

CCP-K-401



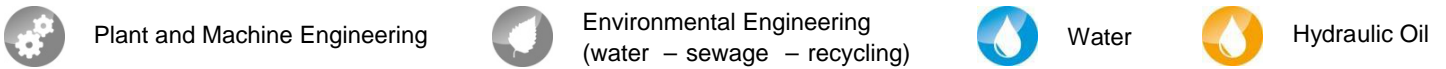
- intelligent electronic pressure switch
- nominal pressure: from 0...400mbar up to 0...600bar
- 1 or 2 independent PNP contacts, freely configurable
- output signals: 4...20 mA, 2- and 3-wire
- ceramic sensor
- accuracy 0.5 % span
- indication of measured values on a 4-digit LED display
- rotatable and configurable display module
- option: pressure port PVDF



The intelligent electronic pressure switch **CCP-K-401** is the successful combination of intelligent pressure switch and digital display and has been specially designed for universal usage in industry applications; with flush diaphragm the CCP-K-401 is suitable for the usage in viscous, pasty or highly contaminated media. The rotatable stainless steel housing is predestined for rough conditions and difficult installing conditions, caused by the high functionality and robustness.

As standard the CCP-K-401 offers a PNP contact and is optionally available with a second, independent contact. Additionally it could be equipped with an analogue output.

PREFERRED AREAS OF USE ARE



TECHNICAL DATA

Input pressure ranges																		
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																	

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	± 0.5 % span
Repeatability	± 0.2 % span
Switching frequency	2-wire: max. 10 Hz / 3-wire: 50 Hz
Switching cycles	> 100 x 10 ⁶
Delay time	0 ... 100 sec

¹ 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 _{Smin}) / 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	± 0.5 % span

² 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 ³	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C

³ 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	1.4404 (316L) PVDF (for P _N 60 bar, G1/2" open port)
Housing	stainless steel 1.4301 (304)
Housing cap	standard: plastic HDPE
Display housing	stainless steel 1.4301 (304)
Viewing glass	laminated safety glass
Seals	standard: FKM option: EPDM (P _N 160 bar), NBR others on request
Diaphragm	ceramics Al ₂ O ₃ 96 %
Media wetted parts	pressure port, seals, diaphragm
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)
Option oxygen application ⁶	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. 30 mA + signal current
Ingress protection	IP 67
Installation position	any
Weight	approx. 400 g
Operational life	> 100 x 10 ⁶ pressure cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ⁷
⁶ not possible with flush pressure ports	
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 connections	M12x1 metal (5-pin)
Supply +	1
Supply -	3
Signal + (only 3-wire)	2
Contact 1	4
Contact 2	5
Shield	plug housing / pressure port

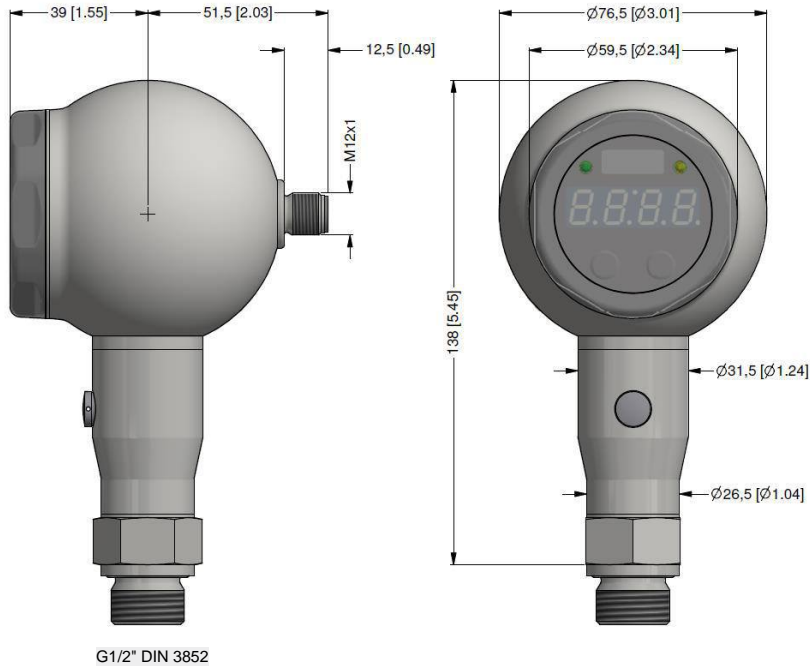
Electrical connections

M12x1 (5-pin)



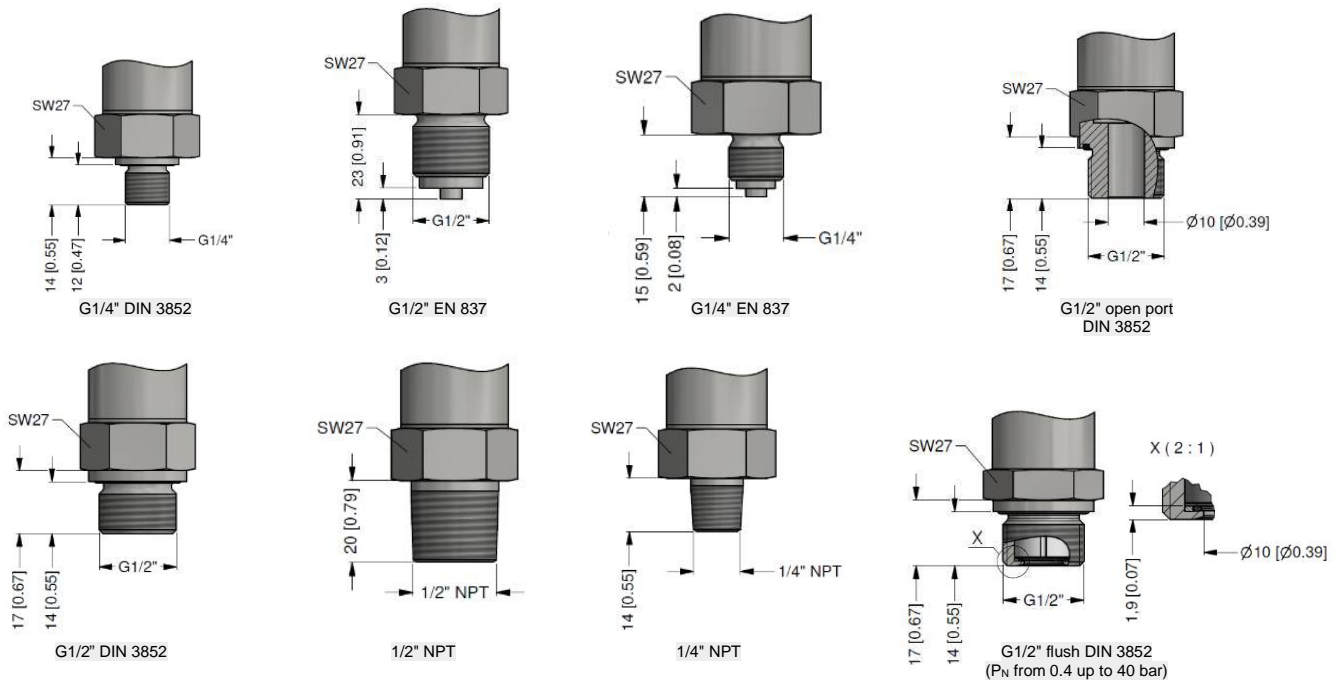
MECHANICAL CONNECTION

standard



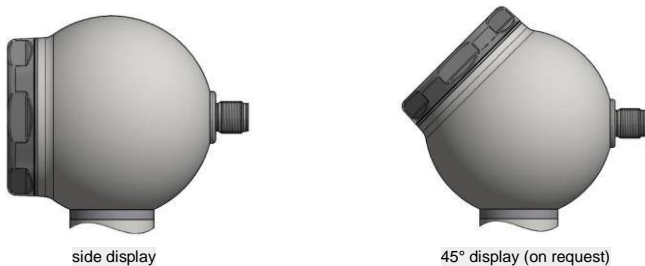
G1/2" DIN 3852

optionally



metric threads and other versions on request

DESIGNS



⁸ all designs in horizontal rotatable housing as standard

ORDER CODE

CCP-K-401- - - - - - - - - -

Pressure													
Gauge			7	A	2								
Gauge m H ₂ O			7	A	E								
Absolut			7	A	3								
Input [bar] [mH₂O]													
0 ... 0,40	0 ... 4		4	0	0	0							
0 ... 0,60	0 ... 6		6	0	0	0							
0 ... 1	0 ... 10		1	0	0	1							
0 ... 1,6	0 ... 16		1	6	0	1							
0 ... 2,5	0 ... 25		2	5	0	1							
0 ... 4	0 ... 40		4	0	0	1							
0 ... 6	0 ... 60		6	0	0	1							
0 ... 10	0 ... 100		1	0	0	2							
0 ... 16	0 ... 160		1	6	0	2							
0 ... 25	0 ... 250		2	5	0	2							
0 ... 40	0 ... 400		4	0	0	2							
0 ... 60	0 ... 600		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			
Electrical output / Analog output													
4 ... 20 mA / 2-wire									1				
4 ... 20 mA / 3-wire									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 %									5				
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 ¹									F	0	0		
G 1/2" DIN 3852 open - housing PVDF (P _N 60 bar)									H	0	0		
1/2" NPT									N	0	0		
1/4" NPT									N	4	0		
Customer									9	9	9		
Seals													
Viton (FKM)										1			
EPDM ²										3			
Customer										9			
Pressure port													
Stainless steel 1.4404 (316 L)										1			
PVDF (P _N 160 bar) only with G 1/2" DIN 3852 open port H00 ³										B			
Customer										9			
Diaphragm													
Ceramics Al ₂ O ₃ 96 %										2			
Customer										9			
Special version													
Standard											0	0	0
Oxygen application ⁴											0	0	7
Customer											9	9	9

- 1 - G1/2" flush up to 25 bar and nominal pressure abs. on request
- 2 - possible for nominal pressure ranges p_N 160 bar
- 3 - PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar); Ex-protection not possible; permissible medium temperature: -30...60°C
- 4 - oxygen application with FKM-seal up to 25 bar possible

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

