

CCA-P-331P



- industrial pressure transmitter
- nominal pressure: from 0...100 mbar up to 0...40 bar
- output signals: 2-wire: 4...20 mA; 3-wire: 0...10V
- process connections with flush welded stainless steel diaphragm
- accuracy 0.35 % span
- hygienic version
- CIP / SIP cleaning up to 150°C
- vacuum resistant



The pressure transmitter **CCA-P-331P** was designed for use in the food / beverage and pharmaceutical industry. The compact design with hygienic versions makes it possible to achieve an outstanding performance in terms of accuracy, temperature behavior and long term stability. The modular construction concept allows a combination of various process connections with different filling fluids and a cooling element. Several electrical connections complete the profile of CCA-P-331P.

PREFERRED AREAS OF USE ARE



Food and Beverage



Pharmaceutical Industry

TECHNICAL DATA

Input pressure range ¹									
Nominal pressure gauge*	[bar]	-1...0	0.10	0.16	0.25	0.40	0.60	1	1.6
Nominal pressure abs.*	[bar]	-	-	-	-	0.40	0.60	1	1.6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10
Burst pressure	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15
Nominal pressure gauge / abs.	[bar]	2.5	4	6	10	16	25	40	
Overpressure	[bar]	10	20	40	40	80	80	105	
Burst pressure	[bar]	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									
Output signal / Supply									
Standard		2-wire: 4 ... 20 mA / V _S = 8 ... 32 V _{DC}							
Options 3-wire		3-wire: 0 ... 20 mA / V _S = 14 ... 30 V _{DC} 0 ... 10 V / V _S = 14 ... 30 V _{DC}							
Performance									
Accuracy ²		standard: nominal pressure < 0.4 bar : ± 0.5 % span nominal pressure 0.4 bar: ± 0.35 % span option: nominal pressure 0.4 bar: ± 0.25 % span							
Permissible load		current 2-wire: R _{max} = [(V _S - V _{S min}) / 0.02 A] W current 3-wire: R _{max} = 500 W voltage 3-wire: R _{min} = 10 kW							
Influence effects		supply: 0.05 % span / 10 V				load: 0.05 % span / kW			
Long term stability		± 0.1 % span / year at reference conditions							
Response time		2-wire: < 10 msec				3-wire: 3 msec			
² accuracy according to EN IEC 62828-2 – limit point adjustment (non-linearity, hysteresis, repeatability)									
Thermal effects (Offset and Span) ³ / 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 ⁴		medium ⁴ : -40 ... 125 °C for filling fluid silicon oil -10 ... 125 °C for filling fluid food grade oil electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C							
Permissible temperature medium for cooling element ⁵		filling fluid silicon oil			overpressure: -40 ... 300 °C			vacuum: -40 ... 150 °C ⁶	
		filling fluid food grade oil			overpressure: -10 ... 250 °C			vacuum: -10 ... 150 °C ⁶	
³ an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions.									
⁴ max. temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C									
⁵ max. temperature depends on the used sealing material, type of seal and installation									
⁶ 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 according to DIN EN 60068-2-6	G 1/2": 20 g RMS (25 ... 2000 Hz) others: 10 g RMS (25 ... 2000 Hz)
Shock according to DIN EN 60068-2-27	G 1/2": 500 g / 1 msec others: 100 g / 1 msec
Filling fluids	
Standard	silicon oil
Options	food grade oil, compliant with 21CFR178.3570 (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request
Materials	
Pressure port	stainless steel 1.4404 (316 L) others on request
Housing	stainless steel 1.4404 (316 L)
Option field housing	stainless steel 1.4301 (304), cable gland M16x1.5 brass, nickel plated (clamping range 2...8 mm)
Seals (media wetted)	standard: FKM (recommended for medium temperatures 200 °C) option: FFKM (recommended for medium temperatures < 260 °C) Optional others on request Clamp, dairy pipe, Varivent®: without
Diaphragm	
Standard	stainless steel 1.4435 (316 L)
Optional	Hastelloy® C-276 (2.4819) Tantalum on request
Media wetted parts	pressure port, seal, diaphragm
Miscellaneous	
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	signal output current: max. 25 mA signal output voltage: max. 7 mA
Surface roughness	pressure port Ra < 0.8 µm (media wetted parts) diaphragm Ra < 0.15 µm weld seam Ra < 0.8 µm
Weight	min. 200 g (depending on process connection)
Installation position	any (standard calibration in a vertical position with the pressure port connection down; diaphragm installation position for P _N 2 bar have to be specified in the order)
Operational life	> 100 x 10 ⁶ pressure cycles
CE-conformity	EMC Directive: 2014/30/EU

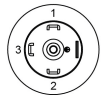
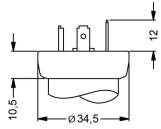
ELECTRICAL CONNECTION

Wiring diagrams					
<p>2-wire-system (current)</p>			<p>3-wire-system (current / voltage)</p>		
Pin configuration					
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply -	2	4	2	IN -	bn (brown)
Signal (only 3-wire)	3	1	3	OUT+	gn (green)
Shield	ground pin ⊕	5	4	⊕	ye/gn (yellow / green)



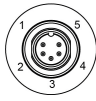
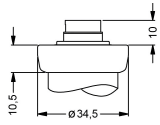
ELECTRICAL CONNECTION

standard

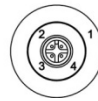
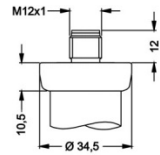


ISO 4400 (IP 65)

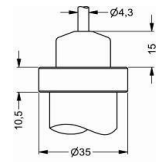
option



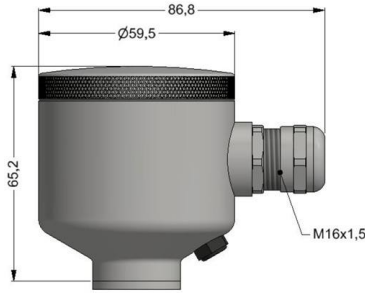
Binder Series 723 (IP 67)



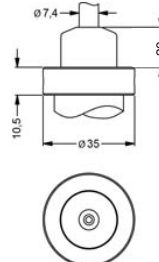
M12x1 4-pin (IP 67)



cable gland PG7 / cable length specify (IP 67)⁸



field housing (IP 67)



cable outlet, cable with ventilation tube (IP 68)⁹

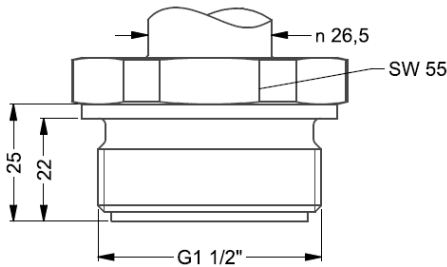
universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

⁸ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)

⁹ different cable types and lengths available, permissible temperature depends on kind of cable

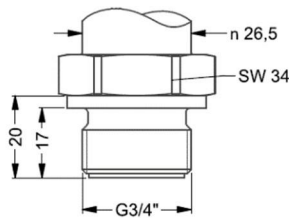
DIMENSION DRAWINGS

Standard

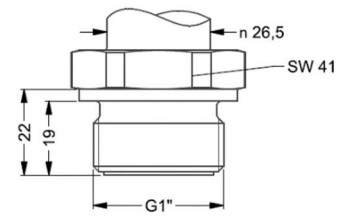


G1/2" flush DIN 3852¹⁰

Option

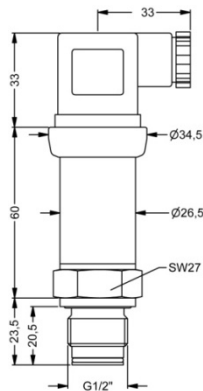


G 3/4" flush DIN 3852 with ISO 4400

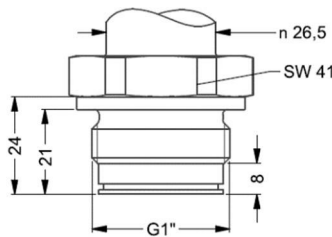


G1" flush DIN 3852 with ISO 4400

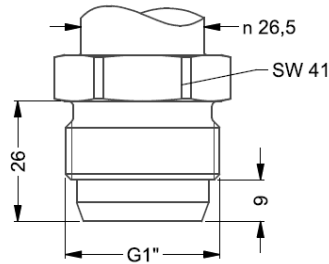
Option



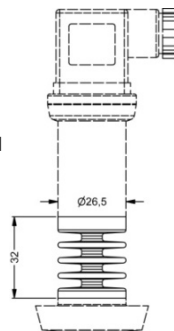
G1/2" flush with radial o-ring¹⁰



G1" flush with 2 radial o-ring (P_N > 0,25 bar)



G1" cone with ISO 4400



cooling element 300 °C

Mechanical connection	
G 1/2" DIN 3852 flush (P _N > 1,5 bar) (only with seals) ⁴	Z 0 0
M 20 x 1,5 DIN 3852 flush (P _N > 2,5 bar) (only with seals)	D 0 4
G 3/4" DIN 3852 flush (P _N > 0,6 bar) (only with seals)	Z 3 0
G 1" DIN 3852 flush (P _N > 0,25 bar) (only with seals)	Z 3 1
G 1 1/2" DIN 3852 flush (only with seals)	Z 3 3
G 2" DIN 3852 flush	Z 3 4
G 1" DIN 3852 flush 2x O ring (P _N > 0,25 bar) ⁵	Z 5 7
G 1/2" DIN 3852 flush 2x O ring (P _N > 1 bar) ⁴	Z 6 1
G 3/4" DIN 3852 flush 2x O ring (P _N > 1 bar) ⁴	Z 6 6
G1" flush cone seal (P _N > 0,25 bar) (without seals)	K 3 1
1/8" NPT (without seals, monel pressure port, tantal membrane)	Z 9 2
1" NPT flush (P _N > 0,25 bar) (without seals)	N 5 4
Clamp DN 3/4" (4 bar < P _N < 8 bar) (without seals)	C 6 8
Clamp DN 1" (DN 25) (0,4 bar < P _N < 16 bar) (without seals)	C 6 1
Clamp DN 1 1/2" (DN 32) (0,4 bar < P _N < 16 bar) (without seals)	C 6 2
Clamp DN 2" (DN 50) (0,4 bar < P _N < 16 bar) (without seals)	C 6 3
DIN 11851 DN 25 (P _N > 0,6 bar) (without seals) ³	M 7 3
DIN 11851 DN 40 (P _N > 0,4 bar) (without seals) ³	M 7 5
DIN 11851 DN 50 (P _N > 0,25 bar) (without seals) ³	M 7 6
"sandwich" DN 25 (without seals)	S 6 1
"sandwich" DN 50 (without seals)	S 7 6
"sandwich" DIN 2501 DN 80 (without seals)	S 8 0
M 22 x 1,5 DIN 3852 flush (P _N > 2,5 bar) (only with seals)	D 1 5
Flange DN 25/PN 40 DIN 2501 (without seals)	F 2 0
Flange DN 40/PN 40 DIN 2501 (without seals)	F 2 2
Flange DN 50/PN 40 DIN 2501 (without seals)	F 2 3
Flange DN 80/PN 16 DIN 2501 (without seals)	F 1 4
Flange DN 100/PN 16 DIN 2501 (without seals)	F 2 5
Varivent® DN 40/50 (without seals)	P 4 1
Customer	9 9 9
Diaphragm	
Stainless steel 1.4435 (316 L)	1
Hastelloy® C-276 (2.4819)	H
Tantalum	T
Stainless steel 1.4435 (316 L) with PTFE foil (accuracy 1%)	3
Customer	9
Seals	
Without seals (Clamp, dairy pipe DIN, sandwich, flange, varivent)	0
Viton (FKM)	1
EPDM	3
FFKM (for media temperature 200 °C)	7
Customer	9
Filling Fluids	
Silicone oil	1
Edible oil for foodstu industry (temperature max. 150 °C)	2
Halocarbon	C
Customer	9
Special version	
Standard	0 0 0
With cooling element from 125 °C up to 150 °C	1 5 0
With cooling element from 150 °C up to 300 °C (max. 200 °C permanent)	2 0 0
Customer	9 9 9

!!! When you make an order it is necessary to fill the questionnaire for transmitter with separators!!!

- absolute pressure possible from 0.4 bar
- code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price
- the cup nut has to be mounted by production of pressure transmitter with electrical connection field housing and mechanical connection dairy pipe. the cup nut has to be ordered as separate position.
- possible only for P_N 1 bar
- possible only for P_N 2 bar

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

