

CTE8000 / CTU8000 Series

OEM pressure transmitters for industrial media



FEATURES

- 0...-1 to 0...100 bar,
0...-15 to 0...1500 psi
gage¹ or absolute¹⁰
- For many industrial gases and liquids
- 0...10 V, 0.5...4.5 V, 0...5 V, 1...6 V or
4...20 mA output
- Field interchangeable
- For industrial use



MEDIA COMPATIBILITY

Wetted materials:
stainless steel 1.4404 (316L), ceramic AL_2O_3 , NBR⁹

Housing:
stainless steel, protection class IP 64 (according to
DIN EN 60529) respectively NEMA 4X¹

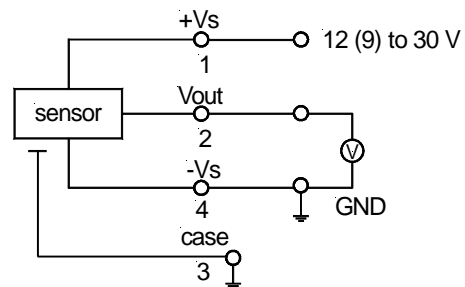
SPECIFICATIONS^{11,12}

Maximum ratings

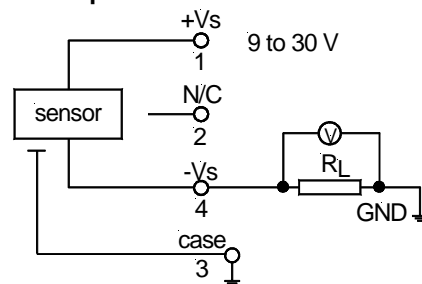
Supply voltage (reverse polarity protection)	
CTx8...0	12...30 V
CTx8...1, ...6, ...7	9...30 V
CTx8...4 ²	9...30 V
Maximum load current (source)	
CTx8...0, ...1, ...6, ...7	1 mA
Temperature limits	
Storage	-55 to 100°C
Operating ⁸	-40 to 100°C
Compensated	0 to 70°C
Humidity limits	
	0 - 98 %RH
Vibration (5 to 500 Hz)	
	10 g _{RMS}
Mechanical shock	
	50 g
Proof pressure ³	
	2 x rated pressure

ELECTRICAL CONNECTION

0...10 V, 0.5...4.5 V, 0...5 V, 1...6 V output



4...20 mA output



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COMMON PERFORMANCE CHARACTERISTICS

Characteristics			Min.	Typ.	Max.	Unit	
Operating pressure	CTE8001...		0		1	bar	
	CTE8N01...		-1		+1		
	CTE8P01...		-1		0		
	CTE8002...		0		2		
	CTE8005...		0		5		
	CTE8010...		0		10		
	CTE8016...		0		16		
	CTE8020...		0		20		
	CTE8025...		0		25		
	CTE8035...		0		35		
	CTE8050...		0		50		
	CTE8070...		0		70		
	CTE8100...		0		100		
	CTU8015...		0		15		psi
	CTU8N15...		-15		+15		
CTU8P15...		-15		0			
CTU8030...		0		30			
CTU8100...		0		100			
CTU8200...		0		200			
CTU8300...		0		300			
CTU8500...		0		500			
CTU8700...		0		700			
CTU81K0...		0		1000			
CTU81K5...		0		1500			
Thermal effects ^s (0 to 70°C) ⁴	Offset			0.02	0.05	%FSO/°C	
	Span			0.02	0.05		
Thermal effects (-40 to 0°C, 70 to 100°C)	Offset			0.03			
	Span			0.03			
Non-linearity, hysteresis (BSL) and repeatability ⁵				±0.1	±0.3	%FSO	
Long term stability ⁶				±0.3			
Output noise (0 < f < 1 kHz)				±0.04			
Response time (10 to 90 %)				1	5	ms	
Power supply rejection	Offset	CTx8...4		0.05		%FSO/V	
		all others		0.002			
	Span	CTx8...4		0.08			
		all others		0.002			

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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	CT...8N...	4.9	5	5.1	V
	all others		0.03	0.1	
Full scale span ⁷	CT...8N...	4.9	5	5.1	
	all others	9.9	10	10.1	
Output impedance				25	Ω
Current consumption (no load)			3	5	mA

0.5...4.5 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	CT...8N...	2.45	2.5	2.55	V
	all others	0.45	0.5	0.55	
Full scale span ⁷	CT...8N...	1.95	2	2.05	
	all others	3.95	4	4.05	
Output impedance				25	Ω
Current consumption (no load)			3	5	mA

0...5 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	CT...8N...	2.45	2.5	2.55	V
	all others		0.03	0.08	
Full scale span ⁷	CT...8N...	2.45	2.5	2.55	
	all others	4.95	5.0	5.05	
Output impedance				25	Ω
Current consumption (no load)			3	5	mA

1...6 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	CT...8N...	3.45	3.5	3.55	V
	all others	0.95	1	1.05	
Full scale span ⁷	CT...8N...	2.45	2.5	2.55	
	all others	4.95	5.0	5.05	
Output impedance				25	Ω
Current consumption (no load)			3	5	mA

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

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...8N...	11.9	12.0	12.1	mA
	all others	3.9	4.0	4.1	
Full scale span ⁷	CT...8N...	7.9	8.0	8.1	
	all others	15.9	16.0	16.1	
Power consumption ($I_L = 20\text{ mA}$)			250		mW

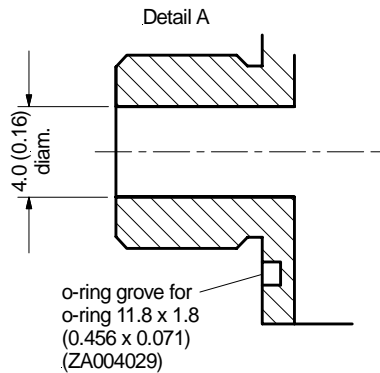
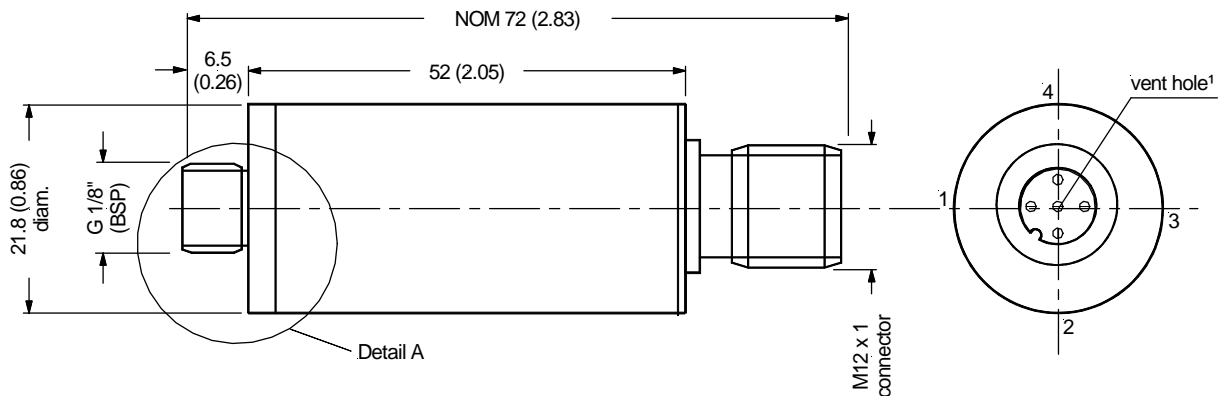
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Specification notes:

1. IP 64 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 tested and guaranteed from 0 to 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 EN61000-6-2, April 1999.
9. Other material on special request. 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 89/336/EEC.
12. The pressure transmitters must not be used as safety accessories according to article 1, 2.1.3 of the directive 97/23/EC.

OUTLINE DRAWING



Pin	Output	
	0...10 V 0.5...4.5 V 0...5 V, 1...6 V	4...20 mA
1	+V _s	+V _s
2	V _{out}	NC
3	case	case
4	-V _s	-V _s

mass: 72 g

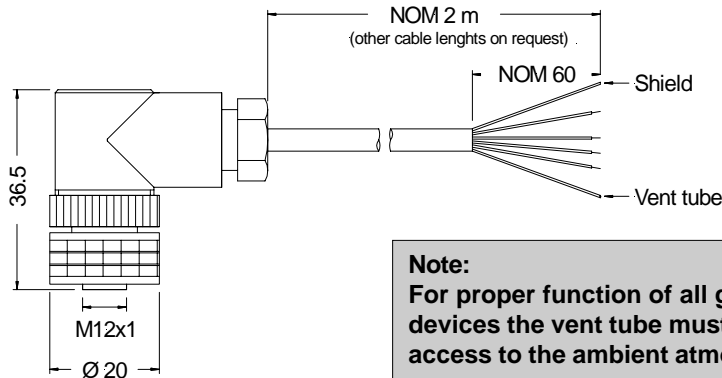
dimensions in mm (inches)

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RECOMMENDED ACCESSORY (not included in delivery)

- ZK000101:** Connector/cable assembly (different cable lengths available)
ZP000112-B: Mating Connector (without cable)



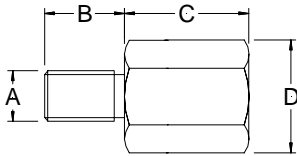
PIN CONNECTION	
Pin	Flying lead end
1	Brown
2	Green
3	White and shield
4	Yellow

Note:
 For proper function of all gage devices the vent tube must have access to the ambient atmosphere.

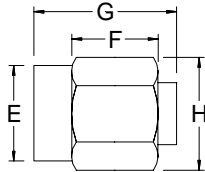
dimensions in mm

OPTIONAL PRESSURE FITTINGS (brass, nickel plated)

Male fittings

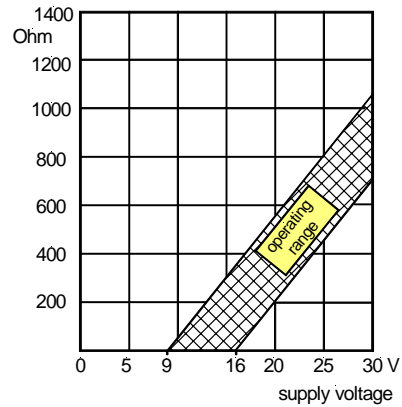


Female fittings



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 (9/18")
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")

LOAD LIMITATION 4...20 mA output version



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")

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ELECTROMAGNETIC CAPABILITY⁸

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

ORDERING INFORMATION

	CTx8	xxx	X	X	X
E bar calibration					
U psi calibration					
CTE8000 series	CTU8000 series				
001: 0 to 1 bar	015: 0 to 15 psi				
N01: -1 to +1 bar	N15: -15 to +15 psi				
P01: 0 to -1 bar	P15: 0 to -15 psi				
002: 0 to 2 bar	030: 0 to 30 psi				
005: 0 to 5 bar	100: 0 to 100 psi				
010: 0 to 10 bar	200: 0 to 200 psi				
016: 0 to 16 bar	300: 0 to 300 psi				
020: 0 to 20 bar	500: 0 to 500 psi				
025: 0 to 25 bar	700: 0 to 700 psi				
035: 0 to 35 bar	1K0: 0 to 1000 psi				
050: 0 to 50 bar	1K5: 0 to 1500 psi				
070: 0 to 70 bar					
100: 0 to 100 bar					
Pressure mode					
G : gage pressure ¹					
A : absolute pressure ¹⁰					
				Output signal	
				0: 0...10 V	
				1: 1...6 V	
				4: 4...20 mA	
				6: 0.5...4.5 V	
				7: 0...5 V	
				Fitting size	
				D: 1/8" BSPT male, brass, nickel plated	
				E: 1/4" BSPT male, brass, nickel plated	
				F: 3/8" BSPT male, brass, nickel plated	
				G: 1/2" BSPT male, brass, nickel plated	
				K: 1/8" NPT male, brass	
				L: 1/4" NPT male, brass	
				M: 1/8" NPT male, SS 1.4305 (303)	
				N: 1/4" NPT male, SS 1.4305 (303)	
				P: G 1/8" (BSP) male, brass, nickel plated	
				Q: G 1/4" (BSP) male, brass, nickel plated	
				R: G 3/8" (BSP) male, brass, nickel plated	
				S: G 1/2" (BSP) male, brass, nickel plated	
				U: G 1/8" (BSP) female, brass, nickel plated	
				V: G 1/4" (BSP) female, brass, nickel plated	
				W: G 3/8" (BSP) female, brass, nickel plated	
				X: G 1/2" (BSP) female, brass, nickel plated	
				Y: G 1/8" (BSP) male, SS 1.4404 (316)	
				no optional fitting	

Note: Other pressure ranges and options are widely available. Please contact your nearest Sensortechinics sales representative.

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