

Case History

Cooling Tower #1



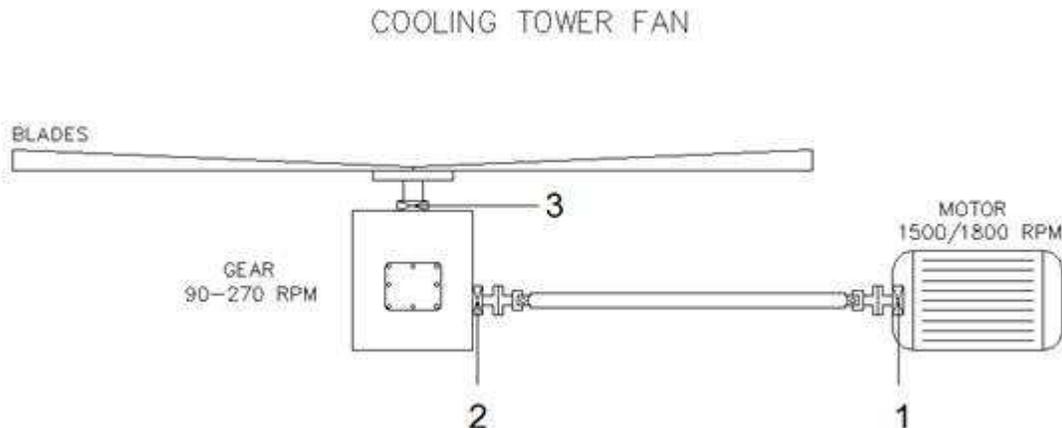
The Problem:

A Power Company with a Combined Cycle Plant in Central Texas had a requirement to monitor their Cooling Tower Fans after a catastrophic failure occurred on one. The requirement included continuous monitoring along with access to buffered signals for analysis with a portable analyzer. The continuous monitoring of vibration overall values and alarming was to be done by the plant DCS which also made it easy to display the vibration values to the operators on their existing HMI screens. The DCS/Historian also supplied long term trending and storage for vibration values. An additional requirement was to minimize cabling and installation costs as the control room was about 200 meters from the cooling tower site.

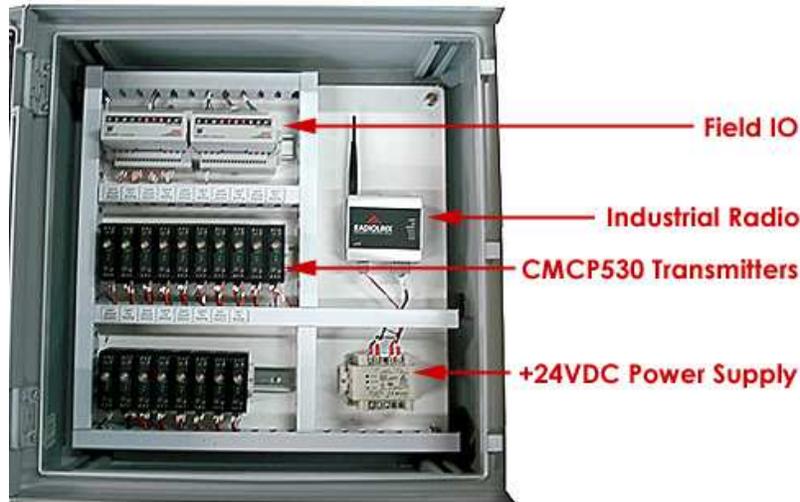
The Cooling Tower was made up of 6 Cells each having a Motor, Jackshaft, Right Angle Gearbox and Fan Blade Assembly. After discussion the customer decided on 3 Accelerometers per Cooling Cell. Motor Inboard bearing, Gearbox High Speed Input bearing and Gearbox Low Speed Output bearing

The Solution:

STI offered a solution made up of 3 Accelerometers per Cooling Cell, CMCP530 Velocity Transmitters, Modbus TCP/IP Field IO and an Industrial Radio Network using frequency hopping, spread spectrum techniques for extreme reliability.



For durability and resistance to the environment the complete system except for sensors were mounted in a Fiberglass Nema 4X enclosure and mounted centrally on the Cooling Tower. The industrial radio was mounted inside the enclosure as the fiberglass enclosure allowed the signal to pass through. An external switchable BNC connector was provided for the buffered dynamic signals for access by a data collector or analyzer.



A fiberglass Nema 4X enclosure was also used for the receiving or master radio mounted on top of the control room directly above the plant DCS. A Cat5e cable was installed from the receiving (master) radio to the input card of the DCS. As the system was tested by STI prior to shipment it immediately began working. The only thing the customer needed to do after installation was program the DCS with the Modbus buffer locations.

If you would like a quotation or need to discuss your Cooling Tower Monitoring Project please contact us by phone or email. Additional information is available online. An Application Note "Cooling Towers (Link)" is also available in our Online