

Maximizing DC Power Conversion From Solar Panels

British Columbia Inst of Tech (BCIT)



A new device developed at the British Columbia Institute of Technology in Burnaby, Canada, allows energy users to draw the maximum amount of power from a solar array, at any given time.

Called the Maximum Power Point Tracking (MPPT) technology, it was developed by BCIT engineers and students over a four-year period. Photovoltaic cells have a single operating point where the current and cell voltage result in a maximum power output. This point fluctuates according to several factors, including time of day, season, temperature and weather conditions. MPPT technology uses a patented logic algorithm that continuously searches for the point of maximum power buildup in the solar array, and allows the converter circuit to extract it from the cell. Benefits are most apparent when the weather is hazy, overcast, or rainy, or when the battery has a low charge. The controller also acts as a battery charger for various battery types.

Analytic Systems of Surrey, British Columbia, licensed the technology from BCIT and designed and produced the final design. Called SolarMax, the solar charge controller is primarily being marketed for industrial applications.

“ At 100 amps it provides the highest power output of any solar charge controller currently on the market, and is one of the most compact.

Analytic Systems is developing a line of products for the solar and wind-generation industries and expects to increase revenues by 100 percent over the next five years. The United States government is also interested in potential military applications of the technology. Based on this initial technology Analytic Systems has been given a prestigious IRAP grant, one of the largest in Western Canada, from the National Research Council of Canada to continue to develop products in this solar category.

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