System 800xA Application Libraries
ProBase Library

Power and productivity
for a better world™

ABB

Features and Benefits

Today's processing industries are experiencing increased demands to reduce schedules and costs, while maintaining more stringent quality and safety standards. The trend towards consolidation of the process control, shutdown, electrical control and maintenance management systems into a single unified platform continues, with increasing demands for access to additional relevant and up to date information. The advantages of using the ProBase Library on a project result from using standardized configurable objects with preserved integrity and inheritance, while ensuring and maintaining the necessary flexibility.

Reducing Time to Market
Any process automation where products are transported and/or stored or processed in tanks and lines like chemical and pharmaceutical plants, tank farms, dairies, breweries, mills, fodder, powder manufacturing plants etc is made easier. Users can save 25% of project design, implementation, testing and commissioning time.

Capital Productivity
Leveraging System 800xA's object-oriented technology, the ProBase Library provides you with the ultimate balance between flexibility and standardization. This can reduce project specific library development time by 80% and the project specific software requirements by 60%, thus minimizing the cost of developing a batch automation solution while maximizing plant operability.

Assurance and Corporate Citizenship
The ProBase Library objects are developed under stringent quality assurance standards, tested and encapsulated to ensure functional integrity. This can greatly reduce project testing and compliance documentation.

Risk Management
ABB maintains the ProBase Library and minimizes risk by ensuring future migration and upgrade path. It enables modifications and enhancements to be made as your plant requirements develop over time, logically and consistently. In addition, remote support and service is simplified which minimizes risks to plant production.

Operational Profitability
The use of the ProBase Library provides efficient commissioning and maintenance due to transparency,
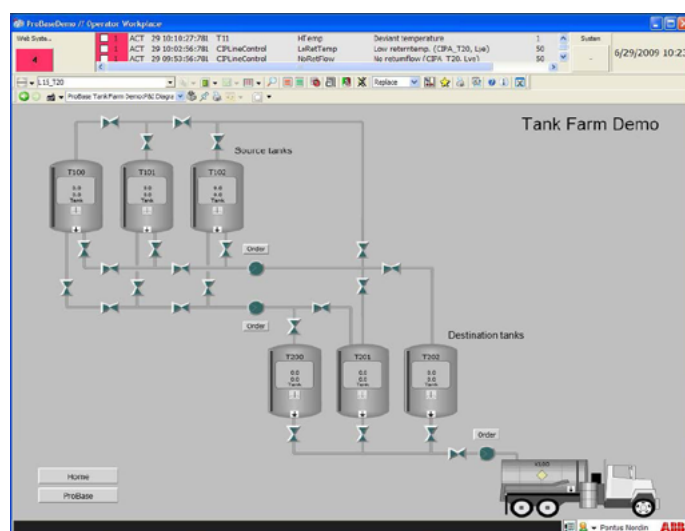

Figure 1. Process view from the ProBase tank farm demo application

granularity and diagnostics. The functionality for product transfer, called routing, includes all functionalities for alarm handling and alarm propagation between different units, queue handling for online production changes, activation and supervision of process objects (valves, motors etc.), interlocks and transfer of product and equipment settings like product codes, unit names and unit states. This can improve your operator effectiveness by 25%.

The main processing of products is performed in the different area process units like tanks, reactors, filters and pasteurizers. Examples of product processing in tank and reactors are agitation, temperature, pressure control etc. Examples of product processing in filters and pasteurizers are filter mass preparation, temperature control, separation etc. ProBase includes template objects for different types of area process units.

ProBase also defines a methodology of how to execute project within the System 800xA platform, i.e. convert the system core functional areas to a complete automation solution. By combining this methodology with template objects for area process units like tanks, reactors, processing lines the engineering time in the project is significant reduced. The System 800xA standard bulk data tools and the tailored ProBase bulk data tools increase engineering efficiency further.
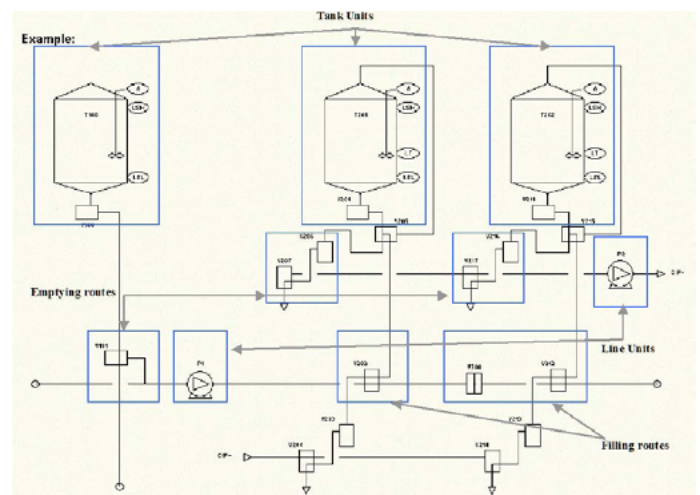

Figure 2. PI-diagram with the different area process units and routes identified.

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ProBase Functionalities

The sections below describes the main functionalities of ProBase. The aspect objects defined in the ProBase libraries includes control logic, different graphical aspects, faceplates, alarm lists etc. The objects fulfill the standard requirements for different industries but can be further developed according to industry or project specific requirements.

Routing

The routing bus enables process information exchange between area process units. The routing includes all functionality for alarm handling and alarm propagation between different units, queue handling for online production changes, activation and supervision of process objects (valves, motors etc.), interlocks and transfer of product and equipment settings like product codes, unit names and unit states.

Template Objects

ProBase includes complete area process units such as template objects. The templates are supposed to be further developed in application specific libraries according to your unique project requirements. The template objects are complete examples of tanks and processing lines. By using the template objects the structure and the main principles of the application code is already defined. This reduces the time for application development significantly. Different types of control loops like cascade control loop are also available as template objects.

Process Object Library

ProBase includes a process object library with objects for motors, valves and signals. The objects includes standard functionalities like manual/auto mode, feedback configuration/alarms, run time measurement etc.

Figure 3. Process view from the food and beverage demo application

Condition Displays

Condition displays presents process interlocks with a clear description in the operator interface. A faceplate contains one or several tabs with process interlocks for the operations possible from the faceplate.

The condition displays present the process interlocks in the user interface and improve the operator's ability to fault trace in the plant without accessing online control logic.

CIP (Cleaning In Place)

As an option to the standard ProBase software with specific functionality for CIP is distributed with the product. The CIP option includes all required functionalities to handle CIP for industries like dairy and brewery. The CIP option includes CIP recipe handling, template objects for CIP lines, CIP circuits and CIP objects. The ProBase demo application includes a complete package of CIP station, CIP line, CIP circuits and CIP objects.

Methodology and Guidelines

ProBase defines a methodology to analyze project input data like PI-diagrams, IO/object lists and functional descriptions into a complete automation solution. All steps in this methodology is described in the ProBase Configuration manual. The ProBase Configuration manual is available online in the Documentation Structure. The functionalities in ProBase objects is described in online help. The online help can be accessed from any faceplate and guides the operator on how to operate the different ProBase objects.

Excel Based Bulk Data Tools

A set of different types of Excel based bulk data tools are provided in the ProBase folder on the PIAL distribution media.

These tools automate some frequent tasks in the application configuration. This reduced the engineering time and also minimize risk of errors.

Documentation Applications

ProBase includes a set of different types of documentation applications. These applications can be used during commissioning for fast documentation of different types of process data.

Installation Program

ProBase is easy to install as a system extension to a System 800xA system. The ProBase system extension requires the AC 800M Connect system extension loaded in the system.

For Compact Control Builder the ProBase software is distributed as a Compact Control Builder control project.
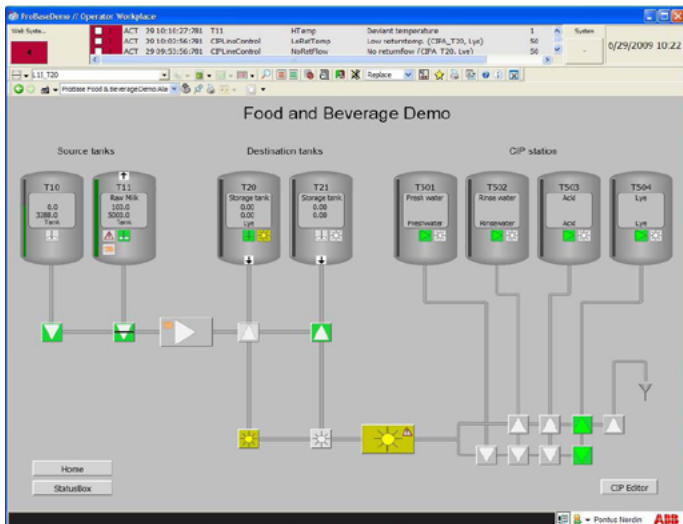
ProBase Demos

Two ProBase demo applications are provided in the ProBase folder on the PIAL distribution media. The demos show one typical dairy and beverage application and one tank farm application. The demos can be imported after loading the ProBase system extension.

Ordering

Licensing

ProBase licensing follows the System 800xA licensing structure based on first client, additional clients and controllers (types and numbers). There is also a fixed license level for ProBase for Compact Control Builder AC 800M. ProBase licenses are only required for runtime systems installed on-site and used in production. A specific engineering and demo license option is also available. ProBase licenses and software distribution is included in Process Industries Application Libraries.

* This information is to help users when ordering the ProBase product and licenses. However, it is outside the scope of this brochure to give a complete description of all procedures and tools as well as licensing conditions for other System 800xA options.
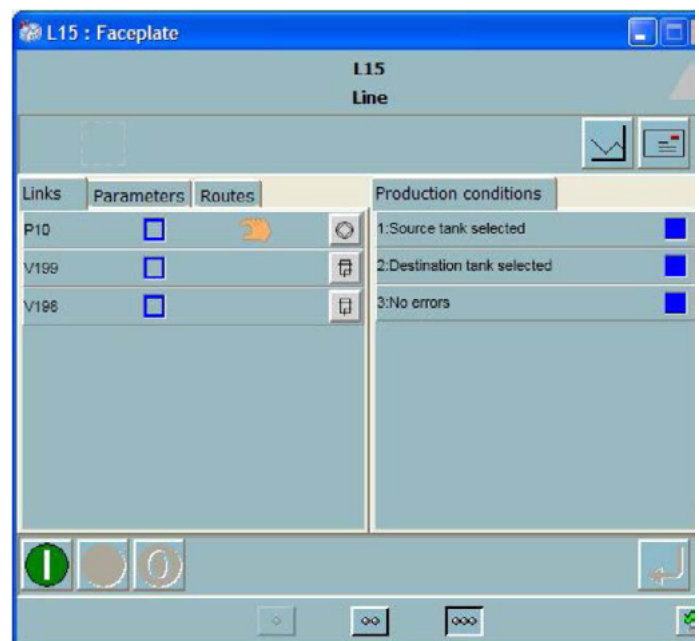

Figure 4. Production start conditions displayed in a production line faceplate

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