

# CTE8000 / CTU8000 Series

## OEM pressure transmitters for industrial media

### FEATURES

- 250 mbar to 100 bar, 5 to 1500 psi gage<sup>1</sup> or absolute<sup>10</sup> pressure
- 0...5 V, 0...10 V or 4...20 mA output
- Field interchangeable
- For many industrial gases and liquids
- EMC according to EN 61326-1<sup>8</sup>

### MEDIA COMPATIBILITY

Wetted materials:

Stainless steel 1.4404 (316L)<sup>9</sup>, ceramic  $Al_2O_3$ , NBR (FKM)

Housing:

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

### SPECIFICATIONS<sup>11,12</sup>

#### Maximum ratings

Supply voltage (reverse polarity protection)

CTE(M)/CTU8...0	12...32 V
CTE(M)/CTU8...1	9...32 V
CTE(M)/CTU8...7	8...32 V
CTE(M)/CTU8...4 <sup>2</sup>	7...32 V

Maximum load current (source)

CTE(M)/CTU8...0, ...1, ...7	1 mA
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Proof pressure<sup>3</sup>

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 2000 Hz)<sup>13</sup>

10 g<sub>RMS</sub>

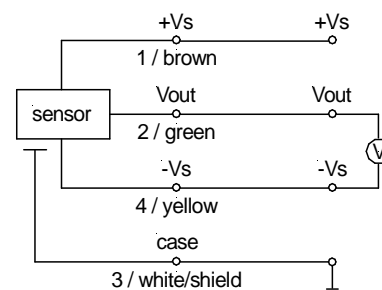
Mechanical shock<sup>14</sup>

50 g (11 ms)

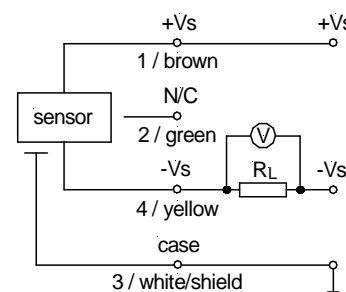


### ELECTRICAL CONNECTION

#### Voltage output device



#### Current output device



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### COMMON PERFORMANCE CHARACTERISTICS

(V<sub>S</sub>=15 V ±0.1 V, T<sub>A</sub>=25 °C, RH=50 %)

Characteristics		Min.	Typ.	Max.	Unit
Thermal effects (0...70 °C) <sup>4</sup>	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) <sup>4</sup>	Offset		±0.03		%FSO
	Span		±0.03		
Non-linearity (BSL), hysteresis and repeatability <sup>5</sup>	CT...8N...		±0.2	±0.5	%FSO
	all others		±0.1	±0.3	
Long term stability <sup>6</sup>			±0.1	±0.3	ms
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		

#### 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 min. 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.
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...8N...	4.9	5	5.1	V
	all others		0	0.1	
Full scale span <sup>7</sup>	CT...8N...	4.9	5	5.1	
	all others	9.9	10	10.1	
Output impedance				25	
Current consumption (no load)			4		mA

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

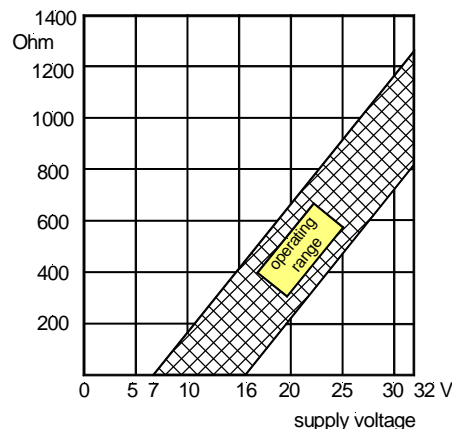
Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...8N...	2.45	2.50	2.55	V
	all others		0	0.05	
Full scale span <sup>7</sup>		4.95	5.00	5.05	
Output impedance				25	
Current consumption (no load)			4		mA

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

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...8N...	11.8	12.0	12.2	mA
	all others	3.9	4.0	4.1	
Full scale span <sup>7</sup>		15.9	16.0	16.1	
Power consumption ( $I_L = 20 \text{ mA}$ )			250		mW

### LOAD LIMITATION

#### 4...20 mA output version

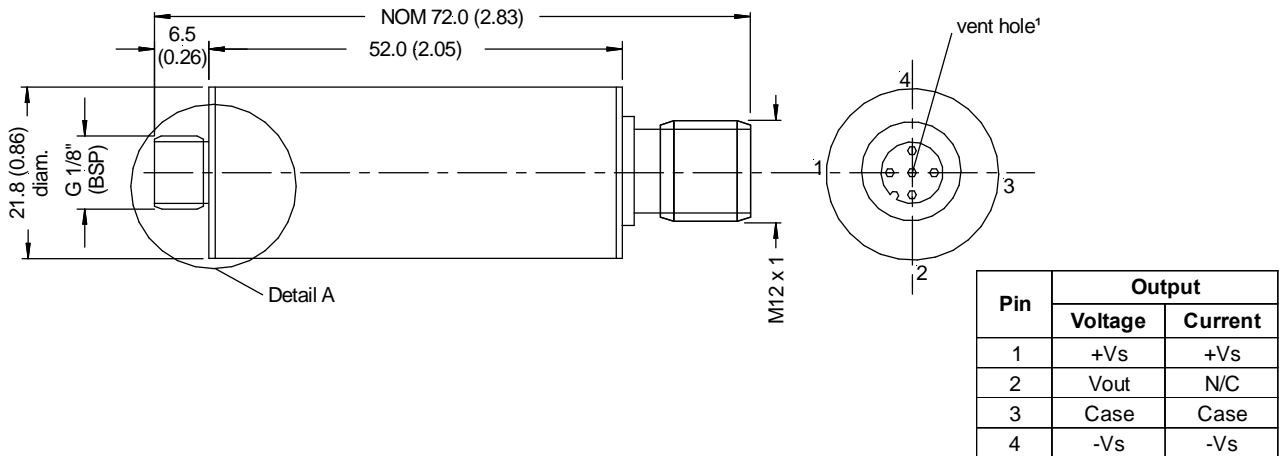


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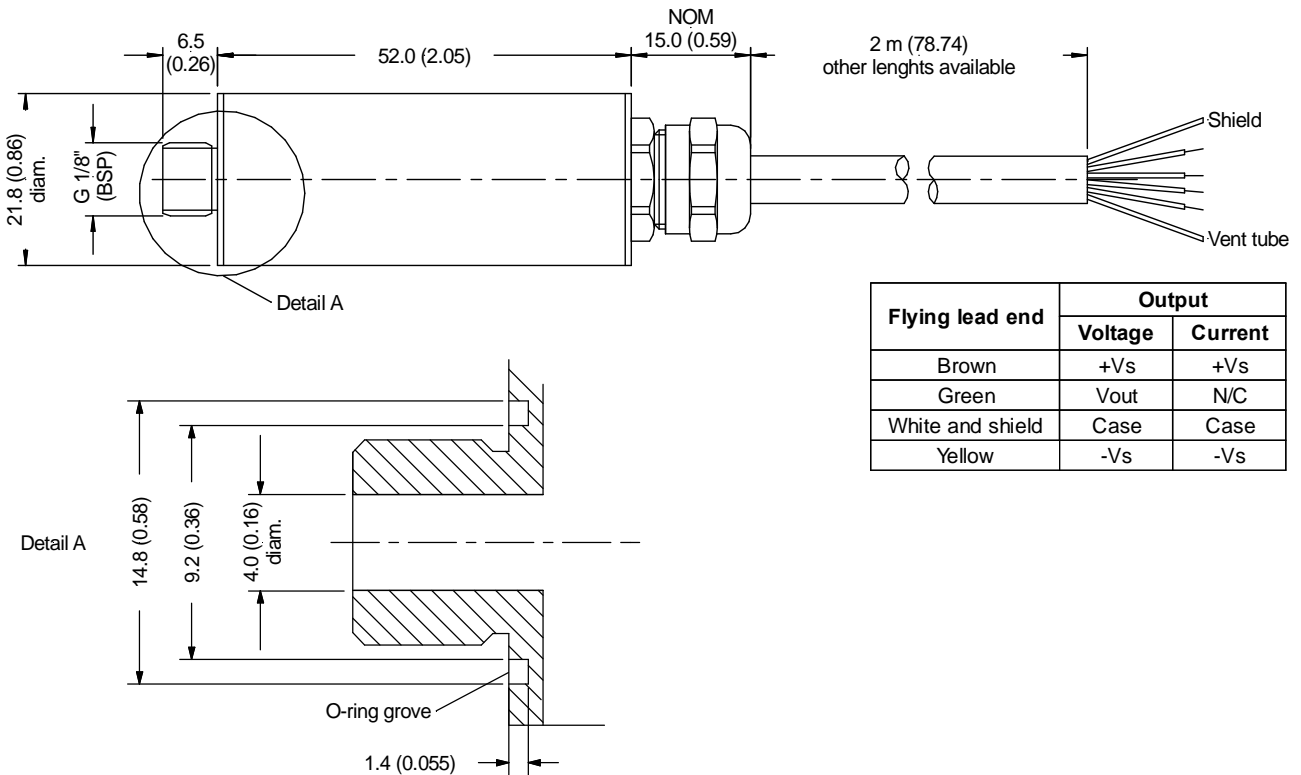
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### OUTLINE DRAWING

#### Connector version



#### Cable version



mass: approx. 70 g

**Note: O-ring included in delivery**

dimensions in mm (inches)

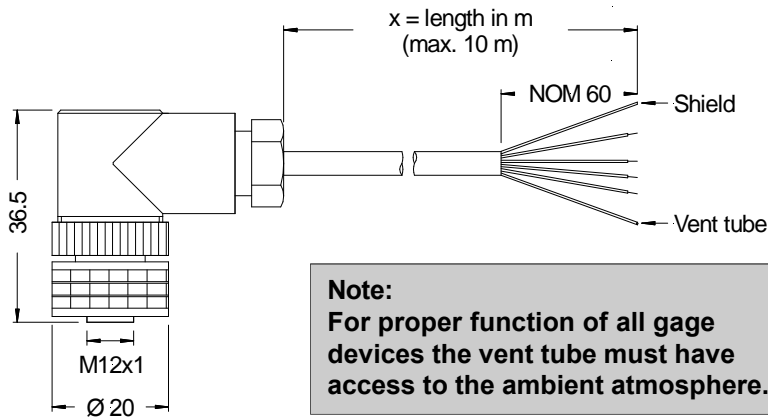
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### RECOMMENDED ACCESSORY (not included in delivery)

ZP000112-B: Mating Connector (without cable)

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



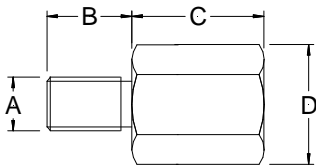
PIN CONNECTION	
Pin	Flying lead end
1	Brown
2	Green
3	White and shield
4	Yellow

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

dimensions in mm

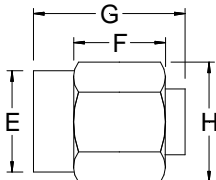
### OPTIONAL PRESSURE FITTINGS

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 (9/18")
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		Sealing		Cable (optional)	
<b>CTEM8250</b>	0...250 mbar	<b>A</b> Absolute (from 1 bar/15 psi up to 50 bar/750 psi)	<b>Y</b>	G 1/8" male, SS 1.4404 (316L)	<b>0</b>	0...10 V	<b>N</b>	NBR	<b>Cx</b>	x=length in m
<b>CTEM8350</b>	0...350 mbar	<b>G</b> Gage <sup>1</sup> (up to 50 bar/750 psi)	<b>E</b>	1/4" BSPT male, brass, nickel plated	<b>4</b>	4...20 mA	<b>V</b>	Viton (FKM)		
<b>CTEM8500</b>	0...500 mbar		<b>S</b> Sealed gage (above 50 bar/750 psi)	<b>P</b>	G 1/8" male, brass, nickel plated	<b>7</b>	0...5 V			
<b>CTE8001</b>	0...1 bar		<b>Q</b>	G 1/4" male, brass, nickel plated						
<b>CTE8N01</b>	-1...1 bar		<b>R</b>	G 3/8" male, brass, nickel plated						
<b>CTE8P01</b>	0...-1 bar		<b>U</b>	G 1/8" female, brass, nickel plated						
<b>CTE8002</b>	0...2 bar		<b>W</b>	G 3/8" female, brass, nickel plated						
<b>CTE8005</b>	0...5 bar		<b>M</b>	1/8" NPT male, SS 1.4404 (316L)						
<b>CTE8010</b>	0...10 bar		<b>N</b>	1/4" NPT male, SS 1.4404 (316L)						
<b>CTE8016</b>	0...16 bar									
<b>CTE8050</b>	0...50 bar									
<b>CTE8100</b>	0...100 bar									
<b>CTU8005</b>	0...5 psi									
<b>CTU8010</b>	0...10 psi									
<b>CTU8015</b>	0...15 psi									
<b>CTU8N15</b>	-15...15 psi									
<b>CTU8P15</b>	0...-15 psi									
<b>CTU8030</b>	0...30 psi									
<b>CTU8100</b>	0...100 psi									
<b>CTU8200</b>	0...200 psi									
<b>CTU8700</b>	0...700 psi									
<b>CTU81K5</b>	0...1500 psi									

**Example: CTE8001GY4N**

**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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