

# RHINO series

Energy Storage Inverters

Industry Leading Scalable Output Flexibility with Smart Modular Inverter and Built-in PMS as a Standard Part of PCS



**dots energy PCS series is economically designed as a modular structure by utilizing smart modular inverters, so it provides a complete solution with flexible AC and DC output models.**

dots modular PCS selects the LS Electric's smart modular inverter (MSSP) that is the proven cutting-edge technology for the performance and power density in the ESS market.

LSE MSSP with a patented technology can connect parallelly both AC and DC side, so that RHINO-10H can compose it easy targeted AC output with wide range (360~1200kW), also it provides qualified performance that meets UL 1741SA and IEEE1547 standards for most applicable business area.

In addition, built-in PMS as an asset of ESS provide user-friendly operation modes with easy connection to the Battery BMS and safety algorithms and multiple application on the scheduler and dispatcher.

## System Advantages

- Seamless transfer from grid-tied to stand-alone mode
- Applied CSC 10ft CNTR for cost reduction on oversea delivery
- Can be installed anywhere with IP65 grade

## Key Technologies

- 4 Quadrant Droop Control
- Built in PMS for ESS control and operation
  - Backup during outage (UPS is applied)
  - Schedule Mode
  - Dispatcher Mode
  - Derating Mode for battery protection
  - dots Control & Easy Configure Mode
  - Dynamic Transfer by DMT (Option)

# RHINO-10H Technical Specifications

<b>Electrical</b>	AC Input Voltage	690 / 600 / 480 / 440 / 400 / 380 V 3Ø3W										
	Grid Frequency	50 / 60 Hz										
		INV #	3	4	5	6	7	8	9	10		
	AC Power (38 Scalable Outputs)	AC Output (MW)		0.6	0.8	1.0	1.2				@690Vac	
				0.5	0.7	0.9	1.0	1.2			@600Vac	
				0.4	0.6	0.7	0.9	1.0	1.2		@480Vac	
				0.4	0.5	0.6	0.8	0.9	1.0	1.2	@440Vac	
				0.3	0.5	0.6	0.7	0.8	1.0	1.1	1.2 @400Vac	
			0.3	0.4	0.6	0.7	0.8	0.9	1.0	1.2 @380Vac		
	DC Voltage Range	570-1500 Vdc @380Vac 600-1500 Vdc @400Vac 660-1500 Vdc @440Vac				720-1500 Vdc @480Vac 900-1500 Vdc @600Vac 1035-1500 Vdc @690Vac						
Rated AC/DC Current	Upon 2 Requests (INV#, Vac)											
Power Factor	1.0 Leading to 1.0 Lagging											
Current Harmonics	< 5 % THD											
Maximum Efficiency	98 %											
Max Ramp Rate	< 16.67 ms											
<b>Environmental</b>	Operating Temperature	-20 to +50 °C										
	Max Elevation	1000 Meters										
	Cooling	Air Cooler (HVAC)										
	Enclosure	CSO 10ft CNTR / IP55										
	Dimension (LxWxH)	2991 x 2438 x 2896 mm										
	Weight	Max 4.3 ton										
<b>Certifications &amp; Standards Compliance</b>	<ul style="list-style-type: none"> <li>• UL1741SA including CA Rule 21 (Inverter)</li> <li>• IEC62477-1</li> <li>• CSA22.2</li> <li>• EN61800-3</li> <li>• IEEE1547</li> </ul>											
	<b>Hardware Protections</b>	<ul style="list-style-type: none"> <li>• AC SPD, AC Breaker with Shunt Trip</li> <li>• DC SPD, DC Fuse / DC IMD (Option)</li> <li>• DC Pre-Charge &amp; Discharge</li> </ul>										
		<b>Software Protections</b>	<ul style="list-style-type: none"> <li>• AC Over/Under Voltage, Over/Under Frequency</li> <li>• AC Power Derate by DC Battery SoC and Temperature</li> <li>• AC Power Limiting</li> <li>• AC Power Command Time-Out</li> <li>• DC Over/Under Voltage, Over Current Limiting</li> <li>• DC SoC &amp; Temp Limiting</li> <li>• Anti-Islanding Protection</li> </ul>									