DCL 532

Stainless Steel Probe with i²C interface

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.25 % FSO
option: 0.1 % FSO

Nominal pressure

from 0 ... 1 mH_2O up to 0 ... 40 mH_2O

Digital output signal

- i²C
- bus frequency max. 400 kHz

Special characteristics

- ► min. current consumption 0.15 mA @ 2.7 V
- ► diameter 26.5 mm
- ► small thermal effect
- ► excellent accuracy
- ► good long term stability

Optional versions

- ► accuracy 0.1 % FSO
- ► different kinds of cables and elastomers

The stainless-steel level probe DCL 532 is designed for continuous level measurement in water and clean or slightly polluted liquids. A piezoresistive pressure sensor with low thermal error, an excellent linearity and long-term stability, provides the basis of DCL 532.

Contrary to level probes with analogue output signal, the DCL 532 offers a digital i²C-interface. Thanks to the very low current consumption and supply voltage, it is ideally combined with battery-powered data acquisition systems.

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 container
water treatment plants
water recycling

Fuel and oil
fuel storage
tank farm

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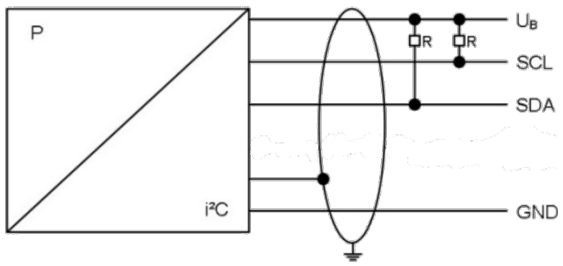
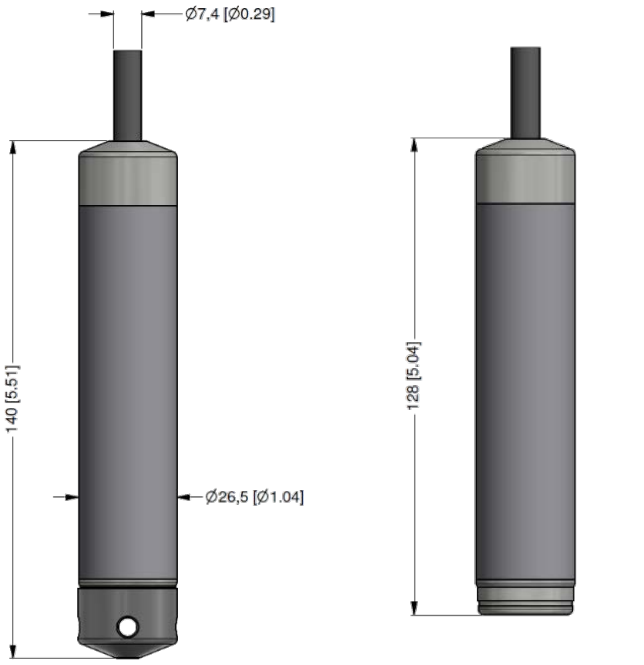
Input pressure range									
Nominal pressure gauge [bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4
Level [mH_2O]	1	1.6	2.5	4	6	10	16	25	40
Overpressure [bar]	0.5	1	1	2	5	5	10	10	20
Max. ambient pressure (housing): 40 bar									
Output signal / supply									
Digital	i²C Power Save / V_S = 2.7 ... 5.5 V_{DC} sensor signal conditioner ZSC31014								
Performance									
Accuracy [1]	standard: ≤ ± 0.25 % FSO option: ≤ ± 0.1 % FSO								
Long term stability	≤ ± 0.1 % FSO / year at reference conditions								
Measuring rate	8 Hz (adjustable from 8 up to 660 Hz)								
Current consumption	min. 0.15 mA (V_S 2.7 V, measuring rate 8 Hz), max. 3.2 mA (V_S 5.5 V, measuring rate 660 Hz)								
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)									
Thermal effects (offset and span)									
Tolerance band	≤ ± 0.75 % FSO								
in compensated range	-20 ... 85 °C								
Permissible temperatures									
Medium	-10 ... 70 °C								
Storage	-25 ... 70 °C								
Electrical protection									
Short-circuit protection	none								
Reverse polarity protection	by exchanged supply connections no damage, but also no function by exchange of communication with supply lines, a damage is possible								
Electrical connection									
Cable with sheath material [2]	PUR (-10 … 70 °C) black Ø 7.4 mm max. cable length 50 m [3] FEP (-10 … 70 °C) black Ø 7.4 mm max. cable length 50 m [3]								
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								
Bending radius	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter								
[2] shielded cable with integrated ventilation tube for atmospheric pressure reference *[3] with max. cable length and standard settings, the bus frequency must be set to < 100 kHz*									
Materials (media wetted)									
Housing	stainless steel 1.4404 (316L)								
Seals	FKM, EPDM, others on request								
Diaphragm	stainless steel 1.4435 (316L)								
Protection cap	POM-C								
Cable sheath	PUR, FEP, others on request								
Miscellaneous									
Weight	approx. 200 g (without cable)								
Ingress protection	IP 68								
Pull-up resistor	4.7 kΩ (recommended)								

Wiring diagram / pin configuration



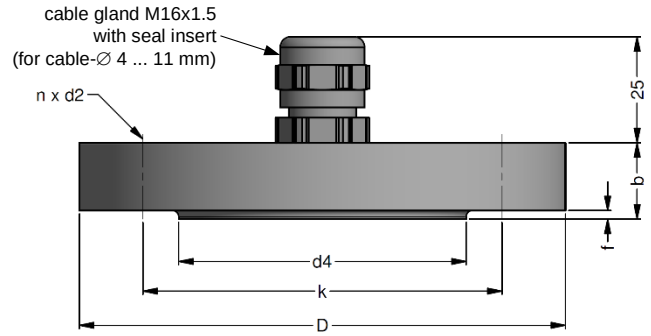
Electrical connection	Cable colours (IEC 60757)
Supply +	WH (white)
Supply –	BN (brown)
SCL	GN (green)
SDA	YE (yellow)
Shield	GNYE (green-yellow)

Dimensions (mm / in)



protection cap removeable

Mounting flange with cable gland



dimensions in mm			
size	DN25 / PN40	DN50 / PN40	DN80 / PN16
b	18	20	20
D	115	165	200
d2	14	18	18
d4	68	102	138
f	2	3	3
k	85	125	160
n	4	4	8

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

Ordering type	**Ordering code**	**Weight**
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp

Technical data	
Suitable for	all probes with cable ∅ 5.5 ... 10.5 mm
Material of housing	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)
Material of clamping jaws	PA (fibre-glass reinforced)
Dimensions (mm)	174 x 45 x 32
Hook diameter	20 mm

Ordering type	**Ordering code**	**Weight**
Terminal clamp, steel, zinc plated	Z100528	approx. 160 g
Terminal clamp, stainless steel 1.4301 (304)	Z100527	

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BD|SENSORS
pressure measurement

Ordering code DCL 532

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			Code	
Pressure				
		in bar	4 5 0	
		in mH_2O	4 5 1	
Input	**[mH_2O]**	**[bar]**		
	1.0	0.10	1 0 0 0	
	1.6	0.16	1 6 0 0	
	2.5	0.25	2 5 0 0	
	4.0	0.40	4 0 0 0	
	6.0	0.60	6 0 0 0	
	10	1.0	1 0 0 1	
	16	1.6	1 6 0 1	
	25	2.5	2 5 0 1	
	40	4.0	4 0 0 1	
		customer	9 9 9 9	consult
Housing				
		stainless steel 1.4404 (316L)	1	
		customer	9	consult
Diaphragm				
		stainless steel 1.4435 (316L)	1	
		customer	9	consult
Output				
		i²C Power Save	IP	
Seal				
		FKM	1	
		EPDM	3	
		customer	9	consult
Accuracy				
standard:		0.25 % FSO	2	
option:		0.1 % FSO	1	
Electrical connection				
		PUR-cable (black, Ø 7.4 mm) [1]	2	
		FEP-cable (black, Ø 7.4 mm) [1]	3	
		customer	9	consult
Cable length				
		in m		
Special version				
		standard	0 0 0	
		customer	9 9 9	consult

[1] shielded cable with integrated ventilation tube for atmospheric pressure reference, max. cable length 50 m

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