

# CTE7000 / CTU7000 Series

## Miniature pressure transmitters

### FEATURES

- 10 mbar to 1 bar, 0.15 to 15 psi gage<sup>1</sup> pressure
- 0...5 V, 0...10 V or 4...20 mA output
- Field interchangeable
- Rugged stainless steel housing
- EMC according to EN 61326-1<sup>9</sup>

### MEDIA COMPATIBILITY

Pressure inlet:

To be used with non-corrosive, non-ionic working fluids such as clean dry air, dry gases and the like.<sup>10</sup>

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)/CTU7...0	12...32 V
CTE(M)/CTU7...1	9...32 V
CTE(M)/CTU7...7	8...32 V
CTE(M)/CTU7...4 <sup>2</sup>	7...32 V

Maximum load current (source)

CTE(M)/CTU7...0, ...1, ...7	1 mA
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Proof pressure<sup>3</sup>

CTE...010, 025/CTU...0x15, 0x3	100 mbar/1.5 psi
CTE...070, 350/CTU...01, 05	1.3 bar/20 psi
all others	2 x rated pressure

#### Environmental

Temperature limits

Storage	-40...85 °C
Operating (media)	-25...85 °C
Electronic (ambient)	-25...85 °C
Compensated	0...50 °C

Vibration (5 to 2000 Hz)<sup>14</sup>

10 g<sub>RMS</sub>

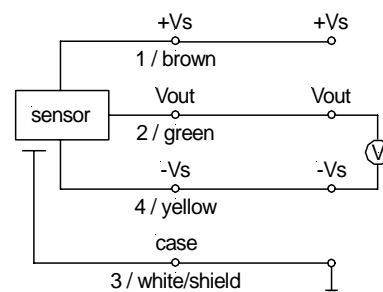
Mechanical shock<sup>15</sup>

50 g (11 ms)

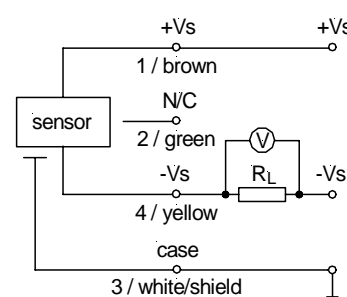


### ELECTRICAL CONNECTION

#### 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) <sup>4</sup>	Offset	devices up to 70 mbar/1 psi	±0.08	±0.13	%FSO/°C
		all others	±0.01	±0.05	
	Span		±0.02	±0.04	
Non-linearity (BSL) and hysteresis <sup>5</sup>			±0.2	±0.5	%FSO
Repeatability <sup>6</sup>			±0.2		
Long term stability <sup>7</sup>			±0.5		
Output noise (0 < f < 1 kHz)			±0.1		
Response time (10 to 90 %)	devices up to 25 mbar/0.3 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 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. Maximum difference in offset respectively maximum difference in span within the temperature range of 0...50 °C after:
  - a) 100 temperature cycles, 0...50 °C.
  - b) 1.0 million pressure cycles, 0 to full scale span.
7. Long term stability is the change in output after one year.
8. Span is the arithmetic difference in transmitter output signal measured at zero pressure and the maximum operating pressure.
9. Surge immunity according to EN 61000-4-5 on request for current output devices.
10. When using devices with optional nickel plated fittings, consider the media compatibility of the fittings also.
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. Devices <100 mbar are position sensitive regarding the zero pressure offset. A vertical mounting position with the pressure connection downward is recommended.
14. According to IEC 60068-2-64.
15. According to IEC 60068-2-27.

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### INDIVIDUAL PERFORMANCE CHARACTERISTICS<sup>13</sup> (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...7N...	4.9	5	5.1	V
	all others		0	0.1	
Full scale span <sup>8</sup>	CT...7N...	4.9	5	5.1	V
	all others	9.9	10	10.1	
Output impedance				25	$\Omega$
Current consumption (no load)			4		mA

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

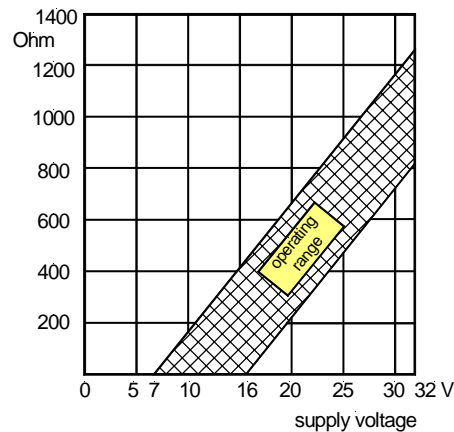
Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...7N...	2.45	2.5	2.55	V
	all others		0	0.05	
Full scale span <sup>8</sup>	CT...7N...	2.45	2.5	2.55	V
	all others	4.95	5.0	5.05	
Output impedance				25	$\Omega$
Current consumption (no load)			4		mA

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

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...7N...	11.8	12.0	12.2	mA
	all others	3.8	4.0	4.2	
Full scale span <sup>8</sup>	CT...7N...	7.8	8.0	8.2	mA
	all others	15.8	16.0	16.2	
Power consumption ( $I_L = 20 \text{ mA}$ )			250		mW

### LOAD LIMITATION

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

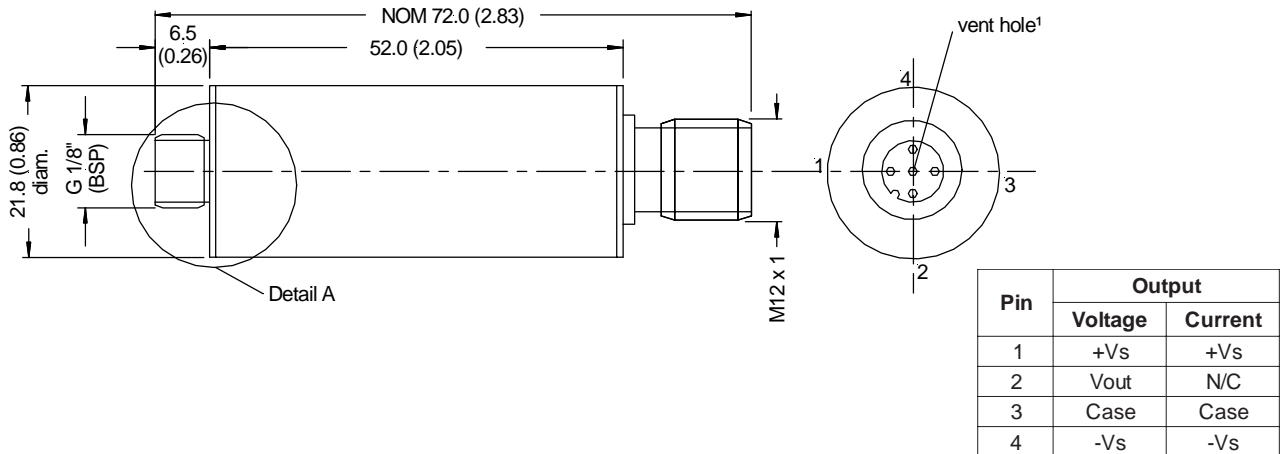


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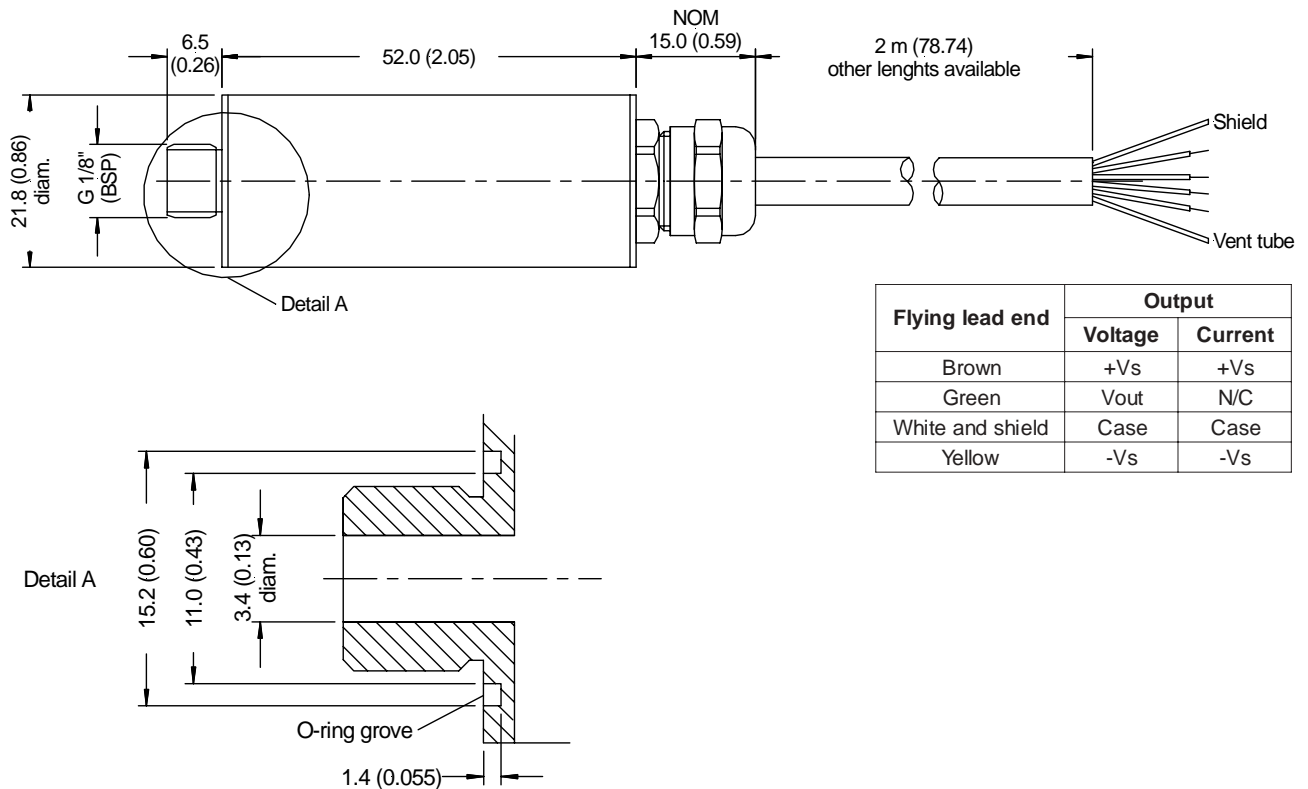
## Miniature pressure transmitters

### OUTLINE DRAWING

#### Connector version



#### Cable version



mass: approx. 60 g

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

dimensions in mm (inches)

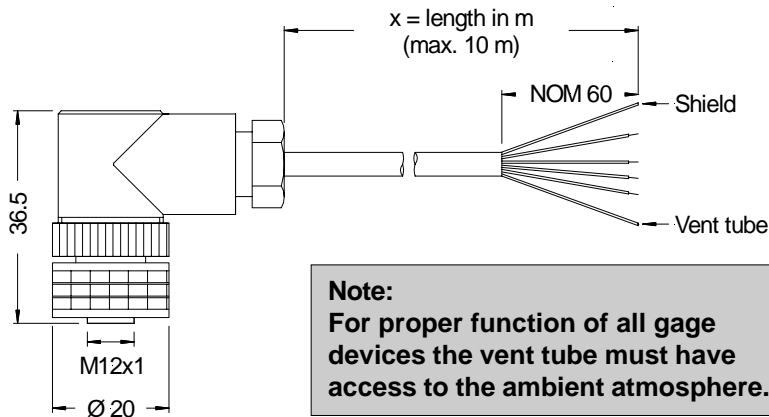
# CTE7000 / CTU7000 Series

## Miniature pressure transmitters

### 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)

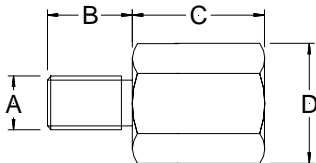


PIN CONNECTION	
Pin	Flying lead end
1	Brown
2	Green
3	White and shield
4	Yellow

dimensions in mm

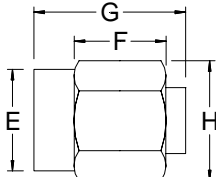
### OPTIONAL PRESSURE FITTINGS

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)	
<b>CTEM70010</b>	0...10 mbar	<b>G</b>	Gage <sup>1</sup>	<b>Y</b>	G 1/8" male, SS 1.4404 (316L)	<b>0</b>	0...10 V	<b>Cx</b>	x=length in m
<b>CTEM7N010</b>	-10...10 mbar			<b>E</b>	1/4" BSPT male, brass, nickel plated	<b>4</b>	4...20 mA		
<b>CTEM70025</b>	0...25 mbar			<b>P</b>	G 1/8" male, brass, nickel plated	<b>7</b>	0...5 V		
<b>CTEM7N025</b>	-25...25 mbar			<b>Q</b>	G 1/4" male, brass, nickel plated				
<b>CTEM70070</b>	0...70 mbar			<b>R</b>	G 3/8" male, brass, nickel plated				
<b>CTEM7N070</b>	-70...70 mbar			<b>U</b>	G 1/8" female, brass, nickel plated				
<b>CTEM70100</b>	0...100 mbar			<b>W</b>	G 3/8" female, brass, nickel plated				
<b>CTEM70200</b>	0...200 mbar			<b>M</b>	1/8" NPT male, SS 1.4404 (316L)				
<b>CTEM70350</b>	0...350 mbar			<b>N</b>	1/4" NPT male, SS 1.4404 (316L)				
<b>CTEM7N350</b>	-350...350 mbar								
<b>CTE7001</b>	0...1 bar								
<b>CTE7N01</b>	-1...1 bar								
<b>CTE7P01</b>	0...-1 bar								
<b>CTU700x15</b>	0...0.15 psi								
<b>CTU7N0x15</b>	-0.15...0.15 psi								
<b>CTU700x3</b>	0...0.3 psi								
<b>CTU7N0x3</b>	-0.3...0.3 psi								
<b>CTU7001</b>	0...1 psi								
<b>CTU7N01</b>	-1...1 psi								
<b>CTU7005</b>	0...5 psi								
<b>CTU7N05</b>	-5...5 psi								
<b>CTU7015</b>	0...15 psi								
<b>CTU7N15</b>	-15...15 psi								
<b>CTU7P15</b>	0...-15 psi								

Example: **CTEM7N070GY4**

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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