

CTE7000 / CTU7000 Series

Miniature pressure transmitters

FEATURES

- 10 mbar to 1 bar, 0.15 to 15 psi gage¹ pressure
- 0...5 V, 0...10 V or 4...20 mA output
- Field interchangeable
- Rugged stainless steel housing
- EMC according to EN 61326-1⁹

MEDIA COMPATIBILITY

Pressure inlet:

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

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

Maximum load current (source)

CTE(M)/CTU7...0, ...1, ...7	1 mA
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Proof pressure³

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)¹⁴

10 g_{RMS}

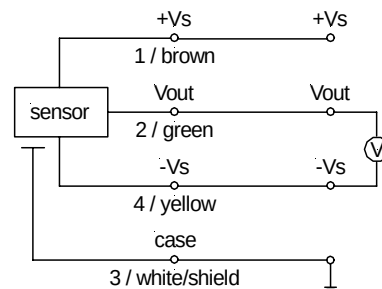
Mechanical shock¹⁵

50 g (11 ms)

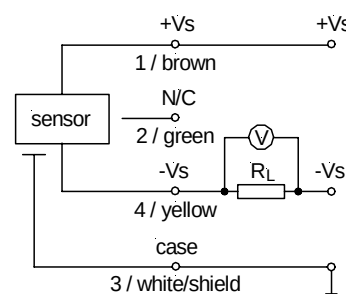


ELECTRICAL CONNECTION

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	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 ⁵				±0.2	±0.5	%FSO
Repeatability ⁶				±0.2		
Long term stability ⁷				±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:

- 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.
- The minimum supply voltage is directly proportional to the load resistance seen by the transmitter. For more details see the load limitation diagram.
- Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.
- Thermal effects are relative to 25 °C. Signal is clamped at 0 V.
- 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.
- Maximum difference in offset respectively maximum difference in span within the temperature range of 0...50 °C after:
 - 100 temperature cycles, 0...50 °C.
 - 1.0 million pressure cycles, 0 to full scale span.
- Long term stability is the change in output after one year.
- Span is the arithmetic difference in transmitter output signal measured at zero pressure and the maximum operating pressure.
- Surge immunity according to EN 61000-4-5 on request for current output devices.
- When using devices with optional nickel plated fittings, consider the media compatibility of the fittings also.
- CE-labelling is in accordance with 2004/108/EC.
- The pressure transmitters must not be used as safety accessories according to article 1, 2.1.3 of the directive 97/23/EC.
- Devices <100 mbar are position sensitive regarding the zero pressure offset. A vertical mounting position with the pressure connection downward is recommended.
- According to IEC 60068-2-64.
- According to IEC 60068-2-27.

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INDIVIDUAL PERFORMANCE CHARACTERISTICS¹³ (cont.)

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

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

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...7N... all others	4.9	5 0	5.1 0.1	V
Full scale span ⁸	CT...7N... all others	4.9 9.9	5 10	5.1 10.1	
Output impedance				25	Ω
Current consumption (no load)			4		mA

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

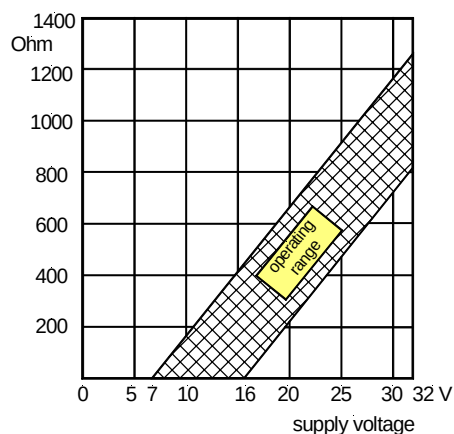
Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...7N... all others	2.45	2.5 0	2.55 0.05	V
Full scale span ⁸	CT...7N... all others	2.45 4.95	2.5 5.0	2.55 5.05	
Output impedance				25	Ω
Current consumption (no load)			4		mA

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

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

LOAD LIMITATION

4...20 mA output version

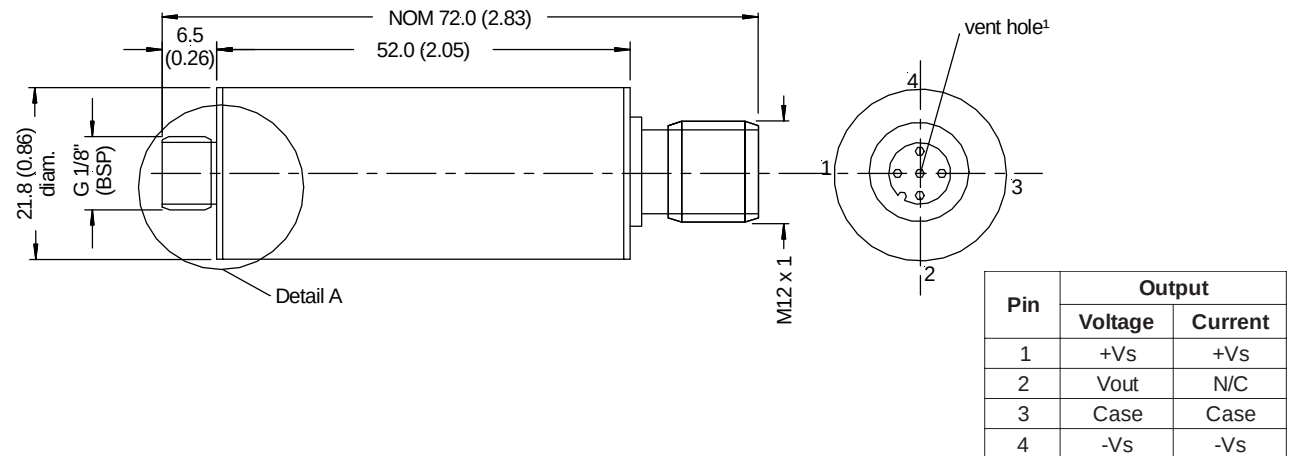


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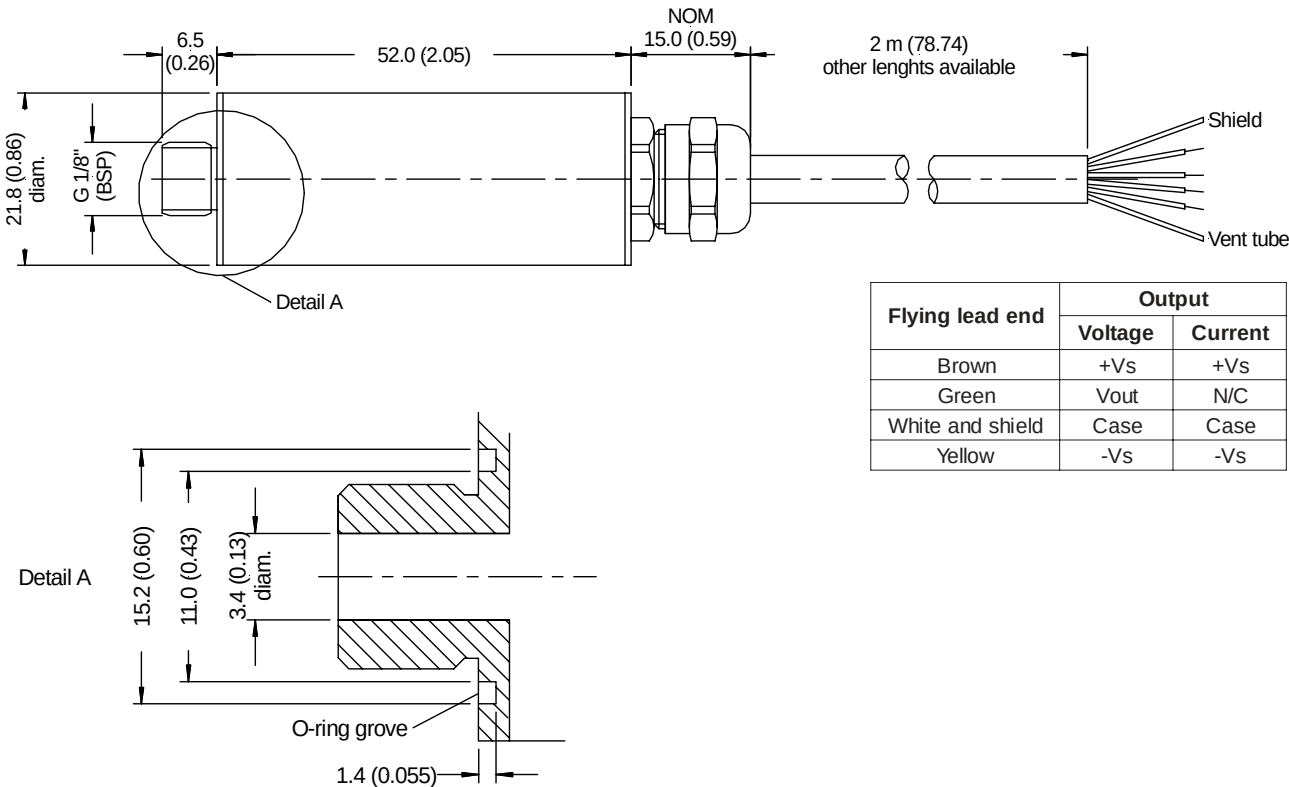
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OUTLINE DRAWING

Connector version



Cable version



mass: approx. 60 g

Note: O-ring included in delivery

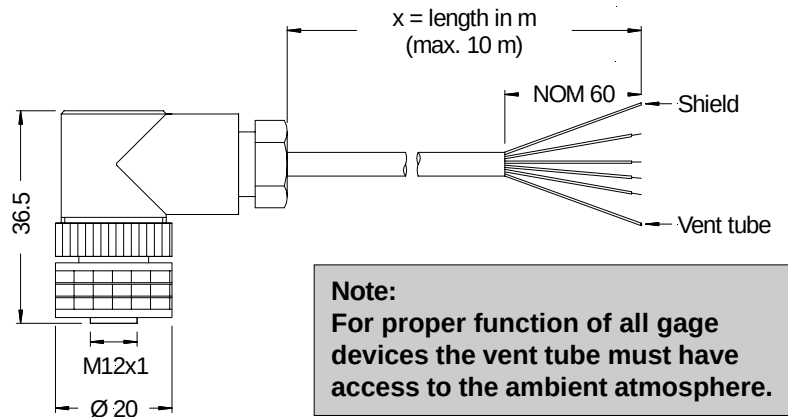
dimensions in mm (inches)

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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)

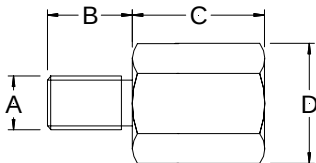


PIN CONNECTION	
Pin	Flying lead end
1	Brown
2	Green
3	White and shield
4	Yellow

dimensions in mm

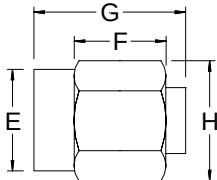
OPTIONAL PRESSURE FITTINGS

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 (9/18")
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		Cable (optional)	
CTEM70010	0...10 mbar	G	Gage ¹	Y	G 1/8" male, SS 1.4404 (316L)	0	0...10 V	Cx	x=length in m
CTEM7N010	-10...10 mbar			E	1/4" BSPT male, brass, nickel plated	4	4...20 mA		
CTEM70025	0...25 mbar			P	G 1/8" male, brass, nickel plated	7	0...5 V		
CTEM7N025	-25...25 mbar			Q	G 1/4" male, brass, nickel plated				
CTEM70070	0...70 mbar			R	G 3/8" male, brass, nickel plated				
CTEM7N070	-70...70 mbar			U	G 1/8" female, brass, nickel plated				
CTEM70100	0...100 mbar			W	G 3/8" female, brass, nickel plated				
CTEM70200	0...200 mbar			M	1/8" NPT male, SS 1.4404 (316L)				
CTEM70350	0...350 mbar			N	1/4" NPT male, SS 1.4404 (316L)				
CTEM7N350	-350...350 mbar								
CTE7001	0...1 bar								
CTE7N01	-1...1 bar								
CTE7P01	0...-1 bar								
CTU700x15	0...0.15 psi								
CTU7N0x15	-0.15...0.15 psi								
CTU700x3	0...0.3 psi								
CTU7N0x3	-0.3...0.3 psi								
CTU7001	0...1 psi								
CTU7N01	-1...1 psi								
CTU7005	0...5 psi								
CTU7N05	-5...5 psi								
CTU7015	0...15 psi								
CTU7N15	-15...15 psi								
CTU7P15	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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