Expert Logger

NEW!

PRECISE

STAND ALONE

ADVANCED MEASUREMENT TECHNOLOGY

Innovative data logger

Modern. Powerful. Maintenance free.

Delphin Technology

Expert Logger: Stand alone data logge

Universal, communicative, reliable

Expert Logger is Delphin's new generation of data loggers. It combines the latest communication technology with advanced measurement technology, and is based on FPGA technology to make it especially powerful. It can process up to 46 analog input channels at both low and high rates of sampling. Measurement data can be accurately acquired, independently stored and transmitted to the internet or a PC for evaluation via USB, LAN, WLAN or LTE.

Expert Logger is available in three versions which differ only in the number of analog and digital inputs they can process. All Expert Logger devices are equipped with internal 4 GB memories that can independently store up to 125 million measurement values with date and time stamps to msec precision. Storage capacity can be extended as required via external USB or LAN storage devices (NAS). An integrated, energy-saving "sleep function" automatically switches off the device during breaks in measurement acquisition. The Expert Logger operates with standard batteries, rechargeable batteries or solar units.

Precision measurement is ensured through the use of a 24-bit converter. Voltages can also be precision recorded to the µV range. All channels are galvanically isolated to suppress earthing loops and the tried and tested input circuitry protects the device against voltage spikes. Electromechanical components are avoided (relays multiplexer), and the device operates noise and maintenance free. Delphin's patented analog inputs guarantee years of reliable measuring work.

Expert Logger types

Versions	100	200	300
Analog inputs for mV, mA, and thermocpl.	16	32	46
Appropriate for RTD's	(8)	(16)	(23)
Sampling rates (measurements / sec.)	600	1200	1800
Digital inputs (mV, frequencies)	4	4	1
Of those for SDI12 sensor bus	1	1	0
Digital outputs	4	4	1

Sensor connection

- Universal analog inputs (mV mA, TC, RTD)
- Digital inputs and outputs
- Plug-in screw terminals

Serial and SDI12 interfaces

- SDI12 interfaces for environmental sensors
- Serial RS232 ports and a RS485
- Configuration of individual ASCII protocols

Battery and rechargeable operation

- Independent operation possible with batteries or rechargeables
- Minimal energy consumption via a sleep function
- User-defined wake and measuring intervals

Internal data storage

- 4 GB of internal data storage for up to 125 million measurement values
- Time stamps to msec resolution
- Data read out via LAN, WLAN or USB interface

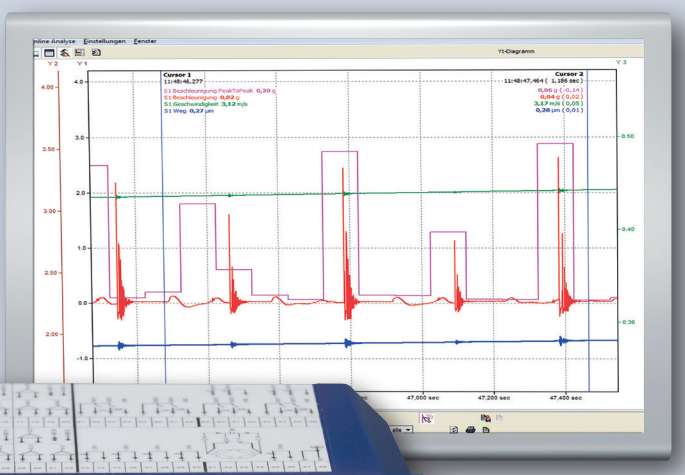
External data storage

- Data recorded to external storage media (USB, NAS)
- PUSH function to send measurement data to the internet
- Event-triggered recording with pre and post histories

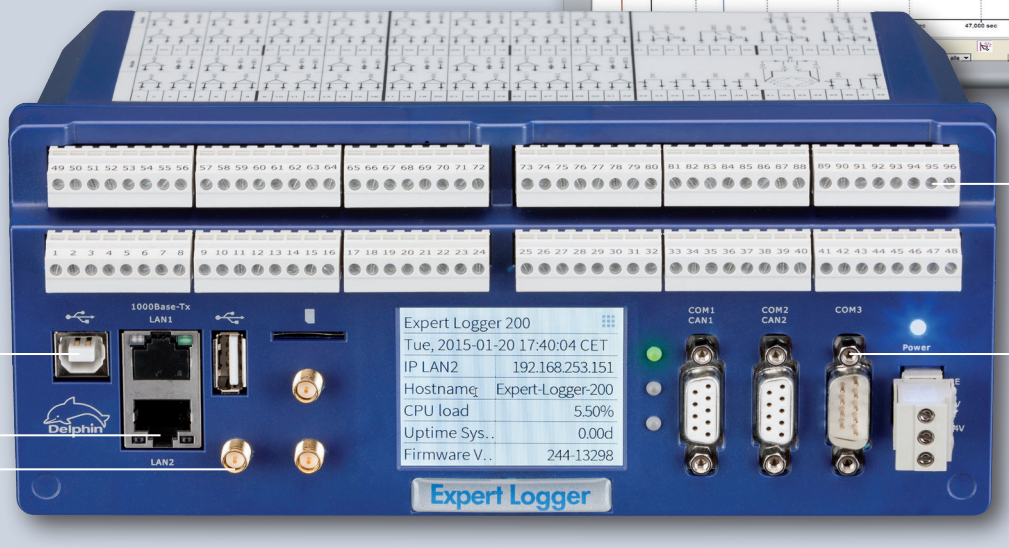
Data logging **Environmental measureme**

r. Latest communication technologies. Advanc

ProfiSignal Go



Expert Logger



Voltages [mV] | Currents [mA] | RTD [2-, 3-, 4-wire] | Thermo-couples [J, K, B, N, S, ..] | Strain gauges [full bridge] | Digital input [mV] | Frequencies [pulse / SDI12]

ent technology **Product testing** **Measurement data diagnosis** **Lab data acquisition**

ed measurement technology.

Remote monitoring

- WLAN link to PCs and mobile devices
- Optional LTE / UMTS / 4G integrated modem
- Automatic notification via email or text messaging

PC and field bus interfaces

- LAN and USB interface to a PC or network
- CAN-Bus interface for reading / writing identifiers
- Field bus interfaces PROFIBUS DP, Modbus

Monitoring functions

- Monitoring and data logging in a single device
- Limit value setting for any sensor signal or calculation channel
- Controlling digital outputs with user-defined triggering
- Logging of pictures from webcam by external trigger

Signal processing

- Averaging (middle, min, max, RMS values)
- Integration of time signals into volumes, masses or working values
- Computational functions (basic functions, polynomial, trigonometric ...)

ProfiSignal Go – Measurement data analysis included

To make it as easy as possible for users to operate the Expert Logger, the powerful ProfiSignal Go software is included free with delivery. ProfiSignal Go enables users to portray measurement data online and offline and to carry out detailed analysis. The software can portray the Expert Logger's measurement data in trends. Users can choose between y(t) or y(x) diagrams as well as a range of other analysis diagrams. ProfiSignal Go is especially intuitive to make it highly user friendly.

Expert Logger + ProfiSignal Go

A range of options

- Online / offline analysis and diagnosis of measurement data
- A range of trend formats y(t), y(x), digital signal analysis
- ASCII / CSV / TDM data exporting
- Output or export of trends as EMF files
- Analysis using cursor functions

Offline data evaluation is easy and quick to perform. The software also enables fast ASCII exporting of the measurement data for MS Excel™, or conversion into TDM format. Our customers tell us that it is a pleasure to use ProfiSignal Go.

Trials and tests **Energy optimization**

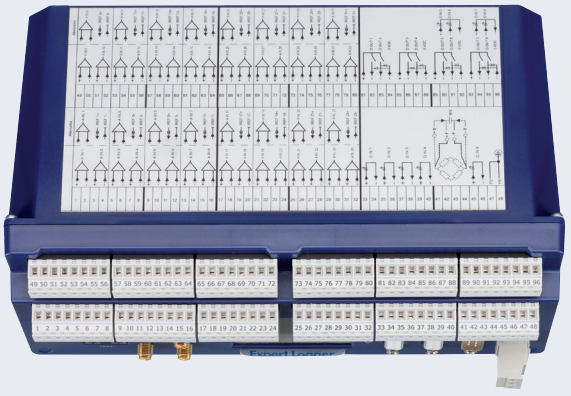
Expert Logger accessories

- Rechargeable pack for energy independent operation
- External data storage
- UMTS / LTE module
- WLAN module

Expert Logger – Simple to operate

Operation made simple

Sensors are connected via plug-in screw terminals and a chart clearly shows how channels are arranged. Users always have a good overview of the channels despite their high density. Each set of four terminals can be configured as two differential inputs to measure voltage, currents, thermocouples, or to take measurements from a 4-wire RTD.



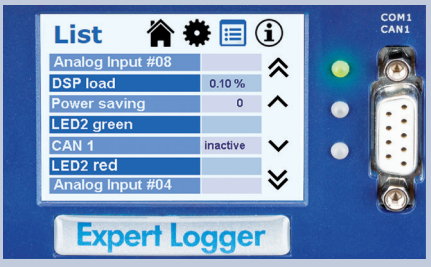
Configuration made simple

The Expert Logger is simple to configure from a PC. These settings remain stored within the Expert Logger even when disconnected from the power supply. The device settings can also be read out and stored on a PC and analysed offline without the need for a connected Expert Logger. The offline configuration settings are then simply read into the device when connected. The software used for configuration is simple to operate to let users fully focus on their measurement tasks.

Intelligent signal processing

Signal processing using internal software channels significantly simplifies measurement tasks. Flexible calculation channels enable measurement data to undergo further computation and recording. Integrators directly calculate volumes or quantities from time related measurement data such as mass and discharge flow rates. Limit values can monitor measurement data and be used to switch digital outputs or automatically send emails. Complex signal processing is possible using pulse counters, stop-clock functions and operating-hours counter. Averages can be calculated and recorded as time-weighted or moving. The Expert Logger's software channels clearly set it apart from other loggers and make it very popular among users.

Online analysis	Description
Calculation channel	Any number of channels can undergo computation procedures. Functions include: basic arithmetic functions; trigonometry; binary and boolean operations
Channel averaging	Computation of moving and triggered averages
Edge counter	Counter for impulses (high, low, and reset functions)
Integrator	Numerical integration over time
Linearization	Corrective calculations on non-linear sensors
Operating hours counter	Accumulates the time (in hours) of a digital signal's high-level
Statistic channel	Computes moving and triggered statistical values (min, max, variant, standard deviation)
Stopwatch	Time measurement between two events
Monitoring	**Description**
Limit value	Generates events for threshold violations (over- / under-runs, inertia, hysteresis, process monitoring)
Batch alarms	Generates a single alarm from multiple input channels
Wake function	Generates pulses at a chronological point in time (once a day, week, month …)
Status monitoring	Evaluates status information for measurement data and generates an alarm



Touch display

The touch display enables users to configure the Expert Logger's basic settings such as the IP address and network mask. The display also simultaneously shows selected measurement data. The display operates via either touch or an external USB mouse.

Expert Logger – Techn. specifications

	Expert Logger		
Device type	**100**	**200**	**300**
Analog inputs (mV, mA, TC)	**16**	**32**	**46**
Appropriate for RTD´s	(8)	(16)	(23)
Sampling rate, set per channel	1/3Hz .. 1,000 Hz		
Voltage / current measurement range	± 156 mV .. ± 10 V / 0 .. 20 mA, 4 .. 20 mA, free		
Current reference for restistance measurement	None, 100 µA, 200 µA or 1 mA software switchable		
Resolution / input impedance	24 bit / GΩ		
Reference junction	yes / 2	yes / 4	yes / 6
Withstand voltage / galvanic isolation	± 100 VDC / ± 400 VDC to PE		
Channel to channel	± 110 VDC / ± 400 VDC		
Digital frequency inputs	4 to 8		–
Input signal	low: 0 .. 2 V / high: 5 .. 50 VDC@3.5 mA		–
Measurement range, frequency inputs / Broadcounter	0.2 Hz .. 1 MHz / 64 bit		–
Galvanic isolation	yes, up to ± 400 VDC to PE		–
Digital outputs (also PWM)	4 to 8		–
Max. switching voltage / current	50 V / 3 A		–
PWM basic frequency	5 Hz to 10 kHz		–
Pulse-width modulation / resolution	1:1000		–
Galvanic isolation	yes, up to ± 400 VDC to PE		–
Digital voltage reference	1		–
Current	up to 140 mA		–
Voltage	5 VDC		–
Short circuit proof	yes		–
Galvanic isolation	yes, up to ±400 VDC to PE		–
Data storage			
Data storage internal	2 .. 14 GB / ca. 30 million measurement values to GB		
Data storage external	USB, NFS, CIFS, (S)FTP		
Interfaces			
Sensor bus SDI12	1	1	–
Physical equipment COM 1 / COM 2	RS485, 9-pole Sub-D-plug, DIN EN ISO 19245-1		
Physical equipment COM 3	RS232, 9-pole Sub-D plugs		
LAN	1 x 1000Base-TX, 1 x 100Base-TX		
WLAN (optional to WWAN)	802.11b/g/n		
WWAN (optional to WLAN)	UMTS, LTE (configuration, real time data, email)		
USB	Device 2.0 low / full / high speed / Host 2.0 low speed		
CAN 2.0 / PROFIBUS	2x / 2x, max. 12 Mbit		
Protocols			
PROFIBUS	DPV1 Slave / passive sniffer		
RS 232 / 485	Modbus RTU, SCPI, ASCII		
CAN	CAN RAW		
TCP/IP	Modbus TCP, OPC UA		
General technical information			
Dimensions / weight	210 mm x 80 mm x 125 mm / 750 g		
Fixing	Rail mounting DIN EN 60715 or screw fixing		
Signal connections	Plug-in screw terminals, max. 1.5 mm², 96 in 2 rows		
Temperature range	-20 .. 60 °C		
Power supply	12 .. 24 VDC / ± 10 %		
Power input – normal mode	max. 10 W		
Power input – sleep mode	5 mW@12 V, 10 mW@24 V		

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