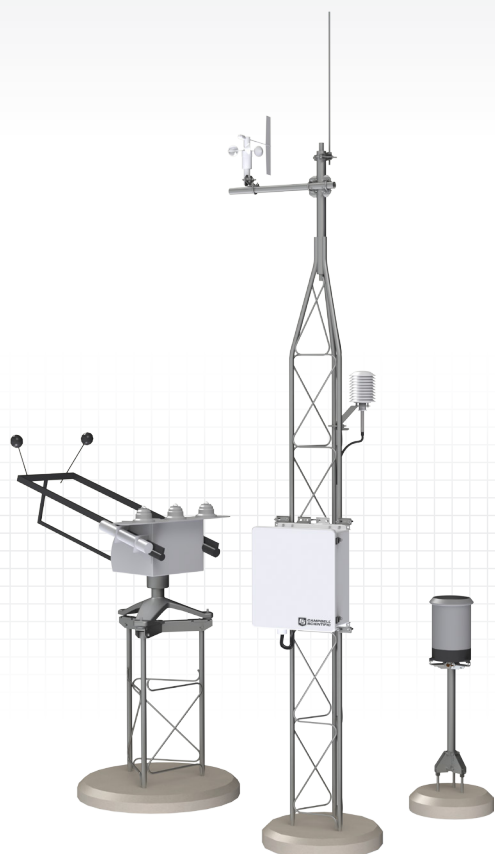




## CSP100

Concentrated Solar Power Monitoring System with 2-Axis Sun Tracker

# High Accuracy Resource Assessment and Power Performance Monitoring for Concentrated Solar Power



### Common Measurements

- Direct Normal Irradiance (DNI)
- Diffuse Horizontal Irradiance (DIFF)
- Global Horizontal Irradiance (GHI)
- Wind Speed
- Wind Direction
- Air Temperature
- Relative Humidity
- Barometric Pressure
- Precipitation
- Solar Position

## Overview

The CSP100 is a turn-key automated data acquisition system specifically designed to meet CAISO meteorological station requirements of concentrated solar power generating facilities. It is recommended for assessing power plant performance, which requires the best possible solar resource measurements.

The CSP100 is field ready with features to minimize installation time and field wiring errors. Though offered as a turn-key package, nearly every aspect of the system is customizable, including sensors, communications, mounting, and power supply.

## Benefits and Features

- › Contains a Campbell Scientific CR1000 Measurement and Control Datalogger
- › Provides the lowest uncertainty of the GH, DNI, and DIFF solar radiation measurements
- › Fast to field with industry-proven, high-accuracy sensors
- › Factory fabrication, programming, and testing minimizes field wiring errors and reduces deployment time
- › Meets CAISO required meteorological data points
- › Approved California ISO Remote Intelligent Gateway (RIG) for secure encrypted information transmission to CAISO
- › Complies with Modbus, PakBus, and DNP3 protocols
- › Supports nearly all communication technologies such as RS-485, fiber, TCP/IP, cellular, or satellite
- › Reference design: "Solar Resource and Meteorological Project (SOLRMAP)", NREL
- › Provides a modular, programmable, and customizable system
- › Provides a battery back system that allows data collection during power outages and network failure
- › Acts as single point data gateway for environmental, inverter, and meter data
- › Supports TCP/IP functionality, including: HTTP Get, HTTP Post, FTP server and client, TelNet server, PING, Micro serial server, DHCP client, DNS client, email send and receive
- › Supports Web Service API
- › Supports individual module and string level power measurements
- › Shipped with a quick-deploy installation guide and system schematics

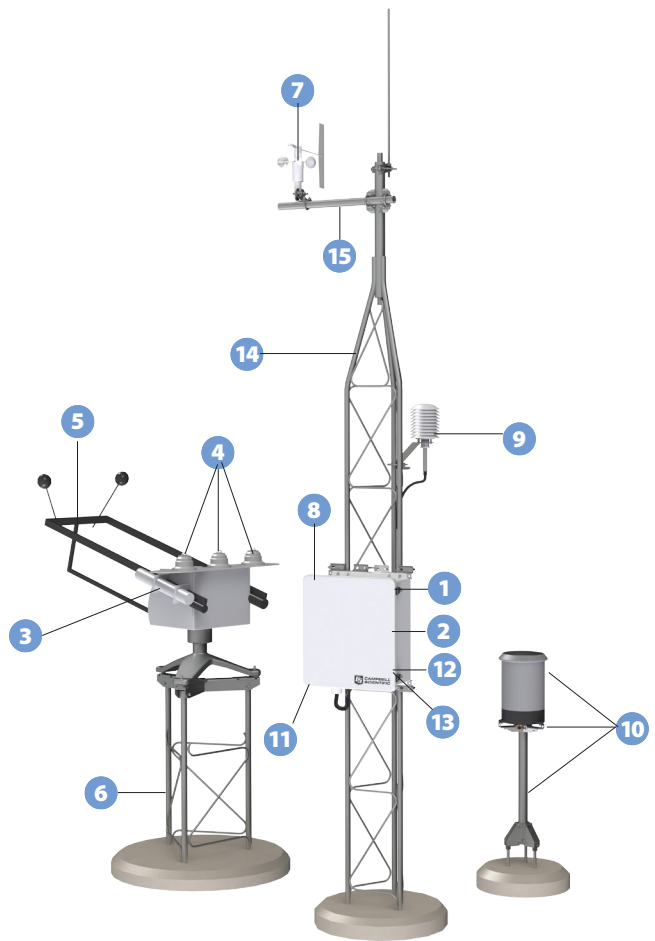
specs, questions & quotes: 435.227.9120

[campbellsci.com/csp100](http://campbellsci.com/csp100)



## Default Components

- 1 CR1000 Measurement and Control Datalogger
- 2 NL121 Ethernet Interface
- 3 CHP1 or DR01 First Class Pyrheliometer
- 4 CMP11 or LP02-T1/T2 ISO Class Pyranometer
- 5 SOLYS 2 Sun Tracker with Shade-Ball Assembly
- 6 Sun Tracker Pedestal Mounting Kit
- 7 034B Wind Speed and Wind Direction Set
- 8 CS100 Barometric Pressure Sensor
- 9 CS215 Temperature and Relative Humidity Sensor
- 10 TB4 Rain Gage with CM240 and CM305 Leveling Base Pedestal Mounting Kit
- 11 PWENC16/18 Prewired Enclosure
- 12 CH200 Smart Charge Controller
- 13 BP12 12 Ah Battery Pack
- 14 UT10 10-ft Instrumentation Tower
- 15 CM204 4-ft Crossarm with Bracket



## Customizations

The CSP100 is completely customizable, allowing you to configure the station to your project's specifications, while retaining turn-key functionality. The following outlines a few of the changes that can be made and other components that are available:

### Sensors

Sensors can be removed, added, or swapped out with models that meet your project's requirements.

- CS220 Back-of-Module Thermocouple
- CMP11, SR20, MS-802, or PSP Secondary Standard Pyranometers
- CMP3 or LP02 Second Class Pyranometer
- CMP6, SR12, or 8-48 First Class Pyranometer
- CVF3 or VEN Ventilation Unit
- STR-22G or Solys 2 Sun Tracker
- 110PV Back-of-Module-Thermistor
- EKO STR-2XG Sun Tracker

### Communications

Communication options include Ethernet, cellular, fiber, radio, RS-485, satellite, and telephone.

- RavenXTV or RV50 Cellular Modem
- NL201 Network Link Interface (for CAISO Remote Intelligent Gateway applications)

### Power

The station can be powered by ac and/or dc power sources such as 24 Vdc from an inverter or solar panel. Batteries are sized according to demand and location.

- SP90 90 W Solar Panel
- 26963 ac/dc, 24 Vdc Power Adapter

### Mounting

We offer a variety of tower sizes and instrument tripods for permanent or quick-deploy applications. Several sensor mounting options are available to change the default mounting configuration.

- UT10/20/30 10/20/30 ft instrumentation towers for permanent installations
- CM110 10 ft Stainless-Steel Instrument Tripod
- CM106B 7-to-10 ft Galvanized-Steel-Tubing Tripod

### Measurements

Several parameters are easily integrated.

- DC Current and Voltage (string and/or module)
- Visibility, Present Weather
- Electric Field
- Cloud Height
- Short Circuit Current
- Module Soiling
- Surface Moisture

