

Datalogger  
**DL/N 70**

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Version: 28.03.2012

# Technical Specifications

## Pressure measuring range (mH2O)

	1 ... 5	> 5 ... 20	> 20 ... 250
<b>Overpressure</b>	3 bar	3 x FS ( $\geq 3$ bar)	3 x FS
<b>Burst pressure</b>	> 200 bar	> 200 bar	> 200 bar
<b>Accuracy, (1), (<math>\pm</math> % FS)</b>	$\leq 0.25$	$\leq 0.1$	$\leq 0.1$
<b>Thermal shift, (<math>\pm</math> % FS/<math>^{\circ}</math>C)</b>			
Zero point -5...50 $^{\circ}$ C	$\leq 0.06$	$\leq 0.03$	$\leq 0.015$
Span -5...50 $^{\circ}$ C	$\leq 0.015$	$\leq 0.015$	$\leq 0.015$
<b>Long term stability, (2)</b>	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

(1) Zero based accuracy according to DIN16086, incl. hysteresis and repeatability at ambient temperature

(2) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

## Temperature measuring range

<b>Standard</b>	-5...50 $^{\circ}$ C
Lower end of range	-5 $^{\circ}$ C
Upper end of range	50 $^{\circ}$ C
<b>Accuracy</b>	
With conductivity	$\leq \pm 0.25$ $^{\circ}$ C
Without conductivity	$\leq \pm 1$ $^{\circ}$ C

## Conductivity measuring range

<b>Standard</b>	20 $\mu$ S / cm...20 mS / cm
<b>Accuracy</b>	
20 $\mu$ S / cm...500 $\mu$ S / cm	4 $\mu$ S / cm / +/- 2% RDG
> 500 $\mu$ S / cm...20 mS / cm	+/- 2% RDG

## Temperature range

<b>Operating temperature</b>	-5...50 $^{\circ}$ C
<b>Process temperatur</b>	-5...50 $^{\circ}$ C
<b>Storage temperatur</b>	-5...50 $^{\circ}$ C

## Electrical specifications

<b>Resolution</b>	
Pressure	0.01% FS
Temperature	0.1 $^{\circ}$ C
Conductivity	1 $\mu$ S/cm
<b>Output</b>	
Interface	RS485
Protocol	Modbus
<b>Battery, (1)</b>	Lithium, 3.6 V, AA / D
<b>Cable length, (max.)</b>	
1 Battery	$\leq 100$ m
2 Batteries	$\leq 300$ m

(1) Battery can be changed on-site

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## Functions

<b>Data format</b>	Data are stored in ASCII or XML format and can be read with all common programs such as Excel, Lotus, etc.
<b>Data memory</b>	Up to 500'000 measurement values, non-volatile, data remain in memory even without battery, each measurement value is correlated with time and date
<b>Data transfer</b>	Read out data per measurement series, Read out all stored data, Read out data for a defined time-period
<b>Real-time clock</b>	Quartz-precision clock with date; Start-time of datalogging configurable
<b>Identification</b>	Each datalogger has a unique serial number, as well as a user-definable description
<b>Configuration</b>	Sample- and storage rate, Recording of data in a defined time-window, Identification (f.e. measuring site), Tare; the datalogger stores the height of the air column, and not the pressure at the sensor, Taring of measurement value; the current pressure can be set to the actual value, Threshold value (option); Storage of the measurement data within the defined range, Density of the measuring medium (option); Set the density of the measuring medium, which is automatically calculated in as well, Data recording as a function of time or threshold value (option)

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## System Requirements

<b>PC</b>	Processor: Min. 200 MHz Memory: Min. 50 MB RAM: Min. 64 MB
<b>Operating System</b>	Windows 2000 (Service Pack 4), XP (Service Pack 3/32-Bit), Vista (32-Bit), 7 (32-Bit)

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## Qualifications

	Standard	Level	Typical interferences
EN 61000-4-2	Electrostatic discharge	4 kV contact 8 kV air	
EN 61000-4-3	Irradiated RF	10 V/m (0.08...1 GHz)	Radio sets, wireless phones
EN 61000-4-4	Transients (burst)	2 kV	Motors, valves
EN 61000-4-6	Conducted RF	10 V (0.15...80 MHz)	Frequency converters

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## Physical specifications

<b>Materials, (1)</b>	
Transducer	Stainless steel (316L / 1.4435), titanium (Gr. 2), (2)
Housing level transmitter	Stainless steel (316L / 1.4404), titanium (Gr. 2), (2)
Seals	Viton (other materials see ordering information)
Battery housing	Stainless steel (316L / 1.4404), titanium (Gr. 2)
Cable	PUR, PTFE, PE

(1) Hastelloy (C-276) on request

(2) Without conductivity measurement

## Equipment

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### Overview

10.00.0091	Accessories overview

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### Software

101087	PC Software V2.26

## Additional documents

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### Manual

	Article number	Description
10.00.0205	DEB016	Operating instructions
10.00.0250	DMM021	Quick-Start

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### Operating and safety instructions

	Article number
10.88.0368	DMM031

## Ordering information

		70	X	XX	XX	XX	XX
<b>Type</b>							
	DL/N	70					
<b>Pressure type</b>							
	Gauge		1				
	Absolute (vacuum)		2				
<b>Pressure measuring range (1)</b>							
	Any pressure measuring ranges between 0...1 mH <sub>2</sub> O and 0...250 mH <sub>2</sub> O available, (1)		XX				
<b>Model</b>							
	Absolute type, (Fig. 1)		0				
	without battery housing, (Fig. 2c)		3				
	with battery housing, (Fig. 2)		1				
	with battery housing, 2x D batteries		5				
<b>Cable</b>							
	Connectable version, IP 68, (Fig. 4), (2)		4				
	PE cable, IP 68, (3), (4)		1				
	PUR cable, IP 68, (3)		0				
	PTFE cable, IP 68, (3)		2				
	PVC cable, blue, IP 68, (3), (5)		5				
<b>Process connection</b>							
	Closed, (Fig. 1)				57		
	Closed, (1.4435), (Fig. 1)				58		
	Open, (Fig. 1b)				59		
	G 1/4 A				11		
	G 1/2 A				13		
<b>Transmitter housing material</b>							
	Stainless steel				0		
	Titanium, (6)				1		
<b>Battery housing material</b>							
	Stainless steel				0		
	Titanium				1		
<b>Seal material</b>							
	Viton (standard)					0	
	EPDM					1	
	Kalrez					2	
	NBR					3	
<b>Temperature range</b>							
	-5...50 °C compensated (allowed process temperature: -5...50 °C)						4
<b>Option</b>							
	Temperature measurement						E
	Conductivity and temperature measurement, (6), (7)						D
	Flooding protection, (Fig. 5)						I
	Ballast weight						B

(1) mH<sub>2</sub>O, mWS, mWC etc. available

(2) Connector with required cable has to be ordered separately (KART100)

(3) Please specify the required cable length and medium

(4) Suitable for drinking water (food approved)

(5) ACS Certification

(5) Without conductivity measurement

(6) Pressure measuring range  $\leq 100$  mH<sub>2</sub>O

# Technical drawings

## Dimensions

Fig. 1

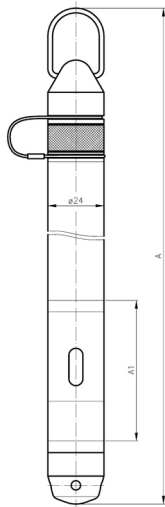


Fig. 2

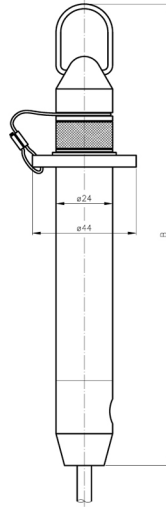


Fig. 3

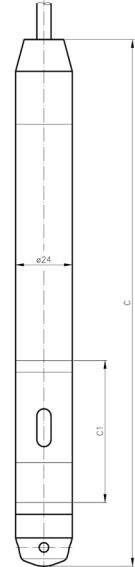


Fig. 1b/2b/3b/4b



Fig. 4

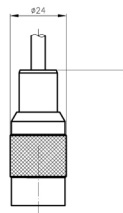
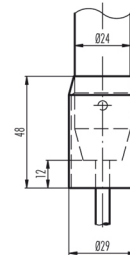


Fig. 5



Version	Model	Fig.	Length	Weight <sup>4)</sup> [g]	Length <sup>3)</sup>	Weight <sup>3)</sup> [g]	Conductivity
absolute	closed	1a	A=291	365			A1=60
	open	1b	A=287	365			A1=60
relative	1 battery <sup>1)</sup>	2a	B=196	270			
	2 batteries <sup>2)</sup>	2a	B=266	320			
	closed	3a	C=225	300	310	560	C1=60
	open	3b	C=221	300	306	560	C1=60
connect.	closed	4a	D=249	340			C1=60
	open	4b	D=245	340			C1=60

<sup>1)</sup> Cable length ≤ 100m

<sup>2)</sup> Cable length > 100m

<sup>3)</sup> with weight extension

<sup>4)</sup> without cable

Specifications may change without notice.

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