Solar Equipment

Solar panels are used to produce the power to charge batteries needed to run a station. The number and size of solar panels needed will depend on the amount of sunlight available at the site and the power draw of the station. For stations at low to mid latitudes and at least moderate sun we recommend a power ratio of at least 20 to 1. That is if the station draws 1 watt of power you need at least 20 watts of solar panel. The Battery Usage Calculator is helpful in determining power usage for stations. To get the most power the solar panels need to be oriented to receive the maximum amount of sunlight using solar panel mounts.

Solar panels are connected by cabling to a charge controller (PASSCAL’s so-called Power Box) inside the station enclosure. Batteries and DAS’s are also connected to the Power Box. Simple charge controllers stop charging a battery when they exceed a set high voltage level, and re-enable charging when battery voltage drops back below that level. In addition to charge controlling, PASSCAL Power Boxes contain electronics for Low Voltage Disconnect (LVD) to prevent the batteries from draining so low that they are ruined. Typically the LVD is set to disconnect the load (your seismic station!) at about 11.5 Volts and reconnect if the batteries later come up to level indicating a decent charge, about 12.5 Volts.

Related categories:  Power Systems  Solar Power

Source URL:  https://www.passcal.nmt.edu/content/instrumentation/power-systems/solar-equipment