PRODUCT SPECIFICATION SHEET

SOLARSYSTEMS

Passive Solar Distillation Panel
Modular Decentralized Water Production System | MODEL: SSDP™ 1 PHASE

Technology: Solar Thermal Phase-Change Distillation | Application: Ultra-Pure Potable Water Production: Hospitality, Off-Grid, Residential, Humanitarian

General Description: The SOLARSYSTEMS SSDP is a single-phase passive solar distillation panel designed for decentralized, on-site production of potable water meeting ultra-low contaminant thresholds. The system operates exclusively on solar thermal energy, employing controlled evaporation–condensation cycles to achieve phase separation and removal of dissolved solids, PFAS, sediments, heavy metals, pathogens, VOCs, and microplastics from influent water. No electricity, membranes, or consumable filtration elements are required. The panel assembly is modular and scalable to accommodate variable site demand and is engineered for low maintenance and extended service life in commercial, residential, and remote applications.

Physical Data

Parameter	Units	Value	Notes/Conditions
Panel Dimensions (L x W x H)	In	65 x 48 x 4	Excluding manifold connections
Panel Footprint	ft^2	22	-
Dry Weight	lb	16.3	-
Frame Material	-	aluminum	-
Glazing	-	tempered solar glass, 4mm	high transmittance
Thermal Basin	-	food-grade high-temperature blackbody	-
Seals & Fasteners		EPDM / 316 stainless steel	UV and corrosion resistant
Expected Service Life	years	15	No moving parts
Maintenance Interval	months	6-12	Manual basin cleaning
Installation Type	-	roof or ground mount	Compatible with racking/ballasts
Installation Crew	persons	2	typical
Commissioning Time	days	1	typical

Performance Data

Parameter	Units	Value	Notes/Conditions
Nominal Daily Production	L/day (gal/day)	20 (5.28)	at 1,000 W/m^2 solar irradiance, 25 °C ambient
Thermal Energy Input	kWh/day	passive solar	no external energy input
Electrical Power Requirement	kW	0	fully off-grid
Maximum Influent TDS	mg/L	35,000	accepts seawater, greywater, blackwater (pre-screened)
Effluent TDS	mg/L	< 1	exceeds bottled water purity
Contaminant Removal	-	salts, PFAS, sediments, heavy metals, pathogens, VOCs, microplastics	phase change separation
Disinfection Performance	log reduction	≥ 6-log	exceeds potable standards
Taste and Clarity	-	variable	ultra-pure, neutral
Operating Temperature Range	°C	0-60	-
Tilt Angle	°	35	fixed
Hydraulic Head	ft	0-3	pump optional
Connections	in	¾" OD inlet/outlet	food-grade
Recommended Storage Interface	-	sealed tank or bottling	gravity or pumped
Operating Mode	-	passive batch distillation	autonomous, no control systems required, tracking optional

- **NSF/ANSI 61** for drinking water contact components
- **EPA Drinking Water Standards** (finished water quality)
- Meets or supports compliance with **LEED v5** WEp1, WEc2, Innovation
- Suitable for foodservice applications under relevant health codes
- Designed for long-term near-zero maintenance performance in hospitality and municipal contexts