

# TYMPSTAR PRO

## TECHNICAL SPECIFICATIONS

### DIMENSIONS AND WEIGHT

**W x D x H:** 16 in x 11 in x 14.5 in (41 cm x 28 cm x 37 cm)

**Weight:** 12 lb (5.5 kg)

**Test Types:** Tympanometry, Acoustic Reflex Threshold and Decay, Eustachian Tube Function (Intact, Perforated, and Patulous)

**Optional Test Types:** WideBand Tympanometry, Multi-Hz and ARLT

**Protocols:** Diagnostic, Screening, Multi-component Tympanometry, Auto Sequence, and User Defined

**Display:** Internal color touch screen and optional external HDMI monitor

**Interface:** USB (keyboard, mouse, Flash Drive, PC communications)

**Printout:** External printer

#### Probe Tone:

- 226 Hz (85 dB SPL  $\pm$  1.5 dB)
- 678 Hz (72 dB SPL  $\pm$  1.5 dB)
- 1000 Hz (69 dB SPL  $\pm$  1.5 dB)

- Accuracy:  $\pm$  1%
- Harmonic Distortion: Less than 1%

### ADMITTANCE MEASUREMENTS

#### WideBand Click:

- 226 to 8000 Hz
- 21.5/s
- 96 dB peSPL (infant/ $<$  6 months)
- 100 dB peSPL (adult/ $\geq$  6 months)

**Range:** 226 Hz (-10 to +10 mmho) 678 Hz (-21.0 to +21 mmho) 1000 Hz (-32.0 to +32 mmho)

**Sensitivity Scale:** Auto scales to appropriate range, manual selection also possible in Reflex Modes only

#### Accuracy (226 Hz):

- **Tymp Mode:**  $\pm$  5% of reading or  $\pm$  0.1 mmho, whichever is greater

- **Reflex Mode:**  $\pm$  5% of reading or  $\pm$  0.02 mmho, whichever is greater

### PRESSURE MEASUREMENTS

**Range:** Normal = +200 to -400 daPa, Wide = +400 to -600 daPa

**Accuracy:**  $\pm$  10% of reading or  $\pm$  10 daPa, whichever is greater

**Sweep Rate:** 12.5, 50.0, 200, 600 and 600/200 daPa/sec and manual

**Sweep Accuracy:** 10% of nominal rate

**Maximum Limits (in 0.5cc cavity):** -800 daPa and +600 daPa

**Volume Range Vea:** 0.2 to 10 cm<sup>3</sup>

### REFLEX MEASUREMENTS

**Stimuli:** 250, 500, 1k, 2k, 4k, BBN, LBN, HBN, click, external input, non-acoustic

**Frequency Accuracy:**  $\pm$  3%

**Harmonic Distortion (THD):** Less than 5% (measured acoustically)

**Noise Signals:** (3 dB bandwidths)

**Low Band:** 400 -1600 Hz

**High Band:** 1,600 -4000 Hz

**Broad Band:** 400 -4000 Hz

**Intensity Range:** 35 to 120 dB HL

**Step Size:** 5 dB, 1 dB and 2 dB

**Calibration Accuracy:**  $\pm$  3 dB

**Step Accuracy:**  $\pm$  0.5 dB

**ON/OFF Ratio:** 70 dB minimum

### STANDARD ACCESSORIES

- Probe assembly (including contralateral insert phone)
- Ear tip sample kit
- Calibration test cavity
- Cleaning kit
- Probe mount kit (shoulder, clip, wrist band)
- User Quick Guide
- Reference Instruction Manual

### ENVIRONMENTAL

**Storage:** +32° F (0° C) to +122° F (50° C)

**Operating:** +59° F (+15° C) to +95° F (+35° C)

**Transport:** -4° F (-20° C) to +122° F (+50° C)

**Humidity:** 90% at 95° F (+40° C) (non-condensing)

**Atmospheric Pressure:** 98 kPa to 104 kPa

### POWER

**Power Consumption:** 60 Watts Maximum

**Input Voltage:** 100-240 VAC

**Input Frequency:** 50-60 Hz

**Average Operating Current Idle:** 220 mA

**Average Operating Current Running Test:** 290 mA

### QUALITY SYSTEM

Manufactured, designed, developed, and marketed under an ISO 13485 certified quality system

### COMPLIANCE

- Designed, tested, and manufactured to meet the following domestic (USA), Canadian, European, and International Standards:
- IEC 60601-1, EN 60601-1 International Standards for Medical Electrical Equipment
- CAN/CSA-C22.2 No. 60601-1
- ANSI S3.39, IEC 60645-5, ISO 389
- Medical Device Directive (MDD) 93/42/EEC

