

CPA-P-307i



- hydrostatic level transmitter
- submersible probe, diameter 27 mm
- nominal range: 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
- small thermal effect, excellent accuracy and long term stability
- certified for contact with drinking water by the Polish National Institute of Public Health (PZH) - EPDM/PUR version

Stainless steel precision probe CPA-P-307i is designed for continuous measurement of water level and clean or slightly contaminated liquids. The basis is a high-quality stainless steel sensor, which guarantees very accurate measurements with excellent long-term stability.

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



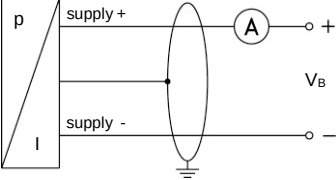
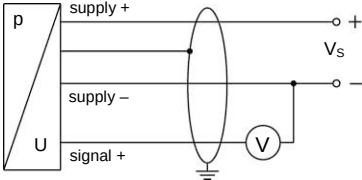
Fuel / Oil
 fuel storage
 tank farm

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						
Option	3-wire: 0 ... 10 V / V _S = 14 ... 36 V _{DC}						
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. follwing 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 _{S min}) / 0.02 A] W						
	voltage 3-wire: R _{min} = 10 kW						
Influence e ects	supply: 0.05 % span / 10 V load: 0.05 % span / kW						
Long term stability	≤ ± (0.1 x turn-down) % span / year						
Response time	current output 4...20 mA (2-wire) 5ms						
	voltage output 0 ... 10 V 25 ms						
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 e ects (O set 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.							

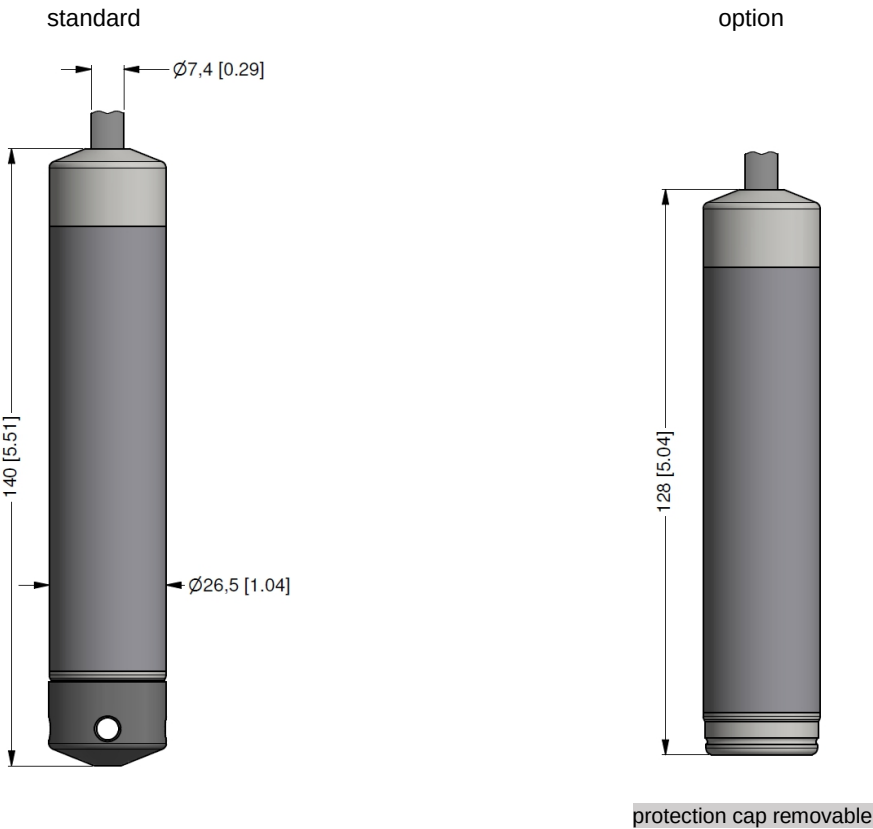
Electrical protection ⁵		
Short-circuit protection	permanent	
Insulation resistance	> 100 MΩ	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to EN 61326	
⁵ additional external overvoltage protection unit in terminal box KL 1 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
	TPE-U (-25 ... 125 °C) blue	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 (with drinking water certificate)	others on request
Diaphragm	stainless steel 1.4435 (316L)	
Protection cap	POM	
Cable sheath	PVC / PUR (with drinking water certificate) / FEP / TPE-U	
Miscellaneous		
Drinking water approval ⁸	according to Polish National Institute of Public Health (PZH) (with order please indicate if the device must be certificated for drinking water)	
Current consumption	signal output current: max. 25 mA	
Weight	approx 200 g (without cable)	
Ingress protection	IP 68	
CE-conformity	EMC Directive: 2014/30/EU	
⁸ only with EPDM seal in combination with PUR cable		

ELECTRICAL CONNECTION

Wiring diagram / connector	
2-wire system (current) 	3-wire system (voltage) 
Pin configuration	
Electrical connection	cable colours (DIN 47100)
Supply +	wh (white)
Supply -	bn (brown)
signal + (only 3-wire)	gn (green)
shield	gn/ye (green / yellow)



DIMENSION DRAWINGS



ⓘ For versions with an accuracy of 0.1% span according to IEC 60770, the total length is 35 mm longer!

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



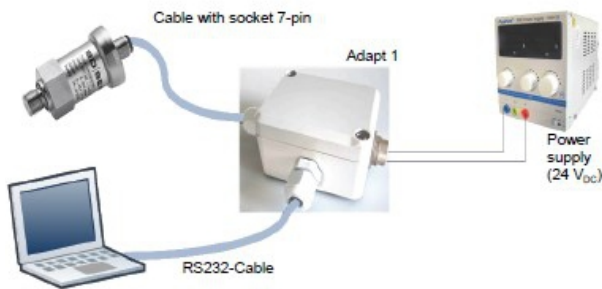
CIS 510-USB



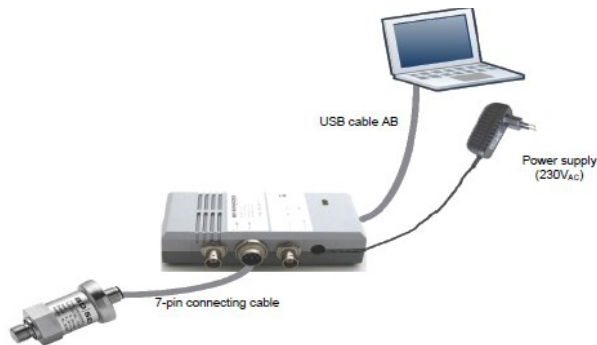
Supply V_s	for CIS 510-RS232: 24V _{DC} for CIS 510-USB: 24V _{DC}
Package contents	Programming software "Config 3.0" on CD operating manual CIS 510-RS232: Adapt 1 RS-232 connecting cable (for PC) 7-pin connecting cable (for measuring device) CIS 510-USB: Adapt 5 USB connecting cable (for PC) 7-pin connecting 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

ORDER CODE _____

- 1 - drinking water certification only possible with EPDM seal (code 3) in combination with PUR cable
- 2 - shielded cable with integrated ventilation tube for atmospheric pressure reference
- 3 - maximum length of PVC cable – 25 m, PUR, FEP, TPE – 40 m

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