CPA-P-307i

- hydrostatic level transmitter
- submersible probe, diameter 27 mm
- nominal range: from 0...4 mH_2O up to 0...200 mH_2O
- 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
- optional: drinking water certificate, different kinds of cables and seals

Stainless steel precision probe CPA-P-307i is designed for conənuous measurement of water level and clean or slightly contamined 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_2O]	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.							

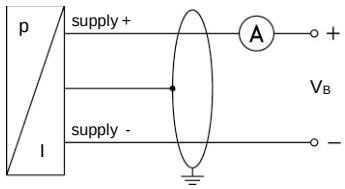
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 12 ... 36 V_{DC} with RS-232 communication interface
Option	3-wire: 0 ... 10 V / V_S = 14 ... 36 V_{DC}
Performance	
Accuracy Performance after turn-down (TD) - TD ≤ 5:1 - TD > 5:1	IEC 60770 [2]: ≤ ± 0.1 % span no change of accuracy [3] formula for accuracy calculating (for nominal pressure gauge ≤ 0.40 bar see note 3): ≤ ± [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) PUR (-25 … 80 °C) black (with drinking water certificate) FEP [7] (-25 … 75 °C) black TPE-U (-25 … 125 °C) blue	Ø 7,4 mm Ø 7,4 mm Ø 7,4 mm 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 e ects 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, FEP, TPE-U	
Miscellaneous		
Drinking water approval [6]	According to DVGW W 270 and UBA KTW (With order please indicate if her 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	
[6] only with EPDM seal in combination with TPE-U cable; not possible in Ex version (intrinsic safety)		

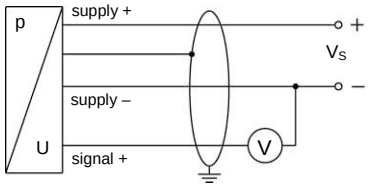
ELECTRICAL CONNECTION

Wiring diagram / connector

2-wire system (current)



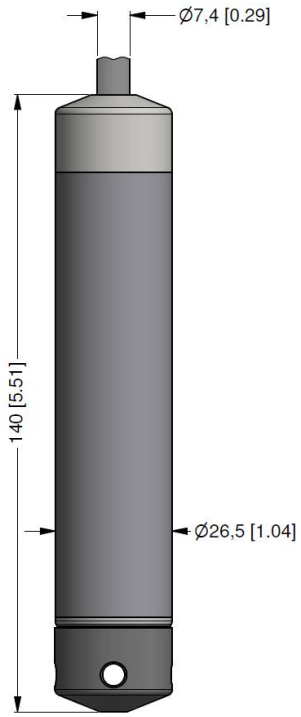
3-wire system (voltage)



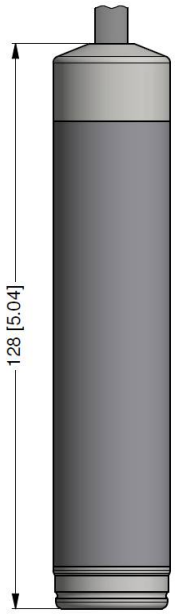
Pin configuration	
Electrical connection	cable colours (DIN 47100)
Supply + Supply – signal + (only 3-wire)	wh (white) bn (brown) gn (green)
shield	gn/ye (green / yellow)

DIMENSION DRAWINGS

standard



option



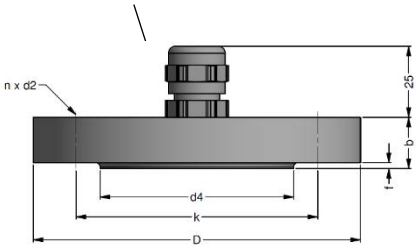
protection cap removable

đ 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 gland M16x1.5 with
seal insert (for cable-Ć 4 ... 11 mm)



Cable clamp		
Technical Data		
Suitable for	all probes with cable Ć 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

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

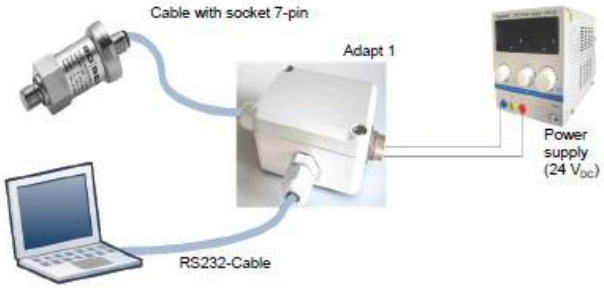
CIS 510-RS232

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-307i- [ ][ ][ ] - [ ][ ][ ][ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ][ ][ ] - [ ][ ][ ]

Pressure			
in bar			4 5 0
in m H_2O			4 5 1
Input	**[mH_2O]**	**[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 (316L)			1
Diaphragm material			
Stainless steel 1.4435 (316 L)			1
Output			
4 … 20 mA / 2-wire			1
0 … 10 V / 3-wire [3]			3
Customer			9
Seals			
Viton (FKM)			1
EPDM[1]			3
Customer			9
Accuracy			
0,1 % - standard range			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
Electrical connection			
PVC - cable (grey, Ø 7,4 mm, price for 1 m)[2]			1
PUR - cable (black, Ø 7,4 mm, price for 1 m)[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)[2]			4
Customer			9
Cable length			
in m			9 9 9
Special version			
Standard			1 1 1
Cable protected by SS corrugated hose (max 20 m)			1 1 8
+ stainless steel hose / 1 m			
Reduced power supply 9 … 36 V DC			1 1 A
R1/2 thread for installation with protective stainless steel pipe			5 0 4
Customer			9 9 9

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 - 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.