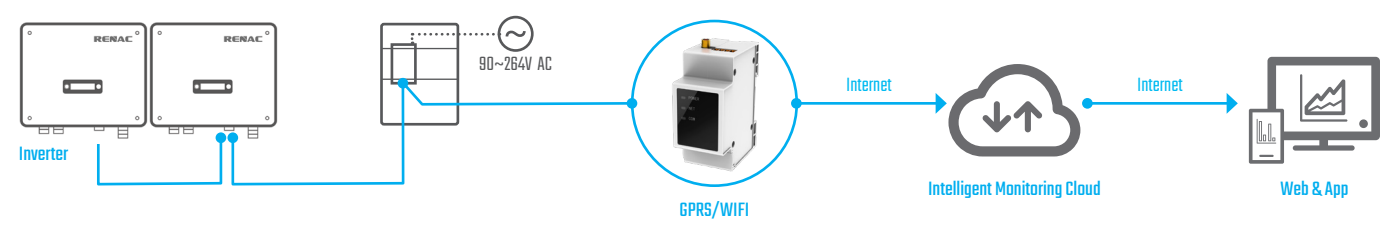
Application System Schematic Diagram



## RT-GPRS / RT-WIFI

- Input voltage : AC 90-264V.
- Inverter communication: RS485.
- Communication parameters: 9600/N/8/1.
- Remote communication : GPRS/Wifi.
- Able to connect up to 8 inverters.
- Support remote firmware upgrade.
- Support 850/900/1800/1900MHz SIM card.
- Operating temperature range: -20°C ~70°C .

Application System Schematic Diagram





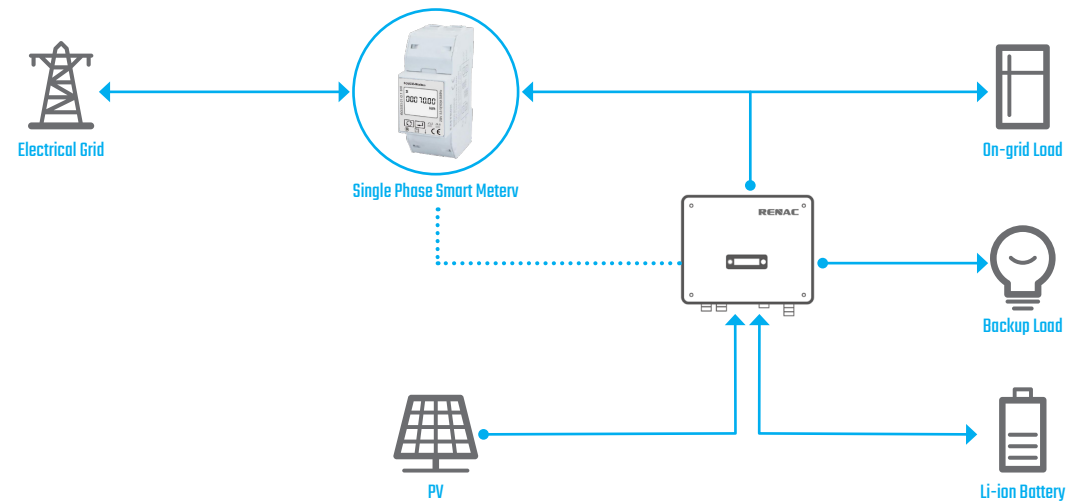


## Single Phase Smart Meter

RENAC single phase smart Meter is designed with high-precision small-scale dimensions, and convenient operation and installation

Available for N1 series Hybrid inverter connection to measures kWh, Kvarh, KW, Kvar, KVA, PF, Hz, dmd, V, A, etc, it could make system zero export or limit export power to a certain set value

Application System Schematic Diagram



## UDL-100

Built-in communication server and Web monitoring site

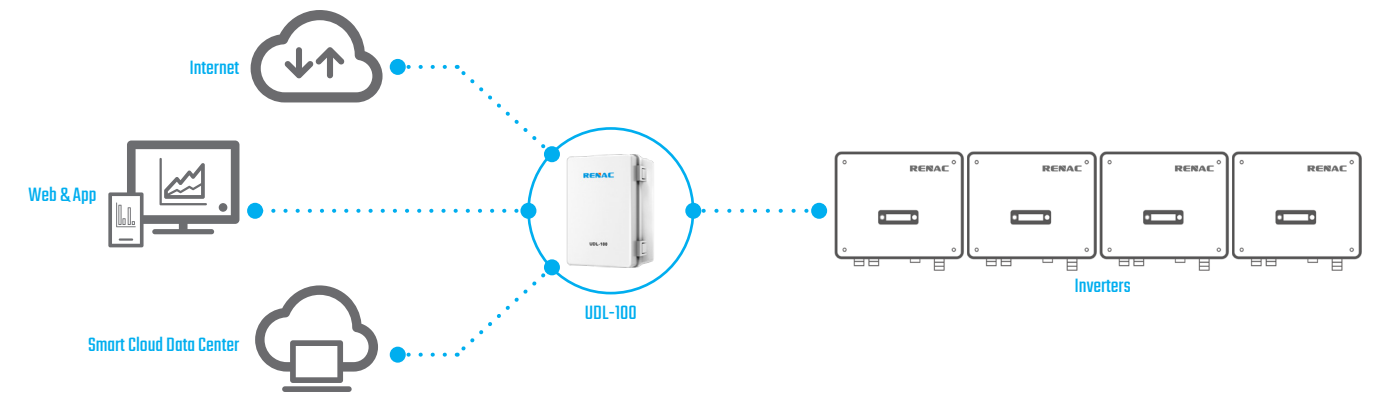
Able to send info to remote server (RJ45 / GPRS / WiFi)

Can be connected to a variety of devices including inverters, modules, combiner boxes, controllers and sensors, etc., to satisfy various demands

Support up to 4 strings of 485, and each string can connect up to 18 devices

Compatible with 104 communication protocols

Application System Schematic Diagram



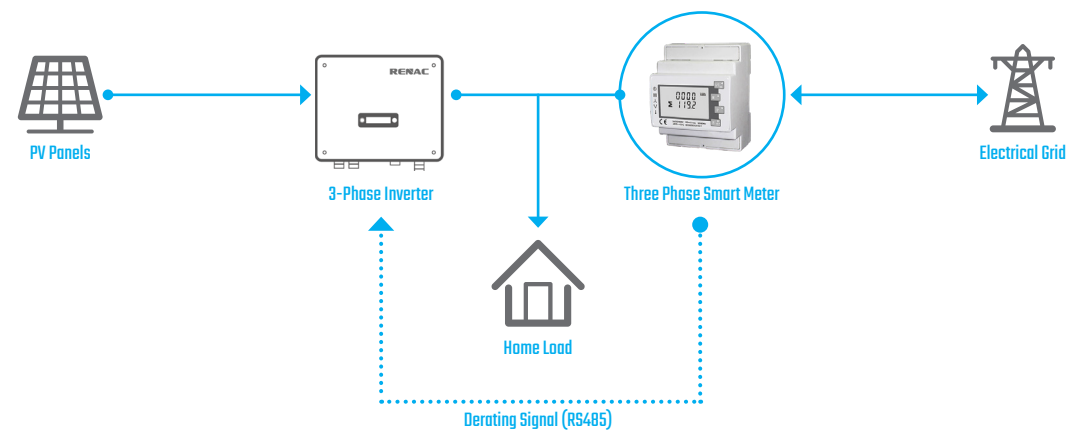
## Three Phase Smart Meter

RENAC Smart Meter is one-on-one solution for grid export limitation

Compatible with RENAC three phase string inverters from 4kW to 33kW

With RS485 communication and direct connection to inverter, it is easy for installation and cost effective

Application System Schematic Diagram

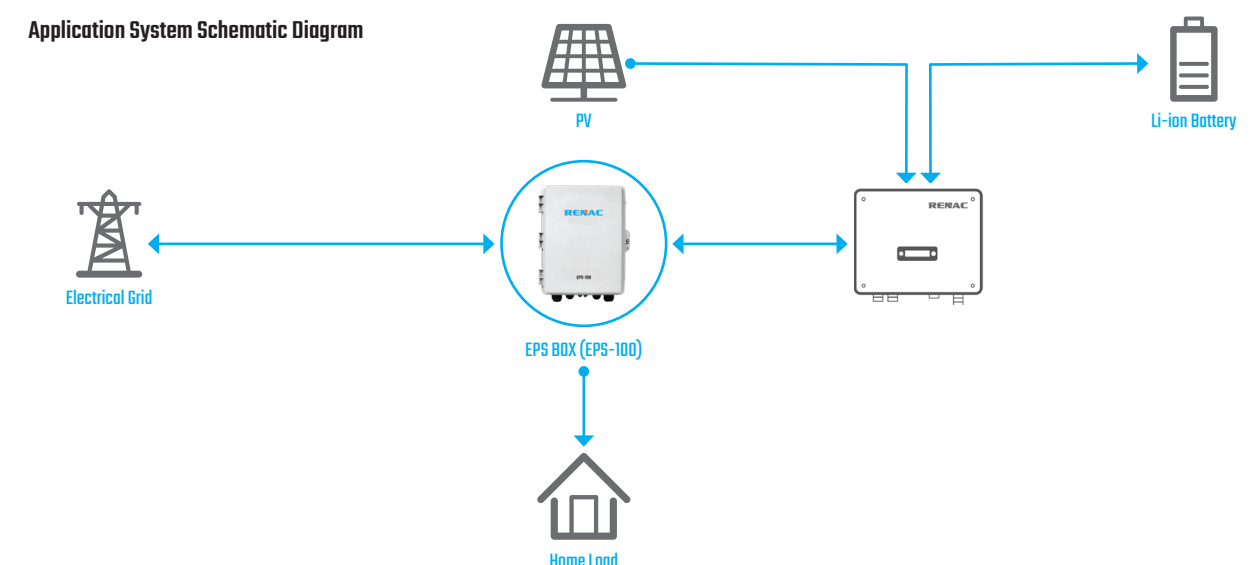


## EPS BOX (EPS-100)

RENAC EPS box is an accessory to manage EPS output of hybrid inverters.

It integrates two contactors and provides simple connection for end users by connecting 6 wires between inverter and EPS box. Meanwhile, the EPS simplifies operation and improves system security

Application System Schematic Diagram





# Project Reference



# Residential PV Plants



**16Kw Residential Project in Brazil**  
Two units single phase inverters NAC8K-DS



**5KW Residential Roof Project in Gujarat, India**  
One unit on-grid inverter NAC5K-DS



**3KW Residential Roof Project in Italy**  
One unit on-grid inverter R1-3K3-SS





### 5KW Residential Roof Project in Tunisia

Two units on-grid inverter R1-2K7-SS



### 16KW Farmhouse Roof Project in Brazil

Two 8KW single phase inverters NAC8k-DS were deployed to power farmhouse in Diego Brazil



### 12KW Solar Project in Vietnam

One unit on-grid three phase inverter R3-12K-DT



# Industrial PV Plants



**39KW Solar Plant in Curitiba Brazil**  
100 piece solar panels have been installed on the roof of a factory in Curitiba Brazil. Two NAC20K-DT inverters were deployed to power the facility



**1.2MW Rooftop Solar Plant in Jiangsu, China**  
1.2 MW project case in Jiangsu province of China with NAC60K



**30KW Solar Plant in Italy**  
A warehouse roof power station project with 2 units three phase on-grid inverters R3-15K-DT



**60KW Mexico PV Power Station**  
This is a 60KW PV power station in Mexico, with 2 units



# Energy Storage System



## 2MW Solar Project in Shandong Province China

2MW PV power station in Shandong Province, China with 40 units NAC50K



## 165KW Solar Plant in Vietnam

5 units NAC33K-DT in Vietnam



## Residential Storage in Sri Lanka

Solar+Storage, backup power, 20 units 5KW hybrid inverters ESC5000-DS



## Residential Storage in Chelmsford UK

10 x 3.6KW/7.2Kwh ESS for Firm frequency response, VPP, with hybrid inverter ESC3680-DS



## Residential Storage in Sydney Australia

PV Self-consumption, 5KW hybrid inverter ESC5000-DS and 7.2kWh LPF battery



# Certification

Series	Model	CE	VDE0126-1-1 (Europe)	AS4777 (Australia)	NZ4777 (New Zealand)	NRS097-2-1 (S.Africa)	MEA (Tailand)	PEA (Thailand)	CE10-21 (Italy)	CE10-16 (Italy)	EN50549 (Europe)	EN50438 (Europe)	C10/11 (Belgium)	G98 (UK)	G99 (UK)	OVE/ONORME8001-4-712 (Austria)	RD1699/UNE (Spain)	ABNT NBR 16149/16150 (Brazil)	IEC61727 IEC62116	IEC60068 IEC61683	IEC62040	IEC62619	UN38.3
R1 Mini Series	NAC1K-SS	●	●																●	●			
	NAC1K5-SS	●	●																●	●			
	NAC2K-SS	●	●																●	●			
	NAC2K5-SS	●	●																●	●			
	NAC3K-SS	●	●															●	●				
	R1-1K1-SS	●	●						●		●		●	●		●	●		●	●			
	R1-1K6-SS	●	●						●		●		●	●		●	●		●	●			
	R1-2K2-SS	●	●						●		●		●	●		●	●		●	●			
	R1-2K7-SS	●	●						●		●		●	●		●	●		●	●			
	R1-3K3-SS	●	●				●	●	●		●		●	●		●	●	●	●	●			
	R1-3K7-SS	●	●						●		●		●	●		●	●		●	●			
R1 Macro Series	NAC4K-DS	●	●	●	●				●		●				●				●	●			
	NAC5K-DS	●	●	●	●		●	●	●		●				●			●	●	●			
	NAC6K-DS	●	●	●	●				●		●				●			●	●	●			
	NAC7K-DS	●	●	●	●				●		●				●				●	●			
	NAC8K-DS	●	●	●	●				●		●				●			●	●	●			
R1 Moto Series	R1-7K-DS	●																	●	●			
	R1-8K-DS	●																	●	●			
	R1-9K-DS	●																	●	●			
	R1-10K-DS	●																	●	●			
	R1-10K5-DS	●																	●	●			
R3 Note Series	R3-4K-DT	●							●	●	●		●		●				●	●			
	R3-5K-DT	●					●	●	●	●	●		●		●				●	●			
	R3-6K-DT	●							●	●	●		●		●				●	●			
	R3-8K-DT	●							●	●	●		●		●				●	●			
	R3-10K-DT	●					●	●	●	●	●		●		●				●	●			
	R3-12K-DT	●							●	●	●		●		●				●	●			
	R3-15K-DT	●							●	●	●		●		●				●	●			
R3 Pro Series	NAC20K-DT	●							●	●			●		●				●	●			
	NAC25K-DT	●							●	●			●		●				●	●			
	NAC30K-DT	●							●	●			●		●				●	●			
	NAC33K-DT	●					●	●	●	●			●		●				●	●			
R3 Plus Series	NAC50K	●																	●				
	NAC60K	●																	●				
	NAC70K	●																	●				
	NAC75K	●																	●				
	NAC80K	●																	●				
R3 Max Series	R3-120K	●									●								●				
	R3-150K-HV	●									●								●				
N1 HL Series	ESC3000-DS	●		●	●	●			●		●	●	●	●					●	●	●		
	ESC3680-DS	●		●	●	●			●		●	●	●	●					●	●	●		
	ESC5000-DS	●		●	●	●	●	●	●		●	●	●		●				●	●	●		
Lion Battery	LV48070 Plus	●																				●	●



# World-Class Components Suppliers

## Main CPU

America



## IGBT

Germany / America



## DC Switch

Netherlands



## Capacitor

Japan



## Relay

Japan / Germany



## MOS

Germany / America



## Cooling Fan

Japan



## DC Connector

Switzerland / America



## MOV

Japan

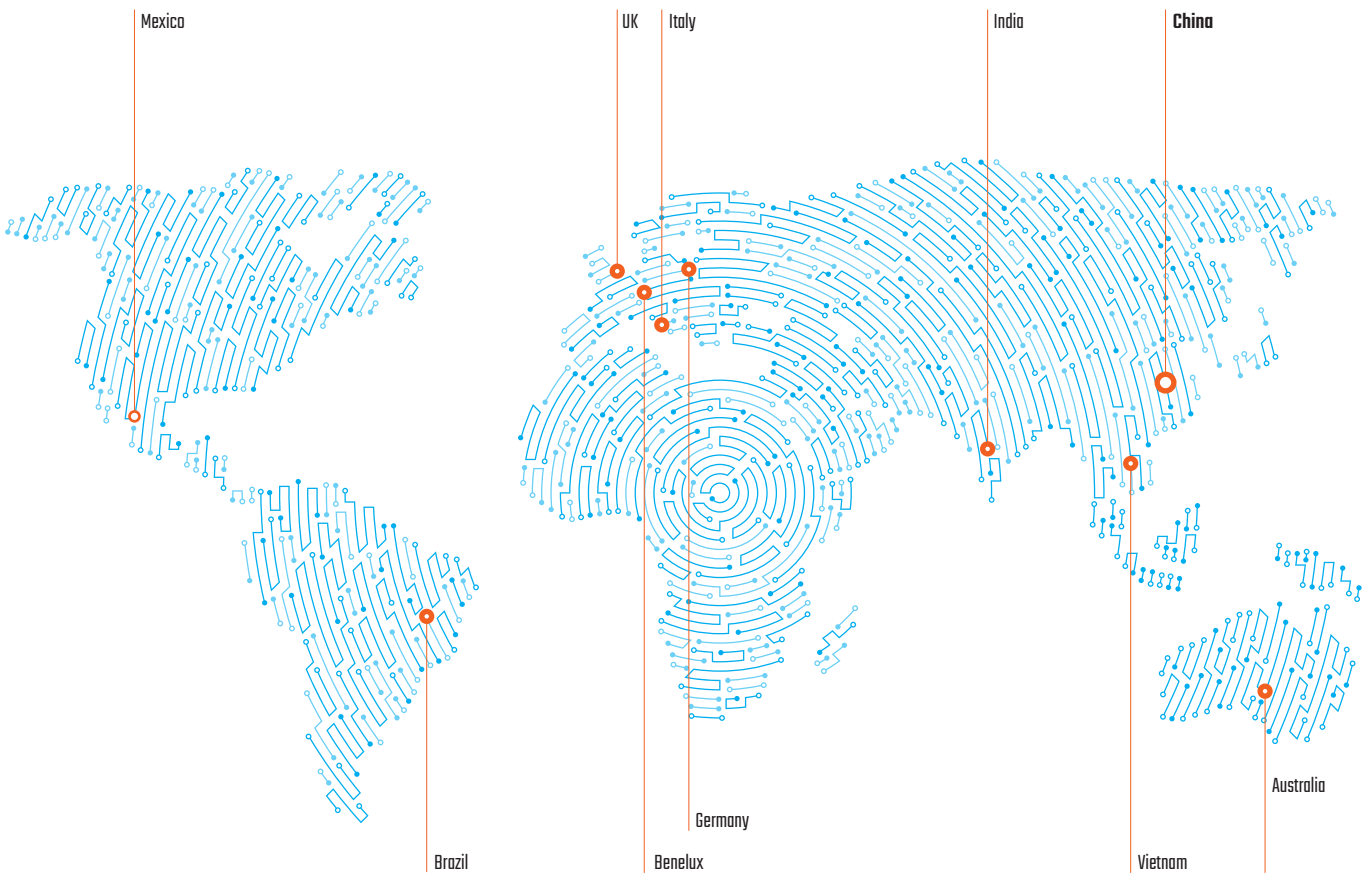


## AC Connector Sensor

Germany / Switzerland



# Global Service Network



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# SMART ENERGY FOR BETTER LIFE



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