

CTE8000 / CTU8000 Series

OEM pressure transmitters for industrial media

FEATURES

- 250 mbar to 100 bar, 5 to 1500 psi gage¹ or absolute¹⁰ pressure
- 0...10 V, 0.5...4.5 V, 0...5 V, 1...6 V or 4...20 mA output
- Field interchangeable
- For many industrial gases and liquids
- EMC according to EN 61326-1⁸

MEDIA COMPATIBILITY

Wetted materials:

Stainless steel 1.4404 (316L)⁹, ceramic Al_2O_3 , NBR (FKM)

Housing:

Stainless steel 1.4404 (316L), protection class IP 67 (according to DIN EN 60529) respectively NEMA 6¹



SPECIFICATIONS^{11,12}

Maximum ratings

Supply voltage (reverse polarity protection)

CTE(M)/CTU8...0	12...32 V
CTE(M)/CTU8...1	9...32 V
CTE(M)/CTU8...6, ...7	8...32 V
CTE(M)/CTU8...4 ²	7...32 V

Maximum load current (source)

CTE(M)/CTU8...0, ...1, ...6, ...7	1 mA
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Proof pressure³ 2 x rated pressure

Environmental

Temperature limits

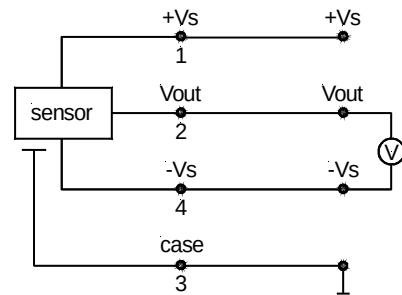
Storage	-40...85 °C
Operating (media)	-25...85 °C
Electronic (ambient)	-25...85 °C
Compensated	0...70 °C

Vibration (5 to 500 Hz) 10 g_{RMS}

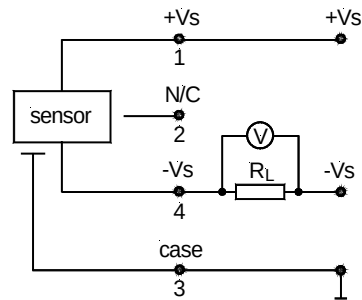
Mechanical shock 50 g

ELECTRICAL CONNECTION

Voltage output device



Current output device



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COMMON PERFORMANCE CHARACTERISTICS

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

Characteristics			Min.	Typ.	Max.	Unit
Thermal effects (0...70 °C) ⁴	Offset	devices up to 1 bar/15 psi		±0.03	±0.06	%FSO/°C
		all others		±0.02	±0.04	
	Span			±0.02	±0.04	
Thermal effects (-25...0 °C, 70...85 °C) ⁴	Offset			±0.03		%FSO/°C
	Span			±0.03		
Non-linearity (BSL), hysteresis and repeatability ⁵	CT...8N...			±0.2	±0.5	%FSO
	all others			±0.1	±0.3	
Long term stability ⁶				±0.1	±0.3	
Output noise (0< f <1 kHz)				±0.1		
Response time (10 to 90 %)	devices up to 350 mbar/5 psi			35		ms
	all others			5		
D/A resolution					11	bit
Power supply rejection	Offset			±0.01		%FSO/V
	Span			±0.02		

INDIVIDUAL PERFORMANCE CHARACTERISTICS

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

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

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...8N...		5		V
	all others		0	0.1	
Full scale span ⁷		9.9	10	10.1	
Output impedance				25	Ω
Current consumption (no load)			4		mA

0.5...4.5 V output ($R_L > 100\text{ k}\Omega$)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...8N...		2.5		V
	all others	0.45	0.5	0.55	
Full scale span ⁷		3.95	4	4.05	
Output impedance				25	Ω
Current consumption (no load)			4		mA

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INDIVIDUAL PERFORMANCE CHARACTERISTICS (cont.)

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

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

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...8N...		2.50		V
	all others		0	0.05	
Full scale span ⁷		4.95	5.00	5.05	
Output impedance				25	W
Current consumption (no load)			4		mA

1...6 V output ($R_L > 100\text{ k}\Omega$)

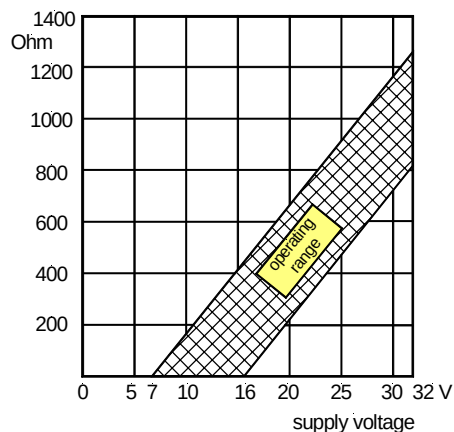
Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...8N...		3.50		V
	all others	0.95	1.00	1.05	
Full scale span ⁷		4.95	5.00	5.05	
Output impedance				25	Ω
Current consumption (no load)			4		mA

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

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...8N...		12.0		mA
	all others	3.9	4.0	4.1	
Full scale span ⁷		15.9	16.0	16.1	
Power consumption ($I_L = 20\text{ mA}$)			250		mW

LOAD LIMITATION

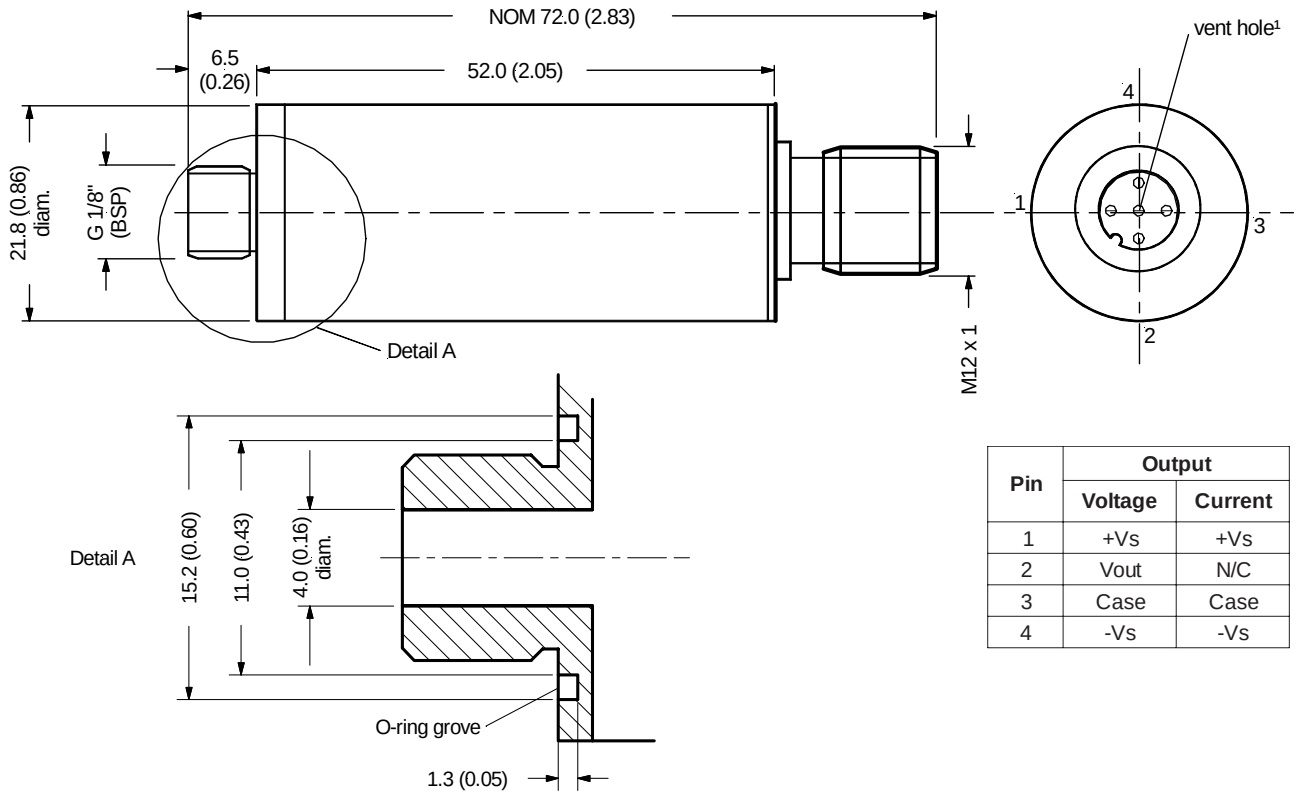
4...20 mA output version



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OUTLINE DRAWING



mass: approx. 70 g

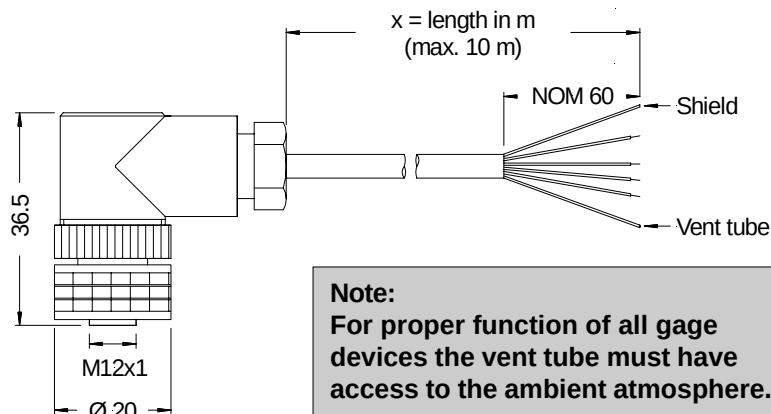
Note: O-ring included in delivery

dimensions in mm (inches)

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

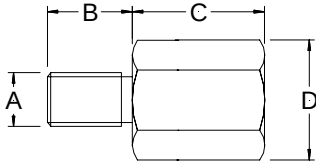
dimensions in mm

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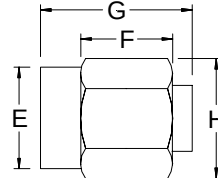
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OPTIONAL PRESSURE FITTINGS (brass, nickel plated)

Male fittings



Female fittings



Dimensions in mm (inches)			
A	B	C	D (Hex.)
1/8" BSPT	8 (0.315)	13 (0.512)	14 (9/16")
1/4" BSPT	12 (0.472)	5.5 (0.217)	14 (9/16")
3/8" BSPT	11.5 (0.453)	5 (0.197)	17 (11/16")
1/2" BSPT	16 (0.630)	7 (0.276)	22 (7/8")
1/8" BSP	12.5 (0.492)	11 (0.433)	14 (9/16")
1/4" BSP	8.5 (0.335)	5 (0.197)	19 (3/4")
3/8" BSP	12.5 (0.492)	7 (0.276)	22 (7/8")
1/8" NPT	10 (0.394)	13 (0.512)	17 (11/16")
1/4" NPT	14 (0.551)	6 (0.236)	22 (7/8")

Dimensions in mm (inches)			
E	F	G	H (Hex.)
1/8" BSP	5 (0.197)	15 (0.591)	14 (9/16")
1/4" BSP	7 (0.276)	20 (0.787)	17 (11/16")
3/8" BSP	6 (0.236)	20 (0.787)	22 (7/8")
1/2" BSP	18 (0.707)	23 (0.906)	24 (15/16")

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 is the change in output after one 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.

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ORDERING INFORMATION

		CTx	(M)	8xxx	x	x	x	x	
Calibration								Sealing material	
E: bar calibration								V: Viton (FKM)	
U: psi calibration								N: NBR	
For mbar ranges only								<i>Note: Older part no. do not contain this digit. Without this digit NBR will be used.</i>	
Pressure range								Output signal	
<u>CTE8000 series</u>		<u>CTU8000 series</u>						0: 0...10 V	
250: 0...250 mbar		005: 0...5 psi						1: 1...6 V	
350: 0...350 mbar		010: 0...10 psi						4: 4...20 mA	
500: 0...500 mbar		015: 0...15 psi						6: 0.5...4.5 V	
001: 0...1 bar		N15: -15...+15 psi						7: 0...5 V	
N01: -1...+1 bar		P15: 0...-15 psi						Pressure connection	
P01: 0...-1 bar		030: 0...30 psi						<u>Standard thread</u>	
002: 0...2 bar		100: 0...100 psi						Y: G 1/8" (BSP) male, SS 1.4404 (316L)	
005: 0...5 bar		200: 0...200 psi						<u>Optional pressure fittings</u>	
010: 0...10 bar		300: 0...300 psi						D: 1/8" BSPT male, brass, nickel plated	
016: 0...16 bar		500: 0...500 psi						E: 1/4" BSPT male, brass, nickel plated	
020: 0...20 bar		700: 0...700 psi						F: 3/8" BSPT male, brass, nickel plated	
025: 0...25 bar		1K0: 0...1000 psi						G: 1/2" BSPT male, brass, nickel plated	
035: 0...35 bar		1K5: 0...1500 psi						K: 1/8" NPT male, brass	
050: 0...50 bar								L: 1/4" NPT male, brass	
070: 0...70 bar								M: 1/8" NPT male, SS 1.4305 (303)	
100: 0...100 bar								N: 1/4" NPT male, SS 1.4305 (303)	
Pressure mode								P: G 1/8" (BSP) male, brass, nickel plated	
G: gage pressure ¹								Q: G 1/4" (BSP) male, brass, nickel plated	
(up to 50 bar/750 psi)								R: G 3/8" (BSP) male, brass, nickel plated	
S: sealed gage								S: G 1/2" (BSP) male, brass, nickel plated	
(above 50 bar/750 psi)								U: G 1/8" (BSP) female, brass, nickel plated	
A: absolute pressure								V: G 1/4" (BSP) female, brass, nickel plated	
(from 1 bar/15 psi up to 50 bar/750 psi)								W: G 3/8" (BSP) female, brass, nickel plated	
								X: G 1/2" (BSP) female, brass, nickel plated	