

AUTOMATIC CONTROL OF SOLAR BATTERIES PANELS

Solar panels and solar energetics is a perspective field of energetics development. It allows to obtain energy, which is pure, renewable and accessible.

In the sphere of solar energetics main tasks, that need to be solved, are: usage of highly effective materials for construction of solar panel, which provide the best efficiency and quality of energy production; providing automatic control of the system's work, that means usage of the complex of devices, supporting its autonomous work; lowering of the system cost with simultaneous saving its efficiency.

There are generally such types of solar panels systems as movable and unmoved.

Movable systems have better efficiency because of moving with the sun, thus keeping straight angles. For the tracking of sun are used such aggregates, as maximum power point trackers (MPPT). Its work is based on tracking the point of maximum power of energy flow. So, it provides information for rotation of solar panel and increasing efficiency of energy production. Described MPPT is based on voltage and used for photovoltaic applications.

Photovoltaics is a method of generating electrical power by converting solar radiation into DC electricity. Here are used semiconductors that exhibit the photovoltaic effect.

Photovoltaic method of producing electricity is the most popular and used not only for standard solar panels, but for different types of devices, where is applied technology of charging from the sun.

Important point in the work of solar panel is temperature regime, because at increasing of temperature above normal value efficiency of energy conversion falls. Thus is needed temperature control.

MPPT charge controller traces the temperature and sequentially switches the solar battery between charging and discharge modes. The controller features a smart tracking algorithm inside that maximizes the energy from the solar PV module and charge the battery. At the same time, the low voltage disconnect function (LVD) will prevent the battery damage from battery over discharging.

It is proposed such combination of 2 controlling systems, active and passive. Passive system switches on periodically, with some time interval and rotate solar panels on accepted constant degree. Active system also switches in that time, tracks point of maximum power and corrects rotation degree of solar panels platform. This decision allows economy of energy, used for system switching, and increasing its efficiency.

For optimizing the work of solar panels a complex of controllers automatically executes necessary functions and supports their continuity and effectiveness.

Thus, autonomous functioning of solar batteries is based on implementation of controlling devices and creating self-working system. It gives us necessary energy in perspective way.