

# DIGITAL GAUGES

## PRODUCT CATALOGUE



PRESSURE at the highest LEVEL.

**BD|SENSORS**  
pressure measurement

>> [www.bdsensors.de](http://www.bdsensors.de)



# PRESSURE AT THE HIGHEST LEVEL

„Successful medium-sized companies are not successful because they are active in many areas, but rather because they concentrate on one area and do it better than anyone else“

This is our philosophy. That's why BDESENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unrelenting product and quality strategy we have been successful in becoming a major player on the world market for electronic pressure sensing devices within a few years.

With 300 employees at 3 locations in Germany, the Czech Republic and China BD|SENSORS has solutions from 0.1 mbar up to 6.000 bar:

- > pressure sensors, pressure transducers  
pressure transmitters
- > electronic pressure switches
- > pressure measuring devices with display and  
switching outputs
- > hydrostatic level probes

Two pressure transmitters and a submersible probe, based on a stainless steel silicon sensor were the beginning.

Today the range extends to more than 70 standard products, from economical OEM devices to high-end products with HART® communication or field bus interface.

In addition we have developed hundreds of customer-specific applications, underlining the competence and flexibility of BD|SENSORS. The excellent price/performance ratio of our products is proof of the fact that we are able to meet the toughest demand: Being a problem-solver for our customers.

For large production batches as well as for small production numbers, no matter for what medium or external factors, with almost any mechanical or electrical connection - we solve your problem

**flexibly, quickly and cost-efficiently.**

## INDEX

<b>PRECISION</b>	<b>5-16</b>
DM 01	5-10
DL 01	11-16
<b>INDUSTRY</b>	<b>17-30</b>
BAROLI 02	17-19
BAROLI 02 P	20-23
BAROLI 05	24-26
BAROLI 05 P	27-30
<b>OEM</b>	<b>31-36</b>
DM 10	31-33
DM 17	34-36
<b>4 ADVANTAGES</b>	<b>38</b>

pressure ranges 0 ... 100 mbar up to 0 ... 600 bar

With a great variety of mechanical and electrical connections, BD|SENSORS offers a new generation of digital pressure gauges for different applications. Due to the two sensor technologies in use (stainless steel sensor or ceramic sensor), our digital pressure gauges are suitable for nearly all fluids, pasty media and gases.

The display module is continuously rotatable, so that a clear readability is guaranteed even in unusual installation positions.



	PRODUCT	PREFERRED APPLICATION			MEDIA WETTED PARTS				NOMINAL PRESSURE		ACCURACY	FUNCTION				APPROVAL			
		general purpose	hygienic	calibration	pressure connection: metal	Sensor diaphragm		seal		bar min	bar max	% FSO (standard)	data logger	exchangeable pressure sensor	lighting	display rotatable	EX	UL	EHEDG
						stainless steel	ceramic	elastomer	without, welded										
PRECISION	DM 01			•	•	•		•	•	0.1	400	≤± 0.05	•	•	•		•	•	
	DL 01			•	•	•		•		0.1	400	≤± 0.05	•	•	•		•		
INDUSTRY	BAROLI 02	•			•	•		•	•	0.1	600	≤± 0.125				•		•	
	BAROLI 05	•			•		•	•		0.4	600	≤± 0.25				•		•	
	BAROLI 02 P		•		•	•			•	0.1	40	≤± 0.125				•		•	•
	BAROLI 05 P	•			•	•		•		60	400	≤± 0.25				•		•	
OEM	DM 10	•			•		•	•		1.6	250	≤± 0.5				•		•	
	DM 17	•			•	•			•	6	600	≤± 0.5				•		•	

\* according to IEC 60770



# DM 01

## Battery Powered Precision Digital Gauge

Stainless Steel Sensor

class 0.05

### Nominal pressure

from 0 ... 100 mbar up to 0 ... 400 bar

### Special characteristics

- ▶ modular sensor concept
- ▶ data logger
- ▶ graphic display
- ▶ stainless steel housing Ø100 mm
- ▶ communication interface USB 2.0

### Optional

- ▶ accredited calibration certificate according to DKD / DAkkS
- ▶ IS-version zone 0/1
- ▶ software incl. USB converter
- ▶ service case with accessories

### Functions

- ▶ zero point calibration
- ▶ data logger
- ▶ turn off automatic
- ▶ free button assignment
- ▶ background illumination etc.

The digital pressure gauge DM 01 is a precision device fulfilling highest demands. It was conceived especially for the process monitoring and calibration.

The advantage: The DM 01 consists of two devices - the digital display and a pressure transmitter. The pressure transmitter can be selected on site for different measuring ranges and connected to the display - without tools or parameter setting.

Outstanding measuring qualities, an intuitive operation, as well as an innovative, modular sensor concept characterise the DM 01. The battery-powered digital pressure gauge can be used e.g. for controlling pressure courses or calibrating pressure transmitters.

The integrated data logger is able to record pressure and temperature values linearly and cyclically which can be analysed with the software BD|DAQ.

### Preferred areas of use are



Calibrating techniques



Laboratory applications



Plant and machine engineering





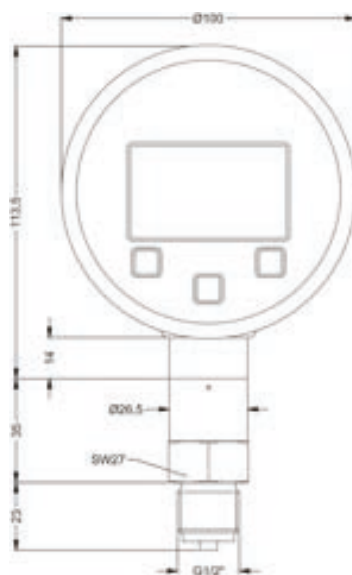
Input pressure												
Nominal pressure gauge	[bar]	-1...0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	1	1	1	2	5	5	10	10	17.5	35
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50
Nominal pressure gauge / abs.	[bar]	10	16	25	40	60	100	160	250	400		
Overpressure	[bar]	35	80	80	105	210	600	600	1000	1000		
Burst pressure ≥	[bar]	50	120	120	210	420	1000	1000	1250	1250		
Vacuum resistance	p <sub>N</sub> ≥ 1 bar: unlimited vacuum resistant; p <sub>N</sub> < 1 bar: on request											
Performance												
Accuracy <sup>1</sup>	nominal pressure p <sub>N</sub> ≥ 0.4 bar: ≤ ± 0.05 % FSO BFSL nominal pressure p <sub>N</sub> < 0.4 bar: ≤ ± 0.125 % FSO BFSL											
Long term stability	≤ ± 0.1 % FSO / year at reference conditions											
Measuring rate / Display	1, 2 or 50 measurements per second											
<sup>1</sup> accuracy according to IEC 60770 – minimum value setting (non-linearity, hysteresis, repeatability) - at room temperature 20 °C												
Thermal effects (offset and span)												
Temperature error	for nominal pressure ranges p <sub>N</sub> ≤ 160 bar: tolerance band ≤ ± 0.2 % FSO for nominal pressure ranges p <sub>N</sub> > 160 bar: tolerance band ≤ ± 0.75 % FSO											
compensated range	0 ... 50 °C											
Permissible temperatures												
Permissible temperatures	medium: -10 ... 55 °C storage: -20 ... 70 °C environment: display module: -10 ... 55 °C transmitter: -20 ... 70 °C (at 1G to +60 °C)											
Materials												
Pressure port / housing	stainless steel 1.4404 (316L)											
Display housing	stainless steel 1.4301 (304)											
Seals (media wetted)	FKM, without (welded version) and others on request											
Diaphragm	stainless steel 1.4435 (316L)											
Media wetted parts	pressure port, seal, diaphragm											
Explosion protection												
AX16-DM01	IBExU12ATEX1108 X variant with standard front foil for zone 1: II 2G Ex ia IIB T4 Gb variant with conductive front foil for zone 0: II 1G Ex ia IIC T4 Ga (on request)											
Miscellaneous												
Display	graphic LC display: visible area 55 x 46 mm; (resolution 128x64) figure height 5.5 mm (displaying of pressure value) measured value display: max. 7 digits, depending on pressure range temperature display, time, 100-segment-bargraph, potential input value background illumination: illumination period and intensity adjustable											
Temperature display range	accuracy: ± 2 K resolution: 0.1 K display: -10 ... 55 °C											
Adjustable units pressure and temperature	[mbar], [bar], [psi], [mmHg], [cmHg], [inHg], [kPa], [MPa], [hPa], [mmH <sub>2</sub> O], [mH <sub>2</sub> O], [inH <sub>2</sub> O], [kg/cm <sup>2</sup> ], [°C], [°F], [K]											
Data logger	modes: single, cyclic, linear, off recording pressure values and sensor temperature measuring value interval adjustable (hrs, min, sec, 20 ms, daily at a defined time) measurement rate adjustable (1/s, 2/s or 50/s only with 20 ms measured value interval) max. 600798 values											
Current consumption	without background illumination: approx. 1.3 mA with background illumination: approx. 16 mA (depending on adjusted intensity) standby mode: approx. 1.2 µA											
Supply	3x 1.5 V: Duracell Plus battery, DUR087033, AA (LR6)											
Ingress protection	IP 67											
Installation position <sup>2</sup>	any											
Weight	approx. 680 g											
A / D-converter resolution	16 bit (module)											
Battery life	standard use: > 2.000 h standby mode: at least 5 years (with measurement rate 1/s and 2/s)											
Operational life	100 million load cycles											
CE-conformity	EMC directive: 2014/30/EU pressure equipment directive: 2014/68/EU (Module A) <sup>3</sup> electromagnetic compatibility: according to EN 6132											

<sup>2</sup> Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges  $p_N \leq 1$  bar.

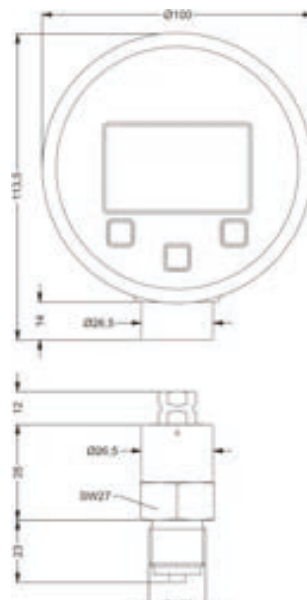
<sup>3</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar.

## Dimensions (in mm)

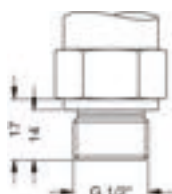
## standard



G1/2" EN 837

G1/2" EN 837  
(pressure transmitter and display separated)

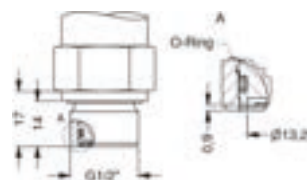
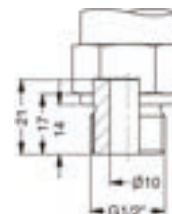
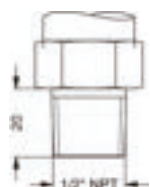
## option



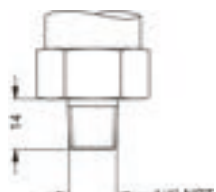
G1/2" DIN 3852



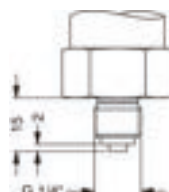
G1/4" DIN 3852

G1/2" DIN 3852  
with flush sensor <sup>4</sup>G1/2" DIN 3852  
open pressure port <sup>4</sup>

1/2" NPT



1/4" NPT



G 1/4" EN 837

⇒ metrical threads and other variations on request

<sup>4</sup> only possible for nominal pressure ranges  $p_N \leq 40$  bar

Further pressure sensor modules can be combined to the advertisement unity DM01-A21 and DM01-A2E. an overview of available pressure sensor modules and characteristics you will find in the following matrix:

#### Pressure sensor module

Name	Pressure range	Filling fluid	diaphragm	accuracy	Special feature	further information
<b>M0</b>	0...0.1 bar up to 0...400 bar	silicone oil	stainless steel 1.4435	0.05% FSO	very high precision	see data sheet
<b>M4</b>	0...6 bar up to 0...600 bar	none; welded version	stainless steel 1.4542	0.25% FSO	i.a. for oxygen; oil and grease free	on request
<b>M7</b>	0...0.1 bar up to 0...10 bar	none	ceramic Al <sub>2</sub> O <sub>3</sub> 96%	0.15% FSO	high overpressure	on request

#### Accessories

**Accessories are not in scope of supply and have to be ordered separately!**

#### Software BD|DAQ (Communication, Configuration, Measurement display, Protocol creation)

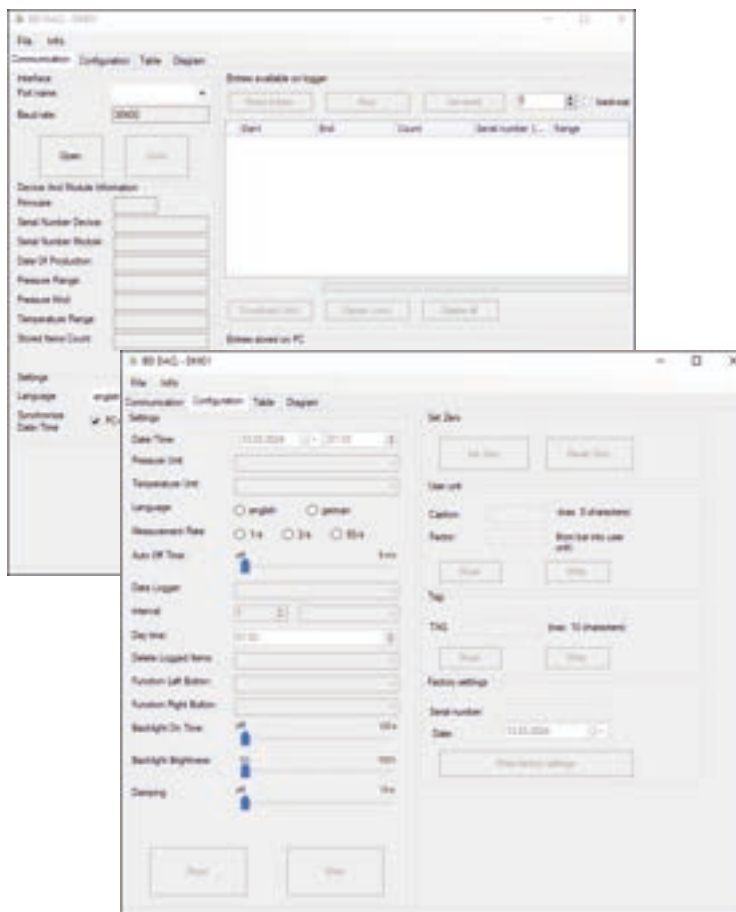
Optionally software BD|DAQ and an interface cable can be ordered. The software is also available for download on our homepage.

#### Software:

- display of device information (serial number, pressure and temperature range, ...)
- configuration area for all parameters
- download area for recorded data:
  - date
  - pressure measurement
  - temperature measurement
- protected data acquisition
- measured value representation in tabular or graphic form
- free scaling of the diagram
- creation of measurement / test report as a PDF file
- data export










Interface cable USB (type A) to mini connector (3.5 mm) with integrated converter  
l: 1.7 m



Ordering number: ZUSBCD01



<p>Hard-shell service case without accessories</p> <p>Service_Case_DM01</p>		<p>Hard shell case.</p> <p>dimension in mm (L x W x H): 432 X 363 X 138</p>
<p>Protective cap</p> <p>Ordering number: Z1002648</p>		<p>Rubber protection</p>
<p>Additional batteries</p> <p>(only in combination with service case)</p>		<p>for IS-version use only 3 x 1.5 V / AA Duracell Power Plus</p>
<p>Seal set</p> <p>(only in combination with service case)</p>		<p>Flat seal copper for mechanical connections according to EN 837</p>
<p>PTFE seal tape Nr. 498.505</p> <p>(only in combination with service case)</p>		<p>Seal tape for mechanical connections</p> <p>material: PTFE (Teflon) temperature range: -200 ... 280 °C</p>
<p>Wrench</p> <p>(only in combination with service case)</p>		<p>Wrench SW 27</p>
<p>Calibration test pump KHP 4002 including pressure test tube</p> <p>Reference connection: G1/2" EN 837</p> <p>Test unit connection: G1/4" EN 837</p> <p>Ordering number: 1002637</p>		<p>The calibration test pump is used to generate pressure and vacuum for checking, adjusting and calibrating mechanical and electronic pressure measuring instruments by comparative measurements.</p> <p>These pressure tests may be carried out in laboratories, workshop or on site at the measuring point.</p> <p>pressure: 0 ... 40 bar vacuum: 0 ... -0.95 bar weight: approx. 510 g dimension: approx. 220 x 105 x 63 mm</p>

Ordering code DM 01

1. Position: Digital Display for Precision Digital Pressure Gauge DM 01

DM 01-

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Digital Pressure Gauge DM 01				
with communication interface	A	2	1	
IS (zone 1) with communication interface	A	2	E	
IS (zone 0) with communication interface	A	2	G	consult

2. Position: Transmitter for Precision Digital Pressure Gauge DM 01

DM 01

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[illegible]<sup>1</sup> absolute pressure possible from 0.4 bar<sup>2</sup> only possible for  $p_N \leq 40$  bar<sup>3</sup> only in combination with service case

ordering example:

device DM 01:

position 1: DM01-A21

position 2: MOK-1001-B1-200-1-000

only display: position 1: DM01-A21

only transmitter: position 2: MOK-1001-B1-200-1-000



# DL 01

## Battery Powered Precision Digital Gauge for Leak Testing

Stainless Steel Sensor

class 0.05

### Nominal pressure

from 0 ... 100 mbar up to 0 ... 400 bar

### Special characteristics

- ▶ modular sensor concept
- ▶ data logger
- ▶ graphic display
- ▶ stainless steel housing Ø100 mm
- ▶ communication interface USB 2.0

### Optional

- ▶ accredited calibration certificate according to DKD / DAkkS
- ▶ IS-version zone 0/1
- ▶ software incl. USB converter
- ▶ service case with various accessories

### Functions

- ▶ data logger interval  
1 s ... 99 days or fixed time
- ▶ default values for time / test duration
- ▶ zero point calibration
- ▶ backlight and much more

The digital pressure gauge DL 01 is a precision device fulfilling highest demands. It was conceived especially for leak testing or pipeline monitoring.

In the leakage mode the device shows the pressure decrease during an adjustable time. After finishing of measurement, the result is shown in the display.

Outstanding measuring qualities, an intuitive operation, as well as an integrated data logger characterize the DL 01. In addition, the graphic display provides the handling and the clear presentation of the measuring procedure.

The gathered data and the relevant information (TAG or serial number, etc.) are recorded and can be read out and processed over the integrated interface via USB and PC software.

### Preferred areas of use are



Plant and machine engineering

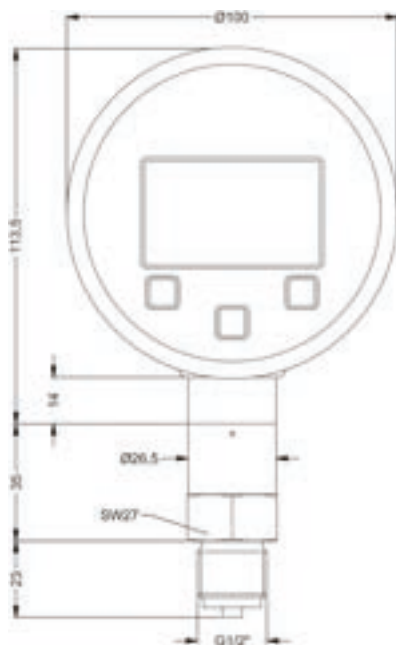
- Pipeline monitoring
- Leak testing



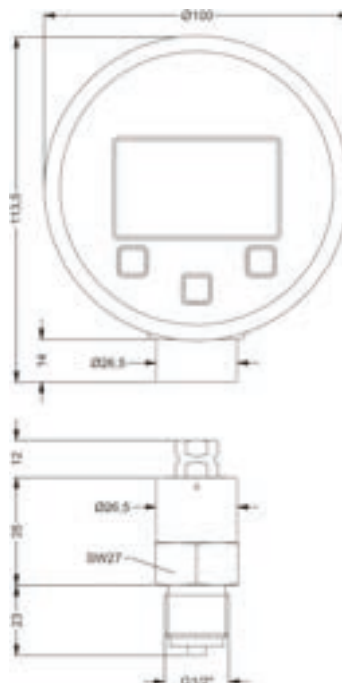
Input pressure												
Nominal pressure gauge	[bar]	-1...0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	1	1	1	2	5	5	10	10	17.5	35
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50
Nominal pressure gauge / abs.	[bar]	[bar]	10	16	25	40	60	100	160	250	400	
Overpressure	[bar]	[bar]	35	80	80	105	210	600	600	1000	1000	
Burst pressure ≥	[bar]	[bar]	50	120	120	210	420	1000	1000	1250	1250	
Vacuum resistance	p <sub>N</sub> ≥ 1 bar: unlimited vacuum resistance; p <sub>N</sub> < 1 bar: on request											
Performance												
Accuracy <sup>1</sup>	nominal pressure p <sub>N</sub> ≥ 0.4 bar: ≤ ± 0.05 % FSO BFSL nominal pressure p <sub>N</sub> < 0.4 bar: ≤ ± 0.125% FSO BFSL											
Long term stability	≤ ± 0.1 % FSO / year at reference conditions											
Measuring rate / Display	1 or 2 measurements per second											
<sup>1</sup> accuracy according to IEC 60770 – minimum value setting (non-linearity, hysteresis, repeatability) – at room temperature 20 °C												
Thermal effects (offset and span)												
Temperature error	for nominal pressure ranges p <sub>N</sub> ≤ 160 bar: tolerance band ≤ ± 0.2 % FSO for nominal pressure ranges p <sub>N</sub> > 160 bar: tolerance band ≤ ± 0.75 % FSO											
compensated range	0 ... 50 °C											
Permissible temperatures												
Permissible temperatures	medium: -10 ... 55 °C storage: -20 ... 70 °C environment: display module: -10 ... 55 °C / transmitter: -20 ... 70 °C (for 1G up to +60 °C)											
Materials												
Pressure port / housing	stainless steel 1.4404 (316L)											
Display housing	stainless steel 1.4301 (304)											
Seals (media wetted)	FKM, without (welded version)											
Diaphragm	stainless steel 1.4435 (316L)											
Media wetted parts	pressure port, seal, diaphragm											
Explosion protection												
AX16-DL01	IBExU12ATEX1108 X variant with standard front foil for zone 1: II 2G Ex ia IIB T4 Gb variant with conductive front foil for zone 0: II 1G Ex ia IIC T4 Ga											
Miscellaneous												
Display	graphic LC display: visible area 55 x 46 mm; (resolution 128x64) figure height 5.5 mm (displaying of pressure value) measured value display: max. 7 digits, depending on pressure range temperature display, time, 100-segment-bargraph, potential input value background illumination: illumination period and intensity adjustable											
Temperature display range	accuracy: ± 2 K resolution: 0,1 K display: -10 ... 55 °C											
Adjustable units pressure and temperature	[mbar], [bar], [psi], [mmHg], [cmHg], [inHg], [kPa], [MPa], [hPa], [mmH <sub>2</sub> O], [mH <sub>2</sub> O], [inH <sub>2</sub> O], [kg/cm <sup>2</sup> ], [°C], [°F], [K]											
Data logger	modes: single, cyclic, linear, off recording pressure values and sensor temperature measuring value interval adjustable (hrs, min, sec, 20 ms, daily at a defined time) measurement rate adjustable (1/s, 2/s or 50/s only with 20 ms measured value interval) max. 600798 values											
Current consumption	without background illumination: approx. 1.3 mA with background illumination: approx. 16 mA (depending on adjusted intensity) standby mode: approx. 1.2 µA											
Supply	3x 1.5 V: Duracell Plus battery, DUR087033, AA (LR6)											
Ingress protection	IP 67											
Installation position <sup>2</sup>	any											
Weight	approx. 680 g											
A/D-converter resolution	16 bit (module)											
Battery life	standard use: > 2.000 h standby mode: at least 5 years (with measurement rate 1/s and 2/s)											
Operational life	100 million load cycles											
CE-conformity	EMC directive: 2014/30/EU pressure equipment directive: 2014/68/EU (Module A) <sup>3</sup> electromagnetic compatibility: according to EN 61326											
<sup>2</sup> Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges p <sub>N</sub> ≤ 1 bar.												
<sup>3</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar												

## Dimensions (in mm)

## standard



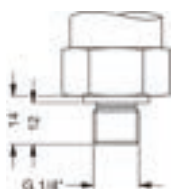
G1/2" EN 837

G1/2" EN 837  
(pressure transmitter and display separated)

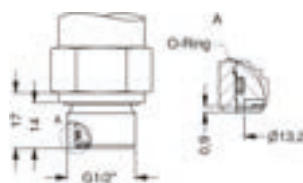
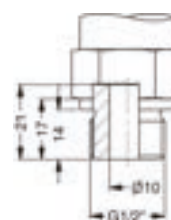
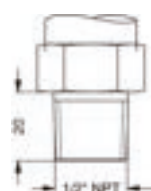
## optional



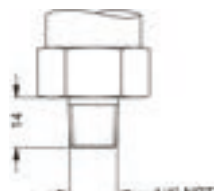
G1/2" DIN 3852



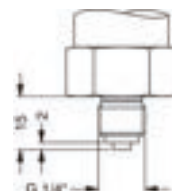
G1/4" DIN 3852

G1/2" DIN 3852  
with flush sensor <sup>4</sup>G1/2" DIN 3852  
open pressure port <sup>4</sup>

1/2" NPT



1/4" NPT



G1/4" EN 837

⇒ metrical threads and other variations on request

<sup>4</sup> only possible for nominal pressure ranges  $p_N \leq 40$  bar



**Accessories are not in scope of supply and have to be ordered separately.**

### BD|DAQ Software

Optionally the software BD|DAQ and an interface cable can be ordered. The software is also available for download on our homepage.








#### Software (Communication, Configuration):

- display of device information (serial number, pressure and temperature range, ...)
- configuration area for all parameters
- download area for recorded data:
  - date
  - pressure value
  - temperature value
- protected data acquisition
- measured value representation in tabular or graphic form
- free scaling of the diagram
- creation of measurement / test report as a PDF file
- data export



Interface cable with integrated convertor USB (type A) to mini connector (3.5 mm)  
length: 1.7 m

Ordering number: ZUSBOD02

<p>Hard-shell service case without accessories</p> <p>Service_Case_DM01</p>		<p>Hard shell case.</p> <p>dimension in mm (L x W x H): 432 X 363 X 138</p>
<p>Protective cap</p> <p>Ordering number: Z1002648</p>		<p>Rubber protection</p>
<p>Additional batteries</p> <p>(only in combination with service case)</p>		<p>for IS-version use only 3 x 1.5 V / AA Duracell Power Plus</p>
<p>Seal set</p> <p>(only in combination with service case)</p>		<p>Flat seal copper for mechanical connections according to EN 837</p>
<p>PTFE seal tape Nr. 498.505</p> <p>(only in combination with service case)</p>		<p>Seal tape for mechanical connections</p> <p>material: PTFE (Teflon) temperature range: -200 ... 280 °C</p>
<p>Wrench</p> <p>(only in combination with service case)</p>		<p>Wrench SW 27</p>
<p>Calibration test pump KHP 4002 including pressure test tube</p> <p>Reference connection: G1/2" EN 837</p> <p>Test unit connection: G1/4" EN 837</p> <p>Ordering number: 1002637</p>		<p>The calibration test pump is used to generate pressure and vacuum for checking, adjusting and calibrating mechanical and electronic pressure measuring instruments by comparative measurements.</p> <p>These pressure tests may be carried out in laboratories, workshop or on site at the measuring point.</p> <p>pressure: 0 ... 40 bar vacuum: 0 ... -0.95 bar weight: approx. 510 g dimension: approx. 220 x 105 x 63 mm</p>

Ordering code DL 01

1. Position: Digital Display for Precision Digital Pressure Gauge DL 01

DL 01-

DL 01-				
Digital pressure gauge DL 01				
with communication interface	A	2	1	
IS (zone 1) with communication interface	A	2	E	
IS (zone 0) with communication interface	A	2	G	consult

2. Position: Transmitter for Precision Digital Pressure Gauge DL 01

DL 01

DL 01					
<div><div></div><div></div><div></div>-<div></div><div></div><div></div><div></div>-<div></div>-<div></div><div></div><div></div><div></div>-<div></div><div></div><div></div></div>					
Pressure					
	gauge	M	0	P	
	absolute	M	0	Q	
Input					
	[bar]				
	0.10	1		1	0 0 0
	0.16	1		1	6 0 0
	0.25	1		2	5 0 0
	0.40			4	0 0 0
	0.60			6	0 0 0
	1.0			1	0 0 1
	1.6			1	6 0 1
	2.5			2	5 0 1
	4.0			4	0 0 1
	6.0			6	0 0 1
	10			1	0 0 2
	16			1	6 0 2
	25			2	5 0 2
	40			4	0 0 2
	60			6	0 0 2
	100			1	0 0 3
	160			1	6 0 3
	250			2	5 0 3
	400			4	0 0 3
	-1 ... 0	X	1	0	2
	customer	9	9	9	
Version					
	standard version (without explosion protection)			0	
	IS-version			E	
Accuracy					
	[BFSL]				
standard for p <sub>N</sub> ≥ 0.4 bar	0.05 % FSO			B	1
standard for p <sub>N</sub> < 0.4 bar	0.125 % FSO			B	2
	customer			9	9
Mechanical connection					
	G1/2" DIN 3852			1	0 0
	G1/2" EN 837			2	0 0
	G1/4" DIN 3852			3	0 0
	G1/4" EN 837			4	0 0
	G1/2" DIN 3852 with flush sensor	2		F	0 0
	G1/2" DIN 3852 open pressure port	2		H	0 0
	1/2" NPT			N	0 0
	1/4" NPT			N	4 0
	customer			9	9 9
Seal					
	FKM			1	
	customer			9	
Special version					
	standard				0 0 0
	customer				9 9 9
Accessories					
	USB converter (incl. software BD DAQ)			ZUSBCD02	
	service case (without accessories)			Service_Case_DM01	
	Protective cap			Z1002648	
	Additional batteries (3 x 1,5 V / AA Duracell Power Plus)	3		1002798	
	Seal set	3		5008886	
	PTFE seal tape	3		1002724	
	wrench	3		1002722	
	Calibration test pump (KHP 4002)			1002637	

<sup>1</sup> absolute pressure possible from 0.4 bar<sup>2</sup> only possible for  $p_N \leq 40$  bar<sup>3</sup> only in combination with service case

ordering example:

device DL 01:

position 1: DL01-A21

position 2: M0P-1001-B1-200-1-000

only display: position 1: DL01-A21

only transmitter: position 2: M0P-1001-B1-200-1-000



# BAROLI 02

## Battery Powered Digital Pressure Gauge

Stainless Steel Sensor

class 0.1

### Nominal pressure

from 0 ... 100 mbar up to 0 ... 600 bar

### Special characteristics

- ▶ rotatable housing
- ▶ 2-line LC display  
4.5-digit 7-segment display  
6-digit 14-segment additional display

### Functions

- ▶ min / max function with reset function
- ▶ offset and end point calibration
- ▶ setting the pressure unit  
(bar, mbar, psi, InHg, cmHg, mmHg,  
hPa, kPa, MPa, mH<sub>2</sub>O, InH<sub>2</sub>O)
- ▶ switch-off automatic

The battery-powered digital pressure gauge BAROLI 02 enables a local displaying of values, satisfying the highest demands for accuracy and long-term stability. The pressure gauge may be applied in all media compatible with the stainless steel used; it shows an excellent robustness and a high overpressure protection.

The BAROLI 02 display housing is rotatable, thus ensuring an easy reading even under unfavourable mounting conditions.

Additional functions:

changing the unit, displaying min / max values, calibrating of offset and the span, configuring the automatic switching-off

### Preferred areas of use are



Plant and machine engineering  
Pneumatics / hydraulics  
Measurement technology  
Calibration and test purposes



Laboratory techniques



Environmental engineering  
(water – sewage – recycling)



Input pressure ranges											
Nominal pressure gauge	[bar]	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40
Burst pressure	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

Nominal pressure gauge / absolute	[bar]	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	40	80	80	105	105	210	600	1050	1050	1250
Burst pressure	[bar]	50	120	120	210	210	420	1000	1250	1250	1250

Vacuum pressure	-1 ... 0 bar, overpressure: 5 bar, burst pressure: 7.5 bar	other vacuum ranges on request
Vacuum resistance	$P_N \geq 1$ bar: unlimited vacuum resistance; $P_N < 1$ bar: on request	

## Performance

Accuracy <sup>1</sup>	nominal pressure ≥ 0.4 bar: ≤ ± 0.125 % FSO BFSL nominal pressure < 0.4 bar: ≤ ± 0.25 % FSO BFSL
-----------------------	---

Measuring rate	5/sec
----------------	-------

Long term stability	$\leq \pm 0.1 \%$ FSO / year at reference conditions
---------------------	--

<sup>1</sup> accuracy according to IEC 60770 – minimum value setting (non-linearity, hysteresis, repeatability)

## Thermal effects (offset and span)

Nominal pressure P <sub>N</sub> [bar]	-1 ... 0	≤ 0.40	> 0.40
Tolerance band [% FS]	≤ ± 0.75	≤ ± 1	≤ ± 0.75
in compensated range [°C]	-20 ... 85 °C	0 ... 70 °C	-20 ... 85 °C

### Permissible temperatures

Permissible temperatures	medium: -20 ... 85 °C	environment: -20 ... 70 °C	storage: -30 ... 80 °C
--------------------------	-----------------------	----------------------------	------------------------

### Mechanical stability

Vibration	5 g RMS (25 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 1 msec	according to DIN EN 60068-2-27

## Materials

Pressure port / Housing	stainless steel 1.4404 (316 L)
Display housing	PA 6.6, polycarbonate
Seals (media wetted)	FKM
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seals, diaphragm

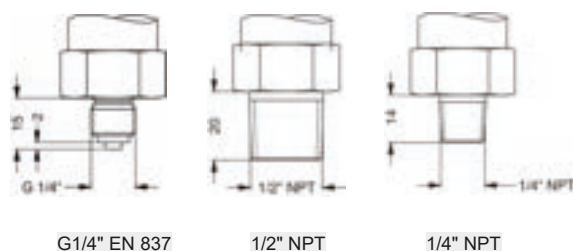
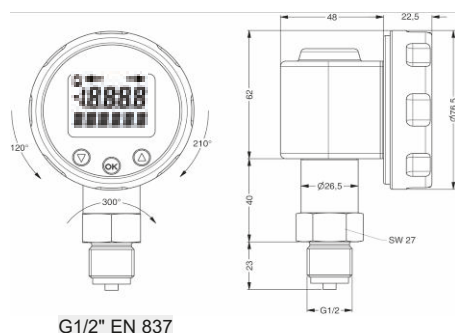
[illegible]

Display	LC display, visible range 40 x 30 mm; 4.5-digit 7-segment-display, digit height 11 mm, range of indication $\pm 19999$ ; 6-digit 14-segment additional display, digit height 7.5 mm	
Electromagnetic compatibility	emission and immunity according to EN 61326	
Supply	3.6 V Lithium battery; 2 pieces (type 1/2 AA)	
Data storage	EEPROM (non-volatile)	
Ingress protection	IP 65	
Installation position	any <sup>2</sup>	
Weight	approx. 300 g	
AD-converter solution	14 Bit	
Operational life of battery	standby mode: approx. 5 years	
Mech. operational life	100 million load cycles	
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (Modul A) <sup>3</sup>

<sup>2</sup> The digital pressure gauge is calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for devices with stainless steel sensor and pressure range  $P_N \leq 1$  bar.

<sup>3</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar.

#### Dimensions (in mm)



⇒ for nominal pressure  $P_N > 60$  bar increases the length of devices by 9 mm!



### Ordering code BAROLI 02

BAROLI 02		<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div>0</div></div>	-	<div><div></div><div></div></div>	-	<div><div>0</div><div>K</div><div>0</div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div>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<sup>1</sup> absolute pressure possible from 0.4 bar



# BAROLI 02P

## Battery Powered Digital Pressure Gauge

Stainless Steel Diaphragm  
Flush Welded

class 0.1

### Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 bar

### Special characteristics

- ▶ rotatable housing
- ▶ 2-line LC display  
4.5-digit 7-segment display  
6-digit 14-segment additional display
- ▶ hygienic process connections

### Functions

- ▶ min / max function with reset function
- ▶ offset and end point calibration
- ▶ setting the pressure unit
- ▶ configuration of switch-off automatic

The battery-powered digital pressure gauge BAROLI 02P with flush welded stainless steel sensor enables a local displaying of values in applications, where high requirements on hygienic process connections and easy cleaning or sterilization are requested. The filling medium is food compatible oil with FDA approval.

The BAROLI 02P display housing is rotatable, thus ensuring an easy reading even under unfavourable mounting conditions.

### Additional functions:

switching the unit, displaying min / max values, calibrating the offset and the end point, configuring the automatic switching-off

### Preferred areas of use are



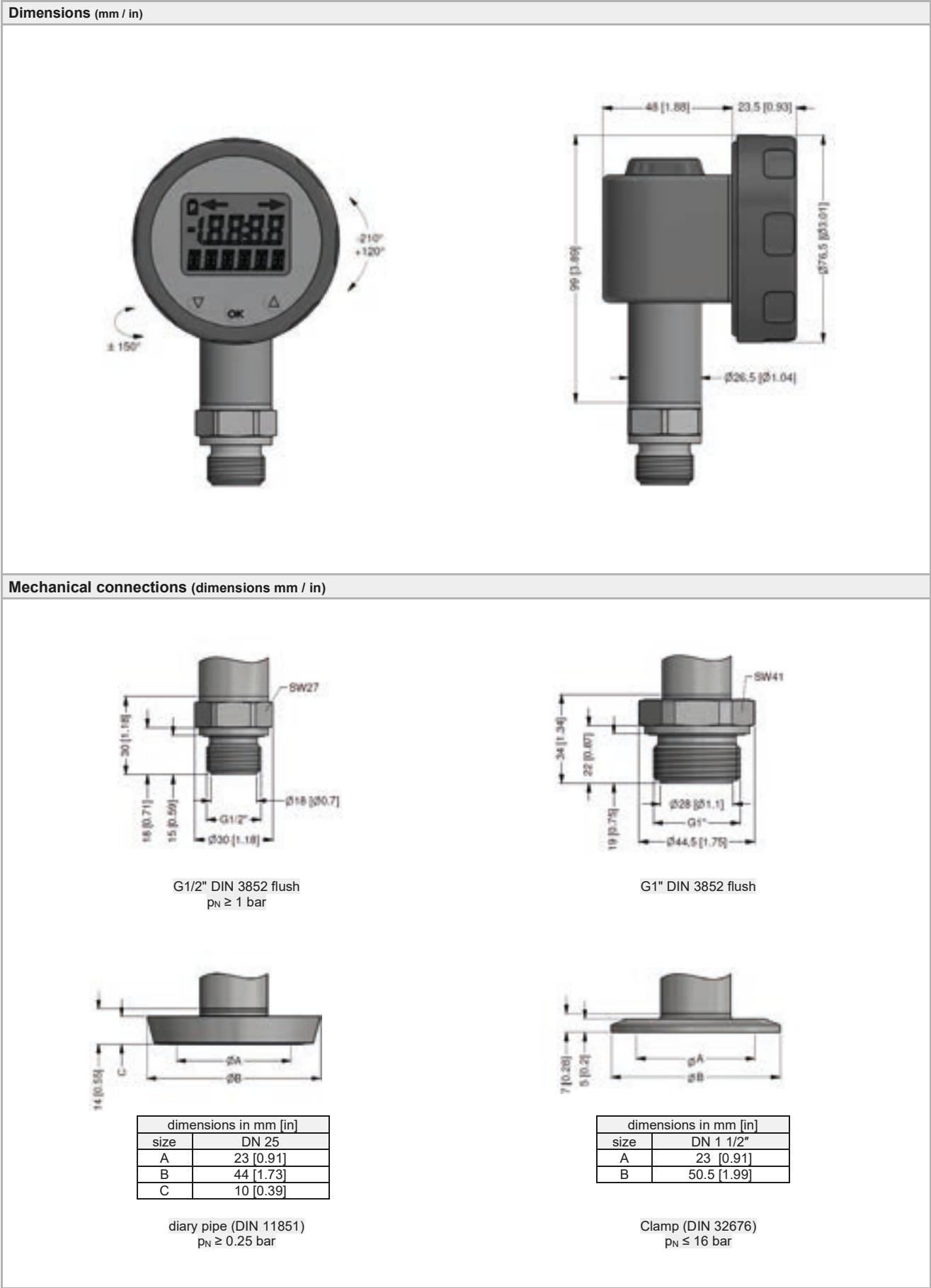
Food industry



Pharmacy



Input pressure ranges <sup>1</sup>									
Nominal pressure gauge	[bar]	-1 ... 0	0.10	0.16	0.25	0.40	0.60	1	1.6
Nominal pressure absolute	[bar]	-	-	-	-	0.40	0.60	1	1.6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15
Nominal pressure gauge / absolute	[bar]	2.5	4	6	10	16	25	40	
Overpressure	[bar]	10	20	40	40	80	80	105	
Burst pressure ≥	[bar]	15	25	50	50	120	120	210	
Vacuum resistance		p <sub>N</sub> ≥ 1 bar: unlimited vacuum resistance p <sub>N</sub> < 1 bar: on request							
<sup>1</sup> consider the pressure resistance of fitting and clamps									
Performance									
Accuracy <sup>2</sup>		nominal pressure ≥ 0.4 bar :    ≤ ± 0.125 % BFSL nominal pressure < 0.4 bar:    ≤ ± 0.25    % BFSL							
Measuring rate		5/sec							
<sup>2</sup> accuracy according to IEC 60770 – minimum value setting (non-linearity, hysteresis, repeatability)									
Thermal effects (offset and span)									
Nominal pressure p <sub>N</sub>	[bar]	-1 ... 0			< 0.40			≥ 0.40	
Tolerance band	[% FSO]	≤ ± 0.75			≤ ± 1.5			≤ ± 0.75	
in compensated range	[°C]	0 ... 70 °C			0 ... 50 °C			0 ... 70 °C	
Permissible temperatures									
Medium <sup>3</sup>		filling fluid of silicone oil:			-40 ... 125 °C				
		filling fluid of food compatible oil:			-10 ... 125 °C				
Environment		-20 ... 70 °C							
Storage		-30 ... 80 °C							
<sup>3</sup> max temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C									
Mechanical stability									
Vibration		5 g RMS (25 ... 2000 Hz)				according to IEC 60068-2-6			
Shock		100 g / 1 msec				according to IEC 60068-2-27			
Materials / Filling fluids									
Housing		stainless steel 1.4404 (316 L)							
Pressure port		inch thread:		stainless steel 1.4404 (316 L)					
		Clamp, dairy pipe:		stainless steel 1.4435 (316 L)					
		other on request							
Display housing		PA 6.6, polycarbonate							
Seals (media wetted)		standard:		FKM					
		clamp and dairy pipe:		none					
Diaphragm		stainless steel 1.4435 (316 L)							
Media wetted parts		pressure port, seals, diaphragm							
Filling fluids		standard:		silicone oil					
		option:		food compatible oil with FDA-certificate (mobile SHC Cibus 32; class code: H1; NFS registration no.: 141500)					
		other on request							
Miscellaneous									
EHEDG certificate Type EL Class I		EHEDG conformity is only ensured in combination with an approved seal. This is e.g. for - Clamp        (C62):        T-ring-seal from Combifit International B.V. - dairy pipe   (M73):        ASEPTO-STAR k-flex upgrade seal by Kieselmann GmbH							
Display		LC display, visible range 40 x 30 mm; 4.5-digit 7-segment-display, digit height 11 mm, range of indication ±19999; 6-digit 14-segment additional display, digit height 7.5 mm							
Electromagnetic compatibility		emission and immunity according to EN 61326							
Supply		3.6 V Lithium battery; 2 pieces (type 1/2 AA)							
Data storage		EEPROM (non-volatile)							
Ingress protection		IP 65							
Installation position		any (standard: the device is calibrated in a vertical position with the pressure connection down; other than the given position for p <sub>N</sub> ≤ 2 bar have to be declared at ordering)							
Weight		min. 350 g (pendent on the pressure connection)							
AD-converter solution		14 Bit							
Operational life of battery		standby mode: approx. 5 years							
Mech. operational life		100 million load cycles							
CE-conformity		EMV Directive: 2014/30/EU							









# BAROLI 05

## Battery Powered Digital Pressure Gauge

Ceramic Sensor

class 0.2

### Nominal pressure

from 0 ... 400 mbar up to 0 ... 600 bar

### Special characteristics

- ▶ rotatable housing
- ▶ 2-line LC display  
4.5-digit 7-segment display  
6-digit 14-segment additional display
- ▶ different mechanical connections:  
inch, NPT threads

### Functions

- ▶ min / max function with reset function
- ▶ offset and end point calibration
- ▶ setting the pressure unit  
(bar, mbar, psi, InHg, cmHg, mmHg,  
hPa, kPa, MPa, mH<sub>2</sub>O, InH<sub>2</sub>O)
- ▶ switch-off automatic configuration

The battery-powered digital pressure gauge BAROLI 05 has been designed for measuring the pressure (absolute or gauge) of fluids, oils and gases.

The display housing is rotatable, thus ensuring an easy reading even under unfavourable mounting conditions. Additional functions as changing unit, displaying min / max values, calibrating the offset and of span, as well as configuring the automatic switching-off complete the profile.

### Preferred areas of use are



Plant and machine engineering  
Pneumatics / hydraulics



Laboratory techniques



Environmental engineering  
(water - sewage - recycling)

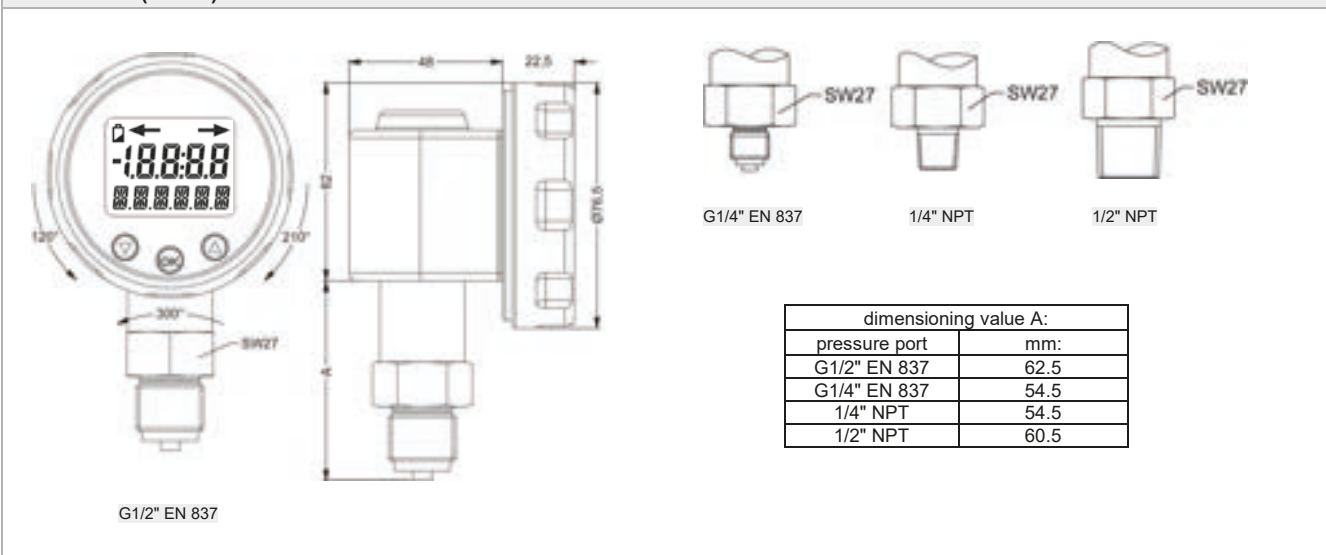


Input pressure range																	
Nominal pressure gauge [bar]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Nominal pressure abs. [bar]	-	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Overpressure [bar]	1	2	2	4	4	10	10	20	40	40	100	100	200	400	400	600	800
Burst pressure [bar]	2	4	4	5	5	12	12	25	50	50	120	120	250	500	500	650	880
Vacuum pressure	-1 ... 0 bar, overpressure: 4 bar, burst pressure: 7 bar																
Vacuum resistance	P <sub>N</sub> ≥ 1 bar: unlimited vacuum resistance P <sub>N</sub> < 1 bar: on request																

Performance	
Accuracy <sup>1</sup>	≤ ± 0.25 % FSO BFSL
Measuring rate	5/sec
<sup>1</sup> accuracy according to IEC 60770 – minimum value setting (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Thermal effects	≤ ± 0.2 % FSO / 10 K in compensated range 0 ... 85 °C
Permissible temperatures	
Permissible temperatures	medium: -20 ... 85 °C environment: -20 ... 70 °C storage: -30 ... 80 °C
Mechanical stability	
Vibration	5 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port / housing	stainless steel 1.4404 (316L)
Display housing	PA 6.6, Polycarbonate
Seals (media wetted)	FKM
Diaphragm	ceramics Al <sub>2</sub> O <sub>3</sub> 96 %
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Display	LC-Display, visible range 40 x 30 mm; 4.5-digit 7-segment main display, digit height 11 mm, range of indication ±19999; 6-digit 14-segment additional display, digit height 7.5 mm
Electromagnetic compatibility	emission and immunity according to EN 61326
Supply	3.6 V lithium battery; 2 pieces (1/2 AA)
Data storage	EEPROM (non-volatile)
Ingress protection	IP 65
Installation position	any
Weight	approx. 300 g
AD-converter solution	14 bit
Operational life of battery	standby mode: approx. 5 years
Mechanical operational life	100 million load cycles
CE-conformity	EMC directive: 2014/30/EU pressure equipment directive: 2014/68/EU (module A) <sup>2</sup>

<sup>2</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar.

#### Dimensions (in mm)



Ordering code BAROLI 05

[illegible]



# BAROLI 05P

## Battery Powered Digital Pressure Gauge

Stainless Steel Diaphragm Flush Welded

class 0.2

### Nominal pressure

from 0 ... 60 bar up to 0 ... 400 bar

### Product characteristics

- ▶ rotatable housing
- ▶ 2-line LC display  
4.5-digit 7-segment display  
6-digit 14-segment additional display
- ▶ for viscous and pasty media

### Functions

- ▶ min / max function with reset function
- ▶ offset and end point calibration
- ▶ setting the pressure unit
- ▶ switch-off automatic configuration

The battery-powered digital pressure gauge BAROLI 05P with flush welded stainless steel diaphragm is suitable for pressure measurement in viscous and pasty media where a dead space-free process connection is required. The filling medium is food compatible oil with FDA approval.

The BAROLI 05P display housing is rotatable, thus ensuring an easy reading even under unfavourable mounting conditions. Additional functions as changing unit, displaying min / max values, calibrating of offset and span, as well as configuring the automatic switching-off complete the profile.

### Preferred areas of use are



Plant and machine engineering



Food industry

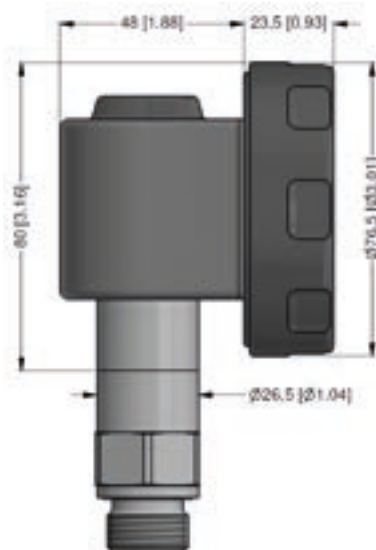


Input pressure range						
Nominal pressure gauge / absolute	[bar]	60	100	160	250	400
Overpressure	[bar]	100	200	400	400	600
Burst pressure $\geq$	[bar]	120	250	500	500	650

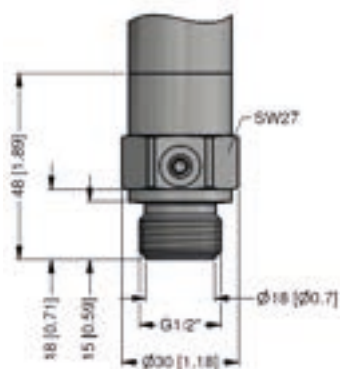
Performance	
Accuracy <sup>1</sup>	$\leq \pm 0.25$ % FSO BFSL
Measuring rate	5/sec
<sup>1</sup> accuracy according to IEC 60770 – minimum value setting (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Tolerance band	$\leq \pm 0.2$ % FSO / 10 K
in compensated range	0 ... 70 °C
Permissible temperatures	
Medium <sup>2</sup>	for filling fluid silicon oil : -40 ... 125 °C for filling fluid food compatible oil: -10 ... 125 °C
Environment	-20 ... 70 °C
Storage	-30 ... 80 °C
<sup>2</sup> max temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C	
Mechanical stability	
Vibration	5 g RMS (25 ... 2000 Hz) according to IEC 60068-2-6
Shock	100 g / 1 msec according to IEC 60068-2-27
Filling fluids	
Standard	silicone oil
Options	food compatible oil with FDA approval (Mobil SCH Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request
Materials	
Pressure port / housing	stainless steel 1.4404 (316L)
Display housing	PA 6.6, Polycarbonate
Seals (media wetted)	FKM
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Display	LC-Display, visible range 40 x 30 mm 4.5-digit 7-segment main display, digit height 11 mm, range of indication $\pm 1999$ 6-digit 14-segment additional display, digit height 7.5 mm
Electromagnetic compatibility	emission and immunity according to EN 61326
Supply	3.6 V lithium battery; 2 pieces (1/2 AA)
Data storage	EEPROM (non-volatile)
Ingress protection	IP 65
Installation position	any (standard calibrating in a vertical position with the pressure connection down)
Weight	min. 350 g (depending on pressure port)
AD-converter solution	14 bit
Operational life of battery	standby mode: approx. 5 years
Mechanical operational life	100 million load cycles
CE-conformity	EMC directive: 2014/30/EU pressure equipment directive: 2014/68/EU (module A) <sup>3</sup>
<sup>3</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar.	



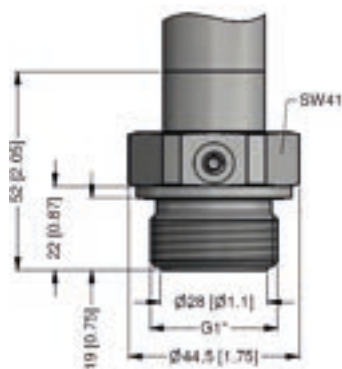
### Dimensions (mm / in)



### Mechanical connections (dimensions mm / in)



G1/2" flush  
(DIN 3852)



G1" flush  
(DIN 3852)

Ordering code BAROLI 05P

[illegible]



# DM 10

## Battery Powered Digital Pressure Gauge

Ceramic Sensor

class 0.5

### Nominal pressure

from 0 ... 1.6 bar up to 0 ... 250 bar

### Special characteristics

- ▶ rotatable housing and display
- ▶ LC display  
4.5-digit 7-segment display
- ▶ standard battery CR 2450  
operation period > 1 500 h

### Functions

- ▶ min / max function with reset function
- ▶ auto-zero
- ▶ setting of pressure unit  
(bar, mbar, psi, MPa, mH<sub>2</sub>O)
- ▶ configuration of switch-off automatic

The compact low-cost digital pressure gauge DM 10 is battery-powered and has an adjustable housing; it is thus extremely suitable for mobile pressure monitoring. The 4.5-digit LC-display indicates the battery status, the measurement value as well as the unit, this enables a fast and precise reading.

It is possible to switch between the most common units (bar, psi, Pa, MPa). Additional functions as auto-zero, min / max values and an automatic switching-off complete the DM 10 profile.

### Preferred areas of use are



Mobile pressure monitoring  
Plant and machine engineering  
Pneumatics / hydraulics



Environmental engineering  
(water – sewage – recycling)



**Input Pressure**

Nominal pressure gauge	[bar]	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	4	4	10	10	20	40	40	100	100	200	400	400
Burst pressure	[bar]	7	7	15	15	35	70	70	150	150	250	450	450
Vacuum resistance		unlimited											

**Performance**

Accuracy <sup>1</sup>	$\leq \pm 0.5 \% \text{ FSO BFSL}$
Measuring rate	1/sec
Long term stability	$\leq \pm 0.3 \% \text{ FSO / year}$

<sup>1</sup> accuracy according to IEC 60770 – minimum value setting (non-linearity, hysteresis, repeatability)

**Thermal effects (offset and span)**

Tolerance band	$\leq \pm 0.5 \% \text{ FSO / 10 K (typ.)}$ in compensated range 0 ... 50 °C
----------------	--

**Permissible temperatures**

Medium	-25 ... 85 °C
Environment	0 ... 70 °C
Storage	0 ... 70 °C

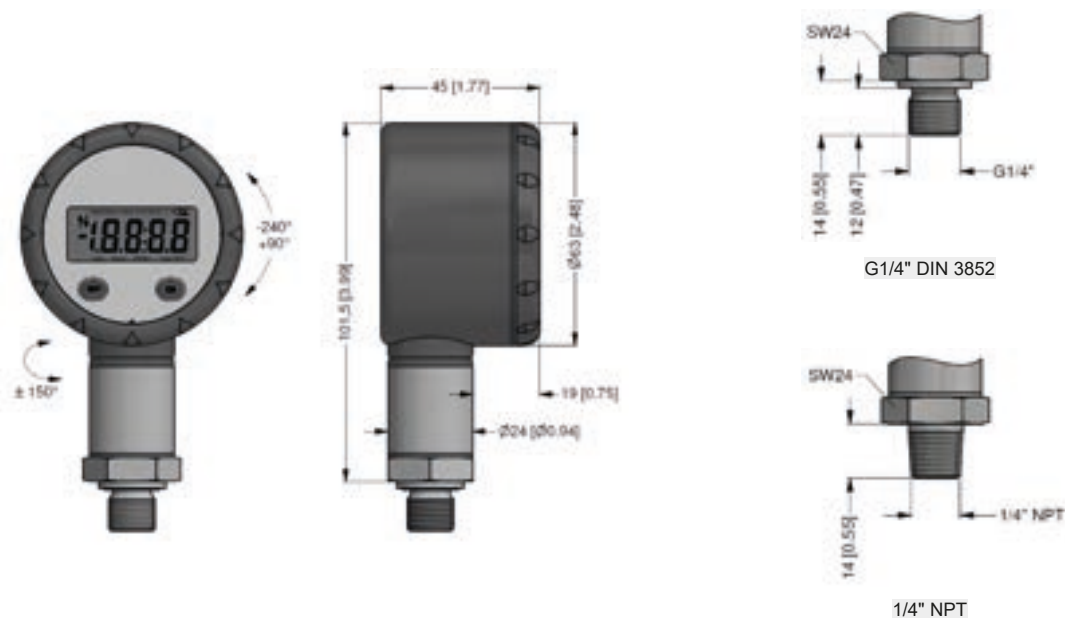
**Materials**

Pressure port / housing	stainless steel 1.4301 (304)
Display housing	PA 6.6, Polycarbonate
Seals (media wetted)	FKM others on request
Diaphragm	ceramics Al <sub>2</sub> O <sub>3</sub> 96 %
Media wetted parts	pressure port, seals, diaphragm

**Miscellaneous**

Display	LC-Display, visible range 36 x 15 mm; 4.5-digit 7-segment-display, digit size 8.5 mm, range of indication $\pm 1999$ decimal place is calculated automatically by device considering range and accuracy - customer-setting not possible
Electromagnetic compatibility	emission and immunity according to EN 61326
Supply	3 V lithium battery (CR 2450)
Data storage	EEPROM (non-volatile)
Ingress protection	IP 65
Installation position	any
Weight	approx. 150 g
Operational life of battery	min. 1 500 h with permanent operation
Mech. operational life	100 million load cycles
CE-conformity	EMC directive: 2014/30/EU pressure equipment directive: 2014/68/EU (Modul A) <sup>2</sup>

<sup>2</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar.

**Dimensions / Mechanical connections (mm / in)**

Ordering code DM 10

DM 10

□□□□ - □□□□ - 0 - □□ - 0 K 0 - □□□□ - □□ - □□ - □□ - □□ - □□

[illegible]



# DM 17

## Battery Powered Digital Pressure Gauge

stainless steel sensor, welded

class 0.5

### Nominal pressure

from 0 ... 6 bar up to 0 ... 600 bar

### Special characteristics

- ▶ rotatable housing and display
- ▶ LC display  
4.5-digit 7-segment display
- ▶ standard battery CR 2450  
operation period > 1 500 h

### Functions

- ▶ min / max function with reset function
- ▶ auto-zero
- ▶ setting of pressure unit  
(bar, mbar, psi, MPa, mH<sub>2</sub>O)
- ▶ configuration of automatic switch-off

### Option

- ▶ oil and grease free version  
for oxygen application

The compact digital pressure gauge DM 17 is characterized by its long-lasting battery supply as well as its adjustable housing. Thus, the DM 17 is ideal for mobile pressure monitoring. An unusual feature of the DM 17 is the welded pressure sensor. An absolute use in oxygen applications is given and strictest requirements on the particle liberty are fulfilled.

The 4.5-digit LC-display indicates the battery status, the measurement value as well as the unit; this enables a fast and precise reading.

Additional functions like setting of pressure unit, auto-zero, min / max values and an automatic switching-off function.

### Preferred areas of use are



Mobile pressure monitoring  
Plant and machine engineering  
Pneumatics / hydraulics



Oxygen application



Input Pressure												
Nominal pressure gauge	[bar]	6	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	12	20	32	50	80	120	200	320	500	800	1 200
Burst pressure	[bar]	30	50	80	125	200	300	500	800	1 400	2 000	3 000
Vacuum resistance		unlimited										

Performance	
Accuracy	$\leq \pm 0.5 \% \text{ FSO BFUL}$
Measuring rate	1/sec
Long term stability	$\leq \pm 0.3 \% \text{ FSO / year at reference conditions}$

#### Thermal effects (Offset and Span)

Tolerance band	$\leq \pm 0.5 \% \text{ FSO / 10 K (typ.)}$	in compensated range 0 ... 50 °C
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#### Permissible temperatures

Permissible temperatures	medium: -25 ... 85 °C	environment: 0 ... 70 °C	storage: 0 ... 70 °C
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#### Materials

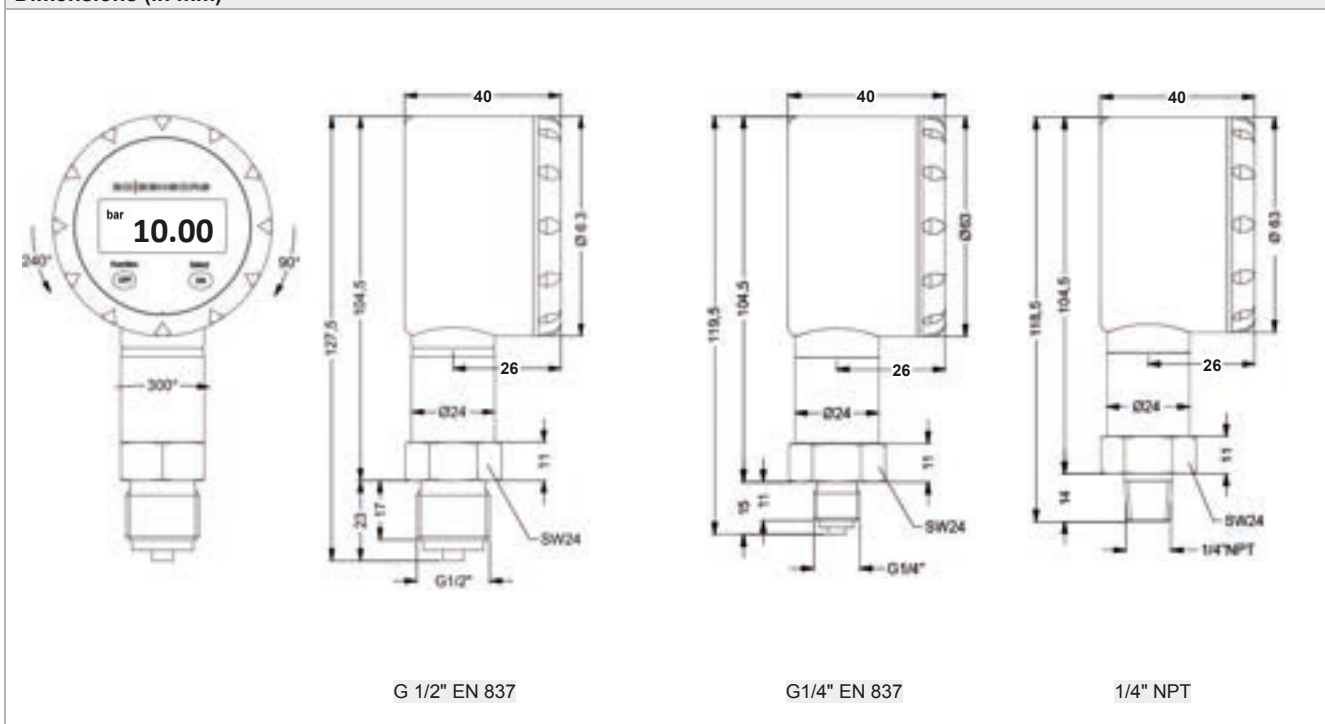
Pressure port / housing	stainless steel 1.4571 (316Ti) / 1.4301 (304)
Display housing	PA 6.6, Polycarbonate
Seal of sensor	none (welded)
Diaphragm	stainless steel 1.4542 (630)
Media wetted parts	pressure port, diaphragm

#### Miscellaneous

Display	LC-Display, visible range 36 x 15 mm; 4.5-digit 7-segment-display, digit size 8.5 mm, range of indication $\pm 1999$ decimal place is calculated automatically by device considering range and accuracy - customer-setting not possible		
Electromagnetic compatibility	emission and immunity according to EN 61326		
Supply	3 V lithium battery (CR 2450)		
Data storage	EEPROM (non-volatile)		
Ingress protection	IP 65		
Installation position	any		
Weight	plastic: approx. 150 g		
Operational life of battery	min. 1 500 h with permanent operation		
Mech. operational life	100 million load cycles		
CE-conformity	EMC directive 2014/30/EU      pressure equipment directive: 2014/68/EU (Modul A) <sup>1</sup>		

<sup>1</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar.

#### Dimensions (in mm)





## Ordering code DM 17

DM 17		<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div><div></div><div></div></div>	-	<div>0</div>	-	<div><div></div><div></div></div>	-	<div>0</div> <div>K</div> <div>0</div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div><div></div><div></div></div>
Pressure																		
	gauge	M	0	3														
Input		[bar]																
	6.0		6	0	0	1												
	10		1	0	0	2												
	16		1	6	0	2												
	25		2	5	0	2												
	40		4	0	0	2												
	60		6	0	0	2												
	100		1	0	0	3												
	160		1	6	0	3												
	250		2	5	0	3												
	400		4	0	0	3												
	600		6	0	0	3												
	customer		9	9	9	9												consult
Accuracy		[BFSL]																
	0.5 %						B	8										
	customer						9	9										consult
Mechanical connection / Seals																		
	G1/2" EN837 / without								2	0	0	2						
	1/4" NPT / without								N	4	0	2						
	G1/4" EN 837 / without								4	0	0	2						
	customer								9	9	9	9						consult
Pressure port																		
	Stainless steel 1.4571 (316Ti)											1						
	customer											9						consult
Diaphragm																		
	Stainless steel 1.4542 (630)											Z						
	customer											9						consult
Front foil																		
	standard												1					
	neutral												N					
	customer												9					consult
Special version																		
	standard															0	0	0
	oxygen application															0	0	7
	customer															9	9	9
																		consult

**BD|SENSORS** [www.bdsensors.de](http://www.bdsensors.de)

## COMPETENCE

**Industrial pressure measurement technology  
from 0.1 mbar up to 6000 bar**

- > pressure transmitters, electronic pressure switches or hydrostatic level probes
- > OEM or high-end products
- > standard products or customized solutions

BD|SENSORS has the right pressure measuring device at the right price.

## PRICE / PERFORMANCE

**pressure measurement at the highest level**

The concentration on electronic pressure transmitter has led to extraordinary efficiency and economical pricing.

BD|SENSORS is certain to be one of the most economical suppliers on the world market, given equal technical and commercial conditions.

## RELIABILITY

**projectable delivery times and strict  
observance of deadlines**

Short delivery times and firm deadlines, even for special designs, make BD|SENSORS a reliable partner for our customers.

BD|SENSORS reduces the level of your stock-keeping and increases your profitability.

## FLEXIBILITY

**We have special solutions for your individual  
requirement.**

We solve your problem in industrial pressure measurement quickly and economically, not only with large-scale production lines, but also for smaller requirements.

BD|SENSORS is especially flexible when technical support and quick assistance are required in service case as well as for rush orders.

## INDUSTRIES



plant and machine engineering



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renewable energy



semiconductor industry /  
cleanroom technology



HVAC



hydraulics



refrigeration



calibration techniques



laboratory techniques



medical technology



food and beverage



vehicles and mobile hydraulics



oil and gas industry



pharmaceutical industry



marine / shipbuilding / offshore



heavy industry



environmental industry



packaging and paper industry

## MEDIA



sewage



aggressive media



colours



gases



fuels and oils



pasty and viscous media



oxygen



water



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