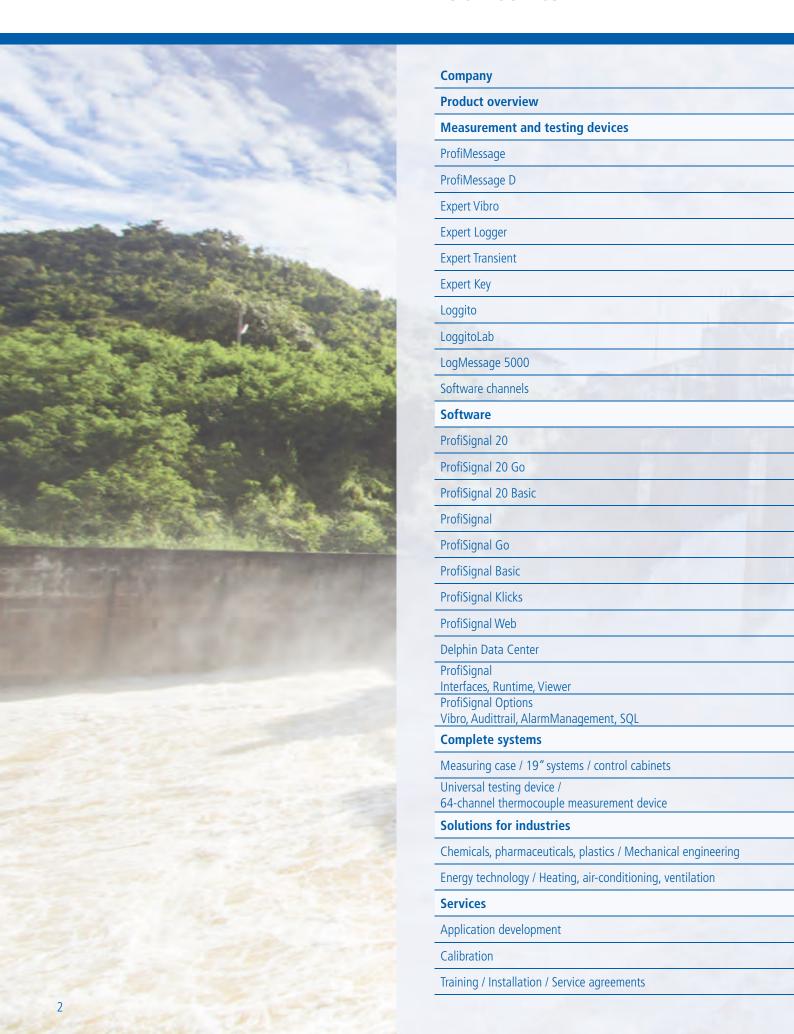


Product catalogue

Measuring. Testing. Automation.



Contents





Your **partner** for industrial **measurement and testing technology**

Since 1980, Delphin Technology AG has been developing, manufacturing and marketing pioneering, high-quality measuring hardware and software solutions for industrial measurement and testing technology.

We are a competent and reliable partner to worldwide customers — both for standard measurement systems and individualised complete systems. Our team of technical specialists are committed to their work and transform creative ideas into practical products. The main applications for our products range from measurement data acquisition and analysis, test stand automation and monitoring through to vibration measurement technology. Our products are being used in a wide variety of sectors, including electrical engineering, mechanical engineering, energy technology and the chemical and pharmaceutical industries.

Continuity – Focussing on customers

We focus on our customers who then benefit from our technical know-how and our proven practical experience in applications from almost 40 years of development work in the field of industrial measurement technology. Working closely with customers and their applications is important to us and is reflected in our product range as well as in our long-standing customer relationships. Many medium-sized companies, globally renowned industrial groups as well as research laboratories, authorities and universities place their trust in us and benefit from our many years of experience.

Quality – Made in Germany

A top priority is the continuous development of our products in accordance with the highest quality standards. Delphin Technology AG is certified according to ISO 9001:2015. This ensures that our products meet the most stringent quality requirements to provide reliable operation in your applications. With Delphin, you have the assurance that the products have been "Made in Germany".

Innovation - Intelligent measurement technology

Through continuous technological development, we aim to supply our customers worldwide with intelligent and universally usable data acquisition devices and intuitive measurement software. Our customers must be able to carry out their measurement and monitoring tasks at high-levels of efficiency and safety. We support you with our deep knowledge of products and applications and we are constantly working on new technical features and innovations which are protected by worldwide patents.

Flexibility – Individualised complete systems

Flexibility and a non-hierarchical organisation are further building blocks in our corporate philosophy. This enables us to respond to the wishes of customers and to offer individualised complete solutions in addition to standardised systems. On request, we can manufacture individualised measuring cases, control cabinets and complete test stands and, with ProfiSignal software, program application software specifically tailored to your requirements.

Customer service

Customer service is our number one priority. Our range of services includes project planning, installation, calibration, service hotline and training courses as well as project-based and individualised training. Installation and training are carried out by a competent team of experienced engineers at Delphin or at the customer's premises. Our service packages guarantee you first-class support from the outset!







Data acquisition and data logger

Test, trial & automation



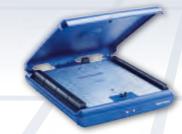
LoggitoCompact
data acquisition



LoggitoLab
Compact data
measurement lab



Expert LoggerStand alone data logger



Expert KeyPC-based measurement technology



Profisignal 20Intuitive measurement software



ProfiSignal Go / ProfiSignal BasicData acquisition and analysis,

Data acquisition and analysis Operation and observation

ProfiSignal Klicks
Automate and control

Measurement technology globally networked



Vibration measurement

Monitoring & enviroment technology



Expert Vibro

Vibration measurement

Expert Transient

Transient data acquisition



ProfiMessage

ProfiMessage D

Modulare measurement technology and automation



measurement system

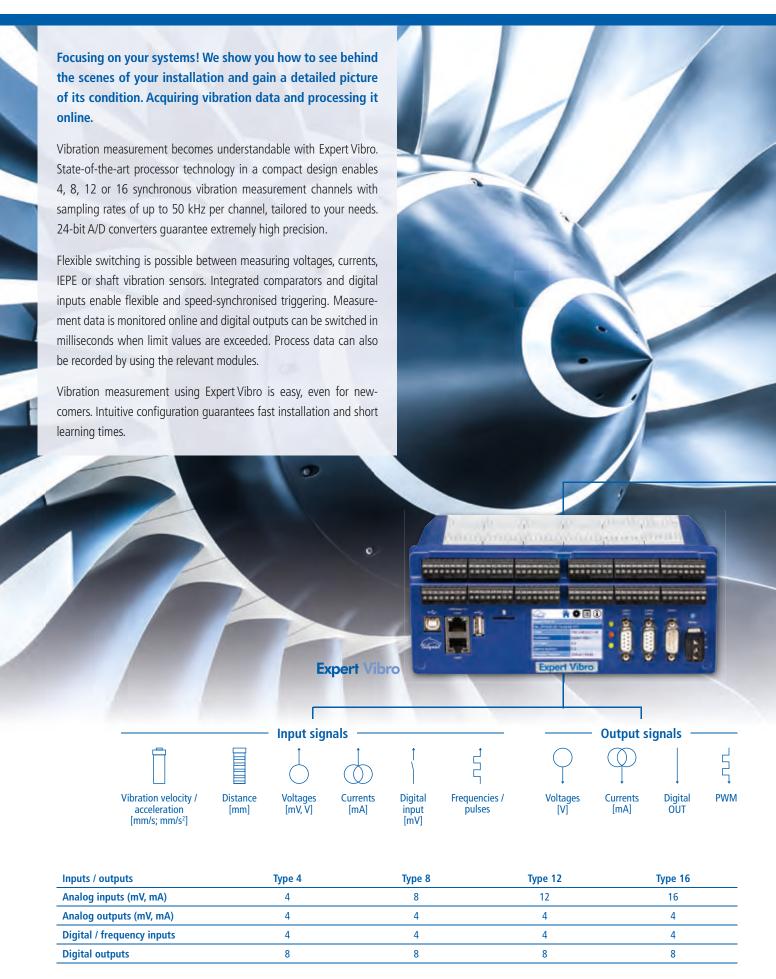


ProfiSignal Web

Web-based and mobile data acquisition



Expert Vibro – The **vibration specialist**



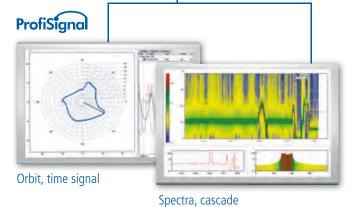
Applications

- Shaft vibration monitoring and analysis
- Monitoring of vibrations in machines and housings
- Rolling bearing monitoring and bearing damage diagnosis
- Spindle monitoring and balancing
- Combustion chamber vibration monitoring
- Gearbox vibration analysis
- Air-gap monitoring
- Mobile vibration measurement



Extension bus (synchronous)

LAN



Interfaces

- Modbus TCP/RTU
- PROFIBUS DP, CAN RAW
- RS232, RS485
- OPC UA*



Product features

- 4, 8, 12 or 16 individually triggerable vibration inputs
- Calculation and monitoring of characteristic values
- Online computation of measurement data
- Integrated analysis functions for gear and roller bearing monitoring, air-gap etc.
- Spectrum online up to 12,800 lines (FFT)
- Integration functions (two-stage)
- 50 kHz sampling rate per channel
- 24-bit A/D converter

Sensor connection

- Software switchable analog inputs
 - Shaft vibration / distance sensors
 - Acceleration sensors
 - Vibration velocity sensors
 - mV / mA signals (pressure etc.)
- Switchable IEPE power supply
- Integrated comparators for KeyPhasor® sensors
- Measuring range up to ± 25 V
- Pluggable screw terminals

Interfaces

- LAN, USB, WLAN (optional), LTE (optional)
- Serial interfaces RS232, RS485
- OPC UA*, Modbus TCP/RTU
- PROFIBUS DP, CAN RAW
- Individual ASCII protocols

Data storage

- 2 GB or 14 GB internal storage
- External storage media (USB, NAS)
- Triggered storage with pre and post histories

Product highlights

- Synchronous analog inputs, 50 kHz sampling rate per channel
- Calculation and monitoring of characteristic values
- Spectrum online up to 12,800 lines (FFT), integrated IEPE power supply
- Extendible

Software Channels – Flexible and **autonomous**



monitoring

		Description	Application example
	Online analysis		
f(x)	Calculation channel	Any number of channels can undergo calculations with each other, Functions include: basic arithmetic operations, trigonometry, binary and Boolean functions	Temperature difference between two input temperatures
⊸g ∽	Mean-value channel	Calculates moving and triggered mean values	Mean of highly sensitive signals from thermocouples
307	Edge counter	Counter for pulses (up, down and reset function)	Energy pulses to count kWh
dt	Differentiator	Calculates changes over time	Gravimetric dosing in laboratories
<u>M</u> .	Integrator	Numerical integration over time	Calculating volumes from flow rates
Σ	Summation channel	Time-independent addition of measurement data	Totalling of analog measurement data
\cup	Linearisation	Corrective calculations for non-linear sensors	Linearisation of application-specific PTC sensors
24	Operating hours	Accumulates high-level time-points in digital signals in hours	Determining on / off time ratios for a machine
5×	Statistics	Calculates moving and triggered statistical values (min, max, variance, standard deviation)	Determining maximum values in an experiment
Ø	Stopwatch	Times between two events	Determining switching times for valves and thermal switches
	Monitoring		
<u>~</u>	Limit	Generates an event when limit values exceeded (exceeds / falls short, persistence, hysteresis bandwidth monitoring)	Alarm when a bearing temperature is exceeded
∢ ∌	Combined	Generates alarms from multiple digital input channels	Alarm from different parts of a system are combined into one message
如	Wake-up	Generates pulses according to absolute calendar times (once per day, week, month)	Determining daily production statistics
1	Status	Evaluates status information in a measurement data and generates alarms	Alarms for wire breaks in an mA signal
4	System	Displays system information (CPU load, memory utilisation)	Alarms for full data storage capacity
	Automation		
	Setpoint channel / sequencer	Automatically executes setpoint curves with reset, hold and start triggers	Automatic management of chemical processes temperatures / stirrers
100	FlipFlop channel	RS, JK, D FlipFlop	Storage of digital statuses and analog data for further processing
1/	Pulse generator	Generates cyclic pulses	Time synchronising every 15 min. Energy counter reset
1	Logic channel	AND, OR, NOT, XOR, NOR	Boolean linking of any digital signal
()	Timer channel	Functions for time elements (pick-up and drop-out delay)	Time-delayed starting of experiment procedures
χ=	Flag channel	Stores constants and parameters	Process constants and control via GUI

ProfiSignal Go – Just a few steps to go from **sensor**



to **trend**

Applications Process data acquisition and analysis Laboratory data acquisition Measuring during system installation Fault value analysis with recorder functions Mobile and stationary data acquisition Trials and testing Measuring for servicing and maintenance

Product features

- Monitoring and analysis of any measured values
- Various diagram types for data visualisation (online / offline)
- Smooth switching from online to offline data
- ASCII export as CSV file / Trend export as vector-based EMF file
- Statistical and offline calculation functions
- Analysis using cursor functions down to μ -second ranges
- Evaluation of digital signal sequences
- Permanent storage in database format
- Recording of batch-based tests to separate files
- Alert functions via email and fax
- Display of diagram functions

Diagram types

- y(t) diagram
- y(x) diagram
- Characteristic curve diagram
- Oscilloscope diagram
- Digital logic diagram

Interfaces and options

Further information can be found on pages 46, 48.

Product highlights

- Simple operation from measurement data to trend
- Monitoring and analysis of any measurement data from any source (hardware and software)
- Many diagram types available
- Versatile interfaces for connecting peripherals
- Statistical evaluation and offline calculation functions
- From a general overview to high-resolution µsec ranges in just a few steps
- Direct export as CSV file or trend export as EMF file
- Up to four y-axes are possible to enable different measurement units in one diagram

ProfiSignal Basic - Visualisation and operation



made easy

Applications

- Condition monitoring
- Operational and process data acquisition
- Trials and testing
- Systems and machine monitoring
- Energy data acquisition and monitoring
- Acquisition and visualisation of laboratory data
- Clean room monitoring



ProfiSignal with a Basic visualisation

Product features

- Multiprocessing independent execution of multiple applications
- Versatile operating and monitoring functions
- Base functions for automation
- Monitoring and analysis of any measured values
- Reporting

Operating and observation objects

- Buttons, slide and toggle switches
- Input fields, dropdown lists and check boxes
- Analog and digital displays, signal lamps
- Tanks
- Tables
- Images for customised design
- Background images e.g. system schematics, drawings, photos

Diagram types

- y(t) diagram
- y(x) diagram
- Characteristic curve diagrams
- Digital logic analysis
- Oscilloscope diagram

Interfaces and options

Further information can be found on pages 46, 48.

Product highlights

- Intuitive creation of diagrams without programming
- Includes preconfigured operating and monitoring elements
- Optimally usable both for the monitoring of continuous processes and for batch and experiment measurements
- Basic functions for automation available
- Report generation

ProfiSignal Klicks – The **complete package** with



all options

Applications

- Test stand automation with visualisation and operation
- Creation of process controls

Product features

- Automation functions through ready-made context menus and program texts
- Creation of recipes and management of test parameters
- Versatile operating and monitoring functions
- Synchronous / asynchronous execution of multiple applications through multiprocessing
- SQL interface for database connection
- Creation of detailed, individualised reports

Operating and observation objects

- Buttons, slide and toggle switches
- Input fields, dropdown lists and check boxes
- Analog and digital displays, signal lamps
- Tanks
- Tables
- Images for customised design
- Background images e.g. system schematics, drawings, photos

Diagram types

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

Interfaces and options

Further information can be found on pages 46, 48.

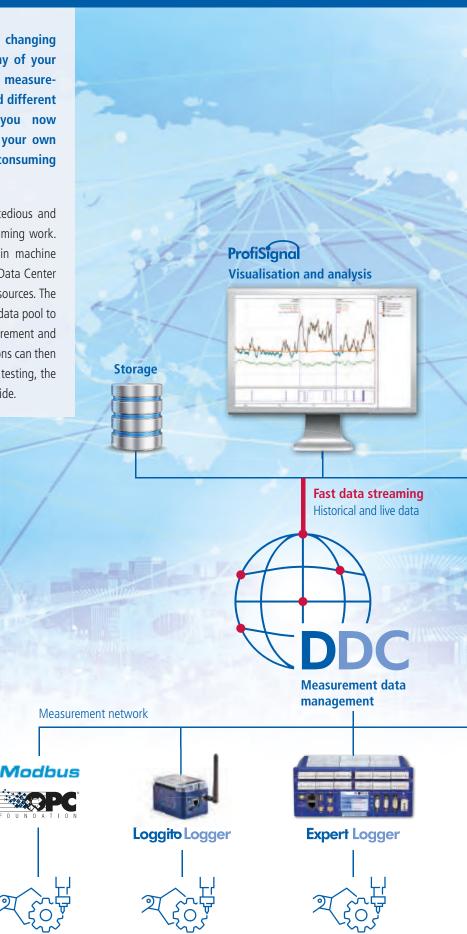
Product highlights

- Complete software for visualisation, automation and operation of a full range of measuring and testing requirements
- "programming by selection" automate processes and test tasks without a programming language
- Clear structure diagram simplifies maintenance of the application
- Automatic generation of detailed, individualised reports
- SQL interface available for connecting to databases

Delphin Data Center – Centralised **measurement**

How are your measurement requirements changing in the face of Industry 4.0 and IIoT? Are many of your measurement application isolated systems? Is measurement data being stored in different formats and different platforms? With the Delphin Data Center, you now have a solution which enables you to set up your own measurement data management without time-consuming and costly programming.

Cross-process data processing and analysis is often tedious and involves extensive manual effort or extensive programming work. Usually no uniform data structure exists, especially in machine parks that have developed over time. The Delphin Data Center brings together and synchronises data from different sources. The Delphin Data Center's open structure creates a central data pool to enable you to standardise, archive and monitor measurement and process data in a simple way. A wide range of applications can then be implemented for inspection requirements, life cycle testing, the monitoring of systems and machines, locally or worldwide.



data management

Applications

- Condition monitoring of machines and systems
- Operational and process data acquisition
- Service life testing and long-term archiving
- Synchronisation of worldwide measurement / monitoring tasks
- Data standardisation and conversion
- FDA-compliant applications / clean room monitoring

ProfiSignal Web Worldwide distribution



Monitoring and alerting











Data management

- Centralised data collection from distributed sources
- Continuous and batch-based archiving
- Loss-free compression algorithms
- · Lightning fast access from ms to yearly viewing
- Special data preprocessing via software channels
- Smooth transition from online to historical data
- Access via any number of clients (license packages)

Alarm management

- Create alarm conditions and rules
- Detailed alarm list with options for confirmation
- Notification by email and text messaging
- Audit trail for FDA compliant applications

User management

- Password management
- Management of user rights
- Client management

Data interfaces

- OPC DA Client / Server
- Modbus TCP Master / Slave
- ASCII-DLL
- API interface
- SQL interface and ODBC
- Individual drivers incl. configuration dialogs

Product highlights

- Easy to use, implementation without programming
- High-performance data archiving with lightning-fast access
- Loss-free data compression
- Extendible via web servers for platform-independent access
- Processing of up to 10 million data records per second

Do you want to connect external software and hardware to your ProfiSignal application, perform finished projects without a development environment, or analyse measurement files and reports offline? We have the solution.

Drivers for high-speed data transfers are available for exchanging data with third-party software and hardware. You can use ProfiSignal to connect sensors and other control and measurement systems via a variety of interfaces. An API interface enables ProfiSignal to also be integrated into higher level programming languages.

Once a ProfiSignal project has been developed, it can be easily performed with a Runtime license without the possibility to make any changes to the application. The Runtime version contains all the ProfiSignal options available in the development version.

The ProfiSignal Viewer allows you to perform offline analysis of measurement data and reports created with ProfiSignal. It is ideal when measurement data is to be analysed and exported only and no applications or online data are required.

Product highlights

ProfiSignal interfaces:

A broad range of interfaces for connecting third-party software and hardware

• ProfiSignal Runtime:

Tamper-proof execution of ProfiSignal projects

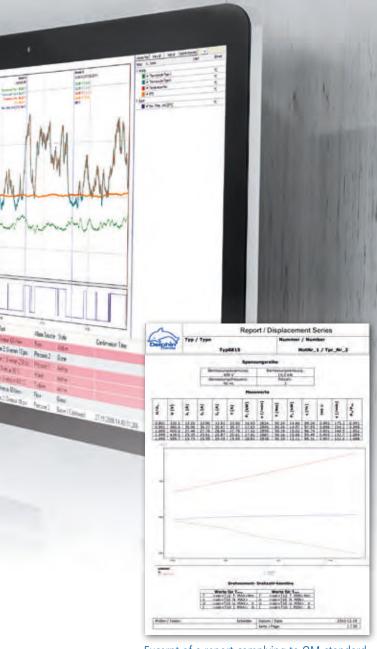
ProfiSignal Viewer:

Easy offline analysis of measurement data



Applications

- ProfiSignal interfaces: Connection of third-party software and hardware and data exchange with ProfiSignal applications
- ProfiSignal-Runtime: Performing completed ProfiSignal projects without a development environment
- ProfiSignal-Viewer: Offline analysis of measurement data and reports created with ProfiSignal



Excerpt of a report complying to QM-standard

ProfiSignal interfaces features

- Driver for high-speed data exchange with NI LabVIEW, DASYLab and Diadem
- Connection of sensors or other control and measuring systems via OPC server / client and Modbus TCP
- Integration of ProfiSignal into higher programming languages via OCX or .NET interface
- Driver for integrating third-party hardware from the following manufacturers: VXi, PSI, HBM, WinSocket and many others
- Support of the fastest transmission rates
- Compatible with the latest software versions
- Easy to install
- Good documentation

ProfiSignal Runtime features

- Tamper-proof execution of ProfiSignal projects
- Projects use only one file
- Easy duplication of the application on other PCs
- Cost-effective solution for OEM applications
- No development environment necessary

ProfiSignal Viewer features

- Offline analysis and export of measurement data offline, e.g. in ASCII format
- Offline analysis and editing of reports
- Many diagrams, e.g. trend, characteristic curves, orbit, FFT diagrams
- All diagram functions, e.g. cursor, export, flag, statistics etc.
- No rigid documents, all measurement data with time stamp included in reports
- Displaying and editing of reports
- PDF print function



Do you have a vibration measurement application or do you have special requirements regarding validation, alarm management or data exchange? Then add the relevant option to your ProfiSignal package.

The Vibro option supplements existing ProfiSignal functions with special diagrams for vibration measurement, FFT, cascade, time signal, Bode diagram, envelope as well as orbit and spectrogram.

The Audittrail / FDA option provides functions in ProfiSignal Basic or Klicks for validating monitoring applications according to the FDA 21 CFR Part 11 guidelines.

The AlarmManagement option supplements ProfiSignal Basic or Klicks with important functions for monitoring and alerting.

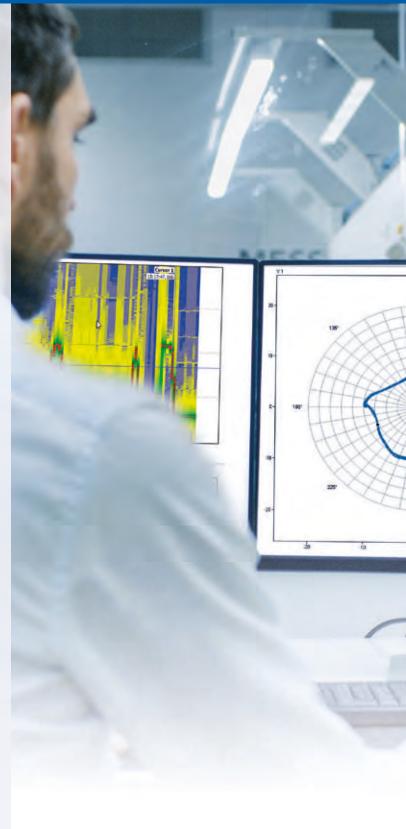
The SQL option connects ProfiSignal measurement data with company and product databases as well as ERP systems (only for ProfiSignal Klicks).

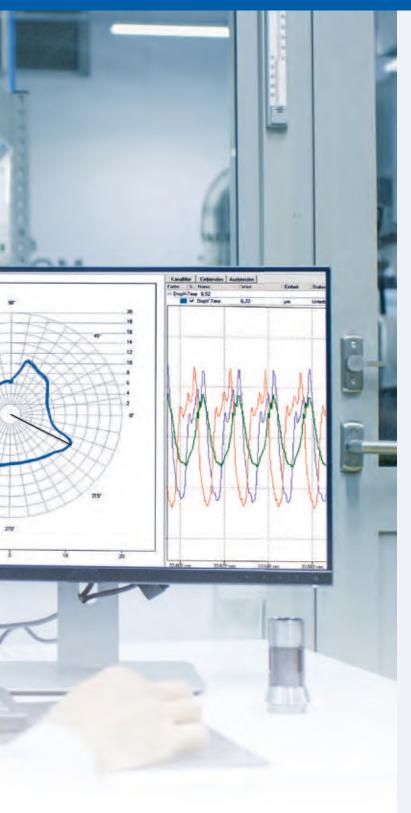


Alarm table

Applications

- Vibro option: Shaft vibration diagnosis and monitoring of gas / steam or hydropower turbines, compressors and drives as well as bearing vibration monitoring and roller bearing diagnosis on electric drives and rollers
- Audittrail / FDA option: Monitoring of applications requiring validation according to FDA 21 CFR Part 11 and data integrity through tamper-proof measurement databases
- AlarmManagement option: Applications with extra requirements for alarm management
- SQL option: Applications requiring connections to a company database or ERP system





Vibro option features

- Addition to ProfiSignal of special vibration measurement diagrams time signal, orbit, shaft centerline, polar, FFT, envelope, cascade, order analysis, spectrogram and bode
- On / offline display, evaluation of data measured with Expert Vibro
- Acquisition, visualisation and analysis of process and vibration measurement data in one system
- Documentation of vibration data via a report generator with access to all special diagrams

Audittrail / FDA option features

- User management with different authorisation levels
- Integrated alarm management with rights-dependent access to alarm lists and alarm confirmations with comments only
- Redundant tamper-proof archiving of measurement data on a server as well as directly within the acquisition hardware
- Logging of user interventions (according to user management) for hardware configuration changes as well as software changes and operating control elements on a PC (Audittrail)
- Regular automatic report generation on recorded measurement data, alarm incidents and user interventions

AlarmManagement option features

- Structured creation of alarms and alarm classes
- Alarm recording with date and time, accurate to the millisecond
- Continuous logging of alarms in a separate alarm archive
- Extensive filter functions
- Analysis and access to both online and historical data with direct access to an alarm including pre- and post-alarm histories

SQL option features

- Integration of an SQL interface for data exchange with other databases, e.g. for test sample parameters
- Connection to ProfiSignal via ODBC functionality to enable reading / writing of data

ticals, plastics and mechanical engineering



Mechanical engineering

Increasingly complex systems and controls raise the demands on data acquisition and fault analysis. Systems are becoming increasingly connected and more intensively monitored with large volumes of data needing to be analysed in real time for services such as predictive maintenance. The need for intelligent measurement and test solutions and the demand for efficient complete solutions is increasing.



You can find more solutions for industries: www.delphin.com

Application highlights

- Turnkey systems to guarantee fast availability, optimum controllability and reliable operation
- Data acquisition and monitoring in an intelligent system with quick and easy configuration and short set-up times
- Flexibility from having diverse (fieldbus) interfaces and support for open standards such as OPC UA
- Autonomous operation guarantees reliable data acquisition and storage with time stamps, even in the event of PC or network failures
- Integrated signal conditioning in place of external transducers
- Acquisition and evaluation of measurement data, automation and visualisation of measurement procedures and processes, automated report generation — all without requiring programming expertise
- Simple creation of system monitoring with a range of alarm options as well as fault value analysis with pre and post triggering

Application development

Individual and efficient

Do you need a turnkey solution for your measurement or automation requirements? We at Delphin guarantee smooth project completion, from engineering and implementation through to user training. Using Delphin products, our engineering team efficiently and cost-effectively create individualised applications. This can include configuring measuring points, visualisation in ProfiSignal Basic, system automation and protocols in ProfiSignal Klicks or complete project planning and control cabinet construction by Delphin.

Application development is based on the ProfiSignal system. You can then subsequently maintain and develop the application we have created. Our engineers have been working for years with our products and are therefore able to deliver effective and practical solutions. Benefit from our many years of experience in delivering projects for specific customer needs and choose application development from Delphin.



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You can find more application examples online: www.delphin.com



Other application examples

- Complete development test stands with the input of header data and product data, test procedure programming, standards-compliant protocols and calculations, e.g. for:
 - Luminaires
 - Tools
 - Motors
 - Vehicle components
 - Boilers and heating systems
- Process visualisation with data archiving and analysis functions, e.g. for:
 - Laboratories
 - R & D applications
 - Processing plants
- Final test systems with traceable, server-based data archiving and automatic printout of protocols for specific products
- Room monitoring and alarms via email, text messaging and fax, controlled by a powerful system of user management
- Vibration monitoring of engines, generators and turbines with worldwide accessibility to measurement data

You can find more application examples online: www.delphin.com

Calibration

Precision and security

Wherever measuring devices are being used for quality-based tasks, the devices require calibration. Even the smallest measurement errors can have drastic effects on the safety of production processes and on the quality of products. During calibration, measurements are carried out on the instrument to be tested and compared with reference values. This reassures users that measurements post calibration have a specific degree of accuracy. Every measuring system produced by Delphin leaves our factory calibrated and compliant to national standards according to ISO 9001.

We provide device and system recalibration at any time post purchase. As a manufacturer, we can re-adjust for deviations (if necessary) as part of a calibration, and carry out full functional testing. This guarantees reliability and accuracy over the entire period of use. We offer calibration at Delphin's premises or directly at the place of use.

For both on-site and in-house calibration at Delphin, you receive a calibration certificate for the device that complies to national standards. You have the option of DAkkS or factory calibration.



Mobile calibration system





Calibration at Delphin

Calibration at Delphin makes sense when you have periods when you are not using the equipment. Arrange an appointment with our calibration department and send in the devices.

On-site calibration

Larger machines and systems cannot be easily dismantled for calibration. For more complex systems, there is also risks involved in transportation. We then recommend that you have your equipment calibrated on site. For this purpose, we have modern and mobile calibration equipment which allows us to calibrate directly on your system and, if necessary, also to readjust it.

Advantages of on-site calibration

- Minimal downtimes because the devices and systems remain in-house
- Measuring operations can continue because devices are calibrated one after the other
- The devices and systems are calibrated under actual ambient conditions
- Calibration takes place on an agreed date
- No effort or costs concerning dismantling, shipping and reassembly
- No transportation risks for the devices

Services

Training

Do you want to quickly and simply find out about the range of application options for Delphin measuring and testing devices and software? Or do you need support with implementing a specific application?

Then choose one of our regular basic or advanced training courses, or arrange an individual training course in which your specific questions will be dealt with according to your needs. Training can take place in the modern conference rooms at Delphin as well as at your premises.

Contact us and we will be happy to help you.

Installation

To enable you to use your Delphin system as quickly as possible, we offer system installation at your premises by our qualified service engineers. We will make an appointment with you for this purpose. Installation includes the following:

- Setting up the Delphin measuring hardware
- Setting up the ProfiSignal software
- Miscellaneous e.g. cabling work
- Operating instructions

Installation therefore includes optimal configuration of your systems and training of your personnel. This makes using our products as easy as possible.

Give us a call and we will be happy to advise you.





Rental contracts including software maintenance

Do you find that regularly checking whether your measurement technology software is up-to-date requires too much effort? Then opt for the rental variant of ProfiSignal. You can then stay up-to-date with the latest software version while also enjoying premium customer support for any queries you have.

All ProfiSignal rental licenses include the following services:

- Premium support by telephone and remote maintenance via internet with prescribed response times
- Free software updates for your ProfiSignal installation

Contact us if you require more information.

Service agreements

Does the availability of your systems have top priority for you, no matter whether you operate a production plant, supervise a research and development facility or are a service provider? Do you use, or plan to use, Delphin products for data acquisition, monitoring and control tasks?

Then invest too in a service agreement for the measuring equipment supplied by Delphin to ensure continuous functioning of your system.

Delphin service agreements include the following options:

- Premium support by telephone and remote maintenance via internet with prescribed response times
- Short, contractually agreed lead times for service calls, maintenance work and repairs
- Free software updates for your ProfiSignal installation

Request an offer tailored to the needs of your systems and facilities.





Delphin Technology AG Lustheide 81 51427 Bergisch Gladbach · Germany Phone +49 (0) 2204 97685-0 Fax +49 (0) 2204 97685-85 info@delphin.de · www.delphin.com



