

## Network Operations Center and Intelligent Web Server

### Overview

The Telemetric Network Operations Center (NOC) is the infrastructure supporting the Intelligent Web Server, SCADA-Xchange, and the hosted applications that make our solutions work.

The Intelligent Web Server is a suite of TCP/IP based applications that enable monitoring and control of distribution equipment or assets from any Internet-connected PC or a customer SCADA system.

### Network Operations Center Features

The Telemetric NOC is hosted in a secure building and employs redundant connections, computers and security systems to ensure maximum uptime and safety for your data and application.

Data center features include:

- All critical servers have RAID disk management systems and redundant power supplies
- Multiple web application servers and database servers with automatic fail-over
- Load balancing server
- On-site routers, firewalls and other equipment for fast fail-over
- Numerous watchdog applications monitor all key processes and notify staff of problems on a 24/7 basis
- Uninterruptible power supply, including a generator with 24 hours of fuel supply on site
- Halon fire protection system
- Technician on site 24 x 7
- Security card access and 24 x 7 monitoring
- Dual and redundant direct connection to the Internet backbone for communications
- Hardware firewall
- Earthquake protection

### Intelligent Web Server Features

- Web-based; no local application required
- Displays digital and analog inputs, counters, and control outputs
- Allows the user to perform control actions

- Configures rule-based actions and user notifications
- Encryption based security using Secure Sockets Layer (SSL)

### How it Works

The Telemetric Network Operations Center collects and stores data from Telemetric enabled devices. The integrated cellular radio provides two-way communications between the Telemetric module and the NOC via the cellular data networks. The Telemetric Intelligent Web Server provides the user with instant access to the data over a secure web site. Each user has their own unique login name and password, giving them secure access to their own data.

After installing the hardware, the user can log onto a private page on the web site to:

- View the status of equipment – such as voltage, amperes, temperature, pressure or switch status
- Initiate a change – close a relay, change a setpoint, request a new reading, etc.
- Configure selected events to trigger a control action or an immediate user notification by cellular text messaging, e-mail or pager

### Web Site Tools

The following web site tools are available to all users:

- Device Data: View the current status of all devices and drill down to see detailed data
- User Notifications and Control Actions: Set up customized rules that will send an alarm via e-mail or pager, or trigger a control action by the device
- Device Groups: Create groups of devices that can be addressed with a single command
- Advanced Programming: Set up data export, create new user IDs and passwords for the site, and carry out other advanced tasks
- Monitor signal strength, call/data volume and other parameters for each device

## Web Site Security

Each customer's web site and data is secure and password protected. The web site data is backed up daily, and is also housed on a server with a redundant hard drive that mirrors the active hard drive. Hardware and software firewalls provide an additional layer of security for the server. Communications between the NOC and the customer's web browser are secured using Secure Sockets Layer (SSL)

- Server authentication using 128-bit encryption key validated by VeriSign Trust Certificate, permitting approximately  $3.4 * 10^{38}$  possible keys

- Bi-directional data transmission using secret encryption keys
- New encryption keys generated on every log-in

## SCADA Xchange

As an alternative to the Intelligent Web Server Telemetric enabled devices can also be monitored and controlled through an existing SCADA system via SCADA-Xchange™. With SCADA-Xchange, a SCADA system can communicate with all Telemetric devices using DNP3 or other protocols. This option is described in more detail in the SCADA-Xchange datasheet.

## How the Telemetric System Works

