

CTE9000 / CTU9000 Series

OEM pressure transmitters for industrial media

FEATURES

- 100 mbar to 35 bar, 1.5 to 500 psi gage¹ or absolute¹⁰ pressure
- 0...5 V, 0...10 V or 4...20 mA output
- Field interchangeable
- All welded stainless steel diaphragm construction
- EMC according to EN 61326-1⁸

MEDIA COMPATIBILITY

Wetted materials:

Stainless steel 1.4404 (316L)⁹

Housing:

Stainless steel 1.4404 (316L), protection class IP 67 (according to DIN EN 60529, NEMA 6)¹

SPECIFICATIONS^{11,12}

Maximum ratings

Supply voltage (reverse polarity protection)

CTE(M)/CTU9...0	12...32 V
CTE(M)/CTU9...1	9...32 V
CTE(M)/CTU9...7	8...32 V
CTE(M)/CTU9...4 ²	7...32 V

Maximum load current (source)

CTE(M)/CTU9...0, ...1, ...7	1 mA
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Proof pressure³

2 x rated pressure

Environmental

Temperature limits

Storage	-40...85 °C
Operating (media)	-40...85 °C
Electronic (ambient)	-40...85 °C
Compensated	0...50 °C

Vibration (5 to 2000 Hz)¹³

10 g_{RMS}

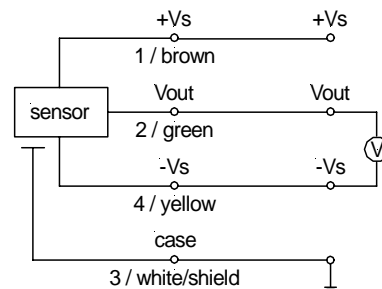
Mechanical shock¹⁴

50 g (11 ms)

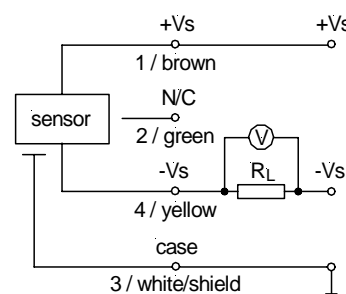


ELECTRICAL CONNECTION

Voltage output device



Current output device



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COMMON PERFORMANCE CHARACTERISTICS

($V_s=15\text{ V} \pm 0.1\text{ V}$, $T_A=25\text{ }^\circ\text{C}$, $\text{RH}=50\%$)

Characteristics			Min.	Typ.	Max.	Unit
Thermal effects (0...50 °C) ⁴	Offset	100 mbar/1.5 psi devices		±0.04	±0.08	%FSO/°C
		all others		±0.02	±0.05	
	Span	100 mbar/1.5 psi devices		±0.04	±0.08	
		all others		±0.02	±0.05	
Thermal effects (-20...0 °C, 50...70 °C) ⁴	Offset	100 mbar/1.5 psi devices		±0.04		
		all others		±0.02		
	Span	100 mbar/1.5 psi devices		±0.04		
		all others		±0.02		
Non-linearity (BSL) and hysteresis ⁵				±0.1	±0.3	%FSO
Repeatability				±0.1		
Long term stability ⁶				±0.1		
Output noise (0 < f < 1 kHz)				±0.1		
Response time (10 to 90 %)				5		ms
D/A resolution					11	bit
Power supply rejection	Offset			±0.01		%FSO/V
	Span			±0.02		

Specification notes:

1. IP 67 protection is given when the connector is locked. For proper function the gage port is vented to the atmosphere through the connector/cable assembly. Thus 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 are relative to 25 °C. Signal is clamped at 0 V.
5. Non-linearity refers to **Best Straight Line** fit. Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
6. Long term stability over 1 year.
7. Span is the arithmetic difference in transmitter output signal measured at zero pressure and the maximum operating pressure.
8. Surge immunity according to EN 61000-4-5 on request for current output devices.
9. When using devices with optional nickel plated fittings, consider the media compatibility of the fittings also.
10. Available for pressure ranges from 1 bar (15 psi) absolute upwards only.
11. CE-labelling is in accordance with 2004/108/EC.
12. The pressure transmitters must not be used as safety accessories according to article 1, 2.1.3 of the directive 97/23/EC.
13. According to IEC 60068-2-64.
14. According to IEC 60068-2-27.

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INDIVIDUAL PERFORMANCE CHARACTERISTICS (cont.)

($V_S = 15\text{ V} \pm 0.1\text{ V}$, $T_A = 25\text{ }^\circ\text{C}$, $\text{RH} = 50\%$)

0...10 V output ($R_L > 100\text{ k}\Omega$)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...9N...	4.9	5	5.1	V
	all others		0	0.1	
Full scale span ⁷	CT...9N...	4.9	5	5.1	
	all others	9.9	10	10.1	
Output impedance				25	Ω
Current consumption (no load)			4		mA

0...5 V output ($R_L > 100\text{ k}\Omega$)

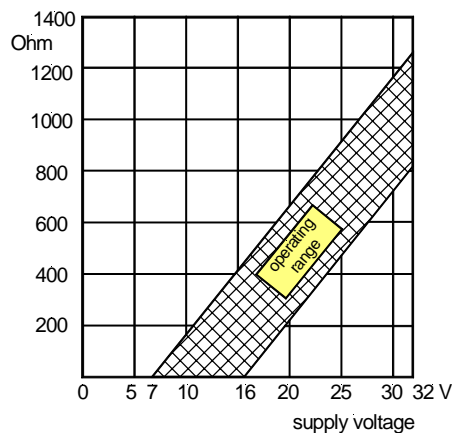
Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...9N...	2.45	2.5	2.55	V
	all others		0	0.05	
Full scale span ⁷	CT...9N...	2.45	2.5	2.55	
	all others	4.95	5.0	5.05	
Output impedance				25	Ω
Current consumption (no load)			4		mA

4...20 mA output ($R_L = 100\ \Omega$)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...9N...	11.8	12.0	12.2	mA
	all others	3.8	4.0	4.2	
Full scale span ⁷	CT...9N...	7.8	8.0	8.2	
	all others	15.8	16.0	16.2	
Power consumption ($I_L = 20\text{ mA}$)			250		mW

LOAD LIMITATION

4...20 mA output version

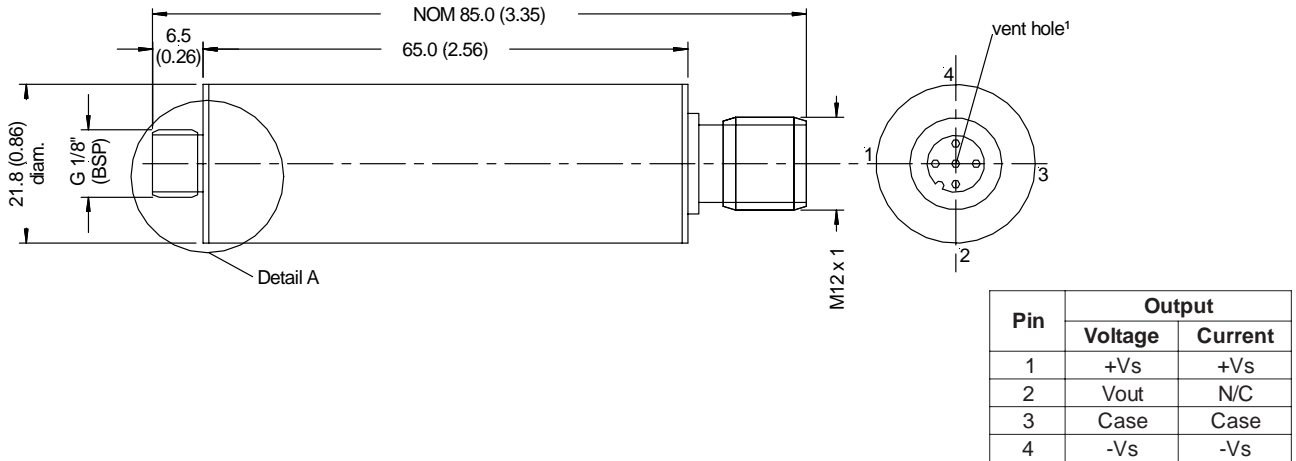


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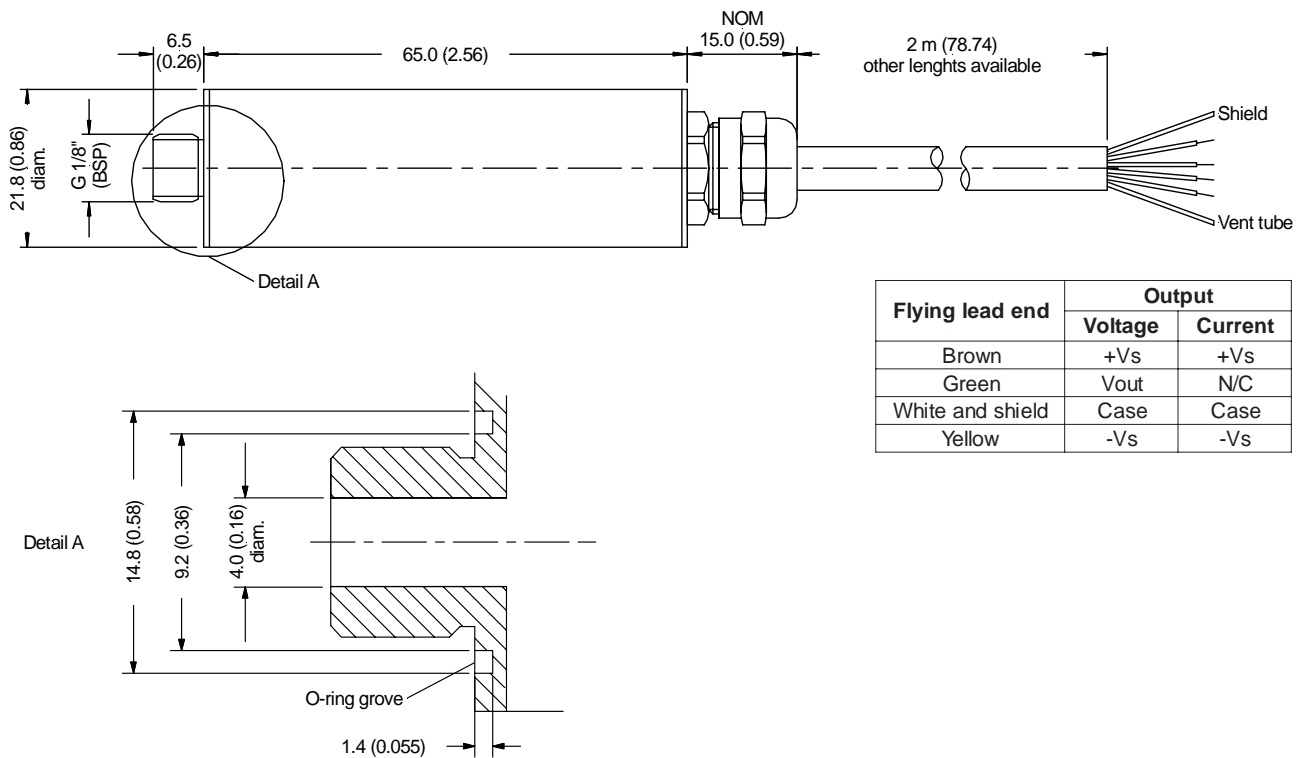
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OUTLINE DRAWING

Connector version



Cable version



mass: approx. 82 g

Note: O-ring included in delivery

dimensions in mm (inches)

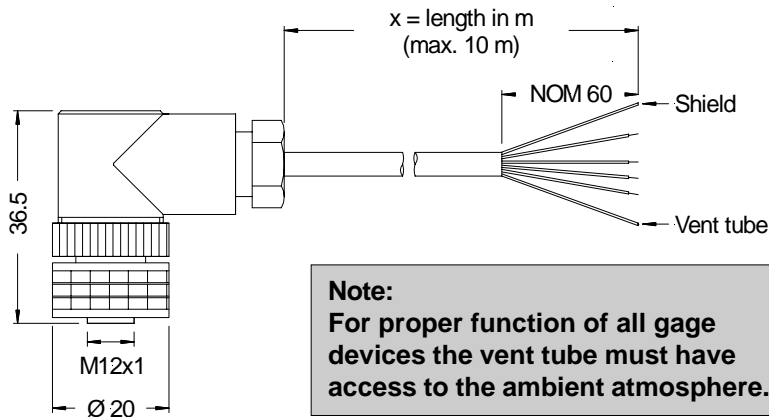
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RECOMMENDED ACCESSORY (not included in delivery)

ZP000112-B: Mating Connector (without cable)

ZK000101-x: Connector/cable assembly (x=cable lengths in m, max. 10 m)

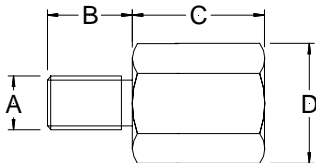


PIN CONNECTION	
Pin	Flying lead end
1	Brown
2	Green
3	White and shield
4	Yellow

dimensions in mm

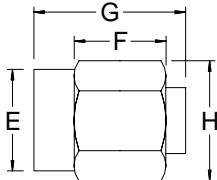
OPTIONAL PRESSURE FITTINGS

Male fittings



Fitting no.	Order no.	Dimensions in mm (inches)			
		A	B	C	D (Hex.)
E	1007282	1/4" BSPT	12 (0.472)	5.5 (0.217)	14 (9/16")
P	1007288	G 1/8"	6 (0.236)	10 (0.394)	14 (9/16")
Q	1007289	G 1/4"	8 (0.315)	5 (0.197)	17 (11/16")
R	1007291	G 3/8"	9 (0.354)	5 (0.197)	19 (3/4")
M	1007298	1/8" NPT	8 (0.315)	13 (0.512)	14 (9/16")
N	1007299	1/4" NPT	11.4 (0.449)	6.6 (0.260)	14 (9/16")

Female fittings



Fitting no.	Order no.	Dimensions in mm (inches)			
		E	F	G	H (Hex.)
U	1007294	G 1/8"	5 (0.197)	15 (0.591)	14 (9/16")
W	1007296	G 3/8"	6 (0.236)	20 (0.787)	22 (7/8")

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ORDERING INFORMATION

Series/Pressure range		Pressure mode		Pressure connection		Output signal		Cable (optional)	
CTEM9100	0...100 mbar	A	Absolute (from 1 bar/15 psi)	Y	G 1/8" male, SS 1.4404 (316L)	0	0...10 V	Cx	x=length in m
CTEM9N100	-100...100 mbar			E	1/4" BSPT male, brass, nickel plated	4	4...20 mA		
CTEM9200	0...200 mbar	G	Gage ¹	P	G 1/8" male, brass, nickel plated	7	0...5 V		
CTEM9N200	-200...200 mbar			Q	G 1/4" male, brass, nickel plated				
CTEM9350	0...350 mbar			R	G 3/8" male, brass, nickel plated				
CTEM9N350	-350...350 mbar			U	G 1/8" female, brass, nickel plated				
CTE9001	0...1 bar			W	G 3/8" female, brass, nickel plated				
CTE9N01	-1...1 bar			M	1/8" NPT male, SS 1.4404 (316L)				
CTE9P01	0...-1 bar			N	1/4" NPT male, SS 1.4404 (316L)				
CTE9005	0...5 bar								
CTE9010	0...10 bar								
CTE9016	0...16 bar								
CTE9020	0...20 bar								
CTE9035	0...35 bar								
CTU91x5	0...1.5 psi								
CTU9003	0...3 psi								
CTU9005	0...5 psi								
CTU9015	0...15 psi								
CTU9N15	-15...15 psi								
CTU9P15	0...-15 psi								
CTU9030	0...30 psi								
CTU9050	0...50 psi								
CTU9100	0...100 psi								
CTU9300	0...300 psi								
CTU9500	0...500 psi								
Example: CTE9001GY4									
Devices highlighted in grey are preferred items.					For all other devices MOQ may apply.				

Custom pressure ranges and other fittings are available on request. MOQ applies. Contact First Sensor.

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