

Acquire™ - The Next Generation HMI from Ambrit

Introduction

Using Internet inspired graphics and communication techniques Acquire takes real time data acquisition and control to a new level of performance, reliability and secure accessibility. The benefits can also be translated to private corporate intranets. These networks, now prevalent through out the industry, provide high-speed communications between Acquire servers and the system peripherals using TCP/IP communication protocols.

In the past, Supervisory or HMI (Human Machine Interface) systems have tended to be complex and typically used communication protocols and graphics technology proprietary to each individual supplier. Most of them were designed before the Internet revolution i.e. before many of today's software standards existed. Acquire is the latest generation of software, based on current Internet standards - the result being a Supervisory HMI software product for a wide variety of industrial uses, which is fully compatible with modern LAN, intranet/Internet and database technologies.

This Acquire implementation focuses specifically on flow measurement in the oil and gas industry where a diverse range of smart instrumentation and even smarter RTUs are deployed for the measurement and control of hydrocarbon products. As these measurement and control technologies have evolved, the requirement to access data, control events, and distribute information worldwide has become a major challenge.

Acquire is the leading edge solution, providing a secure, real time link between process control instrumentation and the Internet or intranet. Allowing operations, engineering and management to interact with systems locally or remotely using a standard web browser as the HMI.

Acquire is a server software product which runs on a standard Windows PC. The PC connects to RTUs, flow computers or directly with smart transducers using their proprietary hardware and software protocols. Acquire collects data and stores it in a local database, which also acts as an Internet/intranet server. This server transmits the data on request, using secure Internet technologies, to an operator anywhere in the world. Acquire exploits the latest wireless and Satellite TCP/IP communications capability allowing access to remote flow computers and RTUs.

Subject to satisfying access permissions, an operator can gain access to the data via Acquire's graphic rich interface. An operator from any location, local or worldwide, can have secure, real time access to measurement systems in many locations.

The Acquire™ Advantage

By using the most up to date software standards available, Acquire offers many advantages over conventional Supervisory Computer applications. Leveraging proven Internet core technologies in place of conventional proprietary approaches puts Acquire at the forefront of HMI development.

Ease of deployment Acquire can be configured quickly and easily. What takes weeks and months with conventional technologies can be achieved in a few hours with Acquire.

No Reliance on Custom Software

Acquire systems are deployed without the need to write custom code. The initial configuration process is automated taking a few minutes to build the system to a high level of detail. Manual adjustment of interactive graphics, system detail and communications is achieved using Acquire's intuitive and powerful drag and drop editor and is well within the capability of the average project engineer.

A Solution Provider

Conventional HMI supervisory systems rely on Application Generator technology requiring custom software. These systems require software engineers to write custom specific code to configure the system to meet specific end user requirements. This approach often carries an overhead of long, customized configuration time, technical risk and intensive testing requirements. In addition, there is the legacy of the long-term reliance on the software engineering personnel for on going support.

Acquire is a Solution Generator, a next generation approach that leverages the graphics and communication technology from the Internet. Unlike conventional application generator created systems Acquire is a highly polished HMI product that creates HMI Supervisory Solutions "out of the box", without custom code. It provides the solution, quickly and easily. Using a combination of automatic configuration and intuitive editors, it provides a high degree of flexibility in the creation of an HMI solution for flow measurement and control systems.

Ease of Connectivity

Acquire can communicate with flow computers, PLCs, RTUs and smart instrumentation using serial or TCP/IP communication protocols. Modbus, OPC and several propriety data protocols have been implemented in the Acquire product to cover all most all requirements. Where new communication protocols are required, these costs are absorbed by Ambrit and implemented in a few days adding to the native device list. Acquire has native support for many flow computers allowing automated integration into Acquire These include:

- Daniel FloBoss S600, F103, F104, ROC800,
- Omni 3000, 6000, Smartbus RMC and LMC
- Solartron 7951
- Alderley E2000

In addition, several other devices, flow meters, chromatographs and QA instrumentation have also been assimilated into Acquire's native device list.

Ease of Support

The features that contribute to the ease of deployment also influence the ease of support. End users, with their own resource, can easily manage the communications, add features, extend capability, configure custom screens and reports; all is well within the capabilities of any competent field instrument engineer.

In addition, Ambrit can offer secure Internet support to Acquire systems in the field during commissioning and during the operating life of the system. This capability has been extended where Ambrit has developed relationships with third party organizations in key areas of the world providing localized support for Acquire and its subsidiary products. This covers, configuration, installation and commissioning and long-term support.

Internet support of Acquire systems will have a positive impact on cost of long-term ownership enabling the best qualified

Webspring™

The core technology, created by Ambrit, to provide a development platform for the whole of Ambrit's product range. Webspring started life in 1996 when Ambrit recognized the need for a secure, real time Internet driven database that went beyond the solutions available at the time. Today Webspring is a highly secure environment able to satisfy the most stringent corporate IT requirements and audits.

There are many Webspring engines operating worldwide in a multitude of applications ranging from e-commerce, e-banking through to the metrology applications of which Acquire is one.

Unparalleled Security

Acquire has unparalleled data security capable of satisfying the most stringent Corporate IT requirements.

The foundation of Acquire's security lies within the Webspring core that Acquire is built on. Ambrit developed Webspring™ specifically for secure industrial data transmission on Internet and Intranet networks. Webspring has built in support for user name and password access, Digest Authentication and 256 bit SSL (Secure Socket Layer) encryption software protocols, which, when connected with TCP/IP communication hardware protocols; Firewalls, Virtual Private Network routers etc. all working seamlessly to provide a data security environment second to none.

Simplified Shared Information

Controlled access to an Acquire system allows dissemination of information throughout the user community. HMI screens can be distributed through the control room or extended to other control rooms that require information without increased license costs. This philosophy can be extended to management, engineering, auditors and corporate where real time information on operational activities may be important. This distribution of real time information under Webspring security is simplified with Acquires communication tools. Screen data, the ability to print reports events etc. can be easily distributed on local intranet networks and securely through the Internet using the many hardware and software interfaces available to IT engineers.

Acquire can generate and distribute client customized report data automatically by email as formatted attachments.

Acquire communicates with other systems through the Modbus or OPC server features embedded in Acquire. Important data can be archived to CD/DVD for long-term storage and retrieval. All this is available from within the Acquire product, deployed, and

maintained without the need to deploy specialist software resource.

Obsolescence

Acquire is a “shrink wrapped” product, it is constantly kept up to date with the latest improvements in technology. An Acquire system will never need replacing due to equipment obsolescence. Acquire upgrades will be available to respond to advances in technology. Updated hardware, operating systems, browsers and instrumentation will be met with an Acquire response that will be backwards compatible and effortless to implement in the field. Measurement and control systems will no longer be frozen in time; with Acquire, they can evolve in line with the industry’s rapid computer development.

Highly Scalable

Acquire is highly scalable allowing large and complex systems to be built easily by interconnecting Acquire servers, HMI screens, printers and other Ambrit application servers on TCP/IP networks. System access criteria can be applied allowing controlled interaction with systems regardless of location.

Redundant Systems

Where systems require a level of server redundancy Acquire provides this by employing server load balancing techniques derived from the Internet industry. This provides ‘bumpless’ transfer of all data to the HMI screens ensuring continuous operation in the event of a server failure. Automatic recovery and data synchronization following server reinstatement ensures system integrity with zero down time.

Unlimited Users

HMI users only need a web browser and no specialized software to access Acquire. The number of HMI seats or users with access privileges has no impact on Acquire license costs. This an efficient solution allowing an unlimited number of users access to Acquire servers. . Where multiple seats are not required, Acquire also has a local mode presenting the interface on a display local to the server.

Multi – Lingual

The primary language is English, however Acquire can operate simultaneously in any language dependant on access privileges. These languages can include Chinese, Arabic, Japanese, Korean and Cyrillic. This applies to all aspects of the HMI, allowing users with different language preferences access the system in their language.

Lower Cost of Ownership

Acquire’s rapid deployment features allows the creation of complex systems without custom software. The follow on benefits contained within the Acquire product ensure fast turn around with simplified Factory Acceptance Tests, streamlining the integration of the Supervisory HMI. Add to this the ease of remote and local long-term support all contributing to an overall lower cost of system ownership.

Better Asset Management

In today’s increasingly regulated world, the requirement to formally document the operation and maintenance of complex metrology assets demands no justification. It is

of paramount importance that fiscal metrology assets are managed.

Acquire collects and processes data from the measurement system and provides the HMI to operations, technicians and management. However, today, Acquire can go further by interacting with *Metrology™*, Ambrit's suite of metrology management applications, Metrology has been specifically designed to provide the complete solution to the management of measurement and control systems.

At the heart of Metrology is *Inventory™*, an asset database that maintains a record of all the equipment that makes up the measurement system, including equipment location, service status and calibration history, audit history and record of events.

This is achieved by adding Metrology applications as required.

Record™ - an equipment and process logbook for the measurement station(s). This replaces the conventional paper logbook allowing the sharing of event data between operations, engineering and management. Acquire can also write key events to Record time and date stamping the event and adding meter readings as part of the event record.

Calibrate™ - an application that provides management of the asset calibration requirements. This is an interactive solution with scheduling, procedures and tools to manage and record the system calibration history. Calibration history is retained to provide long-term analysis of equipment performance.

Inspect™ - A metrology audit is a complex: a series of tasks relating to a variety of engineering disciplines in multiple locations that is distilled into a single report. Inspect consolidates the audit process, using leading edge web-enabled database technology to collect and distribute audit data and provide real time interaction between the client, system managers and auditors.

Profile™ - a long haul data acquisition system used to connect Acquire and Metrology systems together through a highly graphical interface regardless of location.

The Metrology suite and Acquire interact to provide a consolidated interface distributing management and control data over vast distances, securely and in real time. All benefit from the rapid deployment features derived from Ambrit's leading edge Webspring foundation technology.

Summary

Acquire is a highly polished product specifically designed to provide a leading edge solution for Supervisory HMI "out of the box". The combination of simple, fast deployment without custom software, coupled to embedded communications, native device interfaces, scalability, remote support and the Metrology suite ensures success, both at an engineering level and cost of ownership.

Performance, reliability and low cost are generally considered diverse relationships. Acquire meets these criteria without compromise.