BD SENSORS®
pressure measurement

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

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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

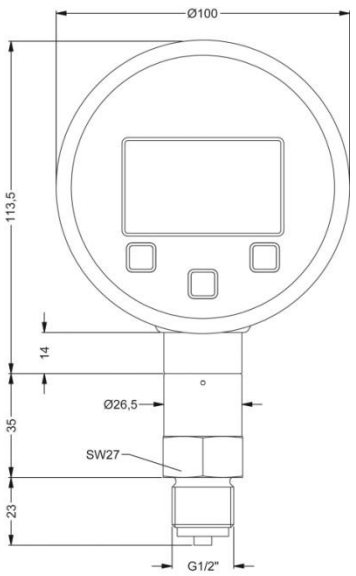
Nominal pressure gauge / abs. [bar]	[bar]	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	35	80	80	105	210	600	600	1000	1000
Burst pressure ≥	[bar]	50	120	120	210	420	1000	1000	1250	1250
Vacuum resistance		P_N ≥ 1 bar: unlimited vacuum resistant; P_N < 1 bar: on request								

Performance	
Accuracy [1]	standard for P_N ≥ 0.4 bar: ≤ ± 0.05 % BFSL standard for P_N < 0.4 bar: ≤ ± 0.125 % BFSL
Long term stability	≤ ± 0.1 % span / year
Measuring rate / Display	1, 2 or 50 measurements per second
[1] 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_N ≤ 160 bar: tolerance band ≤ ± 0.2 % span for nominal pressure ranges P_N > 160 bar: tolerance band ≤ ± 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: ± 2 K resolution: 0,1 K display: -10 … 55 °C
Adjustable units	[bar], [mbar], [psi], [inHg], [cmHg], [mmHg], [hPa], [kPa], [Mpa], [mH2O], [mmH2O], [inH2O], [kg/cm²], [°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 60
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 61326

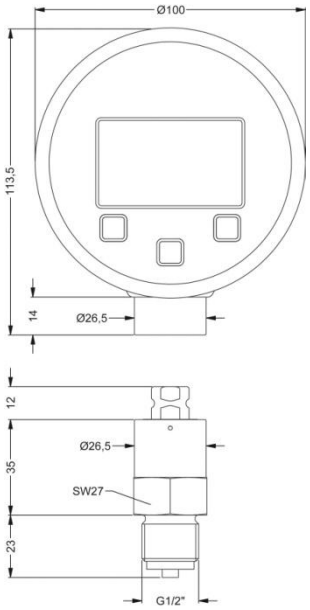
[2] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges P_N ≤ 1 bar.
[3] This directive is only valid for devices with maximum permissible overpressure > 200 bar.

Dimensions (in mm)

standard

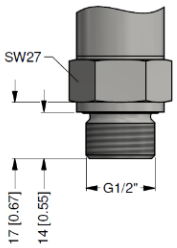


G1/2" EN 837

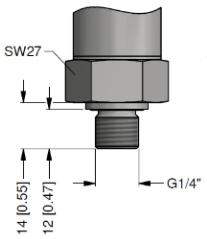


G1/2" EN 837
(pressure transmitter and display separated)

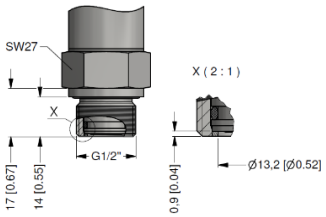
option



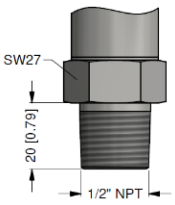
G1/2" DIN 3852



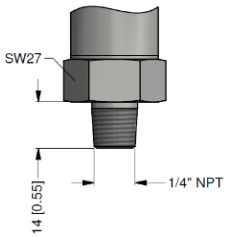
G1/4" DIN 3852



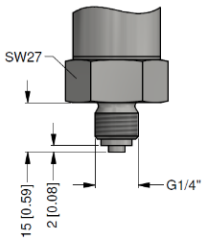
G1/2" DIN 3852
with flush sensor [4]



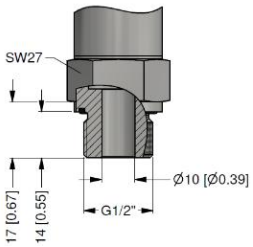
1/2" NPT



1/4" NPT



G 1/4" EN 837



G1/2" DIN 3852 open pressure port

⇨ metrical threads and other variations on request

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

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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

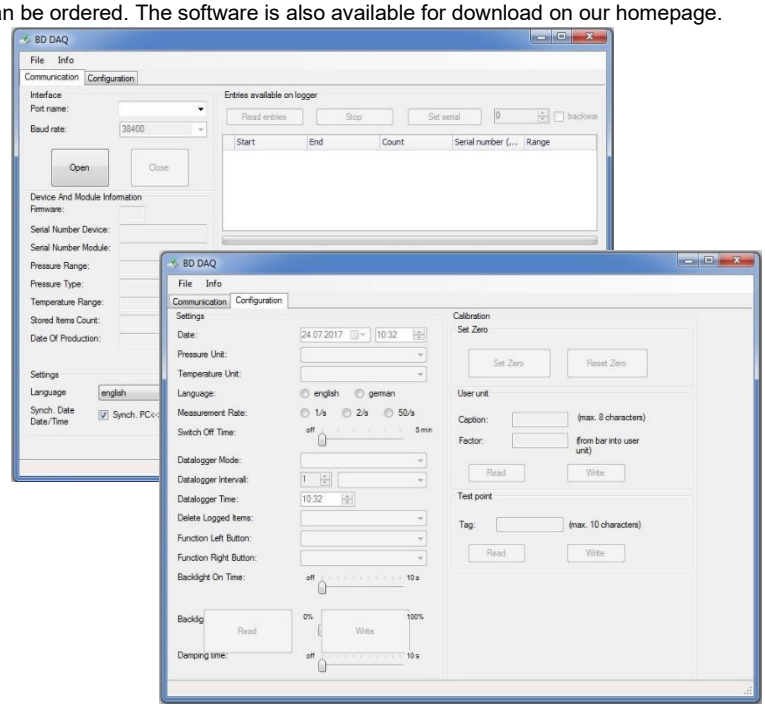
Accessories are not in scope of supply and have to be ordered separately!

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

Hard-shell service case without accessories Service_Case_DM01		Hard shell case. Dimension in mm (L x W x H): 432 X 363 X 138
Protective cap Ordering number: 1002648		Rubber protection
Additional batteries (only in combination with service case)		for IS-version use only • 3 x 1.5 V / AA Duracell Power Plus
Seal set (only in combination with service case)		Flat seal copper for mechanical connections according to EN 837
PTFE seal tape Nr. 498.505 (only in combination with service case)		Seal tape for mechanical connections material: PTFE (Teflon) Temperature range: -200 ... 280 °C
Wrench (only in combination with service case)		Wrench SW 27
Calibration test pump KHP 35 Ordering number: 1002637		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. pressure: 0 ... 35 bar vaceuum: 0 ... -0,95 bar weight: ca. 510 g dimension: ca. 220 x 105 x 63 mm
Adapter for calibration test pump		
Test unit connection: Adapter to connect the test unit to the calibration test pump.		Adapter to connect the test unit to the calibration test pump. external thread: G ¼“ EN 837 to: internal thread: G ¼“ DIN 3852 (No. 5008909) or G ½“ EN o. DIN (No. 5007896) or ¼“ NPT (No. 5007897) or ½“ NPT (No. 5007898) others on request
Reference unit connection: Adapter to connect the digital gauge to the calibration test pump		Adapter to connect the pressure sensor module DM01 to the calibration test pump. external thread: G ½“ EN 837 to: internal thread: G ¼“ DIN 3852 (No. 5012498) or G ½“ DIN 3852 (No. 5012519) or ¼“ NPT (No. 5012499) or ½“ NPT (No. 5012500) others on request

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