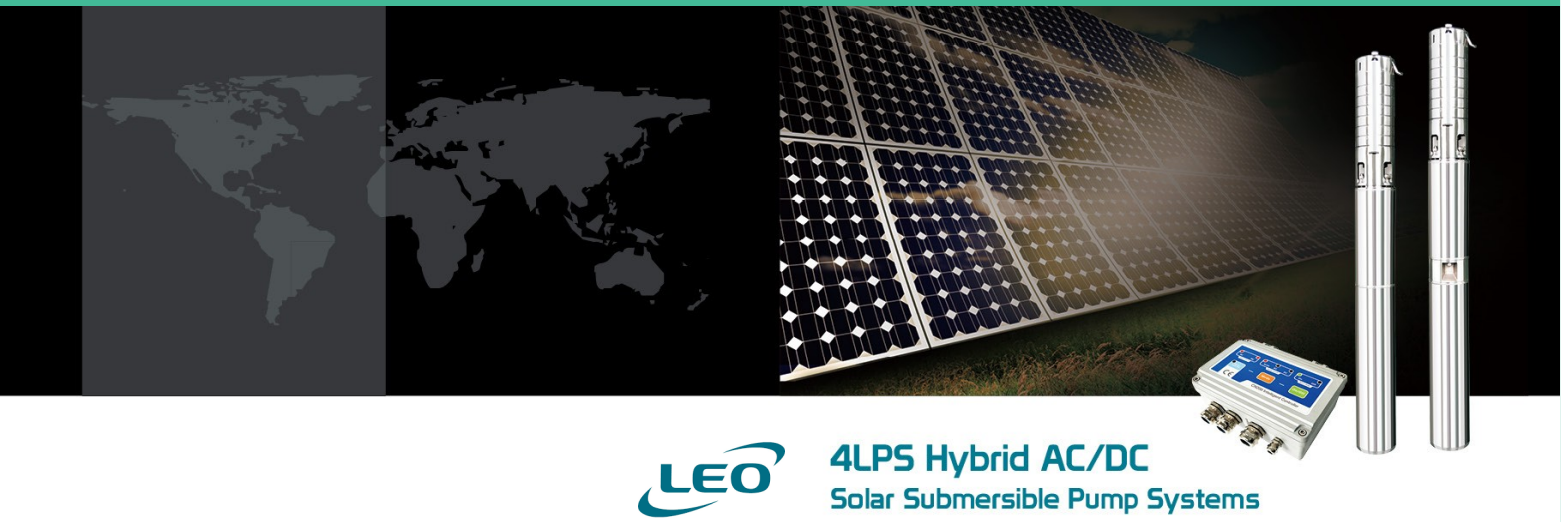
4LPS Hybrid AC/DC

Solar Submersible Pump System



LEO

4LPS Hybrid AC/DC
Solar Submersible Pump Systems

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Why solar pumps in Namibia

- Namibia has a lot of sun energy that can be harnessed
- Ideal choice when grid power is irregular or unavailable
- They have extremely low running costs
- They are easy to transport and relocate vs. windpumps
- New technology makes it more affordable and cost efficient than windpumps
- Solar pumps are generally low-maintenance
- Productivity increases in times of need

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What makes LEO solar pumps unique

Benefits:

- Runs on a DC motor (efficient on solar)
- Controller allows for DC or AC input
- Depths up to 150m
- MPPT (maximum power point tracking)
- 2 year warranty on replacement and parts
- Affordable solution
- Soft start running
- Stainless steel impeller option (not in current line)

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What makes LEO solar pumps unique

Benefits:

- Minimal components (as low as 3 components)
- Dry run protection
- Overvoltage and Undervoltage protection
- Over current protection
- Overload protection
- Overtemperature protection
- Easy installation
- Float switch compatible
- Phase loss protection

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What makes LEO solar pumps unique

Pump

- Made of 100% stainless steel AISI 304
- Single shaft and impeller design removing any imbalance
- Minimal pump vibration and noise
- Long service lifetime of the motor

Motor

- Made of 100% stainless steel AISI 304
- Double outer and inner shielding structure
- Internal coil made from high-temperature tolerant, copper wire
- Effeciently protecting the motor under high-temperature environment
- Extended motor's service lifetime.
- Water - filling lubricated rotor with top and bottom graphite-made bearing and thrust bearing made with high precision
- Co-axial rotation effeciently reduces motor's vibration and noise and extend its service lifetime.
- Built-in, integrated Variable Frequency Converter with intelligent-speed control algorithm with a maximum speed 6000 RPM.

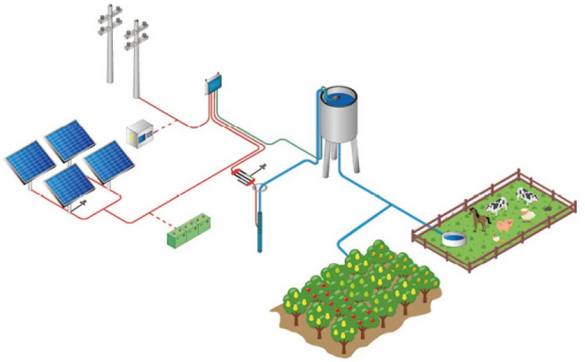
Built–in Intelligent controller

The intelligent controller designed for 4SP(S) pump, offers high flexibility towards power supply source and range.

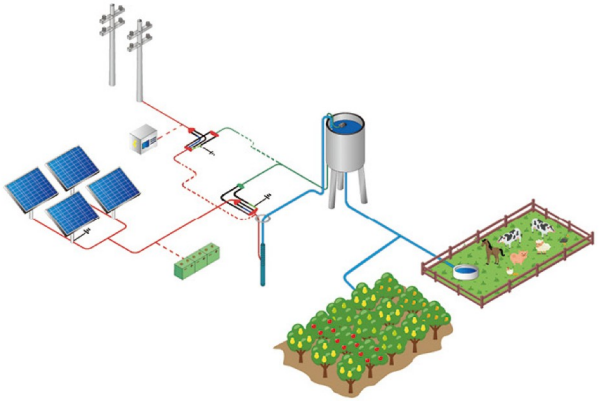
- Can be powered with either DC or AC voltage
- MPPT & DSP technology
- Intelligent parameter detection
- Soft start running
- Long system's lifetime.

Main protection functions

- Dry-running protection
- Over-current protection
- Over-voltage protectiom
- Overload protection
- Phase loss protection



Hybrid Power Source



AC or DC Power Source

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Flow charts for LEO m3/h @ 500W

LEO 4LPS HYBRID AC/DC 500WP											
500Wp Model		Flow (m3/h) @ head (m)									
		10	20	30	40	50	60	70	80	90	100
4LPS2/7		3,60	2,94	2,04	1,56	1,26	0,72	0,42			
4LPS2/9		3,42	2,82	2,04	1,56	1,20	0,78	0,6	0,36	0,12	
4LPS2/11		3,30	2,80	2,05	1,55	1,02					
4LPS2/13		3,09	2,58	2,01	1,56	1,2	0,87	0,6	0,48		
4LPS3/3		4,98	4,14	3,42	2,28						
4LPS3/6		4,08	3,06	2,10	1,50	0,84					
4LPS3/8		3,96	3,18	2,28	1,68	1,08	0,78	0,36			
4LPS3/11		3,51	2,85	2,13	1,59	1,14	0,75				
4LPS3/13		3,30	3,00	2,01	1,50	0,93	0,51	0,21			
4LPS5/6		5,46	3,78	2,34	1,26	0,66					
4LPS5/8		5,13	3,66	2,43	1,41	0,84					
4LPS5/10		4,56	3,23	2,11	1,25	1,32					
4LPS5/12		4,44	2,22	1,35	0,83						
4LPS8/5		6,62	3,44	1,82	0,73						
4LPS8/7		6,87	3,84	1,97	0,8						
4LPS8/8		6,66	3,95	2,78	1,37						
4LPS14/4		7,55									
HIGH FLOW MODELS		5	10	15	20	25	30	35			
4LPS5/3		7,68	6,48	4,98	3,90	2,34	1,08				
4LPS8/2		10,38	7,86	4,98	2,82						
4LPS8/3		10,14	7,92	5,58	3,60	2,88	2,1				
4LPS8/4		8,84	6,89	4,86	3,26	2,27	1,61				
4LPS14/1		17,04	14,88	12,42	8,82	6,42	1,44				
4LPS14/2		11,93	7,47								
4LPS14/3		10,98	7,22	3,2							

2x 250W Panel

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Flow charts for LEO m3/h @ 1200W

5x 250W Panel

LEO 4LPS HYBRID AC/DC 1200WP																
1200Wp Model		Flow (m3/h) @ head (m)														
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
4LPS2/9		5,40	4,74	4,26	3,78	3,24	2,7	2,34	1,86	0,6						
4LPS2/11		4,74	4,38	4,02	3,60	3,06	2,64	2,28	1,86	1,5	0,96					
4LPS2/13		4,44	4,20	3,84	3,42	3	2,52	2,22	1,92	1,62	1,38	1,14	0,96			
4LPS2/16		4,14	3,54	3,54	3,24	2,88	2,4	2,1	1,8	1,5	1,32	1,08	0,9	0,72	0,54	0,3
4LPS3/3		4,98	4,56	4,14	3,66	3,18	2,70	2,22	1,68	1,32	1,08	0,78	0,54			
4LPS3/6		6,18	5,64	4,92	4,08	2,64										
4LPS3/8		5,76	5,22	4,62	3,96	3,3	2,76	1,98								
4LPS3/11		5,28	4,86	4,38	3,84	3,3	2,76	2,34	1,92	1,62	1,26					
4LPS3/13		4,98	4,56	4,14	3,66	3,18	2,7	2,22	1,68	1,32	1,08	0,78	0,54			
4LPS5/6		8,52	7,32	6,12	4,74	3,42	1,26									
4LPS5/8		7,68	6,90	5,82	4,62	3,36	2,7	2,1	1,26							
4LPS5/10		7,32	6,66	5,64	4,56	3,6	2,7	2,16	1,68	1,08	0,6					
4LPS5/12		6,96	5,40	4,44	3,48	2,7	2,1	1,56	1,14	0,72	0,42					
4LPS8/5		11,82	9,36	6,60	4,44	3,66	3,06									
4LPS8/7		11,04	8,94	6,9	4,44	3,06	2,22	1,08								
HIGH FLOW MODELS		5	10	15	20	25	30	35	40							
4LPS8/3		14,22	12,96	11,58	9,72	7,62	4,86									
4LPS8/4		13,38	12,30	10,86	9,48	7,86	6,12	5,1	3,84							
4LPS14/2		19,74	16,56	12,66	9,18											
4LPS14/3		18,48	16,26	12,66	9,84	7,08	4,14	1,14								

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Flow charts for LEO m3/h @ 2200W

9x 250W Panel

LEO 4LPS HYBRID AC/DC 2200WP															
2200Wp Model		Flow (m3/h) @ head (m)													
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
4LPS2/16		5,07		4,65	4,41	4,14	3,84	3,54	3,15	2,82	2,49	2,28	2,07	1,8	1,38	0,66
4LPS3/13		6,24	5,88	5,58	5,22	4,98	4,56	4,14	3,72	3,18	2,76	2,34	1,8	0,42		
4LPS5/10		9,18	8,58	7,86	7,08	6,3	5,4	4,56	3,72	3,06	0,9					
4LPS5/12		8,64	7,38	7,38	6,72	6,00	5,22	4,38	3,6	3,12	2,64	2,16	1,14	0,42		
4LPS8/5		15,06	13,32	11,28	8,70	4,4										
4LPS8/7		16,16	12,72	10,98	9,12	6,6	5,04	3,96								
4LPS8/8		13,14	11,88	10,38	8,4	6,6	5,22	4,26	3,24							
4LPS14/4		20,22	16,08	11,82	7,32	4,92										
HIGH FLOW MODELS		5	10	15	20	25	30	35								
4LPS14/3		23,16	21,72	19,08	16,74	13,86	11,58	4,5								

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