CCP-P-400

- intelligent electronic pressure switch
- nominal pressure: from 0...100 mbar up to 0...600 bar
- 1 or 2 independent PNP contacts, freely configurable
- output signals: 2-wire: 4...20 mA; 3-wire: 4...20 mA
- stainless steel sensor
- accuracy 0.35 % / 0.25 % span
- indication of measured values on a 4-digit LED display
- rotatable and configurable display module
- option: pressure sensor welded

The intelligent electronic pressure switch **CCP-P-400** is the successful combination of intelligent pressure switch and digital display and has been specially designed for numerous applications in various industrial sectors.
As standard the CCP-P-400 o ers a PNP contact and a display module with 4-digit LED display, which is mounted rotatable in the ball housing. Additional optional versions like e.g. a second contact and an analogue output complete the profile.

PREFERRED AREAS OF USE ARE

- Plant and Machine Engineering
- Heating and Air Conditioning
- Environmental Engineering (water – sewage – recycling)

TECHNICAL DATA

Input pressure range											
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	0.5	1	1	2	5	5	10	10	20	40
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	600
Overpressure	[bar]	40	80	80	105	210	210	600	1000	1000	1000
Burst pressure	[bar]	50	120	120	210	420	420	1000	1250	1250	1250
Vacuum resistance		$P_N \geq 1$ bar: unlimited vacuum resistance						$P_N < 1$ bar: on request			

Contact	
Number, type	standard: 1 PNP contact option: 2 independent PNP contacts
Max. switching current	4 ... 20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resistant; $V_{switch} = V_S$ - 2V
Accuracy of contacts [1]	≤ ± 0.25 % span
Repeatability	Ł ± 0.1 % span
Switching frequency	2-wire: max. 10 Hz / 3-wire: 50 Hz
Switching cycles	> 100 x 10^6
Delay time	0 ... 100 sec
Analogue output (optionally) / Supply	
2-wire current signal	4 ... 20 mA / V_S = 13 ... 36 V_{DC} permissible load: $R_{max} = [(V_S - V_{S\,min}) / 0.02\ A]$ W response time: < 10 msec
3-wire current signal	4 ... 20 mA / V_S = 24 V_{DC} ± 10 % adjustable (turn-down of span 5:1) [2] permissible load: R_{max} = 500 W response time: < 30 msec
Without analogue output	V_S = 15 ... 36 V_{DC}
Accuracy [1]	standard: nominal pressure < 0.4 bar: ≤ ± 0,5 % span nominal pressure ≥ 0.4 bar: ≤ ± 0,35 % span option: nominal pressure ≥ 0.4 bar: ≤ ± 0,25 % span

[1] accuracy according to EN IEC 62828-2– limit point adjustment (non-linearity, hysteresis, repeatability)
[2] with turn-down of span the analogue signal is adjusted automatically to the new measuring range

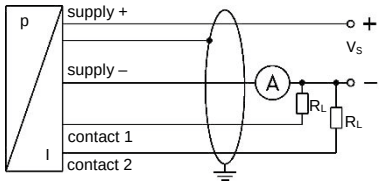
Thermal e ects (O set and Span)				
Nominal pressure P_N	[bar]	-1 … 0	< 0.40	≥ 0.40
Tolerance band	[% span]	≤ ± 0.75	≤ ± 1	≤ ± 0.75
in compensated range	[°C]	-20 ... 85	0 ... 70	-20 … 85
Permissible temperatures				
Permissible temperatures		medium: -40 ... 125 °C	electronics / environment: -40 ... 85 °C	storage: -40 ... 100 °C

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port	stainless steel 1.4404 (316L)
Housing	stainless steel 1.4301 (304)
Housing cap	standard: plastic HDPE
Viewing glass	laminated safety glass
Seals (media wetted)	standard: FKM option: NBR; welded version [4] on request others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seals, diaphragm
[4] welded version only for pressure ports according to EN 837; possible for nominal pressure ranges $P_N \leq 40$ bar	
Miscellaneous	
Display	4-digit, 7-segment-LED display, visible range 37.2 x 11 mm; digit height 10 mm, range of indication -1999 ... +9999; accuracy 0.1 % ± 1 digit; digital damping 0.3 … 30 sec (programmable); measured value update 0.0 … 10 sec (programmable)
Current consumption (without contacts)	2-wire signal output current: max. 25 mA 3-wire signal output current: approx. 30 mA + signal current
Ingress protection	IP 67
Installation position	any [6]
Weight	approx. 400 g
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) [7]
[6] Pressure switches are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviation in the zero point for pressure ranges $P_N \pm 1$ bar.	
[7] This directive is only valid for devices with maximum permissible overpressure > 200 bar	

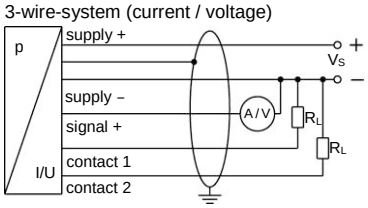
ELECTRICAL CONNECTION

Wiring diagrams

2-wire-system (current)



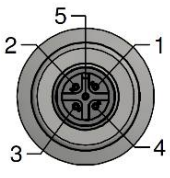
3-wire-system (current / voltage)



Pin configuration

Electrical connection	M12x1 metal (5-pin)
Supply +	1
Supply –	3
Signal + (only 3-wire)	2
Contact 1	4
Contact 2	5
Shield	plug housing / pressure port

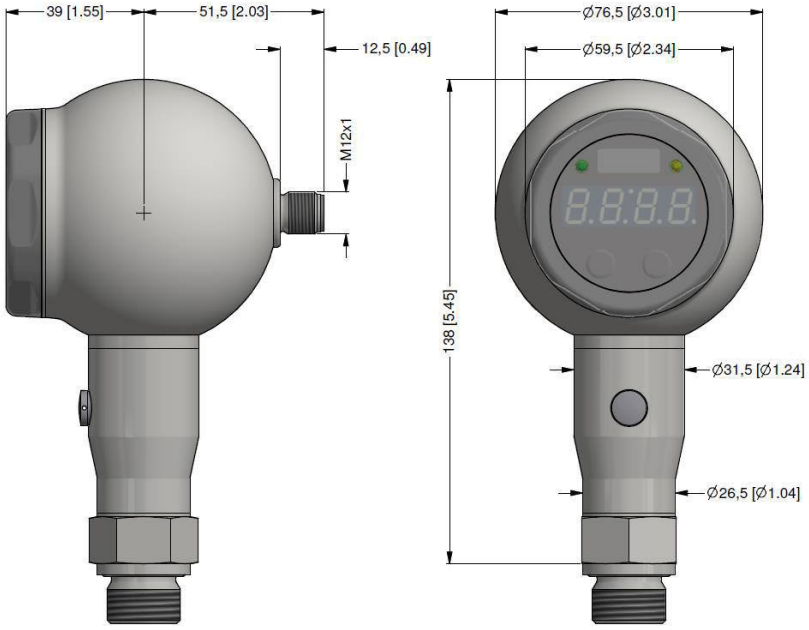
Electrical connection (dimensions in mm)



M12x1 (5-pin)

MECHANICAL CONNECTION

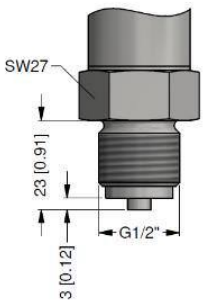
standard



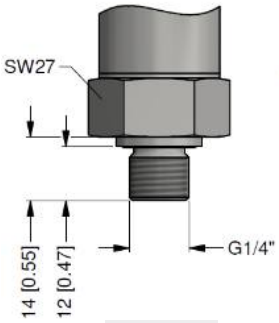
G1/2" DIN 3852

đ **for nominal pressure P_N > 400 bar increases the length of devices by 19 mm**

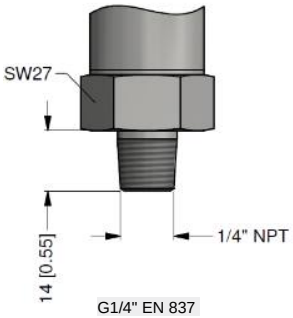
optionally



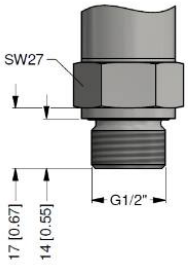
G1/2" EN 837



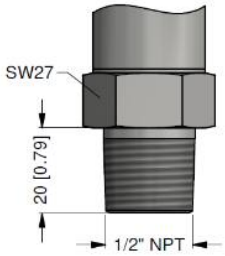
G1/4" DIN 3852



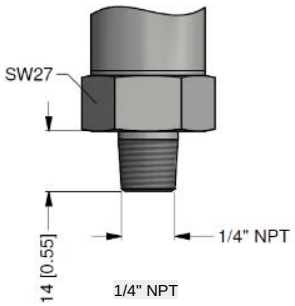
G1/4" EN 837



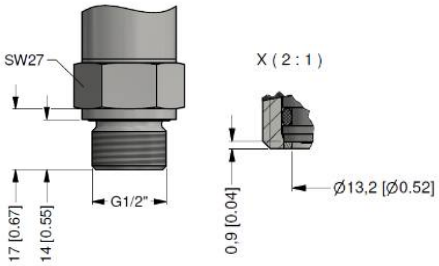
G1/2" DIN 3852



1/2" NPT



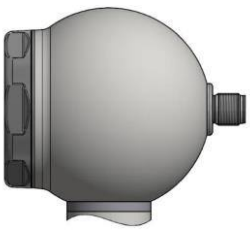
1/4" NPT



G1/2" flush DIN 3852
(P_N from 0.1 up to 40 bar)

đ **metric threads and other versions on request**

DESIGNS



side display

45° display (on request)

[8] *all designs in horizontal rotatable housing as standard*

ORDER CODE

CCP-P-400-☐☐☐-☐☐☐☐-☐☐-☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Pressure	
Gauge [1]	7 A 0
Absolut[2]	7 A 1
Input [bar]	
0 … 0,1[2]	1 0 0 0
0 … 0,16[2]	1 6 0 0
0 … 0,25[2]	2 5 0 0
0 … 0,40	4 0 0 0
0 … 0,60	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
Design	
Stainless steel globe housing (side display)	K H
Stainless steel globe housing (45° display)	K 4
Output	
4 … 20 mA / 2-wire	1
4 … 20 mA / 3-wire (adjustable)	7
Customer	9
Contact	
1 switching contact (version 3-wire only with 5-pin connector)	1
2 switching contacts (only with 5-pin connector)	2
Accuracy	
0,5 % ($P_N \leq 0,4$ bar)	5
0,35 % ($P_N > 0,4$ bar)	3
0,25 % ($P_N > 0,4$ bar)	2
Customer	9
Electrical connection	
Connector M12 x 1, 5-pin (IP 65) - metal	N 1 1
Customer	9 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
G 1/2 " DIN 3852 with flush sensor [3]	F 0 0
1/2" NPT	N 0 0
1/4" NPT	N 4 0
Customer	9 9 9
Seals	
Viton (FKM) ($P_N \leq 40$ bar)	1
Without seals - welded (only with EN 837) [4]	2
Customer	9
Special version	
Standard	0 0 0
Customer	9 9 9

1 - from 60 bar: measurement starts with ambient pressure
2 - absolute pressure possible from 0.4 bar
3 - only possible for nominal pressure ranges $p_N \leq 40$ bar
4 - welded version only with pressure ports according to EN 837; possible for nominal pressure ranges $p_N \leq 40$ bar

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

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