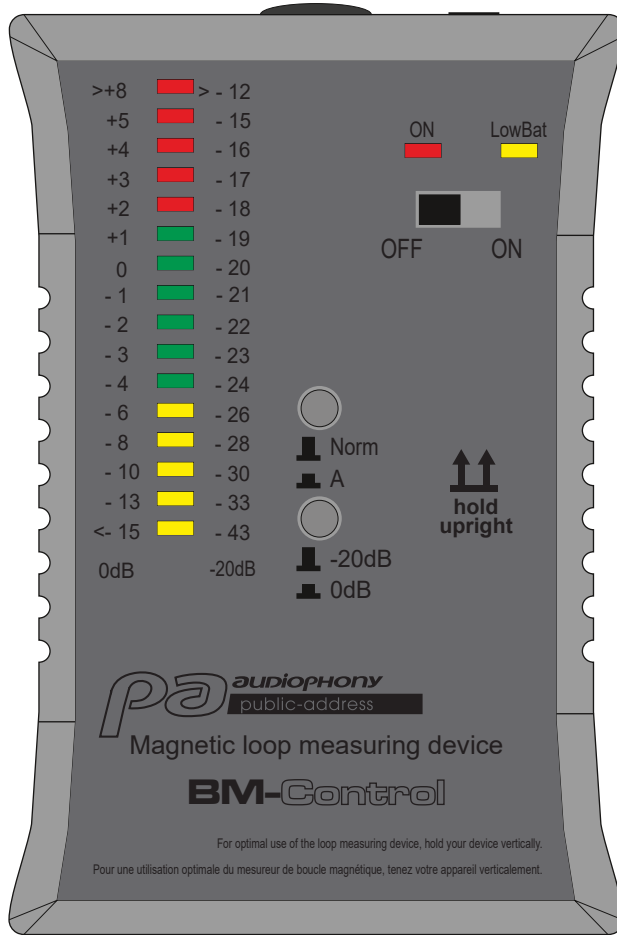


Magnetic field meter



# BM-Control

## 1 - Role of the measurer

The field measurer has been designed to ensure that magnetic loop systems are installed and certified according to the new IEC 60118-4 standard. When these standards are respected, the comfort of the user will be identical wherever he is using his prosthesis equipped with the T position.

The BM-Control makes it possible to commission an installation and certify its conformity. To do so, please follow the procedure for receiving the magnetic loops in the appendix. You can then complete the certificate of compliance.

This ergonomic instrument has two calibrated measuring functions and two types of filters for removing background noise and magnetic field intensity. Using a headset, the BM-Control allows you to listen to and control the installation of your magnetic loop.

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## 2 - Packaging content

- A BM-Control field meter,
- 2 LR06 battery,
- The user guide

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## 3 - Advise and security

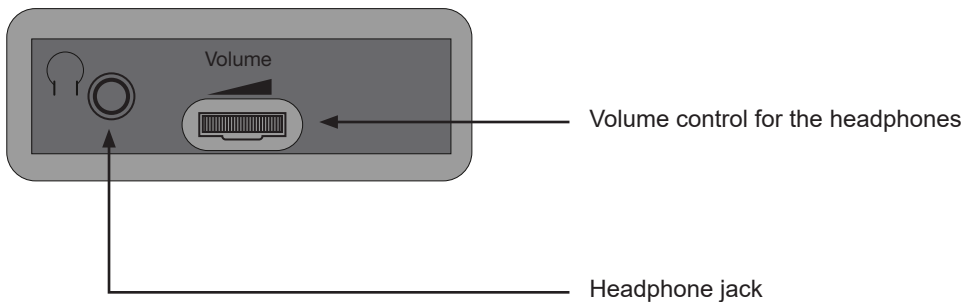
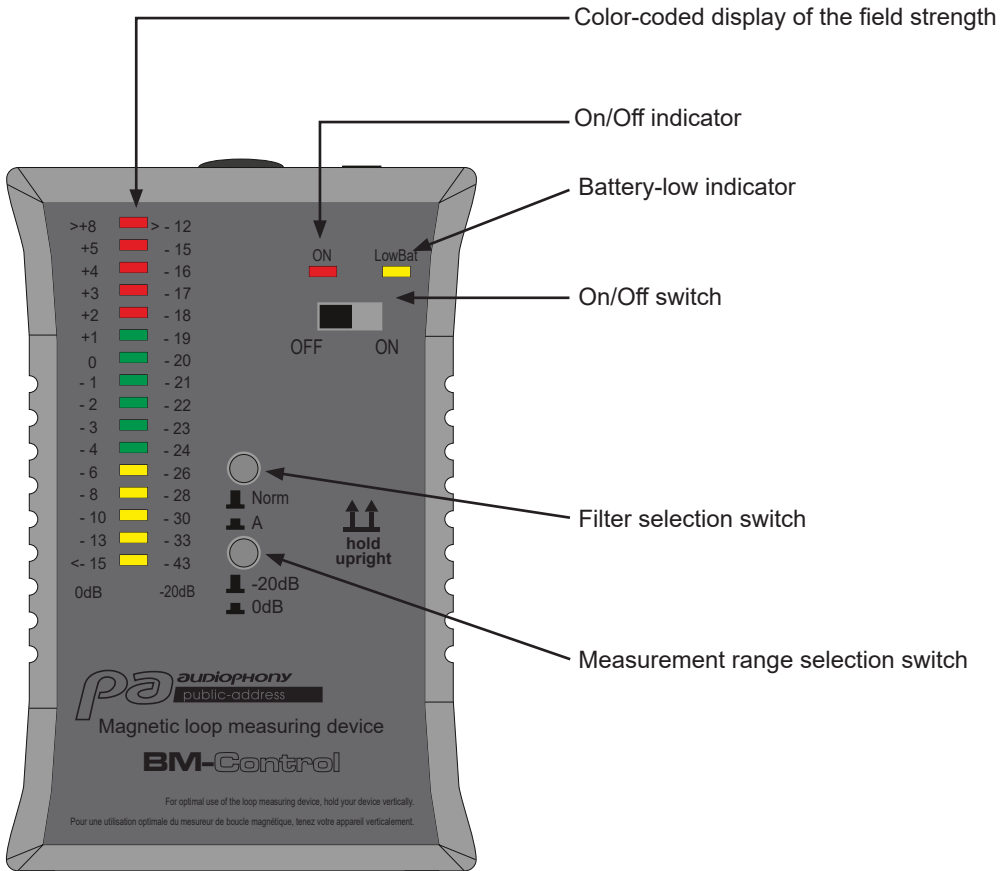
Use only LR06 type batteries.

Do not put the meter in contact with water. Infiltration of water in the case can damage the electrical components that compose it.

Do not keep the device outdoors.

Use only a dry cloth - never use cleaning agents or water.

4 - Description



## 5 - Measurement functions

### (-20db) Measuring range for background noise

Increases the sensitivity of the device. Used to detect stray magnetic fields or a magnetic pollution zone. We advise to carry out your measurements with a maximum of devices in operation (neon, sound sources, screen, electrical rooms and transformers, etc) to reproduce as well as possible a normal use of the equipped place and to evaluate in real condition the zones likely to be polluted .

This feature also allows you to determine the crosstalk of loops to test their privacy. Measurement range from -43 to -12 dB.

### (0 dB) Measuring range for magnetic field strength

Broadband measurement range to control the field strength that the induction loop emits.

#### Filter A

Evaluates the values measured on the basis of the listening curve of human ears.

#### Filter Norm

Evaluates all the values measured in the same way on the basis of their physical units.

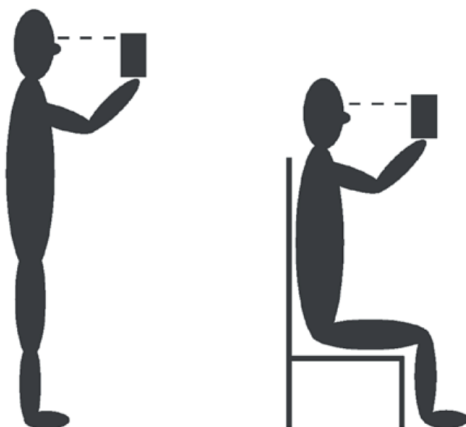
## 5.1 Using the meter

Before starting any calibration, be sure to determine a reference point in the loop (usually in the middle of the magnetic loop being placed). Then we advise you to determine a minimum of 6 measurement points.

BM-Control incorporates a receiver coil placed vertically in the unit, **so it is important to maintain the unit upright throughout the operation.**

Respect also the distance between the ground and the meter, it will depend on the application of the loop. The meter should be held at head height (where the future user's hearing instrument will be).

For example, for standing use, hold the meter at approximately 1m70. For seated use, approximately 1m20.



We advise you to note all your measurement statements on a document and return it to the establishment manager (end customer). This statement will certify that the installation complies with the restrictions of IEC-60118-4 (if measurements and settings are good).

Audiophony Public Address has created a compliance report to gather all your measurements, you can download the model on the BM-Control product page: <https://audiophony-pa.com/en/produit/bm-control/>

## 5.2 Step-by-step instructions

For optimum adjustment of the magnetic induction loop, use signals at 100Hz, 500Hz, 1KHz, 2.5KHz, 5KHz and pink noise in order to make an accurate adjustment with the maximum of possible measurements.

You can download these signals from the BM-Coontrol product page: <https://audiophony-pa.com/en/produit/bm-control/>

	Measurement	Signal required	Measurement range and filter selection switch		Point d'alignement	Valeurs de références mesurées
<b>Step 1</b>	Basic setting	Amplifier off	BM-Control off	BM-Control off	None	All controls turned as far to the left as possible (amplifier)
<b>Step 2</b>	Background noise	Amplifier off	-20dB	A	Several points inside the loop	Maximum <- 30dB Ideal <-43dB
<b>Step 3</b>	Magnetic field strength	Signal 1 KHz	0dB	Norm	Loop power	0dB +/- 3dB at 1000Hz
<b>Step 4</b>	Magnetic field strength	Signal 1 KHz	0dB	Norm	Adjust loop power	0dB +/- 3dB at 1000Hz
<b>Step 5</b>	Magnetic field strength (mesure again)	Signal 100Hz, 2,5KHz and 5KHz	0dB	Norm		0dB +/- 3dB at 1000Hz
<b>Step 6</b>	Reproduction quality	Current signal e.g. microphone	0dB	Norm	Line IN control (amplifier)	-3 to +3 dB in the peaks

**To obtain accurate measurements, always keep the BM-Control upright.**

### 5.3 Notes and requirements of Standard 60118-4

The standard states that the signal level in the loop area should not vary by more than  $\pm 3\text{dB}$ . Once confirmed, the signal level from the normal building program should peak at 0 dB as referenced at 400mA/m. This confirms that there is adequate loop current to produce both maximum and average signal levels (average is de-12dB or 100ma/m) for hearing instruments equipped with the T position.

## 6 - Specifications

<b>Scale calibration</b>	
Operating mode -20dB	-20dB = 0,043A/m
Operating mode 0dB	0dB = 0,4A/m
Type de measurement	True RMS 125ms
<b>Frequency response</b>	
Filter	A/Flat
30Hz ~ 500Hz	-3dB ~ -4dB
500Hz ~ 2500Hz	+/-0,25dB
2500 ~ 10kHz	+3dB
<b>Outputs</b>	
Display	Color-coded LED dot display
Headphone	3,5mm stereo Jack
<b>Power supply</b>	
Batteries	2 x LR6 - AA
Indicator lights	LED
Service life	100h
<b>Dimensions</b>	
Dimensions (L x H x P)	83 x 126 x 35 mm
Weight	Approx 300g



## Procedure for receiving magnetic loops

Thanks to the law of February 2005, establishments receiving the public (ERP) are gradually equipping themselves with magnetic induction loops in order to facilitate listening for people with hearing difficulties. To be effective these systems must be carefully calibrated to verify that the installation has been made in compliance with standard EN60118-4. We recommend the delivery of a certificate of conformity to this standard, according to the model enclosed, signed by the installer.

### Standard EN 60118-4 of March 2007

**This standard defines 4 very precise parameters.**

- The peak magnetic field must reach 400mA/m (integration time 0.125ms).
- Frequency responses should not vary more than 3dB between 100Hz and 5000Hz.
- The signal-to-noise ratio must be 47 dB (A-weighting).
- The magnetic field must be uniform throughout the listening area.

To allow a good listening it is necessary to check all these conditions.

The respect of the magnetic field intensity guarantees that the sound intensity is sufficient, the responses frequency control ensure that the entire sound spectrum is perceived in the same way and the signal-to-noise ratio measures the impact of interference magnetic disturbances on intelligibility. Despite the installation of adequate equipment, many factors can disturb these parameters: the presence of metallic structures causes the magnetic field to drop, transformers or current at 50Hz in the proximity cause magnetic noises. The size and the form of the room can make it difficult to meet the recommended values at all points.

### The type-approval procedure

**The following procedure is recommended:**

- About the room, determine the points where the measurements will be taken ( center, extremities, points near metal structures or noise sources).
- Measurements by the installer, after the adjustment of the installed equipment, of the various parameters set by the standard.
- Delivery of this document signed by the installer to the room manager.

### Recommendation

Room managers must ensure that, when installing any magnetic induction loop, the installer delivers this certificate of conformity. Even if the room manager does not have the competence to judge the result of the measurements, this "installation report" should be able to be consulted at any time for a possible control by a team of auditors.

**Certificate of conformity** to IEC 60118-4 standard 

<b>1</b>	Area of use	Definition of the listening area for the hearing impaired									
		<input type="checkbox"/> Standard: 1m to 1.4m									
		<input type="checkbox"/> Standard: 1m to 2m									

Sketch of the room and listening area (indicate scale and dimensions)


Indicate 4 to 6 points (A to F) inside the room to perform the measurements – centre, corners, sides, front back, etc.

Measurement points	A	B	C	D	E	F	G	H	I	J	K
Height (in meters) =											

<b>2</b>	Background noise	search for listening areas with background noise	Zones > -22dB Zones > -32dB
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<b>3</b>	Magnetic field intensity after adjustment													
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<b>4</b>	Frequency response after adjustments	100Hz													
		500Hz													
		1kHz													
		2.5kHz													
		5kHz													

<b>5</b>	Magnetic field measurement after adjustments													
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<b>6</b>	Interferences	Existence of other systems nearby	<input type="checkbox"/> Yes <input type="checkbox"/> No
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<b>7</b>	Testing with end users													
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Customer: ..... Installer: ..... Équipement : .....  
 Location: ..... Room: ..... Serial N°: .....  
 Comments: .....  
 .....

<b>I declare that the installation complies with the IEC 60118-4 standard</b>	Installer's signature :	Date : / /
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