

Keeping the Proper Rotation on Wind Turbines

Electro-Sensors Reverse Rotation Sensor Keeps Montana Wind Turbines Going the Right Way



In 2007, Montana Windworks, a Livingston, MT-based O&M company, installed eight Mitsubishi 250 kW wind turbines at the Martinsdale Colony South Wind Farm in central Montana.

The wind farm is owned by Two Dot Wind, Billings, MT (406-855-1799).

According to Montana Windworks Manager Kerry LaDuke (406-222-1144), as his company began to build the

control systems for the Mitsubishi 250 kW wind turbines, there was a concern that the blades might begin turning backwards if the rotor was facing downwind when the wind began to blow.

“As we started bringing the Mitsubishi turbines on line we realized

we needed something to sense rotor direction so the wind turbines wouldn’t start up going backwards,” says LaDuke.

LaDuke explains that the Mitsubishi 250 kW turbines have in some isolated instances started rotating backwards if facing downwind. If that happens, says LaDuke, the equipment could tear up gears or trip breakers, resulting in a catastrophic failure.

Electro-Sensors UDS 1000

In searching for a solution, LaDuke came across Electro-Sensors, Inc. on the internet. The Minneapolis, MN-based industrial speed and vibration monitoring and motor controls company (800-328-6170/www.electro-sensors.com) offers a group of reverse rotation sensors for motors.

After discussing his problem with Electro-Sensor engineers, LaDuke purchased the company’s UDS 1000 reverse rotation sensor to try on one wind turbine.

“We added the reverse rotation sensor to the control system on one of the Mitsubishi turbines and it went right to work,” says LaDuke.

According to LaDuke, he can set the sensor to operate within a specific range of wind speeds to detect if the rotor shaft starts turning in the wrong direction.

“The sensor feeds into our computer system so the computer prevents the rotor from starting to turn if it’s not going in the proper direction,” he says.

Montana Windworks was so satisfied with the operation of that first reverse rotation sensor that was installed in 2007, they ordered seven more that were installed on the remaining Mitsubishi wind turbines.

“It’s worked well for us,” he concludes.

More About Two Dot Wind’s Montana Wind Farms

- Martinsdale Colony South: 2 MW capacity – 8 Mitsubishi 250 kW wind turbines
- Martinsdale Colony North (.75 MW) and Moe (.45 MW) – 11 Windmatic 65 kW wind turbines

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