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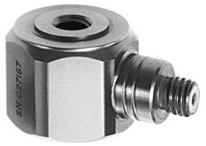
Quartz Load Cell

Type 9212

High Impedance Load Cell

Type 9212 is a force loading cell that measures quasi-static and dynamic events in a wide variety of applications. Type 9212 has a 50 pC/lbf sensitivity.

- High impedance, charge mode
- Rugged quartz force-sensing element guarantees long-term stability
- Wide measuring ranges for compression and tension
- Quasi-static response



Description

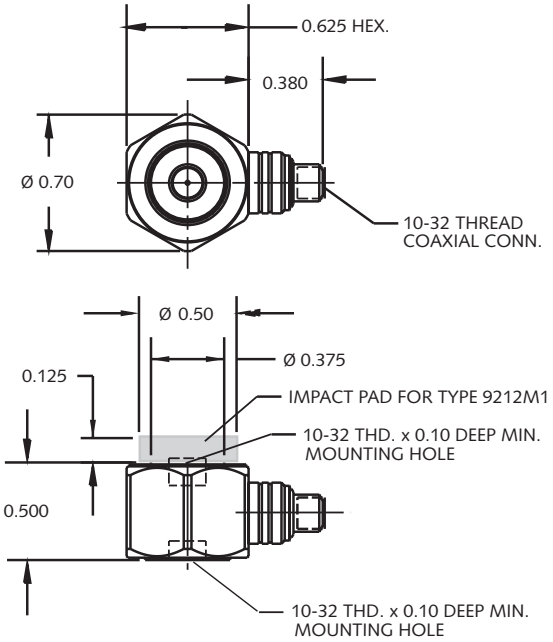
Type 9212 quartz load cell provides an exceptional sensitivity and threshold while retaining the capability to measure fast dynamic events and perform short-term (quasi-static) measurements. This piezoelectric sensor is capable of measuring compression forces from less than 1 lb of force to 5,000 lbf, with tension forces up to 500 lbf. Minute incrementatl forces may be measured at any level in these ranges through the elimination of static or tare weight component. The load cell features high rigidity and is capable of withstanding compression overloads of 20 %.

The quartz sensing element of the Type 9212 load cell is contained in a low profile housing configured in a 5/8 Hex. The distinguishable feature of this sensor is the 50 pC/lbf sensitivity, making it ideally suited for low level force measurements. Type 9212 is also available in an M1 version, which adds an impact cap to the top surface of the cell allowing it to be used for impact-force measurements.

Application

The Type 9212 quartz load cell is ideal for direct force measurements in process control applications, such as press-fit assembly, crimping, riveting and impact force testing. It can also be used with shakers for modal analysis, in machine tool measurements, or in various automotive, aerospace and robotic testing.

Dimensions



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Technical Data

Type Number	Unit	9212
Measuring range		
Compression	lbf	5,000
Tension	lbf	500
Maximum force	lbf	6,000
Compression	lbf_{rms}	0.001
Sensitivity, nom.	pC/lbf	–50
Non-linearity nom. (max. 1 %)	%FSO	±0.5
Rise time 10 ... 90 %	µs	<6
Capacitance	pF	58
Rigidity	lbf/µin	>5
Natural frequency nom. (no load)	kHz	70
Environmental		
Shock limit (1 ms pulse) max.	g_{pk}	<10,000
Temperature coeff. of sensitivity	%/°F	0.01
Operating temperature range	°F	–400 ... 300
Insulation resistance @ room temp.	Ω	10^{13}
Construction		
Sensing element	type	quartz
Sealing - housing/connector	type	welded/epoxy
Connector	material	10-32 neg.
Housing/base	grams	17-4 PH
Weight	lbf-in	19
Mounting		
Mounting Torque	lbf-in	18

1 g = 9.80665 m/s^2, 1 in = 25.4 mm, 1 Gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. Type 9212 is supplied with two 10-32 mounting studs for attachment to the test structure. When several units are installed between two plates, the mounting surfaces in contact with the cells must be plain-parallel to prevent stresses induced into the individual cells. The operating instruction manual for Type 9212 provides detailed information regarding mounting surface preparation.

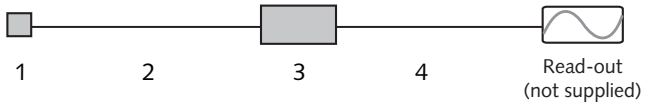
Related Products

Type 9712B... low impedance, voltage mode sensor.

Accessories Included	Type
• (2) 10-32 mounting studs	8402

Optional Accessories	Type
• Impact pad	900A1

Measuring Chain		Type
1	Load cell, 50 pC/lbf	9212
	or load cell with Type 900A1 impact force cap	9212M1
2	Low noise cable, 10-32 pos. to BNC pos.	1631Asp
	or premium low noise cable, 10-32 pos. to BNC pos.	1631Csp
3	Series charge amplifier	5000
4	Output cable, BNC pos. to BNC pos.	1511sp



Ordering Key

Type 9212 ☐

Variants

Standard	–
With impact cap	**M1**

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