Product catalogue

2011 / 2012

Measuring. Testing. Automation.

Delphin Technology

Intelligent Measurement Technology

"We at Delphin supply our global customers with intelligent, universal data acquisition hardware and intuitive measurement software. This enables our customers to reliably and efficiently carry out their measurement and monitoring requirements."

Contents

Delphin Technology

... even more solutions

Delphin Technology AG

Delphin Technology AG was founded in 1980 by the engineer Peter Renner. Since then the company has been involved in the development, production and marketing of innovative, high quality hardware and software for industrial measurement and testing technology.

Areas of application include data acquisition and analysis, quality assurance, test stand automation, vibration measurement, remote monitoring and mobile measurement data acquisition as well as laboratory data acquisition and automation.

Delphin products are being used across many different industries. Our customer base includes companies involved in process engineering, mechanical engineering, the chemical and pharmaceutical industries and power engineering.

Continuity

Our customers benefit from our technical expertise as well as over 30 years of tried and tested experience we have gained in development within the field of industrial measurement technology. It is important to us to work closely with customers to know their needs and requirements. This is evident from our modular range of products as well as in the long term relationships we establish with our customers.

Many medium sized companies, world renowned industrial corporations, research companies, institutions and universities have put their trust in us and benefit from our many years of experience.

Quality

Our top priorities are the continuous development of our products and maintaining the highest standards of quality. Delphin Technology AG is certified according to ISO 9001:2008. This guarantees our products meet highest quality assurance requirements and will provide reliable service within your applications. Delphin guarantees products "Made in Germany".

Innovation

Delphin's mission is to optimize production and processing procedures through continuous technological development. Delphin has at its disposal huge resources of expertise and innovation. Delphin is a specialist in the field of industrial measurement technology and supplies innovative hardware and software from one source. Our many years of experience gives us a solid base in product and application expertise. Our innovations have been patented worldwide.

Flexibility

Flexibility and simple structures are further elements within our company philosophy.

This means we meet the needs of our customers and provide standard solutions as well as custom-made systems. On request we produce mobile measurement cases, control cabinets and complete test stands or program a specific application software according to your personal require-ments using ProfiSignal software.

Customer services

A range of services complete the Delphin product portfolio. Our services include project planning, system installation, calibration, hotline services and training. System installation and training is carried out by a specialist team of experienced engineers.

Our service packages guarantee customer support from the outset, either by hotline or on-site support when necessary.

ProfiSignal Basic

LogMessage

Expert Key 200M

Expert Key

ProfiSignal

ProfiSignal Go

Message Series

Expert Key 200P

Expert Key 200L

Expert Key 100C

ProfiSignal Klicks

Delphin – Product overview

PC-based measurement technology

Expert Key

- fast
- universal

Data logger

LogMessage

- stand alone
- decentralized
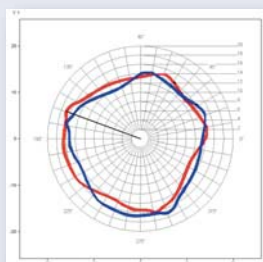
Modular measurement technology

TopMessage

- intelligent
- complete

Vibration measurement
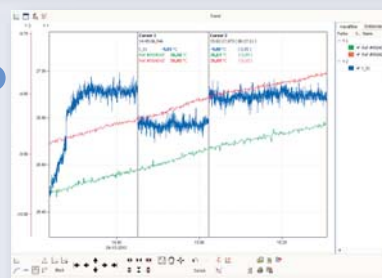
- secure
- innovative

Data acquisition and analysis

ProfiSignal Go
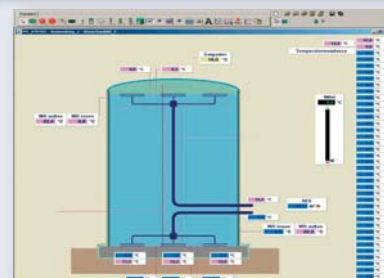
- easy to use
- intuitive

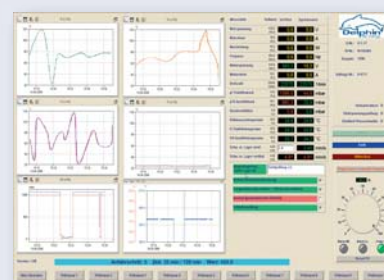## Operating and monitoring

ProfiSignal Basic

- universal
- reliable

Automation

ProfiSignal Klicks

- versatile
- flexible

Compact measurement system
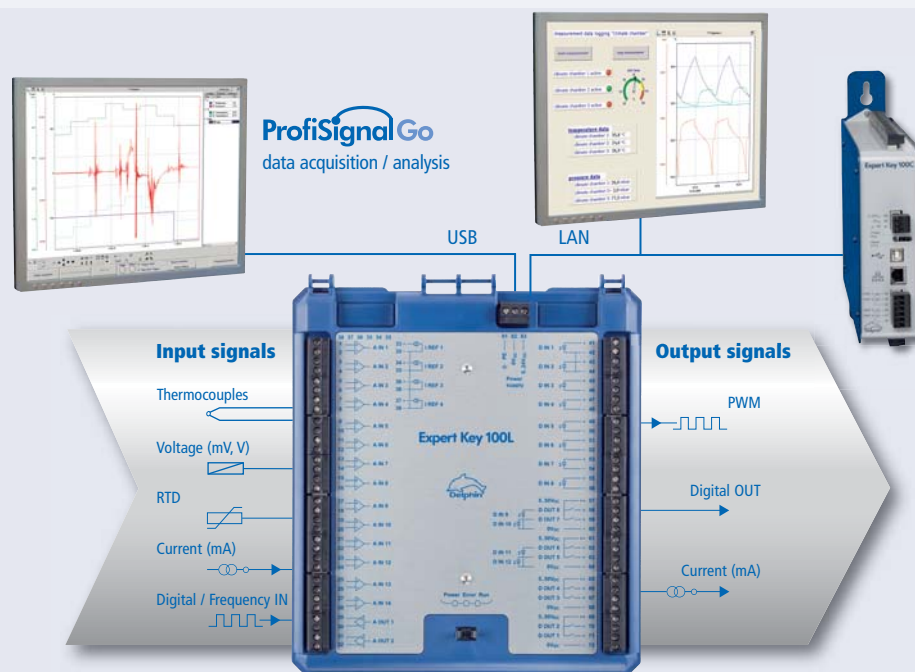
- customizable
- individual

Expert **Key** – PC-supported measurement

Complete measurement data acquisition system

Expert Key devices acquire and monitor measurement data and automate experiment and test stand installations. The devices are supplied as complete systems with ProfiSignal Go – professional software for the online or offline monitoring and analysis of measurement data.

Expert Key is available in four models: for laboratory (L), industry (C), testing (P) and mobile applications (M). Expert Key is therefore a universal and quick to deploy data acquisition system for permanent or mobile systems.

Expert Key is a compact device with a wide range of analog and digital inputs / outputs and plug-in terminals. Expert Key has two interfaces: USB and Ethernet. These enable measurement data to be acquired locally at a PC or, for example, transmitted from a test stand via a company LAN. Expert key enables fast system set-up and mobile measurement with a laptop and the ProfiSignal Go software. Expert Key is also suitable for permanent installations using cabinet systems.

ProfiSignal Go
data acquisition / analysis

USB   LAN

Input signals

Thermocouples

Voltage (mV, V)

RTD

Current (mA)

Digital / Frequency IN

Expert Key 100L

Output signals

PWM

Digital OUT

Current (mA)

Product features

- Complete hardware and software package
- Very cost effective
- Communicates via USB or LAN
- Universal inputs and outputs
- Scalable, even for large applications
- Synchronizing of multiple devices

- Includes full ProfiSignal Go software
- Ease of operation
- Drivers for LabVIEW™, Diadem™, Modbus, OPC, DASYLab™ etc.
- "Made in Germany" quality

technology

Flexible

Expert Key devices are available with a range of channel numbers. Type 100 is equipped with a wide range of analog and digital inputs and outputs and is therefore highly suited for use within test engineering.

Type 200 has 28 universal inputs and is highly suited for analog data acquisition.

Technical specifications are available on page 44.

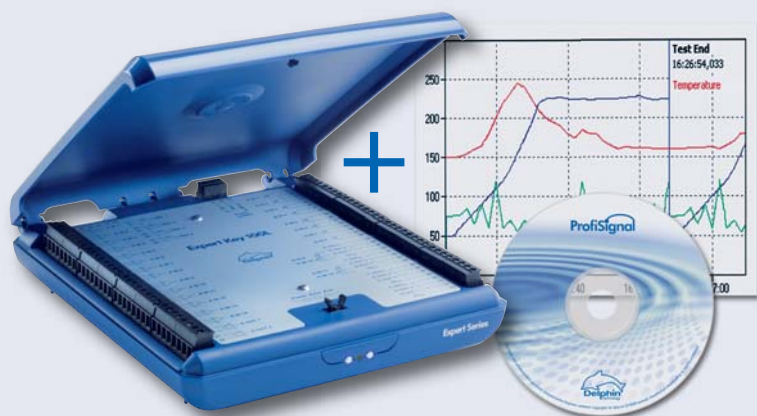| Type	Expert Key	
	100	**200**
Analog inputs (mV, mA, TE, RTD)	14	28
Analog outputs (mA, V)	2	2
Digital inputs	8	1
with counter function	2	1
Digital outputs	4	1
with PWM function	4	1
Switchable digital inputs / outputs	4	–

Expert Key models

Universal connectivity

Differential inputs are used exclusively as input signals. These can be configured individually as mA, mV or V signals and as RTDs or thermocouples. Any sensor can be attached to the terminals which are able to accommodate lines of up to 2,5 mm^2 in diameter. Integrated signal conditioning enables mA, V measurement data to be converted into the required unit of measurement, e.g., bar, N, %rh etc. In contrast to many low-cost products, Expert Key devices are equipped with full potential isolation.

Analog input sampling rates achieve 100,000 measurement values per second. Analog output signals can be output to V or mA switchable outputs.

Digital inputs (with counter functions of up to 1 MHz) and digital outputs (with PWM function) with switch capacities of up to 30 W are standard in the 100 version.

Complete system including software

Channels are easy to configure using the powerful ProfiSignal Go software included in the Expert Key delivery. ProfiSignal Go has the following drivers to enable integration into the user's existing software systems: LabVIEW™, DASYLab™, OPC-Server, Modbus TCP driver for deployment in industrial environments, as well as the OCX driver and dot.net programming interfaces.

Expert **Key** – Models

Expert Key L – for laboratories and service

The Expert Key 100L and 200L have a tabletop design. A pop-up lid gives a clear overview of connections. Sensors and actuators are connected via plugs located on the sides. Because of the L model's universal capabilities, it is particularly suited to laboratory, experiment, test and service applications. Brackets for wall-mounting are included in the delivery as well as a power supply adapter.

Expert Key 100L
Expert Key 200L

Expert Key P – for experiments and testing

The Expert Key 100P and 200P have a console-type design. These models are intended for use in testing and laboratory environments. Signals are connected via 4 mm safety lab plugs. Measurement data from sensors can be transmitted to a PC via USB or LAN interfaces. RTD sensors, voltage and current signals are directly connected to any of the analog inputs. ProfiSignal software enables users to generate systems for data acquisition that comply to FDA 21 CFR Part 11.
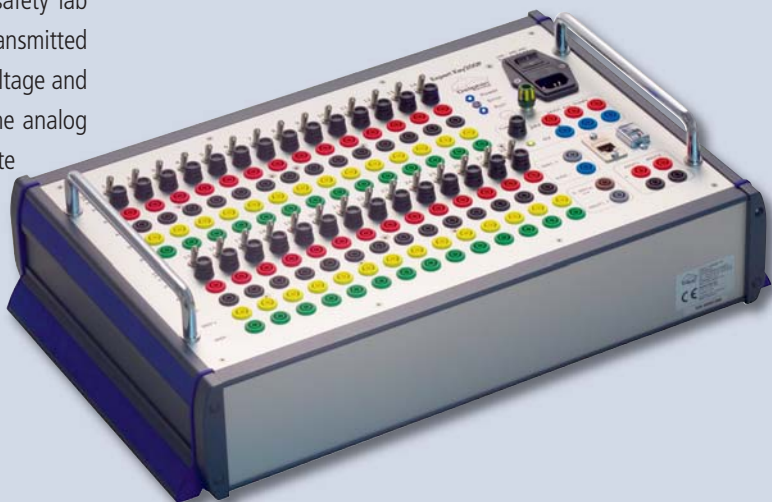
Expert Key 100P
Expert Key 200P

Expert Key C – for cabinet installation

The Expert Key 100C and 200C are identical to the L models apart from the housings. The housing design enables the devices to be used in cabinets or 19″ rack systems.

Expert Key can also be supplied without an housing to enable OEM systems.

Expert Key 100C
Expert Key 200C

Expert Key M – for mobile applications

The Expert Key 100M and 200M are data acquisition systems in robust mobile cases for deployment in tough environments. Signal lines can be connected via 4 mm safety lab plugs or any other type of plug or connector.

Mobile measurement cases are available in both standard and custom made versions. The system can be equipped with either fixed or tablet PCs.
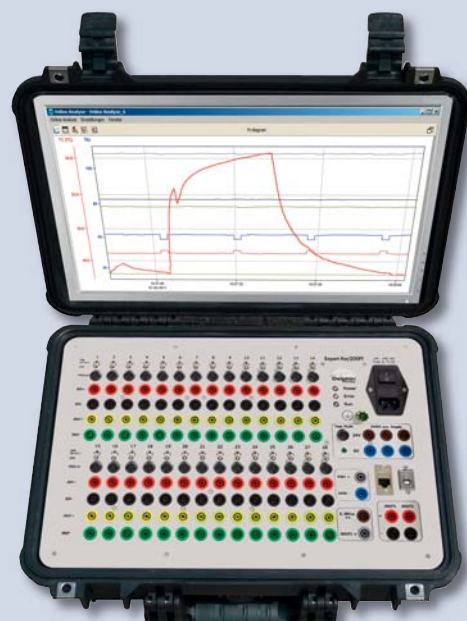
Expert Key 100M
Expert Key 200M

LogMessage – Data logger

Stand alone and intelligent

LogMessage is a stand alone operating device for acquiring, monitoring, calculating and logging measurement data. It is equipped with a 1 GB memory for logging up to 128 million measurement values.

The LogMessage's analog inputs are differentially and galavanically isolated from each other as well as from the power supply. Earth loops and non-isolated sensors therefore present no problem. All analog inputs can be used universally and are capable of measuring any type of thermocouple, RTD, voltage or current signal.

Channel configuration takes place via the easy to use DataService Configurator software included with the delivery. The devices are supplied as complete systems with the ProfiSignal Go software – professional software for online or offline monitoring and analysis of measurement data.

Configuration and measurement data read-out takes place via a network interface. LogMessage's two serial ports enable modem connection for either remote access or connecting to external hardware for data transfer purposes. Alarm notifications and text messages may be transmitted using a GSM modem. When the LogMessage device is operated within a network, measurement data can be transmitted online and processed using the ProfiSignal Go software.
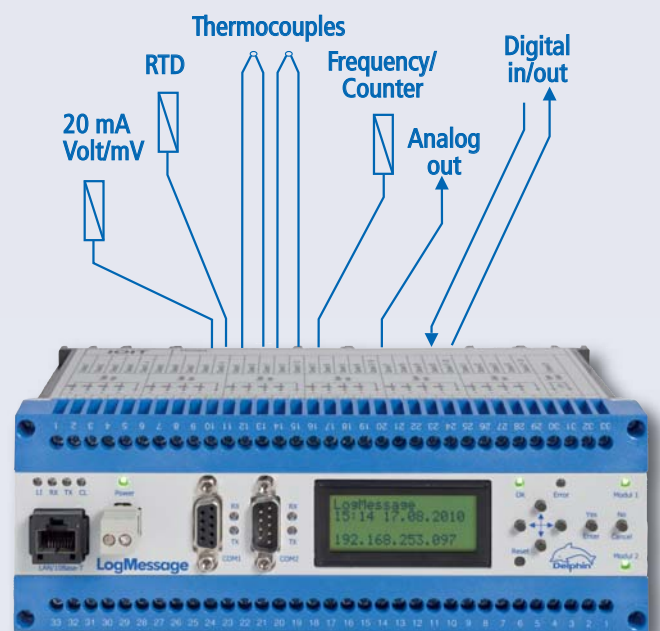
Product features

- ● ProfiSignal Go software included in package
- ● Differential and galvanic isolation of inputs
- ● LAN interface for data transfer
- ● 1 GB internal memory for 128 million data records
- ● Monitoring and alarm functions

- ● Integrated signal conditioning
- ● Web Server interface
- ● 2 configurable serial ports
- ● A range of internal calculation and logic channels
- ● Protocols: Modbus RTU and TCP

Full signal pre-processing

LogMessage is equipped with a range of internal calculation, monitoring and logic functions that are set up as *virtual channels*. These virtual channels process online measurement data and make it available for visualization, storage or control purposes. Whole program sequences can be configured into the device, simply and intuitively using control functions. These then run independently and require no PC support.

The functions listed in the table opposite are available as standard.

Icon	Function	Description
Ø	Average	Min, max, moving, time-based, …
f(x)	Calculation channel	Trigonometry, +-*/, root, power, …
⇔Xn	Markers	Variable
∫Σ	Integrator	Integrator, edge counter, stop clock, …
d/dt	Differentiator	Slope calculations
⌐	Set point	Set point curves
PID	PID controller	P, PI, and PID controller
∪	Linearization	Linearization tables
	Strain gauge rosette	Calculation from δ and ϕ
	Limit value	Monitoring, wire breaks, watchdog, …
	Logic	NOT, AND, OR, NOR, EXOR, …
	FlipFlop	Type D, J-K, S-R
	Timer	Alarm, signal generator, PWM, …
EVENT	Event	Email, text message via GSM/UMTS router
	X-Message	Direct connection between 2 devices
	Modbus (LAN)	Modbus TCP connection

Complete system including software

LogMessage devices are supplied with the powerful ProfiSignal Go software. ProfiSignal Go is professional PC software for the online and offline monitoring and analysis of measurement data.

To enable integration into existing software systems, the following drivers are included with Log Message in addition to the ProfiSignal Go software:

- LabVIEW™, DASYLab™, OPC Server
- Modbus TCP drivers for deployment in industrial environments
- OCX driver, dot.net programming interface
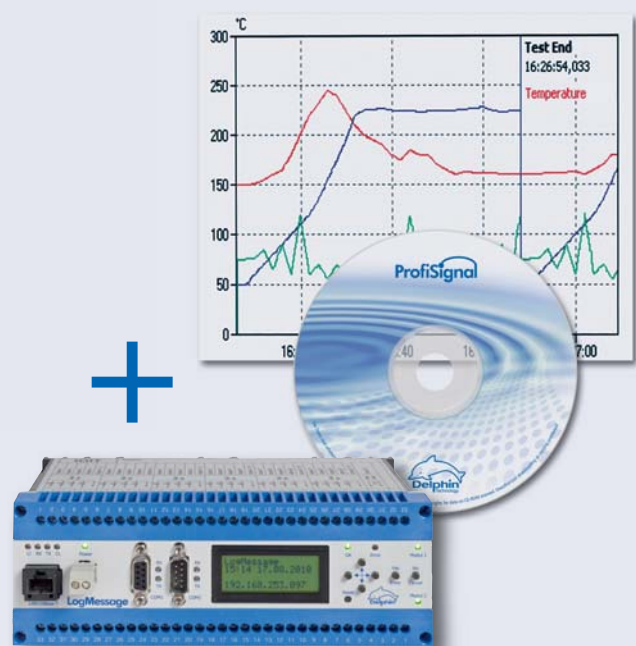
LogMessage – Models

Models

LogMessage devices are available in seven different models. The models differ in their number of inputs and outputs. All models have identical interface options, internal functions, galvanic isolation and data logger storage functions.

LogMessage 100 –
The entry model with 15 analog inputs

The LogMessage 100 is equipped with 15 analog inputs and a sampling rate of up to 600 measurements per second. The inputs can be used for data acquisition from mV, mA signals or any type of thermocouple. All inputs have differential and galvanic isolation.

LogMessage 200 –
Data acquisition and automation

The LogMessage 200 is equipped with 10 universal analog inputs, one analog output, 12 digital inputs (11 counters) and 17 digital outputs. The device has a range of internal monitoring and control functions that enable it to be used as a data acquisition device as well as an independently operating system for control, automation or monitoring.

LogMessage 300 –
Fault diagnostics made easy

The LogMessage 300 is equipped with 15 analog inputs (600 Hz sampling rate) and 24 synchronous digital inputs (with a time resolution of 1 msec). The device is highly suited to fault analysis as well as to digital and analog events.

LogMessage 400 –
The monitoring device

The LogMessage 400 is ideal for monitoring requirements. Any number of alarm and logic channels can be defined for the 15 analog inputs. Any of the 24 digital outputs are directly switchable irrespective of the current alarm situation.

LogMessage 500 –
Very high isolation voltage

The LogMessage 500 is equipped with 16 universal analog inputs. The inputs are designed to cope with high voltages between the individual inputs. The LogMessage 500 therefore has no problem in measuring non-isolated signals.

LogMessage 600 –
The universal logger

The LogMessage 600 is equipped with 25 analog inputs. The device can be used for direct data acquisition, monitoring and recording from any thermocouple or RTD sensor.

LogMessage 700 –
The thermocouple logger

The LogMessage 700 can acquire measurements from up to 30 thermocouples. Configuration software is used to set channels to specific thermocouple types.

Type	LM100	LM200	LM300	LM400	LM500	LM600	LM700
LogMessage							
Analog inputs (mV, mA, thermocouple)	15		15	15		15	30
Analog inputs (mV, mA, thermocouple, RTD)		10			16	10	
Analog outputs (mA)		1				1	
Digital inputs (counter)		12 (11)	24	1			
Digital outputs		17	1	24		1	
Sampling rate in Hz	600	600	600	600	120	1200	1200

LogMessage versions

Various Applications

- Stand alone, universal data logging
- Temperature measurement
- Remote data transfer via GSM / UMTS
- Process data acquisition
- Fault analysis with recorder functions
- Laboratory data acquisition and management
- GPS logging
- Status and event logging
- Energy consumption acquisition and measurement

An integrator channel accumulates energy figures, volume flows or consumption figures. By using a limit value channel, permanent monitoring can be performed with an event being triggered when the limit is over-run or under-run. A digital output can then be activated or an alarm sent by email.

TopMessage – Modular measurement

Network compatible and modular

TopMessage are modular devices for data acquisition and automation. A master/slave design makes TopMessage suitable for both small and large applications that require the processing of thousands of channels. Master and slave devices can each accommodate two I/O modules. There is a range of I/O modules for users to select an appropriate module(s) for their application. I/O modules are available for any number of channels and sensor types. A network interface enables TopMessage devices to be integrated into a TCP network or to be directly connected to a PC workstation or laptop/netbook computer. Online measurement data can be transmitted, saved and processed. The data can be stored simultaneously within the TopMessage device itself.

TopLab is identical in construction and functionality to TopMessage – only their housings differ. TopMessage devices are designed for rail-mounted installations, and TopLab, with its 4 mm plugs, for laboratory applications.

ⓘ TopMessage and TopLab with identical functions.

TopMessage – for industry
- Industrial-grade, compact design for cabinet-mounting
- Screw terminals

TopLab – for the laboratory
- Laboratory-grade, robust tabletop design
- 4 mm laboratory or BNC connectors

Product features

- Data acquisition and automation
- Data transmission via LAN (internet / intranet)
- Data storage capability for independent operation
- Modular and scalable
- Full potential isolation

- Universal inputs and outputs
- Control and automation functions
- Signal conditioning within the device
- Connection to external equipment and PLC control
- Configuration via PC

and automation technology

Universal connectivity

TopMessage's universal inputs enable the connection of signals of any type including non-isolated signals. This means costly measurement transducers are usually not necessary. Potential isolation between channels as well as differential inputs saves both time and money.

Universal inputs enable any unit of measurement to be acquired (e.g. temperature, pressure flow, vibration etc.). Data then undergoes direct scaling and linearization. Conversions from mA to bar or ml/min take place directly within the TopMessage device. High measurement precision is achieved though the use of 24-bit resolution Sigma Delta converters and enables the connection of the smallest of signals (e.g. thermocouples).

Various Applications

- Multi-channel data acquisition
- Monitoring and alarm management
- Test stand automation
- Product testing
- Quality assurance
- Monitoring of buildings

Thermocouples
RTD   Frequency/Counter   Digital in/out
20 mA Volt/mV   Analog out

Ethernet, TCP/IP, LAN
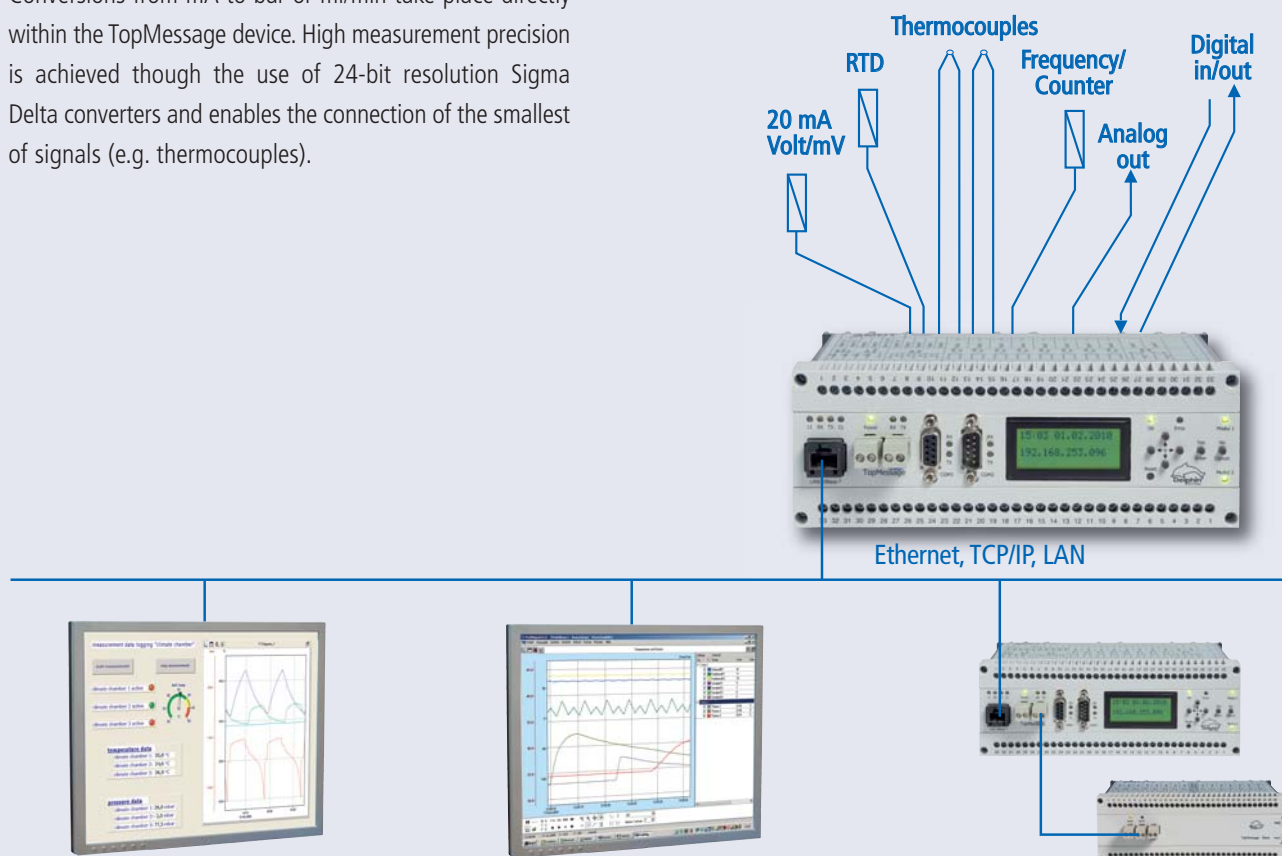
Easy to configure

An optional integrated data memory can permanently store up to 128 million measurement values without PC-support and with edge or level triggering. The ProfiSignal-Software enables on/offline analysis, visualization and operation from any PC workstation as well as PC-controlled process automation and database communications via ODBC/SQL.

Configuration of the Message devices takes place with the PC user-friendly DataService / Configurator software. Configuration data is processed online and permanently within the devices. Configuration data may be amended and adjusted during measurement runs.

TopMessage – Models and interfaces

Extendible using modules

Master / slave devices can be equipped with either two similar or two different I/O modules. Up to ten slaves, with identical housings, can be connected to a master device. Data transfer between master and slave takes place via a CAN bus.

Technical specifications are available on page 46.

CAN bus lines can be up to 100 m in length depending on data transfer rates.

CAN-Bus

Pressure · Temperature · Rotations · Vibrations · Flow · Digital I/O · Meter reading
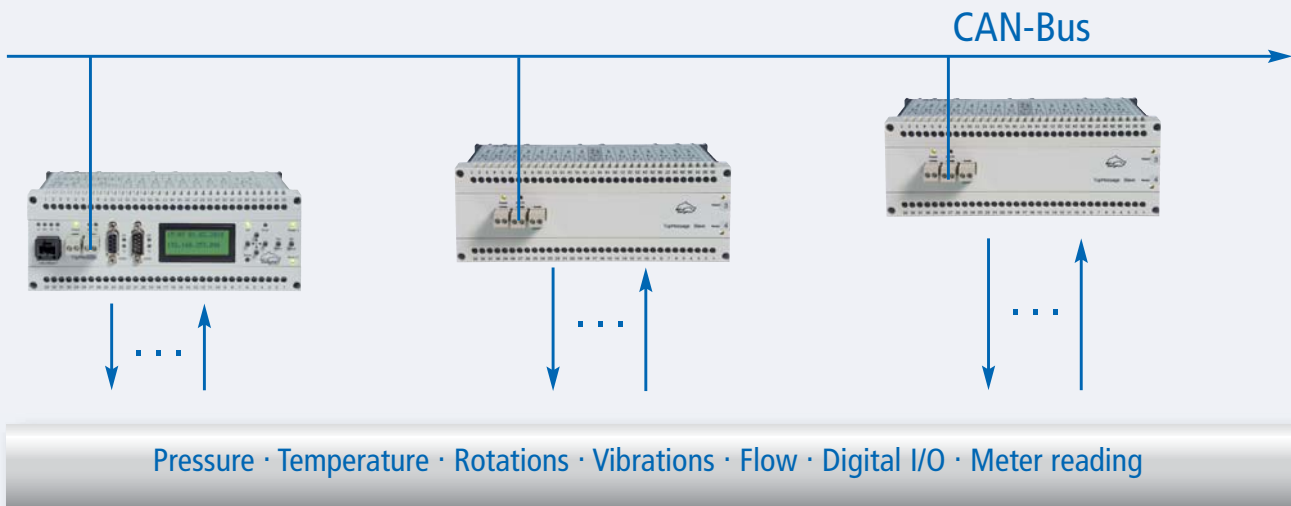
I/O-Modules	Analog inputs	Analog outputs	Frequency Status inputs	Status inputs	Switch outputs	Sum Samplingrate
ADGT	8 channels, V/mV, 20 mA, RTD, thermocouples					60 Hz
ADIT	10 channels, V/mV, 20 mA, RTD, thermocouples	1 channel 20 mA			1 channel	600 Hz
ADVT	15 channels, V/mV, 20 mA, thermocouples					600 Hz
ADFT	8 channels V/mV, 20 mA	2 channels 0 ... 10 V DC	2 channels	2 channels	4 channels	10 kHz
AMDT	8 Kanäle V/mV, 20 mA	2 channels 0 ... 10 V DC	2 channels	2 channels	4 channels	10 ... 160 kHz
AAST	4 channels, V/mV, 20 mA, RTD, thermocouples	4 channels 20 mA		2 channels	2 channels	600 Hz
IOIT				24 channels	1 channel	
OTPT				1 channel	24 channels	
DIOT			11 channels	1 channel	16 channels	

Software channels

A range of software channels are available as standard in all TopMessage or TopLab devices. They run within the device itself and require no PC support. The DataService / Configurator software is available as a configuration tool.

Limit values

Limit values for alarm output and event control. User friendly functions for determining steady-state conditions. Integrated wire-break monitoring.

Calculation channels

Mathematical operations of channels. Differential measurements, quotients, efficiency rates, performance etc. The saving and evaluating of calculation channels takes place as for hardware channels.

Averaging channels, statistical functions

Calculation of averages and statistical functions.

PID controller

Several controllers simultaneously. AAST module, with 4 analog inputs / outputs, enables the simultaneous operation of 4 controllers. Automatic and real-time settings as default parameter.

Integrators and differentiators

Integration and differentiation over time periods in additional channels. Includes operating time counters, edge counters and totallers.

Timer

Targeted generation of edges and impulses in digital outputs. Simple tool for controlling external set-ups.

Alarm notification by email or text messaging

Independent sending of fault notification messages as email or text message. Requirement: Network operation or GSM modem.

Set points

Generation of setpoint graphs for internal/external use. Operating external equipment (e.g. controller). Monitoring processes on a PC.

Linearization channels

Permanently built-in sensor linearization and user-defined sensor characteristic curves (up to 7,500 points).

PLC and modem connection

As well as an Ethernet interface, TopMessage devices also have optional ModBus (RTU/TCP) and Profibus-DP interfaces. TopMessages can also be used as PLC data-loggers by being linked to fieldbus systems. External equipment and devices (e.g. weighing machines, modems, large displays) can be connected using a range of interfaces. TopMessage's integrated network interface acts as a gateway from Ethernet to fieldbus. It is possible to monitor PLC measurement values and variables from any desktop PC. The stored data can be effectively analyzed and permanently archived using ProfiSignal software.

Profibus-DP

Machine → Message device → Modem

GSM

or
Analog /
ISDN Line

Modem → PC with ProfiSignal
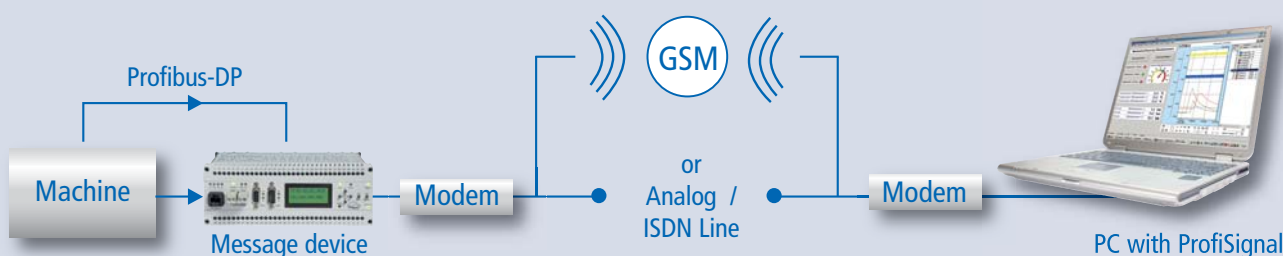
TopMessage – Vibration measurement

Universal vibration measurement device

TopMessage devices are also suitable for vibration monitoring and damage diagnostics applications. Vibration and process data can be acquired, stored and monitored. Typical measurements are acceleration, velocity and wave length. The ProfiSignal software enables measurement data to be portrayed, analyzed and managed for alarms. The Vibro ProfiSignal option, specially developed for vibration measurement enables the data portrayal in FFT or Orbit diagrams.
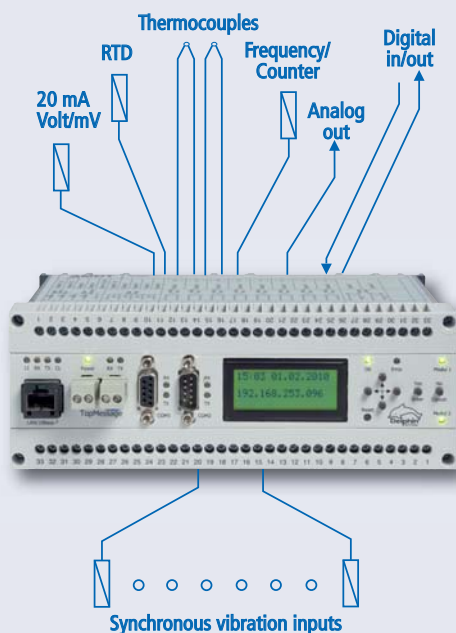
Flexible applications

Vibration measurement technology can be universally deployed. TopMessage devices are monitoring hydro turbines and generator air gaps for vibrations in installations around the world. The devices are also being used in damage diagnostic systems for drives, shafts and bearings on ships. An especially innovative application is the acquisition and monitoring of combustion chamber and gas turbine vibrations (humming). Message devices in mobile vibration measurement cases are being used around the world as well as are being used in permanent test stand installations.

Various Applications for vibration measurement technology

- Shaft vibration
- Bearing vibration
- Combustion chamber vibration / humming
- Vibrations in housings
- Generator air gap
- Mobile vibration measurement
- Gear box vibrations

Product features

- Synchronous, parallel data acquisition from up to 16 vibration signals
- DSP supported signal processing
- Computation and monitoring of FFT spectrum directly in Message device
- Characteristic value calculation (Peak-Peak, Gap ...), order analysis
- Characteristic value monitoring / alarm management (text messaging, email)

- Notification to main control system via Profibus-DP or Modbus RTU / TCP
- Trend and analysis of measurement data using ProfiSignal software via network
- Evaluation using orbit, FFT, cascade and x(y) diagrams
- Calculation of envelope frequency spectrum and vibration velocity

technology

Hardware AMDT

The I/O module AMDT is the base module for vibration measurement. A TopMessage master device can accommodate up to two AMDT modules. AMDT is equipped with eight synchronous analog inputs, rotation inputs and digital outputs. AMDT modules can be operated in conjunction with other I/O modules from the TopMessage series.

Practical technology

Delphin's standard version vibration measurement technology already has many practical functions. Its modular design enables adaptation to any size of application. Message devices can acquire vibration signals such as speed, acceleration and displacement as well as typical units of measurement such as pressure, temperature, flow and rotation. The Message device's compact, industrial-grade design, with detachable clamps and rail mountings, make them easy to install into cabinets and housings.

Hardware and software from Delphin provide complete systems for all vibration measurement requirements.

Vibration module functions
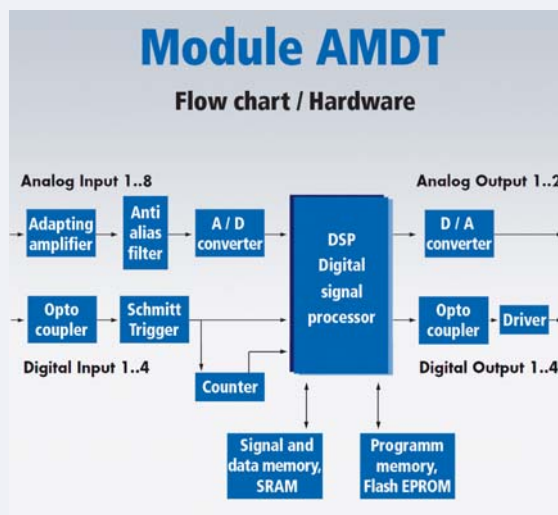
Input / outputs per module
- 8 parallel analog inputs
- Synchronous sampling, flexible triggering
- 160 KHz sampling rate, adapted anti-alias-filter
- 4 digital inputs, potential isolation, 2 inputs with frequency counters, 3.5 V high-level
- 4 digital outputs, potential isolated, switching voltage max. 50 V@2.5 A

FFT / frequency spectrum
- Flexible parametering of frequency range, line numbers and frequency resolution
- FFT algorithms for 1024, 2048, or 4096 points or with 400, 800, or 1600 lines
- Standard 'Hanning', and 'Flat Top' window functions
- Averaging of frequency spectrums

Characteristic values
- Arithmetical average, TRMS
- Peak-Peak, min / max values
- Amplitude / frequency of the main vibration
- Amplitude / phasing of synchronous shaft vibrations and dual-shaft synchronous vibrations
- Selective frequency band evaluation

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
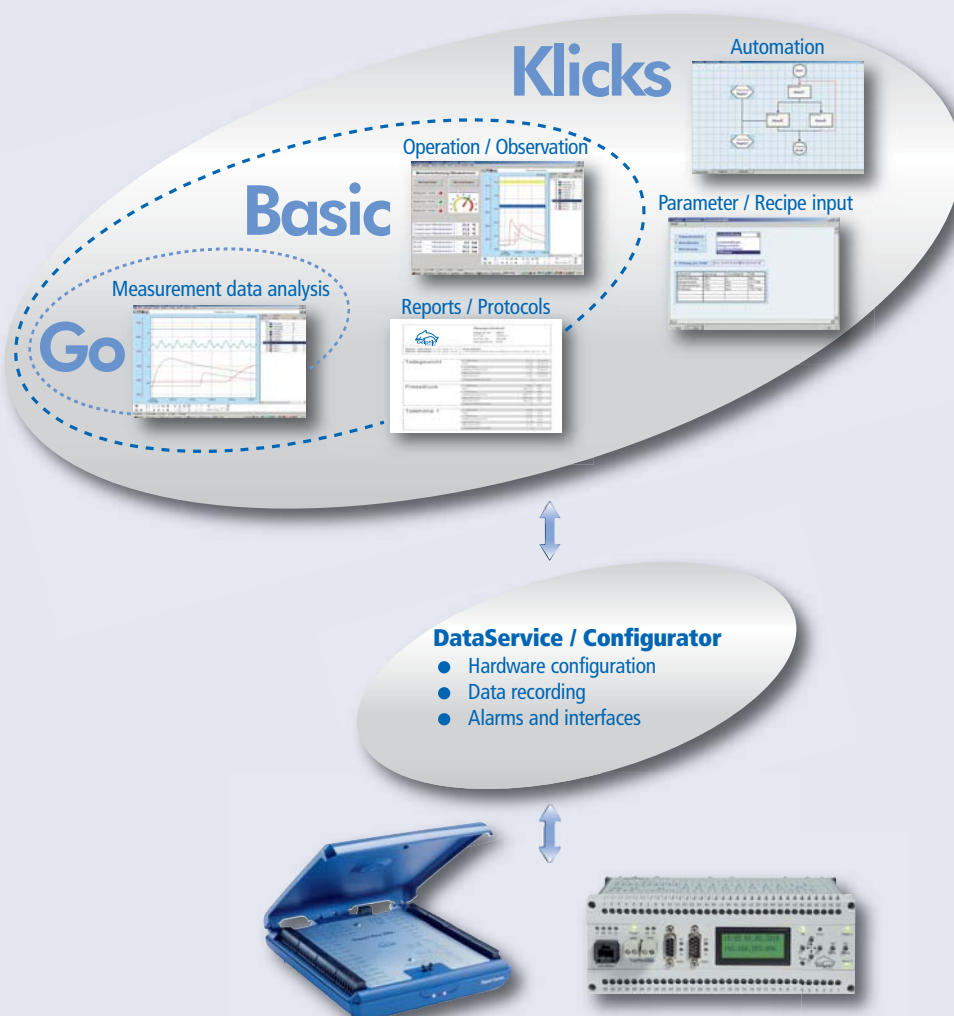
ProfiSignal Basic

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

Klicks
Automation
Operation / Observation
Parameter / Recipe input
Basic
Measurement data analysis
Reports / Protocols
Go

DataService / Configurator
- Hardware configuration
- Data recording
- Alarms and interfaces

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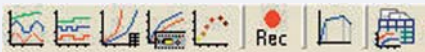
The diagrams can be run simultaneously. There are no restrictions on either the volume of measurement data or the number of channels.

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.
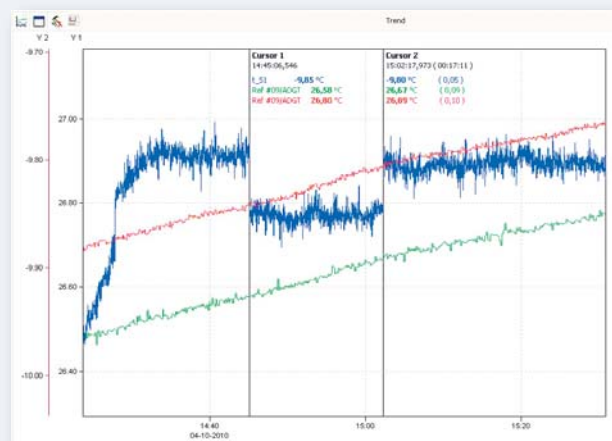
ProfiSignal Go trend

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.
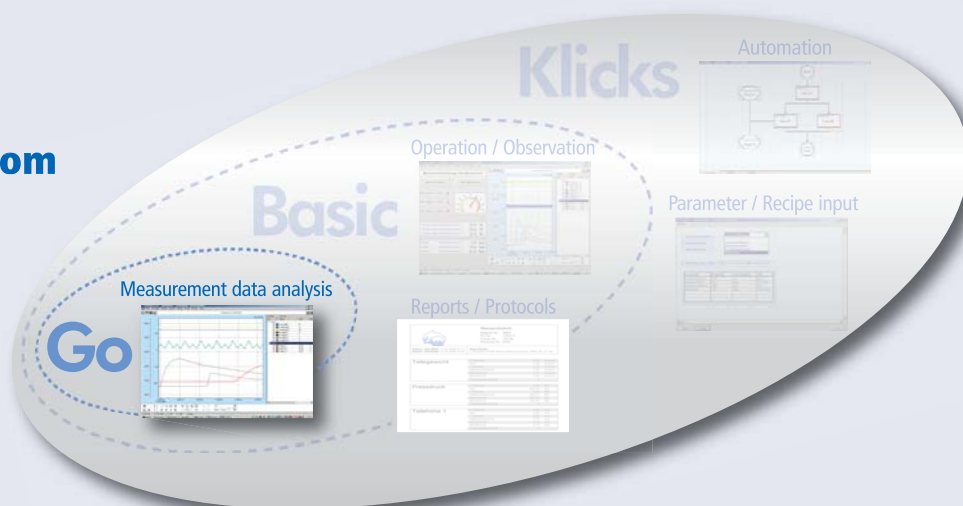
analysis

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

Automation

Operation / Observation

Parameter / Recipe input

Klicks

Basic

Measurement data analysis

Reports / Protocols

Go

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.
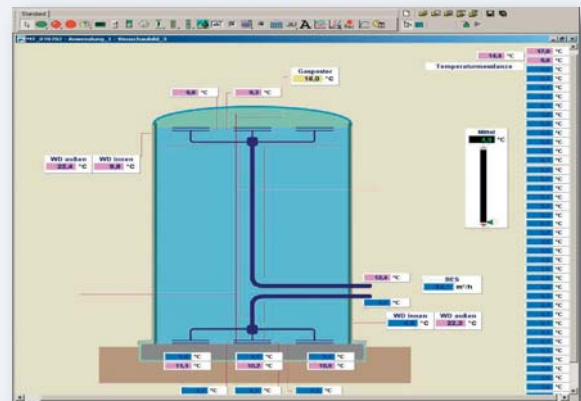
ProfiSignal Basic – Operation and

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

ℹ️ **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
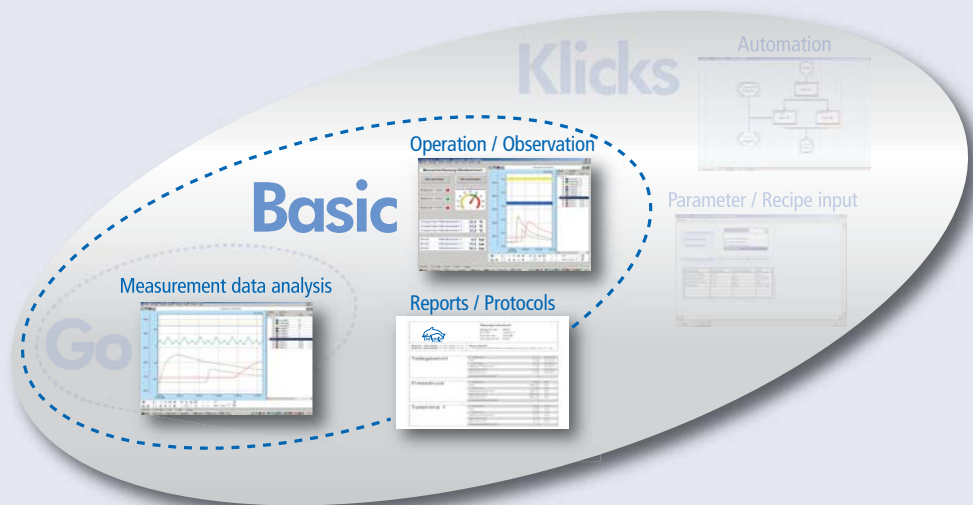
Measurement data analysis

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.
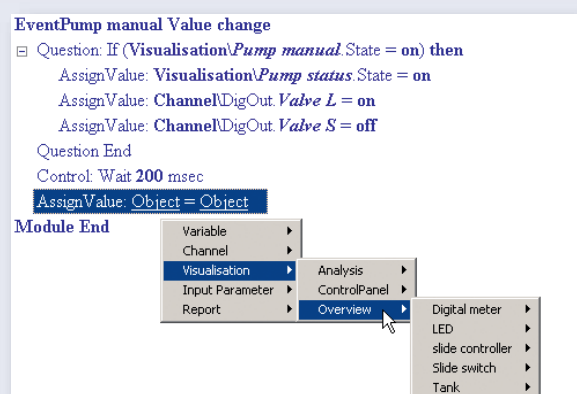

Program module with Klicks

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
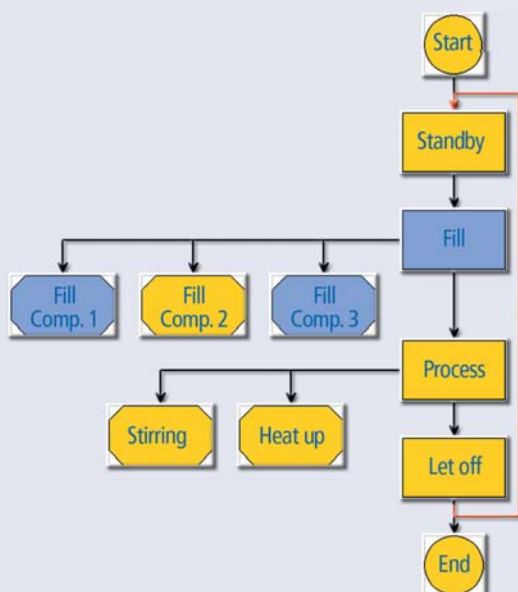
Structure chart

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
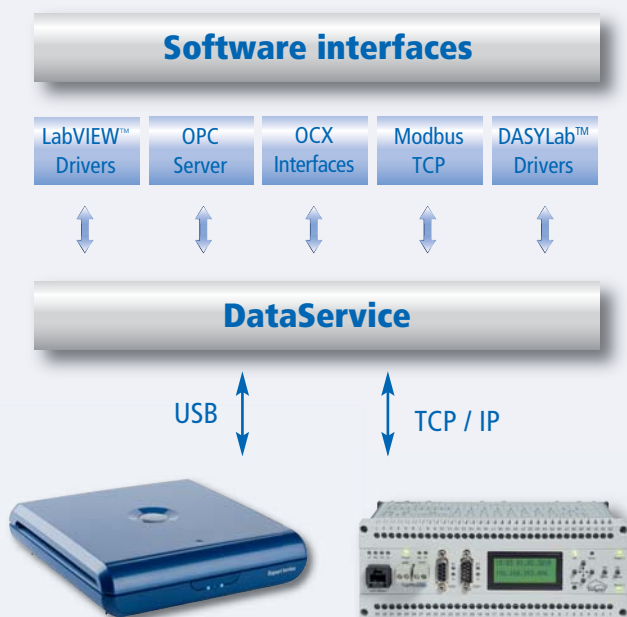
ProfiSignal Runtime

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

Software interfaces

| LabVIEW™ Drivers	OPC Server	OCX Interfaces	Modbus TCP	DASYLab™ Drivers

DataService

USB TCP / IP

Viewer and options

ProfiSignal Viewer

The ProfiSignal Viewer enables offline analysis of measure-ment 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 charac-teristic 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
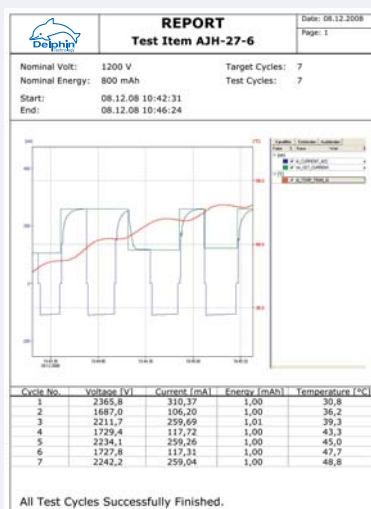
Report extract of QM standard

ProfiSignal options

A range of options are available for ProfiSignal Basic and Klicks. Single or multiple options can be acquired depen-ding 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 data-base 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.
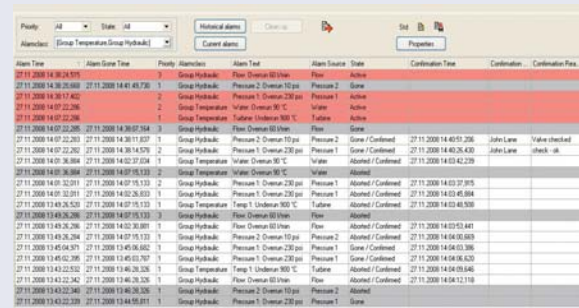
Extensive range of functions in one system

The ProfiSignal Vibro option provides individual shaft vibration diagnosis in gas / steam / hydro turbines, super chargers 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
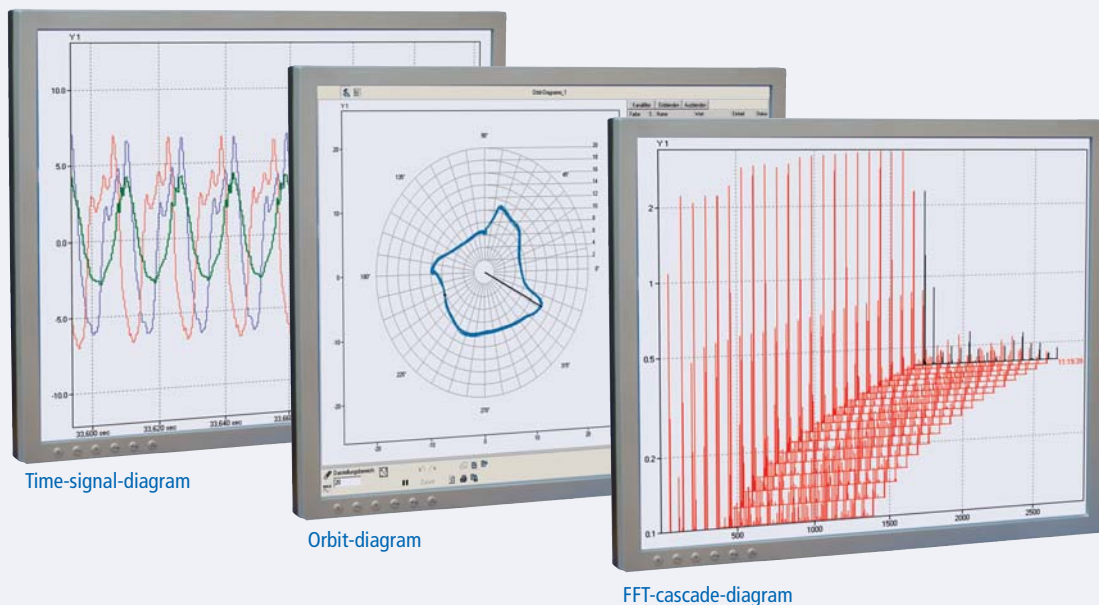
Option AlarmManagement

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 audit-trails and uninterrupted alarm recording.

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
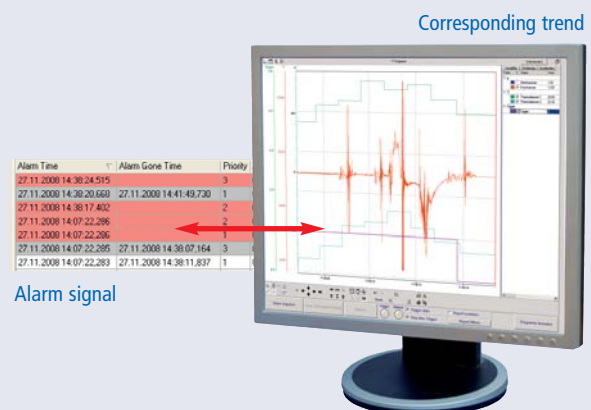
Alarm signal

Alarm outcomes are linked directly to the corresponding trends.

Measurement case provides mobility

Users appreciate the benefits of the mobile measurement case because of its unrestricted flexibility and detailed, high-resolution measurement data, e.g. for fault analysis. An integrated data logger can record up to 128 million measurement values, including time stamps; the data logger can operate independently, with or without PC support. Universal connectors are available for measuring mA and mV signals, thermocouple and RTD sensors as well as vibration sensors.

Internal signal conditioning simplifies working procedures and saves on the need for expensive measurement transducers or any other additional equipment. Galvanic isolation and differential inputs prevent interference from process signals or earth loops. The user-friendly ProfiSignal PC software enables acquired measurement data to be visualized, analyzed, and archived. There are also functions for the monitoring, operating and automating of entire or partial processes.

Vibration measurement
case in aluminium encloure

Vibration measurement case

The vibration measurement case is intended for practitioners in vibration measurement. With just one case, it is possible to acquire displacement, speed and acceleration signals. This option is also available for process signals.

Universal measurement case in synthetic enclosure

Universal measurement case

The universal measurement case is made of an extremely robust synthetic material and can cope with any bumps or knocks during transport or operation. The measurement case can acquire 25 analog signals as required. Connection can be made with 4 mm connectors, screw terminals, thermo-connectors, BNC or user-defined connecting points. There is also an option for digital input acquisition. Power measurement is also possible.

The measurement cases shown here are just two examples from the Delphin range. We can supply any measurement case to your specific requirements.

t case and 19"-measurement devices

64-channel thermocouple measurement device

The 64-channel thermocouple measurement device (64-KTM) is a compact measurement system in a 19"-housing and intended for high-precision measurement of 64 thermocouples of any type. The 1 GB data memory acquires and saves the measurement results independently and over months. A TCP interface to a network is available for online measuring. The measurement channels are high resolution and can achieve, depending on thermocouple and measurement area, an absolute accuracy of < 0.2 K.

Front and back of a 64-KTM

A 64-KTM master can be extended at any time with 64-channel slave devices, with the same 19"-housing, therefore providing a total of over 5,000 measurement channels. The device includes the ProfiSignal Basic software for measurement data archiving, and online / offline measurement data analysis. A driver is also available for all current measurement technology software or OCX driver. In developing the device, particular attention was given to cold junction compensation and high-precision.

Universal testing device

The universal testing device (UPG) enables automated testing of plant, machinery and components. Thermocouples, RTDs and other sensors can be directly connected; there is also a measuring capability for electrical AC/DC data. Setpoint and control channels provide for the automation of testing procedures.

The UPG includes a 19" tabletop housing design with a measurement data display as well as connection sockets for AC/DC data U, I and P (3-phase). On the rear side are 24 analog inputs for connecting thermocouples (any type); 8 of these have increased galvanic isolation of up to 650 V for potential-based temperature measurement. Parallel to these are 8 channels wired to 4 mm laboratory connectors enabling thermocouple, RTD, resistance, mA signals or DC volt signals to be measured. There are also 14 digital inputs, 18 digital outputs as well as 4 analog inputs and 4 analog outputs for control tasks.

230 V loads can be directly connected. Frequency and impulse counters up to 30 kHz are available. There are rear side screw terminals for these channels.

The device can perform measurement and control tasks entirely autarchic and independently, which is of particular benefit in endurance testing. It has an internal memory with the user interface being a normal PC with network compatibility. The user-friendly ProfiSignal software is included in the delivery.

The products shown here are just a few examples from Delphin's complete range of 19" products. We can supply custom-made 19" measurement systems to meet your specific requirements.

Front and back of a UPG

Industry solutions

Special applications

Product development nowadays involves a multitude of test procedures to provide data on quality and documentation on safety and conformity. The test and evaluation procedures required by regulations and standards can be automated.

With products from Delphin Technology AG, users benefit from many years of experience and expertise in developing systems for industry. Delphin's standard products deliver systems to meet the requirements from different industries. Users are guaranteed a long term return from their Delphin products. The following are examples systems in four different industries.

Thermal testing of lumiaires in a testing laboratory

LPG – luminaire testing complying to EN 60598

EN 60598 is the European standard for certification and approval of luminaires. This standard sets down thermal testing requirements for luminaires under normal and abnormal conditions. For the past twenty years, Delphin products have been performing the fully automated thermal testing of luminaires. The first luminaire testing stand has now been replaced by a compact luminaire testing device.

Its associated Windows software is intuitively operated. The system has testing agency approval and is designed to meet the needs of industrial users. Test samples are easy to configure and testing is fully automated. The procedure includes the output of standard test protocols.

The system includes a component database and previous test procedures can be used as templates for new tests. Configuration takes place from a PC via network compatible software. One to four flame lamps can be connected depending on the system version.

LPG – product features

- Ready to connect device including intuitive software
- Tried and tested by a multitude of testing agencies and industries
- Measurement and automated normalisation for any temperature
- Fully automated computation of winding temperatures
- Documentation of test samples and supplied component quality
- DKD (German Accreditation Body) calibrated

Types of products tested by the LPG

- Luminaires with ballasts (inductive, capacitive, electronic)
- Luminaires with transformers
- Luminaires with high pressure discharge lamps
- LED lamps, operating equipment and incandescent lamps

Heating, cooling and air conditioning technology

The decline in fossil fuels, risings costs and pressure to reduce emissions demand high precision and sophisticated testing procedures. These are performed on heating systems and their components, e.g. furnaces, boilers, water tanks, heat exchangers, thermal pumps and solar systems.

To perform efficient testing, heating system and heating component manufacturers have long been using products from Delphin Technology.

The Message devices and ProfiSignal software are an ideal combination to meet the requirements for test procedures. ProfiSignal Klicks can automate test and evaluation procedures and enable flexible parameterization of measurement and calculation channels.

Users can run separate tests in parallel as well as make amendments to testing procedures. The system is highly flexible and enables the direct connection of sensors (e.g. thermocouples, RTDs, flow meters and pressure converters), condensation scales and gas consumption meters.

Integrated Ethernet interfaces enable tests to be started, monitored and evaluated at any PC workstation.

Reports are automatically output when a test run is completed. An integrated Viewer enables reports to be read and amended and converted into PDF format. An export function enables measurement and trend output to be processed with standard software such as Microsoft Office.

Automated testing

- Furnace testing on oil, gas and wood systems
- Furnace efficiency measurements
- Measurement of downtime and standard efficiency factors
- Measurement of key performance indicators, continuous output and usable accumulator capacity
- Measurement of breakaway pressure
- Heat properties and performance of accumulators
- Testing control and thermostat systems

Test station for heating systems

Industry solutions

Household appliance test stand

Household appliances and components must undergo a multitude of tests for certification and classification purposes. These tests have become more stringent as a result of product liability legislation.

The increasingly shorter lead times from product development to market launch requires efficient and automated testing technology. These systems are necessary for certification procedures during product development and for ensuring product quality and reliability.

Delphin's test systems for the household appliance industry are hallmarked by their full range of functions and high level of automation. All functions, from test sample configuration through to automated evaluation, are available in a single interface. The systems are based on Delphin's ProfiSignal software and ensure easy system maintenance. The turnkey systems also include customized hardware in addition to the test stand software.

Complete systems using Message and Expert devices, resistance modules and step motor controllers, are available specifically for the testing of household appliances. These systems include equipment cabinets, connector panels, power supplies and measurement and control units.

Delphin systems provide a long term return on their investment. They remain upgradable and guarantee future functionality.

Complete testing system for testing of household equipment with central supply cabinets and connector panel

Typical testing systems for household appliances

- Testing of fume extraction hoods and their components for safety and thermal levels according to EN 60335
- Testing of thermostats and other components
- Mechanical and electrical endurance testing on ovens, hotplates and steam cookers

- Product development testing on commercial kitchen equipment
- Energy label testing and classification of ovens

Testing of switches and components

The switches being tested by Delphin systems range from microswitches (household appliances) and thermostats through to temperature controllers and power switching units.

Hardware and software can be adapted precisely to customer's testing requirements. This is made possible by the modular design of Delphin products.

Delphin's hardware and software products are extremely adaptable and enable product development testing and endurance testing within a single system.

The Delphin philosophy to enable independent testing of multiple samples in a single system is of particular benefit in switch testing. A single system can test up to twelve temperature controllers on individual hot plates. Test samples and parameters can be individually set for each test station. A graphical portrayal gives a quick overview of testing status. Test reports are automatically output for each test sample at the completion of the test procedure.

Data acquisition at the measuring

Complete testing system

Product features

- Ready to connect system with intuitive software
- Multiple and independent test stations within a single system and PC
- Fully automated testing and evaluation
- Time and cost savings on development and certification

- Measurement of contact resistances, temperatures and electrical units
- Control of mechanical drives and test environment
- Test sample documentation and documentation on the quality of supplied components
- Easily to extend

Services

Applications development by Delphin

The versatility of Message devices and the powerful ProfiSignal software means Delphin products are suited to small, simple applications as well as large, complex systems. Moreover, Delphin products can be used in virtually any branch and application field. ProfiSignal software is a particularly powerful tool and is equipped with many practical functions. Users praise its structuring and simplicity.

Many Delphin users develop their own applications; others make use of Delphin's application development service. Our engineers have been working with the products for many years and know every detail. If you use our services for application development, we will guarantee you smooth and trouble-free development of your system – from engineering through to training.

Benefit from Delphin's turnkey application development or choose specific services and consultancy expertise to complement your own system development.

Services in application development

- System specification preparation
- Development of a complete ProfiSignal application
- Design and realization of visualization views for operating and observation
- Creation of input templates
- Development and testing of Klicks programming
- Layout and operation of reports and output with measurement results
- Message device configuration

- Development of serial drivers
- Development of specific software modules
- Design of cabinet constructions
- Preparing full documentation
- Software installation and software configuration
- Factory acceptance tests
- Installation and system commissioning
- User training
- Maintenance and servicing

Application development

Completed projects

Test stand automation – compressor testing

At a pump manufacturer, simultaneous and automated production testing takes place at seven parallel test stands. Each test stand can be started and stopped from a PC. Test output is transferred via ODBC to a production database. The test commences with parameter input. The user selects from predefined test samples and determines the type of sample to be tested. The recording and saving of measurement data then occurs at the press of a button. A color-change on a digital display indicates data that is outside the permitted range.
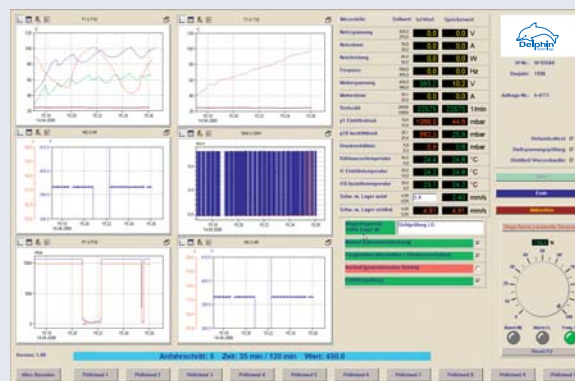
User interface with trends and operation elements

Individual trend diagram

Completed projects

Environment simulation and endurance testing – climatic cabinets

Eight cooling and four climatic cabinets are being operated in a chemicals research department. The cabinets contain samples that are subjected to interference through environmental simulation. A TopMessage device saves temperatures from an RTD sensor, with the limit parameters being set at a PC. A user management system has been configured within ProfiSignal Klicks. Depending on user rights, users may view current temperatures and trends and adjust limit values. Hard-copy documentation takes place automatically.

Cabinet construction

Delphin provides the design, manufacture, testing and documentation of individual customer solutions for cabinet construction. It includes, alongside the Message devices, all other necessary components – from power supplies through to relays. Delphin produces small housing cabinets as well as complete cabinet systems.

Calibration

Calibration service

Every Delphin measurement system is supplied as calibrated according to ISO 9001 and DKD*.

Following purchase, Delphin also provides a re-calibration service and, if required, the re-adjustment of devices and equipment.

For both on-site calibration and calibration at Delphin, the customer receives calibration certification according to DKD* standards.

*Deutscher Kalibrierdienst

Calibration service from Delphin

Calibration of devices at Delphin is recommended when the user has the opportunity of sending the devices to us. Just agree a date with our calibration team and send us your devices.

On-site calibration

Major setups may be difficult to dismantle to enable off-site calibration. We therefore offer on-site calibration of your equipment. We have mobile, modern calibration instruments that allow us to perform calibration directly on your equipment and, if necessary, to make adjustments.

Mobile calibration system from Delphin

User benefits for on-site calibration:

- Minimum downtimes because devices remain on-site
- Minimum interruption in measurement processes because devices are calibrated in series
- Fixed calibration dates

- No time or costs regarding dismantling, postage and re-installation
- No transportation risks
- Devices remain in their tempered environment

Training – Installation – Service

Training – general or specific

Delphin training courses inform you, with specialist and practical knowledge, of the many different applications that can be realized using ProfiSignal and Message devices. Training courses are designed according to the needs and requirements of the participants. We offer basic courses, advanced courses as well as custom-designed courses.

Training can take place either at Delphin or on-site. There are benefits in having training events exclusively intended for your staff – we can then tailor the courses directly to your specific needs and requirements.

Installation

Our services also include work acceptance tests and partial or full installation. We agree on a date between you and one of our experienced application engineers; this will guarantee a smooth and time-saving integration of the measurement technology into your existing hardware and software environment. You want to perform the installation yourself? We can also offer you support and advice here.

Service packages

Our services extend far beyond the installation and user training of your measurement applications. Delphin customers are long-term customers and also benefit from our premium service packages concerning

● Maintenance and repair

● Service hotline

● Update service

We are constantly updating and extending our service provision. Visit us at www.delphin.com or call us to find out what we currently offer.

Expert Key – Technical specifications

	Expert Key	
Device type	100	200
Analog inputs	**14**	**28**
Current source for RTD	4	8
Sensor types	mV, mA, thermocouples, RTD, Pt100(0)	
Resolution	18 bit	
Sampling rate	100 kHz	
Measurement range	± 100, 200, 500 mV; ± 1, 2, 5, 10 V	
Compensation	yes / 1	yes / 2
Galvanic isolation	yes	
Analog outputs	**2**	**2**
Resolution	16 bit	
Max. output rate	50 Hz	
Output voltage / current	0 ... 10 V / ± 10 V / 0 ... 20 mA / 4 bis 20 mA / ±20 mA	
Galvanic isolation	yes	
Digital inputs	**8 to 12**	**1**
Input voltage / current	5 V, 12 V, 24 V, 48 V / 2,7 mA	
Logic voltage level	< 2,5 V = low / > 3 V = high	
Max. input frequency	10 kHz	
Galvanic isolation	yes	
Digital inputs with counter function	**2**	**1**
Counter resolution	64 bit	
Max. input frequency / resolution	1 MHz / 1 µs	
Measurement range	0,1 Hz ... 1 MHz	
Max. input voltage / current	5 V, 12 V, 24 V, 48 V / 1,5 mA	
Galvanic isolation	yes	
Digital outputs	**4 to 8**	**1**
Max. switching voltage / current	30 V / 1 A or 40 V / 0,75 A or 50 V / 0,6 A	
Max. switching delay	0,5 ms	
Galvanic isolation	yes	
Outputs with PWM function	**4**	**1**
Duty cycle	1:100 ... 1:500	
Max. switching voltage / current	30 V / 1 A or 40 V / 0, 75 A or 50 V / 0,6 A	
PWM basic frequency	5 Hz ... 10 kHz	
Galvanic isolation	yes	
General technical information		
Sensor connection	via screw terminals with 0.14 ... 2.5 mm² openings	
Power supply	External power supply	
Max. power input	6 Watt	
Power supply	9 ... 24 VDC	
Temperature range	0 ... 50 °C	
Environmentally friendly	RoHS conform	
Interfaces: USB or Ethernet	USB 2.0 high speed / LAN 100BaseT	
Expert Key L 100/200 dimensions	50 x 185 x 215 mm	
Expert Key L 100/200 weight	750 g	
Expert Key C 100/200 dimensions	57 x 280 x 208 mm	
Expert Key C 100/200 weight	1.500 g	
Expert Key P 100/200 dimensions	495 x 135 x 305 mm	
Expert Key P 100/200 weight	6.500 g	
Expert Key M 100/200 dimensions	470 x 175 x 355 mm	
Expert Key M 100/200 weight	7.500 g	

LogMessage – Technical specifications

	LogMessage
Analog inputs	
Resolution	24 bit
Current	0 … 20 mA, 4 … 20 mA
External shunt required	10 Ω, 50 Ω, 100 Ω, 125 Ω, 250 Ω, 500 Ω
Voltage	±156 mV, ±312,5 mV, ±625 mV, ±1,25 V, ±2,5 V, ±5 V, ±10 V
RTD as 2, 3, 4 wire	Pt50, Pt100, Pt250, Pt500, Pt1000, Pt5000
Thermistor	YSI400
Thermocouple	Typ K,E,N,L,J,S,U,R,T,B,C
Resistance measurement	0 … 10 kΩ
Galvanic isolation	750 VDC to system and supply 400 VAC between channels for the LogM 500
With standing voltage	110 VDC max
Input resistance	> 1 GΩ (10 MΩ LogM 500)
Precision	
Thermocouples	0,1 % from measurement range to compensation
V / mA	0,01 % from measurement range
Pt100 / Pt1000	0,1 K / 0,01 K
Analog outputs	
Current	0 … 20 mA, 4 … 20 mA
External Shunt	max. 700 Ω
Resolution	16 bit
Precision	0,05 %
Galvanic isolation	750 VDC to system and supply
Digital input	
TTL low level	0 … 1,5 V @ 0 … 1,5 mA
TTL high level	3 … 90 V @ 2 mA
Refresh rate	1 kHz
Galvanic isolation	2,5 kV between channels
Digital inputs with counter function	
TTL low level	0 … 1,5 V @ 0 … 1,5 mA
TTL high level	3 … 90 V @ 2 mA
Frequency	max. 30 kHz
Counter	16 bit (0 … 65535)
Gate time	1 … 6.000 ms (1ms steps)
Precision range 0 .. 1 kHz / 1 .. 10 kHz / 10 .. 30 kHz	1 Hz / 5 Hz / 10 Hz
Digital outputs	
Switching voltage	50 VDC max
Switching current	2,5 ADC max
Inverse diode	integrated
Data storage	
Size	1 GB
Measurement values	bis zu 128 million
General technical information	
Weight	1 kg
Dimensions	200 x 73 x 118 mm
Material	Synthetic housing
Humidity	80%, non-condensing
Temperature range	-20 … 60 °C
Supply	12 - 36 VDC + VAC external
Power input	max. 10 W
Mounting	DIN rails or screw fixings
LAN-interface	10 BaseT (half Duplex) / TCP/IP, UDP, ICMP

Top**Message** – Technical specifications

TopMessage / TopLab	
Analog inputs	
Voltage range	± 156 mV ... ± 10 V / ± 110 V
Current range	0/4 ... 20 mA (max. 500 Ω Shunt)
Thermocouples	Any, all types, integrated temperature compensation; resistance thermometer Pt100(0), NTC and linear resistance to 10 kΩ (not for ADVT)
Resolution	24 bit (≈7 Decimal places) Measurement precision: V, mA 0,01 % of accumulated value Pt100 0,1 K; Pt1000 0,1 K; Thermocouples 0,1% of accumulated value
Analog outputs	
Resolution	16 bit
Potential isolation	750 V
Output signal	0/4 ... 20 mA
Maximum burden	650 Ω
Digital inputs	
Potential isolation	2,5 kV low: 0 ... 1,5 VDC@0-1,5 mA high: 3,5 ... 90 VDC@2 mA
Frequency / counter inputs	
Potential isolation	2,5 kV low: 0 ... 1,5 VDC@0-1,5 mA high: 3,5 ... 90 VDC@2 mA
Measurement frequency	to 30 kHz at TTL-level
Digital outputs	
Potential isolation	2,5 kV
Switching voltage	max. 50 VDC@2,5 A
Inverse diode	integrated
Data storage	
Standard capacity / measurement	Storage partitionable, data compression standard: 500 kB; max. 96,000 measurement
Maximum / measurement	1 GB; up to 128 millions measurement values
Serial interfaces	
COM 1	RS232/485 serial port
Physical equipment	9-pole sub-D connector, DIN EN ISO 19245-1, interface switchable: RS232/485/422
Baud rates	RS232: 125 kBaud RS485: 6 MBaud
Protocols	TCP/IP, customer specific to modem connection, PC terminals, large displays, Modbus RTU OPTIONAL: COM1: Profibus DP slave interface
COM 2	RS232/485 serial port
Physical equipment	9-pole sub-D connector, DIN 41652 part 1 (ISO 14902), interface switchable: RS232/485/422
Baud rates	RS232: 125 kBaud RS485: 6 MBaud
Protocols	TCP/IP, customer specific to modem connection, PC terminals, large displays, Modbus RTU
Modulbus	
Physical equipment	2-pole Phoenix plugs, internal bus for connecting additional modules
Baud rates	1 MBaud (adjustable)
Lenght	up to 10 m (1 MBaud)
General technical information	
Weight	1 kg
TopMessage dimensions	200 x 73 x 118 mm
TopMessage mountings	Rail mounting DIN EN 50023 or screw fixing
TopMessage signal connections	Detachable screw terminals , 33 terminals in 2 rows, lead protection, connecting cables max. 2,5 mm²
TopLab dimensions	226 x 145 x 180 mm
TopLab signal connections	up to 64 Stück 4 mm lab plugs, gold plated
Temperature range	-20 ... 60 °C
Power supply	12-36 VDC / 12-28 VACeff. / ± 10%, for AMDT 18 VAC/DC power input for master device: < 10 Watt
LC-Display	For servicing purposes: 4 lines à 15 characters 4 cursor keys, Enter, Esc, Reset keys Displays configuration data, channel name, scaled and lineared measurement data
Ethernet interface	RJ45 (8-pol. STP-socket), 10 BaseT ((twisted pair, 10 Mbps, half-duplex), galvanic isolation: 1 kV Protocols: TCP/IP, UDP, ICMP

ProfiSignal – Technical specifications

Modules and functions	ProfiSignal version			
	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
yx diagram	x	x	x	x
yx 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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