

Application Note

Continuous Data Acquisition and Real-Time Monitoring of Turbo Compressors

Siemens AG in Duisburg, Germany, utilizes m+p international's Coda solution for continuous data acquisition, data processing and real-time monitoring at their turbo compressor test facility. Coda acquires and verifies the performance data as mechanical and thermodynamical parameters of several compressors tested in parallel for acceptance tests. In addition, vibration data is acquired and analyzed. Parts of the existing data acquisition and processing system formerly used at the Siemens test facility were integrated into the Coda solution.

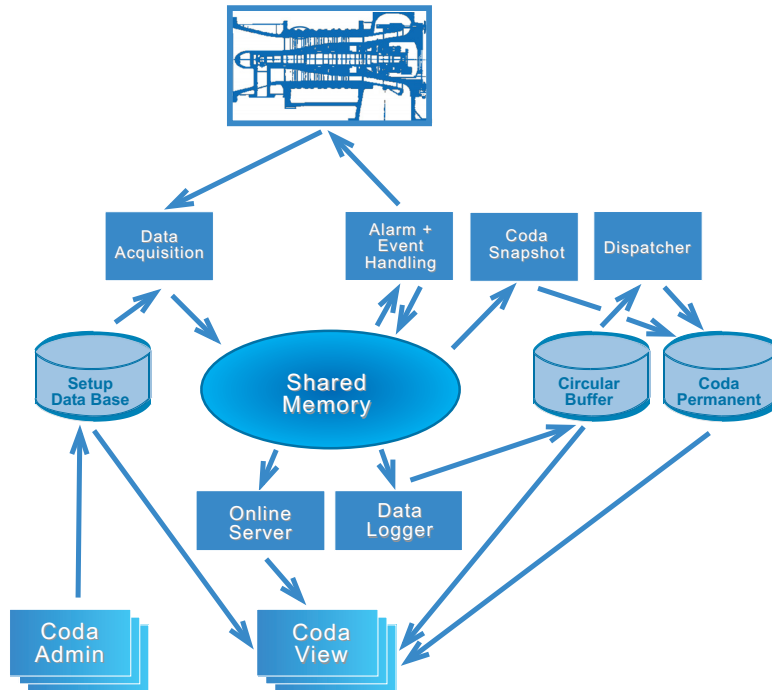


The Coda data acquisition units (DAU) consist of a VXIbus mainframe featuring a 500 MHz Power PC as slot-0 controller based on Linux operating system, the acquisition cards as well as the signal conditioning devices including customer-specific front panel connectors, all mounted in a 19" cabinet. Each DAU has its own controller which acquires the channel data and transfers them to the server via TCP/IP network protocol.

Any combination of up to 24 different sensors can be connected to the signal conditioning devices to measure temperature, pressure, flow, strain, rotation and vibration signals. A single Coda DAU acquires up to 168 process signals and 48 vibration signals.

Third party measurement equipment such as multi-channel pressure scanning systems, mass spectrometers or FFT analyzers can be connected via a communication interface for integration with the Coda data acquisition system.

All these instruments are configured with the Coda user interface and all data is analyzed and visualized in the same way – irrespective of the source.



The Coda acquisition software has an intuitive graphical user interface which means minimum operator training with easy and fast set-up, operation, analysis and report generation. The client/server architecture allows shared use of acquired data, enabling several test engineers at Siemens to have concurrent online access for data display and analysis operations under Microsoft Windows XP. All configuration data is stored in a central SQL database enabling the user to easily change the complete set-up. Other key features include the comprehensive analysis, visualization and reporting functions, automatic instrument identification, alarm functions, data replay and data export to common file formats.

The manager of the Metrology and Electrical Assembly department at Siemens, Manfred Praus, says: "We found m+p a capable and experienced engineering partner to develop and realize a state-of-the-art measurement system for our turbo-machinery test field in Duisburg/Germany. They were able to integrate our existing proven and reliable software package for thermodynamic analysis into their Coda solution and to successfully implement our new highly efficient data acquisition and monitoring system."

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