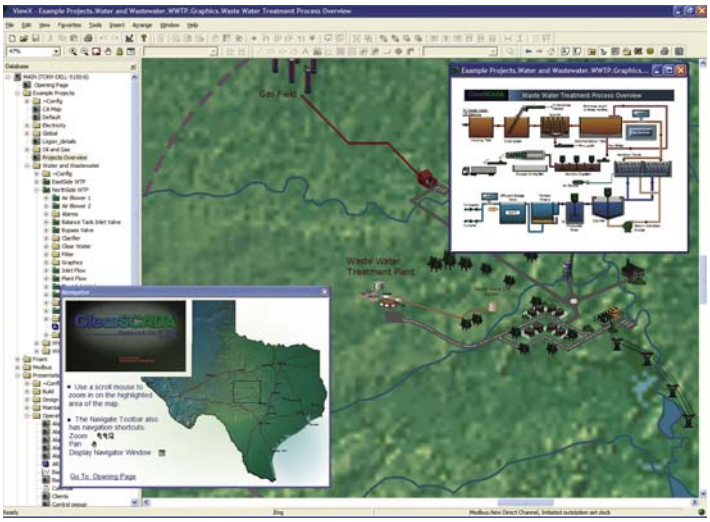
The Sage Advisor

SCADA, SECURITY & AUTOMATION NEWSLETTER

Volume 15, Issue 2 • Fall/Winter 2005

A Publication of Sage Designs, Inc.



Clear SCADA… not a *"Me too"* Product

Control Microsystems has launched new SCADA management software in North America, designed to address the water and wastewater industries' toughest challenges when deploying secure SCADA systems including expedited deployment, ease of use, data integrity and auditing.

ClearSCADA is a premium automation software platform for gathering, processing and relaying information in real-time while providing powerful process visualization, data acquisition and supervisory control.

Backed by a dedicated technical support team, ClearSCADA also features built-in system redundancy, scalability, and increased security control. The new SCADA platform integrates seamlessly with Control Microsystems' controllers and is based on open interface and protocol standards for use with third-party hardware and software.

The ClearSCADA product offers an Object Orientated Database that incorporates the use of configuration tools designed to reduce the engineering cost of implementing and maintaining SCADA systems.

Access to the Database is provided via ViewX (ClearSCADA's operation and engineering tool) where engineering and operator access is determined by security privileges. Standard web applications also provide access to the Database using the integrated ClearSCADA Web server.

Included in the Trending function within ClearSCADA is a data analysis tool that provides statistical analysis of historic data (averages, min max and mean, standard deviation) allowing users to determine key performance indicators of their processes.

An integrated OLE Automation interface allows integration of system information from external sources. This means

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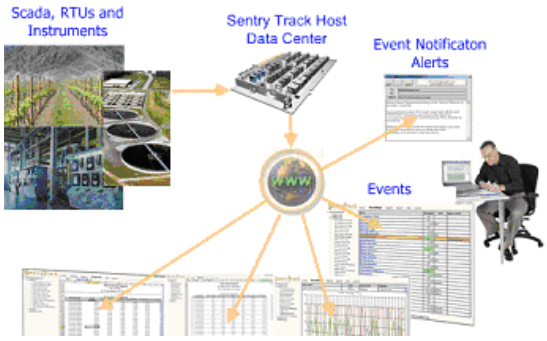

SentryTrack Internet-based SCADA

SentryTrack and Sage Designs are partnering to provide a hosted web-based system to collect and manage utility SCADA data.

SentryTrack features a simple non-intrusive, yet powerful solution for enhancing existing SCADA and HMI systems, as well as creating a data management and web monitoring system for critical processes such as water wastewater, power, agriculture, and OEM applications. The system collects and publishes data from any analog sensor, digital sensor, analyzer, PLC, RTU, SCADA, or HMI system. The integration link is provided by the Sentry Track OPC client or FTP file transfer application. After the data is collected, it is stored in an advanced central MS SQL historian database and published on a private site on the Internet for monitoring by many users. By storing and allowing access to process specific data in one web location, SentryTrack creates a very effective management service for mission critical and regulatory compliant processes.

Sentry Track systems provide web-based formatted reports, data storage, event monitoring and data analysis. The SentryTrack service enhances a variety of existing automation applications, and provides a very capable strategy for implementing a web based information management system providing **The Right Information, To The Right People, At The Right Time™.**

SentryTrack offers Sage customers a service that centralizes information and provides single web page access to regulatory compliance processes. SentryTrack also offers the capacity to import manually collected data from labs and other sources. The service is scalable form one data point to thousands of data points. Sentry Track implements a cost effective integration strategy to utilize existing infrastructure, rapidly creating a useful and valuable information management system.

For further information, see www.sentrytrack.com or call Sage Designs.

Inside This Issue

Sage Advice

IEC61131-3, who needs it?

If you haven't yet heard about IEC6-1131-3 (We'll call it IEC6 for short), you can't have been following the latest trends in open standards in the controls world very closely. IEC6 describes a controls programming standard that is made up of 5 languages which can be intermixed and used on multiple PLC manufacturers' controllers. The languages are: Instruction List (IL) – which is a mnemonic type of programming, Structured Text (ST) - a BASIC-like programming language, Ladder Diagramming (LD), Function Block Diagramming (FDB) - a graphical dataflow programming environment and Sequential Function Charts (SFC) - a graphical programming method.

The promise of IEC6 is that the programmer can choose from any and all of these methods to write a program, using the method that best suites the application or the programmer's taste. The resultant program can then be downloaded to any of a vast number of IEC6-compliant controllers for execution. The delivery is slightly short of the promise, as there are always small issues, such as communications port designations that may be different on different controllers and other hardware-specific issues; on the software side, not all controllers support all 5 programming languages.

The most likely problem to be encountered when trying to move a program from one platform to another is the use of custom functions: these are pre-built functions provided by the manufacturer that take advantage of hardware-specific features designed into their products. An example would be: Control Microsystems' custom IEC6 library has a DataLogger function, and several functions that provide communications capabilities not seen in typical PLCs. Similarly, other manufacturers may have custom function libraries for batch control or other manufacturing functions, or any one of many specialty control applications particular to their core markets. As soon as you use a custom function block from a manufacturer, the program will probably not run on any other controller and the end user would have to rewrite that portion of the control done in the custom function block.

The great thing about custom functions is that you can create your own and add them to your custom library for use over and over again. This can greatly reduce the time it takes to program repetitive tasks and can help modularize your programming. If your applications often use a specific calculation or control algorithms, you can create a function block with a mix of the supported IEC6 languages and use it in any or all or your applications.

The biggest reason to consider IEC6 is that you have better control over your intellectual property (the application), so that if you have to change vendors for some reason, you can keep the expensive part of your system intact (programming). The biggest reason to avoid IEC6 is that there is a great deal that you have to know to make effective use of the tools. Learning to program in 5 languages may be more than you want to tackle, although you don't have to use them all to create an effective application.

ISAGraf (the IEC6 programming platform used by Control Microsystems) is a full featured IEC6 programming environment with extensive tools for developing and testing your application. Available at a price that is not much more than TelePACE Ladders, and with no target license fee for the controller, cost need not enter into the equation when deciding if IEC6 is right for you. There is no way to match the simple straightforward TelePACE environment for SCADA applications, but for extremely complex programs, ISAGraf IEC6 may be the way to go.

New Radio Solves Problems & Improves Capacity

The Yorba Linda Water District was able to solve a number of communication problems with ProSoft Technology's RadioLinx Industrial Hot spot radios. Because of heavy utilization of the unlicensed 900 MHz band, our old radio system required custom filters to avoid interference and had very limited bandwidth. The old, more expensive radios, had no software to check on the system, making trouble shooting a nightmare. With limited diagnostics, it could only be determined if the system was working or not, but not how well.

We have installed 13 new RadioLinx IH radios so far. The industrial browser software displays the radio diagnostics, including, the signal strength and much more. Because the radios are based on 802-11.b with TKIP encryption, they offer a secure method of connecting our laptops to our network from the field. The two antennas on each radio provide antenna diversity to help reduce the effects of spurious, reflected signals.

With the increased bandwidth of 11 MB from 115 KB, we can not only run our PLC's but we can start to add access control, remote video and other services to these sites. At one site, the radio points at a second repeater site which stores and forwards the data, to allow the signal to reach the control room.

In summary, our new RadioLinx Industrial Hot Spot radios have given the District a system with a high level of security, excellent flexibility, greater throughput, and eliminated the interference problem.

By Rick Walkemeyer
Yorba Linda Water District
Chief Plant Operator

The 10 Commandments of External Perimeter Security

(Part 2 of 3 continued from last issue)

Designing a Perimeter Security System

The Threat

The first step in designing an external perimeter security system is to perform a logical threat analysis. Real versus perceived threats must be evaluated with the understanding that no design is 100% perfect, and all systems will have some degree of successful penetration risk. It is equally important to study the typical intruder profile….is the intruder a juvenile vandal or a trained security electronics expert? These considerations will help minimize the risk within the customer's budgetary and logistical constraints while maintaining a perimeter security system that has the highest probability of locating an intruder.

The Site

It is vital to evaluate the condition of the physical barriers like fences, walls, etc. A solid outer perimeter barrier is critical because it acts as an initial deterrent and protection against environmentally-caused nuisance alarms (wind-blown debris or stray animals). This barrier may also serve as a mounting platform so it should be compatible with your selected sensor. Keep in mind that this perimeter sensor area must be well illuminated, visible to the assessment and response personnel, and have access to power and be easy to maintain.

The Sensors

Today, sensors that are designed for outside use are generally reliable….if they are applied properly. The performance of all sensors can be measured by three standards:

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SCADA Management Software

ClearSCADA is the premium SCADA Management software package for the SCADA industry. It combines a powerful online Object Database with cutting-edge development and configuration tools to provide unparalleled control and data-archiving functionality.

Utilizing a dedicated Client/Server architecture, ClearSCADA makes data readily available to users in a number of formats over a wide variety of communication media, including LAN/WAN, PSTN and direct serial connections. ClearSCADA is truly an open platform with the use of industry-standard open architecture formats and protocols such as OPC, OLE Automation, ODBC, HTTP/XML, Modbus RTU/ASCII and DNP3.

As SCADA systems expand to accommodate increasing demands in production, the inherently flexible nature of ClearSCADA's Object Database ensures that future growth is implemented efficiently and cost-effectively. Objects, groups, even entire sites are easily and rapidly replicated. Clients are added without changes to the Server, and additional Web clients require only the appropriate license to operate.

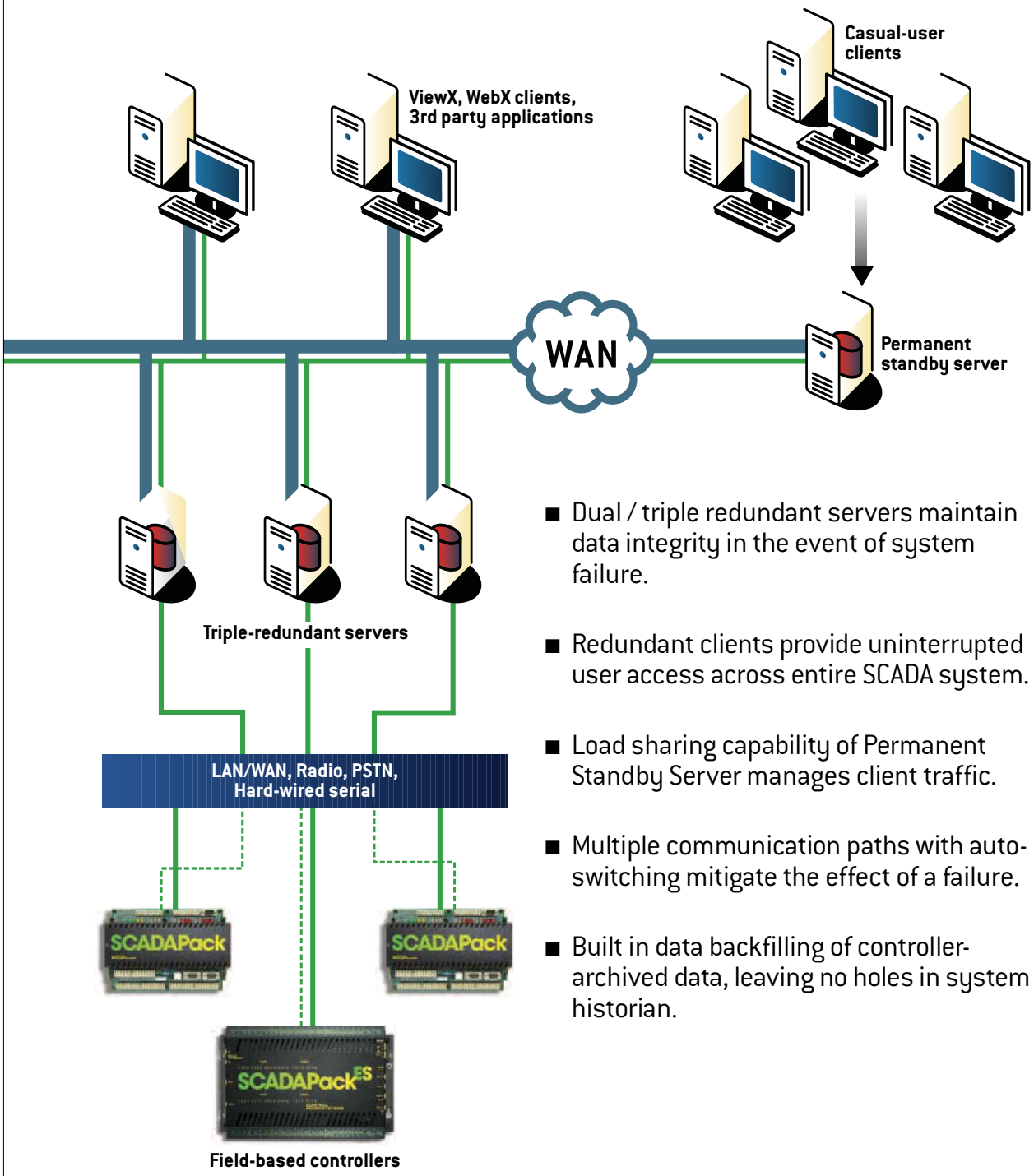
One of the most powerful features in ClearSCADA is its advanced level of built-in hardware integration. Through ClearSCADA, SCADAPack controllers can be configured and controlled remotely. Configuration files are maintained in the database itself and can be re-used with other like-configured RTUs.

Today's SCADA systems must furnish state-of-the-art security technology at all levels of operation. ClearSCADA security features prevent external attempts at system infiltration while simultaneously allowing controlled access to numerous legitimate users. Security is configured at the object level, is based on user-access profiles and object permissions, and is system-wide with all system interfaces, ViewX, Web, OPC, ODBC, OLE Automation, being secure.

Data quality is a critically important factor to consider when selecting a SCADA management system. ClearSCADA assures a high degree of data integrity through its use of redundant servers, clients, LANs and communication media. These features require minimal configuration and will function automatically. All RTU data, including data value, data quality and time-stamp are logged to the database, and seamless backfilling of RTU-buffered data ensures that there are no holes in historized data in the event of loss of communication.

ClearSCADA includes two clients for providing access to the database. The full-function ViewX client offers operator interface control, mimic (screen display), alarm and event lists, as well as multi-document display, the IDE (Integrated Development Environment), report generation, trends, and database and OPC navigators. The zero-configuration Web client includes seamless access to database changes, full mimic graphic support, control capabilities, trending and secure SSL connection.

Clearly Reliable



- Dual / triple redundant servers maintain data integrity in the event of system failure.
- Redundant clients provide uninterrupted user access across entire SCADA system.
- Load sharing capability of Permanent Standby Server manages client traffic.
- Multiple communication paths with auto-switching mitigate the effect of a failure.
- Built in data backfilling of controller-archived data, leaving no holes in system historian.

CONTROL MICROSYSTEMS

www.controlmicrosystems.com

Sales: (888) 267-2232 ■ International: (613) 591-1943 ■ Ottawa ■ Calgary ■ Houston ■ Los Angeles ■ Birmingham ■ Melbourne

Printed in Canada ■ September 2005 ■ MO1011-00A

Special Invitation: ClearSCADA Seminar, California

You are cordially invited to a special product seminar, the launch of Control Microsystems' new SCADA Management Software, ClearSCADA. Join us to see first hand how this modern SCADA platform is taking the market by storm.

November 15, 2005
Oakland Mariott City Center
1001 Broadway *(Near BART Station)*
Oakland, CA
8:00 AM – Noon

November 16, 2005
Radisson Hotel Newport Beach
4545 MacArthur Blvd.
Newport, Beach, CA
8:00 AM – Noon

ClearSCADA Backgrounder:

On July 27th Control Microsystems launched ClearSCADA to the world, a new breed of SCADA management software that promises to change the way you think about SCADA systems. Control Microsystems is inviting you to an introductory presentation on the features and benefits of ClearSCADA, when coupled with Control Microsystems' hardware line and unparalleled customer support, will off a significant change to the way SCADA professionals perform their business.

For today's modern installations, ClearSCADA software is introduced as a premium SCADA management, collection, storage, retrieval and data display product that is equally at home in a wide range of industrial and utility environments. Whether you are designing, building, operating or maintaining critical SCADA infrastructure, the ClearSCADA client/server architecture and online object database provide a state-of-the-art, third-generation SCADA platform.

Based on industry-standard open interfaces and protocols, ClearSCADA efficiently interfaces with third-party software and hardware to provide seamless data exchange over a wide variety of communication links. With flexibility built into the core of the product, ClearSCADA systems scale easily from a single client/server to a large installation of dedicated servers and dispersed clients. Built-in system redundancy and data-backfilling features assure the highest degree of data reliability, without the need for code development.

ClearSCADA, offering a clear choice for modern SCADA management systems.

Registration Form

Pre-Registration Required

Please fax to 1-888-FAX-SAGE or call toll-free 1-888-ASK-SAGE

I would like to attend:

❑ **November 15, 2005** – Oakland, CA

❑ **November 16, 2005** – Newport Beach, CA

Name: _____ **Title:** _____

Company: _____

Address: _____

Phone: _____ **Fax:** _____

E-mail: _____

Sage Designs, Inc.
SCADA & Industrial Automation Products
150 Shoreline Hwy., Suite #8A, Mill Valley, CA 94941-3634

There is no charge for this event, but we would appreciate a call if you need to cancel your reservation. Seating is limited.

CONTROL MICROSYSTEMS

SCADAPack & TelePACE Ladder Logic Training Class

Oct 18-20, 2005 • Mill Valley, CA

Sage Designs is hosting a 3-day training course for Control Microsystems' SCADAPack Controllers and TelePACE Ladder Logic programming. An optional SCADAPack or SCADAPack32 is available at a special price* with the course — an excellent way to get started using Control Microsystems' Controllers.

Oct 18	9:00-5:00 PM	SCADAPack controller operation, Series 5000 I/O, TelePACE introduction.
Oct 19	9:00-5:00 PM	TelePACE advanced programming techniques and advanced functions.
Oct 20	9:00-3:00 PM	Controller communications, Modbus Master/Slave protocol, Diagnostics, Modems

Instructor: Tony Sannella, Sage Designs, a Control Microsystems' factory-certified instructor.

Location: Sage Designs' Northern CA office, 150 Shoreline Highway, Building A, Suite 8, Mill Valley. Those requiring overnight hotel accommodations may book a room at the Holiday Inn Express next door (160 Shoreline Hwy) by calling 415-332-5700.

Who should attend? Individuals interested in participating in a highly technical, in-depth course on Ladder Logic and how it applies to Control Microsystems' products. Prior Ladders experience is highly recommended.

What should I bring? It is a requirement of the course to bring a Laptop Computer – minimum of Win98 with 15mb free disk space, CD ROM and serial port. You also need to have software permissions/passwords to install software on your PC.

What is provided? Daily continental breakfast and lunch, coffee, soft drinks and snacks during the breaks.

To Register: Complete the information below and fax to us at 1-888-FAX-SAGE (888-329-7243)

Name (*please print):*	Title:
Company:	Phone:
Address:	Fax:
	Email:
City/State/Zip:	

Cost:
3-Day Training Class without a SCADAPack Demo $1,075
3-Day Training Class with a SCADAPack SPT Demo* ..... $1,845 + Sales Tax on $770 @ your rate
3-Day Training Class with a SCADAPack32 SPT32Demo* ..... $1,995 + Sales Tax on $920 @ your rate

* Limit one per organization. SPT DEMO, a $3,570 value, consists of a SCADAPack Controller (#P1-132-01-0-1), TelePACE Ladders, Hardware Manual (on CD-ROM), 5699 I/O Simulator board, AC/2 Transformer, & programming cable. SPT32 DEMO, a $4,350 value, consists of a SCADAPack32 Controller (P4-102-01-0-1), TelePACE Ladders, Hardware Manual (on CD-ROM), 5699 I/O Simulator board, AC/2 Transformer, & programming cable. Demos will be shipped N/C to training facility.

METHOD OF PAYMENT: ***Please check one of the following. Course fees are payable by the first day of class.***

❑ Course only @ $1,075 (not taxable)

❑ Course w/SPT Demo: @ $1,845 + Sales Tax on $770 @ your CA sales tax rate

❑ Course w/SPT32 Demo @ $1,995 + Sales Tax on $920 @ your CA sales tax rate

22 Contact Hours

❑ A check is being mailed with a copy of this form. ***Please include applicable sales taxes, as indicated above.***

❑ Bill my company on attached PO, #_____. PO must cover total cost of both course and optional demo, including applicable sales taxes.

❑ Charge to my credit card. Amount charged will include applicable sales taxes, as indicated above.

❑ Visa ❑ Mastercard Card #: _____ Exp. Date (MO/YR): ____/____
Cardholder Name (please print): _____
Cardholder Authorization Signature: _____

*** * * Registration Deadline: Wednesday, Sept. 30, 2005 — Seating is limited. * * ***

Sage Designs, Inc.
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150 Shoreline Hwy., Suite #8A • Mill Valley, CA 94941-3634 • 1-888-ASK-SAGE • 1-888-FAX-SAGE • www.SageDesignsInc.com

The 10 Commandments of External Perimeter Security

(Continued from page 2)

1. Probability of Detection (Pd);
2. Nuisance Alarm Rate (NAR); and
3. Vulnerability to Defeat (Vd).

A viable sensor should rate favorably for all three criteria. "Nuisance" and "False" alarm are typically used synonymously, but should be differentiated when discussing sensor performance. Nuisance Alarm Rate refers to any unidentified environmentally-caused alarm or those alarm causes the sensor is designed for. False Alarm Rate (FAR) should be defined as that caused by a faulty component or circuit, such as a failed tamper switch. An acceptable False Alarm Rate is about one every two years. Solid state systems of today should all be "burned-in" during production. An acceptable Nuisance Alarm Rate should be around one per zone per week maximum.

Probability of Detection

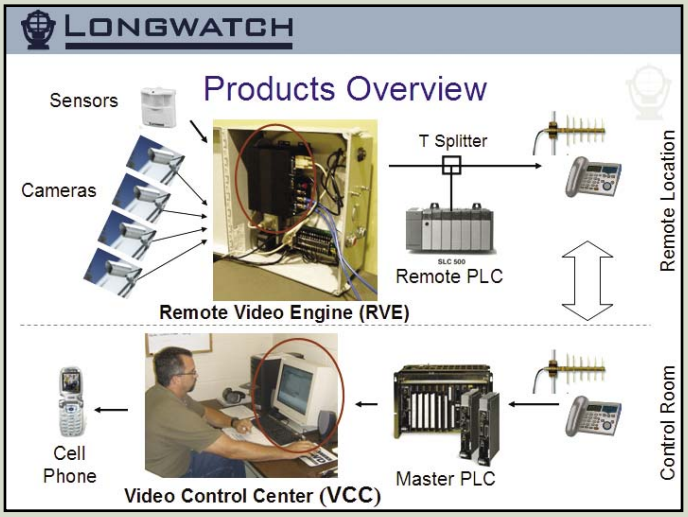
As a manufacturer of sensors, we many times receive copies of bid solicitations where there is a requirement for a "Probability of Detection of 97.32%." Probability of Detection must be qualified as it is a relative term, taking into consideration the method of intrusion, the sensor's sensitivity setting, weather conditions, manufacturers' specifications and more. Any sensor manufacturer can give you a 99.99% Probability of Detection under ideal conditions, but this does not address the other sensor performance characteristics of Nuisance Alarm Rate and Vulnerability to Defeat.

Nuisance Alarm Rate

Excluding a failure in an electronic component or another piece of sensor equipment, a Nuisance Alarm Rate is any alarm that is not caused by an intrusion. All sensors interact with their environment and cannot discriminate 100% between intrusions and other events in the detection field. This is why effective alarm assessment is mandatory. A Nuisance Alarm Rate of one nuisance alarm per detection zone per month is acceptable only if it is qualified by taking other environmental factors into consideration as mentioned above.

To be continued…

For further information on perimeter security systems and solutions, visit www.southwestmicrowave.com.



Low-Bandwidth Video Surveillance

Sage Designs is pleased to be selected as the Authorized Reseller of the Longwatch Surveillance System for Northern California.

Longwatch, Inc., headquartered in Norwood, Massachusetts, provides low and high bandwidth video surveillance for REMOTE water facilities (pump houses, wells, and tanks) capitalizing on a water community's existing SCADA and PLC infrastructure to deliver a highly affordable surveillance solution.

The Longwatch Surveillance System equips users with short, alarm-based video clips captured at the remote location, utilizing the EXISTING PLC/SCADA communications network to transport video to the HOST SCADA system or cell phone. Video clips are then stored in the Alarm Summary of the SCADA system for archive and retrieval, a tremendous economic and operational improvement over traditional video surveillance mechanisms (i.e. CCTV).

Leveraging the strength of Sage Designs as a leading supplier of SCADA solutions throughout Northern California for local water communities, Longwatch will be focusing on delivering this "rule-breaking" technology, delivering video over low bandwidth in addition to high bandwidth, to water communities as a natural extension of their SCADA systems.

Maria Aguirre joined Sage Designs in the summer of 2005 as an Administrative/Sales Assistant. She attended two years of engineering school in Honduras before immigrating to the US nearly 20 years ago. In 2005, she received her BS from San Francisco State University, majoring in business with emphasis in International Business and a minor in Marketing. Her responsibilities at Sage Designs include customer service, event planning, and general sales and administrative support. She is also assisting with our business in the irrigation markets of Mexico, while helping the rest of us build and practice our meager Spanish skills.

Please welcome her the next time you call.

Sage Designs, Inc.
SCADA & Industrial Automation Products

Clear SCADA… not a *"Me too"* Product

(Continued from page 1)

that engineering time and effort can be save during systems migration using existing information sources. Similarly, information can be accessed from ClearSCADA via OBDC connections with SQL for use in third party information systems. Crystal Reports is integrated into the ClearSCADA product providing reporting functionality with archive management features. Access is determined by the ClearSCADA security features.

Redundancy is a core feature of ClearSCADA providing redundancy of Historic and Configuration data, Alarm and Event journal in alternate locations using WAN connections as low as 64Kbps. This functionality can be extended to quadruple redundancy.

For data manipulation ClearSCADA includes an IEC 6-1131 logic engine that supports Structured Text, Sequential Function Charts, Ladder Logic and Function Block Diagrams.

Integrated into ClearSCADA is a range of tools that allows for ease of system design and operation. ClearSCADA does not require any coding or system down-time for compilation of systems changes. All configuration is driven from built-in forms and menus.

For an on-site demonstration of ClearSCADA, please contact *Info@SageDesignsInc.com*

The Sage Advisor

SCADA, SECURITY & AUTOMATION NEWSLETTER

Calendar of Events

Sept. 13, 2005	***San Diego Water Works, Annual Conference,*** Lake Poway, CA
Sept. 15, 2005	***CWEA/TRI-Counties Section, Training Workshop,*** San Luis Obispo, CA
Sept. 14-16, 2005	***CWEA, Northern Regional Training Conference,*** Redding, CA
Sept. 20-21, 2005	***Lookout 2-Day Basics Training Class,*** Mill Valley, CA*
Sept. 22, 2005	***Lookout 1-Day Advanced Training Class,*** Mill Valley, CA*
Oct. 9-12, 2005	***National Rural Water Association, Annual Leadership Forum & Technology Exhibit,*** Sacramento, CA
Oct. 10-14, 2005	***AWWA-CA-NV, Fall Conference,*** Reno, NV
Oct. 18-20, 2005	***SCADAPack & Ladder Logic Training Class,*** Mill Valley, CA*
Oct. 26-29, 2005	***USCID, SCADA & Related Technology,*** Vancouver, WA
Nov. 15, 2005	***Free ClearSCADA Seminar co-sponsored by Control Microsystems,*** Oakland, CA*
Nov. 16, 2005	***Free ClearSCADA Seminar co-sponsored by Control Microsystems,*** Newport Beach, CA*
Nov. 29-Dec. 2, 2005	***ACWA, Annual Fall Conference,*** San Diego, CA
April 4-6, 2006	***ACWA, Annual Spring Conference,*** Sacramento, CA
May 3, 2006	***CA Rural Water Association, 3rd Annual Education Expo,*** Lake Tahoe, CA*

** Download the **registration form** from our website or call for more information.*

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