



Flute Basic - Plus - HF

DIAGNOSTIC MIDDLE EAR ANALYZER



CLASSIFICATION

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

PROBE TONE

Frequency: 226 Hz
 1000 Hz (Flute Plus w/optional license and Flute HF)
 Level: 85 dB SPL (@ 226 Hz)
 75 dB SPL (@ 1000 Hz)

COMPLIANCE MEASUREMENT SYSTEM

Volume range: .0.2 ÷ 8.0 ml (@ 226 Hz)
 0.9 ÷ 15 mmho (@ 1000 Hz)

PRESSURE SYSTEM

Rotary type pump with endless flow
 Manual pressure adjustment available in the tympanometry and reflex tests (Flute Plus only)

AVAILABLE TESTS

- Tympanometry (automatic)
 - Acoustic Reflex Threshold (automatic)
 - 2 Automatic test sequences (tympanometry + reflex test)
- Only Flute Plus
- Tympanometry (manual)
 - Acoustic Reflex Threshold (manual)
 - Acoustic Reflex Decay
 - Eustachian Tube Function (intact TM)
- Only Flute HF
- Eustachian Tube Function (intact and perforated TM)

TYMPANOMETRY

Viewing mode: absolute or compensated
 Single scan
 User selectable pressure range
 Maximum range: -600 to +400 daPa
 Safety limits: -800 daPa and +600 daPa
 Available rates: 50, 100, 200, 300 daPa/sec and AUTO (100-300 daPa/sec)
 Manual pressure adjustment (Flute Plus only)
 Auto start feature

ACOUSTIC REFLEX TEST

Ipsilateral and contralateral stimulation
 Non-acoustic stimulation (Flute Plus only)
 Stimulus ON-Time: selectable from 0.5s to 2.5s
 Stimulus OFF-Time: selectable from 0.5s to 2.5s
 Four different tests available:

- Automatic threshold
- Fixed intensity
- Growing intensity
- Manual mode (Flute Plus only)

ACOUSTIC REFLEX DECAY TEST

Ipsilateral and contralateral stimulation
 Non-acoustic stimulation (Flute Plus only)
 Test duration: 10 sec or 20 sec (selectable)

EUSTACHIAN TUBE FUNCTION TEST

ETF with TM intact: Williams test
 ETF with perforated TM: Toynbee test, with customizable duration and pressure range

QUICK TESTS

Two user programmable Quick tests available
 Each test consists of a sequence of

- Tympanometry
- Reflex test (Fixed intensity or Automatic threshold, with user defined parameters)

AVAILABLE STIMULI AND MAXIMUM LEVELS

Attenuator step: 5 dB

Stimulus	IPSI (dB HL)	CONTRA TDH39 headphone (dB HL)	CONTRA IME-100 earphone (dB HL)
250 Hz	-	100	-
500 Hz	100	120	110
1,000 Hz	110	120	115
2,000 Hz	105	120	110
3,000 Hz*	105	120	110
4,000 Hz	100	120	110
6,000 Hz*	100	105	100
8,000 Hz*	-	100	-
BBN*	95	115	105
LPN*	95	115	105
HPN*	95	115	105

[*] available only on Flute Plus model

PRINTER

Optional integrated thermal printer
 Paper size: 112 mm

CALIBRATION

Validity: 12 months
 All the parameters set through the device software

COMPUTER INTERFACE

Connection: USB (driverless)
 Compatible software: Inventis Maestro

DISPLAY

Type: Graphical color TFT LCD
 Size: diagonal 4.3", 95 mm x 54 mm
 Resolution: 480 x 272

POWER SUPPLY

Without integrated printer:

Main Unit: 6Vdc, 1.2A
 External adapter: 100-240 Vac 50/60 Hz 0.9-0.34A medical grade, responding to EN 60601-1 standard

With integrated printer:

Main Unit: 6Vdc, 3.2A,
 External adapter: 100-240 Vac 50/60 Hz 0.9-0.34A medical grade, responding to EN 60601-1 standard

MECHANICS

Without integrated printer:

Size (WxDxH): 32 x 32 x 9 cm / 12.6 x 12.6 x 3.5 in
 Weight: 1.9 Kg / 4.19 lbs

With integrated printer:

Size (WxDxH): 32 x 39 x 9 cm / 12.6 x 15.4 x 3.5 in
 Weight: 2.4 Kg / 5.29lbs

FREIGHT PACKING

Size (WxDxH): 47 x 42 x 35 cm / 18.5 x 15.8 x 13.8 in
 Gross weight (without printer): 4.3 Kg / 9.48 lbs
 Gross weight (with printer): 4.8 Kg / 10.58 lbs

APPLICABLE STANDARDS

Impedance: EN 60645-5 / ANSI S3.39, Type 2
 Calibration: EN ISO 389-2 (IPSI), EN ISO 389-1 (CONTRA TDH 39)
 EN ISO 389-2 (CONTRA IME-100)
 Electrical safety: EN 60601-1
 EMC: EN 60601-1-2

CE CERTIFICATE

93/42/EEC classification: Class IIa
 Classification rule (Annex IX, 93/42/EEC): 10
 Notified body: TÜV SÜD Product Service GmbH [0123]

PRODUCT CODES

- 10337: Flute model Basic
- 10338: Flute model Basic – with integrated thermal printer
- 10340: Flute model Plus
- 10341: Flute model Plus – with integrated thermal printer
- 10409: Flute model HF
- 10410: Flute model HF – with integrated thermal printer

INCLUDED PARTS

- Control unit with probe
- Single TDH-39 contralateral headset
- Calibration cavities
- Assorted ear tips box
- Plastic cover sheet
- Medical grade power supply
- USB connection cable
- User manual
- Inventis Software Suite



The Inventis Quality System complies with ISO 9001 and ISO 13485 standards.

OPTIONAL ACCESSORIES (with order code)

- 10342: Insert earphone for contra reflex testing
- 10293: Thermal paper for printer (box of 5)
- 10182: Soft carrying case for audiometers/tymp (not suited for printer version devices)
- 10864: 1KHz Probe tone license for Flute Plus

DISPOSABLES (with order code)

- 10488: White tips (diam. 6 mm) – Set of 30
- 10489: Pink tips (diam. 7 mm) – Set of 30
- 10490: Violet tips (diam. 8 mm) – Set of 30
- 10491: Green tips (diam. 10 mm) – Set of 30
- 10492: Red tips (diam. 12 mm) – Set of 30
- 10493: Blue tips (diam. 14 mm) – Set of 30
- 10494: Orange tips (diam. 16 mm) – Set of 30
- 10495: Light blue tips (diam. 18 mm) – Set of 30
- 10496: Yellow tips (diam. 21 mm) – Set of 30
- 10511: Box with assorted tips – Set of 160
- 10554: Cleaning brushes for the tympanometers probe

SUMMARY

	Flute Basic	Flute Plus	Flute HF
Automatic tympanometry	✓	✓	✓
Manual tympanometry	-	✓	-
Reflex test			
<i>Fixed intensity</i>	✓	✓	✓
<i>Growing intensity</i>	✓	✓	✓
<i>Automatic threshold</i>	✓	✓	✓
<i>Manual</i>	-	✓	-
Acoustic reflex decay	-	✓	-
Quick tests (tymp. + reflex seq.)	✓	✓	✓
ETF			
<i>TM intact</i>	-	✓	✓
<i>TM perforated</i>	-	-	✓
Probe tones	226 Hz	226 Hz 1000Hz[*]	226 Hz 1000 Hz

(*) Available through optional activation license

Flute is developed by:

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