

A Guide to SABS and IEC Certification for Solar Modules in South Africa

A Factual Guide to Market Access, Standards & Compliance

Content Partner: J. v. G. technology GmbH

Turnkey solar module production lines — since 1997

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Technical Overview: SABS and IEC Solar Module Certification in South Africa



Created as part of the PVKnowHow Knowledge Network



Prepared by J.v.G. Technology GmbH



European specialists in turnkey solar module production lines

Key Project Data

IEC + S...

Certification Scope

IEC 61215, IEC 61730 & SABS (SANS) national standards

6–12 mo

Typical Timeline

Full certification cycle from factory readiness to certificate issuance

€25k–...

Cost per Module Family

Testing, audit, and certification fees — per module type submitted

Manda...

Legal Requirement

Required for lawful commercial sale in South Africa (NRCS / VC 8055)

📄 Region: South Africa · Certification scope: IEC + SABS (SANS) · Source: PVKnowHow / J.v.G. Technology GmbH

Why Certification Is a Market Access Barrier

What It Means for Manufacturers

- Uncertified modules cannot be legally sold in South Africa
- Certification is not a quality recommendation — it is a mandatory entry requirement
- Financial institutions require certification for project bankability
- Without certification, modules are excluded from utility-scale and commercial projects

Market Implications

- Certified modules signal independent, third-party product validation
- Builds installer and investor confidence in the product
- Prerequisite for government and renewable energy procurement programs
- Certification scope is per module family — each new design requires separate approval


IEC Standards: 61215 & 61730

IEC 61215 — Design Qualification & Type Approval

- Tests module design robustness and long-term performance
- Subjects modules to thermal cycling, humidity-freeze, and mechanical load tests
- Confirms the module will deliver rated output over its expected 25+ year life
- Applies to crystalline silicon and all flat-panel thin-film technologies

IEC 61730 — Safety Qualification

- Evaluates module construction for electrical shock and fire hazard risks
- Covers insulation integrity, fire resistance, mechanical strength, and material suitability
- Protects installers, first responders, and end-users throughout the module's lifespan
- Both IEC 61215 and IEC 61730 are required together — neither is sufficient alone

 Both standards are internationally recognized benchmarks. South Africa publishes them as national standards with the "SANS" prefix (SANS 61215 / SANS 61730).

The Role of SABS in South Africa

SABS — National Standards Body

- South African Bureau of Standards: develops and maintains national product standards
- Adopts IEC standards as SANS (South African National Standards)
- Operates the A-Lab Programme — accrediting laboratories eligible to conduct certification testing
- Issues the SABS Mark upon successful certification

How SABS Certification Works

- Manufacturer applies to SABS for product certification
- SABS conducts a factory audit — samples selected randomly from line or warehouse
- Samples sent to an accredited laboratory for IEC 61215 and IEC 61730 testing
- SABS Mark granted upon passing tests and audit; enables NRCS Letter of Authority application

Legal Requirement: NRCS & VC 8055

National Regulator for Compulsory Specifications (NRCS)

- Statutory body that enforces compulsory product specifications in South Africa
- Certification is legally mandated – not optional or advisory
- Non-compliant products are prohibited from commercial sale

Compulsory Specification VC 8055

- Mandates that all solar modules sold in South Africa comply with SANS/IEC 61730 for safety
- Compliance with VC 8055 requires an NRCS Letter of Authority (LOA)
- LOA can only be obtained after SABS certification is successfully completed

Practical Consequence

- No SABS Mark → No NRCS LOA → No legal sales in South Africa
- Enforcement risk: products without LOA may be seized or removed from market
- Applies to all module types regardless of origin or manufacturer scale

Certification Process: Step by Step

- 1 — Factory & Document Readiness**

QMS in place; Bill of Materials (BOM) finalised; equipment calibrated; production line stable
- 2 — Application to SABS**

Manufacturer submits certification application with full technical documentation
- 3 — Factory Audit**

SABS inspector visits facility; randomly selects module samples from production or warehouse
Random sampling prevents submission of pre-prepared "golden samples"
- 4 — Laboratory Testing**

Samples sent to SABS-accredited laboratory; tested against IEC 61215 & IEC 61730
Most time-consuming phase — weeks to months of environmental and mechanical stress tests
- 5 — Certificate Issuance & LOA**

All reports reviewed by SABS; certificate issued if compliant
Manufacturer applies SABS Mark and obtains NRCS Letter of Authority

Factory Readiness Requirements

Quality Management System (QMS)


- Documented process controls for all production stages
- Traceability records for materials and production batches
- Non-conformance and corrective action procedures in place

Bill of Materials (BOM)

- Certification is type-specific — applies to the exact BOM submitted
- Any component substitution (cell, encapsulant, backsheet, glass) may require re-certification
- BOM must be locked before application is submitted

Equipment Calibration

- Flash testers, EL imagers, and process equipment must be calibrated
- Measurement traceability to national/international standards required
- Calibration records must be available for the audit inspector

 Factory audit readiness is critical — a failed audit adds significant delay and cost to the certification timeline.

Testing Phase: Time & Complexity

What Is Tested

- Thermal cycling: repeated temperature stress between extreme high and low values
- Humidity-freeze: simulates moisture ingress under freezing conditions
- Mechanical load: simulates wind and snow pressure on the module surface
- Electrical safety: insulation resistance, dielectric withstand, wet leakage current
- Fire resistance: flammability and spread-of-fire potential of materials

Time & Complexity Factors

- Testing is the longest phase — weeks to several months per standard
- IEC 61215 and IEC 61730 tests are run in parallel where possible
- Laboratory capacity and queue time affect overall duration
- Shipping time to and from accredited laboratory adds to schedule
- Any test failure triggers partial or full re-testing — adding months


Certification Timeline: 6–12 Months



i Total realistic timeline: **6–12 months**. New manufacturers should plan certification in parallel with factory commissioning — not after.

Certification Costs: €25,000–€50,000 per Module Family

Cost Component	Typical Range	Notes
IEC 61215 Laboratory Testing	€10,000–€20,000	Per module family; lab-dependent
IEC 61730 Laboratory Testing	€8,000–€15,000	Typically run in parallel with 61215
SABS Audit & Certification Fees	€4,000–€8,000	Factory audit + administrative fees
Sample Preparation & Shipping	€2,000–€5,000	International freight to accredited lab
Re-testing (if failure occurs)	Additional cycle	Significant cost risk — design failures are expensive
Total Estimate	€25,000–€50,000	Per module family; cost rises with failures

 Costs are per module family. A manufacturer offering multiple module types (e.g., different wattage classes) must certify each separately if the BOM or design differs materially.

Key Risks: Failures, Delays & Re-Certification

Test Failures

- Any single test failure requires root cause analysis and design correction
- Partial re-testing adds 1-3 months; full re-test restarts the sequence
- Common failure modes: encapsulation delamination, insulation breakdown, mechanical load
- Failure discovered late in the process compounds financial and time costs significantly

BOM Changes & Re-Certification

- Any change to the certified BOM (cell type, encapsulant, backsheet, junction box) may invalidate certification
- Minor changes may require a "delta test" — major changes require full re-certification
- Supply chain disruptions that force component substitution are a common trigger

Schedule & Operational Risks

- Laboratory queue times vary — popular accredited labs may have multi-month backlogs
- Shipping delays and customs clearance affect sample transit time
- Factory audit failures due to incomplete QMS documentation cause restarts
- Certification expiry: periodic surveillance audits required to maintain validity

Strategic Importance: Trust, Bankability & Market Access

1

Legal Market Access

SABS certification and NRCS LOA are prerequisites for lawful commercial sale — no certification, no market

2

Bankability

Financial institutions treat uncertified modules as unacceptable risk — certification is the gateway to project finance and utility contracts

3

Installer & Customer Trust

Third-party certification provides independent assurance of safety, performance, and 25+ year durability expectations

- ❑ An experienced European turnkey provider integrates certification readiness into factory design and QMS from day one — reducing the risk of audit failures and costly design corrections late in the process.

About the Content Partner

J. v. G. technology GmbH – The DESERT Company

Founded in 1997 in Bavaria, Germany. Family-owned engineering company specializing in turnkey solar module production lines.

More than 90 factory projects delivered worldwide.

On-site team training included – no prior manufacturing experience required.

Key areas:

Turnkey PV manufacturing lines | DESERT Technology® |
TÜV-certified module designs | Factory planning to production

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