

Wilcoxon Research

# Vibration Sensors and Solutions



Short Form Catalog

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**MEGGITT**  
smart engineering for  
extreme environments

# Wilcoxon Research

## Vibration Sensors and Solutions



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## Industry Leading Sensors

Wilcoxon Research, Inc. is a leading innovator and manufacturer of Vibration Sensing Products and Systems. We offer world-class vibration monitoring products to meet the needs of customers in the Industrial and Test & Measurement markets for commercial and Defense applications. Our reputation for **industry-leading product quality and reliability** is backed by over 40 years of innovation and experience.

The early detection of changes in the vibration signature of systems can be critical in preventing damage to equipment and the resulting costly delays. Wilcoxon makes more than 200 standard products used primarily for Condition Based Monitoring. The quality and performance of our sensors ensure that accurate and timely detection of the changing vibration signature will occur, thus enabling maintenance of critical assets.

## Advancing Technology

Wilcoxon was founded in 1961 by a group of entrepreneurial scientists from the Navy's David Taylor Research Center (now the Naval Surface Warfare Center). Their innovative nature combined with their skill in design resulted in state-of-the-art piezoelectric accelerometers, and provided Wilcoxon with the technical foundation and pioneering spirit on which the company stands today.

Over the last 40 years, Wilcoxon has augmented this technology base to commercialize state-of-the-art accelerometers, transducers, hydrophones, and accessories that lead the industry in product quality and reliability. As a result, we have widened our market reach to encompass new industrial markets. Wilcoxon was the driving force in advancing the wide-scale use of accelerometers for industrial Condition Based Monitoring systems.

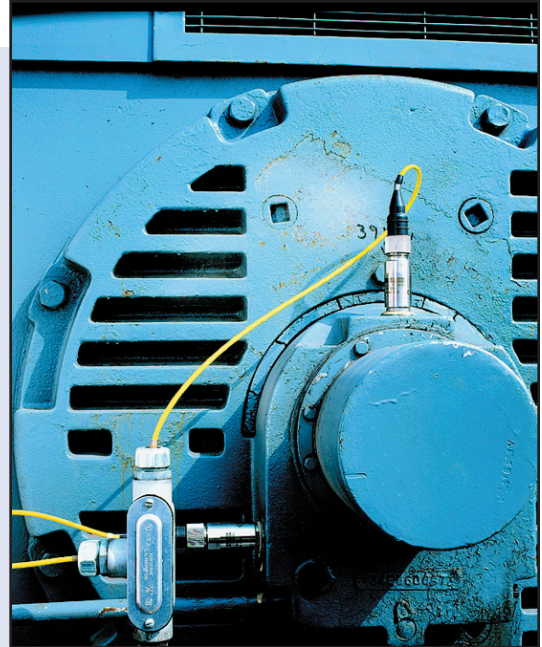
In 1997, Wilcoxon Research established Wilcoxon Labs to focus exclusively on the development of new technology for next generation sensors and systems. In addition to developing new technology, Wilcoxon Labs also designs specialty sensors to meet customers' specific application requirements. In support of both government and commercial requirements, specialized engineering of custom sensors is accompanied by technical consulting services to ensure an optimal performance environment for Wilcoxon sensors.

## Superior Quality

Wilcoxon is a dynamic corporation that strives to meet the changing needs of the customer.

The Wilcoxon facility is **ISO-9001 certified**, assuring a repeatable design and manufacturing process. Our manufacturing process is documented and controlled under our proven Quality Assurance System and guarantees that our products will have extremely low failure rates and long-term, consistent performance. Wilcoxon's manufacturing operations exceed industry best practices, providing our customers with the most reliable sensors.

Today, Wilcoxon's sensors are the highest quality available, most with an **MTBF of over 25 years**. With Wilcoxon sensors installed, our customers save time and money.



## Why Wilcoxon?

- Industry standard for quality vibration sensors
- Strategic supplier to most major Vibration System OEMs
- World-class customer service
- Over 40 years of innovation and experience in vibration sensors and systems

## Sensors - General Purpose Accelerometers

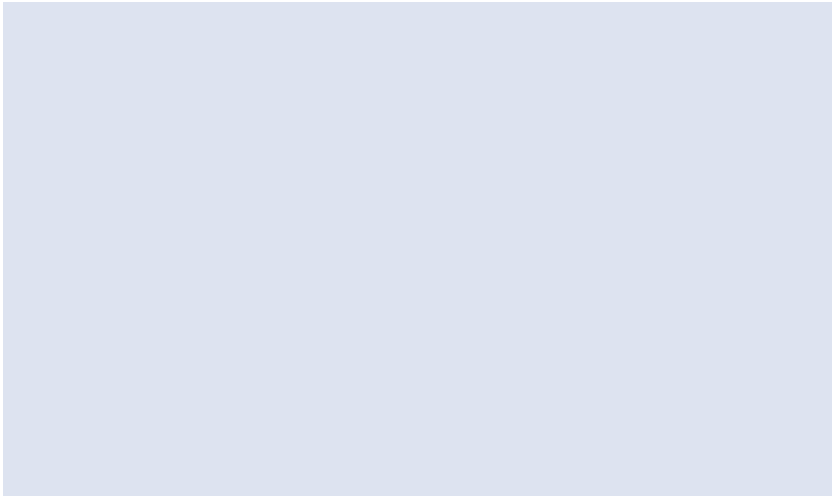
### General Purpose Accelerometers:

- Vibration measurements across a broad frequency range for monitoring most industrial machinery
- Predictive Maintenance systems for all rotating equipment to include:
  - Motors, fans, pumps
  - Moderate speed gearboxes
  - Machine tool spindles
  - Paper Machine Rolls
  - Compressors



Model	<b>793</b>	<b>797</b>	<b>786A</b>	<b>787A</b>	<b>786F</b>
<b>Description</b>	Premium Accelerometer	Premium Center Mount Accelerometer	Standard Accelerometer	Standard Side Exit Accelerometer	General Purpose Integral Cable Accelerometer
<b>Sensitivity</b>	100 mV/g	100 mV/g	100 mV/g	100 mV/g	100 mV/g
<b>Tolerance (±)</b>	5%	5%	5%	10%	5%
<b>Frequency Response @ 3dB</b>	0.5 - 15,000 Hz	1 - 12,000 Hz	0.5 - 14,000 Hz	0.7 - 10,000 Hz	0.5 - 13,000 Hz
<b>Resonance Frequency</b>	25 kHz	26 kHz	30 kHz	22 kHz	30 kHz
<b>Electrical Noise @ 100 Hz</b>	5 µg/√Hz	5 µg/√Hz	5 µg/√Hz	5 µg/√Hz	5 µg/√Hz
<b>Max. Temperature</b>	120° C	120° C	120° C	120° C	120° C
<b>Bias Output Voltage</b>	12 VDC	12 VDC	12 VDC	12 VDC	12 VDC
<b>Grounding</b>	Case isolated	Case isolated	Case isolated	Case isolated	Case isolated
<b>Mounting</b>	1/4-28 tapped hole	1/4-28 captive screw	1/4-28 tapped hole	1/4-28 captive screw	1/4-28 captive screw
<b>Output Connector</b>	2 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style	Integral cable
<b>Applications</b>	Intrinsic safety applications Radiation rated units available	Intrinsic safety applications Radiation rated units available	Intrinsically safe models available	Intrinsically safe models available	Underwater submersion to 30ft. Intrinsically safe models available

## Sensors - General Purpose Accelerometers



Model	788A	784A	785A	777B
Description	Economy Accelerometer	Economy Accelerometer	Economy Side Exit Accelerometer	Benign Environment Economy Accelerometer
Sensitivity	100 mV/g	100 mV/g	100 mV/g	100 mV/g
Tolerance ( $\pm$ )	10%	20%	10%	10%
Frequency Response @ 3dB	1.5 – 12,000 Hz	2 - 10,000 Hz	1 - 12,000 Hz	0.5 - 12,000 Hz
Resonance Frequency	25 kHz	25 kHz	30 kHz	30 kHz
Electrical Noise @ 100 Hz	4 $\mu$ g/ $\sqrt$ Hz	4 $\mu$ g/ $\sqrt$ Hz	6 $\mu$ g/ $\sqrt$ Hz	5 $\mu$ g/ $\sqrt$ Hz
Max. Temperature	120° C	120° C	120° C	85° C
Bias Output Voltage	12 VDC	12 VDC	12 VDC	12 VDC
Grounding	Case isolated	Case isolated	Case isolated	Case isolated
Mounting	1/4-28 tapped hole	1/4-28 tapped hole	1/4-28 captive screw	1/4-28 tapped hole
Output Connector	2 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style	BNC
Applications				Dry environments

## Sensors - High Performance Accelerometers

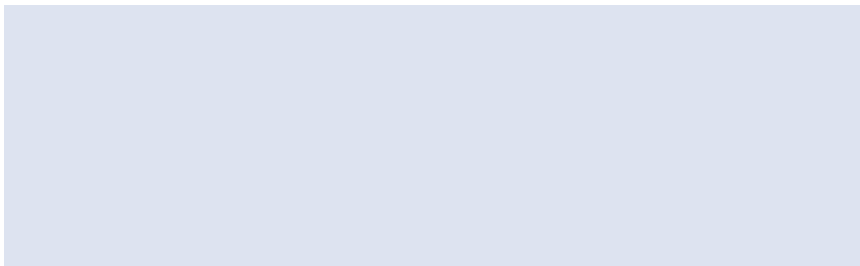
### High Performance Accelerometers include:

- High temperature vibration sensors for extra protection
- Low frequency accelerometers, especially for petrochemical, machine tool, and paper industries
- High frequency accelerometers, especially for machinery with high frequency gear mesh or small bearings
- Triaxial accelerometers to provide multi-directional data for additional analysis and faster data collection



Model	793-6	797-6	793L	797L	732A
<b>Description</b>	High Temperature, Internally Amplified Accelerometer FireFET®	High Temperature, Center Mount Accelerometer FireFET®	Premium Low Frequency Accelerometer	Premium Low Frequency Center Mount Accelerometer	High Frequency Accelerometer
<b>Sensitivity</b>	100 mV/g	100 mV/g	500 mV/g	500 mV/g	10 mV/g
<b>Tolerance (±)</b>	10%	10%	5%	5%	5%
<b>Frequency Response @ 3dB</b>	1 - 12,000 Hz	1 - 11,000 Hz	0.2 - 2,300 Hz	0.2 - 3,700 Hz	0.5 - 25,000 Hz
<b>Resonance Frequency</b>	20 kHz	20 kHz	15 kHz	18 kHz	60 kHz
<b>Electrical Noise @ 100 Hz</b>	10 µg/√Hz @ 150° C	10 µg/√Hz @ 150° C	0.2 µg/√Hz	0.2 µg/√Hz	3 µg/√Hz
<b>Max. Temperature</b>	150° C	150° C	120° C	120° C	120° C
<b>Bias Output Voltage</b>	11 VDC @ 150° C	11 VDC @ 150° C	10 VDC	10 VDC	10 VDC
<b>Grounding</b>	Case isolated	Case isolated	Case isolated	Case isolated	Case grounded
<b>Mounting</b>	1/4-28 tapped hole	1/4-28 captive screw	1/4-28 tapped hole	1/4-28 captive screw	10-32 tapped hole
<b>Output Connector</b>	2 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style	10-32 coaxial
<b>Applications</b>	Chemical reactors Steam turbines Paper machine dryer	Chemical reactors Steam turbines Paper machine dryer	Petrochemical Machine tool Paper machine Slow-speed agitators Semiconductor lithography Structural testing Intrinsic safety applications Radiation rated units available	Petrochemical Machine tool Paper machine Slow-speed agitators Semiconductor lithography Structural testing Intrinsic safety applications	Gear mesh Small bearings High speed machine tool spindles Compressors

## Sensors - High Performance Accelerometers



Model	712F	728A	993B-7	376/ CC701HT	997
<b>Description</b>	High Frequency Integral Cable Accelerometer	High Sensitivity, Low Noise Accelerometer	Premium Triaxial Accelerometer	High Temperature Accelerometer and In-Line Charge Amplifier System	High Frequency Ring Type Accelerometer with Integral Cable
<b>Sensitivity</b>	100 mV/g	500 mV/g	100 mV/g	100 mV/g	10 mV/g
<b>Tolerance (±)</b>	10%	5%	10%	10%	10%
<b>Frequency Response @ 3dB</b>	3 - 25,000 Hz	0.8 - 10,000 Hz	2 - 7,000 Hz	1 - 15,000 Hz	0.5 - 29,000 Hz
<b>Resonance Frequency</b>	>45 kHz	23 kHz	-	30 kHz	>45 kHz
<b>Electrical Noise @ 100 Hz</b>	10 µg/√Hz	0.3 µg/√Hz	1.4 µg/√Hz	7 µg/√Hz	9 µg/√Hz
<b>Max. Temperature</b>	120° C	120° C	120° C	260° C	125° C
<b>Bias Output Voltage</b>	12 VDC	10 VDC	11 VDC	12 VDC	12 VDC
<b>Grounding</b>	Case isolated	Case grounded	Case isolated	Case isolated	Case isolated
<b>Mounting</b>	8-32 captive screw	10-32 tapped hole	10-32 captive screw	1/4-28 tapped hole	8-32 captive screw
<b>Output Connector</b>	Integral cable	10-32 coaxial	Integral armored cable	Male BNC (CC701HT)	Integral cable
<b>Applications</b>	Gear mesh Small bearings High speed machine tool spindles Compressors	Test & Measurement laboratories Modal testing Structural testing	Single point mount Rapid data collection	Chemical reactors Steam turbines Small gas turbines	Machine tool spindle High speed gearbox High speed motor Turbo compressor-expander

## Sensors - Specialty Accelerometers

### Specialty Accelerometers:

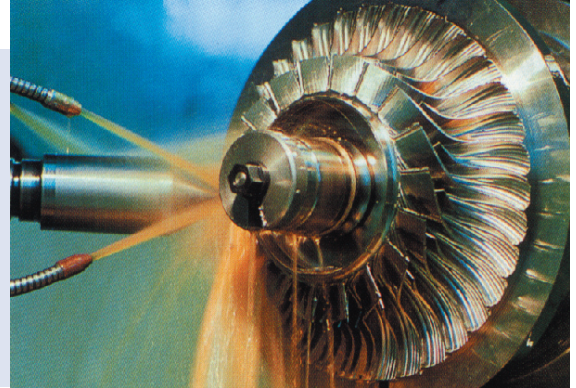
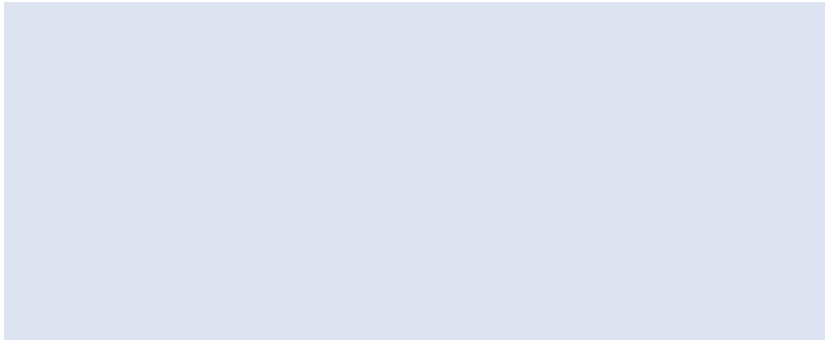
- Dual output sensors to measure vibration and temperature
- PiezoVelocity® Transducers produce output relative to velocity, especially for paper machines and pumps
- Seismic accelerometers measure vibration to the sub micro-g level
- Underwater accelerometers for applications that require continuous submersion, such as underwater pumps
- Zerkometer™ mounts where Zerk fittings exist to grease bearings



Model	793T-3	797T-1	786T	793V	797V
<b>Description</b>	Premium Dual Output Vibration and 10mV/°K Temperature Sensor	Premium Dual Output, Side Exit, Vibration and 10mV/°K Temperature Sensor	Standard Dual Output Vibration and 10mV/°C Temperature Sensor	Premium PiezoVelocity® Transducer	Premium Side Exit PiezoVelocity® Transducer
<b>Sensitivity</b>	100 mV/g	100 mV/g	100 mV/g	100 mV/ips	100 mV/ips
<b>Tolerance (±)</b>	5%	5%	5%	10%	10%
<b>Frequency Response @ 3dB</b>	0.5 - 15,000 Hz	1 - 11,000 Hz	0.5 - 12,000 Hz	2.5 - 7,000 Hz	1.6 - 7,000 Hz
<b>Resonance Frequency</b>	24 kHz	26 kHz	30 kHz	15 kHz	18 kHz
<b>Electrical Noise @ 100 Hz</b>	5 µg/√Hz	5 µg/√Hz	5 µg/√Hz	1 µin/sec/√Hz	0.8 µin/sec/√Hz
<b>Max. Temperature</b>	120° C	120° C	120° C	120° C	120° C
<b>Bias Output Voltage</b>	12 VDC	12 VDC	10 VDC	10 VDC	10 VDC
<b>Grounding</b>	Case isolated	Case isolated	Case isolated	Case isolated	Case isolated
<b>Mounting</b>	1/4-28 tapped hole	1/4-28 captive screw	1/4-28 tapped hole	1/4-28 tapped hole	1/4-28 captive screw
<b>Output Connector</b>	3 pin, MIL-C-5015 style	3 pin, MIL-C-5015 style	3 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style	2 pin, MIL-C-5015 style
<b>Applications</b>	Paper machines Pumps Motors Compressors Fans	Paper machines Pumps Motors Compressors Fans	Paper machines Pumps Motors Compressors Fans	Paper machines Pumps Intrinsic safety applications Radiation rated units available	Paper machines Pumps Intrinsic safety applications



## Sensors - Specialty Accelerometers



Model	731A	731-207	746	757	222A
<b>Description</b>	Ultra Quiet, Ultra Low Frequency Seismic Accelerometer	Ultra Low Frequency Seismic Accelerometer	Integral Cable Underwater Accelerometer	Biaxial Low Profile, Underwater Accelerometer	Zerkometer™ Accelerometer with Grease Fit Mount
<b>Sensitivity</b>	10 V/g	10 V/g	100 mV/g	100 mV/g	100 mV/g
<b>Tolerance (±)</b>	10%	10%	5%	10%	10%
<b>Frequency Response @ 3dB</b>	0.05 - 500 Hz	0.2 - 1,300 Hz	1 - 15,000 Hz	1 - 4000 Hz	0.5 - 8,500 Hz
<b>Resonance Frequency</b>	815 Hz	2.4 kHz	30 kHz	-	23 kHz
<b>Electrical Noise @ 100 Hz</b>	0.004 µg/√Hz	0.03 µg/√Hz	0.8 µg/√Hz	1 µg/√Hz	5 µg/√Hz
<b>Max. Temperature</b>	65° C	80° C	80° C	80° C	120° C
<b>Bias Output Voltage</b>	9 VDC	10 VDC	10 +2 VDC	12 VDC	12 VDC
<b>Grounding</b>	Case isolated	Case grounded	Case isolated	Case isolated	Case isolated
<b>Mounting</b>	3/8-16 tapped hole	10-32 tapped hole	10-32 tapped hole	Two 10-32 x 7/16 screws	1/8-27 NPT integral stud
<b>Output Connector</b>	2 pin, MIL-C-5015 style	10-32 coaxial	Integral cable	Integral cable	2 pin, MIL-C-5015 style
<b>Applications</b>	Earthquake detection Geophysics Geothermal development Structural analysis Mine safety	Earthquake detection Geophysics Geothermal development Structural analysis Mine safety Radiation rated units available	Deep underwater vibration measurements up to 1500ft	Vertical pumps Deep underwater vibration measurements up to 1500ft	Motors Pumps Fans Pillow block bearings

## Sensors - 4-20 mA Loop Powered Sensors (LPS®)

- Output signal proportional to overall vibration, peak or RMS, within frequency range
- Vibration data for direct interface to existing PLC or DCS networks
- Process Control applications
- Vibration trending for basic Condition Based Monitoring applications



Model	PC420	PC421	PC423	PC425	PC427
<b>Description</b>	LPS, Top Exit connector	LPS, Side Exit connector	LPS, Side Exit integral cable	LPS with Temperature sensor, Side Exit connector	LPS with Temperature sensor, Side Exit integral cable
<b>Signal Output Scaling</b>	Peak, RMS, True Peak	Peak, RMS, True Peak	Peak, RMS, True Peak	Peak, RMS, True Peak	Peak, RMS, True Peak
<b>Full Scale, Acceleration versions</b>	5, 10, 20g	5, 10, 20g	5, 10, 20g	5, 10, 20g	5, 10, 20g
<b>Full Scale, Velocity versions</b>	0.5, 1, 2, 3, 5 ips	0.5, 1, 2, 3, 5 ips	0.5, 1, 2, 3, 5 ips	0.5, 1, 2, 3, 5 ips	0.5, 1, 2, 3, 5 ips
<b>Frequency Range, 10%</b>	10 Hz - 1,000 Hz	10 Hz - 1,000 Hz	10 Hz - 1,000 Hz	10 Hz - 1,000 Hz	10 Hz - 1,000 Hz
<b>Frequency Range, 3dB</b>	4 Hz - 2,000 Hz	4 Hz - 2,000 Hz	4 Hz - 2,000 Hz	4 Hz - 2,000 Hz	4 Hz - 2,000 Hz
<b>Dynamic Output Option</b>	Acceleration, Velocity	Acceleration, Velocity	Acceleration, Velocity	Acceleration, Velocity	Acceleration, Velocity
<b>Temperature Output</b>	-	-	-	10 mV/°K	10 mV/°K
<b>Max. Temperature</b>	85°C	85°C	85°C	85°C	85°C
<b>Grounding</b>	Case isolated	Case isolated	Case isolated	Case isolated	Case isolated
<b>Mounting</b>	1/4-28 tapped hole	1/4-28 captive screw	1/4-28 captive screw	1/4-28 captive screw	1/4-28 captive screw
<b>Output Connection</b>	2 pin, MIL-C-5015 style	2 or 3 pin, MIL-C-5015 style	Integral cable	6 pin, MIL-C-5015 style	Integral cable
<b>Applications</b>	Motors Fans Pumps Gearboxes Reciprocating compressors Intrinsically safe applications	Motors Fans Pumps Gearboxes Reciprocating compressors Intrinsically safe applications	Motors Fans Pumps Gearboxes Reciprocating compressors Intrinsically safe applications	Motors Fans Pumps Gearboxes Reciprocating compressors	Motors Fans Pumps Gearboxes Reciprocating compressors

## Wilcoxon's New *iT* Series

### *iT* Transmitter:

- Converts traditional accelerometer signals to 4-20 mA output in terms of acceleration, velocity, or displacement
- Output of R.M.S or Peak, or Wilcoxon's exclusive True Peak or True Peak-to-Peak
- Now available in English or Metric units
- Custom ordered with low pass and high pass filters to suit your application
- Filter settings can be modified in the field to address your changing needs
- Buffered dynamic output available for more extensive analysis



### *iT* Alarm:

- Accepts input from an *iT* Transmitter or any 4-20 mA loop sensor: vibration, temperature, pressure, level, flow, force, and speed
- Three programmable relays: high or low setpoints, sensor BOV level
- Front panel LED readout and push button face
- Programmable delay timers prevent false alarms and hysteresis levels prevent untimely resetting



### *iT* Series Communication Module:

The *iT* Series Communication Module accepts inputs from the *iT* Transmitter to provide a link directly to a computer via a standard RS232 serial interface. To trend vibration data, the digital data stream can be imported into any standard spreadsheet or data logging program, or you can use our *iT* Series program to monitor all conditions right on your PC or laptop.

The *iT* Alarm and *iT* Communication Module both automatically exchange data with the *iT* Transmitter via a TBUS connection, eliminating the need for external wiring between units.



The *iT* Series provides a low cost online condition monitoring system. Once a potential problem is identified, a portable vibration analyzer can be attached to the front of the transmitter for a complete detailed analysis.

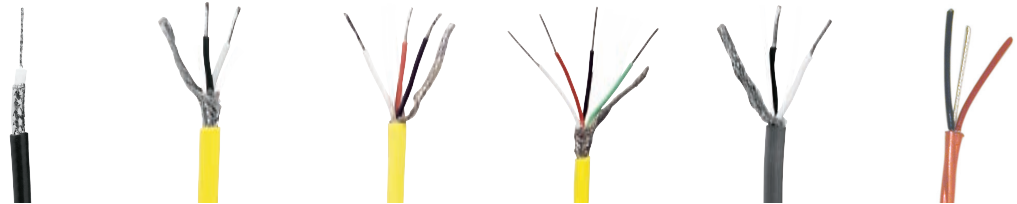
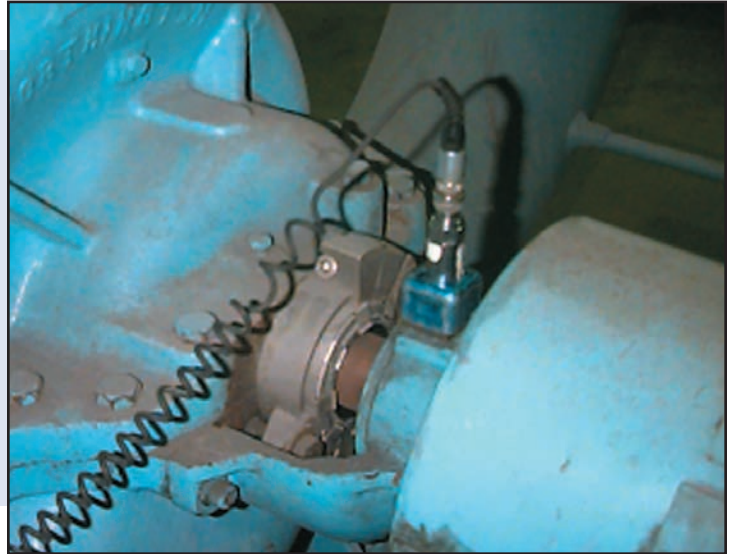
The *iT* Communication Module accepts input from the *iT* Transmitter and links to any laptop or PC via an RS232 serial port. Wilcoxon's free Vibelink™ software provides easy-to-use tracking and trending of vibration data.

A 24VDC power supply to operate Wilcoxon's *iT* Series is available. Standard or custom cables, as well as all necessary accessories for online monitoring are also available.



# Cables

The cables and mounting accessories featured are a selection of Wilcoxon's most popular products. A more extensive selection of cables and accessories can be found at [www.wilcoxon.com](http://www.wilcoxon.com).



Number		J5A	J9T2A	J9T3A	J9T4A	J10	J9F
Description		Coaxial, RG58, black PVC jacket	Twisted pair, shielded, yellow Teflon® jacket	Three conductor, shielded, yellow Teflon® jacket	Four conductor, shielded, yellow Teflon® jacket	Twisted pair, shielded, gray Enviroprene jacket	Twisted pair, foil shielded with drain wire, red Teflon® jacket
Temperature Range	deg C	-40 to 105	-80 to 200	-80 to 200	-80 to 200	-50 to 120	-70 to 200
	deg F	-40 to 221	-112 to 392	-112 to 392	-112 to 392	-58 to 257	-94 to 392
Diameter (in.)		0.190	0.190	0.190	0.190	0.190	0.125
pF/ft.		30	27	27	27	30	51


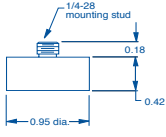

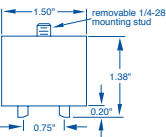

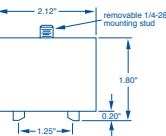

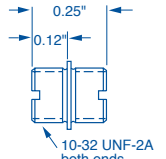

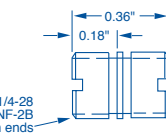

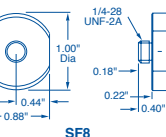
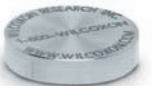
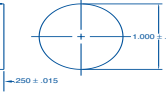


## MaxFlex™ Data Collector Cables - Field Tested Tough

MaxFlex™ cables for industry standard data collectors from SKF, Emerson (CSI) and Rockwell (Entek IRD)

- Extended life
- Reinforced for strength and maximum flexibility
- Pull tested to over 100-plus pounds
- Excellent EMI/RFI shielding



# Mounting and Accessories

Model	Image	Drawing	Description
<b>B3</b>			Rare Earth magnetic mounting base, 1/4-28 stud, non-isolated, 0.95" diameter, 40lbs force. B3-1 available with 1/4-28 tapped hole.
<b>B5</b>			Two-pole magnetic mounting base, 1.5" diameter, 30 lbs force. Removable mounting stud for use with bolt thru sensors. Can be used with SF6 mounting stud or SF3 adaptor stud (10-32 to 1/4-28).
<b>B6</b>			Two-pole magnetic mounting base, 2.12" diameter, 70 lbs force. Removable mounting stud for use with bolt thru sensors. Can be used with SF6 mounting stud or SF3 adaptor stud (10-32 to 1/4-28).
<b>SF1</b>			Mounting stud, 10-32 UNF both ends, stainless steel, recommended mounting torque 18 in-lbs.
<b>SF6</b>			SF6 mounting stud, 1/4-28 UNF both ends, stainless steel, recommended mounting torque 24 in-lbs. SF6M with 1/4-28 UNF to M8 x 1.25 (metric). SF6M-1 with 1/4-28 UNF to M6 x 1.00 (metric).
<b>SF8</b>			Cementing pad, 1/4-28 integral stud, 1" diameter, stainless steel, recommended mounting torque 24 in-lbs. SF8-2 includes tapped hole and key notch for consistent axis orientation; use with 993B Series Triaxial Accelerometers.
<b>SF11</b>			Cementing pad provides surface for sensor attachment using a B3 style magnetic mounting base.
<b>ST101</b>		N/A	Spot face tool, 1.25" diameter, pilot drill for 1/4-28 hole. Drill depth adjustable.
<b>VERSIL406</b>		N/A	Mounting epoxy. Package contains both epoxy components in a single, enclosed plastic bag. User removes red divider to allow mixing. Maximum temperature 149°C/300°F.

# Switch Boxes

Switch boxes are a cost-effective method to manage your sensor network and obtain data from a network of permanently mounted accelerometers. By providing a convenient termination for cables and easy connectivity, these boxes enable safe and fast data collection when using portable acquisition systems.

### Features Unique to Wilcoxon's Switch and Termination Boxes:

- Differential switching to achieve greater noise immunity
- Radio frequency interference filtering
- NEMA 4 or 4X ratings
- Optional bias output meter
- Optional cord grips/conduit fittings



Model	CB2	CB4	JB06-1H	JBS Series	VL6B	VL12B	VL Expandable
Channels	2	4	6	48	6	12	12-48
Output	Single BNC per channel	Single BNC per channel	Single BNC per channel	Switch Selectable	Switch Selectable	Switch Selectable	Switch Selectable

# Power and Signal Conditioning

Accelerometers require a constant current DC power source, also known as IEPE powering.



Model	P702B	P703B	P704B
Channels	1	3	1
Power	(3) 9 VDC	(3) 9 VDC	(3) 9 VDC
Filter	Selectable	-	-
Gains	1, 10, or 100	-	-
Output	Acceleration or Velocity	Acceleration	Acceleration

# Shakers

Vibration Generators, or “shakers,” produce vibration for structural research and modal testing.

## Electromagnetic Shakers:

- Operate similarly to an audio speaker
- A lightweight fixture attaches to the test structure
- Generates force in proportion to input current
- Driven by conventional methods using an audio power amplifier
- Shaker part numbers shown include the model number of the matching impedance head



## Piezoelectric Shakers:

- A lightweight fixture attaches to the test structure
- Generates force in proportion to input voltage
- Driven by high voltage and requires an impedance matching network
- The F7 Shaker is built with an integral impedance head

Shaker	<b>F3 / Z602WA</b>	<b>F4 / Z820WA</b>	<b>F5B / Z11</b>	<b>F10 / Z820WA</b>
Type	Electromagnetic	Electromagnetic	Electromagnetic	Electromagnetic
Nominal Force Output	1 lb.	10 lbs.	0.4 lbs.	20 lbs.
Frequency Range	25 – 10,000 Hz	10 – 7,500 Hz	10 – 10,000 Hz	5 – 2,000 Hz

Shaker	<b>F7</b>	<b>F7-1</b>	<b>F4 / F7</b>
Type	Piezoelectric	Piezoelectric	Dual
Matching Network	N7FS	N8HFS	N7FS
Nominal Force Output	100 lbs.	100 lbs.	100 lbs.
Frequency Range	500 – 20,000+ Hz	1 – 80,000 Hz	10 – 20,000+ Hz

The PA8HF power amplifier, to complete Wilcoxon’s Shaker Systems, can be found at our website, [www.wilcoxon.com](http://www.wilcoxon.com).

## New from Wilcoxon

### PVM 100 Portable Vibration Meter

#### On Hand When You Need It

Carry this highly portable vibration meter in your shirt pocket. Its one-button operation switches between acceleration, velocity, and displacement – or click and hold for a digital reading. The PVM 100 is supplied in a convenient carrying case with all the necessary accessories:

- Portable Vibration Meter
- 784A accelerometer
- Connector cable
- PT2 probe tip
- B3 magnet mount
- SF6 mounting stud
- Available in English or Metric units



Optional headphones can plug into a top-mounted jack for plant managers who need to further pinpoint a noise source.

### The Sensor Solution Kit

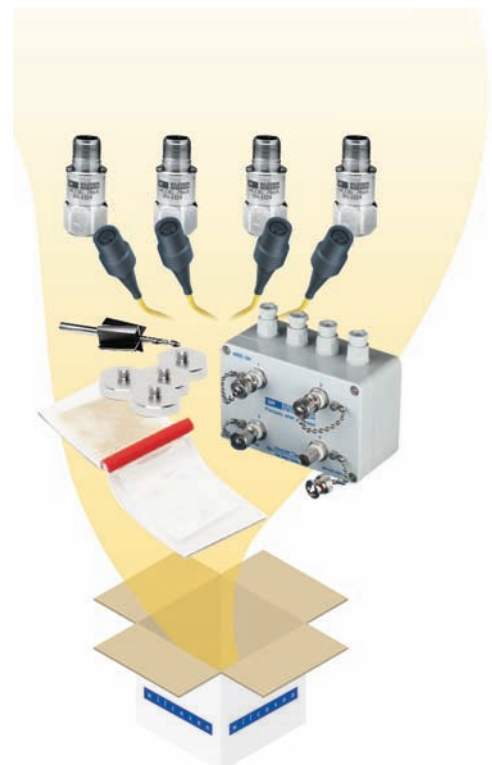
#### Complete with Sensors, Mounting, Junction Box

This 15-piece kit provides the all-in-one solution you've been asking for, and off the shelf delivery:

- (4) 786A, 100mV/g, top exit accelerometers
- (4) R6Q-0-J9T2A-32, 32ft cable assemblies
- CB4, 4 channel termination box
- ST101, spot facing tool
- (4) SF8, cement mounting pads
- VERSIL406, mounting epoxy

Includes mounting instructions and technical notes.

**A 25% savings over the combined unit costs of the components!**





## Customer Service

Our Customer Sales & Service Department is available to assist you with everything from product selection to quote preparation to order processing and fulfillment to aftermarket support. Help is available directly from our factory location by one of our Customer Sales & Service Representatives. You can contact us in the following ways:

**Mail:** 20511 Seneca Meadows Parkway  
Germantown, Maryland 20876

**Phone:** 1-800-WILCOXON (945-2696)  
301-330-8811

**Fax:** 301-330-8873

**Email:** [sensors@wilcoxon.com](mailto:sensors@wilcoxon.com)

**Website:** [www.wilcoxon.com](http://www.wilcoxon.com)

Alternatively, local representation is available worldwide from a network of independent Manufacturer's Representatives, and our Authorized Resellers. Please contact your Customer Sales & Service Representative or visit our website to locate the Representative or Reseller closest to you.

To assist you with product selection, your Customer Sales & Service Representative or local Representative or Reseller will thoroughly review your needs with you to help you decide what combination of sensors, cables, junction boxes, accessories, or other products will best suit your application.

For complex applications requiring advanced technical capabilities, a highly qualified Applications Engineer is available to discuss your needs in further detail and provide suitable recommendations. Contact Wilcoxon Tech Support at [techast@wilcoxon.com](mailto:techast@wilcoxon.com).

**We strive to provide solutions, not just sell sensors.**

## Online Resources - [www.wilcoxon.com](http://www.wilcoxon.com)

Wilcoxon's website is a valuable resource for both Vibration and Process Control Engineers. You will find everything from product information to industry best practices at [www.wilcoxon.com](http://www.wilcoxon.com).

### Product Information:

- Online searchable and downloadable catalog
- Detailed data sheets for a wide range of products
- Product descriptions and images

### Company Information:

- Sales Representatives across the world
- Calendar of events
- Press releases

### Industry Tools:

- A downloadable vibration calculator
- Technical notes
- Product presentations
- Frequently asked questions
- Applications solutions

## Export Information:

Consistent with its multilateral commitments to the European Union and other nations, the United States regulates the export of U.S. origin items and technical data. In order for Wilcoxon to fulfill your request, Wilcoxon is required to obtain specific information about the end use of all exports to ensure compliance with these regulations. Your order cannot be processed without this information. Wilcoxon is committed to outstanding corporate citizenship in our markets.

### Meggitt PLC

Wilcoxon Research is a subsidiary of UK-based Meggitt PLC, an international group of companies renowned for their specialized engineering skills.

# Quick View Sensor Chart

Model #	Sensitivity	Sensitivity Tolerance	Frequency Response @ 3db	Resonance	Exit Type/ Connector	Max. Temp.	Mounting Thread	P.s.d. Noise @ 100 Hz	Acceleration Range	Weight	Hazardous Area
			Hz	kHz		C		/√Hz	g peak	grams	
<b>GENERAL PURPOSE ACCELEROMETERS</b>											
793	100mV/g	±5%	0.5 - 15k	25	top, R6 2 pin	120°	1/4-28	5 µg	80	112	Y
797	100mV/g	±5%	1.0 - 12k	26	side, R6 2 pin	120°	1/4-28	5 µg	50	135	Y
788A	100mV/g	±10%	1.5 - 12k	25	top, R6 2 pin	120°	1/4-28	4 µg	50	45	
786A	100mV/g	±5%	0.5 - 14k	30	top, R6 2 pin	120°	1/4-28	5 µg	80	90	Y
786A-2	30mV/g	±10%	1 - 5k	30	top, R6 2 pin	120°	1/4-28	5 µg	100	90	
786C	100mV/g	±5%	0.5 - 14k	30	top, BNC	120°	1/4-28	5 µg	80	90	
786F	100mV/g	±5%	0.5 - 13k	30	top, integral cable	120°	1/4-28	5 µg	80	90	Y
786LBV-7.5	100mV/g	±5%	0.5 - 14k	30	top, R6 2 pin	120°	1/4-28	5 µg	45	90	
777/777B	100mV/g	±10%	0.5 - 12k	30	top, R6 2 pin	85°	1/4-28	5 µg	80	75	
787A	100mV/g	±10%	0.7 - 10k	22	side, R6 2 pin	120°	1/4-28	5 µg	80	145	Y
784A	100mV/g	±20%	2 - 10k	25	top, R6 2 pin	120°	1/4-28	4 µg	50	45	
784A-3	50mV/g	±20%	2 - 10k	25	top, R6 2 pin	120°	1/4-28	4 µg	100	45	
784A-3LBV	50mV/g	±20%	2 - 10k	25	top, R6 2 pin	120°	1/4-28	4 µg	80	45	
785A	100mV/g	±10%	1 - 12k	30	side, R6 2 pin	120°	1/4-28	6 µg	80	85	
775A	100mV/g	±20%	0.5 - 10k	26	top, R35	120°	1/4-28	5 µg	80	45	
S100C	100mV/g	±20%	0.5 - 10k	30	top, R35	120°	Adhesive	5 µg	80	28	
S100CS	100mV/g	±20%	0.5 - 10k	26	top, R35	120°	1/4-28	5 µg	80	45	
793R	100mV/g	±5%	1 - 15k	26	top, R6 2 pin	120°	1/4-28	5 µg	50	110	
797R	100mV/g	±5%	1 - 12k	26	side, R6 2 pin	120°	1/4-28	5 µg	50	135	
793-10	10mV/g	±5%	1 - 15k	25	top, R6 2 pin	120°	1/4-28	40 µg	500	110	
<b>LOW FREQUENCY ACCELEROMETERS</b>											
793L	500mV/g	±5%	0.2 - 2.3k	15	top, R6 2 pin	120°	1/4-28	0.2 µg	10	142	Y
797L	500mV/g	±5%	0.2 - 3.7k	18	side, R6 2 pin	120°	1/4-28	0.2 µg	10	148	Y
799LF	500mV/g	±5%	0.1 - 2.5k	18	top, R6 2 pin	120°	1/4-28	1 µg	10	205	
799M	1000mV/g	±5%	0.2 - 2.5k	18	top, R6 2 pin	80°	1/4-28	1 µg	5	205	
<b>HIGH FREQUENCY ACCELEROMETERS</b>											
712F	100mV/g	±10%	3.0 - 25k	>45	side, integral cable	120°	8-32	10 µg	60	35	
732A/732AT	10mV/g	±5%	0.5 - 25k	60	side, R1 10-32 coaxial	120°	10-32	3 µg	500	13	
736/736T	100mV/g	±5%	2.0 - 25k	60	side, R1 10-32 coaxial	120°	10-32	2 µg	50	13	
997	10mV/g	±10%	0.5 - 29k	50	side, integral cable	125°	8-32	9 µg	600	35	
CM997	1 mA/g	±5%	1 - 25k	>42	top, integral cable	80°	10-32	2 µg	2.5	50	
<b>PIEZOVELOCITY TRANSDUCERS</b>											
793V	100mV/in/sec	±10%	1.5 - 7k	15	top, R6 2 pin	120°	1/4-28	1 µin/sec	50 in/sec	145	Y
797V	100mV/in/sec	±10%	1.6 - 7k	18	side, R6 2 pin	120°	1/4-28	0.8 µin/sec	50 in/sec	148	Y
793VR	100mV/in/sec	±10%	2 - 7k	15	top, R6 2 pin	120°	1/4-28	1 µin/sec	50 in/sec	133	
<b>TRIAxIAL ACCELEROMETERS</b>											
993A	100mV/g	±10%	2 - 20k	N/A	side, R9W 4 pin	120°	1/4-28	2 µg	50	88	
993A-5	100mV/g	±10%	2 - 20k	N/A	top, integral cable	120°	10-32	2 µg	50	90	
993B-5	25mV/g	±10%	2 - 10k (z axis)	N/A	top, integral cable	120°	10-32	3.2 µg	150	134	
			2 - 7k (x&y axis)								
993B-6	50mV/g	±10%	2 - 10k (z axis)	N/A	top, integral cable	120°	10-32	2 µg	75	134	
			2 - 7k (x&y axis)								
993B-7	100mV/g	±10%	2 - 10k (z axis)	N/A	top, integral cable	120°	10-32	1.4 µg	40	134	
			2 - 7k (x&y axis)								
<b>HIGH TEMPERATURE ACCELEROMETERS</b>											
376	25 pC/g	±10%	1 - 12k	30	top, R1 10-32 coaxial	260°	1/4-28	N/A	N/A	75	
376/CC701HT	100mV/g	±10%	1 - 12k	30	inline, 10-32 coaxial	260°	1/4-28	7 µg	50	75	
793-6	100mV/g	±10%	1 - 12k	20	top, R6 2 pin	150°	1/4-28	3 µg	50	135	
797-6	100mV/g	±10%	1 - 11k	20	side, R6 2 pin	150°	1/4-28	3 µg	50	145	

Model #	Sensitivity	Sensitivity Tolerance	Frequency Response @ 3db	Resonance	Exit Type/ Connector	Max Temp	Mounting Thread	P.s.d. Noise @ 100 Hz	Acceleration Range	Weight	Hazardous Area
			Hz	kHz		C		/\Hz	g peak	grams	
<b>4-20 mA OUTPUT VIBRATION LOOP POWERED SENSORS</b>											
PC420A	4-20 mA	±5%	4 - 2k	N/A	top, R6 2 pin	85°	1/4-28	N/A	5,10,20 g	162	Y
PC420V	4-20 mA	±5%	4 - 2k	N/A	top, R6 2 pin	85°	1/4-28	N/A	0.5,1,2,3,5 ips	162	Y
PC421A	4-20 mA	±5%	4 - 2k	N/A	side, R6 2 pin	85°	1/4-28	N/A	5,10,20 g	320	Y
PC421V	4-20 mA	±5%	4 - 2k	N/A	side, R6 2 pin	85°	1/4-28	N/A	0.5,1,2,3,5 ips	320	Y
PC423A	4-20 mA	±5%	4 - 2k	N/A	integral cable	85°	1/4-28	N/A	5,10,20 g	320	Y
PC423V	4-20 mA	±5%	4 - 2k	N/A	integral cable	85°	1/4-28	N/A	0.5,1,2,3,5 ips	320	Y
PC425A	4-20 mA	±5%	4 - 2k	N/A	R19 6 pin	85°	1/4-28	N/A	5,10,20 g	320	
PC425V	4-20 mA	±5%	4 - 2k	N/A	R19 6 pin	85°	1/4-28	N/A	0.5,1,2,3,5 ips	320	
PC427A	4-20 mA	±5%	4 - 2k	N/A	integral cable	85°	1/4-28	N/A	5,10,20 g	320	
PC427V	4-20 mA	±5%	4 - 2k	N/A	integral cable	85°	1/4-28	N/A	0.5,1,2,3,5 ips	320	
<b>DUAL OUTPUT SENSORS</b>											
793T-3	100mV/g	±5%	0.5 - 15k	24	top, R6G 3 pin	120°	1/4-28	5 µg	80	115	
797T-1	100mV/g	±5%	1 - 12k	26	side, R6G 3 pin	120°	1/4-28	5 µg	80	135	
797LT	100mV/g	±5%	0.2 - 3.7k	18	side, R6G 3 pin	120°	1/4-28	0.2 µg	10	160	
786T	100mV/g	±5%	0.5 - 12k	30	top, R6G 3 pin	120°	1/4-28	5 µg	60	90	Y
<b>SPECIALTY SENSORS</b>											
221A	100mV/g	±10%	0.5 - 7k	13	top, R35	80°	1/4-28	5 µg	80	53	
221B	100mV/g	±20%	0.5 - 10k	18	top, R35	80°	1/8-27 NPT	5 µg	80	57	
222A	100mV/g	±20%	0.5 - 8.5k	23	top, R6 2 pin	120°	1/8-27 NPT	5 µg	80	76	
996LD	12V/g	±3dB	10 - 4k	14	top, R6 2 pin	80°	1/4-28	0.08 µg	0.2	-	
H571LD-1A	-187dB re 1VµPa	±3dB	5.0 - 20k	n/a	top, R4 3 pin	80°	3/4-14 NPT	N/A	N/A	-	
H571LD-2	-175dB re 1VµPa	±3dB	5.0 - 20k	n/a	top, R4 3 pin	80°	3/4-14 NPT	N/A	N/A	-	
<b>TEST &amp; MEASUREMENT SENSORS</b>											
726/726T	100mV/g	±5%	0.6 - 15k	32	side/top, 10-32 coaxial	120°	10-32	0.8 µg	80	30-34	
728A/728T	500mV/g	±5%	1.0 - 10k	24	side/top, 10-32 coaxial	120°	10-32	0.3 µg	15	45	
ES-08100	100mV/g	±20%	2 - 10k	>20	TO-8 case, pins	120°	adhesive	4 µg	50	7	
<b>SEISMIC SENSORS</b>											
731A	10V/g	±10%	0.05 - 500	0.815	top, R6 2 pin	65°	3/8-16	0.004 µg	0.5	670	
731A/P31	selectable	selectable	0.05 - 500	0.815	BNC	65°	3/8-16	0.004 µg	0.5	670	
731-207	10V/g	±10%	0.2 - 1.3k	2.4	top, 10-32 coaxial	80°	10-32	0.03 µg	0.5	50	
731-207R	10V/g	±10%	0.2 - 1.3k	2.4	top, 10-32 coaxial	80°	10-32	0.03 µg	0.5	77	
<b>UNDERWATER ACCELEROMETERS</b>											
746	100mV/g	±5%	1.0 - 15k	30	top, integral cable	80°	10-32	0.8 µg	50	45	
754	10mV/g	±10%	2.0 - 25k	60	side, integral cable	80°	adhesive	4 µg	250	4	
757	100mV/g	±10%	2.0 - 2k (at 10%)	-	side, integral cable	80°	10-32	1 µg	50	110	
<b>HYDROPHONES</b>											
H505L	-160dB re 1VµPa	±10%	2.0 - 10k	-	integral cable	80°	N/A	50 µPa	N/A	-	
H507A	-188dB re 1VµPa	±10%	10 - 100k	-	integral cable	80°	N/A	300 µPa	N/A	-	
<b>HELICOPTER SENSORS</b>											
991D	40mV/g	±5%	0.5 - 12k	20	top, R4V 3 pin	120°	1/4-28	1.3 µg	40	54	
991D-1	20mV/g	±5%	.4 - 12k	20	top, 3 pin	120°	1/4-28	11 µg	250	54	
991V	20mV/ips	±10%	2.5 - 7k	20	top, R4V 4 pin	120°	1/4-28	9 µg	400 in/sec	55	
992-1	10mV/g	±10%	2.0 - 20k (at 1.5 dB)	35	PC01A-8-4P	120°	1/4-28	20 µg	40	45	

## Warranty

### Wilcoxon's product quality is an industry standard.

Wilcoxon has been supplying Vibration Sensors to the Industrial Market for over 40 years and have over 500,000 units installed in field operations. We stand by each of our products and if any sensor should ever fail within five years, we will repair or replace it at no charge.

Some companies may offer lifetime warranties—but in the long run, your warranty is only as good as the strength of the company behind it. Wilcoxon is a strong company with a growth strategy to enable your success through leading edge technology and products. We continually reinvest a significant portion of revenue back into our product and technology development to ensure this growth.

At Wilcoxon, we will always strive to increase the ease of doing business with us and will continue to offer a lifetime commitment to your success.

**“Wilcoxon, your vibration sensor partner for life”**



### Warranty Service Plan

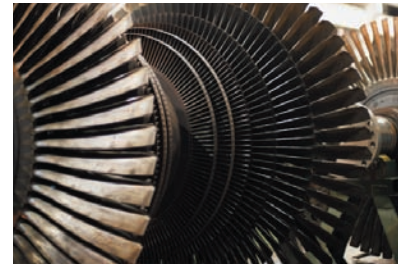
Wilcoxon Research, Inc. (WRI) offers a Warranty Service Plan for all WRI-manufactured products. Under this plan WRI will repair or replace any Wilcoxon sensor part or component that is not operating in accordance with published specifications for a period of five (5) years from shipment of the hardware from the factory, and any Wilcoxon electronic product (i.e., signal analysis or signal conditioning product) that is not operating in accordance with published specifications for a period of one (1) year from shipment of the hardware from the factory.

#### This Warranty Service Plan does not include:

- Products improperly installed or calibrated.
- Products damaged, misused, or misapplied.
- Products not manufactured by WRI.
- Unauthorized repairs or alterations.
- Neglect or accidents.

To return a product, contact WRI for a Return Goods Authorization (RGA) number. To assure delivery acceptance, the RGA number must appear clearly and in an obvious place on the outside of the package containing the part or component, and must be referenced on all paperwork. The Customer must prepay shipment to WRI. After repair or replacement, WRI will return the part or component to the Customer prepaid by WRI.

This service is offered to the Customer at NO CHARGE for a period of five (5) years from shipment date of sensors from the factory, and for a period of one (1) year from shipment date of electronics from the factory. The period of this Warranty Service Plan may vary for specific models. At the end of this period the repair or replacement service shall be terminated. Renewals of this basic plan will be available on selected products. The products must be re-certified or repaired to original specifications by WRI before the service agreement can be renewed. Wilcoxon's liability for incidental and consequential damages is expressly excluded. THIS WARRANTY SERVICE PLAN IS THE EXCLUSIVE REMEDY FOR CORRECTIONS OF IMPROPERLY PERFORMING PARTS AND COMPONENTS. NO WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE ARE GIVEN. If full payment on the goods is not received by WRI, this Warranty Service Plan is null and void.



## Vibration sensors with **TLC**

For over 40 years, Wilcoxon Research has been manufacturing vibration instrumentation with **TLC—Total Lower Cost of Ownership**. When you factor in our world-class service and support, industry-leading product quality and reliability, over 98% on-time delivery, and competitive pricing, you will see how using Wilcoxon sensors affects your bottom line.

Genuine Wilcoxon sensors are essential to predictive maintenance programs designed to save money, reduce downtime, and improve safety in plants worldwide. Wilcoxon gives you unrivalled reliability and our products set the industry standard for quality vibration sensors. Make Wilcoxon Research your vibration monitoring partner.



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## Notes:



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