

# Calibration



The guidelines for calibrating industrial piezoelectric accelerometers are dependent upon the sensing element utilized in each sensor. For quartz sensors, the calibration value is guaranteed to remain stable for a minimum of 5 years, when used within the published operating guidelines for these sensors. Sensors with ceramic sensing elements should be calibrated at least once a year. Piezoelectric ceramics are typically pre-aged to maximize stability but are still subject to sensitivity degradation over time.

All sensors should be recalibrated after any suspected physical damage due to excessive mechanical shock, extreme thermal transients, excessive temperatures, or other extreme environmental influences.

In calibrating industrial piezoelectric accelerometers, Entek offers two standards of calibration. ICS-1 calibration supplies a detailed calibration certificate, which is illustrated below, in compliance with ISO 10012-1, and is traceable to the N.I.S.T.

(National Institute of Standards & Technology). ICS-2 calibration provides a low cost option for calibrating industrial sensors which do not require a full range calibration due to their application. This standard provides a single point calibration value, which is traceable to the N.I.S.T., and is laser etched on the sensor's case for easy reference. These services are available on all of our industrial accelerometers.

## (ICS-1 & ICS-2)

— *Calibration Certificate* —  
Per ISA-RP37.2

Model No. \_\_\_\_\_  
Serial No. \_\_\_\_\_  
PO No. \_\_\_\_\_ Customer \_\_\_\_\_  
Calibration traceable to NIST thru Project No. \_\_\_\_\_

ICP® ACCELEROMETER  
with built-in electronics  
Calibration procedure is in compliance with  
ISO 10012-1 and former MIL-STD-45862A  
and traceable to NIST.

<b>CALIBRATION DATA</b>		<b>KEY SPECIFICATIONS</b>		<b>CONVERSIONS</b>	
Voltage Sensitivity	98 mV/g	Range	50 ±9		
Transverse Sensitivity	2.4 %	Resolution	0.0001 9	mc <sup>2</sup> - 0.102 g	
Resonant Frequency	24.5 kHz	Temp. Range	-65/ +250 °F	°C - 5/9 x 1°F - 132	
Output Bias Level	10.4 V			1Hz - 60 CPM	
Setting Time	3 8				

Frequency CPM	600	900	1800	3000	6000	18000	30000	60000	180000	300000				
Amplitude Deviation %	2.4	1.8	1.0	0.6	0.0	-1.0	-1.1	-1.7	-0.9	1.2				

**Frequency Response**

Calibrated by: \_\_\_\_\_  
Date: \_\_\_\_\_

## ENTEK PROFESSIONAL SERVICES

### Customer Support

Our people are our product. We are very fortunate to have an outstanding staff of support professionals who are committed to the success of our customers – YOUR success! Our staff has a wide variety of experience and education, including mechanical, industrial and electrical engineering; PC, database and operating system technologies; customer service; chemistry; and electronics. Technical proficiency is a requirement for providing you with knowledgeable and accurate answers, but our commitment to serving our customers in a friendly, caring, professional and timely manner is what will help maximize your return on investment.

### ESAFE

ESAFE is a comprehensive offering of services and product updates to ensure the success of your long-term success in operating a condition-monitoring program. Entek is committed to standing behind its products to ensure that you are successful in reaching your equipment reliability goals. Because Entek is fully committed to customer support, your investment in ESAFE will guarantee peace of mind, allowing you to focus on getting your job done. Participating in the ESAFE program assures you of on-going support, product up-dates, information exchange and more! Each customer is unique, which is why we offer a flexible range of ESAFE packages -Bronze, Silver, Gold and Platinum – allowing you to select a specific level of service to meet your particular needs.

### Field Service

Implementing an effective condition-monitoring program is critical to your success in meeting the equipment reliability, productivity and business goals of your plant and company. A strong commitment to implementing the program is necessary to achieve your objectives, and if you have this it is certain you will succeed. The real question is, how quickly will you have a program that is delivering powerful results and are you doing it the best way possible using all the capabilities and efficiencies of your products? Entek's field service engineers are experienced in starting up and running successful condition monitoring programs and helping existing programs improve. They have seen what works and what doesn't. They are also experts in Entek products and different condition monitoring technologies. This expertise can help you reach your condition monitoring goals and see results sooner.

### Repair Centers

When your equipment is in need of repair, you want a reliable repair center that is quick, convenient, and cost effective. Entek offers factory in-house repair, service, and calibration for our entire range of products - even products no longer part of our current line. As the original equipment manufacturer (OEM), we are the most knowledgeable and the most qualified to service our products. Supported by more than 150 combined years of technical service experience, our repair technicians provide the highest quality service for your Entek hardware.

### Entek Educational Services

The best tools, when used by unskilled craftsmen, will still result in unsatisfactory results. This is true in many aspects of life, but especially in the application of Condition Monitoring techniques and technologies in today's demanding plant environments. Yes, you need to be equipped with the best tools, but you must also receive the proper training to get the maximum benefit from your investment in a successful Condition Monitoring or Reliability program.

Experience, knowledge and quality are the foundation of Entek's training seminars. Technology training is available as well as product training courses; all presented by the most qualified instructors to meet your needs. Choose from on-site seminars and classroom training conducted all over the world to help you gain the maximum benefit from your machinery reliability investment.

### Reliability Online (ROL)

Reliability Online is a unique service designed to provide results with minimum investment in equipment training and personnel. Reliability Online takes advantage of either the Internet / e-mail and a central group of highly skilled condition monitoring engineers to give you the best possible condition monitoring program.

## REFERENCES

1. PCB PIEZOTRONICS Inc.

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