

Telemetry & Data Acquisition Systems

Data Acquisition and Telemetry systems are essential in the collection of environmental data. In today's world of information technology the demand for real-time access to air monitoring data by stakeholders is necessary to assess air quality concerns from individual point source emitters to complex airsheds.

In assessing air quality information, data acquisition and telemetry systems can provide for four basic requirements;

- integration with remote continuous air monitoring instrumentation and meteorological sensors
- remote diagnostic, calibration and control functions
- retrieval of real-time data and storage capabilities
- data reporting and presentation

Rotek Environmental Inc. has proven experience in the operation of several network data acquisition and telemetry systems along with custom site specific applications for individual clients needs. This service provides for the installation of required hardware, software and communication for accessing, storing and reporting of environmental data (Figure 1).

Integration with Remote Continuous Air Monitoring Analyzers and Meteorological Sensors

Rotek can provide and install the necessary hardware and software to support a data acquisition and telemetry system. In support of system audit and data verification procedures, Rotek will program and test the complete system to ensure for proper pollutant channels, ranges, temperatures, calibration control, communications, etc.

We work with clients on custom stand alone systems such as providing control room access to offsite air monitoring and meteorological data.

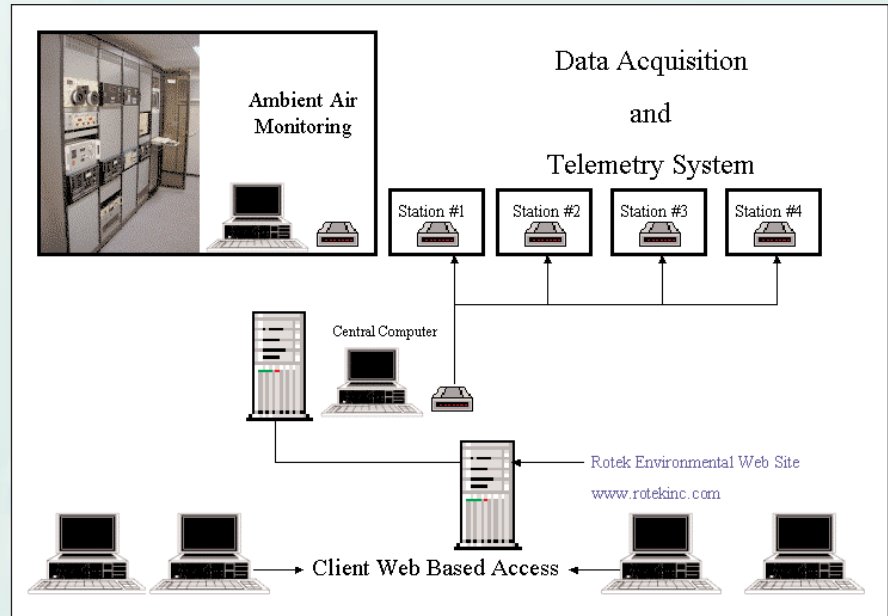


Figure 1 - Web Based Data Acquisition System

Remote Diagnostic, Calibration and Control Functions

Rotek can program a number of input status channels originating from both air monitoring instrumentation and data loggers to assist in remote troubleshooting and diagnostic capabilities.

Rotek can program automatic calibration functions such as commands to perform the required daily calibrations and on-demand remote calibrations as required.

Rotek can use data acquisition systems to activate equipment during specific wind vectors or elevated pollutant episodes.

Retrieval of Real-time Data and Storage Capabilities

Telemetry provides the communication link from remote monitoring stations to a central computer. Data communication can be established by standard voice or data lines, cellular, radio and satellite.

In order to protect the air monitoring data, several levels of data storage are required. They may include field storage (Station data logger), central storage (Central PC and/or server), archived CD or tape drive back-up.

Data Reporting and Presentation

Data summaries and finalized reports, require several screening and professional verification assessments. Software is available for screening data for anomalies and potential suspect data. Reviewing of daily calibration records, external third party audits and a number of status indicators are necessary when validating data. Several standard report formats include;

- hourly, 30 , 5 and 1 minute sampling periods
- monthly summary (including mins, max, means)
- trend graphs (Figure 2)
- daily auto calibration reports (Figure 3)
- data correlation with production schedules (Figure 4)
- status reports
- wind roses (Figure 5)
- pollution roses
- export data to spreadsheet format

Rotek provides clients with web based access to data files and reports at www.rotekinc.com. Data summaries can also be provided in hard copy or electronic format.

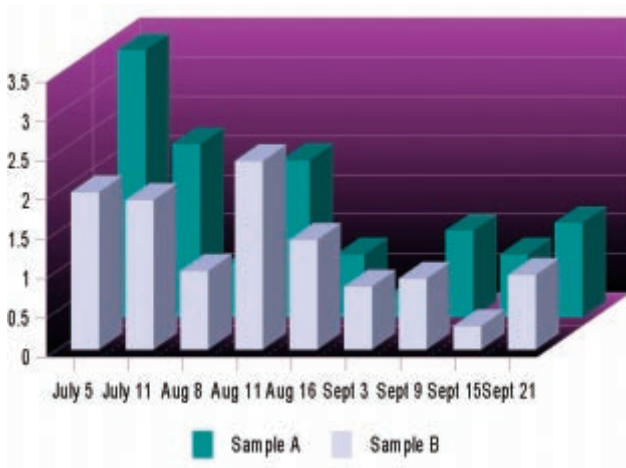


Figure 2 - Data Comparison

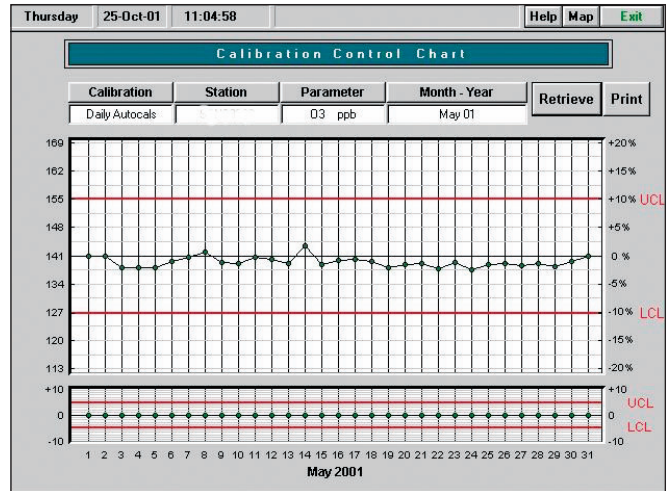


Figure 3 - Auto Calibration Report (courtesy of EMC software)

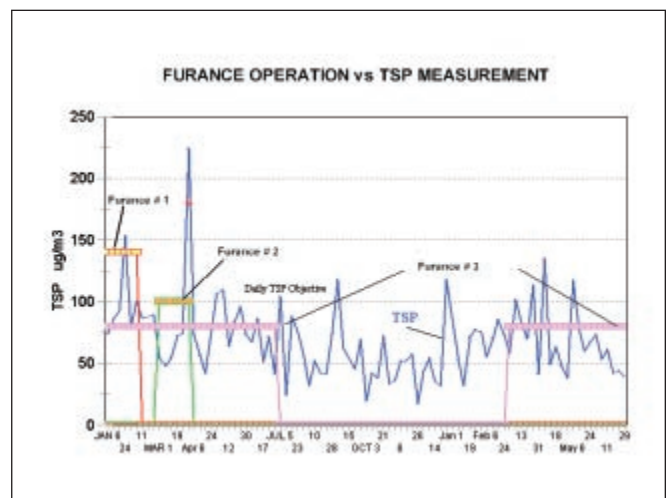


Figure 4

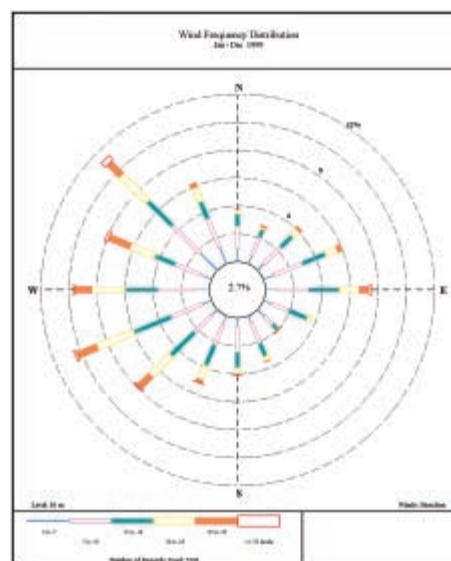


Figure 5