# **Preventive maintenance form – Solar mini-grid**

| **Component** | **Check** | **Frequency** | | |
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| **Quarterly**  **✓/🗶** | **Annual**  **✓/🗶** | **5 years**  **✓/🗶** |
| **Solar panels** | Clean debris from around and under the solar array |  |  |  |
| Check trees and shading – trim as required |  |  |  |
| Verify cleanliness of solar panels (dirt, bird droppings, fungus). We recommend against cleaning solar panels unless badly fouled. |  |  |  |
| Visual check PV Modules (fractures, browning, moisture penetration, frame corrosion, etc.) Modules with visual defects should be further inspected for performance and safety and replaced if needed |  |  |  |
| Check PV Module junction boxes, tightness of connections, integrity of lid seals, integrity of cable glands, and clamping devices |  |  |  |
| Verify Bypass diodes |  |  |  |
| **Wiring installation** | Verify mechanical integrity of conduits and replace damaged conduit. |  |  |  |
| Verify insulation integrity of cables installed without conduit and replace damaged cable. |  |  |  |
| Check junction boxes:   1. tightness of connections 2. water accumulation/build-up 3. integrity of box cover seals 4. integrity of cable entrance and/or conduit sealing; and 5. integrity of clamping devices.   Replace defective seals and clamps |  |  |  |
| Verify the following:  (a) Blocking diodes  (b) Surge arresters (if fitted) for degradation  Replace defective blocking diodes and surge arresters |  |  |  |
| Check all electrical connections for tightness and corrosion. |  |  |  |
| **Electrical characteristics** | Measure and record open circuit voltages |  |  |  |
| Measure and record short circuit currents |  |  |  |
| **Protective devices** | Verify the integrity of fuses and fuse holders (where fitted) |  |  |  |
| Verify the operation of circuit breakers |  |  |  |
| Verify the operation of solar array isolation devices |  |  |  |
| Verify the function of earth fault protection |  |  |  |
| **Mounting system** | Verify tightness and integrity of bolts and other fastening devices. Tighten clamps and replace components as required |  |  |  |
| **Other** | Check correct labelling of the system and rectify as required |  |  |  |
| **Batteries** | Please refer manufacturer's battery maintenance manual and log book |  |  |  |

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| **Solar array log sheet** | | | | | | | | |
| **Date** | **Name of person performing check** | **Array cleaned** | **Is PV structure, OK? (Yes/No)** | **Is PV cabling, OK? (Yes/No)** | **Array output voltage** | **Array output current** | **Weathering and corrosion (Yes/No)** | **Comments** |
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| **Inverter log sheet** | | | | | | | | |
| **Date** | **Name of person performing check** | **Cleaned (Yes/No)** | **Inserts ingress (Yes/No)** | **Connections, OK? (Yes/No)** | **Inverter operation, OK? (Yes/No)** | **Display all, OK? (Yes/No)** | **Parameters all OK? (Yes/No)** | **Comments** |
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| **Balance of system log sheet** | | | | | | | | |
| **Date** | **Name of person performing check** | **Are there safety hazards? (Yes/No)** | **Are there debris risks? (Yes/No)** | **Is the electrical connection, OK? (Yes/No)** | **Are switches and CBs operating, OK? (Yes/No)** | **Safety labels are visible? (Yes/No)** | **All metallic parts are corrosion-free (Yes/No)** | **Comments** |
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