

## CCP-P-200



- electronic pressure switch
- nominal pressure: from 0...100mbar up to 0...600bar
- 1 or 2 independent PNP contacts, freely configurable
- output signals: 2-wire: 4...20 mA; 3-wire: 0/4...20 mA / 0...10V
- 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 electronic pressure switch **CCP-P-200** 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-200 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



Plant and Machine Engineering



Heating and Air Conditioning



Environmental Engineering  
(water – sewage – recycling)

### TECHNICAL DATA

Input pressure range												
Nominal pressure gauge <sup>1</sup>	[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
Level gauge <sup>1</sup>	[mH <sub>2</sub> O]	-	1	1.6	2.5	4	6	10	16	25	40	60
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 <sup>1</sup> / abs.	[bar]	10	16	25	40	60	100	160	250	400	600	
Level gauge <sup>1</sup>	[mH <sub>2</sub> O]	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 <sub>N</sub> = 1 bar: unlimited vacuum resistance; P <sub>N</sub> < 1 bar: on request										

<sup>1</sup> from 60 bar: measurement starts with ambient pressure

Contact <sup>2</sup>	
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 <sub>switch</sub> = V <sub>S</sub> - 2V 0 ... 10 V / 3-wire: contact rating 125 mA, short-circuit resistant
Accuracy of contacts <sup>3</sup>	standard: P <sub>N</sub> < 0.4 bar: ± 0.5 % span      P <sub>N</sub> = 0.4 bar: ± 0.35 % span option: P <sub>N</sub> = 0.4 bar: ± 0.25 % span
Repeatability	± 0.1 % span
Switching frequency	max. 10 Hz
Switching cycles	> 100 x 10 <sup>6</sup>
Delay time	0 ... 100 sec

<sup>2</sup> max. 1 contact for 2-wire current signal with plug ISO 4400  
no contact possible with 3-wire in combination with plug ISO 4400

<sup>3</sup> 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 <sub>S</sub> = 13 ... 36 V <sub>DC</sub> permissible load: R <sub>max</sub> = [(V <sub>S</sub> - V <sub>Smin</sub> ) / 0.02 A] W      response time: < 10 msec
3-wire current signal	4 ... 20 mA / V <sub>S</sub> = 19 ... 30 V <sub>DC</sub> adjustable (turn-down of span 5:1) <sup>4</sup> permissible load: R <sub>max</sub> = 500 W      response time: < 3 sec
3-wire voltage signal	0 ... 10 V / V <sub>S</sub> = 15 ... 36 V <sub>DC</sub> permissible load: R <sub>min</sub> = 10 kW      response time: < 3 msec
without analogue output	V <sub>S</sub> = 15 ... 36 V <sub>DC</sub>
Accuracy <sup>3</sup>	standard: P <sub>N</sub> < 0.4 bar: ± 0.5 % span;      P <sub>N</sub> = 0.4 bar: ± 0.35 %span option: P <sub>N</sub> = 0.4 bar: ± 0.25 % span

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

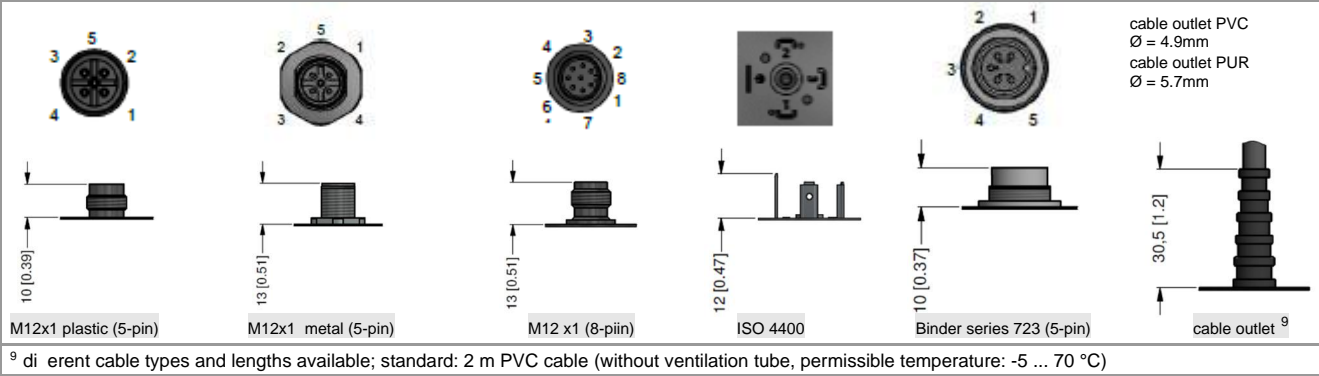
Thermal effects (O set and Span)			
Nominal pressure $P_N$ [bar]	-1 ... 0	< 0.40	0.40
Tolerance band [% span]	$\pm 0.75$	$\pm 1$	$\pm 0.75$
in compensated range [°C]	-20 ... 85	0 ... 70	-20 ... 85
Permissible temperatures			
Permissible temperatures	medium: -40 ... 125 °C	electronics / environment: -40 ... 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 (316 L)		
Housing	stainless steel 1.4404 (316 L)		
Display housing	PA 6.6, polycarbonate		
Seals (media wetted)	standard: FKM	option: NBR; welded version <sup>5</sup>	others on request
Diaphragm	stainless steel 1.4435 (316 L)		
Media wetted parts	pressure port, seals, diaphragm		
<sup>5</sup> welded version only for pressure ports according to EN 837; possible for nominal pressure ranges $P_N \leq 40$ bar			
Miscellaneous			
Display	4-digit, red 7-segment-LED display, digit height 7 mm, range of indication -1999 ... +9999; accuracy 0.1 % $\pm 1$ 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. 45 mA + signal current 3-wire signal output voltage: approx. 45 mA		
Ingress protection	IP 65		
Installation position	any <sup>7</sup>		
Weight	min. 160 g (depending on mechanical connection)		
Operational life	> 100 x 10 <sup>6</sup> cycles		
CE-conformity	EMC Directive: 2014/30/EU		Pressure Equipment Directive: 2014/68/EU (module A) <sup>8</sup>
<sup>7</sup> 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 $P_N \leq 1$ bar.			
<sup>8</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar			

ELECTRICAL CONNECTION

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

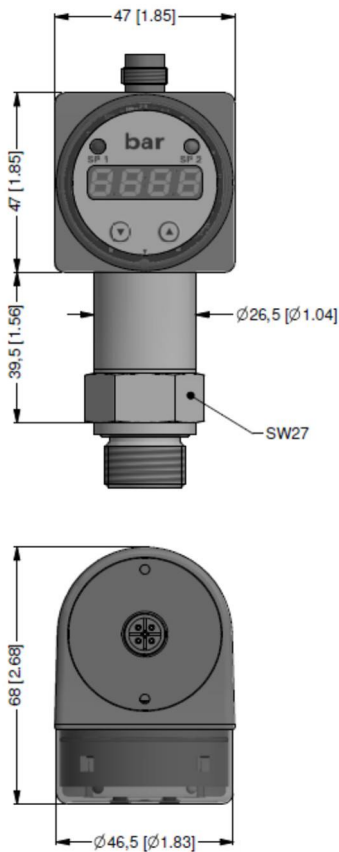


**Electrical connections (dimensions in mm)**

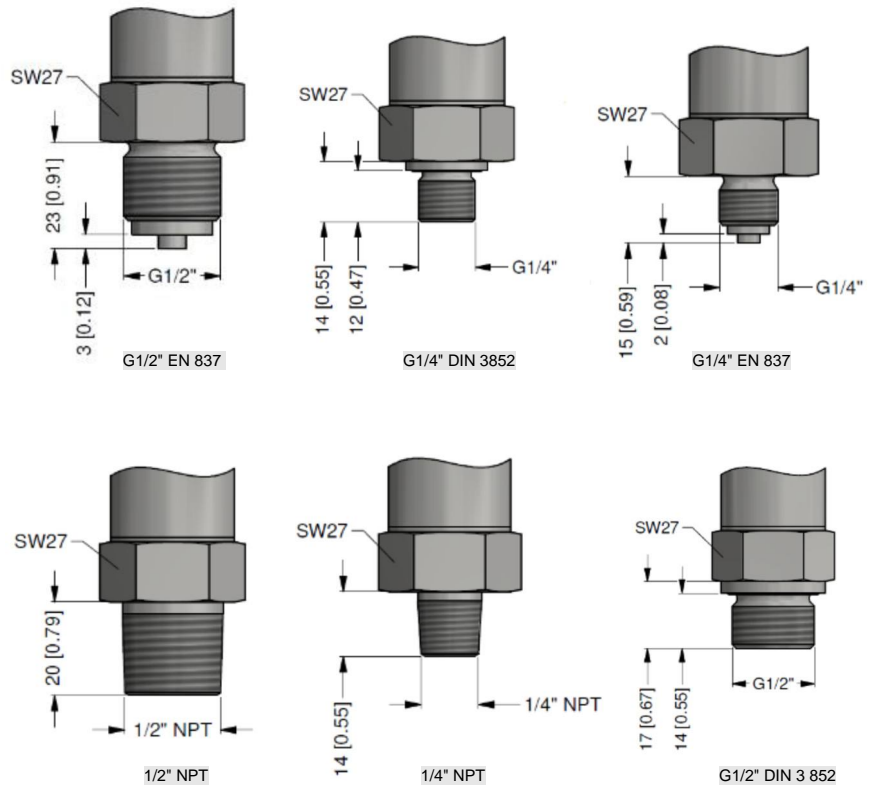


**DIMENSION DRAWINGS**

**standard**

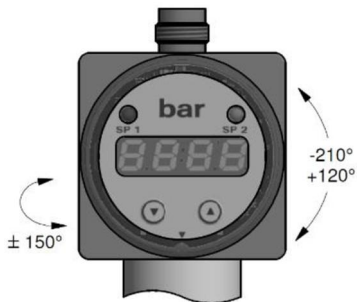


**optionally**

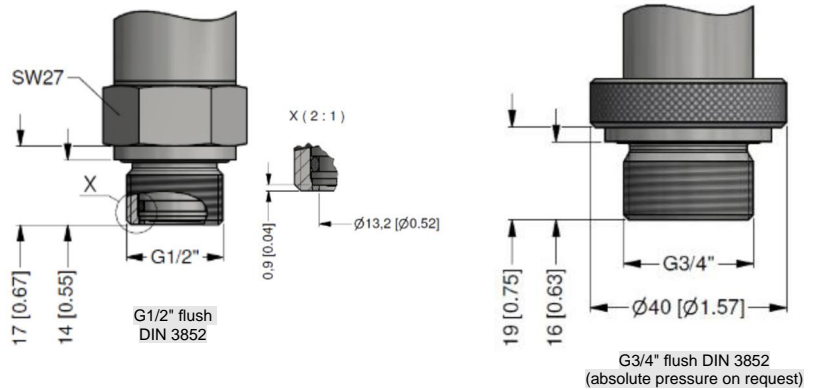


for nominal pressure  $P_N > 400$  bar increases the length of devices by 19 mm

**optionally for  $P_N$  from 0.1 up to 40 bar**



rotatability of display module



metric threads and other versions on request

ORDER CODE

CCP-P-200- [ ] [ ] [ ] - [ ] [ ] [ ] [ ] - [ ] - [ ] - [ ] - [ ] [ ] [ ] [ ] - [ ] [ ] [ ] [ ] - [ ] - [ ] [ ] [ ]

<b>Pressure</b>										
Gauge <sup>1</sup>	7	8	0							
Absolute <sup>2</sup>	7	8	1							
<b>Input [bar]</b>										
0 ... 0,1 <sup>2</sup>				1	0	0	0			
0 ... 0,16 <sup>2</sup>				1	6	0	0			
0 ... 0,25 <sup>2</sup>				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			
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			
<b>Electrical output / Analog output</b>										
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		
<b>Contact</b>										
Without switching contact								0		
1 switching contact (version 3-wire only with 5-pin connector) <sup>3</sup>								1		
2 switching contacts (only with 5-pin connector) <sup>3</sup>								2		
<b>Accuracy</b>										
0,5 % (P <sub>N</sub> 0,4 bar)								5		
0,35 % (P <sub>N</sub> > 0,4 bar)								3		
0,25 % (P <sub>N</sub> > 0,4 bar)								2		
0,5 % including Calibration Certificate (P <sub>N</sub> 0,4 bar)								T		
0,35 % including Calibration Certificate (P <sub>N</sub> > 0,4 bar)								S		
0,25 % including Calibration Certificate (P <sub>N</sub> > 0,4 bar)								R		
Table of measured values for accuracy 0,5 %								N		
Table of measured values for accuracy 0,35 %								M		
Customer								9		
<b>Electrical connection</b>										
Connector DIN 43650 (ISO 4400) (IP 65) <sup>3</sup>								1	0	0
Cable gland PG7 / cable length specify (IP 67)								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
Connector Binder 723 7-pin (IP 65)								A	0	0
Customer								9	9	9



CCP-P-200- [ ] [ ] [ ] - [ ] [ ] [ ] [ ] - [ ] - [ ] - [ ] - [ ] [ ] [ ] - [ ] - [ ] [ ] [ ]

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						
M 20 x 1,5 DIN 3852	5	0	0						
M 12 x 1 DIN 3852	6	0	0						
M 10 x 1 DIN 3852	7	0	0						
M 20 x 1,5 EN 837	8	0	0						
M 12 x 1,5 DIN 3852	C	0	0						
G 1/2" DIN 3852 with flush sensor diaphragm <sup>4</sup>	F	0	0						
G 3/4" DIN 3852 with flush sensor diaphragm <sup>4</sup>	K	0	0						
1/2" NPT	N	0	0						
1/4" NPT	N	4	0						
Customer	9	9	9						
Seals									
Viton (FKM) (P <sub>N</sub> 40 bar)								1	
Without seals - welded (only with EN 837) <sup>5</sup>								2	
EPDM (P <sub>N</sub> < 160 bar)								3	
NBR (P <sub>N</sub> > 40 bar)								5	
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 - with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible

4 - not possible for nominal pressure P<sub>N</sub> > 40 bar; for G3/4" flush nominal pressure abs. on request

5 - welded version only with pressure ports according to EN 837; possible for nominal pressure ranges P<sub>N</sub> 40 bar

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

