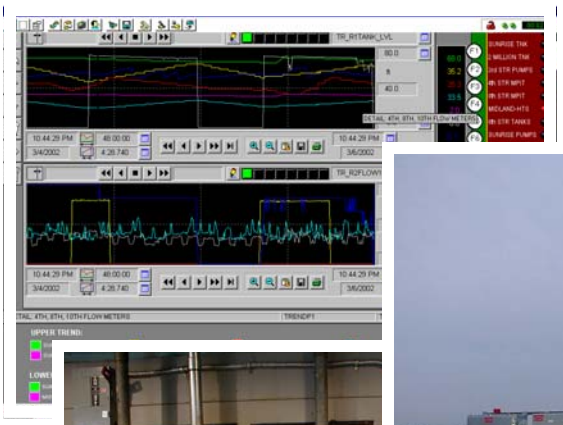
Advanced Controls for SCADA & Telemetry Systems



Designed in conjunction with industry personnel and professionals

Overview

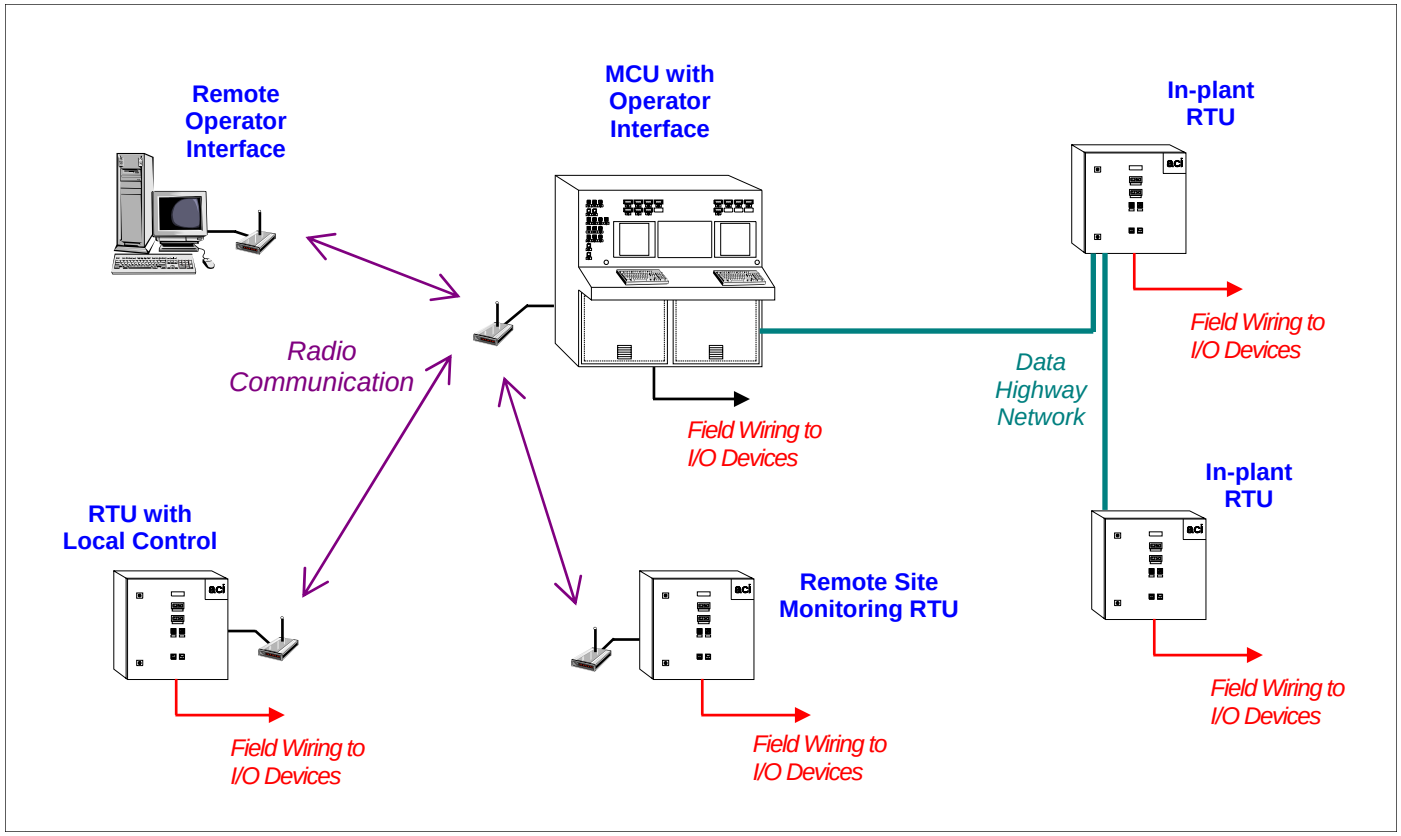
The IS/1-SA System by Advanced Controls, Inc. (ACI) is designed for the measurement and control of sensors and devices in Supervisory Control and Data Acquisition (SCADA) applications. The system design concept has been drawn from first hand interaction by ACI with industry personnel and professionals, resulting in a system with the features and ease of use that our customers demand.

The IS/1-SA System is a ruggedized, PC-based Distributed Control System (DCS). A typical system consists of one or more Master Control Units (MCU) communicating with one or more Remote Terminal Units (RTU) located at data acquisition and control points. Both MCU and RTU are capable of interfacing with a wide range of I/O devices for measured parameters and control outputs.

Depending on operating requirements, communication between units can be accomplished by several mediums including wireless radio, telephone lines, and data highway network.

System flexibility permits various configurations to handle the provisions of any size system from basic monitoring to sophisticated control and reporting. And with firsthand experience in the various levels of technology and implementation, ACI provides a complete solution for a seamless, shockless transition to a newer, more powerful technology. ACI will assist Engineers, Contractors, and Owners, in all phases of the project from planning and design, through bidding and installation, to startup and beyond.

CONTROLLING • MONITORING • REMOTE SENSING • REPORTING



Rugged hardware for reliability

The IS/1-SA System is a PC-based, Distributed Control System (DCS) utilizing the world-wide, non-proprietary OPTOMUX industry standard. The hardware is a flexible, open architecture expandable to as many as 4096 I/O points distributed at up to 128 sites. Each I/O point may be configured as either analog or digital.

The Master Control Unit (MCU) orchestrates control of the system and typically provides the operator interface for access to all system data and user-adjustable settings. Additional operator interfaces may be incorporated for system access at other locations, such as an administrative office separate from the plant.

Remote Terminal Units (RTU) are located at data acquisition and control sites where it is not possible, or feasible, to wire sensors and devices directly to the master.

Standard Hardware Features

- Battery backup
- Surge and lightning protection
- 4500V optical isolation to field connections
- UL/CSA approved
- Enclosures rated NEMA 4, 4X, or 12

Software-driven for function & flexibility

The IS/1-SA System software is key to ACI's newer, more powerful technology. The software provides enhanced function and flexibility for the customer's changing requirements, while remaining easy to use. With training by ACI, system operation does not require any previous computer knowledge.

Powerful Control & Monitoring Sequences

With the IS/1-SA System software, nearly any type of control and monitoring sequence can be implemented, from simple data acquisition to full automation.

Because all sequences defined by software, control sequence is easily adaptable to changing operating conditions. User adjustable parameters give personnel the ability to optimize operations via simple commands. The operator may adjust control and alarm setpoints "on-the-fly".

"Virtual Instrumentation"

A "virtual instrumentation" package is used to display all system information at the operator interface. Virtual instrumentation is simply using the PC's display monitor to indicate measured values, device status, alarm conditions, and operator settings.

Software Features

- User Screens with Full Color Graphics and Animation
- Support for all popular PLCs, DCS and I/O Standards
- Integration with MS Office Suite for seamless data access
- Remote Factory Diagnostics and support
- Support for State and Federal format Reports

Multiple displays can be used depending on the situation, and display items are easily modified or added without the need for additional hardware and wiring. Potentially faulty lamps, hand-switches, and mechanical counters are also eliminated for decreased maintenance requirements.

Data Trending, Reporting, and Archiving

Because all system data is processed electronically by the IS/1-SA System software, trending and reporting is easy. Data may include any acquired or calculated values such as flow totals, fluid quality samples, or equipment runtime. Data trends may be displayed at the operator interface in real-time or logged on the system printer at any defined intervals. Trends may include min/max values, daily totals, and alarm occurrences. Data can also be archived in a customer-defined electronic format, for use in other software packages such as spreadsheets.

The IS/1-SA System software is capable of generating many types of printed system report. Plant alarms and events can be logged upon occurrence, and timed system profiles provide a periodic report of plant status. Specialized reports may be automatically generated based on customer requirements for internal use or for reporting to regulatory agencies.

Facilities Management Capabilities

ACI's software–based data acquisition also permits various facility management techniques to be easily incorporated into the package. Maintenance schedules for plant equipment are automatically generated based on user-defined parameters such as runtime, number of starts, and flow totals. Once maintenance is performed, the operator resets the equipment counter for the next service interval.

Alarm Reporting

All user defined alarms are logged upon occurrence. A dialer may be used to notify personnel of alarm conditions if the system is to be unattended. Fail-safe modes may also be associated with each alarm to prevent equipment damage.

Phoneline Factory Diagnostics

For additional assurance of trouble-free operation, the IS/1-SA System is equipped with Phoneline Factory Diagnostics for remote system troubleshooting and updates from our factory. The system software may also be updated via this diagnostic feature.

Multiple communication options

With a multitude of communication options, the IS/1-SA System can be installed in virtually any environment or locale to meet a variety of operational requirements. Communication options include the following:

- Wireless radio
- Data highway network
- Leased lines

Wireless radio

Wireless radio is typically utilized at locations where wire-based communication is not feasible, or possible, or in cases where dependence on leased lines is undesirable. When used in place of leased lines, operation is independent of telephone service quality, and monthly line charges are no longer applicable.

Wireless radios operate on licensed bands or utilize unlicensed Spread Spectrum Technology (SST). For confidence in implementation, ACI can perform a radio study to assess frequency bands and to determine optimum antenna types and heights. If licensing is required, ACI will perform all paperwork necessary to obtain and maintain the proper FCC license.

Data highway network

When network speed is of prime importance, a data highway network is often the best solution. The data highway consists of a point-to-point network cable operating on a standard such as RS-485. Point-to-point distances may be up to 4000 feet. Fiber optic cable is used in noisy environments that require a higher throughput.

Leased lines

Leased telephone lines may also be utilized when ?? Leased line units are easily upgraded to wireless technology by changing a few basic components.

Multi-Media Communications

The system is also Multi-Media Communications (MMC) capable, meaning it is possible to utilize multiple communication types in a single system. For example, it is possible to have multiple in-plant units, connected by a high speed data highway network, communicating with radio-based RTUs for remote site monitoring.

System Warranty

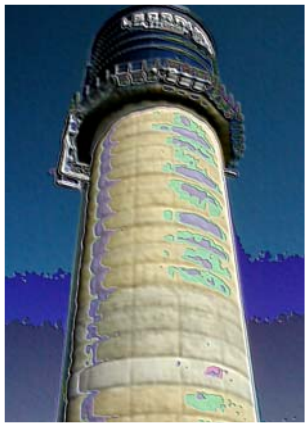
All IS/1-SA System products include a standard one year parts and labor warranty. Coverage also includes damage to ACI equipment caused by lightning. Extended warranty and service support is also available.

ENGINEERS

Let ACI assist you in preparing your SCADA system specifications to ensure that you and your client will receive a final product with the level of quality you expect.

ACI's team will provide support to determine the optimum system configuration, including assessing various communication options, selecting an appropriate combination of instrumentation and control, and maximizing the value of the system.

ACI can furnish this information on disk for insertion into your overall project specification.



CONTRACTORS

Let ACI assist you in preparing a competitive bid. We can provide you with a complete package including all system equipment, instrumentation, and expertise for a fully integrated system.

Following award of the contract, ACI will coordinate a project schedule according to your requirements. We will provide you with a complete documentation package, including submittals, shop drawings, installation instructions, and O&M manuals. System startup and training is performed on-site by authorized ACI personnel. Turn key systems are also available with all labor and materials for installation provided by ACI.

OWNERS

Let ACI provide you with a system that will meet your operational requirements and ensure that you will have hassle-free operation for years to come.

ACI's products are designed for ease of use by operating personnel and require minimal maintenance. Our proven technology will provide you with the features you expect such as high reliability, easy operator programmability, and easy expandability to accommodate additional sites and features.

In the unlikely event that you do have a problem, ACI maintains 24-hour/7-days-per-week service and support.

SYSTEM APPLICATIONS

- Fully integrated SCADA system packages capable of in-plant and/or remote site monitoring and control.
- Software driven systems that eliminate the use of fluctuating and unreliable electromechanical timers and components, as well as providing greater flexibility to changing conditions.
- Upgrade existing, unreliable equipment and instrumentation with automation oriented components.
- Dialup accessible systems from any location to view operating status and adjust control sequence.
- Remote site monitoring for data acquisition and reporting at customer designated site. (Flow monitoring, fluid quality monitoring, industrial effluent parameters).
- Facilities management systems with automatic reporting and maintenance scheduling for mechanical equipment.

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