

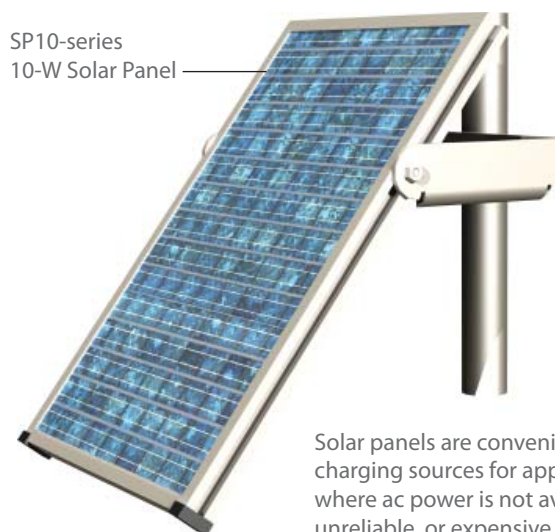
Solar Panels

SP5-Series, SP10-Series, SP20-Series, SP70-L, 18529



Solar panels are photovoltaic power sources capable of recharging batteries. The minimum battery size and solar panel output required depends on 1) the average current drain of the system, 2) the maximum time the battery must supply power to the system without being charged, and 3) the location of the site. If you need assistance in selecting a solar panel, refer to our Power Supply brochure, application note, or contact a Campbell Scientific Applications Engineer.

Solar panel characteristics assume 1 kW m⁻² illumination and 25°C solar panel temperature. Individual panels may vary up to 10%. The output panel voltage increases as the panel temperature decreases. All solar panels are shipped with hardware* for mounting to a tripod or tower.



Solar panels are convenient charging sources for applications where ac power is not available, unreliable, or expensive.

SP5-Series 5-Watt Solar Panels

The SP5-series solar panels are intended only for CR200(X)-series applications that have minimal power requirements. These solar panels provide:

- 5-W maximum peak power and 17.1-V at peak
- Dimensions of 9.5 in. x 10 in. x 1 in. (24.1 cm x 25.4 cm x 2.5 cm)
- Weight of 2 lb. (0.9 kg)

SP10-Series 10-Watt Solar Panels

The SP10-series solar panels source sufficient current for many system configurations at most tropical to temperate latitudes. These solar panels provide:

- 10-W maximum peak power, 9-W guaranteed minimum power, 0.59-A current at peak, and 16.8-V voltage at peak
- Dimensions of 16.5 in. x 10.6 in. x 0.9 in. (41.9 cm x 26.9 cm x 2.3 cm)

SP10 10-Watt Solar Panel

- Recharges the sealed rechargeable battery of the PS100, PS200, BP12 (requires CH100 or CH200), BP24 (requires CH100 or CH200), CR3000, CR5000, CR7, or CR9000X
- Includes a 20-ft cable with stripped and tinned leads that connect to the power supply or datalogger battery base
- Weighs 4.6 lb. (2.1 kg)

The difference between the models is their cable:

- **SP5 5-W Solar Panel for ENC200**—cable has a 3-ft length and is fitted with a connector that mates with the ENC200 enclosure's power connector
- **SP5-L 5-W Solar Panel**—cable has a user-specified length and terminates in pigtailed wires that attach to the terminal strip of a CR200(X)-series datalogger

SP10-PW 10-Watt Solar Panel for PWENC

- Same as the SP10, except its 20-ft cable terminates in a connector for attachment to a prewired enclosure.

SP10R Regulated 10-Watt Solar Panel

- Contains an on-board regulator
- Recharges a user-supplied deep-cycle RV battery
- Includes a 20-ft cable with stripped and tinned leads that connect to a user-supplied deep-cycle battery
- Draws a continuous 2 mA current drain
- Weighs 6.6 lb. (3.0 kg)

SP10R-PW Regulated 10-Watt Solar Panel for PWENC

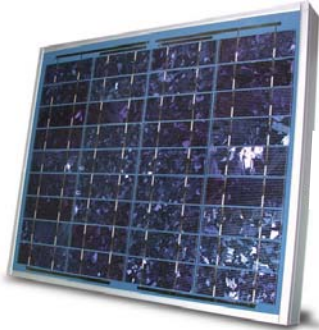
- Same as the SP10R except it's 20-ft cable is fitted with a connector that attaches to a prewired enclosure

*Mounting hardware consists of a mounting bracket, U-bolts, nuts, and washers. The 17492 U-bolt is included with all of the solar panels. This U-bolt provides a 2.125-inch (5.398 cm) space between the U-bolt legs, which allows the solar panel to be mounted to a 0.75-inch to 1.5-inch IPS pipe (1-inch to 2-inch outer diameter). The mounting hardware for the SP70-L solar panels also include the 17446 U-bolts, which are used to attach the solar panel to a tower's legs. The 17446 provides a 1.5-inch (3.8-cm) space between the u-bolt legs.

SP20-Series 20-Watt Solar Panels

The SP20-series solar panels are often used for system configurations that have higher than average power requirements (see our Power Supply Application Note to calculate your system's power requirements).

Besides systems with larger power requirements, the SP20-series solar panels are also recommended for sites located at higher elevations and latitudes.



The SP20-series solar panels provide:

- 20-W maximum peak power, 18-W guaranteed minimum peak power, 1.19-A current at peak, and 16.8-V voltage at peak
- Dimensions of 19.7 in. x 16.6 in. x 2 in. (50.0 cm x 42.2 cm x 5.1 cm)

SP20 20-Watt Solar Panel

- Recharges the sealed rechargeable battery of the PS100, PS200, BP12 (requires CH100 or CH200), BP24 (requires CH100 or CH200), CR3000, CR5000, CR7, or CR9000X
- Includes a 15-ft cable with stripped and tinned leads that connect to the power supply or data-logger battery base
- Weighs 9.6 lb. (4.4 kg)

SP20-PW 20-Watt Solar Panel for PWENC

- Same as the SP20 except it's 15-ft cable terminates in a connector that attaches to a prewired enclosure.

SP20R Regulated 20-Watt Solar Panel

- Contains an on-board regulator
- Recharges a user-supplied deep-cycle RV battery
- Includes a 20-ft cable with stripped and tinned leads that connect to the user-supplied deep-cycle battery
- Draws a continuous 2 mA current drain
- Weighs 13.6 lb. (6.2 kg)

SP20R-PW Regulated 20-Watt Solar Panel for PWENC

- Same as the SP20R except it's 20-ft cable terminates in a connector that attaches to a prewired enclosure.

SP70-L 70-Watt Solar Panel

The SP70-L solar panel is used in CO₂ Bowen Ratio, CO₂ Eddy Covariance, or other systems that require high-power solar panels. This solar panel must be connected to a 18529 Morningstar SunSaver Regulator (see below). The SP70 solar panel provides:

- 70-W peak power, 66.5-W guaranteed minimum peak power, 4.1-A current at peak, and 17.1-V voltage at peak
- 140-W peak power when two SP70 solar panels are connected to one 18529 regulator
- User-specified cable length; a 20-ft length is typical; maximum length is 50 ft.
- Two cable termination options. With the -PT option, the cable terminates in stripped and tinned leads for direct connection to the 18529 regulator. With the -PW option, the cable is fitted with a connector that attaches to a prewired enclosure.
- Dimensions of 47.6 in. x 21.1 in. x 2 in. (120.9 cm x 53.7 cm x 5 cm)
- Weight of 17.0 lb. (7.7 kg)

18529 Morningstar SunSaver Regulator

The 18529 is required when using an SP70-L 70-W solar panel. This regulator must be housed in an environmental enclosure; hardware for mounting to an enclosure backplate is included. Please note that it draws a continuous current of 6 to 10 mA. The 18529 Morningstar SunSaver Regulator provides:

- 15-ft cable for connecting it to the battery
- Dimensions of 6.0 in. x 2.18 in. x 1.32 in. (15.2 cm x 5.5 cm x 3.4 cm)
- Operating temperature range of -40° to +85°C



The SP70 connects to the 18529 SunSaver Regulator, which connects to the rechargeable battery. This regulator must be housed in an environmental enclosure.

