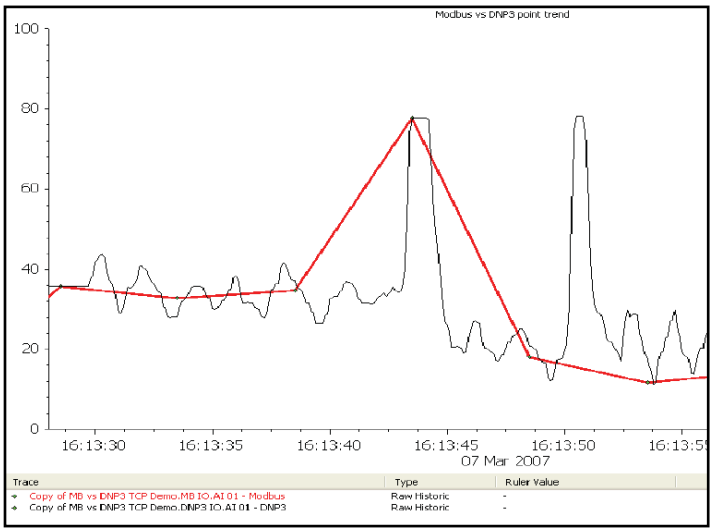
The Sage Advisor

SCADA, SECURITY & AUTOMATION NEWSLETTER

Volume 17, Issue 1 • Spring/Summer 2007

A Publication of Sage Designs, Inc.



DNP3 vs. Modbus Protocol

What have you been missing?

As you may be aware, we have been touting the advantages of moving from Modbus protocol to the IEEE DNP3 standard for water and waste water SCADA systems for some time. It occurred to me that since both are available on the SCADAPacks in both serial and TCP flavors, it would make an interesting illustration to run both protocols simultaneously and track the results in a trend chart.

In this experiment, I set up the poll rate for both protocols at 5 seconds, which provides a polled system much faster updates than the average SCADA system can muster. On the other hand, the variable that I trended is changing at a faster rate as well, so on balance, the result is not entirely out of line. The data shown in the trend chart below, do, however, point out that a spike in a system variable, such as a pressure surge in a closed pipe water system, can come and go between polls and be completely missed in a system using a simple protocol such as Modbus or DF1. The DNP3 protocol, however, captures and time stamps all events, providing much higher resolution data which is logged at the controller and sent to the DNP3 master in communications packets. At the SCADA master, this data is sorted out and added to the historical database which then backfills the trend charts with the historical data. Additionally, since all RTUs in a typical DNP3-based SCADA system are synchronized to the same SCADA master, events seen across multiple RTUs can be seen as they propagate through a system making it easier to track down the cause.

For those of you who have a Modbus-based system now and are considering moving to one using DNP3, the latest version of ClearSCADA has the ability to run both protocols on a single serial port simultaneously, giving you the ability to make a graceful transition to DNP3.

This Fall, watch for seminars on DNP3 Protocol and on ClearSCADA. Our plan is to spend at lease a couple of hours on DNP3 for the purpose of getting those involved in the engineering or integration of a DNP3-based SCADA system a firm grounding in the concepts necessary to avoid many of the pitfalls of a poorly implemented communications protocol. This seminar will also be helpful to those who are planning a SCADA system and want to see what DNP3 might do to help get the most out of your new system.

Teledesign Systems Introduces Remote Diagnostics for Industrial Wireless Modems

New product allows remote monitoring of wireless modems without interrupting normal communication.

Teledesign Systems, Inc. recently announced the release of Remote Diagnostics, a new feature available for the TS4000 wireless modem. Now, industrial wireless modem users can check the status of remote TS4000 modems, over the air, from any other TS4000. Remote Diagnostics gives users unprecedented control of remote modems; features include testing and verification of systems independent of host equipment, as well as easy determination of the radio coverage and signal quality between TS4000s. Additionally, Remote Diagnostics is available while systems are in operation.

Remote Diagnostics is supplied as a firmware option; all TS4000 modems are eligible for the upgrade. Teledesign Systems provides free Windows display software with the TS4000 Configuration Software. Remote diagnostic parameters include address, path, Receive Signal Strength (RSSI), input voltage, regulated voltage, transmit power, temperature and response time.

Continued on Page 7

SCADA Seminars *Hosted by Westin Engineering*

Sage Designs' Spring SCADA Seminars will be hosted by Westin Engineering. Engineers from Westin will discuss current practices in the implementation, management and security of SCADA systems. Other speakers will address the topics of HMI standards and DNP3 protocol.

Westin helps water utilities improve performance in treatment, business operations, knowledge management, customer service, maintenance, and asset management. Westin's suite of services address utilities needs throughout the entire life cycle of their technology – from planning to design, implementation, integration and system maintenance. Westin applies practical experience in business, security, SCADA, telecommunications, and information technology to help clients attain their goals. Westin has delivered solutions to our customers throughout the United States since 1981.

Register for this free seminar using the form inside.

Westin
Passion for Improving Performance

Inside This Issue

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- Training Classes
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- Big Bear Lake System
- Video Analytics
- SCADAPack Upgrade Kit
- SCADAPartner Program

ClearSCADA Catches On

Since its release a little more than a year ago, ClearSCADA has been finding acceptance with end users, integrators and engineers at all levels in the water industry. One prominent SCADA engineer out of Sacramento said that its good to see that there is finally a new player in the SCADA software market. Years of dominance by fewer than a handful of companies has led to stagnation in the field. ClearSCADA has come along to stir things up.

One thing about ClearSCADA that catches your eye is the ease with which you can set up a redundant system. A basic redundant server system can be configured in two or three minutes.

Another reason that ClearSCADA is catching on is the rising popularity of DNP protocol in the water industries. Since many other SCADA software packages use third-party OPC drivers rather than native DLL drivers, DNP3's time-stamping and data quality information is unavailable, and one of the main reasons that DNP3 is of so much interest in the water and waste industries is that data is automatically retained in the PLC even if communications is lost for extended periods of time. When was the last time you wished you knew what happened at a site between polls or during an outage?

One thing we have noticed is that the ClearSCADA training classes are filling up as fast as they are announced. Our original plan was to offer the training course twice per year, but we have already scheduled two for the spring and expect to have at least two or three more this year. We see integrators at almost every class, a sign that ClearSCADA is gaining in popularity with the professionals in the SCADA world. We often have individuals from agencies taking the 4-day class just to evaluate the product. Due to the fact that ClearSCADA comes complete with so many of the features needed in a typical SCADA system, we often find that the price for ClearSCADA is equal to about two years of the service contract price that people pay for their existing SCADA software licenses.

Find out what the buzz is about and call or email for your demo copy of ClearSCADA. The demo is full featured which has allowed more than one customer to get their system fairly far along in development before their purchasing could get an order for the product together.

This Fall, watch for seminars on ClearSCADA and on DNP3 Protocol. The ClearSCADA seminar is aimed engineers, integrators and end users who wish to evaluate ClearSCADA to see if it is the right product for their next SCADA project.

Westin

Passion for Improving Performance

Westin delivers enterprise solutions to improve performance of water and wastewater utilities.

With practical experience and proven methods, we work with you to retain knowledge, optimize processes, meet compliance requirements, serve customers and improve asset life.

www.we-inc.com

CONTROL MICROSYSTEMS

SCADA products...for the distance

ClearSCADA 2007

Advanced SCADA Management Software

Designed to leverage your automation knowledge and creativity:

- Swift deployment and operation of well-structured low-maintenance systems
- Cuts engineering time with true object-oriented architecture
- Zero downtime, triple-redundant servers
- Built-in historian and reporting
- Scalable architecture grows with your network

For more information and a chance to demo ClearSCADA, visit:
www.controlmicrosystems.com

Sage Designs, Inc.
SCADA & Industrial Automation Products

Westin
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Free SCADA Seminars

June 5, 2007

Embassy Suites Riverfront
100 Capital Mall
Sacramento, CA 95814
8:00 AM – 4:00 PM

June 28, 2007

Hotel Ménage
1221 S. Harbor Blvd.
Anaheim, CA 92805
8:00 AM – 4:00 PM

AGENDA

- **Managing Your Most Critical Asset (SCADA)**
- **HMI Standards**
- **Historical Data Management & Reporting**
- **DNP3 Protocol**
- **SCADA Wide Area Network Design**
- **How Secure is your SCADA Infrastructure?**

Sage Designs' Spring SCADA Seminars, hosted by Westin Engineering, will focus on engineering practices in the design of water and wastewater SCADA systems. Westin Engineering was founded in 1981 to help utilities address the unique challenge of automating facilities and making control systems functional. Since then, they have built an international reputation by partnering with utilities to overcome these and other business challenges, align systems and strategies, plan technical programs and put systems to work.

Bill Serjeantson, P.E., Vice President of Engineering, Westin Engineering, will be speaking on the subjects of *Historical Data Management and Reporting* and *SCADA Wide Area Network Design*. Mr. Serjeantson has over 20 years of experience in the application of Information Management and Automation systems to various industries, particularly the water and wastewater industry. He has been involved in all aspects of the project lifecycle including: planning, needs analysis, design, implementation, testing and commissioning.

Dean F. Schoeder, Project Director, Westin Engineering, will speak on the subjects of *Managing Your Most Critical Asset (SCADA)* and *How secure is your SCADA Infrastructure?* Mr. Schoeder has 33 years of experience managing complex, multimillion dollar projects with an emphasis on computer systems, networks, telecommunication infrastructure and related facilities. As a member of Westin's Executive Management team, he provides leadership of the Westin Quality System (WQS), Westin's structured approach to project management and in-house training for project managers.

This technical presentation is intended for SCADA system managers and maintenance personnel who wish to gain a better understanding of the engineering practices for the design of a modern SCADA System. We have limited seating for this event and ask that only persons interested in SCADA attend. Complimentary continental breakfast and lunch included. There is no charge for this event, but we would appreciate a call if you need to cancel your reservation.

Pre-registration Required

Registration Form

Complete and fax to 1-888-FAX-SAGE or 415-331-8969.

I would like to attend:

❑ Sacramento SCADA Seminar on June 5, 2007, 8:00AM – 4:00PM

❑ Anaheim SCADA Seminar on June 28, 2007, 8:00AM – 4:00PM

Name: _____ **Title:** _____

Company: _____

Street Address: _____

City, State Zip: _____

Phone: _____ **Fax**: _____

Email: _____

❑ **I want to receive CEUs for attending (7 hours):**

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

Training Classes

ClearSCADA SCADAPack

ClearSCADA Programming Course

May 22-25, 2007 – Mill Valley, CA
August 14-17, 2007 – Mill Valley, CA

Day 1 8AM - 4PM	Installing ClearSCADA, Introduction to ClearSCADA, Components, Using ViewX, Using WebX, ClearSCADA Help
Day 2 8AM - 4PM	Configuring using ViewX, Database Organization, Basic Telemetry Configuration, Creating Mimics, Creating Trends
Day 3 8AM - 4PM	Configuring using ViewX, Templates & Instances, Logic Languages, Security, Communications Diagnostics
Day 4 8AM - 4PM	Reports, System Configuration, System Architecture, Questions

Cost: ClearSCADA Training Course $1,800

SCADAPack TelePACE Ladder Logic Programming Course

May 15-17, 2007 – Mill Valley, CA
August 21-23, 2007 – Mill Valley, CA

An optional SCADAPack or SCADAPack32 is available at a special price with the course—an excellent way to get started using Control Microsystems' Controllers.*

Day 1 8AM - 4PM	SCADAPack controller operation, Series 5000 I/O, TelePACE introduction
Day 2 8AM - 4PM	TelePACE advanced programming techniques and advanced functions
Day 3 8AM - 4PM	Controller communications, Modbus Master/Slave protocol, Diagnostics, Modems

Cost: SCADAPack TelePACE Course $1,125

* Optional SCADAPack2 Training Kit – adds $990
* Optional SCADAPack 32 Training Kit – adds $1,060
* Optional SCADAPack Training Kit – adds $970

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

Location: Holiday Inn Express, 160 Shoreline Highway, Mill Valley, CA 94941. Those requiring overnight accommodations should call the hotel directly for reservations at 415-332-5700.

What should I bring? Laptop computer with minimum of Win 2K or XP with 15mb free disk space, CD ROM, mouse with a scroll wheel, working serial port, and necessary permissions to install software on your computer.

What is provided? Lunch and coffee, soft drinks and snacks each day.

***Optional SCADAPack Training Kits at special course pricing:** **Limit one (1) for every two (2) students per organization.** Training Kits will be shipped N/C to training facility, provided your registration is received approximately 3 weeks before the first day of the course. Training kits include a SCADAPack 2, SCADAPack32 or SCADAPack Controller, TelePACE Software, Hardware Manual (on CD-ROM), I/O Simulator board, AC/2 Transformer, & programming cable. Prices do not include applicable California sales taxes.*

Download the Registration form at: http://www.sagedesignsinc.com/events/index.htm

Please send me the Registration Form

Sage Designs, Inc.
SCADA & Industrial Automation Products

- ☐ **ClearSCADA 4-Day Course - May 22-25, 2007 – Mill Valley, CA**
- ☐ **ClearSCADA 4-Day Course - August 14-17, 2007 – Mill Valley, CA**
- ☐ **SCADAPack TelePACE 3-Day Course - May 15-17, 2007 – Mill Valley, CA**
- ☐ **SCADAPack TelePACE 3-Day Course - August 21-23, 2007 – Mill Valley, CA**

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

* * * Registration Deadline: 2 weeks before 1st day of course * * *

All registrations are subject to cancellation fees. A confirmation notice will be sent to all registrants on or before the deadline date.

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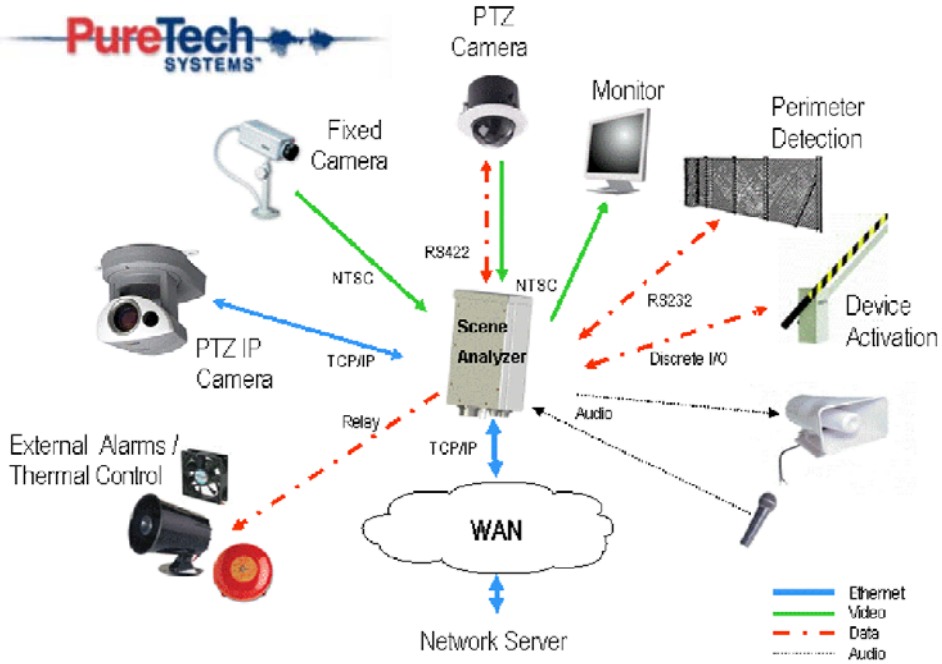
Enhance your Security with Video Analytics



Scene Analyzer's NEMA3 environmental rating and its ability to intelligently evaluate video at the edge, make it a perfect solution for utilities and institutions that have remote areas of critical importance or sites that cannot be monitored on a consistent basis due to their locations. The Scene Analyzer can act as series of independent sensors, or integrate into a system level solution, such as the PureActiv Wide Area Surveillance solution.

The potential security issues facing water facilities today continue to increase: Copper Theft, Vandalism, Equipment Theft, Tampering, and Contamination, to name a few. The Scene Analyzer is one additional tool to help such facilities detect and react to these threats.

For the past couple of years, PureTech Systems Inc. has worked hard to develop the most innovative solutions to monitor sites from one location. PureTech's PureActiv is an automated outdoor surveillance system incorporating innovative geographic map presentations, advanced object detection and tracking, fence intrusion detection, automated camera steering, and scalable video distribution targeted toward monitoring and protecting assets distributed over a wide area. Today, PureTech has developed its latest design to analyze and screen the most remote sites including water treatment plants.

In order to accommodate wide area surveillance requirements, PureTech Systems is introducing its Scene Analyzer product. The scene analyzer is a NEMA 3, environmentally rugged edge device, which can provide full video processing and analysis, along with camera and peripheral device control at remote camera locations like pump stations, reservoirs, and above ground piping. The device can operate in a fully stand alone manner, or be combined with an enterprise surveillance solution, such as PureActiv. The Scene Analyzer also has the intelligence to manage low bandwidth installations and scale data transmission accordingly. This is especially useful for remote locations like pump stations, reservoirs and above ground piping.

PureActiv Scene Analyzer turns cameras into intelligent vision sensors using advanced digital signal processing (DSP). Its stand-alone design enables it to read, evaluate, and react to digital and/or analog video feeds for motion of interest—without user intervention. PureTech's embedded software stabilizes the video image to remove camera and vibration effects then isolates threats from nuisance objects, such as shadows and tree movements. Once objects of interest are detected—based on user-specified criteria such as size, shape, direction and speed—the PureActiv Scene Analyzer is then able to track objects automatically with the nearest PTZ camera. In addition, this intelligent perimeter device is environmentally ruggedized to allow direct placement at remote sites and facilities.

Scene Analyzer provides flexibility and increased integration. The Scene Analyzer operates with PureTech's PureActiv Wide-Area Surveillance System, which monitors, detects and reports on multiple types of threats. Scene Analyzer can also act as a stand-alone remote sensor, detecting and reporting threats or seamlessly integrating into your current enterprise surveillance solution. In addition to state-of-the-art video surveillance, the Scene Analyzer also offers many integrated capabilities. External I/O allows for the integration of devices such as fence detection systems, gates, locks, lights and local alarms. These devices can be used as additional input logic to minimize false alarms or can be activated by PureActiv based on the identification of a threat.

City of Big Bear Lake DART System

The City of Big Bear Lake has implemented a Downstream Services' Data Acquisition Remote Transmission System (DART), which provides information for the Public Works Sanitation Division. Maintaining and monitoring the City's Main Sewer Lines is an ongoing project. Of primary importance to the city is protecting the pristine Big Bear Lake, and the fresh water table. Eight wastewater wet well sites were chosen for installation of the DART System.

Unlike the usual point-to-multipoint SCADA system where information is sent back to a Central HMI, the DART System data logs the information to a SCADAPack2 and then sends the raw data to the Sentry Track Host via cell modem. Each DART System is programmed to collect data, to monitor velocity, flow, and level, and to initiate alarms. The "real time" date and time-stamped information for each of the sites is accessed via the web on the Sentry Track Server, which also provides on-line reporting. The Public Works Sanitation Division responsible for maintaining the Wastewater System can access the data at any time. Automatic reports - hourly, weekly, monthly, or annually - can be generated for internal use by the City or made available to the State Water Resources Control Board (SWRCB) which is regulating waste discharge requirements.

Downstream Services, the prime contractor, based in Escondido, CA. proposed the DART System using the Control Microsystems SCADAPack2, linked to SentryTrack Systems, a web-based Data Collection, Monitoring and Reporting Host Data Center. The hardware consists of a SCADA Pack2 Controller, Cell Modem, Antenna, Solar Panel with Battery Back-up, a Flow Monitor, and a NEMA Enclosure to house the equipment. Since most of the sewer system is gravity-fed, the wet wells are in remote areas and some sites are without power. Solar cells with battery back up were chosen to power the DART System. The SCADAPack2 Controller is programmed to data-log the flow monitor information which the cell modem transmits to SentryTrack at 15-minute intervals. High level alarms are configured in Sentry Track Systems' web-based data collection process, which also provides Event Notification via e-mail or text messages to the operators. DownStream Services provided and installed the 8 units. Start-up was seamless with Sentry Track downloading the wet well flow data shortly after the cell modems established communication. Use of the cell modems, as opposed to radio communication, alleviated many of the start-up obstacles usually encountered with radio communication in mountain terrain.

Big Bear Lake Wastewater Division has a need to know what the levels and flows of the sewer system are especially during the spring snow thaw. The detailed information generated by the DART System provides detailed a graphical picture on a 5-minute basis as to Inflow or infiltration of water into the sewer main lines and laterals. As the snow melts, the ground becomes saturated with water. When sewer lines are cracked and damaged by tree roots or ground movement, fresh water will infiltrate the sewer lines. The volume of water is increased and the historical data collected can be used as a tool to locate problem sewer lines. Sentry Track provides the detailed spread sheets and graphs customized to the users needs. This information is stored at the central server, and can be shared with other government entities via web access, and provides proof of compliance with government mandates.

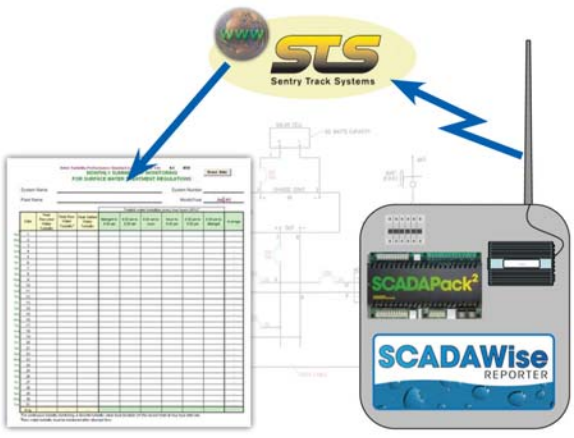
DownStream Services, Inc.

Serving California, Arizona, & Nevada
Ph 760 746 2544
Fax 760 746 2667
Email info@downstreamservices.com
Web www.downstreamservices.com

SANITARY SEWER &
STORM WATER
SPECIALISTS

Corporate Office
2855 Progress Place
Escondido, CA 92029
Ph 800 262 0999

SWRCB Reporting Compliance Made Easy with Sentry Track



- The SCADAWise Reporter will automatically collect and transmit your input data to the Sentry Track.
- Monthly forms can be filled out automatically and sent via the web.
- Data is stored on a secure server for guaranteed data security.
- Industry standard components can be the building blocks of a complete open-architecture SCADA system.
- Completely pre-configured RTU that can be customized by local integrators for your control application.
- Lease or Purchase

Teledesign Systems Introduces Remote Diagnostics for Industrial Wireless Modems

Continued from Page 1

"We're very excited to be able to offer remote diagnostics on our TS4000 wireless modems. Engineers working on SCADA and telemetry systems for water, waste water, electric utilities and environmental monitoring have told us that this was a feature that is becoming very important," said Bruce Delevaux, Vice President of Teledesign Systems, Inc. *"Though this is a firmware upgrade, we want to make it easy for customers to get this functionality so we have an upgrade program for existing systems as well as for new TS4000 purchases."*

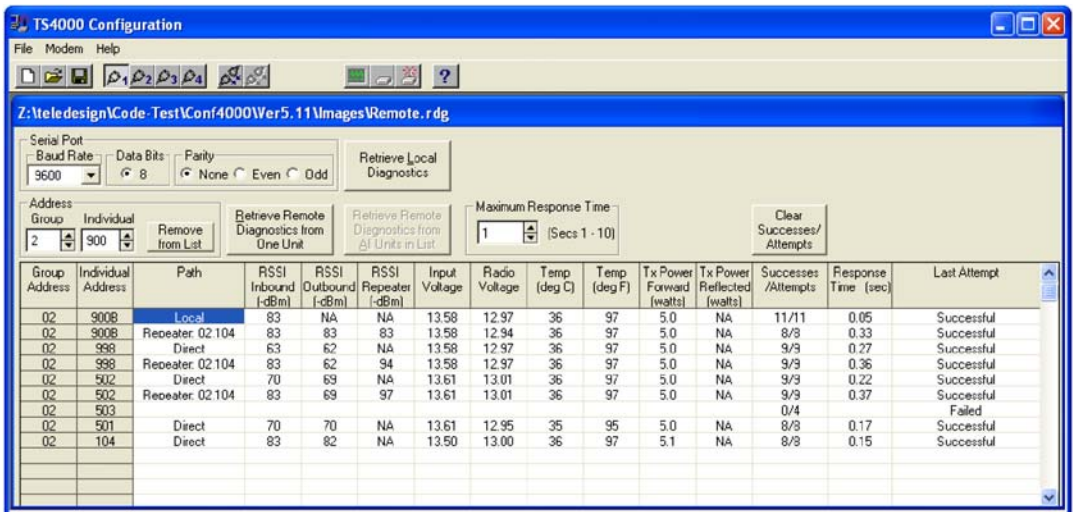
"Our first units with remote diagnostics shipped to the Tennessee Valley Authority for a nuclear detection system and we have also just shipped upgrades to the US Army Corps of Engineers for a large water system."

TS4000 Remote Diagnostics

Remote Diagnostics is a TS4000 firmware option that allows the status of remote TS4000s to be checked, over the air, from any other TS4000.

Features

- Allows for the test and verification of a system independent of host equipment (RTU, GPS, etc,).



Group Address	Individual Address	Path	RSSI Inbound (-dBm)	RSSI Outbound (-dBm)	RSSI Repeater (-dBm)	Input Voltage	Radio Voltage	Temp (deg C)	Temp (deg F)	Tx Power Forward (watts)	Tx Power Reflected (watts)	Successes /Attempts	Response Time (sec)	Last Attempt
02	900B	Local	83	NA	NA	13.58	12.97	36	97	5.0	NA	11/11	0.05	Successful
02	900B	Repeater: 02 104	83	83	83	13.58	12.94	36	97	5.0	NA	8/8	0.33	Successful
02	998	Direct	63	62	NA	13.58	12.97	36	97	5.0	NA	9/9	0.27	Successful
02	998	Repeater: 02 104	83	62	94	13.58	12.97	36	97	5.0	NA	9/9	0.36	Successful
02	502	Direct	70	69	NA	13.61	13.01	36	97	5.0	NA	9/9	0.22	Successful
02	502	Repeater: 02 104	83	69	97	13.61	13.01	36	97	5.0	NA	9/9	0.37	Successful
02	503											0/4		Failed
02	501	Direct	70	70	NA	13.61	12.95	35	95	5.0	NA	8/8	0.17	Successful
02	104	Direct	83	82	NA	13.50	13.00	36	97	5.1	NA	8/8	0.15	Successful

- Provides easy determination of the radio coverage and signal quality between TS4000s.
- Available while the system in operation.
- Can be used through Serial Port 1 or Serial Port 2 of the TS4000.
- Windows display software provided, free of charge, with the TS4000 Configuration Software.
- Remote Diagnostics function is available to other equipment through the use of control strings.
- Upgrade available for all TS4000s. Contact Teledesign for pricing.

Diagnostic Parameters

- Address – Indicates the address and the active unit in a redundancy switch (A or B).
- Path: Local – From the modem physically connected to the PC.

  Direct – Over the air directly without a store and forward repeat.

  Repeater – Over the air through one or more store and forward repeaters. The list shows the last five repeaters.
- RSSI Inbound – The RSSI (Receive Signal Strength) of the incoming response packet.
- RSSI Outbound – The RSSI at the remote TS4000.
- RSSI Repeater – The RSSI of the returning packet at the first store and forward repeater.
- Input Voltage – The input voltage to the TS4000.
- Radio Voltage – The internal regulated voltage of the TS4000.
- Temperature – The internal temperature of the TS4000.
- Transmit Power – The transmit power of the TS4000. Not available on all TS4000 models.
- Successes/Attempts – The number of successfully received and attempted diagnostics packets.
- Response Time – The over the air response time of the last successful attempt.

TELEDESIGN SYSTEMS, INC.

For more information, visit www.teledesignsystems.com

SCADAPartner Integration Partner Program

If you are looking for a systems integrator to help you with a SCADAPack or ClearSCADA project, you may want to consider the growing list of Control Microsystems' SCADA Partners. Designed to provide members with a host of valuable benefits and direct support, the SCADAPartner Program enhances our partner's service offering through the provision of free product-targeted training, development software, demonstration hardware and marketing support. Tailored to the individual needs of each member, the SCADAPartner Program is tiered to offer partnership levels based on industry interest, product requirements and commitment.

Although most SCADA systems integrators in California and Nevada have worked with Control Microsystems products at one time or another, those on our regional list of SCADAPartners now include: Advanced Telemetry Systems International; Byrd Industrial Electronics; Central Automation; FluidIQs; Hydro Scientific West and Sierra Control Systems.

You may visit Control Microsystems' website for a current listing of SCADAParter members and benefits at: http://www.controlmicrosystems.com/systemsint/systemsint_home.html.

CONTROL MICROSYSTEMS

Also Just Released— The SCADAPack Upgrade Kit

Now you can boost SCADAPack performance by up to 30 times, add increased memory and two more communication ports, all conveniently installed in minutes in the field or factory.

The SCADAPack Upgrade Kit is a high-performance hardware and software packaged solution that provides an immediate upgrade path for 16-bit SCADAPack RTU/PLCs to 32-bit performance. Featuring a 32-bit RISC processor and expanded 8 MB memory, applications run up to 30 times faster and most floating point operations run up to 100 times faster. Also included are two additional communication ports: one RS-232/485, and one 10BaseT Ethernet port. The system also optionally includes a fully integrated, license-free spread spectrum wireless module at 900 MHz and 2.4 GHz, and supports external radios and modems. Optional source level debugging software for C/C++ applications is also available. Once completed, the upgraded SCADAPack32 offers Modbus RTU and Modbus ASCII as native protocols and is remotely programmable, as a master or slave, through a choice of flexible programming languages, including C/C++, IEC 61131, and TelePACE Ladder Logic.

Existing applications developed on the 16-bit system run with little or no changes on the 32-bit upgrade. The Upgrade Kit is available for Control Microsystems' SCADAPack Series P1, T1, W1, and V1 systems. A three-year warranty on the new processor board is included.

The Sage Advisor

SCADA, SECURITY & AUTOMATION NEWSLETTER

Calendar of Events

April 16-20, 2007	**CA-NV-AWWA 2007 Spring Conference,** Las Vegas, NV. *Tony Sannella, President of Sage Designs, will lecture on the topic: DNP3 Protocol - The New Standard for Water SCADA Systems.*
April 17-21, 2007	**CWEA Annual Conference,** Ontario, CA
May 1–3, 2007	**CRWA 2007 Education and Exhibitor Expo,** South Lake Tahoe, CA
May 8-11, 2007	**ACWA 2007 Spring Conference,** Sacramento, CA
May 15-17, 2007	**SCADAPack TelePACE Training Course*,** Mill Valley, CA
May 22-25, 2007	**ClearSCADA Training Course*,** Mill Valley, CA
June 5, 2007	**SCADA Seminar hosted by Westin Engineering & Sage Designs*,** Embassy Suites Riverfront, Sacramento, CA
June 6-9, 2007	**USCID Second Conference on SCADA and Related Technologies for Irrigation System Modernization & Water Management Conference,** Denver, CO. *Tony Sannella, President of Sage Designs, will lecture during the SCADA 101 class on the subject of HMI.*
June 20, 2007	**Wine Country Water Works Association Annual Symposium & Vendor Trade Show,** Villa Chanticleer, Healdsburg, CA
June 28, 2007	**SCADA Seminar hosted by Westin Engineering & Sage Designs*,** Hotel Ménage, Anaheim, CA
August 14-17, 2007*	**ClearSCADA Training Course*,** Mill Valley, CA
August 15, 2007	**CA-NV-AWWA 2007 Educational Extravaganza,** Orange, CA
August 21-23, 2007	**SCADAPack TelePACE Training Course*,** Mill Valley, CA
Sept. 27-29, 2007	**23rd Annual Tri-State Seminar on the River,** Primm, NV
Sept. 30 - Oct. 5, 2007	**USCID Fourth International Conference on Irrigation & Drainage** Sacramento, CA

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

Your Leading Source for
SCADA

CONTROL MICROSYSTEMS
SCADAPack ClearSCADA

SCADA & Security Management Solutions
Industrial Video & Control Security Cameras
Lookout™ HMI/SCADA Software
Cirronet™ Serial & Ethernet Radios
PureTech Systems PureActiv™ Infrastructure Surveillance Technology
ProSoft RadioLINX SCADA Radios
Sentry Track Web-based Info Management
Teledesign Systems SCADA Radios
WIN-911® Alarm Notification Software

...Everything to meet your SCADA system needs!

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