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Digital Submersible Level Transmitter with Modbus

DTM.OCS.S/N - Modbus Level Transmitter

CUSTOMER BENEFITS

- High precision digital level transmitter with standard Modbus interface
- Fast customization thanks to configurable product design
- High precision pressure measurement over the whole temperature range thanks to electronic compensation
- Adjustment of zero and span setting through Modbus commands

Technical Specifications

PRESSURE MEASURING RANGE (MH2O)

	2 ... 5	> 5 ... 20	> 20 ... 250
Overpressure	3 bar	3 x FS	3 x FS
Burst pressure, (1)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (2), (± % FS)	≤ 0.15	≤ 0.05	≤ 0.03
Total Error (3)(4) (± % FS)			
-5...50°C (typ./max.)	≤ 0.2 / 0.4	≤ 0.1 / 0.2	≤ 0.1 / 0.15
-5...80°C (typ./max.)	≤ 0.4 / 0.8	≤ 0.1 / 0.2	≤ 0.1 / 0.2
Long term stability, (5)	< 0.5% FS / < 0.04 mH2O	< 0.2% FS / < 0.04 mH2O	< 0.1% FS / < 0.2% FS

(1) Transducer
(2) System limitation 0.5 mbar
(3) Total error including accuracy, hysteresis, repeatability and temperature influences
(4) The error values are valid within the corresponding temperature range
(5) 1 year (typ. / max.)

TEMPERATURE MEASURING RANGE, (1) (°C)

	-5 ... 50	-5 ... 80
Accuracy (2)	≤ ± 0.5 °C	≤ ± 1.5 °C
Response time, (3), (4)		
T 0.50	9 s	9 s
T 0.63	15 s	15 s
T 0.90	27 s	27 s

(1) Temperature measurement included
(2) Accuracy of the equipment ± 2 °C
(3) Time in seconds that the sensor needs to carry out eg 63% of a temperature change
(4) Time of measurement for liquid medium

TEMPERATURE RANGE

Operating temperature	-5...80 °C
Process temperature	-5...80 °C
Storage temperature	-40...85 °C

ELECTRICAL SPECIFICATIONS

Power supply (1)	9...30 VDC
Current consumption (typ.)	3 mA @ 24VDC
Resolution	
Pressure	20 Bit
Temperature	0.1°C
Output	
Baudrate	9600 bps
Interface	RS485
Protocol	Modbus RTU, 8n2
Cable length (2)	max. 1000m

(1) Power supply at the sensor
(2) Cable length >500m only Point-to-Point connection possible

QUALIFICATIONS (1)

	Description	Level	Typical interferences
IEC 60068-2-27	Shock	500 G (3ms)	
IEC 60068-2-64	Vibration	10 G rms (5 ... 2000 Hz)	
EN 55011 EN 55022 EN 61326-1	Emission, class B	0.03...6 GHz	
EN 61000-4-2 EN 61326-1	Electrostatic discharge	8 kV contact / 15 kV air	
EN 61000-4-3 EN 61326-1	Radiated Immunity	10V/m (0.08...6 GHz)	Radio sets, wireless phones, Wi-Fi
EN 61000-4-4 EN 61326-1	Transients (burst)	4 kV	Motors, valves
EN 61000-4-6 EN 61326-1	Conducted RF	10 V (0.15 ... 80 MHz)	Frequency converters
EN 61000-4-5 EN 61326-1	Surge	2 kV	Overvoltage

(1) Only with connected shield

PHYSICAL SPECIFICATIONS

Materials	
Transducer	Stainless steel (316L / 1.4435), titanium (Gr. 2)
Housing	Stainless steel (316L / 1.4404), titanium (Gr. 2)
Seals	Viton (Standard), EPDM, Kalrez
Cable	PUR, FEP, PE
Weight (1)	150 g

(1) Specification for a DTM.OCS.S/N, closed, cable

CABLE SPECIFICATION

	Pressure	Temperature
FEP	≤ 25 bar	-5 ... 80°C
PE	≤ 25 bar	-5 ... 80°C
PUR	≤ 25 bar	-5 ... 50°C

Accessories

OVERVIEW

10.00.0091	Accessories overview

Additional documents

OPERATING MANUAL

10.00.0430	Operating manual

Ordering information

			X.	XXXX.	XXXX.	XX.	XXX
Type							
	DTM.OCS.S/N						
Pressure type							
	Gauge		1				
	Absolute (vacuum)		2				
Pressure measuring range							
	2mH2O ... 250mH2O			XX			
	Offset, special adjustment			99			
Process connection							
	Closed (Fig. 1), (Fig. 2)			55			
	Open (Fig. 3)			56			
	G 1/4 M			11			
	G 1/2 M			13			
	Customized connections available			99			
Electrical connection							
	PUR cable, IP 68, black (6)				15		
	PE cable, IP 68, black (6)				13		
	FEP cable, IP 68, black (6)				21		
	PUR cable, Connectable version, IP 68 (2)				07		
	Customized connection available				99		
Output signal							
	RS485, Modbus				62		
Accuracy							
	According to datasheet					3	
Temperature range							
	-5 ... 50°C compensated process temperature: -5...50 °C)	(allowed				4	
	-5 ... 80°C compensated process temperature: -5...80 °C) (5)	(allowed				5	
Option 1							
	Special oil filling: Anderol Food food applications)	(for					G
	Ballast weight 1.4435						B
	Cutting ring connection G 1/2 M						
	Strain relief						
Option 2							
	Version titanium (without ballast weight)						K
Option 3							
	Seals: Viton (standard)						U
	Seals: EPDM						S
	Seals: Kalrez (Level) (8)						T

(2) Demountable version

(5) Cable type PE & FEP, pressure range < 10 bar

(6) Specify type and length of cable

(8) Only with FEP cable available

Technical drawings

Dimensions

Fig. 1

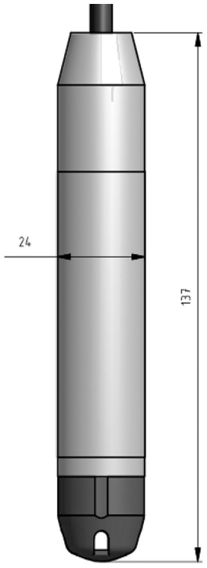

Fig. 2

Fig. 3

Specifications may change without notice.

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