

CCP-K-201



- electronic pressure switch
- nominal pressure: from 0...400 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 / 0...10 V
- ceramic sensor
- accuracy 0.5 % span
- indication of measured values on a 4-digit LED display
- rotatable and configurable display module
- option: pressure port PVDF



The electronic pressure switch **CCP-K-201** is the successful combination of intelligent pressure switch and digital display and has been specially designed for universal usage in industry applications. The CCP-K-201 is available with flush pressure ports for viscous, pasty and highly contaminated media. As standard the CCP-K-201 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



Environmental Engineering
(water – sewage – recycling)

TECHNICAL DATA

Input pressure range ¹		-1...0	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Nominal pressure gauge [bar]		-1...0	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Nominal pressure abs. [bar]		-	-	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Level gauge [mH ₂ O]		-	4	6	10	16	25	40	60	100	160	250	400	600	-	-	-	-	-
Overpressure [bar]		4	1	2	2	4	4	10	10	20	40	40	100	100	200	400	400	600	800
Burst pressure [bar]		7	2	4	4	5	5	12	12	25	50	50	120	120	250	500	500	650	880
Vacuum resistance		P _N = 1 bar: unlimited vacuum resistance P _N < 1 bar: on request																	

¹ PVDF pressure port possible for nominal pressure ranges up to 60 bar

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	± 0.5 % span
Repeatability	± 0.2 % 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

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	± 0.5 % span

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

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

Thermal effects (Offset and Span) / Permissible temperatures	
Thermal error	± 0.2 % span / 10 K
in compensated range	-25 ... 85 °C
Permissible temperatures ⁵	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C

⁵ for pressure port of PVDF the permissible temperature is -30 ... 60 °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 / housing	Standard:	pressure port	housing
	Option for G1/2" open port (up to 60 bar): Options for G3/4" flush (0.6 bar \leq P _N \leq 25 bar):	stainless steel 1.4404 PVDF PVDF	stainless steel 1.4404 stainless steel 1.4404 PVDF
Display housing	PA 6.6, polycarbonate		
Seals (media wetted)	standard: FKM option: EPDM (P _N \leq 160 bar), NBR others on request		
Diaphragm	ceramics Al ₂ O ₃ 96 %		
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 % \pm 1 digit; digital damping 0.3 ... 30 sec (programmable); measured value update 0.0 ... 10 sec (programmable)		
Option oxygen application ⁷	for P _N 15 bar: O-ring in 70 EPDM 281 (with BAM-approval); permissible maximum values are 15 bar / 60° C and 10 bar / 90° C for P _N 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C		
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		
Weight	approx. 200 g		
Operational life	> 100 x 10 ⁶ cycles		
CE-conformity	EMC Directive: 2014/30/EU		Pressure Equipment Directive: 2014/68/EU (module A) ⁸
⁷ not possible with flush pressure ports			
⁸ 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)

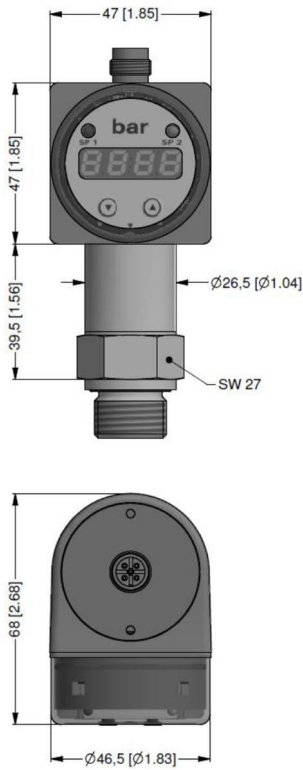
5-pin connections: M12x1 plastic (5-pin) [10 [0.39]], M12x1 metal (5-pin) [13 [0.51]]
 8-pin connection: M12 x1 (8-pin) [13 [0.51]]
 ISO 4400 [12 [0.47]]
 Binder series 723 (5-pin) [10 [0.37]]
 Cable outlet 9 [30.5 [1.2]]

cable outlet PVC $\varnothing = 4.9\text{mm}$
 cable outlet PUR $\varnothing = 5.7\text{mm}$

⁹ 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)

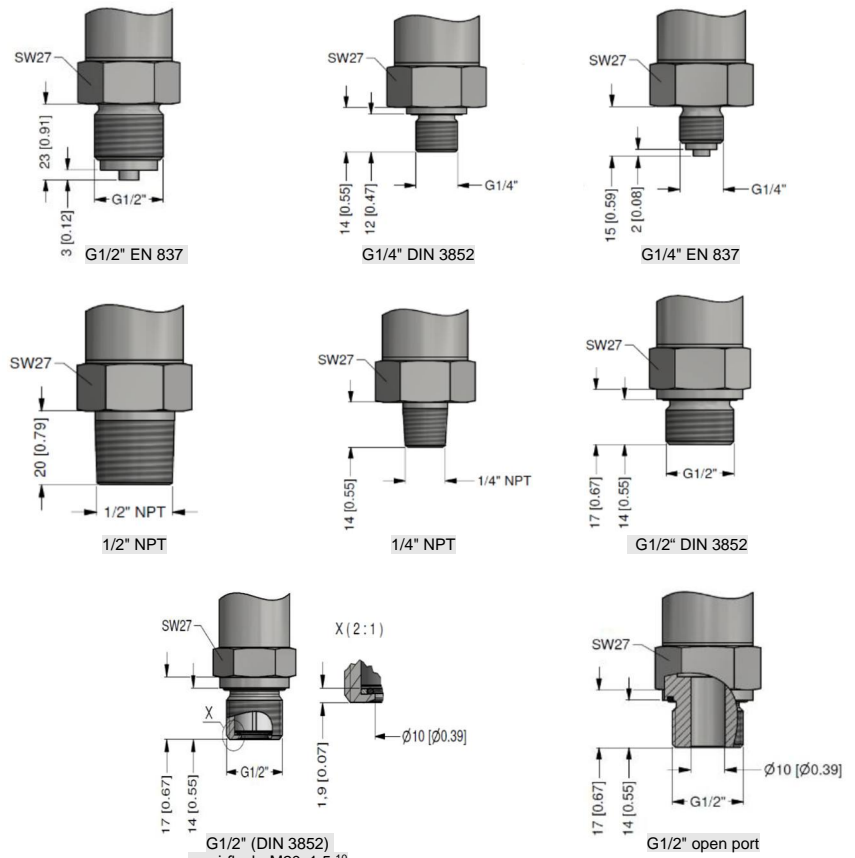
DIMENSION DRAWINGS

standard



metric threads and others on request

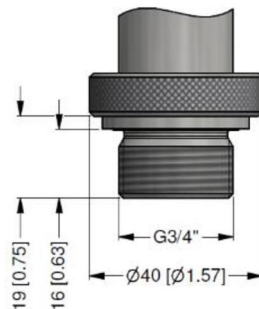
optionally



¹⁰ possible for nominal pressure ranges $P_N \leq 40$ bar



rotatability of display module



G3/4" semi-flush (DIN 3852), (0.6 bar pN - 60 bar gauge)



ORDER CODE

CCP-K-201- [] [] [] - [] [] [] [] - [] [] [] [] - [] [] [] [] - [] [] [] [] - [] [] [] [] - [] [] [] [] - [] [] [] [] - [] [] [] []

Measured pressure										
Gauge	7	8	2							
Gauge in m H ₂ O	7	8	E							
Absolute	7	8	3							
Input [bar]										
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 (accuracy 1%)				X	1	0	2			
Customer				9	9	9				
Customer - underpressure				X	X	X	X			
Analogue output										
4 ... 20 mA / 2-wire								1		
0 ... 10 V / 3-wire								3		
4 ... 20 mA / 3-wire								7		
Customer								9		
Switching output										
1 switching contact (version 3-wire only with 5-pin connector) ¹								1		
2 switching contacts (only with 5-pin connector) ¹								2		
Accuracy										
0,5 %								5		
1% (underpressure)								8		
0,5 % including Calibration Certificate								T		
1 % including Calibration Certificate (underpressure)								U		
Table of measured values for accuracy 0,5 %								N		
Customer								9		
Electrical connection										
Connector DIN 43650 (ISO 4400) (IP 65) ¹								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
Mechanical connection										
G 1/2" DIN 3852								1	0	0
G 1/2" EN 837-1/-3 (manometric)								2	0	0
G 1/4" DIN 3852								3	0	0
G 1/4" EN 837-1/-3 (manometric)								4	0	0
G 1/2" flush diaphragm (only for - 0,3 P _N < 40 bar) ²								F	0	0
G 3/4" DIN 3852 with flush sensor ³								K	0	0
G 1/2" DIN 3852 open (P _N 60 bar) (material PVDF)								H	0	0
1/2" NPT								N	0	0
1/4" NPT								N	4	0
Customer								9	9	9
Seals										
Viton (FKM)										1
EPDM (P _N 160 bar)										3
NBR										5
Customer										9
Pressure port										
Stainless steel 1.4404 (316 L)										1
PVDF (P _N 60 bar) (only with H00) ⁴										B
Customer										9
Diaphragm										
Ceramics Al ₂ O ₃ 96 %										2
Customer										9



