SCHNEIDER
MESSTECHNIK

IDCL 571

Stainless Steel Probe with RS485 Modbus RTU

Ceramic Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option 0.25 % FSO

Nominal pressure

from 0 ... 1 mH_2O up to 0 ... 100 mH_2O

Output signal

RS485 with Modbus RTU protocol

Special characteristics

- diameter 22 mm
- good long term stability
- especially for waste water
- reset function

Optional versions

- accuracy: 0.25 % FSO
- different designs
- drinking water certificate according to DVGW and KTW
- different kinds of cables and elastomers

The stainless steel probe IDCL 571 with RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master slave architecture with which up to 247 slaves can be questioned by a master – the data will transfer in binary form.

The probe was developed for level measurement in waste water, sludge or water courses. The mechanical robustness of the flush ceramic diaphragm facilitates an easy disassembly and cleaning of the probe in case of service.

Compared to the level probe IDCL 551 the outside-diameter is only 22 mm, which allows an easy installation and back fitting in 1″ tubes or in cramped fitting conditions.

Preferred areas of use

Water
groundwater and level monitoring

Sewage
waste water treatment, water recycling

Fuel and oil
tank battery, biogas plants

CE ROHS REACH DVGW CERT Modbus®

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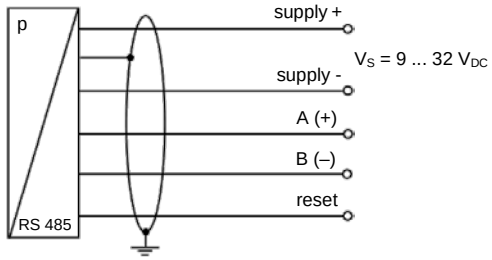
Input pressure range												
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH_2O]	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	3	4	5	5	7	7	12	20	20	20	20
Max. ambient pressure (housing): 40 bar												

Nominal pressure absolute	[bar]	1.2	1.4	1.6	1.8	2	2.5	3	4	6	10
Overpressure	[bar]	7	7	12	12	12	12	20	20	20	20
Burst pressure ≥	[bar]	9	9	18	18	18	18	25	25	30	30
Max. ambient pressure (housing): 40 bar											

Output signal	
Digital (pressure and temperature)	RS485 with Modbus RTU protocol
Supply	
Direct current	V_S = 9 … 32 V_{DC}
Performance	
Accuracy [1]	standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % FSO others on request
Long term stability	≤ ± 0.1 % FSO / year
Measuring rate	500 Hz
Delay time	500 msec
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Tolerance band	≤ ± 1 % FSO
In compensated range	-20 … 80 °C
Permissible temperatures	
Medium / storage	-25 ... 85 °C
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
[2] 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 [3]	TPE-U (-10 … 70 °C) blue Ø 7.4 mm (with drinking water approval) PUR (-10 … 70 °C) black Ø 7.4 mm
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
[3] shielded cable with integrated ventilation tube for atmospheric pressure reference	
Materials (media wetted)	
Housing	stainless steel 1.4404 (316 L) others on request
Cable	TPE-U, blue (with drinking water approval) others on request
Seals (O-rings)	EPDM (with drinking water approval), FKM others on request
Diaphragm	ceramics Al_2O_3 99,9 %
Protection cap	POM-C
Cable sheath	TPE-U, PUR
Miscellaneous	
Drinking water certificate [4]	according to DVGW W 270 and UBA KTW (with order the indication "with drinking water certificate" is necessary)
Adjustable units	pressure: mmH_2O, mmHg, psi, bar, mbar, g/cm^2, kg/cm^2, Pa, kPa, torr, atm, mH_2O, MPa
Read out	serial number, date of calibration, min- and max-value for pressure
Current consumption	max. 10 mA
Weight	approx. 180 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
[4] only possible with EPDM seal in combination with TPE-U cable	

Wiring diagram

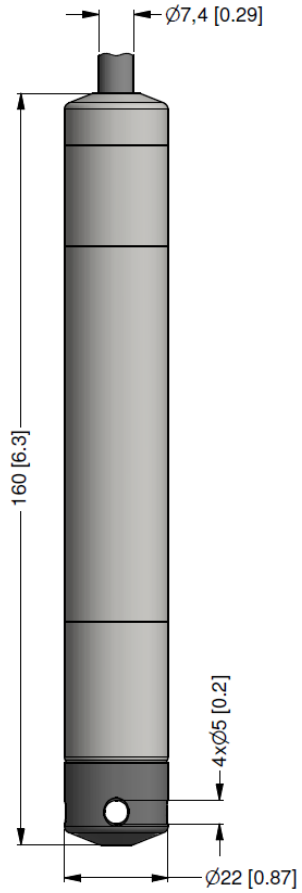


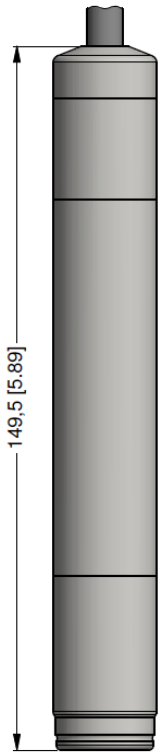
Pin configuration

Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply –	BN (brown)
A +	GN (green)
B –	YE (yellow)
Reset	PK (pink)
Shield	GNYE (green-yellow)

Dimensions (mm / in)

standard

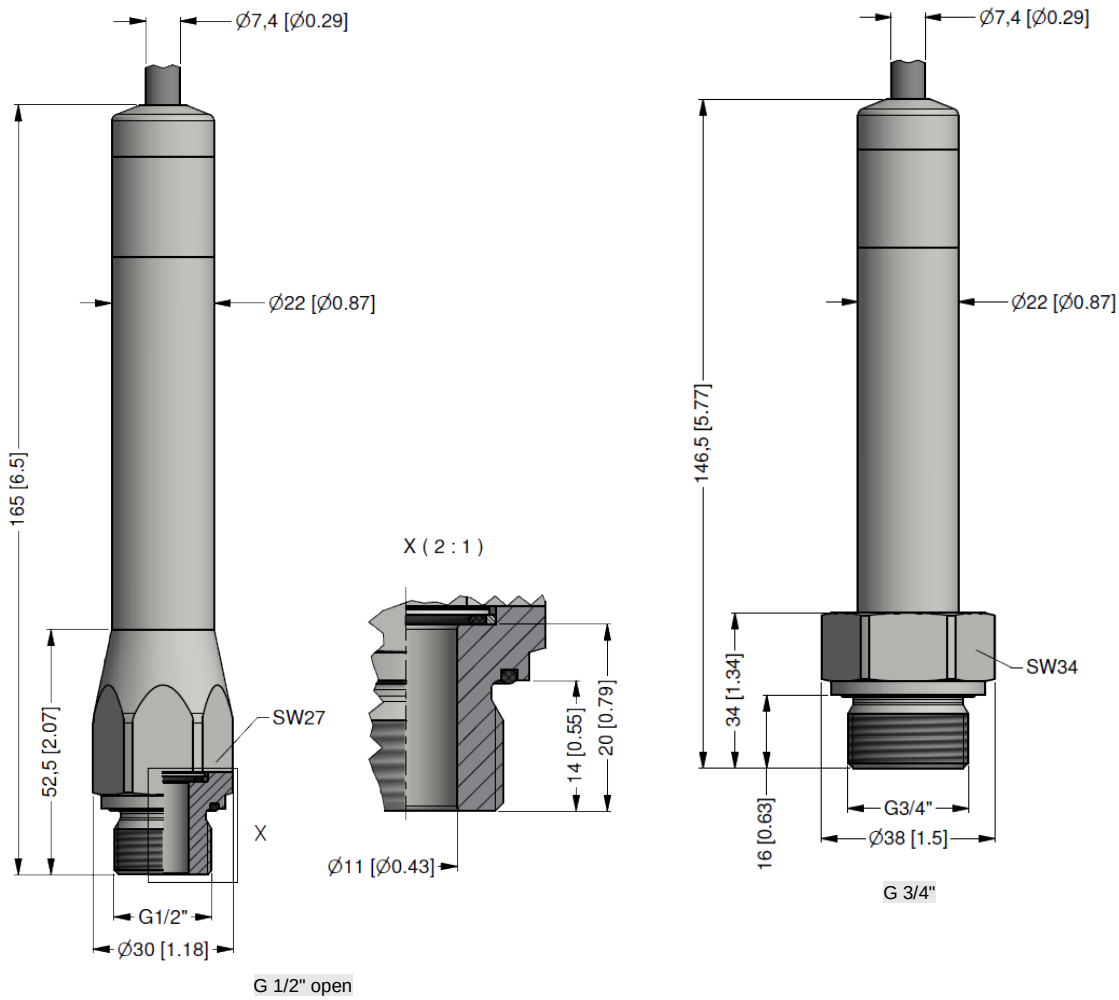




protection cap removable

Dimensions (mm / in)

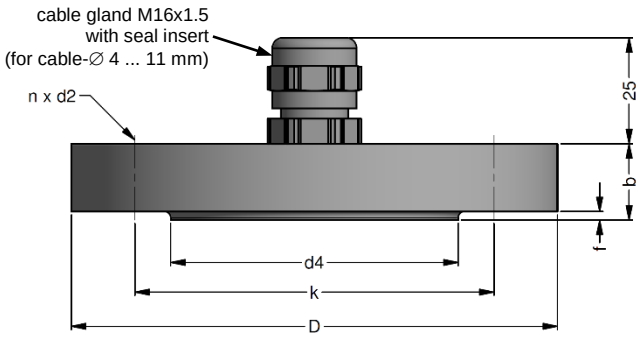
option: screw-in versions



Configuration Modbus RTU					
Standard configuration	001	-	1	-	1
Address					
Address	001				
	…				
	247				
Baud Rate					
4800 Bd			0		
9600 Bd			1		
19200 Bd			2		
38400 Bd			3		
Parity					
None					0
Odd					1
Even					2

Configuration code (to specify with order)		-		-	

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 and positioning clips	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	

Ordering code IDCL 571

IDCL 571 □□□-□□□□-□-□-□-□-□-□-□-□□□-□□□

Pressure																									
		gauge in bar	3	6	0																				
		gauge in mH_2O	3	6	1																				
		absolute in bar	3	6	3																				
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																
	12	1.2				1	2	0	1																
	14	1.4				1	4	0	1																
	16	1.6				1	6	0	1																
	18	1.8				1	8	0	1																
	20	2.0				2	0	0	1																
	25	2.5				2	5	0	1																
	30	3.0				3	0	0	1																
	40	4.0				4	0	0	1																
	60	6.0				6	0	0	1																
	100	10				1	0	0	2																
		customer				9	9	9	9																consult
Housing																									
		stainless steel 1.4404 (316L)								1															
		customer								9															consult
Design																									
		probe									1														
		screw-in version G1/2" open									A														
		screw-in version G3/4" flush									B														
Diaphragm																									
		ceramics Al_2O_3 99.9 %										C													
		customer										9													consult
Output																									
		RS485 Modbus RTU											L5												
		customer											9												consult
Seals																									
		FKM												1											
DVGW / KTW:		EPDM [1]												3T											
		customer												9											consult
Electrical connection																									
		PUR-cable (black, Ø 7.4 mm) [2]													2										
DVGW / KTW:		TPE-U-cable (blue, Ø 7.4 mm) [1, 2]													F										
		customer													9										consult
Accuracy																									
standard		0.35 % FSO															3								
option		0.25 % FSO															2								
		customer															9								consult
Cable length																									
		in m																	9	9	9				
Special version																									
		standard																				0	0	0	
		customer																				9	9	9	consult

[1] drinking water certification only possible with EPDM seal (code 3T) in combination with TPE-U cable (code F)

[2] shielded cable with integrated ventilation tube for atmospheric pressure reference

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