

Hand-Held Pistonphone Kit

For Calibrating High-Intensity Acoustic Pressure Sensors and Microphones

- For calibrating condenser microphones and high-sensitivity, piezoelectric pressure sensors
- Produces an accurate, stable, sound pressure level reference of 134 dB at 250 Hz
- Included barometric pressure gauge provides ambient, atmospheric pressure correction factor
- Kit includes all adapters, batteries, and accessories required for calibrating PCB Models 106B, 116B, and Series 103A piezoelectric pressure sensors



Model 915A01 pistonphone kit provides a quick and simple means for field or laboratory calibration of precision microphones and high-sensitivity piezoelectric pressure sensors. The self-contained, battery-powered pistonphone generates a very stable and accurate sound pressure level reference for calibrating the unit under test. Ease of interface to a variety of sensors is achieved with the assortment of provided adaptors.

Use of the pistonphone kit builds confidence in measurement results. The validity of acquired measurement data is ensured by compensating for variations in temperature and ambient pressure. In addition, the stability of the entire measurement system is verified.

As with all equipment from PCB®, the 915A01 is complemented with toll-free applications assistance, 24-hour customer service and is backed by a **Total Customer Satisfaction** guarantee.

Specifications

Pistonphone Performance

Conformance	IEC942 (1988) Class 1
Generated Sound Pressure Level	134 dB SPL (± 0.09 dB) (100 Pa)
with reference conditions:	
ambient pressure: 101.3 kPa	
ambient temperature: 68 °F (20 °C)	
ambient humidity: 65 % RH	
Frequency	250 Hz (± 0.5 %)
Distortion	< 1.5 %
Coupler Volume	20 cm ³

Electrical

Power Requirements	4 × AA alkaline batteries
Battery Life	> 50 hours (battery indicator on unit)

Environmental

Operating Temperature Range	14 °F to +131 °F (-10 °C to +55 °C)
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Physical

Dimensions (L × W × H)	6.89 × 1.38 × 1.5 in (175 × 35 × 38 mm)
Weight	0.71 lb (320 gm)

Supplied Accessories:

- (1) Dial-type barometer
- (4) AA alkaline batteries
- (1) Model 061A13 coupling adaptor for use with Models 106B and 116B
- (1) Model 060A53 clamp nut for use with Models 106B and 116B
- (1) Model 061A14 coupling adaptor for use with Model 106B50
- (1) Model 060A54 clamp nut for use with Model 106B50
- (1) Model 061A67 coupling adaptor for use with Series 103A
- (1) Model 060A55 clamp nut for use with Series 103A
- (1) Rugged carrying case

Principle of operation — An accurate, sound pressure level is achieved by varying the volume of a cavity, by a known displacement, at a controlled frequency. The cavity volume is that which is enclosed at the head of the pistonphone by the installed sensor and its associated coupling adaptor. Variations in sensor geometries are accommodated by use of a corresponding, dedicated coupling adaptor, whose design maintains an equal cavity volume from sensor to sensor. The cavity volume is then altered by the known displacement of two opposed reciprocating pistons. These pistons are driven into motion by a precision-machined, rotating cam disc at a tachometer-controlled frequency of 250 Hz. As the volume of the cavity changes dynamically by the known piston displacements, so to will the pressure, resulting in the accurate, 134 dB, 250 Hz, sound pressure level. Other factors which have an influence on this sound pressure level include the ambient, barometric pressure, temperature, and humidity. The included barometer provides a compensation factor for ambient barometric pressure.

Method for use — The pistonphone is easy to operate. The sensor to be tested is mounted into its appropriate coupling adaptor, which is then press fitted into the head of the pistonphone. The power switch is moved to the "on" position. An LED monitors for proper frequency of operation. If the LED is red, then the frequency has not yet stabilized. A red LED is normal upon initial startup. Once the frequency has stabilized, the LED turns green to indicate that proper operation has been achieved, and that measurements can begin. The LED is also an indicator of proper battery condition. If the condition of the batteries is inadequate, the LED will turn red.



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ISO 9001 CERTIFIED

A2LA ACCREDITED to ISO 17025

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The Pressure Division of PCB[®] Piezotronics, Inc. specializes in the development, application, and support of piezoelectric and thin film pressure sensors, transducers, and transmitters for dynamic and static pressure measurement, test, monitoring, and control requirements. This product focus, coupled with the strengths and resources of PCB, permits the Pressure Division to offer timely response to client's needs, exceptional customer service, 24-hour technical assistance, and a **Total Customer Satisfaction** guarantee.

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