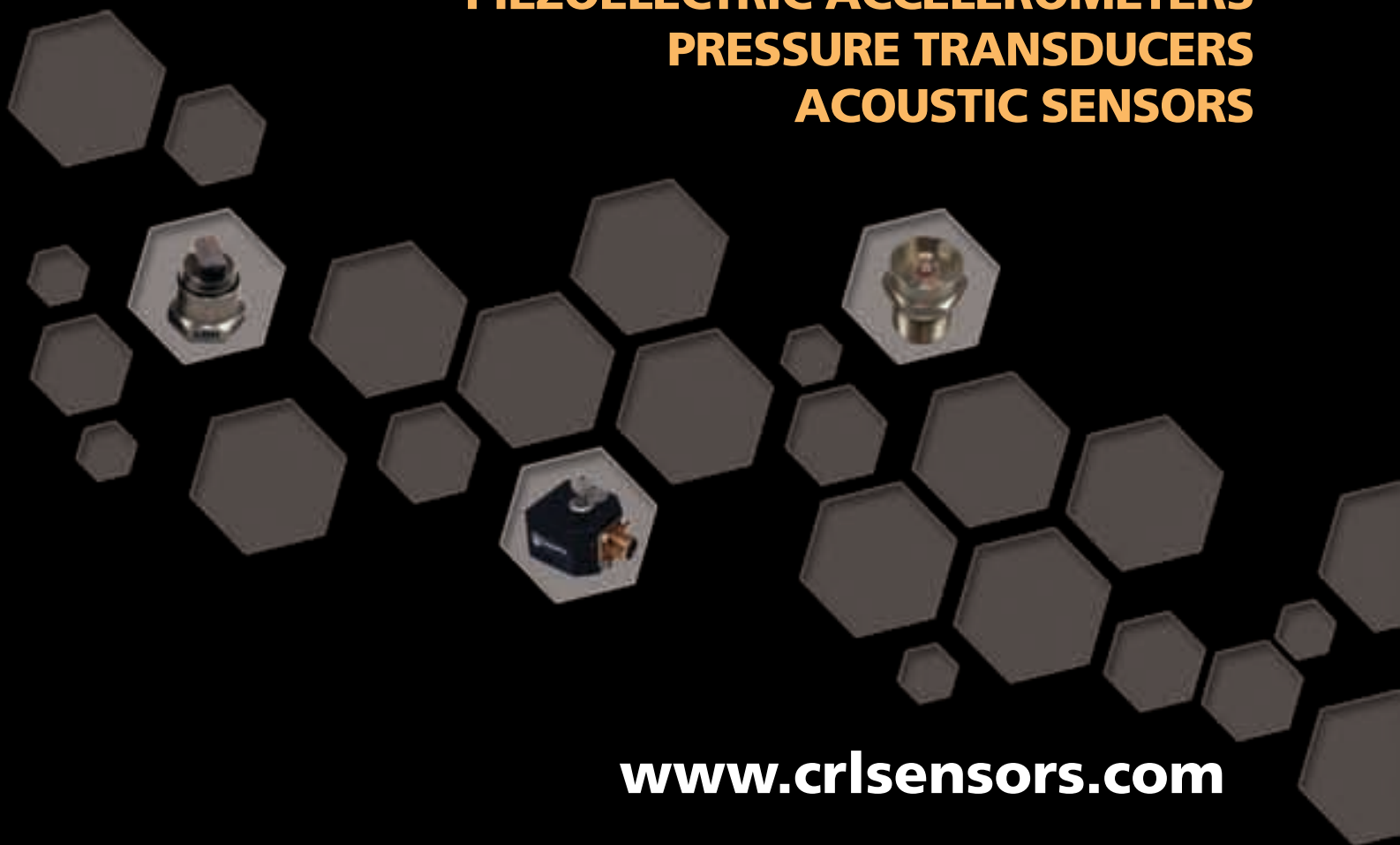




 **Columbia** *Research Laboratories, Inc.*

**PIEZOELECTRIC ACCELEROMETERS
PRESSURE TRANSDUCERS
ACOUSTIC SENSORS**



www.crlsensors.com

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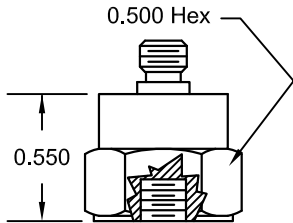
General Purpose Accelerometers

1

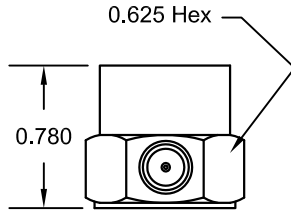
SERIES 3000

The 3000 Series of Accelerometers are for a wide range of vibration and shock work. The unique design of the piezoelectric seismic system inherently provides complete mechanical isolation of the sensing element so that the sensors are insensitive to mounting torque, body strains, cable vibration, cable whip, pressure variations and most heat transients. The signal is self-generating requiring no external power source.

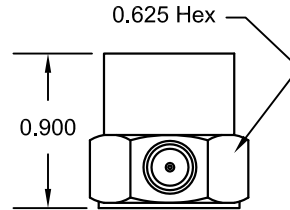
- WIDE TEMPERATURE RANGE
- ISOLATED SEISMIC SYSTEM
- TOP OR SIDE CONNECTORS
- LOW BASE STRAIN SENSITIVITY



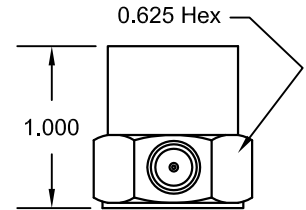
383



3021, 3022, 3023, 3029



3023M1, 3030, 3031, 3032, 3033



3023M5

MODEL	unit	383	3021	3022	3023	3023m1	3023m5	3024	3025
Sensitivity (1)	pC/g	0.5 Nom	60±10	35±5	15±3	13±3	10±3	12±3	60±10
Capacitance	pF	325±100	725±60	650±60		1100±100	1200±240	450±50	725±60
Frequency Range ±5%	Hz	2 to 15000	1 to 5000	1 to 7000	1 to 10000	1 to 5000		2 to 5000	1 to 5000
Mounted Resonant Frequency	kHz	80 Min	25 Min	35 Min	50 Min	28±3 Min.		30 Nom	25 Min
Transverse Sensitivity	%	5 Max							
Amplitude Linearity	%	±1(BFSL)	±1(BFSL)/300g	±1(BFSL)/1000g			±1(BFSL)	±1 (BFSL)/500g	±1 (BFSL)/300g
Insulation Resistance (2)	MΩ	10000 Min	20000 Min.				10000 Min	20000 Min	
Isolation Resistance	MΩ	100 Min	0 (Case Gnd)						
Vibration Limit	g	1000 Max					500 Max	1000 Max	
Shock Limit	g	20000 Max	2000 Max	5000 Max	10000 Max	1000 Max	3000 Max, 0.10mSec	5000 Max	2000 Max
Temp. Range	°F/°C	-65 to +350 (-54 to +175)	-100 to +350 (-73 to +175)		-100 to +750 (-73 to +400)		-100 to +350 (-73 to +175)		
Humidity	%	0 to 98				0 to 100		0 to 98	
Base Strain Sensitivity	g/uE	0.003 Equiv	0.008 Equiv				0.003 Equiv	0.01 typ	0.008 Equiv
Electromagnetic Sensitivity	g	0.005	0.02				0.005	0.01	0.02
Configuration	type	Ring Shear	Single Ended Compression					Shear	Single Ended Compression
Weight	oz (gm)	0.28 (8)	1.10 (30)	0.80 (23)	0.70 (21)	1.23 (35)	1.00 (28)	0.80 (23)	1.00 (28)
Housing	mat'l	18-8 Stainless					Hastelloy C-276	18-8 Stainless	
Electrical Interface	type	#10-32 Coaxial Thread							
Mounting	Size	#10-32 Tapped Base							
Sealing	type	Epoxy				Hermetic		Epoxy	
Supplied Accessories									
Cable Assy (3)		LNHT-10'							
Mounting Stud		#10-32 x 0.375" Long							
Storage Case		Hardwood							
Cal. Data		Yes							
Cal Certificate (4)		Yes							

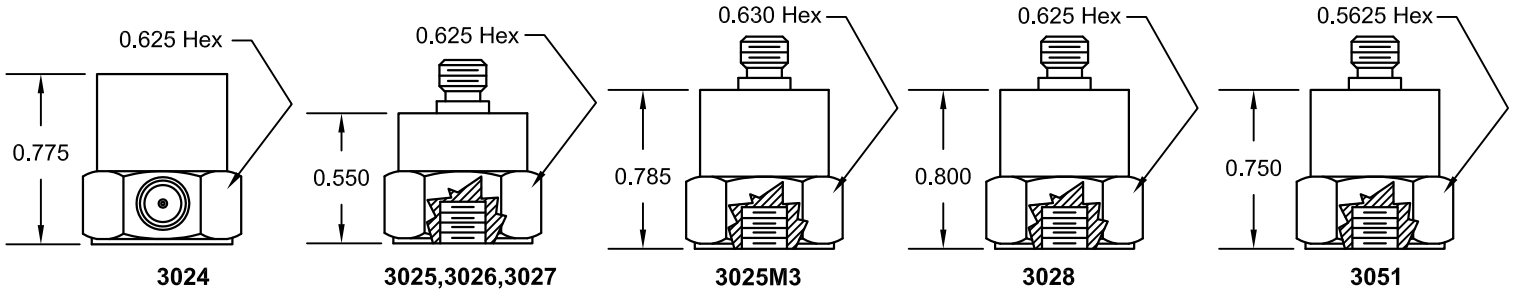
Notes:

1. @75°F, 10g Peak, 100Hz Lower Frequency Limit Determined by Associated Electronics.
2. 50VDC Test

SERIES 3000

- WIDE FREQUENCY RANGES
- HIGH TEMPERATURE VERSIONS AVAILABLE
- INSENSITIVE ENVIRONMENTAL INPUTS

These sensors feature an industry standard 10-32 coaxial connector (side or top position); removable 10-32 mounting stud, and are supplied with 10ft. low noise cable assemblies. For best performance, Columbia Model 4601 Charge Amplifier, Series 5648 Airborne Amplifiers or 5421 Power supply combined with Inline charge converter model 5810 are recommended for use with these high impedance accelerometers. Additional mounting adapters and cable assemblies are also available.



3026	3027	3028	3029	3030	3031	3032	3033	3051
35±5	15±3	12±10	100±10	65±10	35±5	15±3	100±10	20±3
650±60		450±50	8500±100	700±60	650±60		8500±100	600±60
1 to 7000	1 to 10000	2 to 5000	2 to 6000		2 to 7000	2 to 9000	2 to 6000	2 to 7000
35 Min	50 Min	30 Nom		35 Nom		45 Nom	30 Nom	35 Min
5 Max								
±1(BFSL)/ 1000g		±1(BFSL)/ 500g		±1(BFSL)/300g		±1(BFSL)/ 1000g		±1(BFSL)/500g ±1(BFSL)/300g
20000 Min.								
0 (Case Gnd)		100 Min	0 (Case Gnd)				100 Min	
1000 Max			1500 Max			1000 Max		
5000 Max	10000 Max	5000 Max	1000 Max	2000 Max	5000 Max	10000 Max	1000 Max	10000 Max
-100 to +350 (-73 to +175)								-65 to +500 (-54 to +260)
0 to 98				0 to 100				
0.008 Equiv		0.01 typ	0.003 Equiv		0.008 Equiv		0.003 Equiv	0.008 Equiv
0.02		0.01		0.02			0.01	0.02
Single Ended Compression		Shear	Single Ended Compression		Single Ended Compression			
0.80 (23)	0.70 (21)	0.90 (26)	1.11 (31.5)	1.1 (31)	1.0 (28)	0.9 (25)	1.13 (32)	0.74 (21)
18-8 Stainless								
#10-32 Coaxial Thread								
#10-32 Tapped Base								
Epoxy				Hermetic				
LNHT-10'								
#10-32 x 0.375" Long								
Hardwood								
Yes								
Yes								

3. 10Ft LNHT Cable (see accessories page).

4. Calibration Certificate is traceable to N.I.S.T.

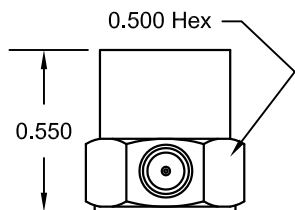
General Purpose Accelerometers

3

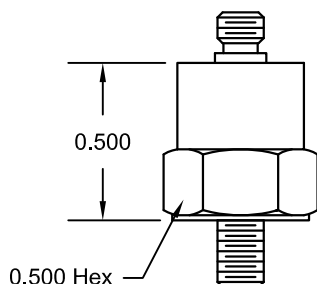
SERIES 5000

The 5000 Series of Accelerometers are smaller and lighter than the standard 3000 series resulting in higher natural frequency and shock limits. These sensors are offered in a variety of sensitivities and mounting configurations. The accelerometer signal is self-generating requiring no external power source.

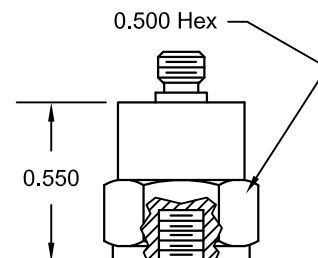
- HIGH "G" SHOCK UNITS
- SMALL SIZE AND LIGHT WEIGHT
- VERY WIDE FREQUENCY RANGE



5001, 5002, 5003



5004, 5012



5005, 5007, 5011

MODEL	unit	5001	5002	5003	5004	5005
Sensitivity (1)	pC/g	30±5	13±3	1±0.5	0.1±0.5	20±3
Capacitance	pF	650±50		300±60		650±50
Frequency Range ±5%	Hz	2 to 5000	2 to 10000		2 to 20000	2 to 10000
Mounted Resonant Frequency	kHz	25 Nom	50 Nom		100 Nom	50 Nom
Transverse Sensitivity	%	5 Max				
Amplitude Linearity	%	±1 (BFSL)/300g	±1 (BFSL)/500g	±1 (BFSL)/2000g	±1 (BFSL)/10000g	±1 (BFSL)/500g
Insulation Resistance (2)	MΩ	20000 Min.				
Isolation Resistance	MΩ	0 (Case Gnd)			100 Min	0 (Case Gnd)
Vibration Limit	g	1000 Max				
Shock Limit	g	2000 Max	5000 Max	20000 Max	100000 Max	2000 Max
Temp. Range	°F/°C	-100 to +350 (-73 to +175)				
Humidity	%	0 to 98				
Base Strain Sensitivity	g/uE	0.05		0.003		0.05
Electromagnetic Sensitivity	g	0.01				
Configuration	type	Single Ended Compression		Shear		Single Ended Compression
Weight	oz (gm)	0.56 (16)	0.35 (10)	0.32 (9)		0.5 (14)
Housing	mat'l	18-8 Stainless				
Electrical Interface	type	#10-32 Coaxial Thread				
Mounting	Size	#8-32 Tapped Base			#10-32 Tapped Base	
Sealing	type	Epoxy				
Supplied Accessories						
Cable Assy (3)		LNHT-10'				
Mounting Stud		#8-32 x 0.375"			#10-32 x 0.375"	
Storage Case		Hardwood				
Cal. Data		Yes				
Cal Certificate (4)		Yes				

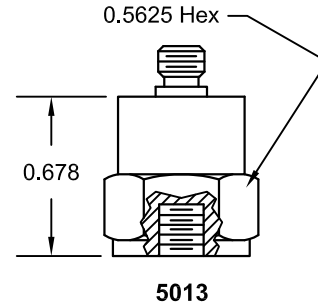
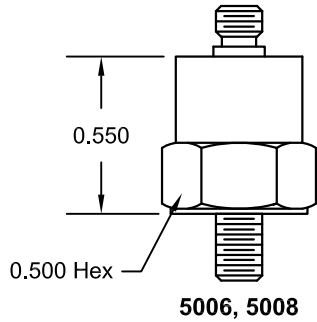
Notes:

1. @75°F, 10g Peak, 100Hz Lower Frequency Limit Determined by Associated Electronics.
2. 50VDC Test

SERIES 5000

- **LOW CROSS AXIS SENSITIVITY**
- **HIGH LEVEL SHOCK UNITS**
- **HIGH TEMPERATURE VERSIONS AVAILABLE**

These sensors feature an industry standard 10-32 coaxial connector (side or top position), mounting stud, and are supplied with 10ft. low noise cable assemblies. For best performance, Columbia Model 4601 Charge Amplifier, Series 5648 Airborne Amplifiers or 5421 Power supply combined with Inline charge converter model 5810 are recommended for use with these high impedance accelerometers. Additional mounting adapters and cable assemblies are also available.



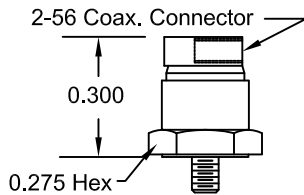
5006	5007	5008	5011	5012	5013
20±3	9±1.5		4.5±1.5	1.5±0.5	0.7±0.3
650±50			450±60	500±60	2000±20
2 to 10000	2 to 12000		2 to 15000		
50 Nom	60 Nom		75 Nom	80 Nom	
5 Max					
±1 (BFSL)/500g	±1 (BFSL)/ 1000g		±1 (BFSL)/500g	±1 (BFSL)/ 2000g	
20000 Min.					
0 (Case Gnd)			100 Min		0 (Case Gnd)
		1000 Max	5000 Max		
2000 Max	5000 Max		20000 Max		
-100 to +350 (-73 to +175)					
0 to 98					
0.05			0.003		
0.01					
Single Ended Compression			Shear		
0.5 (14)			0.39 (11)	0.32 (9)	0.46 (13)
18-8 Stainless					
#10-32 Coaxial Thread					
#10-32 Fixed Stud	#10-32 Tapped Base	#10-32 Fixed Stud	#10-32 Tapped Base	1/4-28 Tapped Base	
Epoxy					
LNHT-10'					
Integrated	#10-32 x 0.375"	Integrated	#10-32 x 0.375"	1/4-28 x 0.375"	
Hardwood					
Yes					
Yes					

3. 10Ft LNHT Cable (see accessories page).

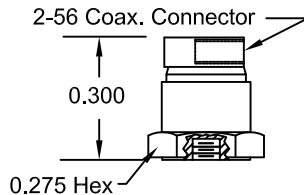
4. Calibration Certificate is traceable to N.I.S.T.

The Columbia 6000 Series Shear-Mode Piezoelectric Accelerometers are ideal for vibration work with the advantage of small size and lightweight to minimize loading effects. They are designed for the measurement of wide band moderate to high-level shock and vibration. The signal is self-generating requiring no external power source. They feature a 2-56 coaxial top connector and are supplied with 3 ft low noise cable assemblies as well as Columbia's micro-miniature detachable cable assembly. For best performance, Columbia Model 4601 Charge Amplifier, Series 5648 Airborne Amplifiers or 5421 Power supply combined with Inline charge converter model 5810 are recommended for use with these high impedance accelerometers.

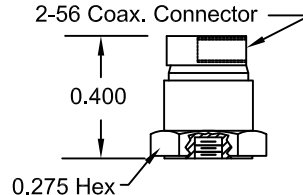
- EXTREME SMALL SIZE
- STUD OR ADHESIVE MOUNT
- LOW BASE STRAIN
- HIGH TEMPERATURE VERSIONS AVAILABLE



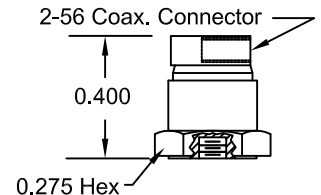
6061



6062



6063, 6065



6064, 6066

MODEL	unit	6061	6062	6063	6064	6065	6066
Sensitivity (1)	pC/g	1.7±0.7				0.5±0.35	
Capacitance	pF	300±100					
Frequency Range ±5%	Hz	2 to 10000				2 to 20000	
Mounted Resonant Frequency	kHz	50 Nom				100 Nom	
Transverse Sensitivity	%	5 Max					
Amplitude Linearity	%	±1(BFSL)/1000g				±1(BFSL)/5000g	
Insulation Resistance (2)	MΩ	20000 Min.					
Isolation Resistance	MΩ	0 (Case Gnd)			100 Min	0 (Case Gnd) 100 Min	
Vibration Limit	g	1000 Max					
Shock Limit	g	5000 Max				50000 Max	
Temp. Range	°F/°C	-100 to +350 (-73 to +175)					
Humidity	%	0 to 98					
Base Strain Sensitivity	g/uE	0.005 Equiv					
Electromagnetic Sensitivity	g	0.01					
Configuration	type	Inverted Ring Shear					
Weight	oz (gm)	0.07 (2)		0.13 (3.5)		0.07 (2)	0.10 (2.8)
Housing	mat'l	18-8 Stainless					
Electrical Interface	type	Miniature #2-56 Connector					
Mounting	Size	#4-48 Fixed Stud		#4-48 Tapped Base			
Sealing	type	Epoxy					
Supplied Accessories							
Cable Assy (3)		LNHT-3'					
Mounting Stud		Integrated		#4-48 x 0.250" Long			
Storage Case		Hardwood					
Cal. Data		Yes					
Cal Certificate (4)		Yes					
Micro-Mini Cable Assy (5)		MMHR-6"					
Additional Hardware		#10-32 Coupler (F/F)					

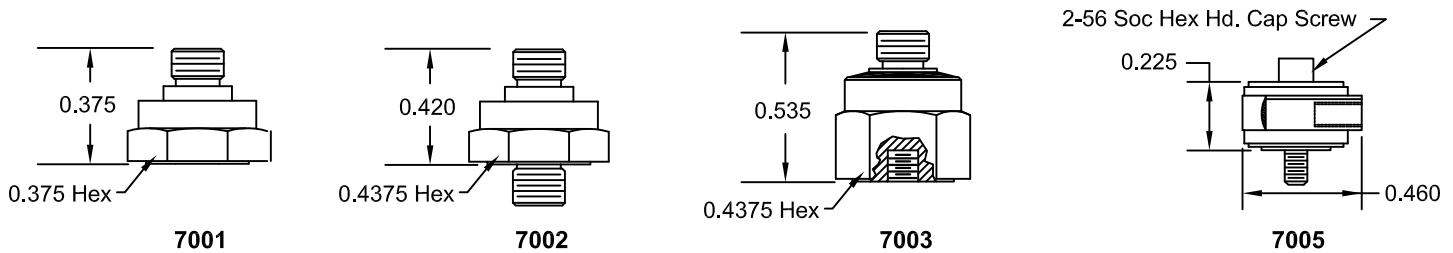
Notes:

1. @75°F, 10g Peak, 100Hz Lower Frequency Limit Determined by Associated Electronics.
2. 50VDC Test

SERIES 7000

- **EXTREME SMALL SIZE**
- **STUD OR ADHESIVE MOUNT**
- **LOW BASE STRAIN**
- **HIGH TEMPERATURE VERSIONS AVAILABLE**

The Columbia 7000 Series Shear-Mode Piezoelectric Accelerometers are ideal for vibration work with the advantage of small size and lightweight to minimize loading effects. They are designed for the measurement of medium frequency, moderate to high-level shock and vibration. The signal is self-generating requiring no external power source. They feature an industry standard 10-32 coaxial top connector and are supplied with 3 ft low noise cable assembly. For best performance, Columbia Model 4601 Charge Amplifier, Series 5648 Airborne Amplifiers or 5421 Power supply combined with Inline charge converter model 5810 are recommended for use with these high impedance accelerometers



MODEL	unit	7001	7002	7003	7005
Sensitivity (1)	pC/g	3.5 Nom			3.3 Nom
Capacitance	pF	250±50 Nom			
Frequency Range ±5%	Hz	2 to 5000			2 to 10000
Mounted Resonant Frequency	kHz	25 Nom			55 Nom
Transverse Sensitivity	%	5 Max			
Amplitude Linearity	%	±1(BFSL)/300g			
Insulation Resistance (2)	MΩ	20000 Min.			
Isolation Resistance	MΩ	0 (Case Gnd)	100 Min		
Vibration Limit	g	1000 Max			500 Max
Shock Limit	g	2000 Max			
Temp. Range	°F/°C	-65 to +350 (-55 to +175)			
Humidity	%	0 to 98			
Base Strain Sensitivity	g/uE	0.003 Equiv			0.008 Equiv
Electromagnetic Sensitivity	g	0.01			
Configuration	type	Ring Shear			
Weight	oz (gm)	0.1 (2.7)	0.16 (4.5)	0.25 (7.0)	0.14 (4.0)
Housing	mat'l	18-8 Stainless			
Electrical Interface	type	#10-32 Coaxial Thread			Miniature #2-56
Mounting	Size	Adhesive	#10-32 Fixed Stud	# 4-48 Tapped Base	#2-56 x 9mm Socket Head. Cap Screw
Sealing	type	Epoxy			
Supplied Accessories					
Cable Assy (3)		LNHT-3'			
Mounting Stud		N/A	Integrated	#4-48 x 0.250 " Long	2-56 x 9mm Cap Screw
Storage Case		Hardwood			
Cal. Data		Yes			
Cal Certificate (4)		Yes			
Micro-Mini Cable Assy (5)		N/A			MMHR-6"
Additional Hardware		N/A			10-32 Coupler (F/F)

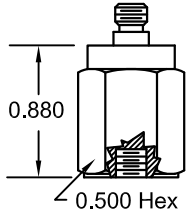
3. 3 Ft LNHT Cable (See Accessories Page).

4. Calibration Certificate is traceable to N.I.S.T.

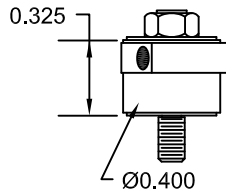
5. Micro-miniature Cable Assembly - 6 inch MMHR Cable (See Accessories Page)

The 8000 Series of Accelerometers are completely self-contained vibration measuring systems having a built-in amplifier within the housing. Low impedance of 150Ω or less allows operation directly into standard readout equipment without auxiliary signal conditioning. These sensors require a constant current power source like Columbia model 5421 Single Channel or Columbia model 5425 Four Channel.

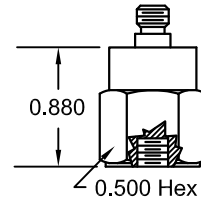
- INDUSTRIAL SENSORS
- LOW TO MEDIUM LEVEL VIBRATION
- CHOICE OF SENSITIVITIES
- LOW BASE STRAIN SENSITIVITIES



8011, 8012



8201M5, 8201M10



8301M1, 8301M5, 8301M10

MODEL	unit	8011	8012	8201-M5	8201-M10	8301-M1	8301-M5
Sensitivity (1)	mV/g	1 Nom	0.25 Nom	5 Nom	10 Nom	1 Nom	5 Nom
Range	g	±5000 Pk	±20000 Pk.	±500 Pk	±250 Pk	±1000 Pk	
Frequency Range ±5%	Hz	2 to 10000	2 to 15000	2 to 8000		2 to 7000	
Mounted Resonant Frequency	kHz	50 Nom	75 Nom	40 Nom			
Transverse Sensitivity	%	5 Max					
Amplitude Linearity	%	±1.0(BFSL)/1000g		±1.0(BFSL)/100g		±1.0(BFSL)/250g	
Electrical Noise	g	0.04 Nom		0.005 Nom		10 ⁻³ Nom	
Output Bias Voltage	Vdc	10		5		10±1.5	
Output Impedance	Ω	100 Max					
Isolation Resistance	MΩ	100 Min				0 (Case Gnd)	
Power Requirements	mA/VDC	2 to 10 / 12 to 30				3.0 / 20 to 30	
Vibration Limit	g	1000 Max	2000 Max	500 Max		1000 Max	
Shock Limit	g	5000 Max	20000 Max	1000 Max		5000 Max	
Temp. Range	°F/°C	-65 to +250 (-54 to +121)				-40 to +250 (-40 to +121)	
Humidity	%	0 to 100		0 to 98			
Base Strain Sensitivity	g/μE	0.02		0.003		0.008	
Electromagnetic Sens.	g	0.01				0.001	
Configuration	type	Ring Shear					
Weight	oz (gm)	0.6 (17)		0.21 (6)		0.55 (15.5)	
Housing	mat'l	18-8 Stainless St					
Electrical Interface	type	#10-32 Coaxial Thread		Miniature #2-56		#10-32 Coaxial Thread	
Mounting	Size	#10-32 Tapped Base		#4-40 Screw		#10-32 Tapped Base	
Sealing	type	Hermetic		Epoxy			
Supplied Accessories							
Cable Assy (3)		LNHT- 3'				LNHT- 10'	
Mounting Stud		#10-32 x 0.380" Long		#4-40 Screw		#10-32 x 0.500" Long	
Storage Case		Hardwood					
Cal. Data		Yes					
Cal Certificate (2)		Yes					
Micro-mini Cable Assy		N/A		MMHR - 6"		N/A	
Additional Hardware		N/A		#10-32 Coupler(F/F)		N/A	

Notes:

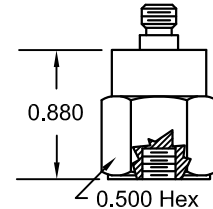
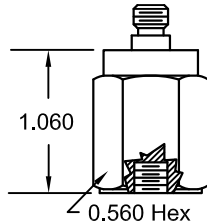
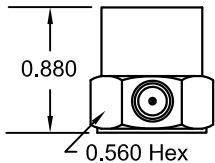
1. @75°F, 10g Peak, 100Hz Lower Frequency Limit Determined by Associated Electronics.

2. Calibration Certificate is traceable to N.I.S.T.

SERIES 8000

- **ELECTRICALLY ISOLATED OR CASE GROUNDED**
- **BUILT-IN AMPLIFIERS**
- **SEALED FOR INDUSTRIAL APPLICATIONS**

The 8000 Series of Accelerometers are completely self-contained vibration measuring systems having a built-in amplifier within the housing. Low impedance of 150Ω or less allows operation directly into standard readout equipment without auxiliary signal conditioning. These sensors require a constant current power source like Columbia model 5421 Single Channel or model 5425 Four Channel



8302M1, 8302M5, 8302M10

8303

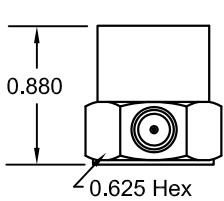
8401M25, 8401M50, 8401M100

8301-M10	8302-M1	8302-M5	8302-M10	8303	8401-M25	8401-M50	8401-M100
10 Nom	1 Nom	5 Nom	10 Nom	100 Nom	25 Nom	50 Nom	100 Nom
±500 Pk	±1000 Pk		±500 Pk	±80 Pk	±200 Pk	±100 Pk	±50 Pk
2 to 7000					2 to 8000		2 to 5000
40 Nom				20 Nom	40 Nom		25 Nom
5 Max					±1.0(BFSL)/50g		
±1.0(BFSL)/250g					±1.0(BFSL)/50g		
10 ⁻³ Nom				0.0003	5 x 10 ⁻⁴ Nom		
10±1.5				10.5±1	10.25±1.5		
100 Max							
0 (Case Gnd)				100 Min	0 (Case Gnd)		
3.0 / 20 to 30				2 to 10 / 20 to 30	3.0 / 20 to 30		
1000 Max				500 Max	100 Max		
5000 Max					1000 Max		
-40 to +250 (-40 to +121)							
0 to 98	0 to 98	0 to 98	0 to 98	0 to 100	0 to 98	0 to 98	0 to 98
0.008				0.02	0.08 Typ		
0.001					0.01		
Ring Shear					Single-Ended Compression		
0.55 (15.5)					1.0 (29)		
18-8 Stainless St							
#10-32 Coaxial Thread							
#10-32 Tapped Base							
Epoxy				Hermetic	Epoxy		
LNHT- 10'				LNHT- 2m(200pF)	LNHT- 10'		
#10-32 x 0.500"					#10-32 x 0.375"		
Hardwood							
Yes							
Yes							
N/A							
N/A							

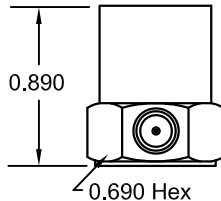
3. Mini Coaxial Cable Assembly - Columbia LNHT Cable (See Accessories Page).

The 8000 Series of Accelerometers are completely self-contained vibration measuring systems having a built-in amplifier within the housing. Low impedance of 150Ω or less allows operation directly into standard readout equipment without auxiliary signal conditioning. These sensors require a constant current power source like Columbia model 5421 Single Channel or model 5425 Four Channel.

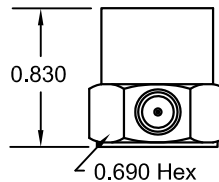
- LOW TO MEDIUM LEVEL VIBRATION
- CHOICE OF SENSITIVITIES
- LOW BASE STRAIN SENSITIVITIES



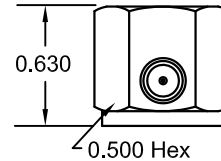
**8402M25, 8402M50,
8402M100**



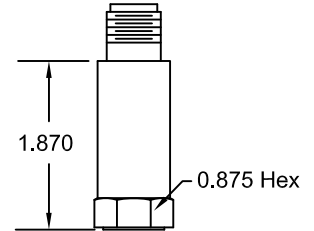
8405



8410M50, 8410M100



8412



8501

MODEL	unit	8402M25	8402M50	8402M100	8405	8410M50
Sensitivity (1)	mV/g	25 Nom	50 Nom	100 Nom	500 Nom	50 Nom
Range	g	±200 Pk	±100 Pk	±50 Pk	±10 Pk	±100 Pk
Frequency Range	Hz	2 to 8000		2 to 5000	2 to 6000	1 to 7500
Mounted Resonant Frequency	kHz	40 Nom		25 Nom	15 Nom	25 Nom
Transverse Sensitivity	%	5 Max				
Amplitude Linearity	%	±1.0(BFSL)/50g			±1.0(BFSL)/10g	±1.0(BFSL)/50g
Electrical Noise	g	5 x 10 ⁻⁴ Nom			0.03 x 10 ⁻³ Nom	0.02 x 10 ⁻³ Nom
Output Bias Voltage	Vdc	10.25±1.5			10.25±1.25	10.25±1.5
Output Impedance	Ω	100 Max				
Isolation Resistance	MΩ	0 (Case Gnd)				
Power Requirements	mA/VDC	3.0 / 20 to 30			2 to 10 / 18 to 30	2 to 10 / 20 to 30
Vibration Limit	g	100 Max			50 Max	300 Max
Shock Limit	g	1000 Max			100 Max	500 Max
Temp. Range	°F/°C	-40 to +250 (-40 to +121)				
Humidity	%	0 to 98				0 to 100
Base Strain Sensitivity	g/μE	0.08 Typ				
Electromagnetic Sens.	g	0.01			0.001	
Configuration	type	Single-Ended Compression				
Weight	oz (gm)	1.0 (29)			1.8 (51)	1.11 (31.5)
Housing	mat'l	18-8 Stainless St				
Electrical Interface	type	#10-32 Coaxial Thread				
Mounting	Size	#10-32 Tapped Base				
Sealing	type	Epoxy				Hermetic
Supplied Accessories						
Cable Assy (3)		LNHT- 10'			LNHT -2m	
Mounting Stud		#10-32 X 0.375" Long				
Storage Case		Hardwood				
Cal. Data		Yes			N/A	Yes
Cal Certificate (2)		Yes				
Micro-mini Cable Assy		N/A				
Additional Hardware		N/A				

Notes:

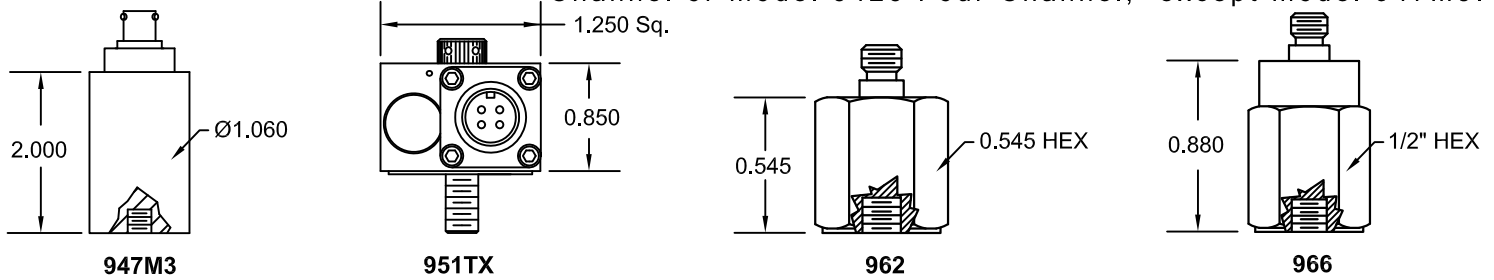
1. @75°F, 10g Peak, 100Hz Lower Frequency Limit Determined by Associated Electronics.

2. Calibration Certificate is traceable to N.I.S.T.

SERIES 900

- ELECTRICAL ISOLATION
- HERMETICALLY SEALED
- INDUSTRIAL APPLICATION SENSORS

The 900 Series Integrated Accelerometers are electronically isolated and hermetically sealed. Model 947M3 is designed for measurement of low level, low frequency signals and operates from +12VDC battery power. Model 951TX provides high and low frequency response in a tri-axial configuration. Models 962 and 966 are small, lightweight sensors designed for measurement of high frequency, moderate to high-level shock and vibration. These sensors require a constant current power source, like Columbia model 5421 Single Channel or model 5425 Four Channel, except model 947M3.

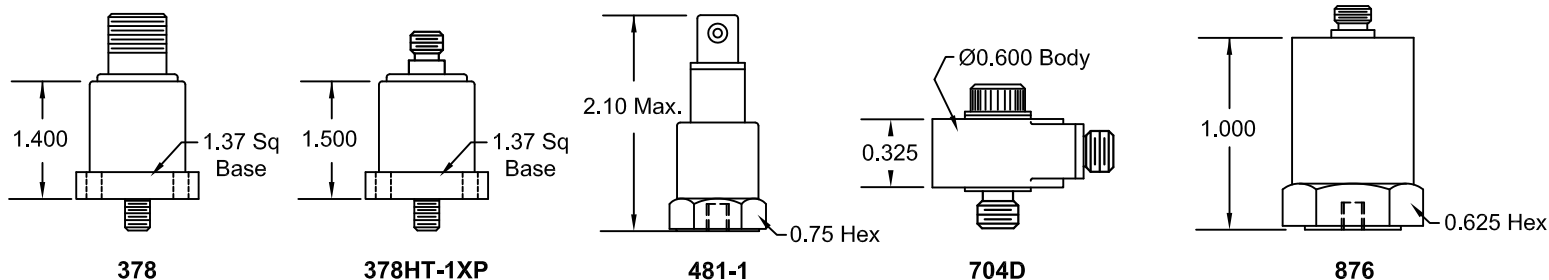


8410M100	8412	8501	947M3	951TX	962	966
100 Nom	10 Nom	100 Nom	2000 Nom		10 Nom	
±50 Pk	±250 Pk	±50 Pk	±1.75 Pk		±500 Pk	
1 to 7500	5 to 15000	1 to 5000	2 to 2000	1 to 10000	2 to 20000	2 to 10000
25 Nom	55 Nom	15 Nom	10 Nom	40 Nom	40 Nom	40 Nom
5 Max			6 Max	5 Max		
±1.0(BFSL)/50g	±1.0(BFSL)/250g	±1.0(BFSL)/50g	±1.0(BFSL)	±1.0(BFSL)/250g		
0.02 x 10 ⁻³ Nom	5 x 10 ⁻³ Nom	0.5 x 10 ⁻³ Nom	0.0003 Nom	0.002 Nom	0.04 Nom	
10.25±1.5	5±1.25	10.25±1.5	5.0±1	10.25±0.75	10.25±1	
100 Max			75 Max		100 Max	
0 (Case Gnd)			100 Min			
2 to 10 / 20 to 30	2 to 10 / 12 to 30	2 to 10 / 18 to 30	4.0 / 12	2 to 20 / 18 Min	2 to 10 / 18 to 30	
300 Max	1000 Max	300 Max	50 Max	500 Max	1000 Max	
500 Max	10000 Max	1000 Max	100 Max	2000 Max		
-40 to +250 (-40 to +121)					-50 to +250 (-46 to +121)	
0 to 100	0 to 98	0 to 100		0 to 98	0 to 100	
0.08 Typ		0.05 Typ	0.005 Typ	0.008 Typ	0.02 Typ	
0.001			0.005		0.01	
Single-Ended Compression				Ring Shear	Shear Crystal Mass Assembly	
1.11 (31.5)	0.5 (14)	3.5 (100)	6.0 (170)	2.8 (80)	0.46 (13)	0.6 (17)
18-8 Stainless St				Aluminum Alloy	18-8 Stainless St	
#10-32 Coaxial Thread		MIL-C-5015 (2 pin)	MS3113H-8-4P	PC02A-8-4P	#10-32 Coaxial Thread	
#10-32 Tapped Base		1/4-28 Tapped Base		1/4-28 Cap Screw	#10-32 Tapped Base	
Hermetic	Epoxy		Hermetic			
LNHT- 2m	LNHT- 10'	N/A	Optional	N/A	LNHT- 3'	
#10-32 x 0.375"	#10-32 x 0.500"	1/4-28 x 0.625"	1/4-28 x 0.500"	N/A	#10-32 X 0.380"	
Hardwood						
Yes						
Yes						
N/A						
N/A			PT06-8-4S Connector		N/A	

3. Columbia LNHT Cable (See Accessories Page).

Columbia's Special application Accelerometers have been developed over the years to meet special customer demands and widely used in industry today. The Accelerometers signals are self generating requiring no external power source

- INDUSTRIAL SENSORS
- ELECTRICALLY ISOLATED OR CASE GROUNDED



MODEL	unit	378 (6)	378HT-1XP	481-1	704D
Sensitivity (1)	pC/g	1050 Nom	55 Nom	60 Nom	14 Nom / 10 Min
Capacitance	pF	13000±1000	1100±100	725±60	900±200
Frequency Range	Hz	1 to 2000	2 to 2000	2 to 5000	2 to 6000
Mounted Resonant Frequency	kHz	10 Nom		25 Nom	30 Nom
Transverse Sensitivity	%	5 Max			
Amplitude Linearity	%	±1.0(BFSL)		±1.0(BFSL)/500g	±1.0(BFSL)
Insulation Resistance (2)	MΩ	10000 Min			
Isolation Resistance	MΩ	100 Min		0 (Case Gnd)	100 Min
Vibration Limit	g	500 Max		1000 Max	
Shock Limit	g	1000 Max		2000 Max	
Temp. Range	°F/°C	-65 to +350 (-54 to +175)	-100 to +750 (-73 to +398)	-100 to +350 (-73 to +175)	-65 to +350 (-54 to +175)
Humidity	%	0 to 100		0 to 98	
Base Strain Sensitivity	g/uE	0.05			0.003
Electromagnetic Sens.	g	0.005			
Configuration	type	Single Ended Compression			Ring Shear
Weight	oz (gm)	6.8 (193)		1.9 (55)	0.42 (12)
Housing	mat'l	18-8 Stainless St			
Electrical Interface	type	Amphenol 172-310SL-3P2	Stainless St. Sheathed Cable w/ 10-32 Adapter	BNC Connector	#10-32 Coaxial Thread
Mounting	Size	1/4-28 Tapped Base w/ # 8-32 Holes (4)		#10-32 Tapped Base	#6-32 Thru Hole (360° Mounting)
Sealing	type	Epoxy	Hermetic	Epoxy	
Supplied Accessories					
Cable Assy (3)		N/A	LNHT- 3'	N/A	LNHT- 10'
Mounting Stud		1/4-28 x 0.500" Long		#10-32 x 0.500" Long	#6-32 x 0.500" Long Bolt
Storage Case		Hardwood			
Cal. Data		Yes			
Cal Certificate (4)		Yes			
Additional Hardware		N/A			

Notes:

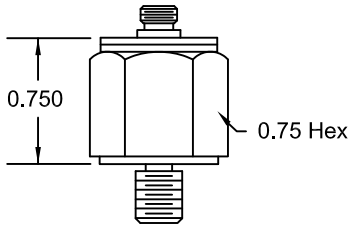
1. @75°F, 10g Peak, 100Hz Lower Frequency Limit Determined by Associated Electronics.

2. 50VDC Test.

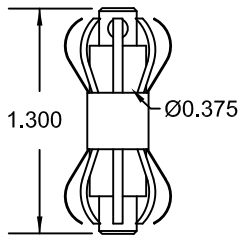
SPECIAL APPLICATION

- INDUSTRIAL SENSORS
- ELECTRICALLY ISOLATED OR CASE GROUNDED

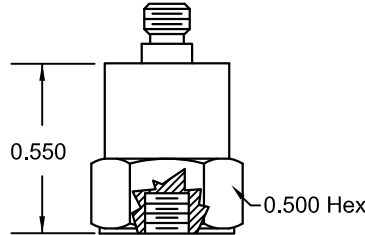
Columbia has developed many special application accelerometers over the years to meet the demands of our customers. These special purpose accelerometers are widely used in the industry today. Do you need an accelerometer to work in the cold to -400°F, or maybe one that will work just fine up to +700°F? How about a light weight, bi-axial, waterproof accelerometer with integral cable for use inside a pipe or tube? If you have a requirement, please give us a call, we would be happy to make something "special" for you.



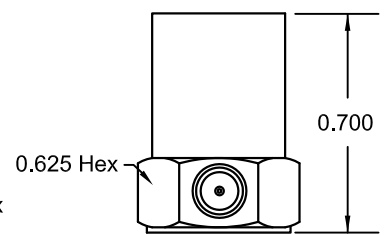
904



HEVP-12



VS-507



VS-102

876 (5)	904	HEVP-12	VS-102	VS-507
50 Nom	100 Nom	40 Nom	1.5 Nom	7.0 Nom
4200±100	9000±100	500	85	525±50
2 to 4000	1 to 2000	2 to 500	1 to 10000	
20 Nom	30 Nom	2.5 Nom	50 Nom	60 Nom
	5 Max		< 3	
±1.0(BFSL)/2000g	±1.0(BFSL)/500g	±1.0(BFSL)	±0.5%, ±1.0%, ±1.5%	±0.5%, ±1.0%, ±1.5%
	10000 Min		20000 Min	
50 Min	0 (Case Gnd)			
3000 Max	1000 Max	25	500 Max	1000 Max
10000 Pk	1000 Max	50	N/A	
-450 to +300 (-267 to +149)	-100 to +350 (-73 to +175)	-40 to +350 (-40 to +175)	Lab-Controlled Environment	Lab-Controlled Environment
0 to 100	0 to 98	0 to 100	0 to 98	
0.005	0.05	N/A	0.05	
	0.005	N/A	0.01	
Bolted Shear Plate	Single Ended Compression	Bender	N/A	N/A
1.2 (33)	1.5 (42.5)	0.53 (15)	0.7 (21)	0.5 (14)
18-8 Stainless St		316 Stainless St	18-8 Stainless St	
#10-32 Coaxial Thread		Hard wire Cable w/ #10-32 Adapters (2)	#10-32 Coaxial Thread	
#10-32 Tapped Base	3/8-24 Fixed Stud	Compression Tension Springs	#10-32 Tapped Base	
Hermetic	Epoxy	Hermetic	Epoxy	
N/A	LNHT- 10"	LNHT - 3' (2)	LNHT- 10"	
#10-32 x 0.500" Long	N/A		#10-32 x 0.375" Long	
Hardwood		N/A	Hardwood	
		Yes		
		Yes		
		N/A		

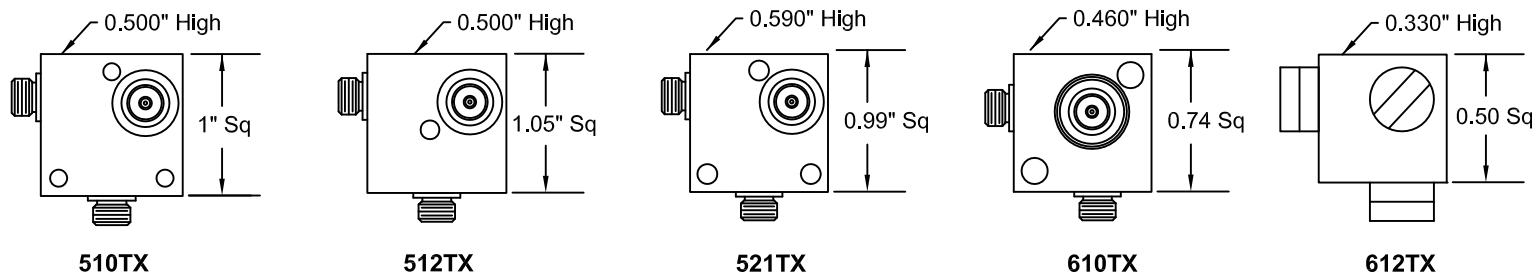
3. Mini Coaxial Cable Assembly - Columbia LNHT Cable (See Accessories Page).

5. Model 876 Standard Room Cal. Data is Supplied. Low Temp. Cal. Data is optional.

4. Calibration Certificate is traceable to N.I.S.T.

The Columbia 500TX and 600TX Triaxial Accelerometers perform simultaneous measurement of vibration acceleration in three mutually perpendicular axes. They are designed for low to medium level shock and vibration measurements where three dimensional characterization of dynamic responses of a structure is required. The signal is self-generating requiring no external power source. For best performance, Columbia Model 4601 Charge Amplifier, Series 5648 Airborne Amplifiers or 5421 Power supply combined with Inline charge converter model 5810 are recommended for use with these high impedance accelerometers.

- EXTREME SMALL SIZE
- STUD OR ADHESIVE MOUNT
- LOW BASE STRAIN
- HIGH TEMPERATURE VERSIONS AVAILABLE



MODEL	unit	510-TX	512-TX	521-TX	610-TX	612-TX
Sensitivity (1)	pC/g	17 Nom		10 Nom	3 Nom	1.7 Nom
Capacitance	pF	600 Nom		550 Nom	220 Nom	300 Nom
Frequency Range	Hz	5 to 5000				2 to 8000
Mounted Resonant Frequency	kHz	25 Nom				40 Nom
Transverse Sensitivity	%	5 Max				
Amplitude Linearity	%	±1(BFSL)/300g		±1(BFSL)		
Insulation Resistance (2)	MΩ	20000 Min				
Isolation Resistance	MΩ	100 Min				
Vibration Limit	g	500 Max		1000 Max		
Shock Limit	g	2000 Max				5000 Max
Temp. Range	°F/°C	-100 to +350 (-73 to +175)				
Humidity	%	0 to 98				
Base Strain Sensitivity	g/uE	0.002				
Electromagnetic Sensitivity	g	0.01				
Configuration	type	Single Ended Compression			Inverted Ring Shear	
Weight	oz (gm)	1.27 (36)	1.45 (41)	1.48 (42)	0.53 (15)	0.28 (8)
Housing	mat'l	Stainless St / Aluminum				
Electrical Interface	type	#10-32 Coaxial Thread				Miniature #2-56
Mounting	Size	#4-40 (3)	#6-32	#4-40 (3)	#6-32 (2)	Adhesive
Sealing	type	Epoxy				
Supplied Accessories						
Cable Assy (3)		LNHT - 10' (3)		LNHT - 6" (3)		LNHT - 3'
Mounting Stud		#4-40 x 0.75 Socket Head Cap Screw (3)	#6-32 x 0.75 Socket Head Cap Screw	#4-40 x 0.75 Socket Head Cap Screw (3)	#6-32 x 0.625 Socket Head Cap Screw (2)	N/A
Storage Case		Hardwood				
Cal. Data		Yes				
Cal Certificate (4)		Yes				
Micro-Mini Cable Assy (5)		N/A				MMHR - 6" (3)
Additional Hardware		N/A				#10-32 Coupler (F/F)

Notes:

1. @75°F, 10g Peak, 100Hz Lower Frequency Limit Determined by Associated Electronics.

3. Columbia LNHT Cable (See Accessories Page).

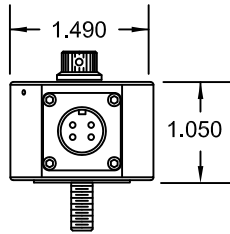
2. 50VDC Test

4. Calibration Certificate is traceable to N.I.S.T.

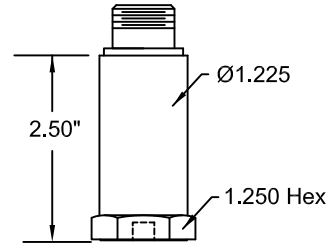
SERIES 972

- CHOICE OF TWO CASE DESIGNS & MOUNTING CONFIGURATIONS
- REVERSE POLARITY PROTECTED
- TWO 4-20mA SIGNAL OUTPUTS, VIBRATION LEVEL AND TEMPERATURE

The Columbia 972 Series Solid State Loop-Powered Vibration and Temperature Sensors are specifically designed for industrial machinery monitoring. The Sensors provide level monitoring, alarm and machinery shutdown capabilities in a choice of ranges, response characteristics and output configuration. These sensors operate from 10-36 volts DC power supply and transmit data directly into a PLC, providing accurate level monitoring and with support alarm and machinery shutdown capabilities.



972-XX-H1



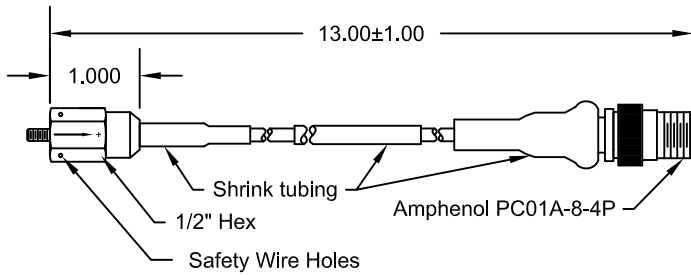
972-XX-H2

MODEL	unit	V1	V2	V5	A10	A20	A50
Range	in/sec pk	0 to 1	0 to 2	0 to 5	N/A		
Range	G's pk	N/A			0 to 10	0 to 20	0 to 50
Accuracy	%	±5 From 0 to 100°C					
Frequency Response	dB	±0.5, 5Hz to 2kHz					
Output Ripple	%	<1 of Reading @10Hz					
Output Rise / Fall Time	sec	1, 10% to 90%					
Sensor	type	100Ω PT RTD, Linearized					
Output	mA	4 @ 0°C to 20mA @ 100°C					
Accuracy	°C	±1.5					
Min. Operating Voltage	vdc	10					
Max. Operating Voltage	vdc	36					
Isolation	MΩ	100 Min. Circuit to Circuit and Circuit to Case					
Reverse Polarity	protected	Both Circuits					
Operating Temperature Range	°C	0 to +100					
Case Options		H1			H2		
Weight	gm	150			230		
Housing	mat'l	Aluminum Alloy			Stainless Steel		
Electrical Interface	type	PC02A-8-4P or Equiv.			MIL-C-5015		
Mounting	Size	1/4-28 x 1.50 Socket Head Cap Screw			1/4-28 Tapped Base		
Supplied Accessories							
Cable Assy					N/A		
Cal Certificate (4)					Yes		
Mounting Stud		N/A			1/4-28 x 0.25		
Data Sheet					Yes		
Additional Hardware		PC06E84S or Equiv. Mating Connector			MS3106A-14-S Mating Connector		

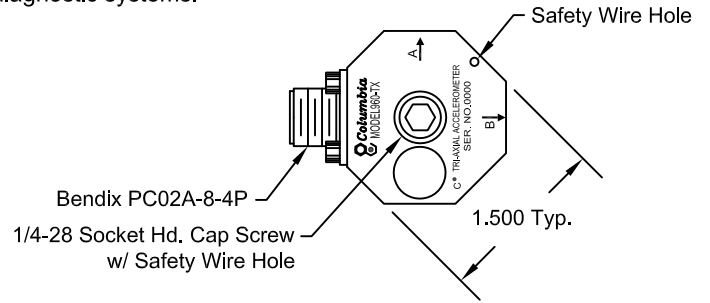
5. Micro-miniature Cable Assembly - Columbia MMHR (See Accessories Page).

The Columbia 961 and 960-TX are designed specifically to monitor vibration generated by Military and Commercial helicopter engines, transmissions and airframes. The single axis 961 incorporates an integral two conductor shielded cable and is available with an optional top mount 10-32 connector. The triaxial 960-TX has three miniature mutually perpendicular vibration sensors mounted into a rugged machined housing which incorporates a single central mounting screw. The model 961 and each sensor in the 960-TX features integrated thick film electronic signal conditioning circuitry which provides high sensitivity, temperature compensation and low impedance output drive capability. These sensor configurations are ideally suited to other vibration monitoring applications such as aircraft modal and structural analysis, shipboard engine vibration monitoring, commercial machinery vibration monitoring and as the primary vibration sensor for all predictive maintenance vibration diagnostic systems.

- SINGLE OR TRIAXIAL VERSIONS
- ENGINE, TRANSMISSION AND AIRFRAME VIBRATION MEASUREMENT



961



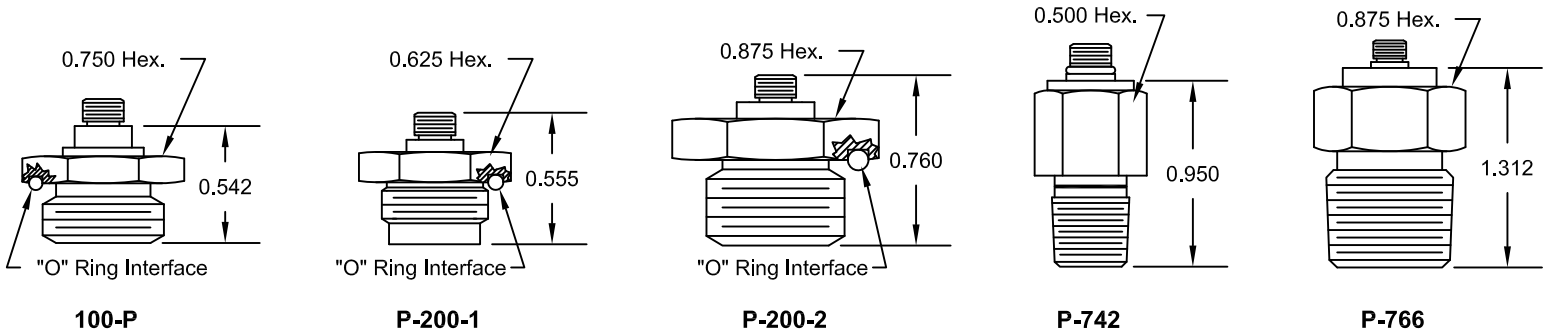
960-TX

MODEL	unit	961	960-TX
Sensitivity	mV/g		10 Nom
Frequency Range @±1dB	Hz	2 to 15000	1 to 10000 (Single Axis) 2 to 2000 (Mounted A, B, C Axis)
Absolute Phase Shift	°@2.5Hz	< 5	< 6
Relative Phase Shift	°@2.5Hz		±2 Max
Amplitude Linearity	%		±1 to 100g
Vibration Limit	g		500 Peak
Shock Limit	g		10000 Peak
Temperature Range	°F	-30 to +225	-35 to +120
Transverse Sensitivity	%		5 Max
Broadband	g		< 0.002 RMS Equivalent (2-25kHz)
Spectral Noise	@ 2.5Hz	160µg/√Hz Nom	-116dBV/√Hz Max
Output Impedance	Ω		< 600
Power Requirements	mA		2 ±5% at a reference of 18-30VDC
Bias Voltage	VDC		8±1.5
Electrical Isolation	type		Case Isolated
Housing	mat'l	Stainless Steel	6061 Aluminum
Finish	type	N/A	Black Anodize per MIL-A-8625
Weight	gm	20 typ	90 typ
Mounting	size	1/4-28 Tapped Base	1/4-28UNC-3A x 1.500 Captive Thread, Socket Hd. Cap Screw
Electrical Interface	type	13" Min., two conductor cable with PC01A-8-4P connector	PC02A-8-4P
Supplied Accessories			
Mounting Stud		1/4-28UNF-2B	N/A
Storage Case			Hardwood
Test Data			Yes

SERIES 'P'

- **HIGH PRESSURE**
- **FAST PRESSURE VARIATION SURGES & DYNAMIC BLASTS**
- **WIDE FREQUENCY RESPONSE**

The models in this section are Pressure Transducers ideal for use in applications with fast pressure variations, surges and dynamic blasts. Model 100P and series P200 are small, lightweight sensors with a wide frequency response cable of measuring very low, 0.005 psi and very high, 5K psi. Models P-742 and P-766 are ideal for use in high level dynamic pressure events, including high intensity sound pressure levels in the frequency range of 2-10KHz.



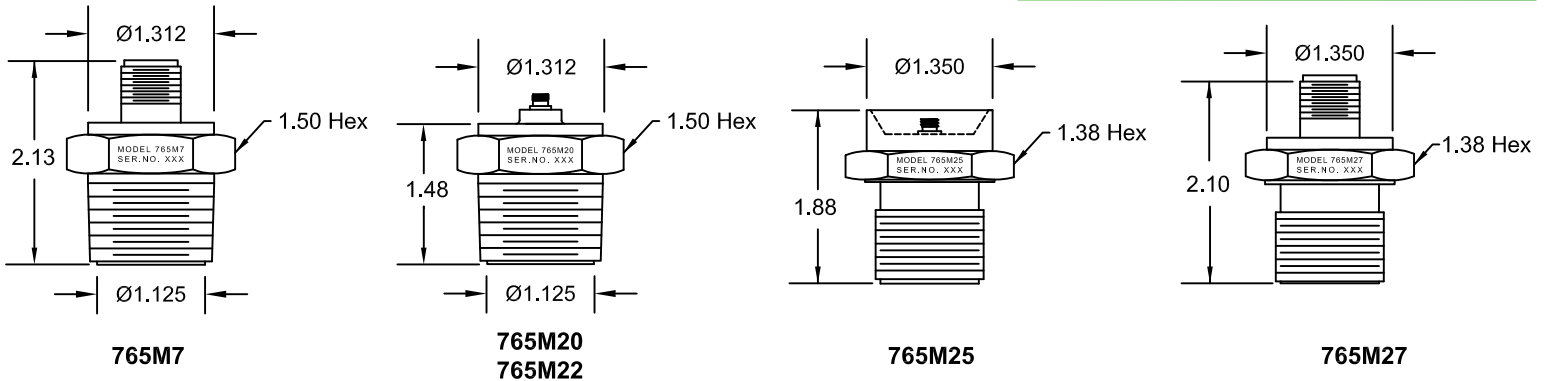
MODEL	unit	100-P	P-200-1	P-200-2	P-742	P-766
Charge Sensitivity	pC/psi	150	25		9	25
Pressure Range	psi	0.005 to 5000	0.01 to 5000		10000	5000
Pressure Overload (without damage)	psi	10000 Max.	50%		20000	10000
Frequency Response	Hz	2 to 12000	2 to 18000		2 to 10000	
Resonant Frequency	kHz	60	90		100	60
Amplitude Linearity	%	±2				
Capacitance	pF	500			75	400
Insulation Resistance	MΩ	1000				
Grounding	Type	Case Ground		Electrically Isolated	Case Grounded	
Vibration Limit	g	N/A	500		N/A	
Shock Limit	g	N/A	1000		N/A	
Temp. Range	°F	-65 to +300				
Humidity (1)	%R.H.	0 to 100				
Weight	oz	0.55	0.3	0.6		2.3
Housing	mat'l	316 Stainless Steel				
Electrical Interface	type	#10-32 Coaxial Threads				
Mounting	Size	9/16-24 Straight Thd.	7/16-28NEF	9/16-24 NEF-2	1/8 NPT (M)	1/2 NPT (M)
Supplied Accessories						
Cable Assy (2)		LNHT - 3 Ft				
Storage Case		Hardwood				
Cal. Data		Yes				
Additional Accessories		N/A				

Notes:

1. With connector mated or protected, unit is hermetically sealed.
2. Mini Coaxial Cable Assembly - Columbia LNHT Cable (See Accessories Page).

Columbia's series 765M-XX of High Intensity Acoustic Sensors (Microphones) are designed for the measurement of gas-borne sound in industrial applications. Together with either a miniature 10-32 fused glass coaxial connector or 2-pin connector, and the all-welded construction these units are hermetically. Electrically these devices comprise sensing elements of piezo ceramic material in a balanced and floating configuration to provide enhanced rejection of electrical noise associated with many industrial environments. Optimum performance is achieved when used with a true differential input amplifier.

- HIGH SENSITIVITY
- HIGH TEMPERATURE
- ELECTRICALLY ISOLATED



MODEL	unit	765M7	765M20	765M22	765M25
Charge Sensitivity	pC/psi	2000	2200	1200	
Frequency Response	Hz	2 to 8000			
Dynamic Range	psi	0.28x10 ⁻⁴ to 10			
Average Temperature Coefficient of Sensitivity	%/°F Nominal	0.08			
Transducer Capacitance	pF	12000		6300	
Insulation Resistance	MΩ	100 Min			
Isolation Resistance	MΩ	100 Min			
Dielectric Strength	Vrms, Hz Element to Housing	550, 60			
Vibration Limit	g	100			
Shock Limit	g	1000			
Temp. Range	°F	-10 to +500			
Humidity (1)	%R.H.	0 to 100			
Static Pressure	psi	3000			
Electromagnetic Sensitivity	g (Equivalent/100)	0.005			
Configuration	type	Balanced Floating Compression			
Weight	oz	7.5			7.0
Housing	mat'l	316 Stainless Steel			
Electrical Interface	type	MIL-C-5015	#10-32 Coaxial Thread		
Mounting	Size	1" NPT Male			1.125-12UNF-2A Straight Thread
Supplied Accessories					
Cable Assy (2)		N/A	LNHT - 3M		
Storage Case		Hardwood			
Cal. Data		Yes			
Additional Accessories		N/A			

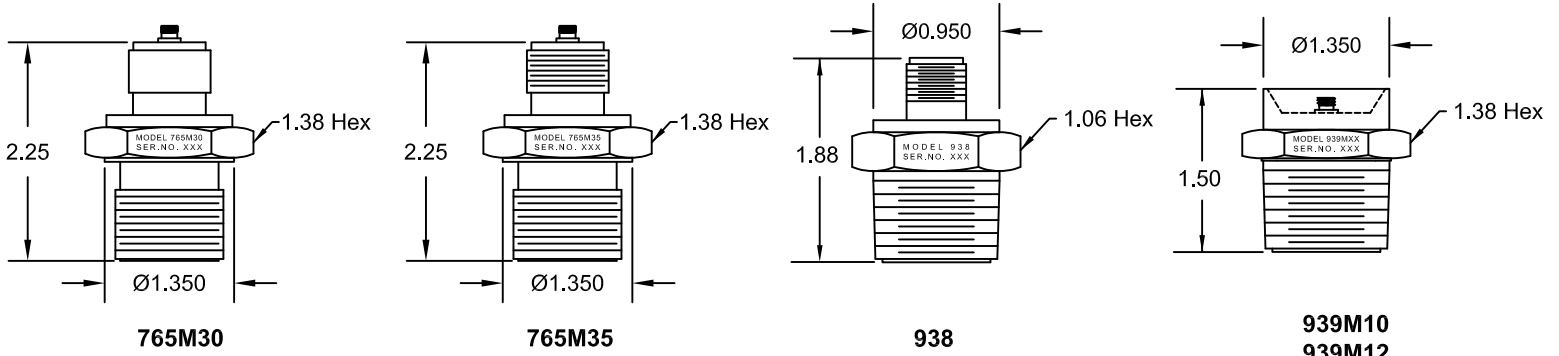
Notes:

1. With connector mated or protected, unit is hermetically sealed.
2. Mini Coaxial Cable Assembly - Columbia LNHT Cable (See Accessories Page).

SERIES 93x

- ELECTRICALLY ISOLATED
- HIGH TEMPERATURE
- CHOICE OF ELECTRICAL INTERFACE

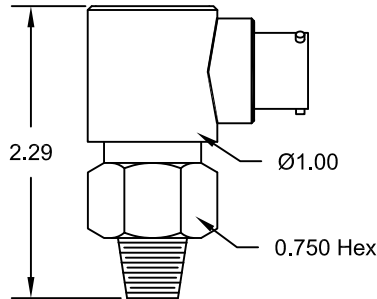
Columbia's model 938 and series 939M are also designed to measure gas-borne sound in industrial applications and are a hermetically sealed units with all welded construction. The model 938 has the same sensing elements as the 765M series but boasts a wider frequency range. The 939M series also has a wider frequency range and is capable of operating up to 500°F.



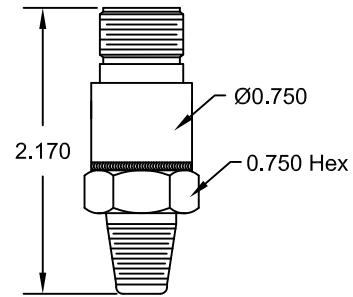
765M27	765M30	765M35	938	939M10	939M12
1200	2100		800	1200	
2 to 8000			2 to 15000		
0.28x10 ⁻⁴ to 10			0.10 x 10 ⁻⁴ to 10		
0.08					
6300	14500		8100	12000	
100 Min					
100 Min					
550, 60					
100					
1000			2000		
-10 to +500					
0 to 100					
3000			550		
0.005					
Balanced Floating Compression				Single-Ended Compression	
7.0			3.9	8.0	
316 Stainless Steel					
MIL-C-5015	Isolated #10-32 Coaxial	Isolated #10-32 Coaxial 1/2-14 NPSM Straight Thd.	MIL-C-5015	#10-32 Coaxial Thread	
1.125-12UNF-2A Straight Thread	1.125-12UNF-2A Straight Thread	1.125-12UNF-2A Straight Thread	3/4 NPT Male	1"NPT Male	1.125-12UNF-2A Straight Thread
N/A	LNHT - 3M		N/A	LNHT - 3M	
Hardwood					
Yes					
N/A			Mating Connector	N/A	

Columbia's Series 950 Pressure Transducers are completely self contained measuring systems that are available in a variety of voltage sensitivities. These sensors have a long history of successful operation in oil drilling applications. Model 973 is designed for measurement of high level pressure pulses and dynamic blasts in the frequency range of 2-18KHz. The sensors integral electronic buffer provides a low impedance output when used with constant current sources of 2 to 10mADC. Both the 950 series and model 973 are housed in a rugged, hermetically sealed stainless steel cases.

- WIDE FREQUENCY RESPONSE
- HIGH PRESSURE
- ELECTRICALLY ISOLATED
- HERMETICALLY SEALED



950-XX



973

MODEL	unit	950-XX	973
Available Voltage Sensitivity	mV/psi	10 to 25	
Pressure Range	psi	500	
Pressure Overload (without damage)	psi	10K Maximum	
Frequency Response	Hz	5 to 18k	2 to 18k
Resonant Frequency	kHz	90	
Amplitude Linearity	%F.S.	±1	
Full Range Output	VPK	±5	
Grounding	V pk into 10kΩ	Isolated	
Output Impedance	Ω (Nominal)	50	
Output Bias Voltage	VDC	N/A	10.5
Power Requirement (1)	mA DC Nominal	4.0, 18 to 30VDC	
Isolation Resistance	MΩ Minimum	50	
Temperature Range	°F	-40 to +185	-40 to +250
Humidity (2)	% R.H.	0 to 100	
Configuration	Type	N/A	Double Ended Compression
Weight	oz	5.3	1.94
Housing	Material	303 Stainless Steel - Upper Body 17-7 Stainless Steel - Lower Body C-276 Hastelloy - Diaphragm	17-7 Stainless Steel - Body C-276 Hastelloy - Diaphragm
Electrical Interface	Type	PT02-10-6P	MIL-C-5015
Mounting	Size	1/4 NPT Male, Recessed Diaphragm	1/4-18 UNF NPT Male
Supplied Accessories			
Storage Case		Hardwood	
Calibration Data		Yes	
Additional Accessories		Mating Connector	

Notes:

1. Unit must be powered with 2 to 10mA DC Current Source having a compliance voltage of 18 to 30VDC.

2. With connector mated or protected, Unit is Hermetically Sealed.



Model 5425 Four Channel Constant Current Power Supply

Model 5425 is a four-channel, battery operated constant current power supply specifically designed to be used with constant current mode accelerometers such as the Columbia 8000 Series. The output current to the transducer is set to 3.0mA DC nominal. Individual inputs and outputs are made through 10-32 and BNC connectors located on the rear panel. Please contact the factory for further details.



Model 5421 Single Channel Constant Current Power Supply

Model 5421 provides a convenient unity gain interface between any Columbia 8000 or 900 Series Integrated Piezoelectric Accelerometer and a variety of display or analyzing type instruments. The supply provides a 4.0 mA DC constant current to the pre-amplification circuitry within the transducer, thus eliminated the need for a complex and costly charge amplifier. This model requires a user-supplied source of DC voltage between +12 to +32 volts.



Model 4601 Charge Amplifier

Model 4601 is a High-Performance instrument for general purpose use with piezoelectric transducers for the measurement of acceleration, force and dynamic pressure. It features wide bandwidth, low noise, low output offset and a gain control calibrated directly in transducer sensitivity for easy setup.



Models 5810 and 5812 Inline Charge Converter

These models convert the charge signal from a high impedance piezoelectric sensor into a voltage signal with low impedance. In many cases eliminating the need for costly charge amplifiers. These models are available in three fixed gain settings of 0.1, 1.0 and 10mV/pC. Model 5810 is a single channel device that requires a constant current power source like Columbia's model 5421. Model 5812 contains three active signal channels powered from a common external standard DC power supply.

*For complete specifications on any of the Signal Conditioning Instruments on this page
Please visit our web site www.crlsensors.com*



Model 5820 Miniature Charge Amplifier

Series 5820 Charge Amplifier are designed for use with virtually all piezoelectric transducers to form various airborne vibration and shock data acquisition systems. The amplifier provides both biased, around +2.50VDC and one unbiased capacitance coupled outputs and are available in seven standard charge conversion ranges, each offering a 10:1 single gain adjustment capability.



Model 5648-X Constant Current Power Supply / Signal Conditioner

Model 5648-X provides a ruggedized unity gain interface useable with Acceleration, Pressure, or Acoustic Sensors with built in contact current powered electronics, like Columbia's 8000 and 900 Series. This device provides both AC Coupled and Biased Signal Output and requires a user-supplied source of DC voltage between +16 and +32 volts.



Model 5624 Airborne Charge Amplifier

Model 5624 is designed for use with virtually all piezoelectric transducers to form various airborne vibration and shock data acquisition systems. This model provides both Acceleration and Velocity outputs from an individual signal conditioning amplifier. It also features a small package size and very low power consumption.



Model 5840 Differential Airborne Charge Amplifier

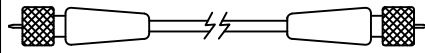
Model 5840 is designed to operate with differential output piezoelectric vibration sensors typically used in aircraft engine condition monitoring systems. The amplifier features a small package and extremely low power consumption and provides both Acceleration and Velocity outputs.

For complete specifications on any of the Signal Conditioning Instruments on this page
Please visit our web site www.crlsensors.com

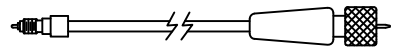
CABLE ASSEMBLIES

Standard Cables

Low Noise high Temperature Coaxial Cable Assembly,
 Ø0.080 Cable with #10-32 to #10-32 Connectors
 Temperature rating to 500°F
 Nominal Capacitance=30pF/Ft

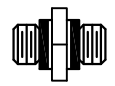
LNHT-3	3 Feet	
LNHT-6	6 Feet	
LNHT-10	10 Feet	
LNHT-xx	xx=Feet	
LNHT-xxM	xx=Meters	

Microminiature Low Noise Cable Assembly,
 Ø0.055" Cable with #2-56 to #10-32 Connectors.
 Temperature rating to 500°F

MMHR-6	6 Inch	
MMHR-12	12 Inch	
MMHR-18	18 Inch	
MMHR-xx	xx=Inches	
MMHR-xxC	xx=cm	

Cable Adapters

LNHT Cable Extension Coupler, P/N Z300492

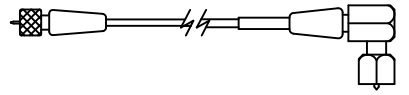


#10-32 Female To BNC Adapter, P/N Z300742

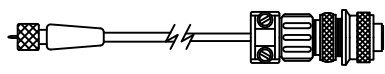


Special Order Cables

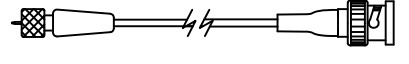
LNHT Cable Assembly w/ Right Angle Connector

LNHT-xx-RA	xx=Feet	
LNHT-xxM-RA	xx=Meters	

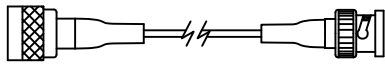
Coaxial Cable Assembly #10-32 To MS3106A-10SL-4S

CID03971-xx	xx=Feet	
CID03971-xxM	xx=Meters	

LNHT Cable Assembly #10-32 to BNC Connector


LNHT-xx-BNC	xx=Feet	
LNHT-xxM-BNC	xx=Meters	

Coaxial Cable Assembly TCN To BNC Connectors

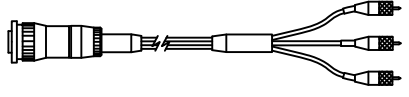
CID03046-xx	xx=Feet	
CID03046-xxM	xx=Meters	

Cable Options for Model 951-TX Triaxial Accelerometer


Standard 4-Wire Cable Assembly w/ PC06E-8-4S

CID03946-xx	xx=Feet	
CID03946-xxM	xx=Meters	


3-Wire Cable Assembly, PC06E-8-4S To #10-32

CID03958-xx	xx=Feet	
CID03958-xxM	xx=Meters	

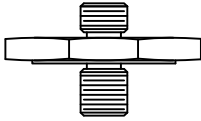
Standard 3-Wire Cable Assembly w/ PC06E-8-4S

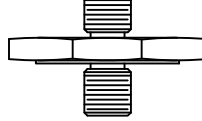
CID03959-xx	xx=Feet	
CID03959-xxM	xx=Meters	

3-Wire Cable Assembly, PC06E-8-4S To BNC

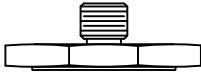
CID03960-xx	xx=Feet	
CID03960-xxM	xx=Meters	

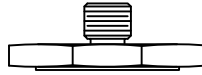
Isolated Mounting Adapters, Stud Mount

	IMS 1	1/2" Hex X 10-32UNF X 10-32UNF
	IMS 5	5/8" Hex X 10-32UNF X 10-32UNF
	IMS 9	3/4" Hex X 10-32UNF X 10-32UNF
	IMS 3	1/2" Hex X 10-32UNF X 1/4-28
	IMS 7	5/8" Hex X 10-32UNF X 1/4-28
	IMS 11	3/4" Hex X 10-32UNF X 1/4-28

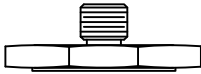
	IMS 2	1/2" Hex X 1/4-28 X 10-32UNF
	IMS 6	5/8" Hex X 1/4-28 X 10-32UNF
	IMS 10	3/4" Hex X 1/4-28 X 10-32UNF
	IMS 4	1/2" Hex X 1/4-28 X 1/4-28
	IMS 8	5/8" Hex X 1/4-28 X 1/4-28
	IMS 12	3/4" Hex X 1/4-28 X 1/4-28

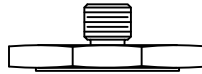
Isolated Mounting Adapters, Adhesive Mount

	IMA 1	1/2" Hex X 10-32UNF
	IMA 3	5/8" Hex X 10-32UNF
	IMA 5	3/4" Hex X 10-32UNF

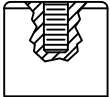
	IMA 2	1/2" Hex X 1/4-28
	IMA 4	5/8" Hex X 1/4-28
	IMA 6	3/4" Hex X 1/4-28

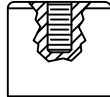
Non-Isolated Mounting Adapters, Adhesive Mount

	NMA 1	1/2" Hex X 10-32UNF
	NMA 3	5/8" Hex X 10-32UNF
	NMA 5	3/4" Hex X 10-32UNF

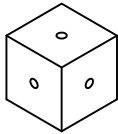
	NMA 2	1/2" Hex X 1/4-28
	NMA 4	5/8" Hex X 1/4-28
	NMA 6	3/4" Hex X 1/4-28

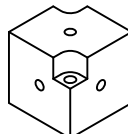
Magnetic Mounts

	Z301017	Permanent Magnet, Pot Style, Threaded for #10-32 Screw, Ø 1 3/16" x 3/4" High
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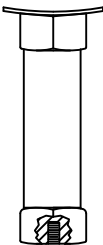
	Z302053	Permanent Magnet, Pot Style, Threaded for #10-32 Screw, Ø1.38 x 1.18" High
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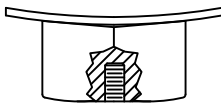
Triaxial Mounting Block

	TMB2	1" Cube Stainless Steel Block with (3) #8-32 Tapped Mounting Holes
	TMB4	1" Cube Stainless Steel Block with (3) #10-32 Tapped Mounting Holes

	TMB3	1 1/4" Cube Stainless Steel Block with (3) #8-32 Tapped Mounting Holes
	TMB5	1 1/4" Cube Stainless Steel Block with (3) #10-32 Tapped Mounting Holes

Clamp Assembly for Ø10.0" or Smaller

	CAS1	1" Hex x 5" Long Thermal Insulator Standoff with 1/4-28 Accelerometer Mounting Hole & 36" Long Strap
	CAS2	1" Hex x 5" Long Thermal Insulator Standoff with 10-32 Accelerometer Mounting Hole & 36" Long Strap

	CAS3	1 1/8" Hex x 5/8" High Adapter with 10-32 Accelerometer Mounting Hole & 36" Long Strap
	CAS5	1 1/8" Hex x 5/8" High Adapter with 1/4-28 Accelerometer Mounting Hole & 36" Long Strap