

Azimuth Optimizer

User Manual



Loving music




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Dear clearaudio customer,

you have purchased a truly high-end-product made by clearaudio electronic / Germany. These operating instructions provide valuable advice for the correct use of the Azimuth Optimizer. Thank you for choosing a clearaudio product.

CE-mark:

 The **clearaudio** *Azimuth Optimizer* is conform to the EMC regulations.

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1. Scope of delivery

The clearaudio Azimuth Optimizer has left our factory in a safe packing that has been designed for this product. We recommend to store this original packing and to use this packing in case of any transportation. Please prove if the below listed parts has been enclosed:

1	Azimuth Optimizer Unit	2	Power Supply (this wide scope poer supply enables worldwide usage)
3	Power supply adaptors (1 x US;1 x UK, 1 x Europe)	4	Clearaudio „Trackability Test Record“
5	User Manual	6	Warranty & Registration Card



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Functional description:

The Azimuth (the vertical position of the cartridges ´ diamond) is predominantly influencing the channel balance, the frequency response as well as the cross talk between both channels of your cartridge. The optical control of the azimuth adjustment is not sufficient and precise enough to ensure an accurate azimuth adjustment. The exact azimuth could be determined only when using an adequate measurement instrument, like the clearaudio Azimuth Optimizer. The Azimuth Optimizer is measuring the cross-talk from the left to the right channel and vice versa. In the ideal case, when the azimuth is adjusted accurately, both measurement results are identical.

Additional you can measure the output voltage of your cartridge by using the operation mode « **Level** » To use this operation mode it is necessary to set the input sensitivity to the MM-mode !

Furthermore there is a High-End phono-preamplifier build in as well, so that you are able to check the sonical result of the correct adjustment in your music reproduction system. An integrated head-phone amplifier makes a mobile use of the Azimuth Optimizer possible ! All headphones with an impedance between 100 ohms and 600 ohms can be used.

The clearaudio trackability record (Art.-No. : LPT 43039) is necessary to perform the measurements and is included the scope of delivery.

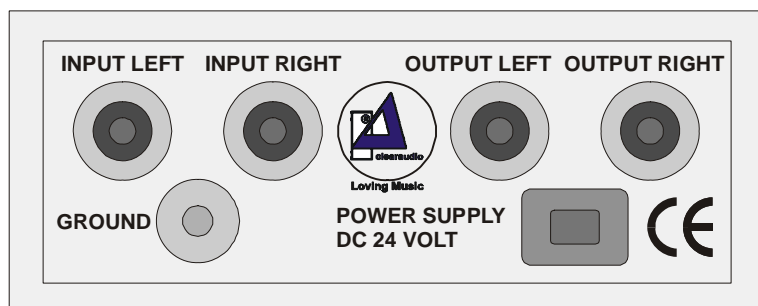
For the measurements the following tracks of the trackability test record are required :

Track 1 = Signal left channel 1kHz 0dB = 8cm/s (Peak)

Track 2 = Signal right channel 1kHz 0dB = 8cm/s (Peak)

Track 3 = Signal mono horizontal 1kHz 0dB = 11,3cm/s (Peak)

Connections at the back panel:



INPUT LEFT; INPUT RIGHT:

Connect with the tonearm of the record player

OUTPUT LEFT; OUTPUT RIGHT:

Connect with the preamplifier

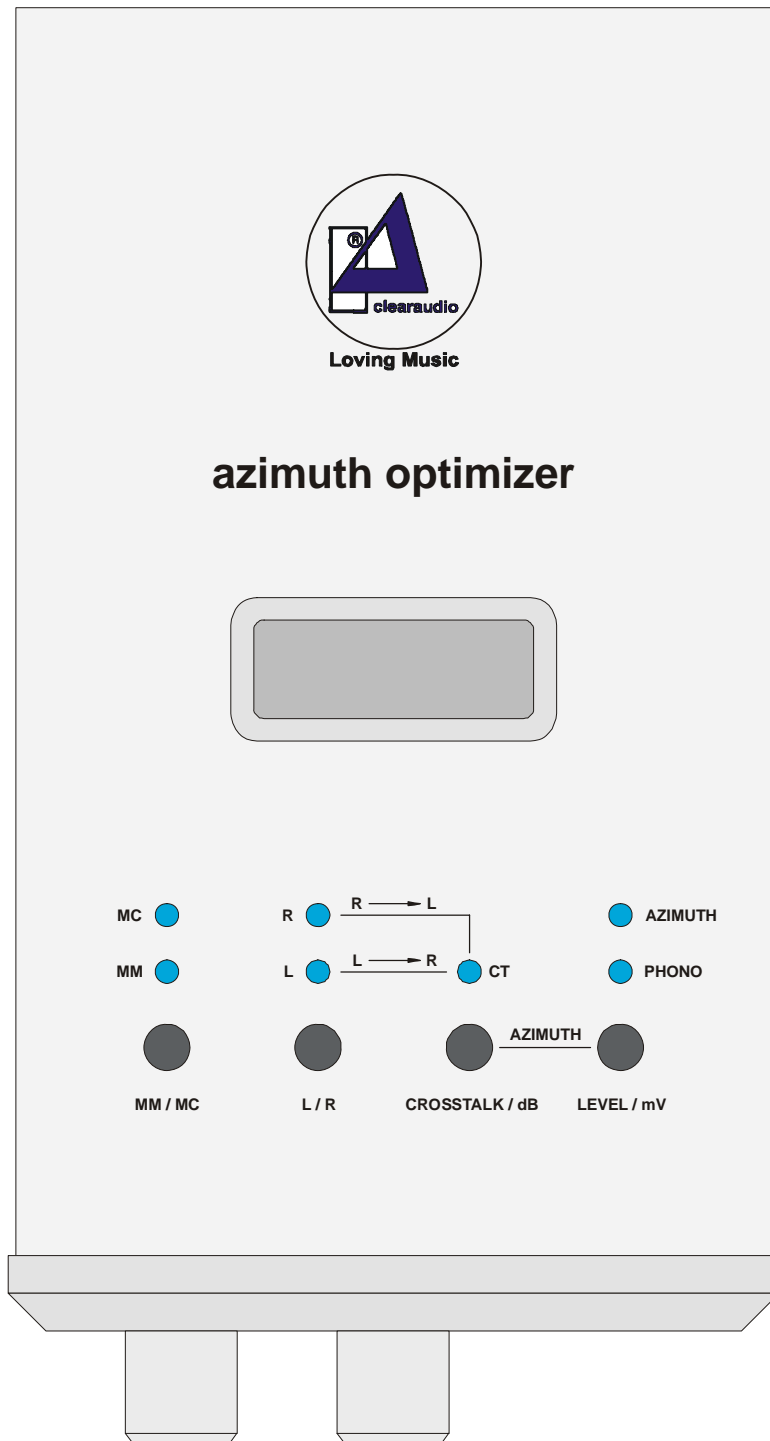
GROUND:

Connect the grounding cable of the tonearm

POWER SUPPLY:

Connect the power supply (24 V type: FW75550/24)

Operating elements of the Azimuth Optimizer:



Button MM/MC: Switches the input sensitivity / amplification. Position MM = 40dB, Position MC = 60dB
Input impedance/Capacity:
MM = 47kOhm/220pF
MC = 400Ohm/220pF, (the input impedance is adjusted automatically).

Button L/R: Switches to the signal-carrying channel of the test-record

Button Crosstalk: Activates the operation mode „Crosstalk“

Button „Level“: pushing the button „Level“ will in combination with the test-record show the output voltage of your cartridge in the display in mV.

Pushing both buttons „Level“ and „Crosstalk“ simultaneous the main operation mode switches between „Phono“ and „Measurement“.

In the measurement-operation mode the LED „Azimuth“ glows blue

0dB-adjustment headphone-volume control

Getting started with the Azimuth Optimizer:

Important note!

Be sure that the volume control of your amplifier(s) is (are) set to zero-level while doing any connections to the azimuth optimizer unit.

While using the azimuth optimizer in a system as a phonestage never switch between MM/MC - mode, damage to your loudspeakers could occur!

1. Stick the adequate primary adaptor onto the power supply
2. Connect the power supply to the bushing on the back-panel of the Azimuth Optimizer
3. Connect the power supply to the main power, the Azimuth Optimizer automatically sets into operation mode **MM** and **Phono**. Now connect the tonearm cable with the azimuth optimizer and for playback with the music reproduction system.
4. Choose the relevant operation mode according to your cartridge type: **MM** or **MC**.

You can now start with the measurement when all connections have been done correctly:

5. Place the clearaudio trackability test record (scope of delivery) onto the turntable platter facing side 1 up

Track 1-3 of the test record are necessary to adjust and verify the azimuth adjustment:

Track 1 = Signal left channel 1kHz 0dB = 8cm/s (peak)

Track 2 = Signal right channel 1kHz 0dB = 8cm/s (peak)

Track 3 = Signal mono horizontal 1kHz 0dB = 11,3cm/s (peak)

Start your measurement with the left channel (Track 1). Therefore choose the operation mode **"L"** by pushing the button "L/R".

Calibrate the value shown in the display to **0 dB** by using the control unit in the front panel.

When you now push and hold the **"Crosstalk"**-button the LED **"CT"** will glow and the channel mode switches to **"R"**-channel. The now displayed value shows the cross talk in dB. Keep this value in mind and repeat the measurement in the same way with the right channel (Track 2).

Now compare both measurement values with each other. When both values are equal the azimuth adjustment is accurate. If the values differ from each other you need to re-adjust the azimuth of your cartridge according to the table below and repeat the measurement until both values are equal.

Before measuring the cross-talk it is important to adjust the signal-carrying channel to „0dB“ !

Follow these advises to adjust the azimuth:

measurement	Left channel (display)	Right channel (display)	Direction of cartridge-rotation
L – R (Track 1)	0	-30dB	Azimuth is O.K.
R – L (Track 2)	-30dB	0	
L – R	0	-35dB	Rotate cartridge clockwise
R - L	-25dB	0	
L - R	0	-25dB	Rotate cartridge counterclockwise
R - L	-35dB	0	

**Note:**

The measurement values in the table are only used as examples and can be different depending on the type of cartridge.

Obtain the output voltage of your cartridge with the Azimuth Optimizer while using track 3 of the test-record.

Therefore set the operation mode into „MM“ and hold the button „Level“. The value now shown in the display is the output voltage of your cartridge in mV.

Technical Specification:

Operating Voltage: 24V DC stabilised with power supply
Input: 100-240V~ / 47-63Hz

In- and Outputs: RCA-sockets, unsymmetrically

Phono-unit:

Amplification: MM = 40dB, MC = 60dB
Channel separation: > 80dB
Distortion factor: (THD+N): < 0,01% / 1kHz
Input impedance/Capacity: MM = 47kOhms / 220pF
MC = 400Ohms / 220pF
Output impedance: 100Ohms
Frequency response: 20Hz – 70kHz /-3dB
RIAA: RIAA +/- 0,5dB deviation

Headphone output:

Amplification: 10dB
Headphone impedance: 100 – 600 Ohm
Connection: 6,3 mm-bushing

Measurement unit:

Indication range: -50 bis +6dB, Genauigkeit +/-0,2dB
Gauge-measurement up to max. 19,99mV
Rumpelfilter: ab 200Hz / transconductance 12dB per octave
(valid only for right channel when unit is in measurement use)
Dimensions: H x W x D 47 x 102 x 190mm
Weight: Azimuth Optimizer: 750g
Power supply: 150g

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ENGLISH



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WARRANTY

For warranty information, contact your local clearaudio distributor.

RETAIN YOUR PURCHASE RECEIPT

Your purchase receipt is your permanent record of a valuable purchase.

It should be kept in a safe place to be referred to as necessary for insurance purposes or when corresponding with clearaudio.

IMPORTANT

When seeking warranty service, it is the responsibility of the consumer to establish proof and date of purchase. Your purchase receipt or invoice is adequate for such proof.

FOR U.K. ONLY

This undertaking is in addition to a consumer's statutory rights and does not affect those rights in any way.

FRANÇAIS

GARANTIE

Pour des informations sur la garantie, contacter le distributeur local clearaudio.

CONSERVER L'ATTESTATION D'ACHAT

L'attestation d'achat est la preuve permanente d'un achat de valeur. La conserver en lieu sûr pour s'y reporter aux fins d'obtention d'une couverture d'assurance ou dans le cadre de correspondances avec clearaudio.

IMPORTANT

Pour l'obtention d'un service couvert par la garantie, il incombe au client d'établir la preuve de l'achat et d'en corroborer la date. Le reçu ou la facture constituent des preuves suffisantes.

DEUTSCH

GARANTIE

Bei Garantiefragen wenden Sie sich bitte an Ihren clearaudio-Händler.

HEBEN SIE IHRE QUITTING GUT AUF

Die Quittung dient Ihnen als bleibende Unterlage für Ihren wertvollen Einkauf. Das Aufbewahren der Quittung ist wichtig, da die darin enthaltenen Angaben für Versicherungswecke oder bei Korrespondenz mit clearaudio angeführt werden müssen.

WICHTIG!

Bei Garantiefragen muss der Kunde eine Kaufunterlage mit Kaufdatum vorlegen. Ihre Quittung oder Rechnung ist als Unterlage ausreichend.

NEDERLANDS

GARANTIE

Voor inlichtingen omtrent garantie dient u zich tot uw plaatselijke clearaudio.

UW KWITANTIE, KASSABON E.D. BEWAREN

Uw kwitantie, kassabon e.d. vormen uw bewijs van aankoop van een waardevol artikel en dienen op een veilige plaats bewaard te worden voor evt. verwijzing bijv. in verband met verzekering of bij correspondentie met clearaudio.

BELANGRIJK

Bij een evt. beroep op de garantie is het de verantwoordelijkheid van de consument een gedateerd bewijs van aankoop te tonen. Uw kassabon of factuur zijn voldoende bewijs.

ITALIANO

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L'apparecchio è coperto da una garanzia di buon funzionamento della durata di un anno, o del periodo previsto dalla legge, a partire dalla data di acquisto comprovata da un documento attestante il nominativo del Rivenditore e la data di vendita. La garanzia sarà prestata con la sostituzione o la riparazione gratuita delle parti difettose.

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ESPAÑOL

GARANTIA

Para obtener información acerca de la garantía póngase en contacto con su distribuidor clearaudio.

GUARDE SU RECIBO DE COMPRA

Su recibo de compra es su prueba permanente de haber adquirido un aparato de valor, Este recibo deberá guardarlo en un lugar seguro y utilizarlo como referencia cuando tenga que hacer uso del seguro o se ponga en contacto con clearaudio.

IMPORTANTE

Cuando solicite el servicio otorgado por la garantía el usuario tiene la responsabilidad de demostrar cuándo efectuó la compra. En este caso, su recibo de compra será la prueba apropiada.