



**SYSTEMS
INTEGRATED**

*Innovative and Enduring Systems
Based on Standards*

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*DATA...WHEN AND WHERE
YOU NEED IT*

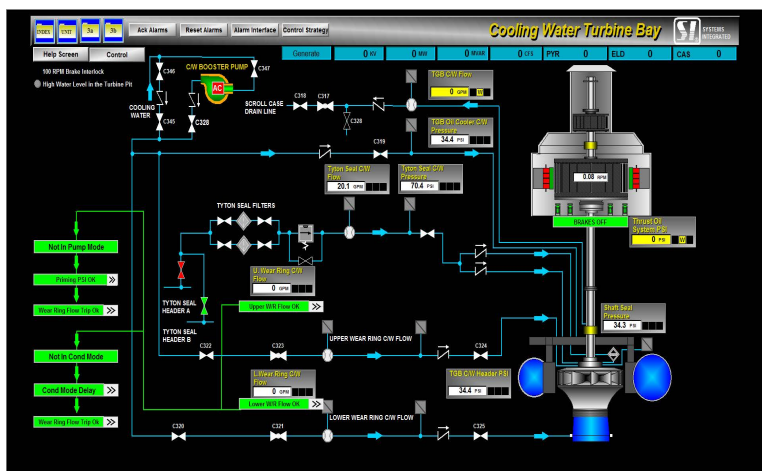
ONSITE[®] DATAVIEWS[®]

EDITION SCADA

ORDERING IS EASY. CALL TODAY!

Systems Integrated: 800/966-1174

ONSITE® DATAVIEWS® Edition SCADA software monitors, controls, and manages operations for Critical Infrastructure Systems



- Facility/Building Management Systems
- Hydroelectric Power Plants
- Water Treatment and Distribution Systems
- Wastewater Collection and Treatment Systems
- Electric Power Substation and Distribution Automation Systems

Custom development has never been so easy.

When you need high quality data acquisition and control solutions, *ONSITE* is the answer. *ONSITE* is a highly scalable system built on a distributed system architecture using LINUX servers and Windows-based clients. *ONSITE* is fully configurable, expandable and upgradeable.

ONSITE merges existing technologies with the newest innovations, and continues to support expandability for years to come.

Based on cutting edge technology, *ONSITE* is easy to use and combines the process functionality of a Distributed Process Control System (DCS), the archival functions of commercial databases, and the data presentation capabilities of dedicated graphics packages. Designed specifically for the utility industry, *ONSITE* is a powerful solution for your data acquisition and equipment control requirements.

System Design Features

The *ONSITE* system provides the following, standard system design features.

Open Systems... *ONSITE* runs on LINUX servers and Windows clients and is designed using C/C++ programming language. You can easily integrate any conforming system to access *ONSITE* data...you decide when, where, and how.

Hardware Independent... Your system may include PCs, workstations, and minicomputers. Our knowledgeable engineers have extensive experience with all hardware types.

Systems Integrated can evaluate your existing systems, your new requirements, then recommend the best possible hardware solution. Ultimately, you choose your own hardware—and the hardware vendors—that best meet your needs.

Scalability... Design an optimum system today and expand it tomorrow. *ONSITE* operates on a wide range of hardware configurations—without special programming.

You can monitor a small unit process or a large decentralized system; and add additional functionality or entire sites without impacting day-to-day operations. You define your parameters and *ONSITE* supports it.

Modularity... *ONSITE* is an interactive, modular suite of programs that allow you to easily grow and expand your system. Each *ONSITE* software module performs one specific task within the system. This strategy optimizes overall efficiency for your organization.

Networking... *ONSITE* includes a powerful network manager that handles all system communications. Modules link directly to the network manager to send and receive messages.

This networking system makes it possible for software modules to reside on the same computer or miles apart and connected by WAN. As you expand your system, *ONSITE* functionality is not impacted.

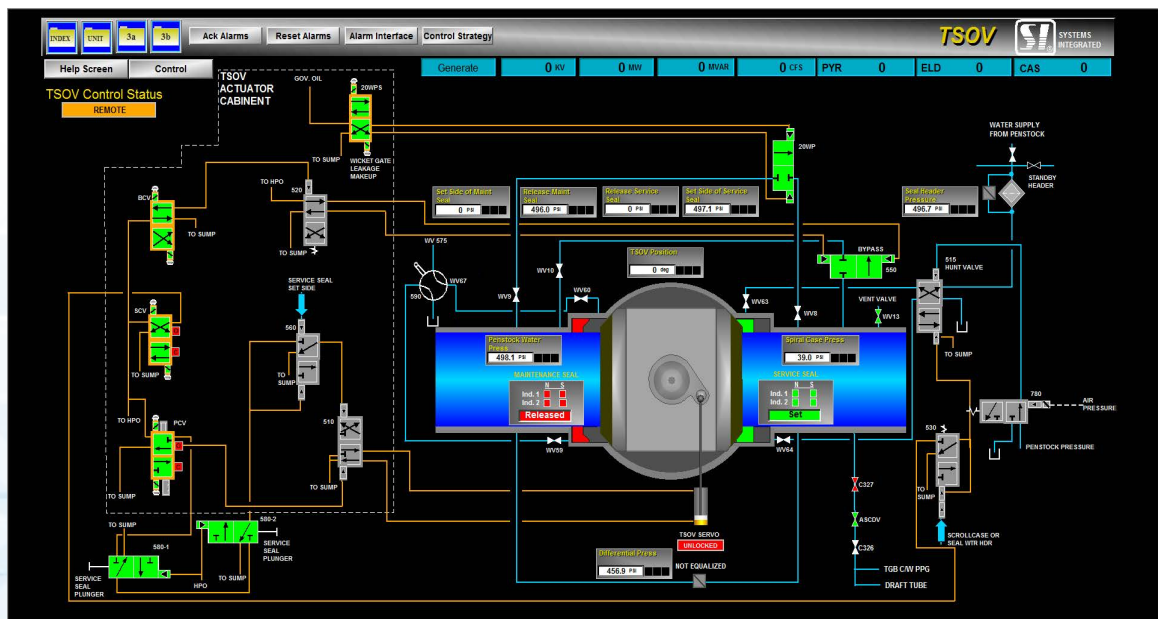
The same network manager seamlessly integrates your custom applications into the *ONSITE* system—without the high cost of outside consultants or lengthy programming projects.

ONSITE®—
The Total, Flexible
SCADA Solution

SCADA FEATURES

The *ONSITE* developers know the utilities industry from an insider's viewpoint. As a result, we know your requirements and continuously enhance built-in capabilities. *ONSITE*

- Provides a complete system solution integrating proprietary and third-party software.
- Supports the latest hardware and software solutions, thus avoiding obsolescence.
- Provides monitoring capabilities for all intelligent system equipment including computer nodes, routers, switches, RTUs, and PLCs...anything with an IP address.
- Supports bumpless transfer to backup computers to protect core functions against the failure of any single computer.
- Implements redundant network communications, regardless of the medium—Ethernet, fiber optics, microwave, and so forth. *ONSITE* automatically detects failures and switches to alternate channels when necessary to ensure ongoing system functionality.
- Maintains data security. In addition to the standard operating system security, *ONSITE* includes multiple configurable security levels that range from *Read Only* to *Unrestricted* access, and that can be set for individual *ONSITE* modules.
- Provides numerous ways to collect and save historic data. You define the parameters including on exception or schedule or by deadband values.
- Supports nearly instantaneous access to data from local or remote sites, in a format that is most comfortable for the end users and that is fully configurable.



Advanced HMI Design with DATAVIEWS Visualization Software

You do not need to schedule exhaustive training cycles to learn to use *ONSITE* functions. Menus, tool-bars, onscreen buttons, and logical options create an intuitive environment for all configuration, monitoring, and control functions. *ONSITE* is easy to use, and is designed so that even the most complex functions are easy to define.

Window functionality is similar to those available in any office environment. Users can move, size, stack, minimize, maximize, and close any number of *ONSITE* applications on any number of monitors and workstations. *ONSITE* automatically scales graphics to fit in the windows, and graphics always display proportionally.

Software Overview

ONSITE uses only mature and reliable products with a solid industry-wide reputation.

- LINUX™ and Windows operating systems.
- Oracle™'s complete RDBMS system. Provides all SQL™ functions, 4GL interfaces for configuration, and the GUI Reports Builder.
- *ONSITE* provides core SCADA controls, data acquisition, historical archiving, and graphic interfaces to all collected data.
- *DATAVIEWS* provides the graphic functionality necessary to design custom Human-Machine Interface (HMI) screens.
- RTU and PLC configuration and maintenance software for all RTUs and PLCs.
- ACSL. Advanced Continuous Simulation Language.
- OS-API. Application Programming Interface library for custom application development from Windows, LINUX™, and Oracle™.

Security

Your data is always secure with *ONSITE*. Three discrete security levels control user access, with primary control residing in *ONSITE*. Different levels of security are available for each *ONSITE* module, ranging from Read Only to Unrestricted. System administrators can define access for each application and each user if desired, or set access for user groups.

The User Group functions allow you to quickly add and remove functionality for an entire group of staff—for example, technician and operator User Groups may have completely different access rights. With this flexibility, your organization can define the exact configuration that best suits your requirements. Like all *ONSITE* functions, access definition is a simple point-and-click process.

***ONSITE provides a complete system solution
that is user-friendly, easy to customize, and
designed specifically for utility industries.***

Menus and Toolbars

ONSITE applications include menus and toolbars that support standard Windows functionality and ONSITE specifics. Simply point and click to perform configuration tasks, operate the system, and access realtime and historic data.

Graphics

ONSITE contains two high-resolution graphic tools—the Process Graphics program and the Graphics Editor.

- The Process Graphics program runs all graphic screens, allowing users to monitor and control equipment and change operating values.
- The Graphics Editor provides maximum flexibility for creating custom graphic displays. Screen designers can import AutoCAD drawings, pictures in standard file formats, or use available tools to create simple or complex screens. The Editor includes a customizable palette that contains predesigned equipment objects including items such as pumps, pipelines, common network equipment, and so forth.

The Graphics Editor includes dynamic behaviors that appear during runtime operations. Dynamic behaviors include text substitutions, color, size, and symbol changes; flashing; conditional color, and realtime graph abilities.

- The Graphics Editor supports point-and-click techniques to link database points to dynamic objects. Any point and any attribute in the database can be connected to any object. This allows you to rapidly build custom screens for equipment monitoring, including system computers and networking equipment.



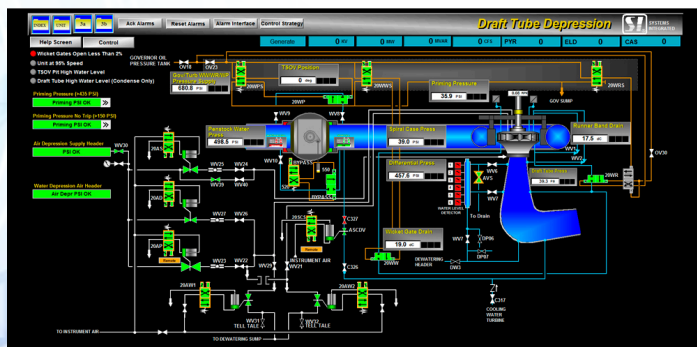
Data Acquisition

ONSITE uses I/O scanning software modules—or drivers—to acquire physical data. The drivers collect data from local or remote devices, convert raw data into the appropriate engineering units, and then place the converted data into the database using IEEE standard floating point format. The data collection interval is fully configurable for each individual I/O point in the database.

- Drivers can connect to most major PLC's including Allen-Bradley, Modicon, GE and Siemens. To support the many possible external devices, multiple, concurrent drivers can be defined and activated at any time. ONSITE supports over 15 common drivers as an integral part of the software. This allows your organization optimum flexibility for system expansion and upgrades, without having to purchase specific modules or pay for expensive software development.

Like most ONSITE functionality, configuring drivers is a matter of point-and-click selection. Users can create the appropriate software module and connect the equipment as soon as wiring or other communication links are established.

ONSITE supports all major I/O communication drivers including Modbus, Ethernet IP, DNP 3.0 and IEC 61850.



Alarms

ONSITE supports alarms for each database point, providing superior control for your operation. Your organization can also create custom alarms if necessary. Alarms may log to file, print, appear in the Alarms windows, in Process Graphics screens, and may generate voice messages or audible tones that are specific to the customer and can be set and disabled as necessary. Alarm presentation is fully configurable, based on user access levels.

Operators must acknowledge all alarms, and alarmed points must return to normal conditions before the system removes them from the alarm interfaces. Alarms are considered active if an alarm is not both acknowledged and cleared. The system may escalate any alarm if it continues to be unacknowledged or uncleared for a pre-defined period of time.

Reports

Freely define reports using the *ONSITE* Excelä Add-in, Microsoft Accessä, Crystal Reportsä, Oracle Report Generatorä, or any standard office application that is able to access an ODBC database. You may reference live or archived data, logged events, or enter static text; change row and column size; and otherwise manipulate the format.

ONSITE can calculate items based on the minimum, maximum, average values—or compute the sum of any report column or row. This ensures data in formats that best suit your needs. Reports may print on schedule or be manually requested at any time, viewed onscreen or in print format, or saved to disk and other storage mediums.

In addition to reporting functionality, a number of *ONSITE* applications can be set to act as reporting tools. These tools include historical and realtime trends and tabular displays, all of which are fully configurable to meet your requirements.

ONSITE'S Archiving

ONSITE'S archiving modules save data in flat files or the Oracle database. You can collect values from any connected point including critical communications information, I/O values, and status data.

Your organization decides the type of data you want to see, how you want to see it, and when you want to collect it. The flexible parameters allow you to meet internal data requirements and those of outside, regulatory agencies.

The Event Logger

ONSITE'S Event Logger records all changes to any *ONSITE* database, any alarm conditions, and any other user-defined events. Event data may be viewed onscreen or can be printed.

Logging is a distributed function, and may run on any system node. You may assign logging to one node or any combination of available nodes.

The Database

ONSITE allows you to view and modify *ONSITE* function blocks when necessary—assuming your access level is high enough. The function block may reside anywhere within the control database, and may be accessed at any time.

The Function Block Editor—one of *ONSITE'S* configuration tools—allows you to access the control database text file for any system node. You may modify parameters while the control database is active without impacting operations. The system saves modified data at the originating node but is not activated until you restart the control database.

You can also preconfigure points and activate them later. This functionality allows you to design complete additions to your system and implement them when you are ready.

Configuration

ONSITE's modular construction allows you virtually unlimited flexibility for system configuration. Simply identify new computers and field equipment using the intuitive tools in *ONSITE*. Expansion has never been so easy.

Underlying system functions are transparent to end users who point and click their way through clearly identified system options.

The *ONSITE* Bulk Loader makes the task of loading the database even easier and requires a minimum of effort. Simply load data into a flat file or spreadsheet format then upload the information into the *ONSITE* system.

Designers can include any system data in graphic screens, according to organizational standards. Graphic objects may link to computers, network equipment, and field equipment in addition to I/O data.

I/O Types

The *ONSITE* analog input (AIN) blocks include High and Low range entries, data acquisition parameters for raw data filtering and linearization, historical data collection, and alarm details. Available linearizations include Linear, Square Root, Modified Root, and Polynomial. Filter methods include Moving Average, Rate Limit, Low Pass, and Median.

ONSITE's digital input (DIN) blocks support runtime and Start/Stop timers, history, and alarms. Digital block algorithms include Sequence of Events (SOE), Discrete Output (DOOUT), Remote Pulse Count Input (RPCI), and Raise/Lower Control Output (RLOUT).

All I/O points include predefined alarms specific to the point type. You can enable any combination of alarms for a point, and can custom create alarms as well. This allows you total control over how your staff is notified of critical situations.

Calculation/Control Database

ONSITE includes computation and control algorithm function blocks that enhance the basic I/O functionality of the *ONSITE* software system. Each algorithm computes a specific function and places the results in its output parameter. All algorithms accept one or

more inputs and compute the desired output in conjunction with predefined variables. Signal connections can be made from the output of one block to the input of another.

An input accepts only one signal source but block outputs may connect to any number of inputs. Block parameters can serve as input for other blocks, connect to graphic screens, and be sent to field control devices.

Control Functions

Control function blocks link to other function blocks to create simple or complex processes.

- PID Controller
- Integral Controller
- Digital Gap Controller (DGAP)

Mathematical Functions

Absolute	Square Root
Add	Exponent
Subtract	Average
Multiply	Logarithm
Divide	Natural Logarithm
Power	

Logic Functions

NOT	XOR
AND	OR
Timer	Relational

Trigonometric Functions

Sine	Cosine
Arcsine	Arccosine
Tangent	Arctangent

Calculation Functions

Multiplexer	Filter
Demultiplexer	Lead-Lag
Signal Selector	Characterizer



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