

Customer Success Stories

Proven Solutions for Every Industry



Visualize Your Enterprise™





Government
Infrastructure



Power & Energy
Management,
Utilities



Building
Controls



Manufacturing &
Machine Builders

Oil, Gas & Petrochemical

Food &
Pharmaceutical

Water &
Wastewater



ICONICS Thanks Our Loyal Customers from Around the World

ICONICS is a leading provider of award-winning real-time visualization, SCADA and operational management software for manufacturing intelligence and building automation. ICONICS software delivers significant cost reductions in design, building, deployment and maintenance for a wide variety of manufacturing companies, building owners and government organizations. ICONICS solutions have helped our users to be more agile and productive and to achieve sustained profitability. Our products are installed in over 250,000 applications worldwide, continuously delivering value to more than 70% of the Fortune 1000.



2012 PARTNER OF THE YEAR
Sustainability
Winner



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About ICONICS

Founded in 1986, ICONICS is an independent software developer and Microsoft® Gold Certified Partner of award-winning real-time visualization, HMI/SCADA, manufacturing intelligence, MES, building automation and a suite of analytics solutions for operational excellence. ICONICS products are used in automotive, building automation, renewable energy, utilities, water/wastewater, oil & gas, pharmaceuticals and many other applications.



ICONICS cultivates an international culture of innovation, creativity and excellence in product design, development, technical support, sales and service. The company is headquartered in Foxborough, Massachusetts, and has offices throughout the United States and in the Netherlands, United Kingdom, Australia, Czech Republic, China, Italy, India, France and Germany, with over 50 percent of its sales coming from its international operations. ICONICS also has a joint software development and sales office in the Czech Republic.

ICONICS is committed to providing the best value for your investment. As a leading provider of Web-enabled HMI, SCADA and manufacturing intelligence solutions, ICONICS retains the best talent

and has created a culture that encourages innovation, creativity and excellence in its product development, technical support, sales and service.

ICONICS' advanced visualization, productivity and sustainability solutions, built on its flagship GENESIS64™ HMI/SCADA and AnalytiX® products, help increase production, reduce energy costs, and curtail carbon-based greenhouse gases. ICONICS products are based on open industry standards, such as OPC, OPC UA, BACnet, Web Services and many others. ICONICS makes extensive use of the latest Microsoft technology such as .NET, HTML5, Silverlight, Active Directory, Windows Server, Windows 7, Windows 8, SharePoint 2010, SQL Server 2008, SQL Server 2012, Internet Explorer, Bing Maps, IIS and Office.

ICONICS is a charter member of the OPC Foundation (www.opcfoundation.org), an organization dedicated to "ensuring interoperability in automation" by creating and maintaining open specifications that standardize communication. ICONICS has been on the OPC Foundation Board of directors since 2003 and provides "OPC to the Core" solutions for automation and products for the development of OPC Servers, OPC clients and OPC-enabled controls.



With more than 250,000 installations worldwide, ICONICS' extensive software solutions are used in a wide variety of applications across many industries. In order to meet the high demands of many large and complex applications, ICONICS provides consulting services and extensive training to support its customers, including end users, Systems Integrators, OEMs and channel partners.



President's Message

Welcome to the ICONICS Customer Success Story Catalog. Since ICONICS' founding in 1986, and with over 250,000 installations worldwide, our industrial automation software solutions have helped customers in a vast array of industries and applications. From delivering solutions for the world's largest pipeline to automating renewable wind parks, ICONICS' solutions have helped to meet the most demanding challenges worldwide.

Inside the Success Story Catalog

This catalog is a compilation of the most successful implementations, installations and deployments across the globe. We have organized these stories into the following industry categories:

- Building Controls
- Government Infrastructure
- Oil, Gas & Petrochemical
- Water & Wastewater
- Food & Pharmaceutical
- Machine Builders & Manufacturing
- Renewable Energy, Power & Utilities

In each of the enclosed success stories, you'll read about real world customer needs in achieving unique business objectives and the recommended ICONICS solutions for these needs. These stories also include ICONICS channel partners involved in each project, the ultimate outcome and, in some cases, future expansion plans to use other ICONICS products.

2012 Microsoft Sustainability Partner of the Year

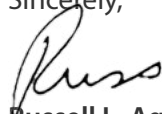
This past year, ICONICS was honored to win the prestigious Microsoft 2012 Sustainability Partner of the Year award. This award recognizes the partner who delivered software and technology innovations built on the Microsoft platform that helped people and organizations around the world reduce their impact on the environment.

We hope that you enjoy these customer stories and find out how ICONICS has helped solve real world applications. We also hope these testimonials inspire you to learn how ICONICS can help meet your or your clients' automation software needs.

Thank you again to those customers and partners who helped us put this Success Story Catalog together.

And to our potential new customers, we look forward to working with you.

Sincerely,



Russell L. Agrusa
President and CEO
ICONICS, Inc.



Russell L. Agrusa
President & CEO
ICONICS, Inc.



Sustainability Partner of the Year

ICONICS was chosen for the Microsoft Sustainability Partner of the Year Award for 2012 from nearly 3,000 entrants. Due to our successful implementation of customer solutions based on Microsoft technology and a continued dedication to new technology, ICONICS puts sustainability at the forefront of our innovation. After the second Microsoft Award received in four years; the other being the 2008 Microsoft Partner of the Year Award; ICONICS is proud to produce the cutting edge software that Microsoft has come to expect and appreciate in ICONICS.



2012 PARTNER OF THE YEAR
Sustainability
Winner

Sustainability is a growing priority for many businesses including many building and manufacturing facilities worldwide. In the United States alone, industry experts estimate that businesses spend about \$100 billion on energy for their offices. This creates a pronounced need for the careful allocation and management of natural resources. Customers, as a direct result of using the ICONICS solution, have realized a 6-12% cost reduction and energy savings in year one, with an ROI in as short as nine months. A prescriptive software approach to identifying sources of energy loss has proven itself in buildings, manufacturing operations and water/sewer industries.

ICONICS' Sustainability and AnalytiX® solutions help reduce energy costs, cut consumption, and curtail carbon-based greenhouse gases generated by manufacturers, buildings and factories. To achieve these goals, ICONICS solutions utilize the complete Microsoft stack including; .NET (WPF, WCF, WF), Silverlight, Active Directory, Windows Server, Windows 8, SharePoint 2010, SQL Server 2012, Internet Explorer, Windows Phone, Bing Maps, IIS and Office 2013.

In today's competitive global economy, everyone is looking for ways to reduce consumption, monitor conditions, lower energy costs and minimize carbon emissions. To that end, ICONICS designed its AnalytiX suite with the flexibility to cater to any application in any industry. Virtually any process, production or building data that requires summarization, aggregation, comparison and observation over time can greatly benefit from this solution. Applications range from buildings and facilities, smart grids and large water plants to wind and solar renewable energy sites, airports and campus-wide installations; all providing the desired, sustainable results that customers can anticipate when using ICONICS software solutions.

"For its commitment to helping customers increase the energy-efficiency of their operations, ICONICS, Inc. is recognized by Microsoft as the 2012 Sustainability Partner of the Year. By using the Microsoft technology platform to harness the power of real-time data from manufacturing and facility operations, ICONICS has achieved outstanding results in driving customer sustainability efforts and reducing energy costs across all the multiple industries."

Rob Bernard
Chief Environmental Strategist
Microsoft



Software Solutions

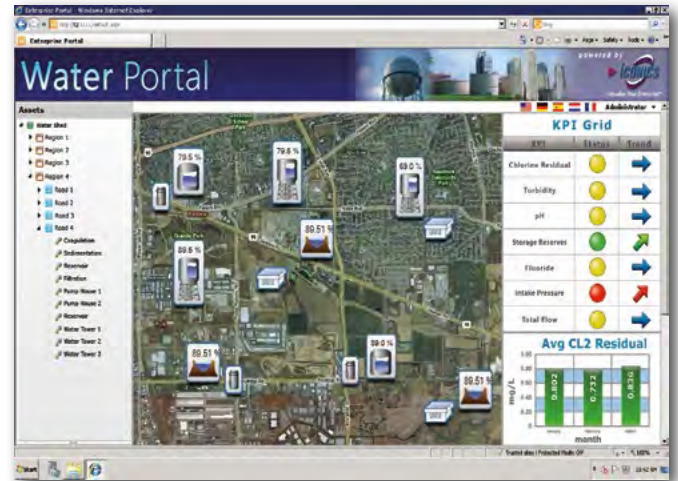
ICONICS Software Solutions cover a wide variety of customer and partner visualization, control and analysis needs. For more information, visit ICONICS online at www.iconics.com.

HMI/SCADA

ICONICS creates 64-bit and 32-bit HMI/SCADA software suites that help customers visualize and control processes in a wide variety of industries and applications worldwide.

GENESIS64™ is a mission critical, scalable, 64-bit HMI/SCADA solution utilizing the latest visualization technologies to deliver high-powered 2D, 3D and GEO-SCADA HMI visualizations with natural user interfaces such as Multitouch. It provides universal connectivity through OPC, OPC UA, BACnet, SNMP and Web Service protocols.

GENESIS32™, for 32-bit platforms, provides advanced visualization solutions, connecting plant-level operations to the enterprise, turning real-time data into a competitive advantage.



Analytics

ICONICS has created an analytics suite of products that transforms large amounts of real-time data from manufacturing and facility operations into Actionable Intelligence, driving improvement in productivity, efficiency, quality and sustainability.

Energy AnalytiX® is a sustainability and energy management solution that helps reduce energy costs, cut consumption and curtail carbon-based greenhouse gases generated by manufacturers, buildings and factories. Energy AnalytiX' ability to integrate data from any electric, gas, fuel, steam or water meter, as well as operations and business variables, delivers the insight needed to identify improvement opportunities.



Facility AnalytiX® is a predictive equipment diagnostic solution that uses an advanced Fault Detection and Diagnostics (FDD) Engine to analyze all available information to detect and predict faults in equipment, incorporating algorithms that weigh the probability of faults and advises management, operators and maintenance personnel of actions to prevent equipment failures or excessive use of energy.

Productivity Analytics™ empowers decision makers at all levels of the enterprise with real-time and accurate information to help drive global operational efficiency and strengthen competitive market advantage. Gain insight into OEE, Cycle time, Yield and many more KPIs. Visualize, analyze and report on any Web browser or Microsoft SharePoint portal.

Alarm Analytics™ provides insight into alarm frequency, statistics, user acknowledgements, priority distributions and hidden correlations, helping personnel to visualize, analyze, and manage alarm information.

Software Solutions

Web and Mobile Solutions

With ICONICS' Mobile and Web Solutions, the graphics, dashboards, trends and reports that users create to manage operations can be viewed and analyzed from Web-connected devices, providing secure management access from your plant, factory, building, campus or via phone/tablet on the go.

WebHMI™ uses Web browsers to provide an interface with ICONICS' graphics, trending and alarming applications (applications within the HMI/SCADA suites) with no need to install any software onto the remote clients or to export or convert displays.

MobileHMI™ provides real-time mobile access to critical data in manufacturing, industrial and building operations, maximizing the value of corporate data and improving ROI and overall business performance. Deliver dazzling graphics, charts, trends, grids and push alert notifications to any smartphone or tablet.

PortalWorX™ allows users to easily create and manage custom manufacturing portals, business portals and visualization dashboards. Numerous Web Parts are provided to deliver rich graphics, trending, charting, reporting and much more. Versions are available for delivery via Microsoft SharePoint® as well as direct display on any browser.

PortalWorX™-SL is a new integrated dashboard technology. Users can easily combine and configure HMI graphic displays, trending, alarming, Energy AnalytiX® views, data grids and other Web Parts into a role-based dashboard. Run PortalWorX dashboards in any popular Web browser, including Google Chrome, Apple Safari, Internet Explorer and many others.

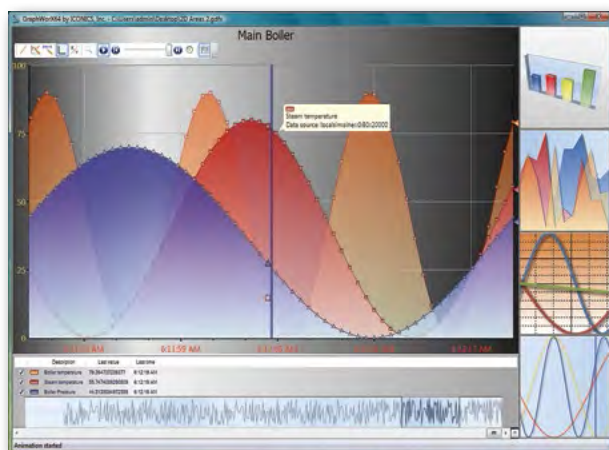
Manufacturing Intelligence

ICONICS' Manufacturing Intelligence suite of solutions provides users with accurate up-to-date, real-time information from all enterprise systems, resulting in increased profitability and streamlined business efficiency.

BizViz™ translates manufacturing data from the plant floor into actionable intelligence for decision makers at the enterprise level, integrating data from multiple data sources into visual summaries through powerful dashboards and reports.

BridgeWorX™ performs efficient data exchange to and from any database or data source. With a unique visual transaction data-mapping configuration wizard, users are able to transfer information, including commands, to and from real-time OPC or BACnet devices and corporate business information systems.

ReportWorX™ is a powerful reporting tool that turns volumes of data into manufacturing intelligence. Connecting to multiple data sources, including real-time OPC and BACnet data, as well as databases, ReportWorX processes data from the plant floor, corporate databases and everywhere in between.



Historians

ICONICS' Historian family of products provides flexible data historian solutions, whether for high speed or applications that demand efficient data storage to archive years of information, ensuring that critical data is never more than a few clicks away.

Hyper Historian™ is a high-performance, mission-critical, industrial data historian designed for the most demanding applications and to log greater than 100,000 tags per second. Hyper Historian works with multiple data sources across the enterprise including OPC UA Servers, OPC DA Servers, OPC XML DA Servers, BACnet, SNMP devices and many more.

Works on Any Glass, Anytime™

Introducing ICONICS MobileHMI App for Windows 8

ICONICS MobileHMI™ App for Microsoft Windows 8 is a rich client to visualize and analyze alarms, trends and assets from anywhere and at any time. Designed for Microsoft Windows 8 surfaces and other smart devices, it provides dazzling animated process graphics, alarms, KPIs and key metrics in real time. Natural multi-touch gestures make it easy to operate, as you can zoom or drill down into areas of interest.



Mobility and portability of hardware and data is at the heart of information technology's continuous evolution. New smartphones, tablets, hybrid laptops and similar devices emerge at a rapid pace, providing users with multiple options for how data is created, viewed and acted upon. ICONICS is an industry leader in creating HMI/SCADA, manufacturing intelligence and analytical software solutions for mobile use.

Try it Now!

Download the ICONICS app for Windows 8 at <http://www.iconics.com/mobilehmi/8> and access our demonstration server to witness the power of Windows 8 at your fingertips.



Global Technical Support

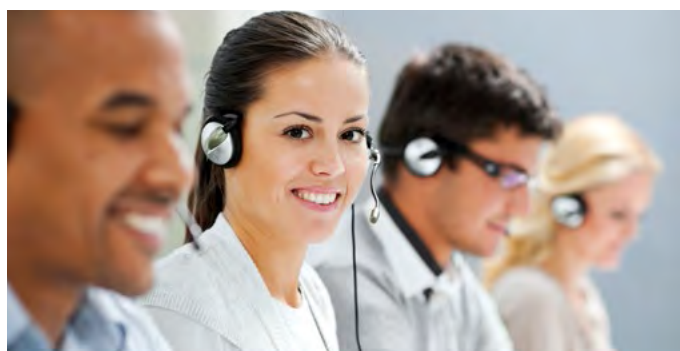
ICONICS has created a service and support structure to assist customers and partners with our software solutions. We continually invest in the latest technologies, linking our support and engineering organizations together electronically. When you call our support line, or access our online support portal, you are routed to the appropriate technical experts based on your specific need/topic and the time of day. You will receive the same world-class service from all of our global support offices.

Our support offices are staffed with experts that have immediate access to multiple versions of all of our software products, so we can reproduce the same steps and actions that you are performing. In addition, with your approval, we have the ability to remotely access your system, so that we can observe your operations first hand and can provide hands-on support.

Customers can access support via the communications method that is most productive for them: phone, email or online portal. Those who select our customer portal can access the current status of any issue they have reported and all activity performed on it at <http://partners.iconics.com>.

ICONICS Technical Support Features:

- "Follow the Sun" Telephone Support Option
- 24/7 Telephone Support Option
- Technical Support Centers Around the Globe
- Global Case Tracking System for Easy Access
- Support Options Include: Online, By Phone or Email
- Interactive Case Resolution Via Remote Sessions
- Experienced, Trained Support Staff
- Escalation of Cases As Needed
- Installation/Upgrades/Licensing Assistance
- License Replacement Assistance
- Multiple Software Versions Supported



Customer Connection Portal

ICONICS has developed a one-stop online location for all of your support needs. At the Customer Connection Portal, you can search the ICONICS Knowledgebase, review Application Notes, watch "How To" videos, engage with the Customer Forum and Blog, download software updates and view Frequently Asked Questions. You can even see your active SupportWorX Plans and support cases.

The Customer Connection Portal complements our telephone support and gives our customers and partners the ability to communicate with ICONICS and to collaborate with peers. You will also have direct access to many of the resources used by our technical support and professional services staff.

Visit <http://partners.iconics.com> to get started today!

ICONICS Customer Connection Portal Features:

- Extensive Knowledgebase
- Broad Range Search Engine
- Product Feature Training Videos
- "How To" Videos
- Access to "My Support Cases" for Current Status
- Review Open Items for You or Your Customers
- Forums and Connection to Other ICONICS Users
- Software Updates and Service Packs
- Full Release Downloads and Hot Fixes
- Sales Support Information
- Tips of the Day
- News
- FAQs

Welcome to the Customer Connection Portal



Consulting Services

There are times when applications require design, implementation or specialized startup assistance. In these situations, you can work directly with our highly skilled applications engineers at our Global Support and Service Centers. Our applications engineers have extensive experience implementing customer solutions with our many products. Our professional service team offers proof of concept design assistance, problem solving, expert technical support and a collaborative effort between the end user, the system integrator and ICONICS' engineering staff.

QPS Services are provided to complement and support the strong engineering capability of our Systems Integrators and Distributors.

QPS is purchased on a Time/Expense basis or a Fixed Price/Delivery of Scope of Work basis. Typical uses for this service include: system architectural design guidance, custom development and scripting assistance, startup assistance, custom training, proof of concept demonstrations and additional resources to help meet critical project schedules.

Quality Professional Services Features:

- Well-trained Application and System Engineers
 - Provides Back-up for Tight Deadlines
 - Assures that Systems are Properly Designed
 - Guidance on Most Efficient User Strategies
 - Teaches ICONICS' Product Features Capabilities
 - Configuration Assistance
 - On-site/In-house Services
-



Training

An investment in ICONICS Training will result in reduced engineering costs and greatly improved system designs. ICONICS training classes are packed with hands-on, in-depth interactions with our products. Tips and shortcuts offered by ICONICS' expert instructors will help you develop your applications quickly and efficiently. Training is available in our training centers around the world.

Certification is offered to any student who successfully completes an ICONICS provided training course. Training is an essential component of ICONICS' channel certification programs, including its Systems Integrator Program (SIP), Distributor and Representative Certification Programs.

ICONICS Training Features:

- Globally Scheduled Classroom Training
 - Extensive Training Books & Class Materials
 - 2-day and 3-day Classes or 1 Week Packages
 - On-site Training with Customer Specified Content
-

ICONICS is dedicated to providing the highest quality of training. We offer an array of training courses on ICONICS GENESIS64, GENESIS32, Hyper Historian, AnalytiX and BizViz Product Suites. Official ICONICS training is scheduled at ICONICS' global support centers. Custom training courses are available by request and may be conducted at customer locations. For additional information, please contact ICONICS or its sales representatives.

All courses are a combination of lecture and hands-on training. What you develop during training goes home with you, along with a hard copy of the documentation for future reference.

Contact ICONICS to schedule customized training to fit your organization's exact needs, either in our facilities, or yours.

Courses are scheduled in ICONICS facilities around the world, where and when you need them.



For almost **30 years** IB has been designing, producing and implementing **software solutions in Asset Management**.

Thanks to its know-how and experience, starting from Marine sector, the Italian company has been building up an internal team with **strong vertical expertise**.

Fields of application of IB products are: Marine, Process and Manufacturing, Facility, Transportation and Logistics, Healthcare, Utilities and Power Generation.

IB, with ICONICS, has developed a **Control Room solution** for centralized management technical maintenance and administrative and economic management of technological subsystems in big stores.

IB IN NUMBERS

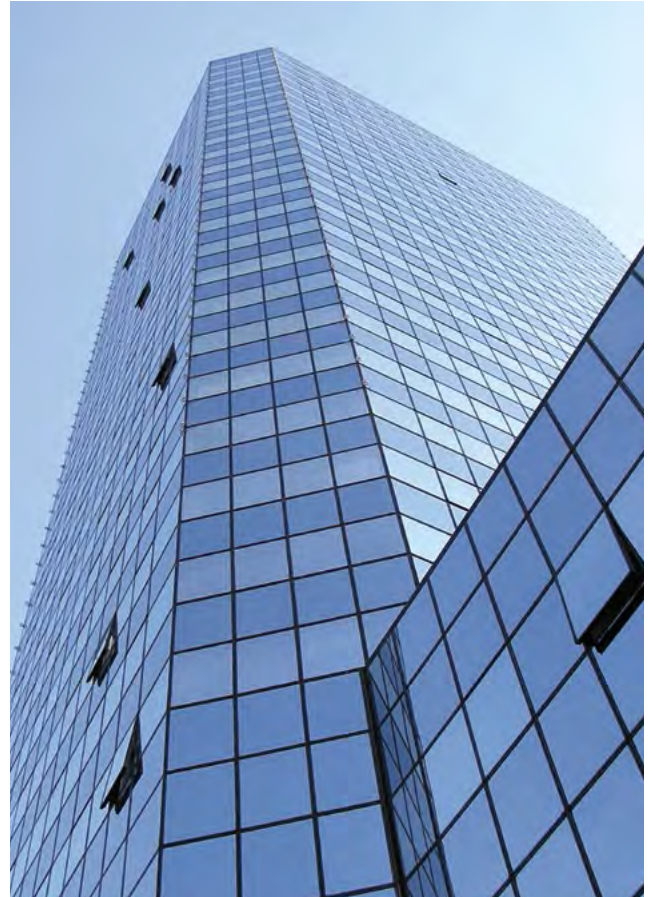
400 national and international clients

Turnover 6 million Euro in 2011

72 employees

29% in R&D (innovation in product and process)

www.gruppo-ib.com



"We have used ICONICS software products almost exclusively on our installations since 1991. Their consistent high performance and value are always major factors in the success of our projects. The versatility and fully customizable nature of the software allowed us to adapt perfectly to the varied technical issues we encountered on the Solebury campus and to precisely tailor the HMI to fit the needs of their personnel."

Walter L. Horigan

President

Vortechs Automation, Inc.

BUILDING CONTROLS





*Entrance to T5 Terminal
Heathrow Airport*

BAA/Heathrow Airport Middlesex, United Kingdom



A Control Screen at T5 Terminal at Heathrow

About BAA/Heathrow Airport T5 Terminal

The T5 Terminal at London's Heathrow Airport was one of Europe's largest construction projects, funded by BAA at £4.2 billion. Initial planning for the facility, with a planned capacity of moving 30 million passengers a year, began in 1985 leading to a national design competition in 1989, then a four-year public inquiry, the longest ever on record. Permission was granted in November 2001 to begin development, a major step in providing BAA its first new gateway at Heathrow since Terminal 4 opened in 1986. Construction of T5 remained steady and on time as the terminal's March 30, 2008 opening day approached. BAA sought a comprehensive solution to deliver a very intelligent control room to operate the new T5 Terminal.

ICONICS Software Deployed

ICONICS GENESIS32™ OPC Web-enabled HMI/SCADA suite was selected by Ultra Electronics Airport Systems, a "first-tier" supplier for T5's Building System Integration (BSI) and the BAA Systems Team.

Project Summary

The new terminal was designed to be a fully integrated facility, monitored through a central Terminal Service Centre (TSC) and mobile devices. A common user interface was needed to access heating, ventilation, lighting, fire, elevator, CCTV, and security systems as well as to centralize alarm management and automate system interaction.

At its opening, T5 included over 50 different systems, producing a massive tag count of over 3 million, handled easily due to the robust nature of GENESIS32. In addition, by using open industry standards based on OPC, the resulting architecture has been designed to provide flexibility for future expansion and integration, as required by the customer.

Benefits of the System

The ICONICS platform as implemented by Ultra provides better information to the users than any previously designed model, allowing the terminal operators to respond more quickly to changes and situations. It provides a global view of all operations within the building and allows drill down, by pan and zoom, to any asset or area of interest.

Allowing connectivity with many industrial devices and control systems through a common interface, OPC was fundamental to achieving seamless integration within the BSI and giving users the ability to both see and react to cause and effect within the terminal. One extremely important feature was future flexibility in both technical and operational spheres. During the selection process, this was a strong driver for Ultra's and BAA's selection of ICONICS as the core of the BSI.

Conclusion

ICONICS, one of the world's largest suppliers of controls software front end packages, clearly demonstrated a defined development path and road maps designed to keep their product at the forefront of the market and deliver an extended, useful lifecycle of their solutions for BAA.



Baggage Claim at Heathrow Airport's T5 Terminal



Heathrow Airport's T5 Terminal

Case Study Details

BAA and Ultra Electronics Airport Systems brought ICONICS on board due to several factors, including:

Minimizing Risks

- Development of standard symbols/properties
- Consistent Tag structure and display creation
- Minimum number of interfaces

Meeting Requirements

- Flexibility in using BSI in an airport terminal
- Simple maintenance via off the shelf product
- Complex functionality via point and click

Details Continued

Keeping Pace with Industry Developments

- Open industry/IT standards (SQL, OPC, OLEDB, XML)
- Deployment on Microsoft OSs and Internet Explorer
- Mobile Device Integration



Federation Tower / ARMO Group Moscow, Russia



A View of the Federation Tower



HMI/SCADA In Action at the Federation Tower (West)

About The Federation Tower / ARMO

The Federation Tower in Moscow, Russia is to become the tallest building in Europe, as well as Europe's first "Supertall" building. The complex is divided into two towers with a shared podium with a combined floor area of 423,000 square meters. Tower 1 is 360 meters and 93 stories tall with 207,000 square meters of floor space and is to be used primarily as office space. Tower 2 is 242 meters and 62 stories tall with 110,500 square meters of floor space and will be used as a hotel and residential apartments.

At the top of both towers, there will be a 360°-view observation deck and restaurant. Eight above-ground floors and one underground floor will contain over 50,000 square meters of shopping space. When com-

pleted, the complex will feature the world's tallest spire, soaring up to over 506 meters and will have the world's highest glass elevators, ascending at a rate of 18 meters per second.

The building automation and security systems in the West Tower are being handled by the ARMO Group, a building systems, automation and management firm also located in Moscow.

ICONICS Software Deployed

Planners for the Federation Tower and consultants from the ARMO Group suggested an OEM version of ICONICS GENESIS32™ Web-enabled, OPC-integrated HMI/SCADA suite. Johnson Controls, Inc. (JCI) utilizes GENESIS32 technology within its Metasys® M5 Workstation building management system.

Project Summary

Construction on the Federation Tower began in 2005 and will be complete in 2013. ARMO Group is assisting with the JCI building controls and automation network in the West Tower, handling over 21,000 data points spread amongst 1,600 automated devices and using more than 20 digital integrations. Among the systems now integrated with JCI M5 (ICONICS GENESIS32) are HVAC, Water Supply, Cooling Center, Heating Center, Electrical Transformer Substations, Electrical Distribution System, Uninterruptible Power Supplies, Diesel Generators, Fire Alarm System, Lighting Control, Elevators, Apartment/Room Control, Common Area Microclimate, and Central Dispatching Room.

Presently, the project encompasses over 41MVA of electrical power, 5.7 and 3.8MVA of backup DGU power, 35MW of cooling and 42.5 Gigacalories of heating. Over 40 JCI Network Controllers (NCMs) are utilized along with over 300 Echelon Lonworks® Field Level Controllers. There are seven stationary building control/automation management workstations throughout the West Tower as well as two portable workstations. All workstations in the Central Dispatching Room are connected to a multi-functional video wall, consisting of 96 high-contrast plasma panels. Throughout the year, all information about

Conclusion

The group managing the Federation Tower is planning on upgrading their building management system, increasing to 50,000 data points, easily manageable with JCI M5 (ICONICS GENESIS32).



*The Federation Tower Under Construction
Moscow, Russia*



*The Building Control Center Inside
the Federation Tower (West)*

trends, alarm lists, access lists, etc., is archived to two clustered servers for network storage and can be accessed online at any time based on access permissions. Among the protocols used throughout the network are LonWorks, N2 Open, Modbus and BACnet. In fact, the JCI-networked West Tower is able to communicate with the Sauter-networked East Tower via BACnet integration.

Benefits of the System

The JCI M5 Workstation OEM version of ICONICS' GENESIS32 HMI/SCADA suite provides multiple benefits including scalability as the system grows, wide integration (via BACnet, OPC, etc.), enhanced graphic visualization, Web accessibility, and more.

Case Study Details



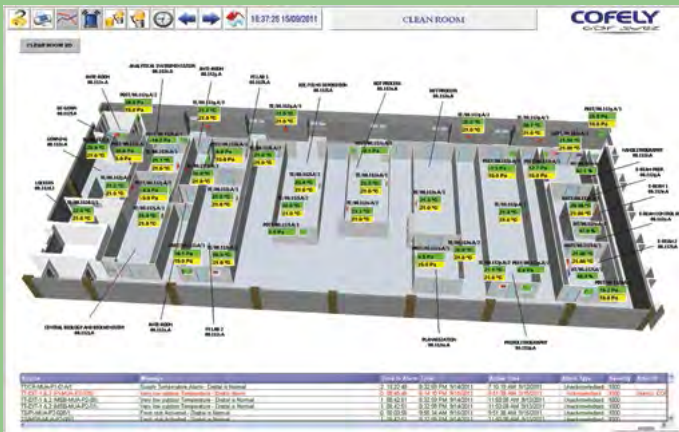
ICONICS provides the ARMO Group with a solution that includes:

- Scalable, Fault Tolerant Workstation
- Dynamic, High Quality Graphic Capability
- GUI Personalization by User/User Type
- Trend Collection, Storage and Analysis
- Interface Between Integrated Systems

International Iberian Nanotechnology Laboratory Braga, Portugal

INL

The International Iberian Nanotechnology Laboratory (INL), Braga, Portugal



Clean Room Floor Monitoring/Control

About International Iberian Nanotechnology Laboratory (INL)

The International Iberian Nanotechnology Laboratory (INL) (<http://inl.int>), located in Braga, Portugal, is an intergovernmental organization created to foster interdisciplinary research in nanotechnology and nanoscience. Aiming to become a vital part of Europe's scientific area, INL provides a high-tech research environment addressing major challenges in nanomedicine, nanotechnology applied to environmental and food control nanoelectronics, as well as nanomachines and molecular manipulation at nanoscale.

With a total area of 28,000 square meters, the INL will house more than 200 top level scientists and about 100 PhD students, besides the laboratory sup-

"So far we have been working with GENESIS32 for five years. Our experience during this time has been excellent. That is the main reason why ICONICS is always our first choice when selecting which SCADA to install."

José Granero Nueda

Project Manager

Cofely GDF Suez (España)

port and administrative personnel. Main outstanding spaces of the building included:

- A clean room space with a total area of 1,050 sq. meters, which is divided into 7 big labs that house 19 different spaces, six of them classified at ISO5 and the rest at ISO 6.
- 11 high accuracy rooms; three of them fully shielded to attenuate the electromagnetic interferences with an attenuation of up to 120 dB, with a total area of 700 sq. meters (m²).
- 23 wet laboratories with a total area of 1,000 m².
- 23 dry laboratories with a total area of 1,000 m².
- 6 biology laboratories with a total area of 170 m².

ICONICS Software Deployed

The INL, working with Cofely GDF Suez (España), selected the ICONICS GENESIS32™ HMI/SCADA software suite for their new Building Management System integration project.

Project Summary

In 2009, a consortium where Cofely was involved was awarded a €42 million contract for the construction of all the installations of the INL in Braga, Portugal. The complex is divided into a hotel for resident researchers and the main building, where clean rooms, laboratories, high accuracy areas and administrative offices are located. The application involved deploying an ICONICS-integrated Building Management System, paying special attention to the clean room and high accuracy and laboratory areas, as well as to the critical process systems.

beginning, implying additional and unacceptable costs. On the other hand, the HVAC system for these areas was designed to work 24 hours a day and 365 days a year. In addition to the temperature, humidity and pressure data monitoring and collection for the certification of the clean rooms, it was an additional challenge to control the temperature in the high accuracy rooms with a required accuracy of $\pm 0.1^{\circ}\text{C}$. The control system is based on B&R's X20 series. The main control tasks are handled by over 100 control cabinets with their respective B&R controllers. Besides the main controllers, over 60 Beckhoff



A Laboratory at the INL



Air Handler Operations for the Connected Hotel

The Building Management System was designed to control and monitor the following systems: HVAC, Hot Water Production, Chilled Water Production, Low Temperature Chilled Water Production, Process Chilled Water, Ultrapure Water, Vacuum, Compressed Air, Acid Waste Neutralization, Flammable/Toxic Gas Detection, Fire Detection and Smoke Exhaust, Electrical Transformer Substations, Natural Gas Detection, and Liquid Leak Detection. There are over 14,000 total I/O points in the facility. Critical areas such as clean rooms and high accuracy labs don't allow any downtime for the HVAC system, because most of the experiments carried out in these zones are expensive and take a long time. Should any failure occur while an experiment is being carried out, it would have to be started from the

compact PLCs, acting as Modbus TCP slaves, are utilized to control the variable volume boxes located in the conventional areas. B&R (communicating via B&R OPC Server) and Siemens and Omron PLCs (communicating via Kepware OPC Server) were provided by third-party special equipment manufacturers together with their systems and communicate with each other and with the OPC Servers. These are hosted in the same server as the GENESIS32 server via a dedicated Ethernet LAN.

The whole system is synchronized with a SNTP server, also hosted in the GENESIS32 server. The Fire Detection System was also integrated, via Modbus TCP OPC Server, within GENESIS32.

Continued on the next page...

In addition, Cofely plans to install ICONICS WebHMI™ and AlarmWorX™32 Multimedia, as the functionalities provided by these tools have been required by the client.

Main historical data, alarms and events are logged into SQL databases due to the need for compliance with the FDA 21 CFR Part 11 regulation. Data consistency is a must.

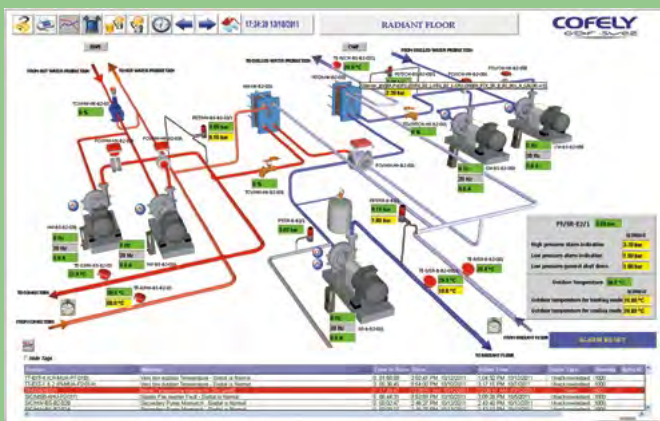
Benefits of the System

The system allows operators to control and monitor the entire complex, following a Web-based look

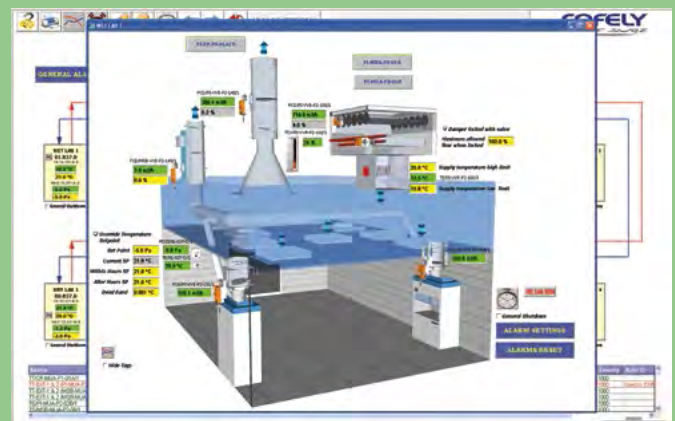
can be done on the spot. The system is expected to grow in the next years and based on Cofely's experience with GENESIS32, they know that it won't be a problem.

Because of the seamless integration via OPC of the different and heterogenous systems and the user of the Global Aliasing tool, it could be said that, compared to other well-known SCADA manufacturers, GENESIS32 allowed Cofely to reduce development time and therefore the costs by 50 percent.

Among the reasons why Cofely and the INL selected ICONICS GENESIS32 are:



INL's Radiant Floor/Water Production System



Air Handler Operations for the Connected Hotel

that makes navigation straightforward and provides users with a low technical profile and with instant visualization of the parameters of any equipment or space. More than 700 screens are deployed on the project. In order to provide a friendly designed environment, 3D graphics with animations were developed, making navigation even easier. An audit trail allows recording of the dates and times of all the operator entries and operator actions that create, modify, or delete any parameters or variables. Another important feature is the possibility of customizing reports, presenting either historical data, alarms or events.

Unlike other SCADA packages, with GENESIS32, openness is not merely a word, as the integration of any controller or system based on OPC

- Past Success Stories and Background with GENESIS32 in Other Building Management Systems for the Pharmaceutical Industry
- Seamless Integration of Any PLC or Controller via OPC.
- Compliance with FDA 21 CFR Part 11
- Free Modbus OPC Server and SQL Server
- Real scalability of the System

Conclusion

Cofely GDF Suez (España) required a comprehensive, state-of-the-art HMI/SCADA system to handle the International Iberian Nanotechnology Laboratory's building management. ICONICS GENESIS32, with its wide data source integration, emphatically passed the test.

BUILDING AUTOMATION SOFTWARE SOLUTIONS

Integrate existing building automation systems with a single Web-based user interface. Imagine using a fully-integrated facility automation software solution to monitor systems from all major vendors on any device with Any Glass, Anytime™. ICONICS provides a unified management system for visualization, alarm notification, historical data, supervisory control and management information systems.

Productive facilities in today's environment demand economical operations and management. Effective facilities management means your organization can focus on its core business and on increasing the bottom line by reducing operational costs.

ICONICS has been certified by the BACnet Testing Laboratory (BTL) with the highest level of BACnet compliance, the B-AWS profile.



Visualize Your Enterprise™

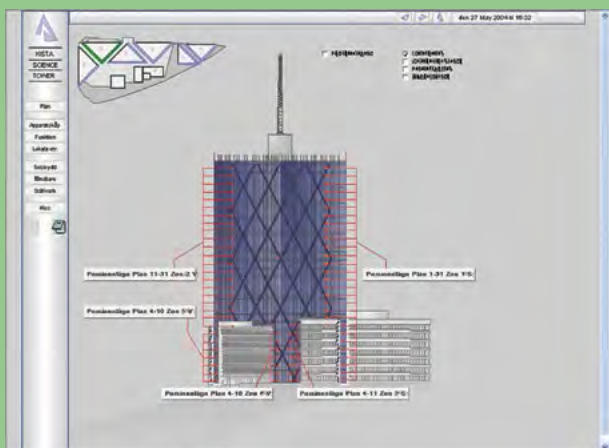




Kista Science Tower
Stockholm, Sweden

Kista Science Tower

Stockholm, Sweden



Window Blind Control Screen

About The Kista Science Tower

The Kista Science Tower complex is comprised of six buildings, with the tallest spanning 32 stories. This state-of-the-art complex is located in one of the most dynamic IT regions in the world. Each floor of the Kista Science Tower houses approximately 700 square meters of office space. The glass frontage gives this tower an attractive look and plenty of sunlight for tenants, including Network Services, Unisys, Symantec and more.

ICONICS Software Deployed

GENESIS32™ is used to monitor and control the KONE elevators, lighting, HVAC and the window blinds for the Kista Science Tower. OPC-to-the-Core™ technology is a key component of these

"ICONICS software has enabled us to build an independent open system for the Kista Science Tower. The GraphWorX design application in GENESIS32 allowed us to create rich graphics and we were able to take advantage of reusable graphic components".

Joakim Platbarzdis

Integrator

CIT Sweden AB

high-profile automation applications. Control Integration Technology, Sweden AB was the main integrator for Johnson Controls working closely with NCC construction. Having OPC connectivity native to GENESIS32 made it the premier choice for visualization. AlarmWorX™32 Multimedia and WebHMI™ are also in use. WebHMI™ provides full read/write access remotely via any standard Internet Explorer. AlarmWorX Multimedia is responsible for serving all alarms in real time to those who need them.

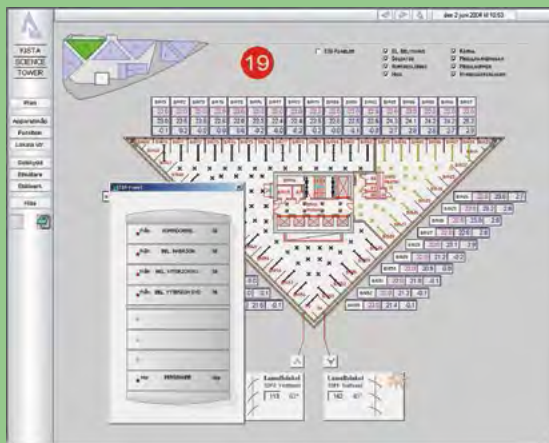
Key Features

The biggest challenge was to have an open infrastructure where all monitoring and control could be looked at as a single system. OPC fits this model very well. With OPC as the open architecture, this allows, for all systems and controllers, a common platform for communication. Since OPC is used, all systems can be monitored by ICONICS. GENESIS32 can connect

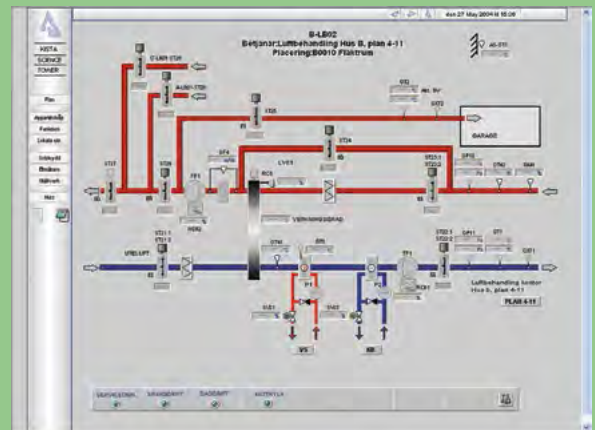
to any OPC server throughout the Kista Science Tower. This connectivity includes communication to the KONE OPC-DA server running on Linux. GENESIS32 components, such as DataWorX™32, AlarmWorX™32, and TrendWorX™32, are bridged to the Linux server through a separate Windows Server. Other OPC connectivity from GENESIS32 includes connections to Johnson Controls and Schneider Electric devices.

event of an emergency, the blinds are automatically opened and the awnings are pulled back within minutes. The KONE elevators are continuously monitored for power failure, fire, or other faults by the GENESIS32 system. A visitor control system is also built into the operation of the elevators. Visitors to the Kista Science Tower are given a programmable access card. This card only allows access to the floors the visitors need to access.

OPC connectivity is provided from GENESIS32 to Johnson Controls, Schneider Electric, and EIB hardware. There is also an OPC bridge to the KONE



Kista Science Tower Floor Control Screen



Air Circulation Handling Controls

Project Summary

GENESIS32 is connected to a weather station that continuously monitors the intensity of the sun. This data is used to control the angle of the blinds and awnings for the entire building. OPC data from the JC.N1 OPC Server connects via DataWorX32 to the CCEIB OPC server to send the proper setting to the blinds. Three times a day, the angle of the blinds is adjusted based on a calculation determined from the sun's intensity, time of year, and building zone.

In addition to keeping the office workers comfortable, the blind-control system saves on heating and air conditioning. The control of the blinds and awnings is also connected to the fire system. In the

elevators. Total I/O points exceed 15,000 tags. Microsoft SQL Server is used for all data logging. In total, 2,400 rooms are controlled with 25 network controllers and 18 control cabinets.

Conclusion

Future development plans are underway to allow building occupants to view the status for their own part of the building.



Longmont United Hospital Longmont, CO



LONGMONT UNITED HOSPITAL



RSI COMPANY

Longmont United Hospital



Longmont United's Self-built Control Panel

About Longmont United Hospital

The city of Longmont, Colorado, boasts 300 days of sunshine a year, beautiful views of the Rockies and the world-class Longmont United Hospital. The philosophy that healthcare extends to the patient's spirit, mind, body and family pervades Longmont United's services and facilities. Rated among the top 10% of hospitals for patient experience in the United States, Longmont United is a wonderful place to get well.

In January 2000, Longmont United opened a five-story patient tower with new private rooms and soothing environments for patients and their families. Services such as complementary therapy and dedicated departments including a Birth Center, Cancer Center, and Women's Imaging Center reveal commitment to

"ICONICS software has been an evolving tool for our facility moving from simple graphics to intricate screens in our decade long relationship. It allows facility mechanics to monitor, control, and adjust most systems throughout the campus. We pride ourselves on reacting to and correcting issues before they are ever realized by our customers. ICONICS software is "the" tool that makes it possible. From our panic buttons and therapy pool to our air handling units and emergency power generators, ICONICS helps our daily mission be a successful one."

Robert Smith

Building Services Manager,
Longmont United Hospital

compassionate care. This spirit is further reflected in the hospital's building management system, where ICONICS software allows operators to monitor, control and adjust multiple systems for maximal patient comfort and efficiency.

ICONICS Software Deployed

Longmont United Hospital uses GENESIS32™ WebHMI for their facilities management system. AlarmWorX™32 Multimedia delivers real-time alarm notifications to plant operators, while TrendWorX™32 functions as the hospital's

data collecting, logging, charting, reporting and analysis system.

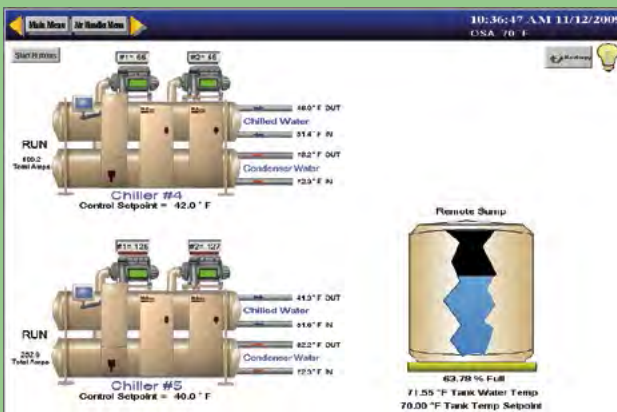
Project Summary

ICONICS and Longmont United Hospital have grown together over the years. Just as healthcare has advanced, Longmont United has expanded and updated its facilities, and ICONICS' technologies have evolved. Longmont United has been quick to upgrade to ICONICS' latest innovations, and a long lasting relationship has developed into a superior building automation and monitoring solution.

Benefits of the System

At Longmont United Hospital, ICONICS is implemented even at the patient level. Climate control is put in the hands of the patients, and panic buttons at various "at risk" locations throughout the campus connect to the self-monitoring alarming system. When a panic button is pressed, appropriate personnel are notified via pager and cell phone.

GENESIS32 has proven to be an effective teaching tool for Longmont United's facilities department. Quality graphics offer visualization of the facility and can be used to show the exact sequence of operations in any area of the building.



View of a Longmont United Chiller



View of Emergency Generators

RSI Company implemented and integrated ICONICS' software, which provides a customized, state-of-the-art Building Management System to the facilities of Longmont United. GENESIS32 allows maintenance personnel and operators to easily navigate and control key operation parameters in the facility. ICONICS WebHMI offers remote Internet connectivity to Longmont United's system, while AlarmWorX Multimedia provides alerting to facility operators via phone.

The hospital's ventilation and air conditioning, thermal and heating stations, emergency power systems, technical gas systems and other systems specific to healthcare are monitored and/or controlled by ICONICS' automation solution.

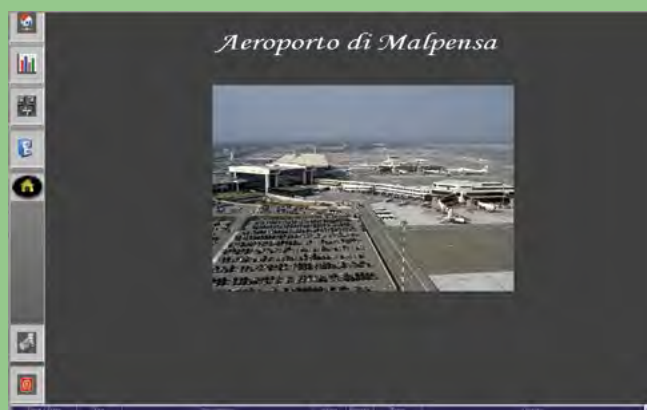
Conclusion

With Longmont United's buildings efficiently controlled and monitored by ICONICS, the hospital can focus on its primary concern of providing the best healthcare. GENESIS32's WebHMI capabilities will eventually be leveraged to allow Longmont United's facilities operators to manually respond to alarms and adjust conditions from remote sites.



Malpensa Airport
Milan, Italy

Malpensa Airport/ Elsag S.p.A. Milan, Italy



SEA's Baggage Handling Client Interface

About Malpensa Airport/Elsag S.p.A./SEA

Elsag S.p.A., a division of FINMECCANICA, provides IT solutions focused on postal, automation, security, industrial and defense systems. It works in tandem with SEA, the company that manages both the Malpensa and Linate airports in Italy, specifically on the Malpensa Airport T1 terminal's baggage handling system. Elsag S.p.A.'s application is used to monitor and control the Handling Baggage Security (HBS) and Early Baggage System (EBS).

ICONICS Software Deployed

Elsag S.p.A. and SEA selected ICONICS GENESIS32™ HMI/SCADA suite including DataWorX™32 OPC data bridging, aggregation and redundancy.

"The customer can easily handle the entire system just by looking at the general overview page and can handle all the commands with confidence. If necessary, they can switch between the two servers without having a temporary loss of communication within the field."

Masnata Ivano
Project Manager
Elsag S.p.A.

Project Summary

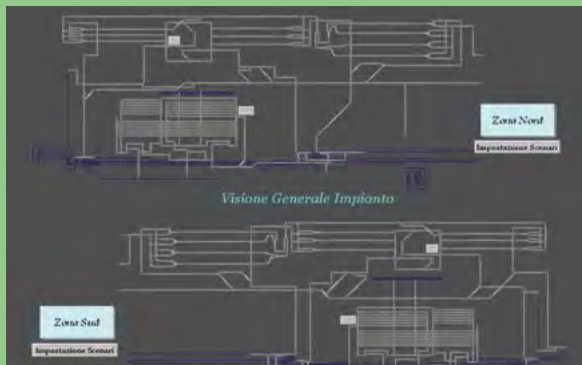
SEA required an HMI/SCADA solution for an in-house data trending application to assist operators with determining the number of baggages processed in defined intervals. The involved system consists of two hot backup servers and 11 clients, used for monitoring the state of the HBS and EBS systems. One server runs ICONICS AlarmWorX™32 (with alarm logger), ScriptWorX™32 and DataWorX™32. Both servers handle client security (aligned between the two servers by means of a script) and can switch automatically if a failure is detected on the primary, or on demand by an operator.

The client interface consists of a main page with all other pages shown concurrently. In this way, the most important required information is constantly represented on screen, including alarm indicators, emergency scenarios, network status (of each PLC or server), reporting, the terminal's Flight Managing System, and login/logout. Selecting one of the

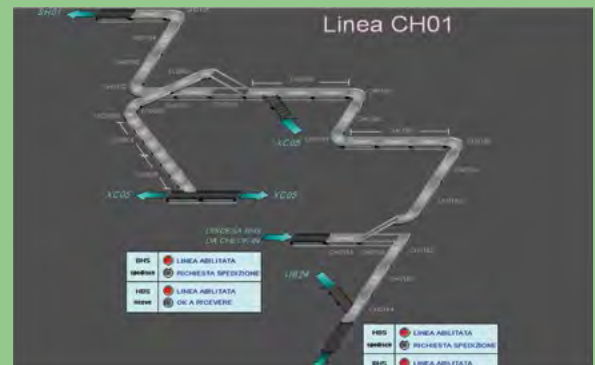
symbols on the general view opens a related page in which each element composing the line is represented. It's possible to open a more detailed page in which each signal related to the element is shown. It's also possible to navigate between different displays (without returning to the general view) via "arrow" navigational tool.

Secured commands can be issued to the PLCs in order to change the working lines of the system. This allows the customer to plan maintenance of the plant, as well as for recovery of faults without affecting the behavior of the entire system.

including the ability to switch between the two connected servers. SEA also values the integration into its Flight Managing System. Configuring the system (displays, alarms, trending) was considered "easy and efficient". Communication between the ICONICS applications and existing Siemens S7-300 PLCs is via an OPC server link by Applicom Cards (two for each server). Integration with the PLCs, the Profibus Remote I/O, as well as with the Oracle DB8 database and Windows 2000 Server and Professional operating systems, is seamless.



Baggage Handling Line Overview



Individual Baggage Handling Line Overview

Key Features

Elsag S.p.A. and SEA had specific requirements in their HMI/SCADA solution for the Malpensa terminal, including:

- Hot Backup Ability
- Extension via Web Interface and Thin Client
- High Quality Graphics and Related Features
- Good Reliability
- Logging and Trending Archive
- Integration with the Terminal's Flight Managing System

Benefits of the System

Malpensa's new ICONICS solutions provide full plant monitoring as well as remote system control,

Conclusion

Elsag S.p.A. and SEA are now able to ensure smooth travel for Malpensa Airport's baggage thanks to the multiple, secure capabilities of ICONICS GENE-SIS32 and additional solutions.

Solutions Highlighted



DataWorX32

Data Aggregation, Bridging, Redundancy and Tunneling Software



Merrill Lynch Hopewell, NJ



*Merrill Lynch Complex
Hopewell, New Jersey*



Floor Plan of One of the Merrill Lynch Buildings

About Merrill Lynch

Merrill Lynch is a world-recognized financial management and advisory company, with offices in 37 countries. As an investment bank, Merrill Lynch is a global underwriter of debt and equity securities and strategic advisor to corporations, governments, institutions and individuals worldwide. Merrill Lynch required a monitor and control solution at the time for their building campus in Hopewell, New Jersey.

ICONICS Software Deployed

Merrill Lynch selected ICONICS GENESIS32™ Web-enabled, OPC-integrated HMI/SCADA suite featuring the GraphWorX™32 HMI Graphical Display Package, AlarmWorX™32 Alarm Management

System and TrendWorX™32 Live and Historical Data Logging, Charting and Reporting components.

Project Summary

An OEM version of GENESIS32 provides the Building Controls for the Merrill Lynch complex in Hopewell, NJ. There are twelve buildings under the watchful eye of state-of-the-art graphics and alarming.

These ice plants are used as a cost-efficient method for building energy management. They are designed to freeze water at night when electricity is available at a low price. Then, when rates go up during the day, the ice is melted to cool down the buildings, rather than using other methods requiring “instant” energy demand. This “time shifting” of energy usage really helps trim the energy bill.

Operators easily navigate among the various systems used to manage every aspect of the building complex (HVAC, Lighting, Energy, Security, Fire, and other building controls) via the graphics created for the project. There are over 1,000 screens deployed on the project, all of which are accessible with just a few clicks from the menus and control panels designed into the building management system.

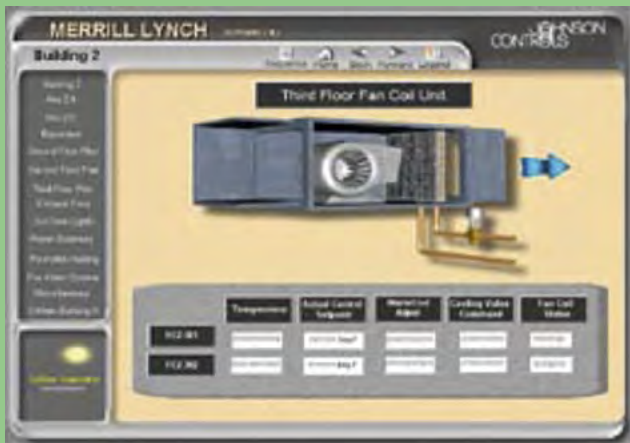
Top-notch 3D images representing the equipment used by the project were completed for this application. The project not only offers stunning visual displays, but also follows a Web-motif, making it easy for users to navigate through the system.

Feedback from the users of the system was very positive. They enjoyed the “realism” of the systems’ representation in the graphics. Clicking on floor

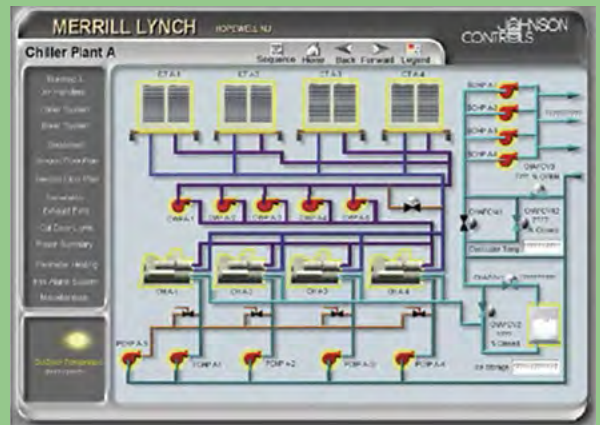
plans and viewing live status information provides the easy-to-understand operations they were hoping for. The graphics also make use of the ICONICS “animators”, showing dampers opening/closing, fan blades turning, airflow direction and more.

Conclusion

GraphWorX32 played a critical role in providing a comfortable and safe environment for the people at the Merrill Lynch office complex.



Fan Coil Unit Control in a Merrill Lynch Building



Chiller Plant Controls

Case Study Details

Some unique features of this project include:

- 8 office buildings totaling 1,598,400 Square Feet
- 4 assembly buildings featuring four cafeterias totaling 246,000 Square Feet
- GUI Personalization by User/User Type
- 4 parking garages with a total of 2,594 parking spaces
- Four boiler plants, chiller plants and ice plants

Solutions Highlighted

GraphWorX32

HMI Graphical Display Package

AlarmWorX

Multimedia OPC Alarm Management Software

TrendWorX

Data Logging, Charting and Reporting Software



*Mohegan Sun Casino and Hotel
Uncasville, Connecticut*

Mohegan Sun

Uncasville, CT



A Kitchen Control Panel at Mohegan Sun Casino

About Mohegan Sun

Created by the Mohegan Tribe of Indians of Connecticut, Mohegan Sun is a legendary gaming and entertainment destination, renowned for exceptional service, hospitality and excitement. Featuring an extraordinary Mohegan-themed design unlike any other in the industry, Mohegan Sun is one of the most unique casinos in the world.

ICONICS Software Deployed

Mohegan Sun selected ICONICS GENESIS32™ Web-enabled, OPC-integrated HMI/SCADA suite featuring the GraphWorX™32 HMI Graphical Display Package, AlarmWorX™32 Alarm Management System and TrendWorX™32 Live and Historical Data Logging, Charting and Reporting components.

Project Details

GraphWorX32, a component of GENESIS32, monitors the status of these areas, as well as the chillers, boilers, and other behind-the-scene systems.

The system uses approximately 250 VAV boxes, about 60 air handling units (AHUs), 30 exhaust fans, a dozen fan coil units, and a host of temperature and humidity readings.

An interesting aspect of this project is the AHUs deployed for the arena. There are four fans moving 200,000 cubic feet per minute of air. Normally these are used to air condition the facility for spectators. However, in case of a fire, the smoke detector system puts these AHUs into “Smoke Mode.” Instead of bringing air into the arena, dampers change and these pull the smoke out of the area, making it easier for firefighters to enter the building.

The custom graphic interface that can be developed by using GraphWorX32 gives more knowledge to the user/operator, thus creating an environment for success.

Benefits of the System

Mohegan Sun was able to go beyond just text-based information for operator interactions with the ICONICS-based system. Using this powerful visualization, based on GENESIS32, operators can now visualize the equipment and its operating conditions. The system follows a “Web-based” look and feel, providing users with an instant understanding of how to navigate through the system. Many have commented on how easy it is to manage the environment.

Conclusion

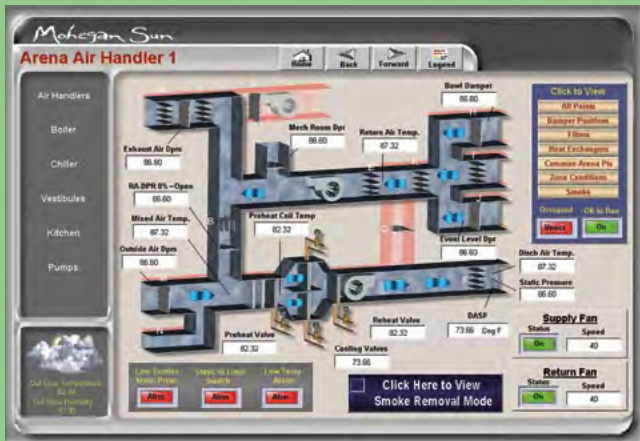
This facility may include a world-class casino, but the customer did not want to gamble on the comfort of their guests. That's why ICONICS GENESIS32 visualization software is at the core of this application that monitors and controls the entire complex.

Deploying state-of-the-art alarming and graphics using AlarmWorX32 and GraphWorX32 provided a "best in class" system for this high-profile project. While your luck at the gaming tables may vary, the management system running this fabulous destination is a sure bet.

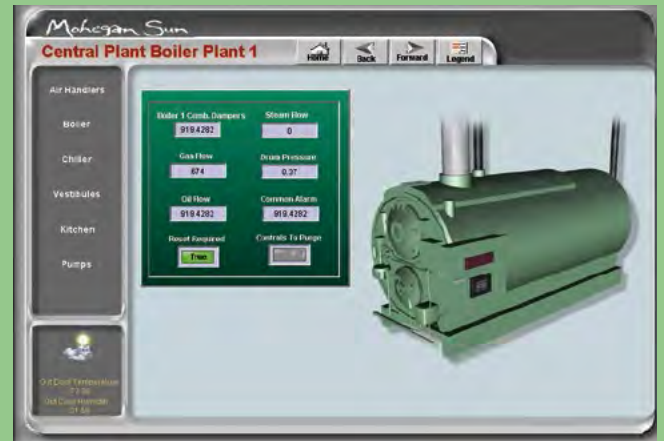
Case Study Details

Mohegan Sun uses ICONICS to monitor and control:

- 60 air handling units
(In the arena, 4 AHUs move 200,000 cubic feet of air per minute)
- 250 variable air volume devices
- 30 exhaust fans



Air Handling Control System inside Mohegan Sun's Arena



Boiler Plant Control

Case Study Details

Mohegan Sun's grounds include:

- A 34-story hotel featuring 1,176 luxury guest rooms
- 300,000 square feet of gaming excitement
- Thirty-two different dining options
- Over thirty fine shops and boutiques
- A performance theatre and arena
- The Sky Dome - the world's largest, most spectacular planetarium dome, which bathes the casino in an ever-changing display of sparkling constellations

Solutions Highlighted

GraphWorX

HMI Graphical Display Package

AlarmWorX

Multimedia OPC Alarm Management Software

TrendWorX

Data Logging, Charting and Reporting Software



*A Realistic Exhibit in the Neanderthal Museum
Krapina, Croatia*

Museum of Krapina Neanderthals Krapina, Croatia



Overview of the Museum

About The Museum of Krapina Neanderthals

The Museum of Krapina Neanderthals is located in a glen between two small hills near the modern city of Krapina, in northern Croatia. The museum represents the spectacular Krapina site, where a Neanderthal village was discovered in 1899 by Dragutin Gorjanovic. The archeological site, one of the richest and most heterogeneous in the world, had over eight hundred fossil remains of 75 Neanderthals and their tools and weapons.

Opened in February 2010, visitors to the museum's 1,200 square meter exhibition space experience a simulation of the way of life in a Neanderthal cave 130 thousand years ago. Through touch screens, video-walls and numerous audio, visual and scent installations, visitors enjoy a highly interactive museum experience.

The Museum of Krapina Neanderthals is technologically oriented and extraordinarily equipped for multimedia presentations enabling an engaging visitor experience.

ICONICS Software Deployed

SCADA technology in the Museum of Krapina Neanderthals integrates diversified and seemingly incompatible electronic subsystems of building and exhibit installation components. ICONICS GENESIS32™ HMI/SCADA suite connects and automates the Museum of Krapina Neanderthals' building management systems, security systems and multimedia systems. The museum is enabled with data acquisition and aggregation, analysis and alarming, visualization and real-time status of installations and components. Complete visualization and automation is accessible through a single personal computer with a simplified and reliable graphical interface.

ECCOS inženjering and ICONICS developed a unique solution for visualization and control of the Museum of Krapina Neanderthals, satisfying the needs of the investors, authors and operators of the site.

Project Summary

Harmonious integration, coordination and automation of multimedia components, building management systems (BMS) and security systems defined the specific needs of the project.

Multimedia components comprised of:

- Computers
- Projectors
- MPEG players
- Audio, video and scenting equipment

Building management systems (BMS) included:

- Electrical branch circuits and lighting
- Metal curtains
- HVAC

Security Systems consisted of:

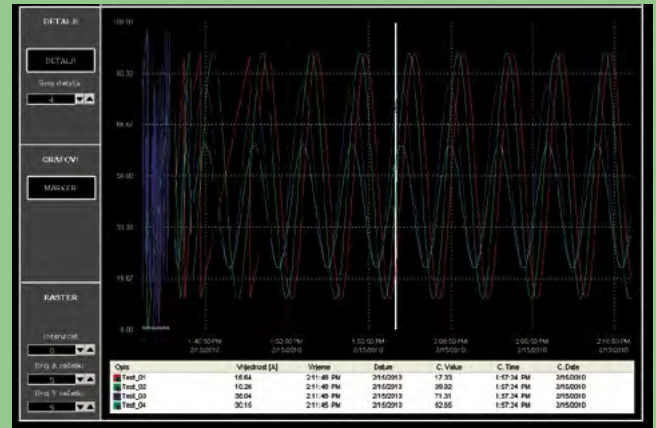
- Siemens fire system
- Honeywell intrusion system

Benefits of the System

While the details of this project affirm the ability of ICONICS and ECCOS inženjering to seamlessly coordinate diverse subsystems, the strength of the project is revealed through control simplification. Automation scripts simplify everyday control reducing a complicated system to several keyboard commands, making the system accessible and controllable for users with little technological knowledge.



Easy-to-identify Symbols Correspond with the Museum's Systems



Trending Display for the Museum of Krapina Neanderthals

At the core of the system, ICONICS GENESIS32, using Matrikon's OPC server and a Schneider Electric M340 PLC, integrates to establish full supervision and control over all the electronic and electrical systems. The vast majority of communication is based on the local Ethernet network, while the PLC is connected with security and BMS systems through digital/analog inputs and outputs.

The communication between the central computer and the multimedia components is based on the local Ethernet network using diverse protocols including SNMP, C-BUS/LON, DMX, HTTP and ASCII.

Conclusion

ICONICS and ECCOS inženjering help bring ancient history to life. A balance of technologies powers the exceptional interactive experience of the Museum of Krapina Neanderthals.



*Aerial View of The Pentagon
Washington, D.C.*

The Pentagon Washington, D.C.



The Pentagon Building Operations Command Center

About The Pentagon

The Pentagon is the headquarters for the United States of America's Department of Defense operations. It houses more than 23,000 employees, both military and civilian, all contributing to the planning and execution of the defense of the United States.

ICONICS Software Deployed

The Pentagon/Department of Defense selected ICONICS GENESIS32™ Web-enabled, OPC-integrated HMI/SCADA suite featuring the AlarmWorX™32 Alarm Management System. An OEM version of GENESIS32 provides the building control systems for the new renovation project of the Pentagon in Washington, D.C.

"(On 9/11/01...) What was the value of this system the day it did not shut down? From my laptop, I tapped into the Pentagon's automation network and sent out commands that closed dampers and turned off fans around the building to contain the smoke."

Steve Carter
Facilities Engineer
The Pentagon

Key Features

With over 6.5 million square feet under one roof, the Pentagon is the world's largest office building complex. It has three times the floor space of the Empire State Building in New York City. The United States Capitol building would fit into any one of the Pentagon's five wedge-shaped sections.

Included in the building controls are systems for:

- HVAC
- Fire
- Security
- Lighting
- IT/Telco Critical Monitoring
- Water Systems
- Hazardous Agent Monitoring

Coming up with a design to monitor and access all of these systems was no easy task. The US Government wanted a main screen from which any one of the systems, on any floor, in any one of the five wedges, and



*Rimske Terme Resort
Rimske Toplice, Slovenia*

Rimske Terme

Rimske Toplice, Slovenia



RIMSKA TERME
MDCCCXLVII
BUSINESS WELLNESS SPA RESORT



An Overview Screen of Rimske Terme Resort's BMS

About Rimske Terme

Rimske Terme is a luxurious Business, Wellness and Spa Resort, located in the town of Rimske Toplice, Slovenia ("Rimske Toplice" being Slovenian for "Roman Spa"). The location's thermal pools have attracted visitors for centuries, with evidence of visits during the Roman Empire. The Rimske Terme resort is comprised of several buildings including Hotel Sofijin Dvor ("Sofia's Palace", with 43 rooms and a restaurant), Hotel Rimski Dvor ("Roman Palace", with 68 double rooms/suites, pools and a health center with professional medical supervision) and Hotel Zdraviliški Dvor ("Spa Palace" with 75 double rooms/suites and an additional health center). The resort, which also contains a conference center, is mostly known for its spa facilities based around the area's historic, healing thermal baths.

In 2010, the resort started on a project to update their Building Management System (BMS).

ICONICS Software Deployed

Rimske Terme, working with system integrator, Robotina d.o.o., selected ICONICS GENESIS64™ HMI/SCADA software for their new Building Management System integration project.

Project Summary

As part of its planned BMS installation, Rimske Terme wanted to integrate a number of existing automated systems, including hotel room temperature regulation, room emergency/security functions, air conditioning, lighting, and diesel fuel use. They also wanted central control over their heating/cooling (heat pump) station, pumping station, thermal water pump station and electric power station operations.

Systems Integrated:

- Hotel Room Temperature Integration
- HVAC Systems
- Security Systems
- Lighting Systems
- Thermal Water Pump Station
- Fuel Storage
- Electric Power Stations

The hotel room automation required a BMS that could adapt to a few differences in each location. For instance, the heating/cooling in Hotel Sofijin Dvor and Hotel Zdraviliški Dvor is based on air diffusers, while in Hotel Rimski Dvor, it is accomplished via fan coils.

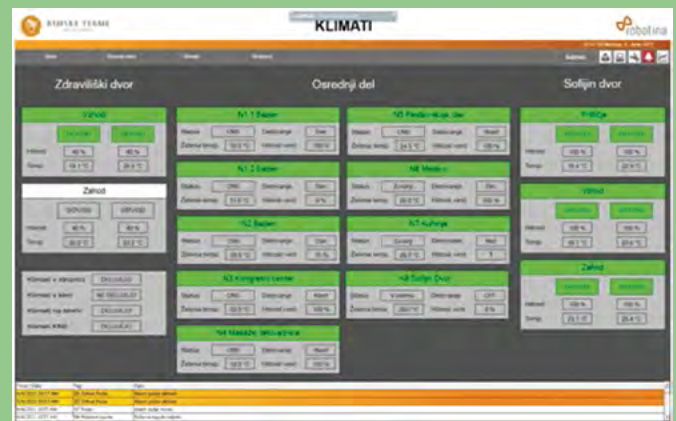
These changes are easily taken into account as the BMS is able to help set desired parameters and then monitor and regulate them. In addition, each room's security/ alarm (SOS) functions are also handled via the BMS. The parameters for all heating/cooling systems and subsystems are set through the BMS. The BMS provides continually updated statuses for each system, allowing the system administrator to adjust parameters for optimal regulation. For instance, with the air conditioning system, the BMS can automatically switch each HVAC control on or off and between operating modes (Economy, Comfort, etc.), following prepared operating schedules.

rooms. Each room includes a card holder/sensor which can detect the presence of a hotel guest and can then automatically start heating or cooling the room, as needed. In addition, each room contains sensors for detecting open windows, which are connected to the automated system and which can stop heat or cooling, further reducing unnecessary energy consumption.

As a whole, conditions are set to fit the needs of the resort's demanding guests. This means that, despite providing desired temperature regimes, the BMS also uses adaptive scheduling, integrated with



Lighting and Fan Scheduling per Floor of the Resort



Oversight of Air Conditioners

Each HVAC control module also includes a panel that allows users to set temperatures locally.

Rimske Terme has connected GENESIS64 to programmable controllers through an OPC Server. Systems and subsystems are mutually connected or integrated. For example, presence sensors provide information for heat/cooling modes and for switching lights. The complete system consists of more than 200 programmable controllers with CAN bus-connected expansion I/O modules. The controllers communicate between themselves and with the monitoring system over an Ethernet network.

Benefits of the System

As part of the BMS implementation, Rimske Terme wanted to ensure energy efficiency within its hotel

multiple functions, to provide optimal, energy efficient performance.

Since installing GENESIS64, Rimske Terme has remarked about its “simplicity of use” and the benefits of allowing for remote control. As a result, the resort has expanded its management stations, including one in hotel reception and another mobile station for maintenance purposes, all connected for remote operation and password-protected for secure access.

Conclusion

GENESIS64 provides Rimske Terme and Robotina d.o.o. with a building management software solution as stress-free as the resort's therapeutic facilities. The resort staff can relax a bit now too, thanks to ICONICS.



Schiphol Airport

Amsterdam, The Netherlands



*Approaching the Tower
Amsterdam Airport Schiphol*



Main Menu Screen at Schiphol Airport

About Amsterdam Airport Schiphol

Amsterdam Airport Schiphol is the national airport of The Netherlands. It's the 10th biggest airport in the world based on total number of passengers (about 47 million) and 14th based on the number of tons of cargo shipped. The airport is built as one large terminal split into three large departure halls, with further expansion planned.

ICONICS Software Deployed

Amsterdam Airport Schiphol selected an OEM version of GENESIS32™ including GraphWorX™32 and AlarmWorX™32 for this project. This suite of software tools now runs on over 30 PCs for the application of monitoring over 300,000 tags.

"The Alias functionality within the product saved us a lot of time in building displays. This enabled us to reuse the same display for another floor."

Guy van Lingen
Project Engineer
JCI Netherlands

Key Features

The project was implemented by JCI Netherlands utilizing M5, an OEM version of GENESIS32. It runs on three Microsoft Windows terminal servers and allows the 30 operators to work on the system at the same time.

Included in the building controls are systems for:

- HVAC
- Fire
- Security
- Lighting
- Telephone
- Water Systems

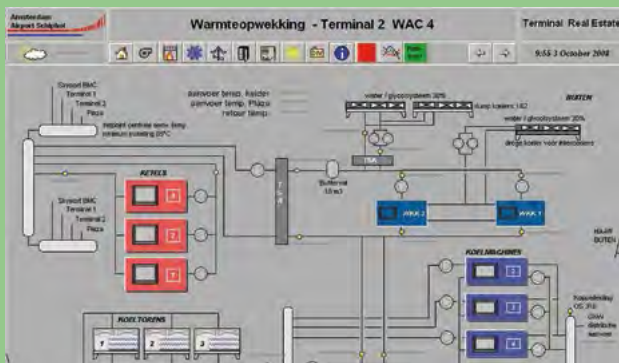
The complete project consists of 10,000 GraphWorX images. The system is equipped to handle over one million alarms and events per month.

Benefits of the System

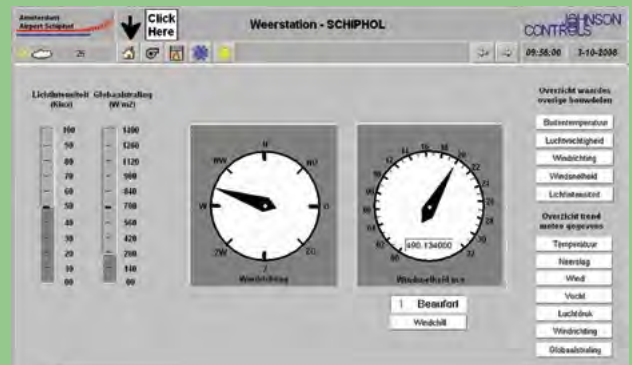
The provided solution is based on an open system, making it easier to develop bigger projects in the future. Also, it's now easy to retrieve data out of the systems without writing converters. One of the biggest advantages for the customer is easy expansion of the system to other platforms including Web browsers such as Internet Explorer (via WebHMI™) and mobile operating systems.

Conclusion

The Schiphol Project is certainly impressive. With 30 screens, 300,000 tags, three servers and 30 operator stations, it's one of the biggest Building Automation systems on the planet. The system has now been running for three years without any major complications.



A Cooling Control Screen



Weather Monitoring Control Screen

Case Study Details

Facts and figures about this ICONICS Solution and Schiphol Airport:

- Over 47 million passengers a year
- Over 1.5 million tons of cargo a year
- 300,000 tags
- 30 Screens
- 30 Operators
- 10,000 GraphWorX images

Solutions Highlighted

GraphWorX

HMI Graphical Display Package

AlarmWorX

Multimedia OPC Alarm Management Software

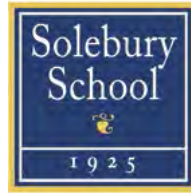
WebHMI

Web Based Real-time Automation Software

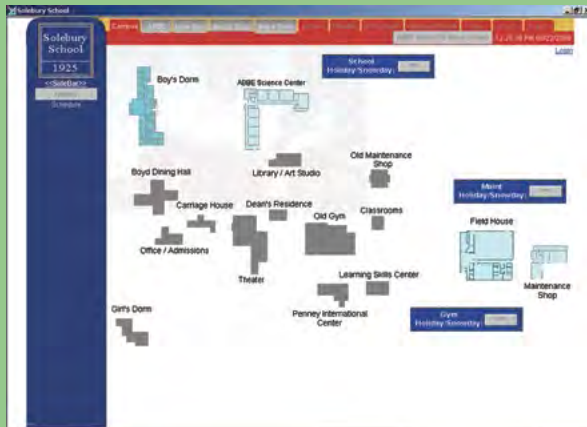


Solebury School

New Hope, PA



*On Campus at Solebury School
New Hope, Pennsylvania*



Main Campus Map via HMI/SCADA Application

"We have used ICONICS software products almost exclusively on our installations since 1991. Their consistent high performance and value are always major factors in the success of our projects. The versatility and fully customizable nature of the software allowed us to adapt perfectly to the varied technical issues we encountered on the Solebury campus and to precisely tailor the HMI to fit the needs of their personnel."

Walter L. Horigan
President
Vortechs Automation, Inc.

About Solebury School

Solebury School is a coed, college preparatory, boarding and day school, for 220 students in grades 7-12. Founded in 1925, Solebury's beautiful 90-acre campus is located on Phillips Mill Road, two and one half miles north of New Hope, in the heart of historic Bucks County, PA, mid-way between New York City and Philadelphia. The school prides itself on its small size, the individual attention given to students and the deep mutual respect between faculty and students. A rigorous academic program with honors and AP courses, an ESL program for International students, a Learning Skills program, and a full range of arts, athletics and activities are further distinctions of the school.

The school sought an automation solution for energy management as well as for centralized control, operation and maintenance of various systems including HVAC. Solebury School approached Vortechs Automation of Huntingdon Valley, PA for the project.

ICONICS Software Deployed

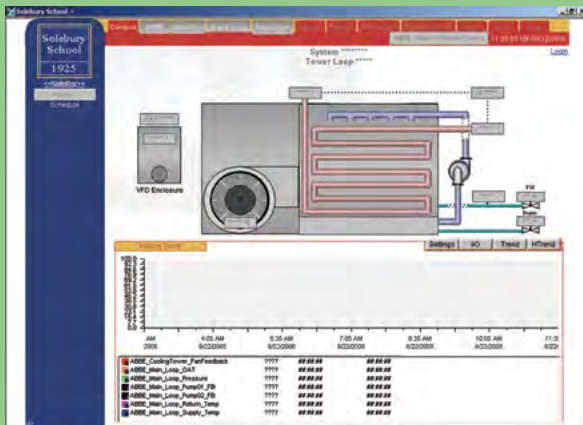
Solebury School selected ICONICS industrial automation software solutions based upon Vortechs Automation's recommendation. Among the products utilized are ICONICS' GENESIS32™ V9.1 Web-enabled OPC-integrated HMI/SCADA suite, AlarmWorX™32 Multimedia (MMX) distributed enterprise-wide alarm notification system, and ScheduleWorX™32 calendar-based scheduling tool.

Project Summary

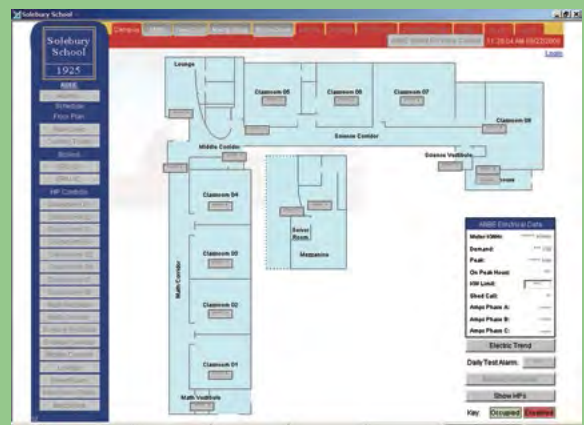
After a survey of the campus, the engineers at Vortechs Automation were sure they could help Solebury School save on energy costs through the automation of its existing heating and cooling systems. Specifically targeted were the school's science and math building, gymnasium, boy's dormitory and maintenance facility. The new Direct Digital Control (DDC) system now consists of approximately 50 KMC controllers linked together in several RS-485 sub-LAN groups, all connected to the campus Ethernet network. GENESIS32 V9.1 was selected for the industrial automation software suite's HMI function.

lighting controls and water detection on the floor of the server room.

Scheduling is an important requirement for Solebury School. It's directly related to anticipated cost savings and helps meet the school's aim to be a "good environmental citizen". As soon as Schedule-WorX32 was introduced by ICONICS, the school and Vortechs Automation knew it would be a great fit for their project. Solebury School's equation for comfort, convenience, control and cost-savings is proven with Vortechs Automation and ICONICS.



Cooling Tower Monitoring/Control



Floor Plan for the Abbe Science Center

Benefits of the System

The ICONICS software and KMC OPC Server reside on a PC located in the campus' main server room. Remote HMI is available to campus users through two browser nodes, located in the business office and in the maintenance office. Real-time data is logged to Microsoft Access. Historical data can be presented in graphical form on an equipment-specific basis. TrendWorX™32 reports, part of GENESIS32's functionality, are defined for total electrical energy consumption. Alarms are broadcast to the appropriate operators using email or text messaging. The system also includes a number of customized items including a sewer line backup detector in the main gym, occupancy sensing tied into

Case Study Details

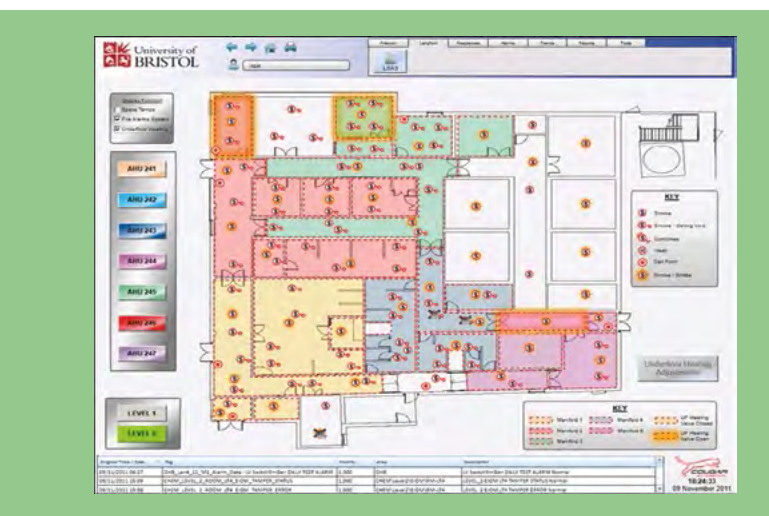
ICONICS' solution for Solebury school includes:

- Full Point and Click Control
- Centralized Scheduling allows school year to be programmed in advance
- Energy Management - using prioritized load shedding activated by real time utility meter data
- Pre-emptive Alarming and Central Control
- Integration with existing Microsoft Windows XP and Windows Server 2003 installations throughout the campus



University of Bristol Campus
Bristol, UK

University of Bristol Bristol, UK



An AHU Zone Monitoring Display

About University of Bristol

The University of Bristol (UoB) is one of the top ranking universities in the United Kingdom with 25 academic schools arranged across 6 different facilities. The University owns over 600 hectares of land in and around Bristol and makes use of over 370 buildings. The buildings range in age from the late 17th century to the 21st century. With such a large number of buildings, estate management is very important and a major requirement of the project was to integrate the buildings together to provide a secure, future proof centralized building management solution. For this task the UoB turned to Cougar Automation Ltd. and ICONICS' GENESIS64™.

ICONICS Software Deployed

The UoB was looking for a modern, future proof so-

lution platform that would allow them to continue to build new capabilities as new equipment and buildings were needed and connected to the Secure Data network (SDN). With this in mind, they selected Cougar Automation Ltd., a Microsoft Certified Partner and winner of numerous customer experience awards, who in conjunction with ICONICS, provided a GENESIS64 based visualization solution. Together with a calendar scheduler to integrate and manage the Trend IQ2 and IQ3 BACnet controllers across the facilities, they received a single consistent head-end visualization for all BMS functions, allowing the University to reduce training and maintenance costs, another key driver of the SDN project.

Project Summary

The University of Bristol needed a company with reliable software solutions that could meet the following objectives:

- Provide all departments of the University with accommodations of quality and functionality
- Ensure the most efficient use of all built space and deliver a plan to maximize future development
- Work to reduce the University's carbon emissions
- Enable Building Management System (BMS), Fire Monitoring, Critical Alarms, Sustainability Monitoring, etc.
- Physically secure the network for the Estates Dept.

To help achieve these objectives, especially regarding carbon emission reductions, the Estates team required access to information across the entire University campus. To that end, the University

of Bristol commissioned the Secure Data Network (SDN) project.

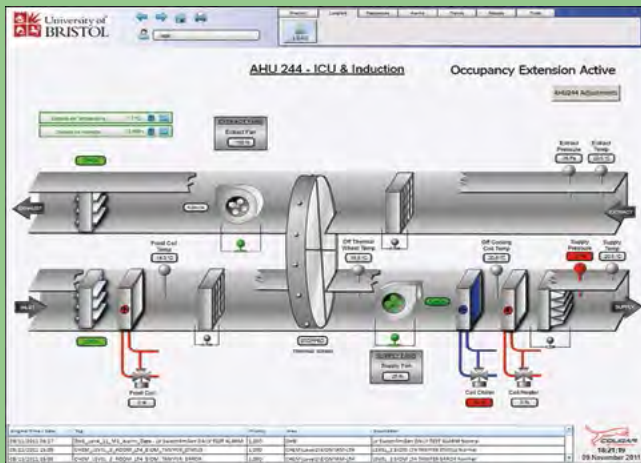
Benefits of the System

With ICONICS' products, Cougar Automation Ltd. was able to provide a solution that met the following SDN requirements:

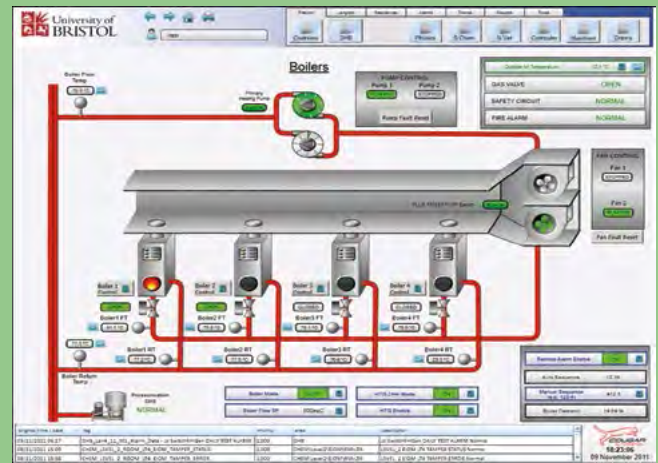
- Connected to a wide range of devices
- Centralized Alarm Management
- Accessible from anywhere, worldwide
- User friendly
- Scalable and future-proof

engineers from other Cougar offices were able to collaborate and work on the project together with the Bristol-based engineers concurrently, on the same server. This reduced the overall project engineering costs and enabled the work to be completed much faster.

The comprehensive alarms management capabilities in GENESIS64 also allowed critical BMS alarms to be routed to the Estates Security Office during non-working hours, by raising and lowering their priorities automatically, ensuring that critical facilities are continuously monitored 24 hours a day. In addition to the standard SCADA capability that GENESIS64 was able to pro-



An Expanded View of an Air Handler Unit



A Boiler Control Screen

Due to the nature of the deployment, a collaborative approach to the project was undertaken by ICONICS application support engineers and Cougar Automation Ltd. They discovered that by leveraging the open GENESIS64 infrastructure using OPC technology, SNMP, Web Services, BACnet and OLEDB, and utilizing the 64-bit web-based architecture, Cougar Automation Ltd. could create a modern and consistent user interface that could be accessed from a Web browser anywhere within the UoB network and allow the Estates Office to control and manage the facilities. One of the key benefits of using GENESIS64 for the Cougar project engineers was the capability to perform remote Web-based configuration through Workbench64. By enabling remote configuration, project

vide, the Cougar project team also utilized ICONICS BizViz™ integration capabilities with great success.

Conclusion

The end result was exactly what the University of Bristol was looking for, as a Project Officer explains, “The ICONICS platform is very intuitive and user friendly and we are very happy with the product. It is more than capable of doing everything that we initially want it to do regarding the BMS and critical alarms communications, alarm handling, data storage and archive data handling. We will be extending it to incorporate security systems in the future and further extending it to incorporate as much as we possibly can because the system can handle it all.”

“ICONICS’ ability to quickly collect, visualize and report OPC data, and the mix of robust OPC clients were the reasons we based our Enterprise Information System on GENESIS32”.

Eric Bellas

Director of Engineering
Cyberlogic

FOOD & PHARMACEUTICAL

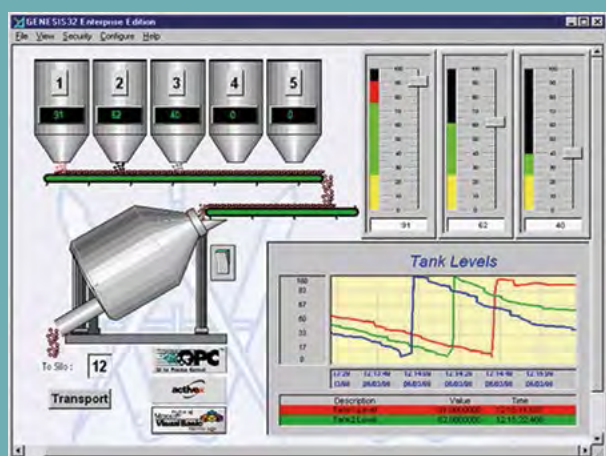


Animal Healthcare Co.

United States HQ



Animal Care is a Multi-billion Dollar Industry



GENESIS32 Pharmaceutical Example Screen

About This Animal Healthcare Company

A leading international manufacturer and distributor of animal healthcare products, headquartered in North America, required the installation of industrial automation software. One of the company's plants is involved mainly with pharmaceutical manufacturing and packaging. The company sought an industrial controls solution that would best manage and monitor critical process alarms. The pharmaceutical manufacturer also planned to replace an existing visualization system, seeking a solution that provided additional enhancements.

The animal healthcare company uses ICONICS solutions to interface with Allen Bradley PLCs via Foundation Fieldbus, Data Highway Plus industrial

LAN and Ethernet network communication structures. Among the Microsoft solutions used on-site are SQL Server and Excel, which are used in reporting and trending.

ICONICS Software Deployed

The veterinary care/pharmaceutical company utilizes ICONICS' GENESIS32™ OPC Web-enabled HMI and SCADA suite (including AlarmWorX™32, GraphWorX™32 and TrendWorX™32 components) with AlarmWorX™32 Multimedia (MMX), DataWorX™, WebHMI™ and Pocket GENESIS™ add-ons. The company also uses the BizViz™ manufacturing intelligence/business visualization suite (including the BridgeWorX™, ReportWorX™ and MobileHMI™ components).

ICONICS automation software solutions for such pharmaceutical applications provide numerous benefits, including:

- Applications Designed for FDA 21 CFR Part 11
- Operational Accountability through Sequence Checking
- Security with Integrated Popular Biometrics
- Accurate Audit Trail of Operator Actions

Project Summary

When deciding upon their new industrial automation software, engineers at the animal healthcare company's plant considered:

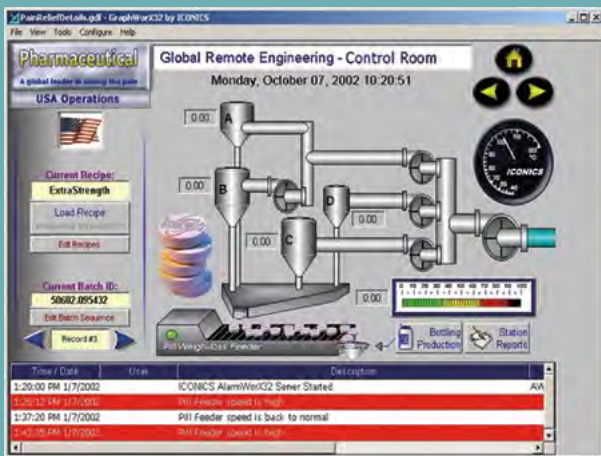
- Alarm Notification via Multimedia (including paging, emailing, phone dialing, etc.) – easily handled through AlarmWorX32 MMX

- Fast Reconciliation to Alarms – achieved through AlarmWorX32 and integration with additional GENESIS32 HMI/SCADA components
- Mobile Connectivity – via Pocket GENESIS and MobileHMI™ utilities, helping to alleviate many on-site, manual processes.

One engineer remarked at how important it is for a company involved with the FDA to ensure that alarms get reconciled right away. With ICONICS, when alarms happen, they're immediately recorded and acted upon.

Conclusion

After a successful first implementation, this customer is now considering ICONICS' Alarm Analytics™ component as well as additional solutions for facility performance analysis, new KPIs and electronic batch records.



GENESIS32 Example for the Pharmaceutical Industry



A Pocket GENESIS (Pocket AlarmWorX) Example

ICONICS' software immediately meshed with standard operating procedures and built-in processes. The alarm-based, report-based and trend-based components complement the organization's Lean Manufacturing efforts.

The company especially noted the cost-effectiveness (due to savings in system development), flexibility (due to the ability to quickly adapt to system changes) and graphics/visualization capabilities of the ICONICS software.

Solutions Highlighted



BizViz

Manufacturing, Intelligence/Business Visualization

GraphWorX

HMI Graphical Display Package

TrendWorX

Logging, Charting and Reporting Software

AlarmWorX

Multimedia OPC Alarm Management Software



Vials of CSL's H1N1 Vaccine

CSL Behring and CSL Limited Marburg, Germany

CSL Behring
Biotherapies for Life™



A CSL Employee Transporting the H1N1 Vaccine

About CSL Behring and CSL Limited

CSL Behring, a subsidiary of CSL Limited since 2004, traces its corporate roots to Emil von Behring, the first Nobel Prize recipient for Medicine and Physiology in 1901. As a pioneer in the field of immunology, Behring's ground-breaking work resulted in the development of vaccinations against diphtheria and tetanus. CSL Biotherapies, also a subsidiary of CSL, operates some of the world's largest flu vaccine manufacturing facilities for the global market. With more than 80 years of experience in the development and manufacturing of vaccines, and nearly 40 years with flu vaccines, CSL is committed to reliability, safety and quality.

Following the June 2009 World Health Organization announcement of an influenza pandemic, CSL developed a pandemic vaccine (H1N1) and signed a 180 million dollar contract with the US Department of Health and Human Services (HHS) to provide bulk H1N1 influenza antigen. The HHS contract includes the opportunity to use the influenza vaccine dispensing and packaging facilities of CSL Behring in the US and Germany.

ICONICS Software Deployed

ICONICS' GENESIS32 software suite enables rapid and safe production of the H1N1 flu vaccine for the US market in CSL Behring's FDA-approved filling and packaging facility in Marburg, Germany. DataWorX™32, TrendWorX™32, WebHMI™, AlarmWorX™32 and ICONICS OPC DataStore combine to create the solution bridging the gap between industrial automation and the medical field.

Key Features

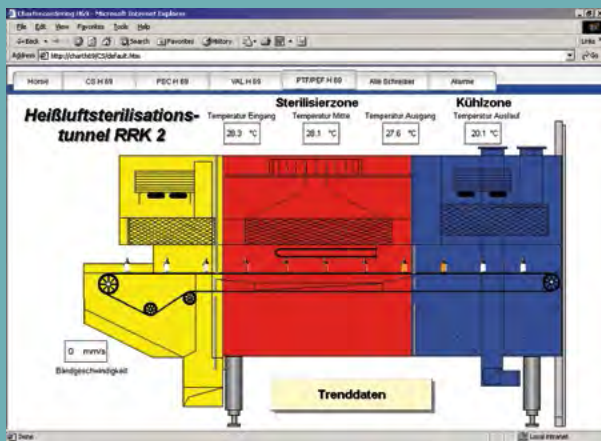
Although their packaging facility is located in Germany, CSL Behring must still meet the recording requirements of the FDA. Specifically, CSL Behring must adhere to the 21 CFR Part 11, which outlines the controls necessary for the regulated industry to utilize electronic records and electronic signatures. CSL Behring requires a system where production data can be logged reliably and stored safely.

Audits, system validations, audit trails, electronic signatures, and documentation of electronic data are subject to inspection for 42 years following production date. ICONICS' GENESIS32 data and historian applications are designed with these industry-standard regulations in mind.

Summary

For the past 11 years, ICONICS, in collaboration with System Integrator 8F Computer GmbH, has provided CSL Behring with an automation solution for their bottling facility in Germany. The

In total there are 23 servers, running Windows Server 2003, SQL Server 2005, the ICONICS software and Kepware OPC servers. The is a total of 109 users who can use the system simultaneously.



GraphWorX Representation of a Bottling Line



GENESIS32 Recording Data for CSL Limited

H1N1 vaccine is dispensed into single use syringes or multi-dose vials in a sterile conveyor line, and then packaged and sent to CSL's Illinois site for distribution across the US.

TrendWorX32 facilitates enterprise-wide data collection, logging, charting, reporting and analysis. A DataStore OPC Server stores collected information from proximity sensors, such as bottles in and out, rejects, and total production counts. AlarmWorX32 improves CSL's ability to identify, quickly respond to and to document abnormal conditions throughout the bottling process. Internet and Intranet connectivity is provided to GENESIS32 applications securely through WebHMI.

Conclusion

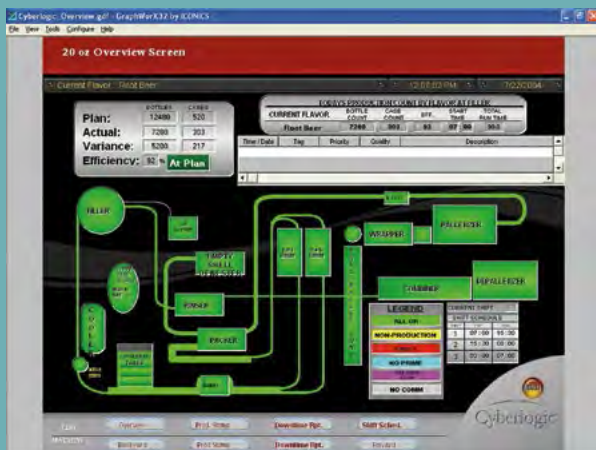
CSL, 8F Computer GmbH and ICONICS have benefitted from a long lasting relationship, and currently play integral roles in a global environment where the H1N1 influenza vaccine is in high demand. Efficient and safe bottling methods are afforded by ICONICS industrial automation solution making for a healthier world.



Cyberlogic Troy, MI



Cyberlogic Applications Include
Soft Drink Production and Bottling



Bottling Process Monitoring Screen

About Cyberlogic

Cyberlogic Technologies, Inc. is a leading independent supplier of industrial communication drivers and servers. Since 1992, the company has introduced many firsts, including the first 32-bit communication drivers for Windows platforms, first virtual drivers to migrate legacy applications to 32-bit operating systems and the first remote drivers to enable access to industrial networks from plant networks. Cyberlogic's New Enterprise Information System for traceability is based on GENESIS32™ visualization software and ReportWorX™ from ICONICS.

ICONICS Software Deployed

Cyberlogic's Enterprise Information System is used to trace all source materials for a finished product

"ICONICS' ability to quickly collect, visualize, and report OPC data, and the mix of robust OPC clients were the reasons we based our Enterprise Information System on GENESIS32".

Eric Bellas

Director of Engineering
Cyberlogic

and is capable of mating the traceability information onto the outgoing products for use further down the supply chain. The system uses GraphWorX™32, the visualization component for GENESIS32, as the main interface into the system. ReportWorX™ is also used to provide production shift reports, downtime analysis and traceability reports. The Enterprise Information System includes a Web-based visualization interface that is based on WebHMI™.

Key Features

The Enterprise Information System can be used in a wide range of applications. A recent deployment was for a large soft drink bottling company that needed traceability to track the ingredients to the original source. From a code stamped on the outside of the bottle one can quickly trace what batch of syrup was used and where the cap, bottle, and water came from. A report can then be generated that shows where other finished products that contain any of the source ingredients were shipped.

Being able to collect and report this information in real time can save thousands of dollars. In the event a recall is needed, the bottling company only needs to pull individual bottles instead of entire lots.

Project Summary

The Enterprise Information System runs on Microsoft Windows 2000. Data is collected via OPC servers into GENESIS32 for visualization and analysis. The data repository is handled by a Microsoft SQL database that ReportWorX can data mine, GENESIS32, SQL, and the OPC servers. OPC connectivity to the plant floor is

The Enterprise Information System that was recently deployed for a large soft drink bottling company was monitoring 4 lines with 10 PLCs per line for a total of over 2,500 I/O points. Allen Bradley SLC 500 PLC 2 and ControlLogix PLCs are used and the communication is via one universal, highly optimized, Cyberlogic DHX OPC Server. This OPC server contains all device drivers and no other software is needed to communicate with the Allen Bradley PLCs.



Cyberlogic Bottling Process Screen



Production Status Screen

provided via Cyberlogic's OPC servers that are dynamically linked to the ICONICS GENESIS32 system. Some key advantages to using the Cyberlogic OPC Servers in conjunction with OPC Clients from ICONICS include:

- Redundant network with automatic switch-over
- Filtering of Unsolicited Messages
- Load Balancing
- Data Write Protection

Benefits of the System

The main benefit for this system is that users can quickly identify products in the event of a recall. Instead of pulling entire shipments, users can quickly identify what lots or even what bottles need to be recalled.

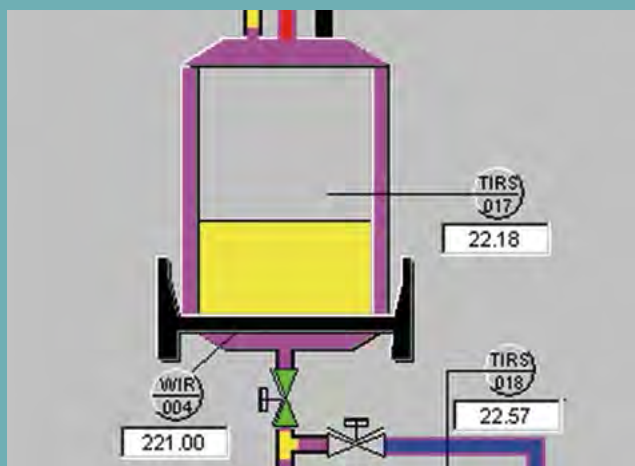
Conclusion

ICONICS and Cyberlogic continue to work together to provide the best Enterprise Information System for traceability. Future projects include new components for the plant's information system that will aid in advanced diagnostic and reporting.



Leciva a.s. Pharmaceutical Headquarters
Prague, Czech Republic

Leciva a.s. Pharmaceutical Prague, Czech Republic



Storage Tank Display at Leciva a.s.

About Leciva a.s.

Leciva, a.s. Pharmaceutical is the largest Czech pharmaceutical company and dominates both the Czech and Slovak markets. Their main business is pharmaceutical production and distribution. The company was founded in 1993 under the Czech Republic National Enterprise. In 1997, the Czech government sold all the remaining shares it held to Leciva, a.s. They sell the majority of their pharmaceutical substances to developed industrial countries in the EU and Eastern Europe (Slovakia, Russia, Poland, Ukraine etc.). Leciva, a.s. dominates the local Czech Republic market with a 65% share of the production of this pharmaceutical substance sector.

"The ICONICS GENESIS32 software system has significantly increased the completeness of our documentation and level of quality assurance."

Milan Turinsky
Control Systems Engineer
Leciva, a.s.

ICONICS Software Deployed

Leciva, a.s. has selected ICONICS to provide them with their pharmaceutical production management system after evaluating other vendors' offerings. ICONICS' GENESIS32™ software suite of tools was installed at their production operations in Prague, which include GraphWorX™32, TrendWorX™32 and ScriptWorX™32. The GENESIS32 Software is running on a Siemens Simatic S7 OPC server.

Key Features

Leciva, a.s. Pharmaceutical has high recording requirements to meet with regards to documenting every aspect of their production process to meet GMP (Good Manufacturing Practice) standards in their industry. Leciva, a.s. was the recipient of the first GMP Certificate in the Czech Republic, awarded by the State Institute for Control of Pharmaceuticals (government regulatory agency similar to the FDA in USA) in 1994. Thus, they needed a system which provided extensive security measures, audit trails for

operators, all production data to be logged reliably, operational sequence checking and traceable alarm and event history recordings to be retained. Therefore, Leciva, a.s. selected GENESIS32 software, which met all their process documentation, production data collection and report requirements to meet their GMP standards.

Project Summary

Leciva, a.s. produces formulated solutions that are collected in storage tanks. The production process then draws the solutions from the storage tanks that

The GENESIS32 system processes over 100 scripts that can run simultaneously using VBA 6.0 integrated into ScriptWorX32.

Benefits of the System

The ICONICS GENESIS32 software system has increased the quality and completeness of the documentation collected on the production operation processes and has provided clear production information and procedures that are delivered to each of the operators running the equipment. Reports on production operations are generated from the data

Date/Time	Status	Process	Project	Unit
15/05/2009 11:16	Active	LecivaBldg	Man	15/05/2009 11:16
15/05/2009 11:19	Active	LecivaBldg	Man	15/05/2009 11:19
15/05/2009 11:20	Active	LecivaBldg	Man	15/05/2009 11:20
15/05/2009 11:21	Active	LecivaBldg	Man	15/05/2009 11:21
15/05/2009 11:22	Active	LecivaBldg	Man	15/05/2009 11:22
15/05/2009 11:23	Active	LecivaBldg	Man	15/05/2009 11:23
15/05/2009 11:24	Active	LecivaBldg	Man	15/05/2009 11:24
15/05/2009 11:25	Active	LecivaBldg	Man	15/05/2009 11:25
15/05/2009 11:26	Active	LecivaBldg	Man	15/05/2009 11:26
15/05/2009 11:27	Active	LecivaBldg	Man	15/05/2009 11:27
15/05/2009 11:28	Active	LecivaBldg	Man	15/05/2009 11:28
15/05/2009 11:29	Active	LecivaBldg	Man	15/05/2009 11:29
15/05/2009 11:30	Active	LecivaBldg	Man	15/05/2009 11:30
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15/05/2009 11:32	Active	LecivaBldg	Man	15/05/2009 11:32
15/05/2009 11:33	Active	LecivaBldg	Man	15/05/2009 11:33
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15/05/2009 11:41	Active	LecivaBldg	Man	15/05/2009 11:41
15/05/2009 11:42	Active	LecivaBldg	Man	15/05/2009 11:42
15/05/2009 11:43	Active	LecivaBldg	Man	15/05/2009 11:43
15/05/2009 11:44	Active	LecivaBldg	Man	15/05/2009 11:44
15/05/2009 11:45	Active	LecivaBldg	Man	15/05/2009 11:45
15/05/2009 11:46	Active	LecivaBldg	Man	15/05/2009 11:46
15/05/2009 11:47	Active	LecivaBldg	Man	15/05/2009 11:47
15/05/2009 11:48	Active	LecivaBldg	Man	15/05/2009 11:48
15/05/2009 11:49	Active	LecivaBldg	Man	15/05/2009 11:49
15/05/2009 11:50	Active	LecivaBldg	Man	15/05/2009 11:50
15/05/2009 11:51	Active	LecivaBldg	Man	15/05/2009 11:51
15/05/2009 11:52	Active	LecivaBldg	Man	15/05/2009 11:52
15/05/2009 11:53	Active	LecivaBldg	Man	15/05/2009 11:53
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15/05/2009 11:56	Active	LecivaBldg	Man	15/05/2009 11:56
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15/05/2009 11:58	Active	LecivaBldg	Man	15/05/2009 11:58
15/05/2009 11:59	Active	LecivaBldg	Man	15/05/2009 11:59
15/05/2009 12:00	Active	LecivaBldg	Man	15/05/2009 12:00



Leciva a.s. Production Data in Excel

Leciva a.s. Main Production Facilities

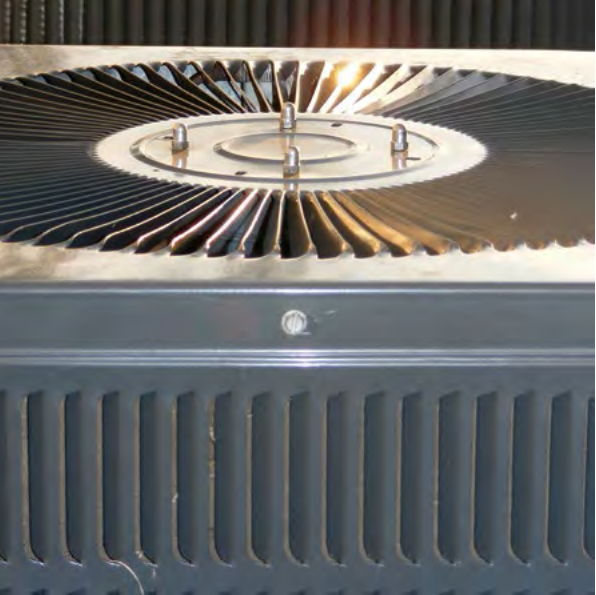
feed the automated liquid filling machines that fill the final deliverable product ampoules. The monitoring and data collection software system was configured and installed by the systems integration firm, SIDAT CZ.

The GENESIS32 system monitors every aspect of the production operation, provides clear directions and information for each of the operators via GraphWorX32 HMI screens and collects production data which is stored in Microsoft Excel spreadsheets and presented in numerical and graphical formats. The software system interfaces with a Siemens S7-400 PLC, connected to a Simatic and one gauge system. There is one PC node implemented and the system has over 1,000 digital and analog tags.

collected and stored in Leciva's local, workstation-level, databases.

Conclusion

ICONICS has worked closely with Leciva, a.s., a Czech Republic pharmaceutical company, to make this production management project successful in every aspect. Leciva, a.s. participates in the ICONICS End-User Support and Maintenance program to keep its software updated and for access to technical support personnel as needed.

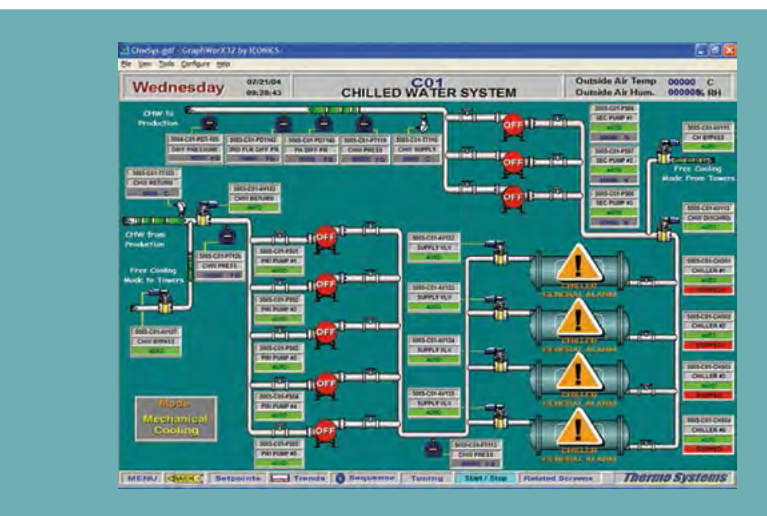


Thermo Systems

East Windsor, NJ



Thermo Systems Applications Include
Validated Pharmaceutical HVAC Systems



A Thermo Systems Water Chiller Screen

About Thermo Systems

Thermo Systems is a leader in the design and installation of mission critical PLC-based control systems with particular expertise in the automation of validated pharmaceutical HVAC systems, utility systems and validated manufacturing applications. Thermo Systems is based in East Windsor, NJ with a branch office in Duquesne, PA and services customers throughout North America and overseas.

ICONICS Software Deployed

Thermo Systems has implemented ICONICS' GENESIS32™ (GraphWorX™32, TrendWorX™32, and AlarmWorX™32) as the software solution for a variety of control systems applications including the automation of pharmaceutical HVAC, industrial chiller

"Thermo Systems selected the ICONICS GENESIS32 suite based on its proven track record in mission-critical control system applications, including FDA 21 CFR Part 11 compliance. Our customers are able to more easily expand their control systems due to ICONICS' non-proprietary, flexible, OPC-based solutions."

David Musto
Principal
Thermo Systems

plants, pharmaceutical manufacturing, hospital lab controls and HVAC, as well as biopharmaceutical and aerospace facilities.

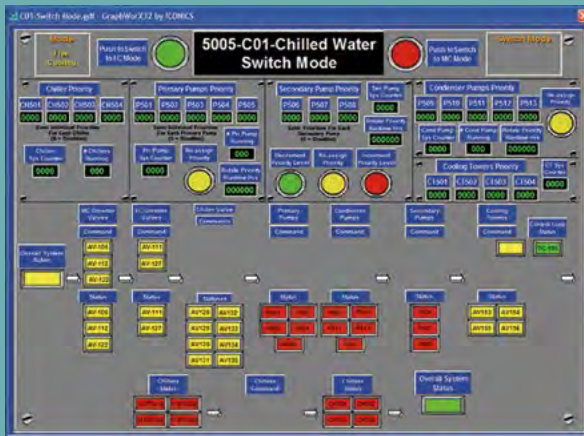
Key Features

- Thermo Systems recommends ICONICS GENESIS32 to customers who require a cost-effective software solution with a wide range of programs and features.
- Thermo Systems engineers and customers value the user-friendliness of GraphWorX32 and the relative ease with which users can add points and develop graphics as well as alias and popup files.
- Thermo Systems deploys ICONICS ReportWorX to provide customers the easy-to-use, full-featured custom data reports.

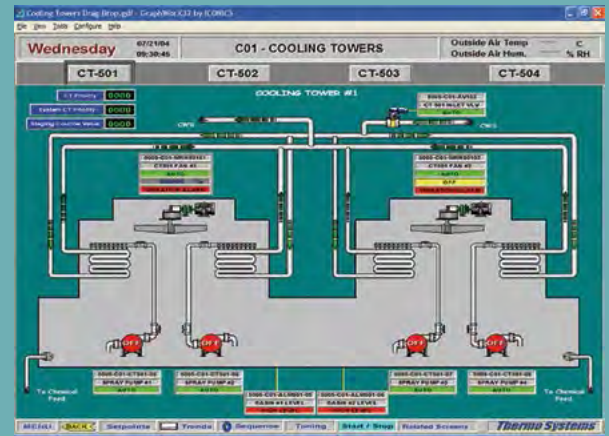
- The ICONICS WebHMI™ solution has been deployed in many applications as a secure way to provide Internet and Intranet connectivity for several Thermo customers.

With over 20 years of controls engineering experience, Thermo Systems has been a leader in the design and installation of mission critical control systems. Thermo Systems utilizes the latest technology from manufacturers such as ICONICS and has a focus on interoperability using the OPC standard. Thermo Systems designs open architecture systems that ensure end user flexibility in expansion.

The controls market has changed over the past few years creating an ever growing demand for open, standardized and reliable software systems. After researching other software tools on the market, Thermo Systems selected ICONICS' GENESIS32. This OPC-based software provides a non-proprietary, graphical front-end solution with unparalleled integration and a proven guaranteed migration path. ICONICS' GENESIS32 has met and exceeded all of Thermo Systems' graphical software requirements.



Switch Control Screen



Cooling Tower Management/Control Screen

Benefits of the System

GENESIS32 makes it easy to create applications that comply with the latest FDA regulations. Audit trails, enforced logins and restricted security access are integrated into every GENESIS32 software system. Customers who are deploying GENESIS32 in an FDA 21 CFR Part 11 application will enjoy these benefits:

- Maximum security with integrated biometrics
- Operational accountability through sequence checking
- Accurate audit trail information of who did what, when, where, and why
- Applications that are designed for the FDA 21 CFR Part 11 regulation

Conclusion

ICONICS works closely with Thermo Systems on projects to assure a successful ICONICS' GENESIS32 deployment. Thermo Systems participates in ICONICS' SupportWorX™ maintenance program to keep their software updated and for access to ICONICS' technical support personnel, as needed.



United Biscuits

Glasgow, Scotland



Sample of the United Biscuits McVitie's Brand



Main Control Screen at UB - McVitie's

About United Biscuits/McVitie's

Quality is a primary concern for McVitie's, part of United Biscuits (UB). At their plant in Tollcross, Glasgow, they have developed a control technology, which puts them in the front line on this point, as well as reinforcing the approach to innovative solutions encouraged across the business. The question was how to translate the intelligence of more than 30 years experience into an automatic, high-performance process control system, which is user friendly and could be retrofitted on the existing equipment.

ICONICS Software Deployed

The software selected for this application is based on ICONICS GENESIS32™. On the production line, which makes their Rich Tea biscuits, they

"The ICONICS GENESIS32 software is so easy to use. DataWorX32 is a very understated component with a great deal of power. The graphics that can easily be created in GraphWorX are outstanding."

Senior Management Team
UB McVitie's Glasgow Plant

have a multi-zone oven that produces thousands of biscuits per hour. Before automation was in place, an operator with many years of experience governed the control of this oven, and a great deal of skill and high-quality biscuits were produced. The knowledge of this operator was documented and formulated into a set of rules for adjusting the oven control based on the quality of the biscuits exiting the oven. ICONICS engineers from ICONICS - UK, working alongside McVitie's technical staff, developed a software system to execute the rules and automatically make the control adjustments within the oven.

Key Features

The data acquisition module, DataWorX™32, acquires and manipulates these data, which are then accessed by the HMI, GraphWorX™32, and a rules-based module. The rules-based module built into GENESIS32 then applies the rules developed from more than 30 years experience of the operators and outputs the instructions, via the scripting module

ScriptWorX™32, to the PLC, which controls the burners and temperatures in the oven zones.

GraphWorX32 also performs the other more traditional SCADA functions of graphical display of data and process elements. This includes the screens to select which one of the products is to be manufactured.

Project Details

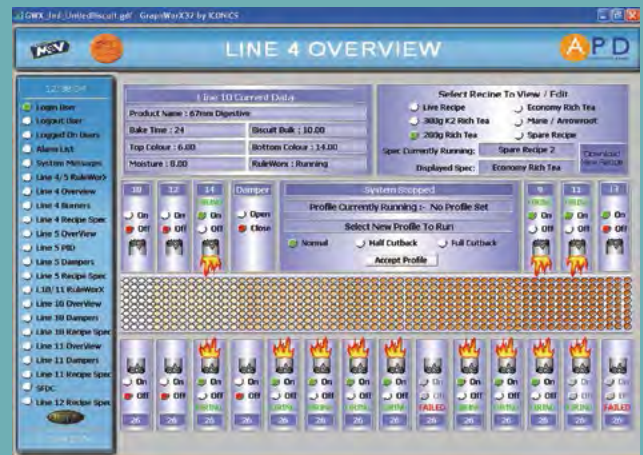
For each different product there is a different set of rules to apply to the oven control. However, GENESIS32 makes this adjustment automatically for

Conclusion

United Biscuits is delighted with its success on controlling this line, and it has taken GENESIS32 as their standard HMI/SCADA software, with installations planned throughout the UK and Europe. The software was integrated by APD of Annan, Dumfriesshire UK. APD also provided on-site training for the operators and engineering personnel.



United Biscuits Production Line



Burner Control Screen

whichever product is selected. It also displays the rules, which are being implemented at any particular time. All rule modifications are password-protected, online through the operator's terminal.

Benefits of the System

By utilizing these methods for control of the baking process, United Biscuits is now able to put into practice new ideas within the process itself to further improve their product and to provide a competitive advantage over their competitors. The actual recipe for the fine control of the oven is top-secret to McVitie's, but now they make a higher-quality biscuit and line efficiency has improved by 2.5%.

Solutions Highlighted

DataWorX

OPC Data Aggregation, Bridging, Redundancy and Tunneling

ScriptWorX32

Creation of Visual Basic for Applications (VBA) 6.0 scripts.

GraphWorX

HMI Graphical Display Package

"ICONICS' WebHMI product integrated 18 different OPC servers from different manufacturers and helped us visualize our operations using the standard Internet Explorer. The GENESIS32 product tied together our SAP, OSI PI historian, Measurex, ABB and Siemens PLCs using OPC technology. Our integrator, KONTRON CZECH, helped us build the most advanced Web-based visualization and information system for analyzing our complete Pulp & Paper plant application."

Lubomir Rulisek

Pulp Mill Manager,
Mondi Packaging Paper Štětí a.s. Co.

GOVERNMENT INFRASTRUCTURE





Attiki Odos Motorway

Attica, Greece



Aerial View of the Attiki Odos Motorway



Attiki Odos Motorway Overview Screen

"This monitoring and control application was designed and integrated on time by Algosystems SA in Athens, Greece. The SCADA graphics are very impressive, and the system allows our operators a complete picture anywhere on the highway. The system provides a fast and reliable centralized tool for our emergency personnel and support team. The ICONICS software helps make the Attiki Odos a world-class motorway."

Serafim Tsavdaras

Project Manager with AKTOR SA
(part of the Attiki Odos construction team)

About Attiki Odos Motorway

The Attiki Odos Motorway is one of the most modern motorways in Europe. The highest standards have been observed in its design. The motorway extends over 60 km, is four lanes wide, and has 32 multi-level interchanges and hundreds of overpasses. The Attiki Odos uses the most modern equipment for incident detection and emergency response.

ICONICS Software Deployed

GENESIS32™ is used in a redundant configuration along with AlarmWorX™32. The redundant GENESIS32™ servers are responsible for the monitoring and control of all electromechanical equipment for the tunnels and highways. This includes the lighting and tunnel ventilation systems.

The air quality within the tunnels is monitored, and GENESIS32 can allow exterior airflow, as needed, to keep the tunnels clear of carbon dioxide, smoke and nitrogen oxide.

Key Features

In addition to controlling the lights and ventilation system for all the tunnels, ICONICS software is also responsible for other systems within the Attiki Odos motorway. All emergency fire hose panels, irrigation pumps, power distribution (medium and high voltage), UPS systems and diesel generators are monitored and controlled by the ICONICS software. MSDE is used for all data logging.

Project Summary

ICONICS' GENESIS32 software system was installed at Attiki Odos to centralize motorway operations and provide the status of all electromechanical systems. The SCADA system enhances the ability of motorway operators to easily identify and handle emergency situations and overcome malfunctions of equipment in order to provide better quality of services.

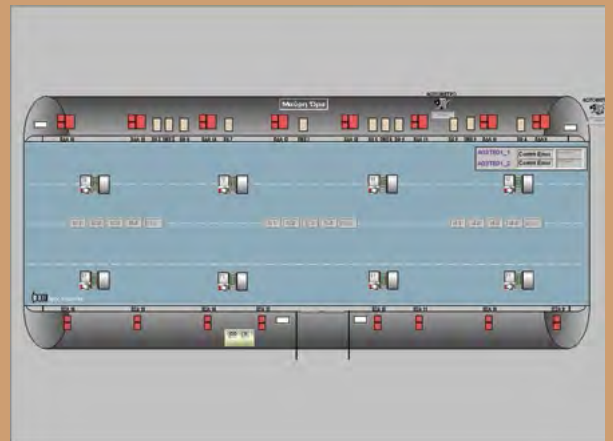
With over 25,000 I/O points, the redundant GENESIS32 servers are interfacing in real time

Conclusion

ICONICS, Algosystems Integrators and AKTOR SA have all worked together to make the Attiki Odos, the connector in and around Athens, a successful application. This project was under a tight deadline and opened on time for the 2004 Summer Olympics in Greece.



The Olympic Road Network



A Ventilation Control Screen for the Attiki Odos Motorway in Greece

with Opto22 LCM4 redundant controllers and LCSX-Plus controllers over an Ethernet network. The system response time is less than two seconds. GenBroker is used to enhance communication of operator workstations with servers. Algosystems, using ICONICS OPC ToolWorX™, developed a multithreaded OPC server with redundancy features to interface with Opto22 controllers.

Benefits of the System

ICONICS software was selected for this application due to the open modular architecture of GENESIS32 along with the proven reliability of the redundant GENESIS32 servers and the breadth of OPC servers and toolsets.

Solutions Highlighted

GENESIS32

Web-Based HMI/SCADA Visualization

AlarmWorX32

Multimedia OPC Alarm Management Software

OPC ToolWorX

Rapid OPC Development Toolkit



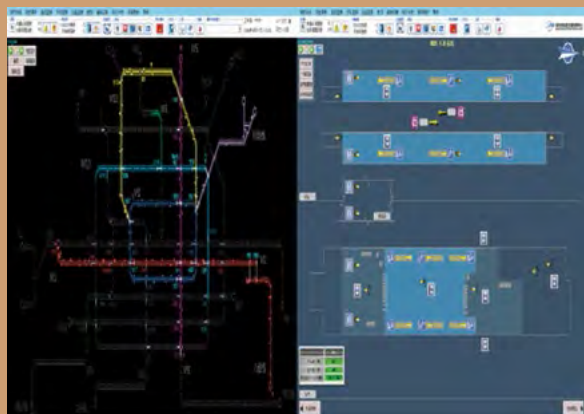


Beijing Traffic Control
Center Headquarters

Beijing Traffic Control Center

Beijing, People's Republic of China

北京



Integrated View of Beijing Rail Line Network

About Beijing Traffic Control Center

Beijing, the capital of China and its second largest city, has a population of over 18 million people. The host city for the 2008 Summer Olympics, Beijing is also a major transportation hub, with dozens of railways, roads and motorways within its limits. The Beijing Traffic Control Center (BTCC) was established to monitor a network of Operational Control Centers for the various rail lines operating in the country.

ICONICS Software Deployed

BTCC is using ICONICS GraphWorX™32, part of ICONICS GENESIS32™ HMI/SCADA suite to provide a unified user interface within the monitoring and control center.

"The ease of use, speed of deployment and project management capabilities of ICONICS' GENESIS32 HMI/SCADA suite resulted in a 30% savings on engineering-related costs. This was a major benefit, and enabled us to meet critical deadlines prior to the 2008 Summer Olympics."

Ng Liang Chin
Project Manager
ST Engineering

A total of 50 operator stations are networked together to help monitor the traffic network.

Project Summary

The project was mainly developed and deployed under the supervision of Singapore Technologies Engineering Ltd. (ST Engineering). ST Engineering is one of the largest listed companies on the Singapore Stock Exchange, with a presence in 35 countries around the world.

The project requirement was to integrate various systems, with emphasis on having a unified user interface linked to real-time information. These systems include SCADA, operator information, CCTV, passenger information, decision support and incident evaluation.

The completed system is linked to receive real-time information from various Operational Control Centers of various rail network lines, while the opera-

tors at BTCC are able to share the rail line data, rail line videos and reports. The completed system provides a link to an Incident Evaluation System that triggers automatic or semi-automatic plans based on certain incidents.

The operators generate various reports by following workflow guidance by the system and forward the reports to the BTCC Database. A Decision Support Database system is also available to the operators, to quickly search and retrieve supporting documents for operational work. A connected CCTV system channels live images from train stations to the Op-

With OPC and XML technology, those applications were seamlessly integrated into GraphWorX32. Powerful automation controls have enabled the system integrator to take their customer's application to the next level.

ST Engineering has also deployed GraphWorX32 at various other projects including Singapore Circular Rail and Kaohsiung Rail in Taiwan.



Monitor/Control Room within the Beijing Traffic Control Center



Integrated View of Multiple Rail Lines at the BTCC

erational Control Centers as well as to BTCC operators. Since the Passenger Information System is also integrated, any emergency information can be quickly relayed to affected line passengers and to other lines for general updates.

Key Features

With the hybrid nature of various traffic control and monitoring systems, ST Engineering looked for an application that is flexible enough to provide customization, yet has enough built-in features to start with. GraphWorX32 passed all the tests (stability, flexibility, robustness, longer shelf life) for what the company required. Some of BTCC's systems were running on a non-Microsoft platform.

Conclusion

GraphWorX32 provides an easy way to integrate multiple applications and systems together. With its capacity for large amounts of data, the system can handle a virtually unlimited number of data points within a screen. The native features of GraphWorX32, such as templates, layers, OPC interface, and VBA controls, fully satisfy the integration needs at the programming level. ST Engineering has saved a great deal on costs and man hours, and was able to meet the deadline of completing the project before the 2008 Summer Olympics in Beijing.



Deutsche Bahn Berlin, Germany



*A Deutsche Bahn Train,
Clean and Ready to Go*



A GENESIS32 Washer Screen

About Deutsche Bahn

Deutsche Bahn AG railways carry more than 1.8 billion passengers per year throughout Germany and neighboring countries. Deutsche Bahn is also responsible for moving 78 billion tons of freight annually. All service and rail stations are maintained by DB Stations & Services. DN Netz provides the track infrastructure. The company is owned by the German government and is one of Europe's largest transportation providers.

ICONICS Software Deployed

GENESIS32™ Enterprise edition is deployed for the train washing at the most state-of-the-art train washing applications in the world. Alarms are handled by the ICONICS AlarmWorX™32 application. Users

"ICONICS was selected for this job for their superior 3D graphics, ease of use and close relationship with Phoenix Contact."

Marco Heyd
CEO
S.A.H. Heyd Group

can acknowledge alarms from anywhere in the systems. TrendWorX™32 is used for all trending and can give the users up-to-date information, which includes both real-time and historical data. GraphWorX™32, the graphical design and runtime environment for GENESIS32, plays an important role in this application. From GraphWorX32, all monitoring and control for the train washing is handled with rich 3D graphics.

Key Features

The train washing system is revolutionary in the fact that one washing system can accommodate any type and shape of train in the world. A new 3D brush allows for cleaning any shape of train, including the modern bullet train. The GENESIS32 system provides a "learning mode" to allow the system to make the necessary brush and sprayer adjustments. Train specifications are loaded into the GENESIS32 system and operators can use the animation feature in GraphWorX32 to trace the path the train will take through the washer.

The operator can adjust the brushes and sprayers from GraphWorX32 and have this information

stored for future use. When the train returns to the washer, the parameters captured during the learning mode are downloaded to the PLCs to properly adjust the sprayers and brushes. This mode ensures every part of the train is washed.

Project Summary

S.A.H. Heyd Group was selected for this application due to their industry technology leadership and the complexity of the application. All trains are electric power and, under most circumstances, water and electricity do not mix. Since all trains need to enter

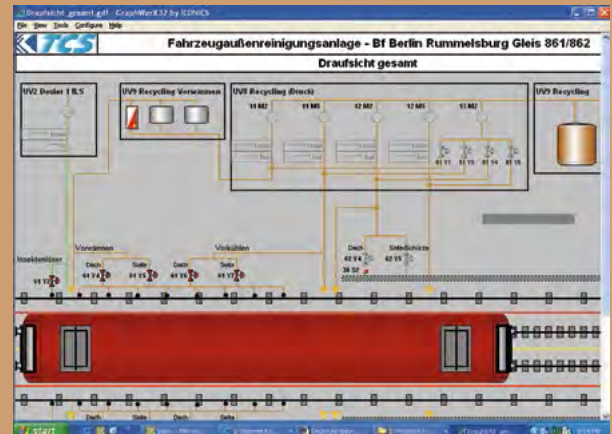
Phoenix Contact PcWorX, based on ICONICS software, is used in this application. The Phoenix Interbus OPC server provides the OPC connectivity. All automation on the washing side is handled by TCS, a specialty company for washing applications. GENESIS32 is running on Windows 2000 and all alarm trending is done via Microsoft SQL Server.

Conclusion

The GENESIS32 software allows for rich 3D graphics and has the OPC connectivity needed for this very robust and “clean” application.



Train Wash Operator Control Area



Another GENESIS32 Washer Control Screen at Deutsche Bahn

and exit the washer under their own power, S.A.H. had to treat the water so it would not be conductive. The GENESIS32 system is used to control the water treatment for the washer. All water used in the washing application has the minerals removed, making it non-conductive and safe to be used with the electric trains. This revolutionary process allows for trains to be washed without being taken offline. The process saves time and money and keeps the trains in service. Another major feature of the learning mode is the ability to sync the left side washing with the right side. It is important to make sure the washing is done evenly. Once the operator has made the necessary changes in learning mode, he can have GENESIS32 perform an automatic sync of the left side with the right. The GENESIS32 system monitors over 1,500 tags.

Solutions Highlighted



AlarmWorX32

Multimedia OPC Alarm Management Software

GraphWorX32

HMI Graphical Display Package

TrendWorX32

Data logging, charting and reporting software



Hong Kong Harbor

Hong Kong Marine Department Kowloon, China



Harbor Overview Map

About The Hong Kong Marine Department

The Vessel Traffic Centre of Hong Kong Marine Department monitors and regulates all ship movements within Hong Kong waters. Over one thousand big and small ships enter into or sail from the port of Hong Kong daily. The volume of traffic that transits Hong Kong waters to and from the ports at the Pearl River Delta increases annually. At any one time, there are over three hundred ships moored within the harbor. The Maritime Rescue Coordination Center, which is also under Hong Kong Marine Department, is responsible for coordinating all search and rescue operations within the Hong Kong maritime rescue responsible area, which is about the entire northern part of the South China Sea, up to the west coast of the Philippines on the east and up to the 10 degree Latitude on the south.

"The critical requirements of monitoring and guiding the vessels in the harbor was causing immense pressure on the operators, 24 hours a day, along with the increasing traffic. We needed an accurate and reliable system to assist the operators.

The implementation of the ICONICS GENESIS32 software, with its Web capabilities, enabled us to install the communication system with ease and offers us the ability to use and maintain the system with a high degree of reliability, with our qualified staff. The enhanced graphics, data logging and automatic report generation were essential requirements that met our design criteria fully."

Hong Kong Marine Department

The traffic monitoring equipment and the telecommunications equipment of both centers have recently been upgraded. ICONICS GENESIS32 monitoring software is being installed to control and monitor the performance and conditions of the newly installed radars and telecommunications equipment, which are situated on remote islands and locations.

ICONICS Software Deployed

Hong Kong Marine Department selected ICONICS GENESIS32™ Web-enabled, OPC-integrated HMI/SCADA Software suite with AlarmWorX™32, TrendWorX™32, and GraphWorX™32 modules,

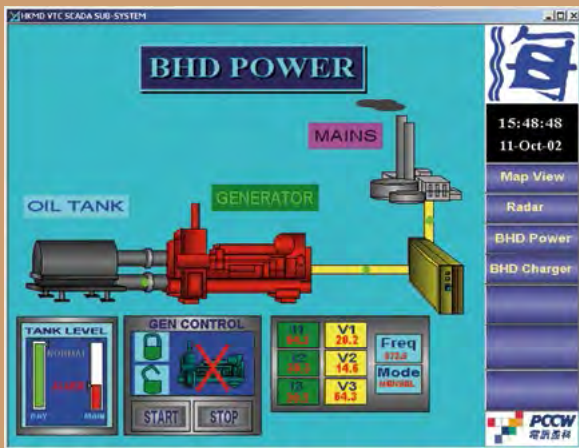
along with WebHMI and OPC Server products. Communication and data collection was a very important factor in working with the vast network of communication towers, radar units and remote terminal units.

Key Features

The complete turnkey solution that included microwave link, VHF communication equipment, radar Unit, RTU and ICONICS software, was installed by PCCW Ltd. The geography of Hong Kong required the installation of 18 remote sites spread over

immediately notify technical staff of any alarm indications to deploy an immediate fix. Live CCTV cameras are also linked within the ICONICS GENESIS32 software, which are located at all the various sites. Product stability and reliability were emphasized in the design and implementation of the project. ICONICS GENESIS32 connects 21 OmniFlex 1000 RTUs spread out over 6 islands of Hong Kong.

The senior management of Hong Kong Marine Department can now monitor and control the status of the complete communication system from any remote site. GENESIS32 proved to be a very cost ef-



Generator System Display at the Hong Kong Marine Department



Harbor Radar Control

7 islands. ICONICS GENESIS32 software enabled rapid development and easy deployment using its modular architecture, aliases, ActiveX controls and direct publishing feature of HTML pages over the Internet. The communication towers are built on the various remote islands and locations to collect data about the presence and movement of ships within Hong Kong waters. Communication with these remote sites is critical in terms of keeping the port safe.

Project Summary

The project was to monitor the status of the Communication Towers. It was also required to maintain constant communication with all the remote towers, monitor the temperatures of all the communication equipment and

fective solution, which met every aspect of the end user's design requirements.

Conclusion

ICONICS has worked closely with Hong Kong Marine Department to make the newly installed vessel traffic management system successful in every aspect. Hong Kong Marine Department has also participated in the ICONICS End-user Support and Maintenance program so that it can access technical support personnel and receive software updates as needed.

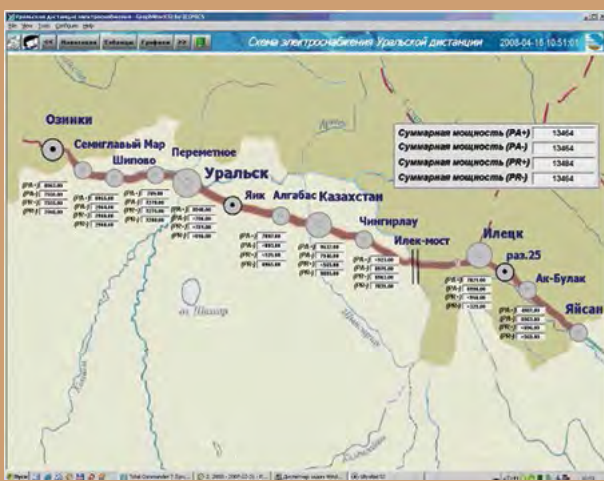


Kazakhstan Railway

Astana City, Kazakhstan



Kazakhstan Railway's Train "Astana"
at the Railway's Centennial Celebration



Kazakhstan Railway Network Monitoring Screen

About Kazakhstan Railway

Kazakhstan's railways celebrated their centennial in 2004. The state rail facilities have been incorporated into JSC National Company Kazakhstan Temir Zholy (KTZ) more than ten years ago. Kazakhstan's railroad combines about 14,000 kilometers of rails with 700 stations and KTZ is one of the railways reform leaders in the Commonwealth of Independent States (CIS).

According to KTZ's mission statement, the company works to ensure the "effective organization, coordination and maintenance of transportation processes with the purpose of the maximal satisfaction of needs of freight senders and the population at rational use of resources".

The amount of cargo and passenger traffic grows every year, inevitably leading to higher electricity

"ICONICS' OPC technology has helped us to cut time for applications engineering."

Boris Cherepanov
Chief Engineer
Technik-Trade

expenditures. Electricity usage reform and increasing prices for energy resource are common everywhere. Therefore, implementation of an Automation System of Control and consumption for Energy (ASCUE) for the rail node was seen as a necessity. The railways need the system for real-time electricity monitoring to minimize energy use and ensure an optimum relationship between costs and the volume of work and services.

ICONICS Software Deployed

The system integrator Technik-Trade, a PROSOFT company dealer in Kazakhstan, offered ICONICS' GENESIS32™ OPC-based HMI/SCADA suite for Kazakhstan's railway ASCUE. The solution was approved by KTZ's Energy Supply Department thanks to ICONICS' ability to meet the specified project requirements. ICONICS' GENESIS32 software was selected to replace a competitor's legacy product.

Project Summary

The teamwork of Technik-Trade, KTZ's Energy Department engineers and managers, the railway division's

ASCUE specialists, the metrological service direction of the Kazakhstan Electricity Grid Operating Company (KEGOC) and the contractors' staff (from organizations including Transtelecom, Astel, TEP, RECLE and KESH) helped ensure the success of the project.

KTZ's Uralskaya, Shalkarskaya, Kzylordinskaya, Mangyshlaksкая and Atyrauskaya electric power supply divisions were among 322 substations (including 58 energy nodes and 264 standard substations) that were automated in the project. They connect to the substations via RS-485 interface, radio modification VHF (150 MHz) connections, GSM (CSD/GPRS),

information center (which could range from several hundred meters to over 50 kilometers).

The integrators also needed to take into account the necessity of work on non-heated and maintenance-free stations (switch-yards) without any connection lines.

There are multiple (about 10 to 50) electric objects within the bounds of each railway node and every node can contain about 500 points for control. KTZ wanted to create a solution to generalize the energy control for thousands of switch-yards with similarly structured electric parameters. All involved with development of the ASCUE system sought a



A KTZ Railway Worker Signals from Aboard the "Astana"



KTZ's Remote Automated Power Supply Divisions Connect via Satellite Network

DSL-lines, Ethernet-technologies and satellite communication (via SkyEdge Broadband Satellite Network). Three hundred data acquisition nodes and 9,100 parameters were configured as part of the project. As part of the project, system integrator Technik-Trade ensured the control systems would work with KTZ's existing Microsoft software solutions, including Windows Server, Windows XP, Windows Small Business Server, Microsoft Office, Access and SQL Server.

The object nodes (railway distances) have specific demands for automation. One consideration was how the larger stations would require an equally large amount of limited electricity. Another factor in the project was the distance between where electricity was required within a node and the collecting

qualitative and inexpensive information delivery system that could provide data from multiple remote measuring points to a central control center in as safe and secure mode as possible.

Benefits of the System

The ASCUE system implemented with ICONICS GENESIS32 HMI/SCADA suite helps KTZ cut the cost of electric power purchasing, as well as control all levels of energy consumption. The project also supports the data exchange between analogous energy accounting control systems.

KTZ and Technik-Trade are working on expanding the system to other KTZ locations and developing a new ASCUE system for South Kazakhstan.

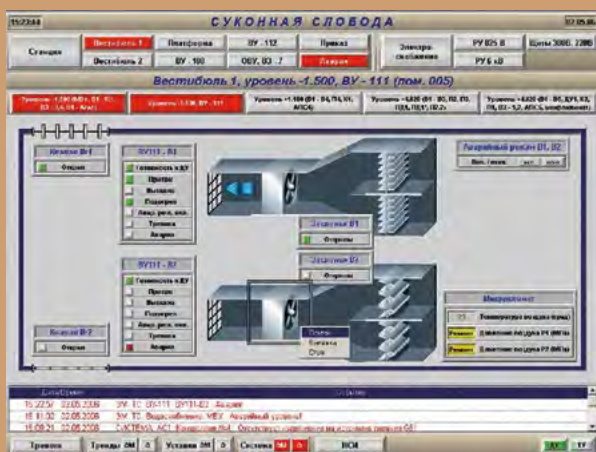


Kazan Metro

Kazan, Tatarstan



A Metro Train Departing a Station



Kazan Metro Monitoring Screen

About Kazan Metro

Kazan is the capital of Tatarstan, a republic in the Russian Federation, located 800 kilometers (497 miles) east of Moscow, with a population of nearly 1.5 million residents. Planners of the Kazan Metro (or “Underground”) intended to have the system operational for Kazan’s Millennium Celebration in 2005 and completed Phase One of their plan by completing five stations with 9 km (over 5.5 miles) of underground and 4 km (nearly 2.5 miles) of above ground rail by that deadline. The presidents of Russia, Kazakhstan and Tatarstan were honored guests and the Kazan Metro’s first passengers during its grand opening.

The design of the Kazan Metro control system originated at the St. Petersburg NII Scientific Research

Institute, with special attention paid to safety and mechanics, while experimental testing was performed in the city of Neva. When opened, the Kazan Metro was unique in that it boasted the complete absence of now obsolete relays, historically used for motion control and management in metros throughout the country. More contemporary onboard and station computing resources were adopted, each capable of determining conditions throughout the metro infrastructure, ensuring passenger safety.

ICONICS Software Deployed

The Kazan Metro selected ICONICS’ GENESIS32™ Web-enabled, OPC-based HMI/SCADA suite for its control and visualization system, as well as the DataWorX™32 component for OPC data aggregation, bridging, redundancy and tunneling.

Project Summary

The new Kazan Metro required a unified control and visualization system for its operation. The objectives for this solution were the management and security of integrated systems including Train Dispatch and Control, Antiterrorist Protection, Power Systems/Uninterrupted Power Supplies, Fire Safety, Ground-water Pumping and Tunnel Monitoring. Challenges facing Kazan Metro developers included cost-control, adaptability/expandability, and communications/data management reliability.

Benefits of the System

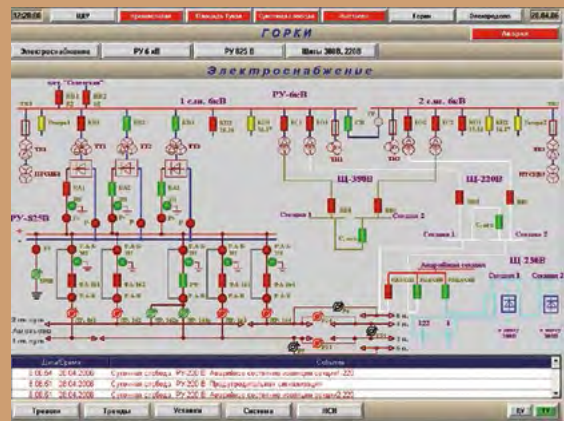
ICONICS' GENESIS32 and DataWorX32 solutions proved to meet the Kazan Metro developers' requirements. Costs were controlled due to ICONICS' PC and Microsoft operating system-based systems. Adaptability and expandability were ensured via ICONICS' commercial, off-the-shelf HMI/SCADA software and open database technology (most important to the Kazan Metro was integration with Microsoft SQL Server). Reliable communications/data management is achieved through ICONICS

Conclusion

Planners for Kazan's Metro wanted their new transportation system to reflect the city heading into its next millennium, by utilizing state-of-the-art technology. ICONICS automation software solutions were able to assist in this goal and help keep the city moving forward.



Dispatching Desk at Kazan Metro Operations



Engineering Specialist Monitoring Station

software's hardware agnostic approach – ensuring integration with multiple communication APIs and utilizing OPC technology.

The Kazan Metro's new unified control/visualization system now helps to facilitate the complex management of train traffic, integrated with Advantech IPCs/Windows XP and Fastwell integrated IPCs/Windows 2000. The Dispatching Desk can visualize information related to train movement, station equipment conditions, railway track conditions, duplicated optical channels and reservation data. Role-based information is available to dispatchers, engineers and the chief dispatcher at individual workstations.

Solutions Highlighted

GENESIS32

Web-Based HMI/SCADA Visualization

DataWorX32

OPC Data Aggregation, Bridging, Redundancy and Tunneling





Mondi Packaging Paper Štětí a.s. Czech Republic



Paper Rolls in a Mondi Packaging
Czech Republic Facility



Final Control Process Station

"ICONICS' WebHMI product integrated 18 different OPC servers from different manufacturers and helped us visualize our operations using the standard Internet Explorer. The GENESIS32 product tied together our SAP, OSI PI historian, Measurex, ABB and Siemens PLCs using OPC technology. Our integrator, KONTRON CZECH, helped us build the most advanced Web-based visualization and information system for analyzing our complete Pulp & Paper plant application."

Lubomir Rulisek
Pulp Mill Manager,
Mondi Packaging Paper Štětí a.s. Co.

About Mondi Packaging Paper Štětí a.s

Mondi Packaging Paper Štětí a.s. is one of the world's leading producers of industrial packaging and paper materials. They have been using ICONICS software at its Pulp and Paper plants in the Czech Republic. The Plant receives 1,000 tons of timber daily and produces 1,500 tons of pulp and paper each day. This plant has over 100 buildings with over 1,000 people employed producing 45 megawatts of electricity within their facility. This is the largest ICONICS Web application in Europe.

ICONICS Software Deployed

The HMI/SCADA System for the Mondi Packaging Paper Štětí a.s. production plant, known as the Technological Information System (TIS), is us-

ing ICONICS GENESIS32™, AlarmWorX™32, TrendWorX™32, GraphWorX™32, DataWorX™32 and WebHMI™ software. This was implemented by the KONTRON CZECH Company, a provider of industrial automation software solutions in the Czech Republic. KONTRON CZECH served as the system integrator for the TIS, which is based on OPC Data Access, Historical Data Access and Alarm and Events communications.

Key Features

The TIS, which uses many different types of OPC servers to integrate and process real-time data from all segments of the Mondi Packaging Paper Štětí a.s. production facility, employs 20 full ICONICS GENESIS32

systems with 150 graphic screens for real-time HMI visualization of the plant's operations. An ICONICS WebHMI server provides HMI displays to more than 50 client computers running Microsoft Internet Explorer, enabling production, maintenance and management personnel to view real-time OPC data from Web browser stations throughout the facility.

Project Summary

OPC plug and play technology was critical for this extremely large application. The system integrated nine OPC servers to process real-time data from all

Conclusion

ICONICS has worked closely with Mondi Packaging Paper Štětí a.s. and its IT staff as well as with KONTRON CZECH, their selected systems integrator, to make this Pulp and Paper production project successful in every aspect. Mondi Packaging Paper Štětí a.s. participates in the ICONICS End-User Support and Maintenance program to keep its software updated and for access to technical support personnel as needed and is looking forward to expanding this application to its other six plants in Europe.



Pulp Processor System at Mondi Packaging



Paper Manufacturing Equipment

segments of the large paper complex. An ICONICS WebHMI server, running on Windows 2000 and IIS, delivered over 150 Web pages to 70 WebHMI clients running standard Internet Explorer. This enabled production, maintenance and management personnel to view real-time plant operations throughout the facility with over 900 personal computers.

Benefits of the System

To handle the enormous amount of data generated by the plant, the plant information system (TIS) also uses ICONICS' DataWorX32 OPC data exchange product, which provided a homogenous data-collection engine for more than 4,000 real-time OPC tags and more than 5,500 historical OPC tags.

Solutions Highlighted



WebHMI

Web-Based Real-time Automation Software

GraphWorX32

HMI Graphical Display Package

AlarmWorX

Multimedia OPC Alarm Management Software

TrendWorX

Data Logging, Charting and Reporting Software



Poste Italiane

Rome, Italy

Posteitaliane

Packages Out for Delivery

"This project was a very important milestone for Poste Italiane, as it completely changed the philosophy of how we operate."

Poste Italiane



Supervision System at Poste Italiane

About Poste Italiane

Poste Italiane is the national postal system of Italy, which processes over 7 billion pieces of mail in sorting centers, operates thousands of post offices and manages thousands of employees.

ICONICS Software Deployed

Poste Italiane selected ICONICS GENESIS32™ OPC Web-enabled HMI/SCADA suite including GraphWorX™32, TrendWorX™32, AlarmWorX™32, and DataWorX™32. Also chosen was the BizViz manufacturing intelligence and business visualization suite, including PortalWorX™, ReportWorX™, BridgeWorX™, and MobileHMI™.

Project Summary

Poste Italiane achieved critical objectives with ICONICS' solutions:

- Real-time Information Access
- New Customer Services
- Processing Cost Reduction

In coordination with the system integrator, Eltag S.p.A., and the distributor, Digipoint, the solutions have been deployed in stages across all 23 facilities.

Key Features

The project focused on operational capabilities of the postal infrastructure to improve the following business functions:

- Plant Supervision, Monitoring and Control
- Monitoring of Production Progress
- Support to Plant Management
- Tracking of Flows Within Sorting Center
- Data Collection from Field Systems
- Integration with Administrative Systems

Benefits of the System

The key benefits derived from the solution include:

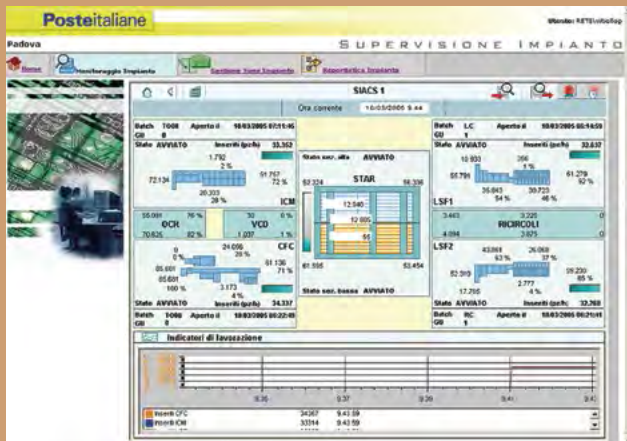
- Complete end-to-end value chain integration between production- and enterprise-level information.
- Access to real-time information, which empowers employees and managers to operate and collaborate at higher performance levels.
- Enables decision makers to make better decisions and react faster to unexpected situations.

ICONICS' BizViz uniquely addressed very stringent visualization and connectivity requirements to deliver:

- Personalized role-based dashboards with relevant content from various systems in an intuitive framework.
- Configurable Key Performance Indicators for real-time performance tracking against set targets.
- Automated and on-demand reporting capabilities with advanced analytic functions.

Conclusion

Started in 2004, the project is being gradually rolled out to all 23 sorting centers. The level of business pro-



System Start Monitoring at Poste Italiane



Plant Monitoring with Capacity Diagram

- Powerful integration capabilities in connecting to and leveraging information from several diverse data sources such as sorting, address recognition, material handling tracking, weighing and packaging, financial, and production planning systems.
- Unmatched connectivity, flexibility, and visualization.

Additional value was realized by integrating this real-time manufacturing intelligence solution with various modules for entire value chain optimization. The solution is integrated with SAP (PP/DS, EM, BW-SEM, SD&LES), RFID systems and legacy systems. The project has been a major undertaking, in terms of scope and innovation achieved, that Poste Italiane has pursued for the last few years.

Process automation is steadily increasing from the original 40% to the target of over 85%. The critical success factors include close cooperation with the customer and fast deployment with the local system integrator.

Solutions Highlighted

PortalWorX

Real-Time Collaboration and Visualization Dashboard

MobileHMI

Instant KPI and Alerts for Mobile Devices



Rome Metro S.p.A. Rome, Italy



A Stop Along the
Met.Ro. Rail Line



Rome Metro Line Overview

"The ICONICS system has substantially reduced the length of time of subsystems failures because of the efficient data visualization capabilities and early notifications."

Rome Metro S.p.A.

line from a centralized location. The software system also provides alarm notification for the coordination of emergency actions. The software was designed and installed by Automation Services S.r.L., a systems integrator, and was implemented over a two-year period.

About Rome Metro S.p.A.

The Rome (Met.Ro.) local government organization runs the Metropolitan Rome rail and surface bus lines within the city of Rome, Italy. They also operate some regional bus lines as well. There are two main metro rail lines with a total of 53 stations that are served. A third line with 34 additional stations is being built currently. Each line is approximately 22 km in length.

ICONICS Software Deployed

Met.Ro. – Metro Rome selected ICONICS GENESIS32™ (GraphWorX™32, TrendWorX™32, AlarmWorX™32 and ScriptWorX™32) to implement on their first of three rail lines. They are using GENESIS32™ to monitor and control the metro

Key Features

The ICONICS GENESIS32™ software suite incorporates smart symbols that were used by Metro Rome to automatically create large portions of their graphic screens. The import / export tools in the software suite allowed Metro Rome to create configuration databases using Microsoft Excel™ and other text processors. Also provided were global (multiple-file) search/replace features that enabled Metro Rome to update hundreds of graphic files automatically. The Metro Rome control system is based upon 70 ABB PLCs in a distributed architecture with interlocking logic executed upon alarm notification. Locally, the subsystems are connected via Modbus RTU. The system has 8 GENESIS32 nodes, 7 alarm servers and 6 browser

nodes. Over 7,000 digital and 500 analog tags are incorporated. The GENESIS32 system monitors 3,000 alarms that are both centralized and distributed across the station network for operator intervention.

Project Summary

ICONICS GENESIS32 software system was installed at Metro Rome to centralize security monitoring and provide the status of auxiliary equipment at each of the remote stations on the rail line. The types of auxiliary equipment being monitored

Benefits of the System

The ICONICS GENESIS32 software system connects with a Metro Rome mainframe computer via a WAN which communicates data using OPC at 2 Mb/sec. Operational data is collected from the software system for evaluation, trending and analysis for the modification of the Metro Rome implementation of alarm notifications. Plans for future expansion of the installed software system include the ability to perform diagnostic functions by operators of the subsystems at the individual stations upon alarm notification prior to elevating the emergency further, providing



Ventilation Monitoring and Control for Rome Metro S.p.A.



Station Overview Screen

include ventilation systems, fire systems, moving stairs, elevators, normal and emergency lighting systems, uninterrupted power supplies, inverters etc. The software system also provided the ability to coordinate emergency actions in case of fire in the stations to enable the necessary operational strategies of ventilation systems that had to be coordinated with the moving stairs and elevators at such affected stations on the rail line.

After the installation and extensive system testing, modifications to their complex logic of system interconnects for emergency notifications identified the most common alarms and their causes, enabling Metro Rome to better organize their responses.

public information to their customers and connecting ticket counters and emergency phones. Overall, Metro Rome has increased the rail system efficiency and operational uptime performance with the use of the ICONICS GENESIS32 software system with early notification of subsystem failures, which afforded timely resolution of any problems reported.

Conclusion

ICONICS has worked closely with Metro Rome to make this transportation management project successful. Metro Rome participates in the ICONICS SupportWorX maintenance program to keep its software updated and for access to technical support personnel as needed.

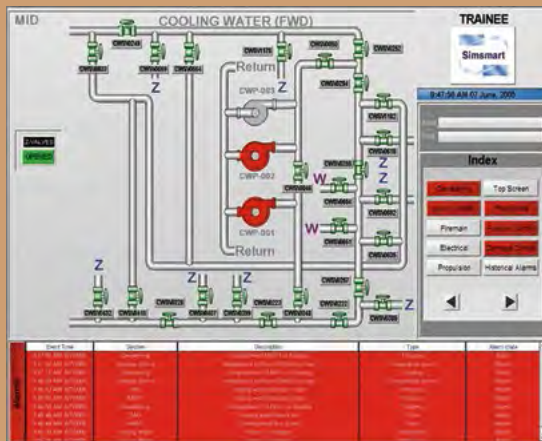


Simsmart

Brossard (Quebec), Canada



Simsmart Provides Applications for Military Ship Design, Training and Personnel Tracking



A Trainee Station View by Simsmart

About Simsmart

Simsmart Inc., of Brossard (Quebec), Canada, is a provider of process systems design software, process performance analysis, process training solutions and related application engineering. Simsmart's Engineering Suite and TPTS (Total Platform Training System) multidiscipline, physics-based, dynamic modeling/simulation design and training tools are the result of extensive research and development. The tools are used in a wide range of military and industrial applications where liquid and gas processes, Heating Ventilating and Air Conditioning (HVAC), associated AC/DC electrical systems and related process controls are involved. Simsmart's products provide advanced engineering and cost effective solutions for both new construction and retrofits. The company looked to GENE-

SIS32™, in particular its visualization capabilities, to meet integral training system requirements.

ICONICS Software Deployed

Simsmart selected ICONICS GENESIS32™ Web-enabled, OPC-integrated HMI/SCADA suite. The training modules developed by Simsmart utilize the rich GraphWorX™32 visualization development environment for creating eye-catching animated displays. The TrendWorX™32 module is used for simulated data collection, logging, charting, reporting and analysis while the AlarmWorX™ module is used for simulating real life alarms and events. The ICONICS OPC Simulator driver, available as a free download from ICONICS.com, is also used for simulating some of the real world situations.

Project Summary

The displays are created via a GENESIS32 GraphWorX environment where graphical objects are placed on a window and connected to OPC resources for Input/Output. The controls are simulated by using ICONICS Simulator OPC Server and Simsmart's Engineering Suite. Trainees operate the emulated control panel by pushing buttons, turning knobs, manipulating sliders, etc, as if performing the tasks themselves in real life.

Each training environment can have its own separate configuration for trainee(s) and instructor(s). The instructor layout display can be used as a template to display operating procedures to be monitored.

The GraphWorX GUIs for Instructors can also be

configured to display malfunctions to be injected such as an eductor failure or bulkhead failure (by actuating sliders) to ensue progressive flooding. The instructor actions have a hand shake with the LPMS to initiate incidents, monitor tasks or activate crew actions.

Benefits of the System

Utilizing award-winning GraphWorX software, trainee stations consist of emulated local control panels or duplicated machinery control system operator pages along with all related controls simulated. To avoid negative training, the look, feel and functionality is

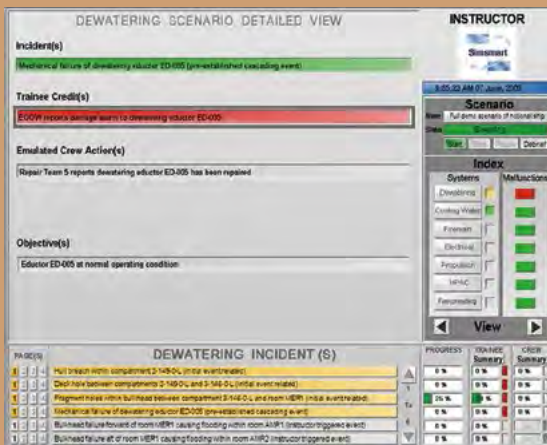
Solutions Highlighted

GraphWorX

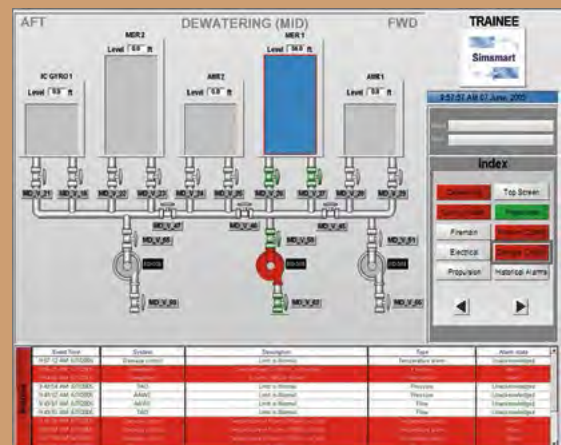
HMI Graphical Display Package

TrendWorX

Data Logging, Charting and Reporting Software



An Instructor GUI Example by Simsmart



A Mock Malfunction Introduced into a Simsmart Training Application

duplicated as close as possible to the real system. This allows trainees to be more “hands on”, although remaining in a secure learning environment.

The benefit is two-fold in that instructors can introduce intentional failures into the training scenario and immediately measure trainee response, in as realistic a manner as possible.

Conclusion

Simsmart devises unique methods and solutions to help customers resolve seemingly unsolvable engineering design problems.

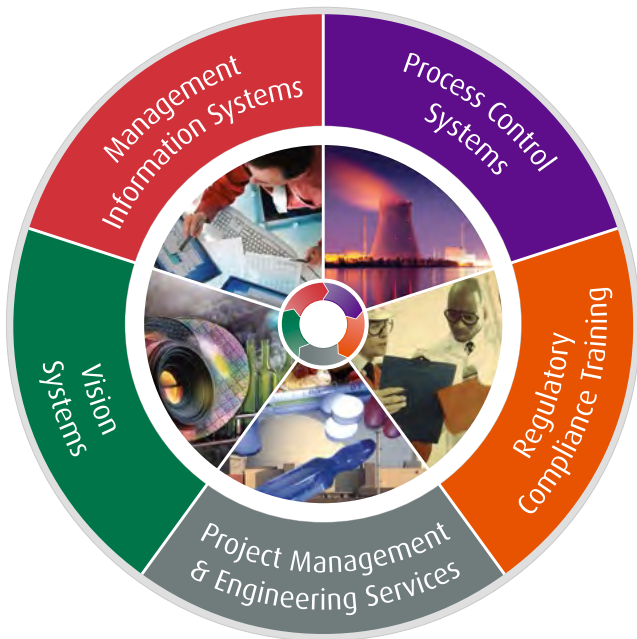
ICONICS, with the GENESIS32 suite of OPC Web-enabled HMI and SCADA applications (the multi-faceted GraphWorX in particular) has reinforced Simsmart’s ability to continue to meet this challenge.

Case Study Details

Simsmart set out to enhance a training system that could perform a variety of functions including:

- Emulating Local Control Panels with Control Functions
- Duplicating Machinery Control System Operator Pages
- Multidiscipline Process Simulation Tool
- Lesson Plan Management System





For over 20 years, ITS Ltd, an ICONICS partner and systems integrator, has been dedicated to developing long-term partnerships with customers and suppliers.

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Via Appia Nuova n° 1240
00178 – ROMA
ITALY
g.aramini@automation-si.it
www.automation-si.it

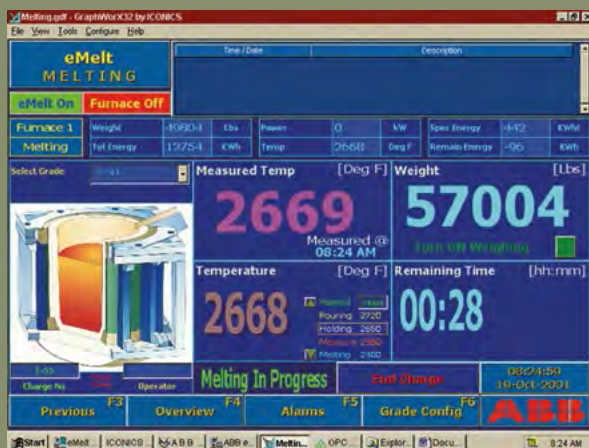
MANUFACTURING & MACHINE BUILDERS





ABB Foundry Manufacturing
in Progress

ABB Foundry Group New Berlin, WI



Melting Control Screen at ABB Foundry Group

"GENESIS32 was selected for this project due to its ease of use for creating graphics and strong integration with Microsoft products."

Anil Baila
Sr. Systems Engineer
ABB Foundry Group

From GraphWorX32, operators can see a graphical representation of what is happening inside the melting furnaces. They are able to control the temperature, view the weight, and see the remaining time left before pouring. AlarmWorX32 is used for all alarms needing attention during the heating and melting stages. The TrendWorX32 component allows operators to view real-time trends of the process at all stages. Data tags can be dragged and dropped into a trending area during runtime for real time trending.

Key Features

The eMelt product is an MMI, SCADA and MES global solution for ABB's Foundry segment. This quick-to-learn and easy-to-use product, based on OPC, is controller (PLC) independent, supports multiple languages and works with different unit systems. The system provides the monitoring and controlling of foundry processes for as many as four furnaces. The product is configured to individual foundry requirements and operations. It can connect to temperature measurement devices, analyzers and spectrometers and offers a variety of operational reports.

About ABB Foundry Group

The ABB Foundry Group in New Berlin, WI has designed their eMelt product around ICONICS GENESIS32 software. ABB is a leader in power and automation technologies that enables utility and industry customers to improve performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs around 115,000 people worldwide.

ICONICS Software Deployed

GENESIS32™ Enterprise edition is the HMI/SCADA solution under the hood for ABB's eMelt product offering. GraphWorX™32, AlarmWorX™32 and TrendWorX™32 are all used in the eMelt application. This is a complete solution deployed on a single node.

Project Summary

The eMelt foundry system, based on GENESIS32, was implemented by the ABB Foundry Group. Thermocouples, a type of spectrometer, are connected to the ABB Digital Inter Control Unit (DICO). This DICO then interfaces to GENESIS32 for operators to monitor and control the melting process.

The GENESIS32 application is also communicating via OPC to a Modicon PLC as well as PLC5 and ControlLogix hardware from Allen Bradley. One of the requirements for this application was to be able

Benefits of the System

ABB was able to get their foundry monitoring and control product (eMelt) to market quickly and cost effectively by partnering with ICONICS.

Conclusion

The eMelt project is key to ABB's success in foundry applications. The project is a global solution and will be joining ABB's Industrial IT family.



Metal Pouring at ABB Foundry Group



Sintering Control Screen

to handle connectivity to all the above-mentioned devices from a single Windows-based server. The entire system for one melting station only contains about 300 I/O points. However, the points can be spread across different controllers.

Other vendors and internal solutions were considered for this application. ICONICS was selected due to its ease of use in creating graphics, its small footprint, strong integration with Microsoft products, and open architecture based on OPC. All data is logged to Microsoft Access via ADO and Visual Basic. Microsoft Visual Studio and Office is also used in conjunction with this system running on the Windows 2000 operating system.

Solutions Highlighted

TrendWorX

Data Logging, Charting and Reporting Software

GraphWorX

HMI Graphical Display Package

AlarmWorX

Multimedia OPC Alarm Management Software



AFV Beltrame S.p.A.

Vicenza, Italy



*Sparks Fly During Steel Production
at AFV Beltrame S.p.A.*

ICONICS Software Deployed

AFV Beltrame S.p.A. has selected ICONICS GENESIS32™ OPC Web-enabled HMI/SCADA suite to assist in the production of its rolled steel from iron scrap. Currently, the company has about 30 installations between its steel plants and rolling mills.

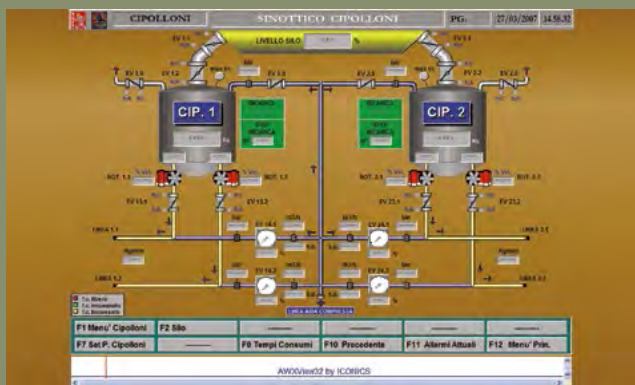
Project Summary

AFV Beltrame S.p.A. started a search for an HMI/SCADA solution to better visualize and control processes within its multiple plant locations. Examples of such processes include lowering pollution within fusion furnaces, cooling, stocking and the insertion of iron alloys in silos. Each plant would have its own graphical interface, settings and alarm requirements.

In addition to a robust system for the set-up, monitoring and control of its plants, AFV Beltrame S.p.A. required a solution that was easy and fast to develop and deploy. The selected system would need to easily handle several thousand tags and I/O points, working with existing Allen Bradley PLCs. An additional need was the integration with the company's existing Microsoft SQL Server installation. The company also runs Microsoft Office and Visual Studio.

Benefits of the System

The European rolled steel producer has been happy since the initial rollout of its ICONICS GENESIS32 solution. AFV Beltrame's new HMI/SCADA system has allowed it to save thousands of euros as it speeds up its own internal application development time.



An AFV Beltrame S.p.A. Steel Plant Control Screen

About AFV Beltrame S.p.A.

The Beltrame Group is a European leader in the production of commercial rolled steel sections, as well as the main producer of special bars for shipbuilding and earth-moving machines. Today, the Beltrame Group is in the forefront of technology and innovation within this industry.

It boasts a century-old tradition, started by the Beltrame family at the end of the 19th century and continuing through its Laminés Marchand Européens subsidiary. The Beltrame Group's distinctive elements are the quality of the product and the ability to satisfy customers' needs through excellent service. With nine strategically located plants, it is the only European steel rolling operation with production of over three million tons.

GENESIS32 also provides the manufacturer with the ability to better adapt to process or environmental changes. This led to the company's wide roll-out from its Vicenza headquarters to locations in S. Didero, Marghera, S. Giovanni Valdarno, S. Giorgio Nogaro and Villadossola.

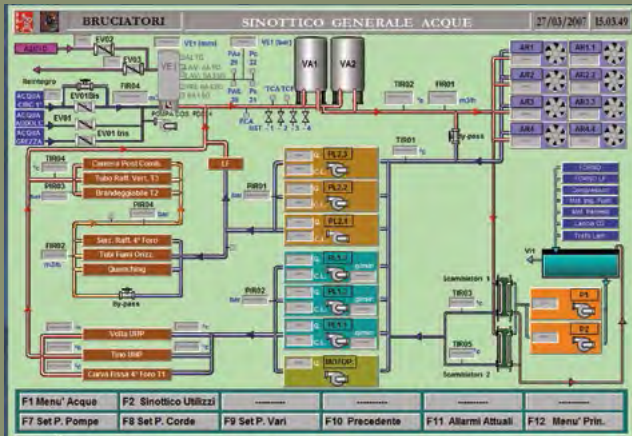
AFV Beltrame S.p.A. also selected GENESIS32 as it plans to utilize the software to adapt to additional applications beyond the present fusion furnace pollution abatement, plant cooling and iron alloy stocking/silo insertion.

Solutions Highlighted

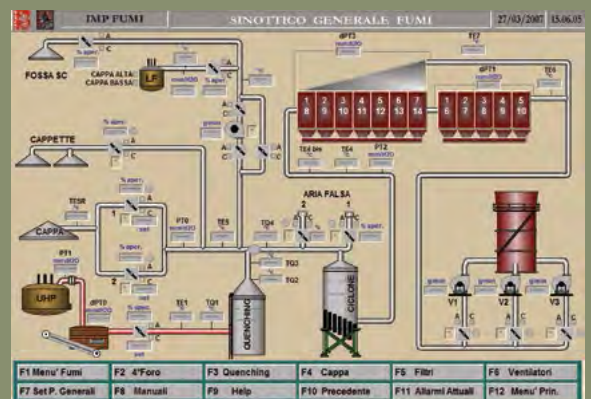


GENESIS32

Web-Based HMI/SCADA Visualization



Water Systems Summary Screen at
AFV Beltrame S.p.A.



Air and Smoke Handling Summary Screen

ICONICS' scalable software will also prove its value when the European steel provider decides to add to its existing Microsoft technology or its number of licenses/seats.

Conclusion

AFV Beltrame S.p.A. was able to save both time and money by implementing ICONICS' HMI/SCADA solutions. Development time is faster. Adapting to change is easier. And operations for the steel manufacturer keep rolling thanks to GENESIS32.

Case Study Details



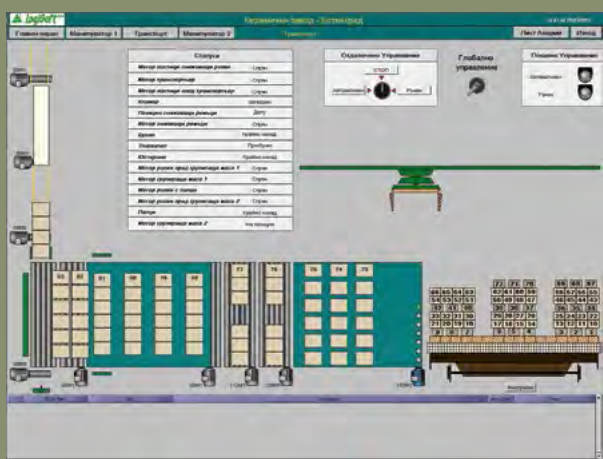
- Fast, Easy Development and Deployment
- Familiarity with Steel Industry Processes
- Low Total Cost of Ownership
- Integration with Existing Technology, Including Microsoft Solutions



ATICS, Ltd./ The Ceramic Factory Botevgrad, Bulgaria



*Bricks in Storage at
The Ceramic Factory – Botevgrad*



A Factory Control Screen at The Ceramic Factory

About ATICS, Ltd./ The Ceramic Factory - Botevgrad

The Ceramic Factory - Botevgrad is one of the leading suppliers of construction materials for this booming industry in Bulgaria. Botevgrad is a small town near Sofia, the capital of Bulgaria, known for its industrial area, where many big companies have built factories and subsidiaries. ATICS, Ltd. is the ICONICS sales channel partner working with LogiSoft, a systems integrator, to bring advanced industrial automation software solutions to the Bulgarian brick maker.

ICONICS Software Deployed

The Ceramic Factory - Botevgrad, working with ATICS, Ltd and Logisoft, elected to install ICONICS' GENESIS32™ V9 Web-enabled, OPC-integrated HMI/SCADA suite, as well as ICONICS' ReportWorX™ enterprise reporting/charting/analysis software, a component of ICONICS BizViz™ Manufacturing Intelligence/Business Visualization suite.

Project Summary

The Ceramic Factory - Botevgrad has experienced recent growth as the construction industry continues to grow in Bulgaria. The company required visualization of the manufacturing processes involving its furnaces as well as of the transportation line for the produced bricks. The factory also sought an additional module for reports to help management mitigate downtime issues and increase productivity.

The company realized that as business grew, it would require premium, robust solutions to meet its visualization, control and reporting needs. The selected solution would need to integrate with the company's existing VIPA PLCs, approximately 150 I/O points and KEP OPC Server for Siemens PLCs. In addition, The Ceramic Factory – Botevgrad sought HMI/SCADA and reporting solutions that would also work with its Microsoft Access database and its desktops and servers running Microsoft Windows XP Professional.

Benefits of the System

The Ceramic Factory – Botevgrad soon realized many of the benefits of implementing ICONICS' industrial automation software solutions. The construction materials manufacturer was pleased that the installation was completed within six weeks of request, and easily performed by its system integrator LogiSoft, with assistance by ICONICS channel partner ATICS, Ltd.

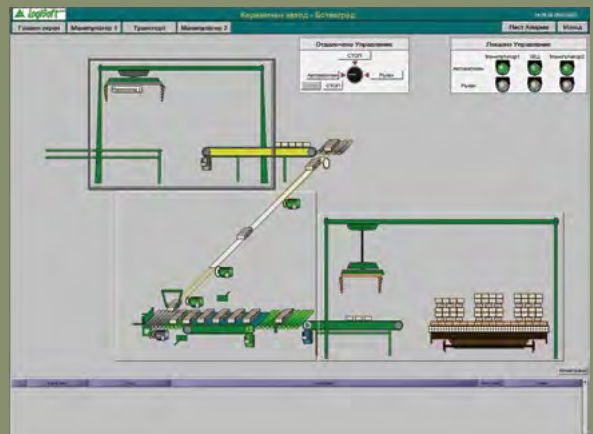
The company was also able to save on anticipated internal and external system development costs. Implementing ICONICS GENESIS32 and

Conclusion

Faced with record growth in its industry, The Ceramic Factory – Botevgrad ensured it could control costs as well as it could control its furnaces and transportation line by selecting ICONICS' software solutions. With GENESIS32 and ReportWorX, the construction materials supplier is building a firm foundation for its own future.



*Manufacturing Equipment at
The Ceramic Factory - Botevgrad*



Brick Transport Controls

ReportWorX required no need for additional scripts or programming. Additionally, the firm recognized the benefit of solutions, such as GENESIS32, that are integrated with OPC technology – providing a basis for improved system communications and allowing for secure, open connectivity from plants and facilities to the enterprise level.

More cost-savings for The Ceramic Factory – Botevgrad are attributed to the resulting increase in the number of report options. The new reporting capabilities via ReportWorX allow the company to compile data from a wide array of different data sources in order to compile KPIs such as equipment downtime statistics that can be acted upon in order to increase efficiency and save money.

Case Study Details

- State-of-the-Art Visualization of Manufacturing Processes
- Easy, Intuitive Process Control Options
- Advanced Reporting with a Wide Range of Integration Options
- Robust, Secure OPC Connectivity

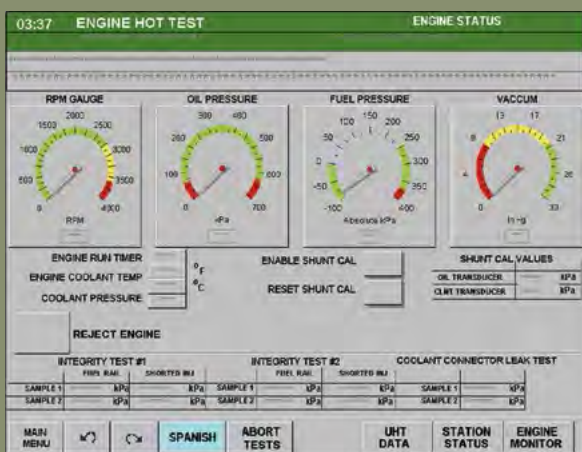




Comau Pico Dearborn, MI



A Ford Motor Production Facility



Engine Hot Test Display

About Comau Pico

Comau Pico is an innovative leader in industrial automation. As a member of the Comau Group, they are part of the largest full-service automotive supplier in the world. With over 50 years of experience in automated assembly tooling, Comau Pico offers an unparalleled scope of engineering and services to the North American market. Using the latest technology, they deliver complete turn-key systems and continually meet and exceed the design and manufacturing needs of their customers. Comau Pico is an Authorized OEM of ICONICS and uses GENESIS32™ software extensively on their systems.

ICONICS Software Deployed

Comau Pico has installed ICONICS GENESIS32™ HMI/SCADA software suite

"ICONICS software allows usage on multiple product lines using the same architecture, thereby increasing throughput and decreasing implementation time. GENESIS32™ reduces the number of databases on a system typically from 8 to 4, and allows PLC development software to run on PCs during the production process. GENESIS32 also accelerates software modifications to the machines."

Jack Porter
Comau Pico

(including GraphWorX™32, TrendWorX™32, AlarmWorX™32 and ScriptWorX™32) at Ford Motor Company on the engine test stands, designed by Comau Pico at their Dearborn, MI engine plant. Comau Pico has also installed this same software at other Ford plants including those in Mexico and Canada. GENESIS32 was used primarily for its ease of use, speed and its 100 percent OPC compliant capabilities.

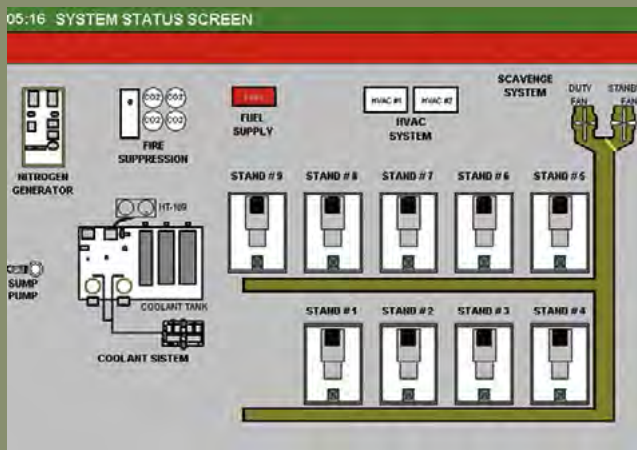
Key Features

Ford Motor contracted with Comau Pico to design and install multiple cold and hot test stands at the Dearborn Engine plant. There are multiple test stands per production line, with each test stand having several hundred tags.

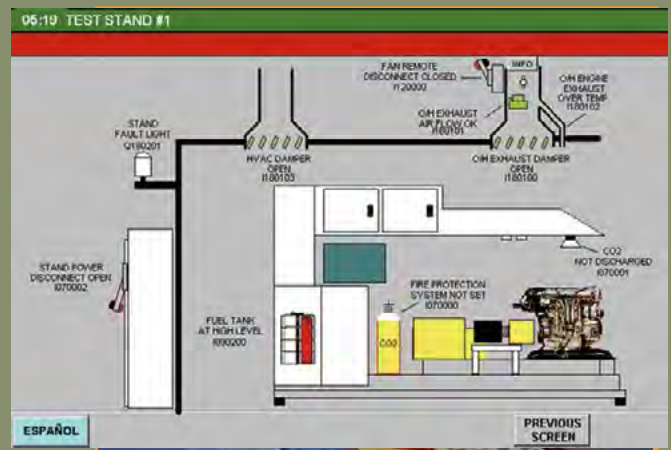
Project Summary

Ford required 100 percent testing of every engine produced at this plant (4 & 6 cylinder engines) along with the logging and trending of results for both cold and hot testing. Cold testing does not use gasoline and the engine is basically driven by an external motor. All fluids are installed and the engine is run through its cycles. Hot testing involves adding gasoline and actually starting and running the engine through various test cycles. The test stands perform measurements on the heating and cooling of fluids as well as exhaust gases, spark timing and advancement through the RPM

an Oracle®-based database called POSMON®. This testing information is now available to all authorized users who have access to this database, from management to plant floor supervisors. Production rates, failure rates and downtime analysis maintained for each engine production line are used by Ford to schedule preventative maintenance repair and replacements of equipment and systems on the production lines. These performance rates can also be used to manage their supply chain of components and raw materials needed to manufacture engines.



System Status Screen



Test Stand Monitor #1

range. Testing is also done on the air combustion mixture of exhaust gases and fuel mixtures of the injection systems. All testing parameters are recorded and trending data stored via LAN to a historical database. Comau Pico has installed over 50 of these engine test stands into six Ford engine plants. Ford is also using ICONICS GENESIS32 software on “In Process” test stands at other facilities.

Reporting and System Benefits

Ford uses ICONICS DataWorX™32 and GraphWorX32 to enable and sequence the recording of the testing and production area of each test stand. This parameter information is then communicated via the internal Ford Motor local area network to

Conclusion

ICONICS has worked closely with the Comau Pico Group and Ford Motor Company to make this engine testing project successful in every aspect. Ford Motor Company participates in the ICONICS SupportWorX maintenance program to keep its software updated and for access to ICONICS technical support personnel as needed. Comau Pico continues to expand the use and implementation of ICONICS software products in their turn-key solutions that they bring to their automotive customers.

Dalmacijacement d.d.

Kaštel Sućurac, Croatia



Dalmacijacement d.d. Cement Production Plant
Sveti Juraj, Croatia



ReportWorX™ enterprise reporting/charting/analysis component).

Project Summary

The Republic of Croatia, in cooperation with The European Union, introduced legislation for environmental protection through continuous emissions monitoring. Dalmacijacement d.d. set out, with assistance from ECCOS inženjering, to bring all of its factories under compliance, with the goal of creating a continuous emissions monitoring system (CEMS). Manufacturing facilities are often assumed to be sources of pollution, so a system was required that could continuously monitor emissions, graphically depict these emissions, normalize the measurements, archive measured and calculated (i.e. normalized) values, inform the public through corporate Web pages and, most importantly, create daily, monthly and yearly reports in Microsoft Excel and XML-formats that adhere to the legislative requirements.

The newly created system collects raw (i.e. measured) values and recalculates them to create normalized data based on the normalization factors. Both raw and normalized values are presented to the operator through ICONICS GraphWorX in real time. If any of the measured values exceed the defined upper limits, an alarm is triggered via AlarmWorX, informing the operator to change the process in question. Any other malfunctions or errors in the equipment also trigger alarms, which are depicted in GraphWorX and stored to a database via AlarmWorX logger.

Data is stored to a SQL database through ICONICS'



Dalmacijacement d.d. Startup Screen at Sveti Kajo, Croatia

About Dalmacijacement d.d.

Dalmacijacement d.d., of Kaštel Sućurac, Croatia is part of the CEMEX consortium (www.cemex.com), one of the top building materials companies in the world. The company is the Croatian market leader in cement production, with three factories (plants): Sveti Juraj (Saint Juraj), Sveti Kajo (Saint Kajo) and 10. Kolovoz.

ICONICS Software Deployed

Dalmacijacement d.d., working with systems integrator, ECCOS inženjering, selected ICONICS' GENESIS32™ Web-enabled, OPC-integrated HMI/SCADA Suite (including GraphWorX™32, AlarmWorX™32 and TrendWorX™32 components), as well as the BizViz™ Manufacturing Intelligence/Business Visualization Suite (including the

TrendWorX. Since the project has to satisfy people in different positions with different interests, data is stored in three logging groups; 1 minute; 10 minute; and 30 minute average values. The first two groups are important to the operators at the factory (real time) and to the public through corporate Web pages (slight delay). The third group (30 minute average values) is needed to create reports for the Croatian environmental agency.

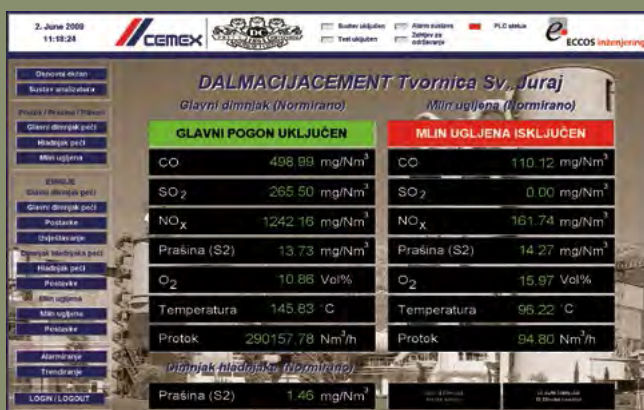
Reports are created through ICONICS' ReportWorX, a component of the BizViz suite. Considerable SQL programming (Stored procedures, Dynamic SQL) had to be done due to the fact that the measured values had to be posi-

flow monitors, RM210/FW101 dust monitors and Itabar particle analyzers.

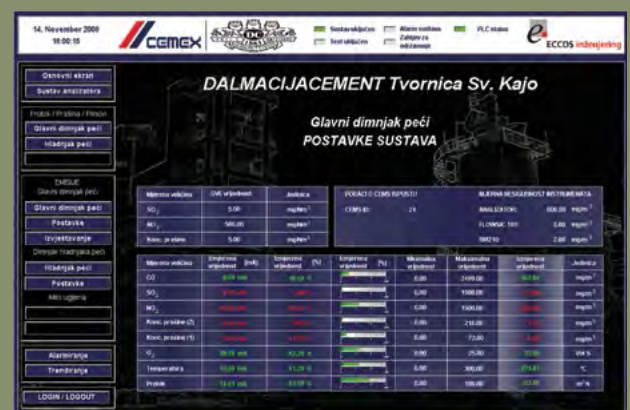
ICONICS solutions also integrate with Dalmacijacement d.d.'s Microsoft software, including Windows Server 2003 R2, Office 2007 (especially Excel) and SQL 2005 Express Edition SP2.

Conclusion

Dalmacijacement d.d. is pleased with their new driven emissions monitoring system and plans to use ICONICS for further development, addressing additional pollution factors throughout its sites, while ECCOS inženjering



A Main Control Screen for Dalmacijacement d.d.'s Sveti Juraj, Croatia Plant



A Calculation Screen at Dalmacijacement d.d.'s Sveti Kajo, Croatia Plant

tioned on exact positions in Excel sheets (48 half-hour values per day - if one is missing or corrupt, the Excel cell has to be empty) as well as verified (Kiln On/Off, Main generator On/Off, Transition period or normal operation mode).

Benefits of the System

Dalmacijacement d.d. selected ICONICS for its emissions monitoring system upon ECCOS inženjering's recommendation. The ICONICS solution helped meet the building materials company's requirements for cost-effective data visualization, control, alarming, trending and reporting. The system integrates with the company's Siemens S7/300 modular controllers, SIMATIC ET200 I/O systems, Profibus communications and a number of specialized sensors including AirLoq gas analyzers, Flowsic 102

plans to use a similar system for other clients requiring the same level of emissions monitoring, including other factories, electric plants, waste processing facilities and more.

Solutions Highlighted

GraphWorX

HMI Graphical Display Package

AlarmWorX

Multimedia OPC Alarm Management Software

TrendWorX

Data Logging Charting and Reporting Software

BizViz

Manufacturing Intelligence/Business Visualization Suite





Dematic

Banbury, UK



A Dematic Warehouse



Control Room in a Dematic Warehouse

About Dematic

Dematic Limited is a market leader in innovative logistics automation systems and solutions. With industry expertise acquired over decades, Dematic is committed to worldwide service. Dematic designs, develops and supplies a comprehensive portfolio of products for logistics systems including automatic storage and retrieval machines, conveying and sorting systems, order picking systems, voice technology and palletizing systems.

A key element of any Dematic solution is the ability to visualize the exact status of all parts of a system to ensure availability is high. Built on ICONICS' GENESIS technology, Dematic systems make use of powerful features to produce effective logistics solutions.

"They really understand what we do and what we need. When I make a support call, it does not matter to whom I speak as they all know who we are, what we do and at what level to address our request. We never need to escalate a support request - we leave ICONICS to do that."

Joe White
Dematic

Dematic's warehouses can be extraordinarily large on account of retailers outsourcing their warehousing. When handling as many as 34,000 items or supplies to 700 retail stores, automation and visualization are key functions.

ICONICS Software Deployed

Dematic uses ICONICS' GENESIS32, enjoying the benefits of GraphWorX, AlarmWorX, TrendWorX and ReportWorX.

Key Features

With 30 installations across 25 warehouses in the UK alone, there are over 120 GENESIS systems installed in Dematic's network. Dematic's business is frequently based and measured on availability, or the capability of the logistics system to function. Dematic depends on the pan-and-zoom feature to navigate large high-resolution screens. Blockages in the warehouse require fast and accurate action, and

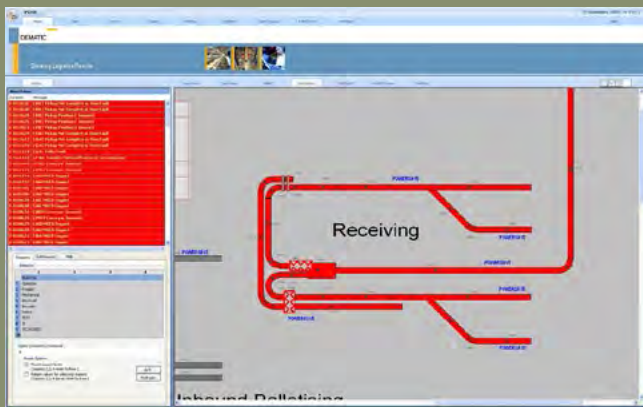
the pan-and-zoom feature of ICONICS' worldview is the best tool to solve the problem.

Project Summary

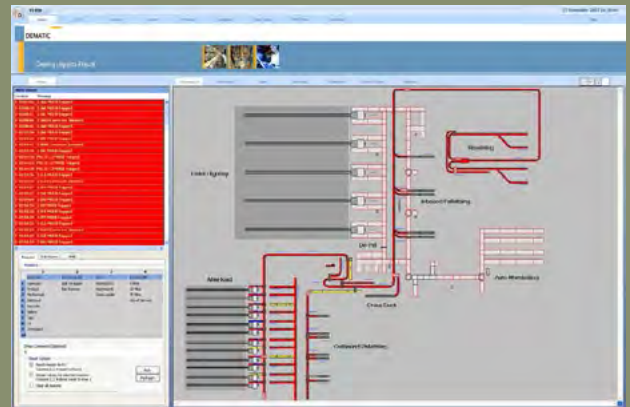
Looking at the Dematic worldview reveals a finely detailed spider web-like diagram of the warehouse's physical layout. Mechanical and electrical components are color coded according to their status. The warehouse supervisor can both pan and zoom with built-in GENESIS features to get accurate localized information and then dispatch a "jam-buster" or engineer by radio to investigate and solve the problem.

Benefits of the System

Dematic's use of GENESIS32 plays a significant role in the development of Dematic's business. The enhanced visualization that has been engineered provides a very tangible feature when Dematic is discussing new business. A customer can readily see what it would be like to run their new systems using the Dematic Visualization System.



Receiving Screen



Pallet Screen

ICONICS' symbol technology allows Dematic engineers to develop modular solutions within the visualization software. This has shown to deliver significant engineering savings when implemented on subsequent projects. Application quality is also inherently improved as the modules are thoroughly tested in development and repeatedly proven through use.

Dematic systems require alarms and events to be reported. Reporting is automated, but engineers on location of the event can input extra information using drop-down menus. This annotation is added to the alarm to provide root-cause information for later analysis. All data is captured allowing for continuous improvements to be made, and high warehouse availability to be sustained.

Conclusion

ICONICS is a major part of Dematic's future direction and capability. Warehouse visualization places heavy demands on a SCADA system and ICONICS is up to the challenge. Tight integration of visualization, alarming and reporting tools results in a solution that provides Dematic with high levels of availability through fast and accurate information processing from the automation level.



Hydrovision Ltd. Aberdeen, Scotland



A Hydrovision Ltd.
ROV Model



ROV Model Monitoring and Control by Hydrovision

About Hydrovision Ltd.

Hydrovision Ltd. is the world leader in the manufacturing of Remotely Operated Vehicles (ROVs). Hydrovision is a private limited company located in the heart of the UK and specializes in the design and manufacturing of sub-sea robotic systems. These systems need to meet extremely demanding standards of performance, control and endurance for the Underwater Salvage, Cable Laying and Offshore Oil drilling industries that deploy these ROVs.

ICONICS Software Deployed

Hydrovision Ltd. selected ICONICS GENESIS™32 Software suite of SCADA and OPC products to meet their requirements for a new scalable control system for their ROVs, sub-sea tooling and other

"Through many ROV implementations with the ICONICS GENESIS32 software over several years, it has proven to be a highly reliable, accurate and dependable system."

Hydrovision Ltd.

custom tooling applications. Their specifications required a PC-based system running under a Windows operating system and meeting open standards like OPC. AlarmWorX™32, TrendWorX™32 and GraphWorX™32 modules met all their needs.

Key Features

The modularity of the GENESIS32 software allows the desired scalability of their complete control system on a scale of 4 to 1, which represents their largest machine to the simplest system configuration. The GENESIS32 software suite of applications operate seamlessly together, communicating solely via an OPC server which allows easy interface to any industry standard hardware and software systems. The software also has an intuitive development environment, which allows for speedy development and re-engineering by both experienced and new SCADA Engineers.

Project Summary

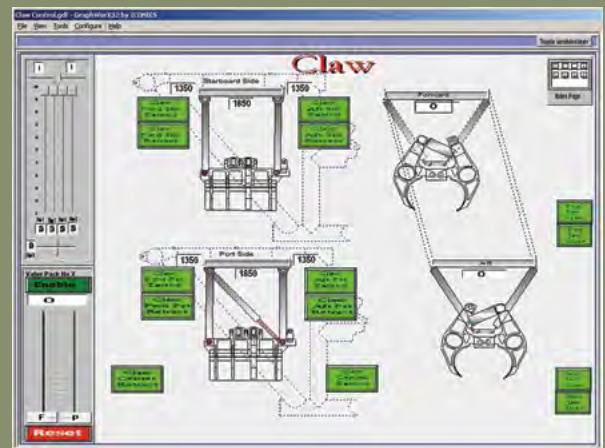
ICONICS GENESIS32's GraphWorX32 software was used to create the Operator Interface HMI screen using multiple touch screen control panels for control of the ROV machine with a single main display

to continuously present the system data. The sequential tasks that needed to be performed were created on separate individual HMI display screens, which are brought up to view using touch screen control buttons. Each sequential screen presents only the controls and feedback information required for each sequential task. This was achieved by creating a series of animated general assembly CAD drawings of the machine and sections of the tool to be controlled. Sensor feedback information from the tool was used to animate these drawings allowing the operator to continuously view the real time status of the tool and

plex machine, easy to modify after implementation on an original manufactured machine, and initially economical/proven to be on an ongoing basis. The software system is based on a hardware and software platform that will continue to evolve and be supported for many years to come. Also, the nature of the control system implemented with the ICONICS GENESIS32 software allows Hydrovision Ltd. to train their customers to make their own modifications to the machines, in the case of using different tooling or in different use applications.



Another Hydrovision ROV Control Screen



ROV Claw Control

of each sequential task. Backup video cameras are also fitted to the machine to assist the operators and to enable them to observe the tool's operation. As the operators progress through the display screens to control the tool's functions, using the touch screen buttons, they will carry out the complete machine process operation.

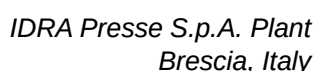
Benefits of the System

The experience Hydrovision Ltd. has had with the ICONICS GENESIS32 software suite of tools is that they have exceeded their goal of creating an ROV control system that is totally open in design, maintainable for the foreseeable future, scalable from their smallest designed machine up to the most com-

Conclusion

ICONICS has worked closely with Hydrovision Ltd. to make this ROV Machine control project successful in every aspect. Hydrovision Ltd. participates in the ICONICS OEM Support and Maintenance program to keep its software updated and for access to technical support personnel as needed.

An aerial photograph of a large industrial complex. The facility consists of several long, parallel buildings with light-colored roofs. A large parking lot filled with cars is visible in the foreground. The surrounding area appears to be a mix of industrial and residential zones.



About IDRA Presse

ICONICS Software Deployed

"The ICONICS software system has significantly reduced development and implementation time and has allowed us to tailor the systems, very efficiently, to the customer needs."

ing and control after evaluating nine other suppliers including Intellution, Wonderware, WinCC and RSVIEW. IDRA replaced their existing Orsi Cube system with the GENESIS32™ HMI Software suite, which included GraphWorX™32, AlarmWorX™32, TrendWorX™32 and ScriptWorX™32 and installs this on each Pressure Diecasting Machine they deliver to their customers.

Key Features

IDRA has the requirement of sampling process parameters on their Pressure Die Casting Machines at 10,000 cycles/sec and needed a software system to have the ability to collect real time data at those rates. They use an external sampling system with real time operating software. This system is connected through an Ethernet link with ICONICS software using an OPC Server on a PC, where TrendWorX32 trends the data collected. This data is then sent via a LAN to a centralized database for final evaluation and storage.

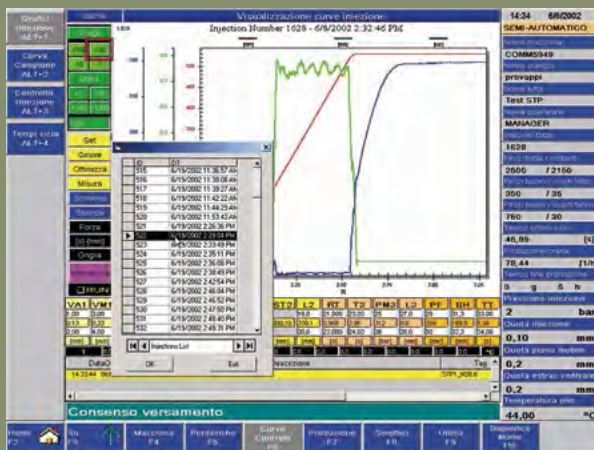
Project Summary

ICONICS GENESIS32 software has been deployed to provide supervision and operator visualization to the metal injection press machine operations. The operator has the ability to set the machine parameters to display critical real time information about the process. All the real time injection data from the press machine is collected and stored in a relational database. All collected data is available in a graphical display that also includes third party ActiveX's data.

IDRA also uses ICONICS TrendWorX32 to display and store process data. Each press machine is equipped with dual network interface cards, one for

Benefits of the System

Collected press machine data is stored in a Sybase database. The use of ICONICS software default libraries has made it possible for IDRA to develop special login/logout software personalized to each user. They were also able to develop DLL library ActiveX, which provides a graphical interface for injection line visualization, PLC interface and navigation buttons used in runtime mode. ICONICS enables IDRA to easily address the customization requirements of their customers. With ICONICS software being extremely flexible, it is possible to change the control systems of a press machine under



Presse Trend Data Display at IDRA Presse



Presse Statistical Data

communicating collected real time data over their LAN to be stored into their database. The second network interface is used by the end customer to provide them with access to all the stored data on that press machine through an ODBC driver. A modem is also installed on the press machine for remote diagnostics and/or update modifications from IDRA. The press machine system interfaces with up to 4 Siemens PLCs, 1 Allen-Bradley PLC and has over 500 I/O points with 300 Tags. The complete installation was completed by IDRA over the course of 18 months.

software control by up to 30% very easily without impacting original delivery schedules. Giving the customer access to the collected press machine data as the systems are built is a valuable selling tool for IDRA. The ease of use inherent to ICONICS software, the cut and paste tag name feature, and the modularity of configuring alarm screens using AlarmWorX32, makes system implementation extremely easy and quick to develop.

Conclusion

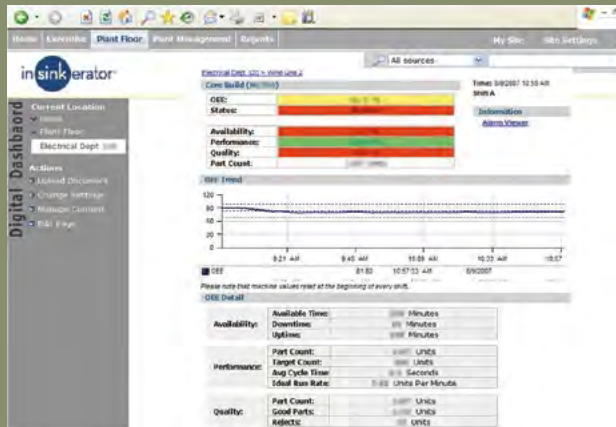
ICONICS has worked closely with IDRA to make their Metal Injection Press Machine project successful in every aspect.



InSinkErator® Racine, Wisconsin



*The InSinkErator Evolution Excel® Features
Cutting Edge Grind and Sound Technology*



The InSinkErator Business Score Card Concept

About InSinkErator

InSinkErator, a division of Emerson Electric Co., is the world's largest manufacturer of food waste disposers and instant hot water dispensers. The InSinkErator Evolution Series® disposers showcase new technologies including an improved grinding ability and up to 60% noise reduction. Technological advancements also abound on the InSinkErator plant floor in Racine, Wisconsin, where ICONICS solutions have been implemented to improve productivity.

ICONICS Software Deployed

InSinkErator selected ICONICS GENESIS32™ OPC Web-enabled HMI/SCADA suite including GraphWorX™32, TrendWorX™, AlarmWorX™32

and DataWorX™32. For manufacturing intelligence and business visualization, InSinkErator chose the BizViz Suite, including PortalWorX™, ReportWorX™ and BridgeWorX™.

Project Summary

As part of their continuous improvement efforts, InSinkErator was looking for a way to increase their productivity and efficiency. InSinkErator decided to improve efficiency within their existing buildings. InSinkErator identified the need to provide management with visualization of manufacturing problem areas.

By closely monitoring and analyzing overall equipment effectiveness (OEE) and Key Performance Indicators (KPI), InSinkErator could implement improvements to its production processes. InSinkErator, with the help of ICONICS, formulated a digital dashboard to achieve operational excellence within their production facilities.

From supervisors on the plant floor to the VP of Operations, the InSinkErator ICONICS-powered Web-enabled dashboard caters to a diverse range of technical backgrounds. In an accessible portal, users find interactive features such as a stock-ticker, weather reports and real estate news. Easy-to-use buttons provide access to help documents including a manager's guide to OEE, a glossary of terms and a user's manual.

Benefits of the System

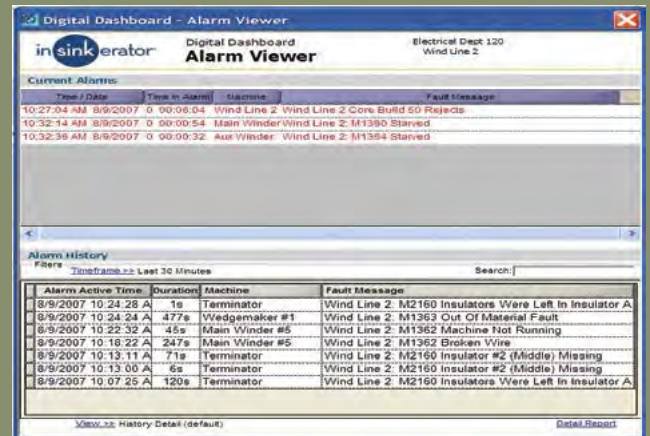
The ICONICS GENESIS32 Software System helps InSinkErator efficiently gather and visualize production data. Users can drill down to machine views and gather details on OEE, including availability, performance and quality metrics. The InSinkErator alarm viewer features easy access to current and historical alarms, worst performer views and adjustable time frames. With email and alerts for critical alarms, InSinkErator can react in real time to reduce downtime. Users are able to use reports flexibly, as they tweak and filter data

Measuring and analyzing manufacturing methods with ICONICS solutions, InSinkErator can implement improvements to increase productivity. With plans to add 71 machines to the ICONICS system in the future, InSinkErator will experience an even wider view of their operations, and remain on the cutting edge of the food & waste disposal market.

Visit InSinkErator at www.insinkerator.com.



The InSinkErator Interactive Portal, Complete with Real Estate News and Weather



The InSinkErator Alarm Viewer

to their specifications in the familiar format of Microsoft Excel.

Conclusion

Using a Six Sigma DMAIC process, InSinkErator defined its problem of capacity strain and identified its need for improving productivity. Using an ICONICS digital dashboard, InSinkErator was able to measure productivity and reveal process problems. Data was then analyzed by teams, who identified exactly what changes needed to be made. Finally, InSinkErator looked back to their ICONICS digital dashboard to verify that these improvements had been realized.

Case Study Details

Some statistics and details on the InSinkErator solution from ICONICS:

- A Matrikon OPC server provides connectivity
- 20 graphical displays
- 91 pieces of manufacturing equipment
- InSinkErator uses a unique business score card concept for assessing machine performance
- Red, yellow and green colors indicate the status of machine performance, offering users a quick visual method of analysis

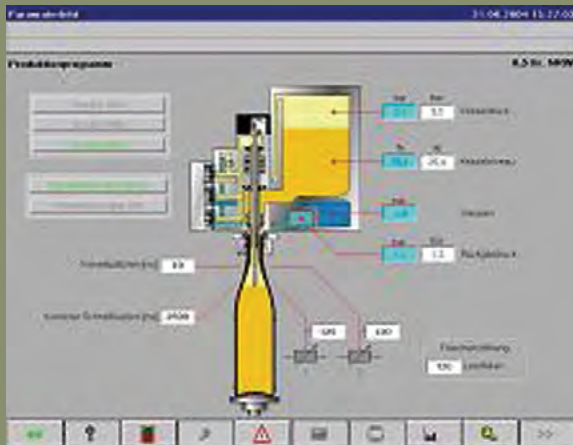


KHS Maschinen

Dortmund, Germany



*Aseptic Cold Filling at a KHS Maschinen
Beverage Industry Customer*



KHS Parameter Display Screen

About KHS Maschinen

KHS, with headquarters in Dortmund, Germany, is a market leader in the deployment of ACF (Aseptic Cold Filling) applications for the beverage market. KHS offers the highest level of competence as an international full-service provider in planning, deploying and maintaining filling and packaging applications for the food and beverage industries. In 2003, KHS generated revenue of 700 million Euros with 3,200 employees around the world.

Eckes-Granini Deutschland GmbH is a market leader in Europe in the fruit juice market. At its facilities in Bad Fallingbostel, Germany, Eckes-Granini successfully deployed an innovative aseptic cold filling application by KHS. Specialty fruit juices are micro-biologically sensitive and perishable when exposed.

The ACF (Aseptic Cold Filling) process allows for fruit juices to be filled into PET bottles at a temperature of only 68 Deg F (20°C). The main advantage with the ACF process is that KHS completely eliminated the need for preservatives, thus improving product quality.

ICONICS Software Deployed

KHS standardized on GENESIS32™ to control its applications and machines and to visualize the entire ACF process. The GENESIS32 Software Suite is able to meet KHS' sophisticated needs for scalability, graphic capabilities and modularity for machine control and visualization. GENESIS32 communicates via OPC and Profibus to a Siemens S7 PLC and I/O running on the Microsoft Windows 2000 operating system. GENESIS32, as a modular suite of products, allows KHS to use only the components they need. It is easy to add modules, as the complexity and requirements of the process change.

All ICONICS client software modules are based on OPC technology, which makes it easy to communicate and interact with other automation hardware and software products.

Project Summary

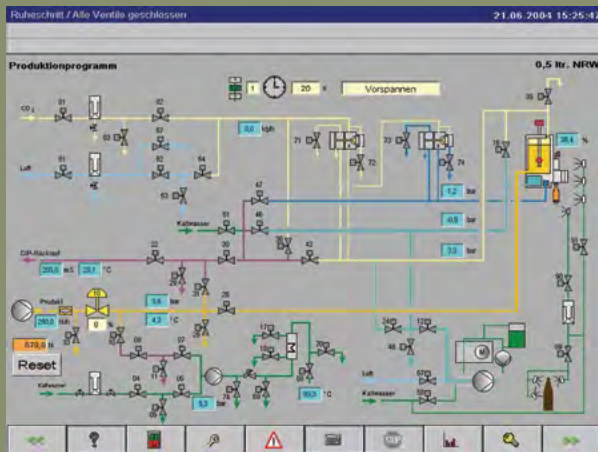
GENESIS32 also offers an excellent international language switching technology. Graphic symbols, as well as trend and alarm applications, can be created once and reused all over the world, resulting in tremendous savings in areas of applications engineering and support.

Key Features

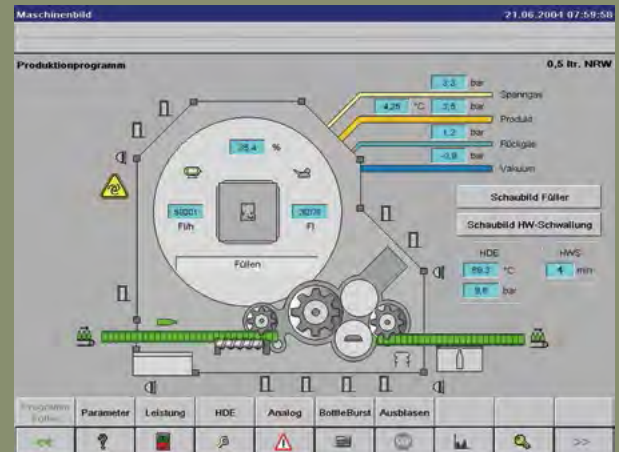
Another major advantage of GENESIS32 is its integration in today's IT environments. Using GenBroker™, OPC and SOAP/XML communications technology makes it easy to connect and visualize processes in existing IT structures. Also, accessing enterprise-wide databases is essential when analyzing historical production and business data. KHS appreciates the intuitive configuration environment of GENESIS32. GraphWorX32 allows for the easy creation of animated 3D graphics to visualize process applications. The Symbol Library provides

Conclusion

KHS' high expectations in its ACF application and GENESIS32 software have been met. Both KHS and ICONICS provided innovative solutions in their respective fields, resulting in a major contribution to the quality of Eckes-Granini fruit juice products.



Process Display at KHS Maschinen



Production Management Screen

the application engineers with often-used symbols, and also allows users to save custom symbols with all dynamic and language-specific connections for later use.

The ICONICS Security Server provides a built-in security architecture that supports FDA 21 CFR Part 11 requirements. Audit trails and multi-level password protection are built into the Security Server. Therefore, all operator interaction (who, where, when and what) is documented and stored in a database.

Solutions Highlighted

GENESIS32

Web-Based HMI/SCADA Visualization

GraphWorX

HMI Graphical Display Package



View of the Coating Line

Metal Trade Comax a.s.

Velvary, Czech Republic



Main Menu at Metal Trade Comax

"ICONICS has been a very powerful and effective solution for Metal Trade Comax's data mining and data aggregation needs."

Petr Hornof
Programming Engineer,
ADAX s.r.o.

ICONICS Software Deployed

ICONICS GENESIS32™ with GraphWorX™32 provides visualization for all parts of Metal Trade Comax's coating line, where metal strips are painted or treated depending on their function. WebHMI enables remote Internet connectivity. ReportWorX™32 and TrendWorX™32 work together as the data logging, charting, reporting and analysis system, while AlarmWorX™32 delivers alarm information.

ICONICS software exchanges production data with Microsoft Dynamics NAV Enterprise Resource Planning software, for the complete integration of Metal Trade Comax's data and processes.

Project Summary

System Integrator ADAX s.r.o. implemented GENESIS32 for Metal Trade Comax after several successful projects in the Czech Republic. Following an 8 month implementation cycle, Metal Trade Comax enjoys a complete monitoring and control solution from ICONICS for their production processes.

About Metal Trade Comax a.s.

Metal Trade Comax a.s., located about 30 kilometers from Prague in the Czech Republic, is a producer of non-ferrous casting alloys and surface treated metal sheets and bands. Using coil coating technology, Metal Trade Comax applies organic coatings and embossing to aluminum, aluminum alloys, cold rolled steel and hot dip galvanized steel.

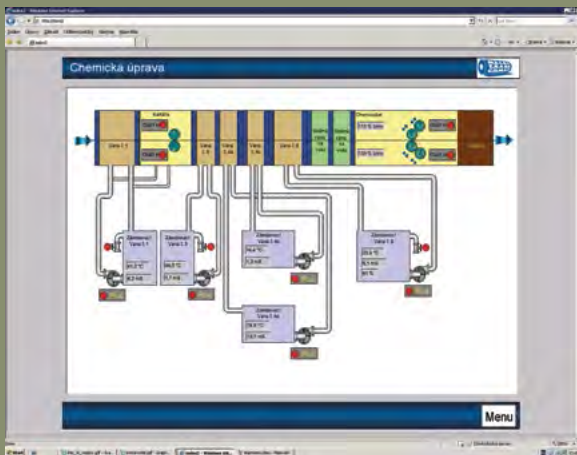
Coated metals have a wide breadth of functions, for both interior and exterior needs. Roofing, sheet metal, parapets, interior facings, windows, automobile superstructures, trailers, cladding of buildings, cold storage and swimming pools can be constructed of coated metal.

ICONICS' open communication standards have helped Metal Trade Comax to gain interoperability with their devices from different vendors. ICONICS interfaces with a Siemens SIMOTION PLC, which controls the main drives or motors of the production line, and a Siemens Simatic S7-300, connected with industrial ethernet.

DataWorX32 provides OPC Data Aggregation from various OPC sources. Monitoring is enhanced with SNMP communication to devices for measuring energy consumption with variables including gas, water and electricity.

Benefits of the System

ICONICS enables an advanced process for ensuring the coated metal exits the production line without defects. Metal Trade Comax has a system in place to automatically evaluate surface defect in coils. Three fast industrial cameras are installed on the line, which can detect surface defects on the metal plates. Camera results are reported through ReportWorX, where data is visualized and saved to the server.



Chemical Treatment View



Coating View

Through TrendWorX, Metal Trade Comax is able to save large volumes of trend data from their production to a Microsoft SQL 2005 Server.

ReportWorX provides Metal Trade Comax with "Technological Reports" and "Customer Reports." Technological reports include information about conditions and events during production, such as defects on the surface of the strip coil or alarms triggered during the coating of the strip coil. Customer reports contain business information from Microsoft Dynamics NAV and a short description of the product including strip length, weight, material, and laboratory results.

Conclusion

With a successful ICONICS implementation running on the production line, ADAX programmers are working on the extension of Metal Trade Comax's existing system. Programmers are developing a SCADA system for Metal Trade Comax's 12 ton aluminum furnace. Metal Trade Comax will see further enhancements to their productivity.



PGT Industries

North Venice, Florida



Glass Impact Testing at PGT's North Venice Production Facility



A Control Screen for PGT Insulated Glass Assembly

About PGT Industries

PGT® (pgtindustries.com) pioneered the U.S. impact-resistant window and door industry and today is the nation's leading manufacturer and supplier of residential impact-resistant windows and doors. PGT is also one of the largest window and door manufacturers in the United States. Founded in 1980, the company employs over 1,000 at its manufacturing, glass laminating and tempering plants, and delivery fleet facilities in Florida.

Sold through a network of over 1,300 independent distributors, the company's total line of custom windows and doors is now available throughout the eastern United States, the Gulf Coast and in a growing international market, including the Carib-

"ICONICS Productivity Analytics, in addition to identifying issues, has been used to drive a cultural change in the company [...] This system has been a great success and the production capacity found to exist in the current plants has exceeded any expectation."

Jon McArthur

Manufacturing Technology Engineer
PGT Industries

bean, South America and Australia. PGT's product line includes PGT Aluminum and Vinyl Windows and Doors; WinGuard® Impact-Resistant Windows and Doors; PGT Architectural Systems; and Eze-Breeze® Sliding Panels. PGT Industries is a wholly owned subsidiary of PGT, Inc. (NASDAQ: PGTI).

ICONICS Software Deployed

PGT Industries selected ICONICS Productivity Analytics visual OEE/KPI/analysis software as their manufacturing intelligence system and GENESIS32™ HMI/SCADA software suite (including AlarmWorX32™ Multimedia alarm management, WebHMI™ Web-based real-time automation, and ScriptWorX™ 2010 creation/management of Visual Basic for Applications [VBA] scripts) as their system to integrate all their automation equipment. The manufacturer also chose BridgeWorX™ real-time workflow for data bridging and ReportWorX™ enterprise reporting/chart-

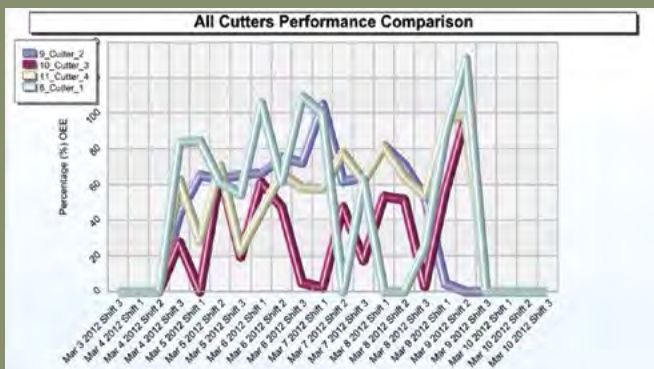
ing/analysis, as well as BACnet Connector, OPC Data Mining, Unified Data Manager and Unified Web Interface technologies.

Project Summary

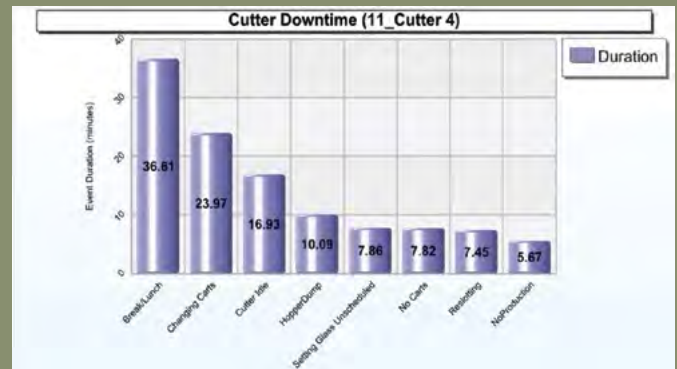
PGT Industries runs its glass manufacturing operations from its North Venice, Florida plant. A few years ago, the company projected that demand would soon exceed production capacity and, as a result, constrain revenue growth. In response, they developed a capital plan with the intent to expand their manufacturing operations. However, prior to

start-up meetings greatly exceeding allocated time, sporadic loading cart availability, improper material layouts causing gaps on conveyors to furnaces, and unplanned idle time.

Once these issues were uncovered with the assistance of Productivity Analytics, PGT created work teams to swiftly remedy the causes of downtime and production gaps. Productivity Analytics continues to deliver real-time, accurate data to the plant operators and upward through the organization. Any deviation from the ideal production rates is seen immediately. Any occurrence of downtime that exceeds a certain limit is immediately



Performance Comparison of Glass Cutters



Productivity Analytics Allows for Auditing at the Corporate Levels

executing the capital expansion, the Vice President of Operations decided to test the assumptions about current capacity by installing and applying a productivity analysis tool.

ICONICS Productivity Analytics software was applied to the 12 most critical production assets to analyze the Overall Equipment Effectiveness (OEE) of the current plant. The software's drilldown and correlation capabilities were used to zero in on sources of loss of OEE, focusing on three OEE factors: availability, quality and performance. Prior to installation of the software and the analysis performed, most inefficiencies were reported as equipment capacity problems. Once the data analysis tools were online, numerous immediate issues were visible to all levels of the organization. These included production

made known throughout the company so that all available help is quickly redirected to the issue.

PGT had considered other companies' offerings but ultimately decided on ICONICS, due to it "having all the needed tools and, most importantly, its ease of configuration". PGT's manufacturing technology team was able to quickly understand and configure the software and get a system online. Competitor products were deemed just too complicated.

Integrations

A critical need of the system was the ability to integrate data from many existing equipment systems,

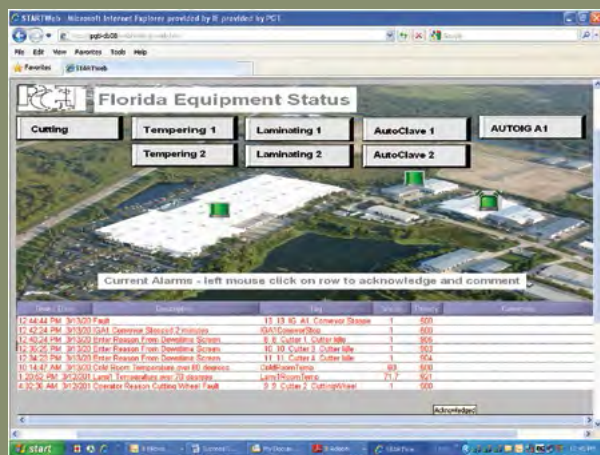
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so that all interrelated issues could be seen and analyzed. The ICONICS system, including Productivity Analytics, integrates with the following equipment and data:

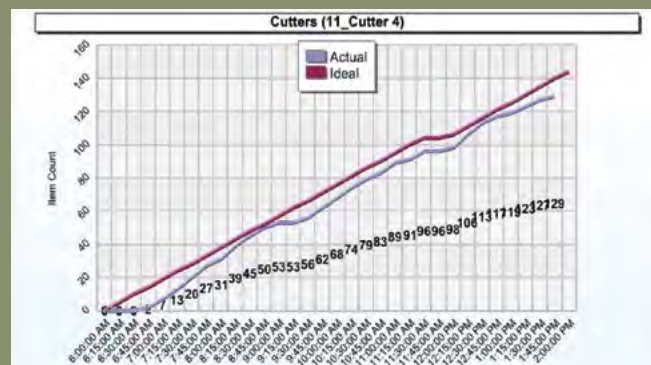
- Think and Do Live PC Control – On Glass Tempering Ovens
- Allen-Bradley MicroLogiX – Glass Laminating System
- ASCII Text Files, Read On Schedule – Eastman Laminate Cutters
- Rockwell RSView32 – Insulated Glass Assembly
- Bechhoff Twincat – Insulated Glass Assembly

grams were implemented (as identified with Productivity Analytics), the plant has achieved improved production rates, running only five days a week instead of seven to meet current demand. This resulted in an approximate 20 percent decrease in labor and energy cost.

Productivity Analytics, in addition to identifying issues, has been used to drive a cultural change in the company. OEE and Downtime charts are now viewed by each line supervisor and by all levels of management. OEE is a subject discussed in almost all operations meetings and is included in all objec-



A PGT Web-based Portal, Integrated with ICONICS GENESIS32™, Showing Current Alarms



ICONICS Productivity Analytics Showing a Real-time Shift View at PGT

- Microsoft SQL (Many Databases) –Glass Cutters
- Moxa PLC – Insulated Glass Assembly
- CTC PLCs – Colonial Grid Production

Benefits of the System

Now that PGT has initiated its OEE program, including the implementation of Productivity Analytics throughout all processes, the necessary data is continuously reported, in real time, to all levels of management. Over the course of a year, improvements were identified and implemented that resulted in an increase in production output using current assets. The planned plant expansion has been canceled, resulting in major savings for the company.

In addition, after the resulting improvement pro-

ductives. This system has been a great success and the production capacity found to exist in the current plants has exceeded any expectation. PGT has now commissioned the expansion of the Productivity Analytics implementation from the initial 12 assets to approximately 80 assets over three years.

Conclusion

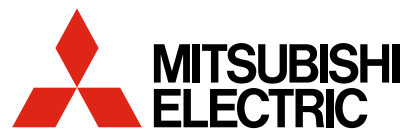
Productivity Analytics helped provide transparency of undiscovered losses of production capacity. It is now being used as the source of benchmarking and performance measurement to drive a culture built around Overall Operational Effectiveness. With ICONICS software solutions, PGT's operations now run as smooth as the glass they produce.



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PRAKAB a.s.

Prague, Czech Republic



*Prakab a.s. Factory
Prague, Czech Republic*



Main Control Screen at PRAKAB a.s.

About PRAKAB a.s.

PRAKAB a.s. is one of the largest producers of wires and cables in the Czech Republic, manufacturing power and communication cables as well as building wiring. An extensive investment program was recently launched to modernize the plant and increase production. Over the last few years, PRAKAB has put new cable production lines into operation, in cooperation with systems integrator, ADAX, Ltd. This was in addition to the reconstruction and maintenance of management systems for existing production lines. ADAX staff was also involved in machine assembly and management systems supply.

ICONICS Software Deployed

ADAX has extensive experience with ICONICS prod-

ucts and therefore recommended the GENESIS32™ Web-enabled, OPC-integrated HMI/SCADA suite to manage their customer's production lines. GENESIS32 Enterprise Edition is now tied to each production line, while GraphWorX™32 now appears on each of PRAKAB's application displays, helping to provide facility-wide status and details on individual machines. AlarmWorX™32 provides early warning to operators if set process parameters are exceeded and, in the event of any process failure, the software helps operators to determine a root cause. TrendWorX™32 assists in analysis of production quality.

PRAKAB also utilizes GENESIS32's recipe capabilities, designed to integrate with VBA. Reports are conveniently stored in Microsoft Excel files and SQL databases. The company uses DataWorX™32 software for OPC data aggregation, bridging, redundancy and tunneling.

Project Summary

PRAKAB's manufacturing processes involve multiple machines, including extruders, decoilers/unwinders, rewinders, heating/cooling devices and PVC granulate dosers. An average of 300 I/O points are incorporated into each of PRAKAB's 15 cable and wire manufacturing lines.

The company mainly uses Siemens S7-300 PLCs that provide data to the SCADA system over PROFIBUS and Ethernet networks via OPC communication standards. In addition to Excel spreadsheet, SQL Server and Access database management applications, PRAKAB also uses multiple Microsoft operating systems throughout its enterprise, including Windows Vista, Windows XP and Windows 2000.

System Benefits

PRAKAB is pleased with the updated system that ADAX helped provide for the management of its cable production lines. GENESIS32 HMI/SCADA was selected due to its modularity, ease of configuration, and adaptability to different types of production lines. PRAKAB and ADAX have also found how these characteristics make it possible to significantly shorten implementation time and reduce the total cost of the entire solution.

The new control system has increased the reliability of connected equipment as well as reduced pro-

automation software, PRAKAB has made plans for future system upgrades.

These include ICONICS' WebHMI™ plug-ins providing HMI/SCADA information throughout the company over the Web, as well as ReportWorX™ (part of ICONICS' BizViz™ Manufacturing Intelligence/Business Visualization suite) for data reporting, charting and analysis. With these plans, PRAKAB is taking steps to integrate the data it now receives from its upgraded production line management system into a more comprehensive corporate information system.



A Cable Line Extruder



A Recipe Display Screen for PRAKAB a.s. in Prague, Czech Republic

duction downtime. The appearance of unified operator panels on all production lines has reduced staff training time. GENESIS32's trending and reporting abilities makes it possible to maintain high product quality and to quickly analyze any possible problems. PRAKAB sees an advantage to DataWorX32's ability to set individual tag scan/read times, making optimum use of PLC communications and OPC technology.

Conclusion

ADAX has currently outfitted 12 of 15 of PRAKAB's cable and wire production lines with its updated management/control system, including GENESIS32, with more to come. Since ADAX, itself, recommends the entire range of ICONICS industrial

Solutions Highlighted

GraphWorX32

HMI Graphical Display Package

AlarmWorX

Multimedia OPC Alarm Management Software

TrendWorX

Data Logging, Charting and Reporting Software

DataWorX32

OPC Data Aggregation, Bridging, Redundancy and Tunneling

SAP Research Future Factory Initiative Dresden, Germany



*Future Factory Initiative Lab
Dresden, Germany*



ICONICS 3D Rendering of the Future Factory Lab

About The Future Factory Initiative

The Future Factory Initiative (FFI) is a joint effort of SAP Research and external partner organizations, including ICONICS, and is active in key areas including a Living Lab, a Real-World Manufacturing Testbed and a Center of Excellence.

Located in SAP Research's Dresden, Germany Campus-based Education Center (CEC), the Future Factory Initiative is a set of innovative demonstrators showing the potential of real-world-integrated business processes in the manufacturing domain. Currently six demonstrations are available covering the whole product value chain, including supply chain, warehouse, production, sales and maintenance processes. The "Future Factory" has recently been showcased at various locations and events, such as at recent CeBIT shows.

"ICONICS is one of the best of the breed that I have seen in visualization."

Dr. Jochen Rode

P.h.D., Project Lead

SAP Research, CEC Dresden, SAP AG

According to SAP's Web site, the Future Factory Lab in Dresden "facilitates research and development in a living lab environment, providing an infrastructure for test, validation, and demonstration".

ICONICS Software Deployed

ICONICS' GENESIS64™ 64-bit, OPC-integrated, Web-enabled HMI/SCADA suite is currently utilized by SAP Research at the Future Factory Initiative. GENESIS64 provides customers with a 360° view of their entire organization, providing users with the power to quickly and efficiently add 3D symbols and animation to graphic visualizations of business processes and bring them to life.

Project Summary

Researchers at SAP Research's CEC Dresden location have had a chance to put ICONICS "next generation of automation software" to the test in as "real-world" circumstances as they have been able to produce and have remarked on the outstanding quality of this latest ICONICS software solution.

Such a testbed, according to SAP Research helps

to show “leading edge software and the latest hardware developments with different scenarios, products, and prototypes in a distributed manufacturing environment.”

Additionally, the testbed “spans multiple manufacturers and demonstrates the viability of prototypes.”

Video Presentation

ICONICS has created an online video highlighting its involvement with the SAP Research Future Factory Initiative.

To view this video, visit www.iconics.com/videos and

SAP solution portfolios support the unique business processes of more than 25 industries, including high tech, retail, financial services, healthcare and the public sector. With subsidiaries in more than 50 countries, the company is listed on several exchanges, including the Frankfurt stock exchange and NYSE under the symbol “SAP”.

For more information, go to www.sap.com.



Introduction to ICONICS' Video Presentation on its Participation in the Future Factory Initiative



Close-up within ICONICS' 3D Representation of the Future Factory Lab

click the “View and Download” button underneath “SAP Future Factory Initiative Featuring ICONICS.”

About SAP

SAP is the world’s leading provider of business software. Today, more than 46,100 customers in more than 120 countries run SAP® software – from distinct solutions addressing the needs of small businesses and midsize companies to suite offerings for global organizations. Powered by the SAP NetWeaver® technology platform to drive innovation and enable business change, SAP software helps enterprises of all sizes worldwide improve customer relationships, enhance partner collaboration and create efficiencies across their supply chains and business operations.

Solutions Highlighted



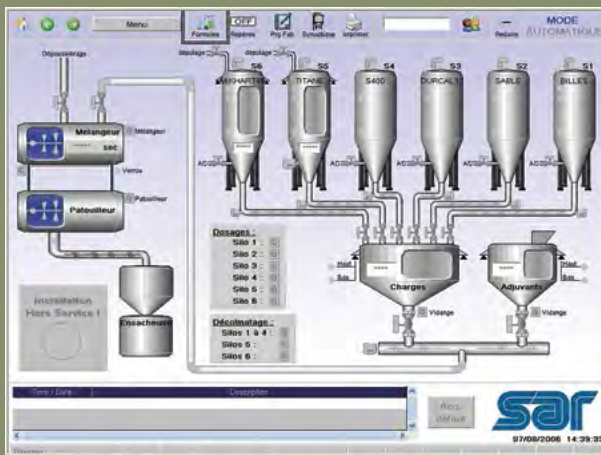
GENESIS64 is ICONICS 64-bit Web-enabled, OPC-integrated HMI/SCADA suite. The new software takes maximum advantage of the convergence of new 64-bit computing machinery, new Microsoft operating systems with 64-bit technology, and the increasing demand for captivating 3D graphic visualization of today’s business processes. The “Next Generation of Automation Software” is here.



Signature S.A. Agnetz, France



*A Signature S.A.-Created
Road Sign in France*



Synoptic Overview of Paint Production

About Signature SA

Compagnie SIGNATURE, a 100 percent subsidiary of Burelle S.A., is the European leader in road signage and road marking. With more than 1,200 employees, Compagnie SIGNATURE has subsidiaries in Spain, Great Britain, Switzerland, Germany, Belgium, The Netherlands, Czech Republic, Romania, Greece and France. France's SIGNATURE S.A., with a network of 37 service points, contributes to the improvement of road safety and street comfort. As a complement to its design, manufacturing and installation activities, SIGNATURE proposes new services in the area of road asset management with the aim of guaranteeing the perpetuity of road marking facilities.

ICONICS Software Deployed

SIGNATURE S.A. selected ICONICS GENESIS32™ HMI/SCADA suite including the GraphWorX™32 and AlarmWorX™32 components, BatchWorX™ Lite, ReportWorX™ (a component of ICONICS BizViz™ Manufacturing Intelligence suite), and WebHMI™ add-on.

Project Summary

SIGNATURE S.A. sought a solution to assist in the automation of its paint plant using a batch process. SIGNATURE S.A., assisted by system integrator ICONICS France Process Control, implemented GENESIS32 and BatchWorX to meet its goal of automating paint production. GENESIS32 was used to connect PLCs (most manufactured by different suppliers) to SIGNATURE S.A.'s system, while the AlarmWorX32 module was installed to ensure traceability. WebHMI was added for remote control via production manager and process engineer stations. Additionally, SIGNATURE S.A. utilizes ReportWorX for daily alarms and event and production data reports. ReportWorX also generates a production report by orders of fabrication (with associated alarms), as well as a weekly report for total consumption of raw materials used in production.



BatchWorX is a product
from ICONICS France

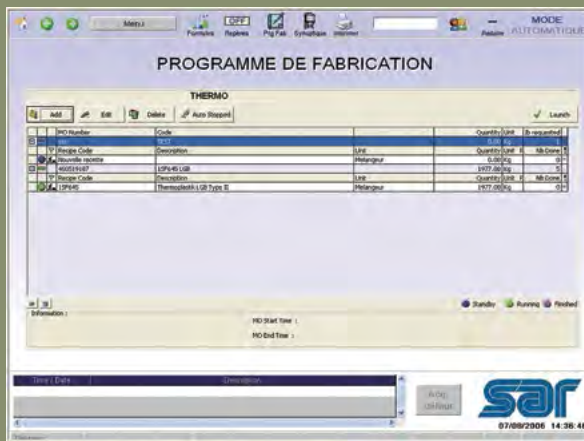
Key Features

SIGNATURE S.A. sought several specific features that ICONICS was able to meet and exceed. The selected solution must integrate with batch process software as well as be ISA 88-compliant (as BatchWorX is aptly able to demonstrate). The application must have traceability (as achieved via AlarmWorX32) as well as provide robust, in-depth reporting (a goal met handily by ReportWorX). The company had a planned project development duration of three months, followed by an expected three weeks of startup/implementation. ICONICS,

ESIS32 HMI/SCADA and BizViz Manufacturing Intelligence suites as new needs arise.

Conclusion

Gaining SIGNATURE S.A. as a customer was a good sign for ICONICS. By quickly and exactly meeting the company's needs, ICONICS is also being considered for additional projects including the automation of another workshop and a project involving the connection of all PLCs within the plant for traceability.



Production Schedule at Signature S.A.



SIGNATURE S.A. Paint Production Recipe in Progress

in tandem with ICONICS France Process Control, was comfortable in meeting the time expectations. Finally, the selected vendor was required to integrate with two Schneider PLCs and one by Siemens, as well as with the firm's MSDE database – all handled with ease by ICONICS solutions.

Benefits of the System

SIGNATURE S.A. sought an “open and evolving system” in meeting its paint plant automation. With ICONICS, they quickly received state-of-the-art solutions to assist in their HMI/SCADA, batch processing, alarm management, and reporting. In addition, the company is able to add on other needed components from ICONICS comprehensive GEN-

Solutions Highlighted

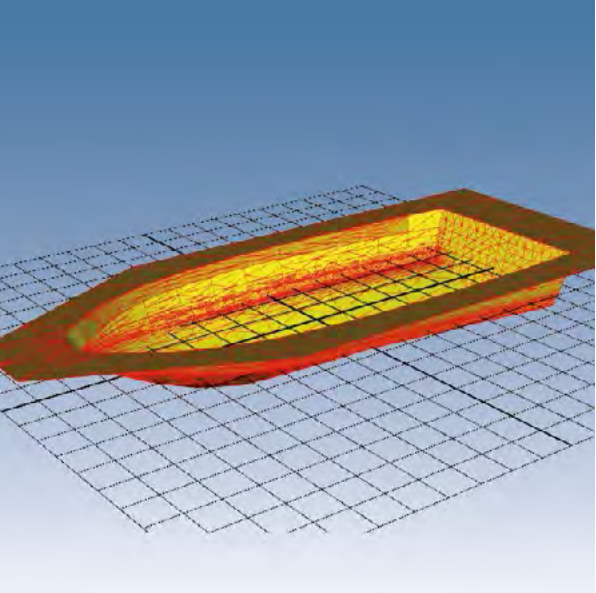
ReportWorX

Enterprise Reporting, Charting and Analysis Software

AlarmWorX

Multimedia OPC Alarm Management Software

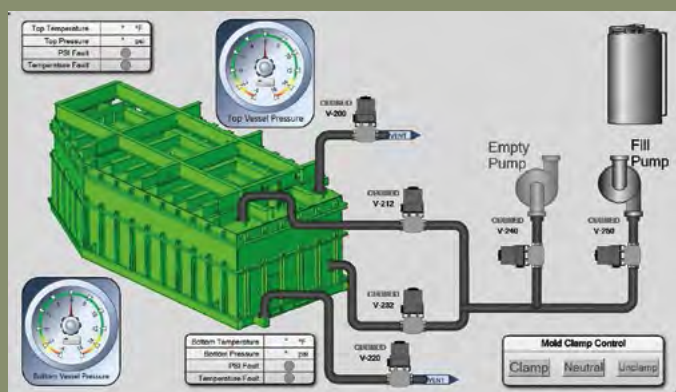




A 3D Rendering of a Boat During Construction
Visualized Through GENESIS64/GraphWorX64

VEC Technology, LLC

Greenville, PA / Little Falls, MN



A VEC Technology Fluid Transfer Control Screen

About VEC Technology

VEC Technology's (www.vectechnology.com) Greenville, PA location provides custom composite manufacturing. Its parent company, J&D Acquisitions, also owns Larson Boats (www.larsonboats.com), a Little Falls, MN manufacturer of recreation boat hulls that utilizes the VEC process, "a patented, state-of-the-art, computer-controlled manufacturing process that guarantees that every part is made to the most exacting standards of fit and finish, resulting in parts with unparalleled beauty and unprecedented quality."

VEC Technology considers itself a one stop shop for OEMs, providing part concepts, design, engineering, tooling and manufacturing, with seven molding stations at its Pennsylvania facility.

"GENESIS64 gave us unparalleled flexibility for creating the content we needed. We just plugged [it] onto our system to communicate with all our existing hardware interface drivers and software. With its GraphWorX64 tool, our HMI visualizations are much more intuitive and it was easy to do it myself."

Greg Telesz
Director of Engineering
VEC Technology, LLC

The company states that manufacturing cells utilizing its Patented Floating Mold technology receive a "low-cost, high-quality, extremely accurate, closed-mold solution" and that VEC Technology has achieved "great success in the marine, construction, containers, transportation, farming equipment and recreational vehicle markets."

Larson Boats, itself a customer of VEC Technology, can process boat hulls in the 17 to 24 ft range at its Minnesota location, which includes eight molding stations and an automation mix plant.

ICONICS Software Deployed

VEC Technology selected ICONICS GENESIS64™ 64-bit HMI/SCADA software, in addition to BridgeWorX™ (real-time workflow for data bridging), ReportWorX™ (enterprise reporting, charting and analysis), OPC Server (supporting both OPC-UA and OPC-DA connectivity), and WebHMI (Web-based, real-time visualization).

Project Summary

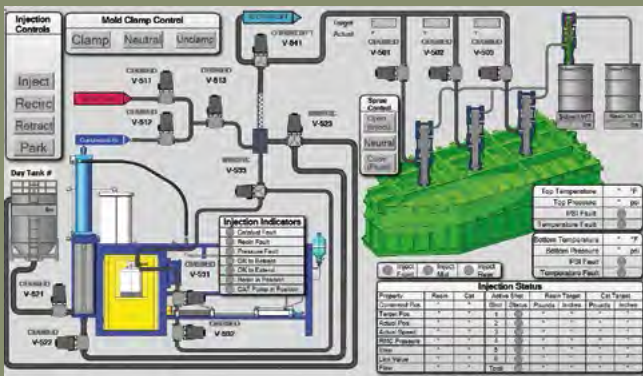
VEC Technology required an HMI/SCADA solution coupled with data bridging/reporting/archiving that can be used over the Web, can integrate with the OPC communications protocol and can directly interface with the company's product databases. They required the solution to control and monitor the company's patented closed molding operations. They wanted a system that could manage various parameters based on several criteria, including the specific product being produced, ambient conditions and material properties. Also necessary was the abil-

ity to provide long term storage of multiple key parameters for product warranty information. The company sought a product with future-proof technology. They also looked for a solution that presented a simple user interface for making edits, as well as an easily maintained Web-based client/server architecture. VEC Technology aimed for a "single vendor" approach, intending to reduce both the number of automation interfaces as well as extra support staff to maintain various systems.

The engineers at VEC Technology allowed themselves a 10-month development cycle for the first installation, ensuring that their in-house personnel would become more familiar with the selected HMI/SCADA solution. The software would need to inter-

face with multiple systems and hardware including eight Modicon PLCs between the two locations, five Delta RMC controllers, temperature/pressure/proximity gauges, scales and valves. The selected HMI/SCADA software would need to handle approximately 1,200 tags per molding station.

VEC Technology maintains four servers and 16 client stations for this particular project. It uses several Microsoft applications including Microsoft Office, Access (to modify process input parameters) and SQL Server (for long-term historical data storage). Two competitor solutions were considered, and the



Additionally, they wanted the software to read and write natively to Microsoft SQL Server and to support global aliasing, in order to minimize development time and costs.

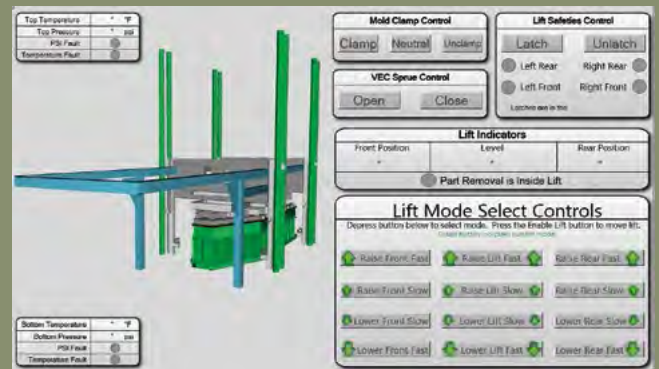
GENESIS64 now provides what VEC Technology deems “spectacular” and “rich” 3D graphics with “superb resolution” and an enhanced operator experience, fully utilizing the company’s vast CAD investments. The company now utilizes a single database for data logging. ICONICS’ BridgeWorX software has helped to eliminate numerous custom VBA scripts. VEC Technology has also reprioritized

Case Study Details

- HMI/SCADA Solution
- OPC Server
- 1,200 Tags per Molding Station
- 3D Visualization for CAD Data



An Operator Monitoring Hull Production



VEC Technology Lift Select Mode Controls

its operational staff – from eight employees tasked with maintaining multiple systems down to two employees maintaining their new system.

The company’s future plans for their ICONICS-integrated application include implementation of downstream postmolding stations to input quality data into databases, eliminating the need for paper forms.

Conclusion

VEC Technology and Larson Boats required an HMI/SCADA solution that would allow them to continue providing customized options for their own customers. For such requirements, ICONICS’ GENESIS64 HMI/SCADA suite and wide range of integrated manufacturing intelligence options are tailor-made.

Solutions Highlighted

GENESIS64

Next Generation in HMI/SCADA Automation Software

BridgeWorX

Real-time Workflow for Data Bridging

ReportWorX

Enterprise Reporting, Charting and Analysis Software

WebHMI

Web-Based Real-Time Automation Software



Connect Manage
Monitor Control



KEP ServerEX

Kepware Technologies, established in 1995, develops a wide range of communication and interoperability software solutions for the Automation industry. Our flexible and scalable solutions help connect, manage, monitor, and control diverse automation devices and software applications. Communications are managed through a robust software platform that supports an array of open standards, proprietary communication protocols, APIs, and automation systems' interfaces. We only deliver industrial strength solutions that are designed and tested to meet the demands of industrial automation applications. Our industry-endorsed software solutions improve operations and decision-making throughout all levels of an organization. Kepware Technologies' mission is to be your standard for connectivity by developing Advanced Communications for Automation.



Vitkovice Steel's 3.5 Meter Four-High Rolling Mill

Vitkovice Steel

Ostrava, Czech Republic



Roll Transporter System Monitor at Vitkovice Steel

About Vitkovice Steel, a.s.

Vitkovice Steel, a.s., a member of the Evraz Group S.A., is a leading European manufacturer of rolled steel products. The company's main product mix consists of plates, sections, sheet piles, and flame-cut shapes. The largest steel plate manufacturer in the Czech Republic, located in the city of Ostrava in the Moravia region, Vitkovice Steel produced 802,000 tons of steel products in 2005, mostly high-quality steel plates.

ICONICS Software Deployed

Vitkovice Steel selected ICONICS GENESIS32™ OPC Web-enabled HMI/SCADA suite, including AlarmWorX™32 distributed, enterprise-wide

alarm and events management system and DataWorX™32 OPC data aggregation, bridging, redundancy and tunneling.

Project Summary

Vitkovice Steel needed to replace a production monitoring system from the late 1980s, in addition to control systems based on obsolete Czechoslovakian computers (PPC-4). The company, working with systems integrator Real Time Software (R.T.S. c.s., spol. s.r.o.), selected a system based on ICONICS GENESIS32 integrated with Oracle databases.

The new Plate Mill Coordination System, "KSUP", was gradually phased in, eventually replacing the former, out-of-date management execution system and the control systems of key production aggregates (units of 3.5 meters, four-high Rolling Mill). The key units contain lengthwise trimming and cutting power slitters/shears, two cross-cutting power shears and roll-transporters.

The GENESIS32 software suite is used for the automatic monitoring of material moving on roll-transporters as well as of material stored in piles. Operators at service boxes are automatically supplied with all necessary information needed to process the material. The complete production settings are also automatically passed on to the appropriate production aggregates.

GENESIS32 runs on 26 client stations, providing approximately 40 main operating and overview screens with an additional 250 pop-up window support screens. The diverse user group ranges from

general plant and service personnel and guests to developers, administrators and supervisors.

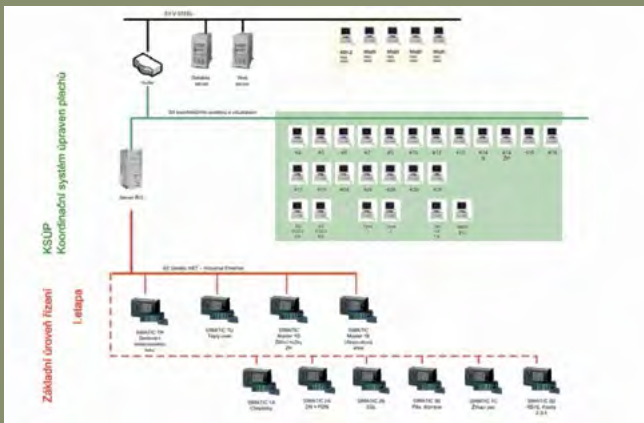
The system picks the overall production settings from the superior PPS system. The KSUP system automatically registers all the key parameters of individual production operations and stores them in the Oracle database. In addition, all alarm and event messages are posted and archived, using AlarmWorX32.

Benefits of the System

The steel manufacturer is pleased by their selection, as it meets their high availability, 24x7 requirements,

Conclusion

When Vitkovice Steel was faced with aging equipment and needed fast, reliable replacement, they immediately considered ICONICS. With existing systems to consider, ICONICS was certain to be the right fit, so much so that Vitkovice Steel is considering additional solutions for “fast and easy integration of new production aggregates”.



KSUP Systems Overview at Vitkovice Steel



Manufacturing Monitoring Screen

as well as scales to the needs of about 180 users. With their new ICONICS system, Vitkovice Steel is able to replace older equipment in order to guarantee related maintenance and service. They're able to respond, with greater flexibility, to user requests in regards to varying production patterns.

Integration with existing systems, including KEP Servers, Stratus Servers, Siemens Simatic S7 PLCs, Oracle 9.2 data base, UZ line-over databases, stampers in hot or cold conditions (3964R), and paint stampers is seamless. The ICONICS solutions also connect easily to the company's existing Microsoft products, including Windows 2003 Server, Windows 2000 and XP clients, Microsoft Office and SQL databases.

Case Study Details

Vitkovice Steel selected ICONICS solutions because they meet specific criteria, including:

- Low Total Cost of Ownership
- Excellent Connectivity to Oracle software
- Easy Application Development



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"We have a very positive opinion of ICONICS and its GENESIS32 HMI/SCADA suite. It has helped to save time and costs for our oil and gas industry clients requiring flexible, extendable visualization solutions, as well as in our company's development processes."

Vyacheslav Zavyalov
Control System Specialist
SC «ATS» Company , Ltd.

OIL, GAS & PETROCHEMICAL

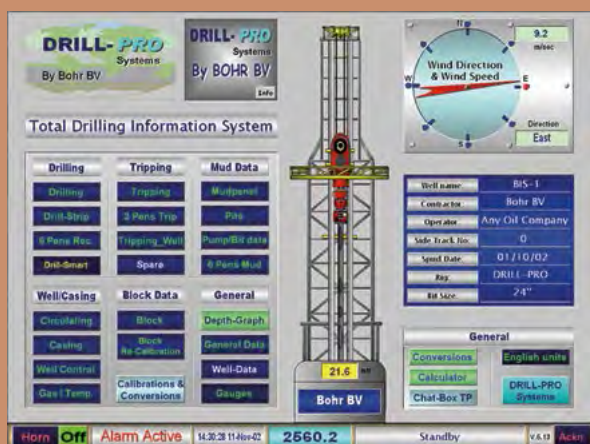


Bohr Instrument Services

Veenoord, The Netherlands



Drilling Rig Utilizing
Bohr Instrument Services



Bohr's DRILL-PRO Systems Menu Display

About Bohr Instrument Services

Oil and gas producing companies in the world explore on both land and sea to produce oil. Global energy companies that explore for oil and gas produce and refine oil and market their products throughout the world under their corporate brand names, and many use Drill-Pro Systems by Bohr BV. On exploration sites worldwide, these oil companies have installed a Bohr "DRILL-PRO" System with ICONICS software to monitor and control all the operations of the drilling rig.

ICONICS Software Deployed

Bohr Instrument Services selected ICONICS GENESIS32™ software suite with GraphWorX™32, TrendWorX™32 and AlarmWorX™32. This suite

"Extensive visualization of all the key parameters by the GENESIS32 software system helps the drilling operator to prevent problems, drill more efficiently and reduce drilling time, which translates into overall cost savings."

Bohr Instrument Services

of software tools is installed on a Bohr DRILL-PRO Total Drilling Information System, which is an extensive data acquisition system for oil and gas rigs. This system must collect data in real time and monitors all the extreme forces on a drill bit while providing the drilling operator with multiple graphical data monitors that visualize all the collected data using the GENESIS32 software tools.

Key Features

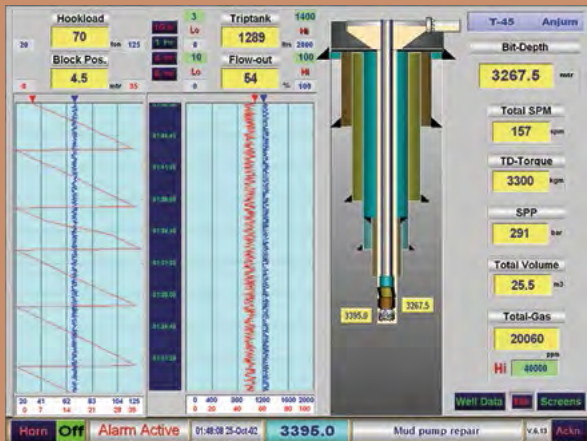
The DRILL-PRO package gathers data from digital and analog rig site sensors via a PLC data acquisition unit. It uses a direct RS-232 serial connection between the DRILL-PRO System, interfaced to a Modbus server and Nyquist PLC. The operator PC collects data and is transmitted to two locations; the drill floor, where an operator views the graphic representation of the data on an 18" monitor, and to remote offices. This drill floor HMI monitor communicates with the data acquisition module (DAQ) to pass on information concerning screen types, scales, alarm limits and manual entries by the operator (depth, bit

depth, pump efficiency etc.). The same real-time data is communicated wirelessly via an 802.11b network protocol to three separate computers in the engineering and project management offices. The many parameters that need to be logged and converted into other parameters demand a software system that can process an unlimited amount of real-time data from a variety of inputs. The system utilizes a distributed I/O architecture, saving costs and providing for flexible layouts and better reliability overall.

tion, weight on drill bit, hole volume, running time and pipe counts. This almost overwhelming amount of information is collected by the ICONICS software system and presented in several clear graphical displays. The operator selects which screen to view using a touch screen and can then set parameters and alarm conditions as required.

Benefits of the System

The primary benefit that the ICONICS GENESIS32 system provides is the ability to do “vertical trending”. Data collected at the drill head and sent to the



A DRILL-PRO Trip/Well Display by Bohr



Virtual Gauges

Project Summary

The DRILL-PRO monitoring system required an easy to use, user selectable graphical and alphanumeric display software system. The ICONICS GENESIS32 software suite met these requirements, which included alarm monitoring of all the primary instrumentation. The installed system has the flexibility needed for customization and the modular structure of the software allows for easy configuration changes and upgrading. The DRILL-PRO system accepts signals from a large number of sensors (rotary RPM, depth, pump pressure, temperature and tank levels). The values measured by these sensors are displayed in several graphical screens and used to calculate other important derived parameters like rate of penetra-

tion and management offices' computers are stored in triple redundancy in a Microsoft Access™ database. This data is “persistent trended” and stored in RAM memory for immediate access, along with “historical trended” data, which is stored on their hard drives for analysis.

Other advantages of the ICONICS software system are the ease of use, ease of setting up screens and the extensive visualization display capabilities for the operators to view real-time data.

Conclusion

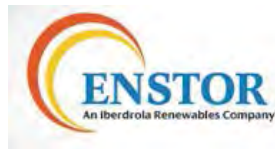
ICONICS has worked closely and successfully with Bohr Instrument Services BV to make this Oil Rig Monitoring project successful in every aspect.



ENSTOR's Caledonia Facility

ENSTOR

United States



Map of ENSTOR's Locations
North America

About ENSTOR

Natural gas is an important energy source for reducing pollution. Compared to coal and oil, combustion of natural gas releases significantly lower amounts of harmful pollutants and carbon dioxide. After its exploration, production and transportation, natural gas can be stored for an indefinite period of time for future use.

Reconditioned depleted reservoirs and salt caverns make ideal vessels for storing natural gas. Depleted reservoirs are formations that have been tapped of all their recoverable natural gas. Salt caverns are made in salt bed deposits left from when sea covered the land. By drilling a well down into the salt bed, and cycling large amounts of water through the well to dissolve the salt, large caverns can be created.

"We like the versatility of GENESIS32. We use ICONICS software not just for graphics and control, but for our Plant Historian as well. With the flexibility of OPC, we can easily integrate GENESIS32 with the two Accelemetrics products, CommFidence and the Gas Storage Processing Engine. With the Kepware OPC Server, we can connect any PLC that we have. As we are often acquiring new facilities with different software and PLCs, GENESIS32 and Accelemetrics products have been a great fit for ENSTOR."

Larry Whitaker,
Operations Control Manager
ENSTOR

ENSTOR, a subsidiary of Iberdrola Renewables, is a company dedicated to the storage of liquid natural gas. With facilities including both depleted reservoirs and salt caverns, ENSTOR maintains five repositories throughout North America, and is currently developing two more sites. ICONICS software, implemented by Accelemetrics, Inc., an ICONICS Gold Certified Partner, helps ENSTOR to responsibly and safely receive, store and deliver natural gas, the cleanest burning fossil fuel.

ICONICS Software Deployed

GENESIS32™ is used to monitor and control ENSTOR's storage plant facilities. AlarmWorX™32

and TrendWorX™32 modules help operators maintain efficiency. BizViz™32 and PortalWorX™32 deliver visualization to the corporate level.

Project Summary

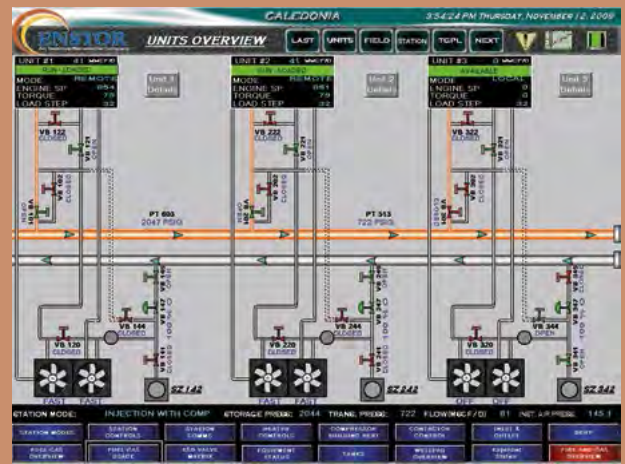
ENSTOR leverages its various gas storage and hub service facilities to provide customers superior transfer access between major pipelines as well as rapid injection and withdrawal storage capacity. In ENSTOR's facilities, the GENESIS32-based control system uses PLCs and gas flow computers that monitor and control a variety of compressors, gas meters, valves, dehydrators,

other downstream information systems. PortalWorX delivers a higher level corporate view to headquarters in Houston.

ICONICS' software solution demonstrated its flexibility and ease of use with installations taking only a few months at each facility. Accelemetrics was able to build several specialized gas storage specific applications that tied into GENESIS32. Specifically, by leveraging ICONICS DataWorX OPC tunneling and data aggregation capabilities, Accelemetrics built CommFidence, a customized gas storage proactive alarming system. The system monitors connectivity between natural



Overview of the Caledonia Storage Facility



Compressor Overview of Caledonia Storage Facility

and safety equipment to manage natural gas injection, withdrawal, receipt and delivery.

The Alberta Hub in Canada, Caledonia in Mississippi, Freebird in Alabama, Grama Ridge in New Mexico, and Katy Hub near Houston, Texas comprise ENSTOR's strategically located gas storage facilities. In addition, the Katy facility serves as the corporate centralized monitoring and control location.

Each location has a dedicated control room where operators monitor and control both storage plant and pipeline interconnection points (where customers deliver and receive gas). TrendWorX data from five facilities is relayed to the Katy Storage facility into an Accelemetrics gas storage data warehouse, where data can be reported and interfaced with cleanly by

gas flow computers and chromatographs to confirm that communication is successful, intelligently checks for specialized gas measurement errors, and monitors overall system functionality. The Accelemetrics Gas Storage Processing Engine performs a variety of facility operational functions including line pack calculations, compressor fuel monitoring, well volume allocations, plant balancing and regulatory emissions reporting.

Conclusion

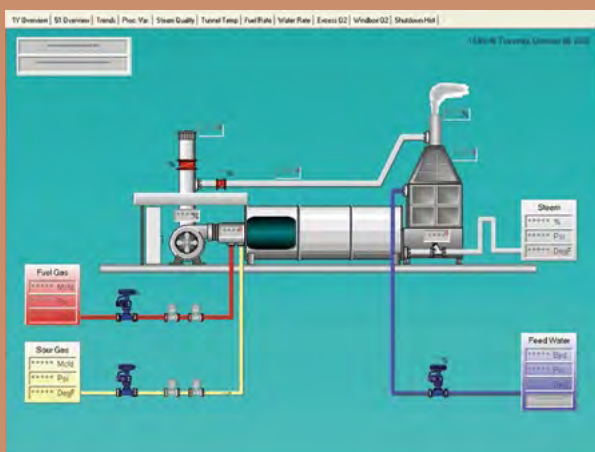
With five operating facilities through North America, and two facilities under development, ENSTOR realizes operational flexibility demanded by volatile North American natural gas markets. Plans are in place to upgrade to the newest version of GraphWorX.



LIIEC Oil Company Western United States

LIIEC

*Oil Rig, Similar to Those Used by
Large International Integrated Energy Co.*



Steam Plant Overview

About This Large International Integrated Energy Company

A Large International Integrated Energy Company (LIIEC) with over \$100 billion in annual revenue is a global energy enterprise developing vital energy resources in over 180 countries around the world and is a world leader in oil exploration and production. The USA-located, ICONICS-managed oil field has in excess of 3,000 drilling wells that are using WebHMI™ software to monitor oil well performance, production analysis and maintenance operations.

ICONICS Software Deployed

The GENESIS32™ product is installed using the following modules: AlarmWorX™32 Multime-

"Users are really impressed with the trend and alarm analysis capabilities. Web capabilities are the same as SCADA system capabilities, too. The product is completely built on OPC standards, making integration with other OPC products simple."

LIIEC Facilities Engineer

dia, TrendWorX™32 SQL Logging Option, and AlarmWorX™32 SQL Logging Option, Pocket GENESIS™ and WebHMI.

Key Features

Modicon and Allen Bradley PLCs are used to monitor and control steam plants, sulfur plants, oil pumps, and oil storage in the West Coast Business Unit of LIIEC. GENESIS32 and WebHMI are used to monitor the status of all I/O points and provide Human Machine Interface for all areas. The open connectivity provided through OPC-enabled WebHMI allows LIIEC to easily provide process data, graphics and trends with live data for any qualified user via the Web.

Project Summary

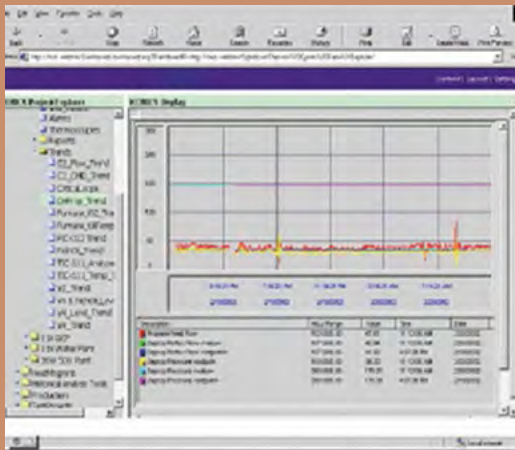
LIIEC installed ICONICS' GENESIS32 suite of tools to deliver data from any LIIEC Business Unit facility in the entire Western US area to any user anywhere within the LIIEC Intranet. In the West Coast Business Unit, there is a total of six major oil fields

with numerous facilities controlled by Modicon and A-B PLCs. GENESIS32 and WebHMI and various OPC Servers present the data from all of these systems to LIIEC users via the Web.

A pilot system was installed at one of the LIIEC oil fields. There are currently five GENESIS32 systems and two WebHMI Servers with 50 Client Licenses in use. Pocket GENESIS and AlarmWorX32 Multimedia will be used to provide wireless access and notification for operators in the field. Approximately 15,000 I/O tags are monitored and controlled through these systems.

alphanumeric pagers and telephones when critical systems require immediate attention.

LIIEC uses WebHMI to provide view-only access for management and supervisory personnel. WebHMI, running on Windows 2000 and Internet Information Server from Microsoft, provides real-time OPC data for the view-only screens. Benefits of the system include faster responses to equipment shutdowns through a more automated notification process with AlarmWorX Multimedia. Another benefit is increased generator energy efficiency through trend analysis and remote monitoring.



Steam Production Trend

Event/Time	Message	Condition	Action
10/4/2001 11:10:44 AM	V-1 HIGH VAPOR FLOW ALARM	YES	NO
10/4/2001 11:10:44 AM	V-1 LOW VAPOR FLOW ALARM	YES	NO
10/4/2001 11:10:44 AM	V-1 HIGH VAPOR FLOW ALARM	YES	NO
10/4/2001 11:10:44 AM	V-1 LOW VAPOR FLOW ALARM	YES	NO
10/4/2001 11:10:44 AM	V-1 HIGH VAPOR FLOW ALARM	YES	NO
10/4/2001 11:10:44 AM	V-1 LOW VAPOR FLOW ALARM	YES	NO
10/4/2001 11:10:44 AM	V-1 HIGH VAPOR FLOW ALARM	YES	NO
10/4/2001 11:10:44 AM	V-1 LOW VAPOR FLOW ALARM	YES	NO
10/4/2001 11:10:44 AM	V-1 HIGH VAPOR FLOW ALARM	YES	NO
10/4/2001 11:10:44 AM	V-1 LOW VAPOR FLOW ALARM	YES	NO

Alarm Summary Display

Benefits of the System

Local operators, supervisors and technical management staff view trend data from the entire system via an ICONICS WebHMI Server using GenBroker routing over their Wide Area Network. Users can view daily, weekly, and longer trends, as needed, to manage the flow of oil through the plants and into the distribution and storage network.

In addition to viewing real-time alarms and system faults, Microsoft SQL Server is used to record all Alarms, Events and Operator Actions for long term alarm archiving and alarm reporting. Several local Operator Stations are equipped with the ICONICS Multimedia Alarm Notifications Option software so that supervisors and operators may be notified via

Conclusion

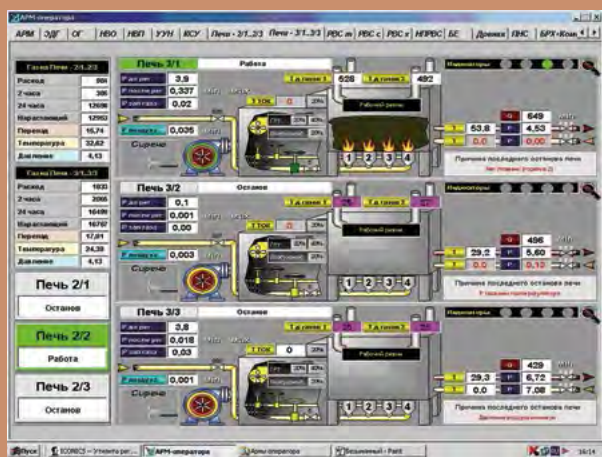
ICONICS has worked closely with LIIEC to make this Oil Field Data Collection project successful in every aspect. LIIEC participates in the Large End-User Support and Maintenance program to keep its software updated and for access to technical support personnel as needed. Rapid graphic development, easy Web publishing and zero-install clients for Web access were key features considered during LIIEC's decision-making process.



SC «ATS» Company, Ltd. Tyumen, Russia

SC «ATS»

Russian Oil Processing Plant
Client of SC «ATS»



A Control Screen for Oil/Gas Applications

About SC «ATS»

SC «ATS» specializes in the design, creation, introduction and tracking of automation systems in the Russian petroleum and natural gas industries. SC «ATS» acts specifically as a system integrator, providing design for, delivery of, and service to gas and oil-producing industry control systems.

ICONICS Software Deployed

SC «ATS» has selected ICONICS GENESIS32™ OPC Web-enabled HMI/SCADA suite; including the TrendWorX™32 enterprise-wide data collection, logging, charting, reporting and analysis component and the DataWorX™32 OPC data aggregation, bridging, redundancy and tunneling add-on; for its suggested industrial automation software solution.

“We have a very positive opinion of ICONICS and its GENESIS32 HMI/SCADA suite. It has helped to save time and costs for our oil and gas industry clients requiring flexible, extendable visualization solutions, as well as in our company’s development processes.”

Vyacheslav Zavyalov
Control System Specialist
SC «ATS»

Project Summary

SC «ATS» works with multiple plants in the Russian oil and gas industry. Recently, the company was involved in providing control systems in three locations: OAO Surgutneftegaz, with more than 40 objects; NK Rosneft, with more than 20 objects; and TNK BP (Tumeneftegaz), with more than 10 objects. The multiple objects to control at each plant make use of a wide variety of technologies, including radio, GSM/GPRS, Wi-Fi and Ethernet connectivity. In total, there are approximately 16 distributed control stations on area objects and about 118 on telemechanical systems. The types of connected devices include multiple controllers, flowmeters and heater controllers from B&R and Siemens, which are connected to ICONICS’ HMI/SCADA interface via OPC servers. The OPC servers themselves are used primarily for data collection, while OPC loggers are for reporting/logging and SQL servers are used for data storage. The total number of I/O points ranges from

four on the telemechanical control systems to up to 14,000 on area object points.

SC «ATS» uses Microsoft software in its control system solutions, including SQL Server and Microsoft Office (Excel, Access, etc.).

Benefits of the System

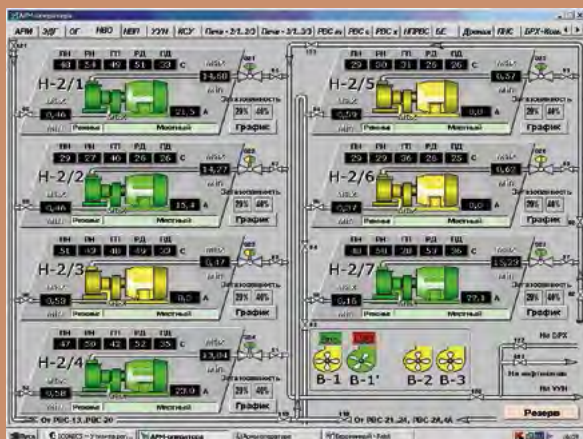
SC «ATS» had multiple criteria for their preferred industrial automation software. Among the reasons why ICONICS was selected were:

- Convenience - due to ICONICS “off-the-shelf” solutions

ICONICS has cut overall development time for SC «ATS»'s control systems, as well as the number of personnel required for system design and maintenance.

Conclusion

SC «ATS» plans to expand its ICONICS installations at its client plants whenever related equipment requires maintenance or replacement or as customers require any new functionality. Presently, the company anticipates no less than 10 projects a year requiring control system solutions. ICONICS has proven itself a valuable software partner for SC «ATS» and its many Russian oil and gas customers.



An Additional Plant Control Screen at SC <<ATS>>



Example of GENESIS32 Control Screen for Russian Oil/Gas Customers

- OPC Technology Support
- Flexibility During System Development and Maintenance
- License Variety and Choice

ICONICS GENESIS32 was selected to replace a proprietary, in-house visualization system and was implemented quickly, compared to the previous solution. SC «ATS» knew immediately they had made the right choice, in that system response to events now occurs in less than a second. Objects are easily visualized in a user-friendly Web interface and the installed system has been deemed easy to expand. In addition, the company has realized improvements in overall system-level security and in the oil and gas processes themselves.

Solutions Highlighted



DataWorX32

OPC Data Aggregation, Bridging, Redundancy and Tunneling

TrendWorX

Data Logging, Charting and Reporting Software

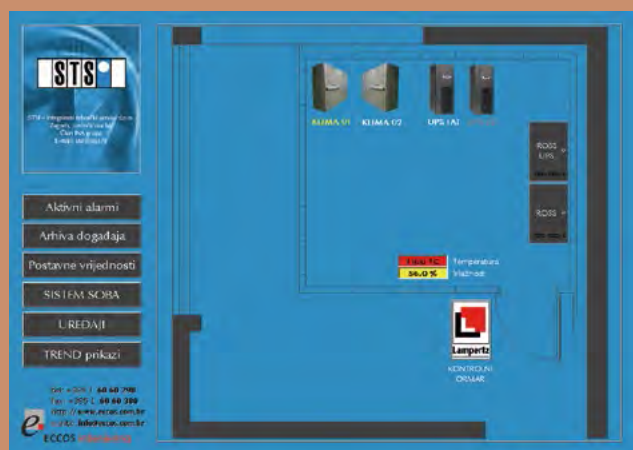


STSI d.o.o. Integrated Technical Services

Zagreb, Croatia



*STSI d.o.o. Integrated Technical Services
Employees at Work at a Croatian Plant*



*Main Screen for STSI d.o.o. Integrated Technical
Services' Datacenter Control*

About STSI d.o.o. (Integrated Technical Services)

STSI - Integrated Technical Services, located in Zagreb, Croatia, is involved with engineering, maintenance, research and production projects within the Croatian oil, gas and petroleum products industry. The company is part of the INA Group (Industrija nafte d.d.), which is a joint stock company owned by the Hungarian oil company MOL (47.16%), the Republic of Croatia (44.84%) and private and institutional shareholders (8.00%). Founded in 2001, STSI - Integrated Technical Services' goals are to:

- Develop safe, efficient and high quality property and technical/technological process maintenance systems based on market principles

- Improve technology and resource integration, as well as use their advantages in a competitive market approach, and
- Develop a highly expert work force as the basic value of the company in the frame of socially acceptable criteria and principles.

ICONICS Software Deployed

STSI - Integrated Technical Services, working with systems integrator, ECCOS inženjering (also of Zagreb), selected ICONICS' GENESIS32™ Web-enabled, OPC-integrated HMI/SCADA Suite, as well as the WebHMI™ Web-based Real-Time Automation and AlarmWorX™32 Multimedia (MMX) Distributed Enterprise-wide Alarm Notification add-ons.

Project Summary

As soon as STSI - Integrated Technical Services decided that the datacenter in its Zagreb headquarters was becoming out-of-date, it made plans for its replacement. The facility is used to house computer systems and associated components, such as telecommunications and storage systems. The new datacenter was designed to include a backup power supply (an Eaton/Powerware UPS system consisting of two UPS devices working in parallel mode), YORK air conditioning units (which are connected to the public power network) and a soon-to-be-installed diesel generator.

STSI - Integrated Technical Services selected specific equipment for its data center, essential for its continuous operation. The datacenter was designed to include state-of-the-art security, supervision and control. The

company sought a SCADA system that would monitor and control crucial parameters such as power supply, temperature/humidity, AC status/mode, UPS status/mode, branch circuit current, individual circuit breaker status, raised floor conditions (via water sensor), technical security (room doors/cabinet doors/air hatch open or closed, fire alarm status), and PLC status.

ICONICS' GENESIS32 HMI/SCADA suite now integrates with STSI - Integrated Technical Services' Schneider Electric Premium TSX P57 PLC, which is connected to a Lampertz security room control panel and Schneider Electric/Merlin Gerin circuit break-

AC unit fail, temperature/humidity out of allowed boundaries, technical security breach and/or error, water under the raised floor, circuit breaker opening/closing, UPS failure, low battery and more. All alarm limits are stored in a Microsoft SQL database and can be edited by the administrator. ICONICS' ScriptWorX™ will execute a batch file that will shut down all equipment in the data center in emergency situations, such as a very high temperature alarm or a very low UPS battery alarm.

According to STSI - Integrated Technical Services, the HMI/SCADA system is highly user- and administrator-



Air Conditioner Monitoring Screen in an Example Alarm Condition



UPS Overview Screen

ers. GENESIS32 also interfaces with the company's Schneider Electric EGX400 Powerlogic Ethernet Gateway (connected to a Carel pCO2 OEM HVAC/R control for the YORK ACs via RS48); a Veris H704 Series Branch Circuit Current Monitoring System; Schneider Electric ION 7650 Power Meters and the Eaton/Powerware 9355 UPS (via SNMP).

In unison with the company's Matrikon OPC Server for Modbus, ICONICS' GENESIS32 is used to collect data from all connected devices. AlarmWorX monitors for any unusual or extraordinary circumstances, including lack of/distortions in the power supply, deviations of the nominal voltage more than 10% (or of any threshold set by the administrator), current higher than pre-alarm or alarm values,

friendly. Operators can supervise all major and critical situations, as well as choose among active objects (UPS devices, air conditioners, branching cabinets, etc.). The system has also proved to aid in maintenance of the datacenter. For instance, one can see the current consumption on each branch by opening a specific power cabinet, but can simultaneously open the specific Veris Industries Device and see any alarm conditions.

Conclusion

STSI - Integrated Technical Services is satisfied with its ICONICS solutions, helping to provide real-time supervision and control of all devices and environmental parameters (security, power supply, temperature, humidity, etc.) within its new datacenter.



Bill Gates Presenting the
Windows World Open Award

Transneft Russian Pipeline Moscow, Russia



Main Screen Overview of Transneft Russian Pipeline

About Transneft

Transneft, a joint stock Russian Oil transport company and Russia's largest oil pipeline company, manages the world's largest oil pipeline in the world. The pipeline extends from Siberia to the Baltics, and encompasses over 48,000 miles (80,000 km) of oil pipes transporting 420 million tons of oil a year through severe environments. The installation project involved installing over 400 pumping stations and 1,000 holding tanks in 101 locations supplying 35 refineries.

ICONICS Software Deployed

Transneft selected ICONICS GENESIS32™ with GraphWorX™32, TrendWorX™32 and AlarmWorX™32. This suite of software tools is

"Transneft selected ICONICS GENESIS32 software suite of products due to its open data-mining and OPC-to-the-Core technology."

Transneft

running on over 500 networked PCs, monitoring over 800,000 tags. This is the world's largest PC-based SCADA and dispatch system. The application has won Microsoft's "Windows World Open" Award.

Key Features

The ICONICS GENESIS32 system was installed by the systems integration company, Elesy. With over 500 employees, Elesy is a developer and supplier of process control systems for Russian fuel and energy complex enterprises. The software system monitors the operation of 2,100 PLCs, including 400 pumping stations with 1,000 tanks in 101 tank farms. Transneft uses TCP/IP with satellite links to collect and transmit status data.

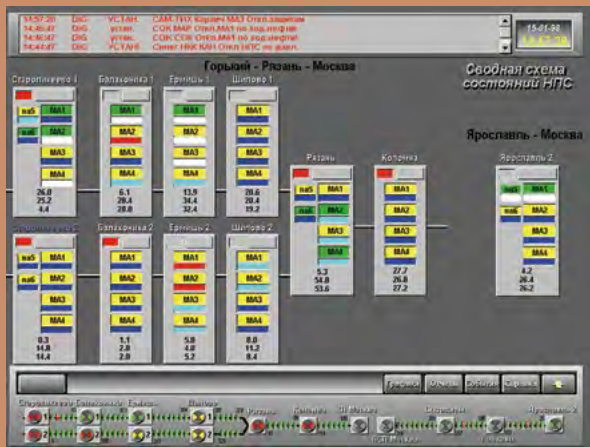
Project Summary

GENESIS32 software has been deployed to monitor and control the Trans-Russian Oil Pipeline System. Transneft is responsible for transporting 99.5% of all the oil used in Russia. The system supplies 35 different refineries with their daily crude oil and provides both Europe and China with oil products.

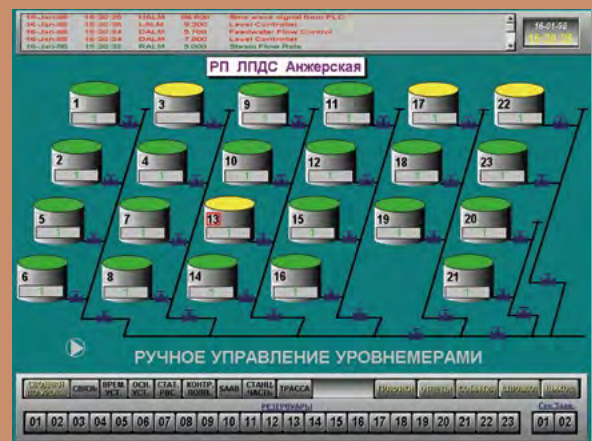
ICONICS GENESIS32 software is monitoring the 400 pumping stations, as well as 1,000 large oil tanks in 100 different tank farms along the extensive pipeline. To provide the centralized dispatch and SCADA system for this project, Transneft is using 500 ordinary P733 PCs running Microsoft Windows NT and Windows 2000. There are approximately 800,000 digital and analog tags communicating over microwave, land telephone lines and 22 satellite links using standard TCP/IP protocol. The 2,100 operator screens required to operate the pipeline have an average response time from any point in the system from between three to five seconds.

Conclusion

ICONICS has worked closely and successfully with Transneft and Elesy to make this Oil Pipeline management project successful in every aspect. Transneft participates in the ICONICS Large End-User Support and Maintenance program to keep their software updated.



*Pump Monitoring and Control at
Transneft Russian Pipeline*



Tank Farm Overview Screen

The system is using ICONICS GENESIS32 HMI/SCADA software, off the shelf PC automation technology, 2000 PLCs and Microsoft Windows NT, 2000 and XP operating systems. GENESIS32 is Web-enabled and its thin client/server architecture integrates seamlessly with Intranet- and Internet-based large network applications.

Benefits of the System

The primary benefit that Transneft has had with the installed ICONICS GENESIS32 system is the substantial reduction in time in leakage detection and the dispatching of a repair solution.

Solutions Highlighted

GraphWorX

HMI Graphical Display Package

TrendWorX

Data Logging, Charting and Reporting Software

AlarmWorX

Multimedia OPC Alarm Management Software

"We are very pleased with the ease of use and wide accessibility that ICONICS software provides. The technical support has also been absolutely outstanding."

Robert Kelley
Chemistry Supervisor
Ameren

POWER & ENERGY MANAGEMENT, UTILITIES



AES Wind Generation

Palm Springs, CA



AES Wind Generation at the Mountain View IV Wind Energy Project



An AES Turbine Screen, Built with GENESIS64

About AES Wind Generation

AES is an international power company located in North Palm Springs, California and specializes in power generation, utilities and renewable energy. Dedicated to providing cleaner and more sustainable ways to create energy, AES invests in hydro, wind, solar, biomass generation and carbon offsets as alternatives to traditional fossil fuels. AES Wind Generation, a special division of AES, explores worldwide opportunities for wind energy creation based on more than 25 years experience in the power industry. They currently manage over 1,700 megawatts of wind capacity across the US and Europe.

In 2010, AES Wind Generation initialized a 49 turbine (one megawatt each) wind farm as part of the Mountain View IV Wind Energy Project and began searching for a dependable SCADA and alarming system to operate it.

ICONICS Software Deployed

With the 49 wind turbines (built by Mitsubishi Heavy Industries) running, generating a megawatt of energy each, AES understood that they needed a robust system that could perform calculations in real time from both user input and data coming from the field. The Energy industry is primarily concerned with the status of the units as an availability measurement, as well as validating the amount of energy produced versus the amount of energy predicted by the manufacturer's published power curve. After an exhaustive search for which software was the best fit, AES found in ICONICS GENESIS64™ and Hyper Historian™ a complete SCADA and Data Historian solution that would connect via open standard protocols (including OPC) and provide both instantaneous and aggregate data for monitoring and reporting.

Project Summary

Wind farms, in general, can be time-consuming to implement due to the high amount of repetition involved with each unit having identical inputs and outputs. The global aliasing functions in ICONICS software gave AES a great advantage in quickly implementing the 49 turbines, once the first turbine was configured. AES brought all the data sources into OPC via various interfaces, such as the Modbus/TCP so the SCADA suite has a standard source of data. They also commissioned an OPC server to be built by Matrikon to convert the MHI CNET protocol into OPC. AES wanted something that was not directly programmed to the turbine protocol, so the turbine data process and the monitoring process could be changed out independently.

Additionally, the HMI interface needed to be delivered without software installation on the client computers and without authorization issues outside of the portal itself. In other words, AES would not need to share the NT authorization outside of their domain, but control users could still access the control functions of the SCADA system. AES also wanted a system that would fit into a virtual machine environment to facilitate backup and recovery should they experience a hardware or software failure. The graphics tools available as a Windows Presentation Foundation (WPF) client were ahead of all of the competition and gave AES the ability to publish a best-in-class interface from an aesthetic perspective.

put online. This would have been a substantial cost if they had gone back to a developer, but AES was able to quickly and cheaply bring the new indication into the monitoring system without additional costs.

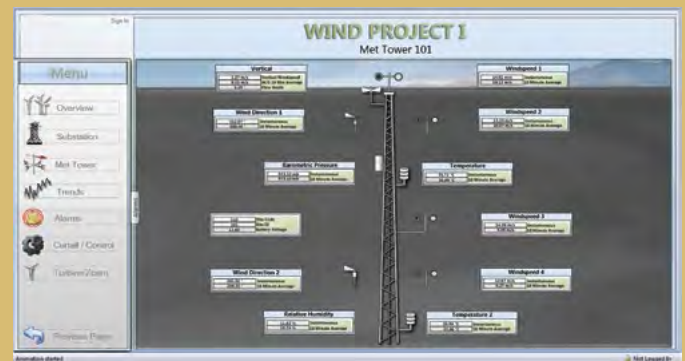
Conclusion

Using approximately 30 points per turbine (plus 300 digital points), and another 100 points from the substation (plus 100 digital alarms and statuses), Hyper Historian indirectly attaches to:

- CNET interface of the MHI MRC (turbine controller)
- CR1000 data logger for meteorological data



An Overview, with Alarming, of the Wind Farm



Display of All Data Acquired by a Met Tower

ICONICS' Hyper Historian maintains all data from the turbines at the wind farm as well as overall production data and substation parameters. The ICONICS Universal Data Management, part of GENESIS64 Platform Services, is used to create numerous calculations that feed Hyper Historian and other applications.

Benefits of the System

AES was looking to provide monitoring and control to operators from both AES and MHI, as well as supply aggregate data for their reporting systems. Using ICONICS, AES met these goals and kept development costs to a minimum as they didn't have to use a third party whenever a change was required. For example, they added an indication for low wind speeds at the turbine controller and integrated this into the SCADA system shortly after the park was

- DVAR system (Modbus)
- SEL 3530 (real time automation controller functioning as a data concentrator)

ICONICS' system gives AES the ability to centrally manage a data delivery system that is available to all users via a Web interface, without installing software on the client computer. It also allows them to keep the system completely in-house, with no future dependency on third-party development or integrators. AES expects this to provide considerable cost savings as they accommodate changes in both turbine controller logic and shifting operating systems and hardware available in the future. With this in mind, Greg Howard, AES' Systems Integration Manager, said, "We are pleased with ICONICS' ability to provide a solution that can be built, maintained and controlled without paying consultants at every turn."



Ameren Callaway Plant Fulton, MO



Ameren's Callaway Nuclear Power Plant
Fulton, Missouri



Plant Control Room at Ameren Callaway Facility

About Ameren

Ameren, Missouri's largest electric utility, provides energy services to approximately 1.2 million customers across central and eastern Missouri, including the greater St. Louis area. Ameren serves 65 Missouri counties and 500 towns. More than half (55 percent) of Ameren's electric customers are located in the St. Louis metropolitan area. Its Callaway Nuclear Power Plant in Fulton has an 1,100 megawatt capacity.

ICONICS Software Deployed

Ameren uses ICONICS' GENESIS32™ Enterprise Edition HMI/SCADA application, WebHMI™, a

"We are very pleased with the ease of use and wide accessibility that ICONICS software provides. The technical support has also been absolutely outstanding."

Robert Kelley
Chemistry Supervisor
Ameren

Web-based, real-time automation software, and the AlarmWorX™32 distributed enterprise-wide alarm and events management system.

Project Summary

Ameren needed a replacement for a legacy solution no longer supported after the year 2000. After careful consideration and evaluation, ICONICS GENESIS32 was selected. GENESIS32 is currently used to provide remote access to inline chemistry analyzer readings (both numerical output and trend graphs). AlarmWorX™32 provides paging alerts to alarm conditions. Currently, all the databases and ICONICS applications are accessible from a single Web page. This removed the database from the plant mainframe (supporting a plant goal of eliminating the mainframe). It also allows for access of live chemistry data to all plant personnel. Prior to this, live chemistry data was only accessible on a few PCs that had the legacy software installed.

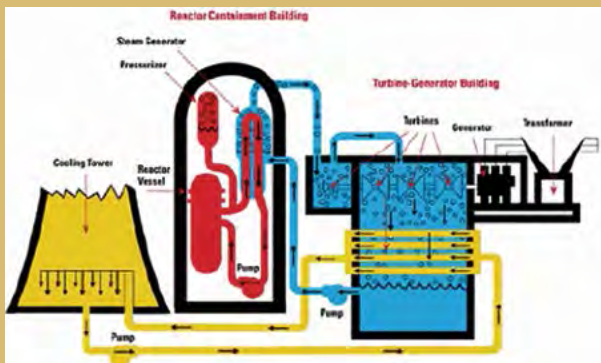
Key Features

In replacing the existing system, Ameren sought specific features for their HMI/SCADA solution, including:

- Access of live data to all personnel on site
- Pager alarm notification to technicians
- Remote accessibility
- Single Web page views

Conclusion

Set on its mission of providing energy to its million-plus customers, Ameren and its Callaway Plant needed a partner to meet its HMI/SCADA needs quickly, seamlessly, and cost-effectively. ICONICS, with its award-winning GENESIS32, fulfilled those needs, fulfilling its promise of “Web automation at your fingertips”.



Plant Facility Layout



Operators at Refueling Machine Controls

Benefits of the System

The implementation of ICONICS GENESIS32 system has furthered Ameren employees' access and use of its chemistry data. ICONICS had previously been known to Ameren solely for its AlarmWorX software. GENESIS32 has met the utility's expectations to the point where they are interested in the suite's expanding capabilities. Integration with Ameren's existing systems, including Honeywell Micromax2 controls and Microsoft applications (Windows 2000, Windows 2000 Server, Office 2000, SQL, Access), is seamless. Freed from the mainframe thanks to ICONICS WebHMI, Ameren's chemistry technicians are now able to maintain the system remotely.

Solutions Highlighted



GENESIS32

Web-Based HMI/SCADA Visualization

WebHMI

Web-Based Real-Time Automation Software

AlarmWorX

Multimedia OPC Alarm Management Software

ContourGlobal Maritsa East 3 Thermal Power Plant

Stara Zagora, Bulgaria



Maritsa East 3 Thermal Power Plants
Stara Zagora, Bulgaria



UNIT 20 – “First Out” Function Screen

About ContourGlobal Maritsa East 3 Thermal Power Plant / EXBIT Ltd.

Since 2011 Maritsa East 3 Thermal Power Plant (TPP) has been owned by ContourGlobal. It is the third largest power plant in Bulgaria, generates 30 percent of the country's electricity and is one of four power plants that makeup the Maritsa East Energy Complex. The lignite-fueled plant supplies electricity grids in both Turkey and Bulgaria. Built by Russia between 1978 and 1981, the plant connects to grids through substations across the region.

EXBIT Ltd. is ICONICS' system integrator partner with a focus on industrial automation engineering—research, design, scheduling and project commissioning of automation control systems, configuration and application programming of PLC and SCADA systems.

ICONICS Software Deployed

Maritsa East 3 TPP selected ICONICS GENESIS32™ software. EXBIT implemented GraphWorX™32, TrendWorX™32, GenBroker™, DataWorX™32, WebHMI™ for Web-based real-time automation, AlarmWorX™32 Multimedia for real-time and SMS alarm notifications. ReportWorX™ is being used to generate reports. They also chose OPC standard servers. ScriptWorX™ is being used to realize more special functions of system monitoring.

Project Summary

Since February 2009 the power plant completed a vast and complex project for rehabilitation and modernization, which turned the 30-year old facility into an environmental and safety leader and is the most reliable power producer in the country.

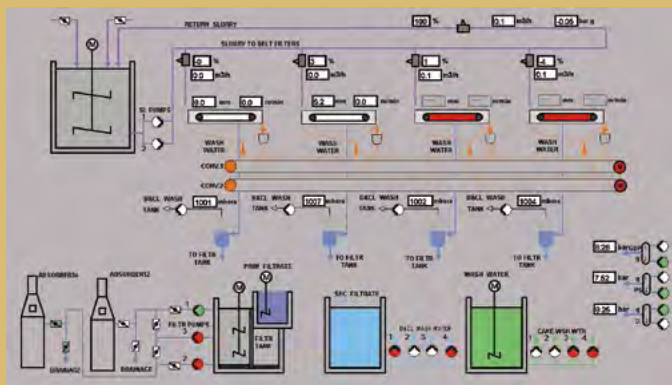
The objectives for the Maritsa East 3 TPP project included large-scale modernization and upgrades, an increase in output and power capacity and meeting the European ecological requirements. The final part of the project was the integration of all control systems on a single platform. EXBIT was chosen as the developer and system integrator for the Control and Monitoring Integration System.

To meet their objectives, EXBIT created centralized data access from all of their OPC servers, with more than 8,000 tags, utilizing DataWorX32, an OPC data integration solution. This provided data tunneling, aggregation and redundancy, as well as the ability to access the data from all applications, including a PI historian system, for plant control.

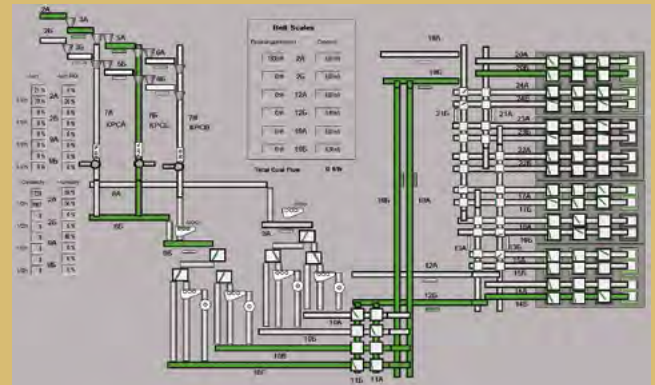
For visualization, EXBIT created graphical screens on which data is shown through dynamic GENESIS32 displays. These displays allow visualization of the main control system, Siemens DCS SPPA-T2000, and all of the plant's sub-systems. Displays, alarms and trends are exhibited on wall-mounted displays in the control centers. Dedicated trend screens show the start profiles and the designation of different startup modes of the plant boilers. Plant management is able to access and manage all of the data through the office network or with VPN access.

Benefits of the System

Thanks to the upgrade, the ContourGlobal Maritsa East 3 TPP is now an environmental leader in Bulgaria and is fully compliant with all of the European Environmental standards, including certification under ISO 14001:2004 and OHSAS 18001:2007. Additionally, the plant's output has increased significantly from 840 MW to 908 MW. Plant project objectives were all reached after the complete implementation of ICONICS software. The management and operating staff now have visibility and full access to their plant's process data, and are alerted, in real time, of any issues.



Gypsum Dewatering Screen



Coal Handling Screen

A WebHMI server was implemented to allow for remote access, via the internet, on thin Web clients, which allows personnel to visualize processes without the installation of any other software. Alarms from generator relay protection logic are being integrated and diagnosed using gateway controllers developed by LOGISOFT—a subcontractor of EXBIT. The DCS alarms are being managed with a “first out” function for analysis, including the relay protections in real-time with specialized scripts developed by EXBIT using ScriptWorX. Alarms are sorted by time stamp, even within milliseconds in the case of trip events. AlarmWorX32 Multimedia was specifically selected for its ability to send alarm status notifications to mobile devices.

Conclusion

The ContourGlobal Maritsa East 3 Thermal Power Plant aimed to become more energy efficient and through the implementation of ICONICS software, they have achieved this. Complete real time monitoring and alerting allow the plant to be well managed and continue to increase production and productivity.



Converteam

Rugby, UK



Part of the LNG Fleet



HMI Day View

About Converteam

Converteam is a leading supplier of power conversion engineering. Providing customized solutions to convert electrical energy through physical equipment such as motors, generators, and drives, Converteam also manufactures automation and process controls. Serving the Marine, Oil & Gas, Energy and Manufacturing industries, Converteam's services are applied internationally.

Converteam's solution for the marine and offshore industry includes the C-Series Vessel Control System (VCS) which combines ship-wide supervisory control and monitoring together in a single system, enabling operators a complete overview of all ship systems.

Converteam recently selected ICONICS for automation, SCADA and HMI in a fleet of LNG tankers and ships designed to transport liquefied natural gas.

"In selecting ICONICS' GENESIS32 for our offshore applications, Converteam focused upon OPC connectivity to ensure that this standard would allow on-going flexibility in the choice and development of controllers in the future. Equally important was the capability to develop well tested modular solutions that could be re-deployed according to the project's particular requirements."

Gerry Palmer

Converteam Software Section Leader
PC Products & Tools

ICONICS Software Deployed

ICONICS' GENESIS32 is the standard HMI for Converteam's C-Series Vessel Control System. This decision was made by comparison of several other HMI systems that failed in key areas of extensibility, modularity, flexibility and connectivity.

Key Features

In marine and offshore applications (both commercial and naval), HMI faces unique issues. HMI displays located on the bridge must comply with standards and regulations concerning night vision and other safety measures. Aboard ships where Converteam's C-Series VCS is implemented, ICONICS' GENESIS32 screens have three modes to enable the bridge crew better external observation: one for daylight, one for dusk and dawn, and one for night. GENESIS32 screens further

ensure safety and convenience with touch-screen drivers and oversized symbols for “finger-sized” use.

Project Summary

Converteam has special and proven systems for all aspects of data acquisition and control in the offshore environment. Systems are integrated with control rooms and the ship’s bridge according to their functionality. All HMI communication is executed through OPC links to an OPC Server. ICONICS’ GENESIS32 receives all information through this server and commands are issued in a similar manner.

regulations surrounding the use of software control on vessels include a requirement that displays must appear on request, within two seconds. ICONICS and Converteam easily comply with this requirement.

Benefits of the System

The recently completed LNG fleet for a major UK energy company used a large control and monitoring system with over 750k HMI tags, 220k of alarms & events and 5,600 system I/Os. The modularity within GENESIS32™ allows for proven control objects to be deployed to reduce engineering time and greatly



Dusk View



Night View

The integrity of ship control is very high, thus all commands issued through the screens are acknowledged and fed back to the display for operator confirmation to ensure that a command has been executed properly.

Alarms and trending, important to ship operation, are available at any time to be displayed and zoomed in on to provide detail for problem diagnosis and fault avoidance. Additionally, alarms and other data are stored historically in separate databases providing complete audit-trails of actions. Data historian workstations, where a PC provides black box logging, can record Vessel Control System, Dynamic Positioning signal parameters and Alarms/Events for long periods of time.

ICONICS-powered workstation displays are found in many areas of the ship’s systems, especially on the bridge where Dynamic Positioning is used. The standards and

improve project development quality, with fewer errors, delivering benefits in testing and commissioning. After only three days of training, an experienced control engineer became sufficiently conversant with GENESIS32. The availability of complete information behind each screen symbol allows instant access to all information at any point in the development and integration process.

Conclusion

ICONICS’ GENESIS32 is the long-term solution for the LNG fleet with a 25-year projected working life. This includes provisions for backwards compatibility, upgrades, portability and other whole-life cost issues. ICONICS is on board with meeting the specialized needs of Converteam’s marine and offshore clients.



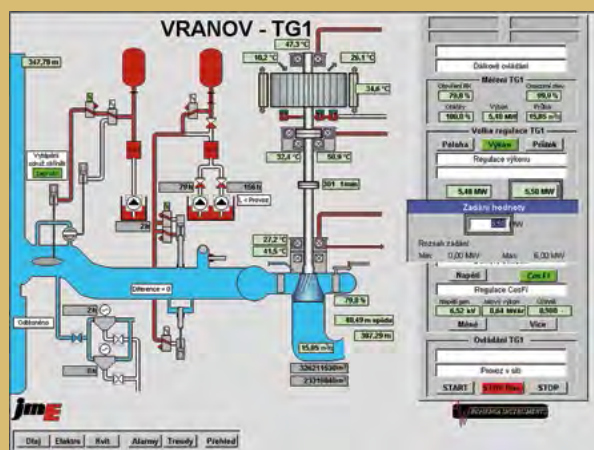
E.ON Trend s.r.o.

České Budějovice, Czech Republic

e-on



Hydro Turbines
E.ON Hydro Power Station



Turbine Monitoring Screen at E.ON

About E.ON Trend s.r.o.

As a world-wide power and gas company, E.ON is based in Germany with subsidiaries throughout Europe, Russia and North America.

Within E.ON's energy group in the Czech Republic, E.ON Trend s.r.o. is responsible for electricity generation and heat production and distribution mainly for households.

ICONICS provides a visualization and automation solution to six of E.ON's hydro-powered electrical plants in the Czech Republic. With a total output of 30 MW, the hydro power stations are monitored and controlled by a central control station up to 100km away.

"This application using GENESIS32™ and integrated by Bohemia Instruments created the ability to centrally control our hydro-powered electrical plants, and made production planning and historical data archiving very easy. The new system will reduce the service calls to remote locations, thereby reducing our operating cost."

Stanislav Cupr

Manager of Water Hydro Operating Controls
E.ON Trend s.r.o.

ICONICS Software Deployed

GENESIS32™ V9 is used in a redundant fashion with multiple operator stations. AlarmWorX™32, GraphWorX™32, TrendWorX™32, ScriptWorX™32, and DataWorX™32 are all used to bring this application together.

E.ON management takes advantage of native remote access via WebHMI™. The SOAP/XML communication protocol was used to meet E.ON's strict IT security policies.

Bohemia Instruments a.s., later Invelt - elektro s.r.o., in Plzen, Czech Republic, were the system integrators at the helm in getting the E.ON project up and running. Invelt integrated the remote plants and brought all data to one central command center in only six months time.

Key Features

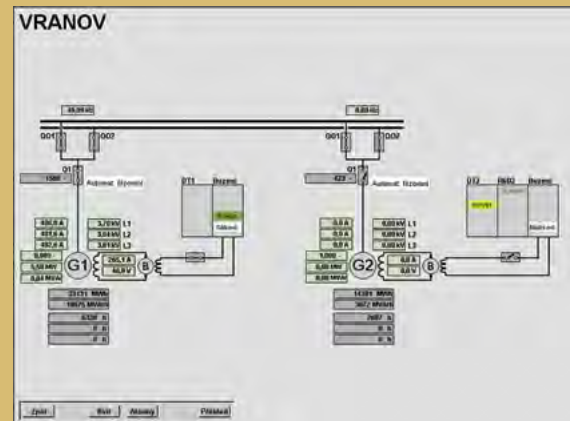
Data is communicated to the central command center via E.ON's optical network. GENESIS32 works as a data acquisition and logger for all turbines. At the core of the system, two GENESIS32 servers work redundantly with DataWorX32. OPC servers are used for gathering the data from SAIA PLCs. GENESIS32 is responsible for the monitoring, alarming and supervisory control for over 5,000 analog and digital points. The custom graphic screens allow operators to monitor all locations and drill into problems requiring attention quickly and

redundancy, real-time alarm notification and superior graphics. E.ON had a need to centrally monitor and control their remote hydro power plants, and also be able to bring all power generation together.

With over 5,000 I/O points monitored and logged from multiple locations, GENESIS32 is the perfect fit. E.ON's output is 30 MW spread over the remote hydro plants throughout the Czech Republic. All turbines are monitored and controlled from the central command center, and data is logged in real time and passed to the central command center.



An E.ON Hydroelectric Power Plant



GraphWorX32 Screen for Planning E.ON's Energy Production

easily. Alarms can be acknowledged and logged, and set-point changes can be made in a secure and accurate manner. The command center was designed with four GENESIS32 operator stations connected to the pair of redundant GENESIS32 application servers.

Project Summary

DataWorX32 plays a critical role in this application by providing real-time OPC redundancy to keep E.ON power plants up and running. ICONICS was selected for this project due to its ability to provide this needed level of redundancy. When E.ON was looking for a solution to replace the Promotic Microsys system, their requirements were data

Conclusion

ICONICS and Invelt have worked closely with E.ON to make this project a success. E.ON realized savings with the ability to react to potential problems in real-time. With ICONICS, E.ON reduces their trips to remote generation plants, and is enabled by centralized data collection.

Solutions Highlighted

GENESIS32

Web-Based HMI/SCADA Visualization

TrendWorX32

Data Logging, Charting and Reporting Software





Microgy's Digester Equipment

Environmental Power Corporation (Microgy) United States



Microgy's Huckabay Ridge Facility in Texas

About Microgy

Microgy, a subsidiary of Environmental Power Corporation, develops facilities to efficiently and reliably produce clean, renewable gas from agriculture and food industry wastes. Through anaerobic digestion, where methane-rich biogas is extracted from waste to produce electric power, Microgy helps farms and businesses responsibly manage the wastes they generate. Biogas production through manure digester technology not only renders fuel used in a variety of applications; it reduces manure odor and creates significant quantities of marketable carbon credits. Biogas is utilized in internal combustion engines to generate electric power and heat, used as-is to offset fossil fuels, or is captured and further refined to pipeline quality Renewable Natural Gas. Considered “car-

“ICONICS WebHMI™ provided a tangible, competitive advantage due to its efficient use of bandwidth. Efficient data transfer was critical as the sites were located in remote areas only accessible via satellite technology.”

Michael Norman
Operations Manager
Wunderlich-Malec Engineering

bon neutral,” RNG® is purchased by customers to address various renewable energy portfolio requirements and reduce carbon emissions.

Since 1982, Environmental Power Corporation has contributed to environmentally responsible energy operations, owning and operating hydroelectric plants, municipal waste projects, coal-fired generating facilities, clean gas generation and energy recovery facilities.

ICONICS Software Deployed

GENESIS32™, along with GraphWorX™, TrendWorX™, AlarmWorX™ are used to monitor and control systems at Microgy's facilities. AlarmWorX MMX provides paging for alarms. At Microgy's corporate level, ICONICS' WebHMI™ provides internal access and visibility to all sites.

Project Summary

ICONICS automation solutions are applied in four of Microgy's renewable energy facilities throughout

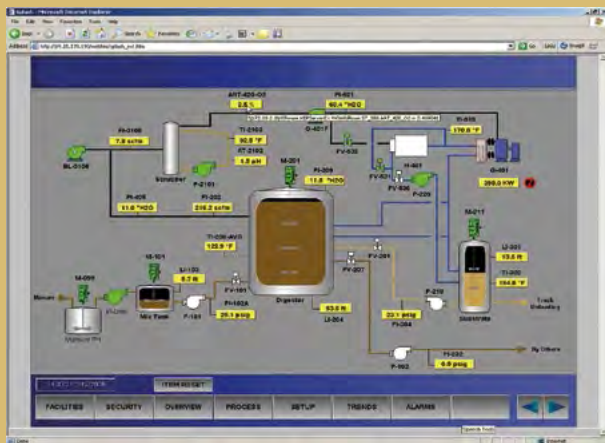
the United States' Western and Midwestern regions: Five Star Dairy and Wild Rose Dairy in Wisconsin, Norswiss Dairy in South Dakota, and Huckabay Ridge in Texas. For Microgy's biggest facility, targeted production is enough RNG to heat over 13,500 homes annually.

A typical Microgy facility is comprised of a manure mix tank, digester vessel, substrate tank, biogas-fired boiler, an internal combustion engine and electric generator that is enclosed in a noise attenuating building, and a small utility substation that steps-up the electricity generated to the same voltage level

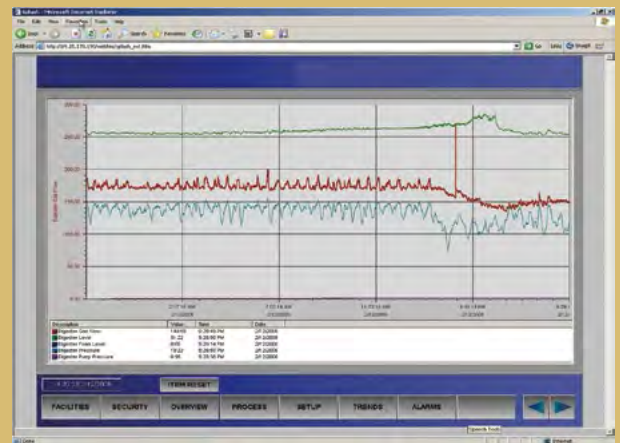
Benefits of the System

Visualization solutions for Microgy's sites required satellite connectivity due to limited Internet access in remote locations. ICONICS' efficient transfer of data was appealing for this reason. When Microgy's sites migrated from satellite to DSL and cable, the switch-over proved to be simple and successful.

Apart from the complete visualization and automation solution, ICONICS provides connection of remote locations to a centralized, corporate location. Complete batch-transfers and access to data is available at the corporate level, allowing decision-makers key insight.



Production Display



Trending for a Microgy Facility

as the existing electric distribution lines the facility connects to.

Over the course of three months per facility, Wunderlich-Malec Engineering integrated ICONICS' monitoring and control systems. Wunderlich-Malec's control design from the instrument level combined with ICONICS software provides Microgy with real-time monitoring and control, on a 24-hour basis with historical data collection. The control system is designed to provide automatic operation of all systems components with built-in fail to safe modes in the event of an upset.

Data is conveyed from remote locations to a corporate location in Tarrytown, New York via WebHMI, providing data collection, batch-transfer, and trending from all sites.

Conclusion

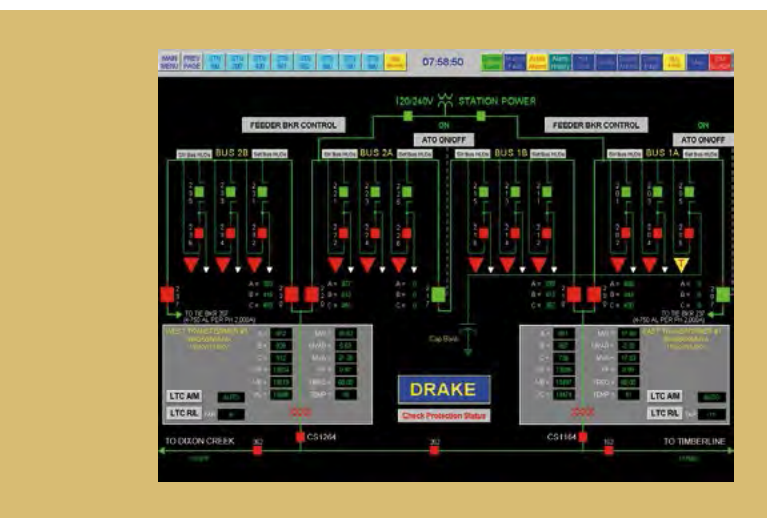
ICONICS and Wunderlich-Malec Engineering have worked to provide Microgy with a complete visualization and automation solution. Enabling Microgy's novel digestion technology assists with animal waste management and generates environmentally responsible energy.



Fort Collins Utilities
Monitored Substation

Fort Collins Utilities

Fort Collins, Colorado



Substation Monitoring and Control

About Fort Collins Utilities

Fort Collins, Colorado, located 60 miles north of Denver, is a town of approximately 130,000 residents and is home to Colorado State University. Money magazine named the town the “Best Place to Live” in 2006. The town’s electric utility currently serves over 65,000 customers over a 22 square mile service territory. Its five substations have a combined transformer capacity of 600 MVA.

ICONICS Software Deployed

Fort Collins Utilities - Light & Power selected ICONICS GENESIS32™ OPC Web-enabled HMI/SCADA suite during recent system upgrades.

Project Summary

Fort Collins Light & Power had a number of specific goals in mind before upgrading its SCADA system. The SCADA software itself needed to support five substations and 2,600 data and control points using OPC communications standards. The HMI would need to interface with multiple applications including system power quality and security, to name a few. Fort Collins also planned to establish a dedicated GIG Ethernet fiber loop to each of its substations, as well as to the utility’s Drake Water Reclamation Facility, to provide a high-speed secure data highway for SCADA and future applications such as distribution automation.

The utility also planned upgrades to all substation remote terminal units (RTUs) and power quality meters (involving both hardware and software). Ethernet communications were to be established to all substation devices via TCP/IP, thereby eliminating outdated modem technology, and all SCADA and fiber equipment were to be connected to uninterrupted power supplies. Once the new system was up in running, it would be run in parallel with the old system during 1000 hour acceptance testing. The new system would also share some aspects of the older one so as to minimize in-house training time and costs.

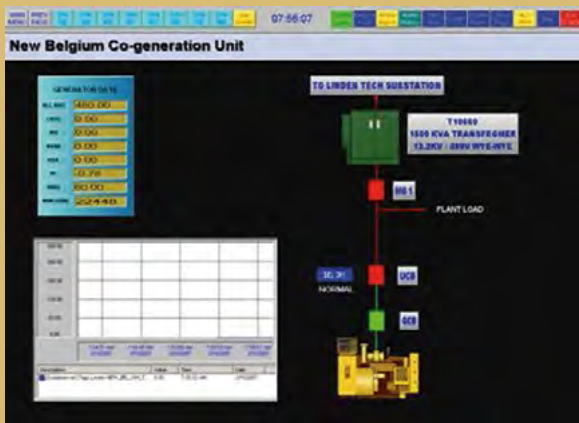
Fort Collins Light & Power required software that they would be able to test before making any purchase decision and that wouldn’t require any proprietary custom software drivers or protocols. They had decided to move to the OPC standard to provide

for an easily scalable, proven client/server architecture that can interface to a wide range of intelligent electronic devices, RTUs, PLCs, cameras, etc. An additional requirement was ODBC connectivity to the company's multiple databases, including Microsoft Access, SQL Server and Oracle. The utility's selected HMI component would be counted on to support full graphical automation with instant Edit/Runtime functionality and robust graphical editing, alarm management, trending and data historian abilities.

Benefits of the System

Fort Collins Light & Power saw multiple advantages in upgrading to ICONICS' OPC-based GENESIS32 HMI/SCADA suite, including:

- An HMI solution that can handle multiple uses
- Standard industry OPC architecture, which allows for vendor independent alarm servers, trending, data historians and HMIs
- Flexibility to communicate via multiple protocols using OPC servers



Co-generation Monitoring



Power Quality Event Reporting

Currently, Fort Collins Light & Power utilizes ICONICS' GENESIS32 HMI/SCADA suite to enforce a manual load shedding requirement, allowing the utility to select feeders rather than the G&T utility tripping substation transformers. The new system is also used in proactive power quality event/system disturbance notification via paging or other system alarms. Substation data, controls, security alarms, reference materials and cameras were all incorporated into the single HMI/SCADA solution.

- Capability to easily add functionality
- Scalability from small to large point counts

Conclusion

The total cost over time of Fort Collins Light & Power's most recent SCADA system upgrade, which includes ICONICS industrial automation software as well as related hardware, training and development, is comparatively low compared to systems installed in 1979 (later upgraded in 1986) and 1998. ICONICS solutions have proven to be a powerful asset for this utility customer.



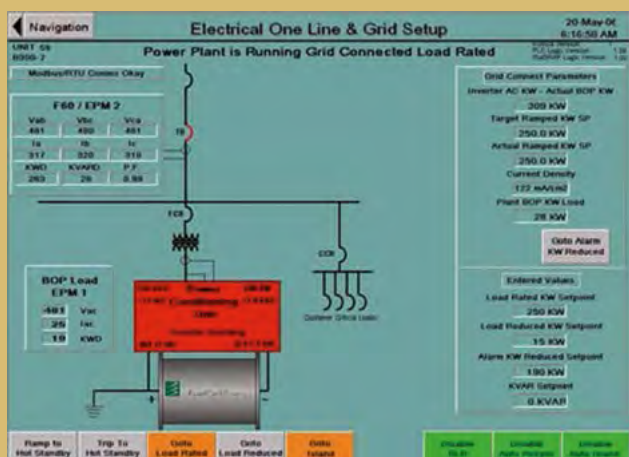
FuelCell Energy, Inc.

Danbury, CT



FuelCell Energy
Ultra-Clean, Efficient, Reliable Power

FuelCell Energy DFC 300s on a San Diego, CA Tennis Court



FuelCell Line and Grid Setup Screen

About FuelCell Energy

FuelCell Energy, Inc. is a world leader in the development and manufacturing of high temperature hydrogen fuel cells for ultra-clean electric power generation. The company's patented Direct FuelCell® (DFC®) technology combines high efficiency, ultra-low emissions, simplicity and economical cost for stationary power generation. Their products range in size from 250 kilowatts (kW) to 2.4 megawatts (MW), and are designed for a wide range of customers, including hospitals, universities, hotels, utilities, and wastewater treatment facilities. The company is also developing next generation high temperature fuel cell products, such as a diesel fueled marine Ship Service Fuel Cell, combined-cycle DFC/Turbine and DFC-ERG™ power plants, and next generation solid oxide fuel cells.

ICONICS Software Deployed

FuelCell Energy, Inc. uses multiple ICONICS solutions in the monitoring and control of their fuel cell products, specifically GENESIS32™ Enterprise Edition HMI/SCADA application; WebHMI™ Web-based, real-time automation software; and the AlarmWorX™32 distributed enterprise-wide alarm and events management system.

Project Summary

FuelCell Energy required a "robust, secure Human Machine Interface" to monitor and allow remote control of the company's power plants as stand-alone systems. They initially worked with a system integrator partner, then customized their resulting solution before finalizing project development on their own.

The current system is comprised of approximately 20 screens for rich, graphical representation of FuelCell Energy's processes (e.g., trending, alarms and historical alarms).

Benefits of the System

ICONICS' GENESIS32 system has provided FuelCell Energy with sought-after alarm management and online functionality. Operators can now be alerted during alarm/event conditions for immediate acknowledgement and action. The Web-enabled HMI fosters ease of use and remote monitoring/control throughout the company.

A further benefit is the ICONICS suite's seamless integration into FuelCell Energy's existing operating

systems (Windows 2000/XP Professional), with features such as data logging into Microsoft SQL Server and MSDE. In addition, the company's GE Fanuc 90-30 controllers are able to communicate directly to GENESIS32 via Kepware OPC servers.

The combination of ICONICS solutions (GENESIS32, WebHMI, and AlarmWorX32) delivers the easy-to-use HMI, Web-based remote access, and alarm/event management that the energy system manufacturer required for remote monitoring/control of its power plants as "standalone" systems.

Solutions Highlighted



WebHMI

Web-Based Real-Time Automation Software

AlarmWorX

Multimedia OPC Alarm Management Software



A DFC300 Installation in Downtown Manhattan



HMI in Action at a FuelCell Energy Inc. Manufacturing Facility

Conclusion

FuelCell Energy has been a satisfied ICONICS customer for over two years, having evaluated GENESIS32, AlarmWorX32, GraphWorX32, and TrendWorX32 as well as additional OPC and WebHMI features in real world applications. They've found that ICONICS is an easy to implement and reliable OPC Web-enabled HMI/SCADA package to use, compared with legacy offerings. The firm plans to continue to employ ICONICS tools for its product line.

Case Study Details



In creating their HMI, FuelCell Energy had specific guidelines and requirements, including:

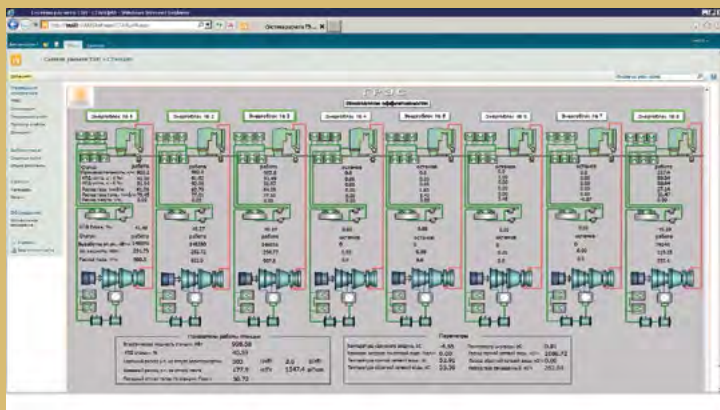
- Secure remote connectivity
- Robust system reliability
- Easy maintenance/troubleshooting
- A rich GUI with advanced features
- OPC-based communications
- Standard VBA scripting



Map of Central Russia

Global Energy Generation Firm Central Russia

GEGF



Overview HMI Screen

About this Global Energy Generation Firm

A recent customer of ICONICS is a large energy generation firm comprised of a network of plants located throughout Central Russia. The largest of the sites is a 2500MW facility that is fueled by a combination of natural gas and fuel oil and consists of four thermal power plants. This location has now been optimized via ICONICS technology.

ICONICS Software Deployed

The Russian energy firm, working with system integrator, RVS, selected ICONICS GENESIS64™ HMI/SCADA, Hyper Historian™ data historian and BizViz™ manufacturing intelligence (including PortalWorX™ real-time collaboration and visualization dashboard and

"The use of ICONICS software to calculate excessive fuel consumption, coupled with its presentation of current engineering and economical performance analyses (technical process rates) allows us to identify and determine the reserves of increasing a thermal power plant's efficiency. In the final analysis, this allow thermal power plant owners to optimize their production capacity in order to be competitive in the electricity market, as well as increase energy company profits in general."

ReportWorX™ enterprise reporting, charting and analysis) software.

Project Summary

The large-scale Russian energy provider has had basic direct digital control (DDC) for many years. Working with its system integrator, RVS, the firm initiated a major optimization effort, with a preference towards utilizing the latest software technology while simultaneously ensuring integration with a wide variety of data sources. The firm sought a solution that could handle the data from four thermal power plant (TPP) production branches (each with approximately 5,000 I/O points) as well as from its executive office.

An additional major need of the plant was to provide a uniform, insightful user interface to all operations and levels of management. The company required dashboards that could provide needed insight in order to

drive immediate improvement actions. The site also sought a major upgrade in its reporting capabilities. Prior to considering this upgrade, a legacy data historian from OSI PI provided limited visualization and report capability, but could not provide the depth of information available.

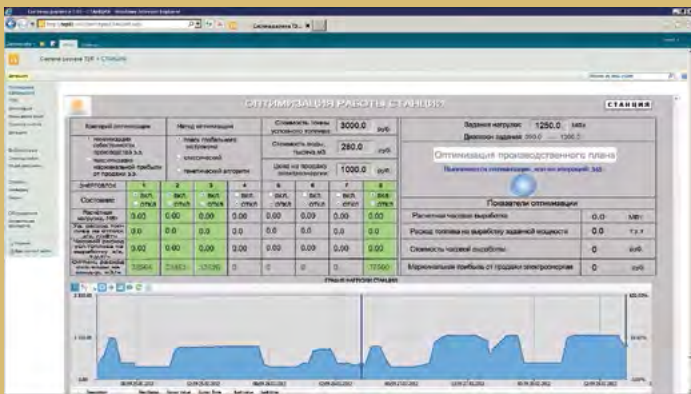
Benefits of the System

Since ICONICS GENESIS64 was selected as its preferred automation software platform, the plant has been able to integrate real-time plant data, legacy historical data, newly recorded data (utilizing

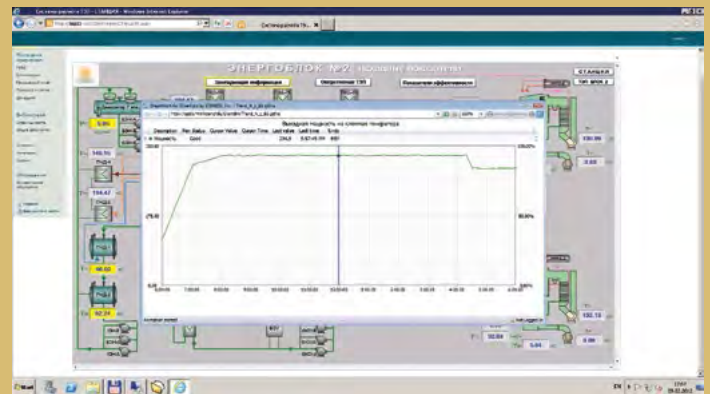
as plant revenue and profit reports.

GENESIS64 provides the Russian energy firm with state-of-the-art process graphics, monitoring and control interfaces needed for uniform operation. Utilizing the extensive array of data sources that can be compiled by the GENESIS64 platform, the energy producer's new automation system is able to produce operational guidance that includes:

- Proposed optimum sequencing of generators and support equipment to achieve planned load dispatch schedules



Main Dashboard



Trending Screen

ICONICS' powerful Hyper Historian data historian), data from various business systems, and simulation and forecast data generated by MathWorks MatLab® simulation programs.

The need for insightful, intuitive user interfaces was fulfilled via GENESIS64's GraphWorX64™ and TrendWorX64™ components and PortalWorX™ real-time collaborative visualization tools, which helped to create powerful Microsoft SharePoint®-integrated operations dashboards. These solutions help to ensure the delivery of needed information to each role within the organization, supporting necessary decision-making in order to optimize operations. Also, the firm's requirement for enhanced reporting has been accomplished by ReportWorX, which delivers operational reports as well

- Proposed optimum fuel consumption based on current and forecasted fuel costs
- Proposed optimum use and maintenance schedules of all equipment based on daily or monthly forecasts of dispatch demand, due to forecasted weather, forecasted local industrial production, and/or historical demand. ICONICS software allows the firm to use 'current runtime' and other equipment health data and asset reference data to predict uptime and schedule required downtimes
- Continuous transparency of planned, actual and normative power production of each generating unit and of the plant as a whole

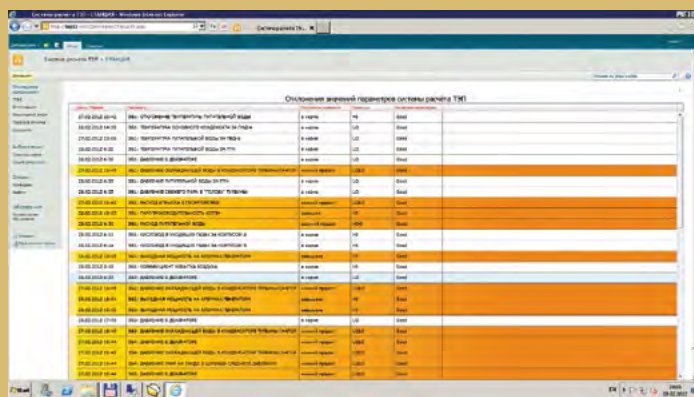
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- Achieved and Forecasted Next Day, Week and Month plant revenue and profit margin based on all cost factors and spot and projected electricity prices

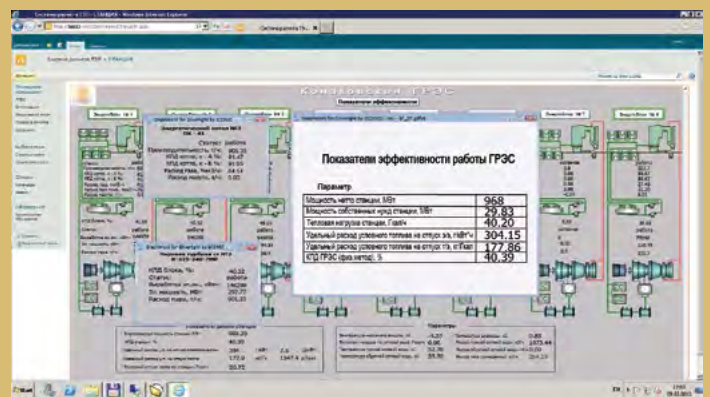
Management at the energy firm notes that the system has increased the ability to better observe processes as well as increased transparency in both operations, and revenue/profit information (both original, estimated and forecasted operational and economic indicators). Operational staff now conduct processes more efficiently due to the introduction of incentive schemes based on

Conclusion

ICONICS GENESIS64, Hyper Historian, BizViz and their components have helped this Russian energy provider transition to cutting edge technology that allows them to build upon their legacy infrastructure and integrate with diverse data sources, thereby ensuring operational integrity.



Alarm Management Screen



Drill-down Information

operational and economic performance calculated in real time.

Additional results include:

- Short and long-term optimization (setting the optimum choice of equipment and load allocation, economic dispatch and unit commitment)
- Optimized operation of heat stations (which helps maximize profit margin)
- Operating and economic performance prediction calculation
- Calculation of the optimal flow rate of circulating water to the condenser (which helps to reduce environmental costs).

About RVS

RVS is an engineering company that implements multi-purpose projects aimed at enhancing energy infrastructure efficiency across an enterprise, including processes involving production, transfer, distribution and consumption of energy resources. The company's involvement encompasses the complete project cycle, from analysis and design to technical support of the implemented solutions. RVS provides a complete suite of innovative solutions required for the efficient operation of power facilities including automation systems, the reconstruction of power sites, the increase of energy efficiency and service maintenance of installed systems.

Introducing the best engineering solutions, we raise our customer's profitability and increase the efficiency of natural resources and energy use.



R.V.S. Company
Varshavskoe Shosse, 25A, Build 6
Moscow, Russia, 117105

Office: +7(495)797-9692
Fax: +7(495)797-9693

mail@rvsco.ru
www.rvsco.ru



Manage, Monitor and Control Your Operations Efficiently from One Location

ICONICS software connects to all disparate assets, satellite and remote sites with secure and reliable networking technology and standards-based OPC connectivity. Analyze your energy consumption and production, access data and create reports to effortlessly meet regulatory requirements of federal and local governments. GEO SCADA also provides the ability to view your entire grid, while instant alerts help you effectively manage your alarms.





*The Shores of Isle of Man
United Kingdom*

Manx Electricity Authority

Isle of Man, United Kingdom



Pulrose Power Station

About Manx Electricity Authority

The Manx Electricity Authority (MEA) in the United Kingdom is responsible for the generation of electricity, controlled from multi-plant facilities, across the Isle of Man. The MEA is also responsible for ensuring full commercial potential of the UK-IOM (Isle of Man) subsea power cable. One of the difficulties faced by the MEA was they found themselves with a proliferation of different SCADA systems. Each operated uniquely; which made it very time constraining and costly to train operators and keep them updated on system changes. Wanting to streamline their efforts, the MEA decided it was time to look for an integrated enterprise-level SCADA solution.

The Manx Electricity Authority decided to turn to ICONICS for a solution after careful evaluation. Mike

Newby, Plant Engineering Manager for the MEA stated, “After interviewing a number of independent systems integrators, we decided to utilize ICONICS as the solution provider. We determined that, although not necessarily cheaper, the services that ICONICS could provide would be more consistent and would best use the features available in the GENESIS32™ product.”

ICONICS Software Deployed

Manx Electricity implemented ICONICS GENESIS32, ICONICS GenBroker™ technology, DataWorX™32, GraphWorX™32 and MobileHMI™ to work towards a solution.

Project Summary

As part of this integration, a design project was kicked off as a pre-requisite to the implementation which aimed to define a set of display templates and common symbols. This requirement meant that the integration team would have to gain a deep understanding of the operations of all the underlying SCADA applications and create a unified set of symbols that would allow the operators to understand and control all of the plant through a single and consistent user interface.

The implementation began by using ICONICS GENESIS32 software to host a pair of redundant servers at each of the key sites. ICONICS software provided a consistent and uniform interface that could be spread across three monitors allowing a single operator, in one control workstation, to manage and control the entire island's generating capacity. ICONICS GenBroker-technology allowed the MEA

to set up a remote connection to the Isle of Man from ICONICS' offices in Dudley to test the installation, ensuring zero lag time in program commencement. This allowed the project team to test the symbols and displays in real time without having to make many costly trips to the MEA. This strategy meant that the on-site commissioning and testing time of the project was greatly reduced since the majority of the data was pre-tested. ICONICS DataWorX was used as an intermediate layer for the SCADA and provided the translation logic between the various underlying control systems and visualization. In all,

Benefits of the System

With power stations located at Peel, Pulrose, and Ramsey, and with critical gas infrastructures located at Glen Mooar with a variety of DCS and PLC-based control systems, the MEA decided to look for an integrated enterprise-level SCADA solution with the following requirements:

- Integration of MEA's entire key infrastructure across multiple sites
- Easy expansion for future capacity
- A seamless switchover with parallel running capability of the old SCADA applications as a backup



An Operator at the Multi-monitor Control Station



Glen Mooar

the solution currently contains 75,000 data points across the island and is capable of scaling way beyond this in the future.

A new addition to the Manx Electricity Authority story is how the implementation of ICONICS MobileHMI drastically enhanced their plant manageability. MobileHMI is a Windows Phone application that pairs with ICONICS GraphWorX32 to monitor plant outputs and alarms. Once alarms are set based on selected data points, MobileHMI can send push notifications to the operator's Windows Phone in the form of an SMS or text message with details on particular asset levels, alarm severity, and other vital information. This new technology allows operators to monitor plants remotely while still receiving vital operational details.

- Commissioning and testing completed during the annual plant shutdown week before the Manx TT road races

Conclusion

Using ICONICS software, the MEA was able to sync their SCADA applications in such a way that they were able to function under one system and remotely monitor facilities while still being in touch with real-time data and alarms. The success of this project is highlighted by Mike Newby, who said "We have no hesitation at all in recommending ICONICS to anyone looking for a well-designed SCADA package built upon a world-class software platform and delivered by competent and friendly engineers."

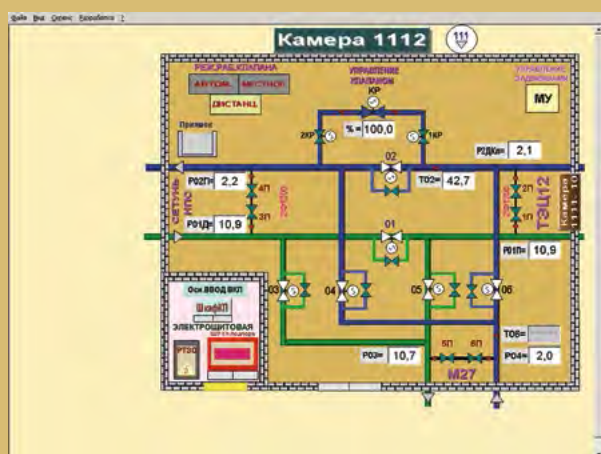


Mosenergo Heating and Pipeline

Moscow, Russia



Main Plant at Mosenergo Heating and Pipeline
Moscow, Russia



Mosenergo Pipeline Monitoring/Control Screen

About Mosenergo Heating and Pipeline

The Mosenergo Heating and Pipeline Network in Moscow, Russia distributes hot water to 99 percent of all the buildings in Moscow for heating.

ICONICS Software Deployed

The entire network has 12 regional dispatch centers and over ten heating plants, pump stations and local facilities that are monitored and controlled by ICONICS GENESIS32™ and ICONICS OPC Servers. The ICONICS Modbus Ethernet OPC Server and a custom OPC Server built with the ICONICS OPC ToolWorX™ toolkit are used to gather information from this 5,000-tag distributed application. The PLCs include DEP, TM120, Motorola MOSCAD and H&B Freelance 2000.

Key Features

The main challenge for this 24/7/365 application was to deliver thousands of real-time parameters to operators and for operator commands to be delivered back down to the PLCs in a few seconds. This is where the ICONICS OPC servers come into play. Using the standard ICONICS Modbus OPC Server and a custom OPC Server built by the ICONICS OPC ToolWorX toolkit, operators are able to monitor and control the entire system from one central command center.

Tip From the Customer

The GENESIS32 system from ICONICS gives Mosenergo Heating and Pipeline total control and supervision over all the plants and pipelines from one control room.

Project Summary

Mosenergo had previously tried to develop an in-house system to monitor and control the pipeline heating network. However, the ICONICS OPC-To-The-Core™ suite of solutions made this application a reality in just a few short months of integration. The system allows total supervisory control from one central command center and keeps Moscow warm. The power of ICONICS WebHMI™ also made an impact on the selection process. Other HMI/SCADA applications were considered before a final selection was made. After a rigorous selection process Mosenergo Heating and Pipeline selected GENESIS32 from ICONICS.

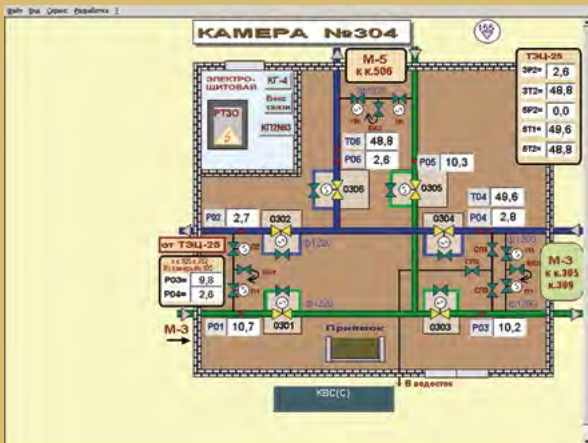
Benefits of the System

The built-in Alias feature in GENESIS32 allowed Mosenergo Heating and Pipeline to use one HMI screen or graphic file to feed over 50 different screens. The Global Search and Replace feature allowed the engineers to update hundreds of graphic files automatically. The VBA Scripting Engine in GENESIS32 also saved time, since many Mosenergo Heating and Pipeline engineers were familiar with this user-friendly scripting language.

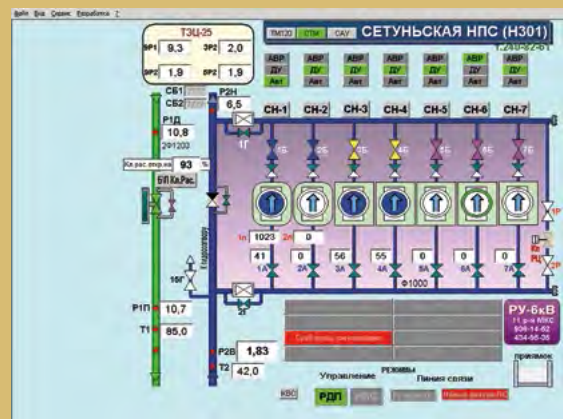
Case Study Details

Key facts about Mosenergo Heating and Pipeline:

- Distributes hot water to 99 percent of all buildings in Moscow
- 12 regional dispatch centers
- 10 heating plants, pump stations and facilities monitored and controlled by ICONICS



Overview Screen at Mosenergo Heating and Pipeline



Heating Control Screen

Conclusion

ICONICS and Mosenergo Heating and Pipeline have worked closely to make this project a success. Mosenergo was able to quickly see the savings, and is able to react to potential problems in real time. Mosenergo participates in the ICONICS SupportWorX™ maintenance program to keep its software updated and for access to ICONICS technical support personnel as needed. Future expansion includes adding more clients as well as adding more Manufacturing Intelligence applications based on ICONICS' BizViz™ suite.

Solutions Highlighted

GENESIS32

Web-Based HMI/SCADA Visualization

OPC ToolWorX

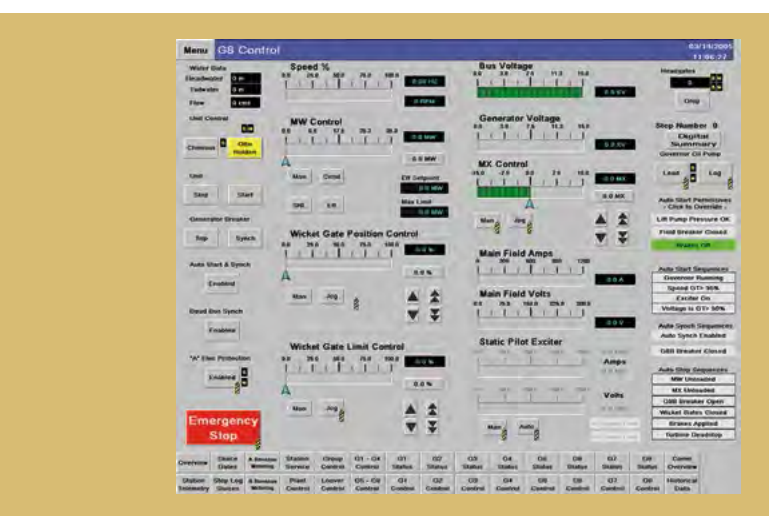
Rapid Development OPC toolkit



Ontario Power / Hemi Controls Ontario, Canada



Power Generation Facilities
Ontario, Canada



Hemi Controls Control Screen

About Ontario Power/Hemi Controls

This large utility plans to upgrade its generating stations over the next few years. They selected Alstom Canada as the supplier for the modernization of this generating station. Alstom teamed with Hemi Controls Inc., a system integrator in Montreal, Quebec, to develop this large and modern control application. Hemi Controls Inc. is a systems integrator, which focuses on providing unique turnkey applications using primarily GENESIS32™ for its HMI/SCADA applications. Some of its latest projects have been in the hydroelectric generation area where Hemi's unique approaches are being used by international companies such as Alstom to provide integrated SCADA applications.

ICONICS Software Deployed

The software is comprised of GraphWorX™32, AlarmWorX™32, TrendWorX™32 MSDE, ScriptWorX™32, OPC Datamining, and Modbus OPC to communicate with the 12 Modicon PLCs in the generating station. Supervision and operations of thousands of points at the central computer is made simple with two large flat panel screens.

Project Summary

The generating station being modernized has a production capacity of 240MW. The system is comprised of one main computer supervising 8 generators including plant services equipment. There are 10 local control stations one for each unit, running on industrial type computers deployed with GENESIS32. Sales and support of these projects have been supplied by West Isle Industries Ltd, serving ICONICS customers for the past 15 years.

Project Summary

Because of the unique requirements for this project, the new OPC driver for "data mining" in the Unified Tag Browser within GENESIS32 (which allows database write and read connections using standard SCADA graphics to a Microsoft database) is being used extensively in this application providing unique possibilities in the access to information throughout the generating station and also from remote sites. The control systems for this generating station are provided by Hemi Controls with some of its unique control software for hydroelectric generating sta-

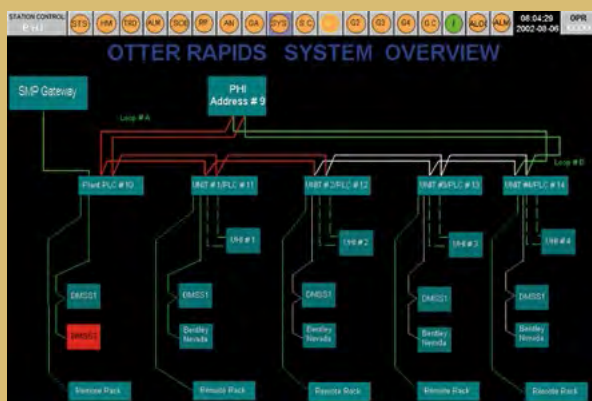
tions and generator simulation software, which are used for detailed testing and system acceptance.

Key Features

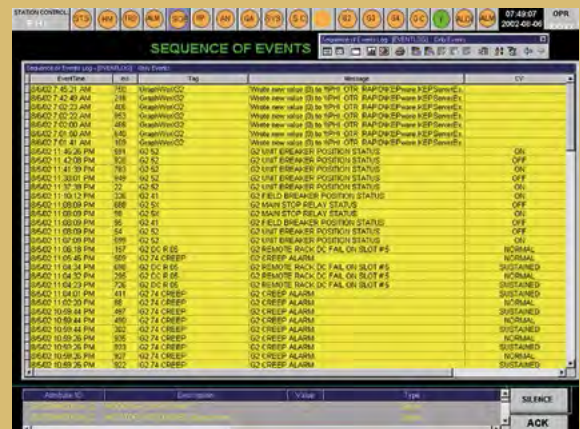
- OPC Connectivity
- Data Mining
- GENESIS32 Unified Tag Browser
- Easy to Configure Graphics
- Robust Alarming and Trending

Conclusion

GENESIS32 has also been selected for implementation of a main control center for Ontario Power Generation and will be installed in another 13 hydroelectric generating stations with a production capacity of 1,266MWs over the next few years.



System Overview Screen by Hemi Controls



Event Summary Screen

Case Study Details

The generation station being modernized has:

- A production capacity of 240 megawatts
- 8 generators
- 10 local control stations

Ontario Power is one of North America's largest power generators, and in 2008, produced 70 percent of the electricity consumed in Ontario.

Solutions Highlighted

GraphWorX

HMI Graphical Display Package

AlarmWorX

Multimedia OPC Alarm Management Software

ScriptWorX

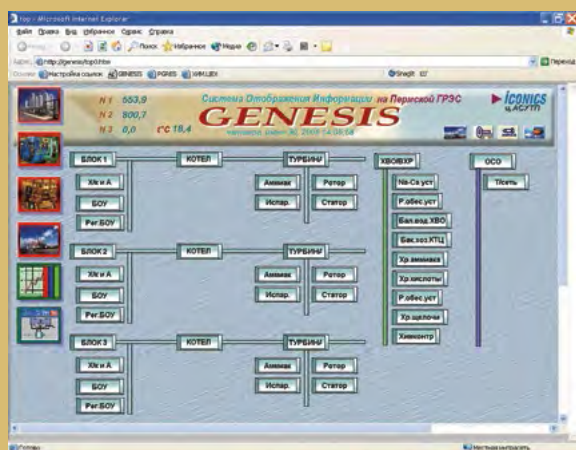
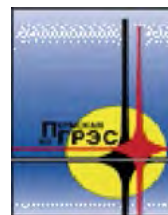
Creation and Management of VBA Scripts for Applications

Permskaya Gres

Dobryanka, Russia



Permskaya Gres Power Plant
Dobryanka, Russia



Overview Screen at Permskaya Gres

About Permskaya Gres

The revised Permskaya Gres thermal electric power plant was built and put into operation in 1986, 1987 and 1990 with three 800-megawatt power units. The station burns gas for fuel. Since it went into operation, Permskaya Gres has produced 112,000 million kilowatts of electricity. At times, its annual output reaches 14,000 million kilowatt-hours. The station produces and delivers electricity to the federal (all-Russian) wholesale electric power market. The thermal energy it produces is delivered to consumers in the town of Dobryanka.

ICONICS Software Deployed

GENESIS32™ Enterprise, WebHMI™ and DataWorX™32 are used throughout the plant. The

GENESIS32 Enterprise system is monitoring and controlling over 11,000 OPC tags. DataWorX™32 is aggregating the data from 3 different OPC servers and delivering the data in real time to the ICONICS TrendWorX™32 and AlarmWorX™32 modules of GENESIS32.

WebHMI™ from ICONICS also plays a critical role in the application. There are several remote monitoring stations in building 500-700 meters apart and WebHMI is used to allow the remote secure access. The list of WebHMI users range from senior machine operators in the power generating units to shift supervisors, department chiefs and engineers performing research in the laboratories.

Project Summary

The goals of the project are to increase the control efficiency and capacity for all power stations. Permskaya Gres calls this project “Planned Capacity Trend functionality”. The main purpose of the application is to provide information from different power generating control systems and delivering the information in real time to remote users.

Project Summary

The first sub-system is monitoring signal system circuits and trends of chemically clean water treatment from all power generating units that are producing thermal electric power. The second sub-system is monitoring the planned capacity and working capacity of all power generating units. In total, there are 15 nodes running a blend of Windows Server 2000

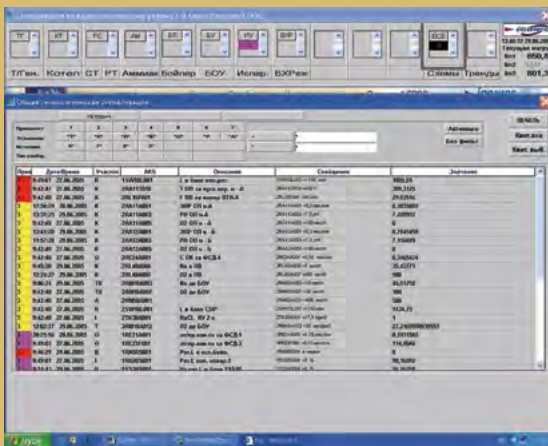
and Windows XP and storing information data to INFORMIX and Microsoft SQL Server.

The OPC server used is called UNIOPC from Fastwell. There are several different information systems where data is coming from for this project. The systems work independently, have different hardware and software platforms and are placed far from each other. The challenge was to synchronize all this real-time OPC information. DataWorX32's from ICONICS with built in OPC Data Bridging, Aggregation and Redundancy delivered the robust functionality desired.

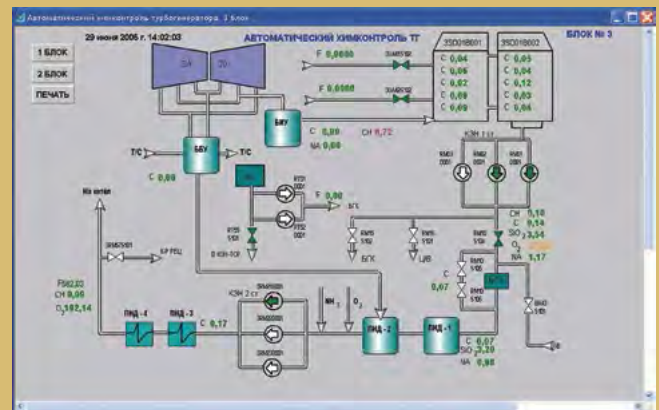
- Whole new level of visualization to real-time information
- Secure, real-time data to remote users
- Prevention of equipment failure with data analysis
- Forecast planning for capacity usage

Conclusion

Permskaya Gres has achieved their goal to increase the control efficiency and capacity for all power stations with the "Planned Capacity Trend System". Future plans include additional analysis functionality and growing the number of secure remote users.



An Alarm Summary Screen



Power Plant Control Screen

The system was developed in house in just under one year with a staff of two programmers (1 technician and 1 industrial engineer). Permskaya Gres also evaluated HMI/SCADA solutions from competitors and felt GENESIS32 from ICONICS offered more features, more flexibility, has a tighter integration with Microsoft applications, and was less expensive. Permskaya Gres estimates over a 2x cost savings for just the development by selecting ICONICS.

Benefits of the System

The system in place at the Permskaya Gres power plant provides numerous benefits such as:

- Complete aggregation from multiple control systems

Solutions Highlighted

WebHMI

Web-Based Real-Time Automation System

DataWorX

OPC Data Aggregation, Bridging, Redundancy and Tunneling



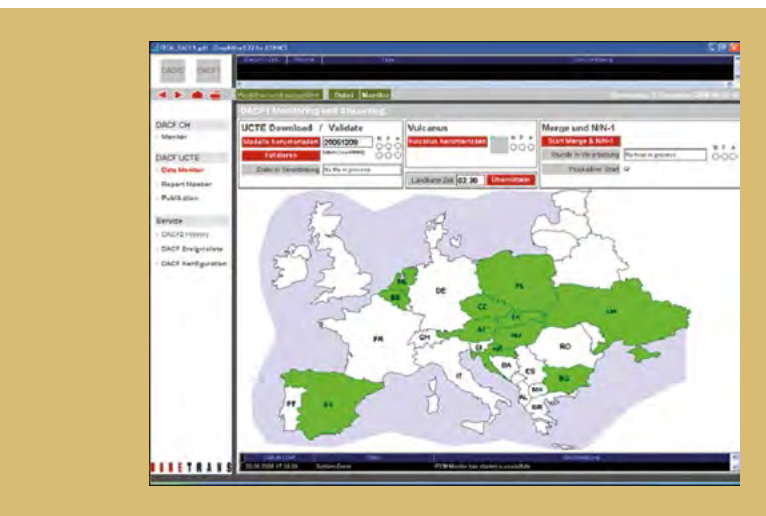


Power Transmission Lines
Switzerland

Swiss Grid

Laufenburg, Switzerland

swissgrid



DACF System Monitoring and Control

About Swiss Grid

Swiss Grid is an independent coordination company for the Swiss extra high voltage grid and performs services and specific tasks on behalf of the Union for the Coordination of Transmission of Electricity (UCTE, the organization that coordinates the activities of the European grid). Swiss Grid is independent from particular interests and organizations engaged in trading, supply and production. Based on its skills, tools and business information, Swiss Grid is ideally positioned to act as a trustee in the interest of the optimal organization of the Swiss and UCTE electric grids.

ICONICS Software Deployed

Swiss Grid selected ICONICS GENESIS32™

OPC Web-enabled HMI/SCADA suite including GraphWorX™32, AlarmWorX™32, TrendWorX™32 and GenBrowser™ components. In addition, the organization utilizes ICONICS BizViz™ manufacturing intelligence and business visualization suite including BridgeWorX™ and WebHMI™.

Project Summary

Swiss Grid's main task is the security of the Swiss national transmission grid at any time, even under the intensive energy exchange between members of the interconnected European network. Swiss Grid has developed and established the concept of operational congestion forecast with the UCTE-wide Day-Ahead Congestion Forecast (DACF) module as a kernel. An industry pioneer in Europe, Swiss Grid fully automated the complex DACF algorithms and integrated them into its daily congestion management process. This automation is realized with the help of workflow-control software, BridgeWorX (with custom blocks specially developed for Swiss Grid), that is used to conditionally trigger the high-speed calculation engine, Siemens PTI PSS/E-based special development for Swiss Grid.

The calculations are based upon actual data from partners within the European interconnected network, while data presence and quality is continuously monitored with the help of an OPC-compatible File Monitor. Swiss Grid network engineers monitor and control the DACF process via the intuitive, graphical, GENESIS32-driven MMI, created in tandem with integrator, InfoTeam SA. National models

are periodically downloaded from the FTP server using dedicated BridgeWorX workflows. Files are monitored and new workflows are triggered that, in turn, execute specialized computation software. GraphWorX images help to visualize and control the current workflow states.

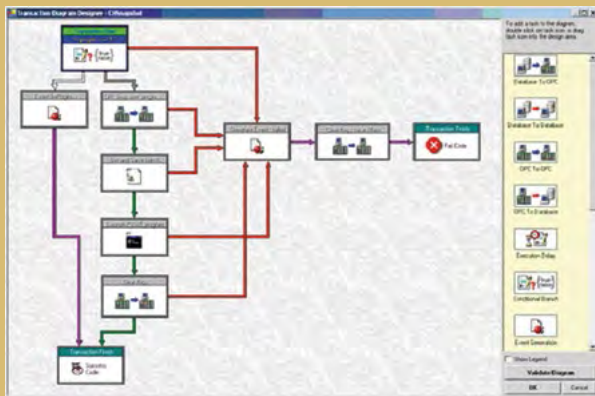
Key Features

GENESIS32 was selected for Swiss Grid's DACF monitoring system due to its open nature, flexibility, and customization that allows prototype development with very low entry costs. BridgeWorX was

control) within processes that must run 24 hours a day, 7 days a week, 365 days a year and that must be monitored continuously. ICONICS also seamlessly integrates with Swiss Grid's network of power application systems, as well as with different national and international trading and scheduling systems.

Conclusion

Swiss Grid plans on extending their use of ICONICS software to data mining and enhanced Web utility. Through such working relationships, they are sure to remain pioneers in the European power industry.



Transaction Diagram Designer in Use



Security Forecast Screen

chosen due to its ability to interface into technical processes (OPC), as the majority of other systems come from the purely business side. The software has a well defined programming interface that allows for developing complex and highly specialized custom blocks. Tight collaboration between the BizViz business visualization and GENESIS32 HMI/SCADA suites, ease of configuration, and superior graphical interfaces were also motivating factors.

Benefits of the System

ICONICS solutions provided Swiss Grid with a quick gain in productivity and drop in manipulation errors. Swiss Grid can now set their own level of interaction (from full automation to full operator

Solutions Highlighted

BizViz

Manufacturing Intelligence and Business Visualization Suite

BridgeWorX

Real-time Workflow Software for Data Bridging

WebHMI

Web-Based Real-Time Automation Software



AdvanTech Corporation is a **26 year old WBE and UL certified** controls, automation and distribution company located in Fairfield, NJ. Being one of **ICONICS** oldest Distributors and Preferred Integrator Partners, our staff has extensive experience in implementation of custom control and monitoring projects for various industries/government/municipal agencies. With an in-house UL approved panel shop, **AdvanTech** provides engineering services, PLC/DCS hardware, SCADA/HMI software, instrumentation, communication equipment, complete turnkey systems and Automation Solutions for American Industry.

AdvanTech Corporation
20 Just Road
Fairfield, NJ 07004

PH: (973) 808-8550
FX: (973) 808-2923

EMAIL: info@advantechcorp.com
<http://www.AdvanTechCorp.com>

"We chose ICONICS' AnalytiX solution firstly because of the working relationship and support which ICONICS has given us in the past, and secondly because we think ICONICS now has the software tools at their disposal with GENESIS64 and AnalytiX to deliver the complete countywide SCADA, Leakage and Energy Management solution to our customer."

David Cully
Project Manager
Cully Automation

WATER & WASTEWATER

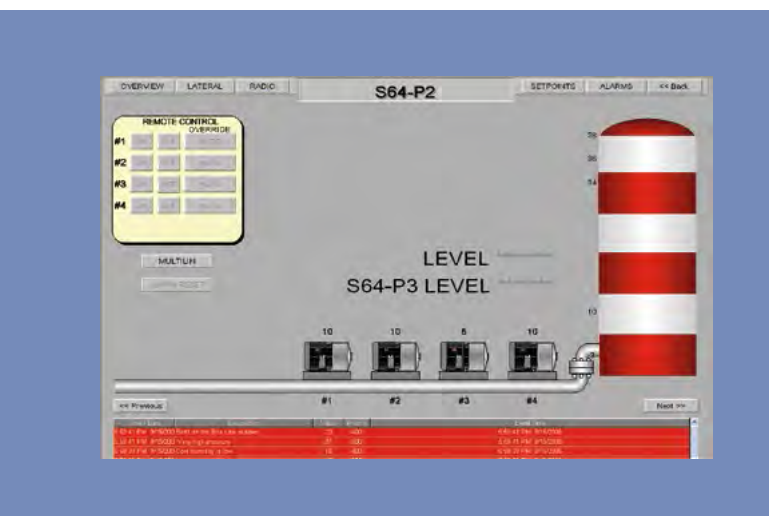




Arvin-Edison Water Storage District Arvin, California



*An Arvin-Edison
Water Storage Plant in Action*



An Arvin-Edison Water Level Indicator

About Arvin-Edison Water Storage District

The Arvin-Edison Water Storage District, south of Bakersfield, CA, is one of the world's most sophisticated conjunctive use programs. Arvin-Edison acquires water in wet years and stores it underground for use in dry years. This program provides water supplies to District areas covering 132,000 acres of prime agricultural land, which do not have access to surface water.

Arvin-Edison and the Metropolitan Water District of Southern California cooperate in a groundwater storage and water exchange, which benefits both agricultural users in Arvin-Edison and urban users in Los Angeles; an example of how urban and agricultural water users can work together for mutual advantage.

ICONICS Software Deployed

Arvin-Edison Water Storage District selected ICONICS GENESIS32™ OPC Web-enabled HMI/SCADA suite, including: GraphWorX™32 HMI graphical display package; TrendWorX™32 Live and Historical Data Logging, Charting and Reporting software; and AlarmWorX™32 alarm management system.

Project Summary

Arvin-Edison Water Storage District uses ICONICS GENESIS32 for monitoring water levels and motors that pump water to upstream sites, as well as for remote turn on/off of pump motors in emergency situations. The district utilizes 46 pumping plants plus 10 plants that supply water level indicators only to the organization's headquarters.

The plants are controlled by local programming at the sites themselves through Westinghouse PC1100/PC1200 in older systems or SCADAPacks in newer systems. Of the 56 locations, four have recently been upgraded from older versions to more recent GENESIS32 software. The ICONICS solutions are linked to Lundahl DC1003 level indicators, Delta Controls 551 pressure transmitters, AB soft-start controllers and GE Multiline PQMII power monitors.

Benefits of the System

With their upgraded ICONICS solutions, Arvin-Edison Water Storage District is able to maintain accurate control and render visual displays of pump status and various water levels throughout the Dis-

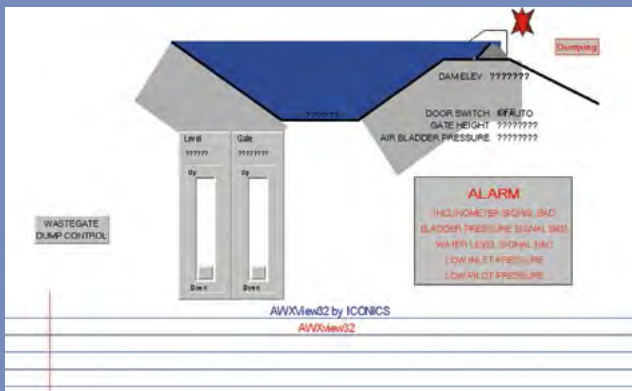
strict and control slide gates regulating water in various parts of their canal system. GENESIS32 and the individual suite components integrate easily into the District's Windows 2000 network.

ICONICS provides the near real-time information and plant control the District requires, whereas the replaced system provided updates with an 8-to 15-second delay on a continuous basis to all the connected sites.

Case Study Details

Arvin-Edison Water Storage District looked for specific benefits before deciding upon ICONICS solutions, including:

- Ease of Use in Building Graphics and Applications
- Ability to Upgrade as Needed
- Fast, Easy Implementation
- Remote Control
- Expertise with Water/Wastewater Applications



Wastegate Control Overview



Water Transfer from Ground Storage

Conclusion

Arvin-Edison Water District is pleased with the speed of implementation coupled with the nearly instantaneous data retrieval of ICONICS GENESIS32. The organization plans additional upgrades of older software to the most recent V9 release. In addition, the District plans to add the ability to remotely control Check Gates into the system.

Further on, the District plans upgrades on starters with AB Soft Start and Variable Speed drives, as well as the addition of power factor correction equipment to the motor start system, all of which will integrate into their ICONICS solution.

Solutions Highlighted

GraphWorX

HMI Graphical Display Package

AlarmWorX

Multimedia OPC Alarm Management Software

TrendWorX

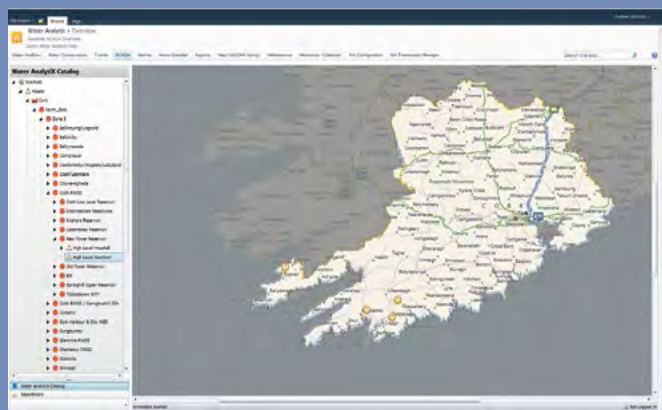
Data Logging, Charting and Reporting Software



Roches Point in Cork, Ireland

Cork County Council

Cork, Ireland



Bing Maps Integration with AnalytiX

About Cork County Council

Cork County covers an area of 2,880 square miles, making Cork the largest county in Ireland at 11% of the Irish State. After deciding to institute a directive from the European Union (EU) to reduce energy consumption by 30% by 2020, Cork County Council realized that understanding their area's network would be crucial in providing superior service. Cork County Council treats and supplies water to approximately 40,000 non-domestic customers and 100,000 homes across the county. Due to its size, Cork County is broken up into four zones—North, South, East and West Cork—which makes data aggregation even more difficult to manage. At the time, the council was using manual data entry with Excel to produce the leakage figures required by the Department of the Environment. However, with

"Cully Automation Ltd. chose ICONICS' AnalytiX solution firstly because of the working relationship and support which ICONICS has given us in the past, and secondly because we think ICONICS now has the software tools at their disposal with GENESIS64 and AnalytiX to deliver the complete countywide SCADA, Leakage and Energy Management solution to our customer."

David Cully
Project Manager
Cully Automation

four zones to maintain, this method made it too difficult to efficiently calculate leakage figures.

ICONICS Software Deployed

This is where ICONICS' GENESIS64™ and AnalytiX® products really come into their own; Cully Automation Ltd. was able to simply convert the existing graphics that had been deployed on earlier GENESIS32™ projects, and connect directly to the SCADA data. However, it was not just ICONICS' SCADA that needed integration, with the County having a number of legacy non-ICONICS SCADA solutions still operational, there were many components needing additional conversion. By using GENESIS64 and the OPC platform, the full integration was a seamless process, providing what is now a true County-wide visualization solution leveraging Bing™ maps.

From this single SharePoint® 2010 view, the Council can access charts and reports on the status of any meter from any DMA in the county.

Project Summary

The average daily volume of water produced in Cork County is estimated to be well over 150,000 yd³/day with the total length of water in the Public Water Supply Schemes estimated to be 3,500 miles long. The number of yards from which to retrieve that data continues to increase – approximately 391 District Meter-

remain at the cutting edge of industry standards.

Benefits of the System

ICONICS products enabled the system to daily send data from each remote meter, to be read in the Historian and used for calculating the water usage for each DMA. By using a simple, intuitive point-and-click interface, an asset tree of DMA's was able to be quickly created and calculations added. By leveraging the latest Microsoft® SQL Server® 2008 R2 technologies, including StreamInsight, the collected



AnalytiX Overview Screen of a DMA



A Bar Chart Comparison of Daily Water Use

ing Areas (DMA) with up to 3 yards per DMA. With such a vast supply network, the Council could not meet the new EU directives on energy consumption by continuing to use traditional manual data collection methods. Therefore, with the EU regulations looming, and the scale of data collection increasing, Cork County looked to Cully Automation Ltd. to install a number of Plant SCADA systems to control and monitor local stations. Due to the nature of this deployment, a collaborative approach was undertaken by ICONICS application support engineers and Cully Automation Ltd. This allowed Cully Automation Ltd. to impart their knowledge and expertise in Water Conservation projects which led to AnalytiX product enhancements, strengthening the product for everyone. This is a business model ICONICS is proud to use and enables the company to

data was then integrated together to produce an up-to-date and accurate DMA water usage figure.

Conclusion

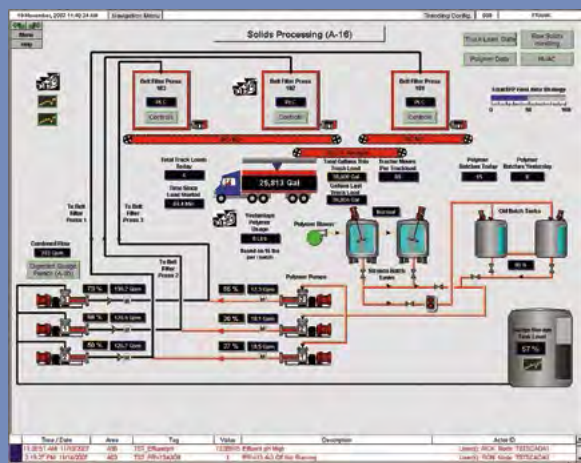
David Cully, Project Manager, said “We were the only company to be able to provide a turnkey solution from putting the meter in the ground, to delivering a leakage report on the county manager’s desk. This was achieved because ICONICS’ GENESIS64 and AnalytiX products provide a consistent user interface designed upon open industry and IT standards.” The Cork County Council Water Conservation project ended up with over 1,000 remote telemetry flow meters sent data via GPRS and over 1,000 data points all integrated into a single view of County-wide SCADA, Water Conservation & Energy Management .



*District Map of
Cucamonga Valley Water District*

Cucamonga Valley Water District

Rancho Cucamonga, CA



LWM Filter Screen

About Cucamonga Valley Water District

Cucamonga Valley Water District (CVWD), headquartered in Rancho Cucamonga, California, has as its mission “to provide high quality, safe and reliable water and wastewater services, while practicing good stewardship of natural and financial resources”. Its service area includes Rancho Cucamonga, and portions of Upland, Ontario and Fontana, and some areas of San Bernardino County. CVWD serves a population of approximately 170,000 customers within a 47 square mile area.

CVWD, a public corporation, functions as a Special District, which means it is an independent unit of local government serving the needs of a community. With approximately 45,000 water connections and 35,000 sewer connections, CVWD is one of the leading water suppliers in the region thanks to its in-

“With products such as GENESIS32, PocketGENESIS, and WebHMI, ICONICS has helped us accomplish our control system goals.”

Ed Diggs

Production Supervisor
Cucamonga Valley Water District

novative water treatment technologies and its leadership in addressing regional and state water issues.

ICONICS Software Deployed

Among Cucamonga Valley Water District’s ICONICS solutions are GENESIS32™ Enterprise HMI/SCADA suite integrated with AlarmWorX™32 MMX distributed enterprise-wide alarm notification system, ReportWorX™ enterprise reporting, charting and analysis software, WebHMI™ Web-based real-time automation software, Pocket GenBroker communications bridge, OPC Data ToolWorX™, ICONICS AB OPC Server, and SQL/MSDE Logging.

Project Summary

Cucamonga Valley Water District began an expansion project intended to simultaneously bring Web-based and mobile functionality to their control system. The organization needed such features in an HMI/SCADA solution that would integrate with existing systems (AB Controls, Rockwell, etc.) and operating systems (moving from Microsoft Windows 2000 to XP).

Working with engineering partner, Black & Veatch, CVWD sought a Web-enabled solution that wasn't processor-intensive, a mobile component for employees in remote locations, and comprehensive reporting abilities. ICONICS' GENESIS32, coupled with WebHMI and ICONICS' Pocket GENESIS mobile Pocket PC industrial software, fulfilled expectations.

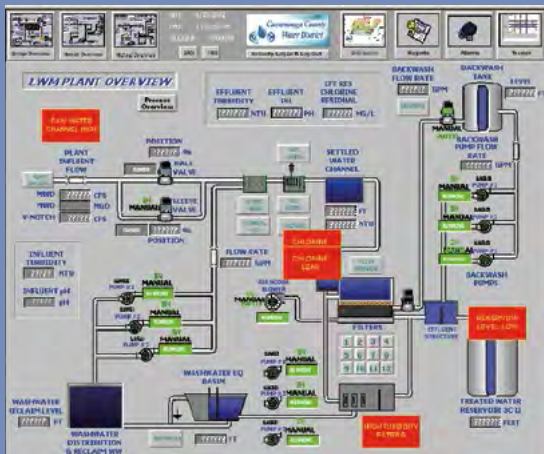
Benefits of the System

ICONICS was able to meet Cucamonga Valley Water District's Web, mobile, and reporting needs for their

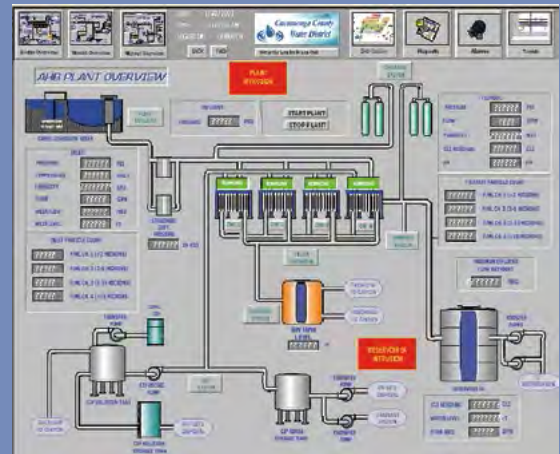
Case Study Details

Cucamonga Valley Water District required the following in their selection of their HMI/SCADA solution:

- Mobility – access via “pocket” device
- Web-enabled solution
- Wide alarm notification options
- Comprehensive reporting mechanism



LWM Plant Overview



AHB Plant Overview

industrial automation. WebHMI provides a browser-based alternative to single PC-based software. Pocket GENESIS allows CVWD to monitor and control their system away from the plant environment. The plant is able to utilize ReportWorX to fulfill their reporting requirements to the California Department of Health. In fact, ICONICS met CVWD's requirements through multiple phases including monitoring, reporting, and alarming.

Conclusion

Cucamonga Valley Water District and its project partner selected ICONICS not only due to its wide array of HMI/SCADA solutions and multiple features (Web, mobile), but also due to the reputation for the software's ease of use.

Solutions Highlighted

Pocket GENESIS

Mobile PC Industrial Software

AlarmWorX

Multimedia OPC Alarm Management Software

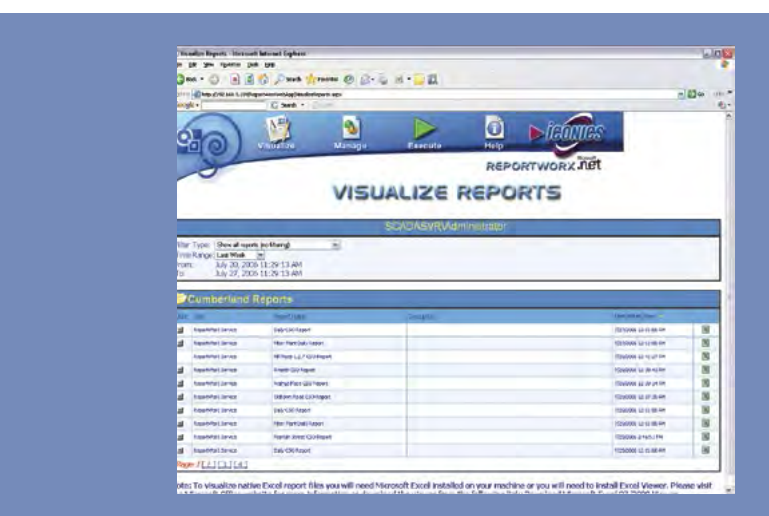
ReportWorX

Enterprise Reporting, Charting and Analysis Software



City of Cumberland, MD

City of Cumberland Water/Wastewater Cumberland, MD



Daily CSO Report in ReportWorX

About City of Cumberland Water/Wastewater

The City of Cumberland, Maryland (population 25,000) is a beautiful little city nestled among the Appalachian Mountains. Established in 1787, it's the home of the first national road, now known as Route 40 or National Highway. Over the years, it has also been home to numerous railroads and was the western terminus of the famous C&O Canal. Cumberland sits approximately 950 feet above sea level and has an annual rainfall of 36.5 inches and an annual snowfall of 34.1 inches.

ICONICS Software Deployed

GENESIS32™ Enterprise Editions are deployed on dedicated workstations at the Water Filtration Plant and the Wastewater Treatment Plant. They utilize

GraphWorX™32 for process visualization and operator runtime information. Both AlarmWorX™32 and TrendWorX™32 are deployed and remotely log data to a main server-class computer running Microsoft SQL Server located downtown.

The server uses ReportWorX™, part of the ICONICS BizViz™ suite, to automatically generate reports for both the Water Filtration Plant and the Wastewater Treatment Plant. AlarmWorX™32 Multimedia runs on the server to provide remote alarm annunciation to plant personnel. ICONICS WebHMI™ also runs on the server allowing plant supervisors remote access to the system, anywhere in the city.

Project Summary

With an existing installation at the Wastewater Treatment Plant, ICONICS was the logical choice for the new system. It was designed to visualize information of remote pumping stations, elevated tanks and reservoir levels for the Water Filtration Plant and for visualizing and reporting information about Combined Sewer Overflow (CSO) events, important to the Wastewater Treatment Plant and the surrounding watershed authorities. When it rains, or when snow melts, there exists potentials for CSO events. Once manual and highly labor intensive, these events are now tracked in real time and reported on as soon as the event has ended.

The system was installed and commissioned by Consolidated Electric, Inc. of Cumberland MD with the help of ARK Systems, Inc. of Columbia, MD and O&M Engineering of Ellicott City, MD,

under the supervision of KLH Engineers, Inc. of Pittsburgh, PA.

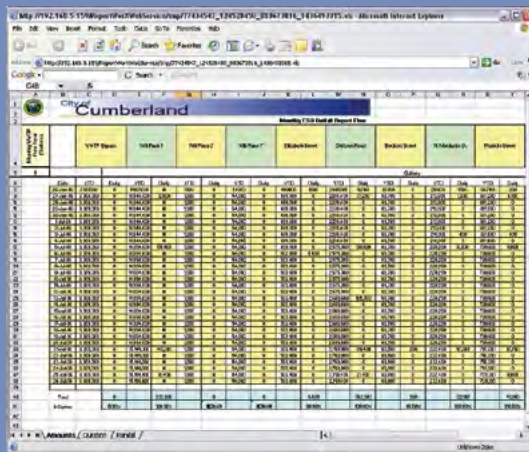
KEPWare Modbus/TCP OPC Servers installed on both ICONICS GENESIS32 workstations facilitate communications to Schneider Electric M1E PLCs. This is done via wireless broadband Ethernet over the Allegheny County ALLCONET. The ALLCONET infrastructure is an IP-based, high speed Intranet providing the security of a world class firewall and the stability and speed of a fully monitored microwave network.

For the CSO events, the PLCs are connected to sen-

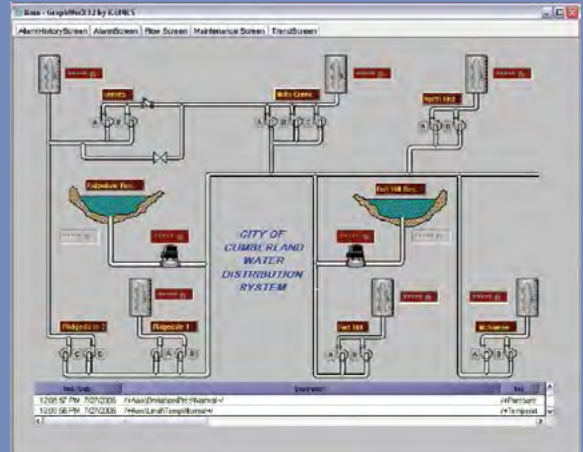
sors that determine sewer overflow and begin accumulating that data inside the PLCs that is then logged to the remote server and reported on by ReportWorX. For the Water Filtration Plant purposes, the PLCs are connected to sensors that determine tank levels and pump station water flow usage and accumulate that data inside the PLCs that is then logged to the remote server and reported on by ReportWorX.

Key Features

By deploying ICONICS GENESIS32, the City of Cumberland has seen numerous productivity enhancements. At the Water Filtration Plant, with pump station intrusion alarms and pump failure alarms, plant operators can respond to critical problems as they arise, saving valuable time and money.



Monthly CSO Outfall Report Flow



Water Distribution System Screen

sors that determine sewer overflow and begin accumulating that data inside the PLCs that is then logged to the remote server and reported on by ReportWorX. For the Water Filtration Plant purposes, the PLCs are connected to sensors that determine tank levels and pump station water flow usage and accumulate that data inside the PLCs that is then logged to the remote server and reported on by ReportWorX.

On a daily basis, ReportWorX generates a Filter Plant Daily Report. The Filter Plant Daily Report is a combination of sub reports and chart data plots done via separate Excel worksheet tabs. The sub reports are for daily, weekly and month to date totals of motor/pump runtime hours and station flows, in addition to daily tank and reservoir levels listed every one-half (1/2) hour. The chart data plots are for

Having real-time information allows the Wastewater Treatment Plant personnel to provide surrounding watershed authorities with the information they need to respond accordingly to overflow situations. Additionally, information that has been gathered could possibly save the city on future capital expenditures by allowing them to build structures based on actual and not estimated capacities.

Conclusion

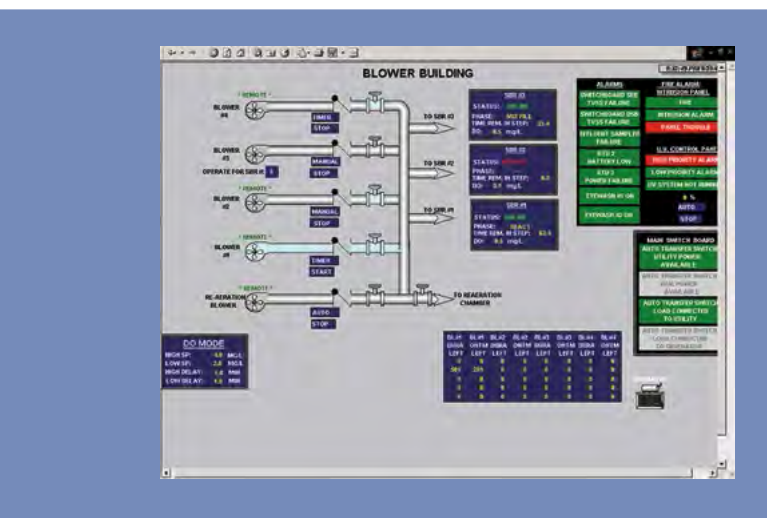
Utilizing a combination of ICONICS BizViz Suite and GENESIS32 Enterprise Suite, the City of Cumberland has a system that will pay for itself by enhancing productivity and reducing overall operating costs.



Water Treatment Plant in Operation

East Coast Water & Wastewater Company Eastern United States

ECWW



Blower Building Monitoring/Controls

About East Coast Water and Wastewater Company

East Coast Water and Wastewater Company (ECWW) is a large water production and sewage treatment operation on the East Coast of the United States. ECWW is one of many water and wastewater companies managing water production and waste removal facilities across the United States and Canada which are using ICONICS products to manage their operations.

ICONICS Software Deployed

Over 70 ICONICS GENESIS32 SCADA Workstations in 32 different plants performing supervisory functions, using GraphWorX32, AlarmWorX32, TrendWorX32, ScriptWorX32, Multimedia Alarm Annunciation, and WebHMI products.

Key Features

ECWW utilized OPC-enabled, local and WebHMI-based water and wastewater processing using Web browser/Thin Client/Internet technology to provide production, maintenance and management personnel with real-time visualization and important alarm information. Every aspect of potable water production and sewage processing is controlled and supervised using the ICONICS GENESIS32 SCADA capabilities with real-time Web access via ICONICS GenBroker technology and Bristol Babcock RTU I/O hardware products. These systems provide a cost-effective means of providing alarms, data, and trends to operations and management on demand.

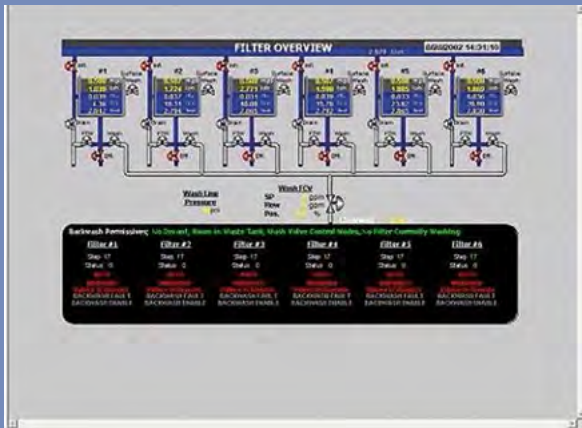
Project Summary

Over 200 Management and Operations personnel at ECWW Company utilize the ICONICS WebHMI and GENESIS32 software to monitor and control 32 plants scattered over the entire state. These systems provide access to information for over 12,000 I/O points via 650 GENESIS32 screens. Six thousand of those points are available via 350 WebHMI pages with OPC data. These view-only screens are available to properly logged-in users on the ECWW Company Wide Area Network.

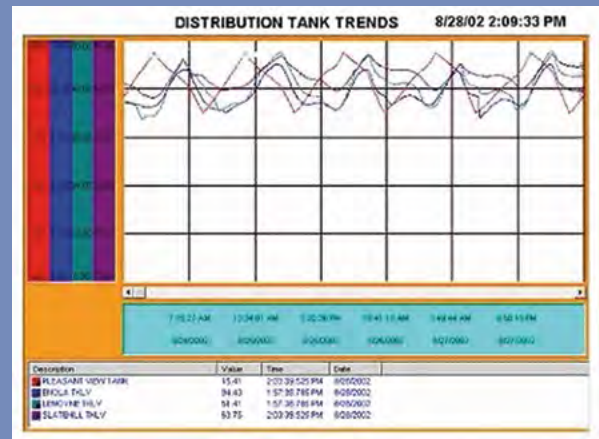
In addition to viewing real time alarms and system faults, Microsoft Access is used to record all alarms, events and operator actions for long term alarm archiving and alarm reporting. Local operator stations print the alarms as they occur and store

them to local Alarm Logs with AlarmWorX32 Logging. Several local operator stations are equipped with the ICONICS Multimedia Alarm Notification option software so that supervisors and operators may be notified via alpha-numeric pagers and telephones when critical systems require immediate attention. Local Operators, Supervisors, and corporate office management staff view trend data from the entire system via an ICONICS WebHMI Server using GenBroker routing over their Wide Area Network. Users can view daily,

formance for Web-based access to critical process information. A dedicated Windows 2000 PC is used to maintain the centralized License and Security backbone. All WebHMI users request security permission and login authentication from the centralized Windows 2000 level security system. A system of secure routers and firewalls is used to provide physical security for the TCP/IP WAN.



Filter Controls Screen at This East Coast Water & Wastewater Company



Distribution Tank Trends

weekly, and longer trends as needed to manage the flow of water through the plants and into the distribution network.

East coast-based ECWW Company uses WebHMI to provide view-only access for management and supervisory personnel. WebHMI, running on Windows 2000 and Internet Information Server from Microsoft, provides real-time OPC Data for the view-only screens. Six thousand I/O points are available via 350 Web pages. These screens are available to properly logged-in users on the ECWW Company Wide Area Network. Trends and overview pages are available, for almost instantaneous access, to qualified personnel.

The communications network backbone of the project depends on TCP/IP and provides good per-

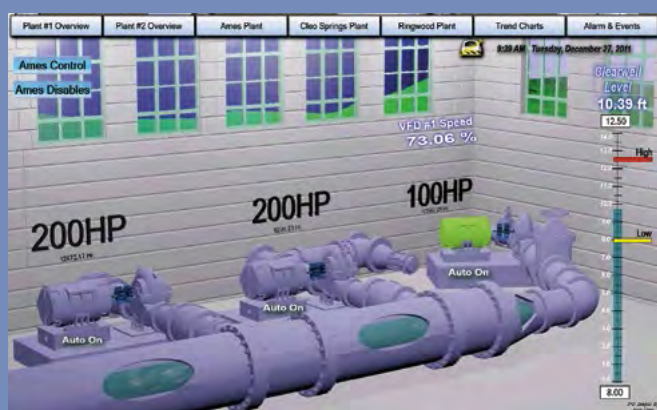
Conclusion

ICONICS has worked closely and successfully with ECWW Company and Bristol Babcock, an ICONICS OEM, to make this statewide water project a great success. ECWW Company participates in the ICONICS End-User Support and Maintenance program to keep their software updated.



*Interactive Map Showing
the City of Enid's Ames Plant*

City of Enid Enid, Oklahoma



*A City of Enid Water Production Control Screen
Developed using ICONICS GENESIS64*

*"(GENESIS64 is) friendly point and click
set-up software with no additional help
needed."*

Roy Robins, Systems Integrator
City of Enid

peaks of 20 million in the summer. It includes approximately 140 producing underground water wells with 200 miles of collection lines, 23 million gallons of storage tanks, seven pumping stations and two treatment plants. The department operates seven days a week to produce safe, potable water for residential, commercial and industrial customers.

About City of Enid Water/Wastewater

The City of Enid, Oklahoma is located 70 miles North of Oklahoma City. The city's water management services include production, distribution and reclamation. The Water Production department is responsible for "the maintenance and operation of the water collection system, and treatment plants. The water is treated, tested, metered and monitored to meet the most stringent requirements set down by the State Department of Environmental Quality, the Federal Department of Environmental Quality and the Federal Environmental Protection Agency."

The collection system serves about 50,000 residents, with an average of 11 million gallons daily and

ICONICS Software Deployed

The City of Enid selected ICONICS GENESIS64™ 64-bit HMI/SCADA software, including GraphWorX™64 vector-based 2D/3D graphic design and WebHMI™ Web-based, real-time automation. In addition, they also selected ICONICS OPC Server Suite (supporting both OPC-UA and OPC-DA connectivity).

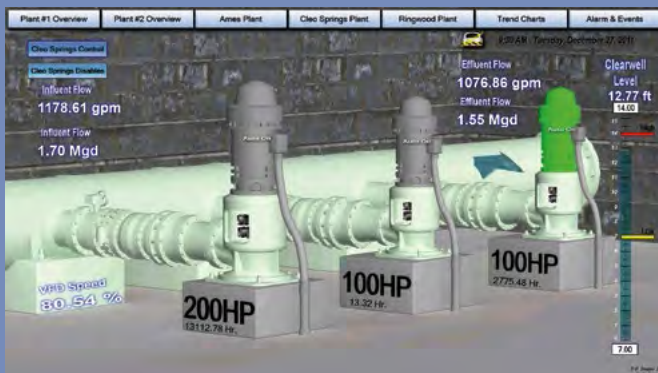
Project Summary

The City of Enid's Water Production department sought to upgrade its control system. Originally consisting of push-button controls, it evolved from an older simple one-line diagram type to ActiveX-based controls. The city considered multiple solutions, including those from several competitors, then decided

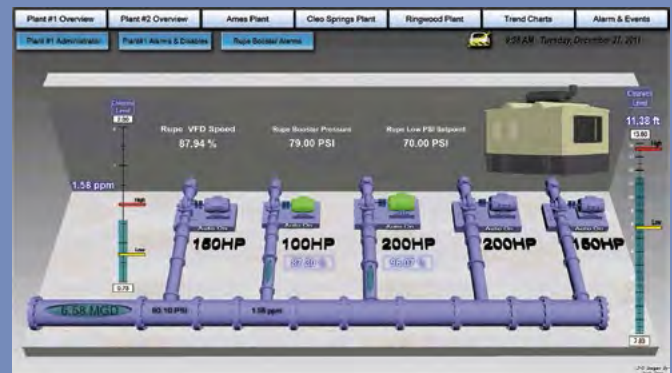
upon ICONICS GENESIS32™ HMI/SCADA suite and have recently upgraded to GENESIS64.

Following a 60-day development cycle, the department initially used their new ICONICS software to design and implement their new Water Production control system. The goal was to standardize on the selected software and provide an interface with ease of access for all operators. Using GENESIS64 resulted in an exact 3D view of remote stations and pump rooms. The department is also developing a new Wastewater system with their

Next, they wanted HMI/SCADA software that they considered secure enough for a municipal project. They also wanted HMI/SCADA software that would allow for ease of programming for their operators, which they found within the Workbench, the centralized Web-based interface that makes it easy for users to open GENESIS64 products and configure components, runtime, and security. Finally, the department wanted a solution that easily integrated with OPC technology and standards, which is handily provided through ICONICS OPC



A GENESIS64-built Monitoring/Control Screen for the City of Enid's Cleo Springs Location



An Additional City of Enid Water Plant Control Screen

systems integration partner, Integrated Controls, which will also feature GENESIS64.

The department's new system handles over 1,400 tags in its Water Production system, which now integrates with their Koyo PLCs. The ICONICS software also ties into additional hardware including wireless, serial and networking connections (e.g. UHF, VHF and FSK [Frequency Shift Key]). Among the Microsoft products in use are Windows Server 2008, Security Essentials and SQL Server.

Benefits of the System

The City of Enid's Water Production department saw several benefits in implementing ICONICS software. First, they wanted a solution that would integrate seamlessly with Microsoft SQL Server.

Server suite. An additional benefit comes from ICONICS WebHMI. The water control system is now accessible via a standard Web browser.

The systems integrators for the city have ultimately found ICONICS software to be truly "user-friendly" and they appreciate being able to easily design their project in-house. Future plans for the department are to expand the Water Production system, as well as integrate more Web and mobile access.

Conclusion

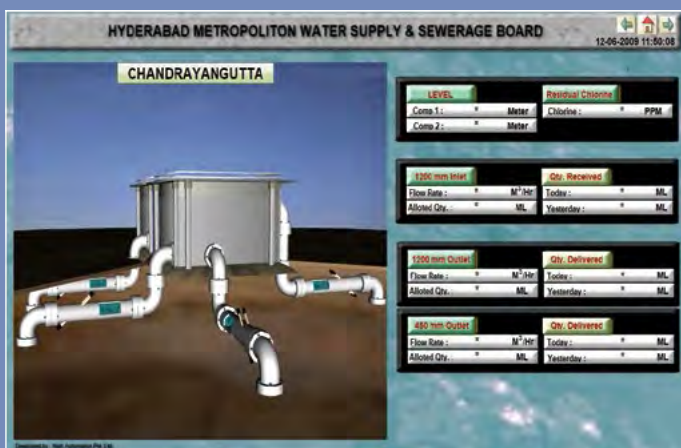
In the end, the City of Enid's Water Production department sought a new system that would "give the operators a smooth, graphical interface and fast, reliable and accurate data". Their upgrade to the latest 64-bit solutions from ICONICS was a fluid transition.

Hyderabad Metropolitan Water Supply & Sewerage Board

Hyderabad, India



*A Water Processing Facility at
Hyderabad Water Supply & Sewerage Board*



Overview of the Chandrayangutta Tank

About Hyderabad Metropolitan Water Supply & Sewerage Board

Hyderabad, the capital city of the state of Andhra Pradesh is one of the fast growing urban conglomerations in India. It is a typical inland city located in the south-eastern part of the deccan plateau with a semi-arid climate and a rainfall of 75 cms.

The Hyderabad Metropolitan Water Supply & Sewerage Board (HMWSSB) was constituted on 1/11/1989 under the provisions of the Hyderabad Metropolitan Water Supply and Sewerage Act 1989 (Act No. 15 of 1989), with the following functions and responsibilities in the Hyderabad Metropolitan Area:

- Supply of potable water including planning, design, construction, maintenance, operation and management of water supply system

ICONICS Software Deployed

The Hyderabad Metropolitan Water Supply & Sewerage Board, working with Nish Automation Pvt Ltd of Surat, selected ICONICS GENESIS64™ 64-bit-enhanced, Web-enabled, OPC-integrated HMI/SCADA suite, including its GraphWorX™64 graphics development/runtime environment and TrendWorX™64 data collection/logging/charting/reporting/analysis components. The agency also installed ICONICS WebHMI™ Web-based real-time automation software as well as ReportWorX™ enterprise reporting, charting and analysis software, which is a component of the BizViz™ business visualization suite.

Project Summary

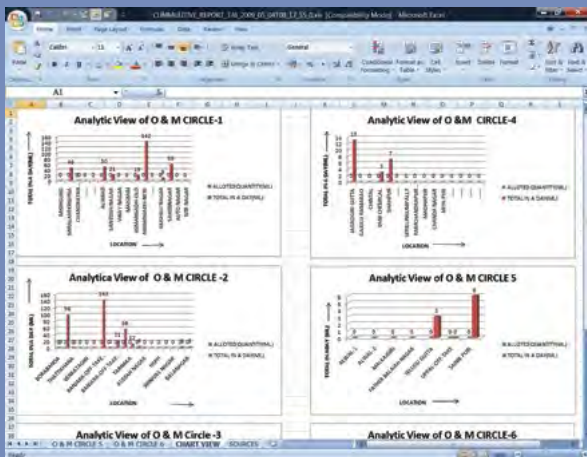
Water comes at a premium during the hot dry months in Hyderabad, the most populous city in Andhra Pradesh. A respite from the heat and relative water scarcity comes during monsoon season, which typically lasts from late June to early October. The HMWSSB has been tasked with ensuring a reliable source of water and waste treatment for its citizens. The board is also involved in other water-related projects including rainwater harvesting and water bottling/canning. The board sought assistance in automating its water supply/sewer facilities and contacted Nish Automation who, in turn, recommended ICONICS' industrial automation software solutions, specifically the company's GENESIS64 suite that integrates with new 64-bit computing machinery and the latest operating systems from Microsoft (including Windows Vista® and Windows Server® 2008).

The HMWSSB required a way to collect, measure, visualize and control the data from its multiple facilities located across a wide area, keeping track of the city's water from its sources to its outlets. Industrial PCs running GENESIS64, WebHMI (5 nodes), ReportWorX Lite and other ICONICS software connect to 84 Remote Terminal Units (RTUs) (with Schneider Electric PLCs for I/O), which are, in turn, connected by seven Matrix Simado GDT11 fixed cellular terminals (FTCs) and a Moxa Nport 5610 Serial Driver. These RTU/PLC systems are hard-wired

The HMWSSB benefits from 64-bit-optimized technologies (GraphWorX64 graphic development, TrendWorX64 logging, etc.) from the GENESIS64 suite, combined with ICONICS' Data Mining Configurator, Unified Data Manager, ReportWorX and more.

Conclusion

ICONICS, working with Nish Automation, was able to meet the HMI/SCADA and business visualization needs of the Hyderabad Metropolitan Water Supply &



A Hyderabad Metropolitan Water Supply & Sewerage Board Report in Chart View



A Geographic Overview of a Division Within the Board's Service Territory

locally to Siemens flow meters, level transmitters, etc. for the purpose of water auditing via SCADA.

Key Features

The Hyderabad Metropolitan Water Supply & Sewerage Board had multiple configuration requirements for a new HMI/SCADA solution, all met by ICONICS software's capabilities, including:

- Real-time OPC Tags
- Ability to Have Local and Remote Connectivity
- Historical Data Access
- 2D and 3D Graphics and Trend Charts
- Flexible Reporting for Scheduled and Ad Hoc Reporting
- Ability to Interface with SQL Server

Sewerage Board, assisting the agency in its goal of providing a reliable water supply for the city's residents.

Solutions Highlighted



GENESIS64

Designed from the ground up to take maximum advantage of Windows 7, Windows Server 2008, .NET and SharePoint® technology. GENESIS64 is also "OPC-To-The-Core™," exemplifying the next generation of OPC Data Access, OPC Alarm and Events and OPC Historical Data Access. This allows for secure, open connectivity from plants and facilities to the enterprise level.



Keokuk Municipal Water Works Keokuk, IA



Water Pumps at
Keokuk Municipal Water Works



Keokuk Water Treatment Facility Main Menu

About Keokuk Municipal Water Works

Serving over 4,800 customers, Keokuk Municipal Water Works is responsible for providing its residential, commercial and industrial customers with a high-quality and reliable water supply. The Water Works service area, 105 miles of pipe within a 20-square-mile area, includes the entire incorporated area of the city of Keokuk, Iowa. Additionally, the water system serves two small private water systems outside the Keokuk corporate limits.

ICONICS Software Deployed

Keokuk Water has installed ICONICS GENESIS32™ after evaluating ICONICS, Wonderware and Intellution HMI software products. The GENESIS32 modules used are TrendWorX™32 and

"The system has been in for many years, and it has been very reliable. The migration from the older version GraphWorX to the new has been a success. All aspects of the change-over from interfacing and gathering data from the Rotork Valve Package (Modbus) to the new OPC interface from ICONICS for the Allen Bradley PLC5 were completed in a timely manner with no downtime."

Bill Cole
General Manager
Keokuk Municipal Water Works

AlarmWorX™32. These ICONICS products were selected because of their cost effectiveness, ActiveX®-based technologies, ability to log data to Microsoft SQL Server, and local support. GENESIS32 replaces a stand-alone, proprietary system.

Project Summary

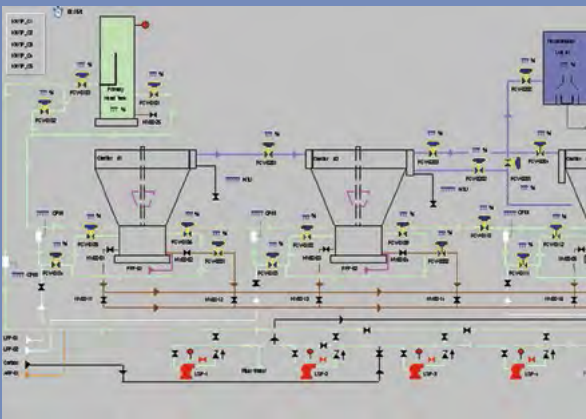
The GENESIS32 system monitors all functions of the plant, from analytical equipment to Rotork Valve: control, monitor, alarm, trend, etc. The GENESIS32 system connects to an Allen-Bradley Series 5 and MicroLogiX PLCs, Prolinx Hart Multiplexer, Rotork Valve System, Hach Analytical Equipment, Toshiba Drive Systems, and Rosemount Field Devices. The system has one Allen Bradley OPC Server, one alarm and trend server, and five Browser nodes. The system has 1,500 digital and 225 analog tags. The ICONICS GENESIS32 system connects via Modbus to the Rotork Valve Package.

The system provides better methods of data monitoring and alarm logging. It also provides much better visual representation of the water treatment process, with the browser nodes located strategically throughout the facility. The ICONICS 16-bit to 32-bit graphics translator made for a fast and easy upgrade from GENESIS™ for Windows version 3.5x to GENESIS32 version 6.x.

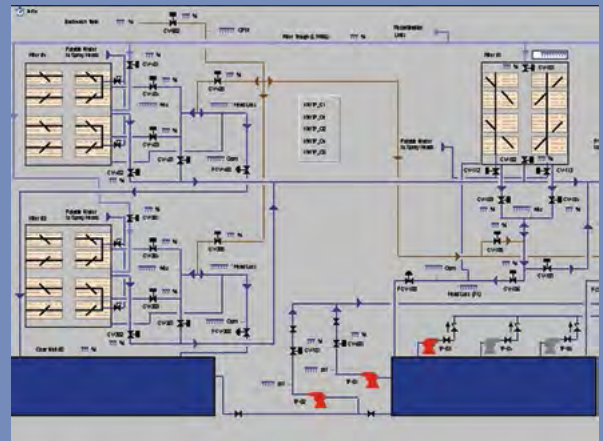
Project Overview

Several large centrifugal pumps move Mississippi river water (raw water) to the plant and into the head

The water passes upward through the sludge blanket, which traps slowly settling particles that would otherwise pass through into the filters. The clarified water off the top of the claricones goes to the re-carbonation tank, and has a high pH and concentration of calcium carbonate. Carbon dioxide gas is added to the tank to form soluble calcium bicarbonate and to reduce the pH to a level at which the water is stabilized to prevent scale formation or corrosion of water pipes. The water is then gravity-fed into the filters. There are four sand filters used to remove what little particulate was



Monitoring/Control Screen at Keokuk Municipal Water Works



Another Monitoring/Control Screen

tank from the river. Prior to the head tank several chemicals, including oxidized soluble manganese, a liquid alum, a coagulate aid, cationic polymer, and carbon, are fed directly into the raw water.

After the raw water is mixed with the chemicals, it goes to four claricone Clarifier units where an an-ionic polymer can be fed directly into the top sludge blanket in the Clarifiers. Lime is also introduced at the bottom in a slurry form to remove the minerals that cause calcium hardness. The entrance velocity of the raw water promotes mixing within the vessel's lower cylinder. The slower rotation in the middle section provides good particle contact and flocculation. There is little turbulence in the top section of the claricone, which makes for good settling of the particles and produces clarified water.

not removed in the claricones. Chlorine is then added. After the water goes through the filters it enters the storage well. Here liquid ammonia is added to combine with the free available chlorine, forming a weaker form of disinfectant. The treated water is then pumped into the distribution system and to two elevated storage towers through one of four high service pumps. All the plant control is achieved through the use of ICONICS GENESIS32 software.

Conclusion

ICONICS has worked closely with Keokuk Water to make this project a success. Keokuk Water participates in the ICONICS SupportWorX™ maintenance program for upgrades and access to technical support.

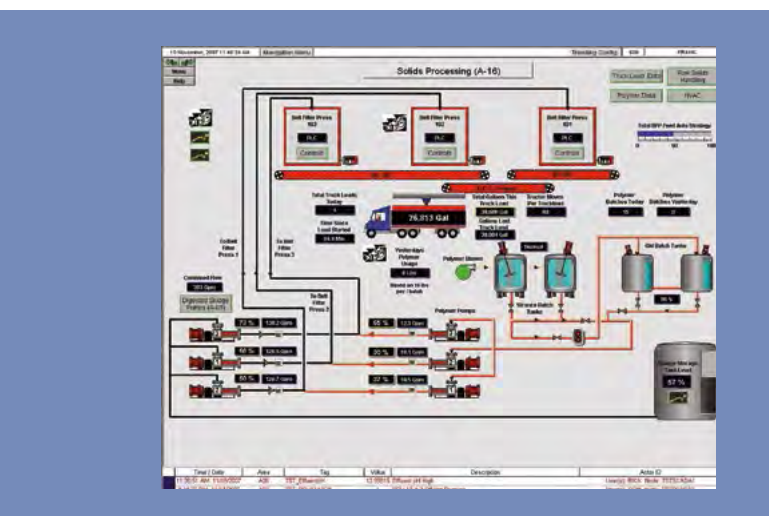


Lincoln Wastewater System

Lincoln, Nebraska



Lincoln Wastewater System's
Northeast Treatment Plant



Solids Processing Screen

About Lincoln Wastewater System

The Lincoln Wastewater System (LWWS), owned and operated by the City of Lincoln, Nebraska, provides a continuous and comprehensive effort to assure the proper collection and treatment of current and future wastewater flows and loads in an environmentally sound and cost effective manner that protects human health and the environment.

Underneath and throughout Lincoln are 970 miles of sanitary sewer lines and 14 pumping stations that keep the wastewater flowing to two municipal treatment plants. The Theresa Street Plant is located in the north central section of the City and Northeast Wastewater Treatment Plant is just south of Interstate 80 and east of Highway 77. The Theresa Street facility has a maximum capacity of 27 million gallons per

"ICONICS GENESIS32 is a very powerful and easily configurable control platform. I have no problems with any of the suite components. The integration of scripting and expression editing provides much more power than I am used to."

Frank Newell

Control Systems Support Specialist
Lincoln Wastewater Services

day and on an average day presently treats about 18 million gallons of wastewater. The Northeast facility presently treats about 5.5 million gallons per day. That adds up to 23.5 million gallons of water per day running through the two treatment plants.

ICONICS Software Deployed

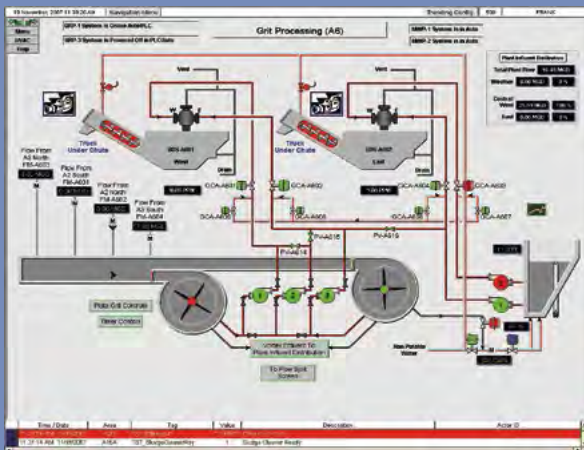
Lincoln Wastewater System installed ICONICS GENESIS32™ OPC Web-enabled HMI/SCADA suite and its WebHMI™ Web-based real-time automation component, as well as the BridgeWorX™ (real-time data bridging), ReportWorX™ (enterprise reporting/charting/analysis) and PortalWorX™ (real-time collaboration and visualization dashboards) components of ICONICS' BizViz™ manufacturing intelligence/business visualization suite.

Project Summary

ICONICS solutions were recommended through LWWS' system integrator, Olsson Associates (who

have offices in Lincoln). Lincoln Wastewater System has installed GENESIS32 server and multiple browser stations at each plant, joined together on the City's fiber optic network. Each plant is an activated sludge wastewater facility. The LWWS SCADA system controls all manual and automatic aspects of each process including raw water pumping, flow dispersal through different treatment trains, flow control to aeration basins and plant overflow bypass. The system also controls aeration basin dissolved oxygen monitoring, mixed liquor suspended solids monitoring,

Data communications is handled through wired Ethernet within buildings and multimode fiber optics between buildings at each site, as well as radio communications to remote lift-stations and dedicated telephone lines to some remote lift-stations. ICONICS software interfaces with Allen-Bradley (SLC 5/05, MicroLogix 1000 and 1100) and Wago (Modbus I/O) hardware and KEPware OPC Servers. Process accumulators, totalizers, averages and more are logged to SQL Server, while other data is shared with Microsoft Access and Oracle databases.



Grit Processing Screen



Anaerobic Digesters

toring, return activated sludge flow set points/rates and effluent flow disinfection/totalization. The system also controls solid waste removal from the treatment facility. Although browsers access the local server, the LWWS application was configured so that in the event of one server failure, the other plant could provide basic graphics, alarming and trending for the other facility. WebHMI allows LWWS administrative staff to access graphics, alarming and trending from desktops on the City network. Trending via WebHMI has been especially useful to operations and maintenance managers. ICONICS BridgeWorX is used to log process information to a SQL Server database on a separate server for reporting. ReportWorX is used to create, print and e-mail daily process and equipment runtime reports to key personnel.

Conclusion

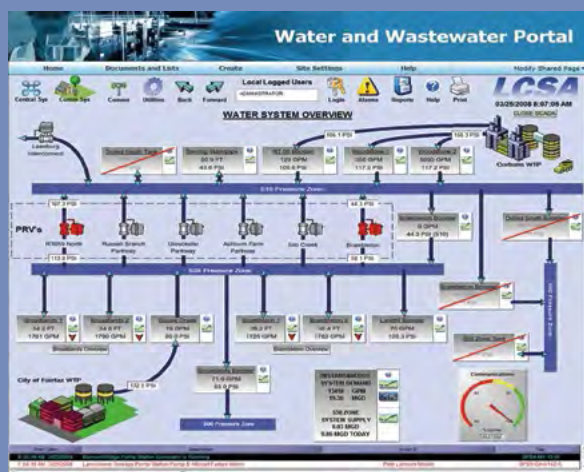
Lincoln Wastewater Service's new system provides monitoring and control of numerous pumps, valves, gates, wetwell levels and solid waste removal in a secure manner. The system also allows managers to monitor any functions that the operators monitor. LWWS was impressed by the ease and flexibility of ICONICS software's configuration, as well as with the open connectivity and open standards concepts of OPC technology.

Future projects involving ICONICS include integration of surveillance cameras, maintenance data and electronic lockout of equipment.



Loudoun Water
Service Area Map

Loudoun Water Ashburn, VA



Operator Overview Screen at Loudoun Water

About Loudoun Water

Established in 1959, Loudoun Water, also known as Loudoun County Sanitation Authority, provides dependable, high-quality drinking water and wastewater reclamation services to the unincorporated areas of Loudoun County, Virginia. Loudoun Water controls and monitors its water distribution and wastewater treatment systems using HMI/SCADA applications. With these graphically rich, Web-enabled programs, Loudoun Water can view everything from flow animations and representations of pipes and valves to dashboards and control panels.

ICONICS Software Deployed

For several years, the utility's HMI/SCADA system has been based primarily on GENESIS32™ by ICONICS,

"With the higher performance of Windows Vista, which is fully supported by our ICONICS software, we anticipate a reduction in customization time by 30 to 40%, compared with Windows XP."

Andy Krapf

Supervisor of Instrumentation and Controls
Loudoun Water

a Microsoft Gold Certified Partner that develops industrial automation and manufacturing-intelligence software. Loudoun Water installed its HMI/SCADA software in an environment with 15 client computers running the Windows XP operating system connected to servers running the Windows Server 2003 operating system. Microsoft SQL Server 2005 data management software supports the HMI/SCADA applications by supplying them with information gathered in real time from the utility's industrial environment.

Although the Windows XP-based client computers served the utility's needs and were straightforward for the IT department to manage, Loudoun Water continually seeks ways to improve its industrial processes. It determined that high-performance 64-bit computers and applications - including a feature-rich, easier-to-use, 64-bit version of its ICONICS software, GENESIS64™ - would increase efficiency, and that the utility would need a newer operating system to support the upgrade.

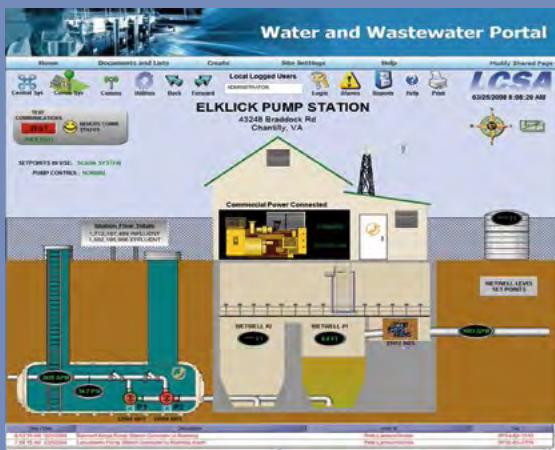
Project Summary

In February 2008, Loudoun Water began deploying the Windows Vista Ultimate client operating system and upgrading its HMI/SCADA software to include the GENESIS64 suite.

By upgrading to Windows Vista, Loudoun Water can run versions of its mission-critical industrial applications that fully support the newer operating system's advanced 64-bit architecture and richer graphical environment. As a result, these third-party applications are more flexible and easier to use, and they can be customized much faster.

Control to help reduce the risk of accidental or unauthorized system changes.

Additionally, Windows Vista comes with Microsoft .NET Framework version 3.0, which includes, among other technologies, Windows Presentation Foundation. Users at Loudoun Water are particularly impressed with the GENESIS64 user interface elements and 3-D graphics, which are now built on Windows Presentation Foundation.



Alarm Monitoring Screen for Ellick Pump Station at Loudoun Water



3D Model Visualization

Benefits of the System

The utility's HMI/SCADA applications running on Windows Vista include sophisticated features that would be more difficult to implement in a Windows XP-based environment. For example, the GENESIS64 suite uses Windows Vista Sidebar Gadgets as gauges, alarms, sliders, and other controls that utility employees can access more easily. The suite also uses enhanced Windows Error Reporting to gather information that can help identify and resolve program errors.

GENESIS64 exposes metadata and integrates with Windows Vista search technologies to help employees quickly locate information that the suite generates. The application also increases the IT security of Loudoun Water by integrating with User Account

Conclusion

The new versions of the utility's third-party applications take full advantage of the high performance 64-bit architecture of Windows Vista. As a result, tasks related to customizing the applications to match the industrial environment take less time. These tasks include 3-D modeling, laying out visual representations of pipes and flow systems, and so on.

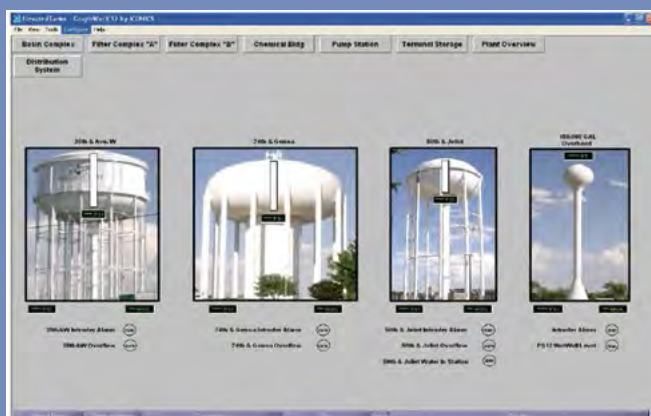
Compared to previous versions, the upgraded software is easier to learn and use, runs faster, and can be faster to customize. With the higher performance of Windows Vista, which is fully supported by ICONICS software, Loudoun Water anticipates a reduction in customization time by 30 to 40 percent, compared with Windows XP.



City of Lubbock Water Utilities Department Lubbock, Texas



Lake Meredith, Lubbock's Water Source



A View of Lubbock's Elevated Tanks

About Lubbock Water Utilities

The city of Lubbock sits in the Texas panhandle on flatlands marked by aridity. In the dusty, drought-prone "hub of the plains," responsible water use is imperative. To meet demands of its growing population, Lubbock must get its water from multiple sources. Lake Meredith and groundwater from aquifers serve as primary sources, while well-fields, operated by the Canadian River Water Authority, supplement supply in times of peak demand. Lubbock Water Utilities Department manages all facets of the city's water needs, including water collection, water and wastewater treatment.

"The system was developed using ICONICS' OPC-based GENESIS32 packaged with WebHMI and ReportWorX software. This provided the flexibility and power we needed for a rapidly growing, multi-user SCADA system with diverse communication, control, alarming, trending and reporting requirements."

David G. Converse
Business Unit Manager
Wunderlich-Malec

With a new water and wastewater software solution from ICONICS, installed by Wunderlich-Malec, Lubbock Water Utilities is able to provide the best water and reclamation service possible with the resources available.

ICONICS Software Deployed

GENESIS32™ provides a Web-enabled HMI/SCADA solution to Lubbock's water and wastewater facilities. TrendWorX™32, ReportWorX™32 and AlarmWorX™32 components are used for data storage, trending and alarming functions.

Project Summary

ICONICS' GENESIS32 system provides for the monitoring and control of all aspects of Lubbock's water treatment plant, wastewater treatment plant and well-field.

Each of the locations has its own control room with several operator stations running on WebHMI. Through custom console panels designed by Wunderlich-Malec, operators use ICONICS to monitor values and controls.

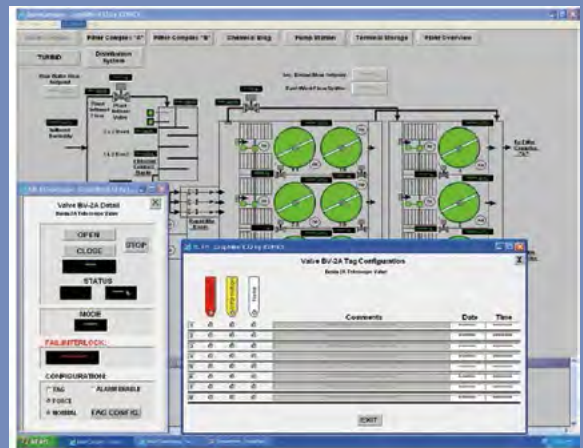
At the water and wastewater treatment plants, chlorine, turbidity, suspended solids, oxidation-reduction potential (ORP) and other critical process variables are monitored. Plant data is acquired via OPC interfaces with plant programmable logic controllers (PLCs). Data from the water distribution

Conclusion

ICONICS, in partnership with Wunderlich-Malec, provides the growing city of Lubbock with an efficient water management solution. Lubbock is currently implementing a state-of-the-art treatment process at their water reclamation facility. The ICONICS-based SCADA system is integral for efficient operation of the plant.



Lubbock's Pump Stations



Basin Complex View

system is acquired over a radio telemetry system. Besides graphical interfacing, ICONICS provides Lubbock Water Utilities with trending, reporting and alarming. Alarming allows plant operators to respond to and identify critical problems as they arise, saving time and money. Trending and reporting offers efficient data analysis.

Solutions Highlighted

TrendWorX

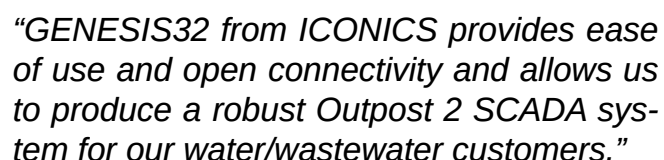
Data Logging, Charting and Reporting Software

ReportWorX

Enterprise Reporting, Charting and Analysis Software

AlarmWorX

Multimedia OPC Alarm Management Software



Vice President of Marketing
MultiTrove

Outpost 2 is built on a proven platform, the GENESIS32™ OPC Web-enabled HMI/SCADA suite from ICONICS.

The MultiTrove SCADA product range has been designed specifically for the needs of water and wastewater networks, and includes:

- **SCADA** - the graphical interface, alarming & trending
- **Historian** - the datastore and reporting interface
- **MTU** - the master telemetry unit, which communicates with the field hardware
- **RTU** - the remote telemetry units, or field hardware

MultiTrove are “innovators in pump station management systems, municipal SCADA and level sensing”. The ISO9001 company designs and manufactures pump station controllers, RTUs, liquid level sensors, SCADA software and Web-based monitoring and control. MultiTrove has remained dedicated to providing technically advanced, yet simple to use, solutions to municipal water and wastewater authorities around the world for over twenty years.

MultiTrove's Outpost 2 product is an open and powerful SCADA system designed for the water/wastewater industry. Outpost 2 interfaces directly to MultiTrove pump controllers and RTUs and provides a wealth of valuable information from every site.

Some water and wastewater applications that benefit from visualization, monitoring, reporting and analysis solutions include:

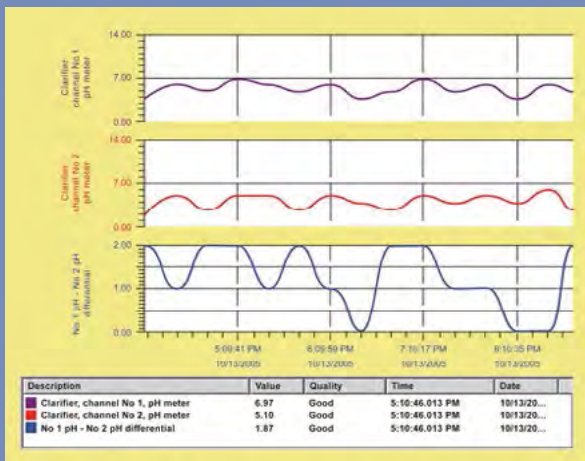
- Water Utilities, Municipalities, Distribution Systems
- Sanitation Systems
- Water Filtration and Remediation, and More.

Benefits of the System

SCADA systems usually consist of graphic screens (the HMI [human machine interface]), trends, alarms

Customers can also benefit from additional ICONICS modules for:

- PDAs (via PocketGENESIS™)
- Mobile Phones (via MobileHMI™)
- Advanced Reporting (via ReportWorX™)
- Web-based Organization Portals (via PortalWorX™)
- Visual OEE/KPIs/Analysis (via BizViz™ Productivity Analytics)



Sample Trend Screen

Add Site

Site Information

Site Id: 11
 Site Address: Smith St
 Site Name: SPS11
 Site File Name: TwoPumpStation_MSM
 (Site File Name should only be modified if a customized version of the display is required)

Alarm Auto Configuration

☒ Update Alarm Configuration
 Alarm Server Config File: ../config/MSM-3PC.csv
 Alarm Server Data Source:

Trend Auto Configuration

☐ Update Trend Configuration
 Trend Server Config File: ../config/MSM-3PC.csv
 Trend Server Data Source:

OK Cancel

Add Site Screen

and reporting and GENESIS32 is no exception. The Outpost 2 system demonstrates a lot of the basic capabilities of GENESIS32. More advanced users may appreciate multiple other features of GENESIS32 such as drag and drop ActiveX controls for trends and alarms. Users can go into configuration mode, drag an alarm ActiveX onto a page and go back into runtime mode in a few seconds. The same can be done with trend screens.

Data points on a screen can be simply dragged onto a trends window to instantly start trending. Alternatively, users can browse through OPC tags and select the ones that are required. Historical tags can be selected just as easily. And all this can be done while the SCADA system is running.

Case Study Details

The MultiTrove/ICONICS SCADA product range achieves three key objectives:

- **Low Lifetime Cost** - a system which a typical organization can operate and expand themselves
- **Low Operational Cost** - provides a system which reduces operational and engineering costs by minimizing the need for site visits while improving asset performance
- **Open Systems and Protocols** - the organization can choose to use whatever products they like from MultiTrove, as well as products from other suppliers such as ICONICS - without having to invest in overcoming proprietary interfaces

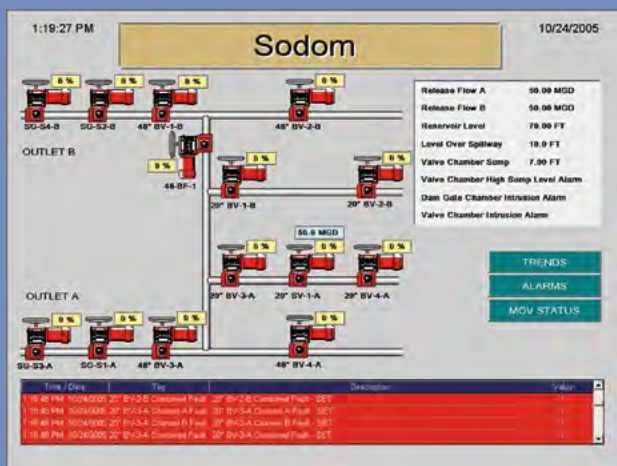


New York Reservoirs and Dams

Westchester County, NY



New Croton Dam in Westchester County, NY
Holds up to 19 Billion Gallons of Water



Main Control Screen at Sodom Dam

"GENESIS32 is being used to help ensure a primary source of water for millions of people in New York City."

Gabe Hauer
AdvanTech Corporation

ICONICS Software Deployed

NYCDEP, through the suggestion of system integrator, AdvanTech Corporation, selected ICONICS' GENESIS32 Web-enabled, OPC-integrated HMI/SCADA suite to perform the various control and monitoring tasks at each separate dam and reservoir location.

About New York Reservoirs and Dams

Over eight million residents and visitors of New York City depend upon a combination of tunnels, aqueducts, dams and reservoirs located throughout New York State for their water needs. Three separate systems comprise the water supply for the city, including the Catskill System, the Delaware River System and the Croton System. In recent years, the New York City Department of Environmental Protection (NYCDEP) has taken on a project to expand and modernize the Croton System, including the use of automated monitoring and control of dams and reservoirs within the Croton System, including Croton Dam, Croton Diverting Dam, Sodom Dam, Bog Dam and Middle Branch Dam.

Project Summary

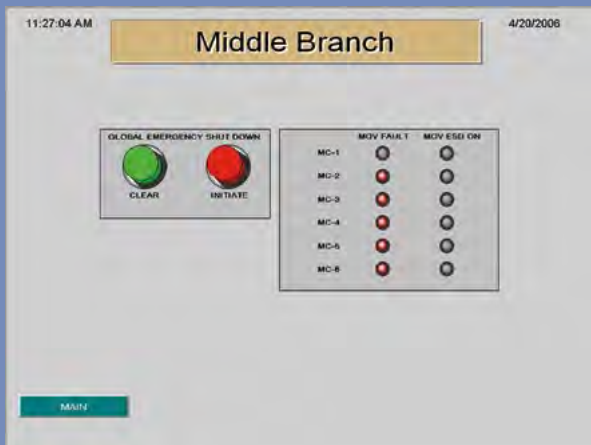
The New York City Department of Environmental Protection began a project in the early 2000s to monitor and control water levels in a number of dam-reservoirs throughout the New Croton Aqueduct. Each reservoir/dam has its own separate control room, containing its own instrumentation and controls. AdvanTech was selected to provide autonomous PC-based automation of the water level monitoring and control and, in turn, recommended ICONICS' industrial automation software. The project involves communication with a series of valves and gates within the reservoirs, each connected to an actuator. NYCDEP mandated in its project specification that the actuators for the valves and gates communicate via MODBUS protocol. The agency also required that MODBUS communicate throughout each

reservoir/dam's control system in a loop, something for which MODBUS wasn't designed to do natively. Two PLCs (Schneider Electric) are attached to each valve to connect into the looped system, and are networked via Ethernet to the GENESIS32 HMI/SCADA system. AdvanTech designed the system so the actuators could be controlled via each reservoir/dam's master station control.

Benefits of the System

GENESIS32 met NYCDEP's requirements in modernizing its reservoir/dam monitoring and control due to:

- Integration with multiple communication protocols and technologies such as MODBUS and Ethernet
- Monitoring of standalone applications, such as remote water level control rooms
- PC-based HMI/SCADA (whether industrial or traditional) and integration with Microsoft operating systems and applications



A Status Screen at Middle Branch Reservoir, Part of the Croton Water System in New York



Water from the New Croton Reservoir Travels 24 Miles Before Entering NYC Via the Bronx

Key Features

ICONICS' GENESIS32 HMI/SCADA is installed at each separate reservoir/dam control room on a dedicated function industrial PC. The software has been set to collect historical data and run without on-site interaction over set periods of time. It also ties in seamlessly with the PC's operating system (Windows XP) and database software (SQL Server). GENESIS32 can be monitored remotely, where operators can get detailed visualization of data related to:

- Valve Actuator Status
- Electric-related Activities
- Motor-related Activities
- Water Levels
- Water Pressure

Conclusion

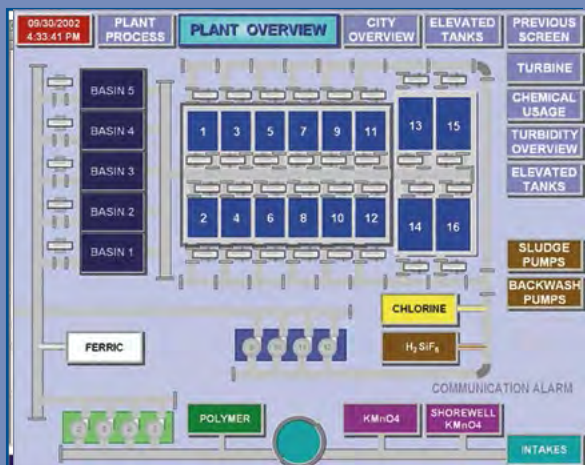
NYCDEP's Croton System reservoir/dam project is still ongoing, with GENESIS32 installed at six fully operational control room sites and two currently in process (as of May, 2009). ICONICS is honored to be selected in ensuring an adequate water supply for one of the most populous cities on Earth.



Sunrise at Racine, WI

Racine Water & Wastewater Utility

Racine, WI



Plant Overview Screen at Racine Water

About Racine Water & Wastewater Utilities

Racine Water & Wastewater Utilities serves 100,000 customers in the communities around Racine, Wisconsin. They have two facilities located on the shores of Lake Michigan in Southeastern Wisconsin. Their water utility processes an average of 35 million gallons of potable water per day for their residential, commercial and industrial customers. Their wastewater utility treats approximately 35 million gallons of wastewater per day before returning it to Lake Michigan.

ICONICS Software Deployed

ICONICS' GENESIS32™ HMI/SCADA software suite (GraphWorX™32, TrendWorX™32,

"While there are so many new tools and capabilities in the GENESIS32™ product, the one outstanding feature is the ability to add, delete and change data tags while the system is on-line and functioning."

Bob Gilbreath

Computer, Control & Instrumentation Supervisor
Racine Water & Wastewater Utilities

AlarmWorX™32 and ScriptWorX™32) is being utilized for the main visualization, data storage and alarming functions. DataWorX™32 is also being used for system-wide redundancy. Another option being deployed is advanced data-logging to Microsoft MSDE database through the ICONICS MSDE data-logging option.

Key Features

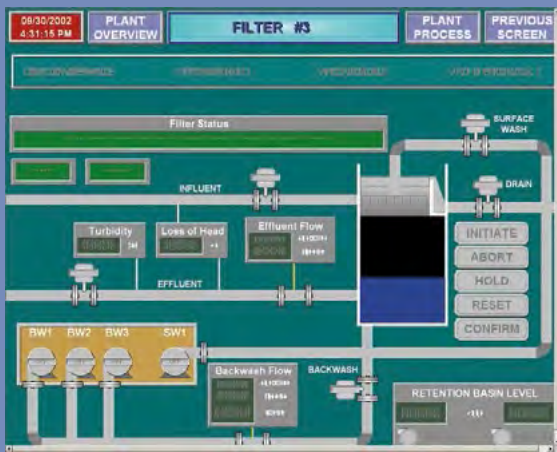
Racine Water initially chose GENESIS for DOS in 1991 as the HMI operator interface software for their plant wide SCADA system at their water utility. This system controlled the entire water plant and distribution system operation of 3 remote tanks and 1 remote pumping station, from a central control room. There were seven PCs installed in the control room and around the plant to monitor the water filtration process.

A year later, a citywide SCADA radio telemetry system was installed at the wastewater utility to monitor 11 lift stations, 4 metering sites and 10 safety

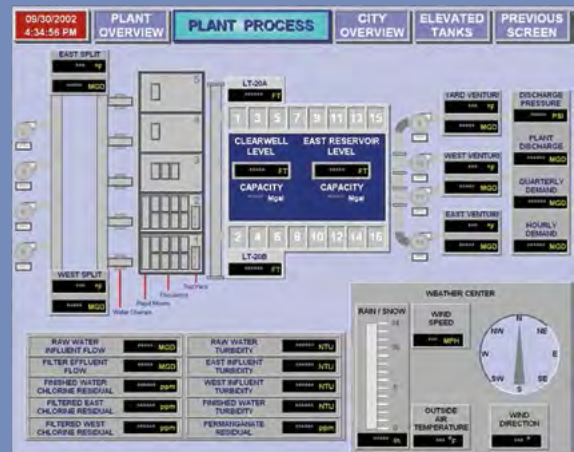
sites. In 1996, the system was upgraded to GENESIS for Windows and in 2001 the wastewater plant was modernized using GENESIS32™ to increase capacity and to automate and centralize the control to one room. An extensive evaluation was made of leading SCADA vendors. GENESIS32™ was selected because of the speed and redundancy of data collection systems, as well as due to the superior OPC-based data engine allowing live changes to the system without the need to restart.

Benefits of the System

Since both the water and wastewater operations are running 24/7, system stability, reliability, redundancy and the ability to update the data engine live are critical to the proper operations at each location. The SCADA system was installed by in-house personnel and managed by Bob Gilbreath. The GENESIS32™ system provides for the monitoring and control of all aspects of the water filtration and citywide distribution processes of the water utility.



*Filter Monitoring and Control at
Racine Water & Wastewater*



Plant Process Monitoring/Control Screen

Project Summary

At the water filtration plant, five workstations are used for process visualization, control, alarming and historical trending. Three operator workstations at other remote locations in the plant provide remote viewing, control and alarm acknowledgement. Two data servers are also being used for data collection and historical data logging. At the wastewater plant, a central control room is utilized with five workstations as well as another ten operator workstations located around the facility. At the largest lift station, a single system is installed to monitor and control 15 pumps, as well as the logging of process and alarm data.

At the wastewater plants' field operations office, the system is used for monitoring and alarming the status of the remote sites. At the Lift Station #1, the GENESIS32™ system is used for monitoring and control of the station operation. There are over 1500 total data tags at the water filtration plant and 1300 tags at the wastewater plant which will be expanded to over 2,000 tags after final improvements are completed. Particle counter data is also collected using a Hach (another ICONICS OEM) GENESIS32™-based software system.

Conclusion

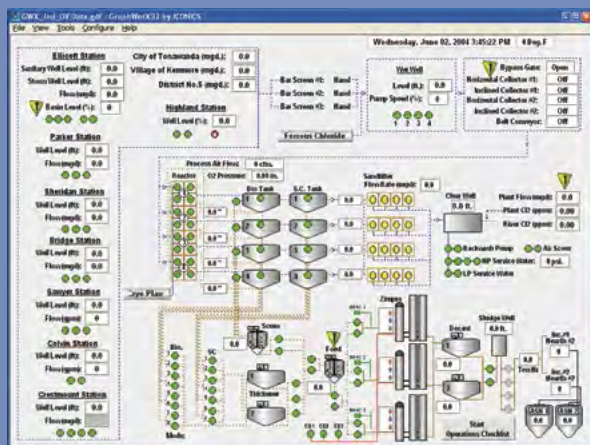
Together, Racine Water & Wastewater Utilities and ICONICS have produced clean and pure water for many years to the good people of Racine, Wisconsin.



Tonawanda Water Resource Department Tonawanda, NY



Water Tower
Tonawanda, NY



Wastewater System Overview Screen

About Tonawanda Water Resource Dept.

The Town of Tonawanda, formed in 1836, is located north of Buffalo, with a population of approximately 80,000. The Water Resource Department operates and maintains hundreds of miles of water and sewer lines. Each year billions of gallons of water drawn from the Niagara River are treated, distributed, collected and cleaned in order to serve their residents. The name Tonawanda, or "Swift Waters," was given to the area by the original Native American inhabitants.

ICONICS Software Deployed

GENESIS32™ Enterprise Edition and WebHMI™ are deployed at both the Water and the Wastewater Treatment Facilities. Between both locations there are five GENESIS32 servers, five WebHMI servers,

"ICONICS was able to reduce our operational cost while providing us with technology we can grow with."

Ed Rick
System Manager
Town Of Tonawanda Water Resource Dept.

and numerous dedicated and browser-based clients. DataWorX™32 plays an important role in the application, allowing the Water Treatment Facility's server to act as the backup server for the Wastewater Treatment Facility, and visa versa. Both applications take full advantage of the power of GraphWorX™32, providing rich and informative operator screens. TrendWorX™32 is deployed, providing operators with real-time trending. AlarmWorX™32 Multimedia is used to distribute alarms and events to the appropriate people. ICONICS software is also deployed at 13 remote pumping stations connected over leased lines back to the control room.

Project Summary

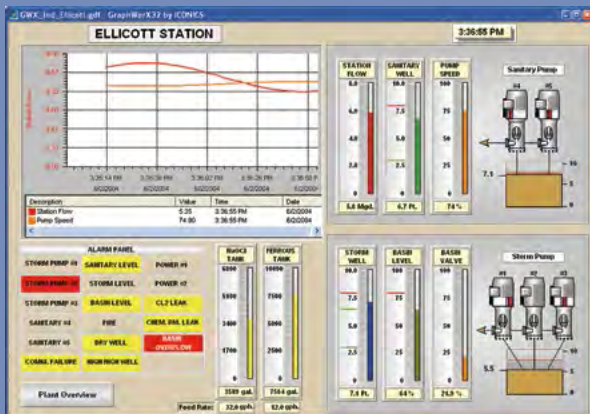
ICONICS software replaced a legacy competitor HMI/SCADA application when the price for support became too high. The Town of Tonawanda was paying high support cost for the HMI/SCADA package and other third-party applications such as reporting solutions. Switching to ICONICS paid for itself in the first year. For the price of one year of support,

GENESIS32 and WebHMI were installed on a 32-bit platform at a lower cost, providing more technology such as the ability to have true thin-client viewing via Internet Explorer Web browsers.

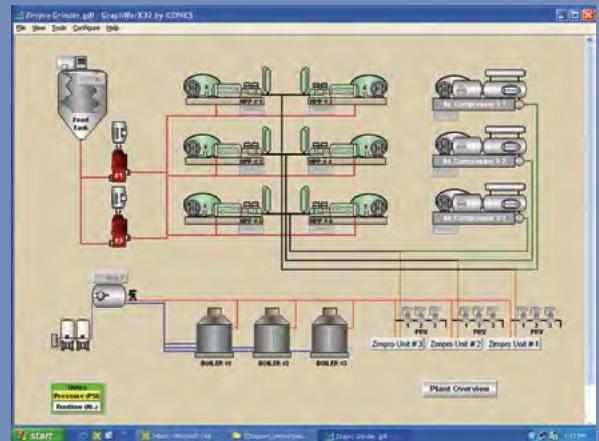
The system was installed by town employees, with sales and technical support from BCS in Buffalo, NY. OPC technology and redundancy both play a significant role in the application. Kepware OPC drivers are used to connect GENESIS32 to Modicon PLCs and Industrial Control Links Devices. The system has approximately 4,000 I/O points in total.

connected via mobile phones, and more. In addition to lowering their support cost for the maintenance contracts, time spent supporting the system internally is now minimal.

WebHMI is a true thin-client solution with all the administration and licensing done on the server. With client-side licensing, staying connected to the plant can be done anywhere, anytime. All that is needed are a user name and password.



Ellicott Station Monitoring Control at Tonawanda Water Resource Department



Zimpro Flow Screen

Redundancy is performed at three levels. There are redundant Enterprise servers in each location, and each location works as a backup for the other. There is a wireless Ethernet between the locations running over a Cisco backbone. DataWorX32 Redundancy is used to keep the plants in sync. There are redundant OPC drivers in use, as well as redundant Ethernet with a recovery time of less than 300 milliseconds.

Benefits of the System

Deploying ICONICS software lowered the expensive support costs to keep the legacy systems running. The upgrade also gave the Town of Tonawanda a system they can expand on for years. They have the architecture that supports additional functionality, such as wireless operator stations, the ability to stay con-

Conclusion

The Town of Tonawanda is continuing to retrofit ICONICS software solutions and soon will deploy ReportWorX™ as their reporting standard.

Solutions Highlighted

WebHMI

Web-Based Real-Time Automation Software

DataWorX

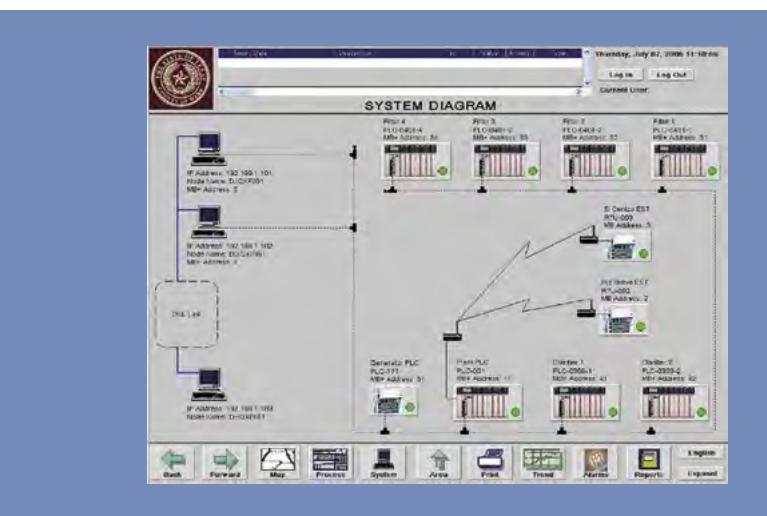
OPC Data Aggregation, Bridging, Redundancy and Tunneling



Webb County Water Treatment Rio Bravo, TX



Webb County Water Treatment Plant
Rio Bravo, Texas



Control Systems Architecture

About Webb County Water Treatment

The Webb County Water Treatment Plant (WTP) in Rio Bravo, Texas is situated near the Rio Grande River, south of San Antonio. In order to meet population growth and to respond to rising water quality requirements, the county planned to construct a new plant and to replace the outdated, high maintenance water treatment facility. The former WTP has no computerized control or SCADA system, and operating the process equipment, water intake, and distribution systems required a great deal of time. Spanish is the native language for most of the plant personnel, and several of them were not fluent in technical English.

ICONICS Software Deployed

ICONICS GENESIS32™ suite of OPC Web-enabled HMI and SCADA applications was selected by the CH2M HILL SCADA project team and Webb County Engineers due to its language switching capabilities. During the design development time, it was the only major HMI package that included this feature, providing operators with the ability to interface with the SCADA system in either language, English or Spanish. The developed software serves to gather WTP process data, as well as monitor, alarm, present, and trend the plant information. Webb County and CH2M HILL also selected ICONICS AlarmWorX32™ MMX alarm notification software and WebHMI™ for secure remote access.

Project Summary

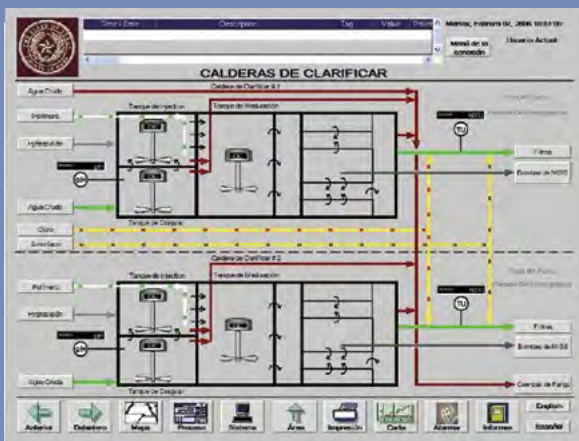
To meet the requirements for stringent water quality, desired water production, and efficient and economical plant operation and maintenance, sophisticated instrumentation and control and SCADA systems were required. However, as the operations and maintenance staff was largely unfamiliar with computerized control systems, the developed SCADA system needed to be based on a user-friendly, graphically enhanced, bilingual (English/Spanish) package. Equipment tags, process descriptions, and other information incorporated in the SCADA system screens needed to be switched between English and Spanish, in the runtime environment, by selecting a single button. This would ease operators' and maintenance personnel's interaction with the WTP systems.

Benefits of the System

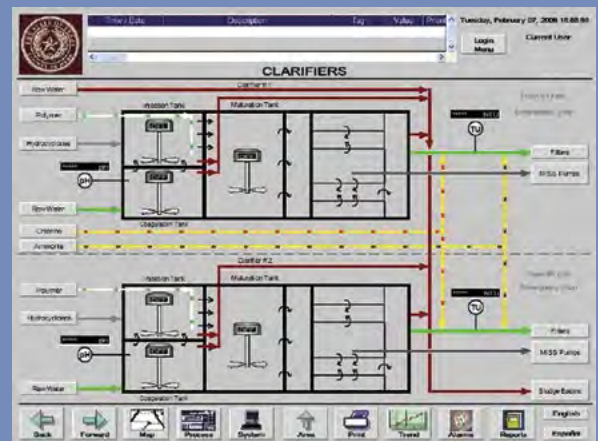
The ICONICS-enabled multi-language support is a convenience to most of the operators, maintenance personnel, and Webb County engineering and management staff that are fluent in both languages. It's a necessity for safe water plant operation for those who might not be confident in using one specific language.

ICONICS GENESIS32 remote alarm notification, real time and historical trending, automated reporting, and secure remote access and monitoring via thin client technology were implemented to allow for ease of monitoring and operation. Webb

County Water Treatment Plant Control System in both English and Spanish, utilizing the GENESIS 32 software, the operators were able to adapt to a computerized control system quickly and easily.



Process Control Screen at Webb County Water in Spanish



The Same Process Control Screen in English

County worked closely with their engineering partner, CH2M HILL in the Austin, Texas office, to ensure the smooth transition in plant operations. The development of, and adherence to, the HMI software design standards resulted in simple and clear control screens.

Conclusion

By employing functionality such as reporting systems, remote access to control system data, remote alarm notification, language aliasing, and having the software fully developed and thoroughly tested at the CH2M HILL SCADA lab, Webb County WTP users could quickly see the benefits of the deployed control system. In particular, by implementing the

Case Study Details

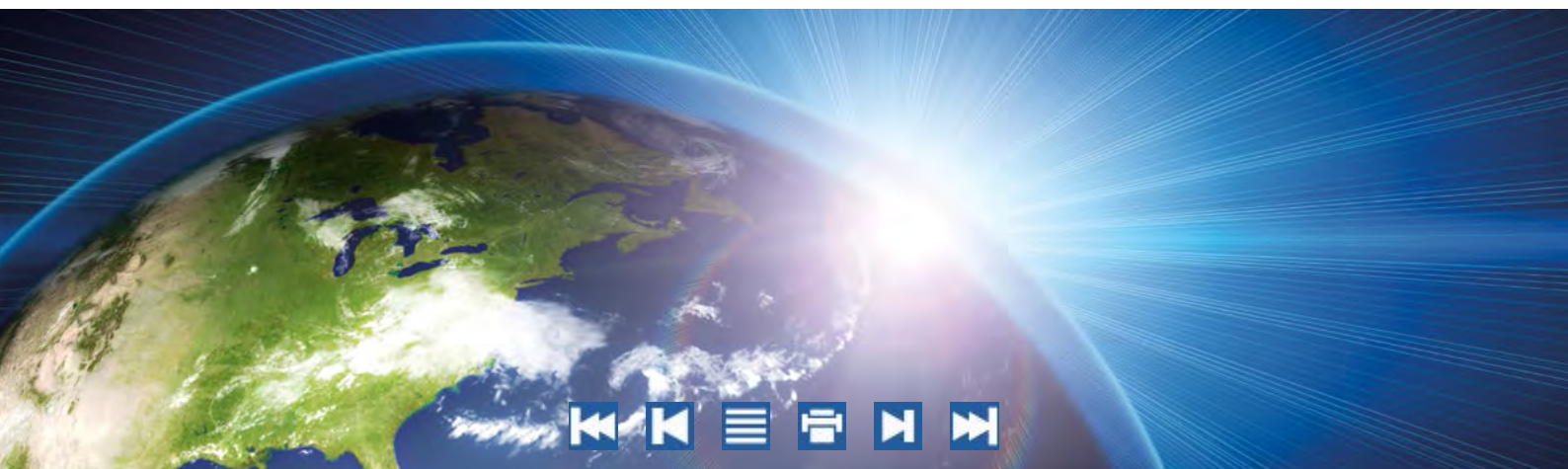
While replacing the outdated WTP facility, Webb County Project Engineers sought specific details for the planned HMI/SCADA package including:

- Friendly, intuitive, easy to use HMI/SCADA for WTP personnel and management alike
- Multi-lingual configuration
- Language switching during runtime
- Universal features common to Water/Wastewater industry
- Alarm notification & secure remote Web access

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 ICONICS, Inc., 100 Foxborough Blvd., Foxborough, MA 02035
 www.iconics.com - 508.543.8600 - info@iconics.com



ICONICS World Headquarters

100 Foxborough Blvd.
Foxborough, MA 02035
Tel: 508 543 8600
Email: us@iconics.com

ICONICS Europe

Czech Republic

Tel: 420 377 183 420
Email: czech@iconics.com

France

Tel: 33 4 50 19 11 80
Email: france@iconics.com

Germany

Tel: 49 2241 16 508 0
Email: germany@iconics.com

Italy

Tel: 39 010 46 0626
Email: italy@iconics.com

Netherlands

Tel: 31 252 228 588
Email: holland@iconics.com

ICONICS Asia

Australia

Tel: 61 2 9727 3411
Email: australia@iconics.com

China

Tel: 86 10 8494 2570
Email: china@iconics.com

India

Tel: 91 22 67291029
Email: india@iconics.com

ICONICS UK

United Kingdom

Tel: 44 1384 246 700
Email: uk@iconics.com

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