

CCP-P-400P



- intelligent 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 diaphragm
- accuracy 0.35 % / 0.25 % span
- indication of measured values on a 4-digit LED display
- rotatable and configurable display module
- hygienic version

The intelligent electronic pressure switch **CCP-P-400P** is the successful combination of intelligent pressure switch and digital display and has been developed for process industry; especially for food industry and pharmacy. As standard the CCP-P-400P offers a PNP contact and a rotatable display module with 4-digit LED display. Optional versions like e.g. max. 2 contacts and an analogue output complete the profile.

PREFERRED AREAS OF USE ARE



Food Industry



Pharmacy

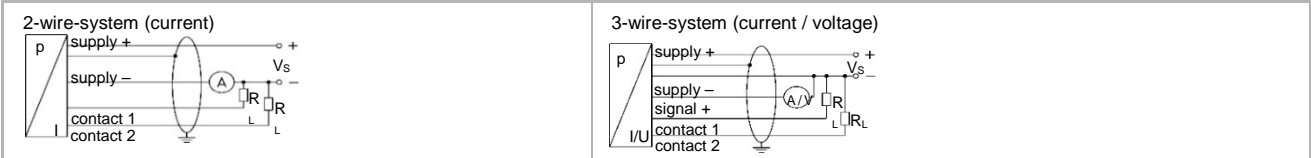
TECHNICAL DATA

Input pressure range ¹																
Nominal pressure gauge*	[bar]	-1 ... 0	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40
Nominal pressure abs.*	[bar]	-	-	-	-	0.4	0.6	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																
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							
		0 ... 10 V / 3-wire (on request):							contact rating 125 mA, short-circuit resistant							
Accuracy of contacts ²		standard: nominal pressure < 0.4 bar: ± 0.5 % span nominal pressure 0.4 bar: ± 0.35 % span option 1: nominal pressure 0.4 bar: ± 0.25 % span														
Repeatability		± 0.1 % span														
Switching frequency		2-wire: max. 10 Hz							/ 3-wire: 50 Hz							
Switching cycles		> 100 x 10 ⁶														
Delay time		0 ... 100 sec														
Analogue output (optionally) / Supply																
2-wire current signal		4 ... 20 mA / V _S = 13 ... 36 V _{DC} permissible load: R = [(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) ³ permissible load: R _{max} = 500 W response time: < 30 msec														
3-wire voltage signal		0 ... 10 V / V _S = 24 V _{DC} ± 10 % adjustable (turn-down of span 5:1) ³ permissible load: R _{min} = 10 kW response time: < 30 msec														
Without analogue output		V _S = 15 ... 36 V _{DC}														
Accuracy ²		standard: nominal pressure < 0.4 bar: ± 0.5 % span nominal pressure 0.4 bar: ± 0.35 % span option 1: nominal pressure 0.4 bar: ± 0.25 % span														
² accuracy according to EN IEC 62828-2 – limit point adjustment (non-linearity, hysteresis, repeatability)																
³ 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 (DIN EN 60068-2-6)	G 1/2": 20 g RMS (25 ... 2000 Hz)	others except G 1/2":	10 g RMS (25 ... 2000 Hz)
Shock (DIN EN 60068-2-27)	G 1/2": 500 g / 1 msec	others except G 1/2":	100 g / 1 msec
Filling fluids			
Standard	silicone oil		
Optional	food compatible oil (with FDA approval) (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request		
Materials			
Housing / cap	stainless steel 1.4301 (304)		
Pressure port	inch thread: stainless steel 1.4404 (316 L) G1" cone, Clamp, dairy pipe, Varivent®: stainless steel 1.4435 (316 L)		
Viewing glass	laminated safety glass		
Seals	standard: FKM (recommended for medium temperatures < 200 °C) option: FFKM (recommended for medium temperatures < 260°C) others on request clamp and dairy pipe: without		
Diaphragm	stainless steel 1.4435 (316L)		
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)		
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. 30 mA + signal current 3-wire signal output voltage: approx. 30 mA		
Ingress protection	IP 67		
Installation position	any (standard calibration in a vertical position with the pressure port connection down; differing installation position for P _N 4 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	min. 500 g (depending on mechanical connection)		
Operational life	100 million load cycles		
CE-conformity	EMC Directive: 2014/30/EU		

ELECTRICAL CONNECTION

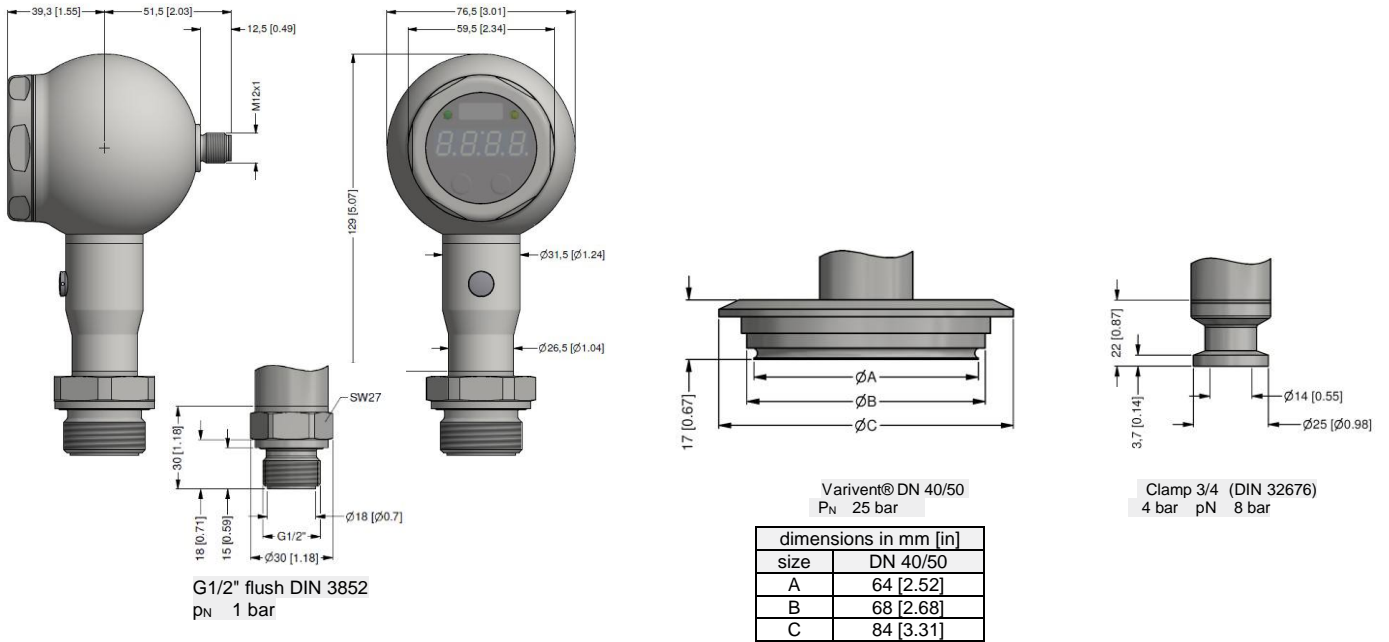
Wiring diagrams



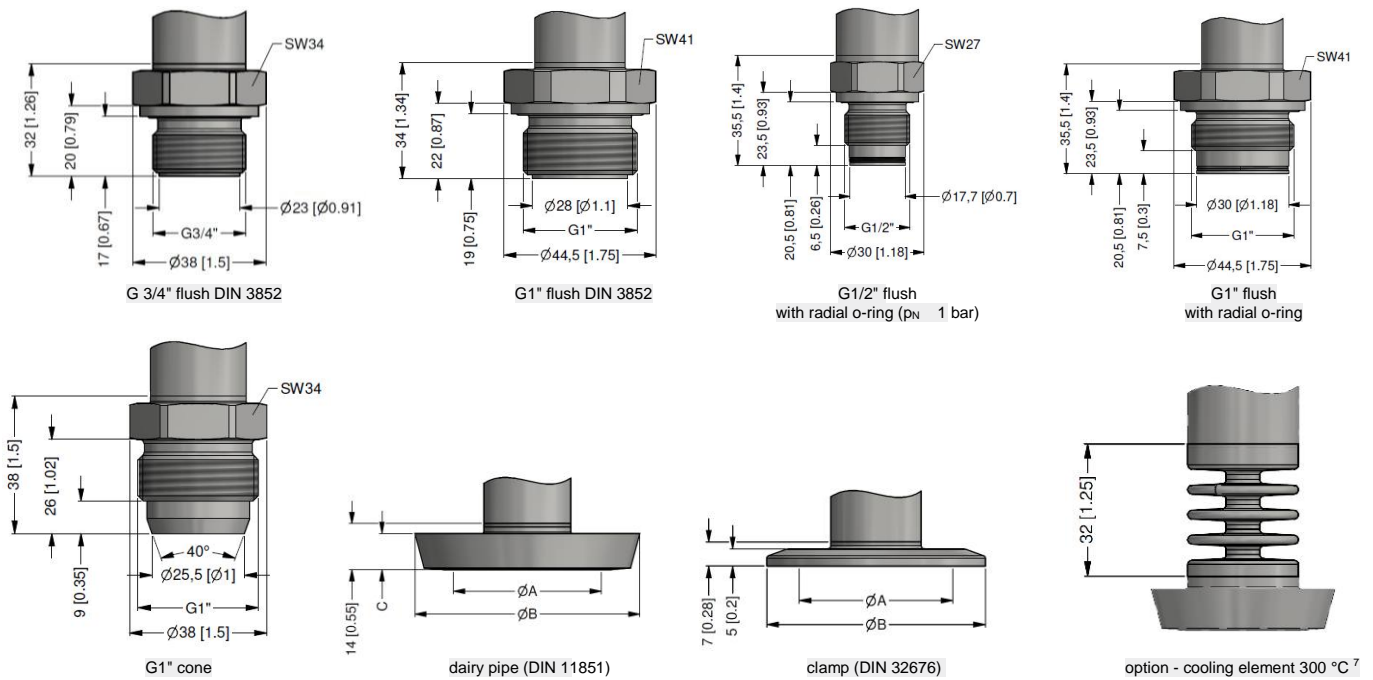
Pin configuration		
Electrical connection	M12x1 metal (5-pin)	
Supply +	1	
Supply -	3	
Signal + (only 3-wire)	2	
Contact 1	4	
Contact 2	5	
Shield	plug housing / pressure port	

MECHANICAL CONNECTION

Standard



Option



dimensions in mm			
size	DN 25	DN 40	DN 50
A	23	32	45
B	44	56	68,5
P _N [bar]	0,25	0,25	0,25
	40	40	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	0,25	16	16
	8	16		

metric threads and other versions on request;

⁷ max. temperature depends on the used sealing material, type of seal and installation

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Diaphragm			
Stainless steel 1.4435 (316L)	1		
Customer	9		
Seals			
Without seals (Clamp, dairy pipe DIN, sandwich, flange, varivent)	0		
FKM	1		
FFKM (for media temperature 200 °C)	7		
Customer	9		
Filling Fluids			
Silicone oil		1	
Food compatible oil (FDA) / 3A		2	
Customer		9	
Special version			
Standard			0 0 0
With cooling element up to 300 °C			2 0 0
Customer			9 9 9

- 1 - absolute pressure possible from 1 bar
- 2 - only possible for nominal pressure ranges $p_N \geq 1$ bar
- 3 - 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.

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

