ABB Industrial Automation

Channel Portfolio for Technical Distributors

Process control and automation from world's top Distributed Control System vendor, ABB Industrial Automation business offers a range of solutions for industry-specific integrated automation, electrification and digital solutions, control technologies for process and hybrid industries.

ABB Controls portfolio from Industrial Automation

ABB Control system portfolio is scalable for projects of any size and is comprised of: ABB Ability™ 800xA, Freelance DCS, Compact Product Suite, AC500 PLC for Factory Automation, Process Safety-Independent High Integrity Safety and Integrated safety with 800xA, Machine Safety with AC500-S and Recorders and Controllers. All product groups carry ABB's sterling global reputation in Industrial Automation.

Freelance DCS
DCS with a the small footprint of a PLC

The power and reliability of a Distributed Control System (DCS) that is also user-friendly, easy to install, engineer, operate, and maintain. This makes the system a robust and cost effective solution for any process industry. All the capability of a DCS at the size and price of a PLC/SCADA.

AC900F – Controller
Following years of experience in automation and control products, ABB is proud to introduce its latest Freelance controller – the AC900F. This controller extends the hardware portfolio of Freelance distributed control system and comes in 3 variants to economically fit different configurations.
- SD card support
- Typically supports up to 1,800 I/Os
- G3 compliant (standard)
- Optional redundancy for high availability
- Four (4) built-in Ethernet ports supporting network redundancy and built-in Modbus TCP/IP or 60870-5-104 telecontrol protocol
- Two (2) serial ports supporting Modbus RTU/ASCII or IEC 60870-5-101 telecontrol protocol
- Optional PROFIBUS master modules (up to four) providing integrated line redundancy on each module
- Direct connection of I/O modules (up to 10), including modules combining inputs and outputs in just one module to reduce footprint and costs
- I/O modules can also be connected remotely via PROFIBUS

AC700F – Controller
- Typically supports 300 I/Os signals per AC700F controller
- This PLC-like controller comes with a very small footprint
- Up to eight (8) S700 direct I/O modules can be plugged to the right of the controller module
- The connection to the Freelance control network is via Ethernet. As an alternative to remote I/Os, AC 700F can be placed directly in the field, offering a very flexible and cost-effective solution for an "intelligent" I/O station
- I/O modules can also be connected remotely via PROFIBUS. This allows for high flexibility in installation
- SD card support

S700 – I/O
- Can be used as direct I/O for AC700F and AC900F Freelance controllers
- Can be used as PROFIBUS remote I/O with AC700F, AC800F, AC900F or other PROFIBUS masters
- Small footprint – the modules are featured with a high packing density, several modules are available with inputs and outputs mixed in one module. Fourteen (14) different module types are currently available, covering a wide variety of applications and giving maximum flexibility

S800 – I/O
- A comprehensive, distributed and modular process I/O system that communicates with controllers via PROFIBUS. Installation in the field as remote I/O, close to sensors and actuators, greatly reduces the installation cost by reducing the cost of cabling. Ability to exchange modules and rel/configure the system during operation
- Redundancy options in all areas allow a high degree of availability
- For harsh environments, the I/O modules are compliant to G3 severity level of ISA-S71.04, Environmental Conditions for Process Measurement and Control Systems
- A pass-through feature makes it possible to configure and examine all HART-compliant field devices directly from the control systems engineering tool

S800L – I/O
- S800L I/O modules are both cost-effective and space-saving
- Connect to any PLC or controller via PROFIBUS
- S800L I/O is fully integrated with the AC800M advanced process controller
- Modules can be freely combined with high performance S800 I/O modules to bring advanced field interface functionality into any S800L configuration
- Cost-effective design at an installation depth of 59 mm makes it economic and a space saving choice for PLC applications in the process industry

AC900F

S800 and S800L

AC700F

Freelance DCS
Operations

Freelance Operations supports quad-monitor operation, which offers the benefit to stay continuously tuned with essential information like the alarm list, while simultaneously inspecting, for example, the progress of a sequential function chart, trend archives, or plant graphics. Several Freelance Operator Workplaces can work seamlessly together.

The Freelance Operations interface
Freelance Operations meets all standard process control requirements with regard to operation and observation. Amongst other things, Freelance Operations offers the following visualization features:
- Clearly structured faceplates for operator interventions which can also be combined as required in group displays
- Trend displays including historical data and long-term archiving
- Alarm pages for specific plant areas, sequence control displays, shift logs, event logs and data archiving
- Standardized system display for system hardware diagnostics
- Free graphic displays with standard graphic elements which are also supported by bitmaps and a 3D macro library
- Quad monitor operation
- Control aspect for interlocking displays

Freelance Formulation
Preferred solution for common sequencing applications, like continuous process startup / shutdown, equipment sequencing, or cleaning skid control. With these applications, you have repeatable execution of activities and can make use of parameters. That means, instead of pure Sequential Function Charts (SFC), Freelance Formulation's flexible parameter management and traceability allows for shorter changeover times from one recipe to another.

Freelance Formulation's Key Functions
- Integrated in Freelance Operations
- Utilizes ISA-88 terms for standardization within batch process automation
- Supports automatic batch reporting
- Supports logging of operator actions
- User adminstration with Security Lock
- Life cycle concept with workflow procedure for recipe levels
- Support configuration and operator mode similar to Freelance Engineering
- Parameter sets are managed as Control Recipes
- Flexible capacity calculation for a parameter values included
- Recipes are executed on SFC

Compact Product Suite

A comprehensive suite of flexible and scalable control products for a diverse range of customers, such as Systems Integrators, Original Equipment Manufacturers (OEMs) or end users who engineer their own systems.

These systems can include Process Controllers with superior analog control capability, Panel 800 process panels and Compact HMI; an object-based SCADA System for small to mid-size applications in varied industries and applications.

AC800M – Process Controller
The AC800M is a Programmable Application Controller, designed to achieve high availability for control applications in the process industry. The function block library includes several types of control loops, including advanced control and auto-tune capabilities, as well as integration for ABB drives and motors. 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. A superior redundancy concept allows for fast switchover times and topologically separated CPU-modules. Several CPU modules are available, varying in terms of processing power, memory size and redundancy support. Priority controlled, time-based tasks allow the highest stability in even complex control tasks.

Supporting standard IEC 61131-3 programming languages, Compact Control Builder is the tool for engineering the control code and the hardware layout of AC800M. It creates logic, sequential and analog control-intensive automation solutions for all existing controllers in the automation system to be handled in one database. The flash memory card allows loading applications without the need to utilize the engineering tool to support OEM and remote solutions.

S800 – I/O
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 tight integration into AC800M and Freelance Engineering tool provide extra benefit to the user over standard PROFIBUS I/O. Redundancy can be reached on all levels and the modules can easily be exchanged and reconfigured while under operation. S800 offers the highest accuracy on analog modules.

S800L – I/O
S800L I/O modules are both cost-effective and space-saving. They connect to any PLC or controller via PROFIBUS. The S800L I/O is also fully integrated with the AC800M advanced process controller. In addition, its modules can be freely combined with high-performance S800 I/O modules to bring advanced field interface functionality into any S800L configuration. Its cost-effective design at an installation depth of 59 mm makes it an economic and space saving choice for PLC applications in the process industry.

S700 – I/O
The S700 I/O is meant for applications where PLC I/Os have been traditionally used. The small footprint and flexible functionality per module allows for a cost-efficient automation solution. S700 I/O can be used as direct I/O together with the AC700F controller, as well as remote I/O to any PLC with a PROFIBUS master module.

S900 – I/O
The S900 remote I/O system is designed for applications in the chemical, pharmaceutical and oil and gas industries. It can be mounted directly in process areas classified explosion hazard zone 1 (ATEX), significantly reducing installation costs. It communicates with controllers via Profibus, and can be fully redundant. Further savings can be achieved through S900's extended diagnostics and the use of HART®-compliant field devices. A field mounted IP66 variant with temperature range-20 to 60°C is available.

AC800M


S800 and S800L

S700

S900

Compact Product Suite
Human Interface Machine (HMI)

Compact HMI

The SCADA system lets you use the latest ergonomic design to take full control of your process. Based on the premium technology of ABB's system 800xA, it can economically scale from applications with just 50 signals and one operator workplace to applications with up to ten workplaces and 10,000 signals. Compact HMI runs on a Microsoft Windows PC or Server. A High Performance Graphics library and options for alarm management, text messaging and read-only remote access via ABB's Smart Client technology complete the offering.

Panel 800 Version 6

Panel 800 Version 6 is a user-friendly, intuitive and ergonomic operator panel that combines slim, space-saving dimensions with a comprehensive range of advanced functions. Explore modern controlling using scroll and swipe gestures to make your application intuitive and more efficient to navigate. The panel supports online language switching. The communication includes protocol conversion and secure separation of Ethernet networks. Additionally, Rugged and Marine rated panels round out the diverse and capable Panel 800 family, providing robust operator panels certified for operation in extreme environments, as well as for use in maritime applications.
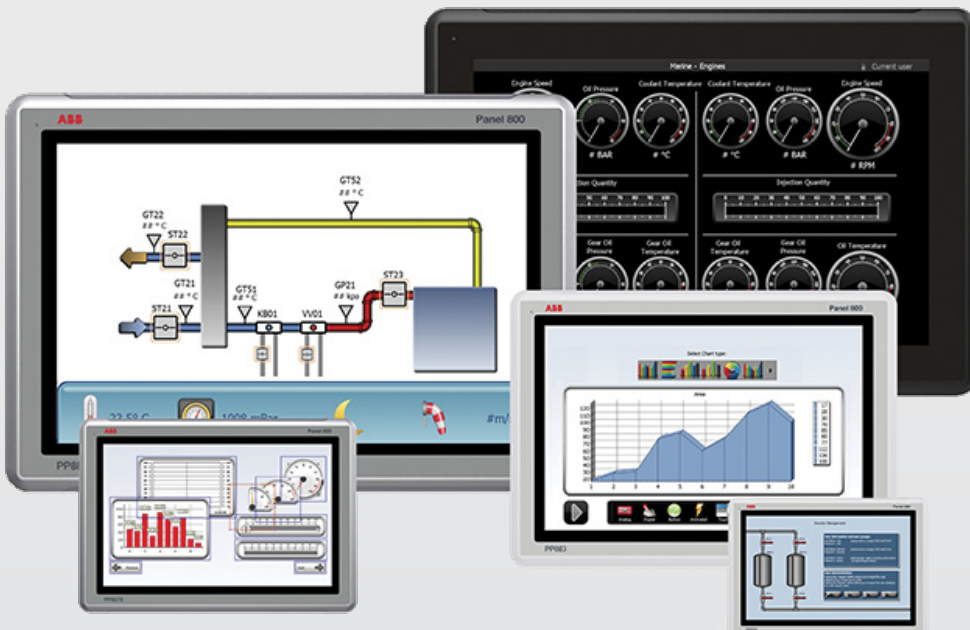
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Compact Product Suite
HMI - Pannel 800 series

Factory Automation
Programmable Logic Controller (PLC)

ABB's AC500 Factory Automation products deliver solutions with high performance and flexibility to be effectively deployed within diverse industries and applications including water, building infrastructure, data centers, renewable energy, machinery automation, material handling, marine and more. The AC500 platform comprises of a series of PLCs such as AC500, AC500-eCo, AC500-S and AC500-XC. These scalable PLC ranges provide solutions for small, middle and high-end PLC applications. These products are the ideal choice for PLC applications needing high performance level, extreme environment operability, or machine safety solutions.

AC500 – PLC
The AC500 is a powerful flagship PLC with a wide range of performance, communications and I/O capabilities for industrial applications. The ideal choice for complex high speed machinery and networking solutions.

AC500-eCo – PLC
This compact PLC offers flexible and economical configurations for your modern control system. The ideal choice for smaller applications.

AC500-XC – PLC
Extreme Condition PLC variant of the AC500 platform with extended operating temperature, immunity to vibration and hazardous gases, use at high altitudes and in humid conditions.

S500 & S500-eCo – I/O
The S500 I/O enables simple expansion or adding of field devices. The S500 I/O platform has been developed with multifunctional and software configurable I/O modules with different channels, signal voltage, and fieldbus connections. The I/O can be configured as Central I/O using the local I/O bus of the CPU module, allowing up to ten I/O modules to be directly connected. The I/Os can also be configured as decentralized periphery via fieldbus between CPU module and remote I/O modules. The system's multifunctional approach provides features that enables us to cover a broad range of requirements; for example, DA501 with six different I/O types in one module (AI, AO, DI, DO, RTD, Counter).

AC500
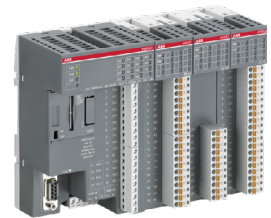
AC500-eCo

AC500-S

AC500-XC

Factory Automation
Control panels

Factory Automation Control Panels

The CP600 control panels offer a wide range of features and functionalities for maximum operability. The Control Panels Human Machine Interfaces (HMI) provides human control and operation of machines and processes with a wide range of communication protocols, making these control panels the ideal complement to ABB PLCs, Drives and Robots. The control panel series CP600 provides color touchscreens sized from 4.3" to 15". A complete engineering software solution offers a great variety of HMI capabilities. A set of CP600 WEB panels displays the visualization of the ABB PLC's web server by means of a web browser.

CP600

The CP600 range is dedicated for machines and systems requiring visualization performance or representative design. The CP600 range provides seven TFT 65,536 color touchscreens sized from 4.3" to 15". The panels enable the use of 3D Scalable Vector Graphics (SVG) and provides free graphic widgets in a large gallery. The system also connects to ABB drivers for effortless integration with ABB AC500 PLC platform, ABB Drives, ABB Motion controllers, ABB Robots IRCS and ABB Pluto. Along with many standard protocols, such as Modbus TCP and Modbus RTU, the control panels also provide internet remote access via FTP, SNTP, RSS. The panels can also function as a data transfer gateway by converting between protocols and interfaces.

CP600-PRO

The CP600-Pro control panels in screen sizes from 5" to 21.5" provide comprehensive HMI functions with multi-touch operation for a wide range of applications. Robust aluminum enclosure with real glass fronts and an increased operating temperature range of -20 to +60 °C make them first choice even for harsh environments.

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CP600 and CP600-WEB
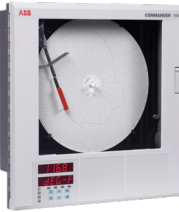
Recorders and controllers

ABB has developed a comprehensive family of process control instrumentation that provides high quality process indications, controls and data recording.

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SM500F

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RVG200

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ControlMaster
CMF310/CMF160

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Commander Circular
Chart Recorders

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ControlMaster CM15

DataManager Pro
This PC-based analysis of software provides the complete data collection, analysis and storage solutions for data recorded by a ScreenMaster recorder. Via Ethernet communications, DataManager Pro can be integrated with any number of ScreenMaster recorders to create a fully automatic data gathering and storage system.

SM500F
The SM500F is the world's first field-mountable paperless data recorder. The SM500F features seven process inputs and twelve recording channels. Available with wall, panel and pipe mounting options and its IP66 and NEMA 4X fully sealed enclosure means it is ideal for use in even the most hostile environments, including hose down and dusty applications.

RVG200
The RVG200 recorder takes the established operating and security benefits of the ScreenMaster range one step further. Features include touchscreen 'swipe' operation, up to 24 process signals, front and rear USB ports for connecting peripheral devices, including a barcode scanner and keyboard, and Ethernet and RS485 communications.

Commander Circular Chart Recorders: C1300, C1900-R, C1900, C1900-RC, C1909, C1950 and C1960
With over 100 years of experience in the industry, ABB's circular chart recorder offering is world class. Our range is extremely easy to use, offers up to four pens, NEMA 4X and IP66 environmental protection, integrated PID control and data logging.
- C1901: Basic functionality single pen circular chart recorder
- C1900: 1 to 4 pen general purpose circular chart recorder with integrated PID control
- C1900R: 1 to 4 pen general purpose circular chart recorder
- C1950: Circular chart recorder/controller for pasteurization applications
- C1300: 1 to 4 pen municipal chart recorder with flow totalizer display

ControlMaster CM15
This panel-mount indicator is a feature-packed 1/8 DIN universal process indicator. A crystal-clear, full-color, TFT display shows operators exactly the information they need. The CM15 offers totalization, level, math, logic, counter and alarm functions, making it extremely flexible and able to solve many tricky application requirements. Modbus and Ethernet communication options ensure easy integration and connectivity supervisory or control systems.

ControlMaster CM10, CM30, CM50
Available in 1/8, 1/4 and 1/2 DIN options, our ControlMaster panel-mount controllers offer a simple, ready to use control solution. Suitable for basic to demanding applications, functionality includes cascade, feed forward, adaptive, predictive and ratio control strategies, plus Ethernet, RS485, Modbus TCP/RTU and a web server for remote process monitoring. Configuration is vastly simplified by using application templates that are best suited to your process requirements.

ControlMaster CMF310 / CMF160
The NEMA4X/IP66 field mount offers environmental protection for the most demanding of process needs. Panel mount, pipe mount or wall mount, you choose how to set it up. Each instrument provides a comprehensive display of process status using crystal clear, full color, TFT Technology. The easy to use user interface delivers clear text prompts that make installation, commissioning and operation quick and simple.

Process safety

Machine safety

ABB's Independent High Integrity Safety System is TUV Certified for Safety Integrity Level (SIL) 3 applications, where deep stand-alone Process Safety is needed.

AC800M
The AC800M HI offers a SIL3 TUV certified control environment for combining safety and business critical process control in one controller without sacrificing safety integrity. The AC800M High Integrity controller is achieved by combining the processor module with the safety module. When configured as a SIL1-2 system, the AC800M HI is realized in a 1oo1D structure by combining application execution in the processor with diagnostic and monitoring functions in the safety module. As a SIL3 system, it is achieved in a 1oo2D structure in both the processor and safety module.

S800-High Integrity I/O
S800 I/O is a distributed, highly modularized and flexible I/O system, providing easy installation of I/O modules and process cabling. S800 I/O modules and its termination units can be mounted and combined in many different configurations to fit any space requirements or meet any application needs. A comprehensive assortment of I/O modules and accessories are available for safety critical and non-critical use. Within the S800 I/O family, there are SIL3 compliant modules that can be used for safety critical applications.

The High Integrity I/O is certified for IEC61508- SIL3, DINV 19250 / DINVVDE0801-AK6 and EN954-1 Category 4. The High Integrity I/O is used together with a certified controller to comply with the standards.

Control Safe Engineering
Control Safe Engineering is a TUV-certified engineering tool for the programming of SIL applications; including certified libraries, IEC61131-3 programming languages, access and override (force) control, and difference reports. The object oriented engineering environment with SIL compliant function libraries efficiently supports the entire safety life cycle. The engineering environment includes safeguards against non-SIL compliant configurations. The engineering system will automatically limit user configuration choices.

AC500-S Safety PLC for Machine Safety applications, offers a unique CPU module which is optimally designed with extensive diagnostic functionality as per the safety norms to meet SIL3 (IEC 61508, IEC 62061) & PL e (ISO 13849-1) standard of functional safety application. Automation Builder productivity suite provides integrated support of Structured Text (ST), Ladder (LD) and Function Block Diagram (FBD) programming with a common look and feel.

AC500-S PLC
The AC500-S system supports non-safe applications in the standard CPU and safe applications in the Safety CPU, allowing the safety program to RUN even if the standard CPU is in STOP mode. The AC500-S components are also available as XC (extreme conditions) for harsh environmental conditions.

S500-S I/O Modules
All S500-S I/O modules supports SIL3 (IEC 61508, IEC 62061) and PL e (ISO 13849-1) functional safety standards with approvals from CE, cUL, UL and C-Tick. These modules could be placed in the I/O Bus (local rack) as well as in the remote rack via PROFINET network using PROFIsafe protocol. The I/O modules have built-in process power supply checking.

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AC800 HI and S880 I/O

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AC500-S and S500-S I/O

ABB

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