

Connection Structure

PV Input

Connect solar panels to the independent DC input terminals.

AC Input

Connect single-phase grid power or a diesel generator when AC support is needed.

Pump Output

Wire directly to a Single Phase 220V-240V AC water pump motor.

Water Sensor

Optional water level sensor signal supports automatic stop and restart.

Solarseeker



SP1 SERIES

Solar Pumping Inverter

220V Single-Phase

SMART · SIMPLE · EFFICIENT

Application Scenarios & Key Features

Designed for 220V input and 220V single-phase pump systems

Ideal Applications

 **Agricultural irrigation**

 **Domestic water supply**

 **Livestock watering**

 **Desertification control**

System Positioning

The SP1 series is specifically designed for 220V AC single-phase input and output water pump system.

Core Value

One inverter supports solar, AC, and hybrid power modes, helping pumps work longer while reducing fuel and grid power costs.

Key Features

-  **Simplest Installation**
Only 1 minute for installation or commissioning, with convenient one-key restart.
-  **Smart Operation**
Automatic start and pump protection help extend total system working life by 20%.
-  **High Efficiency MPPT**
Advanced tracking algorithms capture maximum panel power, reaching up to 99% efficiency.
-  **Hybrid Function**
Solar power and generator power can work together in the evening, reducing diesel cost by up to 30%.
-  **Dry-Running Protection**
Automatically stops operation to protect the pump from dry running without extra sensors.
-  **Water Sensor Compatible**
Starts and stops automatically with water level sensor signal.
-  **Lower Voltage Start**
Starts at lower panel voltage to significantly extend daily working time.

Technical Specifications

SP1 solar pumping inverter platform data

Category	Parameter	Specification Detail
Input DC	Max DC Voltage	800 V
	Min DC Voltage	170 V
	MPPT Range	170 - 800 V
Input AC	Rated AC Voltage	220 - 240 V
	Frequency	47 - 63 Hz
	Connect Method	Single Phase
Output AC	Rated Power	1.5-5.5KW
	Rated Current	14-32A
	Frequency	0 - 60 Hz
	Connect Method	Single Phase
Others	Motor Type	Asynchronous and Synchronous
	Ingress Protection	IP20/IP54/IP55
	Certification	CE
	Operating Temperature	0°C–50°C

System Notes

Input Independent PV input and AC input make DC-only, AC-only, and hybrid wiring possible.

Output Directly drives a single-phase 220V-240V AC water pump motor.

Protection Built-in smart start, dry-running protection, and water sensor signal compatibility.

Efficiency MPPT up to 99% helps maximize panel utilization under changing sunlight.

Recommended Panel Voltage

For 220V pump systems, keep solar array Vmp over 320V.
This improves MPPT efficiency and supports stable operation.

SP1 Series Specifications & Matching Table

Rated AC input and output: Single Phase 220V-240V

Inverter Model	Inverter Power	Output Current	Pump Power	Panel Power	DC Input Range	Recommended DC Input	600W Panel Matching
SP1002	2.2 kW	14 A	1.5 kW	4.40 kW	170-800 V	320-800 V	8 pcs / 1P x 8S
SP1004	4.0 kW	18 A	2.2 kW	4.40 kW	170-800 V	320-800 V	9 pcs / 1P x 8S
SP1005	5.5 kW	25 A	4.0 kW	7.80 kW	170-800 V	320-800 V	13 pcs / 1P x 13S
SP1007	7.5 kW	32 A	5.5 kW	7.80 kW	170-800 V	320-800 V	13 pcs / 1P x 13S

Selection Reminder

The matching table is a quick selection guide. For final system sizing, check pump nameplate data, provide us with the pump power(KW or hp), voltage(220V/380V/440V or others), phase number(single-phase or three-phase).

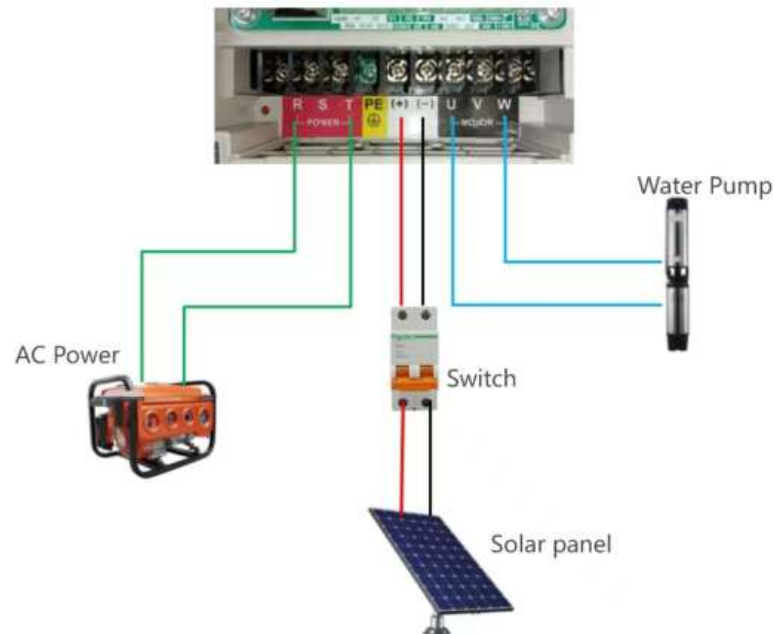
Basic Wiring Architecture

Single-phase motor driver with independent PV and AC input terminals.

Special Circumstances

A single-phase 220V water pump with an external capacitor can be directly connected to our SP1 series inverters without removing the capacitor or adjusting parameters.

Single-Phase Pump Inverter Wiring



AC power + Solar DC power + Water pump wiring

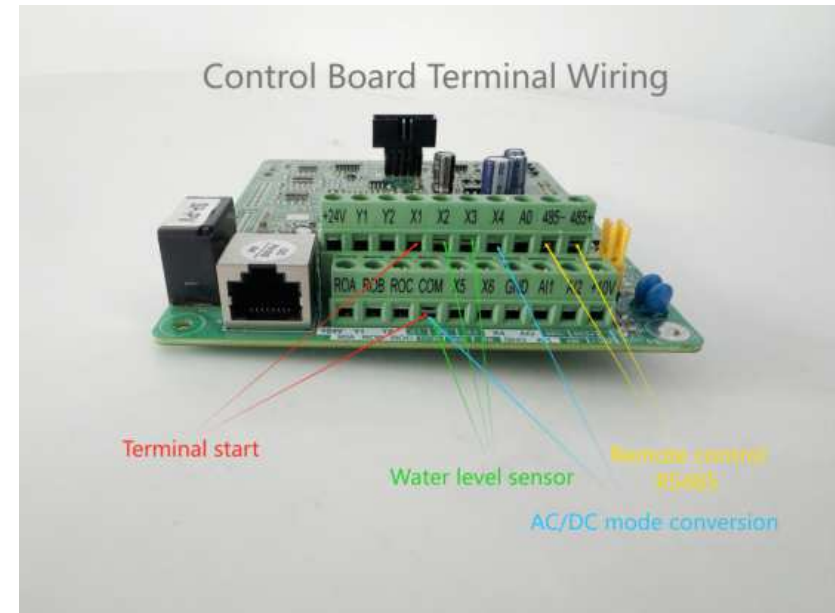
Input Mode Reminder

Only solar DC input: Please don't connect X4 & COM.

Only grid AC input: Please connect X4 & COM.

Hybrid input (input solar and AC power at the same time): Please connect X4 & COM.

Control Board Terminal Functions



Terminal start | Water level sensor | RS485 | AC/DC mode