QuickDraw
Solar Power Guidelines

SureFire recommends powering the QuickDraw with a harness that attaches the QuickDraw battery back to the towing truck batteries. However, as an alternative to this a solar panel can be used. The QuickDraw requires a good power source and will not operate at under 11.5 volts. Therefore, a good battery and charging source are necessary.

The following is a quick description of what is needed, and SureFire's recommendations, to recharge the QuickDraw battery using a solar panel.

The QuickDraw uses 1.6Amps continuously to power the display, mass meter, valves, etc. If the end user is using a key start transfer pump, it uses 40+ Amps for 10 seconds each start. If it is started 7 times a day, then the transfer pump uses approximately 40 amps for 1 min of the day. If the QuickDraw is powered on for 12 hours, then the following is true.

> 1.6 * 12 hours = 19.2 Amp Hours/Day is used by QuickDraw
> 40   *0.02 hours = 0.8 Amp Hours/Day is used by transfer pump
> This is a total load of 20 Amp Hours/Day.

If you have a standard car battery, the storage capacity is around 40 amp hours. So the number of days that the system can operate without sun is:

$$\frac{\text{Amp Hours of Storage * Estimated Efficienty}}{\text{Total Amp Hours / Day}} = \frac{40 * 0.75}{20} = 1.5 \text{ days without sun}$$

Solar panel required to recharge the system in 1 day:

$$\frac{\text{Amp Hrs Strg + Num Days * Tot Amp Hrs/Day}}{\text{(Num Days)(hrs/day of sun)}} * \text{Charging Voltage} = \frac{40 + 1 * 20}{1 * 8} * 14 = 105 \text{ watts}$$

SureFire Ag Systems recommends a 100Watt solar panel, a deep cycle marine battery with 40 Amp hour capacity, and a solar charging controller to run the QuickDraw continuously. If you turn off the QuickDraw controller between batches, then you should be able to get away with a 50-80watt solar panel. The drawback to turning off the QuickDraw controller between each batch is it will require 30-60 seconds to boot up prior to each batch.