



## CPA-K-351

- hydrostatic level transmitter
- screw-in probe
- nominal pressure: from 0...40 mbar up to 0...20 bar
- output signals: 2-wire: 4...20 mA; 3-wire: 0...20 mA / 0...10 V
- stainless steel probe
- ceramic sensor
- accuracy 0.35 % / 0.25 % span
- pressure port PVDF-version for aggressive media, pressure port G 1/2" for pasty and polluted media
- optional: diaphragm 99.9 %  $Al_2O_3$



The screw-in transmitter **CPA-K-351** has been designed for measuring small system pressure and level measurement in container. It is based on an own-developed capacitive ceramic sensor element. Usage in viscous and pasty media is possible because of the flush mounted sensor. For the usage in aggressive media a pressure port in PVDF and the diaphragm in  $Al_2O_3$  99.9 % is available.

### PREFERRED AREAS OF USE ARE



Plant and Machine Engineering



Environmental Engineering  
(water - sewage - recycling)

### TECHNICAL DATA

Pressure ranges		0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Nominal pressure	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH <sub>2</sub> O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Low pressure	[bar]	-0.2	-0.2	-0.3	-0.3	-0.3	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / $V_S = 9 ... 32 V_{DC}$
Option 3-wire	3-wire: 0 ... 10 V / $V_S = 12.5 ... 32 V_{DC}$
Performance	
Accuracy <sup>1</sup>	standard: $\pm 0.35$ % span option: $\pm 0.25$ % span
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] W$ voltage 3-wire: $R_{min} = 10 kW$
Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / kW
Long term stability	$\pm 0.1$ % span / year
Turn-on time	700 msec
Mean measuring time	5/sec
Response time	mean response time: $\leq 200$ msec      max. response time: 380 msec

<sup>1</sup> accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (Offset and Span) / Permissible temperatures	
Tolerance band	$\pm 0.1$ % span / 10 K      in compensated range - 20 ... 80 °C
Permissible temperatures <sup>2</sup>	medium: -40 ... 125 °C      electronics / environment: -40 ... 85 °C      storage: -40 ... 100 °C

<sup>2</sup> 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 (20 ... 2000 Hz)      according to DIN EN 60068-2-6
Shock	100 g / 1 msec      according to DIN EN 60068-2-27

Materials (media wetted)	
Pressure port	standard: stainless steel 1.4404 (316L)      option: PVDF or PP-HT
Housing	standard: stainless steel 1.4404 (316L)      option: PVDF or PP-HT
Option field housing	Stainless steel 1.4301 (304)
Seals	FKM            -40 ... 125 °C FFKM         -15 ... 125 °C EPDM        -40 ... 125 °C
Diaphragm	standard: ceramics Al <sub>2</sub> O <sub>3</sub> 96 % options:    ceramics Al <sub>2</sub> O <sub>3</sub> 99.9 %
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Current consumption	signal output current:    max. 21 mA                      signal output voltage:    max. 5 mA
Weight	approx. 200 g
Installation position	any
Operational life	> 100 x 10 <sup>6</sup> loading cycles
CE-conformity	EMV-directive: 2014/30/EU
Option oxygen application	for P <sub>N</sub> 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 <sub>N</sub> 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C

ELECTRICAL CONNECTION

**Wiring diagram**

2-wire-system (current)

3-wire-system (current/voltage)

**Pin configuration**

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colours (IEC 60757)
Supply +	1	3	1	IN +	wh (white)
Supply -	2	4	2	IN -	bn (brown)
Signal + (only for 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4		gn/ye (green/yellow)

**Electrical connections (dimensions in mm)**

standard

ISO 4400 (IP 65)

option

Binder Series 723 5-pin (IP 67)

M12x1

M12x1 4-pin (IP 67)

gland PG7/cable length specify (IP 67)<sup>4</sup>

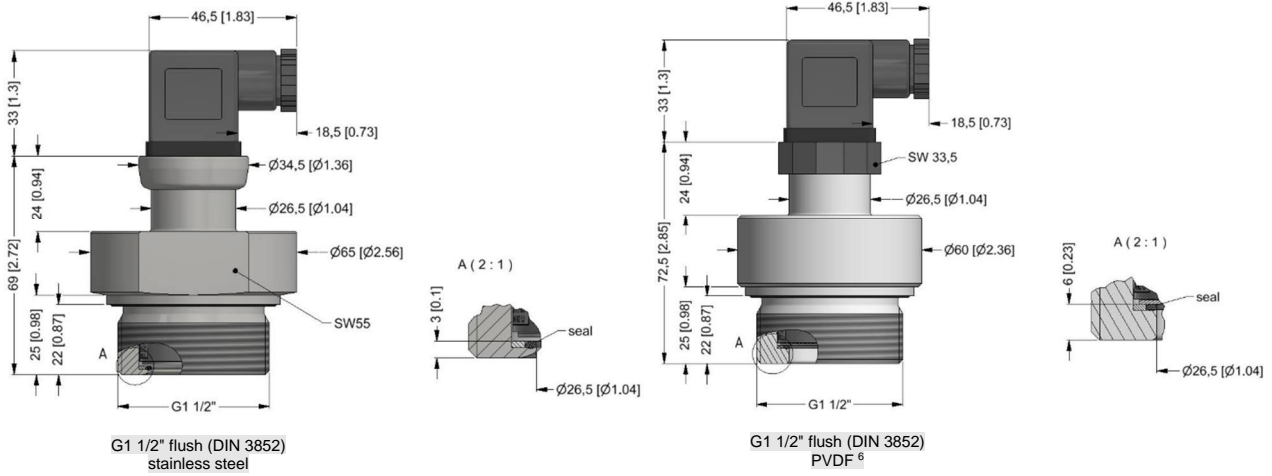
cable outlet, cable with ventilation tube (IP 68)<sup>5</sup>

field housing (IP67)

<sup>4</sup> standard: 2m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)  
<sup>5</sup> different cable types and lengths available, permissible temperature depends on kind of cable



DIMENSION DRAWINGS



material	A
stainless steel	approx. 3
PVDF	approx. 6

<sup>6</sup> not possible in combination with field housing

ORDER CODE

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<b>Pressure</b>																				
in bar		4	7	0																
in m H <sub>2</sub> O		4	7	1																
<b>Input</b>	<b>[mH<sub>2</sub>O]</b>	<b>[bar]</b>																		
	0 ... 0.4	0 ... 0,04			0	4	0	0												
	0 ... 0.6	0 ... 0,06			0	6	0	0												
	0 ... 1	0 ... 0,1			1	0	0	0												
	0 ... 1.6	0 ... 0,16			1	6	0	0												
	0 ... 2.5	0 ... 0,25			2	5	0	0												
	0 ... 4	0 ... 0,4			4	0	0	0												
	0 ... 6	0 ... 0,6			6	0	0	0												
	0 ... 10	0 ... 1			1	0	0	1												
	0 ... 16	0 ... 1,6			1	6	0	1												
	0 ... 25	0 ... 2,5			2	5	0	1												
	0 ... 40	0 ... 4			4	0	0	1												
	0 ... 60	0 ... 6			6	0	0	1												
	0 ... 100	0 ... 10			1	0	0	2												
	0 ... 160	0 ... 16			1	6	0	2												
	0 ... 200	0 ... 20			2	0	0	2												
<b>Customer</b>					9	9	9	9												
<b>Output signal</b>																				
4 ... 20 mA / 2-wire								1												
0 ... 10 V / 3-wire <sup>3</sup>								3												
<b>Customer</b>								9												
<b>Accuracy</b>																				
0,5 % (plastic housing material)										5										
0,35 % (standard)										3										
0,25 %										2										
0,5 % including Calibration Certificate										T										
0,35 % including Calibration Certificate										S										
Table of measured values for accuracy 0,35 %										M										
<b>Customer</b>										9										



# Level transmitters

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Electrical connection									
Connector DIN 43650 (ISO 4400) (IP 65)	1	0	0						
Connector Binder Serie 723 5-pin (IP 67)	2	0	0						
Cable gland PG7 / cable length specify (IP 67)	4	0	0						
+ PVC cable / 1 m									
Connector Buccaneer (IP 68)	5	0	0						
Field housing stainless steel, cable gland M 20 x 1,5 (IP 67)	8	8	0						
Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67)	E	0	0						
Connector M12 x 1, 4-pin (IP 67)	M	0	0						
Connector M12 x 1, 4-pin (IP 67) - metal	M	1	0						
Cable outlet, cable with ventilation tube (IP68) <sup>1</sup>	T	R	0						
+ PVC cable / 1 m									
Customer	9	9	9						
Mechanical connection									
G 1 1/2" (DIN 3852) - flush					M	0	0		
Customer					9	9	9		
Seals									
Viton (FKM)								1	
EPDM								3	
FFKM								7	
Customer								9	
Housing									
Stainless steel 1.4404 (316 L)									1
PVDF <sup>2</sup>									B
PP-HT									R
Customer									9
Diaphragm									
Ceramic Al <sub>2</sub> O <sub>3</sub> 96 %									2
Ceramic Al <sub>2</sub> O <sub>3</sub> 96 % with PTFE foil (accuracy 1%) - not possible for underpressure									3
Ceramic Al <sub>2</sub> O <sub>3</sub> 99,9 %									C
Customer									9
Special version									
Standard									0 0 0
Version for oxygen									0 0 7
Customer									9 9 9

- 1 - code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price
- 2 not possible in combination with compact field housing; permissible medium temperature: -30 ... 60 °C
- 3 - maximum length of PVC cable – 25 m, PUR, FEP, TPE – 40 m

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

