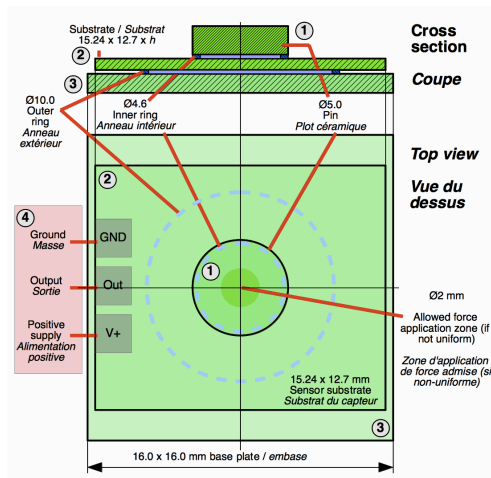


CentoNewton – generic OEM force sensor

Version B – 2013-01-11



- 1 Force centring pin
- 2 Sensor element
- 3 Base plate
- 4 Electrical contacts

Mounting

- The sensor must be mounted onto a hard and planar surface, such as a metallic sheet or (for small forces) a hard plastic plate.
- The force must be verticalⁱ, centred onto the ceramic square (± 1 mm) or applied uniformlyⁱⁱ.

Features

- Compressive 10...200 N force sensor, fabricated in thick-film technology
- **New: RoHS component assembly**
- Amplified ratiometric output
- Offset $\pm 3\%$
- Full scale $\pm 10\%$
- Hysteresis @ half-scale $\pm 5\%$
- No temperature compensation
- Size: 16.0 mm square

Applications

- Robotics, assembly, weighing
- Detection of blockage / no-load / end-of-travel conditions

Description

The CentoNewton sensor is a simple and low-cost solution for the integrated measurement of medium forces, for applications not necessitating the precision of a machined load cell.

The force is measured by the "double ring" flexion principle. The integrated conditioning electronics deliver an adjusted and amplified output that is linear with the applied force.

Specifications (supply voltage $U_s = 5.00V$) – Version B

Parameter	Value	Unit
Environment	Air or non-aggressive gases	
Temperature	0...70	°C
Humidity	0...80	%
Nominal force (short-term overload) [total thickness, ca., in mm]	0 ... 10 (20) [2.5] 0 ... 20 (40) [2.6] 0 ... 40 (60) [2.8] 0 ... 100 (125) [3.0] 0 ... 200 (220) [3.2]	N [mm]
Parasitic horizontal force / vertical force	<5	%
Offset: output at zero force	0.50 (10%)	V (% U_s)
Span: variation of the output between zero and nominal force	3.00 (60%)	V (% U_s)
Error on offset	± 3 (≥ 40 N) ; ± 5 (20 N) ; ± 8 (10 N)	% Span
Error on span	± 10	%
Temperature coefficient of offset	± 0.1 (typical)	%/K
Temperature coefficient of span	-0.02 (typical)	%/K
Response time	<10	ms
Weight (approximate)	2	g
Allowed electrical load on output	>50 <10	k Ω nF
Current drain	<3	mA

Variants	CentonNewton	- X	- XXXX	- X	- X	- X
Type	Version	B				
Nominal force	10 N		0010			
	20 N		0020			
	40 N		0040			
	100 N		0100			
	200 N		0200			
Contacts ⁱⁱⁱ	Cables			W		
	Tinned contact pads			P		
Temperature	Uncompensated				U	
Variants	Supply 5.00 \pm 0.25 V DC Ratiometric output voltage					A

Notes

- i The application of an excessive horizontal force component may lead to the destruction of the sensor by shearing off the force-centring pin!
- ii Non-uniform load loads must be centred for best accuracy. A slightly off-centre and non-uniform load may degrade the accuracy of the measurement. A strongly off-centre or too concentrated load may lead to destruction of the sensor!
- iii As the ceramic substrate is also the sensing element, stresses through the contact pads should be avoided as much as possible, lest the offset be shifted. Therefore, relatively flexible cables should be used, especially for the lower nominal forces.

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