



Model 687A02

Handheld vibration meter measures acceleration, velocity, and complies with ISO 2954 & ISO 10816

Installation and Operating Manual

**For assistance with the operation of this product,
contact the PCB Piezotronics, Inc.**

Toll-free: 800-959-4464

24-hour SensorLine: 716-684-0001

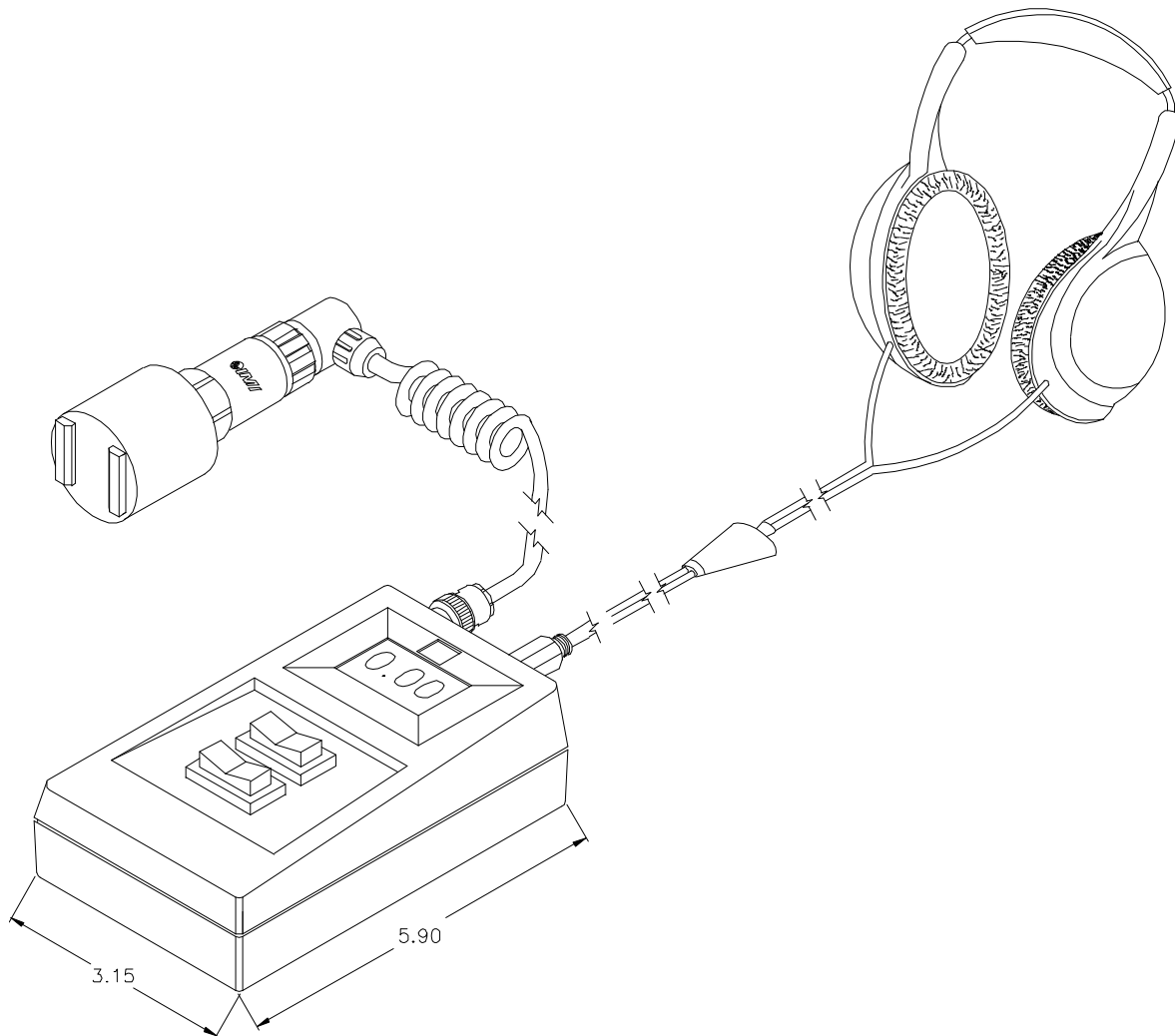
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The Model 687A01 & 687A02 Hand Held Vibration Meter Kits



Operating Guide with Enclosed Warranty Information

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warranty/servicing

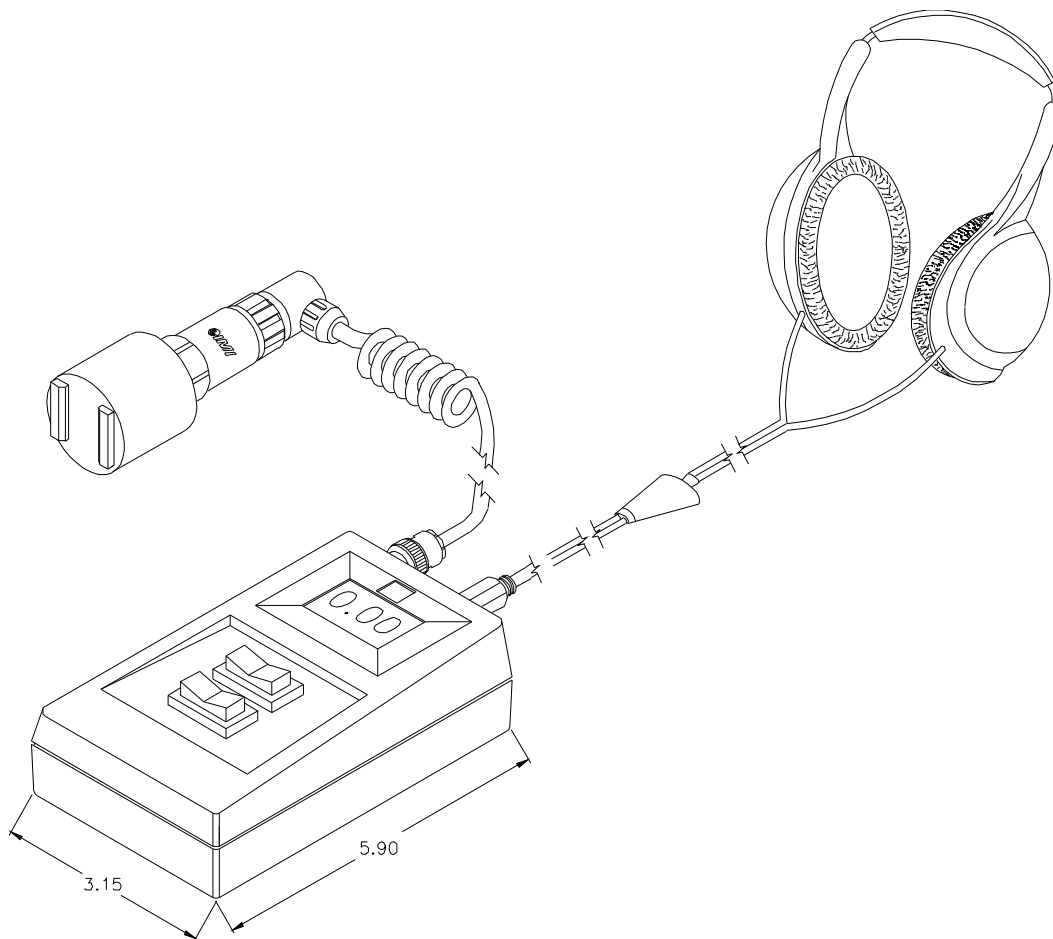
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introduction

The Model 687A01 Hand Held Vibration Meter Kit consists of a digital vibration meter, a general purpose accelerometer, an accelerometer cable assembly, magnet, and headphones. The kit is designed for general purpose, overall vibration readings on all types of machines. When unpacking the kit, be sure to note that the following accessories are included:

- 687A02 Meter
- 603C01 Industrial Accelerometer
- 050BQ006AC Cable Assembly
- 080A131 Magnetic Mounting Base
- 070A47 Headphones

figure 1 - model 687A01 hand held vibration meter kit



description

The meter provides two types of measurements — overall acceleration and overall velocity. In the velocity mode, the meter measures in the frequency range of 10 Hz to 1 kHz, and complies with ISO2954 standard. It measures overall RMS velocity to a maximum of two inches per second. In acceleration mode, the meter measures in the frequency range of 50 Hz to 50 kHz. The maximum overall RMS acceleration reading is 20 g's. To toggle between acceleration and velocity measurements, use the rocker switch labeled “**ACC/VEL.**” To turn the unit on, move the rocker switch labeled “**0/I/Bias**” to the “**I**” position. The “**0**” position shuts the unit off, while the bias is a momentary toggle for monitoring the bias voltage of the sensor.

The meter provides three input connectors that are located at the top of the unit. The input for the sensor (labeled SENSOR) is a standard BNC Jack. The headphones can be connected through the 1/8 inch stereo jack (labeled with the appropriate symbol), and the input for the recharger (labeled CHARGE) is a 2.5 mm plug.

The unit is powered by a 9-volt alkaline battery which is housed in the battery compartment located at the bottom of the meter. To remove this cover, use a small standard screwdriver, pry the cover up, and the push it up towards the top of the meter. Since the meter is supplied with alkaline batteries, **DO NOT ATTEMPT TO RECHARGE ALKALINE BATTERIES. IT MAY CAUSE A POTENTIAL FIRE AND/OR EXPLOSION.**

The unit has a low battery indicator on the front panel LCD display. The indicator will light when the battery voltage is approximately 7.5 volts. Please replace the battery or recharge the rechargeable battery if supplied.

If the optional recharger was purchased, plug-in the recharger in the appropriate connector located on the top of the meter. Turn unit off, and plug the charger into an electrical outlet. Recharge the battery for approximately 12 hours.

sensor – model 603C01

The sensor supplied with the kit is a general purpose industrial accelerometer, Model 603C01. Please refer to the enclosed specifications on the 603C01 for proper operation of the sensor.

headphones – model 070A47

The headphones are stereo-type with built-in, individual volume controls. The volume knobs are located on the side of the cuffs. Please keep volume to a comfortable level in order to maintain audio safety.

magnetic mounting base – model 080A131

The supplied magnet can be used for either curved or flat surfaces. To maximize frequency response, always dab a layer of silicone grease or equivalent between the sensor and the magnet. To minimize errors in readings, proper surface preparation should be observed. See sensor manual for further information.

cable assembly – model 050BQ006AC

The cable assembly supplied is a 6 ft coiled cable with a right-angle military connector on one end to a BNC plug on the other. Screw the military connector onto the sensor, and make sure it is hand tight. The BNC plug is then inserted into the BNC jack on the meter labeled sensor.

warning 1 – ESD sensitivity

The power supply/signal conditioner should not be opened by anyone other than qualified service personnel. This product is intended for use by qualified personnel who recognize shock hazards and are familiar with the safety precautions required to avoid injury.

warning 2 – ESD sensitivity

This equipment is designed with user safety in mind; however, the protection provided by the equipment may be impaired if the equipment is used in a manner not specified by PCB Piezotronics, Inc.

caution 1 – ESD sensitivity

Cables can kill your equipment. High voltage electrostatic discharge (ESD) can damage electrical devices. Similar to a capacitor, a cable can hold a charge caused by triboelectric transfer, such as that which occurs in the following:

- *Laying on and moving across a rug,*
- *Any movement through air,*
- *The action of rolling out a cable, and/or*
- *Contact with a non-grounded person.*

The PCB solution for product safety:

- *Connect the cables only with the AC power off.*
- *Temporarily “short” the end of the cable before attaching it to any signal input or output.*

**caution 2 – ESD sensitivity**

ESD considerations should be made prior to performing any internal adjustments on the equipment. Any piece of electronic equipment is vulnerable to ESD when opened for adjustments. Internal adjustments should therefore be done ONLY at an ESD-safe work area. Many products have ESD protection, but the level of protection may be exceeded by extremely high voltage.

warranty

IMI instrumentation is warranted against defective material and workmanship for 1 year unless otherwise expressly specified. Damage to instruments caused by incorrect power or misapplication, is not covered by warranty. *If there are any questions regarding power, intended application, or general usage, please consult with your local sales contact or distributor.* Batteries and other expendable hardware items are not covered by warranty.

service

Because of the sophisticated nature of IMI instrumentation, field repair is typically **NOT** recommended and may void any warranty. If factory service is required, return the instrumentation according to the "Return Procedure" stated below. *A repair and/or replacement quotation will be provided prior to servicing at no charge.* Before returning the unit, please consult a factory IMI applications engineer concerning the situation as certain problems can often be corrected with simple on-site procedures.

return procedure

To expedite returned instrumentation, contact a factory IMI applications engineer for a RETURN MATERIAL AUTHORIZATION (RMA) NUMBER. Please have information available such as model and serial number. Also, to insure efficient service, *provide a written description of the symptoms and problems with the equipment to a local sales representative or distributor, or contact IMI if none are located in your area.*

Customers outside the U.S. should consult their local IMI distributor for information on returning equipment. For exceptions, please contact the International Sales department at IMI to request shipping instructions and an RMA. For assistance, please call (716) 684-0003, or fax us at (716) 684-3823. You may also receive assistance via e-mail at imi@pcb.com or visit our web site at www.pcb.com.

customer service


IMI, a division of PCB Piezotronics, guarantees **Total Customer Satisfaction**. If, at any time, for any reason, you are not completely satisfied with any IMI product, IMI will repair, replace, or exchange it at no charge. You may also choose, within the warranty period, to have your purchase price refunded.

IMI offers to all customers, at no charge, 24-hour phone support. This service makes product or application support available to our customers, day or night, seven days a week. When unforeseen problems or emergency situations arise, call the **IMI Hot Line at (716) 684-0003**, and an application specialist will assist you.



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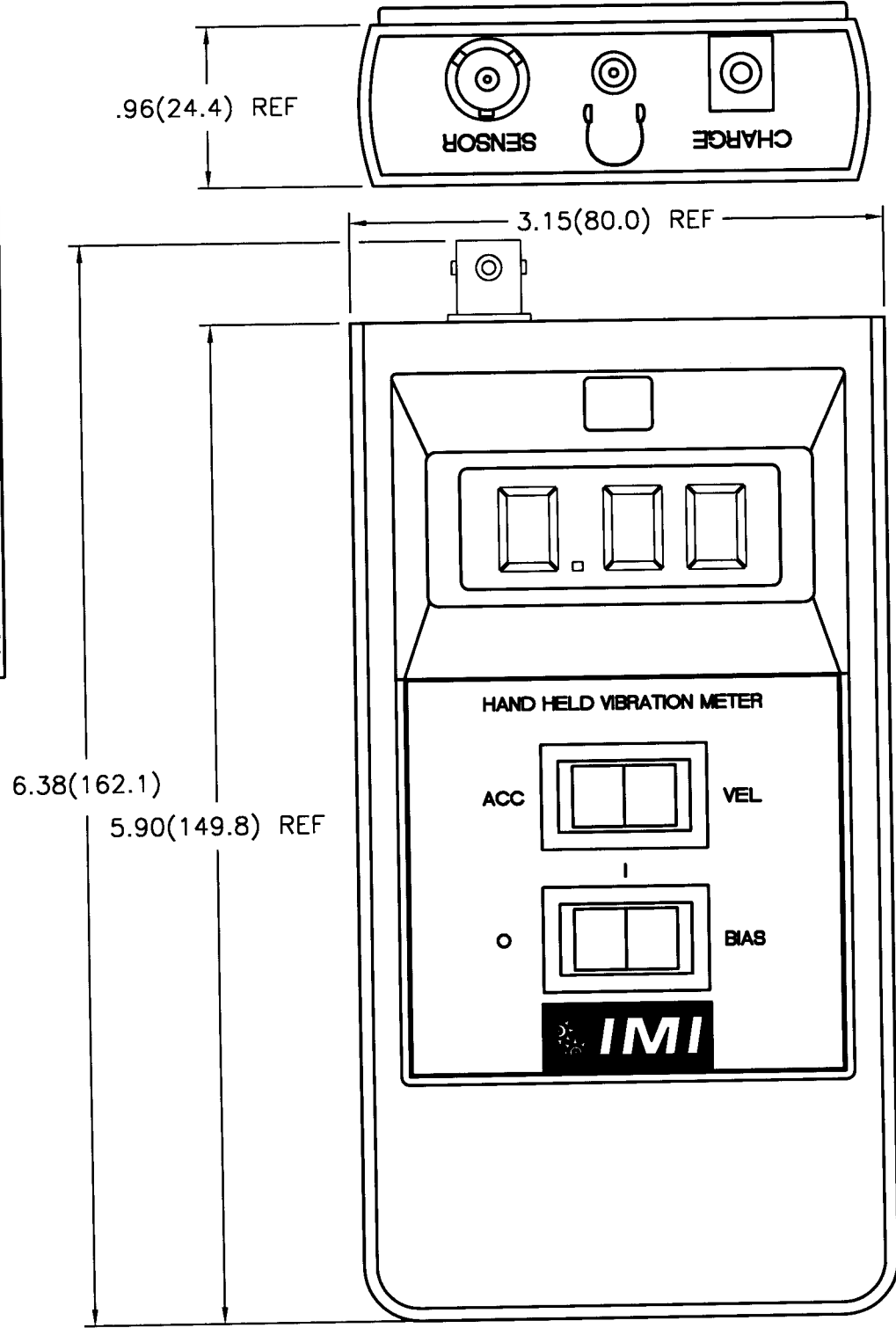
Model Number 687A02	HANDHELD VIBRATION METER				Revision: C ECN #: 47534
Performance	<u>ENGLISH</u>	<u>SI</u>			OPTIONAL VERSIONS Optional versions have identical specifications and accessories as listed for the standard model except where noted below. More than one option may be used. R - Rechargeable option, includes rechargeable batteries and charger. Supplied Accessory : Model 017A01 Power Cord (1) Supplied Accessory : Model 073A09 Rechargeable NiCad battery (9V) (1) Supplied Accessory : Model 073M12 External Charger (1)
Frequency Response(+10 to -20 %)	600 to 60,000 cpm	600 to 60,000 cpm	[5]		
Frequency Response(+/-3 dB)	3 to 3000 kcpm	99 to 3,000,000 cpm	[5]		
Acceleration Range	0.01-199.99 g rms	0.01-19.99 g rms			
Resolution	± 2 counts	± 2 counts	[1]		
Velocity Range	0.001-1.999 in/sec rms	NA			
Accuracy	± 3 %	± 3 %	[1]		
Environmental					
Temperature Range	+32 to +122 °F	0 to +50 °C	[4]		
Electrical					
Excitation Voltage(+/-1 VDC)	24 VDC	24 VDC			
Constant Current Excitation(+/-0.6 mA)	2 mA	2 mA			
Bias Voltage	0.00 to 19.99 VDC	0.00 to 19.99 VDC			
Battery Life(Alkaline)	10 hours	10 hours	[1]		
Battery Life(Rechargeable Ni Cad)	3 hours	3 hours	[2][3]		
Physical					
Size (Length x Width x Height)	5.9 in x 3.15 in x 1.2 in	150 mm x 80 mm x 30 mm			
Weight(with battery)	0569 lb	0569 lb			
Connector(Input)	BNC Jack	BNC Jack			
Connector(Headphones)	1/8" Stereo Jack	1/8" Stereo Jack			
ROHS Compliant	No	No			
<i>All specifications are at room temperature unless otherwise specified. In the interest of constant product improvement, we reserve the right to change specifications without notice.</i>					
ICP® is a registered trademark of PCB Group, Inc.					
Entered: LK		Engineer: RB	Sales: MC	Approved: BAM	Spec Number:
Date: 5/15/2018		Date: 5/15/2018	Date: 5/15/2018	Date: 5/15/2018	11285
 IMI SENSORS A PCB PIEZOTRONICS DIV. 3425 Walden Avenue, Depew, NY 14043				Phone: 800-959-4464 Fax: 716-684-3823 E-Mail: imi@pcb.com	

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APPLICATION		
NEXT ASS'Y	USED ON	VAR

REVISIONS				
REV	DESCRIPTION	ECN	DATE	APP'D



UNLESS SPECIFIED TOLERANCES	
DIMENSIONS IN INCHES	DIMENSIONS IN MILLIMETERS (IN PARENTHESIS)
DECIMALS XX ±.01	DECIMALS XX ±0.3
XXX ±.005	XXX ±0.13
ANGLES ±2 DEGREES	ANGLES ±2 DEGREES
FILLETS AND RADII .003 - .005	FILLETS AND RADII (0.07 - 0.13)
DD011 REV. 8 03/13/98	

DRAWN	<i>W</i>	5/18/99	MFG	<i>R. D.</i>	5/18/99
CHK'D	<i>am</i>	5/18/99	ENGR	<i>KL</i>	5/18/99
APP'D	<i>N.F.</i>	5/19/99			
TITLE OUTLINE DRAWING MODEL 687A02 HAND HELD VIBRATION METER					

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SCALE: FULL	SHEET 1 OF 1