



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
- ▶ graphic display
- ▶ stainless steel housing \varnothing 100 mm
- ▶ communication interface USB 2.0

Optional

- ▶ accredited calibration certificate
- ▶ IS-version zone 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 characterise 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 analysed with software BD|DAQ.

Preferred areas of use are



Calibrating techniques



Laboratory applications



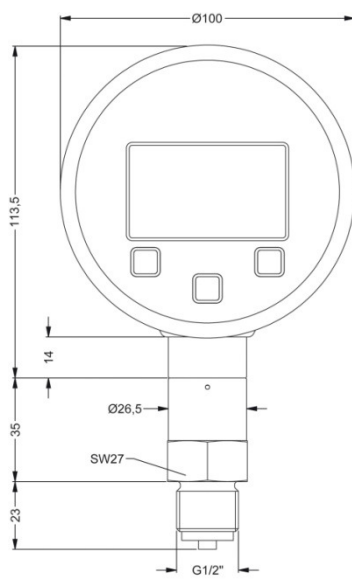
Plant and Machine Engineering



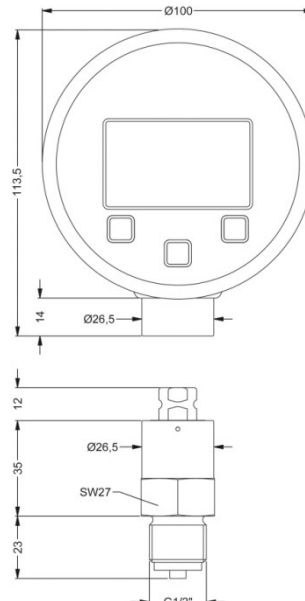
Input pressure												
Nominal pressure gauge	[bar]	-1...0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	1	1	1	2	5	5	10	10	17.5	35
Burst pressure \geq	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50
Nominal pressure gauge / abs.	[bar]	10	16	25	40	60	100	160	250	400		
Overpressure	[bar]	35	80	80	105	210	600	600	1000	1000		
Burst pressure \geq	[bar]	50	120	120	210	420	1000	1000	1250	1250		
Vacuum resistance		P _N \geq 1 bar: unlimited vacuum resistant; P _N < 1 bar: on request										
Performance												
Accuracy ¹		standard for P _N \geq 0.4 bar: $\leq \pm 0.05\%$ standard for P _N < 0.4 bar: $\leq \pm 0.125\%$										
Long term stability		$\leq \pm 0.1\%$ FSO / year at reference conditions										
Measuring rate / Display		1, 2 or 50 measurements per second										
¹ 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 _N \leq 160 bar: tolerance band $\leq \pm 0.2\%$ FSO for nominal pressure ranges P _N > 160 bar: tolerance band $\leq \pm 0.75\%$ 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)										
Diaphragm		Stainless steel 1.4435 (316L)										
Media wetted parts		pressure port, seal, diaphragm										
Explosion protection												
AX16-DM01		IBExU12ATEX1108 X standard variant for zone 1: II 2G Ex ia IIC/IIB T4 Gb variant with conductive front foil for zone 0: II 1G Ex ia IIC/IIB 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		[bar], [mbar], [psi], [inHg], [cmHg], [mmHg], [hPa], [kPa], [Mpa], [mH ₂ O], [mmH ₂ O], [inH ₂ O], [kg/cm ²], [°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 μ A										
Supply		3x 1,5 V: Duracell Plus battery, DUR087033, AA (LR6)										
Ingress protection		IP 67										
Mounting position ²		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 ⁶										
CE-conformity		EMC directive: 2014/30/EU, pressure equipment directive: 2014/68/EU (Module A) ³ electromagnetic compatibility: according to EN 6132										
² 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.												
³ This directive is only valid for devices with maximum permissible overpressure > 200 bar.												

Dimensions (in mm)

standard

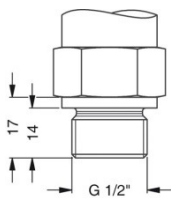


G1/2" EN 837

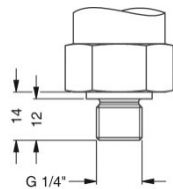


G1/2" EN 837
(pressure transmitter and display separated)

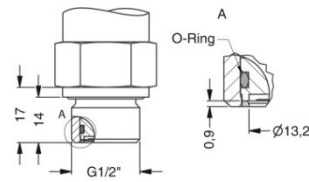
option



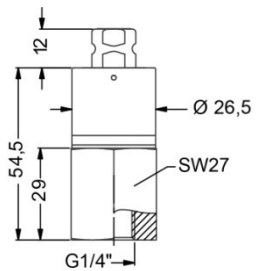
G1/2" DIN 3852



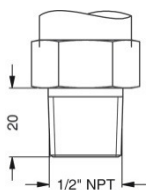
G1/4" DIN 3852



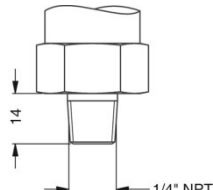
G1/2" DIN 3852
with flush sensor⁴



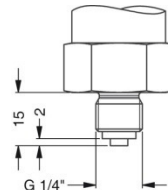
G1/4" EN 837
internal thread, welded^{4,5}



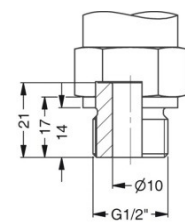
1/2" NPT



1/4" NPT



G1/4" EN 837



G1/2" DIN 3852 open pressure port⁴

⇒ metrical threads and other variations on request

⁴ only possible for nominal pressure ranges $P_N \leq 40$ bar

⁵ different connection versions with optional adapters possible (see accessories)

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% FSO	very high precision	Data sheet M0
M4	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	Data sheet M4
M7	0...0,1 bar up to 0...10 bar	none	ceramic 96%	0,15% FSO	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 and an interface cable can be ordered. The software is also available for download on our homepage.

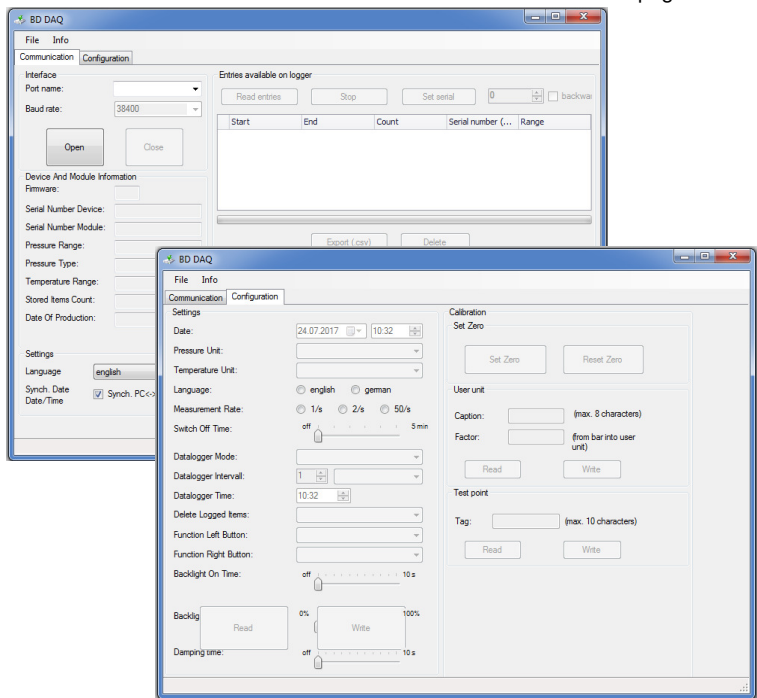
Software:

- 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

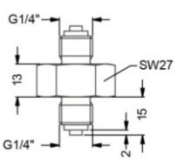
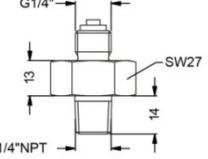
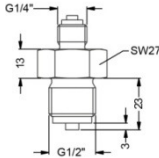
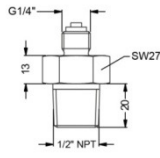


Interface cable with integrated USB converter
l: 1.7 m




Ordering number: ZUSBCD01



Adapter for pressure port G 1/4" EN 837 internal thread, welded

<p>G 1/4" EN 837</p>  <p>Ordering number: Z5010203</p>	<p>Adapter for pressure sensor module with pressure port G 1/4" EN 837 internal thread, welded</p> <p>external thread: G 1/4" EN 837 external thread: G 1/4" EN 837</p>	<p>1/4" NPT</p>  <p>Ordering number: Z5010204</p>	<p>Adapter for pressure sensor module with pressure port G 1/4" EN 837 internal thread, welded</p> <p>external thread: G 1/4" EN 837 external thread: 1/4" NPT</p>
<p>G 1/2" EN 837</p>  <p>Ordering number: Z5010202</p>	<p>Adapter for pressure sensor module with pressure port G 1/4" EN 837 internal thread, welded</p> <p>external thread: G 1/4" EN 837 external thread: G 1/2" EN 837</p>	<p>1/2" NPT</p>  <p>Ordering number: Z5010205</p>	<p>Adapter for pressure sensor module with pressure port G 1/4" EN 837 internal thread, welded</p> <p>external thread: G 1/4" EN 837 external thread: 1/2" NPT</p>

* others on request

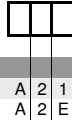
<p>Hard-shell service case without accessories</p> <p>Service_Case_DM01</p>		<p>Hard shell case.</p> <p>Dimension in mm (L x W x H): 432 X 363 X 138</p>
<p>Protective cap</p> <p>Ordering number: Z1002648</p>		<p>Rubber protection</p>
<p>Additional batteries (only in combination with service case)</p>		<p>for IS-version use only</p> <ul style="list-style-type: none"> 3 x 1.5 V / AA Duracell Power Plus
<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 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>Adapter for calibration test pump</p>		
<p>Test unit connection: 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: 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>

© 2017 BD/SENSORS GmbH – 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 DM01

1. position: digital display for Precision Digital Pressure Gauge DM01

DM01-



Digital pressure gauge DM01
with communication interface
IS with communication interface

2. position: transmitter for Precision Digital Pressure Gauge DM01

DM01



Pressure		M	0	K															
Input		M	0	L															
gauge absolute	1	M	0	K															
[bar]		M	0	L															
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	9											consult
Version																			
	non IS							0											
	IS							E											
Accuracy																			
standard for $P_N \geq 0.4$ bar	0.05%								B	1									
standard for $P_N < 0.4$ bar	0.125%								B	2									
	customer								9	9									consult
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								consult
	G1/2" DIN 3852 open pressure port ²								H	0	0								
	1/2" NPT								N	0	0								
	1/4" NPT								N	4	0								
	G 1/4" EN837 internal thread, welded ^{2,3}								J	0	3								
	customer								9	9	9								consult
Seals																			
	FKM										1								
	customer										9								consult
Special version																			
	standard											0	0	0					
	customer											9	9	9					consult

¹ absolute pressure possible from 0.4 bar

² only possible for $P_N \leq 40$ bar

³ different connection versions with optional adapters possible (see accessories)

ordering example:

device DM01:

position 1: DM 01-A21

position 2: M0K-1001-B1-200-1-000

only display: position 1: DM01-A21

only transmitter: position 2: M0K-1001-B1-200-1-000



Accessories DM01

Accessories	
USB converter (incl. software BD DAQ)	ZUSBCD01
service case (without accessories)	Service_Case_DM01
Protective cap	Z1002648
Additional batteries (3 x 1,5 V / AA Duracell Power Plus) ⁴	1002798
Seal set ⁴	5008886
PTFE seal tape ⁴	1002724
wrench ⁴	1002722
Calibration test pump (KHP)	1002637
Adapter for DM01	
G1/4" EN 837 male - G1/4" EN 837 male	Z5010203
G1/4" EN 837 male - G1/2" EN 837 male	Z5010202
G1/4" EN 837 male - 1/4" NPT male	Z5010204
G1/4" EN 837 male - 1/2" NPT male	Z5010205
Adapter for KHP - test unit connection	
G1/4" EN 837 m - G1/4" DIN3852 fm	5008909
G1/4" EN 837 m - G1/2" EN 837/DIN3852 fm	5007896
G1/4" EN 837 m - 1/4" NPT fm	5007897
G1/4" EN 837 m - 1/2" NPT fm	5007898
Adapter for KHP - reference unit connection	
G1/2" EN 837 m - G1/4" DIN3852 fm	5012498
G1/2" EN 837 m - G1/2" DIN3852 fm	5012519
G1/2" EN 837 m - 1/4" NPT fm	5012499
G1/2" EN 837 m - 1/2" NPT fm	5012500

⁴ only in combination with service case

© 2017 BD|SENSORS GmbH - 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.

24.07.2017

