

SOLAROPIA

INNOVATIONS IN SOLAR PUMPING TECHNOLOGY



POOL SOLAR PUMPING SYSTEMS FOR RESIDENTIAL AND COMMERCIAL POOLS



SPI The Pool Pumping Technology of the 21 Century

- Operates Pool and SPA Pumps with Solar
- Filtrates Pools Twice a day with Solar Power
- 40% More efficient than Conventional Solar Systems
- 70% Lower Operating Cost than Conventional Pool Pumps

SPI ADVANCED NEW SOLAR TECHNOLOGY

■ New Class OF Solar Inverters operating Pumps in 3 Power Modes

The world's first battery-less, transformer-less solar inverter technology that operate OFF –Grid , On-Grid and Hybrid mode (Solar, and AC) to Prolong day time operation with any available solar power

■ New Solar VFD with Adaptive MPPT Technology

SOLAROPIA SPI employs new efficient MPPT technology (patent pending- Adaptive MPPT Solar VFD) that decreases solar PV power by 40% to operate pumps compared with existing solar inverters

Main Benefits

- Pump Brand Independent (can operate any existing or new commercial pool pump)
- Easy to Install and Operate with Plugs-n-Play Technology
- Highly efficient – Daily double Pool Volume filtration with Solar power
- Operates both Pool and SPA with only solar power
- Automated self- start-up : daytime (Solar), Evening-time (Hybrid), and night time (AC mode)
- Remote Control of Pool and SPA Operation
- Extremely Economic – 75% less cost than Utility power – and 40% less than conventional Solar system



Advanced Pump Protection

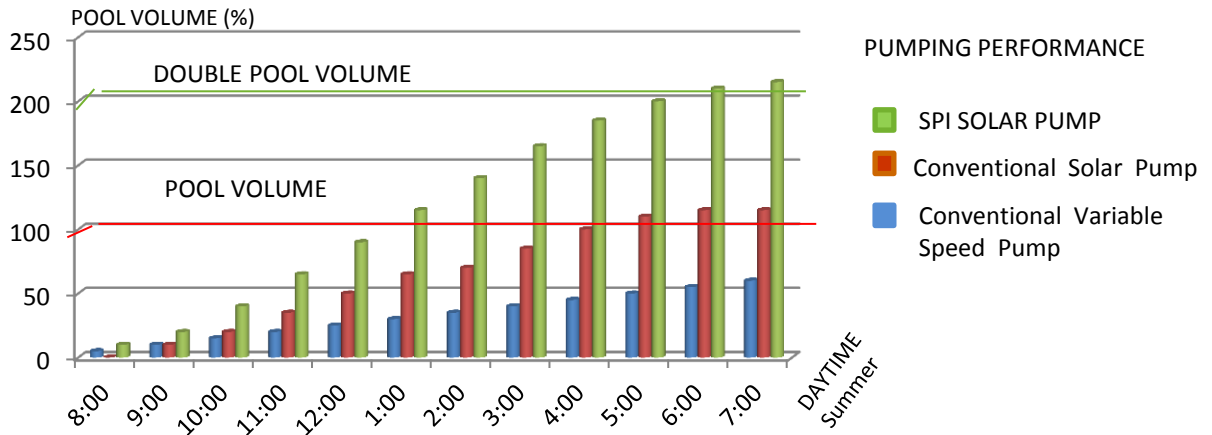
SPI implements high industrial standards pump protection functions that makes it maintenance free

- Soft-start and Soft-shutdown.
- Dry-Run Protection
- High Pressure Protection
- Pipe Breaks-leakage Protection
- Flow Compensation .
- Pipe fill Protection
- High Voltage Protection
- Surge Power protection
- Short circuit - phase loss Protection
- GFCI protection of electrical leakage
- Emergency stop button
- Main turbulence protection



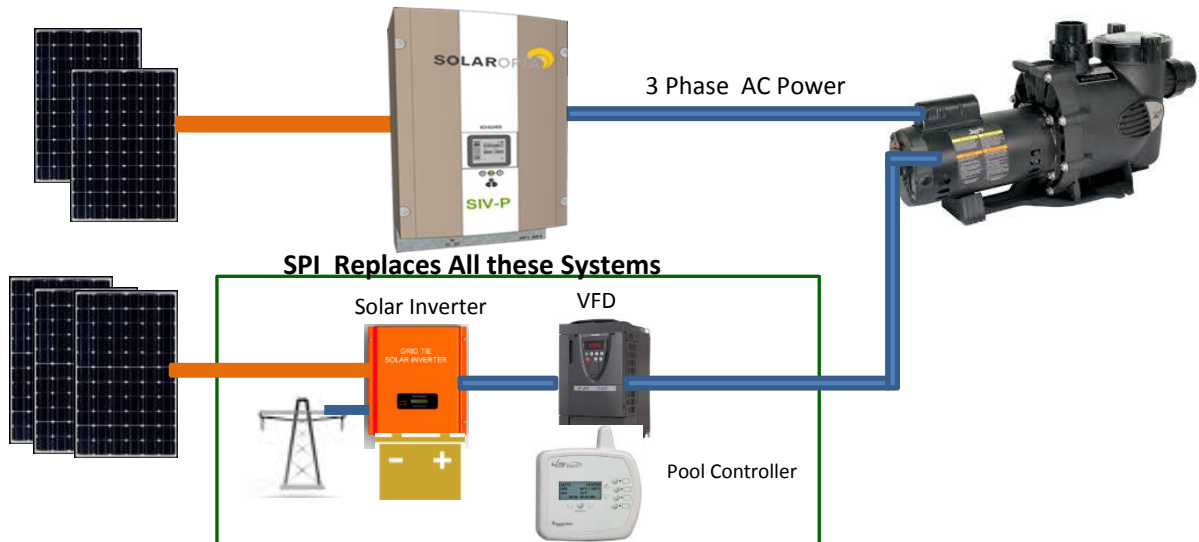
HIGH PERFORMANCE

- SPI Solar pumps performs double pool filtration during daytime hours
- Conventional Solar Inverters filtrate pools only once and they need extra conventional Variable Speed Drive
- Conventional variable speed pumps filtrate only 55% during daytime (24 hours whole pool volume)



SPI COMPARED WITH CONVENTIONAL SOLAR SYSTEMS

- SPI Pumps 40% more volume using the same PV Power (reduces Solar PV Cost by 40%)
- SPI Replaces three systems required by Solar Inverters (reduces System cost by another 40%)



SPI-PUMPS OPERATING VOLTAGE REFERENCE

SPI operates all 3Phase pumps at standard 200V and 400V AC
 The required DC voltage in serial PV array is provided below for each pump voltage type.

SPI Voltage Type REF.	SPI Feed AC Voltage	Pump Voltage (3 phase)	Required DC Voltage (Vmin - Voc)*	SPI MPPT Operating DC Voltage Range
1 2	1: 200 V 1 phase -AC 2: 240 V 3 phase-AC	200 V class	250 - 400 V DC	185 - 400 V DC
3 4	3: 1 x 400 V 1 Phase-AC 4: 3 x 400 V 3 Phase -AC	400 V Class	550 - 800 V DC	350 - 800 V DC

*Vmin : Minimum Voltage of the Serial PV Array Voc : Maximum Voltage of the open circuit Serial PV array

SP-P Series of Pool Solar Pumping Systems

SP-P series offers solar pumping systems to operate pools from 15,000 G to 300,000 G

Solar System	25,000 G	50,000 G	100,000 G	150,000 G	200,000 G	300,000 G
Pool Pump (HP)	1.5	3-4 HP	5.5 HP	7.5 HP	10 HP	15 HP
Solar PV Power (KW)	1.5	3-4.5 KW	6 KW	7.5 KW	12 KW	15 KW
Rated Flow Rate (GPM) at 35' TDH –Solar Mode	80 GPM	180 GPM	350 GPM	450 GPM	600 GPM	900 GPM
Av. Pool Volume /Day in Solar mode (G)	40,000	85,000 G	180,000 G	280,000 G	360,000 G	550,000 G
SPI System Reference	SPI-1.5-P	SPI-3-P	SPI-5-P	SPI-7.5-P	SPI-10-P	SPI-15-P







SPI COMPLETE SOLAR SOLUTIONS

SOLAROPIA offers ready to install complete SIP-P Systems in 3 packages:

PAC1: SPI-P (Solar Pumping inverter only - PVs and pumps are supplied by installers)

PAC2: Complete Solar System to upgrade Existing Pool Pumps to operate with solar power

PAC3: Complete Solar system with New Pump from US pump manufacturers (SOLAROPIA Partners)

PACKAGE	PAC 1	PAC2	PAC3
SPI SYSTEM	SIP-P PVs and Mounts are not included	Complete -Ready to Install Solar System Package For Existing Pools (includes SIP-P , PV, PV Mounting, Combiner box , DC - AC cables)	PAC2 with New Pump
RESIDENTIAL		 R: ROOF  G:Ground	
COMMERCIAL		 Architectural Album For commercial Mount Selection	

SPI SYSTEMS REFRENCING

SPI	HP	V	P	N
	Pump HP	Voltage: Type : 1, 2 or 3		PAC No: 1, 2, or 3