



# Viola BASIC – PLUS

Combo unit: middle ear analyzer / audiometer

## TECHNICAL SPECIFICATIONS

### Description

Viola is a stand-alone combined unit, integrating a screening middle ear analyzer and a diagnostic audiometer capable of performing air and bone conduction threshold exams. It is available with or without the integrated thermal printer.

### Classification

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

### Available tests

- Automatic tympanometry
- Reflex text
- Reflex decay (Viola Plus only)
- Two quick tests (Tympanometry + Reflex test)
- Pure tone audiometry
- Speech audiometry (Viola Plus only)

### Middle ear analyzer specifications

#### Probe tone

Frequency: 226 Hz  
Level: 85 dB SPL

#### Compliance measurement system

Volume range: 0.2 to 8.0 ml  
Tympanometry: Absolute or Compensated mode

#### Pressure measurement system

User selectable range  
Maximum range: -600 to +400 daPa  
Safety limits: -800 daPa and +600 daPa  
Available change rates: 50, 100, 200, 300 daPa/sec and AUTO (100-300 daPa/sec)

#### Reflex tests

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

- Automatic threshold
- Fixed intensity
- Growing intensity

### Reflex decay (Viola Plus only)

Test duration: 10 sec or 20 sec (selectable)

### Quick tests

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

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

### Available stimuli and maximum levels (dB HL)

Freq. (Hz)	IPS	CONTRA TDH39 headphone	CONTRA IME-100 earphone
250	I --	100	--
500	100	120	110
1.000	110	120	120
2.000	105	120	120
4.000	100	120	110

### Audiometer specifications

#### Available signals

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

#### Signals specifications

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 headphones, ER-3A or ER-5A insert earphones  
BC: B-71 bone vibrator  
Insert masking earphone: IME-100

### Speech audiometry: maximum levels (dB HL)

AC TDH39	AC ER-3A	AC ER-5A	BC
100	100	100	55

### Pure tone and warble: frequencies and maximum levels (dB HL)

Freq. (Hz)	AC TDH39	AC ER-3A	AC ER-5A	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	110	95	100	55
8.000	100	90	90	50

### Patient – operator communication

Talk over via built-in or external microphone  
Talk back (Viola Plus only): through built-in speaker or monitor headset (incl.); patient microphone included

### Monitor signal (Viola Plus only)

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

### Internal flash memory (Viola Plus only)

Used to store the speech material (*wav* format)  
Capacity: 2 GB (more than 3 hours of speech)  
Speech material upload: through ATIT software (incl.)

### 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 Daisy with Maestro module, Noah with Noah Maestro module

### Display

Live display of the graph of all the tests  
Type: Graphical colour TFT LCD  
Size: diagonal 4.3", 95 mm x 54 mm  
Resolution: 480 x 272

### Power supply

*Without integrated printer:*  
Consumption: 7.8 Watts  
Power supply: 6V, 1.3A cont., through an external medical grade 100-240 Vac 50/60 Hz power supply  
*With integrated printer:*  
Consumption: 19.2 Watts

Power supply: 6V, 3.2A cont., through an external medical grade 100-240 Vac 50/60 Hz power supply

### 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 40 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  
Calibration: EN ISO 389-2 (IPSI, CONTRA IME-100, ER-3A and ER-5A, IME-100), EN ISO 389-1 (CONTRA TDH 39, TDH 39), EN ISO 389-3 (B71)  
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)  
Number of CE certificate: G1 12 09 65346 006

### Product codes

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

### Included parts

- Remote control unit 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
- Inventis software suite CD
- Medical grade power supply
- USB connection cable
- User manual

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