CTE8000 / CTU8000 Series

OEM pressure transmitters for industrial media

FEATURES

- **250 mbar to 100 bar, 5 to 1500 psi gage[1] or absolute[10] pressure**
- **0...5 V, 0...10 V, 0.5...4.5 V, 1...6 V or 4...20 mA output**
- **Field interchangeable**
- **For many industrial gases and liquids**
- **EMC according to EN 61326-1[8]**

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, NEMA 6)[1]

SPECIFICATIONS[11,12]

Maximum ratings

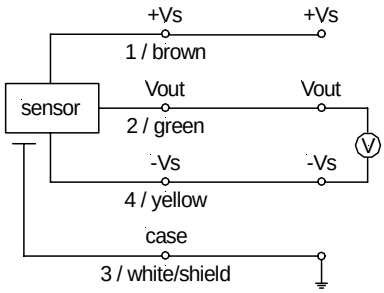
Supply voltage (reverse polarity protection)	
CTE(M)/CTU8...0	12...32 V
CTE(M)/CTU8...1	9...32 V
CTE(M)/CTU8...6, ...7	8...32 V
CTE(M)/CTU8...4[2]	7...32 V
Maximum load current (source)	
CTE(M)/CTU8...0, ...1, ...6, ...7	1 mA
Proof pressure[3]	2 x rated pressure

Environmental

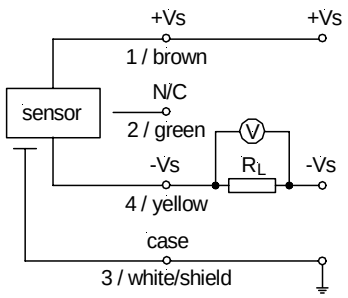
Temperature limits	
Storage	-40...85 °C
Operating (media)	-25...85 °C
Electronic (ambient)	-25...85 °C
Compensated	0...70 °C
Vibration (5 to 2000 Hz)[13]	10 g_{RMS}
Mechanical shock[14]	50 g (11 ms)

ELECTRICAL CONNECTION

Voltage output device



Current output device



First Sensor

www.first-sensor.com

COMMON PERFORMANCE CHARACTERISTICS

(V_S=15 V ±0.1 V, T_A=25 °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		
	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 V ±0.1 V, T_A=25 °C, RH=50 %)

0...10 V output (R_L > 100 kΩ)

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 kΩ)

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

INDIVIDUAL PERFORMANCE CHARACTERISTICS (cont.)

(T_A=25 °C, RH=50 %, V_S=15 V ±0.1 V)

0...5 V output (R_L > 100 kΩ)

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 kΩ)

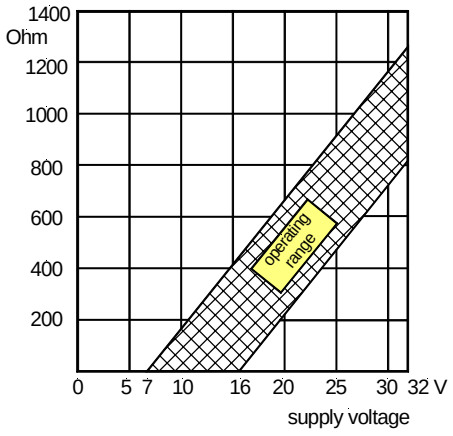
Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	CT...8N...		3.50		V
	all others	0.95	1.00	1.05	
Full scale span[7]		4.95	5.00	5.05	
Output impedance				25	Ω
Current consumption (no load)			4		mA

4...20 mA output (R_L = 100 Ω)

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 mA)			250		mW

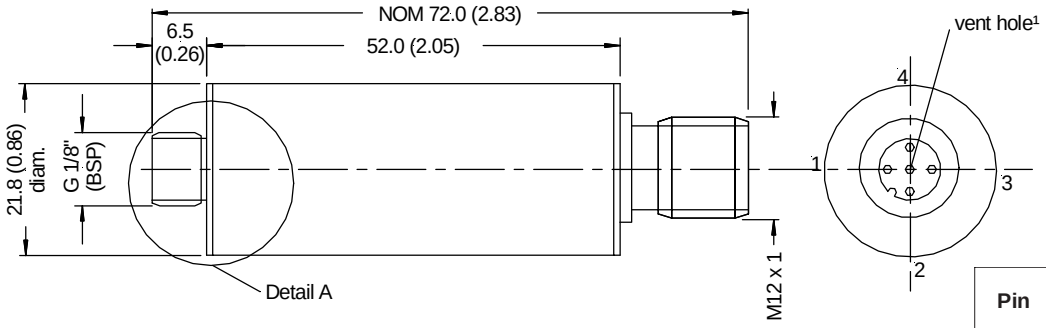
LOAD LIMITATION

4...20 mA output version



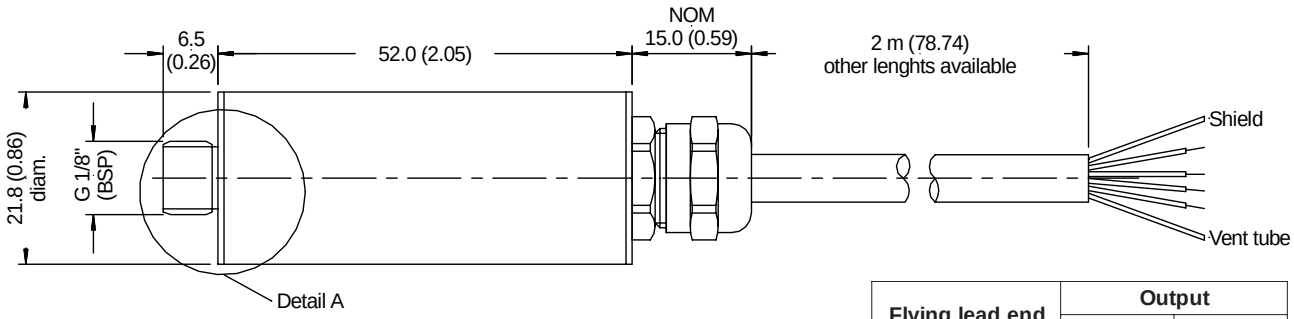
OUTLINE DRAWING

Connector version

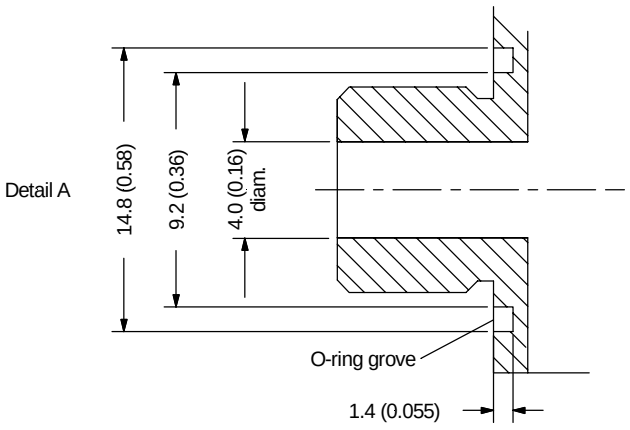


Pin	Output	
	Voltage	Current
1	+Vs	+Vs
2	Vout	N/C
3	Case	Case
4	-Vs	-Vs

Cable version



Flying lead end	Output	
	Voltage	Current
Brown	+Vs	+Vs
Green	Vout	N/C
White and shield	Case	Case
Yellow	-Vs	-Vs



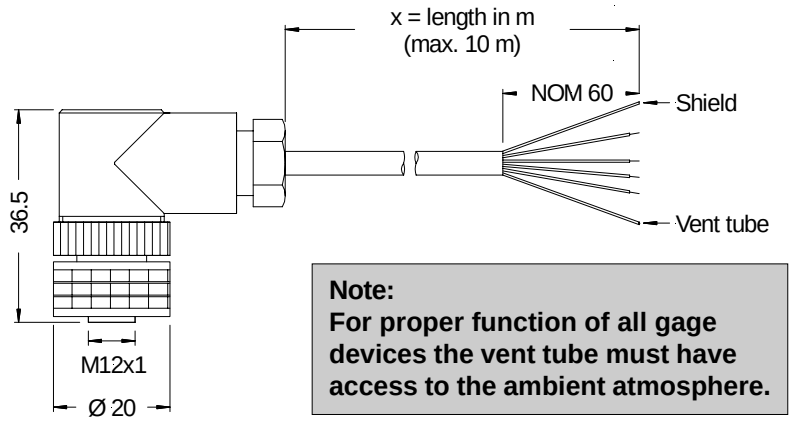
mass: approx. 70 g

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 lenghts in m, max. 10 m)



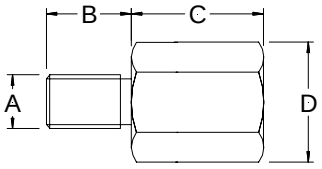
Note:
For proper function of all gage devices the vent tube must have access to the ambient atmosphere.

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

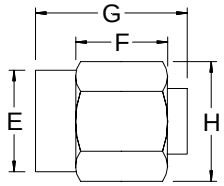
dimensions in mm

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")

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 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 **B**est **S**traight **L**ine 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.

ORDERING INFORMATION

CTx (M) 8xxx x x x x (C x)

Calibration
E: bar calibration
U: psi calibration

For mbar ranges only

Pressure range

CTE8000 series		CTU8000 series	
250:	0...250 mbar	005:	0...5 psi
350:	0...350 mbar	010:	0...10 psi
500:	0...500 mbar	015:	0...15 psi
001:	0...1 bar	N15:	-15...+15 psi
N01:	-1...+1 bar	P15:	0...-15 psi
P01:	0...-1 bar	030:	0...30 psi
002:	0...2 bar	100:	0...100 psi
005:	0...5 bar	200:	0...200 psi
010:	0...10 bar	300:	0...300 psi
016:	0...16 bar	500:	0...500 psi
020:	0...20 bar	700:	0...700 psi
025:	0...25 bar	1K0:	0...1000 psi
035:	0...35 bar	1K5:	0...1500 psi
050:	0...50 bar		
070:	0...70 bar		
100:	0...100 bar		

Pressure mode
G: gage pressure[1] *(up to 50 bar/750 psi)*
S: sealed gage *(above 50 bar/750 psi)*
A: absolute pressure *(from 1 bar/15 psi up to 50 bar/750 psi)*

Other pressure ranges and options are widely available. Please contact First Sensor.

Cable lenght in m
Cable version (optional)

Sealing material
V: Viton (FKM)
N: NBR

Note: Older part no. do not contain this digit. Without this digit NBR will be used.

Output signal
0: 0...10 V
1: 1...6 V
4: 4...20 mA
6: 0.5...4.5 V
7: 0...5 V

Pressure connection
Standard thread
Y: G 1/8" (BSP) male, SS 1.4404 (316L)
Optional pressure fittings
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 1.4404 (316L)
N: 1/4" NPT male, SS 1.4404 (316L)
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