musikelectronic geithain
MO-1 MKII

Instructions for installation and use

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1   Introduction

Dear customer,

Thank you for the trust you have put in us by buying these speakers. You decided upon a quality product that in regard to tonal and technical characteristics complies to the utmost expectations.

The usual burn-in period is not required, because the speakers are artificially aged in-house.

Please read the technical description and manual to take advantage of the capabilities of these speakers and ensure safe operation.

2   Disclaimer

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3   System description

The compact monitor that does more.

The relaunch of the MO-1, the MO-1 MKII, is not simply a product refresh; it is a complete redesign that surpasses its predecessor in both performance and functionality without forgetting what made the MO-1 stand out. The MO-1 MKII is more than a control monitor - it is a fully-fledged studio monitor that is perfect for spaces with limited room. Ideal for short listening distances, it unfolds its acoustic qualities in the broadcast van, compact studios, as an elegant surround speaker, or for the discerning audio and video professional right at the desk.

The coaxial design, the impeccable neutrality, and the high-quality craftsmanship are common features shared with all ME-Geithain products. However, the new MO-1 MKII utilizes powerful PWM amplifiers, a wide-range switched-mode power supply, and signal processing via DSP. The speaker comes with two XLR inputs, allowing for mono downmixing, and is optionally capable of receiving Dante streams and AES67 via the integrated network switch.

User-configurable DSP filters, presets, and adjustable time delay expand the functionality to a level that is unmatched in its class.

4   Basic information

4.1   Guidelines

This product complies to requirements of current European and national guidelines (2014/30/EU Electromagnetical Compatiblity). The conformity is ascertained, corresponding declarations and records are deposited with the manufacturer.
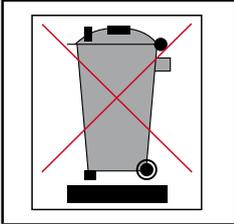
Products built by us belong to B2C-class of the WEEE guidelines and must not be disposed with domestic waste.

4.2   Safety instructions

Like using any other electrical device you should observe the following operation guidelines, safety instructions and warning signs to ensure optimum functionality and safety of operation!

◀ Read these instructions carefully.

◀ Keep these instructions during the life cycle at a safe place. The instructions are an important part of the product.

◀ Heed all warnings. Follow all instructions.

◀ The product may only be used in accordance with the information provided in the user manual. Before and during the usage of the amplifier please ensure that all recommendations, especially the safety recommendations in the user manual, are adhered to.

◀ Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury, and damage to the product.

◀ The heat sink must not be blocked or covered. This product should not be installed unless proper ventilation is provided or manufacturer's instructions have been adhered to.

◀ Do not install the device near any heat sources.

◀ Do not expose the device to direct sun radiation.

◀ Do not install the device in rooms with high humidity.

◀ Do not try to insert anything into device openings.

◀ The device shall not be exposed to dripping or splashing and no objects filled with liquids shall be placed on the device.

◀ Clean only with dry or slightly moistened cloth.

◀ Protect the power cord from being walked on, pinched or damaged in any other way. Pay particular attention to plugs and the point where they exit the device.

◀ Do not attempt to service this product yourself as opening or removing cover may expose you to dangerous voltage or other hazards.

◀ Refer all servicing to qualified service personnel.

4.3   Unboxing

The speakers are shipped in proper condition. Unpack the speaker carefully and check for visible damages. In case of damages report them to your retailer. Keep the packaging, in case the speaker has to be transported in the future.

4.4   Delivery contents

◀ Speaker MO-1 MKII

◀ Mains cable

◀ Technical description and user manual

4.5   Cleaning

The speaker has a high quality lacquer surface and needs to be nurtured in the same way as furnishings. We advise quality surface cleaner to ensure durability of the lacquer and colour. Surfaces can also be cleaned with tidy, slightly damped, fuzz-free, smooth cloth.

4.6   Environmental conditions

Ensure the following environmental conditions in your listening room:

◀ Operating temperature $+15\,°C \ldots +35\,°C \ (+59\,°F \ldots +95\,°F)$

◀ Storage temperature range $-25\,°C \ldots +45\,°C \ (-13\,°F \ldots +113\,°F)$

◀ Relative humidity $45\,\% \ldots 75\,\%$

4.7   Guarantee acknowledgements

Opening the device by unauthorized personnel leads to all claims under guarantee expire. In case of destruction by overload, misuse or outside influences there are no claims under guarantee.
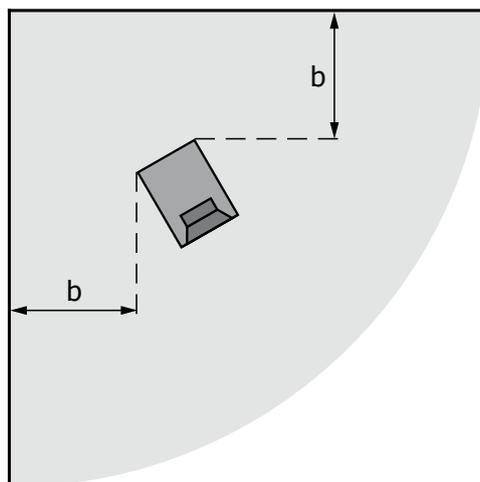
5 Positioning

Our speakers do not impose special requirements neither in stereo nor in multichannel set-ups. Nonetheless speaker positioning has influence on listening impression because every room is individually designed and furnished. The following advices are just guidelines that ease proper positioning. In addition we offer a measurement service to take advantage of the capabilities of your listening environment.

5.1 Positioning near walls

When speakers are installed near walls sound quality is physically affected. Every customary speaker behaves as a punctual sonic source in the low frequency range, with sonic waves spherical radiated without any constructional measures. Back wall reflections are unavoidable.

For optimum listening experience a minimum distance of cm (") to walls and furniture should be ensured. Avoid corner installations because unwanted bass accentuation could arise.

◀ Minimum distance to wall   b ≥ cm (")

5.2 Stereo operation

The optimum position of the speakers in your listening environment is the so-called stereo triangle (see figure). The base distance between the speakers and the distance to the hearing zone form an equilateral triangle (stereo triangle). A distance less than 0.6 m (1'12") or more than 2 m (6'7") should be avoided. For precise, spacial reproduction turn the speakers inside, directed to the hearing zone.

hearing zone
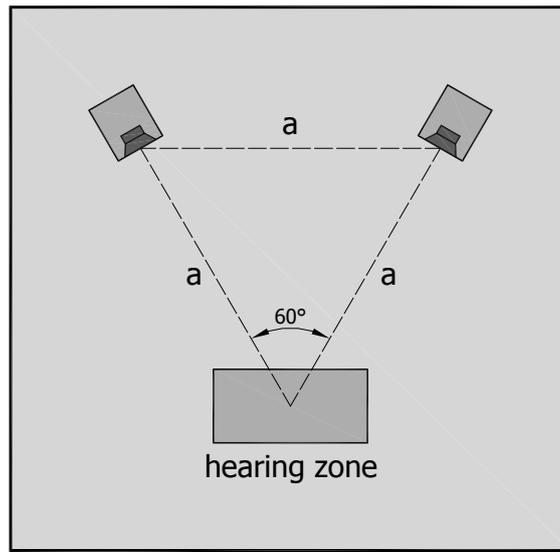
◀ Distance between speakers and your listening position   a = 0.6 m … 2 m (1'12" … 6'7")

◀ Adjust the speaker horizontally to the height of the ear at the listening position

5.3 Surround operation

In surround operation the stereo triangle (see Stereo operation) is extended to a circle. The hearing zone is the centre of this circle. Position all speakers in the same distance to the hearing zone. The centre speaker is positioned in the middle between both front speakers. Pay attention to positioning the front and rear speakers horizontally along one plane. The angle between centre and rear speakers should be about 110°−120°.
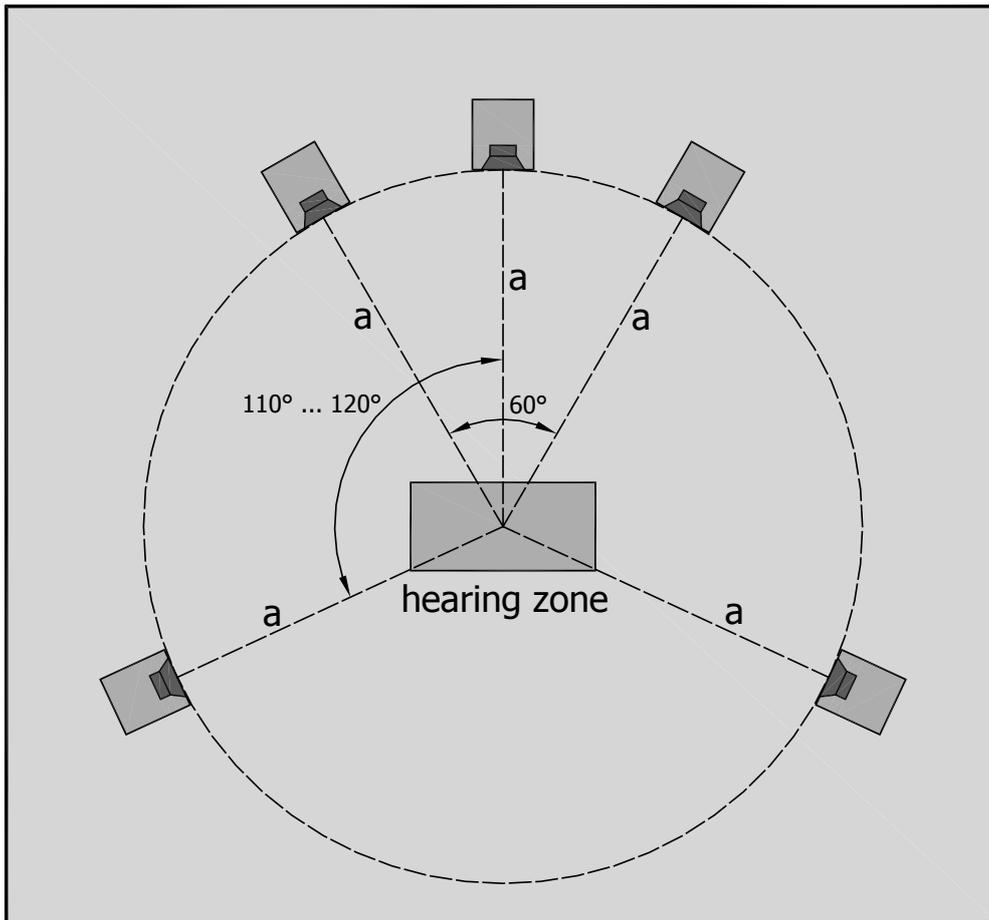
◀ Distance between speakers and your listening position   a = 0.6 m … 2 m (1′12″ … 6′7″)

In case installation in the prescribed way is not possible in your listening room most decoding devices allow adjustments of single speakers.

5.4   Controls and connections

Active Loudspeaker MO-1 MKII
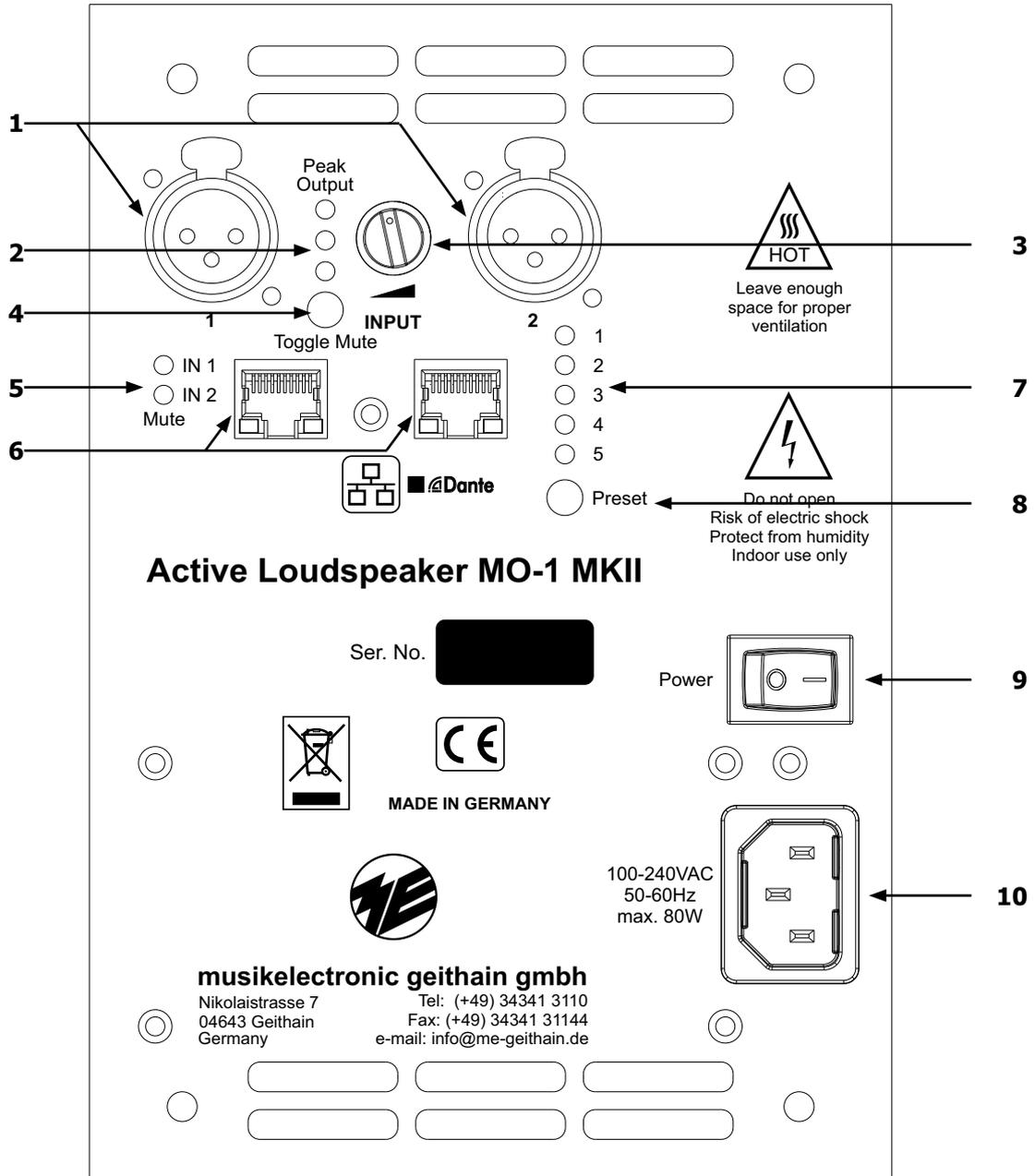
LINE Input XLR3 F (1)

Symmetrical input connectors, for input signals up to +6dBu.

LED level indicator (2)

Indicates the level on the device and in case limiting or clipping.

Input level adjustment (3)

Adjusts the input signal sensitivity. Precise adjustments are possible using the ME-Geithain DSP Control software.

MUTE button (4)

Simple presses change the MUTE state of both inputs. Pressing it 3 seconds switches the state of channel 2.

LED-MUTE-Anzeige (5)

A green lit LED indicates the MUTE state of the according input.

Ethernet-ports 10/100 Mbit/s RJ45 (6)

The network interface allows configuration with ME Geithain DSP Control or optionally available audio transmission via Dante/AES67 in a standard TCP/IP network. DHCP is the factory setting.

LED preset indicator (7)

Indicates the preset currently loaded. A flashing LED indicates unsaved changes to the current preset.

Preset button (8)

Pressing the button switches to the next of the five presets saved first at the factory. For explanation of the presets see chapter 7.

On/Off switch (9)

This switch disconnects mains and completely turns off the device.

Mains supply (10)

Conenction to mains.

5.5   Set-up the speakers

In this chapter we inform you how to connect your speakers to mains and your signal source. Ensure that the mains switch on the backside is in position "OFF". Only when your speaker is completely connected (see chapters 5.6 and 5.7) you can take the device into operation by use of the mains switch.

The speaker can be connected to every common pre-amplifier ($U_a = 1\,V \dots 5\,V$; $R_i < 600\,\Omega$).

5.6   Mains connection

The speaker has a wide-range power supply unit and is therefore compatible with all common mains voltages. See the specifications in chapter »7 Specifications« on page 14. When the stated and your local mains voltage comply, connect the mains connector of the speaker to the socket (10) with the included mains cable.

5.7   Cable connection

The inputs of the integrated amplifier are electrically balanced. When your signal source also utilizes balanced connectors, please use a cable wired as stated in the table:

	Balanced connector (amplifier)	Balanced connector (signal source)	Unbalanced connector (signal source)
	XLR	**XLR**	**RCA**
Earth	Pin 1	Pin 1	Ring
Signal +	Pin 2	Pin 2	Tip
Signal -	Pin 3	Pin 3	Ring

When using a signal source with unbalanced outputs (RCA) you need to balance the connecting cables. This avoids hum and other noise interferences. The table and the following figure show the wiring.
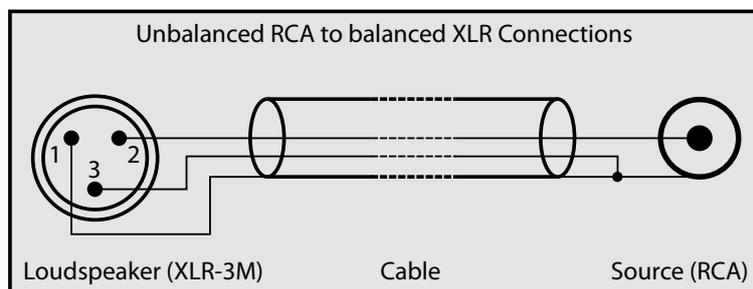
To transmit the program material, connect the loudspeaker to your signal source via the XLR input socket on the amplifier.

5.8   Adjustment controller

The "Input" controller is used for level adjustment over the full frequency range.

5.9   Status indication

The Logo at the front of the speaker is used as status indicator of the device. After switching on it stays red until the device is ready. Subsequently, the colours have the following meaning:

- ◀ Logo white: indicates normal operation of the device
- ◀ Logo red: indicates the operation of the overload protection circuit;
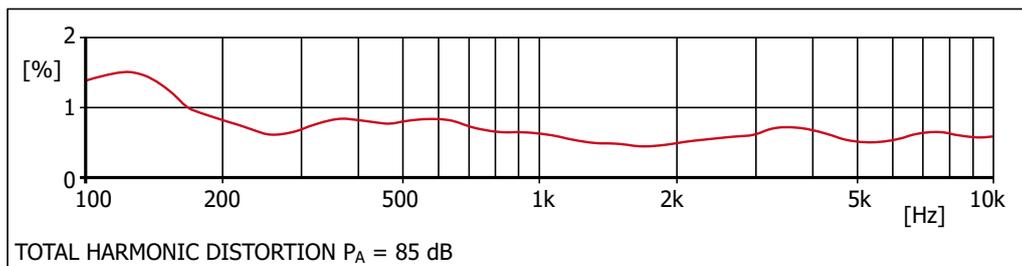   Output power limitation to protect the components from overloading
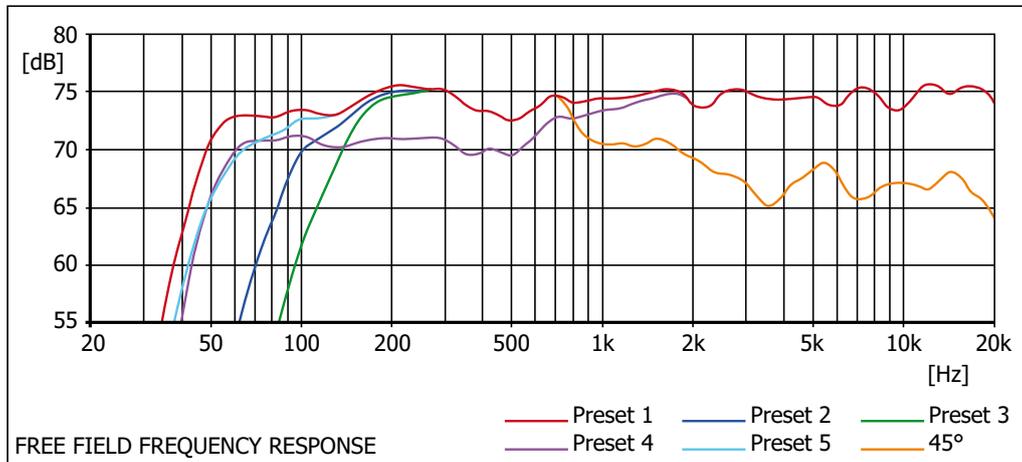
6   Specifications

General	Small Outside Broadcasting Vans, Surround speakers and loudspeakers determined for small rooms and in multichannel equipment, reproducing systems of small conference sound equipment 0.6 m (1'12") and 2 m (6'7")
Maximum SPL	
from 150 Hz ... 3 kHz	103 dB ... 108 dB / r = 1 m (3'3") (4π)
Bandwidth	50 Hz ... 22 kHz ±3 dB
Calibration:	
Acoustic output level / P_E = −14 dBu	76 dB / r = 1 m (3'3")
Directivity index	
from 100 Hz ... 6 kHz	increasing from 1 dB to 10 dB
Inherent noise sound level	≤ 2 dB(A) / r = 1 m (3'3")
Total harmonic distortion	
measured at 85 dB$_{SPL}$ / r = 1 m (3'3")	
from 200 Hz ... 10 kHz	≤ −40 dB
Nominal input level	+6 dBu (adjustable)
Input impedance	≥ 22 kΩ RC balanced
Electronic crossover frequency	3.5 kHz
Nominal output power of the amplifier	
LF	95 W / 4 Ω
HF	95 W / 4 Ω
Input connectors	2× XLR 3F analogue (optional Dante via RJ45)
Control inputs	2× RJ45 Ethernet incl. switch
Equalizer	10 free programmable EQs
Delay	adjustable delay between 0 ... 40 ms
Drive units	
Woofer	1× 100 mm (4") cone
Tweeter	1× 19 mm (¾") dome
Operation and clipping indicator	Illuminated logo at front
Power requirements	80 V ... 264 V, 50 Hz ... 60 Hz
Power consumption	7 VA when idle max. 80 VA at full load
Mains connection	IEC power connector
Environmental conditions	
for use	+15 °C ... +35 °C (+ 59 °F ... +95 °F)
for storage	−25 °C ... +45 °C (−13 °F ... +113 °F)
humidity	45 % ... 75 %
Dimensions (H × W × D)	214 mm × 147 mm × 192 mm (8.5" × 5.8" × 7.6")
Weight	3.5 kg (7.8 lbs)
Design of the cabinet	
Body	MDF black and white semi-gloss varnish; other veneers and colours on request
Lateral mounting	with latheral mounting; without lateral mounting on request

7   Acoustic measurements

All acoustic measurements are carried out under anechoic conditions with 1 m (3'3") distance.

These are the factory presets:

FREE FIELD FREQUENCY RESPONSE

Preset 1   Preset 2   Preset 3
Preset 4   Preset 5   45°

TOTAL HARMONIC DISTORTION P_A = 85 dB

Maximum bass level (red)

This preset enhances the lower bandwith up to 50 Hz for powerful bass performance.

80 Hz Low pass filter (blue

This preset uses a high-pass filter to reduce lower frequencies below 80 Hz in order to achieve optimum coupling to conventional subwoofers.

120 Hz low pass filter (green)

Similar to the 80 Hz filter, but but only frequencies above 120 Hz are reproduced unfiltered. This allows a higher output level to be achieved.

These high-pass presets listed above are based on the usual crossover frequencies for subwoofers. User presets can be created for individual crossover frequencies.

Desk placement attenuation (violet

This preset reduces frequencies up to approx. 500 Hz in order to minimize the overemphasis that usually occurs with this type of setup.

Maximum sound pressure level (cyan)

This preset indicates the highest level the device can produce without risking distortion or damage.

8   Notes