

# **Automated Video Surveillance of Remote Site Perimeters**



Aerial image of the reservoir with the fence, cameras & section assignments. Each section of fence can be monitored by more than one camera.

Integration has been something of a shifting target in the security industry for some time now. Ask ten security systems people what they mean by integration, and chances are you will get eleven answers. However, if we consider the expression in terms of horizontal integration, (processing information from multiple domains in an integrated system) we will be close to the systems nirvana - one ring to rule them all.

Pure Technologies has taken some

interesting steps in integrating PureLink<sup>™</sup> – their automated video surveillance management system - with a successful and well-respected perimeter alarm vendor, Southwest Microwave, Inc. of Tempe, AZ. The two companies have worked together on a pilot project involving surveillance of a remote water reservoir site in Arizona. While it is not the least bit unusual in this day and age to have cameras that are triggered to preset positions by a fence alarm, some of the integration in this case is unique.

The project involves a chain link fence around five sides of the water facility, about 1800 feet in length. Five strategically positioned cameras are mounted on thirty-foot poles on the corners of the reservoir so that the entire perimeter can be observed. The first interesting thing noted is that the various "zones" of the alarmed perimeter are not zones at all! Southwest Microwave's INTREPID product utilizes a technology that allows definition of the alarm to within three (3) feet of its occurrence. No more scanning a 600-foot zone to find the intrusion! The ability of the INTREPID system to send serial data from the intrusion sensor allows other systems to utilize this data, precluding the need to have a pair of wires strung to each alarm zone. This in itself is a huge labor savings on a large installation.

The PureLink system has a number of features that make it an excellent choice for managing video surveillance at remote sites:

- On-site intelligent video analysis and camera control
- Centralized server provides web browser and GIS-based operator interfaces
- Remote control and viewing of cameras via operator interface or wireless handheld devices

and e-mail

Advanced alarm distribution capability, PureLink GIS-based console with including voice alarm telephony, paging, operator remotely controlling one of the cameras.

For the pilot project, the PureLink system takes the serial data provided by the INTREPID system and maps it to a drawing of the site that shows the relationship between the cameras and the fence. The system then automatically positions one or more cameras to exactly the right spot on the perimeter. Using more standard technologies would require programming an extremely high number of presets into the cameras to see each threefoot zone

The merging of the two technologies - the intrusion and narrow breach locating capability of Southwest Microwave's INTREPID product, and the video analysis, transmission, and response capability of Pure Technologies' PureLink product, has created an effective perimeter security system at this site.

- by John Saunders, Enterprise Protection Associates Ltd.

#### CONTROL MICROSYSTEMS SCADA products...

for the distance

## Ethernet in SCADA Systems

While the SCADA sector has not been the early adopter of Ethernet like the industrial control sector has, it is clear that Ethernet will play an important role in SCADA's future. The basics are all in place, more variables are read and controlled in the field, and the need to have ubiquitous access to data is showing up in specifications more often. The end result is higher bandwidth requirements and the need to have equipment addressed and monitored in realtime. The goal is secure, real-time, interaction and monitoring from a centralized office.

At Control Microsystems, Ethernet has been incorporated in SCADA products for some time. Two of their SCADAPack series of controllers come with built-in Ethernet ports, and the option for an Ethernet port is available on all of their controllers. To aid in the development of an entire Ethernet SCADA network, the company also offers a serial Modbus-to-Ethernet Gateway and a 5-port Ethernet switch. Last month, Control Microsystems took Ethernet to the next level by introducing a multivariable flow transmitter with a built-in Ethernet port. This fully digital Modbus product is the first in the industry, and the company is promising more Ethernet

Call us to find out more on how Ethernet can affect your SCADA design or to find out more about Control Microsystems' Ethernet SCADA products.

## Meet Ken VandeVeer

Ken VandeVeer recently joined Sage Designs as an Outside Sales Engineer for the Southern California Region. He has over 20 years of control systems sales and project management experience in the municipal SCADA and industrial markets. Prior to joining Sage Designs, he spent the last 14 years with two systems integrator companies in Southern California.



## Training Classes & Free SCADA Seminars

May 18	Free SCADA Seminar, Escondido, CA
May 19	Free SCADA Seminar, Bakersfield, CA
May 25-27	SCADAPack & Ladder Logic Training Class, Mill Valley, CA
Oct 2004	SCADAPack & Ladder Logic Training Class (TBA)
Feb 2005	$\label{eq:scadar} SCADAPack \ \& \ Ladder \ Logic \ Training \ Class \ (TBA)$

**Details & Registration Information Inside** 





Locus' new OS2400-Ethernet-STE industrial radio not only communicates with legacy serial devices, but also allows remote configuration of the radio. It contains a serial device server that establishes a transparent connection between a serial device and an Ethernet host. The STE processes data on its serial port, and redirects the data through the radio's Ethernet card. Customers needn't rewrite or purchase new serial communication software for their applications. The STE's built-in capability to convert serial data to Ethernet data means it can play a pivotal role in cost-effectively modernizing a legacy serial network.



Programming the radio remotely is an enormous benefit to customers. Prior to STE, most industrial radios have been configured using a radio's dedicated programming DB9 serial port — problematic in the field because newer laptop computers do not feature serial ports. The STE allows the serial port to become a data port, then assigns an IP address, meaning the entire radio network can be configured on either a wired or wireless Ethernet network. Locus' customers can now program an entire radio network from their office via wireless Ethernet, as opposed to going onsite to program each individual radio.

The ability to create a serial/Ethernet hybrid network results in tremendous cost savings for Locus' customers. Many customers have made significant investments in their legacy serial networks. It is expensive to replace an entire serial network in favor of entirely new technology. The Locus STE option allows a customer to upgrade to the latest wireless Ethernet equipment in stages, and yet retain his existing serial network.

The STE supports Serial Modbus RTU to Modbus TCP, widely used with industrial markets. Future releases will support serial DF1 to TCP, DNP3 to TCP, and serial tunneling. This allows any serial device to transparently send data over a network without knowing anything about the information being transported, providing you with a better serial-friendly Ethernet system.

## Sage Advice Open vs. Closed Systems

There seems to be so much confusion about what "open" means when talking about integrated systems, SCADA or otherwise. The definition for open SCADA systems once was that the systems use an open protocol, such as Modbus, for communications. This is a good indicator of an open system; however; this doesn't tell you how compliant the implementation of the protocol is with other standard products on the market. Other questions that should be asked include: How easy is it for someone other than the original equipment installer to make changes to the program? Can others figure out how to interface with the equipment? Is there any support available through a channel other than the original installer?

A better definition of "open" might be that support for the product or system is widespread. If a systems integrator has a good looking offering at a reasonable price, does this assure you of reasonably priced future support or expansion? No, not unless there is competition in this area as well. If there is only one source of support in a region, as there might be for many systems, what happens to you if your relationship with this support channel sours? Can you turn to another company to provide you with support, should your original installer fail to satisfy your needs?

There are so many offerings with multiple support channels that it seems imprudent to select a system with only one. Virtually every major SCADA systems integrator in California and Nevada, for example, has installed our Control Microsystems' SCADAPack product line. This means that you have your choice from over 30 qualified integrators, not to mention the availability of regional customer training courses and highly detailed manuals, which can help an end user take ownership of their SCADA system.

Be sure to avoid the trap of buying a SCADA or other system with limited support options by asking the vendor to supply a list of qualified installation and field support contractors.

### Systems Integrator Showcase

# **City of Red Bluff SCADA System**

The recently completed project at the City of Red Bluff stands as a showcase for Sage Designs' SCADA products. Chris Abrahamsen at PACE Civil Inc. in Redding was the Project Manager responsible for the design specifications for this project, which includes SCADA for both the city's water and waste water systems. The equipment used includes Control Microsystems' SCADAPack Controllers, Teledesign Systems' 450MHz radios and National Instruments' Lookout HMI software. The entire system has 25 RTUs for the monitoring and control of pump stations, tanks and wells.

As with any project of this size and complexity, teamwork was very important. City of Red Bluff's Public Works Director, Gary Antone, and City personnel worked closely with Telstar's Concord office to coordinate the installation, startup, and training for the system. Vendor support included training by Sage Designs on the TelePACE and Lookout software held at Telstar's Concord office, and radio programming and path configuration assistance by Teledesign Systems. Telstar used Total Quality Management (TQM) for this project, a strategy that utilized a time/budget/procurement system and helped keep the project on track for completion in under the 120 days allotted.

The SCADAPack is a hybrid controller designed to handle multiple functionality reducing the overall cost of ownership and greatly simplifying the Red Bluff installation. It combines standard PLC features, such as Ladder Logic programming and flexible I/O, a Data Logger for data recording and reporting, and an RTU for remote communications over a variety of mediums such as wireless radios, public data networks, dial-up, leased lines and satellite systems.

Telstar Inc. is a Concord, CA based Water/Wastewater control systems integrator that focuses on customer service and client satisfaction. Along with their experience in the SCADA market, Telstar has over 40 field service engineers and technicians available 24/7 to assist, troubleshoot and repair most situations that occur in a SCADA system. For more information about this project, contact Telstar's Sacramento office, phone: 916-646-1999.

— Tak W. Koo, Project Manager, Telstar Instruments Inc.



# DUFELIA C

....IIIIIII

# Automated Remote Site and Critical Infrastructure Surveillance

PureLink is an information management system that:

- Collects information from widely distributed cameras and other sensor types such as perimeter intrusion sensors, manhole intrusion systems, and air & water quality meters.
- Processes the information to detect anomalous or unusual activity.
- Notifies designated locations or personnel that an event of interest is taking place.

The goal is to improve the effectiveness of continuous outdoor remote site surveillance by focusing the attention of personnel where and when it is needed, resulting in decreased operational and staffing costs.





## Automated Video Surveillance and Alarm Management Systems

Reduce and manage false alarm rates associated with outdoor video surveillance.

**PureLink** is a customizable platform for automated video surveillance and alarm management of remote sites and critical infrastructure. Designed to reduce and manage false alarm rates in outdoor environments, PureLink can provide tight integration with different types of sensors. This includes perimeter and manhole intrusion systems to enable automatic video corroboration of alarm events. PureLink can also integrate with air quality and water monitoring systems to provide real-time warnings of potentially harmful environmental changes.

**PureLink** provides advanced camera control features to facilitate automatic PTZ camera movement based on intrusion location, time-of-day, or other user-defined criteria. PureLink provides remote operators and responders with an intuitive interface for viewing video and controlling PTZ cameras over wireless networks.

**PureLink** features an intuitive GIS-based operator console suitable for use with geographically distributed sites. Aerial imagery, street map data, and other spatial database information can be combined to rapidly provide a meaningful context for alarm conditions. Alternatively, PureLink can be customized to provide alarm and video information to third-party databases and access control systems.

PureLink delivers improved detection reliability and reduced operating costs associated with video surveillance of remote sites and perimeters.

AN ANAMANA

For more information, or to arrange a demonstration on how Pure Technologies and PureLink can help manage your remote site and critical infrastructure surveillance requirements please contact us.









PureLink's intuitive operator interface permits rapid evaluation of alarm conditions over a wide geographic area.



Eastern U.S. 10015 Old Columbia Road, Suite B-215 Columbia, Maryland USA 21046 Telephone: (410) 309-7050 Fax: (410) 309-7051 E-mail: pure.us@soundprint.com

#### Western U.S.

3838 North Central Ave., Suite 100 Phoenix, Arizona USA 85012 Telephone: (602) 686-0311 Fax: (480) 460-3407 E-mail: marketing@soundprint.com

#### Canada

3rd Floor, 705 - 11 Avenue SW Calgary, Alberta Canada T2R 0E3 Telephone: (403) 266-6794 Fax: (403) 266-6570 Toll Free: 1-800-537-2806 E-mail info@soundprint.com

®Registered trademark, property of Pure Technologies Ltd. ™Trademark, property of Pure Technologies Ltd.



# Training Classes & Seminars

# SCAPAPack & Ladder Logic Training Class



Sage Designs is holding a 3-day training course designed for people evaluating an economical way to implement a new or upgraded SCADA system, or for people wanting to best utilize their Control Microsystems' SCADAPack controllers. An optional SCADAPack or SCADAPack32 is available at a special price with the course — an excellent way to get started using Control Microsystems' Controllers.

#### When: May 25-27, 2004

Location: Holiday Inn Express, 160 Shoreline Highway, Mill Valley, CA.

**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.

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.

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

 Cost:
 3-Day Training Class without a SCADAPack controller
 \$ 975

 3-Day Training Class with a SCADAPack P1Demo\*
 \$ 1,600

 3-Day Training Class with a SCADAPack32 P4Demo\*
 \$ 1,800

\* P1DEMO, a \$3,367 value, consists of a SCADAPack Controller with extra RAM (#P1-120-01-0-0), TelePACE Ladders, Hardware Manual (on CD-ROM), 5699 I/O Simulator board, AC/2 Transformer, & programming cable. P4DEMO, a \$3,960 value, consists of a SCADAPack32 Controller (P4-100-01-0-0), 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. (Sales taxes are payable on the demo portion of the class.)

# To Register .....

Complete a registration form obtained from the Events page on our website (http://www.sagedesignsinc.com/events/index.htm) or call us toll-free at 1-888-ASK-SAGE to request a faxed registration form.

## Seating is limited. Registration Deadline: May 4, 2004

# Free SCAPA Seminars

May 18, 2004

Holiday Inn 1250 W. Valley Pkwy. Escondido, CA 8:30-Noon May 19, 2004 Best Western Hill House 700 Truxtun Bakersfield, CA 8:30-Noon

In these seminars, we will cover a wide variety of products and services for your secure open architecture system. Guest speakers will be on hand to present and discuss products for a modern, secure system.

- See the latest Control Microsystems products the Wireless Series of SCADAPacks. These products have been designed with open architecture and open protocols in mind, and have been ruggedized for severe environmental conditions. The Control Microsystems' SCADAPack line has been proven in SCADA systems throughout the west and the world.
- Learn about licensed and unlicensed radios and how they can provide reliable communications throughout your SCADA system. See the Locus High-Speed Ethernet Spread Spectrum radio, with over-the-air data rates of up to 11 Mbps and range of up to 20+ miles.
- See a range of security and surveillance products, featuring the PureLink Automated Surveillance & Alarm Management Systems from Pure Technologies.
- See a demonstration of the latest version of National Instruments' Lookout SCADA software, version 5.1 which is powerful, yet easy to configure. Lookout provides all the flexibility and power of the other top HMI/SCADA products, without the complexity that generally accompanies this type of program.

To Register .....

Complete a registration form obtained from the Events page on our website (http://www.sagedesignsinc.com/events/index.htm) or call toll-free at 1-888-ASK-SAGE to request a faxed registration form. *There is no charge for our SCADA Seminars, but we would appreciate a call if you need to cancel your reservation.* 

## **Registration Deadline: May 14, 2004**



RETURN FAX FORM Toll-Free Fax: 1-888-FAX-SAGE (1-888-329-7243) Check out our web site: http://www.sagedesignsinc.com			
<b>I</b> would like additional information about the products indicated below.			
I would prefer to receive future Sage Advisors via email.			
	Email:		
Name:	Address:		
Phone/Fax:	·		
PRODUCTS			
SCADAPack SCADA-Optimized PLCs from Control Microsystems	Web cams for SCADA Security		
Ethernet-ready SCADAPack32 from Control Microsystems	Lookout HMI/SCADA Software from National Instruments		
Wireless SCADAPack with Integrated Spread Spectrum Radio	SCADAwise.com Applets for Lookout HMI/SCADA Software		
High-Speed Ethernet Spread Spectrum Radios from Locus	Spread Spectrum Serial Radio Modems from Locus		
Automated Surveillance & Alarm Management Systems	UHF/VHF/MAS Radio Modems from Teledesign Systems		
Cellular SCADA Modems	Signal Conditioning from Measurement Technologies Ltd.		
SCADAPack Vision Operator Interface Panels	WIN-911 Alarm Notification Software by Specter Instruments		
SCADAServer OPC Server from Control Microsystems	SCADALog Data Logging Software from Control Microsystems		
SmartWIRE Remote I/O from Control Microsystems	Solar and Low Power Optimized SCADAPack LP		
Short & Long Haul Modems from Westermo	Fiber Optic & Ethernet Communications Modules from Westermo		
Power monitoring meters	Annunciators & SERs from Measurement Technologies Ltd.		
TRAINING & SERVICES			
On-Site Lookout Training by Sage Designs	Referrals for Integration, Programming & Engineering Services		
National Instruments' Lookout Basics Course	Telemetry Radio Surveys		
Ladder Logic Training for SCADAPack RTUs/PLCs	Telemetry Radio FCC Licensing		
DEMOS & EVENTS			
Lookout HMI/SCADA Software Demo (CD-ROM)	Win-911 Alarm Notification Software Demo (CD-ROM)		
Information on upcoming SCADA Seminars in my area.	Information on upcoming SCADAPack & Ladders classes.		
I have a special application or comments (please describe):			
<b>I would preter to receive future Sage Advisors via email.</b> (My email address is shown above.)			
	M140-0404		

### Lookout HMI Software & WIN-911 Alarm Notification Software Santa Margarita Water District, Las Flores, Orange County, California

Leonard Abbott, Instrument System Engineer at the Santa Margarita Water District, has been using National Instruments Lookout<sup>™</sup> Software as the graphic "front end" of the Water District Control System to monitor and operate numerous water and wastewater facilities throughout its 62,000-acre service area for the last nine years. The Main Screen or Overall View of the System opens Dynamic Graphic Screens for each of the 15 Water Reservoirs, 8 Pressure Reducing Stations, and 16 Lift Stations. The Lookout Software provides Online Configuration for modifying and upgrading the application without process downtime. The software creates an audit trail using the Event Logger, allowing the operators to view and address alarms and events from any of the SCADA sites using Lookout Software.

Lookout HMI Software and Specter Instruments' Win-911<sup>™</sup> Alarm Notification Software are used to Monitor Control and Automatically Notify operators of any event alarms 24 hours a day at the 2 MGD Oso Water Filtration Plant and the Chiquita Reclamation Plant, which is going through a 6 to 9MGD expansion. Many of the SMWD staff have received training on Lookout Software from Sage Designs. SMWD Programmer, Niki Reynolds, is developing and maintaining the Graphic Software as the SCADA system grows.

The SCADA system also monitors each of SMWD's water and sewer-pumping stations, reservoirs and sewage treatment plants, and then relays information back to a control center. In the past, this control center was staffed around the clock, requiring a full-time staff of six employees. Now, through advances in computer and telecommunications technology, the system status is relayed directly to field personnel via laptop computers. Staff can connect laptops to any phone jack or cellular phone and have immediate access to SCADA, through Lookout HMI Software. Field personnel can start and stop pumps, poll reservoir status, or check system alarms.

All communication between the central computer and the remote facilities is handled by radio. Each site is polled once every five minutes and the system status is then relayed back to the central computer.

Planned SCADA upgrades include adding programming to allow pumping only during off-peak periods to reduce power costs, and peer-to-peer communication to allow the stations to "talk" to each other without having to go through the central computer.





SMWD Main Screen



Specter Instruments has just announced the release of Version 7.07 of the popular WIN-911 <sup>™</sup> Alarm Notification Software. Features include:

- Data Interface Options including SCADA "Direct Connect," OPC and DDE
- Text-to-Speech Instantly create all of your required voice sound files in minutes
- Telephone Interface Card Options now include low-cost Voice Modems
- Wireless & Email Notification
- Runtime Changes Bypass alarms & dial-out override for schedule changes
- Alarm Log Manager lets you view, sort & arrange your alarm history
- Multiple Levels of Security Options
- WIN-411 Option allows you to get reports or status over the phone

With WIN-911<sup>™</sup>, your operators can concentrate on other tasks while your computer system does the monitoring. WIN-911<sup>™</sup> is real-time Alarm Notification Software that works well with Lookout or other HMI/SCADA software to monitor operations and notify personnel of problem conditions — a process that can save you time, money, and unnecessary anxiety.

WIN-911<sup>™</sup> can be used with pagers, cell phones, landline phones and most any wireless communications. Call for more information on this popular software.

\* \* \* \* \*

Acknowledgements: National Instruments<sup>™</sup> and Lookout<sup>™</sup> are trademarks and trade names of National Instruments Corporation. SCADAPack<sup>™</sup> and TelePACE<sup>™</sup> are trademarks of Control Microsystems Inc. PureLink<sup>™</sup> is a trademark of Pure Technologies. WIN-911<sup>™</sup> and WIN-411<sup>™</sup> are registered trademarks of Specter Instruments.



# Seminars & Events

- April 6 **SCADA Workshop for Irrigation Districts**, sponsored by CA Polytechnic State University's Irrigation Training & Research Center (ITRC) & U.S. Bureau of Reclamation Mid-Pacific Region, Tulare, CA. *Call for details*.
- April 8 SCADA Workshop for Irrigation Districts (see above), Chico, CA. Call for details.
- April 13-16 **CA-NV AWWA Spring Conference & Exhibit**, American Water Works Association, Las Vegas, NV. *Stop by our exhibit*.
- May 4-6 CA Rural Water Association Operator Expo, Rancho Cordova, CA.
- May 5-6 **ACWA Spring Conference**, Assoc. of CA Water Agencies, Monterey, CA. *Stop by our exhibit.*
- May 18 **Free SCADA Seminar**, Holiday Inn, Escondido, CA. *Call for details or download the registration form from our website.*
- May 19 **Free SCADA Seminar**, Best Western Hill House, Bakersfield, CA. *Call for details or download the registration form from our website.*
- May 25-27 SCADAPack & Ladder Logic Training Course, Mill Valley, CA. Call for details or download the registration form from our website.
- June 23 Wine Country Water Works Annual Show & Training, Healdsburg, CA. Stop by our exhibit.
- Oct. 2004 SCADAPack & Ladder Logic Training Course, Mill Valley, CA. (TBA)
- Dec 1-3 **ACWA Fall Conference**, Assoc. of CA Water Agencies, Palm Springs, CA. *Stop by our exhibit.*
- Feb. 2005 SCADAPack & Ladder Logic Training Course, Mill Valley, CA. (TBA)



Control Microsystems' SCADAPack PLCs & RTUs National Instruments' Lookout HMI/SCADA Software Teledesign Systems' UHF/VHF/Microwave Radio Modems Locus Spread Spectrum & Ethernet Radio Modems Win-911 Alarm Notification Software Security Web Cams with Alarm Paging Operator Interface Panels & Industrial PCs Leased-Line & Dial-up SCADA Modems Remote I/O Systems

... Everything to meet your SCADA system needs!



SCAPA & Industrial Automation Products 1-888-ASK-SAGE • 1-888-FAX-SAGE www.SageDesignsInc.com



150 Shoreline Hwy. #B-28 Mill Valley, CA 94941-3635 PRESORTED STANDARD MAIL US POSTAGE PAID POINT TO POINT

Address Service Requested