Freelance 800F

The compact control system

ABB

With Freelance 800F you'll be right on target ...

The objective of manufacturing companies today is clearly defined: increased automation at lower cost. Based on this principle, ABB has redefined compact, scalable control systems, and is today viewed by many as a trend-setter in this industry. Today, people are impressed by the global success story of Freelance 800F, with more than ten thousand applications covering all sectors of industry.

With the compact control system Freelance 800F, which unites traditional process control technology with company management, ABB has taken a further step forward. Freelance 800F provides powerful automation that is not only cost-effective in terms of hardware and software, but is also very easy to use. The advanced design of Freelance 800F therefore makes the system ideal for numerous applications in power, process or environmental technology plants.

... with minimum engineering and maximum automation

Easy engineering

ABB's Freelance 800F control system combines easy engineering with an open, modern system architecture. In detail, this means:
• Only one tool for engineering, commissioning and diagnosis
• Field devices completely integrated into control system engineering
• Central access to all field information
• Potential savings in engineering, commissioning, testing, service and maintenance
• Assembly close to the field and thus reduction of field wiring and space requirements

AC 700F provides superior functionality and ease of use, with the option to expand the system size. Like AC 800F, AC 700F offers powerful engineering options and convenient visualization capabilities. The engineering tool is the same as for AC 800F including the advantage of ease-of-operation with DigiVis, pre-engineered visualization components such as faceplates, module diagnosis, extended trouble-shooting capabilities, ready-made system communication, event list, alarm line, trend displays or automatically generated sequence diagrams. These components can be used straight out of the box, eliminating time-consuming, manual configuration.

AC 800F
Controller

AC 700F
Controller
with direct
S700 I/O

AC 800F – process station with fieldbus management

The AC 800F controller handles process and diagnostic data from up to four fieldbus gateways. If required, it can also work with various fieldbus types – in addition to the usual tasks performed by a "conventional" process station.

Thanks to its compact and sturdy design, the AC 800F is suitable both for installation in the control room and for use in junction boxes directly in the field.

AC 700F – the controller to enhance scalability

AC 700F is a process station with direct S700 I/O modules in a small footprint.
It is suitable for very small applications from 16 to 256 I/Os and thereby widens the Freelance 800F application area ranging from very small to midsize projects with several thousands of signals.

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It's now over to you

The engineering

Freelance 800F allows you to enjoy consistent configuration, commissioning and diagnosis – from graphics to the field device – using just one engineering tool. All five programming languages specified in IEC 61131-3 are available. Users especially appreciate how quickly they are able to familiarize themselves with the tool. Supported by a uniform data basis throughout the system as well as extensive reference functions, the Control Builder F enables you to conduct the entire configuration quickly and easily – including:

- Configuring and parameterizing the field devices and I/Os
- Setting the bus topology and parameters such as transmission rates and addresses

The task of configuring and displaying the field devices is also user-friendly because using FDT/DTM eliminates the time-consuming task of integrating device GSD files. Graphical parameterization dialogs supplied by the device manufacturers – which are referred to as Device Type Managers (DTMs) and are incorporated in a similar manner to printer drivers in Windows – transmit all specific signals and parameters to the control system's engineering tool. The master is simultaneously configured. These DTMs are available for most of the important field devices.

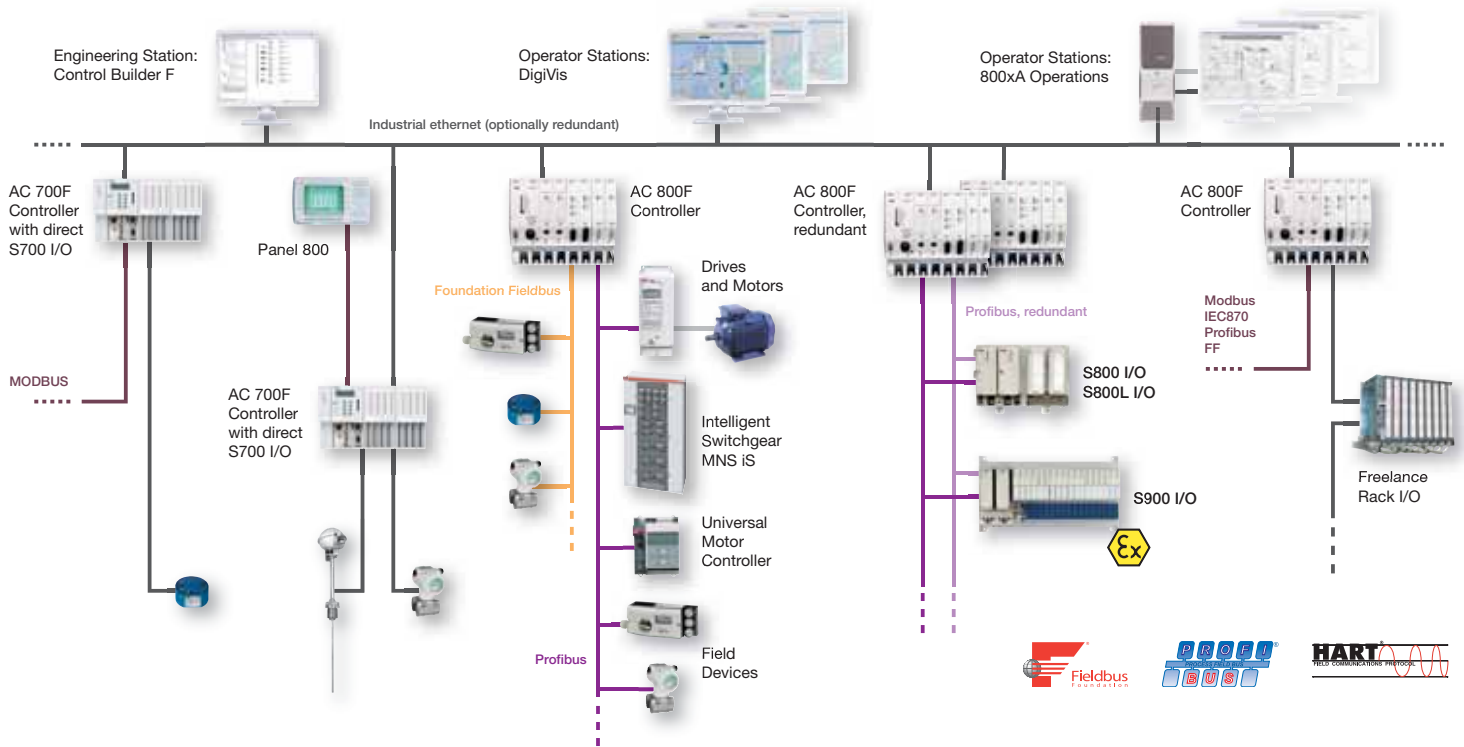## The structure of the field level

For the field level, ABB offers an extensive selection of devices that are fine-tuned to meet the needs of the relevant area of use. Thanks to established communication standards, integration into the process level is quite simple. Using Profibus connected with the AC 800F controller, it is also possible to implement remote I/Os. In the form of its S800 and S900 I/O systems, ABB provides the ideal means of connecting a large number of sensors and actuators.

The choice of fieldbus type

In accordance with the concept of plug & produce, exchangeable fieldbus modules make it easier to implement quick adjustments. Freelance 800F allows the integration of all important fieldbuses – leaving the user free to choose. The following are supported:

- PROFIBUS-DPV1/PA
- FOUNDATION Fieldbus HSE/H1
- HART via remote I/O
- MODBUS Master and Slave
- CAN for Freelance Rack I/O
- Telecontrol protocol IEC870-5-101

Various types of fieldbus can even be operated in parallel in a single AC 800F controller. This proves to be a real advantage if the task at hand specifies, which fieldbus type is to be used in each case.

Engineering Station:
Control Builder F

Operator Stations:
DigiVis

Operator Stations:
800xA Operations

Industrial ethernet (optionally redundant)

AC 700F
Controller
with direct
S700 I/O

Panel 800

AC 800F
Controller

AC 800F
Controller,
redundant

AC 800F
Controller

MODBUS

AC 700F
Controller
with direct
S700 I/O

Foundation Fieldbus

Drives
and Motors

Intelligent
Switchgear
MNS iS

Universal
Motor
Controller

Profibus

Field
Devices

Profibus, redundant

S800 I/O
S800L I/O

S900 I/O

Modbus
IEC870
Profibus
FF

Freelance
Rack I/O

The time to change technology

The freedom of choice is not restricted to the fieldbus type. You are also free to choose the point in time for the technology changeover – from traditional 20mA instrumentation to digital fieldbus technology. If you operate conventional I/O modules in parallel with fieldbus devices, you can begin by gaining experience with minor extensions on a fieldbus basis and then gradually proceed to replace legacy devices with modern fieldbus technology.

At the operator level, too, the user is free to choose

Two different solutions are suitable here, depending on requirements and on the situation in the company:

DigiVis meets all standard requirements relating to process operation and observation at an attractive price. Amongst other things, DigiVis offers the following visualization options: dual-monitor operation, free graphic displays that besides standard graphic elements support Bitmaps and 3D macro library, clearly structured faceplates for operator interventions (including

group displays), trend displays including historian, an automatically generated system display for hardware diagnosis, alarm pages for specific plant areas, sequence control displays, shift logs, event logs and data archiving. DigiVis configuration is fully integrated in Control Builder F. An optional batch package based on 800xA Batch Management can also be integrated. Advanced Information Management functions are available when using PGIM 800F.

800xA Operations – the connection to 800xA Operations provides the user with advanced operator functionality such as four-monitor operation and a client-server architecture with up to 40 workstations. In particular, 800xA Operations also makes it possible to group several Freelance islands under one operator interface. Additional functions such as Batch Management and 800xA Information Management can also be integrated.

Other supported operator interfaces:
Power Generation Portal, SCADAvantage™, Conductor NT.

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You get technology that lasts ...

High availability

The technology has proven its worth in industrial use over several years and meets the toughest requirements regarding availability. The hardware can be structured redundantly at all levels – including redundant fieldbus device gateways, network redundancy, controller redundancy and, last but not least, redundancy in relation to the control level and bus systems.

Scalability

From small units with 8 signals to major systems with more than 10,000 signals: Freelance 800F grows with your plant and can be extended to meet requirements at any time.

Versatile communication

You can use the following as required: OPC, Ethernet, TCP/IP, PROFIBUS, FOUNDATION Fieldbus, MODBUS, HART, voice output for instructions in the event of an alarm, video integration or Internet connection.

Regulatory compliance

With a view to meeting the requirements of regulatory authorities such as the American FDA (Food and Drug Administration) or the EFSA (European Food Safety Authority), Freelance 800F provides a series of features that facilitate the validation procedure. Examples include:
- Encrypted log and trend data
- Audit trail functions
- Access rights and user administration (security lock)

Lifecycle Management

With the Automation Sentinel Program you can keep control software up-to-date and maintain a flexible path forward to new system software technology. Automation Sentinel helps manage automation software assets with timely delivery of the latest system software releases, thus providing you better productivity, lower support cost and simpler software management. Evolution from traditional control systems to Freelance 800F enables ease-of-use and lower maintenance cost.

Asset Management

If companies want to guarantee their ability to operate in the long term, they need information about the availability and degree of wear and tear of their equipment. All of the information necessary for this is available in the control system and the associated databases. In the case of some customers, this data provided proof that investments that appeared essential were in fact unnecessary. Freelance 800F allows you to utilize modern asset management methods, while asset optimization allows process analysis with a view to efficient maintenance and optimization – helping for instance to make better use of capacity.

... and comprehensive customer service

It's worth its weight in gold

Service means a profitable investment in continually maximizing and optimizing the availability, performance, quality and security of a plant. By structuring our organization into the following four areas:

- Customer Support Services
- Training
- Spare Parts & Logistics, Repair Shops
- Process, Application & Consulting Services

and through the resulting specialization of our employees, we guarantee maximum competence for each task we perform. Whether it's more traditional service support such as commissioning and maintenance or individual consulting services – the result is efficient and measurable customer benefit.

Our comprehensive Life Cycle Services enable us to increase the value of your plant over its entire lifetime. The conventional, reactive service can reduce production downtimes, while the use of new technologies offers an increased number of capabilities for preventive service measures to identify and avoid cost-intensive faults at an early stage. Proactive service, such as asset management or ongoing modernization, increases the value of our customers' plants and gives them a distinct competitive edge.

Are you interested? Then get in touch with us to obtain more information about Freelance 800F and the associated components.

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**For additional information,
please visit our Web pages at:**

www.abb.de/controlsystems

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