simex

CPA-P-308i

- precision hydrostatic level transmitter
- detachable probe, diameter 35 mm
- nominal pressure: 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
- turn-down 10:1
- excellent accuracy and long term stability
- optional: different kinds of cables and seals

ROHS COMPLIANT   REACH COMPLIANT   CE   IEC

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 condions 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
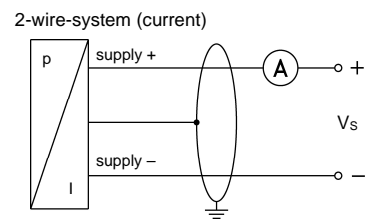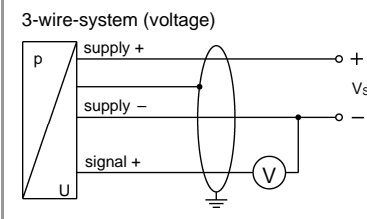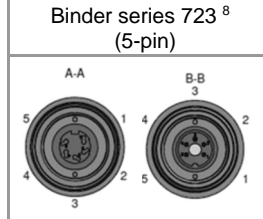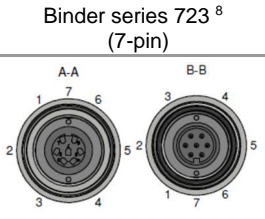water treatment plants
water recycling

TECHNICAL DATA

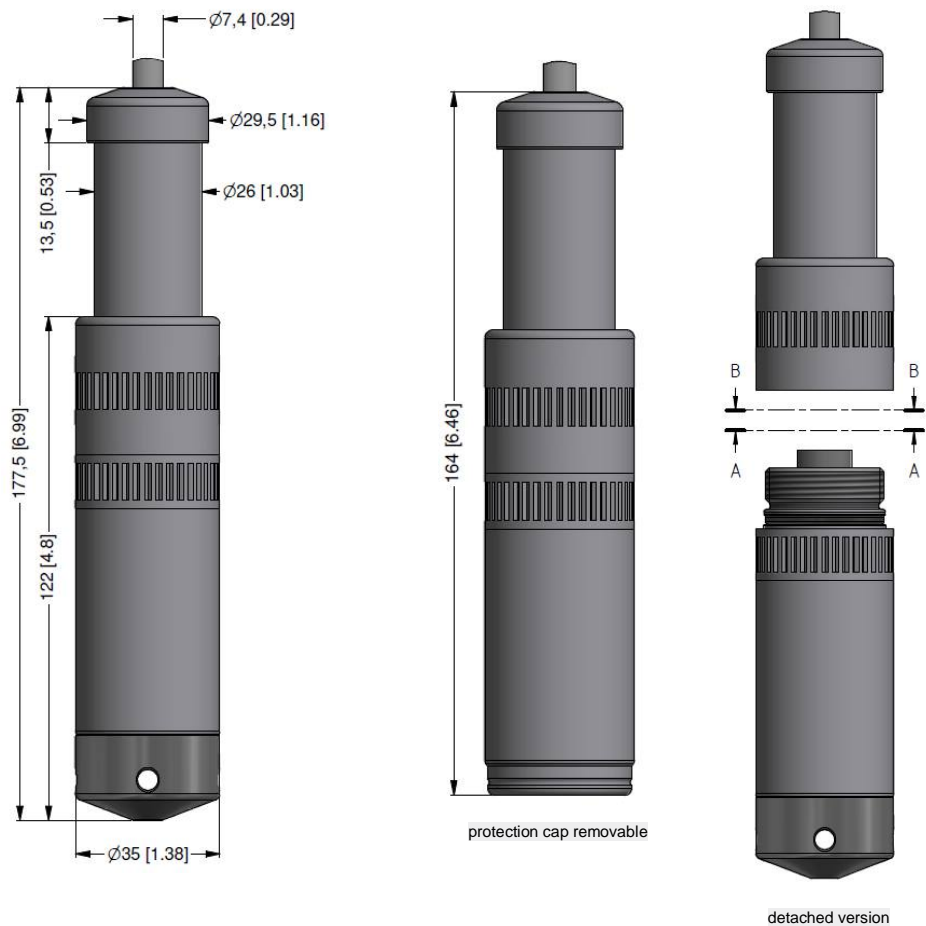| Input pressure range [1]							
Nominal pressure gauge [bar]	0.40	1	2	4	10	20
Level [mH$_2$O]	4	10	20	40	100	200
Overpressure [bar]	2	5	10	20	40	80
Burst pressure [bar]	3	7.5	15	25	50	120
max. ambient pressure (housing)	40 bar					
[1] On customer request we adjust the device within the turn-down-possibility 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 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 effects	supply: 0.05 % span / 10 V load: 0.05 % span / kW					
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.						

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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 e ects 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

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

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◼ DIMENSION DRAWINGS

Ø7,4 [0.29]
Ø29,5 [1.16]
13,5 [0.53]
Ø26 [1.03]
177,5 [6.99]
122 [4.8]
Ø35 [1.38]

164 [6.46]

protection cap removable

B B
A A

detached version

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

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

n x d2

25
b

d4
k
D

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
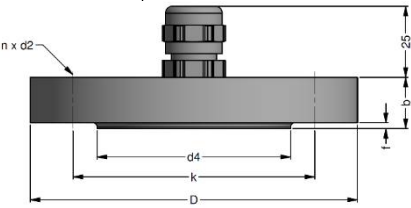
Ordering type	Ordering code
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016

Cable clamp

Technical Data

Suitable for	all probes with cable 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

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CPA-P-308i.3

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:
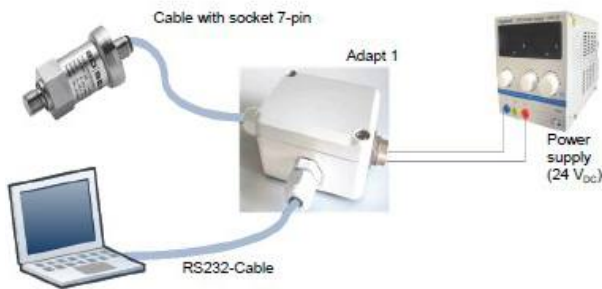
CIS 510-USB interface:
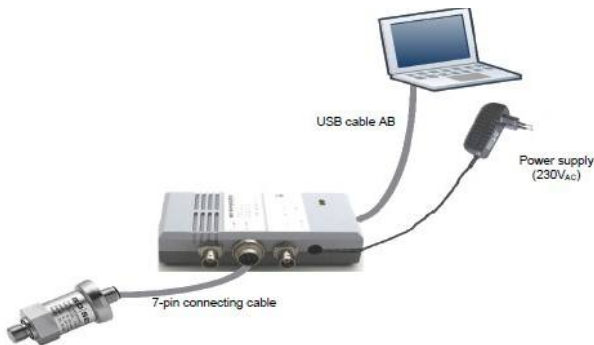
Ordering codes

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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CPA-P-308i.4

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Level transmitters

ORDER CODE

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

Pressure															
in bar				4	4	0									
in m H_2O				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 [4]	3	
Customer	9	

Seals		
Viton (FKM)	1	
EPDM	3	
Customer	9	

Electrical connection		
Without cable part	0	
PVC - cable (grey, Ø 7,4 mm, price for 1 m) [1]	1	
PUR - cable (black, Ø 7,4 mm, price for 1 m) [1]	2	
FEP - cable with PTFE sheath (black, Ø 7,4 mm, price for 1 m) [1]	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 [2]	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) [3]	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 - cable with integrated ventilation tube for atmospheric pressure reference

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

3 - 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)

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

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

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