



CCP-P-200P

- electronic pressure switch
- nominal pressure: from 0...100 mbar up to 0...40 bar
- 1 or 2 independent PNP contacts, freely configurable
- output signals: 2-wire: 4...20 mA; 3-wire: 4...20 mA / 0...10 V
- flush welded stainless steel sensor
- accuracy 0.35 % / 0.25 % span
- indication of measured values on a 4-digit LED display
- rotatable and configurable display module
- optional: cooling element up to 300°C, configurable contacts
- certified for contact with drinking water by the Polish National Institute of Public Health (PZH) - EPDM version

The electronic pressure switch **CCP-P-200P** is the successful combination of intelligent pressure switch and digital display and is suitable for the usage with viscous and pasty media.

As standard the CCP-P-200P offers a PNP contact and a rotatable display module with 4-digit LED display. Optional versions like e.g. an analogue output complete the profile.

PREFERRED AREAS OF USE ARE



Food industry



Pharmacy

TECHNICAL DATA

Input pressure range ¹																
Nominal pressure gauge ¹	[bar]	-1 ... 0*	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40
Nominal pressure abs.*	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40	40	80	80	105
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120	210
Vacuum resistance	P _N ≥ 1 bar: unlimited vacuum resistance								P _N < 1 bar: on request							

¹ consider the pressure resistance of fitting and clamps

*for 0 ... 1 bar abs. or -1 ... 0 bar gauge max.temperature 70°C

Contact ²	
Standard	1 PNP contact
Options	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 0 ... 10 V / 3-wire: contact rating 125 mA, short-circuit resistant
Accuracy of contacts ³	standard: P _N < 0.4 bar: ≤ ± 0.5 % span P _N ≥ 0.4 bar: ≤ ± 0.35 % span option: P _N ≥ 0.4 bar: ≤ ± 0.25 % span
Repeatability	± 0.1 % span
Switching frequency	max. 10 Hz
Switching cycles	> 100 x 10 ⁶
Delay time	0 ... 100 sec

² max. 1 contact for 2-wire current signal with plug ISO 4400

no contact possible with 3-wire in combination with plug ISO 4400

³ accuracy according to EN IEC 62828-2— limit point adjustment (non-linearity, hysteresis, repeatability)

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 = 19 ... 30 V _{DC} adjustable (turn-down of span 5:1) ⁴ permissible load: R _{max} = 500 W response time: < 0.5 sec
3-wire voltage signal	0 ... 10 V / V _S = 15 ... 36 V _{DC} permissible load: R _{min} = 10 kW response time: < 10 msec
Without analogue output	V _S = 15 ... 36 V _{DC}
Accuracy ³	standard: P _N < 0.4 bar: ≤ ± 0.5 % span P _N ≥ 0.4 bar: ≤ ± 0.35 % span option: P _N ≥ 0.4 bar: ≤ ± 0.25 % span

⁴ with turn-down of span the analogue signal is adjusted automatically to the new measuring range

Thermal errors (Offset and Span) ⁵ / Permissible temperatures			
Nominal pressure P _N [bar]	-1 ... 0	< 0.40	≥ 0.40
Tolerance band [% span]	≤ ± 0.75	≤ ± 1.5	≤ ± 0.75
in compensated range [°C]	-20 ... 85	0 ... 50	-20 ... 85
Permissible temperatures	medium ⁶ : -40 ... 125 °C for filling fluid silicon oil -10 ... 125 °C for filling fluid food compatible oil electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C		
Permissible temperature medium for cooling element ⁷	filling fluid silicon oil	overpressure: -40 ... 300 °C	vacuum: -40 ... 150 °C ⁸
	filling fluid food compatible oil	overpressure: -10 ... 250 °C	vacuum: -10 ... 150 °C ⁸
⁵ an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions.			
⁶ max. temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C			
⁷ max. temperature depends on the used sealing material, type of seal and installation			
⁸ also for P _{abs} ≤ 1 bar			
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	5 g RMS (25 ... 2000 Hz)	according to DIN EN 60068-2-6	
Shock	100 g / 11 msec	according to DIN EN 60068-2-27	
Filling fluids			
Standard	silicon oil		
Options	food compatible oil (with FDA approval) (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request		
Materials			
Pressure port / Housing	stainless steel 1.4404 (316 L)		others on request
Display housing	PA 6.6, Polycarbonate		
Seals (media wetted)	standard: FKM (recommended for medium temperatures ≤ 200 °C) options: FFKM (recommended for medium temperatures < 260 °C) EPDM (with drinking water certificate) clamp and dairy pipe: without		
Diaphragm	standard: stainless steel 1.4435 (316 L) option: Hastelloy® C-276 (2.4819); Tantalum on request		
Media wetted parts	pressure port, seals, diaphragm		
Miscellaneous			
Display	4-digit, red 7-segment-LED display, digit height 7 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)		
EHEDG certificate Type EL Class I	EHEDG conformity is only ensured in combination with an approved seal. This is e.g. for - Clamp (C61, C62, C63): T-ring-seal from Combifit International B.V. - Varivent (P41): EPDM-O-ring which is FDA-listed - dairy pipe (M73, M75, M76): ASEPTO-STAR k-flex upgrade seal by Kieselmann GmbH		
Current consumption (without contacts)	2-wire signal output current: max. 25 mA 3-wire signal output current: approx. 45 mA + signal current 3-wire signal output voltage: approx. 45 mA		
Ingress protection	IP 65		
Installation position	any (standard calibration in a vertical position with the pressure port connection down; different installation position for P _N ≤ 2 bar have to be specified in the order)		
Surface roughness	pressure port R _a < 0.8 µm (media wetted parts) diaphragm R _a < 0.15 µm weld seam R _a < 0.8 µm		
Weight	approx. 160 ... 250 g		
Operational life	> 100 x 10 ⁶ cycles		
CE-conformity	EMC Directive: 2014/30/EU		

ELECTRICAL CONNECTION

Wiring diagrams	
2-wire-system (current) 	3-wire-system (current / voltage)

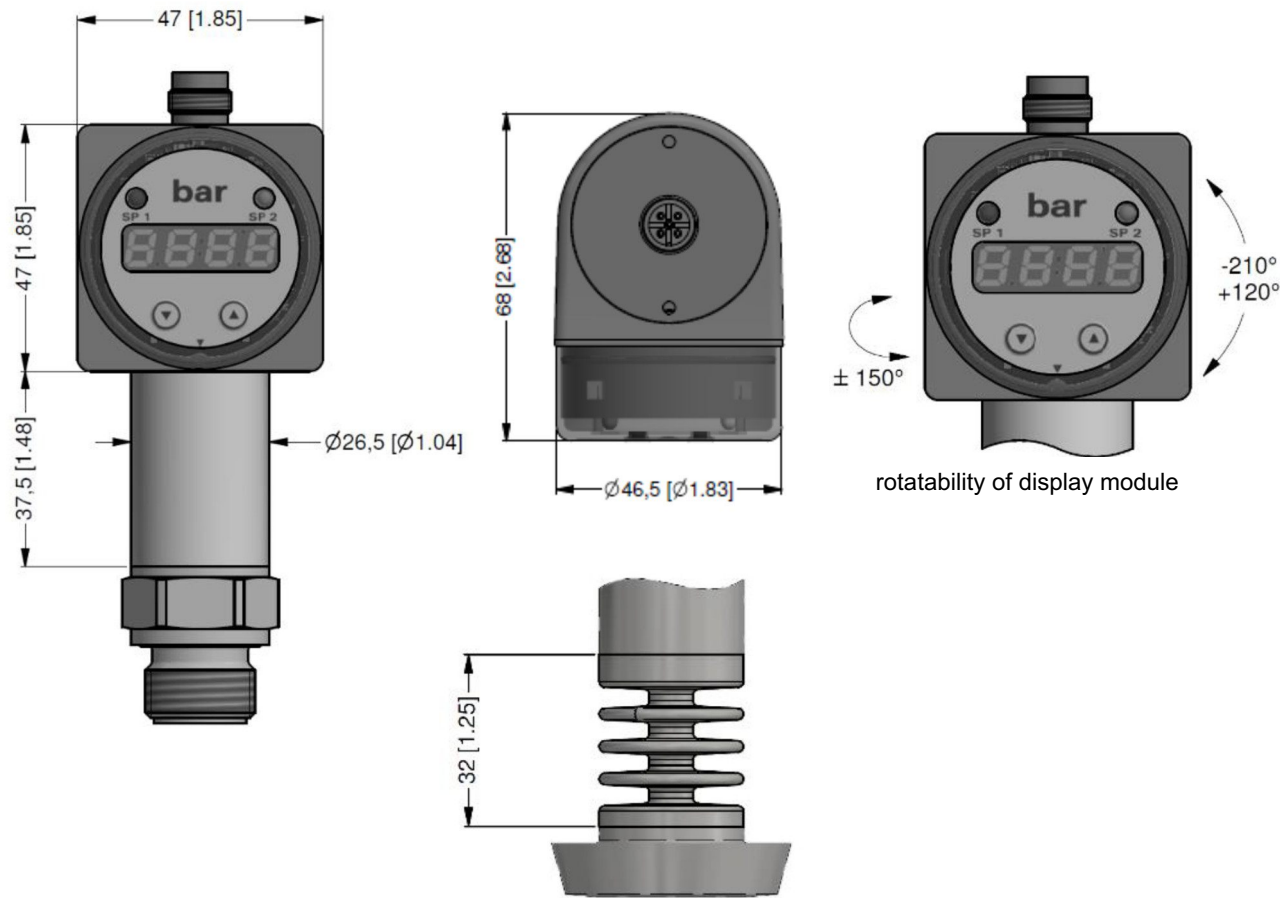
Pressure switches

Pin configuration						
Electrical connection	M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12x1 plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (DIN 47100)
Supply +	1	1	1	1	1	wh (white)
Supply -	3	3	3	2	3	bn (brown)
Signal + (only 3-wire)	2	2	2	3	2	gn (green)
Contact 1	4	4	4	3	4	gy (grey)
Contact 2	5	5	5	-	5	pk (pink)
Contact 3	-	-	6	-	-	-
Contact 4	-	-	7	-	-	-
Shield	via pressure port	plug housing/ pressure port	via pressure port	ground contact	plug housing/ pressure port	ye/gn (yellow / green)

Electrical connections (dimensions in mm)						
						cable outlet PVC Ø = 4.9mm cable outlet PUR Ø = 5.7mm
M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12 x1 (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable outlet ¹⁰	

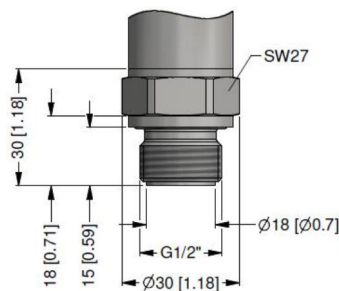
¹⁰ different cable types and lengths available, permissible temperature depends on kind of cable;
standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70°C)

DIMENSION DRAWINGS

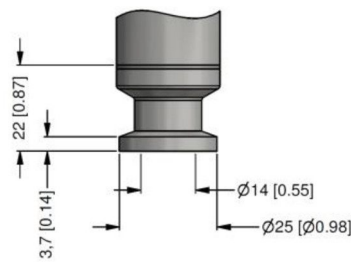


Cooling element up to 300°C (optionally)
max. temperature depends on the used sealing material, type of seal and installation

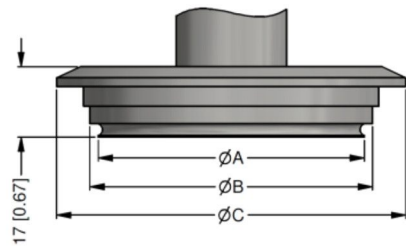
MECHANICAL CONNECTION



G1/2" flush
($P_N \geq 1$ bar)

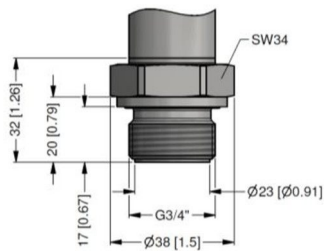


Clamp 3/4" (DIN 32676)
4 bar $\leq P_N \leq 8$ bar

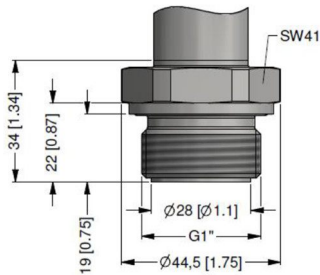


Varivent ® $P_N \leq 25$ bar

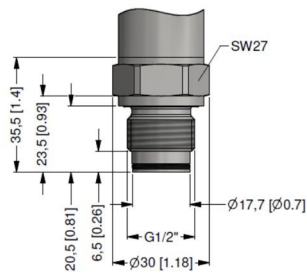
dimensions in mm [in]	
size	DN 40/50
A	64 [2.52]
B	68 [2.68]
C	84 [3.31]



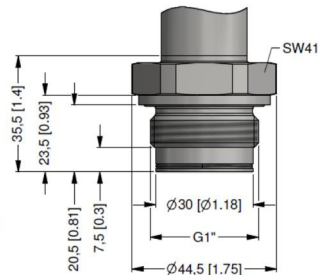
G3/4" flush



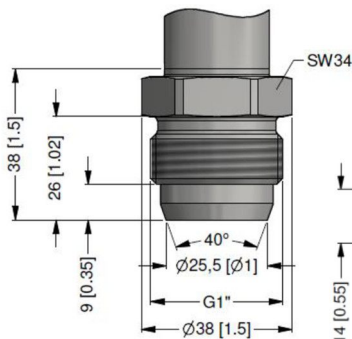
G1" flush



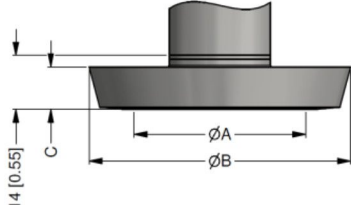
G1/2" flush with
radial o-ring



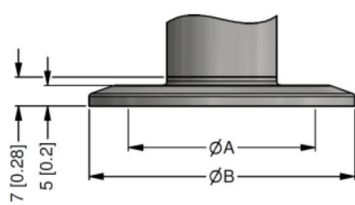
G1" flush with
radial o-ring ($P_N > 0.25$ bar)



G1" cone



dairy pipe (DIN 11851)



clamp (DIN 32676)

dimensions in mm			
size	DN 25	DN 40	DN 50
A	23	32	45
B	44	56	68,5
C	10	10	11
P_N [bar]	≥ 0.25 ≤ 40	≥ 0.25 ≤ 40	≥ 0.25 ≤ 25

dimensions in mm				
size	3/4"	DN 25	DN 32	DN 50
A	14	23	32	45
B	25	50,5	50,5	64
P_N [bar]	≥ 4 ≤ 8	≥ 0.25 ≤ 16	≤ 16	≤ 16

⇒ metric threads and other versions on request

ORDER CODE

CCP-P-200P---------

Pressure															
Gauge	7	8	5												
Absolute	7	8	6												
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								
-1 ... 0				X	1	0	2								
Customer				9	9	9	9								
Customer - underpressure				X	X	X	X								
Analogue output															
4 ... 20 mA / 2-wire							1								
0 ... 20 mA / 3-wire							2								
0 ... 10 V / 3-wire							3								
4 ... 20 mA / 3-wire							7								
Customer							9								
Switching output															
Without switching contact							0								
1 switching contact (3-wire output only with 5-pin connector) ¹							1								
2 switching contacts (only with 5-pin connector) ¹							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								
0,5 % including Calibration Certificate ($P_N \leq 0,4$ bar)							T								
0,35 % including Calibration Certificate ($P_N > 0,4$ bar)							S								
0,25 % including Calibration Certificate ($P_N > 0,4$ bar)							R								
Table of measured values for accuracy 0,5 %							N								
Table of measured values for accuracy 0,35 %							M								
Customer							9								
Electrical connection															
Connector DIN 43650 (ISO 4400) (IP 65) ¹							1	0	0						
Cable gland PG7 / cable length specify (IP 65)							4	0	0						
+ PVC cable / 1 m															
Connector M 12 x 1 (5-pin) (IP 65)							N	0	1						
Connector M 12 x 1 (5-pin) (IP 65) - metal							N	1	1						
Binder series 723 (5-pin) (IP 65)							A	0	0						
Customer							9	9	9						
Mechanical connection															
G 1/2" DIN 3852 ($P_N > 2,5$ bar) (only with seals)										Z	0	0			
M 20 x 1,5 DIN 3852 ($P_N > 2,5$ bar) (only with seals)										D	0	4			
G 3/4" DIN 3852 ($P_N > 0,6$ bar) (only with seals)										Z	3	0			
G 1" DIN 3852 ($P_N > 0,25$ bar) (only with seals)										Z	3	1			
G 1 1/2" DIN 3852 (only with seals)										Z	3	3			
G 2" DIN 3852										Z	3	4			
G 1" DIN 3852 flush 2x O ring ($P_N > 0,25$ bar)										Z	5	7			
G 1/2" DIN 3852 flush 2x O ring ($P_N > 1$ bar)										Z	6	1			
G 3/4" DIN 3852 flush 2x O ring ($P_N > 1$ bar)										Z	6	6			
1/8" - 27 NPT (without seals, monel pressure port, tantal membrane)										Z	9	2			
G1" cone seal (without seals)										K	3	1			
Clamp DN 3/4" (4 bar < P_N < 8 bar) (without seals)										C	6	8			
Clamp DN 1" (DN 25) (0,4 bar < P_N < 16 bar) (without seals)										C	6	1			
Clamp DN 1 1/2" (DN 32) (0,4 bar < P_N < 16 bar) (without seals)										C	6	2			
Clamp DN 2" (DN 50) (0,4 bar < P_N < 16 bar) (without seals)										C	6	3			
DIN 11851 DN 25 ($P_N > 0,6$ bar) (without seals) ²										M	7	3			
DIN 11851 DN 40 ($P_N > 0,4$ bar) (without seals) ²										M	7	5			
DIN 11851 DN 50 ($P_N > 0,25$ bar) (without seals) ²										M	7	6			
"sandwich" DN 25 (without seals)										S	6	1			

[illegible]

- 1 - with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible
- 2 - the cup nut for dairy pipe has to be mounted by production of pressure transmitter. The cup nut has to be ordered as separate position.
- 3 - drinking water certification only possible with EPDM seal

