

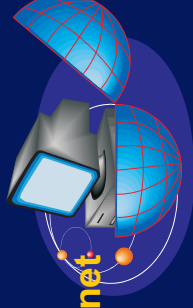
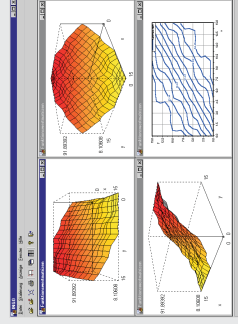
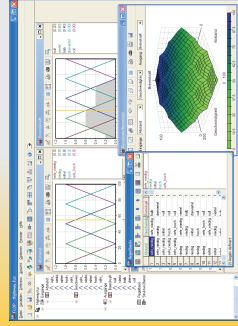
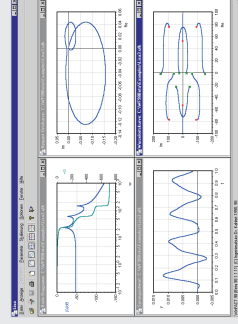
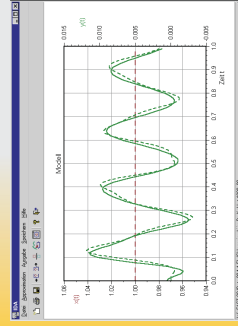
Other WinFACT - system components

WinFACT consists of individual and generally independent program modules which can freely be combined. Between them data can easily be transferred via various communication channels. The graphical user interface Windows® guarantees an extremely low training effort while offering a very high ease of use. WinFACT more than ever is the optimal tool for the use in the fields of education and training, research and development because of the numerous types of available licences and its modular structure.

Main features

The software system contains all components which are necessary for the analysis and synthesis of conventional control loops. Its core is the *block-oriented simulation system BOR/S* and it is completed by modules for the following tasks:

- Identification of linear systems by means of measured curves of the input and output variables
- Analysis of systems by calculating the step response, frequency response or root locus
- Controller design by "rules of thumb" in time and frequency range
- Design and simulation of state space control systems (Pole placement, Riccati)
- Design and simulation of fuzzy and neuro/fuzzy control systems
- Experimental frequency response acquisition as Bode diagram and Nyquist plot
- Acquisition of step response and Bode diagram of composed systems
- Graphical representation, export and documentation of measured values, simulation results etc.



WinFACT on the Internet

For all valuable information about the latest WinFACT versions, news, planned developments etc. visit our website at <http://www.kahlert.com>

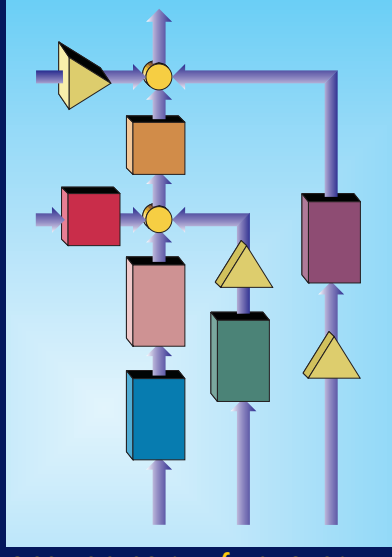


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WinFACT®

Windows Fuzzy And Control Tools



...always one step ahead!

...always one step ahead!



Ingenieurbüro Dr. Kahlert

BORIS - block-oriented simulation and more...

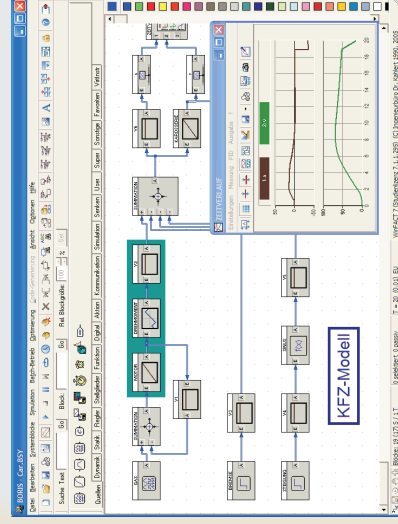
WinFACT is an innovative, modular software system which on the one hand offers tools for the analysis, synthesis and simulation of conventional control systems, but on the other hand contains components especially for the handling of fuzzy and neuro systems.

The block-oriented simulation system BORIS is the basic module of WinFACT. Due to its concept, it is not only predestinated for an application as a simulation tool but can also be applied in the fields of acquisition and processing of measured data and control. In contrast to traditional simulation systems BORIS allows the direct integration of fuzzy and neuro systems in the simulation process and, thus, is suitable especially for applications in the field of fuzzy logic and fuzzy control.

The simulation structure can simply be configured by placing system specific icons on any place on the work sheet and by connecting them. By using the integrated autorouter, which can naturally be deactivated, the connecting lines are automatically positioned (if desired multicoloured) and in the best possible way. A variety of edit functions allows a comfortable step by step design of the system structure. The option to set single or groups of blocks "passive" enables the user to change quickly between the different structures without any complicated edit actions. Subsystems can hierarchically be combined to so-called super blocks. That way even complex systems can be structured clearly.

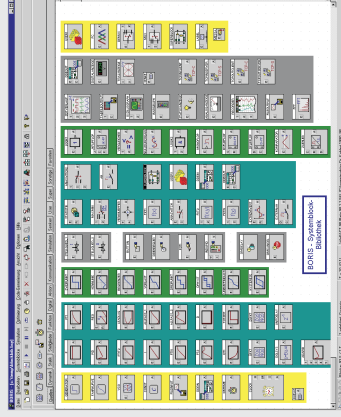
BORIS offers various modes for the control of the simulation process like endless-, single-step- and real-time simulations, the setting of breakpoints as well as several integration methods. For the visualization of simulation results and measured data and for the interactive control of the simulation process BORIS offers numerous virtual instruments and so-called action blocks. As a result of these block types the user gets a feeling of sitting in a "real" lab - a very important effect especially in the field of training and education.

By its great variety of virtual instruments and action blocks BORIS allows to carry out interactive experiments which can be influenced by the user at any time and enables him to conduct significant studies in a convenient way.



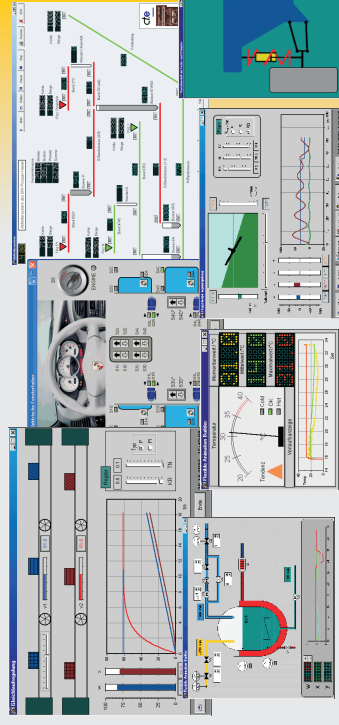
The BORIS library of system blocks

BORIS contains an extensive library of system blocks in the fields of signal producers, linear and nonlinear transfer elements, time-discrete systems, statistics, digital modules, file-input and -output and virtual instruments. This library can easily be extended by the user by "programming" his own system blocks (so-called user-DLL-blocks).

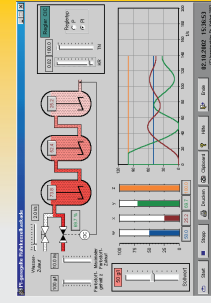


Flexible Animation Builder

The *Flexible Animation Builder* (FAB) is a separately obtainable add-on for BORIS which enables the comfortable design of process visualizations, animations and user interfaces per drag&drop (i. e. without any programming). For that purpose the FAB offers a variety of graphic and control elements like lines, circles, rectangles, bitmaps, formattable output fields, switches, buttons, sliders, LEDs, analog and digital instruments, valves, cylinders, conveyor belts, ready-made animations and many more which can be combined with each other in any way. Within BORIS the single elements will be connected to the inputs resp. outputs of other system blocks in the desired way. All functions can be checked directly within BORIS. The following graphics give a small insight in the numerous options offered by the FAB.



As a well-priced alternative or supplement our *Automatic Control Compact Models* are available. Each model combines all control, visualization and analysis functions within one uniform compact user interface. All models are ready-to-use, i. e. they are ready for use without previous configuration, parameterization or the like. All main variables and parameters can easily be adjusted via sliders and their effects can directly be checked during the simulation. All models are stand-alone usable, i. e. no WinFACT license is required! Examples: liquid level control, stirring tank cascade, light plant, spindle drive, synchronous run control, aircraft attitude control, loading crane and many more. In addition experiment instructions are available for some of these models.



Process interfaces

Via the corresponding I/O-system blocks all process interfaces can be accessed directly from the BORIS environment. A/D-D/A-cards allow a direct online process interfacing. This form of realization is especially suitable during the development stage and for educational and training purposes. A sampling time down to under 1 ms is possible. WinFACT comes with drivers for all usual PC cards. In connection with hardware systems, e. g. ISM- or ADAM-modules, the process interfacing is realized via the serial interface. For the use with notebooks external USB modules are of interest. Nowadays they are offered in a wide range of capability by many manufacturers. Such modules are supported by BORIS as well as digital voltmeters like they are offered by e. g. CONRAD-Elektronik.

For the data exchange with PLCs of the Siemens company (series S7-200 and S7-300/400) drivers are available, too. If data are to be exchanged with process control systems the separately obtainable *OPC-Client/Server Toolbox* for BORIS is recommended.

