

CPA-P-308i



- precision hydrostatic level transmitter
- detachable probe, diameter 35 mm
- nominal pressure: from 0...4 mH₂O up to 0...200 mH₂O
- output signals: 2-wire: 4...20 mA; 3-wire: 0...10 V
- stainless steel probe and sensor
- accuracy 0.1 % span
- turn-down 10:1
- excellent accuracy and long term stability
- optional: different kinds of cables and seals



The detachable precision stainless steel probe **CPA-P-308i** is designed for continuous level measurement in water and low-viscosity fluids. The signal processing of sensor signal is done by digital electronics with 16-bit analog digital converter. Consequently it is possible to conduct an active compensation of sensor intrinsic deviations from normal conditions like nonlinearity and thermal error. In order to facilitate stock-keeping and maintenance the transmitter body is plugged to the cable assembly with a connector and can be changed easily.

PREFERRED AREAS OF USE ARE



Water / filtrated sewage

- ground water level measurement
- level measurement in wells and open waters / rain spillway basin
- level measurement in container
- water treatment plants
- water recycling

TECHNICAL DATA

Input pressure range ¹	
Nominal pressure gauge [bar]	0.40 1 2 4 10 20
Level [mH ₂ O]	4 10 20 40 100 200
Overpressure [bar]	2 5 10 20 40 80
Burst pressure [bar]	3 7.5 15 25 50 120
max. ambient pressure (housing)	40 bar
¹ On customer request we adjust the device within the turn-down-possibility by software on the required pressure range.	
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V _S = 12 ... 36 V _{DC} with RS-232 communication interface
Options	2-wire: 4 ... 20 mA / V _S = 12 ... 36 V _{DC} with communication interface
	3-wire: 0 ... 10 V / V _S = 14 ... 36 V _{DC} with communication interface
Performance	
Accuracy	IEC 60770 ² : ≤ ± 0.1 % span
Performance after turn-down (TD)	no change of accuracy ³
- TD ≤ 5:1	formula for accuracy calculating (for nominal pressure gauge ≤ 0.40 bar see note 3):
- TD > 5:1	≤ ± [0.1 + 0.015 x turn-down] % span
	with turn-down = nominal pressure range / adjusted range
	e.g. following accuracy can be calculated for turn-down 10:1:
	≤ ± (0.1 + 0.015 x 10) % span viz. the accuracy is ≤ ± 0.25 % span
Permissible load	current 2-wire: R _{max} = [(V _S - V _{Smin}) / 0.02 A] Ω / voltage 3-wire: R _{min} = 10 kΩ
Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / kΩ
Long term stability	≤ ± (0.1 x turn-down) % span / year Response time: ca. 200 msec
Adjustability	following parameters can be adjusted (interface / software needed ⁴)
	electronic damping: 0 ... 100 sec
	offset: 0 ... 90 % span turn-down of span: max. 10:1
² accuracy according to EN IEC 62828-2— limit point adjustment (non-linearity, hysteresis, repeatability)	
³ nominal pressure gauges ≤ 0,40 bar are excluded; for these the calculation of accuracy is as follows:	
≤ ± (0.1 + 0.02 x turn-down) % span e.g. torn-down 3:1: ≤ ± (0.1 + 0.02 x 3) % span viz. the accuracy is ≤ ± 0.16 % span	
⁴ software, interface and cable must separate be ordered (software is compatible with Windows® 95, 98, 2000, NT from version 4.0 or higher and XP)	
Thermal effects (Offset and Span)	
Tolerance band [% span]	≤ ± (0.2 x turn-down) in compensated range -20 ... 70 °C
TC [% span / 10 K]	± (0.2 x turn-down) in compensated range -20 ... 70 °C
Permissible temperatures	Medium/ electronics/ environment/ storage: -20 ... 80 °C *
*If the cable is intended for use in a smaller temperature range, the use of the probe is limited by this range.	



Level transmitters

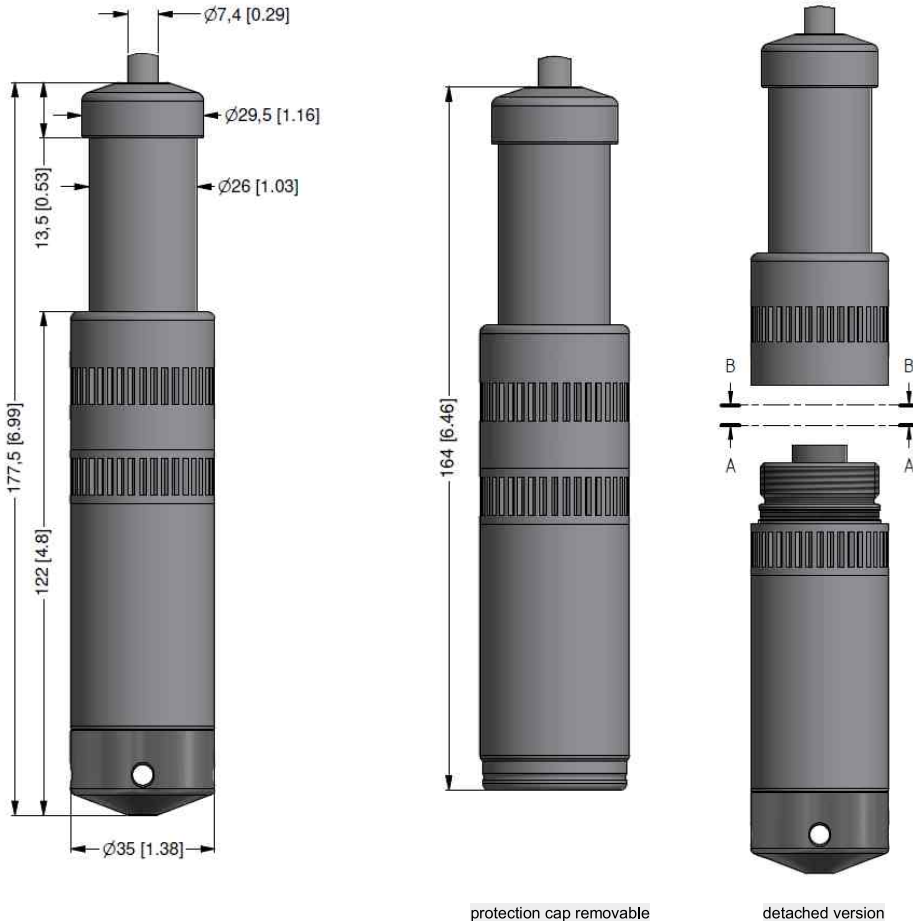
Electrical protection ⁵			
Short-circuit protection	permanent		
Reverse polarity protection	no damage, but also no function		
Lightning protection	2-wire: integrated	3-wire: without	
Electromagnetic compatibility	emission and immunity according to EN 61326		
⁵ additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request			
Electrical connection			
Cable with sheath material ⁶	PVC	(-5 ... 70 °C) grey	(-25 ... 70 °C in fixed condition) Ø 7,4 mm
	PUR	(-25 ... 80 °C) black	(with drinking water certificate) Ø 7,4 mm
	FEP ⁷	(-25 ... 75 °C) black	Ø 7,4 mm
Bending radius	static installation: 10-fold cable diameter, dynamic application: 20-fold cable diameter		
⁶ shielded cable with integrated air tube for atmospheric pressure reference			
⁷ do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected			
Materials (media wetted)			
Housing	stainless steel 1.4404 (316L)		
Seals	FKM, EPDM, others on request		
Diaphragm	stainless steel 1.4435 (316L)		
Cable sheath / Protection cap	PVC, PUR, FEP, others on request / POM-C		
Miscellaneous			
Current consumption	signal output current: max. 25 mA		
Weight	approx. 250 g (without cable)		
Ingress protection	IP 68		
CE-conformity	EMC Directive: 2014/30/EU		

ELECTRICAL CONNECTION

Wiring diagram / connector				
<p>2-wire-system (current)</p>	<p>3-wire-system (voltage)</p>	<p>Binder series 723 ⁸ (5-pin)</p>	<p>Binder series 723 ⁸ (7-pin)</p>	
Pin configuration				
Electrical connection	Binder series 723 ⁸ (5-pin) / 2-wire	Binder series 723 ⁸ (5-pin) / 3-wire	Binder series 723 ⁸ (7-pin) / 2-wire with communication interface	cable colours (DIN 47100)
Supply +	3	3	3 / wh (white)	wh (white)
Supply -	1	4	1 / bn (brown)	bn (brown)
Signal + (for 3-wire)	-	1	(6 / gn (green))	gn (green)
RxD	-	-	4 / ye (yellow)	-
TxD	-	-	5 / gr (gray)	-
GND	-	-	7 / gn (green)	-
Shield	5	5	2 / gn/ye (green / yellow)	gn/ye (green / yellow)
⁸ in detached version				



DIMENSION DRAWINGS



⇒ Total length of devices with accuracy 0.1 % span IEC 60770 increases by 16 mm!

ACCESSORIES

Mounting flange with cable gland		
Technical data		
Suitable for	all probes	
Flange material	stainless steel 1.4404 (316L)	
Material of cable gland	standard: brass, nickel plated on request: stainless steel 1.4305 (303); plastic	
Seal insert	material: TPE (ingress protection IP 68)	
Hole pattern	according to DIN 2507	
Version	Size (in mm)	Weight
DN25 / PN40	D = 115, k = 85, b = 18, n = 4, d = 14	1.4 kg
DN50 / PN40	D = 165, k = 125, b = 20, n = 4, d = 18	3.2 kg
DN80 / PN16	D = 200, k = 160, b = 20, n = 8, d = 18	4.8 kg
Ordering type		Ordering code
DN25 / PN40 with cable gland brass, nickel plated		ZMF2540
DN50 / PN40 with cable gland brass, nickel plated		ZMF5040
DN80 / PN16 with cable gland brass, nickel plated		ZMF8016
<p>cable gland M16x1.5 with seal insert (for cable-\varnothing 4 ... 11 mm)</p>		
Cable clamp		
Technical Data		
Suitable for	all probes with cable \varnothing 5.5 ... 10.5 mm	
Material	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)	
Weight	approx. 160 g	
Ordering type		Ordering code
Terminal clamp, of steel, zinc plated		1003440
Terminal clamp, of stainless steel 1.4301 (304)		1000278



