CPA-P-307

- hydrostatic level transmitter
- submersible probe, diameter 27 mm
- nominal pressure: from 0...1 mH_2O up to 0...250 mH_2O
- output signals: 2-wire: 4...20 mA; 3-wire: 0...20 mA / 0...10 V
- stainless steel probe and sensor
- accuracy 0.35 % / 0.25 % / 0.1 % span
- small thermal effect, excellent accuracy and long term stability
- optional: different kinds of cables and seals

The stainless steel probe **CPA-P-307** is designed for continuous level measurement in water and clean or waste fluids.
Basic element is a high quality stainless steel sensor with high requirements for exact measurement with excellent long term stability.

PREFERRED AREAS OF USE ARE

Water / filtrated sewage
drinking water system
ground water level measurement
rain spillway basin
pump and booster stations
level measurement in containerwater treatment plants
water recycling

Fuel / Oil
fuel storage
tank farm

TECHNICAL DATA

Input pressure range														
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level	[mH_2O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80
Burst pressure ≥	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120
max. ambient pressure (housing)		40 bar												

Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}	
Option accuracy 0.1 % span	2-wire: 4 ... 20 mA / V_S = 12 ...36 V_{DC}	3-wire: 0 ... 10 V / V_S = 14 ... 30 V_{DC}
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC}	0 ... 10 V / V_S = 14 ... 30 V_{DC}
Performance		
Accuracy	standard: nominal pressure < 0.4 bar: ≤ ± 0.5 % span nominal pressure ≥ 0.4 bar: ≤ ± 0.35 % span option 1: nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % span option 2: for all nominal pressures: ≤ ± 0.1 % span	
Permissible load	current 2-wire: R_{max} = [(V_S – V_S min) / 0.02 A] Ω current 3-wire: R_{max} = 500 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 % span / year at reference condition	
Response time	2-wire: ≤ 10 msec;	3-wire: ≤ 3 msec
[1] accuracy according to EN IEC 62828-2– limit point adjustment (non-linearity, hysteresis, repeatability)		

Thermal effects (Offset and Span)		
Nominal pressure P_N [bar]	< 0.40	≥ 0.40
Tolerance band [% span]	≤ ± 1	≤ ± 0.75
in compensated range [°C]	0 ... 70	

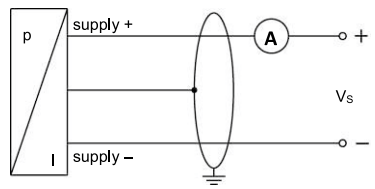
Permissible temperatures	
Permissible temperatures	Medium/ electronics/ environment/ storage: -20 … 80 °C *
**If the cable is intended for use in a smaller temperature range, the use of the probe is limited by this range.*	

Electrical protection [2]	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Integrated overvoltage protection (ground wire) in accordance with CSN EN 61000-4-5 (1 kV)[3]	
[2] additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request	
[3] version with the output signal 4 … 20 mA / 2-wire	
Electrical connection	
Cable with sheath material [4]	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 [5] (-25 … 75 °C) black Ø 7,4 mm TPE-U (-25 … 125 °C) blue Ø 7,4 mm
Cable sheath	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter
[4] cable with integrated air tube for atmospheric pressure reference	
[5] 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, FEP, TPE-U
Miscellaneous	
drinking water certificate [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 / signal output voltage: max. 7 mA
Weight	approx. 200 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
[6] only possible with EPDM seal in combination with TPE-U cable	

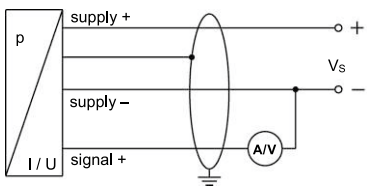
ELECTRICAL CONNECTION

Wiring diagrams

2-wire-system (current)



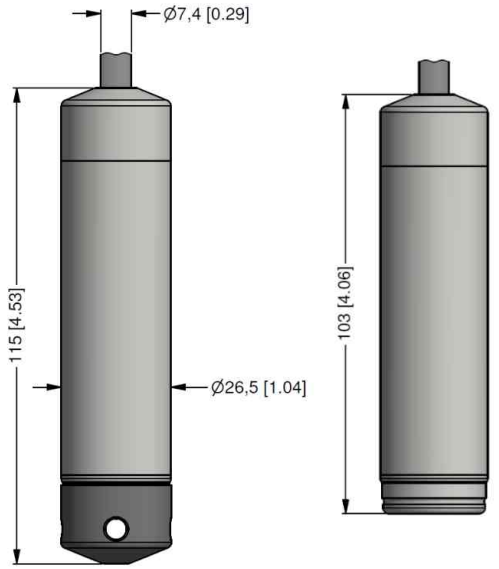
3-wire-system (current / voltage)



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

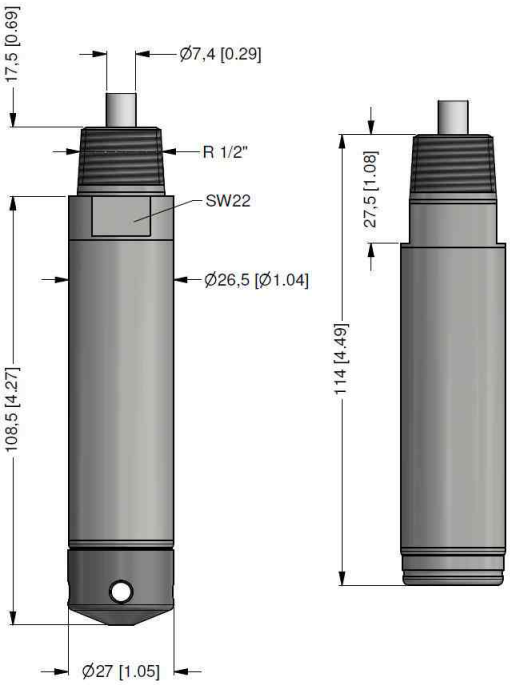
DIMENSION DRAWINGS

standard



⇨ Total length of devices with accuracy 0.1 % span IEC 60770 increases by 35 mm!

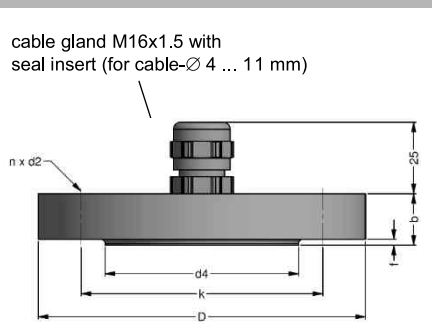
option



protection cap removable; cable protection with stainless steel pipe (max length 20 m)

ACCESSORIES

Mounting flange with cable gland			
Technical data			cable gland M16x1.5 with seal insert (for cable-∅ 4 ... 11 mm)
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 ∅ 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	

ORDER CODE

CPA-P-307- □□□ - □□□□ - □ - □ - □□ - □ - □ - □ - □□□ - □□□

Pressure			
in bar			450
in m H_2O			451
Input	**[mH_2O]**	**[bar]**	
	0 … 1	0 … 0,1	1000
	0 … 1,6	0 … 0,16	1600
	0 … 2,5	0 … 0,25	2500
	0 … 4	0 … 0,4	4000
	0 … 6	0 … 0,6	6000
	0 … 10	0 … 1	1001
	0 … 16	0 … 1,6	1601
	0 … 25	0 … 2,5	2501
	0 … 40	0 … 4	4001
	0 … 60	0 … 6	6001
	0 … 100	0 … 10	1002
	0 … 160	0 … 16	1602
	0 … 250	0 … 25	2502
Customer			9999
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 … 20 mA / 3-wire			2
0 … 10 V / 3-wire [3]			3
0 … 5 V / 3-wire [3]			4
Customer			9
Seals			
Viton (FKM)			1
EPDM (drinking water)[1]			3
Customer			9
Accuracy			
0,5 % ($P_N \leq 0,4$ bar)			5
0,35 % ($P_N > 0,4$ bar)			3
0,25 % ($P_N > 0,4$ bar)			2
0,1 % (only 4…20 mA / 2-wire)			1
0,5 % including Calibration Certificate ($P_N \leq 0,4$ bar)			T
0,35 % including Calibration Certificate ($P_N > 0,4$ bar)			S
Customer			9
Electrical connection[3]			
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			999
Special version			
Standard			000
Cable protected by SS corrugated hose (max 20 m)			103
+ stainless steel hose / 1 m			
Version with temperature sensor PT100			013
Reduced power supply 10 … 30 VDC (only for output 0 … 5 V / 3-wire)			02Z
R 1/2" thread - Prepared for mounting with stainless steel pipe			503
Customer			999
Accessories for submersible transmitter			
Terminal clamp - zinc plated			1003440
Terminal clamp - Stainless Steel 1.4301			1000278
Mounting screw PG16 - plastic			5002200

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.