

Quartz Modal Force Sensor

with IEPE Output, 22 ... 22 000 N

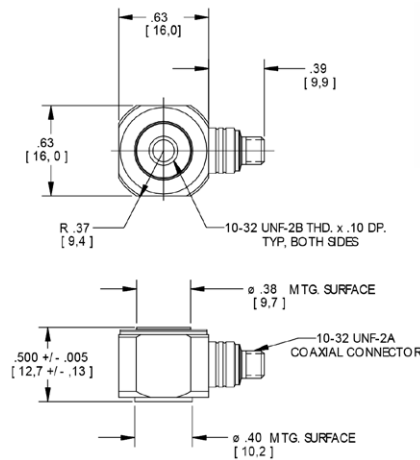
Type 9712B...

The 9712B... series of force sensing load cells measure dynamic events in a wide variety of applications. Available in five measuring ranges from 5 lbf to 5 000 lbf and contained in a conventional load cell style housing, all models are capable of measuring compression and tension forces.

- Low impedance, voltage mode
- Rugged quartz sensor; stainless steel case
- Wide measuring range for compression and tension
- Uses standard low cost cables
- Hermetically sealed
- Conforming to **CE**

Description

Series 9712B... quartz, piezoelectric load cells offer a wide selection of force measurement ranges for compression and tension. Minute incremental forces may be measured at any level in these ranges. These force sensors offer high sensitivity as well as high rigidity and are capable of withstanding compression overloads from 20% to 400%. High force range units allow static calibration and short-term static response when used in a constant ambient temperature. The low profile load cell incorporates a built-in impedance converter, allowing use in contaminated environments such as dust, dirt or moisture without adverse effects on the signal transmission. Standard, low-cost cables of any length can be used and will not cause signal interference.



Dimensions are shown in in. [mm], unless otherwise noted.

An internal microelectronic Piezotron signal conditioning circuit converts the charge developed in the quartz element as a result of the sensor being subjected to an applied force, into a useable high level voltage output signal at a low impedance level. Power to the 9712B... series load cells can be provided by any Kistler 5100 series coupler or by any industry standard voltage mode IEPE (Integral Electronic Piezo-Electric) power supply/coupler.

Application

These load cells are ideally suited for force applications where high sensitivity, high rigidity and fast response are required. They can be used with shakers for modal analysis, impact testing, machine tool measurements, or various automotive, aerospace and robotic testing.

Technical data

Type	Unit	9712B5	9712B50	9712B250	9712B500	9712B5000
Range compression	lbf	5	50	250	500	5 000
tension	lbf	5	50	250	500	
Threshold nom.	lbf	0.0001	0.001	0.005	0.01	0.1
Sensitivity nom.	mV/lbf	800	100	20	10	1
Linearity	%FSO	±1				
Rise Time 10 ... 90%	µs	<6				
Time constant nom.	s	60	540	820	1 800	
Rigidity	lbf/µin	>5				
Resonant frequency nom.	kHz	70				

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Technical data (continued)

Type	Unit	9712B5	9712B50	9712B250	9712B500	9712B5000
Shock (1ms pulse) max.	g			<10 000		
Temperature coefficient of sensitivity	%/°F			.02		
Operating temperature range	°F			-58 ... 248		
Storage	°F			-94 ... 320		

Output

Voltage, F.S., nom.	V			5		
Impedance	Ω			<100		

Supply

Constant current	mA			4		
Ripple max.	mVrms			25		
Voltage	VDC			20 ... 32		
Impedance min.	kΩ			100		

Construction

Sensing element	type			quartz		
Case material				17-4 PH		
Sealing	type			hermetic		
Connector	type			10-32 neg.		
Weight	grams			19		
Mounting torque	lbf-in			18		

1 g = 9.80665 m/s², 1 inch = 25.4 mm, 1 gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

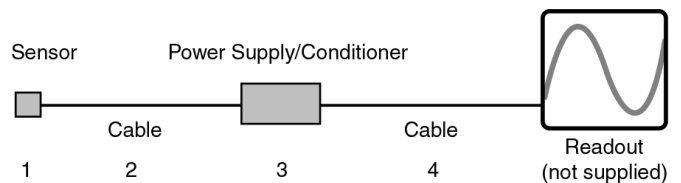
Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. All models are supplied with 2 x 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 plane-parallel to prevent stresses induced into the individual cells. The Operating Instruction Manual for the 9712B... series provides detailed information regarding mounting surface preparation.

Related products

Type 9212 charge mode, high sensitivity load cell for low force range applications

Ordering Information



SP = specify cable length in meters

X = 5, 50, 250, 500, 5 000 lbf

- 1 - 9712B(X) load cell, 50 pC/lbf or
- 2 - 1761BSP cable, 10-32 pos. to BNC pos.
- 3 - 5100 series coupler or
- 5010B dual mode charge amplifier
- 4 - 1511ASP output cable, BNC pos. to BNC pos.

Accessories included

- | | |
|--------------------------|------|
| 2 x 10-32 mounting studs | 8402 |
| 2 x M6x1 mounting studs | 8411 |

Optional Accessories

- | | |
|------------|-------|
| Impact Pad | 900A1 |
|------------|-------|

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