

CTE/CTU/CTW9000...CS Series

OEM stainless steel submersible pressure transducers



FEATURES

- 0...100 to 0...5000 mbar,
0...1.5 to 0...70 psi,
0...1 to 0...50 m H₂O (1 m H₂O ≈ 3 ft)
gage pressure
- For corrosive media
- 0...10 V or 4...20 mA output
- Field interchangeable

MEDIA COMPATIBILITY

Wetted materials:

Stainless steel 1.4404 (316L), NBR (FKM),
PUR (PE/FEP), POM, Loctite 603

Protection class:

IP 68 (according to DIN EN 60529) respectively
NEMA 6P¹

SPECIFICATIONS^{9,10}

Maximum ratings

Supply voltage (reverse polarity protection)

CT...0... 12...32 V
CT...4...² 9...32 V

Load current

CT...0... 0...1 mA

Temperature limits

Storage -40...70 °C
Operating -25...70 °C
Compensated 0...70 °C

Vibration (5 to 500 Hz)

10 g_{RMS}

Mechanical shock

50 g

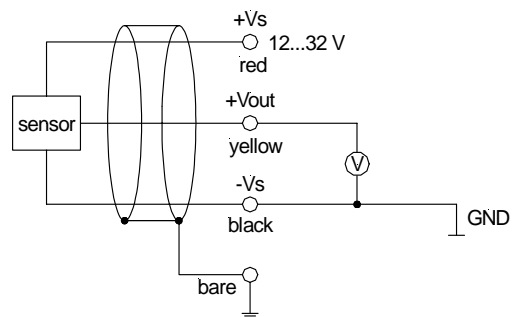
Proof pressure³

CTEM9100..., CTEM9200... 600 mbar
CTU9001..., CTU9003... 9 psi
CTW9100..., CTW9200... 600 cm H₂O
all others 2 x rated pressure

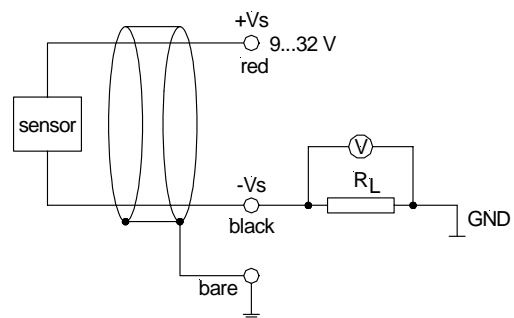


ELECTRICAL CONNECTION

0...10 V output



4...20 mA output



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COMMON PERFORMANCE CHARACTERISTICS

0...10 V output ($V_s=15\text{ V}$, $R_L>100\text{ k}\Omega$, $t_{amb}=25^\circ\text{C}$)

4...20 mA output ($V_s=15\text{ V}$, $R_L=100\text{ }\Omega$, $t_{amb}=25^\circ\text{C}$)

Characteristics		Min.	Typ.	Max.	Unit
Thermal effects (0...70°C) ⁴	Offset	100 mbar, 100 cmH ₂ O, 1.5 psi	±0.04	±0.08	%FSO/°C
		all others	±0.02	±0.05	
	Span		±0.02	±0.05	
Thermal effects (-25...0°C)	Offset		±0.03		%FSO/°C
	Span		±0.03		
Non-linearity (BSL) ⁵ and hysteresis			±0.2	±0.5	%FSO
Repeatability			±0.1		
Output noise (0 < f < 1 kHz)			±0.04		
Long term stability ⁶			±0.1		
Response time (10 to 90 %)			1		ms
Power supply rejection	Offset		±0.05		%FSO/V
	Span		±0.08		

INDIVIDUAL PERFORMANCE CHARACTERISTICS

0...10 V output ($V_s=15\text{ V}$, $R_L>100\text{ k}\Omega$, $t_{amb}=25^\circ\text{C}$)

Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset		0	0.1	V
Full scale span ⁷	9.9	10	10.1	
Output impedance			25	Ω
Current consumption (no load)		3	5	mA

4...20 mA output ($V_s=15\text{ V}$, $R_L=100\text{ }\Omega$, $t_{amb}=25^\circ\text{C}$)

Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset	3.9	4.0	4.1	mA
Full scale span ⁷	15.9	16.0	16.1	
Power consumption ($I_L = 20\text{ mA}$)		260		mW

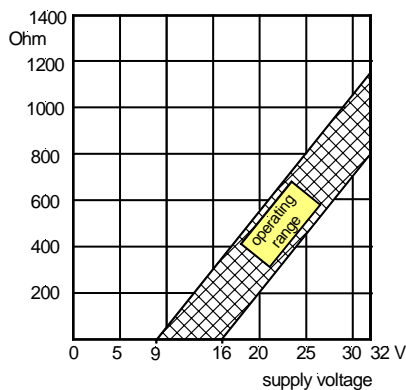
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ELECTROMAGNETIC CAPABILITY⁸

	Test conditions	Criterion	Interference
Radiated, radio frequency electromagnetic field immunity (RFI)	EN61000-4-3: 10 V/m, 80 to 1000 MHz 80 % AMC (1 kHz)	A	<1 % FSO
Electrical fast transient / burst immunity (EFT)	EN61000-4-4: ± 2 kV	B	<1 % FSO
Electrostatic discharge immunity test (ESD)	EN61000-4-2: ± 4 kV, contact discharge ± 8 kV, air discharge	B	<1 % FSO
Immunity to conducted disturbances induced by radio-frequency fields	EN61000-4-6: 0.15 to 80 MHz 10 V, 80 % AMC (1 kHz)	A	<1 % FSO
Surge immunity	EN61000-4-5: ± 0.5 kV, symmetric/asymmetric ± 1 kV, asymmetric	B	<1 % FSO

LOAD LIMITATION (4...20 mA output version)



ELECTRICAL CONNECTION (cont.)

WIRE CONNECTION		
Colour	0...10 V	4...20 mA
red	+Vs	+Vs
black	-Vs	-Vs
yellow	Vout	-
transparent	vent tube ¹	vent tube ¹

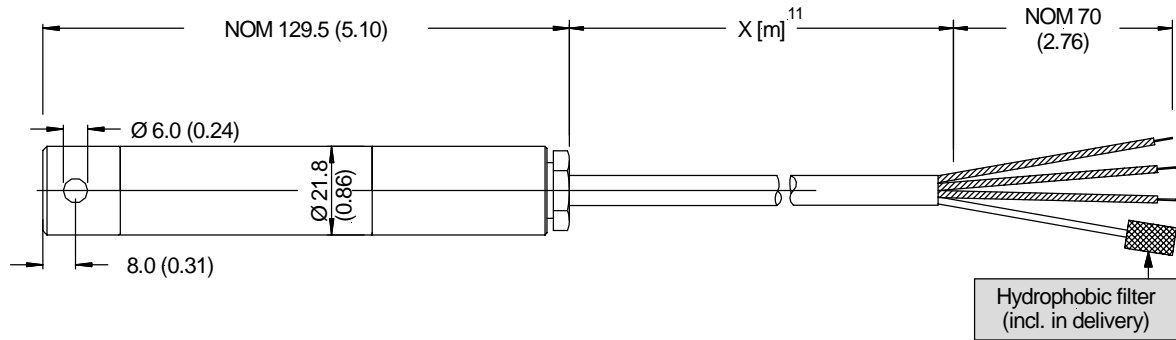
Specification notes:

1. The package is an all-sealed housing. For proper function the gage port is vented to the atmosphere through the connecting cable. Thus the vent tube of the cable end must have access to the ambient pressure.
2. The minimum supply voltage is directly proportional to the load resistance seen by the transmitter. For more details see the load limitation diagram.
3. Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.
4. Thermal effects tested and guaranteed from 0...70°C relative to 25°C. All specifications shown are relative to 25°C.
5. Non-linearity refers to the **Best Straight Line** fit measured for offset, full scale span and 1/2 full scale span.
6. Long term stability is the change in output after one year or 1 million pressure cycles.
7. Span is the arithmetic difference in transmitter output signal measured at zero pressure and the maximum operating pressure.
8. Tests are in accordance with EN 61000-6-2.
9. CE-labelling is in accordance with 2004/108/EC.
10. The pressure transmitters must not be used as safety accessories according to article 1, 2.1.3 of the directive 97/23/EC.
11. Cable length for 0...10 V versions is max. 10 m.

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OUTLINE DRAWING¹



mass: typ. 210 g (without cable)

dimensions in mm (inches)

ORDERING INFORMATION

CTx	M	9xxx	G	x	C	x	S	x	x
Calibration E: calibration in mbar U: calibration in psi W: calibration in m H ₂ O (1 m H ₂ O ≈ 3 ft)		For mbar ranges only		Pressure range		Sealing material V: Viton (FKM) N: NBR <i>Note: Older part no. do not contain this digit. Without this digit NBR will be used.</i>		Cable material E: PE U: PUR F: FEP <i>Note: Older part no. do not contain this digit. Without this digit PUR will be used.</i>	
Pressure mode G: gage pressure ¹		Output signal 0: 0...10 V 4: 4...20 mA		Submersible		Cable length in m¹¹		Cable version	
100: 0...100 mbar	001: 0...1.5 psi	001: 0...1 m H ₂ O							
200: 0...200 mbar	003: 0...3 psi	002: 0...2 m H ₂ O							
400: 0...400 mbar	005: 0...5 psi	004: 0...4 m H ₂ O							
600: 0...600 mbar	010: 0...10 psi	006: 0...6 m H ₂ O							
1K0: 0...1000 mbar	015: 0...15 psi	010: 0...10 m H ₂ O							
1K6: 0...1600 mbar	020: 0...20 psi	016: 0...16 m H ₂ O							
2K0: 0...2000 mbar	030: 0...30 psi	020: 0...20 m H ₂ O							
5K0: 0...5000 mbar	070: 0...70 psi	050: 0...50 m H ₂ O							

Other pressure ranges and options are widely available. Please contact Sensorteknics.

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