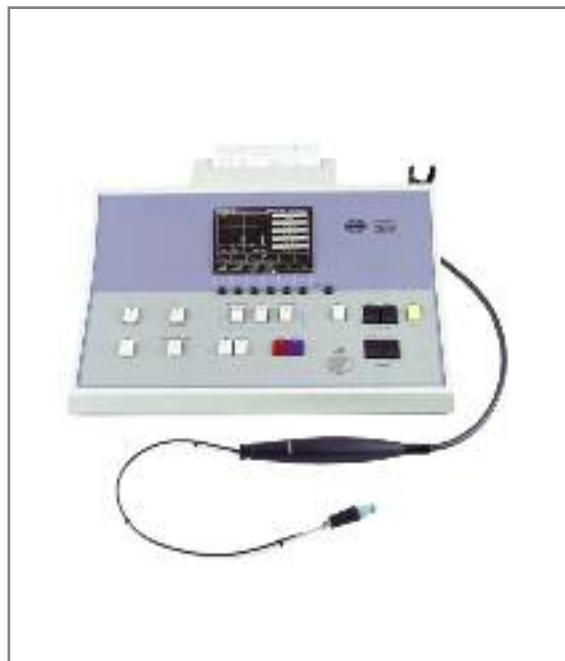


## Interacoustics AT235 & AT235H Kamplex KLT25 & KLT26

Middle Ear Analyzers - Efficient Middle Ear Examinations



# AT235 and AT235h

The AT235 is an automatic middle ear analyzer ideal for diagnostic and screening evaluations. The primary design of the AT235 emphasizes ease of use without compromising testing flexibility. Test batteries of the AT235 include standard tympanometry, ipsilateral and contralateral acoustic reflex and reflex decay, Eustachian tube function test and air conduction audiometry.

Automated tympanometry may be combined with 2 programmable reflex test batteries. Further manual reflex testing is available for more tests or to confirm/modify automated reflex results. The AT235 allows more than 40 reflex tests per ear to be stored and printed. These capabilities provide the necessary

tests for the majority of any clinic's needs. The addition of high frequency probe tones to optimize tympanometry testing of infants is available with the AT235h model.

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### General Technical Specifications

#### Standards:

Safety: EN 60601-1, Class I, Type B.

EMC: EN 60601-1-2.

Impedance: EN 60645-5/ANSI S3.39,  
Type 2.

Audiometer: EN 60645-1/ANSI  
S.3.6, Type 4 Tone.

#### 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.

#### Tympanometry:

##### Probe tone:

*Frequency:* 226Hz. AT235h also: 678Hz, 800Hz, 1000Hz for traditional IYI-curve tympanometry.

*Level:* 85 db SPL.

*Gain Control:* AGC.

##### Air pressure:

*Control:* Automatic.

*Range:* Default +200 to -400daPa (max. +300 to -600daPa).

*Safety limitation:* -800 daPa and +600 daPa.

*Pressure change rate:* Selectable in the set-up between 50, 150 and >250 daPa/s or automatic.

##### Compliance:

Range: 0.1 to 6.0 ml (numerical: 0.1 to 8.0 ml).

##### Function:

Automatic, where pump speed, start and stop pressure can be userprogrammed in the set-up. AT235h: Auto and manual pump functions.

##### Eustachian Tube Function:

AT235: Function test for use when the eardrum is intact.

AT235h: Functions tests for use with both intact and perforated eardrums.

#### Acoustic Reflex Functions:

##### Test Types:

###### *Automatic Reflex:*

Two independent user selectable protocols.

Series of fixed intensities available. Automated intensity search functions available for threshold search and reflex growth indication.

Free mixing of Ipsilateral and Contralateral.

###### *Manual Reflex:*

Manual control of all stimuli.

May also be used to redo part of automated test results.

###### *Reflex Decay:*

Manual control, with stimulus duration of 10 sec.

Ipsilateral or contralateral stimulation.

#### Contra Earphone:

TDH39 or insert receiver CIR22 (optional).

#### Attenuator:

1dB or 5dB steps.

#### Memory:

Internal memory for two ears. Each ear: 6 Ipsilateral and 6 Contralateral recordings. Each may have up to 6 stimuli. Also, there is memory for additional manual reflex recordings. (Total max. 78 reflexes per ear).

#### Audiometer Functions:

##### Patient Response:

Connection for patient response switch.

##### Outputs:

Contra TDH39 headset may be used for audiometry. Double TDH39 Headset for audiometry (optional).

##### Test types:

Manual Audiometry. Automatic Audiometry according to ISO 8253-1 (Patient controlled Hughson-Westlake).

#### Various:

##### PC Communication:

Input/output for computer communication via USB. One mode allows an external PC to both monitor and control the instrument. The control actions can be followed on the display and operation panel. Online communication, where the measurement data are sent to an external PC can be selected.

##### Keyboard:

Connection for external keyboard, standard PC type.

##### Printer

Built in fast thermal printer with paper width: 112 mm.

##### Accuracy:

*Stimulation Frequencies:* ±1%.

*Probe tone frequency:* ±1Hz.

*Probe tone level:* 85 dB SPL.

±1.5 dB measured in an IEC126 acoustic coupler. AGC for ear canal compensation.

*Pressure measurement:* 5% or 10 daPa, whichever is greater.

*Compliance measurement:* ±5% or 0.1 ml, whichever is greater.

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### General Technical Specifications - continued

#### Interconnections



#### Examples of Compatible Windows

##### Software:

Interacoustics OtoAccess™ Database.  
PrintView for PC monitoring and printing.  
IA-NOAH-Imp Module for interfacing to NOAH.

#### Frequencies and Intensity Ranges:

For safety / comfort reasons an optional limitation of maximum intensity is available.

**Power supply:** UPS400 (Included) 100-240V.

**Warm up time:** 10 minutes at room temperature (20 °C).

**Consumption:** 15VA, max. 45VA.

**Construction:** Plastic cabinet.

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

**Weight:** 2.8 kg / 6 lbs.

**Air Freight Packing:** (LxWxH):  
48x31x37 cm / 19x22.2x14.6 inches.  
Gross weight: 6.5 kg / 12.4 lbs.

Frequency	Reflex						Audiometry			
	Contralateral				Ipsilateral		TDH39		EAR-Tone 5A	
	TDH39		Insert/CIR22		Min	Max	Min	Max	Min	Max
	Min	Max	Min	Max						
Hz	dBHL		dBHL		dBHL		dBHL		dBHL	
125	-10	90	-	-	-	-	-10	90	-10	95
250	-10	110	0	100	-	-	-10	110	-10	100
500	-10	120	0	105	10	105	-10	120	-10	110
750	-10	120	-	-	-	-	-10	120	-10	120
1000	-10	120	0	110	10	110	-10	120	-10	120
1500	-10	120	-	-	-	-	-10	120	-10	120
2000	-10	120	0	105	10	105	-10	120	-10	120
3000	-10	120	0	100	10	100	-10	120	-10	120
4000	-10	120	0	95	10	100	-10	120	-10	120
6000	-10	120	-	-	-	-	-10	120	-10	105
8000	-10	110	-	-	-	-	-10	110	-10	100
WB noise	-10	120	0	100	10	105	-	-	-	-
LP noise	-10	120	0	100	10	105	-	-	-	-
HP noise	-10	120	0	100	10	105	-	-	-	-

#### Included Parts:

ATP-AT235u Universal Probe System with shoulder strap and wrist strap  
TDH39 Single Contralateral Headset  
UPS400 External Switch Mode Power Supply  
Power Cable (110/220V, please specify)  
K305 set of Eartips  
AFKA9 3 Rolls of Recording Paper  
PCR-AT235 Dust Cover  
Operation/Multilingual CE manuals  
Built in printer

#### Optional Parts:

TDH39 Audiometric Headset  
EAR-Tone 5A Insert Phones for Audiometry  
ACC25 Carrying Case  
CIR22 Contralateral Insert Phone  
Patient Signal Button  
CAT40 Calibration Unit 0.2-0.5-2.0-5.0 ml  
IES-2 Impedance Ear Simulator  
OtoAccess™ Database and diagnostic modules software

SPECIFICATION CAN BE SUBJECT TO CHANGE WITHOUT NOTICE

THE UK'S LEADING SOURCE OF AUDIOLOGICAL INSTRUMENTS