

## CCP-P-201P



- electronic pressure switch
- nominal pressure: from 0...60 bar up to 0...400 bar
- 1 or 2 independent PNP contacts, freely configurable
- output signals: 2-wire: 4...20 mA; 3-wire: 4...20 mA / 0...10V
- flush welded stainless steel sensor
- accuracy 0.5 % span
- indication of measured values on a 4-digit LED display
- rotatable and configurable display module
- optional: cooling element up to 300°C



The electronic pressure switch **CCP-P-201P** is the successful combination of intelligent pressure switch and digital display and is designed for universal applications in the mechanical engineering and other industries where a flush stainless steel diaphragm is necessary. This can be the case, for example, with higher viscous or slightly polluted fluids. For usage with higher media temperature optionally a cooling element up to 300°C is available.

### PREFERRED AREAS OF USE ARE



Food industry



Plant and machine engineering



Viscous and pasty media

### TECHNICAL DATA

Input pressure ranges	
Nominal pressure gauge/abs. [bar]	60      100      160      250      400
Overpressure [bar]	100      200      400      400      600
Burst pressure [bar]	120      250      500      500      650
Contact <sup>1</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>2</sup>	± 0.5 % span
Repeatability	± 0.2 % span
Switching frequency	max. 10 Hz
Switching cycles	> 100 x 10 <sup>6</sup>
Delay time	0 ... 100 sec
<sup>1</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>2</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 max. 5:1) <sup>3</sup> permissible load: R <sub>max</sub> = 500 W      response time: < 0.5 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: < 10 msec
Without analogue output	V <sub>S</sub> = 15 ... 36 V <sub>DC</sub>
Accuracy <sup>2</sup>	± 0.5 % span
<sup>3</sup> with turn-down of span the analogue signal is adjusted automatically to the new measuring range	
Thermal error (o set and span) / Permissible temperatures	
Thermal error	± 0.2 % span / 10 K
in compensated range	-20 ... 85°C
Permissible temperatures <sup>5</sup>	medium <sup>5</sup> :      -40 ... 125 °C for filling fluid silicone oil -10 ... 125 °C for filling fluid food compatible oil electronics / environment:      -40 ... 85 °C storage:      -40 ... 100 °C



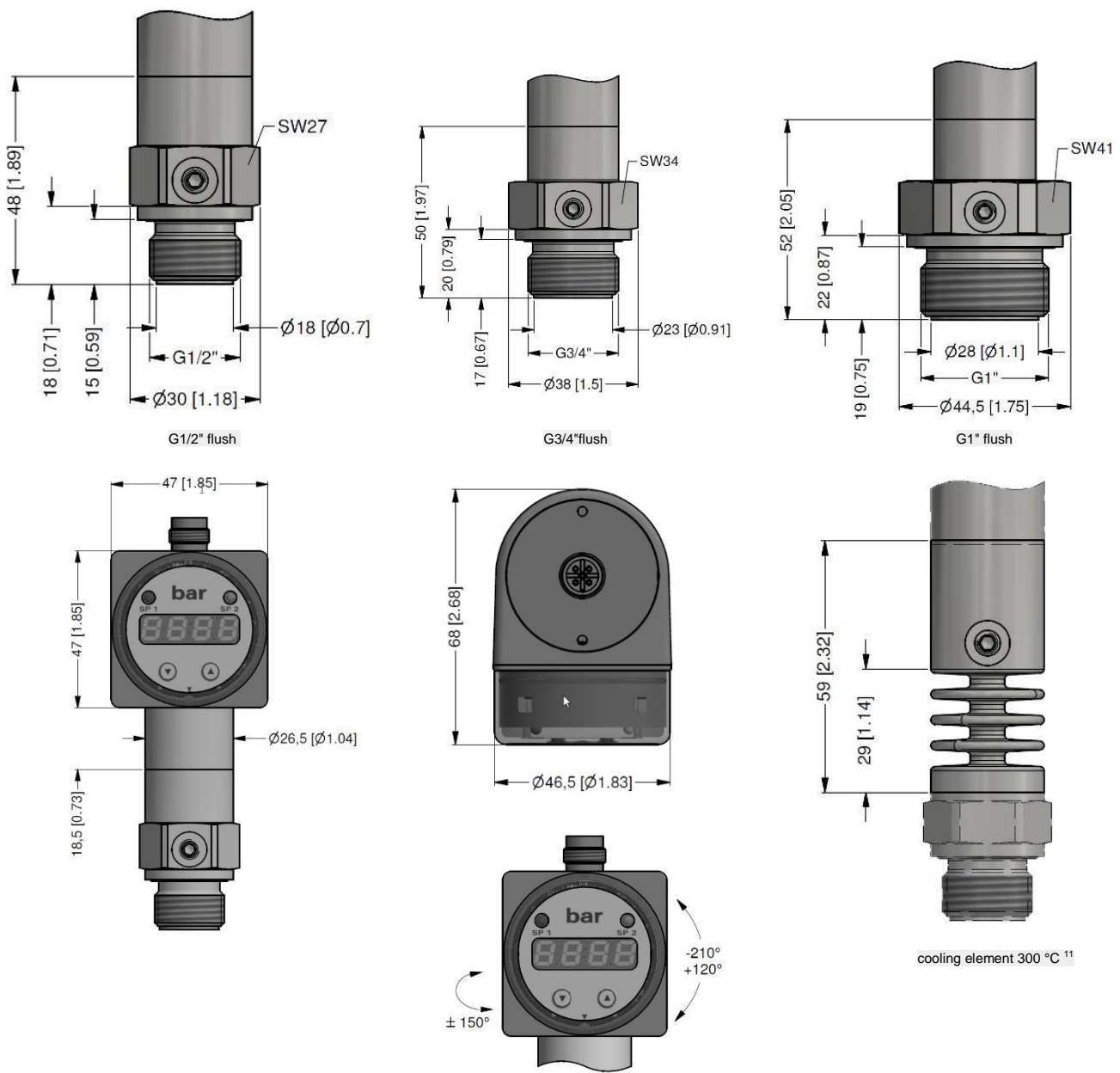
Permissible temperature medium for cooling element <sup>6</sup>	filling fluid silicone oil	overpressure: -40 ... 300 °C	vacuum: -40 ... 150 °C
	filling fluid food compatible oil	overpressure: -10 ... 250 °C	vacuum: -10 ... 150 °C
<sup>4</sup> an optional cooling element can influence thermal effects for o set and span depending on installation position and filling conditions			
<sup>5</sup> max. temperature of the medium for overpressure > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °			
<sup>6</sup> max. temperature depends on the used sealing material, type of seal and installation			
<b>Electrical protection</b>			
Short-circuit protection	permanent		
Reverse polarity protection	no damage, but also no function		
Electromagnetic compatibility	emission and immunity according to EN 61326		
<b>Mechanical stability</b>			
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	
<b>Filling fluids</b>			
Standard	silicone oil		
Optional	food compatible oil with FDA approval (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request		
<b>Materials</b>			
Pressure port	stainless steel 1.4435 (316 L)		
Housing	stainless steel 1.4404 (316 L)		
Display housing	PA 6.6, Polycarbonate		
Seals	standard:	FKM (for media temperature 200 °C)	
	option:	FFKM <sup>7</sup> (for media temperature < 260 °C)	
	others on request		
Diaphragm	stainless steel 1.4435		
Media wetted parts	pressure port, seals, diaphragm		
<sup>7</sup> for pressure ranges $P_N$ 100 bar			
<b>Miscellaneous</b>			
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)		
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)		
Weight	min. 200 g (depending on mechanical connection)		
Operational life	100 million load cycles		
CE-conformity	EMC Directive: 2014/30/EU		Pressure Equipment Directive: 2014/68/EU (module A) <sup>9</sup>
<sup>9</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar.			

## ELECTRICAL CONNECTION

<b>Wiring diagrams</b>						
<p>2-wire-system (current)</p>			<p>3-wire-system (current/voltage)</p>			
<b>Pin configuration</b>						
Electrical connection	M12x plastic (5-pin)	M12x metal (5-pin)	M12x plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (IEC 60757)
Supply +	1	1	1	1	1	WH (white)
Supply -	3	3	3	2	3	BN (brown)
Signal + (only for 3-wire)	2	2	2	3	2	GN (green)
Contact 1	4	4	4	3	4	GN (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 pin	plug housing/pressure port	GNYE (green-yellow)

Electrical connections (dimensions in mm)					
					cable outlet PVC $\varnothing = 4.9\text{mm}$ cable outlet PUR $\varnothing = 5.7\text{mm}$
10 [0.39]	13 [0.51]	13 [0.51]	12 [0.47]	10 [0.37]	
M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12 x1 (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable outlet <sup>10</sup>
<sup>10</sup> 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



metric threads and other versions on request

<sup>11</sup> for pressure ranges  $P_N \leq 160$  bar; max. temperature depends on the used sealing material, type of seal and installation



ORDER CODE

CCP-P-201P-    -     -  -  -    -    -  -  -

<b>Measured pressure</b>										
Gauge	7	8	7							
Absolute	7	8	8							
<b>Input [bar]</b>										
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			
Customer				9	9	9	9			
<b>Analogue output</b>										
4 ... 20 mA / 2-wire								1		
0 ... 10 V / 3-wire								3		
4 ... 20 mA / 3-wire								7		
Customer								9		
<b>Switching output</b>										
1 switching contact (version 3-wire only with 5-pin connector) <sup>1</sup>								1		
2 switching contacts (only with 5-pin connector) <sup>1</sup>								2		
<b>Accuracy</b>										
0,5 %								5		
Customer								9		
<b>Electrical connection</b>										
Connector DIN 43650 (ISO 4400) (IP 65) <sup>1</sup>								1	0	0
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
Cable outlet incl.cable (standard: 2 m PVC cable without ventilation tube, permissible temperatures: -5 ... 70 °C)								T	A	0
Customer								9	9	9
<b>Mechanical connection</b>										
G 1/2" DIN 3852 with flush diaphragm								Z	0	0
G 3/4" DIN 3852 with flush diaphragm								Z	3	0
G 1" DIN 3852 with flush diaphragm								Z	3	1
G 1/2" DIN 3852 with rad. o-ring and flush diaphragm								Z	6	1
Customer								9	9	9
<b>Seals</b>										
Viton (FKM)									1	
FFKM (P <sub>N</sub> 100 bar)									7	
Customer									9	
<b>Filling fluids</b>										
Silicone oil									1	
Food compatible oil									2	
Customer									9	
<b>Diaphragm</b>										
Stainless steel 1.4435 (316L)										1
Customer										9
<b>Special version</b>										
Standard										0 0 0
With cooling element up to 300 °C <sup>2</sup>										2 0 0
Customer										9 9 9

- 1 - with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible
- 2 - cooling element up to 300°C not possible for pressure range P<sub>N</sub> > 160 bar

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

The manufacturer provides the EU declaration of conformity.

Calibration - All production undergoes output control, which is performed by comparison with standards.

The traceability of standards and working gauges is ensured in accordance with Act No. 505/1990, as amended, on metrology.

The manufacturer offers the possibility to supply sensors calibrated in the calibration laboratory, accredited according to SN EN ISO / IEC 17025: 2018.

