
Compact Product Suite

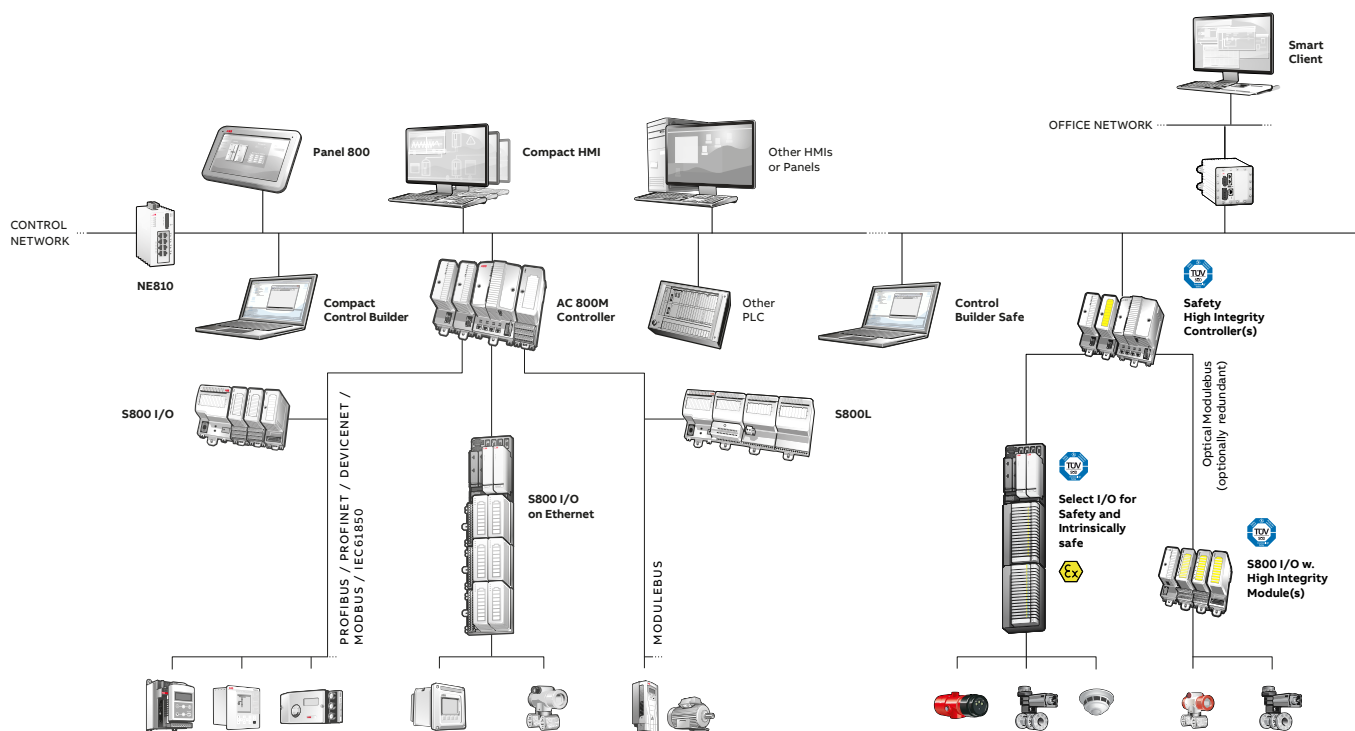
Control products for process automation



Compact Product Suite

Intuitive automation products for the process industry

The Compact Product Suite is a comprehensive family of process automation and control products for your system integration and OEM business. It is the keystone to any automation task in the process industry where engineering efficiency matters.



These products can be combined as a tailored solution or, as standalones to complement an existing solution. However you use them, they will ensure high availability and enable increased productivity.

The Compact Product Suite is a set of automation building blocks that help you achieve the quality and productivity your production site deserves. It helps you focus on the missing block/component to add value to the production facility.

Whether it's process controllers, field interfaces or HMIs, our comprehensive suite of products enables automation with seamless perfection. When it comes to finding the best solution for your process, ABB's Compact Product Suite is your answer.

Every product in the Compact Product Suite portfolio provides the highest level of performance, security, connectivity and reliability in its class. This is the result of ABB's 50 plus years of proven expertise in automation control and technologies in the process Industry. From the process field, to panels, to your central operator room, Compact Product Suite will fulfill all your automation needs.

Essentials of automation

The right products to make your next process automation project a success

Scale up, scale out or scale within your existing resource with Compact Product Suite

This suite gives you the components to design and implement tailored, customer-specific and cost-effective control solutions that increase productivity, maximize availability, improve efficiency and drive profitability.

Compact Control Builder

The Compact Control Builder is a powerful engineering tool for creating control solutions and reusable control libraries for the AC 800M controller. It offers a choice of six programming “languages” to suit the tasks at hand: Instruction List, Structured Text, Function Block Diagram, Sequential Function Chart, Ladder Diagram, and Control Modules.

Compact HMI

Compact HMI is an easy-to-use and fully equipped PC-based SCADA system software for real-time operation of your plant. It offers the latest ergonomic design based on high performance graphics to take full control of your process and data.

Controller, I/O, Panels and Network Equipment

The AC 800M is a Programmable Application Controller, designed to achieve high availability for control applications in the process industry.

The controller communication by means of Ethernet includes on board RNRP redundancy along with a broad set of communication modules to connect to third-party devices.

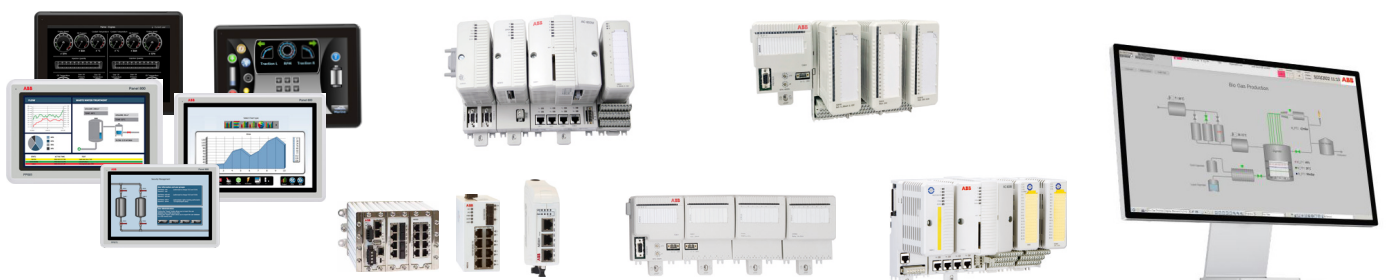
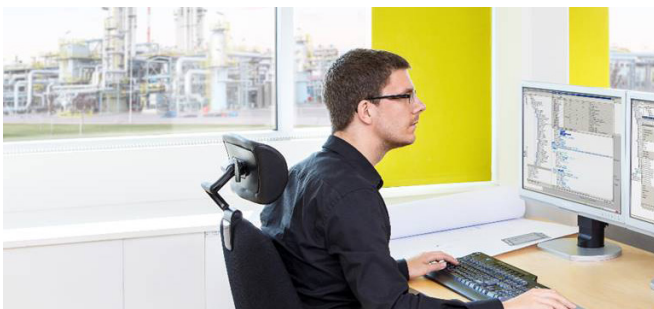
The S800 I/O is a distributed, highly modularized and flexible I/O system with an efficient design, providing easy installation of the I/O modules, process cabling and connection to drives systems. It provides high precision and comfort for process automation tasks.

A wide range of user-friendly, intuitive and ergonomic operator panels for process auto-mation systems gives you the right information at the right time, in the right place. They comes in many versions such as: Standard, High performance, Black marine and Rugged panels to suit your needs.

The NE800 series provide pre-configured network components including RNRP industrial routers/ firewalls to ensure top quality performance and provide protection against cyber threats.

Independent High Integrity

The Independent High Integrity (HI) is a TÜV certified safety system for safety applications up to SIL3. It consists of Control Builder Safe and appropriate AC 800M HI Safety Controllers. Either S800 HI or Select I/O for Safety can be used.



Compact HMI

A feature-rich human-machine interface



Compact HMI is an easy-to-use and fully equipped PC-based SCADA system for real-time operation of your plant. It offers the latest ergonomic design based on high performance graphics to take full control of your process and data.

Based on the premium technology of ABB Ability™ System 800xA DCS with its leading object oriented engineering platform, it can be used in a variety of diverse industries, ranging from a single operator workstation, 50 signals and scale up to applications with several thousand signals and workplaces.

Designed with Microsoft Windows® standard of interaction, Compact HMI supports Windows 10 LTSC 2021/Server 2022 in addition to Windows 10 2016 LTSC, Windows Server 2016, Windows 10 2019 LTSC and Windows Server 2019. This provides exceptional ease of use, unmatched performance and cost savings.

Another feature is the high performance prefabricated, re-usable graphics library that is based on the industry best-practice principles to help quick creation and utilization of graphic displays. Not only can Compact HMI directly interface to a large number of OPC-compliant controllers but also it comes with built in drivers to connect to major PLCs.

Easy and integrated engineering

- Simplified “One-button” installation routine
- Ready to use templates and libraries for efficient engineering
- Bulk Data tool for configuring data with minimal engineering

Open yet secure platform

- Connectivity through OPC (DA, HDA, AE, UA)
- OLEDB to connect to databases
- Direct link to Comli, SattBus, Modbus Serial and Modbus TCP
- Option to connect Smart Client desktops for office environment
- Enhanced security based on MS security system

Object oriented

- Based on 800xA Aspect Object technology
- Object-based Engineering for best re-usability

State-of-the-arts graphics

- User friendly and intuitive engineering tool
- High-performance graphics libraries
- Embedded CAD Viewer for object centric CAD drawings

Flexible alarm management

- Alarm shelving and alarm analysis for convenient alarm monitor and analysis
- Tab navigation for alarm status for increased usability

Compact HMI

Version 6.1.1-1 specification



Hardware requirements

Recommended performance and capacity of the PCs for different node types can be found in the document Third Party HW Products Verified for System 800xA: <http://new.abb.com/control-systems/system-800xa/800xa-dcs/system/certified-3rd-party-products>

Software requirements

Compact HMI 6.1.1-1 supports Windows 10 LTSC 2021/Server 2022 in addition to Windows 10 2016 LTSC, Windows Server 2016, Windows 10 2019 LTSC and Windows Server 2019. Virtualization using VMWare ESXi as well as Hyper-V is supported.

Digital made easy

Compact HMI 6.1.1-1 supports the 800xA Publisher, a system extension to easily and securely publish process data and alarms to the edge and to the cloud using ABB Ability™ Edgenius.

HMI Server	HMI Client
Supported Configurations	Client workplace sizes
1 Server Workplace Operation and Engineering	≤ 200 Signals
Integrated Smart Client Server	≤ 500 Signals
Server Workplace Size Option Pack	≤ 1 000 Signals
50 Signals (20 Tags)	≤ 2 500 Signals
500 Signals (200 Tags)	≤ 5 000 Signals
2 500 Signals (1 000 Tags)	≤ 10 000 Signals
	Smart Client Configuration
	1-10 Smart Client Workplaces or Remote Workplaces

Panel 800 version 6.2

Portfolio overview

Standard panels

Touchscreen panels with brilliant TFT/LED display colors and multi-protocol connectivity. The standard range of Panel 800 comprises of PP875, PP881, PP883, PP886 and P8895 that are easy-to-use HMI with comprehensive and integrated templates and libraries for every conceivable process you need.

All standard panels are equipped with high resolution graphics in TFT/LED display. This range includes 7", 10.1", 12.1", 15.4" and 21.5" touch screen panels. All models offer wide screen, high resolution display for increased efficiency and excellent operator interaction.

Black panels

The black panels are marine certified in 7" (PP875M, PP875H) and 15.4" (PP886M) sizes, with high resolution touch screen displays. Their classic black enclosure offers low light reflection and seamless integration for all onboard applications.

Dimmable backlight to suit varied ambient light conditions, and high brightness for outdoor use in bright sunlight.

Rugged panels

Designed to perform in challenging and harsh environments. The powder coated gray aluminum panels includes three 15.4" (PP886R, PP887H, PP887S) panels fully certified for hazardous environments by major classification societies.

With dimmable backlight to suit varied ambient light conditions, high brightness for outdoor use in bright sunlight, works in a wide temperature range from the equator to the North Pole.

High vibration tolerance to withstand mechanical vibration (4 G) of machine on which it is mounted. Also certified for use in hazardous areas with flammable, poisonous and corrosive fumes and gases.

Sealed panel

Included in the range of rugged panels is a fully sealed version with M12 connectors with IP66 ingress protection rating and ATEX/IECEX Zone 2 and Zone 22 (IP65) certification (PP887S).

The sealed touch panel has the same tolerance for harsh environments, but can be mounted outdoors on a pole, outside of a cabinet.

Standard panels



*PP895 21" offers UL, CE, FCC and KCC certificates (no marine certification)

Black panels

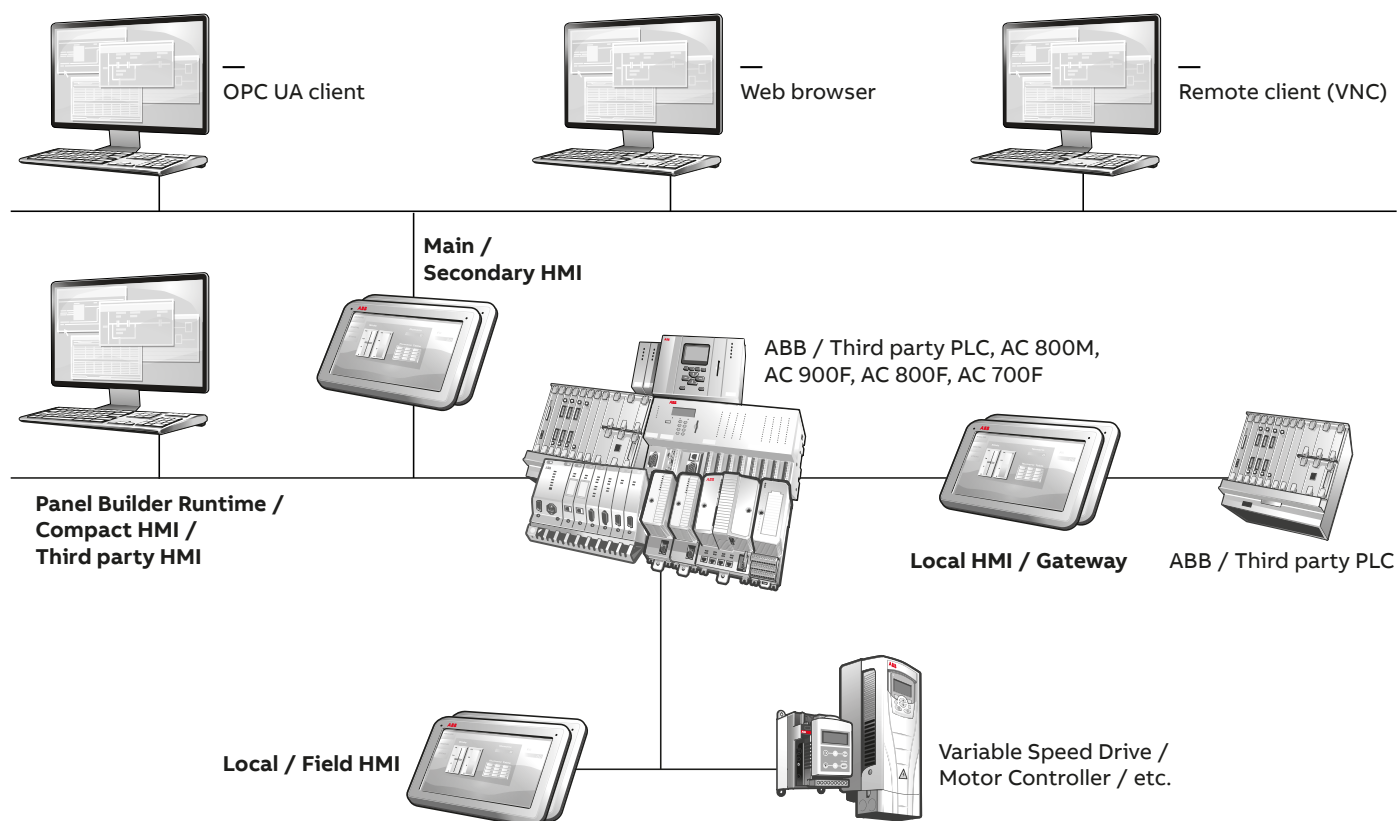


Rugged panels



Panel 800

Use cases



Example of Panel 800 use cases in various setups

Panel 800 as main / secondary HMI

The Panel 800 range is the perfect fit to act as the main HMI for smaller automation systems, or as a secondary complimentary HMI for mid-sized or larger systems.

A standard panel is suitable to handle process information from up to 1000 signals. High performance panels can handle up to 2000 signals.

Panel 800 runtime

Using Panel 800 Runtime and dedicated license dongles, Panel 800 applications can be run on normal Windows PC. This enables engineering efficient reuse of the panels applications in situations when a PC based HMI is required in addition to process panels.

Since Panel 800 Runtime can be used to visualize data from up to 4000 signals, it is also suitable for mid-sized SCADA applications even when process panels are not needed.

Panel 800 as Gateway

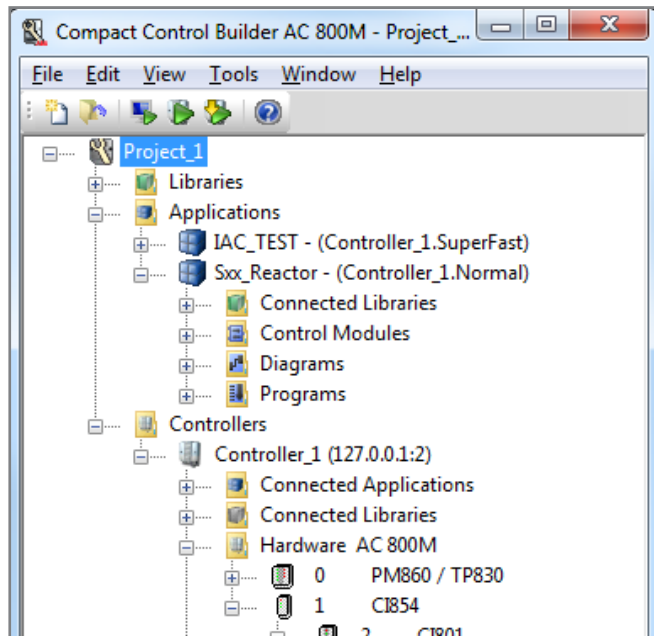
Many process sites has multiple brands of PLCs, and often these PLCs need to be able to share data and communicate with each other. Thanks due to the wide range of supported communication protocols, Panel 800 can act as gateways between PLCs from different vendors.

Panel 800 as local / field HMI

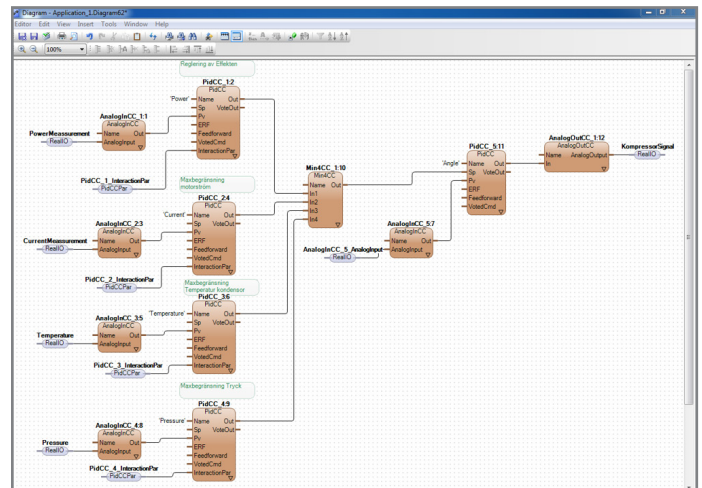
Panel 800 are industrial grade process panels and are well suited to be located in the field. Using the extra rugged panels the HMI can be brought even closer to the process.

Compact Control Builder

When engineering efficiency matters



Compact Control Builder



Control Diagram Editor

Footnote 1: According to the IEC 61131-3 standard.

Compact Control Builder

The Compact Control Builder, is a powerful tool for creating control solutions and reusable control libraries for the AC 800M Process PLC. It is all done in a Windows-based environment, offering a wide range of control functionality for ABB's industrial Process PLC, AC 800M. From binary logic to advanced regulatory control, from discrete process signals to high-level process objects. In any choice of no less than six programming "languages", whichever are the most suitable for the tasks at hand. These are¹ : Instruction List, Structured Text, Function Block Diagram, Sequential Function Chart, Ladder Diagram, and Control Modules, the latter being ABB's own contribution to higher application engineering efficiency and ease of use.

Control Diagram Editor

Control Diagram Editor in the next generation editor which increase engineering efficiency, reduce engineering mistakes, and enable the creation of logic which is easy to read and maintain. By allowing the user to combine Structured Text, Function Blocks, Functions, Sequential Function Charts and ABB's Control

Modules into the same block-based editor, the benefits of each language can be combined. Control modules in combination with Control Diagram Editor supports forward and feedback signals in one and the same variable. The result is powerful and easy to read control logic.

Features and Benefits

- Promotes re-use of code by means of user-defined libraries of data- and function-block types
- Intuitive, graphical navigation by a Windows Explorer-like Project Explorer
- Libraries of ready-for-use functions for efficient programming
- Supplements the five standard languages with Control Modules for high-level configuration of control applications graphically
- Supports all the five IEC 61131-3 programming languages in a single integrated environment
- Supports multitasking, multicontroller and multi-user application development
- Offers powerful simulation and on-line facilities for testing and troubleshooting
- Alarm and Event handling
- Sequence of events
- Extensive on-line help

AC 800M and Communication Interfaces

Scalable process PLC with choice of speed, memory and availability

Challenging business goals require a flexible and powerful process PLC. The Compact Product Suite is a range of simple and cost-effective control products that fulfill such a need. AC 800M Process PLC is a key component of the Compact Product Suite family and is the perfect fit for control solutions. Through its wide range of communication modules it satisfies any communication need.

AC 800M is a modular process PLC with a rich set of communication functions as well as full redundancy and support for a large range of I/O systems. When configured with Compact Control Builder software, AC 800M is open to participate in any kind of control solution. Re-use of code and libraries of ready-to-use functions also promotes an efficient configuration and setup.

The AC 800M family is based on rail-mounted modules and comprises the CPUs plus communication modules, power supply modules and a series of accessories.

Memory card and storage of data

A flash card can be used as a removable storage of applications and data. Flexible, cost-effective control solutions that are easy to implement and change are the hallmark of Compact Product Suite. Like other products in this range, the AC 800M Process PLC is built with openness in mind. Individually or in combination with other products on the market, it creates reliable control solutions that are easy to afford and manage. Its rich set of functions help improve production control, maximize availability and minimize maintenance.

Features and benefits

- Full modularity and flexibility for all environments. Many options make AC 800M exceptionally open. Its flexibility comes into its own when control applications change, expand or contract.
- Scalable design for easy expansion. Simple to set up and easy to expand, AC 800M scales up as your control needs grow. Just add the extra modules your application requires.
- Powerful control solutions and reusable libraries. Compact Control Builder software offers a wide range of powerful control solutions for the AC 800M Process PLCs. Code re-use and libraries of ready-to-use functions promote efficient configuration.
- Fault tolerance gives maximum availability. Robust design and redundancy options in all critical areas of the controller and its components eliminates single-point failures
- Full range of communication modules supporting typical process automation field buses and communication protocols including Profibus, Profinet, Modbus RTU/TCP, Ethernet IP/DeviceNet, IEC 61850 and OPC UA.

AC 800M process PLC, PM858



High Performance AC 800M Process PLC, PM891



OPC UA communication module CI874



S800 I/O

Meet all automation needs

S800 I/O is an open comprehensive, distributed, process I/O system that communicates with controllers by direct connection or over industry standard field buses. Thanks to its open connectivity it fits a wide range of process controllers from ABB and others.



By permitting installation in the field, close to sensors and actuators, S800 I/O reduces the installation cost by reducing the cost of cabling.

And thanks to benefits such as:

- Flexibility, permitting a virtually infinite number of installation arrangements, small or large, indoors or outdoors, wall mounting or floor standing
- Modularity, step-by-step expansion without bottlenecks ever developing
- Supporting S800 on Ethernet, a fully redundant, Ethernet based multi channel I/O
- Reliability thanks to features such as auto-diagnostics and redundancy with bumpless, automatic, change-over, it helps industrial operators get a tighter grip on production and thereby improve profitability

Features and Benefits

- Comprehensive: S800 I/O offers costeffective solutions to practically all needs for field-device

interfacing, including basic analog and digital I/O, as well as intrinsic-safety and high-integrity solutions

- Structurally flexible: S800 I/O is highly modular and offers a number of ways in which the modules can be interconnected. Consequently, S800 I/O networks can be built in a near-infinite number of ways, from highly centralized to highly distributed
- Supports industry-standard field bus PROFIBUS DP which makes S800 I/O compatible also with non-ABB controllers
- S800 I/O supports also ABB's Advant Fieldbus 100
- Easy to configure: S800 I/O devices are configured transparently as part of their parent controllers, like local I/O. No additional knowledge or skills are required
- Reliable: Comprehensive diagnostics, hot swapping of modules and redundancy solutions are available, ensuring that both the I/O system and the production plant will stay up

Independent High Integrity Introduction

ABB has over 40 years of experience in the design, manufacture and implementation of process safety systems. With operations on all continents and dedicated safety system teams around the world, ABB provides not only highly-qualified technical resources during project delivery, but also ensures competent local support and service in operation.

The Independent HI is certified for SIL3 by TÜV to the IEC61508 and IEC61511 standards for safety



- Certified libraries for streamlined engineering ensure sustainable solutions over the application lifecycle
- Single controller for applications up to SIL3

There have been over 5,500 safety controllers and 750,000 SIL certified I/O points installed globally since the release of High Integrity in 2005.

The Independent HI system consists of the Control Builder Safe engineering tool, a Safety controller from the AC 800M HI series and appropriate I/Os from the S880 or Select I/O series supporting applications for certified safety operations. For an operational view, Independent HI can be connected to any HMI via OPC or MODBUS.

Independent HI is the perfect solution for any industry with a safety critical application from Oil & Gas (on/off shore, midstream), to Petrochemical and Chemical or Pulp & Paper and Power in applications such as relay/interlock system replacements, boiler control retrofits, Burner / Boiler Management Systems (BMS), High Integrity Pressure Protection Systems (HIPPS), and Remote Terminal Units (RTU's) on critical pipelines.

Since it can be interfaced with any process control system, Independent HI can be used with ABB's Freelance or Symphony Plus (Harmony and Melody) systems or our heritage (Advant, MOD300) technologies as well as 3rd party control systems or PLC's.

In addition, visualization is available through 3rd party process control systems, HMI software and/or process panels (i.e. ABB's Compact Product Suite or Panel 800), making Independent HI the perfect SIL3 certified safety system independent of the control system technology or vendor on your site.

The newest safety system offering in ABB's portfolio is the Independent High Integrity (HI) TÜV Certified Safety System. This system has been designed to address opportunities in projects where a physically and functionally segregated safety concept is desired.

Independent HI consists of the following components:

- AC 800M HI SIL3 controller
- S880 Series SIL3 I/O modules
- Select I/O single channel SIL 3 modules
- Control Builder Safe Engineering Tool (TÜV certified)
- SIL Certified engineering libraries
- Connectivity interfaces to other systems and visualization packages
- Diagnostic tools

Outstanding features of the Independent HI offering are:

- Available redundancy for high availability (~ 99.9999%)
- Near 100% diagnostic coverage without hardware fault tolerance factors or voting
- Communication modules for safety peer to peer and interfacing with ABB and 3rd party equipment

Lifecycle services

Life Cycle Policy

We want to maximize the useable life of our customers' system investment and provide our customers with the confidence that there is a well-defined support for, and a path forward for existing ABB systems.

ABB has defined a product support life cycle policy for its process automation control systems and products to help our customers' predict support for their automation assets. This policy then forms the basic life-cycle management foundation for ABB's Automation Software Maintenance, our unique control system life-cycle management program. ABB's control systems are designed for continuous evolution. It is ABB's goal to protect our customers' intellectual investment (i.e. application software) beyond the life cycles of the underlying platform products (i.e. hardware and software).

ABB will not "Remove from Active Sale" any product or "family" of products until an equivalent replacement to those products is available. Once a product has been removed from active sale, ABB will continue to support the product for at least 10 years, although exceptions to this may occur if components or technologies needed are no longer available to ABB.

Within this support period ABB will announce a "Last Buy" opportunity at least 12 months prior to the end of manufacturing (except in cases where there is a direct form, fit and function replacement). It is ABB's intention to provide support for as long as there are significant customer needs after the "Manufacturing End" through field service, repair and by making replacement spares (new or refurbished modules) available.

Details about ABB's Lifecycle Policy for distributed control systems can be found here: <http://new.abb.com/control-systems/service/lifecycle-policy>

License management

Compact Product Suite is covered by a software license concept. All software is available for installation, but

functions and features as well as size parameters are enabled via licenses. The license file, which matches the capabilities that have been purchased, is downloaded from an ABB server and installed in the system.

It is ABB's desire that licensing shall never prevent plant operation. Hence, enforcement is normally not explicit, i.e. it is possible to provisionally override the current licenses to overcome a problem without contacting ABB, and correct the actual license match later.

In addition, enforcement is 'soft' in the sense that license violation messages are issued instead of shutting down or disabling the start of functions not covered by an appropriate license.

Automation Software Maintenance

Automation Software Maintenance is ABB's control system lifecycle management and support program that assists system owners to actively manage their control system lifecycle, support and maintenance. This program allows users to take advantage of the continuous enhancements that ABB makes to system software products. Under this program, users are offered support for their existing software, along with an evolution path to the latest system software and hardware. The program covers not only Compact Product Suite software for PCs, but also the firmware code.

The Automation Software Maintenance offers a range of services to support and extend the life and reliability of your ABB control systems. It offers four levels of support to choose from.

Read more about our Automation Software Maintenance and its many valuable services here: <http://new.abb.com/control-systems/service/offerings/service-agreements>

Please contact your local sales representative for detailed information on the program and on how to order Automation Sentinel subscriptions.

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