



Monitoring Photovoltaic Panels

Photovoltaic panels are being installed in greater numbers than ever before. Higher efficiencies, lower prices and government incentives help to increase demand, along with consumer attitudes leaning toward all things “green.”

System monitoring will improve performance and one of the key components is monitoring the current output of the panels. The two most practical methods used to monitor the DC current produced are current shunts and hall element based sensors.

While shunts are relatively inexpensive, the installer must cut and terminate the wire on both sides of the shunt, they are more prone to inaccurate outputs as the temperature increases and they need insulated covers to keep personnel away from potentially lethal voltages. The output is also very low, susceptible to interference and must be conditioned to be used by most programmable logic controllers or panel meters.

Compare this with the hall element design of NK Technologies’ DC current transducers. There is no need to cut or strip the conductor or to disturb wiring at all with the split core models. These DC current transducers provide very stable, highly accurate output at broad temperature extremes; industry standard output signals with high levels of noise immunity; and complete isolation from the monitored circuit. These features save installation time, reduce the number of components required and make the installation very reliable and safe for inspectors or maintenance personnel.

DC Current Monitoring

PV Array Combiner Boxes

- Measure current output of a single panel, string, or array.
- Sensor ranges from 0–20 to 0–400 amps for use in combiner or recombiner boxes.
- Temperature rated from -30 to 70°C.
- Two wires supply power and output signal.
- Compact size for installation in confined spaces.

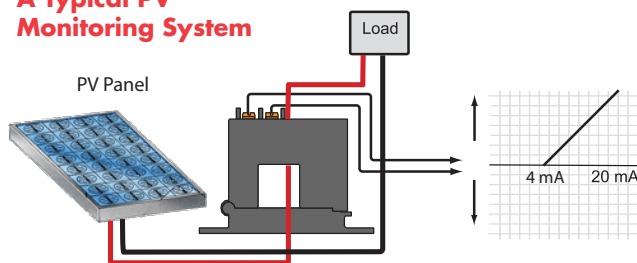
Wind Generators

- Monitor output between cut-in and cut-out speeds.

DC Current Transducers— A Low-cost More Effective Alternative

NK Technologies has been manufacturing non-contact hall element based DC current transducers for over ten years, all made in California. Product refinements and production of thousands of units, with corporate focus on quality and reliability has helped to make NK a market leader. The latest design development is the new DLT series DC current transducer. These models are single range, take less panel space in combiner or re-combiner boxes, and produce a 4-20 mA signal through a two wire loop, using nominal 24VDC in series with the output. As with all loop powered signals, they can be converted to 1-5 VDC or 2-10 VDC by the addition of a field installed resistor across the controller input terminals. The design saves time and cabling costs, as just two wires are used rather than four with previous designs.

A Typical PV Monitoring System



A Typical 2-Wire Connection

