Solar Water Filtration Systems

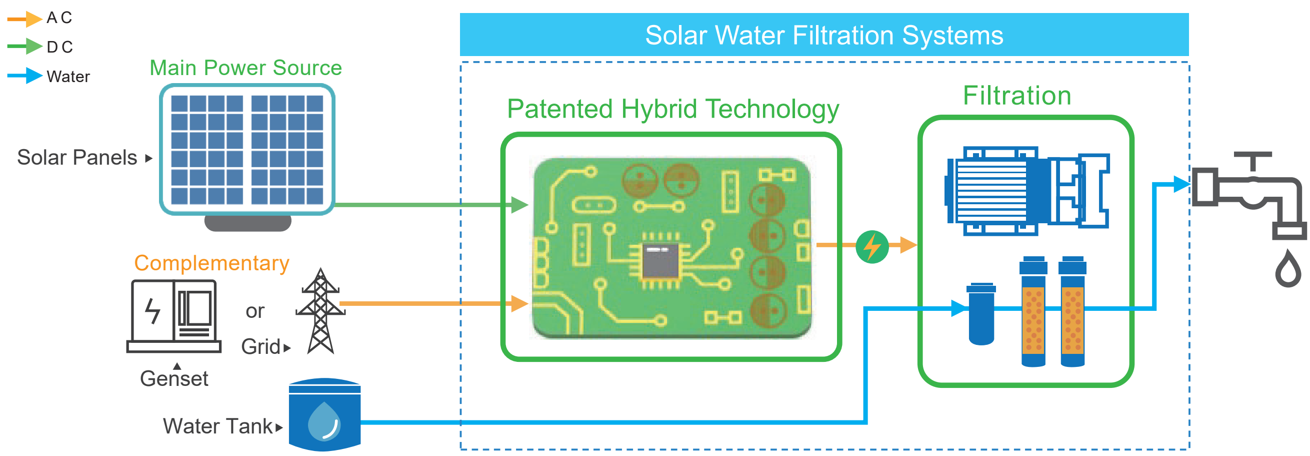
With the solar desalination system empowered by HAMAK innovative technology, people living in remote areas are granted access to clean, affordable and reliable source of water.

JASON'Solar Water

Features

- Supporting 100% Battery-Free, Off-Grid operation powered by solar panels.
- Patented technology allows the AC complementary to hybrid technology for 24/7 operation.
- Proprietary MPPT Algorithm maximizing the use of unlimited source of the sun and sea.
- Fully automated membrane Clean-In-Place and water production.
- The compact, movable, plug & play design renders deployment rapid anywhere.
- Easy maintenance results in lowest cost of water.

Power Control System



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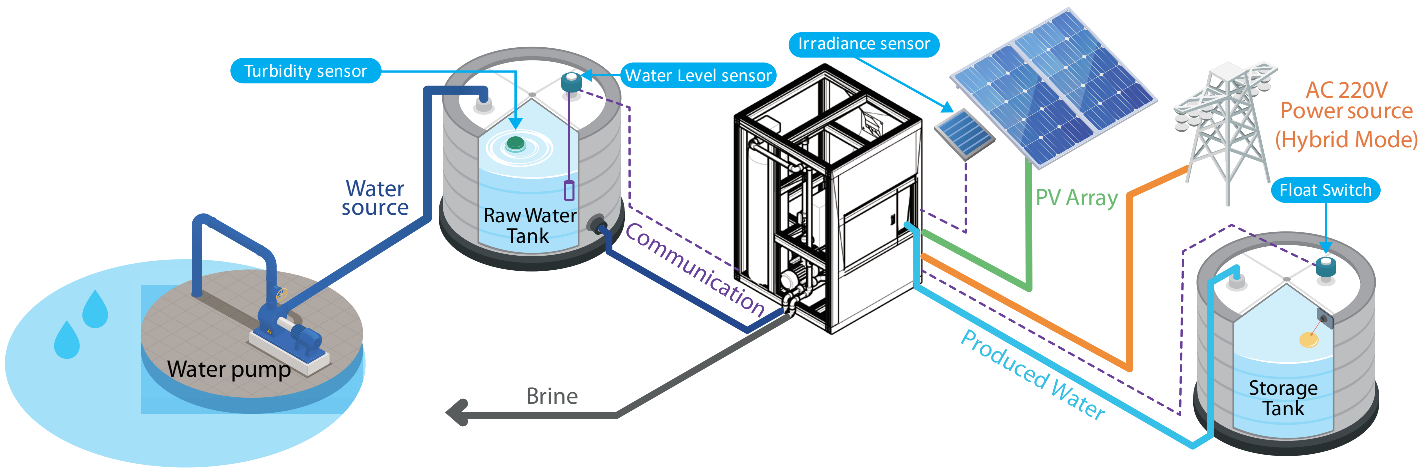
System Architecture



Intelligent Operation in Off-Grid Mode

In the morning, the system starts automatically when PV delivers sufficient power and executes membrane flushing followed by water production.

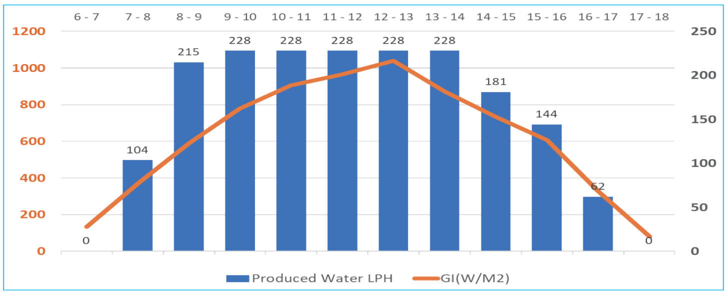
In cloudy conditions, the proprietary algorithm dynamically optimizes solar energy and adjusts pressures. The system smoothly increases its production as the clouds drift away.

PV capacity can be installed up to 8kWp. Oversizing the system enables the unit to operate for a longer operating period in the daytime. When the generated solar energy is NOT greater than min. power requirement, the system stops momentarily until PV delivers sufficient energy.

Automated Protection

- Inlet pressure too High / Low
- Outlet pressure greater than the set value
- Low water level in Raw Water Tank
- Abnormal turbidity in Raw Water Tank
- Abnormal quality of Product Water
- Abnormal Performance of membrane flushing
- Irradiance lower than the set activation level

Hourly Water Production in Off-Grid Mode



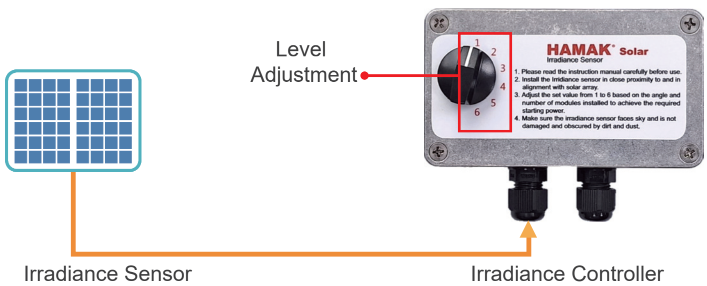
Environmental parameters and results

- PV Power Input: 6 kWp
- Operating Hours: 7AM – 5PM
- Feed water: Seawater, TDS <25,000 ppm
- Water Temp. : 25℃
- Daily Water Output: 1,846 Liters

Off-Grid Mode with Irradiance Sensor and Controller

In Off-Grid Mode, the system will be activated once the power from solar panels is greater than the min. power requirement. The activation level can be adjusted via Irradiance Controller according to the installed PV capacity.

Level	Installed PV capacity (Watt)
6	3,100 ~ 3,800
5	3,800 ~ 4,600
4	4,600 ~ 5,400
3	5,400 ~ 6,200
2	6,200 ~ 7,000
1	> 7,000



Specifications

Series		JS-WT		
Model		JS-WT5000-S	JS-WT10000-B	JS-WT86000
PV Input	Max. Input Power(1)	8000 W		
	PV Power Recommended	4000 W (Hybrid Mode) / 7000 W (Off-Grid Mode)		
	Voltage Range(2)	120 ~ 380 V		
	MPPT Range	150 ~ 350 V		
	Max. Input Current	20 A		
	Min. Power Requirement	1800 W		
	Max. Efficiency	96%		
Complementary AC Input	Input Voltage	220V ± 10 %		
	Input Frequency	50 / 60 Hz		
	Input Current	12A	12A	8.6A
Feed water	Water Source	Seawater	Brackish Water	Freshwater (Lake / Ground)
	Feed Water TDS	35,000 ~ 10,000 ppm	10,000 ~ 1,000 ppm	< 800 ppm
Max. Product Water	Hybrid Mode	5,000 LPD	10,000 LPD	86,400 LPD
	Off-Grid Mode(3)	Approx. 1,800 LPD	Approx. 4,000 LPD	Approx. 34,000 LPD
Filtration Systems	Pump	1xFeed-in pump, 1xHigh pressure pump, 1xCleaning pump	1xFeed-in pump, 1xHigh pressure pump, 1xCleaning pump	1xFeed-in pump, 1xDosing pump
	Pre-Filter	1xMultimedia Filter	1xMultimedia Filter	1xMultimedia Filter
		2x10"(1μm) PP Filter	2x10"(1μm) PP Filter	2x20"(1μm) PP Filter
	Vessel	FRP		UPVC
	Compatible Membrane Spec.	4"x40" SEAWATER RO Membrane	4"x40" BRACKISH RO Membrane	PVDF HOLLOW FIBER UF Membrane
	Membrane Quantity	2 pcs	2 pcs	1 pcs
	Flushing System	YES, Automatic	YES, Automatic	YES, Automatic
Display and Instrument	Display	5.7" LCD		
	Water Flow Indicator	Produced Water and Brine		
	Pressure Indicator	Inlet and Outlet		
	Water Qqulity Indicator	TDS		
Management	Communication	RS485		
	Monitoring	Cloud-based system (Optional)		
General Data	Operating Temperature	-20~40℃		
	Cooling Method	Natural Convection		
	Protective Types	Over-Load / Over temperature protection		
	Main Frame	Aluminum Alloy		
	Dimensions	123x187x107 cm		123x215x107 cm
	Net Weight	500 kgs	500 kgs	400 kgs
Optional Accessories		Solar UV Sterilization System		
		Data Logger for online monitoring system		

(1) Automatically detect AC power source and switch between Hybrid Mode and Off-Grid Mode.
(2) The voltage of the entire PV system depends strongly upon the temperature and should be matched with the input voltage range of the Solar Water Filtration Systems at extreme temperatures.
(3) The output varies based on operating conditions and irradiance levels.
- All specifications are subject to change without prior notice. Please contact with us for updated information.

JASON'Solar Water

ACCESSORIES

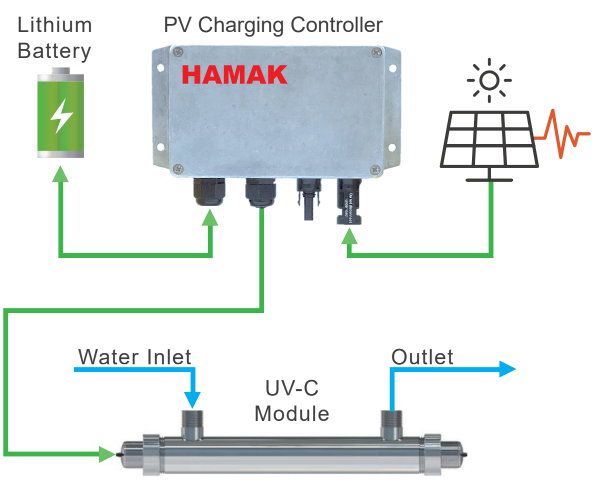
Solar Motor Drive (Pump Inverter)

- Compatible with 3-Phase AC Motors from 2HP ~ 20HP.
- Excellent performance powered by proprietary MPPT Algorithm.
- Battery-free design and plug & play.
- Fully automated operation with external sensors.

Spec.

Motor Capacity	2 - 10 HP	7.5 - 20 HP
AC Output	220Vac, 3-Phase	400/440Vac, 3-Phase
PV Input	250 ~ 390 Vdc	480 ~ 800Vdc
Communication	Analog & Digital	Analog, Digital & RS485
Protection	PV reverse polarity, Over temperature and Earth Leakage Current protection	
Weatherproof	IP54	

Stand-alone Solar UV-C Module



PV Charge Controller

- Compatible with 250~450W PV panel & 48Vdc battery.
- Improving the energy utilization efficiency by MPPT.
- Metal enclosure with IP68 waterproof rating.
- Built-in SPD, Low- and Over-voltage protection.

UV-C Module (Post Treatment)

- 254 nm UV-C Module & 304 Stainless Steel.
- Proven Antimicrobial Efficacy up to 99.98%.
- Switchable module, the Lifetime over 8,000 hours.
- Max. flow rate 48 LPM, applicable water temp. from 2~70 ℃.

Recommended Configuration for Battery and PV panel:
400Wp panels with a 48Vdc/20A battery in 4 PSH for 15 hour operation.

On-line Monitoring System

The AIoT-ready monitoring system from JASON'Solar Water is an integrated platform for remote monitoring of the solar energy and water filtration system. It provides real-time information, including:

Solar Power

- Instant solar power, daily power generation and lifetime generation.

Water Production

- Instant water flow, daily & lifetime water production, Inlet & Outlet pressure and quality of product water

System Status

- Operating / standby / barrel cleaning / membrane flushing / ERROR

Intelligent Data Analysis

Excellent machine learning algorithm can estimate the membrane status and the remaining days before the replacement and predict potential failures and thus minimize maintenance costs.

JASON'Solar Water

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