

Remote Monitoring and Control for a Windmill Generator

Project Background

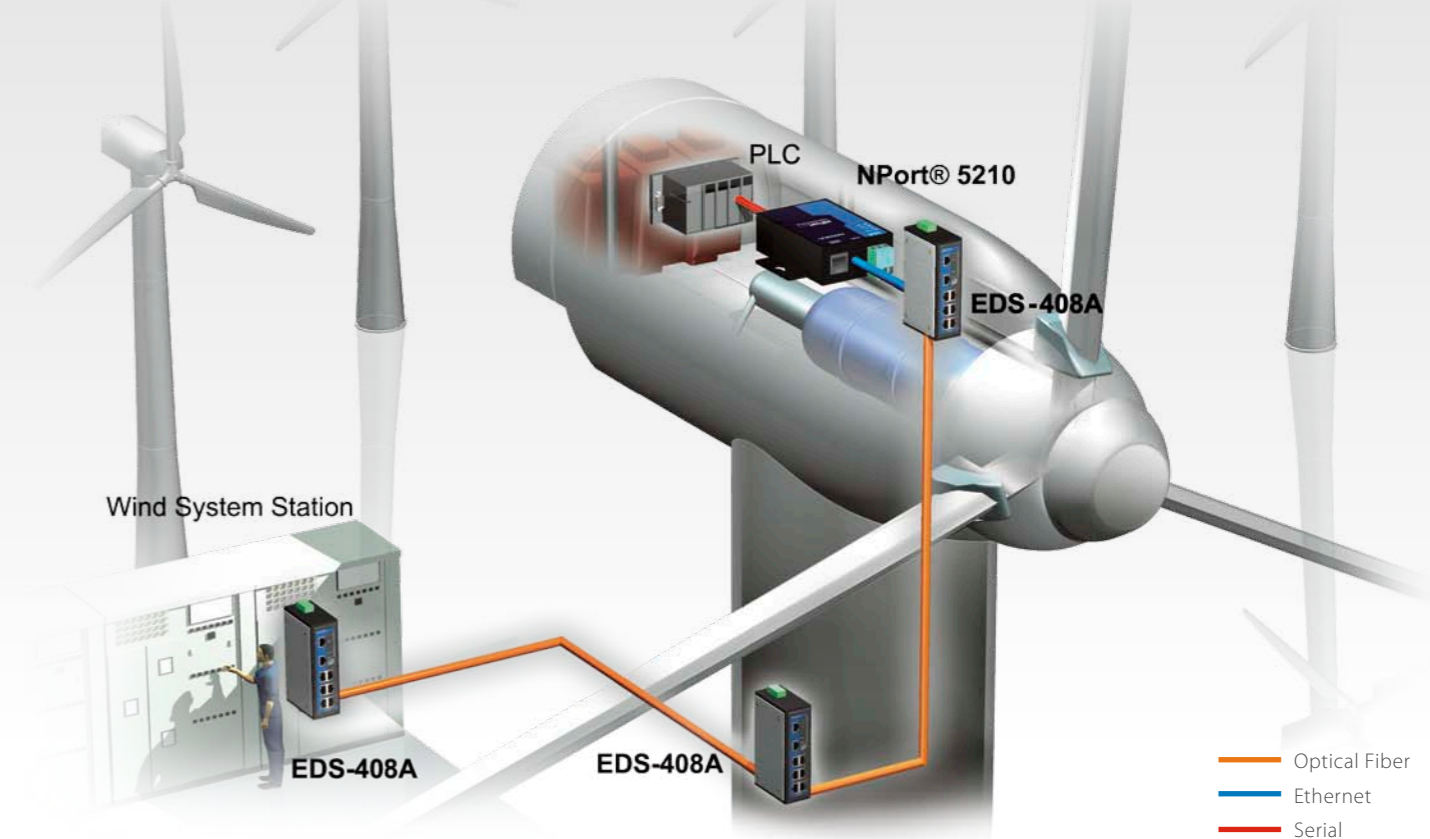
As concerns over global warming continue to grow, green technologies are becoming increasingly popular. Wind turbine companies provide an excellent alternative to burning fossil fuels by harnessing kinetic energy from the wind and converting it into electricity. A typical wind farm may include over 80 wind turbines, making it imperative that the networks for managing and controlling these installations are reliable.

Each wind turbine includes a generator and a variety of serial components such as a water cooler, high voltage transformer, ultrasonic wind sensors, yaw gear, blade bearing, pitch cylinder, and hub controller. All of these components are controlled by a PLC and communicate with the ground host. Due to the total integration of these devices into an Ethernet network, one of our customers in the wind turbine industry needed a serial-to-Ethernet solution that can operate reliably for years without interruption.

Moxa's Solution

Moxa's NPort® 5210 device server can convert industrial serial devices inside the wind turbine into Ethernet devices. By installing the NPort® 5210, the host PC in the station running the SCADA system can communicate with the PLC to perform data analysis, system control, and maintenance from any network location or even the Internet. The NPort® 5210's small size and easy configuration allow it to fit perfectly inside the wind turbine. Furthermore, the Ethernet is connected to a remote control station via a Turbo Ring redundant network.

Application Topology



Benefits

- ◆ Long MTBF with high reliability and effective system maintenance
- ◆ Small size for easy configuration
- ◆ High performance serial-to-Ethernet solution

Products Implemented



NPort® 5210

- Small size for easy installation
- Versatile socket operation modes, including TCP Server, TCP Client, and UDP
- Easy-to-use Windows utility for configuring multiple device servers
- Supports 10/100M Ethernet
- Patented ADDC (Automatic Data Direction Control) for 2-wire and 4-wire RS-485
- Built-in 15 KV ESD protection for all serial signals
- SNMP MIB-II for network management

EDS-408A

- Up to 3 fiber optic ports for long-haul transmission
- Plug-n-play Turbo Ring, RSTP/STP (IEEE 802.1w/D) for Ethernet redundancy
- Supports QoS, port-based VLAN, SNMPv1/v2c/v3, and RMON
- -40 to 75°C operating temperature range
- Slim fanless and DIN-Rail design, redundant power inputs



Power Generation
Denmark/Europe