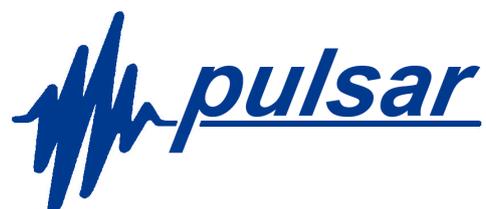


User Manual for the Model 105 & Model 106 Acoustic Calibrators



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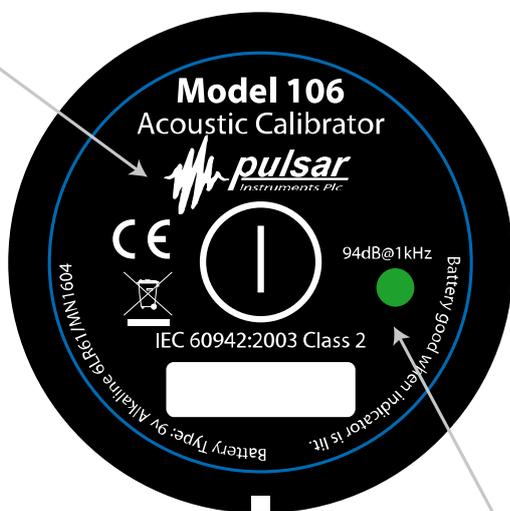
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Operation.

Switching on the Calibrator

Press the Power Button on the end of the Calibrator to switch the unit on. The Indicator will illuminate to show that the unit is operating.

Power Button



Power Indicator

The calibrator will automatically switch off after 5 minutes to preserve battery power.

To switch off the calibrator manually, press the power button again and the indicator will extinguish to show that the unit is switched off.

Permanent-on Mode

For some applications there may be a need to have the calibrator switched on continuously. To allow for this, the calibrator can be turned on by pressing and holding the power button for three seconds.

Release the button and the indicator will flash to show that the unit is in permanent-on mode. Press the power button to switch off the calibrator.

Calibrating a Sound Level Meter.

Push the microphone of the Sound Level Meter into the cavity at the end of the calibrator. Ensure the microphone is fully inserted into the cavity and is past the 'O' ring seals. The microphone should be parallel to the body of the calibrator. Also ensure that the small bleed-hole next to the microphone cavity is not blocked as this could cause damage to the microphone.

Most modern Sound Level Meters have electronic calibration with the level adjusted automatically. Adjust the Sound Level Meter to the correct level where applicable. When correcting the value generated by the calibrator a correction for the type of microphone capsule may need to be applied (see Appendix 2)

Background Noise

In order for the calibrator to operate as intended, the ambient acoustic noise level should be no greater than 80dBA.

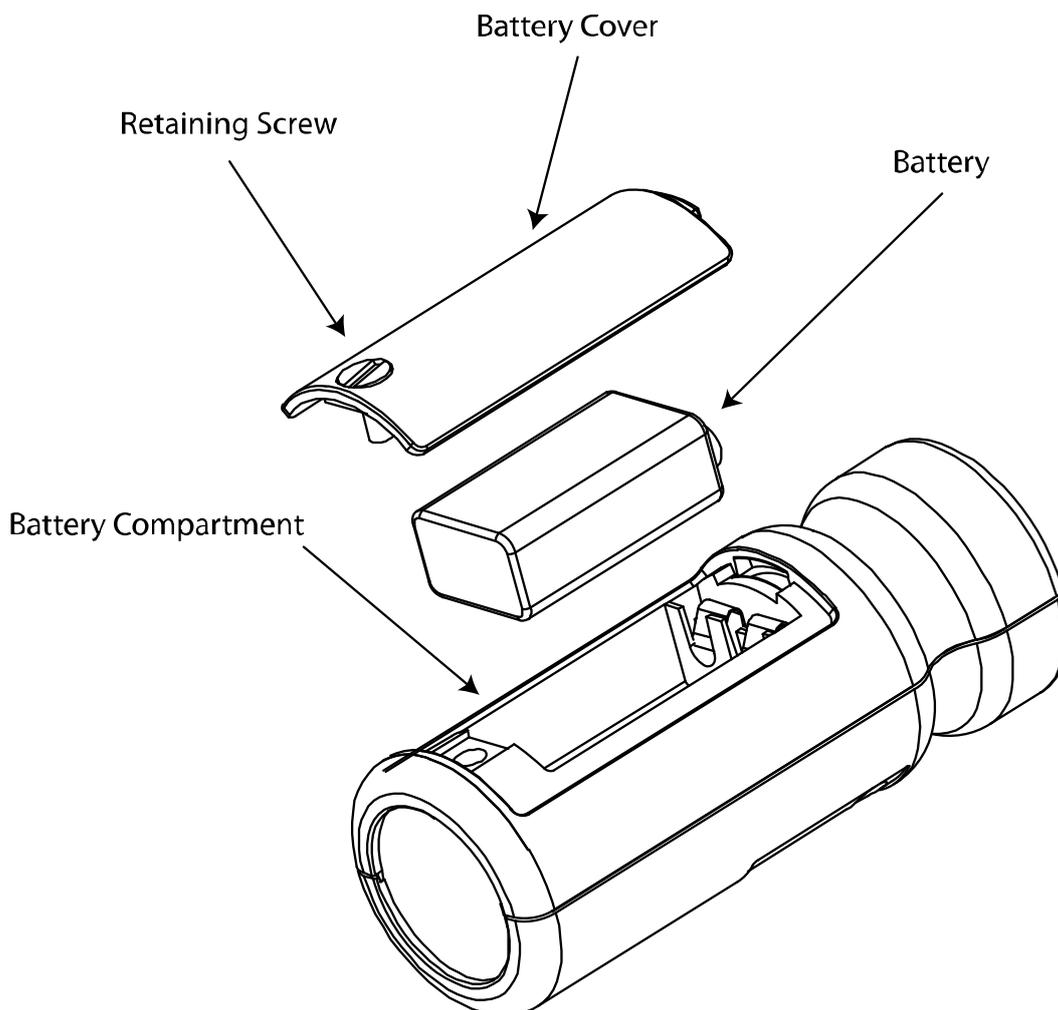
Stabilisation

In order for the sound pressure level and frequency to stabilise after switching the calibrator on when coupled to a microphone, a period of at least 3 seconds should be allowed before performing a calibration.

Changing the Battery

The Model 105 & Model 106 acoustic calibrators use a single 9v alkaline battery. This type of battery is known as 6F22 or NEDA 1604. It is also commonly known as PP3.

1. Unscrew the screw holding the battery cover on, using a coin.
2. The battery, type 6F22 (PP3) can now be eased out of its holder and replaced. The battery should be eased out terminal side first by pushing against the spring at the other end. Ensure that the battery is inserted with the correct polarity with the negative terminal at the contact with the larger cutout.



Battery type.

The battery should be an alkaline battery, not an ordinary dry cell. The battery is 9 volts when new and will operate the calibrator down to 6.4 volts. When the battery voltage is below 6.6 volts but above 6.4 volts, the power LED will flash to indicate that the battery voltage is low. When the battery voltage is below 6.4 volts the calibrator will not turn on. A discharged battery may allow switch-on but will soon drop in voltage and indicate low battery or switch off.

Specification.

Frequency	1kHz \pm 1%
Sound Level	94dB re 20 μ Pa
Standardisation	Model 105 - IEC 60942:2003 Class 2 Model 106 - IEC 60942:2003 Class 1
Distortion	Less than 2%
Operating Humidity	25 to 90% Relative Humidity
Operating Static Pressure	65 kPa to 108kPa
Operating Temperature	-10°C to +50°C
Storing Temperature	-20°C to +60°C
Effective Volume	6.19 cm ³ \pm 0.2 cm ³
Cavity Diameter	0.525 inch
Battery	1 x 9v 6F22 (Neda 1604)
Battery Life	Approx 15 Hours Continuous Use
Battery Voltage	9v Nominal (10v Maximum, 6.4v Minimum)
Weight with Battery	185g
Dimensions	135mm x \varnothing 48mm

Appendix 1 – Technical Information

The normal mode of operation of the calibrator is with the unit switched on.

When the LED indicates the unit is switched on this produces the greatest radio frequency emissions.

The calibrator continues to function after exposure to contact discharges up to 4kV and air discharges up to 8kV, for both positive and negative voltages relative to earth ground.

The calibrator conforms to IEC 60942:2003 for a modulated root-mean-square electromagnetic field strength of 10 V/m.

The maximum susceptibility to power and radio frequency fields is with the cavity facing away from the emitter with the battery compartment facing the table, the antenna polarisation horizontal and the calibrator switched on.

Appendix 2 – Free Field Correction

When calibrating a microphone which is to be used for free field measurements, a small correction may be necessary to compensate for the difference between the microphone's free field response at 'zero degrees' or 'head-on' incidence and the pressure level generated by the calibrator.

The correction is typically -0.3dB for ½ inch microphones (making the effective calibration level 93.7dB).

The table below shows the correction values for the standard microphones of Pulsar Instruments Plc.

Calibration corrections are listed below for the Pulsar Instruments plc ½" Capsules and three microphone capsules commonly used in Calibration Laboratories:

Microphone Correction Values

<i>Microphone Type</i>	<i>Calibration Correction</i>	<i>Effective Calibration Level</i>
MK:202	-0.3dB	93.7 dB
MK:215	-0.3dB	93.7 dB
MK:216	-0.3dB	93.7 dB
MK:226	-0.3dB	93.7 dB
MK:224	-0.3dB	93.7 dB
PM1	-0.3dB	93.7 dB
PM2	-0.3dB	93.7 dB
B&K 4134	0dB	94.0 dB
B&K 4180	0dB	94.0 dB
B&K 4192	0dB	94.0 dB

Example

An example of the procedure used to calculate the value for an MK:224 microphone is shown below :

Level = 94.0dB + Microphone Correction

Level = 94.0dB + (-0.3dB)

Level = 93.7dB

Different microphones will have different correction values. Please check the operation manual for the Sound Level Meter or microphone concerned for details.

Appendix 3 – CE Declaration of Conformity

Pulsar Instruments Plc Hunmanby UK CE Certificate of Conformity



Manufacturer: Pulsar Instruments Plc
Unit 2, Bridlington Road Industrial Estate
Hunmanby, Noise Yorkshire
United Kingdom
Telephone +44 1723 518011

Equipment Description

The following equipment manufactured after 1st January 2007:

Model 105 Acoustic Calibrator
Model 106 Acoustic Calibrator

Along with their standard accessories

According to EMC Directives 89/336/EEC and 93/98/EEC

meet the following standards

EN 61000-6-3 (2001)

EMC : Generic emission standard for residential, commercial and light industrial environments.

EN 61000-6-1 (2001)

EMC : Generic immunity standard for residential, commercial and light industrial environments.

Signed

Dated 1st January 2007

A handwritten signature in black ink, appearing to be 'S. O'Rourke', written in a cursive style.

S. O'Rourke

Guarantee

Pulsar Instruments Plc offers a 12 month guarantee on all of their units. This covers all parts and labour excepting only damage caused by the user. Because of the unique fragility of microphones, only internal short or open circuits are accepted as faults and not accident damage. The guarantee requires the user to return the unit to their nearest authorised Pulsar Instruments Plc Agent. This guarantee is in addition to any statutory rights in your country.

Pulsar Instruments Offices

The addresses given below are the Pulsar Instruments Plc offices. Pulsar Instruments Plc also have approved distributors and agents in many countries worldwide. For details of your local representative, please contact Pulsar Instruments Plc at the address below. Contact details for Pulsar Instruments authorised distributors and agents are also available from the Internet Web site at the address shown below.

Pulsar Instruments Plc
The Evron Centre
John Street
Filey
North Yorkshire
United Kingdom
YO14 9DQ

Telephone:	01723 518011
Fax:	01723 518043
e-mail:	sales@pulsarinstruments.com
Website:	www.pulsarinstruments.com
