

## Solar PV Performance & Safety Testing

Independent commissioning, inspection and diagnostics for rooftop, commercial and utility-scale PV plants across Syria



*From string-level I-V curves to thermographic plant surveys — measured proof that a PV system is safe, compliant and producing what it should.*

Solar PV has become the default response to Syria's unreliable grid and high fuel costs — rooftops, factories, hospitals, farms and entire villages are being switched on month after month, often installed at speed by mixed-quality teams. Behind every array there are real risks: DC arc faults, hot connections, mis-strung modules, missing earthing, non-compliant inverter settings and silent under-performance. Mizan provides the independent commissioning, periodic inspection and diagnostic testing that owners, EPC contractors, financiers and insurers need to confirm that each PV system is safe, compliant with IEC standards and delivering the energy that was promised.

### Why It Matters

PV plant is a 25-year asset whose risks are mostly invisible from the ground:

- DC-side faults and hot connections cause fires that conventional electrical protection does not see.
- Under-performance from soiling, mismatch or degradation quietly erodes payback every month.
- Non-compliant inverter and earthing settings put people and equipment at risk during a fault.

### What We Verify

Mizan inspects the full PV chain — modules to point of connection:

- Commissioning and periodic inspection per IEC 62446-1.
- Thermographic and electroluminescence surveys to locate hot cells and defects.
- Inverter, earthing, anti-islanding and grid-code compliance at the interface.

**A PV plant is not commissioned when the inverter turns on — it is commissioned when every measurement is recorded, verified and signed off.**



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## Scope of Services

A structured testing programme covering grid-connected PV systems of any scale, delivered on site with calibrated instruments and qualified PV engineers.

- **Commissioning & Periodic Inspection**
  - Initial and periodic verification of grid-connected PV systems per IEC 62446-1.
  - DC and AC circuit tests — continuity of protective conductors, polarity, insulation resistance, open-circuit voltage and short-circuit current.
  - String-level I-V curve measurement and reference comparison per IEC 61829.
  - Earthing, equipotential bonding and SPD verification on the DC and AC sides.
- **Thermography, Diagnostics & Performance**
  - Aerial and handheld infrared thermography of modules, combiners and inverters per IEC TS 62446-3.
  - Electroluminescence imaging for micro-cracks and cell-level defects (where applicable).
  - Performance ratio, yield and capacity assessment per IEC 61724-1.
  - Soiling, shading and degradation analysis with corrective-action recommendations.
- **Electrical Installation, Inverter & Grid Compliance**
  - Inspection of PV electrical installations per IEC 60364-7-712 and IEC 62548.
  - Inverter functional checks — anti-islanding per IEC 62116, settings against the local grid code.
  - Grid-interconnection verification per IEEE 1547 / EN 50549 for the point of common coupling.
  - Lightning & surge-protection test per IEC 62305.

## Technical Reports to IEC, EN, NFPA & ISO Standards

Every PV campaign is documented in a structured report that ties each measurement to the standard it verifies, flags non-conformities and gives the owner a clear corrective-action path before sign-off or re-test.

**The technical reports issued by Mizan include the following:**

- IEC 62446-1 PV system commissioning and periodic inspection report.
- IEC TS 62446-3 infrared thermography survey report.
- IEC 61829 string I-V curve measurement and analysis report.
- IEC 61724-1 PV plant performance assessment report.
- IEC 60364-7-712 / IEC 62548 PV electrical installation verification.
- IEC 62116 / IEEE 1547 inverter and grid-interconnection compliance report.
- IEC 62305 lightning and surge-protection inspection report for PV plants.



*Maximise solar energy and minimise solar panel downtime can be ensured only when keeping your plant regularly checked against the standards.*

**Independent measurement — so every kilowatt-hour of Syrian sunshine is delivered safely, reliably and to standard.**



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