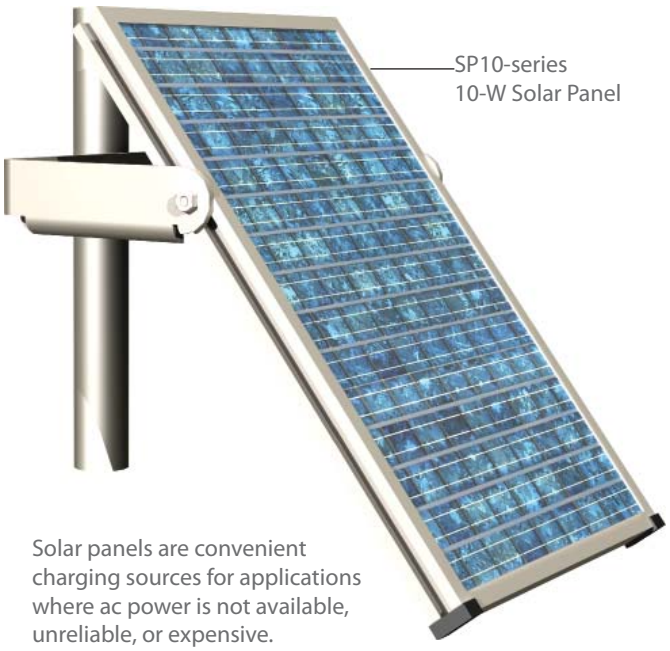
Solar Panels

SP5 Series, SP10 Series, SP20 Series, SP50-L, SP85-L



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

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 Supplies 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.

SP5-Series 5-Watt Solar Panels

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

The difference between the models is their cable:

- **SP5's** cable has a 3-ft length and is fitted with a connector that mates with the ENC200 enclosure's power connector.
- **SP5-L's** cable has a user-specified length and terminates in pigtails that attach to the terminal strip of a CR200(X)-series datalogger.

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 include a 20-ft cable. The models differ as follows:

- **SP10** uses the regulator in the PS100, PS200, CR3000, CR5000, CR7, or CR9000X to recharge their internal batteries. A CH100 or CH200 regulator is required to recharge the BP12 or BP24 batteries. The SP10's cable has stripped and tinned leads that connect to the power supply or datalogger battery base.
- **SP10-PW** is the same as the SP10, except its cable terminates in a connector for attachment to a prewired enclosure.
- **SP10R** contains an on-board regulator. It can recharge a BP84, PS84, or user-supplied deep-cycle battery. The SP10R's cable has stripped and tinned leads that connect to the battery. Please note that the SP10R draws a continuous 2 mA current drain.
- **SP10R-PW** is the same as the SP10R except it's cable is fitted with a connector that attaches to a prewired enclosure.

SP20-Series 20-Watt Solar Panels

The SP20-series solar panels are often used for system configurations that have higher than average power requirements, or in higher elevation and latitude locations. The models differ as follows:

- **SP20** uses the regulator in the PS100, PS200, CR3000, CR5000, CR7, or CR9000X to recharge their internal batteries. A CH100 or CH200 regulator is required to recharge the BP12 or BP24 batteries. The SP20 has a 15 ft cable with stripped and tinned leads that connect to the power supply or datalogger battery base.
- **SP20-PW** is the same as the SP20, except its cable terminates in a connector for attachment to a prewired enclosure.
- **SP20R** contains an on-board regulator. It can recharge a BP84, PS84, or user-supplied deep-cycle battery. This solar panel has a 20-ft cable with stripped and tinned leads that connect to the battery. Please note that, the SP20R draws a continuous 2 mA current drain.
- **SP20R-PW** is the same as the SP20R except it's cable is fitted with a connector that attaches to a prewired enclosure.

SP50-L 50-Watt Solar Panel

The SP50-L solar panel is used for our CS110 Electric Field Meter or other systems that require 50 W solar panels. It needs to be connected to either a CH200 Smart Charge Controller or 18529 Morningstar SunSaver regulator (see below).

The SP50-L has a user-specified cable length. A 20-ft length is typical; maximum length is 50 ft. The following cable termination options are offered:

- With the -PT option, the cable terminates in spade lugs for connection to the CH200 Smart Charge Controller or 18529 regulator.
- With the -PW option, the cable is fitted with a connector that attaches to a prewired enclosure.

SP85-L 85-Watt Solar Panel

The SP85-L solar panel is used in CO_2 Bowen Ratio, CO_2 Eddy Covariance, or other systems that require high-power solar panels. This solar panel needs to be connected to either a CH200 Smart Charge Controller or 18529 Morningstar SunSaver regulator (see below).

The SP85-L has a user-specified cable length. A 20-ft length is typical; maximum length is 50 ft. The following cable termination options are offered:

- With the -PT option, the cable terminates in spade lugs for connection to the CH200 Smart Charge Controller or 18529 regulator.
- With the -PW option, the cable is fitted with a connector that attaches to a prewired enclosure.

Regulators for the SP50 and SP85

CH200 Smart Charge Controller

The CH200 limits charging current to approximately 3.6 A, has a quiescent current drain of only 0.3 mA and can precisely charge the following battery families: EnerSys Genesis NP Series (includes our PS200, BP12 and BP24), EnerSys Cyclone Series, Concorde Sun Xtender Series (includes our BP84 and PS84) or a custom battery.

18529 MorningStar SunSaver

The 18529 Morning Star SunSaver limits charging current to approximately 10 A, has a quiescent current drain of approximately 8 mA, and can charge sealed (includes our BP12, BP24 and BP84) or flooded batteries.

Solar Panel Specifications

	SP5 Series[1]	SP10 Series[1]	SP20 Series[1]	SP50-L[1]	SP85-L[1]
Power	5 W maximum	10 W maximum	20 W maximum	50 W maximum[2]	85 W maximum[3]
Current at Peak		0.59 A	1.19 A	3.9 A	4.8 A
Voltage at Peak Power	17.1 V	16.8 V	16.8 V	17.5 V	17.8 V
Dimensions	24.1 x 25.4 x 2.5 cm (9.5 x 10 x 1 in.)	41.9 x 26.9 x 2.3 cm (16.5 x 10.6 x 0.9 in.)	50 x 42.2 x 5.1 cm (19.7 x 16.6 x 2 in.)	83.9 x 53.7 x 5 cm (33 x 21.1 x 2 in.)	120.9 x 53.7 x 5 cm. (47.6 x 21.1 x 2 in)
Weight	0.9 kg (2 lb)	SP10, SP10-PW: 2.1 kg (4.5 lb) SP10R, SP10R-PW 3.0 kg (6.9 lb)	SP20, SP20-PW: 4.4 kg (9.6 lb) SP20R, SP20R-PW 6.2 kg (13.6 lb)	6 kg (13 lb)	7.7 kg (17.0 lb)

[1]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 SP50-L and SP85-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.

[2]The 50 W maximum power for the SP50 assumes one solar panel is used. Two SP50 solar panels can be connected to one 18529 Morning Star SunSaver Regulator to get a maximum power of 100 W.

[3]The 85 W maximum power for the SP85 assumes one solar panel is used. Two SP85 solar panels can be connected to one 18529 Morning Star SunSaver Regulator to get a maximum power of 170 W.