

Tech Bulletin – 4 Alignment



- SunpointGPS is self-powered, self-contained and self-aware. It uses its own small solar panel and charging system to keep a 12v AGM sealed battery charged. When full this battery contains at least 3 days of operation and after a further number of cloudy days it may be more than half depleted. Extreme cold weather below -20deg C you can expect less energy delivered. If this happens it simply commands the array to face south and waits for the sun to recharge. Extreme winter operations may justify adding a 12v wall adapter plug-in to augment the limited battery performance.

Each day, the SunpointGPS controller moves the array in several discrete "steps" from sunrise to sunset and when not actually moving it goes to sleep (powers down) and waits. This method means the unit uses less than 40/1000ths of a kWhr/day of it's own power to operate. It spends more than 97% of it's life asleep in a "powered down" mode. When the power is turned on initially it determines it's position and time from an internal GPS receiver. It then moves in azimuth just ahead of the sun and waits for the sun to go by, sleeping while it waits. Then, at the end of the day, it will move back east to it's upper switch (EAST Reference Point), re-calibrates and goes to sleep again until just before dawn. The 2 lower emergency limit switches will stop all motion should the motor somehow ignore software commands. You can restart the program at any time to recalibrate it's position. Simply remove the fuse on the POS battery terminal wire, wait a few seconds and reconnect. NOTE: Make sure the solar panel is also disconnected first or the solar panel power will not allow the controller to power down and RESET.

The system will restart, recalibrate it's location and pointing angles and then move to the current sun position.

NOTE

It is important to initially orient the SunpointGPS tracker facing GRID SOUTH. Pick any two opposite bolts on the mounting flange and then precisely align GRID south as shown on the right. Current base mounts and posts have ~5deg alignment slot in the concrete bolt pattern. With this done correctly, the unit will always be able to correctly face the sun and reestablish it's location even after shutting down the unit for annual inspection. Annual inspection simply check of the condition of the system to ensure nothing is loose and includes a grease check of the slew drive.

