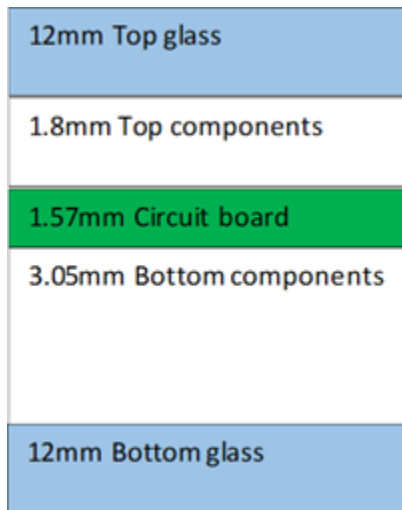


Technical Assistance Request

There are several ways that collaboration with your Connectors could help move Solar Roadways forward and allow us to meet customer demand more quickly and efficiently.

Challenge 1: We have long been in need of a custom electrical power connector for our Solar Road Panels. This will make lamination of panels faster and easier. We need one connector that solders onto a circuit board and the matching mating plug with cables. There are very restrictive spacing limitations:

Height limitations (height total: 6.42mm):



No width limitations

The connector will sit between two pieces of 12mm glass (in the shape of a hexagon). The face of the connector will rest right up against the side of the hexagon (or possibly be recessed – depends on the mating plug).

Six connectors (all minimum 5-amps):

Solar +, Solar –, 7.5VDC – digital, Ground – digital, 12VDC – analog, Ground – analog

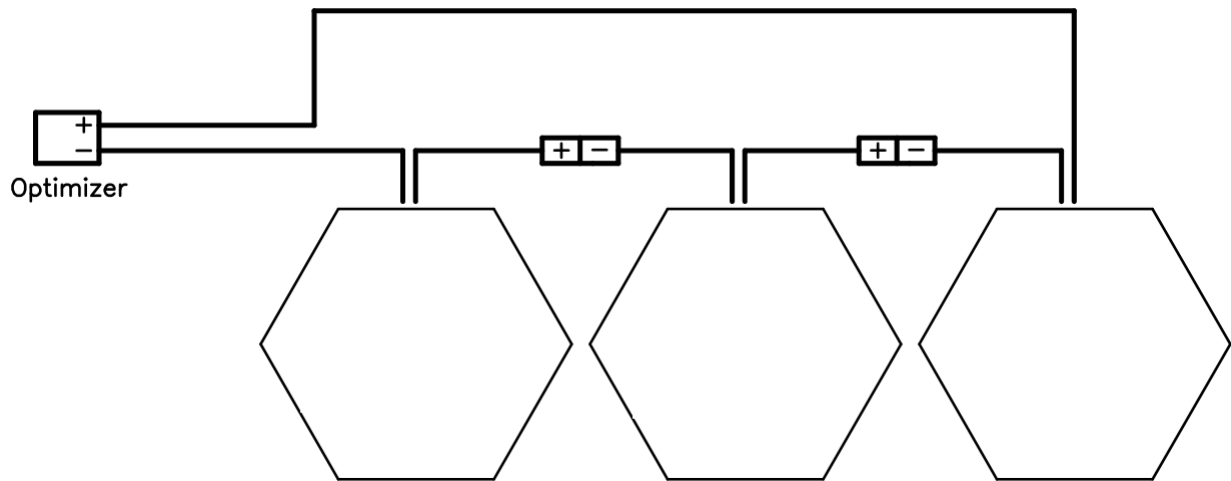
We can make the circuit board to accommodate any connector design.

The connector must be IP67 waterproof rating and be able to withstand the lamination process: 130C for 240 minutes. The laminate becomes liquified under heavy vacuum. The vacuum will try to pull the laminate through the connector – this cannot be allowed.

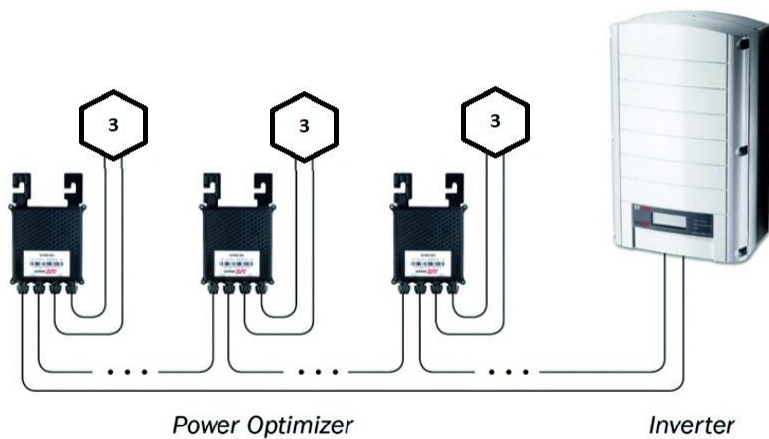
The mating plug will have three cables (2 solar and one 4-conductor molded cable). It must be right angle and extend no farther than ½” from the edge of the hexagon. That’s the distance between the panels for expansion/contraction.

This cable connector will eliminate our current method of laminating the panels with the cables extending out the side of the panels. This greatly increases manufacturing time and must be eliminated.

Challenge 2: The solar harvesting system is currently set up this way:



Three 50W Solar Road Panels are connected in series and feed into a SolarEdge P400 Optimizer



Multiple P400 Optimizers (ten at the Sandpoint pilot project) are connected in series and feed to a SolarEdge SE3000H-US inverter

Testing results are good in the lab with individual panels. Like most of our manufacturing equipment, we're using equipment (currently SolarEdge) that is not designed for our panels. We need help from solar experts to optimize the energy output of our panels. Someone with experience with SolarEdge is preferred. We are also open to using a system other than SolarEdge if a better match for our panels is found.

Challenge 3: Adding pressure sensitivity to the Solar Road Panels to detect when a vehicle, pedestrian, or animal is on the surface. Model SR1 had this ability, but it was accomplished with load sensors which were way too expensive (four per panel at \$85 each). We need an economical way to achieve the same goal, before we move to from parking lots etc. to roads (2-3 years).

Challenge 4: We could use help with pursuing UL certification and FCC certification – the onboard microprocessors communicate wirelessly over a mesh network.