

PRODUCT DATA

Force Transducer DeltaTron® Force Transducers — Types 8230, 8230-001, 8230-002 and 8230-003

USES

- Measurements of tensile and compressive forces
- For modal or process applications

FEATURES

- Easily mounted
- Includes impact cap
- Low-impedance output
- Rigid construction with high stiffness

Description

Types 8230, 8230-001, 8230-002 and 8230-003 are force transducers with integral electronics designed for dynamic, short-duration static and impact force measurements. The transducers are typically used for measuring applied forces in modal applications, for example, inserted directly between an exciter and the test structure or for general-purpose force measurements within process applications.

The transducers are mounted using the 1/4"–28 UNF tapped holes on the top and bottom of the body. The transducers feature a 10–32 UNF side connector.

Characteristics

The transducers work on the piezoelectric effect of quartz, which when stressed, in this case compressed, gives an electrical charge proportional to the compressing force. This charge is converted to a low-impedance voltage output and the sensitivity is therefore expressed in terms of voltage per unit force (mV/N). The housing material is stainless steel giving a very stiff and rigid construction.

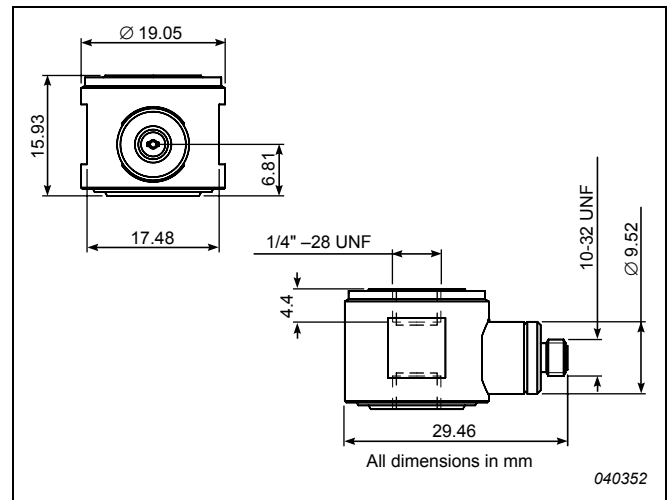
Calibration

The transducers are supplied with an individual calibration of the sensitivity.



Versions

Type 8230 has a sensitivity of 110 mV/N (500 mV/lbf).
Type 8230-001 has a sensitivity of 22 mV/N (100 mV/lbf).
Type 8230-002 has a sensitivity of 2.2 mV/N (10 mV/lbf).
Type 8230-003 has a sensitivity of 0.2 mV/N (1 mV/lbf).



Specifications – DeltaTron Force Transducers Types 8230, 8230-001, 8230-002 and 8230-003

	Units	8230	8230-001	8230-002	8230-003
Dynamic Characteristics					
Voltage Sensitivity (typical)	mV/N (mV/lbf)	110 (500)	22 (100)	2.2 (10)	0.22 (1)
Full Scale Force Range Compression	N (lbf)	45 (10)	220 (50)	2200 (500)	22000 (5000)
Full Scale Force Range Tensile	N (lbf)	45 (10)	220 (50)	2200 (500)	2200 (500)
Mounted Resonance Frequency (unloaded)	kHz	75			
Residual Noise	Equiv. N (lbf) rms	0.00062 (0.00014)	0.0031 (0.0007)	0.031 (0.007)	0.31(0.07)
Linearity Error at Full Scale	% full scale	<±1			
Max. Compression	kN (lbf)	0.9 (200)	4.5 (1000)	45 (10000)	66.7 (15000)
Max. Tension	kN (lbf)	0.9 (200)	2.2 (500)		
Electrical Characteristics					
Output Polarity		Positive output for compression			
Full Scale Output Voltage	V	±5			
DC Output Bias Voltage	V	+8 to +10			
Output Impedance	Ω	150			
Power Supply	mA	2 to 20			
Voltage Range	V DC	+18 to +30			
Grounding		Case grounded			
Environmental Characteristics					
Temperature Range	°C (°F)	−73 to +121 (−100 to +250)			
Coefficient of Thermal Sensitivity	%/°C (%/°F)	0.05 (0.03)			
Humidity		Epoxy sealed			
Max. Operational Sinusoidal Vibration (peak)	ms ^{−2} (g)	49000 (5000)			
Max. Operational Shock (peak)	ms ^{−2} (g)	98000 (10000)			
Physical Characteristics					
Dimensions		See outline drawing			
Weight	total	gram (oz.)	30.2 (1.1)		
	mass above piezo element		9.5 (0.34)		
	mass below piezo element		20.7 (0.73)		
Case Material		17−4 PH stainless steel			
Stiffness	kN/μm (lbf/μin.)	2.0 (11.4)			
Connector		10−32 UNF			
Mounting		¼″−28 UNF thread on top and bottom			

All values are typical at 25°C (77°F) unless measurement uncertainty is specified

COMPLIANCE WITH STANDARDS



Compliance with EMC Directive and Low Voltage Directive of the EU



Compliance with the EMC requirements of Australia and New Zealand

Ordering Information

Types 8230, 8230-001, 8230-002 and 8230-003 include the following accessories:

- Carrying box
- Sensitivity calibration
- Mounting stud, ¼"-28 UNF, 9.7 mm (0.38") length
- Impact cap, stainless steel
- ¼"-28 UNF (external) to 10-32 UNF (internal) threaded insert

OPTIONAL ACCESSORIES*

- AO 0038: 260°C Teflon® low-noise cable, 10-32 UNF, length 1.2 m (4 ft.)
- AO 0531: PVC insulated cable, 10-32 UNF to BNC, 5 m (16.4 ft.)
- AO 0122: 250°C, reinforced super low noise cable, 10-32 UNF, 3 m (10 ft.)
- AO 1382: Teflon low noise cable, double screened 10-32 UNF, 1.2 m (4 ft.)
- JP 0145: Plug adaptor, BNC/10-32 UNF
- DB 3989: Impact cap with ¼"-28 UNF threaded stud, stainless steel

- UA 2068: Set of 10 ¼"-28 UNF threaded mounting studs, 9.7 mm (0.38") length
- UA 2052: Set of 10 stud adaptors ¼"-28 UNF to 10-32 UNF thread
- UA 2054: Set of 20 bushing adaptors ¼"-28 UNF (external) to 10-32 UNF (internal) thread
- UA 2062: Set of 10 stud adaptors ¼"-28 UNF to 10-32 UNF thread, with flange
- UA 2061: Set of 10 mounting studs ⅜"-16 UNF thread, 12.7 mm (0.5") length

* Additional accessories and cables are available (see www.bksv.com). For a complete list of stingers and other mechanical connectors for use with modal exciters, please consult the product data sheets on Type 3624, 3625, 3626, 3627 or 3628.

Brüel & Kjær reserves the right to change specifications and accessories without notice

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