



Project Profile: Power Systems

COMPANY

Rohm & Haas, Inc.
Louisville , Kentucky

PROJECT TITLE

Electrical Power Distribution And Monitoring Upgrade

SERVICES PROVIDED

- Electrical Engineering
- Systems Design
- Interface Development
- Maintenance Program Development
- Construction Supervision
- Commissioning
- Startup

OBJECTIVES

- Install plant wide SCADA system
- Monitor and collect data from substations
- Develop and implement plant wide preventive maintenance program
- Upgrade existing low voltage distribution system
- Evaluate and recommend replacement of emergency generator and automatic switching system
- Connect equipment into an plant wide alarm system
- Install ground fault relays and substation shunt trip circuits

PROJECT DESCRIPTION

This project was concerned with the implementation of an integral plant wide electrical power monitoring system for the medium and low voltage distributions of a large industrial chemical plant. Microprocessor-based power monitors were remotely installed at each plant substation within the plant and tied back to several centralized supervisory and data acquisition stations via a RS-485 optical communications network. The monitors measured three-phase voltage, current, kW, kVA, kVAR, kWh, kVAh, kVARh, power factor, and frequency. Also, the monitors could perform power quality analysis by determining the total harmonic distortion, individual harmonic levels, and K-factor for all voltage and current inputs. The system was able to do waveform capture for power quality and fault analysis. The discrete status of the substation and ground fault relays was also monitored. Transformer temperature levels were also continuously monitored. The work entailed the design, installation, programming, checkout, and documentation of this system.

Other work associated with this project included:

- Developing and implementing a plant wide Preventive Maintenance Program for the medium and low voltage distribution systems.
- Upgrading and documentation of the existing low voltage distribution systems for the administration and engineering buildings.
- Evaluation and recommendations regarding replacement of an existing emergency generator and automatic power transfer switching system.
- Tying of equipment into an existing plant wide alarm annunciation system.
- Installing ground fault relays and substation shunt trip circuits.