

# Expert Logger

## The new Expert Logger 400: Industry 4.0 ready!

**NEW AND ONLY WITH US:  
WITH AN OPC UA  
INTERFACE!**



Data logging  
Test stand automation  
Process monitoring



# “At last we have the security for measurement technology that we need for our applications.”

Networking, Industry 4.0, future-proof, profitability. These are the key concerns for responsible businesses especially when sensitive measurement data is involved. Nothing may be lost, everything must be securely and continuously documented, and data should be accessible every where at all times. All this is possible: with the Expert Logger from Delphin Technology.

Data acquisition, environmental measurement technology, product testing, measurement data diagnoses, laboratory data acquisition, experiments and testing, and energy optimisation – with the Expert Logger device your company is always on the safe side because it guarantees continuous recording of all relevant data. It functions independently (no network connection required) and can be operated over periods of weeks and months.

## Expert Logger 400 and Industry 4.0

The reality for companies is that their machinery is from different manufacturers and their plant is from different generations. This generally results in communication problems. However, this is not the case with the new Expert Logger 400. Problem free communication is guaranteed through its OPC UA interface. Even new plant and machinery can be easily integrated into existing systems. An important aspect for you is that the original Expert Logger was principally designed as a data logger.



**Very compact, very intelligent, and very versatile**



### Are you aware that ...

... virtually everyone who experiences a live demonstration of Expert Loggers is so impressed that they then begin using them in their own companies?

The new Expert Logger 400 is now equipped with extended monitoring functions so you get the assurance of using a tried and tested logger equipped with future-proof and advanced technology.

### All for one and one for all

The Expert Logger is designed to match your specific requirements – not the other way round. The device is built for versatility and can be set to do everything for any user. It functions perfectly as a stand alone unit or connected to the internet/ intranet. State-of-the-art communication is assured through its range of interfaces. The Expert Logger is also compact; ideal for installation in switch cabinets and in line with the motto: a smaller design means smaller costs.

### Delphin Technology – Made in Germany

As a medium-sized and established company that has been continuously developing its products for 35 years, we stand for quality, reliability, security, long-term partnerships – and service. Our free of charge hotline is available with competent responses from experienced specialists. ●

# Expert Logger



Comments from users:  
"Stand alone data logger"  
"Latest communication"  
"Advanced measurement  
technology"

“It uses advanced measurement technology. OPC UA enables us to now communicate overall.”

By using an Expert Logger you can be assured of working with the latest generation of data loggers. This means state-of-the-art communication coupled with advanced technology. The new Expert Logger 400 sets you up perfectly to meet current and future requirements.

The technological benefits of the Expert Logger device are as follows: it is based on FPGA technology and especially high performing; it is capable of processing 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 via USB, LAN, WLAN and LTE for evaluation. The Expert Logger also features user-friendly operation. For example, signal connection takes place using plug-in screw terminals. Even high numbers of channels can be clearly organised. Each set of four terminals can be configured as two differential inputs to measure voltage, currents, thermocouples, or to measure a 4-wire RTD. ●

## Expert Logger types

NEW

Versions	100	200	300	400
Analog inputs for mV, mA and thermocouples	16	32	46	16
of which for RTD sensors	(8)	(16)	(23)	(8)
Sampling rate (measurements/sec.)	1000	2000	3000	1000
Digital inputs (mV, frequency)	4	4	1	1
SDI12 sensor bus	1	1	0	0
Digital outputs	4	4	1	0
Digital inputs/outputs	4	4	0	24

Benefit 1:  
OPC UA interface,  
Profibus, Modbus,  
serial interfaces

### Communication 4.0

Expert Logger 400 enables communication at machine-field level via versatile interfaces

Benefit 3:  
Monitoring and data  
logging in a single  
device

### Flexibility

WLAN interfaces to PCs and mobile devices; LAN and USB interfaces to PCs or networks

### Benefit 2:

- Stand alone operation with batteries or rechargeables
- Internal data memory
- Universal inputs

### Profitability

The OPC UA interface enables measurement data and limit value violations to be immediately transmitted to subsystems



### Security

Smooth, secure processes in all directions: Recording sensors – controlling actuators using a single device

Benefit 4:  
Our customers tell us  
"It is simply a joy  
to work with the  
Expert Logger."

“The integrated software is reliable and stable.  
And is simple to use.”

## Expert Logger & ProfiSignal Go

Includes user-friendly software








Only from Delphin Technology: ProfiSignal Go software for measurement data analysis is included with delivery. The benefits are obvious. ProfiSignal Go was also developed in-house and therefore is fully compatible with the Expert Logger and your requirements. This becomes immediately evident when using the software – it is simple, intuitive, and user-friendly. For example, measurement data can be portrayed online and offline as well as analysed in detail. ProfiSignal Go can also portray all measurement data from Expert Logger devices as trends. You can choose between  $y(t)$  or  $y(x)$  diagrams as well as a range of other analysis graphics.

### Simple configuration via mouse clicking

User-friendly software means simple configuration. Expert Logger configuration takes place from a PC. The configuration is saved permanently to the Expert Logger and remains there even in the event of a power loss. Configurations are easy to access from the Logger and then saved to a PC. A configuration can also be amended off-line without the Expert Logger having to be connected and then loaded into the device. You benefit by only having to perform the configuration once leaving you to focus on the actual tasks on hand.

### Includes intelligent signal conditioning

Signal conditioning using internal software channels significantly simplifies measurement tasks. Flexible calculation channels enable measurement data to undergo immediate computation and preprocessing. Integrators directly calculate volumes or quantities from time-weighted measurement data such as mass and discharge flow rates. Limit values can be used to monitor measurement data and switch digital outputs or automatically send emails. Complex signal processing is possible using impulse counters, stop-clock functions and operating-hour meters. Averages can be calculated and recorded as time-weighted or moving. Offline data evaluation is clear and simple. ASCII exporting of the measurement data for MS Excel™, or conversion into TDM format is quick to perform. The Expert Logger’s software-channel feature clearly sets it apart from other loggers and makes Delphin Technology very popular among users. ●

Online analysis		Description
	Calculation channel	Performs computations between channels. Functions include: basic arithmetic operations, trigonometry, binary and boolean functions
	Averaging channel	Performs computations of moving and triggered averages
	Edge counter	Counter for impulses (high, low and reset-functions)
	Differentiator	Computes changes taking place over time periods
	Integrator	Numerical integration over time periods
	Totalling channels	Time-independent addition of measurement data
	Linearization	Corrective computation for non-linear sensors
	Operating hours counter	Accumulates hour times from digital signal high levels
	Statistic channel	Performs computations of moving and triggered statistics (min, max, variance, standard deviation)
	Stop watch	Measures time between two events
Monitoring		Description
	Limit value	Generates an event for a limit violation (over / under runs, consistency, hysteresis, line monitoring)
	Batch alarm	Generates an alarm from multiple digital input channels
	Wake-up	Generates impulses for absolute chronological events (once a day, week, month ...)
	Status monitoring	Evaluates status information from measurement data and generates alarms



“Working with ProfiSignal Go is really enjoyable. And the telephone service provides professional help if you have a question.”

# Expert Logger – Technical specifications

NEW

Device Type	100	200	300	400
<b>Analog inputs (mV, mA, TC)</b>	16	32	46	16
Appropriate for RTD's	(8)	(16)	(23)	(8)
Sampling rate	1000 Hz	2 groups per 1000Hz	3 groups per 1000Hz	1000 Hz
Voltage/current measurement range	±156 mV .. ±10V/0 .. 20 mA, 4 .. 20 mA, free			
Current reference for resistance measurement	None, 100 µA, 200 µA or 1 mA software switchable			
Strain gauge volt. ref. 5 VDC ± 10 mV	1	1	0	0
Resolution/input impedance	24 Bit/1 GΩ			
Internal reference junctions	yes/2	yes/4	yes/6	yes/2
Withstand voltage/galvanic isolation	±110VDC/±400VDC to PE, other channel group			
<b>Analog outputs</b>	0	0	0	6
Resolution	16 Bit			
Output ranges	0 .. 12V/±12V/0 .. 20 mA/4 .. 20 mA			
Galvanic isolation	±400VDC to system/PE			
Min. load/max. burden	625 Ω/950 Ω			
<b>Number of digital channels</b>				
Digital inputs to 1 MHz	3	3	0	0
Digital inputs to 250 Hz	1	1	1	1
Digital outputs	4	4	1	0
Digital inputs/outputs	4	4	0	24
<b>Technical information digital inputs</b>				
Input signal	low: 0 .. 1V/high: 5 .. 100VDC @3,5 mA			
Frequency range/width counter	0,2 Hz .. 1 MHz, respectively 0,2 Hz .. 250 Hz/64 Bit			
Galvanic isolation	±400VDC to PE, other channels			
<b>Technical information digital outputs</b>				
Max. switching voltage/current	50V/2,5A			
PWM function/Pulse duty factor	Basic frequency 5 Hz .. 10 kHz/1:1000			
Galvanic isolation	±400VDC to PE, other channels			
<b>Data storage</b>				
Data storage internal	2 .. 14 GB (30 million measurement values per GB)			
Data storage external	USB, NFS, CIFS, (S)FTP			
<b>Interfaces / protocols</b>				
Sensor bus SDI12	1	1	0	0
COM 1 and COM 2	RS 485, 9-pole sub-D plug/ASCII, Modbus RTU, PROFIBUS DPV1 Slave			
COM 3	RS 232, 9-pole sub-D plugs/ASCII, Modbus RTU			
LAN	1000 Base-T			
WLAN (alternative to WWAN)	802.11 b/g/n			
WWAN (alternative to WLAN)	UMTS, LTE max. 100 Mbit/s			
USB	Device 2.0 low/full/high speed/Host 2.0 low/full/high speed			
TCP/IP protocols (LAN, WLAN, WWAN, USB)	Modbus TCP, OPC UA			
CAN 1 and CAN 2	CAN RAW protocols, Delphin expansion bus			
<b>General technical information</b>				
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 mm <sup>2</sup> , 96 in 2 rows			
Temperature range	-20 .. 50 °C			
Power supply	12 .. 24VDC / ±10 %			
Power input normal mode	max. 10W			
Power input sleep mode	5 mW @ 12V, 10 mW @ 24V			

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