

# OBJECTIVE HEARING SCREENING OBJECTIVE HEARING DIAGNOSTICS

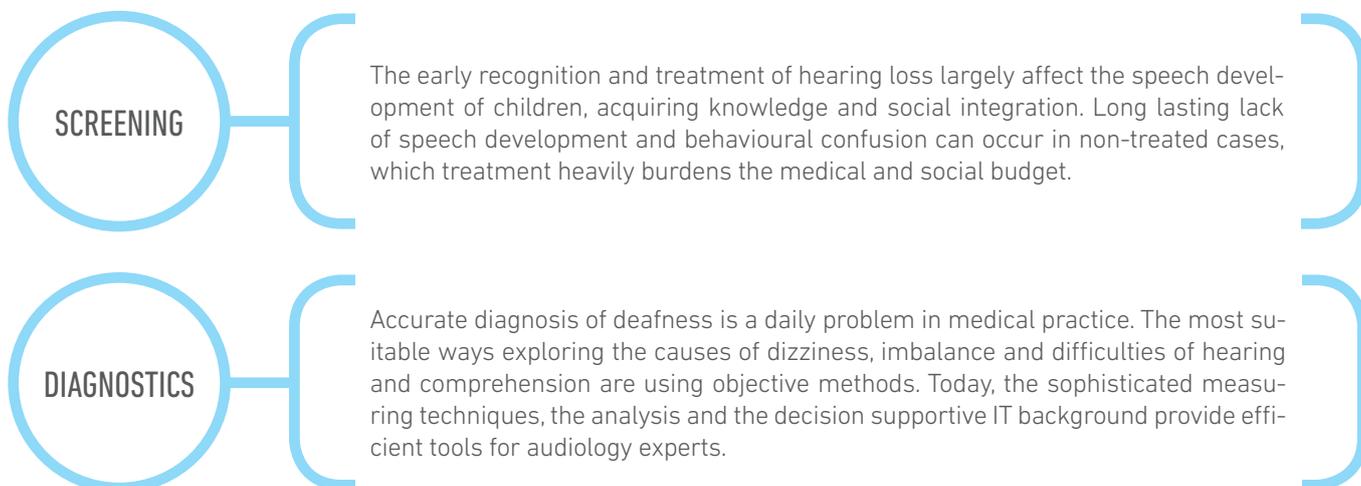


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**CT BIMER**  
OBJEKTÍV HALLÁSVIZSGÁLÓ RENDSZER

*When the innovation supports the work of the healthcare professionals effectively*

## TWO EVERYDAY TASKS IN AUDIOLOGY TO BE SOLVED



### SCREENING

The early recognition and treatment of hearing loss largely affect the speech development of children, acquiring knowledge and social integration. Long lasting lack of speech development and behavioural confusion can occur in non-treated cases, which treatment heavily burdens the medical and social budget.

### DIAGNOSTICS

Accurate diagnosis of deafness is a daily problem in medical practice. The most suitable ways exploring the causes of dizziness, imbalance and difficulties of hearing and comprehension are using objective methods. Today, the sophisticated measuring techniques, the analysis and the decision supportive IT background provide efficient tools for audiology experts.

**THIS NOVELTY DEVICE, BIMER PROVIDES EFFECTIVE SOLUTIONS FOR BOTH PROBLEMS**

## WHAT IS BIMER DEVICE?

BIMER is an objective hearing screening apparatus, which is suitable for registering Auditory Brainstem Response and Otoacoustic Emission and also for screening and extended clinical examinations. It also involves patient administration.

The developed BIMER diagnostic device is a result of a multiannual research. The device is an innovation of co-creation between Hungarian doctors, physicists and engineers honoured at their own specialization. The device is unique in its category which makes it an incomparable Hungarian development.

**Three screening and four diagnostics module can be attached to the basic device modularly, according to user's needs.**

### Screening, early recognition

**ABR, TEOAE, DPOAE**

The screening device is excellent for hearing screening new-born children in infant and neonatal care units, in clinics and also in health visitor networks for primary screening kindergarten children, school children and adults.

### The modern diagnostics

**ABR, TEOAE, DPOAE, ENG**

Expansion of the basic device with diagnostic functions, the device is suitable for objective clinical, audiological examinations. The charts, the parameters, the automatic text reviews of measured results and the Hungarian findings created with AI support are printable and can be displayed and zoomed on the evaluation monitor.

## FOUR MAIN REASONS for using BIMER

- 1 Compact solution: 7 in 1**  
3 screening and 4 diagnostics opportunity in one device.
- 2 Hungarian development**  
The device was developed with high quality design and Hungarian technology.
- 3 Simple. Flexible. Mobile**  
The device was made in a mobile formations, thus it is comfortable to use in clinics, hospitals, in health visitor networks or even in kindergartens and schools.
- 4 Cost effective**  
On account of the unique compact solution, it is more cost effective compared to similar devices, because it does not need any further instruments.



## The strength of the device is RSM. **Reliable. Simple. Modern.**

### RELIABILITY

The automatic testing of contacts of the probes and electrodes helps the increase the reliability of measurements. The artificial intelligence support reduces the possibility of wrong diagnosis to minimum.

### SIMPLE USE

The accessories can connect unequivocal, fast and error-free to the basic device. Pre-defined protocol measurements. Automatic Hungarian analysis, evaluation and reporting.

### MODERN TECHNOLOGY

Integrated signal processing-data collecting. The use of novel DSP algorithms reduce the time of examination, which provides a more reliable and sensitive execution of measurements.



sophisticated  
measuring techniques



artificial  
intelligence



cost effective  
solution



objective  
method



modern  
diagnostics

## THE BIMER'S MAIN PROPERTIES

- Small size, portable formation
- Battery operation mode with charging display
- Coloured touch screen with backlight adjustment
- User-friendly UI with Hungarian/English language
- Recording patient data via touch screen and computer
- Parameterized stimulation unit
- Indexing display (helpful signs, artefacts) of the process of screening measurements, displaying evaluations
- The charts, the parameters, the text reviews of measured diagnostic results are printable and can be displayed and zoomed on the evaluation monitor. Reporting with AI support based on 35 years of clinical experience and analysis.

## MEASURING ABR

**Measuring impedance** Waveforms: square,  
Frequency: 1000Hz;  
Range: 0,5 k $\Omega$  - 10 k $\Omega$

**Stimulation** Refresh rate: 23 Hz;  
Waveforms: Square (100 $\mu$ s wide);  
Polarity: Rarefaction, condensation;  
Intensity: adjustable between 20  
and 100 dBHL, in 5 dB steps

## MEASURING TEOAE

**Stimulation** Refresh rate: 23 Hz;  
Waveforms: Square (100 $\mu$ s wide);  
Polarity: Rarefaction;  
Intensity: adjustable between 20 and  
100 dBHL, in 5 dB steps

## MEASURING DPOAE

**Stimulation** Frequency (f1): adjustable between  
600 Hz – 8000 Hz;  
Frequency ratio (f2): f1 x 1,22;  
Waveforms: Pure sinus;  
Intensity: adjustable between 10  
and 100 dB SPL, in 5 dB steps

**Measurement** FFT resolution: 25 Hz

## MEASURING ENG

**Stimulation** Optional caloric (water or air)  
stimulation.

**Measurement** Single channel acquisition (regis-  
tering horizontal eye movement)

**Tests** Impedance test, Calibration, Spon-  
taneous nystagmus, Caloric stimu-  
lation (cold 30 °C, warm 44 °C)

## ACCESSORIES – depending on structure

- BIMER EMU unit
- AC adapter
- DPOAE probe
- Earbud set
- Probe tip cleaning set
- Headphone with noise control
- Patient cable set
- Single-use electrode
- PC-BIMER communication cable (USB)
- Stylus (with test hole)
- User manual
- Carry bag
- ENG calibrator

## GENERAL TECHNICAL SPECIFICATIONS

Size:	BIMER (without accessories) 100x210x30 mm
Battery:	Li-Polymer 3.7V 2000 mAh
Operating time:	min. 8 hours (under continuous measuring)
Display:	TFT touch screen 320x240 pixels
Sampling frequency:	25600 Hz
A/D resolution:	16 bit
Common modus rejection:	> 110dB
PC-interface:	USB. Implementation of diagnostic examination with software installed on the computer. Transfer of patient and measurement data into both directions.
Memory:	PC. Unlimited number of patient and measurement data can be stored. In the BIMER device, max. 256 patients' data and 256 examination (measurement) data pro patient can be stored at a time on the built-in SD card.
System requirements:	Windows XP SP3 or later (32 or 64 bit) operating system is required.
Classifications and standards:	Classification 2a (93/42/EEC Directive). EN 60601-1, EN 60601-1-2, EN 60601-1-1, EN 60645-3:2007, MSZ EN ISO 9001:2009, MSZ EN ISO 14971:2003



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