



The Sunflower[™] highly concentrated photovoltaic (HCPV) system integrates photovoltaic modules, advanced tracking, micro-converter technology, wireless communication, and built-in performance monitoring into one elegant solution to produce cost-competitive solar power while reducing installation and maintenance costs.

Why Concentrated PV?

In bright sunny locations, concentrated photovoltaic installations use less land and have a lower cost of energy than comparable PV or Thin Film installations. These important CPV advantages enable better power density, streamlined installation and ultimately greater return on your solar investment.

Why Sunflower?

The Sunflower Highly Concentrated PV (HCPV) system has been designed from the ground up to be the highest performance and lowest cost system available today. From our world-leading 29% efficient module to our pre-assembled 2-axis tracker and mounting system, to our wireless communications and built-in performance monitoring, every element of the Sunflower system was designed with lowest cost of energy in mind.

The Sunflower system is incredibly easy to assemble and maintain. Each module is mounted on a pre-assembled frame structure that makes installation and maintenance nearly “plug and play”. There are no holes to dig, concrete to pour or cranes required as is the case with traditional large, multi-module tracker-based CPV systems. Sunflower’s low profile frame assembly consists of two rows assembled together, creating a simple yet highly rigid space frame to support the modules. This self-ballasting system simply rests on graded soil and standard electrical connectors complete the assembly. Sunflower’s differentiated approach to HCPV represents the way forward for high solar resource environments.

Key Features

High-Efficiency Module

- Industry-leading 29% module efficiency
- 1,200 sun concentration onto high-efficiency, triple junction cells
- Tempered glass composite primary lens enhances reliability and reduces soiling

Wide Acceptance Angle

- Advanced optical design yields industry-leading $\pm 0.9^\circ$ acceptance angle

Integrated Tracker Frame-Set

- Low-profile design enables quicker installation and minimal on-going maintenance
- Wiring is pre-assembled at the factory; field wiring connection is plug and play
- Non-penetrating, self-ballasting ground mount structure
- Sealed gearbox requires no maintenance

Micro-Converter Technology

- Optimizes power by providing local MPPT
- Improves performance of shaded modules
- Improves inverter performance in low light conditions

Performance Monitoring

- Built-in performance monitoring allows module level performance statistics, fault alarms, remote monitoring and field management
- Provides up-to-date energy delivery statistics for the customer
- Integrated wireless communications eliminates the need for extra cabling



System-Level Specifications

2.7 kW (STC) System Unit

Number of modules per tracker frame-set	10
Frame-set footprint	2.03 m x 11.7 m
Frame-set row spacing	2.03 m
Source strings per frame-set	2
Frame-set nominal power (STC)	2,700 Wdc ⁽¹⁾

Electrical Specifications

Source string electrical ⁽²⁾	
V _{op} (PTC)	400 Vdc
I _{op} (PTC)	3.13 A
Power (PTC)	1,253 Wdc
Fuse rating (per NEC §690)	4.9 A
Frame-set power rating (PTC, CEC)	2,506 Wdc ⁽²⁾⁽³⁾

Tracker

Tracking algorithm	Individual module, Maximum Power Point Tracking
Operable global latitude range	45°S – 45°N
Range of motion	
Azimuth	160°E – 160°W from South
Elevation	0° – 120° from horizon
Elevation drive motor	Single stepper
Azimuth drive motor	Single stepper

Installation Considerations

Power connectivity	Junction box at tracker frame
Inverter compatibility	Compatible with any standard UL 1741 Listed grid tie DC/AC inverter
Installation zoning	
Wind	Wind Exposure D - Max 90 mph fast-mile (ASCE 07-05/IBC/UBC/CBC)
Seismic	Seismic Zone 4 (IBC/CBC)

(1) STC: Standard Test Conditions at the Factory, Irradiance 850 W/m², ASTM 173G Direct Normal Spectrum, T_{cell} = 25°C

(2) PTC: PVUSA Test Conditions (CEC), Irradiance 850 W/m², ASTM 173G Direct Normal Spectrum, T_{amb} = 25°C

(3) CEC Rating: The California Energy Commission rates modules and systems using PTC

Subject to UL and IEC certification

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858-375-7400