



# DM01

## 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 incl. software
- ▶ graphic display
- ▶ stainless steel housing Ø 100 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
- ▶ configurable switch-off automatic
- ▶ background illumination

The digital pressure gauge DM01 is a precision device fulfilling highest demands. It was conceived especially for the process monitoring and calibration. The advantage: With the digital display DM01, different pressure transmitters can be used for various measurement ranges.

The pressure transmitter can be selected and easily exchanged for the required pressure range on site – without tools or parameter setting.

Outstanding measuring qualities, an intuitive operation, as well as an innovative, modular sensor concept characterize the DM01. 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 analyzed with software BD|DAQ.

### Preferred areas of use are



Calibrating techniques



Laboratory applications

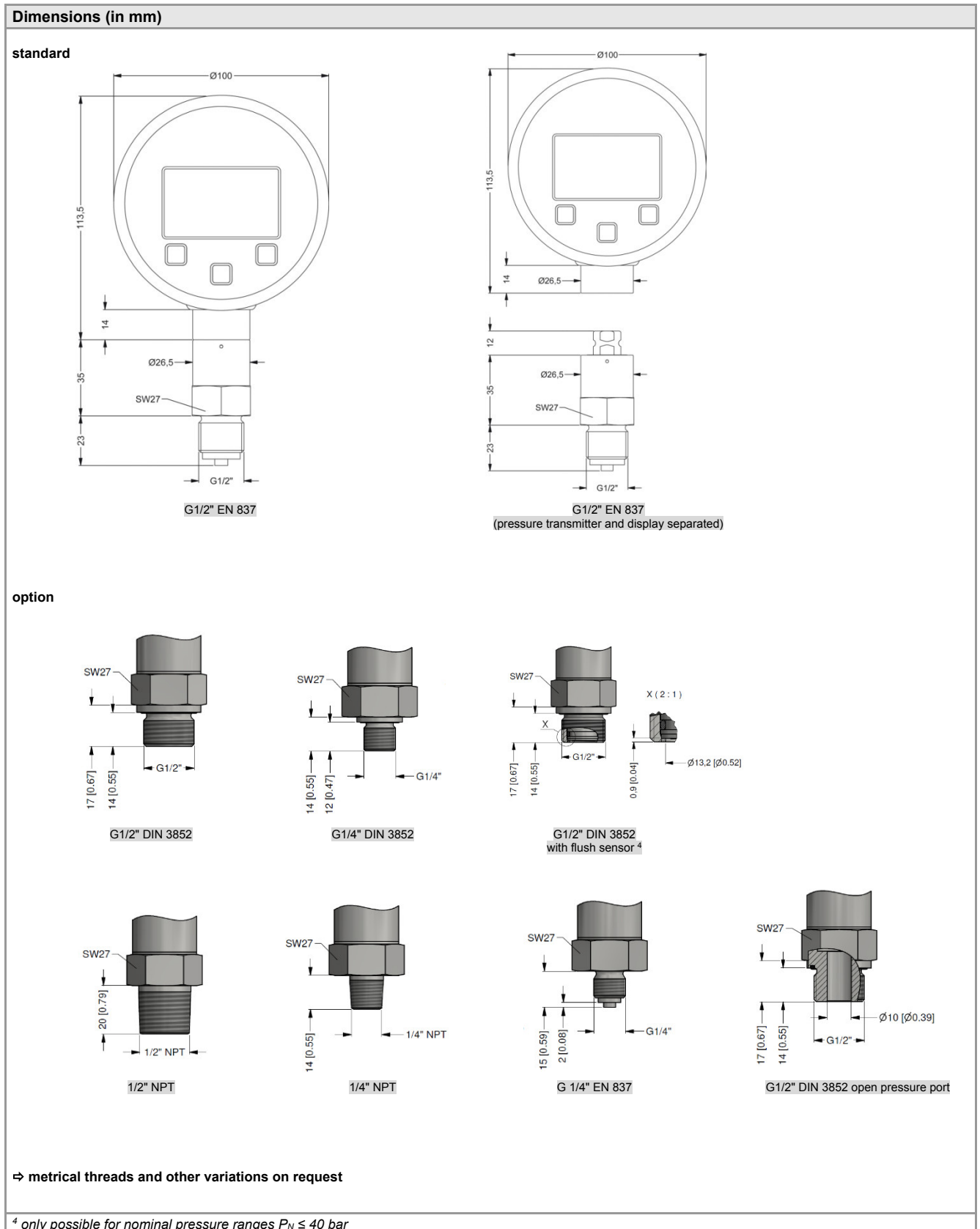


Plant and Machine Engineering



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 $\geq$	[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 $\geq$	[bar]	[bar]	50	120	120	210	420	1000	1000	1250	1250	
Vacuum resistance		P <sub>N</sub> $\geq$ 1 bar: unlimited vacuum resistant; P <sub>N</sub> < 1 bar: on request										

Performance	
Accuracy <sup>1</sup>	standard for P <sub>N</sub> $\geq$ 0.4 bar: $\leq \pm 0.05$ % BFSL standard for P <sub>N</sub> < 0.4 bar: $\leq \pm 0.125$ % BFSL
Long term stability	$\leq \pm 0.1$ % span / year
Measuring rate / Display	1, 2 or 50 measurements per second
<sup>1</sup> accuracy according to EN IEC 62828-2- 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> $\leq$ 160 bar: tolerance band $\leq \pm 0.2$ % span for nominal pressure ranges P <sub>N</sub> > 160 bar: tolerance band $\leq \pm 0.75$ % span
Compensated range	0... 60 °C
Permissible temperatures	
Permissible temperatures	medium: -10 ... 60 °C / storage: -20 ... 70 °C environment: display module: -10 ... 60 °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)
Diaphragm	Stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seal, diaphragm
Explosion protection	
AX6-DM01	IBExU12ATEX1107 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: $\pm 2$ K resolution: 0,1 K display: -10 ... 55 °C
Adjustable units	[bar], [mbar], [psi], [inHg], [cmHg], [mmHg], [hPa], [kPa], [MPa], [mH <sub>2</sub> O], [mmH <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 $\mu$ A
Supply	3x 1,5 V: Duracell Plus battery, DUR087033, AA (LR6)
Ingress protection	IP 67
Mounting 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)
Load cycles	> 100 x 10 <sup>6</sup>
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> $\leq$ 1 bar.	
<sup>3</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar.	



Further pressure sensor modules can be combined to the advertisement unity DM01-A21 and DM01-A2E. a 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
M0	0...0,1 bar up to 0...400 bar	silicone oil	stainless steel 1.4435	0,05% span	very high precision	Data sheet M0
M4	0...6 bar up to 0...600 bar	none; welded version	stainless steel 1.4542	0,25% span	i.a. for oxygen; oil and grease free	Data sheet M4
M7	0...0,1 bar up to 0...10 bar	none	ceramic 96%	0,15% span	High overpressure	Data sheet M7

## Accessories

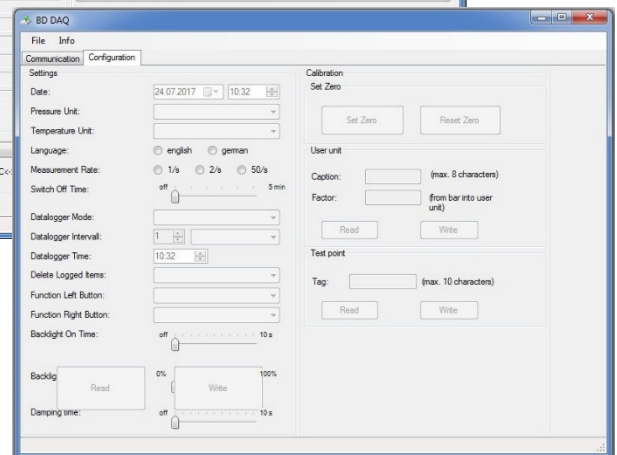
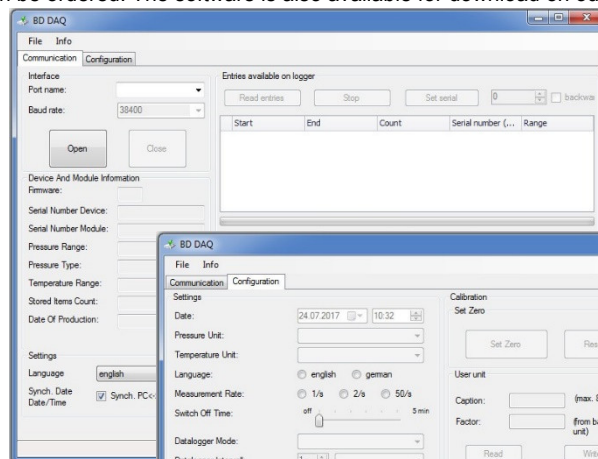
**Accessories are not in scope of supply and have to be ordered separately!**

### BD|DAQ software

Optionally software BD|DAQ lite 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
- actual value



Interface cable with integrated USB converter  
l: 1.7 m

Ordering number: 1003632

→ Software BD|DAQ full version (Communication, Configuration, Table, Diagram) on request

<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: 1002648</p>		<p>Rubber protection</p>
<p>Additional batteries (only in combination with service case)</p>		<p>for IS-version use only</p> <ul style="list-style-type: none"> <li>3 x 1.5 V / AA Duracell Power Plus</li> </ul>
<p>Seal set (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 (only in combination with service case)</p>		<p>Seal tape for mechanical connections material: PTFE (Teflon) Temperature range: -200 ... 280 °C</p>
<p>Wrench (only in combination with service case)</p>		<p>Wrench SW 27</p>
<p>Calibration test pump KHP 35</p> <p>Ordering number: 1002637</p>		<p>The KHP 35 calibration test pump is used to generate pressure and vacuum for checking, adjusting and calibrating mechanical and electronic pressure measuring instruments by comparative measurements. These pressure tests may be carried out in laboratories, workshop or on site at the measuring point.</p> <p>pressure: 0 ... 35 bar vacuum: 0 ... -0,95 bar weight: ca. 510 g dimension: ca. 220 x 105 x 63 mm</p>
<p><b>Adapter for calibration test pump</b></p>		
<p>Test unit connection:</p> <p>Adapter to connect the test unit to the calibration test pump.</p>		<p>Adapter to connect the test unit to the calibration test pump.</p> <p>external thread: G 1/4" EN 837 to: internal thread: G 1/4" DIN 3852 (No. 5008909) or G 1/2" EN o. DIN (No. 5007896) or 1/4" NPT (No. 5007897) or 1/2" NPT (No. 5007898) others on request</p>
<p>Reference unit connection:</p> <p>Adapter to connect the digital gauge to the calibration test pump</p>		<p>Adapter to connect the pressure sensor module DM01 to the calibration test pump.</p> <p>external thread: G 1/2" EN 837 to: internal thread: G 1/4" DIN 3852 (No. 5012498) or G 1/2" DIN 3852 (No. 5012519) or 1/4" NPT (No. 5012499) or 1/2" NPT (No. 5012500) others on request</p>

© BD SENSORS s.r.o. – The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

## Ordering code DM 01

15.02.2024

**DM 01**

Digital display for DM 01


**Type**

With communication Interface	A	2	1
IS with communication Interface	A	2	E

USB converter (incl. software DAQ on USB stick) 1003632

Protective rubber cap (blue) 1002648

Precision pressure transmitter (0 ... 0,1 / 400 bar)

**Pressure**

Gauge	M	0	K
Absolute	M	0	L

**Input [bar]**

0 ... 0,1	1	0	0	0
0 ... 0,16	1	6	0	0
0 ... 0,25	2	5	0	0
0 ... 0,4	4	0	0	0
0 ... 0,6	6	0	0	0
0 ... 1	1	0	0	1
0 ... 1,6	1	6	0	1
0 ... 2,5	2	5	0	1
0 ... 4	4	0	0	1
0 ... 6	6	0	0	1
0 ... 10	1	0	0	2
0 ... 16	1	6	0	2
0 ... 25	2	5	0	2
0 ... 40	4	0	0	2
0 ... 60	6	0	0	2
0 ... 100	1	0	0	3
0 ... 160	1	6	0	3
0 ... 250	2	5	0	3
0 ... 400	4	0	0	3
0 ... 600	6	0	0	3
-1 ... 0	X	1	0	2
Customer	9	9	9	9
Customer underpressure	X	X	X	X

**Version**

Standard	0
Intrinsic safety Ex ia	E

**Accuracy**

0,05 % BFSL (P <sub>N</sub> ≥ 0,4 bar)	B	1
0,125 % BFSL (P <sub>N</sub> < 0,4 bar)	B	2
Customer	9	9

**Mechanical connection**

G 1/2" DIN 3852	1	0	0
G 1/2" EN 837	2	0	0
G 1/4" DIN 3852	3	0	0
G 1/4" EN 837	4	0	0



BD SENSORS s.r.o.  
Hradištská 817  
CZ – 687 08 Buchlovice

Tel.: +420 572 411 011  
Fax: +420 572 411 497

www.bdsensors.cz  
info@bdsensors.cz



The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.

G 1/2" DIN 3852 with flush sensor ( $P_N \leq 40$  bar)

G 1/2" DIN 3852 open pressure port

1/2" NPT

1/4" NPT

Customer

F	0	0
H	0	0
N	0	0
N	4	0
9	9	9

### Seals

Viton (FKM)

Customer

1

9

### Special version

Standard

Customer

0 0 0

9 9 9

### Accessories DM\_01

USB converter (incl. software DAQ on USB stick)

1003632

Service case (without accessories)

Service\_Case\_DM01

Protective cap

1002648

Additional batteries (3x1.5 V / AA Duracell Power Plus), only in combination with service case

1002798

Seal set, only in combination with service case

5008886

PTFE seal tape, only in combination with service case

1002724

Wrench, only in combination with service case

1002722

Calibration test pump (KHP)

1002637

0,...without additional charge

On request...in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change.

This document contains the specification for ordering the product;

detailed technical parameters of the product and its possible variants are given in the data sheet.

BD SENSORS reserves the right to change sensor specifications without further notice.



BD SENSORS s.r.o.  
Hradištská 817  
CZ – 687 08 Buchlovice

Tel.: +420 572 411 011  
Fax: +420 572 411 497

www.bdsensors.cz  
info@bdsensors.cz

The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.

