
Technical Specifications
MT10
Impedance Tympanometer



General Technical Specifications

Tympanometry	
Instrument type	Screening tympanometer
Analysis performed	Compliance peak level (in ml). Pressure of same; Gradient (in daPa); Ear Canal Volume (ECV) @ 200 daPa.
Probe tone levels and accuracy	226Hz +/-2%; 85dB SPL +/-2dB over range 0.2ml to 5 ml.
Pressure levels and accuracy	+200daPa to -400 daPa +/-10daPa or +/-10% (whichever is larger) over range.
Ear volume measurement range and accuracy	0.2ml to 5ml +/-0.1ml or +/-5% (whichever is larger) over entire range.
Sweep speed	Typically 200-300daPa/sec; dependant on ear&cavity volume.
Pressure limits (safety cutout)	+600 to -800daPa
Number of samples stored	100 per tympanogram
Optional: Reflex measurements	
Measurement modes	Ipsilateral optional
Reflex tone levels and accuracy	500Hz, 1kHz, 2kHz, 4kHz Frequency +/-2%, configurable over range 70dB to 100dB HL (4kHz restricted to 95dBHL) +/-2dB, referenced to 2ml calibration volume; Compensates for measured ear volume.
Reflex measurement range and accuracy	0.01ml to 0.5ml +/-0.01ml configurable in 0.01ml steps.
Number of reflex levels	Four: 100dB with 5dB or 10dB steps; 95dB, 90dB or 85dB with 5dB steps.
Reflex analysis	Reflex pass/fail at each level tested; Maximum amplitude of each reflex (seen on printed report and PC report); Pressure at which reflex was performed.
Pressure used for reflex measurement	Pressure at Tympanogram peak, or 0daPa (Always and Prompt Before Each Test modes)
Reflex level cut-off	Optionally, Auto-stop when reflex found.
Reflex threshold detection	Configurable 0.01-0.50ml in 0.01ml increments.
Reflex tone duration	0.6 seconds.
Number of records stored in Patient Database	30
Data storage	Any recording can be stored once the tympanogram is viewed. Patient Initials (A-Z, 0-9, "-") must be entered before storage.
Data held	Patient Initials, Tympanogram and Reflex graphs and analysis for Left Ear and/or Right Ear, Time and Date of recording, which ears were tested, whether or not the record has been printed and /or sent to a PC, parameters printed and/or sent to a PC, parameters used for analysis, 128 bit Globally Unique Identifier (GUID).
Display mode	Records listed in reverse chronological order (latest first), with indication of date stored as described above.
Real Time Clock	
Time stamps	Time and date stamp applied to all recordings, and to the last calibration date.
Backup power supply	>30 days without main batteries fitted.
Languages	
Operating languages	English, German or French
Printing	
Supported printer	Sanibel MPTII.
Interface	Infra-red, IrDA hardware, 9600 baud.

Information printed	Space for patient and clinician's details, Tympanogram analysis parameters, Tympanogram, Reflex analysis parameters, Reflex graph, Serial Number of device, Last and Next Due Calibration dates.
Serial Interface to PC	
Interface	OBEX (Object Exchange) service running on top of IrDA stack. Auto-selects rate between 9600 – 115200 baud.
Information sent	Patient header, full left or right ear data.
Power Supply	
Battery types	4 Alkaline AA Cells or; 4 NIMH rechargeable batteries which must be larger than 2.3Ah capacity.
Warm-up period	None at room temperature.
Number of recordings from one set of cells	Approx. 300 (Alkaline AA)
Auto power-off delay	90 or 180 seconds.
Idle current	70mA
Current while testing	230mA
Physical	
Display	128x64 pixels / 8 lines of 21 characters
Dimensions	190mm long x 80mm wide x 40mm high excluding probe 225mm long including probe.
Weight (without batteries)	285g
Weight (with batteries)	380g
Environmental	
Operating temperature range	+15°C - +35°C
Operating humidity range	30% to 90% RH, non-condensing
Operating atmospheric pressure range	980 to 1040 mb
Storage temperature range	-20°C to +70°C
Storage humidity range	10% to 90% RH, non-condensing
Storage atmospheric pressure range	900 to 1100mb
Standards conformance	
Safety	IEC 60601-1 ANSI/AAMI ES60601-1, CAN-CSA C22.2 No 60601-1
EMC	IEC 60601-1-2
Performance	IEC 60645-5, Type 2 Tympanometer
CE mark	To the EU Medical Device Directive.

Included and Optional Parts

Included Parts MT10:

4 x 1.5V 'AA' Batteries
4 in 1 test cavity assembly
Set of disposable ear-tips
Instructions for Use Calibration certificate
Warranty card

Additional Parts:

CAT50
Carrying case
Portable thermal printer
3 rolls of thermal paper
Diagnostic Suite and OtoAccess™
Infra-red USB Adapter
Additional probe tip
Additional sets of ear tips