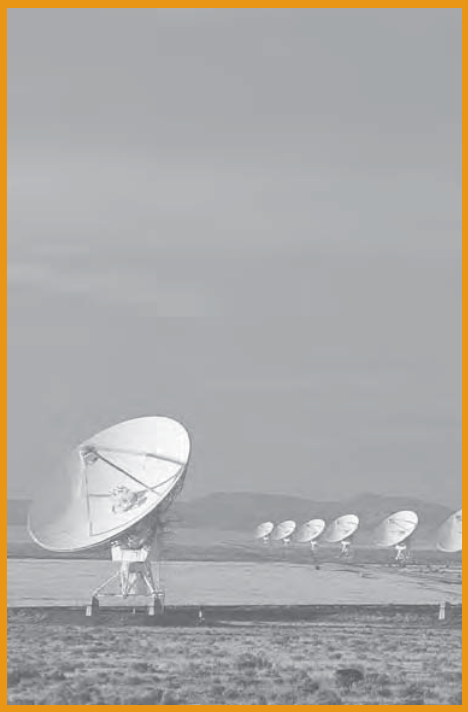
PRACTICAL
SCADA SYSTEMS
FOR INDUSTRY



WHAT YOU WILL LEARN:

- The fundamentals of SCADA systems
- The essentials of SCADA software configuration
- Tricks and tips in installation of SCADA systems
- The essentials of telecommunications links
- The use of industrial Ethernet in SCADA systems
- SCADA network security issues
- How to troubleshoot SCADA systems

WHO SHOULD ATTEND:

This workshop is designed to benefit engineers and technicians who are involved in specifying, commissioning and debugging industrial SCADA systems but who have little previous experience in this field.

It is also of particular benefit to personnel involved in areas of design, specification, installation, commissioning, maintenance and documentation of industrial control and instrumentation systems where used, this includes:

- Instrumentation and Control Engineers
- Process Control Engineers
- Electrical Engineers
- Consulting Engineers
- Design Engineers
- Control Systems Sales Engineers
- Maintenance Supervisors
- Control System Application Engineers
- Project Engineers
- Technicians
- Plant Engineers
- IT Personnel

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The Workshop

SCADA has traditionally meant a window into the process of a plant or gathering of data from devices in the field, but now the focus is on integrating this process data into the actual business and using it in real time. The emphasis today, is on using open standards such as communication protocols (eg DNP3, MODBUS, and TCP/IP) and 'off-the-shelf' hardware, such as industrial Ethernet to keep the costs down. This comprehensive two day workshop covers the essentials of SCADA systems. The topics covered on the two days are as follows:

Day One gives an introduction to SCADA systems then focuses on the SCADA system hardware and software, including alarm management and Human Management Interface (HMI) issues. This is followed by a review of the RS-232/RS-485 interface standards and the MODBUS and DNP3 protocols.

Day Two gives a review of Industrial Ethernet , TCP/IP and MODBUS/TCP. The role of Open Process Control (OPC) in plant SCADA systems is also discussed. This is followed by discussion of network security, SCADA historians and troubleshooting issues.

This workshop will be an excellent opportunity to network with your peers as well as gain significant new information and techniques for your next SCADA project.

Although the emphasis of the workshop will be on practical industry topics highlighting recent developments using case studies and the latest application of SCADA technologies the fundamentals of SCADA systems will be covered. The workshop is aimed at those who want to be updated on the latest developments in SCADA systems and want to get a solid appreciation of the fundamentals of SCADA design, installation and troubleshooting. The comprehensive workshop manual covers other topics for your reference, including Fieldbus systems, maintenance, system specification, installation and commissioning issues. It also includes various case studies and design exercises.

Pre-requisites

Fundamental knowledge of SCADA.

The Program

INTRODUCTION
- Communication architectures
- Communication philosophies

OVERVIEW OF SCADA SYSTEMS
- Hardware alternatives (RTU/PLC etc)
- Communication concentrators
- Communication alternatives

SCADA SYSTEM HARDWARE
- Hardware components
- Operation and selection issues

SCADA SYSTEM SOFTWARE
- SCADA software functions
- Response times
- Redundancy issues
- Specification and configuration Issues

SCADA ALARM MANAGEMENT
- Alarm layout and organisation
- Alarm priorities
- Alarm processing and reporting

HUMAN MANAGEMENT INTERFACE (HMI)
- Ergonomic factors
- HMI organisation
- HMI screen design

COMMUNICATION PROTOCOLS
- RS-232/RS-485 interface standards
- MODBUS protocol
- DNP 3.0 protocol

INDUSTRIAL ETHERNET
- Fundamentals
- Redundancy

TCP/IP
- Configuration
- Troubleshooting utilities

MODBUS TCP
- Overview

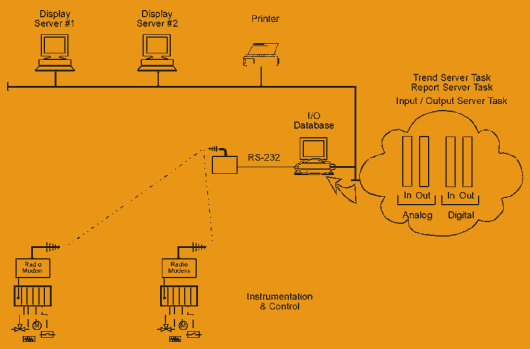
OPEN PROCESS CONTROL (OPC)
- Overview

SCADA NETWORK SECURITY
- Security issues
- SCADA firewall configuration

SCADA HISTORIAN
- Archiving plant data
- Data access

TROUBLESHOOTING ISSUES
- Problem isolation
- Testing methodology
- Noise issues
- Communications testing

REVIEW AND QUESTIONS



Practical Sessions

This is a practical, hands on workshop enabling you to work through practical exercises which reinforce the concepts discussed.

Each day has many practical sessions designed to apply and reinforce the theory concepts.

Day One

1. Configure alarms on Citect SCADA system
2. HMI screen design using Citect SCADA package
3. MODBUS RTU communication
4. Configure SCADA master communications using Citect

Day Two

1. Setup Ethernet network and configure TCP/IP
2. Ethernet troubleshooting utilities and protocol analysis
3. Setup and monitor MODBUS/TCP communication
4. Use OPC client to access data
5. Troubleshooting exercise

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