

Symphony Plus S+ Engineering: Composer Melody

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S+ Engineering Composer Melody is the window to your distributed control system (DCS) over the full plant life cycle. Composer supports the complete automation project including planning and data acquisition, configuration management, commissioning, operation, maintenance and decommissioning. This one window approach to your S+ Control AC 870P and field devices leads to minimized system implementation costs. Composer lets your engineers become virtuosi in plant automation.

Overview

Composer is the window into process automation and field device engineering and maintenance in your plant.

Providing a single, accurate source of system information, Composer helps you ensure data consistency and improve engineering performance throughout the lifetime of the automation system.

Composer simplifies configuration, documentation, commissioning and maintenance. It supports a consistent information flow from design, installation and commissioning to operation and maintenance. And it lays the foundation for continuous improvements in life cycle and information flow, resulting in maximum plant performance and productivity.

Features and benefits

Efficient engineering environment

Benefit from the intuitive Composer user interfaces, support functions and bulk data handling capabilities to efficiently engineer, commission and maintain your complete automation solution.

Powerful version handling

Keep and compare the project's history with the powerful versioning capabilities of Composer. Navigate, compare and rollback to existing versions.

Consistent documentation anytime

Document your project consistently and at anytime in accordance with documentation standards like VGB R 170. Documentation can easily be customized to meet company standards.

Integrated IEC 61850 engineering

Seamlessly integrate your IEC 61850 substation into your DCS control and operations strategy with Composer. Combine process operation and supervision of the electrical system into the operator interface.

Integrated PROFIBUS/HART engineering

Configure your PROFIBUS/HART devices with the same engineering tool as for your controller. Load your field device structures into ABB Asset Management and integrate with ABB Asset Monitors.

Integrated SIL 3 application engineering

Engineer your complete application, even your SIL 3 boiler protection and turbine solution, with Composer.

Investment protection

Reuse and maintain your existing Melody/AC 870P solutions with Composer and without the need for revalidation. Use Composer to maintain and optimize your complete Melody/AC 870P fleet.

Integrated operations support

Utilize the symbol and faceplate libraries as well as the alarm and event templates to automatically configure your operator workplaces. Minimize your time to decision and action by navigating between operations and engineering with just one mouse click.

Efficient engineering environment

Concurrent installation

All engineering tasks can be performed concurrently in Composer, from the definition of process points and loops to function design, system and cabinet layout, all the way to service, diagnostics and library processing. This enables different users to complete their engineering tasks without having to wait for others to complete theirs. And it makes system configuration, documentation, commissioning, and maintenance very flexible.

Multiuser engineering

Engineering tasks can be accessed by multiple users at the same time. Engineers can reserve a complete application or parts of it for their exclusive access, enabling multiple users to work on the same project at the same time without interfering with each other's work.

Intuitive navigation

Graphical user interfaces, object-related context menus, navigator windows and many help functions provide intuitive user guidance.

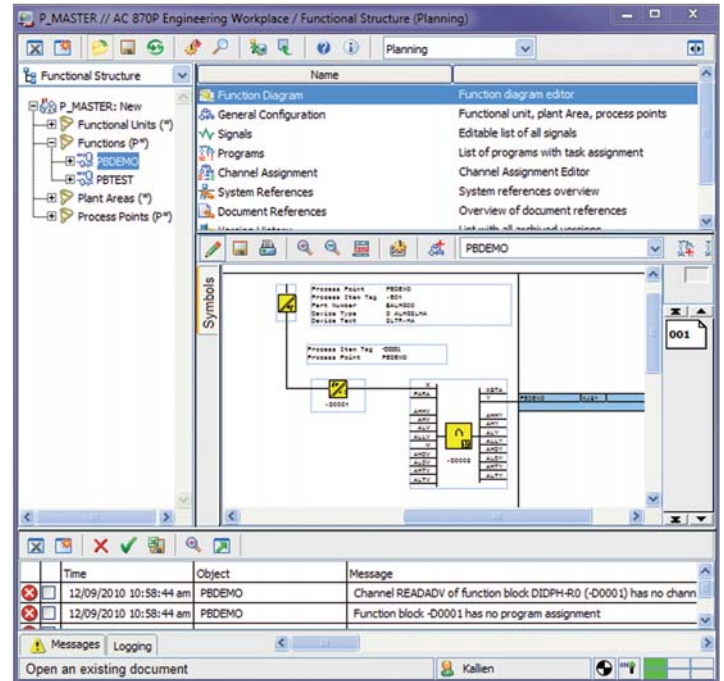
Process loops and process points

Process control functions are usually accessed via the plant's process loops. With Composer, process loops can be specified with one or several process points and attributes, such as long text, short text, measuring ranges and dimensions.

Composer supports different coding systems, such as ISO 3511-1 and KKS (the coding system for power plants) standards.

Function units and plant areas are useful for a hierarchical function and plant structure. The generation of large data sets is typically made via the data import tool. All loop-related data is processed, and process point and actuator lists are created within Composer.

Process and control correlations between the individual loops are displayed in control engineering piping and instrument (P&I) diagrams, and in overview and area function diagrams.



Function unit, P&I diagram, process point definition and process data

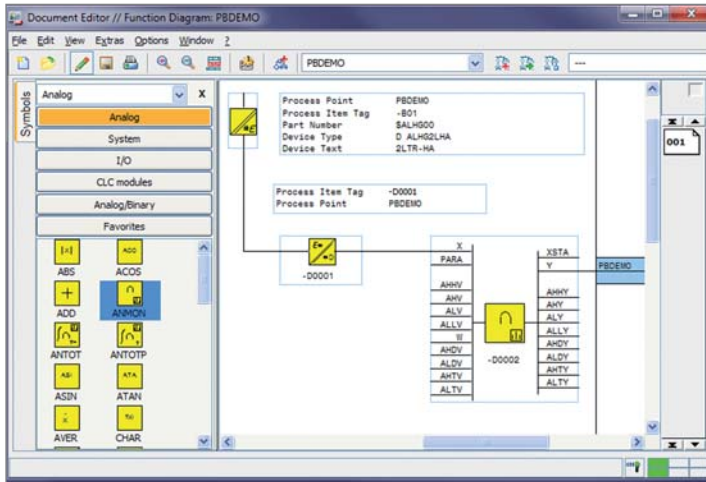
Authorization management

The system administrator can assign to individual users (engineers as well as operators) the access rights to individual project sections. This is accomplished by assigning individuals to one or more specific user groups for administration, editing, measuring, setting parameters, simulation, releasing, loading, maintenance and viewing only. For example, through Composer's granular authorization management, one user may have edit rights but cannot put anything in operation, while another user may set parameters and simulate values but cannot make changes to function diagrams.

Graphical function design

Function diagrams present the process loop's control strategy via individual function blocks. This graphical design method provides modules for operating, processing and I/O, and includes field device templates. Function diagrams can span multiple tags on multiple pages. Signal connections, message specifications, archiving, alarms and comments are automatically cross-referenced throughout.

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Function diagram

Open libraries, which can be supplemented by the user, allow for quick processing and the implementation of individual requirements. Function diagram symbols include function blocks and pre-designed function diagrams, and they serve as templates for the easy implementation of control strategies.

Several function diagrams can be processed simultaneously. Automatic plausibility checks, filtering, sorting and data coupling facilitate the engineering process. Structuring and processing of sequence controls is generated with the integrated sequential function chart editor (SFC). The respective individual function diagrams with transitions and actions are automatically generated.

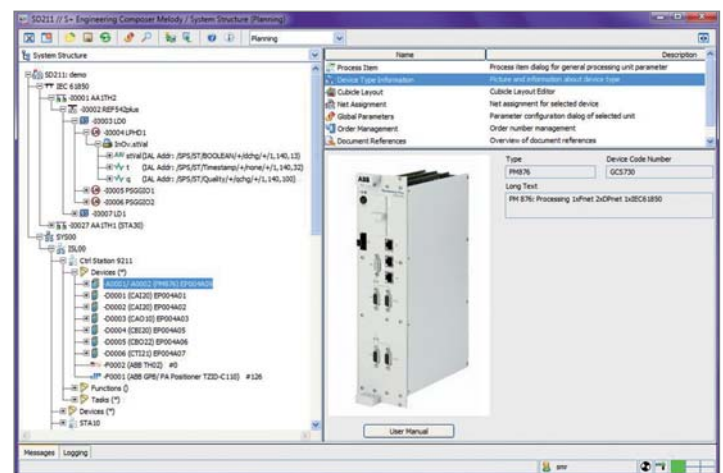
Complete representation of the loop is the key benefit of function documentation. A direct loop-oriented loading of all function blocks is generated from the function diagram. Here, all components of the Symphony Plus system, from I/O to operator stations, are provided with the data required for the commissioning and operation of individual loops. This procedure results in consistent and complete forward documentation. For efficient project engineering, additional help functions are provided to the user during the compilation and editing steps. For instance, in addition to copying individual function diagrams complete data structures can be duplicated.

Field planning

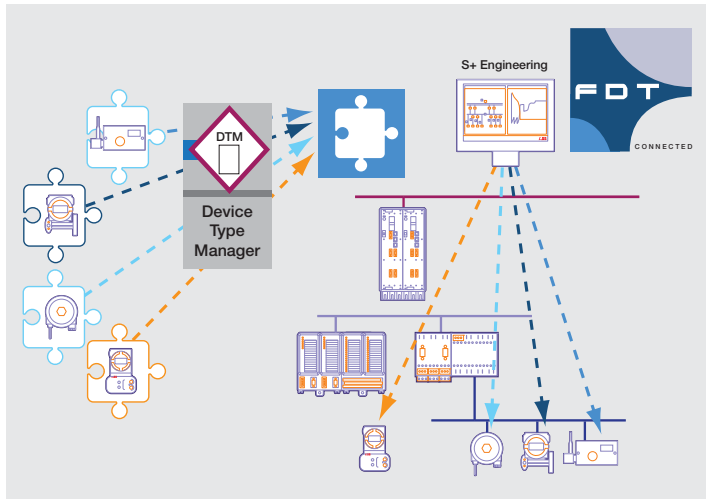
Melody/AC 870P-based systems communicate via a flexible and reliable high-speed bus system. The control system structure, station component assignment, and network structure are all designed using Composer. With direct access to specific module parameters, Composer lets the engineer quickly adapt the components to the intended application. The same data is used to define channel layout and task assignments. Extensive libraries with integrated plausibility checks assure trouble-free and smooth operation. Changes to the configuration of your control environment are downloaded bumplessly without process interruption.

Using the cabinet layout diagram editor, cabinet slots are assigned to the specific modules. Previously defined module redundancies are automatically taken into account. However, they can also be defined within the cabinet layout diagram editor.

The Composer environment allows for data exchange with field-planning systems like ABB EIP™, Smart Plant® or others. Through integration of data from these planning systems, Composer automatically updates process point definitions, and device and channel layout data.



Cabinet layout, system overview, island and station definition



Efficient fieldbus planning with FDT/DTM

Fieldbus planning

AC 870P fully integrates field devices through PROFIBUS technology. Composer's field device tool (FDT) supports configuration, commissioning and maintenance of PROFIBUS devices using device type manager (DTM) technology. For field devices that have conventional device description files (GSD), a basic PROFIBUS DTM is available to allow standardized offline configuration. HART devices are integrated, configured and parameterized via standard HART protocols without the need for additional tools by using a standard HART DTM. The individual device DTMs can be accessed from Composer's multiple data views, such as the functional diagram, system or location overview, and others. Optionally, the PROFIBUS master configuration can be integrated in the Composer environment. It includes net calculation and loading of process items by using the device-specific channel configuration generated by the DTM.

Reusable solutions

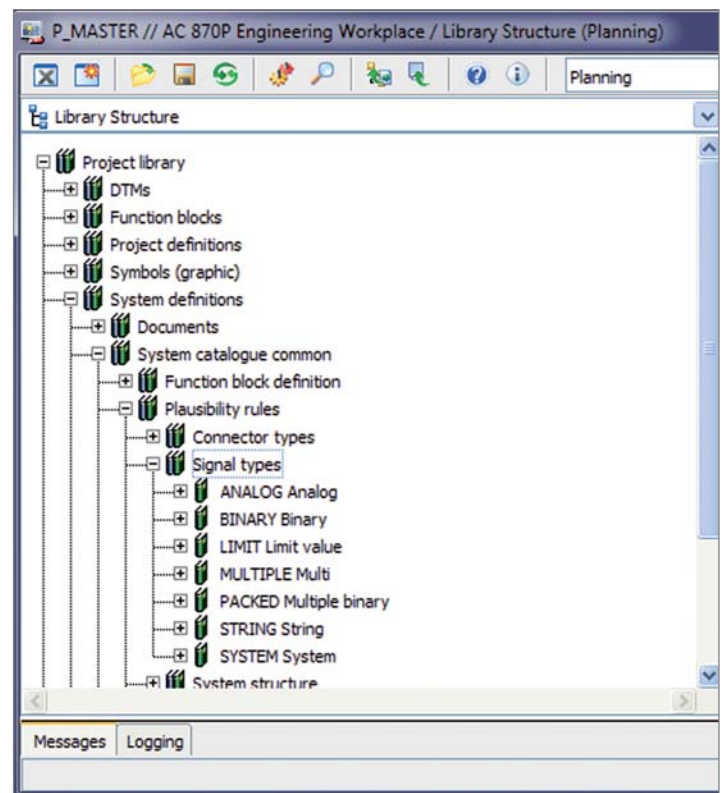
Bulk data handling

The ability to efficiently manage large amounts of data is a crucial part of any automation system. Composer provides numerous Microsoft Excel add-ins to efficiently handle and manipulate mass data.

Libraries

Engineering libraries are the basis for all Composer applications. All components, devices, P&I diagrams, symbols, operation and control processing function blocks, I/O configuration, coding and dimensions are included in these libraries. In the background, plausibility checking tools ensure correct use of library elements.

Composer libraries can be supplemented and modified to meet project-specific needs. The macro editor, symbol editor, and assignment editor features are used to define and/or extend the library's standard function blocks.



Composer library structure

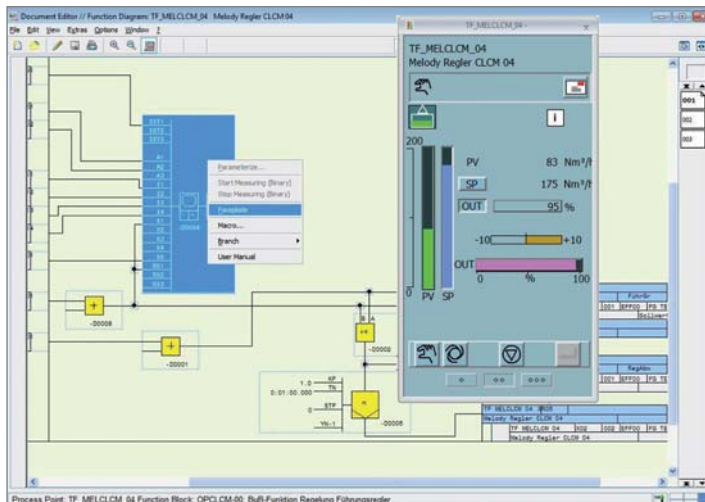
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Service and diagnostics

During the operation, integration and commissioning phases of the process control system, it is important that the engineering system contains problem and error analysis features. With Composer, the same applications that are used during the planning and design phase are used during the commissioning phase. Component status, such as 'initialized' and 'loaded,' is displayed in the engineering diagrams without the need for additional survey windows.

To assist the user during commissioning or other task, measured values are presented within the function diagrams. Parameter definition and forcing of signals is initiated from the same place. Parameter settings are stored in the database.

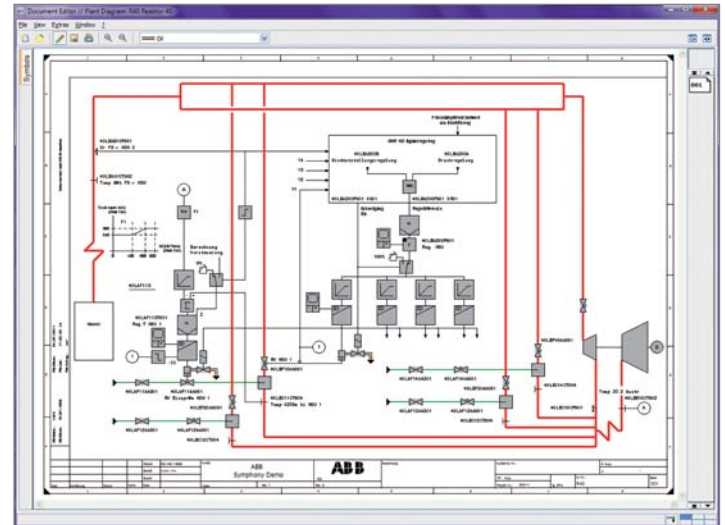


Calling up a faceplate in Composer

Documentation and information management

Thanks to consistent forward documentation together with modification and version management, the system's documentation is always up-to-date. Documentation and information management facilitate access to and navigation of plant documentation. Technical product documentation is accessible online.

If CAD systems are used, they can be accessed directly from the Composer environment. Integration of document viewers is also supported. Third-party documentation is managed by Composer's object navigation and can be accessed by just a single mouse click.



Object search and rapid access

Composer combines documents in user-defined hierarchical folders. Reports can be issued directly from all applications within the Composer system. User-defined report types are made available through Microsoft Excel. Composer automatically feeds data into Excel when reports are formatted and issued.

In display views such as P&I diagrams, location structure or functional structure, all information is displayed in hierarchical order. Data couplings enable easy access to processing applications. For additional data selections in these display views, all open applications are automatically linked to the data couplings.

In addition to information lines and smart help, system documentation is available online and at anytime.

Audit trail

Effective change management enables users to meet evolving business needs. Within the automation system, changes to system configurations must be carefully controlled to ensure all modifications are traceable. Composer provides complete audit trail support for those industries that require regulatory compliance. Composer audit trail functionality tracks and archives system changes, such as all online actions, field device actions, entering, changing, or deleting simulations, loading of function diagrams, initialization, and replacement of central units.



Multiple operation support

S+ Operations integration

Composer deeply integrates with S+ Operations. After deploying the control application from Composer, the user will be given the relevant alarms and events, faceplates and graphic symbols to operate and supervise the process in S+ Operations. Quick and direct cross-navigation provides operators and engineers with seamless access to the operational displays as well as to the engineering layers. With the correct authorization, an engineer can execute operational tasks and an operator can change engineering values, without traveling through the system.

S+ Operations provides users with a broad view of the plant by integrating data from all plant areas and systems, including turbine control, electrical balance of plant, and remote SCADA systems. Through its open architecture, S+ Operations seamlessly consolidates and rationalizes this plant data to improve operator response to changing conditions and increase plant safety and uptime.

S+ Operations' unique system architecture provides flexible and scalable configurations for small, medium and large power and water applications, allowing for every desired level of redundancy.

S+ Operations provides operators with detailed well-arranged process overview displays. Direct access navigation leads to information-rich control faceplates, superior trending capabilities in accordance with VDI/VDE 3699 Part 4, EEMUA 191-based alarms, and various reports.

State-of-the-art graphics such as highly sophisticated faceplates show well-arranged and detailed displays of any control point

of the plant. Favorite places, history lists, shortcuts, and hot buttons facilitate quick and easy navigation throughout the power or water facility. Workplace layouts are adjusted and optimized in accordance with the user's needs. Windows management functions such as safe areas, pinning and stacking prioritize the presentation of important material.

800xA Process Portal

800xA Process Portal offers an extended operations environment with comprehensive process information for the power or water plant operator. It does this while preserving Melody system data, standard Melody displays, and operator functions.

Unique to Process Portal is the ability to gather information from multiple plant sources and transform it into relevant information for a diverse set of users, such as maintenance technicians, process engineers, production managers and plant operators.

The enabling technology for this data access, storage, and management is ABB's patented Aspect Object™ framework. Aspect objects relate all plant data (the aspects) to specific plant assets (the objects). For example, aspects are informational items associated with objects, such as I/O definitions, engineering drawings, process graphics, reports and trends that are assigned to each object in the system. Aspect Object navigation presents the entire production facility in a consistent, easy-to-view fashion. This allows a single window environment to include control functions, smart field devices, asset optimization functions, information management, safety systems and manufacturing execution system (MES) applications.

Familiar Web browser tools provide quick access to displays and information. Favorites, history lists, shortcuts, and hot buttons provide navigation through a power or water plant facility quickly and accurately. Right-clicking the mouse provides access to additional details.

Workplace layouts are adjusted and optimized to user preferences and needs with individualized menus, toolbar contents and display locations. Operator, maintenance, engineering and management personnel are at ease and perform their responsibilities efficiently using window management functions, such as safe areas and pinning and stacking priorities, thus minimizing operational errors.

Composer provides the basis for the 800xA Process Portal configuration. A simple importing process from Composer sets up the tag configuration data and standard Melody information views within 800xA Process Portal.

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