

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
- certified for contact with drinking water by the Polish National Institute of Public Health (PZH) - EPDM/PUR version

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

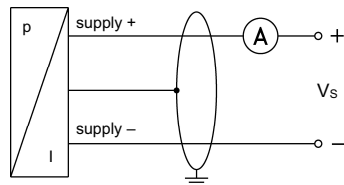
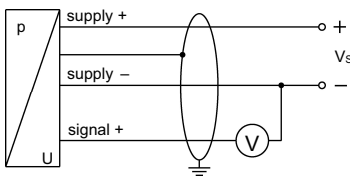
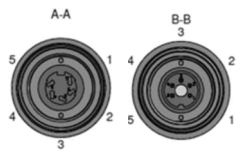
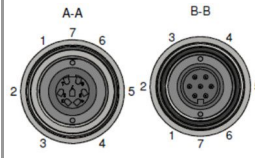
TECHNICAL DATA

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}						
	0 ... 10 V / V _S = 14 ... 36 V _{DC} with communication interface						
Performance							
Accuracy	IEC 60770 ² : $\leq \pm 0.1 \%$ span						
Performance after turn-down (TD)	no change of accuracy ³						
- TD $\leq$ 5:1	formula for accuracy calculating (for nominal pressure gauge $\leq$ 0.40 bar see note 3):						
- TD $>$ 5:1	$\leq \pm [0.1 + 0.015 \times \text{turn-down}] \%$ span						
	with turn-down = nominal pressure range / adjusted range						
	e.g. following accuracy can be calculated for turn-down 10:1:						
	$\leq \pm (0.1 + 0.015 \times 10) \%$ span viz. the accuracy is $\leq \pm 0.25 \%$ span						
Permissible load	current 2-wire: $R_{\max} = [(V_S - V_{S \min}) / 0.02 \text{ A}] \text{ W}$ / voltage 3-wire: $R_{\min} = 10 \text{ kW}$						
Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / kW						
Long term stability	$\leq \pm (0.1 \times \text{turn-down}) \%$ 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 $\leq$ 0.40 bar are excluded; for these the calculation of accuracy is as follows:							
$\leq \pm (0.1 + 0.02 \times \text{turn-down}) \%$ span e.g. turn-down 3:1: $\leq \pm (0.1 + 0.02 \times 3) \%$ span viz. the accuracy is $\leq \pm 0.16 \%$ 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]	$\leq \pm (0.2 \times \text{turn-down})$ in compensated range -20 ... 70 °C					
TC	[% span / 10 K]	$\pm (0.2 \times \text{turn-down})$ 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.							



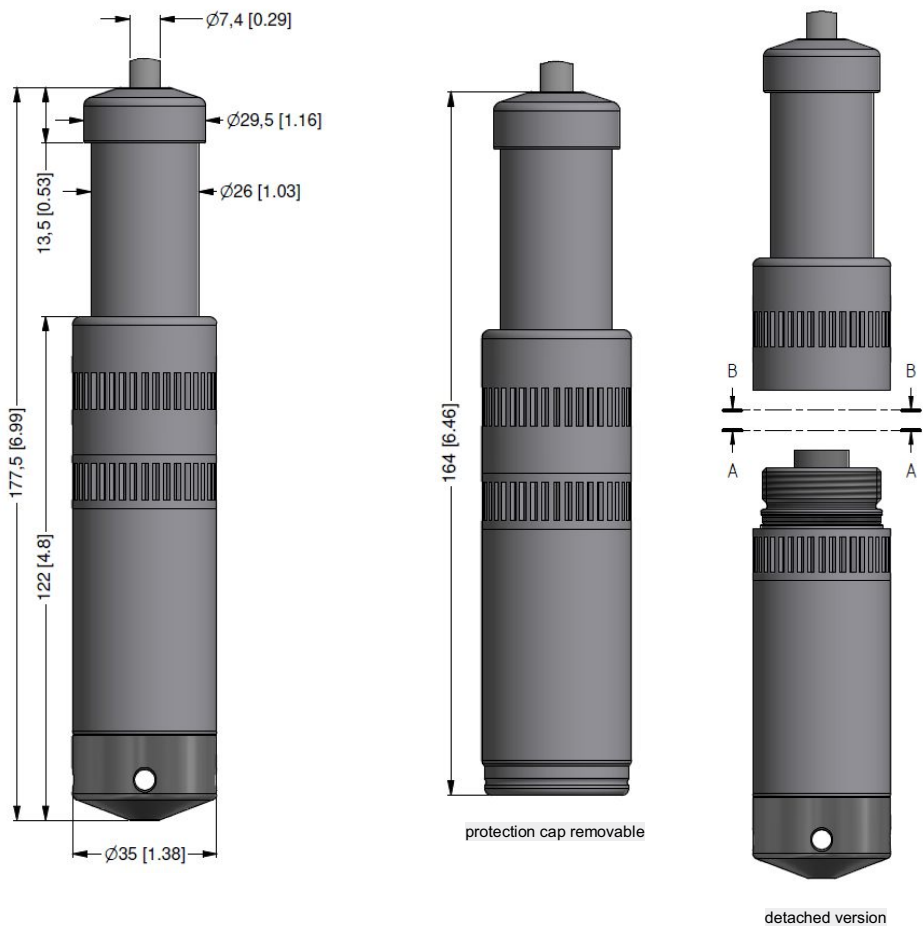
Electrical protection ⁵	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Lightning protection	2-wire: integrated 3-wire: without
Electromagnetic compatibility	emission and immunity according to EN 61326
⁵ additional external overvoltage protection unit in 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	PVC / PUR (with drinking water certificate) / FEP, others on request
Protection cap	POM-C
Miscellaneous	
Drinking water certificate ⁸	according to Polish National Institute of Public Health (PZH) (with order please indicate if the device must be certificated for drinking water)
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m
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
⁸ only possible with EPDM seal in combination with PUR cable	

ELECTRICAL CONNECTION

Wiring diagram / connector				
2-wire-system (current) 		3-wire-system (voltage) 		Binder series 723 ⁸ (5-pin) 
				Binder series 723 ⁸ (7-pin) 
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

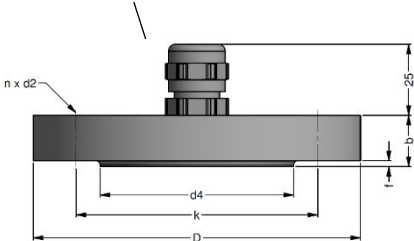


⇒ Total length of devices with accuracy 0.1 % span IEC 60770 increases by 16 mm!

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
Cable clamp		
Technical Data		
Suitable for	all probes with cable $\hat{C}$ 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

cable gland M16x1.5 with seal insert (for cable- $\hat{C}$ 4 ... 11 mm)







Programming kits for i-devices: CIS 510-RS232 and CIS 510-USB

CIS 510-RS232



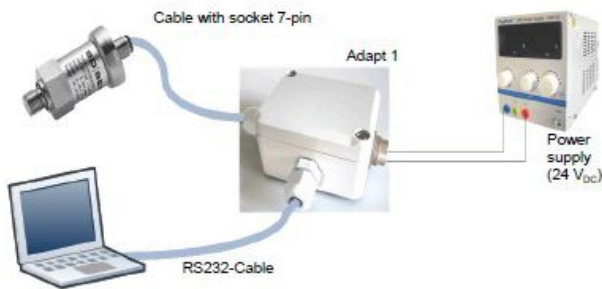
CIS 510-USB



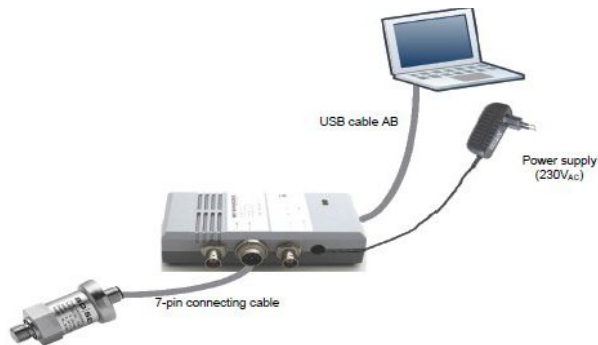
Supply V_s	for CIS 510-RS232: 24V _{DC} for CIS 510-USB: 24V _{DC}
Package contents	Programming software "Config 3.0" on CD operating manual CIS 510-RS232: Adapt 1 RS-232 connecting cable (for PC) 7-pin connecting cable (for measuring device) CIS 510-USB: Adapt 5 USB connecting cable (for PC) 7-pin connecting cable (for measuring device)
System requirement	For the installation of the software, a Windows® PC (95, 98, ME, 2000, NT, XP) with serial interface (RS 232) or USB-interface is required
Please read the operating manual carefully before installing and starting up the programming kit.	

Wiring diagrams

CIS 510-RS232:



CIS 510-USB interface:



Ordering codes

Version:	Ordering code:
Adapt 1 with RS232 connecting cable for PC	CIS 510-RS232
Adapt 5 with USB connecting cable for PC	CIS 510-USB

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ORDER CODE

CPA-P-308i- - - - - - - -

Pressure															
in bar	4	4	0												
in m H ₂ O	4	4	1												
Input	[mH₂O]	[bar]													
0 ... 4	0 ... 0,4		4	0	0	0									
0 ... 10	0 ... 1		1	0	0	1									
0 ... 20	0 ... 2		2	0	0	1									
0 ... 40	0 ... 4		4	0	0	1									
0 ... 100	0 ... 10		1	0	0	2									
0 ... 200	0 ... 20		2	0	0	2									
Customer			9	9	9	9									
Housing material															
Stainless steel 1.4404 (316 L)							1								
Diaphragm material															
Stainless steel 1.4435 (316 L)							1								
Output signal															
4 ... 20 mA / 2-wire								1							
0 ... 10 V / 3-wire ⁵								3							
Customer								9							
Seals															
Viton (FKM)								1							
EPDM ¹								3							
Customer								9							
Electrical connection															
Without cable part								0							
PVC - cable (grey, Ø 7,4 mm, price for 1 m) ²								1							
PUR - cable (black, Ø 7,4 mm, price for 1 m) ^{1,2}								2							
FEP - cable with PTFE sheath (black, Ø 7,4 mm, price for 1 m) ²								3							
TPE-U - cable, up to 125°C (blue, Ø 7,4 mm, price for 1 m)								4							
Customer								9							
Accuracy															
0,1 % - standard range ³								1							
0,1 % - standard range including Calibration Certificate								P							
0,1 % - customer range								I							
0,1 % - customer range including Calibration Certificate								H							
0,2 % (P _N < 0,1 bar)								B							
Customer								9							
Cable length															
in m								9	9	9					
Special versions															
Standard											1	1	1		
Interface RS 232 (communication port inside the probe) ⁴											1	2	1		
Interface RS 232 (communication via cable, max. length 20 m)											6	3	0		
Reduced power supply 9 ... 36 V DC											1	1	A		
Version with temperature sensor PT100											6	1	7		
Accessories for submersible transmitter															
Terminal clamp - zinc plated														1003440	
Terminal clamp - Stainless Steel 1.4301														1000278	
Mounting screw PG16 - plastic														5002200	
Flange DN25 / PN40														ZMF2540	
Flange DN50 / PN40														ZMF5040	
Flange DN80 / PN16														ZMF8016	
Software															
Adapt 1 with RS232 connecting cable for PC														CIS 510-RS232	
Adapt 5 with USB connecting cable for PC														CIS 510-USB	

1 - drinking water certification only possible with EPDM seal (code 3) in combination with PUR cable

2 - cable with integrated ventilation tube for atmospheric pressure reference

3 - available on request: calibration of individual pressure range higher than 400 mbar with accuracy 0.1 %

4 - software, interface and cable have to be order separately (ordering code: CIS-G; software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or newer and XP)

5 - maximum length of PVC cable – 25 m, PUR, FEP, TPE – 40 m

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

