

VIBRATION SENSORS

TE has spent more than 20 years designing and manufacturing accelerometers and gyros based on our proprietary Microelectromechanical System (MEMS), bonded gage and piezoelectric ceramic/film technologies. Voltage mode piezoelectric is the most popular accelerometer design due to its high level output and wide bandwidth. We offer voltage mode accelerometers in the traditional 3-wire or 2-wire (IEPE) configurations. Charge mode piezoelectric accelerometers measure shock and vibration in high temperature environments. In addition to its high temperature operating capability when used with a high quality charge amplifier, a charge mode accelerometer offers dynamic range scalability. To measure motion (velocity, displacement) accurately, an accelerometer or gyro sensor with DC response is required. Incorporating MEMS technologies and the latest analog and digital ASICs, our DC accelerometers and gyros offer high performance and exceptional value. All products are EAR99 and RoHS compliant.



MEMS DC ACCELEROMETERS

Embedded



	MEAS 3022, 3028	MEAS 3052A, 3058A	MEAS 3038	MEAS 3255A
Package	Pins or pads	Pins or pads	SMD	SMD
Type	Board level	Board level	Board level	Board level
FS Range (g)	±2, 5, 10, 20, 50, 100, 200	±2, 5, 10, 20, 50, 100	±50, 100, 200, 500, 2000, 6000	±25, 50, 100, 250, 500
Unique Features	<ul style="list-style-type: none"> • mV output • Gas damping • Pin or pad option 	<ul style="list-style-type: none"> • Temperature compensated • Gas damping • Pin or pad option 	<ul style="list-style-type: none"> • Hermetically sealed • High over-range protection • Gas damping 	<ul style="list-style-type: none"> • Self test enabled • Gas damping • Bidirectional mounting
Accuracy	±0.5% non-linearity	±0.5% non-linearity	±0.5% non-linearity	±1.0% non-linearity
Operating Temp.	-40°C to 125°C	-40°C to 125°C	-54°C to 125°C	-40°C to 125°C
Dimensions (mm)	22.86 x 15.24 x 5.33	22.86 x 15.24 x 5.33	7.62 x 7.62 x 3.3	13.46 x 7.62 x 3.81
Typical Applications	Vibration and shock monitoring, tilt applications, motion control, impact testing	Vibration and shock monitoring, tilt applications, motion control, impact testing	Vibration and shock monitoring, embedded systems, shock testing, safe and arm	Vibration and shock monitoring, aerospace testing, impact testing, transportation

PIEZOELECTRIC ACCELEROMETERS

Embedded Single Axis



	MEAS 805, 805M1	MEAS 808, 808M1	MEAS 810M1	MEAS LDTC Family
Package	TO - 5	TO - 8	Board level	Piezo film elements with or without mass and pins
Type	Adhesive (Stud mount option)	Adhesive (Stud mount option)	SMD	Cantilever beam with vertical or horizontal pins
FS Range (g)	±50, 500 / ±20, 200	±10, 50 / ±4, 20	±25, 100	±10 (Typical)
Unique Features	<ul style="list-style-type: none"> • Hermetically sealed • Case grounded design • Bandwidth to 12 kHz 	<ul style="list-style-type: none"> • Hermetically sealed • Case grounded design • Bandwidth to 8 kHz 	<ul style="list-style-type: none"> • Small size, low cost • Dynamic response • 6 kHz bandwidth 	<ul style="list-style-type: none"> • Very low cost • High sensitivity (1 V/g) • Ultra-low power (Self generating)
Accuracy	±1.0% non-linearity	±1.0% non-linearity	±2.0% non-linearity	±20.0% (Typical)
Operating Temp.	-50°C to 100°C	-50°C to 100°C	-40°C to 125°C	-40°C to 70°C
Dimensions (mm)	Ø8.9 x 10.16	Ø15.2 x 16.6	12.70 x 15.24	19.05 x 6.35 x 6.35
Typical Applications	Machine monitoring, data loggers, permanent structures	Machine monitoring, data loggers, embedded applications	Data logging, impact detection	Wake-up switch, load imbalance, anti-theft devices, impact sensing, vital signs monitoring

PIEZOELECTRIC ACCELEROMETERS

Embedded Triaxial



MEAS 832, 832M1

Package	SMD
Type	Board mount
FS Range (g)	±25, 50, 100, 200, 500
Unique Features	<ul style="list-style-type: none"> • Low cost • Hermetically sealed • Piezo-ceramic
Accuracy	±2.0% non-linearity
Operating Temp.	-20°C to 80°C (832) -40°C to 125°C (832M1)
Dimensions (mm)	18.8 x 14.22 x 4.32
Typical Applications	Data logging, asset monitoring, impact monitoring

MEAS 834, 834M1

Package	SMD
Type	Board mount
FS Range (g)	±2000, 6000
Unique Features	<ul style="list-style-type: none"> • Low cost • Hermetically sealed • Piezo-ceramic
Accuracy	±2.0% non-linearity
Operating Temp.	-20°C to 80°C (834) -40°C to 125°C (834M1)
Dimensions (mm)	18.8 x 14.22 x 4.32
Typical Applications	Data logging, asset monitoring, impact monitoring

DC ACCELEROMETERS

Plug and Play, Unamplified



MEAS 40A, 40B

Package	Anodized aluminum
Type	Screw mount
FS Range (g)	±25, 100, 250, 500, 1000, 2000
Unique Features	<ul style="list-style-type: none"> • Critically damped • SAE J211 / 2570 compliant • Compact
Accuracy	±1.0% non-linearity
Operating Temp.	-20°C to 80°C
Dimensions (mm)	16.7 x 10.0 x 5.0
Typical Applications	In-dummy and pedestrian crash testing

MEAS 52F

Package	Anodized aluminum
Type	Screw mount
FS Range (g)	±50, 200, 500, 2000
Unique Features	<ul style="list-style-type: none"> • Low cost • Gas damping • Over-range stops
Accuracy	±1.0% non-linearity
Operating Temp.	-40°C to 90°C
Dimensions (mm)	11.2 x 10.2 x 3.8
Typical Applications	Vibration and shock monitoring, shock testing, safety impact testing, side-impact testing

MEAS 52, 52M30

Package	Plastic / anodized aluminum
Type	Adhesive mount
FS Range (g)	±50, 200, 500, 2000
Unique Features	<ul style="list-style-type: none"> • Low cost • Gas damping • Over-range stops
Accuracy	±1.0% non-linearity
Operating Temp.	-40°C to 90°C
Dimensions (mm)	9.65 x 4.83 x 3.3
Typical Applications	Vibration and shock monitoring, shock testing, safety impact testing, side-impact testing

DC ACCELEROMETERS

Plug and Play, Unamplified



MEAS 64B, 64C

Package	Anodized aluminum
Type	Screw mount
FS Range (g)	±50, 100, 200, 500, 2000, 6000
Unique Features	<ul style="list-style-type: none"> SAE J211 / 2570 compliant Flexible, rugged cable Over-range stops
Accuracy	±1.0% non-linearity
Operating Temp.	-40°C to 121°C
Dimensions (mm)	12.19 x 4.83 x 4.83
Typical Applications	In-dummy crash and impact testing

MEAS 58

Package	Anodized Aluminum
Type	Adhesive mount
FS Range (g)	±50, 100, 200, 500, 2000
Unique Features	<ul style="list-style-type: none"> Low noise cable Small package Light weight
Accuracy	±1.0% non-linearity
Operating Temp.	-20°C to 85°C
Dimensions (mm)	14.0 x 6.35 x 6.35
Typical Applications	Crash testing, impact testing, off road testing

MEAS 1201, 1201F

Package	Anodized aluminum
Type	Adhesive / screw mount
FS Range (g)	±50, 100, 200, 500, 1000
Unique Features	<ul style="list-style-type: none"> Small size Flexible, rugged cable Over-range stops
Accuracy	±1.0% non-linearity
Operating Temp.	-20°C to 85°C
Dimensions (mm)	8.89 x 8.89 x 9.4
Typical Applications	On-vehicle crash and impact testing, vibration and shock monitoring



MEAS 3801A

Package	Stainless steel
Type	Stud mount
FS Range (g)	±2, 10, 20, 50, 100, 200, 500, 2000
Unique Features	<ul style="list-style-type: none"> Hermetically sealed sensor Gas damping 10,000 g over-range protection
Accuracy	±0.5% non-linearity
Operating Temp.	-54°C to 121°C
Dimensions (mm)	15.88 x 15.24
Typical Applications	Impact testing, structural testing, test and instrumentation, environmental testing

MEAS 3700

Package	Stainless steel
Type	Screw mount
FS Range (g)	±50, 200, 500, 2000, 6000
Unique Features	<ul style="list-style-type: none"> No zero shift mV output 20,000 g over-range protection
Accuracy	±2.0% non-linearity
Operating Temp.	-54°C to 121°C
Dimensions (mm)	14.22 x 8.13 x 3.81
Typical Applications	Impact and shock testing, structural testing, drop testing, aerospace testing

MEAS EGAXT

Package	Stainless steel
Type	Adhesive / screw mount
FS Range (g)	±5 through 2500
Unique Features	<ul style="list-style-type: none"> Sub-miniature Lightweight 10,000 g over-range protection
Accuracy	±1.0% non-linearity
Operating Temp.	-40°C to 120°C
Dimensions (mm)	7.2 x 4.6 x 4.6
Typical Applications	Flight test and control, launch, crash, impact testing, robotics

MEAS EGCS-DO, EGCS-D1S

Package	Stainless steel
Type	Screw / stud mount
FS Range (g)	±5 through 10,000
Unique Features	<ul style="list-style-type: none"> Rugged housing Critically damped 10,000 g over-range protection
Accuracy	±1.0% non-linearity
Operating Temp.	-40°C to 120°C
Dimensions (mm)	D0: 19.05 x 19.05 x 7.62 D1S: 12.7 x 12.7 x 15.24
Typical Applications	General purpose, machine control, destructive testing, engine testing

MEAS EGCS-S425

Package	Anodized aluminum
Type	Screw mount
FS Range (g)	±50, 100, 250, 500, 1000, 2500, 5000, 10000
Unique Features	<ul style="list-style-type: none"> Critically damped Compact-mechanical stops
Accuracy	±1.0% non-linearity
Operating Temp.	-20°C to 80°C
Dimensions (mm)	14.73 x 9.9 x 4.83
Typical Applications	Auto safety testing for side impact, on-vehicle, sled and in-dummy

MEAS EGCS-D5

Package	Stainless steel
Type	Screw mount
FS Range (g)	±50, 100, 250, 500, 1000, 2500, 5000, 10000
Unique Features	<ul style="list-style-type: none"> Rugged design, miniature Critically damped In-line amplifier option
Accuracy	±1.0% non-linearity
Operating Temp.	-40°C to 100°C
Dimensions (mm)	14.2 x 12.7 x 5.6
Typical Applications	Impact and shock testing, drop testing, structural testing

DC ACCELEROMETERS

Plug and Play, Amplified



	MEAS 4000A, 4001A	MEAS 4602, 4604	MEAS 4610, 4610A
Package	Anodized aluminum	Anodized aluminum	Anodized aluminum
Type	Screw mount	Screw mount	Screw mount
FS Range (g)	±2, 5, 10, 20, 50, 100, 200	±2, 5, 10, 30, 50, 100, 200,	±2, 10, 30, 50, 100, 200, 500
Unique Features	<ul style="list-style-type: none"> Integral connector option Gas damping Low power 	<ul style="list-style-type: none"> Exceptional temp. compensation High over-range Hermetically sealed 	<ul style="list-style-type: none"> Low noise ranges Temperature compensation High over-range Hermetically sealed
Accuracy	±1.0% non-linearity	±1.0% non-linearity	±1.0% non-linearity
Excitation Voltage	8 - 32 VDC	8 - 36 VDC	8 - 36 VDC
Operating Temp.	-20°C to 85°C	-54°C to 125°C	-40°C to 115°C
Dimensions (mm)	18.54 x 18.54 x 8.64	21.08 x 21.59 x 7.62	21.59 x 25.4 x 7.62
Typical Applications	Low frequency monitoring, transportation, vibration monitoring, motion control	Flight testing on engines, flutter test, weapons development	Rail motion control, modal analysis, flight test, structural test



	MEAS 4801A	MEAS 4807A	MEAS 4810A
Package	Stainless steel	Stainless steel	Stainless steel
Type	Stud mount	Screw mount	Screw mount
FS Range (g)	±2, 10, 20, 50, 100, 200, 500, 2000	±2, 5, 10, 20, 30, 50, 100, 200, 500	±2, 5, 10, 20, 30, 50, 100, 200
Unique Features	<ul style="list-style-type: none"> Hermetically sealed sensor Integral connector Signal conditioned 	<ul style="list-style-type: none"> Ultra low noise Micro-g resolution Hermetically sealed Detachable cable 	<ul style="list-style-type: none"> UltraStable MEMS Hermetically sealed Signal conditioned
Accuracy	±1.0% non-linearity	±1.0% non-linearity	±1.0% non-linearity
Excitation Voltage	8 - 36 VDC	8 - 18 VDC	8 - 36 VDC
Operating Temp.	-55°C to 125°C	-55°C to 125°C	-55°C to 125°C
Dimensions (mm)	13.33 x 20.83	18.54 x 18.54 x 8.64	25.4 x 29.1 x 7.6
Typical Applications	Impact testing, structural testing, test and instrumentation, environmental testing	Seismic, structural monitoring, flight testing, trains, machine control, road test	Low frequency monitoring, road testing, motion analysis

DC ACCELEROMETERS

Plug and Play, Triaxial



	MEAS EGAXT3	MEAS 53/53A	MEAS 68CM1	MEAS 4630, 4630A	MEAS 4020, 4030	MEAS 606M1
Package	Stainless steel	Anodized aluminum	Stainless steel	Anodized aluminum	Molded plastic	Nitrile rubber pad
Type	Stud mount	Adhesive mount	Screw mount	Screw mount	Screw mount	Removable
FS Range (g)	±5 through 2500	±50, 200, 500, 2000	±500, 1000, 2000	±2, 5, 10, 30, 50, 100, 200, 500	±2, 6	±25
Unique Features	<ul style="list-style-type: none"> Sub-miniature Lightweight • 10,000 g over-range protection 	<ul style="list-style-type: none"> Low cost Gas damping Low power 	<ul style="list-style-type: none"> World SID Gas damping Low power 	<ul style="list-style-type: none"> Low noise ranges Temperature compensated High over-range Hermetically sealed 	<ul style="list-style-type: none"> Low cost Biaxial, with triaxial option DC response Rugged construction 	<ul style="list-style-type: none"> 0.7 damping ratio Triaxial, hermetic Seat pad accelerometer • 606M2 IPEE option
Accuracy	±1.0% non-linearity	±1.0% non-linearity	±1.0% non-linearity	±1.0% non-linearity	±1.0% non-linearity	±1.0% non-linearity
Operating Temp.	-40°C to 120°C	-20°C to 85°C	-20°C to 85°C	-40°C to 115°C	-40°C to 85°C	-20°C to 85°C
Dimensions (mm)	12.7 x 12.7 x 12.7	18.29 x 13.21 x 7.11	12.7 x 12.7 x 12.7	26.16 x 26.16 x 23.37	71.2 x 40.0 x 15.2	199 x 4
Typical Applications	Flight test, crash, shock monitoring	Auto safety, passenger comfort, transportation, NVH analysis	Auto safety, in-dummy crash, on-vehicle crash	Road testing, motion control, structural testing	Structural monitoring, seismic array, bridge testing	Off road equipment, amusement rides, commercial aircraft

CHARGE MODE, PIEZOELECTRIC ACCELEROMETERS

Plug and Play



	MEAS 7500A	MEAS 7501A	MEAS 7502A	MEAS 7504A, 7505A	MEAS 7514A	MEAS 7531A
Package	Stainless steel	Titanium	Titanium	Stainless steel	Stainless steel	Titanium
Type	Center-hole mount	Center-hole mount	Adhesive mounting	Stud mount	Stud mounting	Adhesive mount
Sensitivity (pC/g)	20, 13, 7	5.6	1.8	5.6	100, 50, 30, 20, 13	1.8
Unique Features	<ul style="list-style-type: none"> Single axis, shear mode Hermetically sealed Isolated mounting surface Wide bandwidth 	<ul style="list-style-type: none"> Single axis, shear mode Hermetically sealed Bandwidth to >15 kHz 	<ul style="list-style-type: none"> Single axis, shear mode Hermetically sealed <1 g Wide bandwidth 	<ul style="list-style-type: none"> Single axis, shear mode Top and side connector option >15 kHz Bandwidth 	<ul style="list-style-type: none"> Single axis, shear mode >12 kHz bandwidth High sensitivity 	<ul style="list-style-type: none"> Triaxial, shear mode Miniature, light weight >10 kHz bandwidth
Operating Temp.	-73°C to 260°C	-73°C to 260°C	-73°C to 260°C	-73°C to 260°C	-73°C to 260°C	-73°C to 260°C
Dimensions (mm)	8.38 x 22.35	5.84 x 14.48	4.40 x 11.94	11.11 x 14.10 (7504A) 11.11 x 19.05 (7505A)	14.99 x 14.99	11.02 x 13.6 x 11.02
Typical Applications	Gearbox vibration monitoring, flight test, high temp. applications	Gearbox vibration monitoring, flight test, high temp. applications	Small structures monitoring, minimal mass loading, high temp. applications	Small structures monitoring, general purpose, high temp. applications	Low frequency vibration, general purpose, high temp. applications	High temp. applications, flight testing, structural monitoring

VOLTAGE MODE, PIEZOELECTRIC (IEPE) ACCELEROMETERS

Plug and Play

Package	Stainless steel / titanium	Titanium	Stainless steel	Stainless steel	Titanium	Titanium
Type	Center-hole mount	Adhesive mount	Adhesive mounting	Stud mounting	Adhesive / stud mounting	Adhesive mounting
Sensitivity (mV/g)	100, 10, 5	100, 50, 20, 10, 5	100, 10	100, 50, 20, 10, 5	500, 100, 50, 10, 5, 2.5	100, 10
Unique Features	<ul style="list-style-type: none"> • Single axis, shear mode • Isolated mounting surface • Hermetically sealed • Wide bandwidth, >10 kHz 	<ul style="list-style-type: none"> • Single axis, shear mode • Wide bandwidth • <1 g weight 	<ul style="list-style-type: none"> • Single axis, shear mode • Wide bandwidth • Welded construction • Small size 	<ul style="list-style-type: none"> • Single axis, shear mode • Wide bandwidth • Top and side connector option 	<ul style="list-style-type: none"> • Triaxial, shear mode • >12 kHz bandwidth • 4-pin connector • Hermetically sealed 	<ul style="list-style-type: none"> • Single axis, shear mode • Miniature cube • 10 - 32 connector • Hermetically sealed
Operating Temp.	7100A: -55°C to 150°C 7101A: -55°C to 125°C	-55°C to +125°C	-55°C to 125°C	-55°C to 125°C	-55°C to 125°C	-55°C to 125°C
Dimensions (mm)	7100A: 9.9 x 22.35 7101A: 5.84 x 14.48	4.40 x 11.94	9.53 x 10.16	7104A: 11.11 x 14.10 7105A: 11.11 x 19.05	7131A: 11 x 11 x 11 7132A: 15.24 x 20.32 x 13.46	10.16 x 10.16 x 19.16
Typical Applications	Flight testing, general purpose, vibration monitoring	Small structures monitoring, minimal mass loading, general purpose testing	Vibration monitoring, modal testing, general purpose	General purpose IEPE accel, vibration monitoring, lab testing	General purpose, modal testing, vibration monitoring, lab testing	Modal testing, vibration monitoring, small structures monitoring

VOLTAGE MODE, PIEZOELECTRIC ACCELEROMETERS

Plug and Play

Package	Titanium	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Type	Stud mount	Stud / center-hole mount	Stud mount	Stud mount	Stud / center-hole mount	Stud / center-hole mount
Sensitivity (mV/g)	500, 100, 10	500, 100, 10	100, 10	1000, 500, 250, 100	4 - 20 mA RMS or peak	4 - 20 mA RMS or peak
Unique Features	<ul style="list-style-type: none"> • Industrial applications • Submersible • IP68, >100 meters • 16 kHz bandwidth 	<ul style="list-style-type: none"> • Industrial accelerometer • Case isolated, internal shielding • Reverse wiring protection • ±1.0% non-linearity 	<ul style="list-style-type: none"> • Industrial accelerometer • Case isolated, internal shielding • Low cost • Molded strain relief 	<ul style="list-style-type: none"> • Industrial accelerometer • Case isolated, internal shielding • Low cost 	<ul style="list-style-type: none"> • Industrial accelerometer • Case isolated, internal shielding • 50, 20, 10, 5 g ranges 	<ul style="list-style-type: none"> • Velocity transmitter • Case isolated, internal shielding • 0.5 to 5.0 in/sec
Operating Temp.	-20°C to 80°C	-55°C to 125°C	-55°C to 100°C	-55°C to +125°C	-40°C to 85°C	-40°C to 85°C
Dimensions (mm)	22.23 x 48.26	22.23 x 48.26	14.3 x 45.3	22.23 x 50.80	22.23 x 48.26	22.23 x 48.26
Typical Applications	Submersed pump monitoring, underwater research, gearbox monitoring	Industrial applications, machine monitoring, intrinsic safety	Industrial applications, machine monitoring	Industrial applications, machine monitoring, wind turbines	Industrial applications, machine monitoring, intrinsic safety	Industrial applications, machine monitoring, intrinsic safety

ELECTRONICS

Signal Conditioners



	MEAS 121	MEAS 130	MEAS 140/142	MEAS 160	MEAS and 161
Type	Bench top	In-line charge converter	Auto-zero inline amplifier	Bench top	Bench top
# of Channels	3	1	1	1	4
Gain Range	0.001 to 9999	0.1, 1, 10	10, 25, 50, 100, 200, 500	1, 10	0.001 to 999.9
Unique Features	<ul style="list-style-type: none"> • Universal DC amplifier • Low noise operation with auto-zero • For bridge type sensors • µP controlled, programmable • Low pass filter options 	<ul style="list-style-type: none"> • Low noise • Small package • Wide bandwidth • BNC male or female 	<ul style="list-style-type: none"> • ±1.5 mV auto-zero • For bridge type sensor (140) • For strain gage (142) • Lowest noise • 5 to 30 VDC excitation 	<ul style="list-style-type: none"> • Economical IEPE power supply • Portable, compact • Rechargeable battery 	<ul style="list-style-type: none"> • Charge and IEPE conditioner • Sensitivity normalization • LCD display • Support IEEE 1451.4 TEDS • 10 V peak linear output • Selectable LP filter
Dimensions (mm)	301 x 258 x 102	Ø13.8 x 52.2	56.9 x 25.4 x 12.7	3.95 x 2.83 x 1.58	310 x 180 x 115
Typical Applications	Instrumentation labs, test benches, R&D facilities	Instrumentation labs, high temperature testing PE accelerometer	Instrumentation labs, test benches, R&D facilities	Instrumentation	Instrumentation labs, PE / IEPE sensors