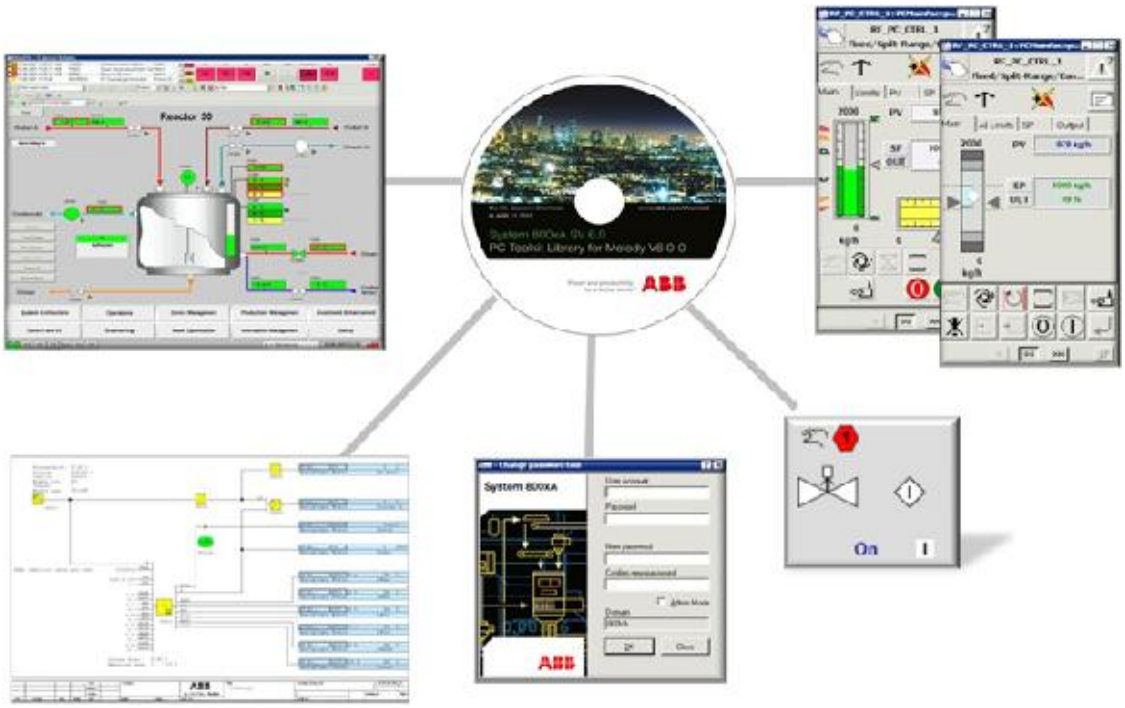
Technical description

System 800xA
PC Toolkit Library for Melody controller



Companies which operate internationally, particularly in the process industry try to standardize their project engineering and engineering tools.

This is the way they can guarantee that project and planning engineers as well as the operation stuff apply uniform standards for the design and implementation of automation technology systems.

To meet these needs of its prospective clients, ABB offers a specialized PC Toolkit Library uniting a large number of the technical functions needed in a process automation and control system.

PC Toolkit Library for Melody Controller

The PC Toolkit Library for Melody is a system extension for System 800xA. With the PC Toolkit Library for Melody, each customer is assured that the same functional solutions are implemented worldwide. That results both in simplified maintenance of the automation system and in cost savings with new installations and their commissioning.

This Library has been harmonized to the greatest extend with the other PC Toolkit Libraries for AC800M and Freelance. Operators will almost not see whether they use an object type Melody or Freelance. The information content in Faceplates and graphic element is almost the same.

The PC Toolkit Library for Melody includes:

- Standardized ready-to-use workplace
- Faceplates for the operation of the individual function
- Graphic elements for setting up process graphics
- PC Tools which speed up manual configuration (Aspect Link and Link Generator)
- Tool which allows operators to change his password if it is expired via his workplace

PC Operator Workplace

The PC Operator Workplace is a ready-to-use workplace that extends the standard operator workplace in many aspects.

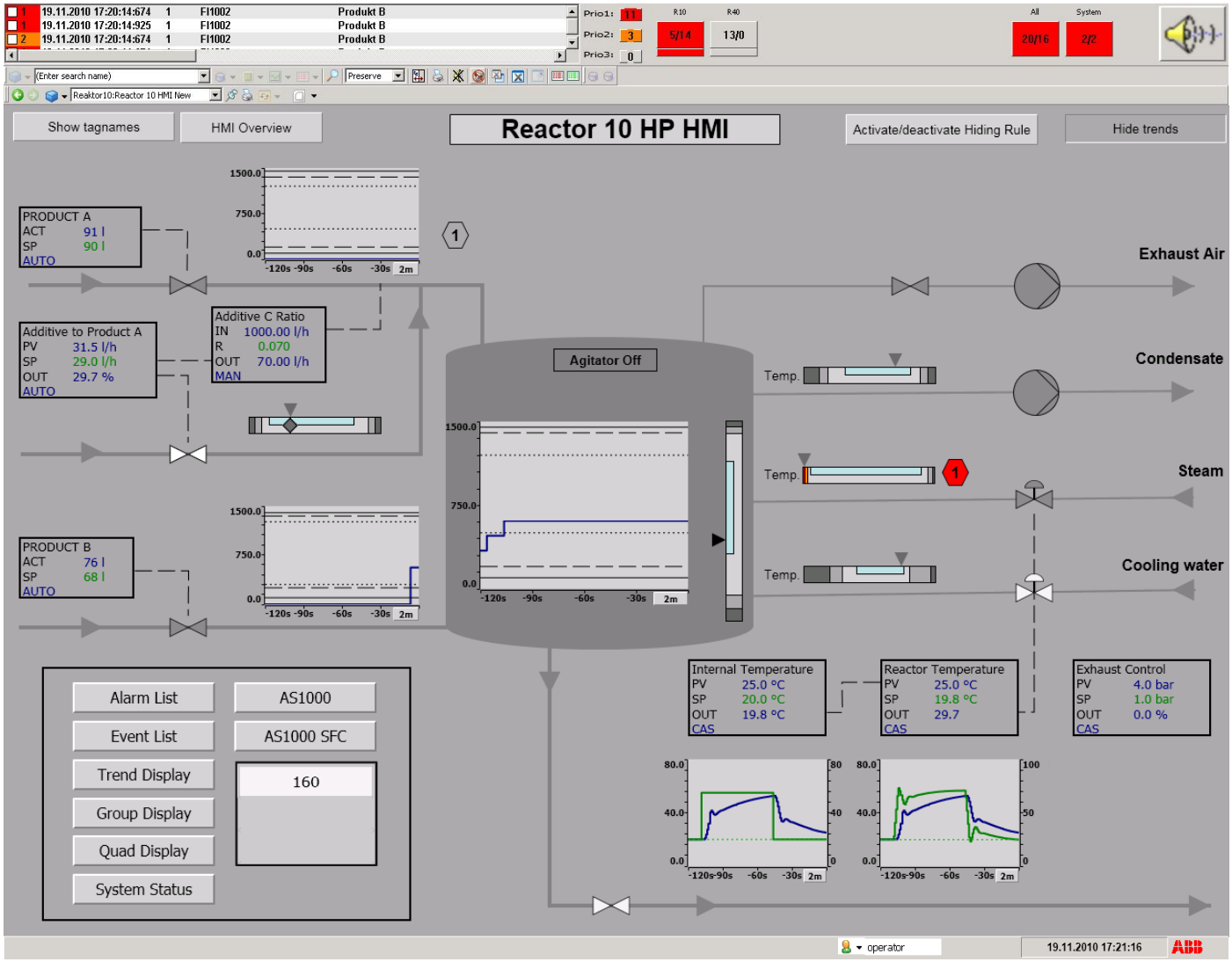
It has a preconfigured layout (e.g. for the application bar) which can easily be modified to fulfill the project requirements.

Furthermore it provides a preconfigured layout for one or two monitors. All settings of the workplace (e.g. at which position on the screen a faceplate window will appear) are preconfigured for the usage of faceplates provided by the PC Toolkit Library.

Preconfigured workplace features:

- Operator workplace layout for one or two monitors
- Alarm- and event list configuration
- Trend template for operator trends
- Workplace settings (e.g. object selection frame)
- Two user groups (advanced operator, instrumentation and electrical personnel)
- Pre-configured shortcuts
- Button for calling the Change Password Tool

(1) PC Operator Workplace



PC Library

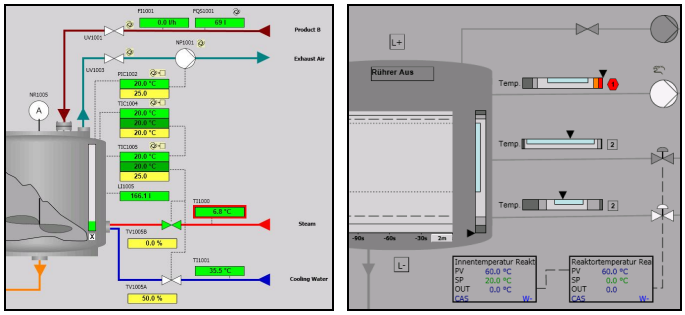
Faceplates & graphic elements
Classic and high performance indication

The user has the choice to use graphic elements or faceplates in a classic or high performance style.

High Performance HMI expands the capabilities of traditional HMIs of distributed control systems in many aspects.

It reduces risks of human errors and decreases operator-related incidents by improving situation awareness and leading to better handling of abnormal conditions. Using High Performance HMI can help operators to make better decisions and so improve process safety and process uptime.

Some of the main factors to improve the classic HMI are deliberate color definitions, usage to maximize visibility of abnormal situations and reduced complexity. A new style for alarm indications can be used in faceplates and as graphic elements.



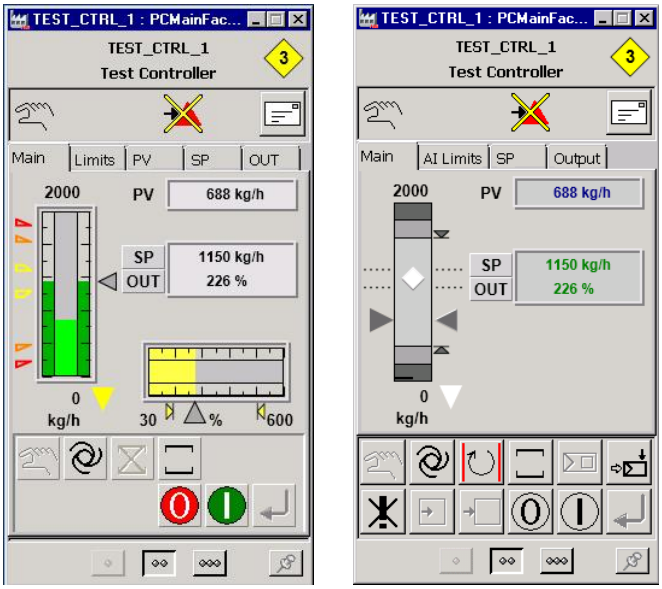
(2) Classic & High Performance HMI example

Figure (2) shows the differences of the color definitions, graphic elements and how High Performance HMI can be used to increase the visibility of an abnormal situation.

High Performance HMI does not only mean the usage of gray scales but also a modified way to display information (e.g. using bargraphs instead of numeric values when it makes sense). Another difference to classic HMI is the usage of color changeover (e.g. for limit values in bargraphs).

Faceplates

Figure (3) shows the comparison of a controller faceplate in classic and a High Performance HMI style.

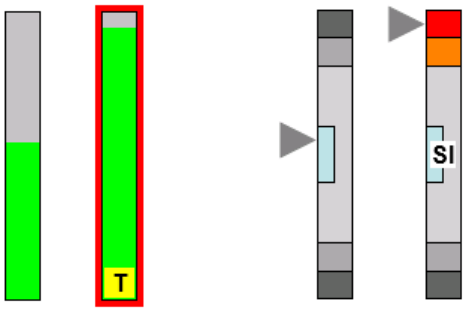


(3) Classic & High Performance HMI faceplate

As shown in the screenshots the classic analog value faceplate has three limit value pairs whereas the HP HMI faceplate has two limit value pairs and in addition a range pair commonly known as good range (or operating range) which gives the operator the possibility to recognize if the measured value leaves the normal range before the occurrence of an alarm.

Graphic elements

Figure (4) shows the comparison of an analog value bargraph in classic and High Performance HMI style. In both cases a bargraph in a normal process situation and in an abnormal situation is shown.



(4) Classic & High Performance HMI graphic element

In the abnormal situation an alarm limit is reached:

- Classic HMI: red alarm frame
- HP HMI: color changeover

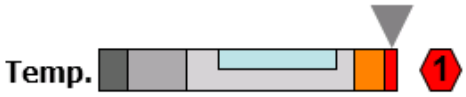
and the value is forced:

- Classic HMI: black ‘T’ on yellow background
- HP HMI: black ‘SI’ on white background.

Alarm indication

The alarm indication graphic element provides information of the most important actual alarm. Active alarm state is shown by different shapes and colors so the operator can easily recognize the alarm priority.

Figure (5) shows a bargraph graphic element with an additional alarm indication.



(5) Bargraph with additional alarm indication

Figure (6) shows the different alarm shapes for the alarm priorities. The priority of an alarm can be recognized by the color of the alarm shape, by the priority number in the shape and also by the shape type.

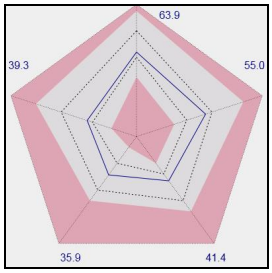
(6) Alarm shapes for different alarm priorities

Free graphic elements

Free graphic elements are universal to use. The usage is independent from the control module type. When configuring the graphics each signal for actual value, ranges and limits is connected separately. This gives possibility to use any module type supporting analog value monitoring (typically an analog input module or PID module).

Radar diagrams

The purpose of a radar diagram, see figure (7), is to give a quick overview of several analog values in one element.

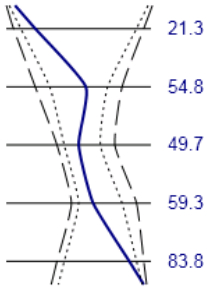


(7) Radar diagram with 5 spokes

Profile indication

The purpose of profile indications, see figure (8), is to give a quick overview of several analog values (e.g. temperatures, pressures in different areas of a tank). There exist two similar predefined HP HMI elements:

- Profile indication element shows the limits as single lines
- Profile indication map element shows the limits as curves

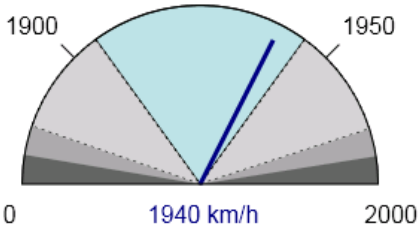


(8) Profile indication

Voltmeter

This element provides information about the actual value, alarm limits and normal value range in a voltmeter style layout. The value is presented by an indicator and optionally by a numeric value text.

A half-circle indication area is split into multiple arcs. Each arc represents one of the limits similar to the bargraph indication. The limit areas change their color in inactive and active state.



(9) Example of a voltmeter indication with active magnifier

As shown in figure (9) an additional magnifier function allows to extend the display for a defined range with a defined start and end angle to highlight the interesting section of the complete measuring range.

Typicals

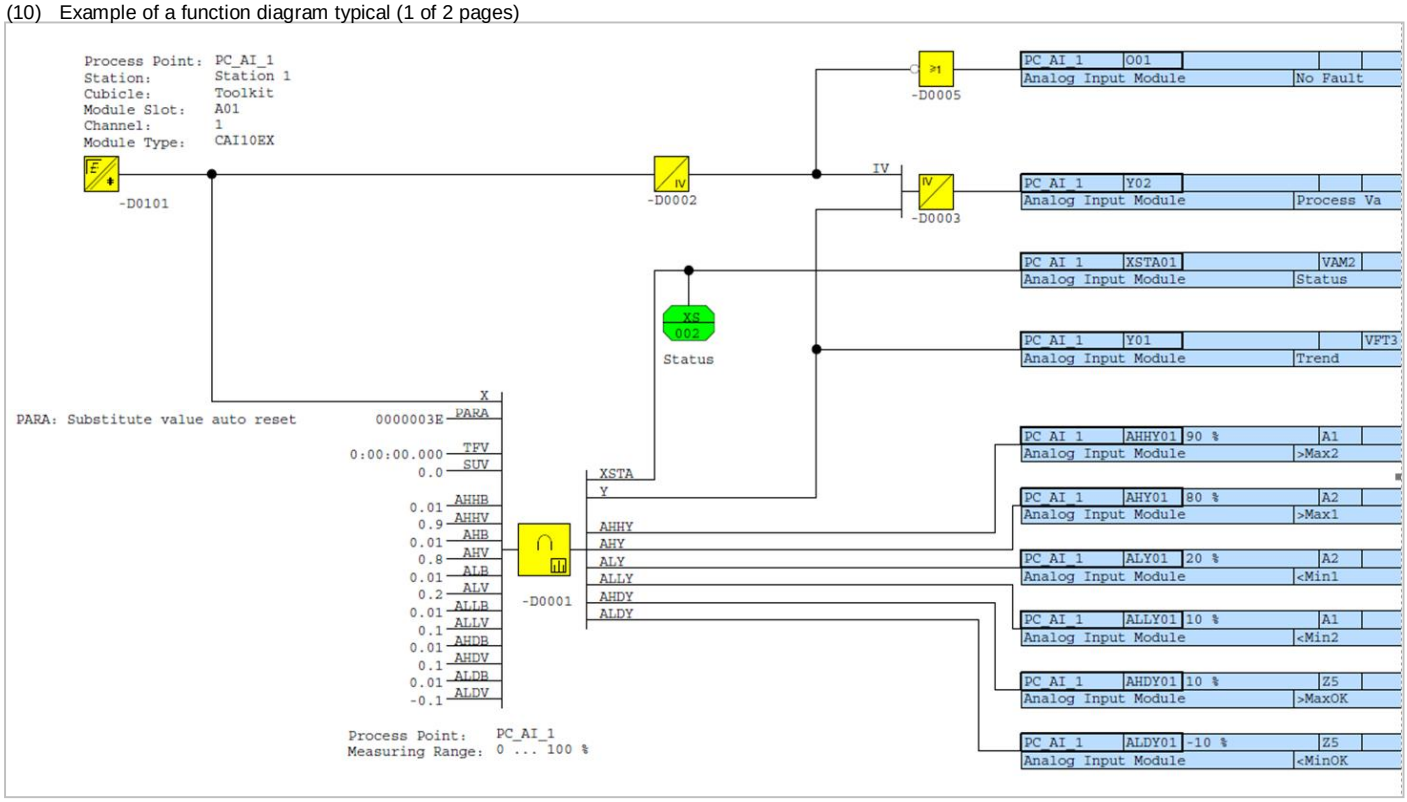
A function typical, see example figure (10), is a ready-to-use template containing a Melody function block as core functionality, supplement logic modules and connection to hardware input and output components.

The PC Toolkit Library for Melody software package provides a well tested set of typicals, customized to meet the requirements of the process industry.

The typical can be copied and parameterized via bulk functions. Efficient engineering is granted.

A double mouse click on a signal in the table or logic view opens the default aspect (normally the faceplate) of the signal origin.

(10) Example of a function diagram typical (1 of 2 pages)



PC Tools

PC Tools facilitates configuration through the automated generation during engineering. The functionality includes:

Aspect Link

Aspect Link adds multiple aspect references to its objects context menu. Aspect Link is an aspect that allows to manually configuring additional links to any object aspect of the same or different objects.

Link Generator

– Faceplate, trend and group display links

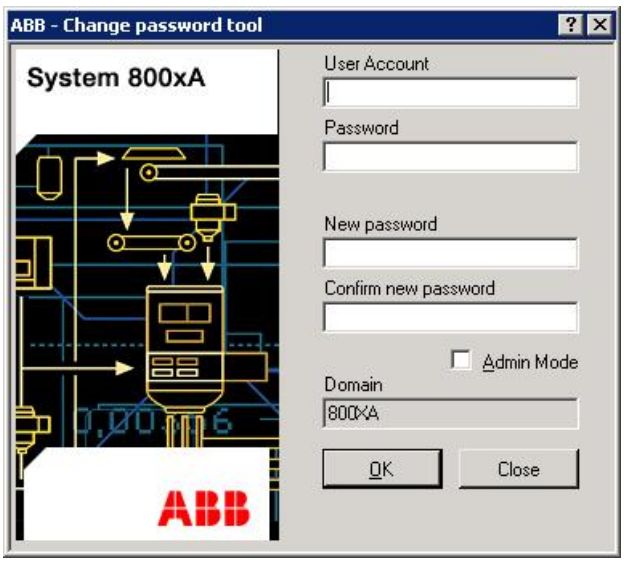
  The tool analyses the selected objects of the functional structure. The tool adds aspect links to all other objects with faceplates that are inserted under the same Function Designer diagram object.

– User-defined links

  The tool adds user defined links. These links are available in the context menu under “Reference links”.

Change Password Facility

In some factories a recurring change of the password is required for reasons of plant safety. New password entries is now managed by the Change password tool. The Admin Mode allows to unlock or reactivate a user account when the password was entered incorrectly or the account was temporarily disabled.



(11) Change password tool

Product Support (Ordering, Release, etc.)

Technical Support

Contact ABB technical support via E-mail or your local ABB representative for assistance in problem reporting.
E-Mail: tech-support-system-solution@de.abb.com

How to obtain

Product marketing, technical sales support and order placement:

Dept. DEATG/CE
E-Mail: tech-support-system-solution@de.abb.com
Phone: +49 69 7930 4410

License cost is outlined in the price list:
3BDA033517K_PriceBook_SystemSolutions

Deliverables

CD-Rom or DVD medium with PC Toolkit Library for Melody and product documentation in English and German. (German language for operation manual only).

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