gsi
Grason-Stadler

RELIABLE CLINICAL TYMPANOMETER

TYMPSTAR PRO

CONTINUING THE STANDARD FOR CLINICAL IMMITTANCE

RELIABLE AND ERGONOMIC

The GSI TympStar Pro™ sets the clinical standard for performing a full range of middle ear measurements on patients of all ages. GSI's familiar user interface will instantly feel comfortable to audiologists. GSI understands that efficiency is required in today's busy audiology practice and strives to provide hearing healthcare professionals **versatility, efficiency, and reliability** in a comprehensive middle ear analyzer.

GSI SUITE OFFERS REPORTING AND COUNSELING

With one button press, immittance test results are transferred from the TympStar Pro to GSI Suite™ software where audiometric, tympanometric, and OAE test results may be combined into a single comprehensive report. Viewing tympanometry, reflex, and Eustachian tube function results assist the clinician with explaining the middle ear evaluation.

3 KEY BENEFITS

CONFIDENCE IN TESTING

The TympStar Pro is a comprehensive middle ear analyzer that takes precision to the next level. Evaluate neural integrity, reflex pathways, and Eustachian tube function with one touch. Have complete confidence during reflex threshold testing with artifact-free tracings. Eliminate the "null" point that cancels out the reflex with multiplex pulsed tone stimulation for ipsilateral reflex recordings.

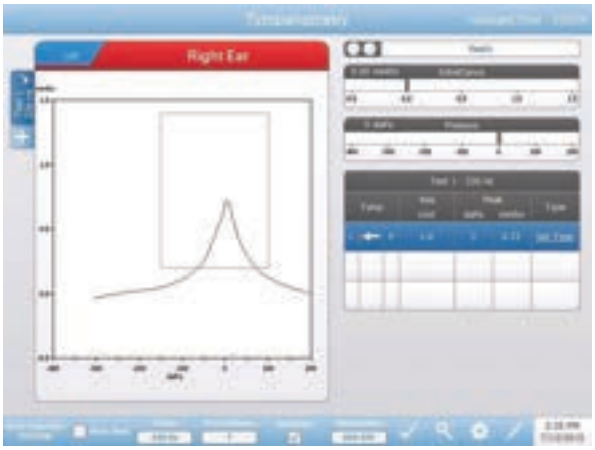
STREAMLINE DAY-TO-DAY OPERATIONS

Benefit from Auto Start in both screening and diagnostic tympanometry. Save time and improve consistency in testing with user defined auto sequence testing by performing tympanometry, reflex threshold, and reflex decay testing with a single button press. Define patient or user specific test protocols that will adjust settings for immediate testing.

EVERY PATIENT POPULATION

Take advantage of multiple probe tone frequencies with Multi-Hz testing. Test a diverse patient population with differing middle ear pathologies with 226, 678, and 1000 Hz probe tones. Validate electrode placement for cochlear implant patients with ESRT. Start and stop tests and switch test ears from the probe box so you can interface with difficult to test patients.

QUICK AND CONVENIENT TESTING

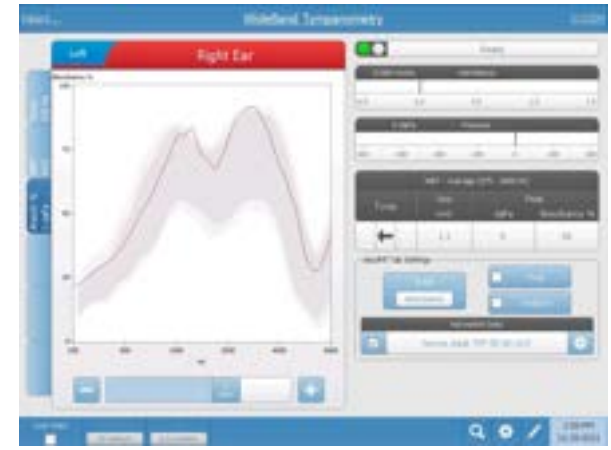


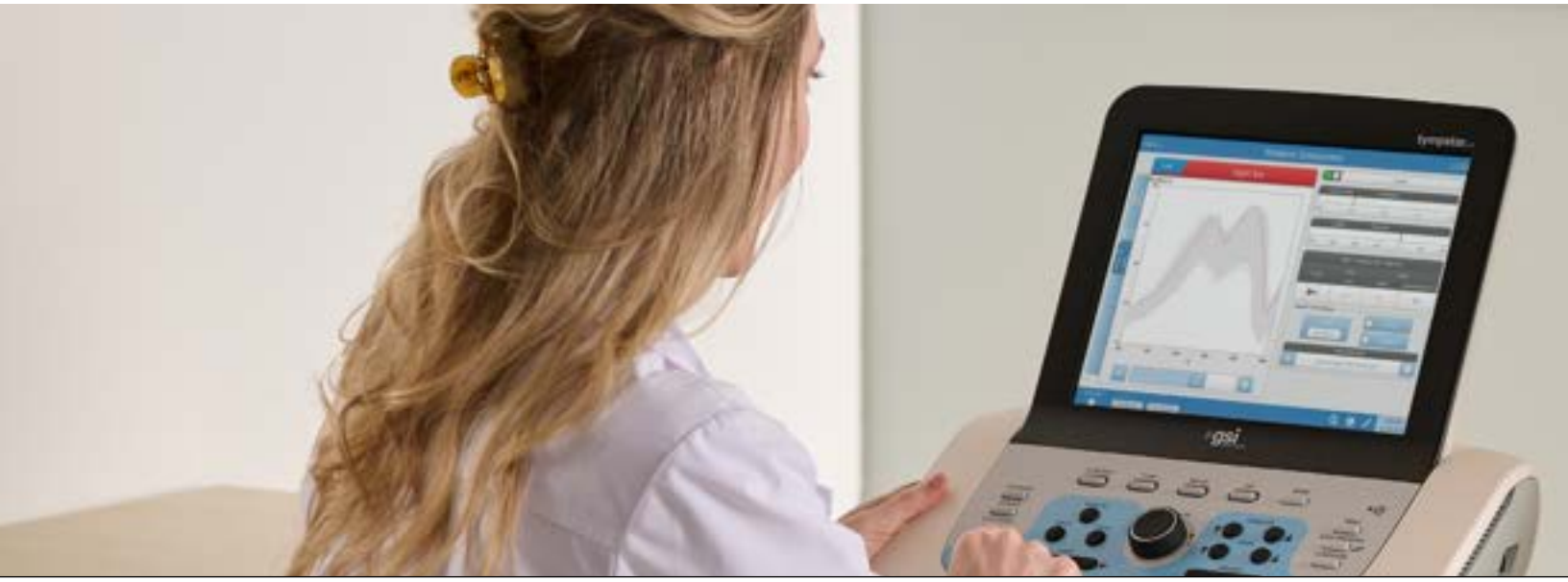
DIAGNOSTIC TYMPANOMETRY

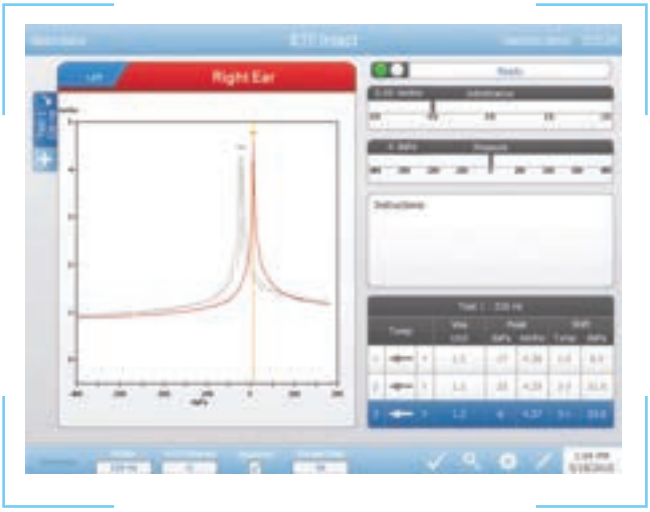
Automatically display peak pressure, admittance at peak, and ear canal volume. Assign a tymp type (A, B, C, As, Ad), or customize a type to suite your reporting needs. Initiate testing from the device, shoulder probe box, or utilize Auto Start to begin the test as soon as a seal is obtained. Take full control with a manual pressure sweep with up to three tracings per tab.

WIDEBAND TYMPANOMETRY

With a single pressure sweep, WideBand Tympanometry automatically provides a comprehensive assessment of the middle ear that includes traditional tympanograms at 226, 678, 800, and 1000 Hz, as well as the WideBand averaged tympanogram and a graphical display of the middle ear absorbance or reflectance across a wide frequency range.







EUSTACHIAN TUBE FUNCTION

Evaluate Eustachian tube function on patients with intact or perforated tympanic membranes. Quickly document a patulous Eustachian tube with a dedicated and customizable test type. Test and patient instructions will appear when appropriate for smooth transition between steps.

SCREENING TYMPANOMETRY

Quickly perform an evaluation of the middle ear in the screening mode. Automatic start on seal for both 226 and 1000 Hz probe tones ensures fast test times. It is possible to automatically run up to four screening reflexes in any combination of ipsilateral or contralateral stimulation.

KEY FEATURES

TOUCH SCREEN MONITOR

The 12 inch color display allows the examiner to change parameters with a single touch of the screen.

CUSTOMIZABLE USER TESTS

The predefined protocols save time and create consistency in testing. Define auto sequence tests that are consistent with billing codes.

ZOOM FUNCTION

For detailed analysis, use the zoom function to analyze test results. Verify peak pressure and mark/verify reflex thresholds.

MULTIPLE PROBE TONE FREQUENCIES

Test a diverse patient population with 226, 678, and 1000 Hz probe tones. These standard probe tones allow efficient testing on all.

STAND-ALONE PC ENABLED

EMR/EHR compatible with GSI Suite for reporting and counseling.

5 TEST TYPE BUTTONS

Fast transition between tests for accurate and efficient testing. Tests include Screening, Tymp, Reflex, ETF, and More Tests.

WHAT YOU SHOULD EXPECT FROM OUR DEVICES

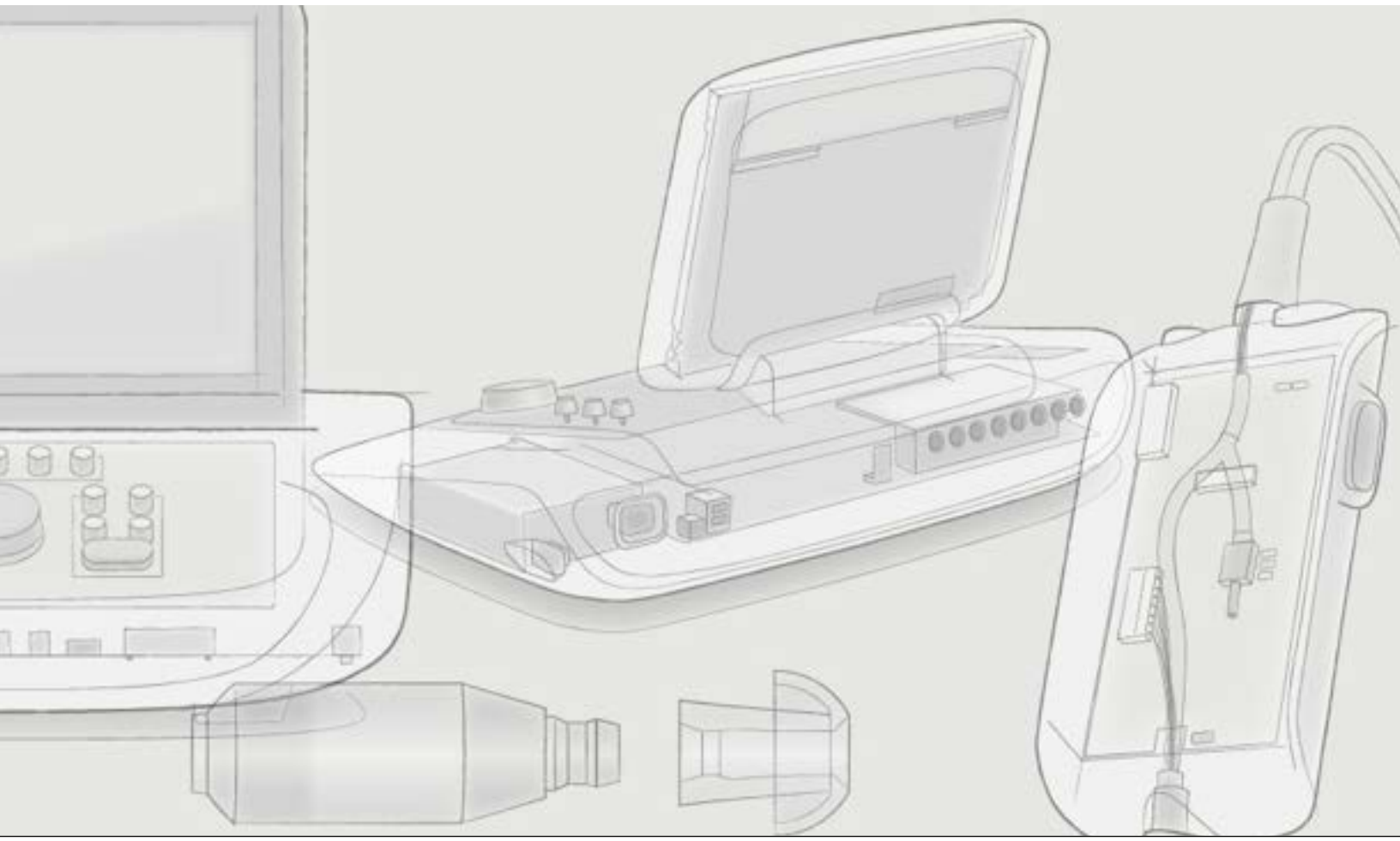
WORLD LEADER IN AUDIOMETRIC SOLUTIONS

GSI is a world leader in audiometric assessment instrumentation and carries a full line of audiometers, tympanometers, otoacoustic emissions (OAE), and auditory evoked potential instruments. From research facilities to school screenings, GSI instruments have been the equipment of choice for audiological assessments throughout the world for over 75 years.

DESIGNED SMART, BUILT STRONG

Our motto is Designed Smart, Built Strong. GSI devices are Designed Smart with the audiologist in mind, providing superior ergonomic design and navigation with one button, one function accessibility. Built Strong, our devices can take on the most routine to complex testing scenarios in any environment.

Quality, Reliable, and User-Friendly are the three core attributes that are the backbone of the GSI brand. These attributes are what you should expect from any GSI product.



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 ± 1.5 dB)
  678 Hz (72 dB SPL ± 1.5 dB)
  1000 Hz (69 dB SPL ± 1.5 dB)
- Accuracy: ± 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/≥ 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:** ± 5% of reading or ± 0.1 mmho, whichever is greater
- **Reflex Mode:** ± 5% of reading or ± 0.02 mmho, whichever is greater

PRESSURE MEASUREMENTS

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

Accuracy: ± 10% of reading or ± 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 cm3

REFLEX MEASUREMENTS

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

Frequency Accuracy: ± 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: ± 3 dB

Step Accuracy: ± 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

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