

AirCEt 5000 Air-operated Valve Diagnostic Testing System

Background

As part of our commitment to the continued development of nuclear power as an environmentally viable and economically sound source of electricity, Westinghouse has developed AirCEt™ 5000, the next generation of AirCEt. AirCEt is an advanced microprocessor-based diagnostic system specifically designed to automate air-operated valve (AOV) testing, help reduce maintenance costs and improve plant performance.

Description

AirCEt Data Acquisition Unit

- Field-proven for AOV calibration, diagnostics and testing
- LCD screen for displaying pressures and controls
- Custom-designed circuit boards for control of valve testing and data acquisition E/P and P/E transducers
- Air pressure regulator
- Sixteen total channels: four dedicated inputs and 12 available for data acquisition
- Three modes of recording data: stock and user-defined profile, and trigger and passive modes
- Portable, designed to withstand rough handling, nonintrusive
- Drivers: 3-15 and 0-40 psig, 1-120 psig, 0-6 mA, 0-24 mA, 0-60 mA or ± 10 Volts - provides the ability to drive AOVs without control room assistance
- Capability to calibrate positioners or transducers without computer
- Sized to pass through a small particle radiation monitor
- Pressure and laser displacement sensors

- Data acquisition control unit (Panasonic Tough Book, i.e., rugged laptop) is included
- Preloaded with the current version of AirCEt software

Data Acquisition Software

The fully verified and validated Quality Class I software package was specifically developed for gathering and analyzing pneumatic valve data. It configures the test, displays real-time data and analyzes and stores all inputs.

- Displays valve data on-screen and automatically saves it to disk
- Plots up to five channels against time and cross plots any one channel against another
- Provides method of baseline comparison
- Records data from 1 to 1,000 samples per second per channel
- Converts data format for export to other software packages via a utility program

Operation and technical manuals, such as the AirCEt manual, which includes complete instructions on how to use the equipment and software, are supplied. A stand-alone calibration manual includes an approved step-by-step procedure to calibrate all AirCEt equipment.

Additional services and support include:

- Services for the initial user, just-in-time refreshers and advanced user training
- Site valve testing support and advisory personnel
- Sales and rentals
- Troubleshooting and calibration

- Joint development and experience

Benefits

- Improved plant reliability
- The diagnostic features of AirCEt provide immediate benefits. Through diagnostic analysis of control valves, which represent the main means for controlling plant power generation and efficiency, AirCEt allows for the scheduling of preventive maintenance. This would eliminate unnecessary valve overhauls, and thus would reduce maintenance costs, improve plant performance and decrease man-REM exposure.
- Versatility
- AirCEt not only automates AOV testing, but its diagnostic capabilities effectively extend to solenoid and check valves. Additionally, AirCEt continues to perform excellently as a data acquisition platform for components and systems such as diesel generator control circuitry, relief valves, letdown flow control systems and hydraulic valves.

Experience

Westinghouse has been a leader in the nuclear industry for more than 40 years and has been involved in valve diagnostic testing since the 1980s. In order to develop the best product possible, Westinghouse combined its experience with that of utility engineers to design the AirCEt AOV diagnostic testing system. Our method of integrating end users into the original design process provided insight into the needs of power plant personnel and resulted in a multifaceted product that is efficient, effective and easy to use.

AirCEt systems have been sold and successfully used for more than 15 years at more than 24 nuclear and fossil fuel plants globally. AirCEt is proving to be the premier AOV diagnostic testing system available.