KISTLER
measure. analyze. innovate.

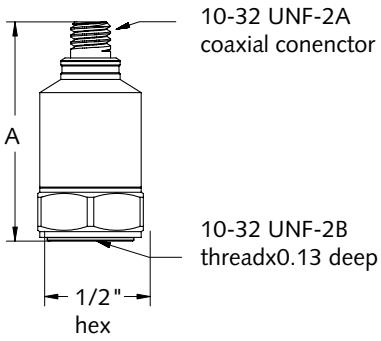
PiezoStar® Accelerometer

Type 8705M05, 8705M06

Calibration Reference Accelerometers

Types 8705M05 and 8705M06 are small, lightweight accelerometers for shock and vibration measurements for rapidly changing temperature conditions.

- IEPE voltage mode
- Unique PiezoStar® sensing element
- -65 ... 330 °F operating temperature range
- Ultra-low temperature sensitivity
- 0.5 Hz ... 10 kHz (±5 %) frequency range
- 0.5 Hz ... 20 kHz (±20 %) frequency range
- Low base strain sensitivity
- Lightweight
- Conforming to CE



Description

The top connector accelerometer utilizes Kistler's unique PiezoStar seismic element that provides both wide operating frequency range and ultra low temperature coefficient of sensitivity of 0.002 % / °F.

This accelerometer family operates from –65 … 330 °F and exhibits low thermal sensitivity low base strain and low transverse sensitivity minimizing measurement errors.

An internal Piezotron® impedance converter circuit converts the charge developed in the PiezoStar seismic element during shock or vibration into a voltage output. In addition to the ultra-low thermal sensitivity, PiezoStar accelerometers provide excellent long-term stability and repeatability.

Dimensions

Type 8705M05: A = 0.85"

Type 8705M06: A = 1.0"

Application

Types 8705M05 and 8705M06 are designed for rapidly changing temperature conditions, shock and vibration measurements. They are well-suited for calibration system applications.

KIC_8705M_000-557a-03.14

KISTLER
measure. analyze. innovate.

Technical Data

Type	Unit	8705M06	8705M05
Dynamic			
Acceleration range	g	±50	±250
Acceleration limit	g	±100	±500
Transverse acceleration limit	g	±100	±500
Shock (1 ms pulse), max.	g	2,000	
Frequency response (±5 %)	Hz	0.5 ... 10,000	
Frequency response (±20 %)	Hz	0.5 ... 20,000	
Sensitivity (±5 %)	mV/g	100	20
Resonant frequency, mounted, nom.	kHz	40	70
Transverse sensitivity, nom. [max.] %	%	3 [5]	
Amplitude linearity, nom.	%	±1	
Strain error @ 250 µin/in	g	0.015	0.05
Electrical			
Output - Bias, nom.	VDC	11	
Impedance	Ω	<100	
Current	mA	2	
Voltage, F.S., nom.	V	±5	
Threshold	µV rms	120	120
Threshold	g rms	0.0012	0.006
Time constant, nom.	s	1.5	
Supply - Current, nom.	mA	4	
Ripple rejection	dB	60	
Source - Voltage	VDC	20 ... 30	
Impedance	kΩ	>100	
Environmental			
Operating temperature range	°F	-65 ... 330	
Temperature coeff. of sensitivity	% / °F	0.002	
Long-term stability	%	±1	
Sealing		non-hermetic, epoxy seal at connector	
Physical			
Sensing element	type	PiezoStar® Crystal	
Construction		non-magnetic	
Weight	g	7.6	6.7
Height	in	1.0	0.85
Material, case	type	Titanium	
Material, base	type	Titanium	
Mounting torque	lbf-in	18±2	
Accessories		(1) 8402 mounting stud	

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

NOTE: Types 8705M05 and 8705M06 meet all appropriate CE requirements and have different customer specified calibration requirements.

KIC_8705M_000-557a-03.14

KISTLER
measure. analyze. innovate.

Calibration Frequencies and Amplitudes

Types 8705M05 and 87056M06 are calibrated (ISO 17025) as follows:

Type 8705M05

Frequency (Hz)	Amplitude (g)
5	1 (0.32)
10	1
20	1
50	1
100	1
100	10
160	1
160	10
300	1
500	1
1,000	5
2,000	5
4,000	5
6,000	5
8,000	5
10,000	5
12,000	5
14,000	5
15,000	5
16,000	5
18,000	5
20,000	5

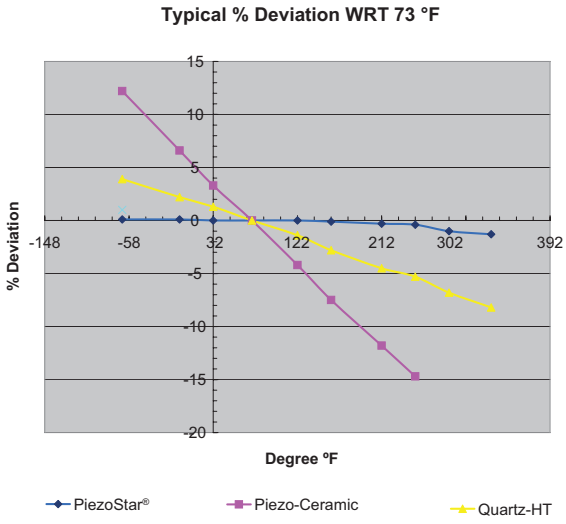
Type 8705M06

Frequency (Hz)	Amplitude (g)
1	0.18 (0.013)
2	0.7 (0.05)
3	0.7 (0.11)
4	1 (0.20)
5	1 (0.32)
10	1
20	1
50	1
100	1
100	10
160	1
160	10
300	1
500	1
1,000	5
2,000	5
4,000	5
6,000	5
8,000	5
10,000	5

Mounting

A threaded 10-32 UNF stud provides positive attachment of the accelerometer to the test structure. Reliable and accurate measurements require that the mounting surface be clean and flat.

Accessories Included	Type
• 10-32 mounting stud ext.	8402



Measuring range	
Type 8705M05	±250 g (20 mV/g)
Type 8705M06	±50 g (100 mV/g)

Measuring Chain

Measure	Connect	Amplify	Output	Analyze
				
Type 8705M05/ 8705M06	Type 1761B… 10-32 pos BNC pos.	Type 51… Power supply / signal conditioner	Type 1511 BNC pos. BNC pos.	not supplied

KIC_8705M_000-557a-03.14