

Laboratory Process Simulation

Education

China

Project Introduction:

Beijing Information Technology Institute needed a universal controller to provide process simulations for any chemical or pharmaceutical manufacturing process. By offering integration of web-based technology, industrial Fieldbus interfaces, high-performance CPUs, and user-friendly program development tools, Advantech's ADAM-8000 Distributed Control I/O System was an easy choice.



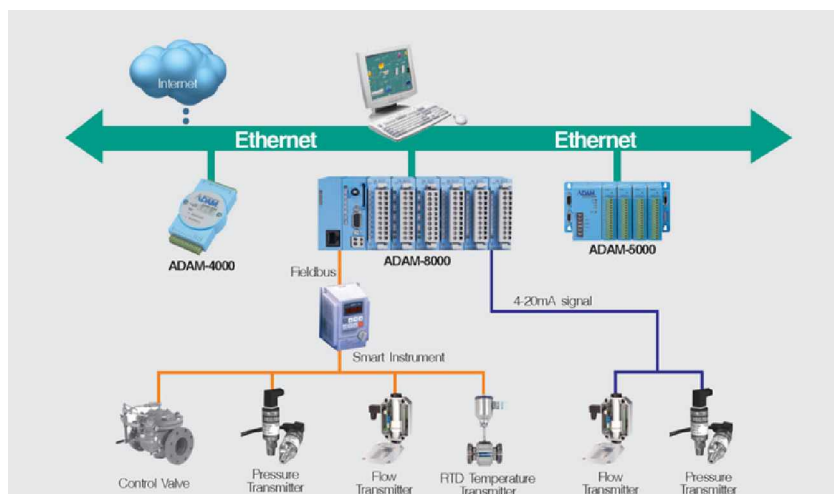
System Requirements:

As China's university standards improve, so does the need for professional laboratory equipment that can realistically simulate the real world. Traditional control systems are being replaced by hybrid control systems, so the customer aimed to build a complete and up-to-date simulation system to give students a practical and realistic working environment.

Project Implementation:

- ÿ ADAM-8000: Distributed Control I/O System
- ÿ ADAM-4000: Remote Data Acquisition and Control Modules
- ÿ ADAM-5000: PC-based Control System

SYSTEM DIAGRAM



System Description:

ADAM-8000 was installed in an intelligent control system to monitor and collect data from equipment in a simulated field, with a variety of Fieldbus network connections. The equipment included field instruments such as transmitters, control valves, and other common automation devices. ADAM-8000 accepts 4-20 mA standard signals, making integration easy with a wide range of equipment. The bundled Facview and KingView software provides simulation programs and an experiment guidebook for interactive tutoring.

ADAM-4000 modules were used for general-purpose data acquisition. The modules can be distributed for data collection and support the MODBUS/RTU protocol for open communication. The ADAM-5000 PC-based control system was used for specific control application by C programming. By combining the ADAM-4000, ADAM-5000, and ADAM-8000 series, the system can simulate the automation processes of modern factories.

Conclusions:

After using the ADAM-4000, ADAM-5000, and ADAM-8000 models, Beijing Information Technology Institute were able to easily develop a hybrid control system that could be extended by Fieldbus protocols such as Profibus, CANopen, Modbus and DeviceNET. Using Facview and KingView software enabled the control system to be easily configured, giving students valuable industrial experience with equipment they will face in the field.