



SunPump - Solar Water Heat Pump

An economical breakthrough in advanced renewable heating has arrived. Move over old Fuel and Electric systems. SunPump combines the benefits of solar and heat pumps, while overcoming their limitations.

Also available with Solar PV-Thermal panels that power the compressor and heat the refrigerant in one combined hybrid panel.

Kompakt is tank integrated, shown to right. **Komponent** is a tankless model for retrofits.



SUNPUMP



SunPump Heating Features

- Provides 100% of radiant & domestic hot water
- Stand-alone, requires no backup heat system
- Replaces boilers, furnaces, and heat pumps
- COP 7 in sunshine, and 2.7 at night
- Saves 67-80% of electrical cost, and carbon.
- Works in All Weather – Sun, Rain, Snow, Wind
- Day and Night – 365 days of the year
- Maximum water temperature 60C (140F)
- Efficient down to -15C. in Canadian North.
- Cannot freeze, stagnate, or corrode system
- Mount SunPanels to wall, roof, or flat surface
- 20 year Free Heating life. Only 1 moving part.
- Variable speed DC Inverter Sanyo compressor
- Pre-charged R410a refrigerant in SunPump
- Stainless Steel 304B food-grade water tank
- Compliments Ultra Fan Coil + radiant baseboard
- Tradesman: 1 day install. Or by DIY owner

Optional:

- Tank-In-Tank for Radiant floor heating buffer
- UV sterilizer for Anti-Legionnaires protection
- Length of insulated 1/2" flared copper line set
- 4 kw electric immersion heater
- 250w PV-Thermal silicon electric panel surface

SunPump Model	Heat Rating	Tank Volume	SunPanels	4hr Production	
SP-27-20-1	2.7kw (9kbtu)	200 L	1	270 L	
SP-43-30-2	4.3kw (12kbtu)	300 L	2	430 L	
SP-70-50-4	7 kw (24kbtu)	500 L	4	600 L	



Solar PV-Thermal Hybrid Collector

Building energy requirements are split 75% for hot water + space heating/cooling, and 25% for electricity according to NRCAn, and SunPanel delivers this 3:1 ratio. These hybrid collectors produce both electricity from the polycrystalline front surface, plus thermal energy by circulation of a heat transfer solution, either refrigerant for a SunPump, or glycol-solution for water heating. By combining the two main solar technologies into one frame the efficiency is lifted from 16% for PV alone, adding 54% thermal, for a combined 70% total. Keeping the PV cold raises the electrical efficiency by an additional 11-19% of the PV performance (i.e from 16 to 18%)

SunPanel PV-Thermal Features

- Increases total solar efficiency from 16% to 70%
- Produces ideal ratio of heat to electricity (3:1)
- 250 watt Polycrystalline solar module
- 900 watt Thermal peak heating capacity
- Single install saves space, time, and materials
- Uniform appearance is more appealing
- Serpentine copper grid is joint-free, leak-proof
- Maximum water temperature 80C (176F)
- Ideal for Net Zero, Passive, and R2000 homes
- Lower temperature extends PV Life-Cycle
- low water pressure drop for energy saving pump
- Building appreciation is 1 yr energy saving x 20
- UL approved, ISO9001, 1400, 18001 quality
- Can heat or cool using SunPump
- Qualifies for FIT and Thermal incentives

Optional:

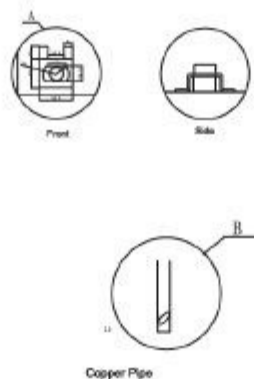
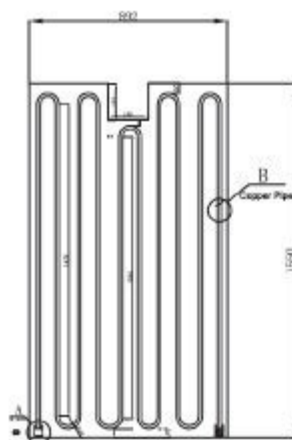
- SunPump water source DC heat pump system
- SunPump air source ductless split DC heat pump
- Off-grid 12V. heating and power applications
- Fascade integrated frame as a roofing material



Water-cooling System

solaris sunpanel

Insulation Cover



Electrical Data

Peak Power Watts- P_{MAX} (WP)	220	225	230	235	240	245	250
Power Output Tolerance- P_{MAX} (%)	0 ~ +3	0 ~ +3	0 ~ +3	0 ~ +3	0 ~ +3	0 ~ +3	0 ~ +3
Maximum Power Voltage V_{MAX} (V)	28.95	29.15	29.35	29.55	29.75	29.95	30.15
Maximum Power Current- I_{MPP} (A)	7.60	7.72	7.84	7.95	8.07	8.18	8.29
Open Circuit Voltage- V_{OC} (V)	36.87	37.04	37.21	37.38	37.55	37.72	37.89
Short Circuit Current- I_{SC} (A)	8.13	8.22	8.31	8.39	8.47	8.53	8.73
Module Efficiency η_m (%)	13.44	13.75	14.05	14.36	14.66	14.97	15.72

Values at Standard Test Conditions STC (Air Mass AM1.5, Irradiance 1000 W/m², Cell Temperature 25°C)

Mechanical Data

Solar cells	Poly 156 × 156 mm
Cells orientation	60 (6 × 10)
Module dimension	1650 × 992 × 45 mm
Weight	27 kg
Glass	High transparency, low Iron, tempered glass 3.2mm
Frame	Anodized aluminium alloy
Junction box	IP 65
Cables/Connector	Diameter 4 mm ² , length 90mm, MC4
Number of Diodes	6

Thermal Characteristics

Peak power watts P_{th}	900W
Dynamic pressure P_r	0.15 bar(1.2l/min)
Absorption surface area A	1.55 m ²
Liquid weight	1.5 Kg
Maximum working pressure P_t	6 Bar
Recommended flow rate V_F	0.9 l/min
Maximum water temperature T	55 °C
Loss of local resistance M	0.64
Cooling Components	Copper tube+ Aluminum board

