Features and Benefits

■ **Human system interface (HSI):**

Web browser based object-oriented graphical user interface (GUI) and supervisory control.

Comprehensive historian.

Data archiving.

Excel report generation.

Real-time/historical trending.

Alarm management.

SOE (Sequence of Events) support.

■ **Use of industry standards:**

Windows® based platform.

Client/server architecture.

Web browser technology.

ActiveX® controls.

OLE database interface.

TCP/IP protocols.

Dynamic HTML.

■ **Enterprise management integration:**

True open control system technology.

Aspect Object[TM] context-sensitive menu control.

Internet integration.

E-mail integration.

■ **Ease of use:**

User profile recognition.

International language support.

Help and online documentation.

Quad monitor support.

Wav file alarm annunciation.

Intuitive point-and-click navigation.

Tool-tip support.

High performance security.

■ **System compatibility:**

Harmony.

Melody.

INFI 90® OPEN.

Contronic P®.

Freelance 2000[TM.]

AC800F.
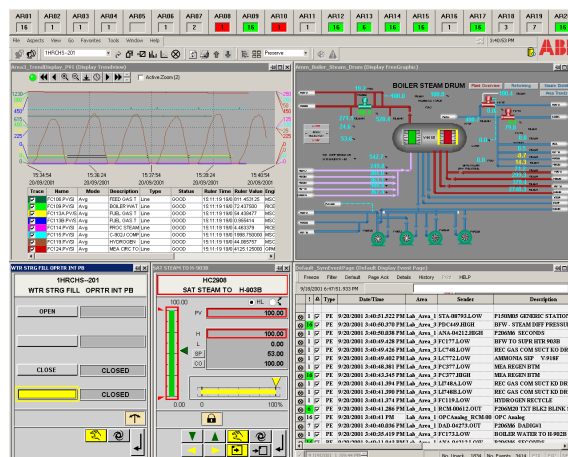
TC02674A

Operate[IT] Process Portal Version B1.2 is a full-featured Human System Interface (HSI) utilizing Microsoft® DNA architecture. It is designed as a native Windows-based product in conjunction with web browser technology using ActiveX controls and dynamic HTML. Process Portal complements the inherent functionality of Industrial[IT] by providing a suite of features and functions which are designed to facilitate and optimize the monitoring, control, fault mitigation, and optimization of any process and enterprise.

Process Portal, with its standard technology design basis, provides a unified user interface to monitor, control and manage plant-wide enterprise information from a single location. A managed Windows workplace supports its users with intuitive context-sensitive menu navigation allowing them to concentrate on the operation and management tasks at hand, following the information flow through the control system, process, plant and the entire enterprise.

Process Portal provides a graphical user interface; process data collection, storage and analysis tools; an advanced alarm management system; a comprehensive historian; and an advanced reporting package. It provides the flexibility and consistency of using a common HSI for the following ABB systems: Harmony, Melody, INFI 90 OPEN, Contronic P, Freelance 2000, AC800F, and Advant OCS with MOD 300 software. As part of open system technology, Process Portal

ABB

embraces OPC to provide a standard method of interface with third party devices that incorporate OPC client and OPC server connectivity.

Introduction

Process Portal relies on state-of-the-art standard industry technologies to support the many facets of the enterprise automation, such as:

- Object-oriented graphical display and control.
- Data storage, analysis, trending and reporting.
- Advanced alarm and event management.
- Process optimization.
- Maintenance management integration.
- Remote information access integration and exchange.
- Documentation access integration.

By taking advantage of advanced technologies, Process Portal is able to perform all of the traditional HSI tasks, as well as nontraditional tasks, normally associated with an HSI within a system that is easy to configure and intuitively easy to use. It combines the power and flexibility to lower overall life cycle costs, while providing the advanced functionality required of the next-generation HSI.

Process Portal Unified User Interface – Navigation

The user navigation is the universal workplace from which Process Portal users view and control process system and enterprise data. It provides the interface elements specifically designed to accommodate the needs of the process control system users, while offering the managed workplace to interface with the tasks associated with the overall enterprise management system (refer to Fig. 1).

Since Process Portal is a Windows based product, many Microsoft features and functions are also included in Process Portal. For example, Tool Tips are included in Process Portal to assist the users in the interpretation of symbols and to expand text descriptions.

Window Management

One of the primary functions of Process Portal is its window management system. The window management system is responsible for managing the total Process Portal workplace, including its control screen views. It is also used for integrating the views of third-party software packages which may operate within the Process Portal environment. The unified user interface forces all these views to comply with the window management policy, as defined by Process Portal. Some of the windows management configurable criteria are:

- Initial sizes and positions of specific view classes.
- Dedicated screen areas for alarm management functions, such as alarm/event bars.
- Dedicated screen areas for menus and tool bars.
- Default view layering for view classes, with respect to overwrite priority status, i.e., stacking order for view classes.
- Pre-assigned direct access to user, object, and system related actions.
- Number of views/windows per workplace.

Process Portal supports the user by keeping the workplace managed, organized and operable, freeing users to concentrate on their primary tasks.
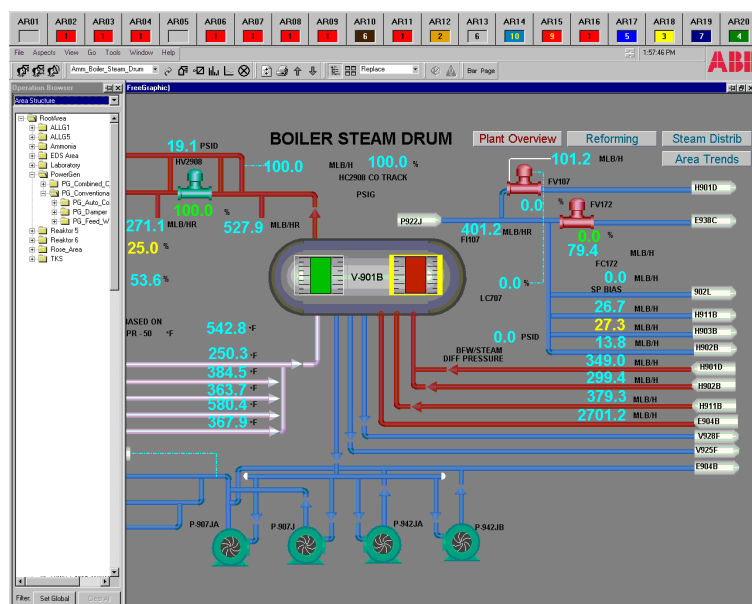
Figure 1. Unified User Interface

User Profile Recognition

Typically, many different types of users have access to, and use an HSI system. Each user places different demands and unique requirements on that same HSI system. In order to meet these broad and unique requirements, Process Portal leverages its state-of-the-art technology by customizing itself to the needs of the individual who is logged onto the system. Process Portal recognizes who is logged onto and using the system at any given time, then orients itself to meet the specific needs of that user, according to that user's profile. In addition, Process Portal allows profiles to be defined for an entire system or for a particular node.

The following items can be customized for each user and/or user group, as they log onto the system:

- Recognition for granting security access rights.
- Custom free-form graphic access and orientation within the workplace.
- Default alarm and event bar filters and type, displayed at the top of the workplace.
- Default alarm and event page filters and displays.

User profile recognition is a perfect example of using sophisticated technology to make life easier and simpler for every level of user.

Display Integration

Since Process Portal uses Microsoft Internet Explorer as the base for its navigation, all views within the Process Portal system are referenced through URL addresses. Internal Process Portal views, such as free-form graphics, tag face plates, alarm and event bars, point displays, alarm and event pages and ADPs (Annunicator Display Panel) are simply HTML or ASP (Active Server Page) pages with embedded ActiveX controls and dynamic HTML, referenced by their URL addresses. This can be true for integration of other software applications which run within the Process Portal environment. For example, Word, Excel, SAP®, or other active documents which adhere to web browser based technology rules with ActiveX controls and dynamic HTML, are also HTML or ASP pages, referenced by Process Portal with their unique URL addresses. The use

of this standard technology makes Process Portal a truly open system that lends itself to seamless integration with third-party applications. The result is Process Portal, a unified user interface to your enterprise.

Aspect View Navigation

In addition to the use of hyperlinks as a means of display vectoring from one graphic to another, the Process Portal also supports context-sensitive menu navigation with its *Aspect View* feature. *Aspect View* is a method of navigation that is supported by the *Aspect Objects* approach. *Aspect View* supports associated actions for every object (i.e., views and tags) in the system. Once defined as part of an object's configuration, these actions are accessible throughout the system. The actions can be activated from a context menu, which is invoked with a right mouse click on any element representing the respective object. The *Aspect View* feature provides an intuitive navigation path for the information associated with any given object, all within the context configuration of that object (Fig. 2). Since the *Aspect View* action can invoke the reference of another object as a URL, this feature becomes the perfect vehicle to integrate third-party applications into the user interface of the Process Portal System.

TC02684A
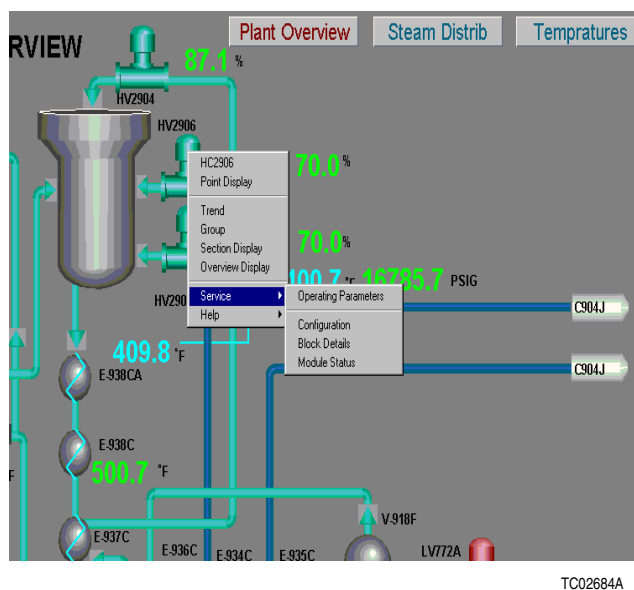
Figure 2. *Aspect View* Navigation

With *Aspect View,* the standard configuration of an object results in the standard *Aspect View* context-menu selections with no extra configuration required. These standard selections are:

- Faceplate.
- Point (or tuning) display.
- Trend display.
- Group display.
- Section display.
- Overview display.
- Object configuration.

With a small amount of additional configuration of an object, you can also customize the *Aspect View* menu options to include specific custom menu selection references. For example:

- Word documents (standard operating procedures, calibration procedures, instrument data sheets).
- AutoCAD® drawings.
- Control logic diagrams.
- Maintenance management system software.
- Excel documents (data entry spreadsheets, custom logs).

Object Browser

Process Portal makes use of an object browser provided in the form of a tree-type control, where all of the configured objects within a Process Portal system can be accessed from three different organizational aspects (Fig. 3).

TC02677A
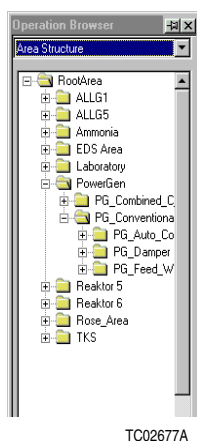
Figure 3. Object Browser

Similar to a file system, when an Process Portal object is defined, each object can be associated with a nested area, unit, or equipment and/or a nested unit within the system or plant. These associations can be used to categorize an Process Portal object within the logical structures of the plant, project, or process. Process Portal uses these nested associations to organize its object database into three object views grouped by area, unit, or equipment. Two other views from the object browser are a type-based and a template-based for all object types with their existing instances in the system.

The object browser ultimately promotes quicker object navigation throughout a Process Portal system by providing various views of the same object database.

Graphical Display and Supervisory Control

Process Portal provides you with a state-of-the-art graphical user interface. Two main groups of displays are supported:

- Free-format process graphic displays.
- Standard graphic displays.

Free-Format Graphic Displays

Free-format process graphic displays (Fig. 4) are custom designed graphics, typically a pictorial representation of a section of the process in the plant. These displays are commonly used to display process data and access process control. Hyperlinks for navigation to other graphics and objects can be user defined within these graphics.

TC02678A
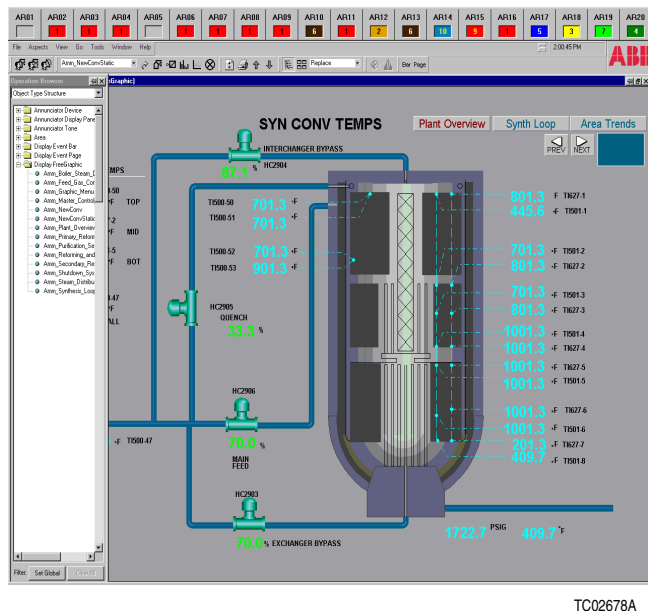
Figure 4. Free-Format Graphic Display

A graphics editor, GrafX, is used to configure free-format graphics. GrafX supports up to 900 logical colors which can be mapped to a color spectrum of 64,000 colors. An unlimited number of static and dynamic graphic elements can be used in any free-format graphic display. Process data can be presented alphanumerically and/or graphically. Support of scalable bitmaps, as well as ActiveX controls can be incorporated into all free-format graphics.

The number of configurable free-format graphic displays is unlimited. All displays are available on every client in the system.

Standard Graphic Displays

Process Portal provides a full complement of standard graphic displays (Fig. 5), such as group displays, tag type specific faceplates, trend displays, and point (or tuning) displays. There are no limits on the number of standard graphic displays that can be contained in a Process Portal system. The use of standard graphic displays greatly reduces the configuration effort required by an HSI system. These standard graphic displays allow you to control the plant by performing various functions, such as: loop tuning, set point adjustments, manual loop output adjustments, open/close valves, or turning pumps on/off with no extra configuration efforts required.

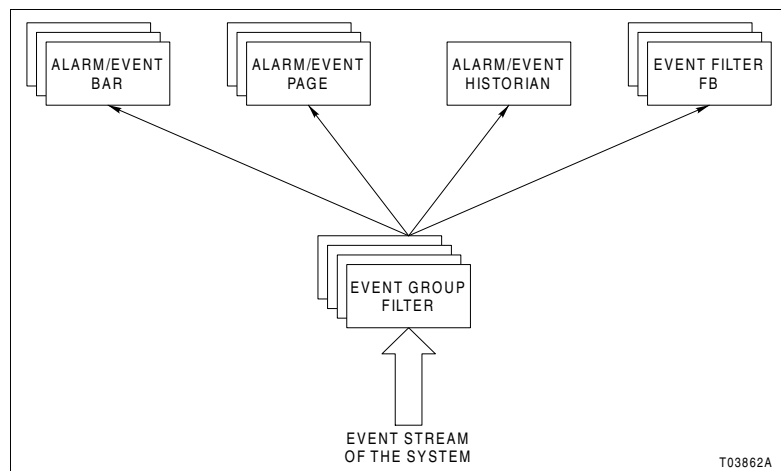# Alarm and Event Management

Process Portal is equipped with a powerful alarm and event management system shown in Figure 6. This alarm and event management system processes alarms and events from binary and analog triggers, which are initiated from within the control system. All alarms and events can be automatically logged into the historian, and/or displayed in various displays such as: alarm and

TC02054A
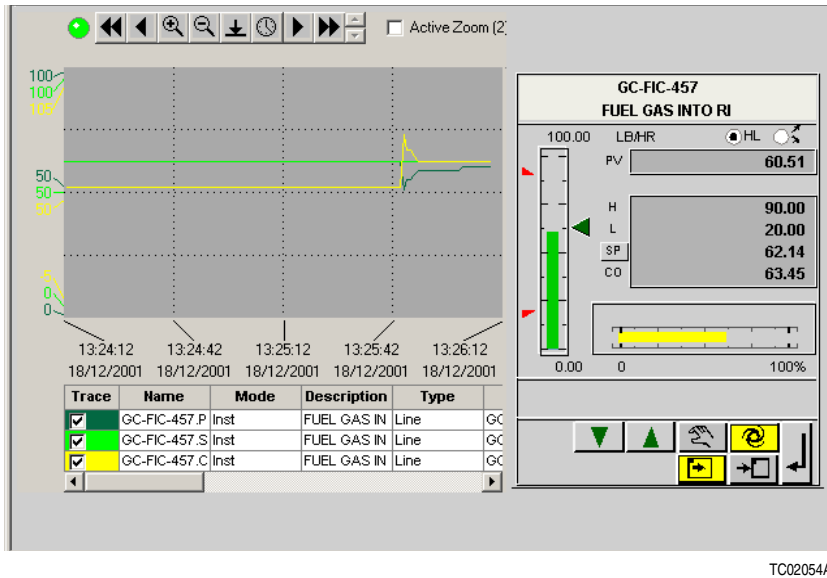
Figure 5. Standard Graphic Display

event bars, and alarm and event status pages. In addition to the simple identification of an event point within the system, Process Portal also supports specific attributes, which support sophisticated filtering and data analysis techniques.

There are a variety of alarm and event applications, which provide a filtered view of alarms and events in an associated event group. For example: alarm and event group bar, alarm and event sequence bar, alarm and event status page, and alarm and event history page.

T03862A

Figure 6. Alarm/Event Management

Process Portal's alarm and event management system supports global alarm acknowledgment for alarm and event points in the system. It also provides the capability to send an e-mail message upon the occurrence of an alarm or event. Process Portal's *Aspect View* feature also works within the alarm and event management system. By double clicking on any given alarm or event, the primary action for that object is exercised, and the primary or default display for that object is called up. For example, a double left-mouse-click on an event in an alarm or event page may call up the faceplate or point display for that alarm and event tag. And a right-mouse-click on an alarm or event calls up the respective tag context-menu with all of its associated actions.

Event Filter

An event group defines groups of events by specifying event filters. Event filter criteria can be configured according to any or all of the following attributes:

■ Priority.
■ Event point name.
■ Area.
■ Unit.
■ Event status.
■ Event type.
■ Alarm.

The number of configurable event groups is unlimited and every defined event filter can be used by any event application.

Alarm and Event Bar

Process Portal's alarm and event management system is equipped with two types of configurable alarm and event bars:

■ Alarm and event sequence bar.
■ Alarm and event group bar.

The selection of which alarm and event bar to display at the top of the Process Portal workplace can be made from a number of locations within the system. The user profile recognition system can determine which alarm and event bar is initially displayed. The user can also make this selection from an object on a free-format graphic or from the object browser. The user can call up other event bars at runtime.

Alarm and Event Sequence Bar

The alarm and event sequence bar is configurable to display either the newest or the oldest six alarms and events within an associated event group. A Process Portal system is capable of having an unlimited number of alarm and event sequence bars associated to different filters configured in a system.
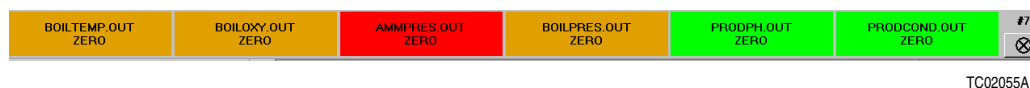

TC02055A

Figure 7. Alarm/Event Sequence Bar

Alarm and Event Group Bar

The alarm and event group bar is configurable to display alarm and event status for up to 20 event groups. A Process Portal system is capable of having an unlimited number of alarm and event group bars configured in a system. From the event group indicator, the aspect View Feature allows navigation to associated views, i.e. alarm event page, nested event bars, and overview graphics.
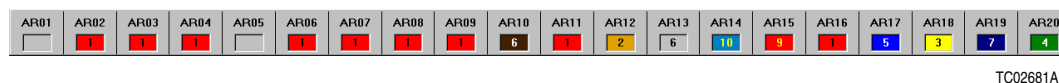

TC02681A

Figure 8. Alarm/Event Group Bar

Alarm and Event Pages

Process Portal supports multiple configured alarm and event status pages and historical pages. Each configured alarm and event summary page is assigned to an event group, along with its respective event filter criteria. This flexible filtering policy allows operators to view only the alarm information for which they are responsible.

An alarm and event status page displays all unacknowledged or active events matching the assigned event group filter. Each alarm and event status page display is configurable. All, or a configured subset of an event's attributes, along with the current value for that event's tag can be displayed in the alarm and event status page.

TC02682A

Figure 9. Alarm/Event Page

The alarm and event status page also allows users to view alarm and events through user selectable filters. A subset of the configured filter criteria can be selected from the viewed alarm and event status page. For example, the user may wish to only look at unacknowledged priority 1 alarms and events. This filter criteria can be selected from the top menu bars on the alarm and event status page.

Alarm acknowledgments can be performed on individual events or points, or on an entire page acknowledgment from the alarm and event status page. Other features of the alarm and event status page are: freeze alarm view; sort by column; *Aspect View* primary action; and context-menu call-ups.

The user also has access to the alarm and event history page which displays the sequence of events that are associated with its specific event group.

Annunciation

Process Portal supports WAV file alarm and event annunciation. Instead of generic sounds to indicate alarms or events, standard or customized WAV files can be used. The WAV file annunciation can be associated to any process variable in the entire system. The *.wav* file can be configured to be

played once or continually until the event is acknowledged or the tone is silenced. Process Portal supports an unlimited number of *.wav* files.

In addition to the *.wav* file annunciation feature, Process Portal also supports traditional annunciation through event contacts and annunciator display panels (both hardware and software ADPs). Process Portal supports an unlimited number of software ADPs in a system.

Comprehensive Historian

Process Portal incorporates full function, comprehensive historical data services in its client/server architecture. Process Portal provides standard OLE-DB interfaces to allow third-party software packages to access and use this data offline from Process Portal.

The Process Portal history services are fully incorporated into the distributed software architecture of the product. Historian servers can be located on any computer in the Process Portal network. Historian redundancy is supported within Process Portal.

The historian can be configured to collect:

- Trend data.
- Events.
- Files (i.e., reports).
- Alarm and operation change messages.

Boxcar/back-slope data compression is available for trend collection, which if configured, optimizes use of the hard disk drive space on the historian server's computer node.

The Process Portal historian allows unlimited configurations for historical data storage policies and data archive policies. Tags, events, messages, and reports can then be configured for collection and storage according to these policies.

Process Portal provides automatic data archiving capabilities. The historian can be scheduled to automatically archive the historian data. Archived data can be written to a writable CD disk or other random access device.

Inform^{IT} Enterprise Historian features can be added to the Process Portal environment to further extend these history services to other control networks or production management applications. Beneficial additional Inform IT features include desktop data access, web-based report distribution, calculations, and advanced data analysis.

Reports

Process Portal uses Microsoft Excel 2000 or XP as its report formatting package, offering complete flexibility and ease of use. Excel uses standard OLE-DB calls to extrapolate data from the historian SQL server database. Process Portal provides a number of report templates for trend, event, and tag summary reports. The use of Excel as its report package makes formatting custom reports simple and quick. The use of Excel also makes available all the options available in Excel for accessing and analyzing data: pie charts, 2D or 3D bar graphs, X-Y plots, or even complex calculations.

Reports can be generated with an automatic trigger, either event or time driven, or with manual commands. Resulting reports can be displayed on the computer screen, printed out on a system printer, archived to the historian database, or saved automatically to a file on disk. Through built-in Excel functions, reports can also be automatically e-mailed over the company's intranet, or even

the Internet. The design of the Process Portal report facilities also supports the interface with application which can be addressed by a URL for reporting purposes.

Process Portal supports an unlimited number of configured and/or custom reports.

Trends

Trend displays are some of the most important tools customarily associated with operating and analyzing industrial processes. Process Portal provides seamless real-time and historical trending preconfigured by the engineer as well as support of operator configurable trend displays. Process Portal presents the operator with an extensive set of trending features and functions. Trends may represent minimum, maximum, or average process values. Up to eight points can be assigned to a single trend display.

Segments of a trend may be selected and zoomed to give magnified details of an event or process excursion. A time cursor allows the user to move back and forth in time and display the numeric values corresponding to the cursor's location in time. Traces are easily toggled on and off of the trend view, to allow operators to see precise values when traces are in close proximity.

Produce^{IT} Batch

Produce IT Batch is a separate Industrial IT product which can be installed as a fully integrated application accessed directly from the Process Portal workplace. By combining functionality according to industry standards such as NAMUR NE 33 and ISA S88.01 with our industry proven batch automation expertise, Produce IT Batch (Fig. 10) can deliver an automation solution that provides the following benefits:

- Increased product consistency resulting in better quality.
- Faster time-to-market with shorter delivery lead times based on ease of recipe creation.
- Tightly integrated production management and control to maximize equipment uptime and minimize operating costs.
- Reduced manual documentation and paperwork associated with comprehensive audit trail requirements for regulatory compliance.

Produce IT Batch is the most comprehensive batch solution on the market. For additional information, refer to the Produce IT Batch product overview.

System Security

Consistent with its philosophy of using industry standards wherever possible, Process Portal uses the Microsoft Windows security system, and integrates it into its own security level access system. For example, when a user logs onto the client node's Windows environment, the user is automatically logged into Process Portal and granted only those access rights associated with that user or user group.

Process Portal supports selective access rights, as opposed to hierarchical access rights. In other words, users attain the sum of the rights defined by all of the users groups to which they belong and each user is allowed to access or perform only those specific functions granted under their specific Process Portal access rights.

Read/write access rights can be defined within Process Portal down to a specific operation on an object, tag, or even tag.atom, including free-form graphic views, alarm and event bars, alarm and event pages, trend views, etc.

TC02683A
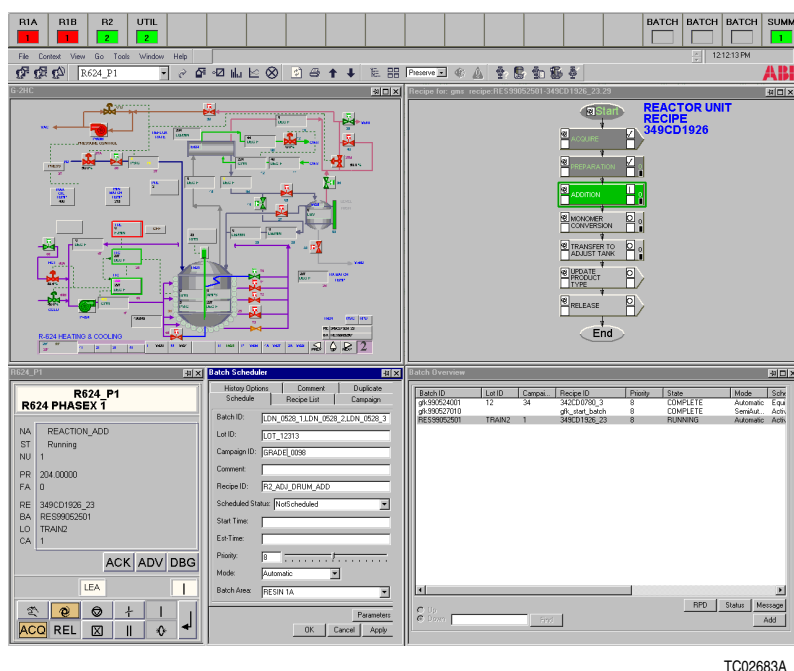
Figure 10. Produce IT Batch

Access rights are checked on the server side by the RTDS (Real-Time Data Server) enforcing security for every client application. This is true for all applications, not only Process Portal applications. The security systems ensures that if a user does not have the right to access the data through a Process Portal client, they will not be able to access that data from any other application either.

An unlimited set of users or user groups can be defined through Windows, which may grant or deny access to carefully differentiated plant areas, tag groups, graphics, alarm and event pages, and much more. Since an Process Portal user is also a Windows user, Process Portal inherits all of the benefits from the Windows security system, in terms of password definition, domain settings, policy settings (allowing users to access applications and Windows resources), etc.

Configuration

Process Portal's comprehensive engineering tools make it easy for engineers to configure a system. Process Portal's object-oriented graphics editor makes extensive use of graphic element libraries, including many 3-D elements. These libraries allow you to quickly build quality custom graphics, while reducing configuration time and errors. Process Portal also provides easy-to-use HTML based configuration tools for its system design, historian, and trending applications. In addition to object related views, bulk configuration is supported for a more efficient execution of bulk changes.

A powerful life cycle control concept, which incorporates a version management system, permits the user to make changes to the configuration, with or without immediately affecting the run-time system, while providing rollback functionality. There are four states within the configuration life cycle of an object: design, release, run, and out-of-service. Within the configuration version management system, one life cycle state instance of the same object may exist in the Process Portal system at any given time.

Process Portal uses MS SQL Server as its repository for its configuration data. Process Portal also supports the use of other custom designed configuration tools. Process Portal relies on Microsoft's Transaction Server technology to manage its configuration transactions and enforce the business rules for overall object configuration and state changes. The use of this standard Microsoft technology in this secure configuration application also supports a true open architecture system.

Process Portal supports a replication scheme for the configuration data to be replicated or copied into the various run-time systems, providing a fully operational control system, even if the configuration server is not available.

Redundancy

Given Process Portal's inherent client/server architecture, redundancy for all client applications is built into the Process Portal system. Based on Process Portal's unique distributed software architecture, redundancy is addressed at all of the critical server levels as well.

The Process Portal system is a virtual software network client/server-based product and is supported by a variety of server components, such as the historian, RTDS and HSI function block servers. Each of these server components is designed to support total redundancy. Therefore, Process Portal supports both client and server redundancy, resulting in overall system reliability and availability.

Software Architecture

Process Portal uses a revolutionary and scalable distributed software architecture that is unlimited by conventional boundaries. This architecture offers the flexibility to buy what you need, when you need it (Fig. 11.)
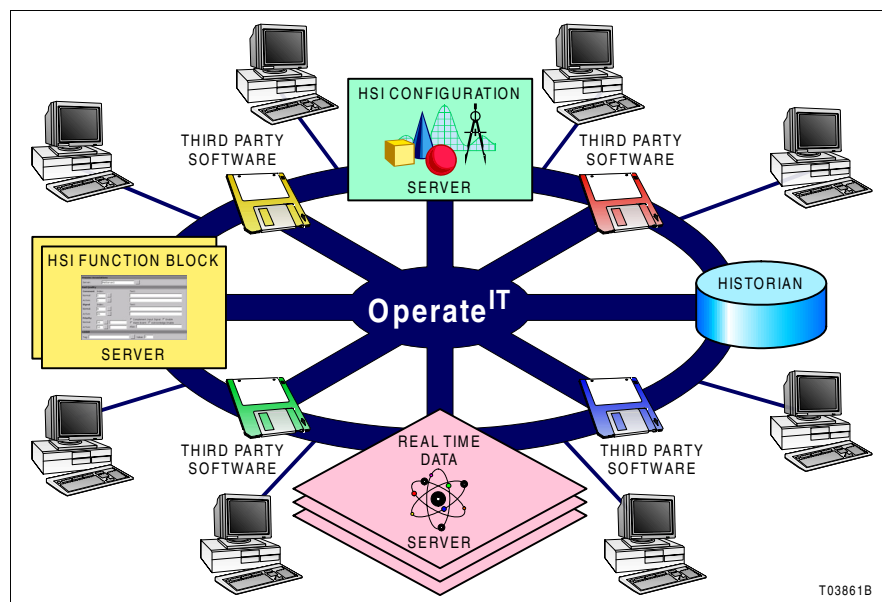

Figure 11. Software Architecture

Process Portal is more than just an HSI. Process Portal is a series of software components working together synergistically and, when combined, goes beyond the traditional bounds of an HSI. It cre-

ates a software operating environment, in and of itself, where third-party software applications, within the enterprise management system, can also operate.

A list of definable software components includes:

- Process Portal client.
- RTDS for supported interfaces (Harmony, Melody, Freelance 2000/AC800F, Contronic P, Advant OCS with MOD 300 software, and OPC.
- HSI function block server.
- HSI Historian server.
- HSI configuration server.

Process Portal combines this unique software architecture with widely accepted, state-of-the-art industry standards to provide a full-featured, fully-functioning HSI. Process Portal is also based on Windows DNA for manufacturing architecture.

Real-Time Data Server (RTDS) for Control System Connectivity

The real-time data server (RTDS) provides Process Portal the connectivity to the respective control systems. The RTDS is responsible for information transfer between the Process Portal HSI system environment and the Harmony, Melody, Freelance 2000-AC800F, Contronic P, Advant OCS with MOD 300 software, and OPC control systems. The primary tasks of the RTDS are:

- Provide the Process Portal connection to the control system.
- Represent control system tags and function blocks, and make them accessible through standard Microsoft interface.
- Present the current values of process variables within the control system to the Process Portal system, and make them accessible to the other system software applications.
- Maintain the alarm and event status for the configured tags.
- Hide the control system specifics from the client applications, by mapping specific formats and structures to the object model on Process Portal.

The RTDS ultimately puts control system data into a format that is accessible via standard Microsoft interfaces. These interfaces are used by the Process Portal components (clients, historian servers, and HSI function block servers) and third-party software applications, to communicate data to and from the respective control systems.

The real-time data servers for Harmony, Melody, Freelance 2000-AC800F, Contronic P, Advant OCS with MOD 300 software, and OPC are separate software components. The Harmony RTDS provides Process Portal connectivity to a Harmony control system whereas the Melody RTDS provides connectivity to a Melody control system.

Every Process Portal system is capable of supporting multiple RTDSs, either of the same type or a mixture of types. Every RTDS is uniquely responsible to host a configured portion of the tag database within the control system.

- Harmony RTDS hosts up to 30,000 tags per node by connecting to the Harmony system through one ICI.
- Melody RTDS hosts up to 10,000 tags per node by connecting to the Melody system up to three CCO30s or CMC70s.
- Freelance 2000-AC800F RTDS hosts up to 10,000 tags per node by connecting to the Freelance system over Ethernet.
- Advant OCS RTDS hosts up to 10,000 tags per node by connecting to the Advant OCS with MOD 300 software system via the PCI RTA board.
- Contronic P RTDS hosts up to 5,000 tags per node by connecting to the Contronic P system.

■ OPC RTDS hosts up to 10,000 tags per node by connecting to the OPC system through vary-ing interfaces as required by the OPC device.
■ The Process Portal HSI is capable of supporting up to 60,000 tags per system.

For higher availability, each RTDS can be made redundant within Process Portal.

HSI Function Block Server

The HSI function block server is a special RTDS, which supports the same standard Microsoft interfaces and object model as other real-time data servers for a given control system. Multiple HSI console function block servers can run in one Process Portal system. Redundancy is available and supported for each HSI function block server. The primary tasks provided are:

■ Running HSI console related function blocks in the context of an Process Portal node.
■ Function blocks for report generation support.
■ Function blocks for alarm and event management.
■ Access to current data and events, using standard Microsoft interfaces for control system tags.

The function blocks which run in the context of an HSI function block server are capable of retriev-ing and writing data to other real-time servers within Process Portal. Since the HSI function block server supports the same standard interfaces as other standard RTDSs, values within the HSI func-tion block server function block values are accessible to the client and other applications within Process Portal.

Historian Server

A historian server collects real-time data and stores it for later retrieval. Configured collections define the data to be collected and stored by each individual historian server in the system. A his-torian server within that system can be configured to collect and store up to 10,000 data points. Also, Process Portal historian servers can be backed up by redundant historian servers; multiple historian servers can be implemented. The primary tasks of the historian server are:

■ Collect trend data.
■ Collect events.
■ Collect files.
■ Store the collected data online.
■ Archive the stored collected data.
■ Provide an interface to retrieve the collected data.

Process Portal's historian server is also equipped with manual and automatic archive functions. The automatic archive function downloads stored historical data, on a time schedule basis. The archival data can then be stored to a random access device, such as a CD disk or network com-puter file location. This archived data can be retrieved, accessed, and analyzed at a later date.

The historian server provides data interfaces to write and retrieve data. These data interfaces are used by Process Portal client applications, such as: trend displays, alarm and event page summa-ries, and Excel reports. Since these data interfaces are simply standard Microsoft interfaces that follow the OLE-DB definition, other third-party software applications can also retrieve the histori-cal data.

Historian Backfilling

Process Portal provides the backfilling of data for an individual Historian server of a redundant pair for missing time ranges up to a maximum period of 24 hours. Missing time ranges occur when a server is offline and unable to collect data.

An example in which a data gap might develop during normal operations would be general maintenance when a server requires a reboot (e.g., installation of a service pack). Since the server would not have all of the historical data, the startup process would perform the backfill of data from the redundant partner's database if possible.

It is possible that there could be missing data that exists for the same time range in both of the historical servers for which no backfilling will occur. This is most likely to occur if there is a communication failure that affects both historians at the same time. The backfill process will run periodically to query the system to determine if additional backfilling is needed during normal runtime.

The backfilling process is done outside the normal operation of the historian server to minimize the performance impact on the system. In addition, the server that is being backfilled will become the inactive partner with the objective of minimizing the performance impact on historical requests.

HSI Configuration Server

The HSI configuration server is the central storage location for all the configuration data of an Process Portal system. Every Process Portal client can issue changes to this configuration data by accessing the HSI configuration server. The HSI configuration server will execute the changes and distribute the changes to all of the respective run-time locations.

The primary tasks of the HSI configuration server are:

- Storage location for the Process Portal configuration data, both object and file configuration.
- Process configuration modifications.
- Replicate configuration data to the run-time systems.
- Track and maintain business rules for life-cycle management and change validation.
- Interface source for the import of configuration data.

Life cycle and version management is an integral part of the HSI configuration server, thereby allowing offline and online changes, as well as a means of tracking those changes. Only one HSI configuration server is needed in Process Portal at any given time. The run-time system will remain fully operational should the configuration server become unavailable. Access to the configuration data in the HSI configuration server is available to all Process Portal clients, and to any other software application which supports Microsoft interfaces.

® ActiveX, Microsoft, and Windows are registered trademarks of Microsoft Corporation.

® Advant, Contronic P, and INFI 90 are registered trademarks of ABB.

™ MOD 3000, Freelance 2000, Operate^{IT}, Produce^{IT}, Inform^{IT}, and Aspect Object are trademarks of ABB.

® OPC is a registered trademark of OPC Foundation.

® SAP is a registered trademark of SAP AG.

® AutoCad is a registered trademark of AutoDesk, Inc.

For more information on the Operate**IT** *suite of products, contact us at OperateIT@us.abb.com*

For the latest information on ABB visit us on the World Wide Web at http://www.abb.com/control