Earscan®

ES3

Pure Tone
Automatic Threshold Audiometer

Quick Setup Guide

Micro Audiometrics
CORPORATION

Earscan® 3 Automatic Audiometer

Unpacking, setup & general usage guidelines.

Contents of Shipping Box.

- Inner box containing Retention Pack
- Earscan Carrying Case

Earscan® 3 in the retention pack. The attached headset is packed underneath.

Lift up on pack, then fold the cardboard edges up to remove the Earscan.

Accessories are found inside the carrying case.

Earscan® 3 can be powered by (4) AA batteries, the included AC power adapter, or a PC USB port.

Insure proper orientation when installing batteries.

If not used for long periods of time remove batteries to prevent possible damage to audiometer

When using AC power, use only the supplied adapter. To power from a PC use the supplied USB cable.

Daily Check of the Audiometer—

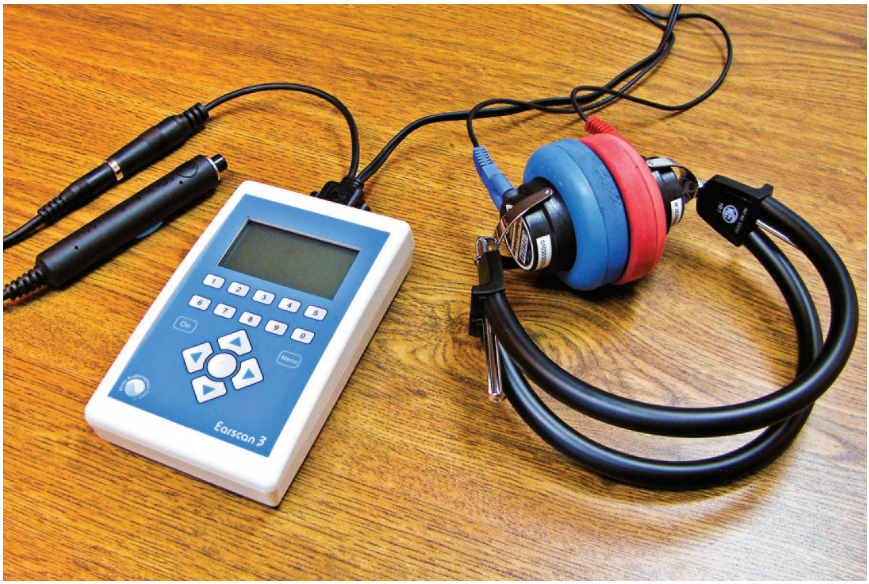
The functional operation of the audiometer should be checked before each day's use by testing a person with known, stable hearing thresholds or by using a bio-acoustic simulator (example: Quest BA-202).

Listen to the Audiometer's output—

- Is it free from distortion?
- How are the pitch, quality and loudness of the tones?
- When you move the headset cord, is there any static which could indicate loose connections?
- Do you hear cross-talk? The signal presented to the test ear should not be heard in the non-test ear.

Any detected problems should be corrected before testing and may require service or calibration.

Ready to Test



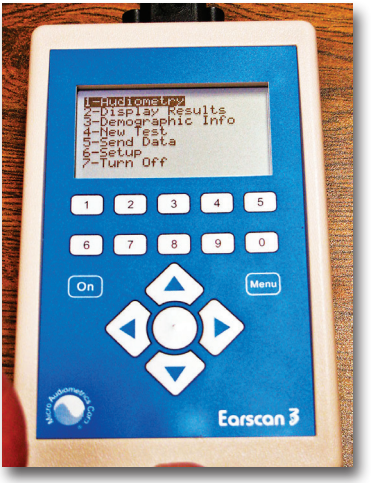
Patient wears headset, presses response button when tones are heard.

Opening Screen at Power-up

Next screen will show "Select an Option"

1-New Test
2-Load Last Results

Main Menu—



- 1 Audiometry— starts the test.
- 2 Display Results— shows results.
- 3 Demographics—
  1 Patient ID— change before each new test.

  2 Op ID— set one time unless operator changes.
- 4 New Test— clears last test result, and asks for patient ID#.
- 5 Send Data— to attached printer or to PC to be used with software.
- 6 Setup— customize your audiometer settings.
- 7 Turn Off

#6 Setup— Important

- Customize your audiometer. Choices are automatically saved until changed.

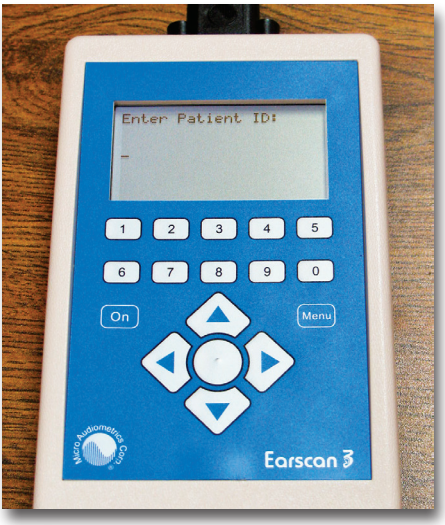
See supervisor for assistance with setup of test parameters.

Main Menu

1-AUDIOMETRY	Enters manual test mode.
2-DISPLAY RESULTS	Displays test results on 1-2 screens.
3-DEMOGRAPHIC INFO	
1-Patient ID	Up to 21 digits.
2-Operator ID	Up to 21 digits.
4-NEW TEST	Begins new test, overrides previous test. **PRINT OR SEND PREVIOUS TEST BEFORE STARTING NEW TEST.**
5-SEND DATA	Transmits to printer or computer via supplied cable.
***6-SETUP**	*If "Password" protectected these settings are not available.*
1-Audiometry Setup	**Audiometry options**
1-Frequencies	Select from list
2-Min/Max Test Level	
1-Minimum Test Level	-10, -5, **0** (default), 5, 10
2-Maximum Test Level	80, 85, 90, 95, **100** (default)
3-Manual Audiometry	Manual aud. options
1-Ear	Left/**Right**
2-Starting Level	10/15/**20**/25/30/35/40
3-Starting Frequency	Select from list (**1000**)
4-Tone Mode	**Pulsed**/Continuous
5-Increment Amount	**5**/10/20/30
6-Decrement Amount	5/**10**/20
7-Binaural Stimulus	**No**/Yes
4-Automatic Theshold	Automatic Test Options
1-Ear	Left/**Right**/Better Ear
2-Frequency Order	Select from list
3-Starting Level	10/15/20/**25**/30/35/40
4-Increment Amount	**5**/10/20/30
5-Decrement Amount	5/**10**/20/30
6-Gross Increment	5/10/**20**/30
7-Gross Decrement	5/10/**20**/30
8-Miscellaneous	Other automatic threshold options
1-Level Override	40 / 45 / 50 / 55 / 60 / 65 / 70
2-Faster Method	No / **Yes**
3-Stop On Inc.	No / **Yes**

4-Max Presentations	15 / **20** / 25 / 30 / 35 / 40
5-1kP Test Both Ears	**No** / Yes
6-Max False Responses	1 / 2 / 3 / 4 / **5** / 10
7-Ascend. Res. Required	1 / **2** / 3 / 4 / 5
2-Communications	**Serial Communications Options**
(These steps are not required when using the USB connection.)	
1-Default Output	**Printer** / Computer
2-Baud Rate	**9600** / 19.2 / 57.6 / 115.2
3-Insert Linefeed	No / Yes
4-Auto Send Data	No / Yes
3-Date	**Date Options**
1-Set Date Format	**MM/DD/YYYY** or DD/MM/YYYY
2-Set Date	Enter date (use current date format)
3-Set Time Format	24 Hour / 12 Hour
4-Set Time	Enter time (use current time format)
4-Power	**Power Handling Options**
1-A/C	When operating on A/C or USB power
1-Backlight	30 sec / 1, 2, 5 min
2-Power Down	Never / 1, 5, **15**, 30 min / 1 hour
2-Battery	When operating on battery power
1-Backlight	5, 10, **20**, 30 sec / 1 min
2-Power Down	15, 30 sec / **1**, 2, 5 min
5-Display	**Display Setting Options**
1-Contrast	Adjust as desired
2-Brightness	Adjust as desired
3-Scroll Logo	**No** / Yes
6-Beep Volumes	**Volumes for key 'tick' and audible alerts**
1-Key Volume	**Low** / Medium / High
2-Alert Volume	Low / **Medium** / High
7-General	**Other Options and Information**
1-Calibration Dates	Display last calibrated and due date
2-Perform Calibration	Password protected
3-Headset for Testing	Primary / Secondary
4-Earscan 3 Info.	Displays information screen
5-Lock Settings	Password protected
8-Reset Settings	Yes / No
7-TURN OFF	

After completing “Setup” (#6 on Main Menu) select “Audiometry” (#1 on Main Menu) to begin...

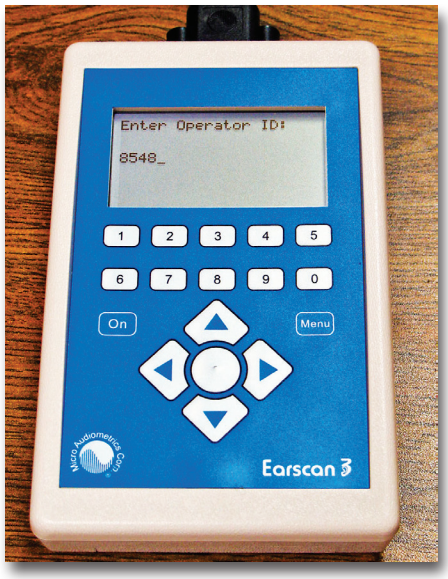


New Test—

- Enter a new patient ID # for each new test.

Note: Selecting new test clears *last test results*. Print or save last test before starting new.

- After entering Patient ID # you will be prompted to enter Operator ID #.
- Operator ID # will remain the same for all tests until changed.



Preparing for the Automatic Test—

- Testing should be done in a quiet environment or sound room (see next page). This is critical for proper testing and accurate test results.
- The audiometer screen must not be visible to the test subject (patient).
- The patient should remove any earrings, glasses or hats that might interfere with the headphone placement.

Tell the patient:

- The test will take several minutes.
- They will hear a series of tones, in three short bursts, at various loudness levels.
- When they hear the tones press and quickly release the response buttons.
- Tell the patient to only press button when sure they have heard a tone.

- Squeeze the headband to raise or lower the headphones; place red on right ear, blue on the left.
- Hand the patient the response button.

Caution:

Do not attempt to clean cushions by spraying Lysol® or other liquid cleaning solution directly on TDH-39 headphones.

Doing so can seriously damage the headphones.

Our Cushion Covers are the safe alternative for maintaining a sanitary headset...

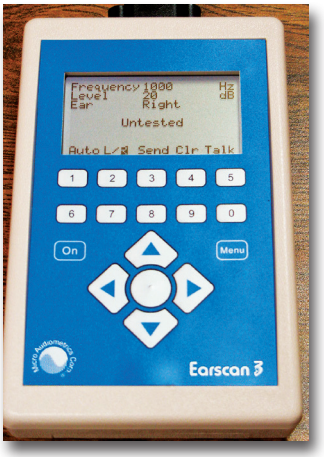
Sample pack included with audiometer accessories. Offer every patient a “clean” headset and peace of mind.

Earscan 3 with Sound Booth connection cables.

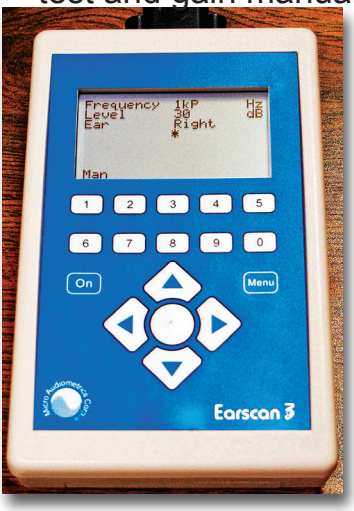
- If testing in a sound booth, remove attached headset cable from back of audiometer with special hex wrench (enclosed) and attach “Sound Room Patch Cord” (with [3] 1/4” phone plugs) to back of Earscan. It can now be plugged into outside panel of booth.

- Remove cable from red and blue headphones and attach Headset Cable with Dual ¼” Mono Plugs. Be sure to install **red** where the red fork was removed (**right** phone), and **blue** where the blue fork was (**left** phone). The headset and response button can now be plugged into the inside booth for testing.

Test—

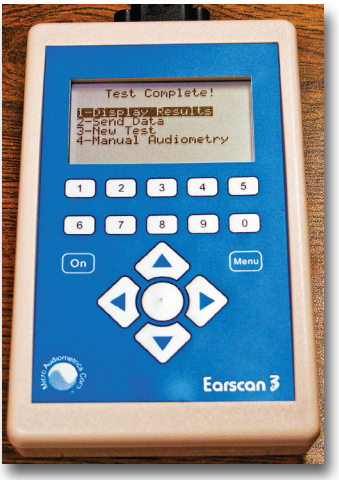


- Sample screen in manual mode.
- Press the “1” key under *Auto* to start the Automatic Testing. Press “1” again to stop Auto test and gain manual control.



- Shows “1kP” (1000 Hz pretest) at 30dB presented to right ear. “ON” indicates tone is being presented. “*” indicates button was pressed in response.
- To pause the Automatic Test press the “1” key under *Man*.

Test Complete—



- Press # 1 to display results of test.
- Press # 2 to send data to a printer or computer for use with software such as our Earscan Printing Utility.

Quantifying Hearing Loss

Table 1 provides a general reference for converting threshold in decibels to degree of hearing loss.

Table 1. Scale of Hearing loss

0 – 20 dB	Hearing within normal limits
25 – 40 dB	Slight to mild hearing loss
45 – 55 dB	Moderate hearing loss
60 – 70 dB	Moderately severe hearing loss
75 – 90 dB	Severe hearing loss
90 dB+	Profound hearing loss

Automatic Threshold Test Error Conditions

If an error is encountered during an automatic threshold test, the ES3 will stop the test and indicate the error condition. The operator may re-instruct the patient via talk over mode and resume testing, or return to manual audiometry mode. Table 2 lists the error conditions that the ES3 detects.

Table 2. Automatic Threshold Audiometry Errors

Button Held	Patient is holding down response button.
False Response	Patient pressed response button outside the valid response “window” or when no tone was presented.
Inconsistent Results	A valid threshold was not obtained. Testing stopped at the point where the error occurred.
Validity Error	The 1k and 1kP thresholds differ by more than 5 dB.

Trouble Shooting Guide

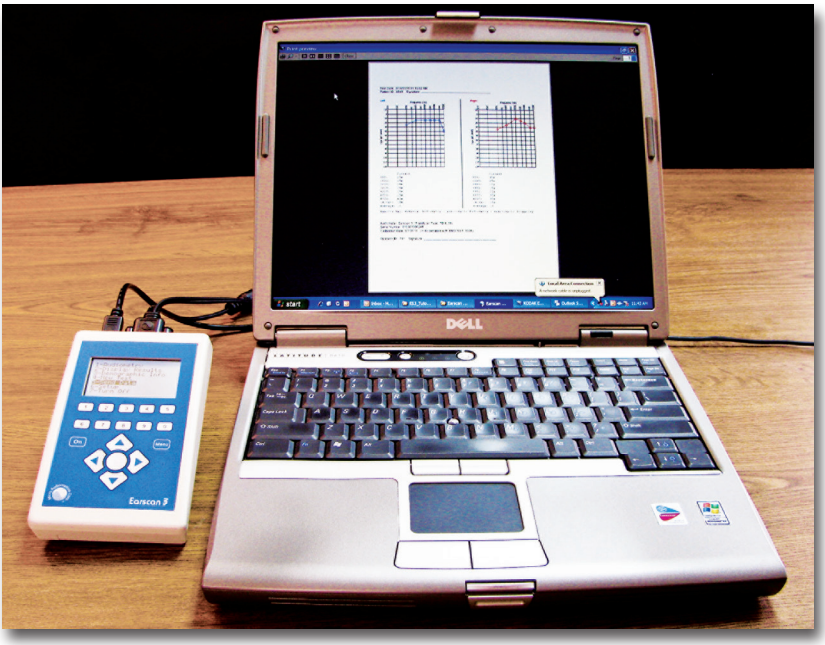
Table 3.

Problem or Question	Possible Solution
ES3 does not power up.	Check batteries or verify that wall cube is attached and plugged in. If batteries, are they inserted incorrectly (one or more in backwards)? Were batteries removed during long periods of non-use? If not, they could be corroded and leaking.
Signal is missing or intermittent.	1. Verify that headset/response button cable connector is securely attached and mounting screws are snug. 2. Move or gently bend headset cable to see if problem “comes and goes” – if so, there may be a break in the wiring. 3. Verify that screws holding the “fork” connectors at each earphone are snug.
Crackling in the headphones or frequency not as loud as it should be.	There may be a broken wire in the headset cable. If so, it will need to be replaced. **Note**: Do not push the earphones together. Air pressure caused by pushing the phones together will damage the diaphragms.
Headset malfunction in absence of above problems.	Headphones may have been sprayed with a cleaning solution. **Caution**: Refrain from spraying or using liquids directly on TDH-39 phones.
Subject response button does not work.	1. Verify that headset/response button cable connector is securely attached and that mounting screws are snug. 2. Disconnect response button plug from headset/response button cable, clean plug, and reconnect.
“How often is calibration required?	Annual calibration is required.

Table 3. (cont.)

Problem or Question	Possible Solution
Erroneous “Calibration due” warning.	Instruments with only one headset should have secondary Headset set to ‘None’ (done in Calibration mode). This is done at factory or when the audiometer is calibrated.
Installing ES3 USB drivers. Note: These steps are not required when installing the Earscan Printing Utility. The USB drivers will be automatically installed along with the utility.	Do not connect the ES3 to the PC until after the drivers have been installed The USB drivers can be downloaded directly from **www. microaud.com**
“Ready For Update” Message.	MENU key held down too long. Disconnect power (remove AC cube or remove AA batteries, reinstall).
Printer fails to print or prints incorrect characters.	Reference: “Transmitting Data” 1. Verify that ‘output to printer’ is set. 2. Verify that printer is attached, power is “On”, and printer is ready to print.
The Seiko printer does not properly feed paper.	Verify that paper is installed correctly and not jammed.
The Seiko printer appears to be printing, but nothing shows up on the paper.	Paper is in backwards. Thermal paper prints only on shiny side.

After selecting # 2 on the "Test Complete"—

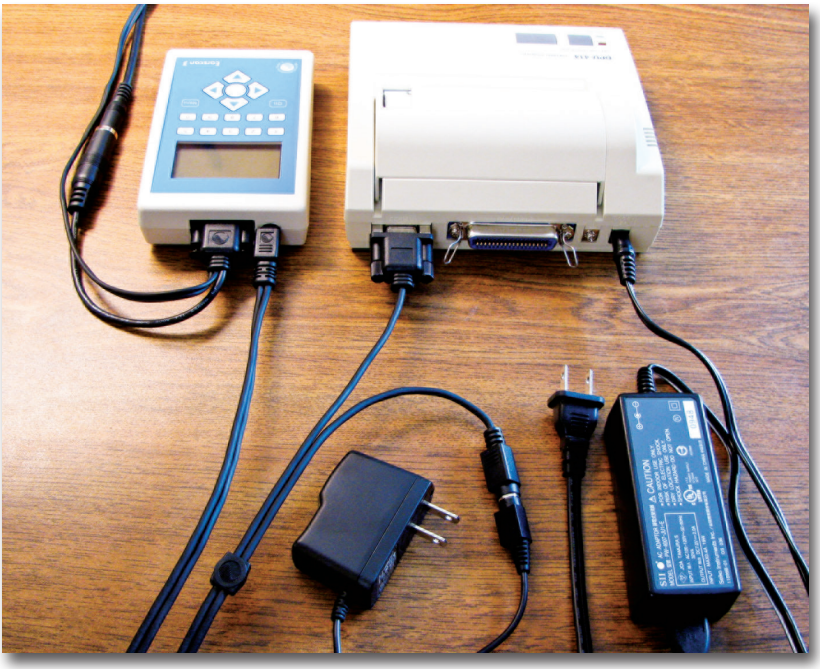


ES3 connected to PC with Earscan Printing Utility in use.

- Send data from the "Test Complete" screen or #5 on "Main Menu".

Go to www.earscan.com for information on installing and using the Earscan Printing Utility (program).

Earscan® 3 connected to the Seiko Printer (optional).



- Printer cable attaches to the round 6-pin connection on the ES3, in place of the AC adapter.

Note that the printer cable has a connection allowing for the ES3 AC power adapter to be reconnected.

Micro Audiometrics
CORPORATION
1901 Mason Ave, Suite 104
Daytona Beach, FL 32117
Phone: (386) 888-7878
www.microaud.com