

## *Diagnostic Audiometer AD229e*

- Efficient Hearing Examinations



# Audiometry *precision*

The high quality of the AD229e makes it well suited for any stationary or portable application where diagnostic testing of air, bone and speech is performed. The time saving automatic test functions combined with the computer interface makes the AD229e ideal for modern healthcare environments. The talk forward and talk back functions make it easy to work with the AD229e, especially with sound booth installations. Full NOAH compatibility completes the picture.



**leading diagnostic solutions**



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- Efficient diagnostic examinations

## **Auto Threshold and Békésy**

The AD229e incorporates a function for performing thresholds automatically. The test procedure is based on the Hughson-Westlake method (up 5dB, down 10dB). Desired test frequencies may be selected freely by the user. An automatic threshold procedure featuring the quick OSHA 1kHz test/retest validity function is also available.

The Békésy Test, featuring pure tone, pulsed tone or narrow band noise as stimuli as well as masking with narrow band noise, is incorporated. Saved test results can be recalled from the memory of the AD229e or transferred to a PC for database storage or printing. An alarm is built in, allowing the operator to be informed about test status when doing automatic tests.

## **ABLB / SISI / Stenger / Tone in Noise**

As well as the pre-programmed ABLB and SISI tests the AD229e can perform the Stenger Test with pure tones for evaluating malingering, or as a binaural speech test with a monophonic speech signal. The Langenbeck "Tone in Noise" Test is also included.

## **Master Hearing Aid**

The AD229e has incorporated a 2 channel Master Hearing Aid for hearing aid simulation. The speech signal from the live voice microphone is transformed directly into digital signals ensuring high sound quality. Filters and Acoustic Gain can be selected individually for each channel.

## **Printing options**

PC connectivity provides options for data storage and full page reports via NOAH or IABase software.



*A carrying case will hold the AD229e with all its accessories.*



## Data Storage with Windows® Based Software

Transferring data to a PC is possible by two different applications. IaBaseII is the Interacoustics database platform that enables data collection from multiple instrument sources into one patient file.

NOAH hearing aid fitting software will also integrate the test data when used with the Interacoustics NOAH audiometry module software.

## Speech Testing and Communication

- Live Voice speech testing is easy to perform using the built-in goose neck microphone.
- CD or tape players may be connected.
- Talk back is provided for sound field installations.
- Talk forward is available using the built-in microphone. The intensity is easily adjusted on the front panel.
- Monitoring is possible either through the operator's headset or through the built-in monitor loudspeaker.

## Audiometer Mixing Capability (CAPD Tests)

The mixing capabilities of the AD229e include two different speech signals (one to each ear) as well as binaural speech (same speech signal to both ears). Mixing speech and noise in the same ear or two different speech signals to the same ear are possible by using a pre-recorded CD where signals and/or noise are already mixed on the same track.

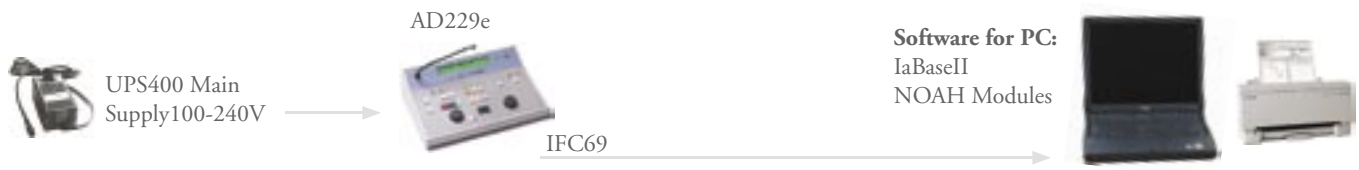


*TDH39 headset*



*EAR-Tone 5A Insert Phones*

# Interconnections



## General Technical Specifications

### Standards:

Audiometer: EN 60645 -1, ANSI S3.6, Type 2  
 Speech: EN60645-2/ANSI S3.6 type B or B-E.  
 Safety: EN 60601-1.

### Medical CE-mark:

Interacoustics A/S meets the requirements of the Annex II of the Medical Device Directive 93/42/EEC. Approval of the quality system is made by TÜV – identification no. 0123.

**Calibration:** AC: ISO 389-1 (TDH39), ISO 389-2 (EARTone5A), BC: ISO 389-3.

### Frequencies and Maximum Hearing Levels:

	AC dBHL	AC dBHL	BC dBHL	NB/SN dBHL	FF dBSPL
Hz	TDH39	EAR-Tone5A	B71		
125	90	95		80	90dB to 115dB SPL depend- ing on FF system
250	110	100	45	100	
500	120	110	65	110	
750	120	120	70	110	
1000	120	120	70	110	
1500	120	120	70	110	
2000	120	120	75	110	
3000	120	120	80	110	
4000	120	120	80	110	
6000	120	105	55	110	
8000	110	100	50	90	

**Extended Range Function:** If not selected, the AC output will be limited to 20dB below maximum output.

**Input:** Tone, Warble Tone  $\pm 5\%$ , 5Hz (true sine wave frequency modulation), tape/CD 1+2, mic.

### Clinical Version Includes:

- TDH39
- B71
- Patient response switch
- Patch cords
- Talk back mic
- Mic/monitor headset
- NOAH audio module software & RS232 cable (requires NOAH 3)
- Pen set and dust cover
- Power cable
- Operations manual
- Calibration certificate and warranty card

**Masking Stimulus:** Automatic selection of narrow band noise (or white noise) for tone presentation and speech noise for speech presentation.

**Outputs:** Left, Right, Bone L+R, Insert Phones, Insert Masking, FF1, FF2.

### Transducers:

TDH39 Audiometric Headset.  
 EARTone3A/5A Insert Phones (optional).  
 HDA200 Audiometric Headset (optional).  
 B71 Bone Conductor.

**Talk Forward:** Built in talk forward microphone. 0-110dB SPL continuously adjustable on operation panel.

**Monitor:** Output of tape or CD through built-in speaker or through external earphone or speaker.

**Tone Presentation:** Manual or Reverse. Single pulse.

Multiple pulses 250-5000 msec. on/off.

**Auto Threshold:** Patient controlled Hughson Westlake procedure according to ISO 8253-1 or OSHA procedure with automatic re-check (US edition only).

**Frequency Selection:** 125Hz, 250Hz, 750Hz, 1500Hz or 8kHz may freely be deselected if a quicker test routine is desired.

**Synchronous Masking:** Locks channel 2 attenuator to channel 1 attenuator.

**Store Function:** Internal memory for AC L/R and BC L/R and full speech curve.

**Patient Signal:** Reed switch push button.

- Talk back mic
- Mic/monitor headset

### Tests:

**SISI** with auto score calculation. (5dB included for familiarization).

### ABLB

**Stenger** (Binaural pure tone stimulation).

**Stenger Speech** (Binaural speech test with monophonic signal).

**Langenbeck (Tone in Noise).**

**Békésy Test:** Pure tone or narrow band stimulation. Fixed frequency. Continuous or pulsed tone.

**2 channel speech:** Input for 2 channel prerecorded material.

**2 channel Master Hearing Aid:** Both channels operate independently with gain and filter settings.

### Examples of Compatible Windows Software:

IaBaseII database and diagnostic modules  
 NOAH hearing aid fitting software.**Display:** Alpha-Numeric Display.

**Construction:** Plastic cabinet.

### Attenuator controls:

Rotary switches (Push buttons optional).

**Power Supply:** External UPS400 (included).

100 - 115 V or 230 V Please specify.

**Consumption:** 40 VA

**Dimensions:** LxWxH 36x26x10 cm / 14x10x4 inches.

**Weight:** 1.8kg/4.0 lbs. (external power supply UPS400 + 0.8kg/1.8 lbs.)

### Air freight packing:

1 case: 48x31x37 cm /19x12.2x14.6 inches.

Gross weight: 5.6 kg/12.4 lbs.

### Portable Version Includes:

- TDH39
- B71
- Patient response switch
- Patch cords
- Talk back mic
- Mic/monitor headset
- NOAH audio module software & RS232 cable (requires NOAH 3)
- Pen set and dust cover
- Power cable
- Operations manual
- Calibration certificate and warranty card
- ACC25 universal carrying case

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