

ProfiSignal – Software for measurement

Complete system

ProfiSignal is a complete software system for data acquisition, analysis, visualisation and automation. The software is very user-friendly and combines professional functionality with easy operation.

ProfiSignal provides a clear and logical overview of all measurement systems: whether for single or multi-thousand channel applications. For new users, ProfiSignal is quick to learn. ProfiSignal is modular, scalable and available in three versions: Go, Basic and Klicks. Each version has backward compatibility for operability, data files and application projects.

Overview of software modules

ProfiSignal Go

ProfiSignal Go is a runtime system enabling measurement data to be displayed and analyzed in just three steps. The Go version is able to analyze large volumes of offline and online data.

- Data acquisition and recording
- Data analysis and calculations
- Online and offline trends
- Data export and print outs

ProfiSignal Basic

ProfiSignal Basic, like ProfiSignal Klicks, is a developmental system for generating custom systems with visualization and trend functions.

- Operation and observation
- Process visualization
- Report generation

ProfiSignal Klicks

ProfiSignal Klicks is software for test automation and the programming of control systems. Central to ProfiSignal Klicks is the easy to learn and operate technique of programming by selection.

- Automating test stands and process control systems
- Automating evaluation and analysis functions
- Generating parameter graphs
- Selective frequency band evaluation



and test engineering

Modular design for any application

The benefits of a modular design are not only apparent in the system's functionality but also in the return on investment. The duration and extent of user training represents a significant cost factor. For this reason alone, ProfiSignal offers the best solution.

Applications range from the acquisition of process data through to the monitoring and analysis of dynamic vibrations in equipment and at test stands. There are no restrictions: neither on the number of processes that need to be simultaneously monitored and controlled, nor on the type of process, e.g. testing or laboratory installations.

ProfiSignal Go	ProfiSignal Basic	ProfiSignal Klicks
Data acquisition	Monitoring	Automation
Runtime system	Development system	Development system
Online trends	Logger substitute	Test stands
Historical measurement data	Fault analysis	Technical installations
Alarm tables	Acquisition of fault data	Laboratory automation
Data export	Damage diagnostics	Automated processes
	Quality assurance	Acquisition of operational data
	Remote monitoring	SQL interface
		Comprehensive reporting

Typical applications for Go, Basic and Klicks

Measurement database included

Measurement hardware configuration takes place with the DataService / Configurator software included in ProfiSignal. The software configures hardware and software interfaces, and records data securely and permanently.

The DataService saves measurement data to a database. Any ProfiSignal version on the network can then access these databases and immediately display their data as trends.

ProfiSignal DataService / Configurator

- Configures hardware
- Records data to data files
- Records data to databases
- Calculation functions
- Monitoring functions
- Event alarms (email, text message, fax)
- User management and password protection systems
- Standard software interfaces (OPC, Modbus ...)
- Customized software interfaces (OCX, .net. ...)

ProfiSignal Go – Data acquisition and

Unlimited monitoring and analysis

ProfiSignal Go enables measurement data to be saved, displayed as trends, analyzed and exported in ASCII and CSV formats. Just a few simple steps are required to go from measurement channels to trend output.

Online and offline measurement data can be continuously evaluated in trends. Go offers the following diagrams:

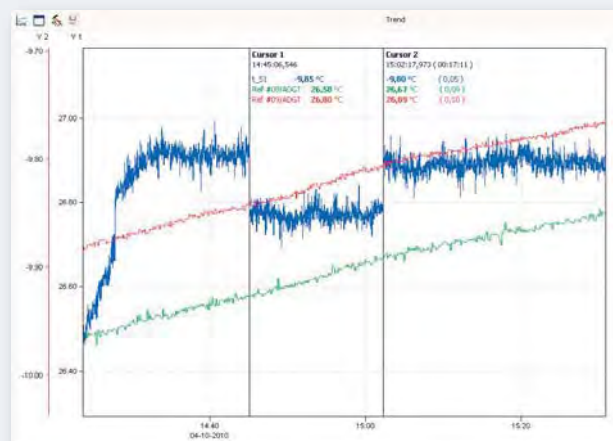
- $y(t)$ diagram
- $y(x)$ diagram
- Characteristic curve
- Oscilloscope
- Digital logical analysis



The diagrams can be run simultaneously. There are no restrictions on either the volume of measurement data or the number of channels.

Efficient recording of measurement data

ProfiSignal Go includes the complete DataService software. This software enables convenient data storage and archiving functions. Measurement data can be stored to files or to databases. The system uses the patented DEVI-STORE procedure to enable fast evaluation and compact data storage. DataService stores data continuously as a background service.



ProfiSignal Go trend

Limitless trend options

The DataService enables uninterrupted portrayal of online and offline measurement data. Users can zoom in on archived data during a measurement run. This function is unique and especially valued by users.

ProfiSignal Go is also capable of processing large data volumes. The Go recording algorithm ensures readability of all information at the highest zoom settings. Peaks remain visible even for extremely long time ranges. This function facilitates the searching of maximum/minimum values.

Alarm table – monitoring and alerting

In conjunction with the DataService, ProfiSignal Go provides a diverse range of alarm and monitoring functions. In the event of alarms, digital outputs can be switched and users notified via email. An alarm table provides an overview of current and archived alarm events.

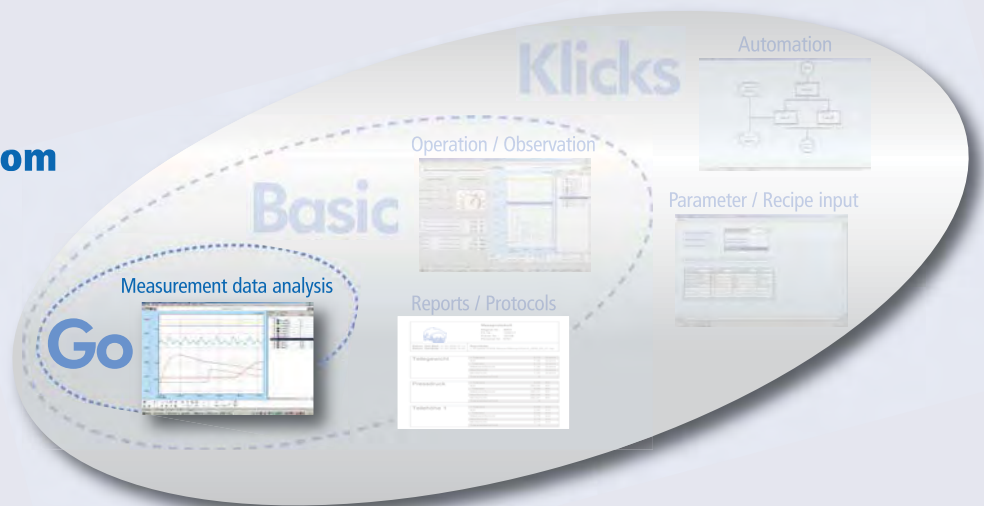
analysis

Product features

- Monitoring and analysis of any type of measurement data
- Recording tests to separate files
- Permanent storage to databases
- Portrayal in trends
- Uninterrupted switching to offline mode
- ASCII export as CSV files
- Print out or EMF export
- Offline calculation functions
- Statistical evaluation
- Analysis with cursor functions to μsec
- Recording of diagram configurations
- Evaluation of digital signalling processes
- Alarm functions for digital events
- Email or fax notification of alarms

Various Applications from ProfiSignal Go

- Mobile and fixed data acquisition
- Laboratory data acquisition
- Measuring at installation
- Measuring service data
- Process data acquisition and analysis
- Fault diagnostics and recorder functions
- Experiments and testing



A range of interfaces

ProfiSignal Go is for use with Delphin's Message and Expert series. ProfiSignal Go is also equipped with an OPC Server and Client, a Modbus TCP interface and a programming interface. Drivers are also available for all the standard data acquisition systems, e.g. VXI, HBM, NI, PSI and the ADAM modules. The modular design enables inexpensive programming interfaces.

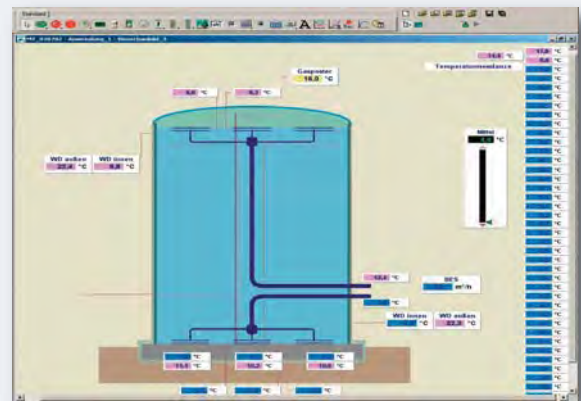
ProfiSignal Basic – Operation and

Customized applications

ProfiSignal Basic is a complete software package to meet user requirements in the fields of measurement data acquisition, operation and monitoring. Basic provides ready to use modules for:

- Acquiring measurement data
- Monitoring processes
- Operating and observing test stands
- Generating reports
- Basic automation

ProfiSignal Basic is designed to be fully configurable and compatible for continuous processes (e.g. operational data acquisition) as well as batch processes (e.g. data from experiments and trials). Basic includes basic automation functions for measurement procedures. Basic includes every function from ProfiSignal Go.



ProfiSignal Basic visualization

Continuous evaluation

The integrated DataService, especially suitable for large amounts of data, enables historical data to be immediately displayed on the screen at high-level resolution. Evaluation can take place from the company network or from anywhere in the world. Measurement data can be stored over extremely long periods of time. For vibration analysis or for the evaluation of transient events, data can easily be acquired and stored at kHz-sampling-levels. Recorders allow data acquired for specific tasks to be stored in separate files on the PC.

Development environment



Runtime mode



Applications are generated with ProfiSignal in the development mode and switched to runtime mode for operation.

Operation and monitoring

A large range of operation and observation objects enable the simple generation of process visualization diagrams. These are available with analysis functions. Operating and monitoring functions can be organized into viewing images. Even inexperienced users are able to quickly generate their own applications. These are generated in development mode and can then be switched for operation to runtime mode.

observation

Product features

- Runs multiple applications simultaneously
- Diverse operating and observation functions
- Monitoring and analysis of any measurement data
- Recording data from experiments to separate files
- Permanent data storage to databases
- Portrayal of online and offline data in trends
- Basic functions for automation
- Formula editor
- ASCII data export in CSV files
- Custom-made reports
- Offline calculation functions
- Statistical evaluation
- Analysis with cursor functions to μsec resolution
- Recording of diagram configurations
- Evaluation of digital signalling processes
- Alarm functions for digital events
- Email or fax notification in alarm event

Various Applications from ProfiSignal Basic

- Mobile and fixed data acquisition
- Laboratory data acquisition
- Test stand measurement technology
- Clean room monitoring
- Visualization of operational data
- Process data acquisition and analysis
- Experiments and tests
- Machine visualization



Measurement data analysis

A range of diagrams are available for measurement data analysis. $Y(t)$ diagrams enable high resolution portrayal of continuous processes over long time periods. This is particularly beneficial for quality assurance and fault diagnostic systems. Both slow and fast signals can be combined in one graph. Any trend can be zoomed in full screen mode. A formula manager enables online and offline computations of measurement data as well as the recording and portrayal of computed results. Complex efficiency computations as well as basic temperature averages are simple to perform.

Reports and protocols

As well as measurement data and computed data, a report may also contain objects such as $y(t)$ diagram (trends), $y(x)$ diagram (characteristic curves), tables, illustrations, input data and text. Reports can be generated and archived automatically according to time or events. This is an ideal tool for quality assurance, quality certification and accounting purposes.

ProfiSignal Klicks – Complete with

All in one

Klicks is the complete package with the entire ProfiSignal functions in one system. Klicks includes a structure diagram in which processes can be graphically portrayed as procedure blocks. Each block is created according to programming by selection. Programming takes place at the click of the mouse. The learning of a programming language is unnecessary. ProfiSignal includes blocks for the following tasks:

- Data acquisition
- Operating and observation
- Report generation
- Automation
- Parameter management

ProfiSignal Klicks enables test stand and laboratory automation, measurement data evaluation and accounting and requires no programming knowledge required.

To complete the range of functions there are input templates for test parameters and recipes and documentation functions for protocols. Klicks provides users with a single package to generate their own automating and testing applications. ProfiSignal Klicks contains all the functions from ProfiSignal Basic and ProfiSignal Go.



ProfiSignal Klicks visualization

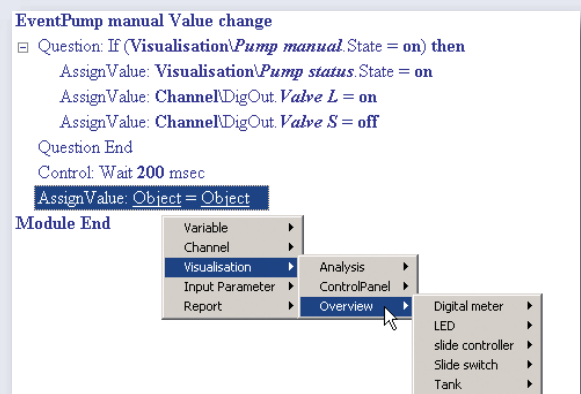
Test parameters and recipes

A parameter input screen is an important tool in test engineering and laboratory automation applications, and allows for the input of test parameters, recipes and batch data. Complete input and option templates can easily be generated, as can process visualization and viewing screens. ProfiSignal's SQL option makes it possible to import parameters directly from company databases. This reduces working times and eliminates input errors.

Process control

Klicks has been developed for technicians, engineers and scientists who want to generate their own processing procedures but without having to invest extensive time into programming skills. The Klicks automation language does not require the learning of a programming instruction set

nor the typing in of instructions and commands. This eliminates any syntax errors from occurring. Full focus can then be given to the process control – a structure chart can be generated at just a few mouse-clicks.



Program module with Klicks

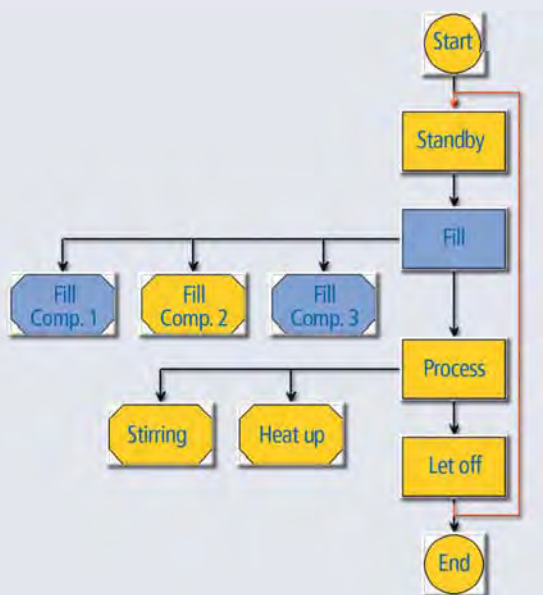
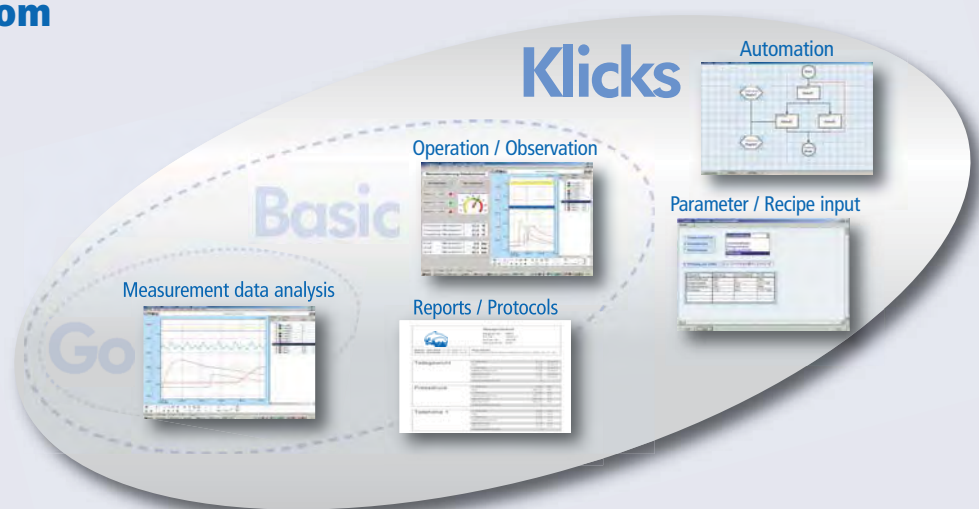
automation

Product features

- Simultaneous running of multiple applications
- Automation functions and structure charts
- Includes Klicks programming language
- Diverse operating and observation functions
- Monitoring and analysis of any measurement data
- Recording to data files and databases
- Parameter data management
- Display of online and offline data as trends
- Formula editor
- Custom reports
- Offline calculation functions
- Full trend functions

Various Applications from ProfiSignal Klicks

- Mobile and fixed data acquisition
- Automation of test procedures
- Generation of process control
- Automation of measurement requirements
- Laboratory automation
- Product testing
- Experiments and testing



Structure chart

The structure chart is made up of special symbols that serve as containers for programming instructions. Double clicking on a symbol opens an instruction editor. This gives users the option of maintaining and updating applications or completed programs, even years into the future.

ProfiSignal – Interfaces, Runtime

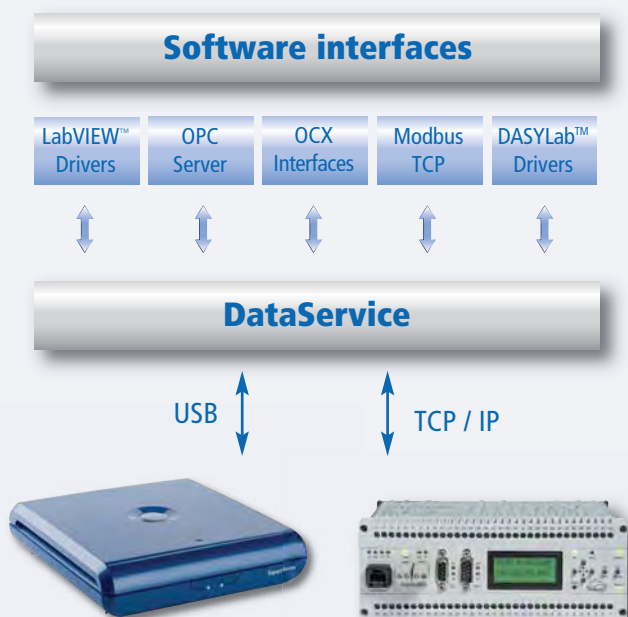
ProfiSignal interfaces

ProfiSignal is equipped with optional interfaces for connecting external software and hardware. Drivers are available for data exchange with NI LabVIEW™ and DASyLab™. Sensors and other control and measurement systems can be connected to ProfiSignal via OPC Server / Client and Modbus TCP. An API interface enables ProfiSignal to be integrated into high-level languages. OCX and .net interfaces are also available.

ProfiSignal can also be connected to external hardware. A range of drivers are available to connect external hardware. The following are examples of supported hardware: VXI, PSI, HBM, WinSocket and many others.

Product features

- Multiple interfaces for external hardware and software
- High transfer rates supported
- Compatible with latest software versions
- Simple installation
- Full documentation



ProfiSignal Runtime

Once a ProfiSignal project has been completed in development mode, a Runtime licence then enables its operation. ProfiSignal Runtime licence contains only ProfiSignal's runtime mode. Only completed projects that have been transferred to runtime mode can be started. Runtime mode is not intended for the creating of new projects. Runtime includes all ProfiSignal options available in the development mode.

Product features

- Manipulation safe running of ProfiSignal projects
- Projects contained within one file
- Easy to copy applications to multiple PCs
- Inexpensive solution for OEM applications
- No development mode required



Technical specifications are available on page 47.

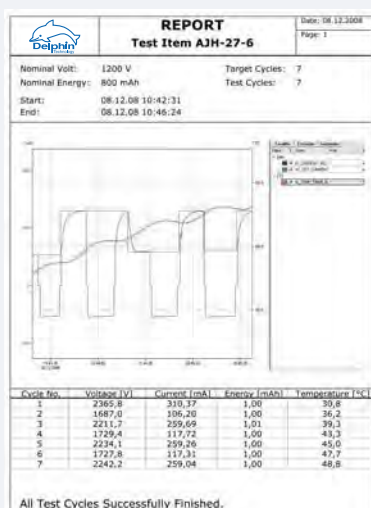
Viewer and options

ProfiSignal Viewer

The ProfiSignal Viewer enables offline analysis of measurement data files and reports generated by ProfiSignal. ProfiSignal Viewer is suitable for users who require only data analysis or export, e.g. to ASCII or Excel files, and not the system's full functioning or online data features. The Viewer includes ProfiSignal options for trend diagrams and characteristic curves, e.g. cursors, markers, export and statistical functions.

Product features

- Offline analysis and export of measurement data
- Offline analysis and processing of reports
- Diagrams, e.g. trends, characteristic curve, orbit and FFT Orbit, FFT diagrams
- Diagram functions, e.g. cursor, export, markers, statistics etc.
- Dynamic reporting with access to all measurement data plus time-stamps
- Display and processing of reports



Report extract of QM standard

ProfiSignal options

A range of options are available for ProfiSignal Basic and Klicks. Single or multiple options can be acquired depending on user requirements.

① Vibro option (Basic and Klicks)

The vibro option has been specially developed for vibration measurement applications:

- Online / offline portrayal, evaluation of measured data using the AMDT vibration I/O module
- FFT, cascade, time signal and orbit diagrams
- Process measurement data and vibration data within a single system

② AlarmManagement option (Basic und Klicks)

The alarm management option records, visualizes and manages alarms. Email or fax messages can be sent in the event of an alarm:

- Any number of alarms can be set up using the DataService
- Alarm acquisition takes place with date and time recording at millisecond resolution
- Alarm notification via digital outputs using sound data formats or visualization objects
- Alarm history in the form of alarm lists

③ SQL option (for Klicks only)

The SQL option links ProfiSignal data to company database or ERP systems:

- Integrated SQL interface for data exchange with other databases, e.g. for test sample parameters
- Connection to ProfiSignal via ODBC-functioning enabling read / write of data

ProfiSignal – Option Vibro and

Vibration visualization and analysis

The ProfiSignal Vibro option extends existing ProfiSignal functions with FFT, cascade, time signal and orbit diagrams and enables the portrayal of vibration data that has been acquired and calculated from the AMDT vibration module.

Fully integrated into ProfiSignal

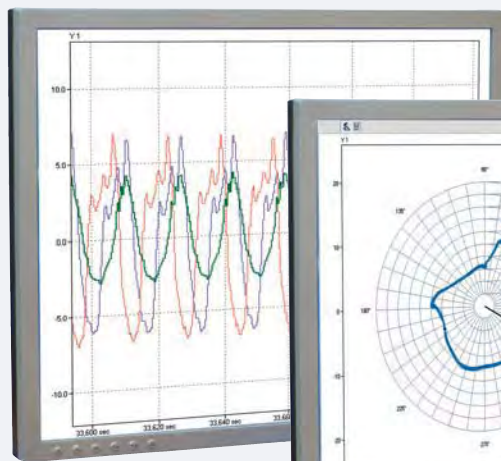
The full integration of vibration analysis into ProfiSignal means Delphin systems can be used to simultaneously portray process data and vibration data as characteristic values in digital / analog displays or in graph format.

Unlimited documentation

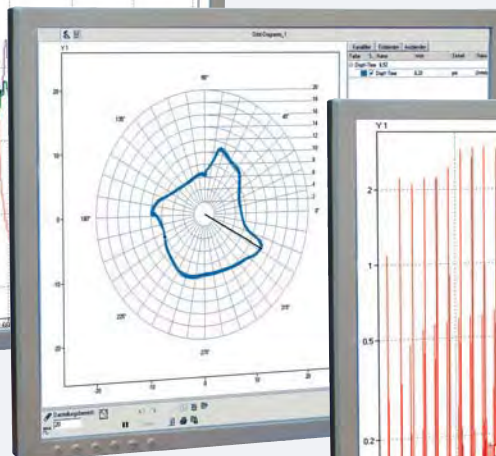
A ReportGenerator enables user-defined documentation for vibration data as FFT or cascade graphs as well as envelope spectrum curve analysis. Orbit and trend graphs provide for the graphical representation of kinetic shaft orbits including maximum S_{\max} deflection and angular position / phase.

Extensive range of functions in one system

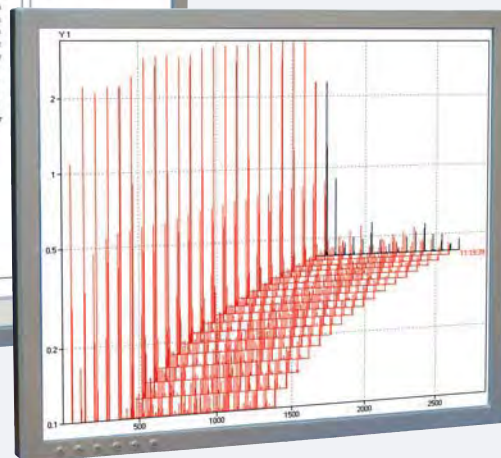
The ProfiSignal Vibro option provides individual shaft vibration diagnosis in gas / steam / hydro turbines, superchargers and motors. The Vibro option can also be used for bearing vibration analysis in electric motors and roller bearings.



Time-signal-diagram



Orbit-diagram



FFT-cascade-diagram

Option AlarmManagement

Data acquisition, monitoring and alarm functions

The ProfiSignal AlarmManagement option provides important additional functions concerning monitoring and alarms. Modern monitoring systems should not only acquire data – they must also be able to issue alarms when faults occur. An obvious requirement here is a user management system with graded levels of access rights. ProfiSignal AlarmManagement functions also include alarm audits and uninterrupted alarm recording.

Fault recording history

Alarm Time	Alarm Gone Time	Priority	Alarm Name	Alarm Text	Alarm Source	Value	Confirmation Time	Confirmation	Confirmation Pass
27.11.2008 14:07:22.263	27.11.2008 14:07:22.263	3	Group Temperature Group Hydraulic	Pressure 2, Element 2.0 gpa	Pressure 2	Value			
27.11.2008 14:07:22.263	27.11.2008 14:07:22.263	3	Group Temperature Group Hydraulic	Pressure 1, Element 2.0 gpa	Pressure 1	Value			
27.11.2008 14:07:22.263	27.11.2008 14:07:22.263	3	Group Temperature Group Hydraulic	Pressure 3, Element 2.0 gpa	Pressure 3	Value			

Alarm table

Alarm classification

Alarm classifications are the foundation for a practical and workable alarm management system. Specific rules, e.g. on limit values, can be defined as required and then allocated varying priority levels.

Action and reaction

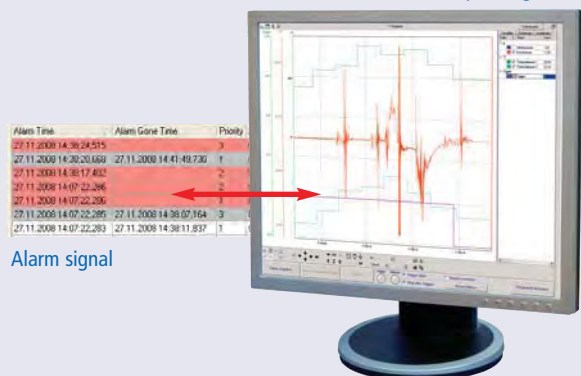
Each rule has a pre-set action. This might be notification sent via text-message, fax or email, or a warning sent to a main control system, or a digital output switch to shutdown a process or issue a sound alarm.



Visualization

Alarm tables can be easily incorporated into an existing visualization. The large range of configuration options provide an easily manageable alarm system, even for systems with many channels.

Corresponding trend



Alarm signal



Alarm outcomes are linked directly to the corresponding trends.

ProfiSignal – Technical specifications

	ProfiSignal version			
Modules and functions	Go	Basic	Klicks	Viewer
DataService / Configurator				
Data recording (database)	X	X	X	
Message device configuration	X	X	X	
Interface management	X	X	X	
User management and password protection	X	X	X	
Scheduler – programmable data transfer	X	X	X	
Calculation, integrator channels, monitoring channels	X	X	X	
Diagrams (online and offline)				
y(t) diagram	X	X	X	X
Logic diagram for signal analysis	X	X	X	X
y(x) diagram	X	X	X	X
y(x) color diagram	X	X	X	X
Measurement data export – ASCII and CSV	X	X	X	X
Diagram as EMF export	X	X	X	X
Graphical elements				
Analog display		X	X	
Digital display		X	X	
LEDs		X	X	
Block display		X	X	
Background images and animated .gif files		X	X	
Operating and control elements				
Buttons		X	X	
Switches		X	X	
Text input		X	X	
Radio buttons		X	X	
Dropdown boxes		X	X	
Slide controls		X	X	
Manual controls		X	X	
Programming				
Test parameter management			X	
Report programming			X	
Process control and automation functions			X	
Timer and event management (Miniklicks)		X	X	
Table management			X	
Adapter channels			X	
Application variables			X	
Application tables (2D and 3D)			X	
Other functions				
Data recorders with trigger functions	X	X	X	
Screen print out function		X	X	
Set point curves		X	X	
Date and time display		X	X	
Offline calculation channels	X	X	X	
Global alarm tables		X	X	
Vibro option				
FFT and cascade diagrams		X	X	X
Orbit diagram		X	X	X
AlarmManagement option				
Configurable alarm table		X	X	X
Fault diagnostics		X	X	



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