

Warranty

WARRANTY

Owner's Record

The model and serial numbers are located inside of the stabilizer.

Record the serial number in the space provided below.

Refer to these numbers whenever you call your dealer regarding this product.

Model No. ES-002 Eccentricity Detection Stabilizer

Serial No. _____

WARNING

To reduce fire or shock hazard, do not expose the unit to rain or moisture.

IMPORTANT SAFETY INSTRUCTIONS

-SAVE THESE INSTRUCTIONS

-TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY FOLLOW THESE INSTRUCTIONS

LIMITED WARRANTY

DS Audio warrants this product against defects in material or workmanship for the time periods as stated below. Pursuant to this Limited Warranty, DS Audio will, at its option, (1) repair the product using new or refurbished parts or (2) replace the product with a new or refurbished product.

For the purposes of this warranty, "refurbished" means a product or part has been returned to its original specifications. In the event of a defect, these are your exclusive remedies.

For a period of one (1) year from the original date of purchase of the product, DS Audio, at its option, repair or replace with new or refurbished product, product determined to be defective.

This limited warranty covers only the hardware components packaged with the product. It does not cover technical assistance for hardware.

Instructions: To obtain warranty service, you must deliver the product, freight prepaid, in either its original packaging or packaging affording an equal degree of protection to the DS Audio authorized service facility specified.

Any parts or product replaced under this limited warranty will become the property of DS Audio.

This limited warranty only covers product issues caused by defects in material or workmanship during ordinary consumer use. It does not cover product issues caused by any other reasons, including but not limited to product issues due to commercial use, acts of God misuse, limitation of technology, or modification of any part of the product.

This limited warranty is invalid if the factory-applied serial number has been altered or removed from the product.

This limited warranty is valid with the official receipt of our authorized dealer which indicating the date of your purchase.

Eccentricity Detection Stabilizer

ES 002

REFERENCE / CORE

Instruction Manual

DS Audio

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Supplied items



- 1

ES-002 Stabilizer
- 2

Instruction manual
- 3

Four rechargeable AA batteries and a charger
Please insert batteries in the correct direction.
When the batteries run out, please recharge them using the charger
- 4

Hexagonal wrench 1.5 mm
Used to open stabilizer for battery replacement or software update.
Turn clockwise to tighten, and counterclockwise to loosen.
- 5

Reamer
Used when eccentricity cannot be resolved due to misalignment of the center hole.
Once the center hole is expanded, it cannot be restored, so it is the customer's responsibility to expand the center hole.
- 6

Software update cable
This cable is used to update the software.
If a software update is required, DS Audio will inform you how to update the software on the DS Audio website. **※Not included with the Core model.**
- 7

Metal carrying case
This is a custom-designed metal case exclusively for the ES-002 Reference.
※Not included with the Core model.

Specifications

ES-002 Reference



Dimensions	φ80mm×H70mm
Weight	640g
Body Material	Aluminum (A5052)
Exterior Finish	Black anodizing +black nickel plating
Bottom Plate	Tungsten
Internal Parts	Metal components used in internal parts
Dedicated Case	Included
Batteries	Two AA batteries

ES-002 Core



Dimensions	φ80mm×H70mm
Weight	540g
Body Material	Aluminum (A5052)
Exterior Finish	Black anodizing +Gray anodizing
Bottom Plate	Brass
Internal Parts	Plastic components used in internal parts
Dedicated Case	Not included
Batteries	Two AA batteries

Names and functions



- 1

Button
Press to turn on the power.
The unit is equipped with an automatic power off function.
The power can also be turned off from the display panel. (See P8)
- 2

Display panel
Used for displaying and adjusting eccentricity status and various settings.
It is a touch panel, so please operate it with your own fingers.
Details of the software are explained in the software description page.
- 3

Detection light & light-receiving parts
These holes are for the light emitting and receiving parts of the infrared LED for eccentricity detection.
If these two holes are blocked, eccentricity cannot be detected.
Do not block these two holes.
- 4

Rear Screw
Use the supplied wrench (Allen wrench 1.5mm) to open the main body of the stabilizer when replacing batteries or updating software.
You can tighten the case by turning clockwise and open the case by turning counterclockwise.
- 5

Battery box
First, insert the supplied batteries to the battery box.
When the battery runs out, remove the battery from this battery box and replace the battery.
- 6

Battery open switch
Press to open the battery box.
- 7

Terminal for software update
Used when software updates are required.
(We will inform you how to update the software on our website.)
Do not use this terminal except for software updates, as it may be damaged.



Limitations of Measurement and Adjustment

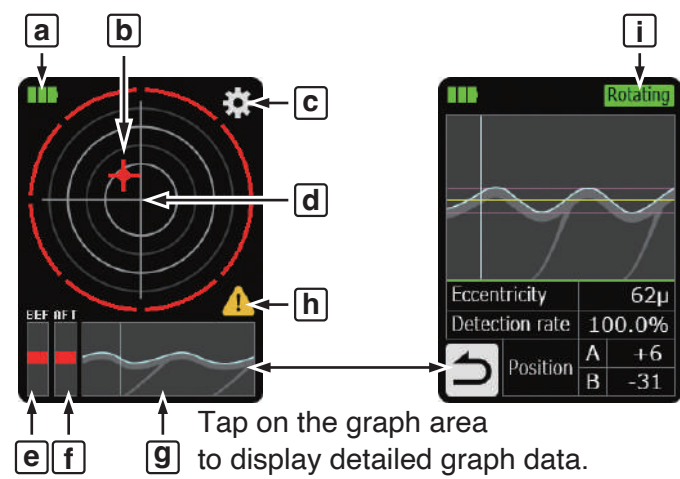
1. Depending on the condition of the record disc, it may not be possible to measure correctly.
(End groove position deviates significantly from the record standard, color record Label is close to the end groove.Sound groove is close to the end groove, etc.)
2. If the warp of a record disc is too large, the stabilizer may be shaken too much and accurate measurement may not be possible.
3. Since this product is a manual adjustment of the record position by the customer, there is a limit to the adjustment.

Trouble shooting

Should any problem persist after you have checked those symptoms, please consult our authorized dealer nearest to you.

Symptom	Cause	Corrective action
Unit does not power on	Battery is dead or battery is in the wrong direction	Replace the batteries with new ones. Insert the batteries in the correct orientation.
Screen is not responding.	Microcontroller error.	Please remove the batteries and restart the system.
Cannot be detected correctly	End grooves not in proper position Sound groove is close to the end groove color record	Depending on the condition of the record, detection may not be possible.

Main screen



a	Battery level
b	Cross mark
c	Setting button
d	Absolute center
e	Before
f	After
g	Waveform graph screen
h	Detection error warning
i	Rotation display

Eccentricity	Estimated eccentricity(μ)
Detection rate	The percentage of correct detection is shown. The higher the detection rate, the more accurate the detection.
Position A	The distance of the end grooves from their respective sensors. (If it was at the absolute center, it would be 0.)
Position B	If the eccentricity is small, this absolute value will be small.



Measurement

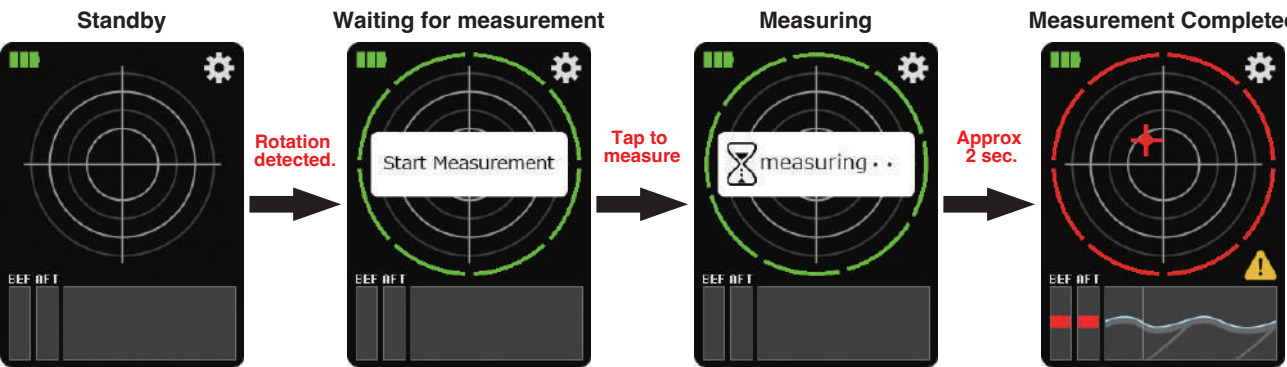
Turn on the stabilizer and rotate the record player. Measure the stabilizer while holding it with one hand.

When the turntable starts rotating, hold the upper section of the stabilizer to stop the rotation of the stabilizer, and the stabilizer detects the rotation and shifts to the measurement mode.

When switch to the measurement mode, the display on the outer circumference of the stabilizer starts to rotate and the [Start Measurement] button is displayed.

Next, when you press the [Start Measurement] button, the display changes to the [Measuring] button and the measurement is completed in about 2 seconds.

If the end groove detection rate is low, a detection error warning mark appears.



*Please be sure to rotate the record player (33rpm or 45rpm) when measuring eccentricity. If the record player is not rotating, the stabilizer will not enter the measurement mode.

Adjustment



Stop the record player and adjust the record disc position while watching the cross marks on the screen

Stop the record player when the measurement is complete.

Next, while looking at the stabilizer screen, press the record board to bring the cross mark (center of rotation) as close as possible to the absolute center position.

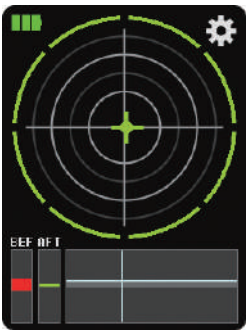
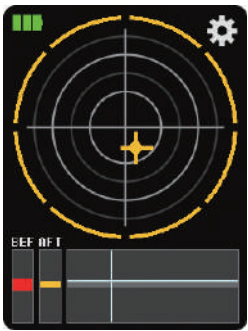
The degree of eccentricity of the record is indicated by the color of the screen (outer circumference, cross mark & display bar at the bottom).



Press the record so that the cross mark is in the center.



As the cross mark approaches the absolute center, the color changes from red > yellow > green.



Eccentricity and Color Indication

Estimated eccentricity



300 μover



150μ

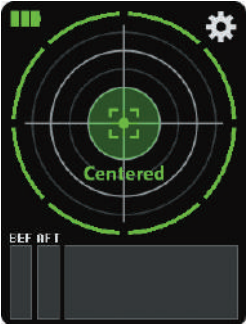


under 20μ

The color of the outer circumference, the cross mark, and the Before After display bar changes variably according to the amount of eccentricity.

If the color is red, the eccentricity is more than 300μ, if yellow, it is about 150μ, and if the mark "Centerd" appears, the eccentricity is less than 20μ.

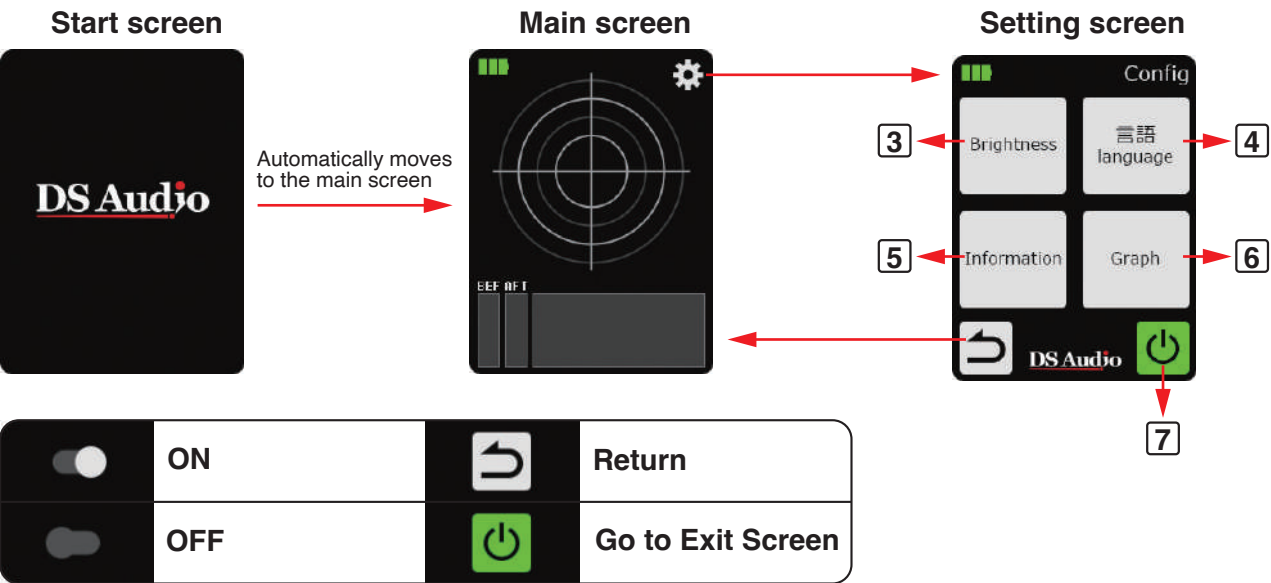
More detailed estimated eccentricity can be found on the graph details page.



When the center of rotation is aligned with the absolute center position, rotate the record player again to check that the eccentricity of the record is gone (or reduced) and then play the record.

Note:
If the spindle hole is too off-center or tight, full correction may not be possible. You may use the included reamer to enlarge the hole and improve alignment, but this is irreversible—please do so at your own risk.

Setting

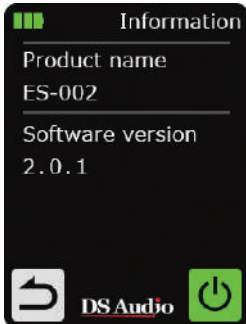


3. Brightness setting
The brightness can be set in 5 levels. Please set the brightness to your own preference.

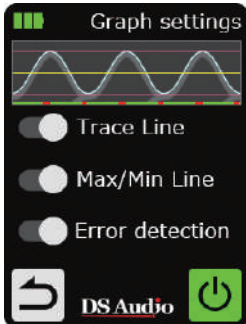
Guide LED ON/OFF
The guide LED that indicates the area being measured can be set to ON or OFF. This guide LED is for visualization only and does not affect measurement accuracy. It is recommended that the LED be turned off during normal use to reduce battery power consumption.



4. Language Settings
You can choose between Japanese and English. Select the language of your choice and touch the screen.



5. Version Information
Displays the product name and software version. Make sure that the software is the latest version.

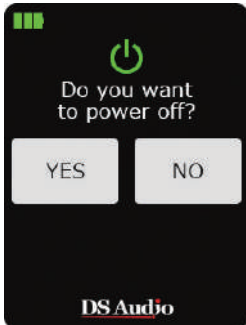


6. Graph Display Settings
Select the graph display method for the main page and the wave display page.

Trace Line
When ON (right side), the area recognized by the software as the record groove is displayed in blue-white. If this tracking line coincides with the white end groove, the measurement is correct.

Max/Min Line
When ON (right side), the maximum and minimum eccentricity values recognized by the software are displayed with red lines. The median value is also indicated by a yellow line. These measurement lines remain after adjustment.

Error detection
Indicates in red when there is a reading error. If the measurement is correct, it is displayed in green.



7. Termination
Press YES to turn off the power.
Note: Holding the button will not power off the unit.

Conditions for automatic power off
No operation: 45 sec.
Starts rotating on the turntable (when record playback starts): 10 sec.

Safety Precautions

Please be sure to follow the instructions.
Please read "Safety Precautions" carefully before use and use the product correctly.
The precautions described in this instruction manual are intended to ensure safe and proper use of the product and to prevent injury or damage to you or others.



Warning

	Do not operate this equipment when it is broken	If the product is used under abnormal conditions such as smoke, strange smells or noises, it may cause fire or electric shock. If you notice a strange smell or smoke, turn off the power of the device immediately and remove the batteries. After that, confirm that smoke is no longer emitted, and contact the dealer for repair.
	Do not make any changes or modifications	You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.
	Keep the unit away from water or moisture.	This unit is designed for indoor use only. Be careful not to allow water to enter or wet the unit. Doing so may cause malfunction, fire, or electric shock.
	No liquid nearby	Do not place flower vases, flowerpots, cups, containers filled with cosmetic chemicals or water, or small metal objects near the device.If water gets into the equipment, it may cause malfunction, fire or electric
	Do not insert foreign objects	If foreign matter should enter the inside of the instrument, first turn off the power and contact the dealer.



Caution

	Installation Notes	Do not place the product on an unstable place such as on a wobbly stand, on a tilt, or near the edge of a stand. Falling may cause injury.
	No impact	Do not shake, bump, or otherwise subject the unit to shock. Such actions may cause malfunction.
	Location	Do not place the product in a humid or dusty place. It may cause malfunction, fire, or electric shock.
	Battery	Be sure to insert batteries in the correct orientation. Inserting the battery in the wrong direction may cause a malfunction, fire, or electric shock.

Notes

Installation Location Do not install in the following locations

- In places exposed to direct sunlight or close to heaters or other heat-emitting equipment.
- Places with poor ventilation, high humidity, or high dust content.
- Unstable places with vibration or inclination.
- Places where the product may be exposed to rain or water.
- Other places where the temperature is particularly high.
- Places where there is a high risk of falling.

Batteries

- Please use the included rechargeable AA batteries.

Limitations of Measurement and Adjustment

- Depending on the condition of the record disc, it may not be possible to measure correctly.
(End groove position deviates significantly from the record standard, color record Label is close to the end groove,Sound groove is close to the end groove, etc)
- If the warp of the record disc is too large, accurate measurement may not be possible.because the stabilizer is shaken too much).
- If the record hole is not centered correctly or the adjustment width (gap between the spindle and record hole) is too small, the eccentricity may not be fully resolved.
- Since this product is a manual adjustment of the record position by the customer, there is a limit to the adjustment.

Repair

- Please contact to your dealer or DS Audio distributor when repair is needed.

Expansion of record hole

- Once record holes are expanded, they cannot be restored.
Therefore, it is the customer's responsibility to expand the record hole using a reamer.