

OPERATING GUIDE

SEISMIC ACCELEROMETER

Model 393A11

PCB[®]
PIEZOTRONICS

Letter Prefix Codes for Product Model Numbers

(define options and system kits)

Letter prefixes often appear in model numbers of PCB products. These prefixes refer to various options available with standard products. More than one prefix may appear in a product model number, for example: HSM113A21 (Model 113A21 pressure sensor with 'H' hermetic seal, 'S' stainless steel diaphragm and 'M' metric mounting thread). Letter prefixes may also indicate a sensor is being supplied in a system kit with power unit, cables and accessory hardware items - complete, ready to connect and operate (e.g: K353B01 accelerometer kit includes sensor, battery powered signal conditioner, cables and accessories).

PREFIX	DESIGNATION
A	Adhesive mount version of sensor; supplied with Petro Wax and "quick-bonding" gel (miniature accelerometers have the integral stud removed).
B	Low bias sensor for reduced voltage and current levels (e.g., B353B04).
D	Dummy sensor for display purposes (e.g., D339B01).
DKL	484B06 line power supply with DC coupling sensor kit (e.g., DKL208B05).
E	Emralon coated sensor for ground isolation or corrosion resistance (e.g., E106B).
F	Operates with 210V to 240V (50 to 500 Hz) line power (e.g., F482A16).
FM	Factory Mutual Approved; intrinsically safe (e.g., FM328F01).
GK	480E09 battery power supply with gain x1, x10, x100 sensor kit (e.g., GK353B02).
GKL	482B11 line power supply with gain x1, x10, x100 sensor kit (e.g., GKL338A01).
GKR	Rechargeable 480E09 with NiCad batteries and 488A02 charger sensor kit (e.g., GKR352A10).
GDKL	484B11 line power (DC coupling and gain x1, x10, x 100) sensor kit (e.g., GDKL208B02).
H	Hermetically sealed sensor (e.g., H112A).
J	Ground Isolated - Sensor w/ integral electrical ground isolating construction (e.g., J353B33).
K	480C02 battery power supply sensor kit (e.g., K359B33).
KL	482A06 basic line power supply sensor kit (e.g., KL338B35).
KR	Rechargeable 480C02 with NiCad batteries and 488A02 charger sensor kit (e.g., KR112A23).
*M	Metric mounting thread or metric adaptor stud (e.g., M338B34).
N	Negative polarity output signal; for sensors normally having positive polarity output (e.g., N112A21).
P	Positive polarity output signal; for sensors normally having negative polarity output (e.g., P357B03).
Q	Extended time constant for low frequency and/or shock applications (Q353B32).
R	Recharge option; includes 488A02 charger and NiCad batteries (e.g., R480E06).
S	Stainless steel diaphragm (e.g., S112A).
T	Momentum trap for some pressure sensors (e.g., T102A). Acts as a stress wave absorber to prevent connector damage.
U	Useable sensor; operational unit but out of spec.
V	Indicates version of a standard model number (e.g., V337F22/050C is a Model 337F22 with a 50 ft integral cable terminating in a BNC plug).
W	Waterproof cable attachment (e.g., W353B34/002A100C is a 353B34 accelerometer with 100 ft. type 002 cable. A standard 10-32 coaxial plug is sealed to the sensor with heat shrink and terminates as a BNC plug.
X	Experimental Model.

* When the letter 'M' appears in the middle of a model number, it designates a special or modified version of a standard product (e.g., 353M223) and is generally not listed in published literature. Contact factory for "special" model number details.

NOTE: Prefixes including the letter 'K' are sensor and power kits supplied with a 10 ft input cable, power unit, with 3 ft output cable terminating in BNC and vinyl kit storage case. Input cable lengths up to 50 ft of cable styles 002, 007, 012, 018 and 031 may be specified at no additional charge.

Operating Guide for Model 393A11 Voltage Output Accelerometer

Be sure to read this instrumentation manual thoroughly before attempting use or installation of instrumentation.

If you have any questions or problems on the use of this product, please call one of our applications engineers at PCB's toll-free number: 1-800-828-8840.

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SPECIFICATIONS

VOLTAGE OUTPUT ACCELEROMETER

REVISIONS

-A- ECR # 3350
 3-11-91

SHEET 1 OF 1

MODEL NO. 393A11

DYNAMIC

Range ($\pm 2.5V$ output)	$\pm g$ (m/s^2)	1.25 (12.3)
Resolution (rms)	g (m/s^2)	0.000018 (0.0002)
Useful Overrange	g (m/s^2)	1.5 (14.7)
Sensitivity (nominal)	mV/g ($mV/[m/s^2]$)	2000 (203.8)
Frequency Range ($\pm 5\%$)	Hz	0.025-500
Frequency Range ($\pm 10\%$)	Hz	0.01-800
Transverse Sensitivity	%	≤ 5
Strain Sensitivity	$g/\mu\epsilon$ ($[m/s^2]/\mu\epsilon$)	0.001 (0.01)
Resonant Frequency [2]	Hz	≥ 3000
Amplitude Non-Linearity [1]	% FS	≤ 1
Overload Recovery - 100% F.S.	μs	≤ 10

ELECTRICAL

Excitation		
Constant Current	mA	2-20
Voltage	VDC	18-28
Output Impedance	ohm	< 100
Output Bias	+volt	3 to 7
Ground Isolation		10^8
Discharge Time Constant (@R.T.)	s	≥ 20
Polarity		Positive

ENVIRONMENTAL

Vibration (max)	$g(m/s^2)$ peak	50 (491)
Shock (max)	g (m/s^2)	50 (491)
Temperature Range	$^{\circ}F$ ($^{\circ}C$)	-100 to +200 (-73 to +93)
Temperature Coefficient	$\%/^{\circ}F$ ($\%/^{\circ}C$)	≤ 0.03 (0.054)

PHYSICAL

Structure		Upright
Size: hex x height	inch (mm)	2.16 x 2.25 (54.86 x 57.15)
Case Material		St SII
Sealing	welded	Hermetic
Weight	oz (gram)	52.9 (1500)
Connector (micro)	coaxial	10-32

NOTES:

- [1] Zero Based Best Straight Line.
- [2] Mounted Resonance

SUPPLIED ACCESSORIES:
 Model 081A05 Mounting Stud
 Model 080A24 Petro Wax

APP'D	Rick L.	4/23/91	SPEC NO. 393-1110-80
ENGR	P.M.	4/23/91	
SALES	JC	4/23/91	

393-1110-90

APPLICATION

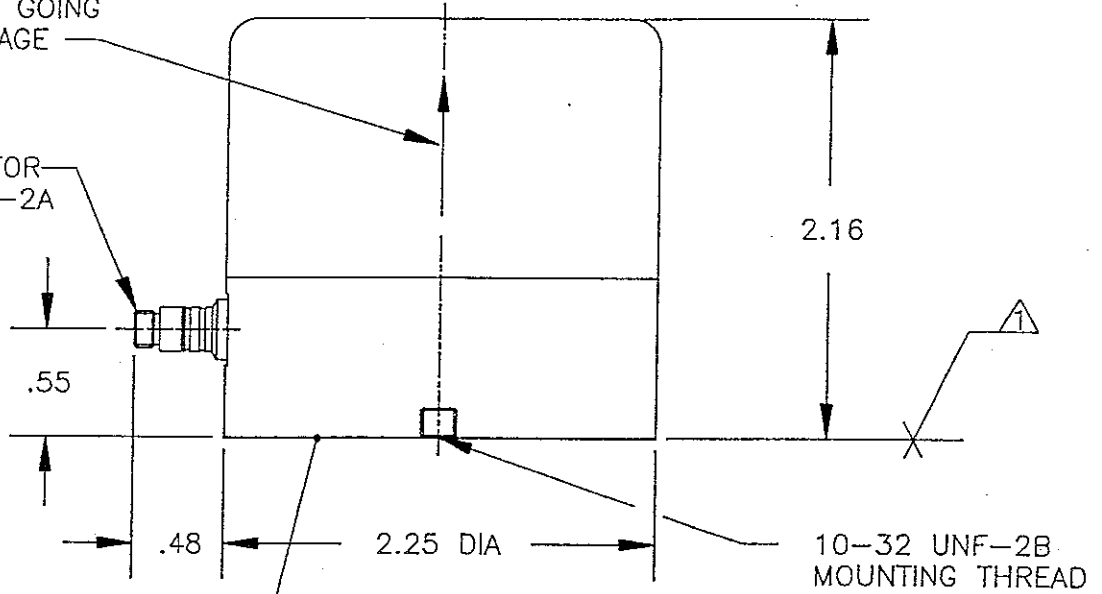
REVISIONS

QTY	NEXT ASS'Y	USED ON	VAR

SYM	DESCRIPTION	ECR	DATE	APP'D

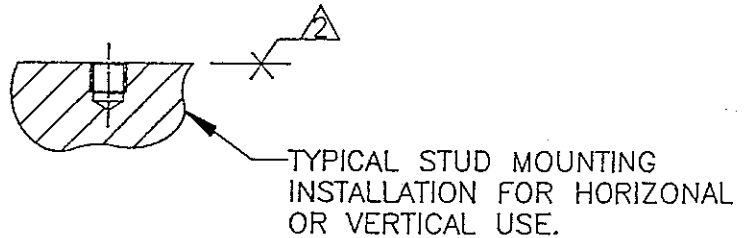
SENSE AND DIRECTION OF ACCELERATION INPUT FOR POSITIVE GOING OUTPUT VOLTAGE

ELECTRICAL CONNECTOR COAXIAL 10-32 UNF-2A



MOUNTING HOLE PREPARATION:

DRILL #21 (.159 DIA) x .200 DEEP MIN
TAP 10-32 UNF-2B
x .150 DEEP MIN



4. TO MOUNT UPRIGHT SIMPLY SET ON FLAT SURFACE OR USE DOUBLE SIDED TAPE TO AFFIX TO MOUNTING SURFACE.

- DRILL PERPENDICULAR TO MOUNTING SURFACE WITHIN $\pm 1^\circ$
- MOUNTING SURFACE MUST BE FLAT WITHIN .001 TIR WITH 63 FIN OVER A 3.0 DIA MIN.
- THIS SURFACE TO BE FLAT TO WITHIN .001 TIR.

UNLESS SPECIFIED TOLERANCES DIMENSIONS ARE IN INCHES FRACTIONS $\pm 1/32$ DECIMALS $\pm .010$ ANGLES $\pm 1/2$ DEGREE FILLETS AND RADII .003 - .005	MATERIAL	DRAWN JDH 4/15/91 MFG KGL 4/16/91 CHK'D DGM 4/16/91 ENGR B.M. 4/16/91 APP'D ROLL 4/16/91 SALES	PCB PIEZOTRONICS, INC. 3425 WALDEN AVE. DEPEW, NEW YORK 14043 PHONE: (716)684-0001 FAX: (716)684-0887	
	HEAT TREAT	TITLE		CODE 52681 DWG NO. 393-1110-90
	FINISH	MOD 393A11 HERMETICALLY SEALED SEISMIC ACCELEROMETER		SCALE 1 : 1 SHEET 1 OF 2
	J	IDENT. NO. 52681		SHEET 1 OF 2

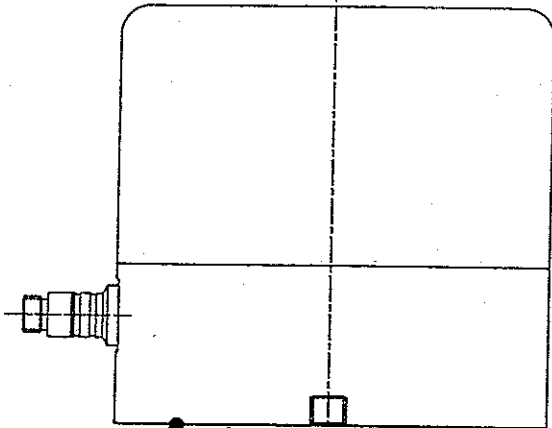
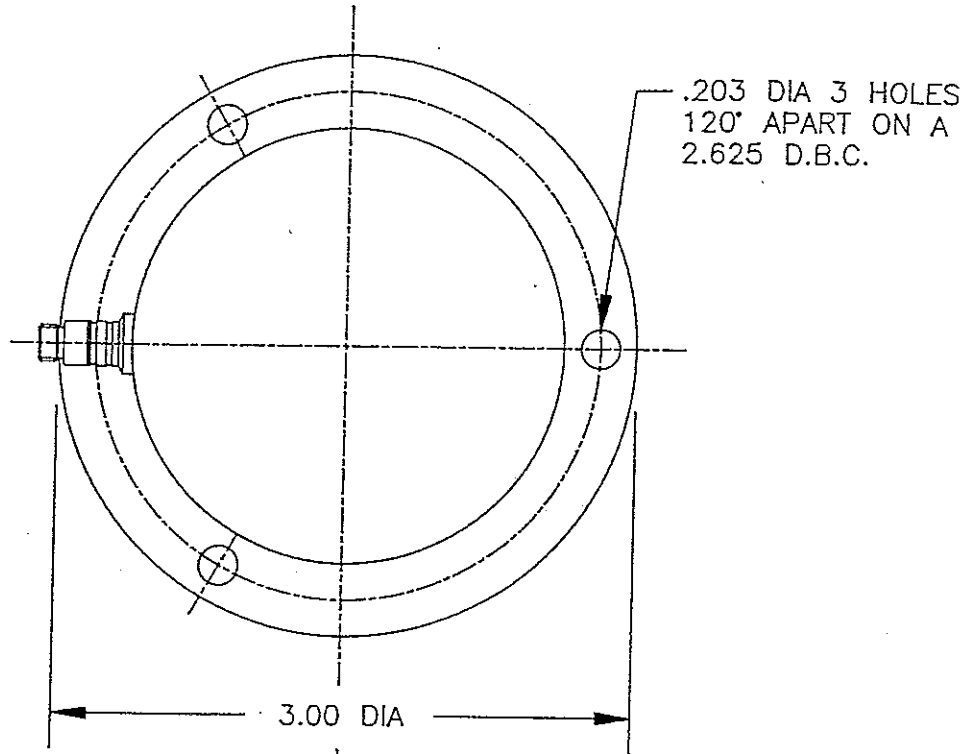
393-1110-90

APPLICATION

QTY	NEXT ASS'Y	USED ON	VAR

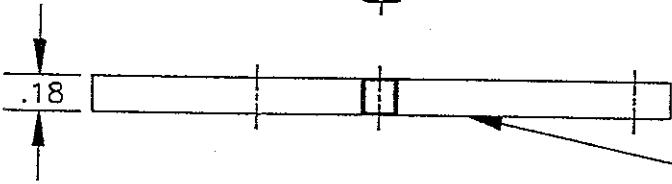
REVISIONS

SYM	DESCRIPTION	ECR	DATE	APP'D



KAPTON TAPE FOR OFF-GND APPLICATIONS

MODEL 081A05 MOUNTING STUD



AL ALY BASE PLATE

UNLESS SPECIFIED TOLERANCES

VISIONS ARE IN INCHES
FRACTIONS ±1/32
DECIMALS XX ±.010
XXX ±.005
ANGLES ±1/2 DEGREE

FILLETS AND RADII
.003 - .005

MATERIAL

HEAT TREAT

FINISH

✓

DRAWN	JDH	4/15/91	MFG	KYL	4/16/91
CHK'D	DGM	4/16/91	ENGR	P.M.	4/16/91
APP'D	RockL	4/16/91	SALES		

TITLE
INSTALLATION DRAWING
MOD 393A11 HERMETICALLY SEALED
SEISMIC ACCELEROMETER

PCB

PIEZOTRONICS, INC.
3425 WALDEN AVE. DEPEW, NEW YORK 14043
PHONE: (716)684-0001 FAX: (716)684-0887

CODE	DWG NO.
IDENT. NO.	393-1110-90
52681	
SCALE	1 : 1
	SHEET 2 OF 2

Model 393A11

1.0 INTRODUCTION

The Model 393A11 Seismic Accelerometer is designed to measure very low level vibrations and shocks in buildings and other structures induced by earth tremors, heavy equipment, machinery, etc.

This sensitive quartz accelerometer contains a built-in microelectronic amplifier that converts the high impedance voltage signals from the quartz crystals to a low impedance voltage, imparting the ability to drive long lines (hundreds of feet) for remote monitoring with no appreciable degradations of sensitivity and/or resolution.

Ask for Brochure G0001, "Guide to ICP® (Integrated Circuit Piezoelectric) Instrumentation" for a complete treatment of the low impedance, built-in amplifier concept in instrumentation.

2.0 DESCRIPTION

Refer to Installation Drawing 393-1110-90 (sheets 1 and 2) for outline dimensions of the Model 393A11.

The accelerometer utilizes a 2 lb tungsten mass coupled to a sensitive quartz element. The mass is designed so that the center of gravity is located exactly on the support plane of the element. This design eliminates the transverse couple or twisting moment for minimizing transverse effect.

The ICP Amplifier is protected against blow out from excessive mechanical shocks into the accelerometer.

The Model 393A11 is designed for ground isolated operation. The mounting stud port is electrically isolated from case ground so that the 393A11 can be mounted to a surface, with or without the aluminum 3-hole mounting base (supplied) by the use of an insulating tape across the mounting surface. (See next section 3.0, Installation.)

Model 393A11

3.0 INSTALLATION

The Model 393A11 may be installed in several ways, depending upon the suitability of the particular installation.

The 393A11 is supplied with a 3/16 in. thick, 3 in. diameter aluminum mounting baseplate. This plate has 3 clearance holes for 10-32 mounting screws.

To utilize this mounting method, simply prepare a flat surface over a 3 in. diameter (see Installation Drawing) and drill and tap 3 equally spaced 10-32 mounting holes as shown in drawing. The aluminum mounting plate is electrically isolated from the accelerometer body by use of tape as previously mentioned.

If it is desired to mount the 393A11 using only a single 10-32 tapped hole, simply remove the mounting baseplate by unscrewing it from the accelerometer body. Prepare a flat surface over a 2.25 inch diameter area and use the 10-32 mounting stud supplied to thread the accelerometer onto the mounting surface.

NOTE: To keep from scraping the kapton tape and possible shorting through and destroying the "off ground" feature of the 393A11, spread a thin layer of silicone grease on the mounting surface before mounting the accelerometer.

After mounting, test for continuity between the mounting surface (if conductive) and the accelerometer body. If a short is found to exist, remove the accelerometer and inspect the kapton tape for breaks, chips, filings, etc.

If ground isolated operation is not desired, simply remove the tape and proceed as outlined here.

The Model 393A11 may be mounted in any direction, i.e., upright, horizontal, inverted, etc.

For upright installation only, the accelerometer may be mounted simply by using double backed adhesive tape.

Model 393A11

4.0 OPERATION

After installation is completed, connect the 393A11 to the power unit, preferably using the Model 002A Coaxial Cable available from PCB.

Regular twisted pair may also be used if desired. The Model 070A09 2-wire Solder Connector Adaptor is ideal for this application.

After connecting cable from transducer to power unit, turn power unit "on" and observe the bias indicating voltmeter on the front panel of the power unit.

The built in electronics utilized in the Model 393A11 is a special low noise, front end protected MOSFET *amplifier which exhibits a lower than normal "turn-on" or bias voltage (3-7 volts). (**Metal Oxide Semiconductor Field Effect Transistor*)

On PCB power units the pointer of the front panel meter will indicate in the lower edge of the green area (just above the red area) during normal operation.

Shorted cable or connection or shorted built-in amp (or faulty power unit) will cause meter to read in the red (0 volts) area.

An open cable or connection or an open built-in amplifier will result in a full scale (yellow area) reading.

After verifying that unit is operating normally, connect cable from output jack of power unit (usually labeled "scope" or "output") to the readout device.

NOTE: The 393A11 is not capable of driving high current input galvanometers directly. It is essentially a voltage output device and should be used in conjunction with an appropriate current amplifier if it is desired to drive a galvanometer. Check galvanometer specs for current rating.

The 393A11 can, however, drive oscilloscopes and low current input tape records, etc.

Model 393A11

5.0 POWER UNIT

The Model 393A11 can be used with all PCB Power Units. However, the battery powered units such as the Model 480B are ideal for this application to get the best resolution from the 393A11 due to of the low inherent noise of these units.

If a line powered unit is desired, a small sacrifice in resolution will be seen because of the increased electrical noise of the line power unit.

Since the noise from the 393A11 system is broadband, selective frequency filtering can be helpful in increasing resolution for either type of power unit. Most of the electrical noise exists below 10Hz.

Consult the factory for technical assistance if filtering is desired.

6.0 SENSITIVITY

The Model 393A11 has a nominal sensitivity of 2.0 volts/g. The actual calibrated value is given on the calibraton sheet supplied with each instrument.

7.0 LOW FREQUENCY RESPONSE

The Model 393A11 has a discharge time constant (TC) of 20 seconds, nominally. This gives a low frequency cutoff (-3db) of .08Hz and a 5% down frequency of .025Hz.

Most PCB power units utilize a 10uF coupling capacitor to decouple the dynamic signal from the bias supply. The 10uF if used across a one megohm load impedance yields a 10 second coupling TC. This will degrade the low frequency response only slightly. Do not connect into lower than a one megohm readout since the low frequency response will suffer.

Model 393A11

8.0 MAINTENANCE AND REPAIR

Unlike conventional high impedance charge output type accelerometers, ICP units such as the Model 393A11 do not require the extreme care necessary to maintain high insulation resistance.

The very low output impedance, (<100 OHMs) means that wiping with a clean cloth dipped in a solvent such as Freon TF is sufficient to remove contamination from connector.

Should the unit be left idle for extended periods of time and show the effects of shortened discharge time constant (degraded low frequency response), place unit in a drying oven at +200 °F for several hours.

It is highly recommended to never attempt to measure resistance across the output connector since many ohmmeters will damage the transducer.

Should the accelerometer require servicing, return it to the factory with a note indicating the nature of the malfunction.

9.0 CAUTION

Although the built-in microelectronic amplifier is protected against blow-out due to short, transient shock overload, it is possible that a severe, longer duration shock or a continuous dynamic overload beyond 50gs could, in spite of the protective circuit, damage the amplifier.

Handle the 303A11 carefully since it is a very sensitive sensor. Avoid hard set-downs, bumps against metal, dropping, etc.

If using a magnetic mounting base, install base first and then the accelerometer.

Model 393A11

10.0 WARRANTY, SERVICE, CALIBRATION

Warranty:

PCB instrumentation is warranted against defective materials and workmanship for six months, unless otherwise specified. Damage to instruments caused by incorrect power or misapplication is not covered by warranty. **If there is any question concerning power or intended application, it is advisable to contact an applications engineer (if outside U.S. contact your representative) . Batteries and expendable accessory hardware items are excluded from warranty coverage.**

Service:

Because of the sophisticated nature of PCB instruments, factory repair is the best and fastest method. Most PCB transducers are of modular construction and are repairable; a repair quotation will be provided at no charge. Damaged diaphragms on pressure transducers can usually be replaced since the internal sensing element is seldom damaged. Built-in IC amplifiers can often be replaced. **Before returning unit(s) for repair, it is advisable to confer with a factory applications engineer (or international representative) concerning the problem.** In some cases, a simple on-site procedure may correct the situation.

Return Procedure:

TO EXPEDITE REPAIRS, CONTACT PCB FOR A RETURN AUTHORIZATION (RA) NUMBER.

Your advanced authorization to proceed with repair, allowing charges up to 50% of a new item, will expedite repair and return.

Information on models, serial numbers and quantity to be returned is requested. For most efficient service, *please send a written description of symptoms/problems encountered* when returning any equipment.

International customers should return PCB equipment to their representative. If there is no representative for your area, please contact the International Sales Department to request shipping instructions and Repair Return Authorization.

(continued)

Model 393A11

Recalibration:

Prompt factory recalibration service is offered at a nominal charge. Time required for sensor recalibration is usually determined by: the customer's quality control procedures, stability of the sensor or possible physical damage. Most PCB sensors incorporate highly stable, quartz sensing elements and generally do not require frequent recalibration. Quartz is recognized as the most stable of all piezoelectric materials. Usually a 12 to 24 month calibration cycle is adequate unless the sensor has been overexposed to high temperature or subjected to physical damage.

Quartz sensors are exceptionally rugged. Dropping or overranging a sensor (other than high sensitivity, such as seismic types) usually does not change calibration unless it was severe enough to damage the internal sensing element or physically distort the housing or diaphragm. Sensors incorporating man-made, ceramic elements require more frequent calibration since they are not as stable as natural crystals (quartz and tourmaline). Artificially polarized ceramic crystals may be susceptible to sensitivity change caused by thermal/mechanical shock and aging effects.

Customer Service:

PCB's company mission is "helping you make better dynamic measurements." If you have any questions on the usage of any product or above policies, feel free to contact PCB at:

Phone (716) 684-0001 • Fax (716) 684-0987 • TWX 710-263-1371.

PCB PIEZOTRONICS, INC. 3425 WALDEN AVENUE DEPEW, NY 14043-2495

PHONE 716-684-0001 TWX 710-263-1371 FAX 716-684-0987

STANDARD CABLES

Series 002 ~ GENERAL PURPOSE WHITE COAXIAL: General purpose coaxial cable with an extruded waterproof Teflon insulation jacket: 29 pF/ft nominal cable capacitance, 400 °F (204 °C) maximum temperature, 0.071 inch (1,8 mm) cable diameter. Suitable for most ICP® sensor applications.

Series 003 ~ LOW NOISE BLUE COAXIAL: High temperature, low noise cable with Teflon wrapped insulation. Internal lubricant reduces noise induced by cable motion: 29 pF/ft nominal cable capacitance, 550 °F (288 °C) maximum temperature, 0.079 inch (2,0 mm) diameter. For use with charge or ICP® sensors.

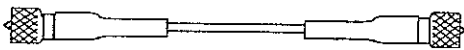
Series 010 ~ TRIAXIAL (4-CONDUCTOR): Twisted, shielded four-conductor cable with clear Teflon insulation jacket: 31 pF/ft nominal cable capacitance, 400 °F (204 °C) maximum temperature, 0.1 inch (2,54 mm) cable diameter. For use with ICP® triaxial sensors.

Series 012 ~ STANDARD BLACK COAXIAL: Low cost, black coaxial cable (RG-58/U) similar to standard household television cable: 29 pF/ft nominal cable capacitance, 140 °F (60 °C) maximum temperature, 0.195 inch (4,95 mm) cable diameter. Ideal for transmitting low impedance signals over long cables.

Series 024 ~ INDUSTRIAL TWISTED SHIELDED: Twisted, shielded pair with polyurethane insulation jacket: 42 pF/ft nominal cable capacitance, 250 °F (121 °C) maximum temperature, 0.25 inch (6,35 mm) cable diameter. For use with ICP® sensors in high EMI and RFI environments; 90% braided shield.

Model Number Format: Cable type/Terminating connectors/Designated length
(For example: Model 002A10 is a 10 ft. 002 type cable terminating as 10-32 coaxial connectors.)

10-32 Coaxial Plug to 10-32 Coaxial Plug



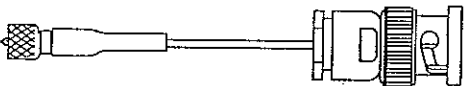
Length:

3 ft (0,9 m)
10 ft (3,0 m)
25 ft (7,6 m)
50 ft (15,2 m)

Available Models:

002A03, 003A03
002A10, 003A10
002A25, 003A25
002A50, 003A50

10-32 Coaxial Plug to BNC Plug



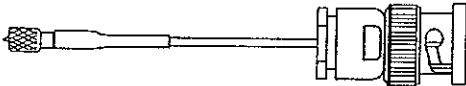
Length

3 ft (0,9 m)
10 ft (3,0 m)
25 ft (7,6 m)
50 ft (15,2 m)

Available Models:

002C03, 003C03
002C10, 003C10
002C25, 003C25
002C50, 003C50

5-44 Coaxial Plug to BNC Plug



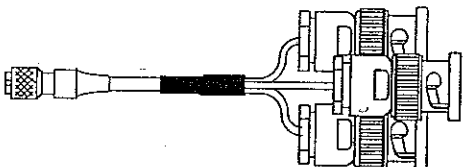
Length

10 ft (3,0 m)
25 ft (7,6 m)

Available Models:

002P10, 003P10
002P25, 003P25

Microtech (4-pin) to three BNC Plugs



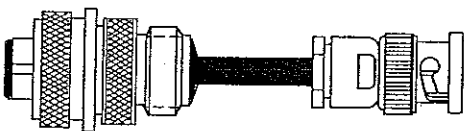
Length

5 ft (1,5 m)
10 ft (3,0 m)
15 ft (4,6 m)
20 ft (6,1 m)

Available Models:

010G05
010G10
010G15
010G20

MS3106 (Military 2-pin) to BNC Plug



Length

10 ft (3,0 m)
20 ft (6,1 m)
50 ft (15,2 m)
100 ft (30,5 m)

Available Models:

012R10, 024R10
012R20, 024R20
012R50, 024R50
012R100, 024R100

BNC Plug to BNC Plug



Length

3 ft (0,9 m)
10 ft (3,0 m)
20 ft (6,1 m)

Available Models:

002T03, 003D03, 012A03
002T10, 003D10, 012A10
002T20, 003D20, 012A20

Other lengths and cable types are available . . . consult PCB.

MOUNTING ACCESSORIES

Adhesive Bases: Used for mounting accelerometers to the test object & protecting sensor from adhesive, allowing easy sensor removal. Hard-coating provides electrical isolation between test object & accelerometer.

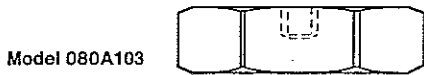


- 080A14 0.31" hex x 0.32" thick, accepts 10-32 threaded stud
- M080A14 0.31" hex x 8,1 mm thick, accepts M5 x 0,8 threaded stud
- 080A15 0.31" hex x 0.125" thick, accepts 5-40 threaded stud
- M080A15 0.31" hex x 3,18 mm thick, accepts M3 x 0,50 threaded stud
- 080A 0.50" hex x 0.187" thick, accepts 10-32 threaded stud
- M080A 0.50" hex x 4,75 mm thick, accepts M6 x 0,75 threaded stud
- 080A12 0.75" hex x 0.200" thick, accepts 10-32 threaded stud
- M080A12 0.75" hex x 5,08 mm thick, accepts M6 x 0,75 threaded stud
- 080A13 0.75" hex x 0.200" thick, accepts 1/4-28 threaded stud
- 080A19 0.75" hex x 0.375" thk, accepts 10-32 threaded stud each side to electrical isolation with a stud mount

Adhesives: Used for mounting sensors on various surfaces.

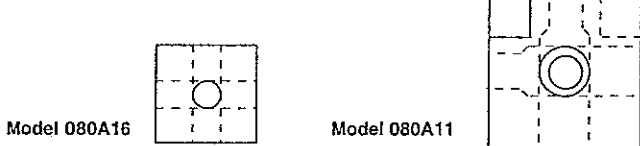
- 080A24 Petro Wax, includes four sample squares for temporary mount
- 080A90 'Quick bonding gel' provides semi-permanent bond (max 180°F)

Magnetic Bases: Used for portable mounting on ferrous materials.



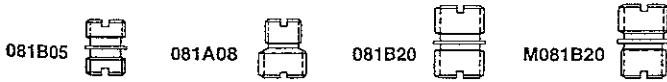
- 080A27 0.75" hex, high strength magnet, integral 10-32 threaded stud
- 080A30 high strength miniature magnet, accepts 5-40 threaded stud
- M080A30 high strength miniature magnet, accepts M3 x 0.5 threaded stud
- 080A54 1.50" hex, high strength magnet, integral 1/4-28 threaded stud
- 080A103 1.50" hex, high strength magnet, accepts 1/4-28 threaded stud
- 080M162 0.75" hex, high strength magnet, accepts 10-32 threaded stud
- 080M165 0.75" hex, high strength magnet; accepts M6 x 0,75 threaded stud

Triaxial Adaptors: Adapts three standard accelerometers for monitoring vibration in 3 orthogonal axes. (Hex size listed represents the maximum allowable hex size for mating accelerometers.)



- 080B10 0.875" cube, accepts 10-32 threaded stud, 0.625" hex
- M080B10 22,2 mm cube, accepts M6 x 0,75 threaded stud, 0.625" hex
- 080B11 1.25" cube, supplied with 10-32 threaded cap studs, 0.875" hex
- 080B16 0.37" cube, accepts 5-40 threaded stud, 0.312" hex
- M080B16 9,5 mm cube, accepts M3 x 0,75 threaded stud, 0.312" hex
- 080A62 1.25" cube, supplied with 1/4-28 threaded cap studs, 0.875" hex

Studs: Used for securing accelerometers to test objects. To ensure accurate readings, mount the accelerometer with recommended mounting torque.



- 081A27 5-40 to 5-40
- 081B05 10-32 to 10-32
- M081B05 10-32 to M6 x 0,75
- M081B23 10-32 to M5 x 0,8
- 081A21 10-32 to 10-32 electrical isolation mounting pad/stud
- 081A08 10-32 to 1/4-28
- 081M24 10-32 to 5-40
- 081B20 1/4-28 to 1/4-28
- M081B20 1/4-28 to M6 x 0,75

Solder Connector Adaptors save time & money, allowing on-site cable repair. Supplied cap provides cable strain relief for right angle connections.



SIGNAL CONDITIONERS

Signal conditioners are required for powering ICP® sensors with built-in electronics unless the capability already exists in your readout instrumentation. Most offer:

- system integrity meters or LED's
- constant current power to accelerometer
- decoupling to remove DC bias from sensor

Battery 480C02 Unity gain
Powered: 480E09 Selectable gain of x1, x10 or x 100

Line 482A06 Single channel, unity gain
Powered: 484B06 Single channel, provides DC coupling
 482A16 Four channel, 'push-button' gain of x1, x10, x100 (with overload and fault lights)
 482A20 Eight channel version of Model 482A16
 583A/584A 16 channel, 19" rack mountable

For 210-250 VAC, add 'F' prefix to model number (i.e., F482A20)

HANDHELD EXCITER

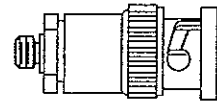
Model 394B06 Handheld Calibrator, 1.0 g rms

- provides end-to-end system checkout
- rugged suspension design prolongs life
- calibrates accelerometers up to 85 gm weight

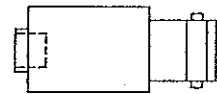
Provides fixed 1 g vibration level to verify the sensitivity of accelerometers up to 85 grams.

CONNECTOR ADAPTORS

070A02, SCOPE INPUT ADAPTOR: 10-32 coaxial jack to BNC plug. For adapting BNC connectors for use with 10-32 coaxial plugs.

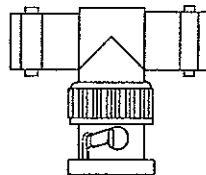
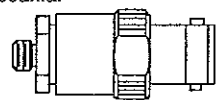


070A03, CONNECTOR ADAPTOR: 10-32 coaxial plug to BNC jack. Converts 10-32 connectors for use with BNC plugs.



070A05, 10-32 COAXIAL FEED-THRU CONNECTOR: 10-32 coaxial jack to 10-32 coaxial jack. Joins two cables terminating in 10-32 coaxial plugs.

070A08, CABLE ADAPTOR: 10-32 coaxial jack to BNC jack; joins cables terminating in BNC plug & a 10-32 coaxial plug.



< **070A11, BNC 'T' CONNECTOR:** BNC plug to two BNC jacks. Used as a cable splitter.

070A12, BNC COUPLER: BNC jack to BNC jack. Joins two cables terminating in BNC plugs.

070A14, 10-32 HERMETIC FEED-THRU: 10-32 coaxial jack to 10-32 coaxial jack. Tapped 5/16-32. Max. wall thickness of 1/4 inch.

070A20, 10-32 COAXIAL RIGHT ANGLE CONNECTOR ADAPTOR: 10-32 coaxial jack to 10-32 coaxial plug; for confined locations.

076B31, 10-32 COAXIAL CONNECTOR KIT: Includes two tools and twenty 10-32 'spring-loaded' coaxial connectors. Wire stripper and soldering iron are not supplied.