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# *PV Standards – International Status - July 2010*

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**Co-convenor of TC82 WG3 on Systems**  
**Member of WG6 on Balance of Systems Comp**

## **IEC TC82**

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The International Electrotechnical Commission committee TC 82 is responsible for standards for Photovoltaics. The committee breaks down into working groups for specific topic areas:

### **IEC TC82 PHOTOVOLTAICS Working Groups**

WG1 Glossary

WG2 Modules

WG3 Systems

WG6 Balance of Systems Components

WG7 Concentrators

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### **Status of work in TC82-WG3: PV SYSTEMS**

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- Liaison with TC64 MT9 regarding 60364-7-712 – “Special Installations Photovoltaic”.
- Working on new standard -IEC 62548 “Installation and Safety Requirements for Photovoltaic (PV) Generators”
- Strong request from WG3 to WG2 to remove the Class II reference IEC 61730.
- In liaison with SC32B committee for LV Fuses
- New PV Fuse Standard “Type GPV” is now in final stages before publication.
- Close work with WG6 (Components) on inverter requirements for protection related to PV arrays.
- Monitoring the European project on PV Performance and will liaise to produce a standard on performance assessment for grid connected systems.
- Currently completing the final stages of a standard IEC 62253 on Direct coupled PV pumping
- Important NEW PROJECTS currently assembling project teams:
  - BIPV document soon to be NWIP
  - Large PV Power Plant Design



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## Status of work in TC82-WG6: PV Balance of Systems Components

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### Safety of Power Converters

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Important new standards for safety of power converters for use in PV systems

- IEC 62109-1 Pt 1- General Requirements.  
To be published later in 2010
- IEC62109-2 Pt 2- Inverter Requirements.  
In final stages before publication
- IEC 62109-3 Pt 3 - Charge Controllers.  
A project team is being assembled.
- IEC 62109-3 Pt 4 - AC Modules  
A project team is being assembled.

IEC 62109-1 and 2 will be extremely important standards for all inverters for grid connect and stand alone systems ensuring safety of the inverter and having very important safety implications for the systems they are connected to. The standard includes new features for inverters to support personnel and fire protection and alarm functions.

### Inverter Safety

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Brief Inverter safety 62109-2 Issues addressed:

- Protection against electric shock
- Floating & Functionally grounded arrays fire and personnel safety
- Additional requirements for stand-alone inverters
- Inverter backfeed current onto the array
- Audible noise
- Physical requirements
- Fault Indication
- + many more fine details

### Other Projects

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- IEC 62509 Ed.1: Performance and functioning of photovoltaic battery
  - To be published in 2011
- EN 50521 Connectors
  - Currently under consideration for adoption by MODULES group with flow throughs for all system installations.
- Consideration is being given to a standard for safety of DC disconnect switches for use in photovoltaic power system. There may have to be a liaison with other committee TC17. This is to address issues of interruption of current limited dc currents over the complete range of operating currents.



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- Safety of power converters for use in photovoltaic power systems - Particular requirements for combiner boxes is being discussed extensively to decide if a standard is justified to improve the safety and reliability of d.c. combiner boxes.
  - Possible MPPT Performance Document including static and dynamic performance assessment.
  - Arcs and arc detectors
    - Progress in US for a standard for arc signatures.
    - Manufacturers working on detectors.
    - Solar Edge does have a product on the market. A lot of field testing and qualification still to happen

### Major Challenges

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- Safety, Safety, Safety
  - Arc Detector
  - Method of de-energising array in emergencies
- Need for new standards
  - Connectors
  - Active Junction Boxes
  - Performance guarantees