

Disassembly Manual Biosphere Solar V1.4

Welcome to the disassembly manual of Biosphere Solar V1.4. Biosphere's modules are designed with the different end of life strategies in mind such as reuse, repair, refurbish and recycle.

!! NEVER incinerate or landfill Biosphere Solar's modules, they are designed to be disassembled easily so nothing goes to waste.

R Strategy determination

Before disassembly, first the state of solar modules needs to be determined. When feasible reuse should always be considered. The 'EOL' modules will undergo a few tests to determine their reusability.

1. Visual inspection (IEC61215-1)
2. Power measurement
3. Electroluminescence test
4. Insulation test

70% of the initial power is a suggested threshold for reuse. If in doubt, consult organizations such as ZonNext and Refurn. When the panels cannot be reused, they are to be disassembled for the other R strategies, pairing with the results of the other tests. If the modules are damaged beyond repair and refurbishment, then they have to be properly recycled per WEEE (EU) and adhere to local disposal laws. Biosphere Solar is in frequent contact with recyclers such as Solar2Cycle, Solar Materials and ROSI Solar, who have the potential for a partnership.

Disassembly steps

Steps

1. Remove the frame with a machine (in case of non recycling R strategy, should scrape the silicon residue)
2. Remove the junction boxes from the back glass
3. Prepare replacement strings (2mm spacing, 10/16BB bifacial half cells, 9-12 cells per string) in case of repair and refurbishment.
4. Heat up the module and cut the edge seal with diamond wire, disc cutter, or hotknife to separate the front and the back glass
5. Remove the seal from the glass sheets
6. Separate all broken cell strings from the back glass through desoldering or other means
7. Keep separated piles of the frames, glass sheets, cell strings, busbars, and junction boxes.