

**CPC****COOPERATIVE PATENT CLASSIFICATION****H02S****GENERATION OF ELECTRIC POWER BY CONVERSION OF INFRA-RED RADIATION, VISIBLE LIGHT OR ULTRAVIOLET LIGHT, e.g. USING PHOTOVOLTAIC [PV] MODULES**

(light sensitive inorganic semiconductor devices [H01L 31/00](#); thermoelectric devices [H01L 35/00](#); pyroelectric devices [H01L 37/00](#); light sensitive organic semiconductor devices [H01L 51/00](#); obtaining electrical energy from radioactive sources [G21H 1/12](#); solar heat collectors [F24J 2/00](#))

**H02S 10/00****PV power plants; Combinations of PV energy systems with other systems for the generation of electric power****WARNING**

Groups [H02S 10/10](#) - [H02S 10/40](#) are incomplete pending reclassification of documents from group [H02S 10/00](#).

Until reclassification is complete, groups [H02S 10/00](#) should be considered in order to perform a complete search.

**H02S 10/10**

- including a supplementary source of electric power, e.g. hybrid diesel-PV energy systems ([combinations with gas-turbine plants F02C 6/00](#))

**H02S 10/12**

- Hybrid wind-PV energy systems

**H02S 10/20**

- Systems characterised by their energy storage means ([H02S 40/38](#) takes precedence)

**H02S 10/30**

- Thermophotovoltaic systems ([photovoltaic cells specially adapted for conversion or sensing of infra-red \[IR\] radiation H01L 31/00](#); thermoelectric devices [H01L 35/00](#))

**H02S 10/40**

- Mobile PV generator systems

**H02S 20/00****Supporting structures for PV modules****NOTE**

Supporting structures also intended for use with solar heat collectors should also be classified in groups [F24J 2/38](#) or [F24J 2/52](#)

**WARNING**

Groups [H02S 20/10](#) - [H02S 20/32](#) are incomplete pending reclassification of documents from groups [H02S 20/00](#), [F24J 2/00](#), [F24J 2/38](#), and [H01L 31/048](#).

Until reclassification is complete, groups [H02S 20/00](#), [F24J 2/00](#), [F24J 2/38](#), and [H01L 31/048](#) should be considered in order to perform a complete search.

**H02S 20/10**

- Supporting structures directly fixed to the ground ([H02S 20/30](#) takes precedence)

**H02S 20/20**

- Supporting structures directly fixed to an immovable object ([H02S 20/30](#) takes precedence)

**H02S 20/21**

- specially adapted for motorways, e.g. integrated with sound barriers

**H02S 20/22**

- specially adapted for buildings

- H02S 20/23 . . . specially adapted for roof structures
- H02S 20/24 . . . . specially adapted for flat roofs
- H02S 20/25 . . . . Roof tile elements
- H02S 20/26 . . . Building materials integrated with PV modules, e.g. façade elements  
([H02S 20/25](#) takes precedence)
- H02S 20/30 . Supporting structures being movable or adjustable, e.g. for angle adjustment
- H02S 20/32 . . specially adapted for solar tracking

**H02S 30/00**

**Structural details of PV modules other than those related to light conversion**  
(semiconductor device aspects of modules of electrolytic light sensitive devices [H01G 9/20](#), of inorganic PV modules [H01L 31/00](#), of organic PV modules [H01L 51/42](#))

**WARNING**

Groups [H02S 30/10](#) and [H02S 30/20](#) are incomplete pending reclassification of documents from group [H02S 30/00](#).

Until reclassification is complete, group [H02S 30/00](#) should be considered in order to perform a complete search.

- H02S 30/10 . Frame structures
- H02S 30/20 . Collapsible or foldable PV modules

**H02S 40/00**

**Components or accessories in combination with PV modules, not provided for in groups [H02S 10/00](#) - [H02S 30/00](#)**

**WARNING**

Groups [H02S 40/10](#) - [H02S 40/44](#) are incomplete pending reclassification of documents from groups [H02S 40/00](#), [F24J 2/00](#), [H01L 31/0232](#), [H01L 31/05](#) - [H01L 31/055](#).

Until reclassification is complete, groups [H02S 40/00](#), [F24J 2/00](#), [H01L 31/0232](#) and [H01L 31/05](#) - [H01L 31/055](#) should be considered in order to perform a complete search.

- H02S 40/10 . Cleaning arrangements
- H02S 40/12 . . Means for removing snow
- H02S 40/20 . Optical components
- H02S 40/22 . . Light-reflecting or light-concentrating means (directly associated with the PV cell or integrated with the PV cell [H01L 31/054](#))
- H02S 40/30 . Electrical components
- H02S 40/32 . . comprising DC/AC inverter means associated with the PV module itself, e.g. AC modules
- H02S 40/34 . . comprising specially adapted electrical connection means to be structurally associated with the PV module, e.g. junction boxes
- H02S 40/345 . . {with cooling means associated with the electrical connection means, e.g. cooling means associated with or applied to the junction box (cooling means for PV cells [H01L 31/052](#), for PV modules [H02S 40/42](#))}
- H02S 40/36 . . characterised by special electrical interconnection means between two or more PV modules, e.g. electrical module-to-module connection

- H02S 40/38
  - • Energy storage means, e.g. batteries, structurally associated with PV modules
- H02S 40/40
  - Thermal components ([H02S 10/30](#) takes precedence)
- H02S 40/42
  - • Cooling means (cooling means directly associated or integrated with the PV cell [H01L 31/052](#))
- H02S 40/425
  - • • {using a gaseous or a liquid coolant, e.g. air flow ventilation, water circulation}
- H02S 40/44
  - • Means to utilise heat energy, e.g. hybrid systems producing warm water and electricity at the same time (directly associated with the PV cell or integrated with the PV cell [H01L 31/0525](#))
- H02S 50/00**

**Monitoring or testing of PV systems, e.g. load balancing or fault identification**

**WARNING**

Groups [H02S 50/10](#) - [H02S 50/15](#) are incomplete pending reclassification of documents from group [H02S 50/00](#).

Until reclassification is complete, group [H02S 50/00](#) should be considered in order to perform a complete search.
- H02S 50/10
  - Testing of PV devices, e.g. of PV modules or single PV cells (testing of semiconductor devices during manufacturing {[H01L 22/00](#)})
- H02S 50/15
  - • using optical means, e.g. using electroluminescence
- H02S 99/00**

**Subject matter not provided for in other groups of this subclass**