CCM-P-01

- battery powered precision digital pressure gauge
- nominal pressure: from 0...100 mbar up to 0...400 bar
- stainless steel sensor
- accuracy 0.1 % / 0.25 % span
- modular sensor concept
- data logger including software
- graphic display
- stainless steel housing Ø 100 mm
- communication interface USB 2.0
- zero point calibration, turn off and switch-off automatic
- background illumination

The digital pressure gauge **CCM-P-01** is a precision device fulfilling highest demands. It was conceived especially for the process monitoring and calibration. With the digital display CCM-P-01, 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 CCM-P-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 analyzed with software BD|DAQ.

PREFERRED AREAS OF USE ARE

Plant and Machine Engineering

Laboratory applications

Calibration techniques

TECHNICAL DATA

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_N ≥ 1 bar: unlimited vacuum resistant; P_N < 1 bar: on request								

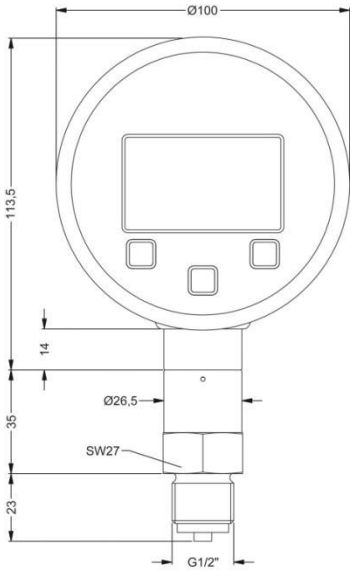
Performance	
Accuracy [1]	standard for P_N ≥ 0.4 bar: ≤ ± 0.1 % FSO standard for P_N < 0.4 bar: ≤ ± 0.25 % FSO
Long term stability	≤ ± 0.1 % span / year
Measuring rate / Display	1, 2 or 50 measurements per second
[1] *accuracy according to EN IEC 62828-2– minimum value setting (non-linearity, hysteresis, 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

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: resolution: display:	± 2 K 0,1 K -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: with background illumination: standby mode:	approx. 1,3 mA approx. 16 mA (depending on adjusted intensity) approx. 1,2 µA
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: pressure equipment directive: electromagnetic compatibility:	2014/30/EU 2014/68/EU (Module A) [3] according to EN 61326

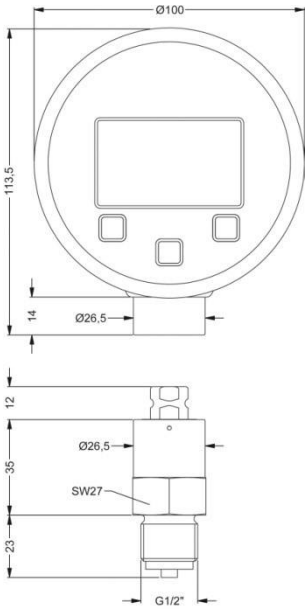
[2] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges $P_N \leq 1$ bar.
[3] This directive is only valid for devices with maximum permissible overpressure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

DIMENSION DRAWINGS

standard

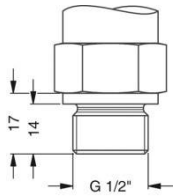


G1/2" EN 837

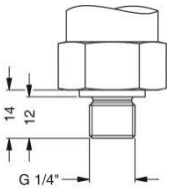


G1/2" EN 837
(pressure transmitter and display separated)

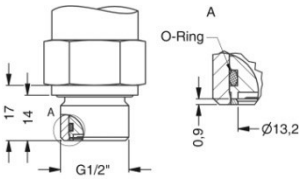
option



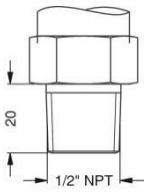
G1/2" DIN 3852



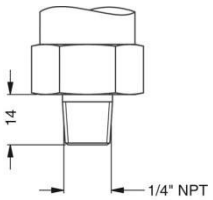
G1/4" DIN 3852



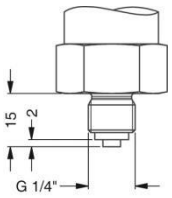
G1/2" DIN 3852
with flush sensor [4]



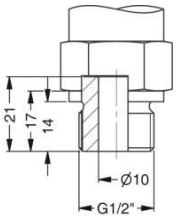
1/2" NPT



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

PRESSURE SENSOR MODULE

Further pressure sensor modules can be combined to the advertisement unity CCM-P-01-A21. 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
M0	0...0,1 bar up to 0...400 bar	silicone oil	stainless steel 1.4435	0,05% span	very high precision
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
M7	0...0,1 bar up to 0...10 bar	none	ceramic 96%	0,15% span	High overpressure

ORDER CODE

Digital display for CCM-P-01 — CCM-P-01-[ ][ ][ ]

Type	
With communication Interface	A21
USB converter (incl. software DAQ on USB stick)	1003632
Protective rubber cap (blue)	1002648

Precision pressure transmitter (0 … 0,1 / 400 bar) — [ ][ ][ ]-[ ][ ][ ][ ]-0-[ ]-[ ][ ][ ]-[ ]-[ ][ ][ ]

Pressure	
Gauge	M0K
Absulute	M0L

Input [bar]	
0 … 0,1	1000
0 … 0,16	1600
0 … 0,25	2500
0 … 0,4	4000
0 … 0,6	6000
0 … 1	1001
0 … 1,6	1601
0 … 2,5	2501
0 … 4	4001
0 … 6	6001
0 … 10	1002
0 … 16	1602
0 … 25	2502
0 … 40	4002
0 … 60	6002
0 … 100	1003
0 … 160	1603
0 … 250	2503
0 … 400	4003
0 … 600	6003
-1 … 0	X102
Customer	9999
Customer underpressure	XXXX

Accuracy	
0,1 % FSO ($P_N \geq 0,4$ bar)	1
0,25 % FSO ($P_N < 0,4$ bar)	2
Customer	9

Mechanical connection	
G 1/2" DIN 3852	100
G 1/2" EN 837	200
G 1/4" DIN 3852	300
G 1/4" EN 837	400
G 1/2" DIN 3852 with flush sensor ($P_N \leq 40$ bar)	F00
G 1/2" DIN 3852 open pressure port	H00
1/2" NPT	N00
1/4" NPT	N40
Customer	999

Seals	
Viton (FKM)	1
Customer	9

Special version	
Standard	000
Customer	999

Manufacturer reserves the right to change sensor specifications without further notice.

ACCESSORIES

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

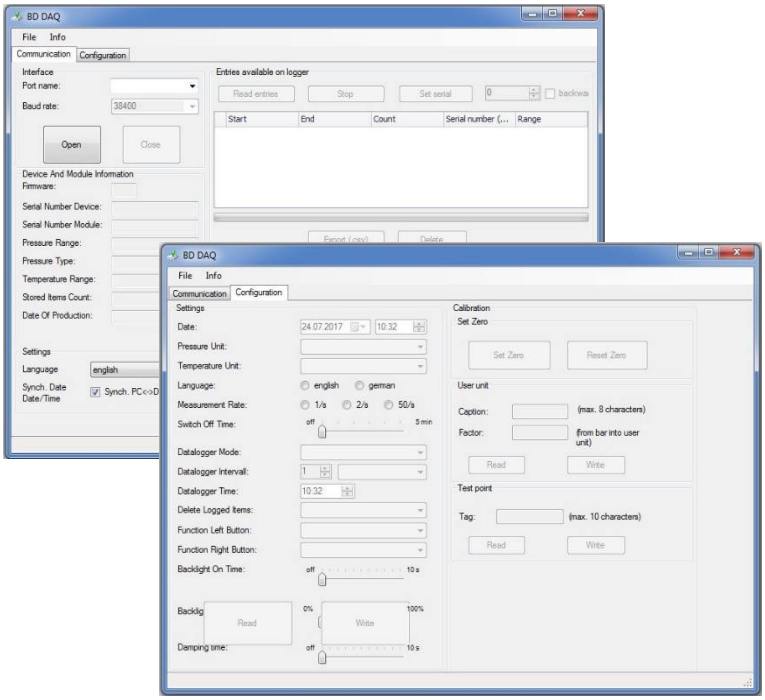
Hard-shell service case without accessories Service_Case_CCM-P-01		Hard shell case. Dimension in mm (L x W x H): 432 X 363 X 138
Protective cap Ordering number: 1002648		Rubber protection
Additional batteries (only in combination with service case)		
Seal set (only in combination with service case)		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

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