



Do You Know These **Key SCADA Concepts**?

SCADA Tutorial: A Quick, Easy, Comprehensive Guide

Do you know how to **use SCADA to increase your profitability**? Are you **struggling** to find the essential information you need to **make good SCADA decisions**?

This Complete SCADA Tutorial teaches you:

- What SCADA is and what SCADA can do for you...
- Real-world SCADA applications...
- How to monitor, manage and control your facilities — on time, on budget and with increased profitability...
-

Don't waste another minute without the SCADA knowledge you need. **Read this Tutorial Now...**

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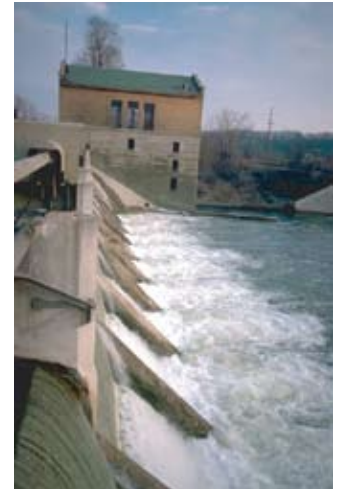
How This White Paper Will Help You

SCADA monitoring and control can save you a lot of money and increase profitability... but your SCADA implementation can be a sinkhole of cost overruns, delays and limited capabilities.

This White Paper will explain the essentials of SCADA technology, give you guidelines for evaluating SCADA technology and help you decide what kind of SCADA system is best for your needs.

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SCADA is used around the world to control all kinds of industrial processes — SCADA can help you increase efficiency, lower costs and increase the profitability of your operations.

Section 1: What is SCADA, and what can it do for you?

SCADA is not a specific technology, but a type of application. SCADA stands for Supervisory Control and Data Acquisition — any application that gets data about a system in order to control that system is a SCADA application.

A SCADA application has two elements:

1. The process/system/machinery you want to monitor a control — this can be a power plant, a water system, a network, a system of traffic lights, or anything else.
2. A network of intelligent devices that interfaces with the first system through sensors and control outputs. This network, which is the SCADA system, gives you the ability to measure and control specific elements of the first system.

You can build a SCADA system using several different kinds of technologies and protocols. This white paper will help you evaluate your options and decide what kind of SCADA system is best for your needs.

Where is SCADA Used?

You can use SCADA to manage any kind of equipment. Typically, SCADA systems are used to automate complex industrial processes where human control is impractical — systems where there are more control factors, and more fast-moving control factors, than human beings can comfortably manage.

Around the world, SCADA systems control:

- **Electric power generation, transmission and distribution:** Electric utilities use SCADA sys-

tems to detect current flow and line voltage, to monitor the operation of circuit breakers, and to take sections of the power grid online or offline.

- **Water and sewage:** State and municipal water utilities use SCADA to monitor and regulate water flow, reservoir levels, pipe pressure and other factors.
- **Buildings, facilities and environments:** Facility managers use SCADA to control HVAC, refrigeration units, lighting and entry systems.
- **Manufacturing:** SCADA systems manage parts inventories for just-in-time manufacturing, regulate industrial automation and robots, and monitor process and quality control.
- **Mass transit:** Transit authorities use SCADA to regulate electricity to subways, trams and trolley buses; to automate traffic signals for rail systems; to track and locate trains and buses; and to control railroad crossing gates.
- **Traffic signals:** SCADA regulates traffic lights, controls traffic flow and detects out-of-order signals.

As I'm sure you can imagine, this very short list barely hints at all the potential applications for SCADA systems. SCADA is used in nearly every industry and public infrastructure project — anywhere where automation increases efficiency.

What's more, these examples don't show how deep and complex SCADA data can be. In every industry, managers need to control multiple factors and the interactions between those factors. SCADA systems provide the sensing capabilities and the computational

power to track everything that's relevant to your operations.

What's the Value of SCADA to You?

Maybe you work in one of the fields I listed; maybe you don't. But think about your operations and all the parameters that affect your bottom-line results:

- Does your equipment need an uninterrupted power supply and/or a controlled temperature and humidity environment?
- Do you need to know — in real time — the status of many different components and devices in a large complex system?
- Do you need to measure how changing inputs affect the output of your operations?
- What gear must you to control, in real time, from a distance?
- Where are you lacking accurate, real-time data about key processes that affect your operations?

Real-Time Monitoring and Control Increases Efficiency and Maximizes Profitability

Ask yourself enough questions like that, and I'm sure you can see where you can apply a SCADA system in your operations. But I'm equally sure you're asking "So what?" What you really want to know is what kind of real-world results can you expect from using SCADA.

Here are few of the things you can do with the information and control capabilities you get from a SCADA system:

- Access quantitative measurements of important processes, both immediately and over time
- Detect and correct problems as soon as they begin
- Measure trends over time
- Discover and eliminate bottlenecks and inefficiencies
- Control larger and more complex processes with a smaller, less specialized staff.

How DPS Telecom Can Help You

Building the right SCADA system for your business isn't simple. It's easy to spend more than you need ... but there are also opportunities to save money and improve operational efficiency that you don't want to miss. It's hard to learn everything you need to know and still do your everyday job.

DPS Telecom can help you plan your SCADA implementation, with expert consultation, training and information resources. DPS telemetry equipment is built with the capabilities you need. And DPS is committed to helping you get the best SCADA system for your specific needs.

DPS Telecom Guarantees Success — or Your Money Back

You're never taking any risk when you work with DPS Telecom. Your DPS SCADA system is backed by a **30-day, no-risk, money-back guarantee**. Test your new system at your site for 30 days. If you're dissatisfied for any reason, just send it back for a full refund. We don't want your money unless you're completely satisfied. It's that simple.



Learn SCADA the Easy Way: Attend DPS Telecom Factory Training

Learn SCADA in-depth in a totally practical hands-on class. The DPS Telecom Factory Training Event will show you how to make your alarm monitoring easier and more effective. You'll learn basic SCADA functionality, Derived Alarms and Controls, and how to configure automatic email and pager notifications. DPS training is the easiest way to learn SCADA, taught by technicians who have installed hundreds of successful monitoring and control deployments. For dates and registration information, call **1-800-693-0351** today or go to www.dpstele.com/training.

A SCADA system gives you the power to fine-tune your knowledge of your systems. You can place sensors and controls at every critical point in your managed process (and as SCADA technology improves, you can put sensors in more and more places). As you monitor more things, you have a more detailed view of your operations — and most important, it's all in real time.

So even for very complex manufacturing processes, large electrical plants, etc., you can have an eagle-eye view of every event while it's happening — and that means you have a knowledge base from which to correct errors and improve efficiency. With SCADA, you can do more, at less cost, providing a direct increase in profitability.

Section 2: How SCADA Systems Work

A SCADA system performs four functions:

1. Data acquisition
2. Networked data communication
3. Data presentation
4. Control

These functions are performed by four kinds of SCADA components:

1. **Sensors** (either digital or analog) and **control relays** that directly interface with the managed system.
2. **Remote telemetry units (RTUs)**. These are small computerized units deployed in the field at specific sites and locations. RTUs serve as local collection points for gathering reports from sensors and delivering commands to control relays.
3. **SCADA master units**. These are larger computer consoles that serve as the central processor for the SCADA system. Master units provide a human interface to the system and automatically regulate the managed system in response to sensor inputs.
4. The **communications network** that connects the SCADA master unit to the RTUs in the field.

The World's Simplest SCADA System

The simplest possible SCADA system would be a single circuit that notifies you of one event. Imagine a fabrication machine that produces widgets. Every time the machine finishes a widget, it activates a switch. The switch turns on a light on a panel, which tells a human operator that a widget has been completed.

Obviously, a real SCADA system does more than this simple model. But the principle is the same. A full-scale SCADA system just monitors more stuff over greater distances.

Let's look at what is added to our simple model to create a full-scale SCADA system:

DNP3 RTU Choice: SCADA-Guardian 848



The SCADA-Guardian 848 RTU with DNP3 protocol support and 32 total sensor inputs (24 analog, 8 digital).

A SCADA environment relies **heavily** on accurate information on a wide range of variables to ensure that each part of a controlled process happens when it should and to the right degree.

This SCADA RTU is densely packed, capable of monitoring **24 external analog sensors**, so you can monitor temperature, flow, pressure, and any other number of variables to keep your SCADA-controlled operations running smoothly. Of the analog inputs, 16 are based on DPS "D-Wire" technology, in which the sensor's power and monitoring data are both carried through the same cable. The D-Wire inputs allow you to chain sensors together, and extend a sensor up to 600 feet from the SCADA Guardian, allowing you to monitor variables in multiple areas of your SCADA environment without spending more to install multiple RTUs.

For optimal compatibility in many SCADA environments, the SCADA-Guardian is available with support for either **DNP3** (one of the most common protocols for manufacturing and power utilities) or **SNMP** (most common in telecom/IT environments).

To learn more about this and other SCADA RTUs from DPS, **call 1-800-693-0351 or email sales@dpstele.com**

Data Acquisition

First, the systems you need to monitor are much more complex than just one machine with one output. So a real-life SCADA system needs to monitor hundreds or thousands of sensors. Some sensors measure inputs into the system (for example, water flowing into a reservoir), and some sensors measure outputs (like valve pressure as water is released from the reservoir).

Some of those sensors measure simple events that can be detected by a straightforward on/off switch, called a discrete input (or digital input). For example, in our simple model of the widget fabricator, the switch that turns on the light would be a discrete input. In real life, discrete inputs are used to measure simple states, like whether equipment is on or off, or tripwire alarms, like a power failure at a critical facility.

Some sensors measure more complex situations where exact measurement is important. These are analog sensors, which can detect continuous changes in a voltage or current input. Analog sensors are used to track fluid levels in tanks, voltage levels in batteries, temperature and other factors that can be measured in a continuous range of input.

For most analog factors, there is a normal range defined by a bottom and top level. For example, you may want the temperature in a server room to stay between 60 and 85 degrees Fahrenheit. If the temperature goes above or below this range, it will trigger a threshold alarm. In more advanced systems, there are four threshold alarms for analog sensors, defining Major Under, Minor Under, Minor Over and Major Over alarms.

Data Communication

In our simple model of the widget fabricator, the “network” is just the wire leading from the switch to the panel light. In real life, you want to be able to monitor multiple systems from a central location, so you need a communications network to transport all the data collected from your sensors.

Early SCADA networks communicated over radio, modem or dedicated serial lines. Today the trend is to put SCADA data on Ethernet and IP over SONET. For security reasons, SCADA data should be kept on closed LAN/WANs without exposing sensitive data to the open Internet.

Real SCADA systems don’t communicate with just simple electrical signals, either. SCADA data is encoded in protocol format. Older SCADA systems depended on closed proprietary protocols, but today the trend is to open, standard protocols and protocol mediation.

Sensors and control relays are very simple electric devices that can’t generate or interpret protocol communication on their

Building Access System



The Building Access System (BAS) is a comprehensive building management system that integrates into an existing alarm management platform. With the system in place, a log of all site access, including the time of day and location, is maintained. In addition, alarms such as intrusions and excessive access attempts are reported to a T/Mon on a per-door basis. Supports keypads and/or proximity keycards.

Contact sales@dpstele.com

own. Therefore the remote telemetry unit (RTU) is needed to provide an interface between the sensors and the SCADA network. The RTU encodes sensor inputs into protocol format and forwards them to the SCADA master; in turn, the RTU receives control commands in protocol format from the master and transmits electrical signals to the appropriate control relays.

Data Presentation

The only display element in our model SCADA system is the light that comes on when the switch is activated. This obviously won’t do on a large scale — you can’t track a lightboard of a thousand separate lights, and you don’t want to pay someone simply to watch a lightboard, either.

A real SCADA system reports to human operators over a specialized computer that is variously called a master station, an HMI (Human-Machine Interface) or an HCI (Human-Computer Interface).

The SCADA master station has several different functions. The master continuously monitors all sensors and alerts the operator when there is an “alarm” — that is, when a control factor is operating outside what is defined as its normal operation. The master presents a comprehensive view of the entire managed system, and presents more detail in response to user requests. The master also performs data processing on information gathered from sensors — it maintains report logs and

summarizes historical trends.

An advanced SCADA master can add a great deal of intelligence and automation to your systems management, making your job much easier.

Control

Unfortunately, our miniature SCADA system monitoring the widget fabricator doesn't include any control elements. So let's add one. Let's say the human operator also has a button on his control panel. When he presses the button, it activates a switch on the widget fabricator that brings more widget parts into the fabricator.

Now let's add the full computerized control of a SCADA master unit that controls the entire factory. You now have a control system that responds to inputs elsewhere in the system. If the machines that make widget parts break down, you can slow down or stop the widget fabricator. If the part fabricators are running efficiently, you can speed up the widget fabricator.

If you have a sufficiently sophisticated master unit, these controls can run completely automatically, without the need for human intervention. Of course, you can still manually override the automatic controls from the master station.

In real life, SCADA systems automatically regulate all kinds of industrial processes. For example, if too much pressure is building up in a gas pipeline, the SCADA system can automatically open a release valve. Electricity production can be adjusted to meet demands on the power grid. Even these real-world examples are simplified; a full-scale SCADA system can adjust the managed system in response to multiple inputs.

Section 3: How to Evaluate SCADA Systems and Hardware

SCADA can do a lot for you — but how do you make sure that you're really getting the full benefits of SCADA? Evaluating complex systems can be tricky — especially if you have to learn a new technology while still doing your everyday job.

But you've got to be able to make an informed decision, because the stakes are incredibly high. A SCADA system is a major, business-to-business purchase that your company will live with for maybe as long as 10 to 15 years. When you make a recommendation about a permanent system like that, you're laying your reputation on the line and making a major commitment for your company.

And as much as SCADA can help you improve your operations, there are also some pitfalls to a hasty, unconsidered SCADA implementation:

- You can spend a fortune on unnecessary cost overruns
- Even after going way over budget, you can **STILL** end up with a system that doesn't really meet all your needs
- Or just as bad, you can end up with an inflexible system that just meets your needs today, but can't easily expand as your needs grow

So let's go over some guidelines for what you should look for in a SCADA

The Flexible RTU That Handles All Your Transports

With the NetGuardian 832A, multiple transports are no problem. The NetGuardian supports LAN, dial-up, and serial connections simultaneously. So as your network upgrades from legacy transports to LAN, you can use the same NetGuardian units at all your sites.



What can the NetGuardian do for you?

- You can use one RTU at all your remote sites, no matter what transport is available.
- You don't have to install new transport to collect alarms.
- As your network changes, you don't have to buy new remotes for new transports.
- You only have to maintain one set of spare units and spare parts for your entire network, for great cost savings and convenience.

<http://www.dpstelecom.com/ng-832a>

More Info Resources on the Web



The DPS Telecom **White Paper Series** offers a complete library of helpful advice and **survival guides** for every aspect of system monitoring and control.

www.dpstelecom.com/white-papers

system.

What to Look for in a SCADA RTU

Your SCADA RTUs need to communicate with all your on-site equipment and survive under the harsh conditions of an industrial environment. Here's a checklist of things you should expect from a quality RTU:

- ☐ **Sufficient capacity** to support the equipment at your site ... but not more capacity than you actually will use. At every site, you want an RTU that can support your expected growth over a reasonable period of time, but it's simply wasteful to spend your budget on excess capacity that you won't use.
- ☐ **Rugged construction** and ability to withstand **extremes of temperature and humidity**. You know how punishing on equipment your sites can be. Keep in mind that your SCADA system needs to be the most reliable element in your facility.
- ☐ **Secure, redundant power supply**. You need your SCADA system up and working 24/7, no excuses. Your RTU should support battery power and, ideally, two power inputs.
- ☐ **Redundant communication ports**. Network connectivity is as important to SCADA operations as a power supply. A secondary serial port or internal modem will keep your RTU online even if the LAN fails. Plus, RTUs with multiple communication ports easily support a LAN migration strategy.
- ☐ **Nonvolatile memory (NVRAM)** for storing software and/or firmware. NVRAM retains data even when power is lost. New firmware can be easily downloaded to NVRAM storage, often over LAN — so you can keep your RTUs' capabilities up to date without excessive site visits.
- ☐ **Intelligent control**. As I noted above, sophisticated SCADA remotes can control local systems by themselves according to programmed responses to sensor inputs. This isn't necessary for every application, but it does come in handy for some users.
- ☐ **Real-time clock** for accurate date/time stamping of reports.
- ☐ **Watchdog timer** to ensure that the RTU restarts after a power failure.

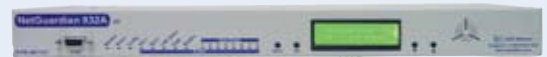
3 SNMP RTUs to Fit Your Spec

The NetGuardian RTU family scales to fit your needs ...



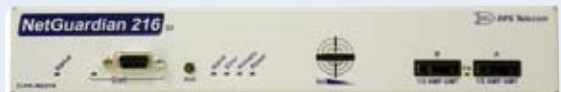
Sensor-Packed SCADA-Guardian:

- 8 discretes, 24 analogs (8 traditional & 8 "D-Wire" daisy-chainable)
- Choose DNP3 or SNMP protocol
- Ambient temperature sensor



Full-Featured NetGuardian 832A:

- 32 discretes, 32 pings, 8 analogs and 8 controls
- 8 terminal server serial ports
- Dial-up backup
- Web browser interface
- Pager and email notification
- Dual -48 VDC, -24 VDC or 110 AC
- 1 RU for 19" or 23" rack



Economical NetGuardian 216

- 16 discretes, 2-8 analogs, 2 controls
- 1 terminal server serial port
- Single or dual -48VDC or 110 VAC
- 2 compact form factors for rack or wall mount

For a complete list of your RTU options, visit: www.dpstele.com/rtus

What to Look for in a SCADA Master

Your SCADA master should display information in the most useful ways to human operators and intelligently regulated your managed systems. Here's a checklist of SCADA master must-haves:

- ☐ **Flexible, programmable response to sensor inputs.** Look for a system that provides easy tools for programming soft alarms (reports of complex events that track combinations of sensor inputs and date/time statements) and soft controls (programmed control responses to sensor inputs).
- ☐ **24/7, automatic pager and email notification.** There's no need to pay personnel to watch a board 24 hours a day. If equipment needs human attention, the SCADA master can automatically page or email directly to repair technicians.
- ☐ **Detailed information display.** You want a system that displays reports in plain English, with a complete description of what activity is happening and how you can manage it.
- ☐ **Nuisance alarm filtering.** Nuisance alarms desensitize your staff to alarm reports, and they start to believe that all alarms are nonessential alarms. Eventually they stop responding even to critical alarms. Look for a SCADA master that includes tools to filter out nuisance alarms.
- ☐ **Expansion capability.** A SCADA system is a long-term investment that will last for as long as 10 to 15 years. So you need to make sure it will support your future growth for up to 15 years.
- ☐ **Redundant, geodiverse backup.** The best SCADA systems support multiple backup masters, in separate locations.. If the primary SCADA master fails, a second master on the network automatically takes over, with no interruption of monitoring and control functions.
- ☐ **Support for multiple protocols and equipment types.** Early SCADA systems were built on closed, proprietary protocols. Single-vendor solutions aren't a great idea — vendors sometimes drop support for their products or even just go out of business. Support for multiple open protocols safeguards your SCADA system against unplanned obsolescence.

Alarm Master Choice: T/Mon LNX



T/Mon LNX has many features to make your alarms more meaningful, including:

1. **Detailed, plain English alarm descriptions** include severity, location and date/time stamp.
2. **Immediate notification of COS alarms**, including new alarms and alarms that have cleared
3. **Standing alarm list** is continuously updated.
4. **Text message windows** displaying specific instructions for the appropriate action for an alarm.
5. **Nuisance alarm filtering**, allowing your staff to focus its attention on serious threats.
6. **Pager and email notifications** sent directly to maintenance personnel, even if they're away from the NOC.
7. **Derived alarms and controls** that combine and correlate data from multiple alarm inputs and automatically control remote site equipment to correct complex threats.

For more information, check out T/Mon on the Web at www.dpstelecom.com/tmon.

Section 4: T/Mon LNX — An Integrated SCADA Monitoring and Control Solution

My company, DPS Telecom, manufactures T/Mon LNX, a master unit that serves as the core of an integrated SCADA system for all your equipment.

T/Mon LNX can meet all the criteria I've listed for a superior SCADA master ... and can do a whole lot more.

What Can T/Mon LNX Do for You?

- T/Mon LNX provides a single, one-screen view of all your monitored equipment. T/Mon LNX will tell you 100% for certain whether anything has gone wrong with any of your monitored equipment, so you can be absolutely sure there are no secret problems anywhere in your system.
- T/Mon LNX can monitor up to 1 million alarm points, giving you ample capacity to monitor everything in your facilities.
- T/Mon LNX presents information in simple, plain English, including detailed text messages telling system operators exactly what to do in case of an emergency.
- T/Mon LNX's Derived Alarms and Derived Controls let you automate every aspect of your systems using simple Boolean logic.
- You can filter alarms for the needs of different users. You can select which alarms are immediately forwarded to technicians via pager and email, which alarms can be viewed locally on the T/Mon LNX console, and which alarms are just logged to a history file for recording and later analysis.
- At every level of your organization, people can see the information they want without being bombarded with nuisance alarms.

Actually, this list just scratches the surface of T/Mon LNX's capabilities. For more information about what T/Mon LNX can do for you, send a quick email to sales@dpstele.com

How Can You Know That T/Mon LNX Will Work for You?

T/Mon LNX is not a new or untested product. T/Mon units have been in the field for years, successfully performing for clients who need stable, bulletproof monitoring and control to support their mission-critical

operations.

What Do Real People Who Use T/Mon Say?

"DPS Telecom gave us a reliable way of accessing a variety of equipment, regardless of the brand or provider. We now have a common interface for our existing system."

Harold Moses, KMC Telecom

"DPS told us we didn't have to pay if it didn't work. It works and it's sweet."

Glenn Lippincott, Southern Company

"It's hard to find companies with the intelligence and aptitude to meet the customer's exact needs, and I believe that is what DPS is all about."

Lee Wells, Pathnet

Why You Need Help With Your SCADA Implementation

Implementing an SCADA system can seem deceptively easy — you just look on the Web, find a few vendors, compare a few features, add some configuration and you're done, right?

The truth is, developing a SCADA system on your own is one of the riskiest things you can do. Here are some of the typical problems you might face if you don't get expert advice when you're designing your system:

1. Implementation time is drawn out: It's going to take longer than you think. Network monitoring is a highly technical subject, and you have a lot to learn if you want a successful implementation. And anytime you are trying to do something you've never done before, you are bound to make mistakes — mistakes that extend your time and your budget beyond their limits.
2. Resources are misused: If you're not fully informed about your options for systems integration, you may replace equipment that could have been integrated into your new system. Rushing into a systemwide replacement when you could have integrated can cost you hundreds of thousands of dollars.
3. Opportunities are missed: If you install a new SCADA system today, you're committing your company to that system for as long as 10 to 15

years. Many companies design what they think is a state-of-the-art SCADA system — and then find that their technology is actually a generation behind.

“I’m Ready to Take a Serious Look at T/Mon — What Do I Do Next?”

Call Travis Mock at **1-800-693-0351** or email him at tmock@dpstele.com and ask for a free consultation on T/Mon SCADA solutions. Travis will be happy to discuss your specific requirements and answer any questions you have.

There’s no obligation to buy. You won’t be bothered by high-pressure salesmen. You’ll just get straightforward information to help you make the best decision about your network monitoring.

You’ll get complete information on hardware, software, specific applications, specifications, features and benefits ... plus you’ll be able to ask questions and get straight answers.

My Promise to You

I don’t think you should have to take any risks to get the SCADA capabilities you need. If you decide to work with me, I won’t let you fail.

If my solution doesn’t solve your problems 100%, I don’t want you to have it. I have three goals: I want to sell my product, I want you to use my product, and I want you to be completely satisfied with my product.

If my product doesn’t fulfill those goals, I will fix it, improve it, or give you your money back. If my stuff doesn’t wow you, I don’t want your business.

So here’s my guarantee to you: if you buy a DPS Telecom solution, you can test at your site, under real-world conditions, for 30 days. If you’re dissatisfied with it, for any reason, just send it back and you’ll get a full refund, no questions asked.

So please — if you’re interested in SCADA, do yourself a favor and call us today at **1-800-622-3314**. Your network’s needs can’t wait. I promise you — we’ll deliver a solution to your problems, at no risk to you.

Sincerely,



B
President and Chief Executive
DPS Telecom



Let DPS Help You Survey Your SCADA Needs

A Free Consultation at No Obligation to You

Determining your monitoring needs can be tough. If you’ve got a busy job with lots of responsibilities, you don’t have a lot of time to evaluate control systems and survey your facilities.



Travis Mock
Director of Sales
DPS Telecom

So why not get help from experts you can trust? DPS Telecom will help you survey your remote sites step-by-step, making sure you don’t miss any opportunities to make your SCADA operations simpler, more effective — and easier on your budget.

“We’re not your typical sales department,” says Travis Mock, DPS Telecom Director of Sales. “We’re design consultants, and a lot of the time we propose solutions that have a smaller sales volume, if it’s the right solution for the client.”

A DPS expert consultant can help your figure out what SCADA system will most effectively meet your needs without overloading your budget. Our goal is to help you maximize your return on investment while minimizing your expenditure — without pressuring you to buy a particular system.

There’s no hard-sell sales tactics. No harassing sales calls. No pressure to buy. You won’t get any equipment recommendations until we’ve helped you plan the right SCADA strategy for your business.

sales@dpstele.com or **1-800-693-0351**

Monitoring and Control Solutions from DPS Telecom

Master Stations



T/Mon LNX: Full-featured master for up to 1 million alarm points. Features support for more than 25 protocols, protocol mediation, alarm forwarding, pager and e-mail alarm notification, Web Browser access, multi-user access, standing alarm list, alarm history logging.



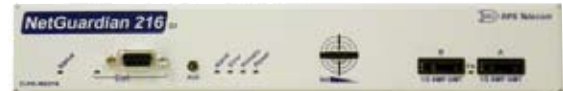
SCADA-Guardian 848

- 8 discretes, 24 analogs (8 traditional & 8 "D-Wire" daisy-chainable)
- Choose DNP3 or SNMP protocol
- Ambient temperature sensor

Remote Telemetry Units (RTUs)



NetGuardian 832A: RTU monitors 32 alarm points, 8 analog inputs, 8 control relays, 32 ping targets, 8 terminal server ports; reports to any SNMP manager or T/Mon.



NetGuardian 216: RTU monitors 16 alarm points, 2 analog inputs, 2 control relays, 1 terminal server port; reports to any SNMP manager or T/Mon.



Remote Alarm Block 176N: Wire-wrap alarm block monitors 176 alarm points, 4 controls; reports to any T/Mon LNX or T/Mon SLIM.

About the Author

Bob Berry is the founder and CEO of DPS Telecom, a leading developer of integrated alarm monitoring and control solutions. Bob's engineering skill and dedication to solving his clients' real-world problems has grown DPS from a small consulting firm to an Inc. 500 company.



www.dpstelecom.com
1-800-622-3314



"We protect your network like your business depends on it"