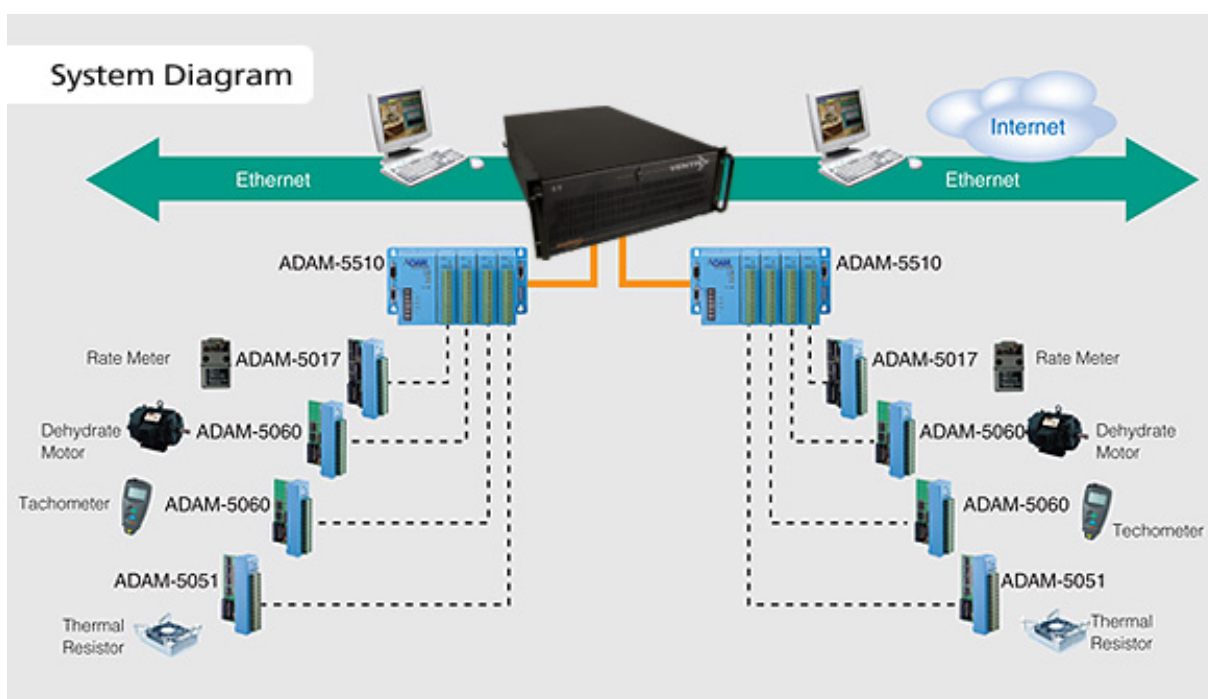




DISTRIBUTED DATA ACQUISITION AND CONTROL IN A WATER TREATMENT PLANT

Environmental protection is becoming more and more important as industry develops. And in many manufacturing plants, environmental monitoring is essential. Recently, ADAM-5510 was chosen for a distributed data acquisition and control system in a water treatment plant in Beijing, China. ADAM-5510's optimal performance/price ratio was, no doubt, a telling factor in winning the contract.



SYSTEM REQUIREMENTS

The wastewater treatment plant has four CAS (Carbon Absorption System) reaction pools, one wastewater pump room, one water-processing machine room and a central control room. Traditional relay controls did not meet system requirements, due to the harsh environment and complex industrial requirements of the wastewater treatment process. A PC-based distributed data acquisition and control system providing real-time monitoring was proposed. This system was chosen to help the plant's management supervise plant operations, and to achieve their optimal control goals. The plant's machine status, process status and control parameters all needed monitoring.

Case studies



SOLUTION ↘

The distributed data acquisition and control system consists of a central controller, a mimic board, and six sets of intelligent field controllers. Each field controller connects to a local display, which can be set locally. System communication is based on an isolated, twisted-pair RS-485 network, and the communication speed is 9600 bps.

Intelligent field controllers

ADAM-5510 systems were chosen as field controllers. These are designed to independently perform a number of data acquisition and control functions. Their industrial toughness and immunity to electrical noise makes them an excellent choice. Each ADAM-5510 contains an ADAM-505116-channel DI module, two ADAM-5060 6-channel relay output modules, and an ADAM-5017 8-channel analog input module. The control logic for each ADAM-5510 will be written in C language on a PC and then be downloaded to the ROM-DOS of ADAM-5510.

System communication

Each ADAM-5510 is connected by its COM1port through an RS-232 cable to a local 8031single board computer with a screen. COM2 will be connected via the RS-485 network to the central controller and the mimic board.

CONCLUSION ↘

The ADAM-based system has given comprehensive data acquisition and control in the wastewater treatment plant, and centralized the information available to the plant's managers. The distributed design architecture has enhanced system reliability and maintainability.

Case studies

