ENERGY INDUSTRIES

REUSE Solutions Product Guide
Product guide
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Table of Contents

About This Product Guide....................................................................................................................................10
  General..........................................................................................................................................................10
  How to Use This Guide ..............................................................................................................................10
  Document Conventions .............................................................................................................................10
  Warning, Caution, Information, and Tip Icons ........................................................................................11
  Terminology ................................................................................................................................................12
  Related Documentation..............................................................................................................................13

1 Overview and Key Benefits ............................................................................................................................14
  REUSE Core Libraries .................................................................................................................................14
  Add-Ons .......................................................................................................................................................15
  Compliance to Standards ..........................................................................................................................16
  Key Benefits ................................................................................................................................................16

2 Product Description ........................................................................................................................................18
  REUSE Core Libraries .................................................................................................................................18
  Graphical User Interfaces ...........................................................................................................................24
  Group Display Status .................................................................................................................................28
  Interlock Viewer Connectivity ...................................................................................................................29
  Autrosafe Integration in System 800xA .................................................................................................30

3 Sales and Technical Data ................................................................................................................................32
  Sales Support ..............................................................................................................................................32
  Technical Documentation ..........................................................................................................................33
  Field Communications ..............................................................................................................................34

4 Software Upgrade Agreement ......................................................................................................................35
  REUSE Core Libraries .................................................................................................................................35
  Add-Ons .......................................................................................................................................................35

5 Ordering and Licensing..................................................................................................................................36
  General ........................................................................................................................................................36
  Ordering .....................................................................................................................................................36
  Licensing ...................................................................................................................................................37
List of Figures

Figure 1: Phases of Plant Life Cycle ................................................................. 17
Figure 2: Analog Monitoring Faceplate – Status Tab ........................................ 24
Figure 3: Maintenance Faceplate for SBE (Motor Control) ................................... 25
Figure 4: FF Status for CA (Continuous Analog Control) .................................... 26
Figure 5: Display Element for MA (Analog Monitoring) ...................................... 27
Figure 6: Plant-wide Group Display Status ...................................................... 28
Figure 7: GDS Pushbutton with Status Indicator .............................................. 28
Figure 8: Interlock Display – the Logic View ..................................................... 30
Figure 9: AutroSafe Fire panel connected to AC 800M HI via CI853 ...................... 31
Figure 10: REUSE Solutions Home Page on ABB Intranet .............................. 32
List of Tables

Table 1: Terminology .............................................................................................................................................. 12
Table 2: Related Documentation .......................................................................................................................... 13
Table 3: List of Libraries and Control Module Types (CMTs)REUSE Core Libraries .............................. 19
Table 4: Control Module Types for Process Control ......................................................................................... 20
Table 5: Control Module Types for Power Consumers and Interfaces ............................................................ 21
Table 6: List of Control Module Types for PSD/ESD ....................................................................................... 22
Table 7: List of Control Module Types for F&G Applications ........................................................................... 23
Table 8 Display Element Properties for MA (Analog Monitoring) ................................................................. 27
About This Product Guide

General
This product guide is intended for the REUSE Solutions product suite. The product suite consists of the Core functionality provided with REUSE Core Libraries and the Add-ons that can optionally be added and integrated with the core. The REUSE Core Libraries and the Add-ons are intended for use with the 800xA System and AC 800M Controller family.

How to Use This Guide

Target Group
This product guide is primarily intended for sales representatives within ABB. It happens that the product guide is distributed to internal and external ABB customers as a complement to existing product information. Other target groups are marketing and ABB personnel wishing to acquaint themselves with the REUSE Solutions. It is assumed that the reader has the knowledge of System 800xA in general and the engineering and operational environment in particular.

This product guide does not contain last-minute product information and updates which might affect functionality and/or performance. For information on last revision, late changes and restrictions, refer to the relevant Release Notes.

Purpose and Intended Use
This product guide presents information in terms of functions and features that can be ordered, installed, configured and operated. Product overview and benefits are described in Section Overview and Key Benefits, followed by a brief overview of the product components and functionality in the subsequent Section Sales and Technical Data. Sections Ordering and Licensing and Software Upgrade Agreement provide useful information and references to sales material, ordering procedure, licensing and software upgrade agreement. The intention is to give an initial guidance to sales and technical sales personnel.

Scope
This product guide covers the core product which is REUSE Core Libraries and additional functional extensions and features collectively named Add-ons. The Add-ons have dependencies to the core product but are delivered separately and have independent lifecycle and versioning policy. For details refer to the Release Notes of each Add-on. See also Related Documentation on page 13.
For information on compatibility and new functionality for each version and revision, refer to the relevant Release Notes.
For information on where to find the Release Notes and product documentation, refer to Section Sales and Technical Data on page 32.

Document Conventions
Microsoft Windows conventions are normally used for the standard presentation of material when entering text, key sequences, prompts, messages, menu items, screen elements, and so on.
Warning, Caution, Information, and Tip Icons

This document includes **Warning**, **Caution**, and **Information** if/where appropriate to point out safety related or other important information. It also includes **Tip** to point out useful hints to the reader. The corresponding symbols should be interpreted as follows:

- **Electrical warning icon** indicates the presence of a hazard which could result in electrical shock.

- **Warning icon** indicates the presence of a hazard which could result in personal injury.

- **Caution icon** indicates important information or warning related to the concept discussed in the text. It might indicate the presence of a hazard which could result in corruption of software or damage to equipment/property.

- **Information icon** alerts the reader to pertinent facts and conditions.

- **Tip icon** indicates advice on, for example, how to design your project or how to use a certain function.

Although **Warning** hazards are related to personal injury, and **Caution** hazards are associated with equipment or property damage, it should be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process performance leading to personal injury or death. Therefore, comply fully with all **Warning** and **Caution** notices.
Terminology

For general terms, refer to *Terminology Document (3BSE039243)*. Table 1 below lists terms used in this document. The reader should be familiar with these terms before proceeding further in this product guide. The Table 1 contains only those terms or abbreviations that are unique to ABB or have a usage or definition different from standard industry usage.

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add-Ons</td>
<td>Add-Ons in the context of this product guide refer to additional solutions and features for specific applications that are not part of the REUSE Core Libraries functionality. The Add-Ons extend the core product and cannot function independently.</td>
</tr>
<tr>
<td>CMT</td>
<td>Control Module Type. Typical software function with clearly defined interface and encapsulated programmable code to support modular design in a user-friendly engineering environment.</td>
</tr>
<tr>
<td>HMI, HSI</td>
<td>Human Machine (or System) Interface. A common term for audible, video and graphical user interface including graphic displays, faceplates, alarm facilities, keyboard, pointing devices and so on.</td>
</tr>
<tr>
<td>LBL/HBL</td>
<td>Local or Hub Business Lines. ABB organization units in different countries or regions belonging to a certain business segment such as Oil, Gas and Chemicals (OGC).</td>
</tr>
<tr>
<td>NORSOK</td>
<td>A set of standards developed with broad petroleum industry participation by interested parties in the Norwegian petroleum industry and is owned by the Norwegian Oil and Gas Association and The Federation of Norwegian Industry. Standards Norway is responsible for the administration and publication of the NORSOK standards.</td>
</tr>
<tr>
<td>IEC PAS 63131</td>
<td>IEC Publicly available specification based on NORSOK I-005 Ed.3 System Control Diagrams standard. REUSE Solutions is based and in compliance with this standard to the extent applicable.</td>
</tr>
<tr>
<td>REUSE Core (Libraries)</td>
<td>Refers to the REUSE Core Libraries which is the core product of the REUSE Solutions product suite. Used to distinguish from Add-Ons. Unlike REUSE Core Libraries the Add-Ons are used for specialized, niche applications within certain industry segment or market.</td>
</tr>
<tr>
<td>REUSE Portal</td>
<td>REUSE Solutions home page on the ABB intranet. Contain links to number of subordinated web pages where sales material, news, technical documentation and so on are published. For simplicity referred to as REUSE Portal. ABB Employees can reach it by following the link: <a href="https://abb.sharepoint.com/sites/OGPREUSESolutions/public/SitePages/Home.aspx">https://abb.sharepoint.com/sites/OGPREUSESolutions/public/SitePages/Home.aspx</a></td>
</tr>
<tr>
<td>*</td>
<td>The asterisk character &quot;*&quot; is used as a wildcard character for document numbers.</td>
</tr>
</tbody>
</table>
Related Documentation

Table 2 lists the REUSE Solutions documents relevant for sales and technical sales personnel. The product documentation along with latest sales and marketing material is published on ABB Library.

Table 2: Related Documentation

<table>
<thead>
<tr>
<th>Document ID</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3BNP101601*</td>
<td>REUSE Core Libraries, Release Notes</td>
</tr>
<tr>
<td>3BNP101543*</td>
<td>REUSE Core Libraries, Overview and Common Properties, User Manual</td>
</tr>
<tr>
<td>3BNP101554*</td>
<td>REUSE Core Libraries Safety Manual</td>
</tr>
<tr>
<td>3BNP102357*</td>
<td>REUSE Core Libraries Lifecycle Policy</td>
</tr>
<tr>
<td>3BNP100884</td>
<td>REUSE Core Libraries Terms and Conditions of Sale</td>
</tr>
<tr>
<td>3BNP101773*</td>
<td>REUSE Group Display Status, Release Notes</td>
</tr>
<tr>
<td>3BNP101784*</td>
<td>REUSE Group Display Status, User Manual</td>
</tr>
<tr>
<td>3BNP100158*</td>
<td>AutroSafe Integration In 800xA, Release Notes</td>
</tr>
<tr>
<td>3BNP100158D0028</td>
<td>AutroSafe Integration In 800xA, User Manual</td>
</tr>
<tr>
<td>3BNP101381</td>
<td>AutroSafe Integration In 800xA, Terms and Conditions of Sale</td>
</tr>
<tr>
<td>3BNP102419*</td>
<td>REUSE Solutions Price Book (consists of three sets of pricelists with currencies USD, EUR, NOK).</td>
</tr>
</tbody>
</table>

* The suffix of the document may change with a new product version or revision.
1 Overview and Key Benefits

The REUSE Solutions is a product suite of software products developed for the ABB System 800xA and AC 800M Controller family. It consists of automation solutions typically required by the Oil, Gas and Petrochemical industries but is not limited only to these industries.

The product suite is structured in a Core product named REUSE Core Libraries and Add-Ons solutions. The REUSE Core Libraries contains the solutions required by all automation projects while the Add-Ons are specialized solutions or features intended for a specific industry segment application. To provide integration with the relevant Core functionality, similar operator interface and associative operational experience the Add-Ons are developed to high extent by following the same design principals as for the REUSE Core Libraries.

From a user perspective the Add-Ons extend the core functionality and being well integrated it is often not obvious where the boundary between the Core and the Add-On is. By this reason REUSE Solutions is used in sales and marketing as a product suite name to address the overall offering centered around the REUSE Core Libraries.

REUSE Core Libraries

The origin of the REUSE Core Libraries is from the ABB’s North Sea oil and gas enterprise with more than a decade of refinement through number of customer projects and installations. The product is based on and works integrated with the 800xA System and the AC 800M Controllers family.

Control Module Types

A library is collection of typical function blocks or control module types (CMTs) which are functionally related and used for control application design. For example, a collection of control modules for Process and Emergency shutdown application design belongs to a Shutdown library. The REUSE Core Libraries provides a large number of CMTs grouped in fourteen different libraries as listed in Table 3 on page 19.

The variety of available Control Module Types support control application design in the following areas:

- **Process Control** – binary and continuous (analogue) control of oil, gas and petrochemical processes. A list of CMTs and where to find detailed information is shown in Table 4.
- **Power consumers and interfaces** - control and monitoring of motors, drives, breakers and interface to external power management systems.
- **Process and Emergency shutdown** - binary applications for typical process and emergency shutdown and depressurization systems.
- **Fire & Gas Supervision** - binary applications for areal fire and gas detection and protection of human life, environment and assets.

The design principals and control philosophy follow the IEC PAS 63131 System Control Diagrams standard.

For a brief introduction and an overview of the relevant rules and design principals, refer to *REUSE Core Libraries, Overview and Common Properties, User Manual (3BNP101543*)*
Besides the control logic, the CMTs have graphical interface in form of faceplates and variety of graphical symbols and elements. For illustration, refer to

**Graphical User Interfaces on page 24**

### Other Features

To support the design phase of a customer project the following additional features are included in the product:

- **CPU Load and memory calculation provided in form of an advanced Excel workbook.**
  This tool is important in an early phase of the system design planning to get understanding of the application load and memory consumption.

- **Display examples for typical oil and gas processes.**
  The displays are divided in three categories: overview displays, detailed displays and maintenance displays. They are based on the PG2 graphical tool and are delivered as a part of a Demo kit.

- **Demo kit for customer presentations to support technical sales personnel in their promotion of the product.**
  Can be download from the REUSE Portal.

### Add-Ons

Add-Ons extend the REUSE Core Libraries functionality with features for a specific industry segment application or market. An Add-On can also be a solution developed for a specific customer or solution designed to comply with a local or regional standard, which means no global applicability is foreseen, still valuable to include in the product suite.

The Add-Ons are separate items in the REUSE Solutions price list and must be indicated in the purchase order. They have separate release notes and user manuals and are not bound to the REUSE Core Libraries roadmaps and lifecycle. The license model and terms and conditions for use of Add-Ons software do not necessarily follow the REUSE Core Libraries. For more information and guidance, refer to the Section **Sales and Technical Data**.

Currently the following Add-Ons are available:

- **Autrosafe Integration in System 800xA** – Autronica, a vendor of fire and gas detector systems has a SIL2 certified protocol for serial communication between their certified Autrosafe fire panels and third-party control systems. ABB has developed a software product that provides connectivity between AC 800M High Integrity controllers and Autrosafe fire panels which keeps the integrity level of SIL2. In this way, the Autronica detectors are “mirrored” in the System 800xA and consequently the detector data are ready for use in a Fire and Gas application design.

- **Group Display Status (GDS)** – This system extension can be used to collect, calculate and display a status for groups of objects (CMT instances) belonging to a distinct process section or plant area. The monitored status in focus are alarm and override states in any of the members of the group. Whenever a group member enters the alarm or override state a flag is set and visualized on the group’s graphic element that is preconfigured in form of a rectangle push button. To identify the exact location of the object the operator pushes the button and by maximum two mouse clicks reach the display of the actual section or area. GDS is a highly customizable feature.

- **PC Interlock Viewer connectivity** – PC Interlock Viewer is a software product designed as a system extension with own aspect type applicable to AC 800M controller logic. It is not part of the REUSE Solutions product suite but delivered by ABB Automation GmbH. This feature works in the background and displays on demand the active interlocks or trips for a specific actuating device, typically motor, valve etc.
The operator can right-click on the device symbol to open the Interlock Viewer pop-up display and view the binary incoming interlocks or trips. For example, an active interlock that prevents a pump to start up will be shown as a red condition line. The operator is then able to trace back and identify the source of the trip or interlock. This feature was developed for the petrochemical and process industries therefore, the product name is prefixed by “PC”. PC Interlock Viewer connect enables the REUSE Core Libraries modules to function within the PC Interlock Viewer environment.

**Compliance to Standards**

The REUSE Solutions is based on System 800xA platform and consequently follows the relevant technology standards of the platform. It also complies with certain standards specific to the oil, gas and petrochemical industries. The major influence on the product’s technical specification and design have the following standards:

- IEC PAS 63131 – System Control Diagrams – defines basic concepts and control philosophy in terms of functions, function elements and functional templates. A prescriptive standard with normative definition of set of functions for device monitoring and control (for example, analog and binary monitoring, motor and valve control, continuous control and so on).

The safety content of REUSE Core Libraries is designed in compliance with the international safety standards:


The alarm design principals of REUSE Core Libraries Alarm management comply with the following standards and regulations:

- YA-711 – Principals of Alarm System Design by the Norwegian Petroleum Directorate.

**Key Benefits**

The key benefit of having standardized building blocks and features ready for engineering and application design is reduced cost in customer projects and reduced cost of ownership throughout the life cycle of the plant. This cost reduction and productivity gains in different phases of the plant lifecycle (see Figure 1) are achieved by:

1. Accelerated engineering and configuration process that focus on integration and not on software development.
2. Well-proven and reliable design minimizes the project risk during the project life cycle.
3. Intuitive, consistent and customizable user interface with features for easy navigation and standardized look and feel increases the operational efficiency by reducing the time to decision and action.
4. Lifecycle support commitment that guarantees future software updates and consequently reduces the cost of plant upgrades and modifications.
5. Use of standardized libraries considerably reduces or fully eliminates the lifecycle cost that would arise from delivering project specific solutions. These solutions are usually not maintained after the customer project closure. Often the customer may believe these solutions are part of ABB products portfolio and were delivered with a committed lifecycle.
Reliability of the solutions for safety applications is another important benefit. The safety solutions comply with the requirements for systematic safety integrity of up to SIL3 in accordance to IEC 61508:2010 standard. The relevant libraries are reviewed and certified by accredited certification body.
## 2 Product Description

The subsequent sections give a brief product overview of both, the REUSE Core Libraries and the Add-Ons.

### REUSE Core Libraries

#### Design Basis
The libraries design follows the object-oriented programming style of the standard AC 800M libraries and is based on the Control Module Types (CMT) technology.

For information on object-oriented design and the control module programming concept, refer to *System 800xA Control AC 800M Planning (3BSE043732)*.

Besides the control logic, the control module types have graphical interface in form of faceplates and variety of graphical symbols and elements. Event and alarm information, trends, color schemes, NLS handling, indication of overrides, faults and abnormal conditions etc. is integrated within the module types.

The design basis and core technical specification for the REUSE Core Libraries is the IEC PAS 63131 System Control Diagram standard. This standard defines the basic concepts and definitions. For brief introduction refer to *REUSE Core Libraries Overview and Common Properties, User Manual (3BNP101543)*.

#### Control Module Types
Each Control Module Type (CMT) besides the control logic and a Faceplate provides number of features well integrated in the 800xA framework:

- Set of graphical elements for visualization in process displays.
- Event and alarm handling, priority based.
- Support for Function Designer.
- Common features such as NLS handling, pre-defined color schemes, etc.

Event and alarm information, trends, indication of overrides, faults and abnormal conditions are integrated within the module type. Where applicable the modules support presentation of FF (Fieldbus Foundation) status.

The REUSE Core Libraries are protected and released meaning their content and components cannot be edited or modified by the user.

When a CMT does not provide the full functionality required by a customer it is possible to create a composite type by adding functionality built around a CMT. Such a composite type (also known as “wrapper”) is then project or customer specific variant. The local ABB unit or ABB Service implicitly agree and accept that additional maintenance effort will be required to accommodate future system and library releases.
**Table 3: List of Libraries and Control Module Types (CMTs) REUSE Core Libraries**

<table>
<thead>
<tr>
<th>Library Name</th>
<th>Description</th>
<th>Function (CMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>REUSEsignalib</td>
<td>Contains the main signal types for analog and digital input/output handling and continuous control.</td>
<td>CA, CS, MA, MAV², MA_SI, MB, OB, OA, SHA</td>
</tr>
<tr>
<td>REUSEcommon</td>
<td>Contains sequence control type and common logic and data types (for example, selectors and basic logic elements).</td>
<td>BlockTripSafety, GCore, HSO, KS, MSO, Number of Logic elements (AND, OR, SPLIT and so on)</td>
</tr>
<tr>
<td>REUSEflowelementlib</td>
<td>Contains Final Element control types including valve, motor, variable drive and circuit breaker.</td>
<td>CP, SBC_F³, SBC_I³, SBE, SBE_VSD, SBV⁴, SBV_SOE²</td>
</tr>
<tr>
<td>REUSEFuncElementLib</td>
<td>Contains function types for latching (shut-down level), flow totalizing, mode selector and calculation functions. For example, y = f(x).</td>
<td>FL, HM, LB, QA, YA</td>
</tr>
<tr>
<td>REUSEProcessBinaryLib</td>
<td>Contains dedicated valve control for process (non-SIL) control and enhanced single and duty/standby motor control.</td>
<td>SBV, SBE, SBC</td>
</tr>
<tr>
<td>REUSEProcessAnalogLib</td>
<td>Contains the main signal types for analog input/output handling based on Contro-Connection data type.</td>
<td>MA, CA, OA</td>
</tr>
<tr>
<td>REUSEIACLlib</td>
<td>Interface modules for Inter Application Communication (IAC) with instance based configurable ISP.</td>
<td>IACInSafety, IACOutSafety</td>
</tr>
<tr>
<td>REUSEfg</td>
<td>Contains control module types for fire and gas supervision, protection and firefighting equipment activation.</td>
<td>AREA, BLOCKING, BLOCKING_EX, BLOCKING_EX_15, DELUGE, HVAC, MA_FG, MB_FG, OVERVIEW, WATERMIST</td>
</tr>
<tr>
<td>REUSEfgCommonLib</td>
<td>Contains common types to support fire and gas application design including voting and signal.</td>
<td>AND2Confirmed, ORx1 ISW, OR4_MANUAL, OR8 OVERVIEW, SPLIT ISW, SPLIT8_BLOCKING, SPLIT8_DELUGE, SPLIT8_HVAC, SPLIT8_WATERMIST, Vetex1 ISW Vote8WH_ISW</td>
</tr>
<tr>
<td>REUSEElectroLib</td>
<td>Contains types for interfacing motors and circuit breakers.</td>
<td>SBC_CB, SBC_IB³, SBE_IM³</td>
</tr>
<tr>
<td>REUSEVoteLib</td>
<td>Contains control module types for voting for shutdown applications (PSD and ESD).</td>
<td>Deviation3Real, Vote1QSafety, Vote2DSafety, Vote3QSafety, Vote3DSafety</td>
</tr>
<tr>
<td>REUSEProtectionLib</td>
<td>Contains SIL3 capable control module types dedicated to typical Process and Emergency Shutdown applications.</td>
<td>LB_S, SBV_S, StrokeTest</td>
</tr>
<tr>
<td>REUSEProtectionSignalLib</td>
<td>Contains SIL3 capable control module types for Ethernet and modbus based analog and digital signal handling.</td>
<td>MA_S, MAHH_S, MALL_S, MB_S, OB_S</td>
</tr>
</tbody>
</table>

1 \(x = 2, 4, 8\).
2 Demoted to non-SIL in REUSE Core Libraries 8.4-0. For details, refer to Field Communications: 3BNP101631D0003 and 3BNP101630D0005.
3 In classic lifecycle phase. For details, refer to Product Bulletins 3BNP101396
4 SBV is only compliant to IEC61508:2000 and not to the latest version. For safety applications SBV_S shall be used. For Process control applications SBV of REUSEProcessBinaryLib shall be used.
Process Control
The main CMTs for process and sequential control provide functionality for Valve control, Choke control, Continuous PID control and Sequence control. The full list of available control module types intended for use in Process control applications is given in Table 4. The control modules indicated with grayed background are legacy modules kept in the library to support installed base. Starting from 800xA 6.1 onwards these modules shall not be used in greenfield projects.

Table 4: Control Module Types for Process Control

<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>User Manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA_ControlSCD_Type</td>
<td>Monitoring and control of analog output signal (PID controller).</td>
<td>1</td>
</tr>
<tr>
<td>CA</td>
<td>Continuous analog control (PID controller) based on ControlConnection data type.</td>
<td>4</td>
</tr>
<tr>
<td>CS_ChokeValveType</td>
<td>Control and monitoring of choke valve.</td>
<td>1</td>
</tr>
<tr>
<td>CP_PigBypassValveType</td>
<td>Control and monitoring of pig bypass valve.</td>
<td>1</td>
</tr>
<tr>
<td>FL_CalculationType</td>
<td>Process input calculation block.</td>
<td></td>
</tr>
<tr>
<td>HM_SelectType</td>
<td>Multiple mode selection from HMI. For use with portable water storage tanks, firewater pump etc.</td>
<td>2</td>
</tr>
<tr>
<td>HSO</td>
<td>Manual operation of binary process signal from HMI.</td>
<td></td>
</tr>
<tr>
<td>KS_Type</td>
<td>Control and monitoring of sequences.</td>
<td>1</td>
</tr>
<tr>
<td>LB_ShutdownLevelType</td>
<td>Monitoring and control of a shutdown level.</td>
<td></td>
</tr>
<tr>
<td>MA_AnalogInType</td>
<td>Monitoring of analog process variables.</td>
<td>3</td>
</tr>
<tr>
<td>MA</td>
<td>Monitoring of analog process variables (ControlConnection data type)</td>
<td>4</td>
</tr>
<tr>
<td>MAV_AnalogInType</td>
<td>Monitoring of analog process variables with voting.</td>
<td></td>
</tr>
<tr>
<td>MA_SI_AnalogInType</td>
<td>Monitoring of analog process variables for serial link interface.</td>
<td>3</td>
</tr>
<tr>
<td>MB_DigitalInType</td>
<td>Monitoring of binary (digital) process variables.</td>
<td></td>
</tr>
<tr>
<td>MSO</td>
<td>Mode operation of binary and analog outputs from HMI.</td>
<td>2</td>
</tr>
<tr>
<td>OA</td>
<td>Analog output supervision and control (ControlConnection data type)</td>
<td>4</td>
</tr>
<tr>
<td>OA_AnalogueOutType</td>
<td>Analog output supervision and control object type.</td>
<td>3</td>
</tr>
<tr>
<td>OB_BinaryOutType</td>
<td>Digital output supervision and control object type.</td>
<td></td>
</tr>
<tr>
<td>QA_TotalizerType</td>
<td>Accumulation of process variable.</td>
<td>2</td>
</tr>
<tr>
<td>SBC</td>
<td>Coordinator module for duty/standby control of up to six motors.</td>
<td></td>
</tr>
<tr>
<td>SBE</td>
<td>Motor control, steady and pulsed outputs</td>
<td>4</td>
</tr>
<tr>
<td>SBV</td>
<td>Valve control dedicated for process (non-SIL) applications</td>
<td></td>
</tr>
</tbody>
</table>
Object type          | Description                                                                                         | User Manual* |
---------------------|-----------------------------------------------------------------------------------------------------|--------------|
SBV_ValveType        | Control of valves. Can also be used for Damper control in Fire and Gas detection applications.       | 1            |
SHA_Analogue_Type    | Signal handling of analog values (gain, low pass filtering and ramping). This type can be combined    | 3            |
                     | with CA to implement ratio control.                                                                  |              |
YA_CalculationType   | Process input calculation block, \( Y = f(X) \).                                                    | 2            |

* For detailed functional description refer to:
1. REUSE Core Libraries Process Control, Basic Functions, User Manual (3BNP101547*).
2. REUSE Core Libraries Process Control, Supporting Functions, User Manual (3BNP101912*).
3. REUSE Core Libraries Process Control, Signal Functions, User Manual (3BNP101545*).
4. REUSE Core Libraries Process Control, Analog and Binary Handling, User Manual (3BNP101667*).

Power Consumers and Interfaces
Control module types intended for use in control and monitoring of power consumers, drives and interfaces are listed in Table 5.

Table 5: Control Module Types for Power Consumers and Interfaces

<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>User Manual*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBC_CB_BreakerType</td>
<td>Control of contactor feeder breakers, pulsed outputs</td>
<td>1</td>
</tr>
<tr>
<td>SBC_IB_BreakerType</td>
<td>Control of incomer/bus-tie breakers, pulsed outputs</td>
<td>See page footnote</td>
</tr>
<tr>
<td>SBE_IM_MotorType</td>
<td>Monitoring for motors/ drives status</td>
<td></td>
</tr>
<tr>
<td>SBC_Coordinator module for duty/</td>
<td>Coordinator module for duty/standby control of up to six motors.</td>
<td>2</td>
</tr>
<tr>
<td>standby control of up to six motors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBE_MotorType</td>
<td>Motor control, steady and pulsed outputs</td>
<td></td>
</tr>
<tr>
<td>SBE_MotorType</td>
<td>Control of motor devices, steady/pulsed outputs</td>
<td></td>
</tr>
<tr>
<td>SBE_VSD_MotorType</td>
<td>Control of variable speed drives, steady/pulsed outputs and analog speed output</td>
<td>1</td>
</tr>
</tbody>
</table>

* For detailed functional description refer to:
1. REUSE Core Libraries Power Consumers and Interfaces, User Manual (3BNP101800*).
2. REUSE Core Libraries Process Control, Analog and Binary Handling, User Manual (3BNP101667*).

The main CMTs for control and monitoring of electrically powered devices are SBE (Motor control), SBE_VSD (Variable Drive control) and SBC_CB (Low voltage circuit breaker). A brief description of these CMTs is given below for the reader who is familiar with the IEC PAS 63131 terminology.

\[1\] The SBC_IB and SBE_IM modules are in limited lifecycle phase. The design descriptions can be distributed on demand. For more information, refer to Product Bulletin 3BNP101396.
**Process and Emergency Shutdown/ Depressurization**

The typical CMTs for process and emergency shutdown (PSD/ESD) or depressurization provide functionality for safety valve control, voting, shutdown level control and partial stroke test. The full list of available control module types intended for use in PSD/ESD and depressurization systems are given in Table 6.

**Table 6: List of Control Module Types for PSD/ESD**

<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>User Manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>BlockTripSafety</td>
<td>Manual blocking of shutdown level activation. (Needed when activated by a higher level through both SPLIT_SAFETY and OR_SAFETY functions.)</td>
<td>1</td>
</tr>
<tr>
<td>Deviation3Real</td>
<td>Calculation of deviation between up to three real input values.</td>
<td>3</td>
</tr>
<tr>
<td>LB_S</td>
<td>Monitoring and control of a shutdown level.</td>
<td>1</td>
</tr>
<tr>
<td>MA_S</td>
<td>Monitoring of analog process variables (with up to two high and two low limits).</td>
<td>2</td>
</tr>
<tr>
<td>MAHH_S</td>
<td>Monitoring of analog process variables (with up to two high limits).</td>
<td>2</td>
</tr>
<tr>
<td>MALL_S</td>
<td>Monitoring of analog process variables (with up to two low limits).</td>
<td>2</td>
</tr>
<tr>
<td>MB_S</td>
<td>Monitoring of digital process variables</td>
<td></td>
</tr>
<tr>
<td>OB_S</td>
<td>Supervision and control of a digital output.</td>
<td></td>
</tr>
<tr>
<td>SBV_S</td>
<td>Control of valves (pneumatic/hydraulic).</td>
<td>1</td>
</tr>
<tr>
<td>StrokeTest</td>
<td>Partial or full stroke test of normally open valve.</td>
<td></td>
</tr>
<tr>
<td>Vote1QSafety</td>
<td>‘Quality voting’ of one input</td>
<td>3</td>
</tr>
<tr>
<td>Vote2DSafety</td>
<td>‘Diagnostic voting’ of up to 2 inputs.</td>
<td></td>
</tr>
<tr>
<td>Vote3QSafety</td>
<td>‘Quality voting’ of up to 3 inputs.</td>
<td></td>
</tr>
<tr>
<td>Vote3DSafety</td>
<td>‘Diagnostic voting’ of 3 inputs.</td>
<td></td>
</tr>
</tbody>
</table>

* For detailed functional description refer to:
1. REUSE Core Libraries Process and Emergency Shutdown, Basic Functions, User Manual (3BNP101864*).
2. REUSE Core Libraries Process and Emergency Shutdown, Signal Functions, User Manual (3BNP102261*).
3. REUSE Core Libraries Process and Emergency Shutdown, Voting Functions, User Manual (3BNP101549*).

**Fire and Gas Supervision and Protection**

The typical CMTs for fire and gas supervision and protection (F&G) provide functionality for binary and analog detector interfaces, voting, fire area control, control of extinguishing equipment and interface to HVAC (Heat, Ventilation and Air Conditioning). The full list of available control module types intended for use in F&G applications is given in Table 7.
### Table 7: List of Control Module Types for F&G Applications

<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>User Manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>And2Confirmed_ISW</td>
<td>Control module type for 'and' of the 'Confirmed' bit within the two connections of the data type ISW.</td>
<td></td>
</tr>
<tr>
<td>AREA_ControlType</td>
<td>Control module type for control and monitoring of a fire area, i.e. override control, reset latch and status monitoring of all connected control module instances for inputs, protection systems and outputs.</td>
<td></td>
</tr>
<tr>
<td>BLOCKING_ControlType</td>
<td>Control module types for handling (up to 5, 10 or 15) activation signals from one fire area to outputs that are activated from several areas. This enables blocking of each activation signal, without affecting the activation from other fire areas.</td>
<td></td>
</tr>
<tr>
<td>BLOCKING_EX_ControlType</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLOCKING_EX_15_ControlType</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELUGE_ControlType</td>
<td>Control module type for control and monitoring of a deluge protection system.</td>
<td>1</td>
</tr>
<tr>
<td>HVAC_ControlType</td>
<td>Control module type for control and monitoring of a HVAC protection system.</td>
<td></td>
</tr>
<tr>
<td>MA_FG_AnalogueInType</td>
<td>Control module type for analog input signal in the F&amp;G system with two detection limits, activation HH and warning H, e.g. gas detectors, analog flame detectors or pressure transmitters.</td>
<td></td>
</tr>
<tr>
<td>MB_FG_BinaryInType</td>
<td>Control module type for binary input signal (digital input or loop supervised analog input) in the F&amp;G system, e.g. heat and smoke detectors, manual call points or manual water release.</td>
<td></td>
</tr>
<tr>
<td>OB_BinaryOutType</td>
<td>Supervision and control of a digital output.</td>
<td>2</td>
</tr>
<tr>
<td>ORx1_ISW_Type</td>
<td>Control module type for 'or' of two, four or eight connections of the data type ISW.</td>
<td></td>
</tr>
<tr>
<td>OR4_MANUAL_Type</td>
<td>Control module type for 'or' of four connections of the data type MANUAL.</td>
<td>1</td>
</tr>
<tr>
<td>OR8_OVERVIEW_Type</td>
<td>Control module type for 'or' of eight connections of the data type OVERVIEW.</td>
<td>3</td>
</tr>
<tr>
<td>OVERVIEW_MonitoringType</td>
<td>Control module type for status indication of one fire area or a group of fire areas.</td>
<td></td>
</tr>
<tr>
<td>SBV_S</td>
<td>Control of Valves (Pneumatic/Hydraulic)</td>
<td>3</td>
</tr>
<tr>
<td>SPLIT_ISW_Type</td>
<td>Control module type that provides a branch function of the data type ISW.</td>
<td>1</td>
</tr>
<tr>
<td>SPLIT8_BLOCKING_Type</td>
<td>Control module type that provides a branch function of the data type BLOCKING.</td>
<td>1</td>
</tr>
<tr>
<td>SPLIT8_DELUGE_Type</td>
<td>Control module type that provides a branch function of the data type DELUGE.</td>
<td>1</td>
</tr>
<tr>
<td>SPLIT8_HVAC_Type</td>
<td>Control module type that provides a branch function of the data type HVAC.</td>
<td></td>
</tr>
<tr>
<td>SPLIT8_WATERMIST_Type</td>
<td>Control module type that provides a branch function of the data type WATERMIST.</td>
<td></td>
</tr>
<tr>
<td>VOTEX_ISW_Type</td>
<td>Control module type for voting of two, four or eight detectors to determine confirmed high detection.</td>
<td>1</td>
</tr>
<tr>
<td>Vote8WH_ISW_Type</td>
<td>Control module type for voting of eight detectors to determine confirmed warning high detection.</td>
<td></td>
</tr>
<tr>
<td>WATERMIST_ControlType</td>
<td>Control module type for control and monitoring of a WATERMIST protection system.</td>
<td></td>
</tr>
</tbody>
</table>

* For detailed functional description refer to:
1. REUSE Core Libraries Fire and Gas Supervision, Basic Functions, User Manual (3BNP101551*).
2. REUSE Core Libraries Process Control, Signal Functions, User Manual (3BNP101545*).
3. REUSE Core Libraries Process and Emergency Shutdown, Basic Functions, User Manual (3BNP101864*)
Graphical User Interfaces

Graphical interfaces in form of faceplates and graphical display elements are provided in the REUSE Core Libraries CMTs as pre-built and ready for use features. A variety of display elements are provided for use in process display design.

**Faceplates**

The faceplates visually present all the information an operator requires for day-to-day operation, including signal conditions, modes of operation, override status, warnings, alarms, trends and so on. They are built of faceplate elements organized in panes (tabs). These are developed to be configuration sensitive so that if the functionality is not used (not configured) it does not appear on the faceplates. Some faceplate functionality has commands with configurable user permission and access privileges. For example, only a safety operator can perform certain safety critical operations such as forcing, blocking or suppressing signals.

*Figure 2* shows the Status tab of a MA (Monitoring Analog) CMT.

![Figure 2: Analog Monitoring Faceplate - Status Tab](image)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bar graph with analog value indication</td>
</tr>
<tr>
<td>2, 3, 5, 6</td>
<td>Alarm Limits indication (HH, H, L, LL)</td>
</tr>
<tr>
<td>4</td>
<td>Fault (cyan background) and Force (blue background)</td>
</tr>
<tr>
<td>7</td>
<td>Process value</td>
</tr>
<tr>
<td>8</td>
<td>Hysteresis</td>
</tr>
<tr>
<td>9</td>
<td>Operator Note</td>
</tr>
<tr>
<td>10</td>
<td>Suppress command</td>
</tr>
<tr>
<td>11-14</td>
<td>Configured alarm and warning limits (subject for Block)</td>
</tr>
<tr>
<td>15-18</td>
<td>Event Limits indication</td>
</tr>
</tbody>
</table>
The user familiar with standard System 800xA faceplates will notice the difference in design. This different design is based on analysis and feedback from majority of customers in the Oil, Gas and Petrochemical industries.

The following are main improvements related to the standard 800xA faceplates:

- **Compact design** - takes less space on the screen. The command line and indicator line are removed to minimize the faceplate surface.
- **Less bright** - although configurable the background is per default less bright, more pleasant for viewing and providing better contrast and easier focus on indicators.
- **Less arm (mouse) movement** - compact and extended faceplates buttons are disabled, thus number of movements reduced. Apply confirmation is located in immediate proximity of the buttons and entry fields.
- **Big command buttons** - located on the faceplate tabs, to show the main object command. Where applicable the buttons are equipped with a static symbol for better visualization of the command effect. For illustration, see Figure 3.
- **Reduced number of clicks** - compact solution with fewer tabs allows for easier navigation with reduced number of clicks relative to the standard 800xA solution.
- **Extended tooltip information** - hints and tooltips shown on moving the pointer over the button.

For a subset of CMTs, maintenance faceplates are provided.

---

**Figure 3: Maintenance Faceplate for SBE (Motor Control)**
### Fieldbus Foundation

Status presentation for Fieldbus devices is available for certain object type faceplates, see an example on Figure 4.

![Figure 4: FF Status for CA (Continuous Analog Control)](image)

#### Graphic Display Elements

Display elements are built in accordance with the System 800xA Process Graphics Style Guide but customized to adapt to customer requirements in the Oil, Gas and Petrochemical industries.
The display elements include signal and device symbols with binary and analog status indicators, colored letters and indicator squares. These elements use predefined logical colors schemes when the color changes depending on the state of the signal or device. Most objects contain a choice of display elements, many of them with configurable properties such as scalable size, orientation, logical color selection and so on. Some of the types are used across the application areas (e.g. process control, safety supervision and protection) and offers different display elements for these purposes.

For illustration, refer to Figure 5 and Table 8 where one of many display elements for analog input signal monitoring is described with the graphic properties.

Display element symbols for Input/Output devices have a bad data quality indicated as a red cross.

![Figure 5: Display Element for MA (Analog Monitoring)](image)

<table>
<thead>
<tr>
<th>Item</th>
<th>Property</th>
<th>Presentation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Measured Value</td>
<td>Green</td>
<td>Measured input value</td>
</tr>
<tr>
<td>2</td>
<td>Alarm</td>
<td>H / L</td>
<td>Action alarm HH/ LL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H / L</td>
<td>Warning alarm H/ L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H / L</td>
<td>Status AHH/ ALL/ WH/ WL, latched and disabled alarm.</td>
</tr>
<tr>
<td>3</td>
<td>Status</td>
<td>F</td>
<td>Fault</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F / S</td>
<td>Forced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Suppressed from faceplate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H</td>
<td>Blocked from faceplate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hidden from faceplate</td>
</tr>
<tr>
<td>4</td>
<td>Prefix</td>
<td>Green letter</td>
<td>Normal state</td>
</tr>
<tr>
<td>5</td>
<td>Blocking Line HH</td>
<td>Blue</td>
<td>Blocked HH from faceplate and BlockHH is true.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gray</td>
<td>Normal color when Limit HH value is healthy and BlockHH is true.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transparent</td>
<td>Transparent when LimitHH value is not healthy or BlockHH is false.</td>
</tr>
<tr>
<td>6</td>
<td>Blocking Line LL</td>
<td>Blue</td>
<td>Blocked LL from faceplate and BlockLL is true.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gray</td>
<td>Normal color when LimitLL value is healthy and BlockLL is true.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transparent</td>
<td>Transparent when LimitLL value is not healthy or BlockLL is false.</td>
</tr>
</tbody>
</table>
Group Display Status

Group Display Status (GDS) is an Add-On to REUSE Core Libraries. GDS is a combined display and navigation feature that provides the following:

- Visual plant-wide overview of active alarms and overrides. This overview is always present on the screen which means not affected by operators display navigation.
- Easy and swift navigation to locate the actual process section, system or area, where the alarm, override or shutdown originates from.
- Works with any 800xA based libraries, not only with REUSE Core Libraries. This is valuable where for instance the REUSE Core Library is only used for safety applications and other libraries for process control.
- Can be combined with the 800xA tabbed navigation feature.

The GDS is implemented as a system extension. It assumes that plant operations are split up into groups of process sections and sub-systems. For example, oil and gas production processes are typically divided in process control, fire and gas, emergency shutdown, separation trains, gas compression and so on. The GDS treats each of these as a group having one overview display.

In the GDS layout (see Figure 6), the overview status for each group is represented by a rectangular push button with two indicators on the right-hand side. The user can build up a plant-wide status display by combining up to 16 buttons placed in two rows, 8 buttons each. This display is then permanently visible in the Application bar, per default on the left-hand screen.

![Figure 6: Plant-wide Group Display Status](image)

Each button is composed of left and right part integrated into one element. By clicking on the left side, the overview display for the particular process or sub-system appears on the left-hand screen. Similarly, by clicking the right side will cause the OVERVIEW display to appear on the right-hand screen. From the overview display, the operator can further navigate to the detailed display to identify the exact location of the alarm or override. With this “max. three clicks” approach and fast location of a potential problem the time for operator reaction and decision making can be considerably shortened.

Figure 7 shows the indicators accompanying the buttons dynamically display alarms and status. Up to five priority alarms can be shown indicated by priority number and color but in case several alarms of different priorities are active the one with the highest priority is indicated.

The status indicator shows suppressed or blocked objects and shutdown states. The highest priority has the suppressed signals or objects, the lowest shutdown states.

![Figure 7: GDS Pushbutton with Status Indicator](image)
Process Control (PC) Interlock Viewer is part of a PC-Toolkit product suite delivered and maintained by ABB Automation GmbH, IA Energy Industries.

Starting from 800xA v6.0 onwards the Interlock Viewer product marketing, sales, technical support and order placement is handled by ABB Automation GmbH, refer to their contact e-mail: techsupport-system-solution@de.abb.com.

Existing customers with System 800xA version older than v6.0 where Interlock Viewer was delivered as part of the REUSE Core Libraries will need to refer to an active (not expired) REUSE license ID when requesting an upgrade of the Interlock Viewer.

Connectivity to Interlock Viewer is implemented in the REUSE Core Libraries as a separate extension delivered with the REUSE Core Libraries. The purpose of the connectivity feature is to enable REUSE Core Libraries modules to be recognized by and work properly with the Interlock Viewer.

Brief description of the Interlock Viewer functionality follows below.

PC Interlock Viewer visualizes graphically or in a table form the active interlocks and trips for a selected device object (for example, valve or motor). This feature, implemented as a system extension, provides help to operators in analyzing and identifying the active interlocks and the cause of trips and shutdowns. For example, an active interlock that prevents a pump to start up will be identified and shown as a red condition line (refer to Figure 8). The operator is then able to trace back and identify the source.

Interlock display is easy to use, the operator must point on the device object and from the right-click context-sensitive menu, select Interlock Display aspect. A faceplate opens showing the binary incoming interlocks or trips with their states as False/green color or True/red color.

Interlock Display is designed to read live values from AC 800M OPC Server and works with CMTs created in the supported engineering environments (CBM, FD and CDE).

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Status (Blocked, Suppressed, Forced)</td>
</tr>
<tr>
<td>2</td>
<td>Alarms by Priority</td>
</tr>
<tr>
<td>3</td>
<td>Title and Display Link</td>
</tr>
</tbody>
</table>

For details refer to REUSE Group Display Status Priority Based, User Manuals (3BNP101784*).
**Autrosafe Integration in System 800xA**

Autrosafe Integration in System 800xA is an Add-On to REUSE Core Libraries. This Add-on provides connectivity to AutroSafe fire and gas detection system and integration into 800xA System. AutroSafe is developed and owned by Autronica, a Norwegian based company. It is a brand name for family of products specifically designed for fire and gas detection and protection systems covering a wide range of applications suitable for industrial plants and marine vessels. A variety of detector types with advanced functionality and self-diagnostics are available for detection of smoke, flame, heat, gas discharge, toxic vapors etc. In a typical system the detectors are connected to a bus which conveys the detector data to a local controller and panel. For each pre-defined area (location) in an industrial building or facility there is a local panel. The area is usually named “Fire zone” and the panel “Fire panel”.

The AutroSafe Fire panels can be connected in redundant configurations to allow for flexible operations and high availability. They also support serial connection through RS-232 interface and proprietary SIL2 certified protocol to allow for communication to third party control systems. Figure 9 below shows a simple hardware configuration with a Fire panel connected to AC 800M High Integrity controller (HI) via CI853 module, which supports the RS-232 connectivity. The figure shows redundant AC 800M HI configuration.

For details on AutroSafe product family refer to Autronica’s technical documentation.

To be able to connect AC 800M controllers to AutroSafe panel while keeping the SIL2 integrity a software solution, named “Autrosafe Integration in 800xA” has been developed and certified by an independent accredited body.
Figure 9: AutroSafe Fire panel connected to AC 800M HI via CI853

Besides the connectivity, Autrosafe Integration software provides the following functionality:

- A Library with control modules and graphic elements to handle and present detector data received by the Fire panels as well as the overall system status and diagnostics inclusive the “health” of the serial connection.
- Import tool to support effective engineering by importing Autrosafe configurations created in Autronica’s own engineering environment. With this tool the Autosafe configuration is created and modified in one place, exported and then automatically re-created in the Control Builder environment. For the export operation, the xml is used as an intermediate format.
- Seamless integration with the REUSE Core Libraries and the same HMI graphical style and faceplates.

For details on Autrosafe integration in System 800xA, refer to AutroSafe Integration In 800xA, User Manual (3BNP101580*).
3 Sales and Technical Data

Sales Support

The REUSE Solutions product suite is developed by ABB IAEN Products and Technology department (Norway). For simplicity, the product department in Norway will be addressed as the Product Center.

The Product Center publishes sales material to aid the ABB local and regional business units in their sales and bid pursuits. Each business unit intending to bid and use the REUSE Solutions must maintain own competency within sales and technical sales support. The Product Center does not engage directly with the customers or end users but usually give initial support in order to help building the local competence.

Each business unit is supposed to have at least one local REUSE Champion to serve the local project and sales organization. New requirements and requests for changes shall be evaluated by the local Champion before promoting to the Product Center.

Sales material, technical documentation, news, lifecycle announcements and field communications are published on ABB Library with links to the REUSE Solutions home page (REUSE Solutions Portal or short: REUSE Portal) on ABB Intranet2 (depicted on Figure 10). All ABB employees should have access. The easiest way to find it and add the Portal’s home page to your favorites is to search on your inside.abb for the string “REUSE Solutions”.

Figure 10: REUSE Solutions Home Page on ABB Intranet

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2 Located at the URL https://abb.sharepoint.com/sites/OGPREUSESolutions/public/Pages/Home.aspx
The REUSE Portal is divided in five major segments:

- **Organization** - information about the REUSE Product organization and management.
- **News and announcements** - latest news, news archive and Yammer discussion feed
- **Sales** - marketing material, product guide, price lists, terms and conditions, ordering procedure, reference list, terms and conditions of sales
- **Products** - product documents, certificates, downloads and FAQ.
- **Support** - information about ABB University training courses, Contact Center as a single point of contact for technical support.

The most recent news and lifecycle announcements are shown on the home (front) page. Older news and announcements can be found by selecting the news archive link on the right-hand side.

Most of the documentation found on the REUSE Portal is also published in ABB Library. The browsing path in ABB Library is:

**Industries and Utilities > Oil & Gas Solutions > Automation Solutions for 800xA**

The users are encouraged to create a notification subscription for at least Field Communications, Release Notes and Product Updates.

### Technical Documentation

The technical documentation is published on the REUSE Portal in the Products section and on ABB Library. The Products section on the REUSE Portal distinguishes between the Core Libraries and the Add-ons. In a table-like format the user can find and select links to the following:

- **Release Notes** - available for each version and revision.
- **Product updates and documentation** - smart links to ABB Library or for older versions a zip archive with complete documentation ready for download.
- **Certificate and reports to the certificate** - Safety (SIL) certificates available for each version and revision.
- **Technical guides and lifecycle documents** - version independent.

The Add-Ons have own user documentation, Release Notes, Field Communications and where applicable certificates. The links to Add-Ons documentation are organized in similar fashion but in separate sub-sections of the REUSE Portal.
Field Communications

There are five types of Field Communication (FC):

- Safety Report
- Product Alert
- Product Bulletin
- Security Bulletin
- Technical Description

These document types are identical with the System 800xA Field Communications types. Product Alert, Product Bulletin and Security Bulletin are responses by the Product Center to defects or problems found after release of a product. Technical Descriptions are documents which are distributed to assist both internal and external users, containing additional information or guidance required to improve understanding of certain aspects of the product.

It is responsibility of the ABB Business Line units to forward and notify the relevant end users.

Safety Report and Product Alert are only applicable when a safety critical issue is uncovered. The Product Alert is actively forwarded to a global distribution list of local Champions and local management for each ABB unit. Upon receipt, the responsible Champions and the Lifecycle Services Manager are obliged to identify and contact the customers that may be affected by the problem.

Unlike Safety Report and Product Alerts that are actively “pushed”, the Bulletins and Technical Descriptions are published in ABB Library and on the REUSE Portal.
Software Upgrade Agreement

REUSE Core Libraries

Software Upgrade Agreement (SUA) is an agreement between the customer (purchaser of a software license) and the Product Center related to maintenance cost. SUA covers the lifecycle cost of the product and keeps the REUSE Core Libraries compatible with future upgrades. This agreement is handled as a periodic subscription fee and included in the local ABB units service offering usually synchronized with the 800xA Sentinel subscription cycles for the actual plant. The minimum subscription period is 3 years, but exceptions may apply.

For technical support and maintenance upgrades, a Software Upgrade Agreement is mandatory.

Projects with long lifecycle can purchase an engineering license to be able to start engineering. This license must then be upgraded to a production license at later stage but not later than one year of the purchase order date.

The Product Center maintains the agreements with local ABB units and supports them in their contractual obligations towards the customers and end users.

To maintain the Software Upgrade Agreements during the lifecycle of the product, the Product Center is committed to:

- Maintain competency and resources to support and evolve the REUSE Core Libraries.
- Provide access to active versions and right to use the new revisions of the REUSE Core Libraries.
- Publish field notifications and Release Notes to support the installed base in planning of upgrades and evolution.

SUA for REUSE Core Libraries shall be ordered with reference to the pricelist 3BNP102433 which is part of the REUSE Solutions price book 3BNP102419. For more information, refer to Ordering and Licensing. This agreement does not cover forward compatibility to new major features or technologies brought with major System 800xA versions.

The Software Upgrade Agreements are valid for System 800xA major versions during their active and classic lifecycle phases. The agreement can be exceptionally prolonged to include the System 800xA limited phase. For information on System 800xA lifecycle policy and differences between active and classic lifecycle phases, refer to relevant System 800xA documentation.

The REUSE Core Libraries lifecycle policy is outlined in the presentation 3BNP102357. This presentation shall be used by ABB’s sales and technical personnel in their interaction with customers who wish to learn and understand the product’s lifecycle management.

The REUSE Core Libraries lifecycle policy is based on and follows the System 800xA’s lifecycle.

Add-Ons

Software Upgrade Agreement for REUSE Core Libraries must be active (not expired) as precondition for purchasing. Software Upgrade Agreement for the Add-Ons shall be ordered with reference to the pricelist 3BNP102426 which is part of the REUSE Solutions price book 3BNP102419. For more information, refer to Section Ordering and Licensing. This agreement does not cover forward compatibility to new major features or technologies brought with major System 800xA versions.
5 Ordering and Licensing

General

The goal with this section is to guide ABB representatives in ordering the REUSE Solutions products. The products are intended for ordering by ABB Business Line units and are not directly sold to the end users but integrated in a System 800xA delivery. Considered the specific content of the REUSE Core Libraries it is not foreseen that other business units outside the Energy industries would have interest in using it. In cases where this could be of interest, a prior arrangement must be negotiated with the Product Center.

The REUSE Solutions is not available for sale to Channel Partners. Exception from this rule can be discussed on case by case basis when there is a strong argument rooted in protection of ABB’s business or interest.

It is assumed that ABB sales representatives have knowledge of System 800xA Ordering procedures and are familiar with the System 800xA System Guide Ordering and Licensing (3BSE041434*).

Ordering

For order placement, quotations and other commercial requests, please contact the Products Center in Norway, ogp.products@no.abb.com. Please clearly identify the product of interest in the subject field.

Price List

The price book for REUSE Solutions document ID 3BNP102419 can be found on the REUSE Portal, follow the Sales link, section Price List. For simplicity the content of the price book is split into price lists for REUSE Core Libraries, Add-ons and Software Upgrade Agreements (SUA). Each of them is available for three different currencies: USD, Euro and NOK. The currency is clearly identified by a suffix in the pricelist document ID. In addition, a sales wizard file can be downloaded ready for import in the Wizard 800xA tool. First time users will need to request access for download by following the link in the subsection “Wizard Files” of the section Price list.

The price level is usually evaluated and updated on annual basis.

Registration

The ordering procedure requires registration of production sites where REUSE Core Libraries is in use or intended used. This is required due to the safety content in the product. In case of issues involving safety and potential risk to health and lives, ABB is obliged to push safety alerts to all the customers and end users. For this purpose, a record must be maintained with customer and plant names as well as responsible persons in the local ABB Business Line units.

Software Distribution

The software is not distributed on physical media but is made available for download to ABB employee identified by the registration procedure. Access for download is granted to users with valid ABB e-mail address.
**Licensing**

It is important to recognize that installation is separate from licensing. Installation is never prevented due to lack of a license. However, an active license (not expired) is required in order to use the software. A license is kept active by covering the SUA periodically as described in Section Software Upgrade Agreement.

License for the Add-Ons always require a valid license for the REUSE Core Libraries. A license is granted for a specific 800xA System, which most often means one license per plant.

**Intended Use**

There are three types of licenses depending on intended use:

- **Engineering** - intended for the engineering phase of a customer project and subject for upgrade to a Production license when full tag count is known. Validity of this license is maximum 1 year from the purchase. Upgrade to Production license must be done before commissioning start at latest.

- **Production** - intended for production systems used at customer sites.

- **Demo/ Lab** - intended for demonstration, training, and product evaluation. The system is assumed installed in an internal ABB lab, show room or at customer premises for evaluation purposes. Includes very limited tag count of max. 100 Tags. Not allowed used in a production system.

License registration is mandatory for each type of license prior to software distribution.

**Scalability**

The REUSE Core Libraries license for a production system consists of a basic license and tag count license. The sum of both gives the license value. Note that multiple tag count items in the price list may be required for large systems. For information, refer to the pricelist.

The tag count is performed in the same way as for the 800xA System, with one exception: redundant and non-redundant tags are treated same i.e. count as one tag regardless of redundancy.

For details on tag definition and calculation refer to System800xA Technical Data and Configuration Information (3BSE041434*).

There is a separate item for the Demo/ Lab license. It does not require tag count items to be added.

**Expansions**

Plant expansions often require additional I/O signals and devices to be connected to the system.

When the expansion is considerably large and increases the initial tag count by more than 10%, a renewal of the SUA must be ordered. For instance, if a compact system with 5000 tags has expanded with 700 new tags then the existing SUA must be renewed to be treated as a valid license.

When ordering expansion, the original license ID or Purchase Order must be referred to.

**Add-Ons**

The Add-Ons license model is not based on tag count and depends on type of software product or function. For details on the license calculation for the different Add-Ons see the pricelist for the Add-Ons 3BNP102426.
To simplify the pricelist structure all the Add-Ons are divided in three categories identified with separate sections: Engineering, Operations and Device Integration. Current and future Add-Ons will be sorted in one of these three categories.

Valid REUSE Core Libraries license and active SUA (i.e. not expired) are mandatory requirements when ordering the Add-Ons.
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