

APPLICATION NOTE

Monitoring Weather Conditions Helps Optimize Performance of Utility-Scale Solar Panel Arrays

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Swinerton Renewable Energy has selected weather stations from Columbia Weather Systems to provide meteorological data to their proprietary SCADA system at solar project sites. The construction company offers turn-key solar power solutions for utility-scale and distributed generation projects.

Joe Brotherton, manager of the technical services team, reports that Swinerton's operations and maintenance management offers performance guarantees based on site analysis. Monitoring weather conditions is vital to optimizing performance.

Swinerton's weather stations include the Orion sensor module plus a panel temperature sensor and two solar radiation sensors – one at plane of array and the other on a tracker. The system is connected through the Weather MicroServer. "We like the price point, always get a response, and it integrates easily into our SCADA system," Brotherton says.

On a recent Swinerton project, Columbia Weather integrated the newly released Hukseflux SR20 solar sensor. SR20 is a pyranometer of the highest category in the ISO 9060 classification system: secondary standard. This solar radiation sensor is used where the highest measurement accuracy is required. The weather station utilizes an [Acromag 801T-1500-C](#) amplifier to amplify the solar sensor output to higher voltages suitable to CWS's Microserver inputs and applies individual sensors' sensitivities. The [Acromag temperature transmitter with limit alarm](#) also includes programmable relay control to turn on and off sensor heaters to minimize the effect of dew and ice, especially critical in this Ontario, Canada solar panel installation.

Swinerton Renewable Energy is a branch of [Swinerton Incorporated](#) family of companies offering commercial construction services throughout the Western United States.

For more information:

[Swinerton Renewable Energy](#)

[Weather Stations for solar power monitoring](#)



This weather station installation shows the two radiation sensors, one at plane of array and one at GHI, as well as the Orion weather sensor module on the mast. MicroServer and Acromag amplifier are in the weatherproof enclosure mounted below the mast. Photo courtesy of Industrial Electrical Contactors Ltd.