



Viola Basic - Plus

COMBO UNIT: MIDDLE EAR ANALYZER / AUDIOMETER



CLASSIFICATION

EN 60645-5 / ANSI S3.39: Type 2 middle ear analyzer
 EN 60645-1: Type 3 audiometer
 ANSI S3.6: Type 3C/3CE audiometer

AVAILABLE TESTS

- Tympanometry (automatic)
- Acoustic Reflex Threshold (automatic)
- 2 Automatic test sequences (tympanometry + reflex test)
- Pure Tone Audiometry

Only Viola Plus

- Acoustic Reflex Decay
- Speech Audiometry
- QuickSIN® test (optional)

MIDDLE EAR ANALYZER SPECIFICATIONS

PROBE TONE

Frequency: 226 Hz
 Level: 85 dB SPL (@ 226 Hz)

COMPLIANCE MEASUREMENT SYSTEM

Volume range: .0.2 ÷ 8.0 ml (@ 226 Hz)

PRESSURE SYSTEM

Rotary type pump with endless flow

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)
 Auto start feature

ACOUSTIC REFLEX TEST

Ipsilateral and contralateral stimulation
 Stimulus ON-Time: selectable from 0.5s to 2.5s
 Stimulus OFF-Time: selectable from 0.5s to 2.5s
 Three different tests available:

- Automatic threshold
- Fixed intensity
- Growing intensity

ACOUSTIC REFLEX DECAY TEST

Ipsilateral and contralateral stimulation
 Test duration: 10 sec or 20 sec (selectable)

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
4,000 Hz	100	120	110

AUDIOMETER SPECIFICATIONS

AVAILABLE SIGNALS

Stimulus: pure tone, warble tone
 Masking: NBN, WN, SN
 Only Viola Plus
 2 external inputs for speech audiometry
 MIC input for live speech audiometry
 Internal input (flash memory) for speech audiometry

SIGNALS SPECIFICATION

Attenuator step: 5 dB
 Presentation: Continuous, Pulsed (0.5, 1 and 2 Hz)
 Warble: 5 Hz sin wave modulating signal

AVAILABLE OUTPUTS AND TRANSDUCERS

AC: TDH-39, ER-3 / ER-5 insert earphones
 BC: B-71 bone vibrator
 Insert masking earphone: IME-100

PURE TONE: FREQUENCIES AND MAXIMUM LEVELS (dB HL)

Freq. (Hz)	AC TDH-39	AC ER-3	AC ER-5	BC
125	80	90	90	-
250	100	105	100	45
500	110	110	110	65
750	115	115	120	70
1.000	120	120	120	75
1.500	120	120	120	80
2.000	120	120	115	80
3.000	120	120	115	75
4.000	120	110	110	75
6.000	105	95	100	55
8.000	95	90	90	50

SPEECH AUDIOMETRY: MAXIMUM LEVELS (dB HL)

AC (*) TDH-39	AC ER-3	AC ER-5	BC
100	100	100	55

(*) Reduce by 20dB in case of free field equivalent filter activation.

PATIENT – OPERATOR COMMUNICATION

Talk over: built-in or external microphone
Talk back (Viola Plus only): through built-in speaker or monitor headset (included); patient microphone included
Patient response trigger

MONITOR SIGNAL (only Viola Plus)

Both channels monitored through the built-in speaker or monitor headset (included)

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, 1.3A
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 / 5.29 lbs

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
Pure tone audiometry: EN 60645-1 / ANSI S3.6, Type 3
Speech audiometry (Viola Plus): ANSI S3.6 Type C & CE
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

10343: Viola Basic
10344: Viola Basic – with integrated thermal printer
10374: Viola Plus
10375: Viola Plus – with integrated thermal printer

INCLUDED PARTS

- Control box with probe
- Single TDH-39 contralateral headset
- Calibration cavities
- Assorted ear tips box
- TDH-39 supra-aural headphones
- B71 bone vibrator
- Patient response switch
- Monitor headset with boom microphone (Viola Plus only)
- Clip-on microphone for patient-to-operator communication (Viola Plus only)
- Plastic cover sheet
- Medical grade power supply
- USB connection cable
- User manual
- Inventis software suite

OPTIONAL ACCESSORIES (with order code)

- 10342: IME-100 Insert earphone for contra reflex testing
- 10166: ER-3A insert earphones
- 10833: ER-3C insert earphones
- 10172: ER-5A insert earphones
- 10181: Desktop, battery operated microphone for live speech tests
- 10179: Amplivox Audiocups noise excluding enclosures for TDH-39 headphones
- 10180: Cable set for sound booth
- 10182: Soft carrying case
- 10541: Trolley for audiometers / tympanometers
- 10533: QuickSIN® test license
- 10293: Thermal paper for printer (box of 5)

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

	Viola Basic	Viola Plus
Automatic tympanometry	✓	✓
Reflex test		
<i>Fixed intensity</i>	✓	✓
<i>Growing intensity</i>	✓	✓
<i>Automatic threshold</i>	✓	✓
Acoustic reflex decay	-	✓
Quick tests (tymp. + reflex seq.)	✓	✓
Probe tones	226 Hz	226 Hz
Pure Tone audiometry	✓	✓
Speech audiometry	-	✓

Viola is developed by:

INVENTIS s.r.l.

CORSO STATI UNITI, 1/3
 35127 PADOVA – ITALY
 PHONE: +39.049.8962 844
 FAX: +39.049.8966 343
 info@inventis.it
 www.inventis.it

Follow us on Twitter
<http://twitter.com/inventissrl>



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