



Freelance for Education
Process control technology for
study and training purposes

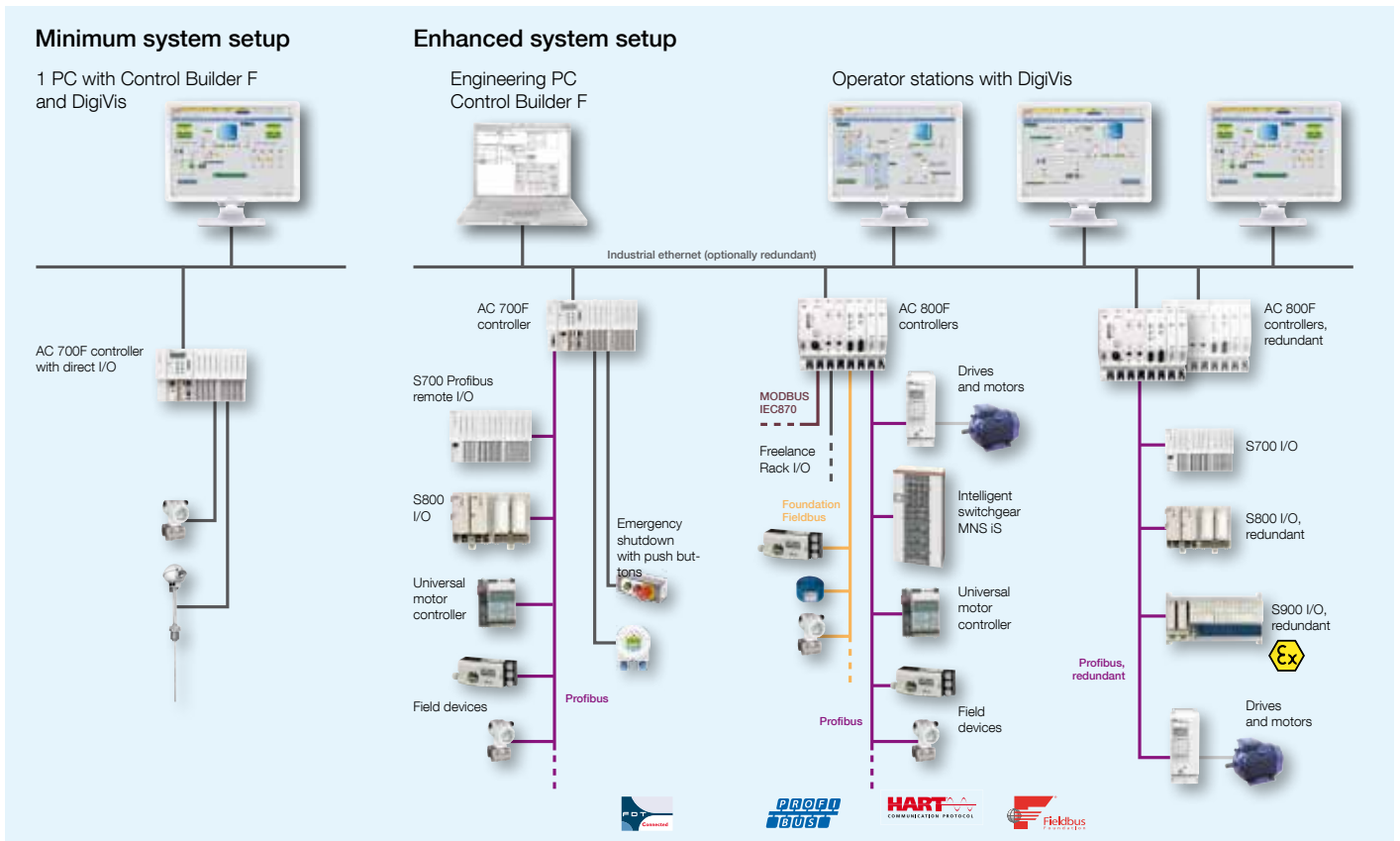
Top marks for a simple infrastructure

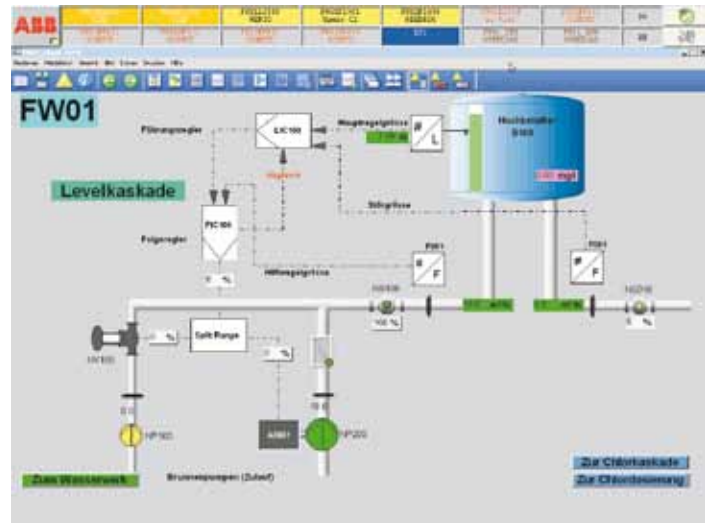
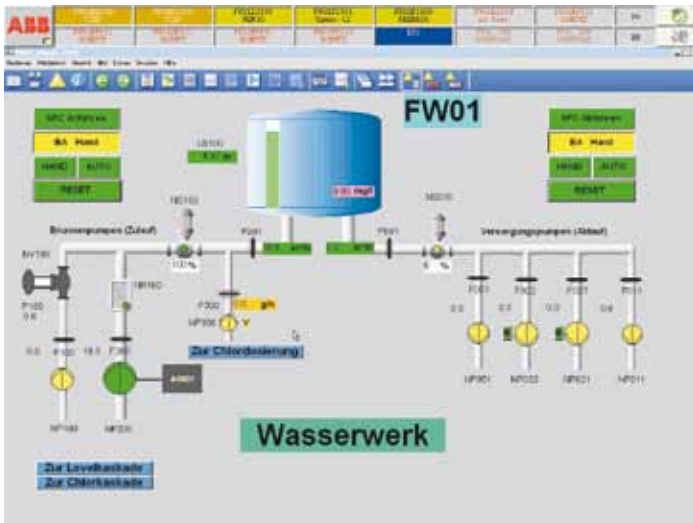


The application area of process control technology ranges from controlling small waste water plants, right through to automating entire power stations and refineries. While PLCs are used for small-scale applications, process control systems are more suitable for large projects. By concentrating numerous functions in central control rooms, the use of process control systems ensures control and monitoring of ongoing processes. Process control systems are adapted to these conditions by integrating engineering software and human system interfaces, for instance. Production and maintenance planning tasks can also be performed by process control systems.

Today, young engineers and technicians are coming more and more frequently into contact with these systems in their very first job. Here, they discover an environment that is constantly characterized by diverse developments in technology.

A process control system tailored to research and teaching conditions makes high-quality teaching or furthering your own technological developments child's play. The Freelance process control system provides you with this opportunity.





Overview of Freelance

Freelance is a fully-fledged, user-friendly process control system. The system has been used successfully at schools and universities for years.

Freelance is based on a consistent approach to automation, leading to simple operation and quick learning results when working with the system. Freelance contains the following components:

- Control Builder F – engineering tool
- DigiVis – operator software
- AC 700F controllers
- AC 800F controllers

Control Builder F covers the entire range of engineering requirements:

- Configuring and commissioning hardware and software
- All IEC 61131-3 languages
- Fieldbus and device management
- Cross-references
- Graphics editor for DigiVis

At controller level, DigiVis operator software is used:

- Simple operation and diagnosis of the entire system
- Trends and archives for process signals
- OPC interface
- Operator guidance in ergonomics and
- System safety

At process level, several AC 800F and AC 700F controllers can communicate with one another in a project via Ethernet. The connection of controllers to remote I/O units and field devices can be established with standard fieldbuses used in the process industry. Supported fieldbuses include Profibus,

Foundation Fieldbus and HART. With the AC 700F Controller, the connection of field devices using local I/O modules is particularly easy. As an option, the entire process level can be structured redundantly, thus increasing system availability.

Freelance for Education

Freelance for Education comprises various modules from the Freelance process control system. Freelance for Education supports you in designing practical laboratory courses and exercises in process automation.

The compact Freelance process control system can be used for a wide range of exercises. For example, you can:

- Parameterize and test controllers
- Learn how to work with functional block diagrams, sequential function charts, structured text, instruction lists and ladder diagrams
- Develop automation projects independently
- Operate and observe exercise processes using DigiVis

Freelance also includes a soft controller. Automation solutions can thus be simulated, and you do not need control system hardware. All you need is a normal PC with the Windows XP or Windows 7 operating systems. It then takes just 10 minutes to install Control Builder F and DigiVis. And there you have it – the infrastructure you need for automation technology exercises.

Still need documentation for the exercise? No problem! Practical exercises are available that range from the basics of configuration right through to controlling simulated industrial plants. Save yourself preparation time by using our teachware and pre-mounted test rig.

Top marks for a hands-on approach

Teaching modules

Freelance for Education includes three combinable modules, which have been specially compiled for training pupils and students.

- Education Package
- Simulation Package AC 700F

All modules contain the Freelance Quickstart Tutorial, which provides you with a rapid introduction to using the process control system.

Freelance Quickstart Tutorial

The tutorial contains several video workshops that help you learn how to use the system. You learn how to configure, test and commission a project. Based on the example of a plant for which automation is planned, you can put your acquired knowledge into practice and journey step by step into the heart of the system.

The Freelance Quickstart Tutorial DVD lets you install and use demo versions of Control Builder F and DigiVis. The demo versions offer the same scope as the full versions. You can operate projects using the AC 800F and AC 700F controllers or the soft controller.

The demo version is valid for 100 days. Once this period is up, you can use the software again after quick reinstallation.

Order the Freelance Quickstart Tutorial for free, and try out all the functions of the process control system.

Do you want to let your students train even if the PC pool is busy or closed? Then simply give them the project work software to take home.



Freelance Quickstart Tutorial contains:

Quickstart Tutorial video workshops

Freelance demo software

Graphics library

Technical documentation





Education package

The Freelance Education Package supports your teaching. After installing the software easily in your PC pool, you can get started straight away on the exercises.

Selecting suitable projects and documents from the training material pool lets you reduce preparation time. In the pool, Freelance provides you with complete process control exercises and tailored practice projects complete with laboratory documentation for various topics and levels of difficulty. You receive up to four hours of professional hotline advice annually for free. So there's no need to worry about subsequent costs due to technical problems.

Education Package contains:

20 Freelance Quickstart Tutorials

1 Teachware DVD

Contains experiment guides, project files and solutions for the following tasks:

Gas tower: comprehensive introduction to functional block diagrams and sequential functional charts

Pump station: brief introduction to functional block diagrams and process visualization

Sequential function charts: brief introduction to sequential function charts

Water works: project configuration, commissioning and process visualization process

Process control: operating a plant using DigiVis

Wind power plants: configuration of trends and graphic displays using functional block diagrams

Mixing plant: configuration using functional block diagrams, sequential functional charts and visualization

Up to four hours of advice free of charge from our Service Hotline.

Top marks for quick learning results



Simulation Package AC 700F

The Simulation Package AC 700F lets you design your exercises in line with a realistic and economical teaching model. With its premounted rack assembly, the Simulation Package has a compact design. What's more, the model is extremely low-maintenance, as it comprises solely electronic and mechanical modules.

The electronic model is used to simulate a stirred-tank reactor. Further applications, such as an industrial steam boiler, can be demonstrated using the same model.

Minimum hardware – maximum automation. That's the Simulation Package AC 700F. The small, low-maintenance test rig with a AC 700F controller and a process simulator brings together a realistic process with motors, level indicators and more besides, with practical tasks. Based on the example of a stirred-tank reactor, various tasks can be carried out:

- Functional block diagrams
- Sequence controls
- Task management
- Motor monitoring
- Trend acquisition
- Visualization
- Alarm management
- Controller parameterization

The test rig comes complete with an automation project, sample solution and laboratory documentation.



Simulation package AC 700F contains:

The following fully functional modules are installed on a base plate (approx. 500 x 280 mm):

- 1 AC 700F controller
- 1 AX 722F analog input/output module
- 1 DC 732F digital input/output module
- 1 Modbus interface
- 1 power supply unit
- 1 process simulation model
 - - Connections
 - - 20 digital inputs
 - - 17 digital outputs
 - - 3 analog inputs 0-10 V
 - - 6 analog outputs 0-10 V

Complete with:

- 1 Freelance Quickstart Tutorial
- 1 application CD (contains a test guide with project files and sample solution.)
- 1 carry case – the base plate with the modules can be easily removed

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