GSI AUDIOSTAR PRO™

CLINICAL TWO-CHANNEL AUDIOMETER

Setting The Clinical Standard

Grason-Stadler

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Tradition of Excellence

The GSI AudioStar Pro™ continues the tradition of excellence in clinical audiometry by maintaining the Grason-Stadler legacy of fast, efficient, and familiar navigation.

The one-button, one-function front panel of the AudioStar Pro is recognized worldwide as the Gold Standard of user-friendly design, allowing audiologists to test with confidence. AudioStar Pro has every desired feature such as: an extra large display that reduces eye strain, an ergonomic housing that maximizes hand and wrist comfort, and light pipes around selected test buttons allowing concentrated focus on the patient.

Stand-Alone/ PC Enabled

Audiologists appreciate the flexibility of a stand-alone audiometer that offers seamless data transfer to a computer. In the event of a network failure or computer lock-up, you will not lose patient data or the ability to test. The stand alone configuration is optimized with direct connection to a wireless keyboard and mouse making it fast and easy to enter patient demographics, report comments, and expedite test administration. In addition, direct connection to a printer and the integrated print button make it possible to print a complete report for immediate review with the patient or physician.

EMR/EHR Ready

User login and password controls provide security for patient data in compliance with HIPAA. Complete audiometric results can be transferred to software such as GSI Suite and NOAH, or integrated with your facility's EMR/EHR system.

EMR/EHR Compatible

GSI Suite V2.0

GSI Suite captures, saves and shares patient information improving reporting to support the needs of the contemporary clinic. GSI Suite V2.0 is now available as a NOAH module for seamless integration to hearing aid fittings.

GSI Suite Features

- Test results in EMR/EHR compatible format (PDF)
- Retrieve test results for review
- Print reports from PC compliant printers
- Network results from multiple instruments by combining GSI Suite with OTOAccess or NOAH4

Setting The Clinical Standard

Technical Features

Panel Navigation
Gold standard ergonomic design with familiar one button, one function front panel navigation.

Custom Configuration
Configurable tests and preferences to improve workflow and optimize speed of testing.

Special Tests
Pre-configured special tests such as QuickSIN, TEN HL, ABLB, SISI and Tone Decay address the research trends in hearing evaluations.

Assistant Monitor
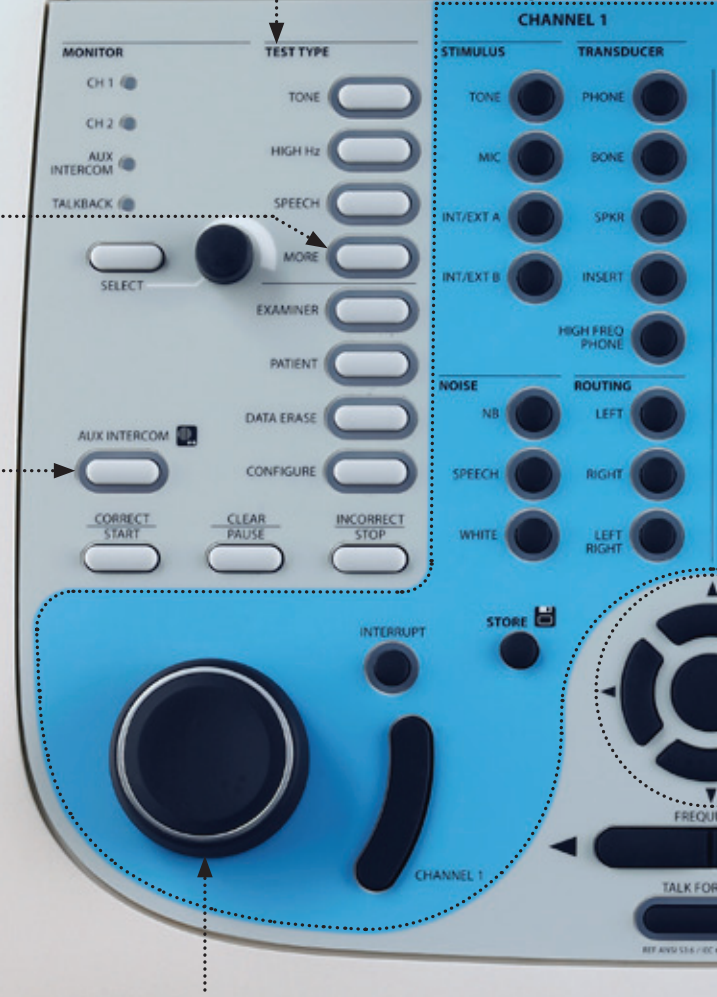Allows direct communication between operator and assistant eliminating the need for an external intercom system.

Word Lists
Integrated .Wav files provide effortless access to commonly used word lists providing consistent and reliable recorded speech testing.

Two Channel Control
Audiologist can mix signals and route them to either one or both ears making hearing evaluations easier than ever.

External Keyboard and Mouse

Expedite the data entry and test administration. Enter patient demographics, session comments and navigate through tests with ease.

Data Transfer

Transfer data to an external PC or print a complete report to a connected printer.
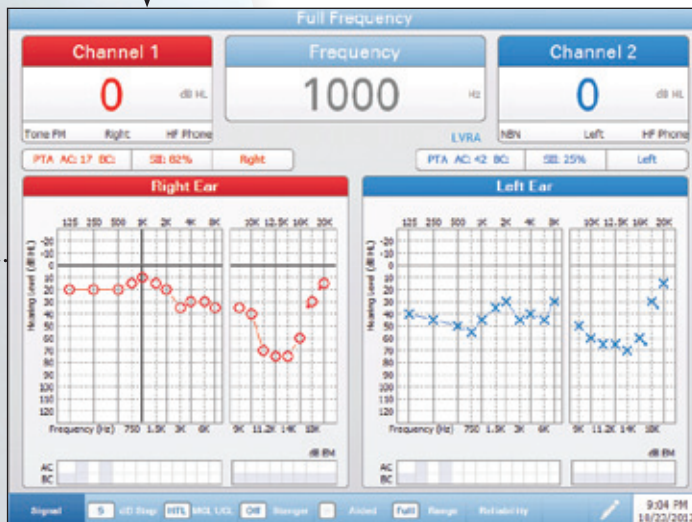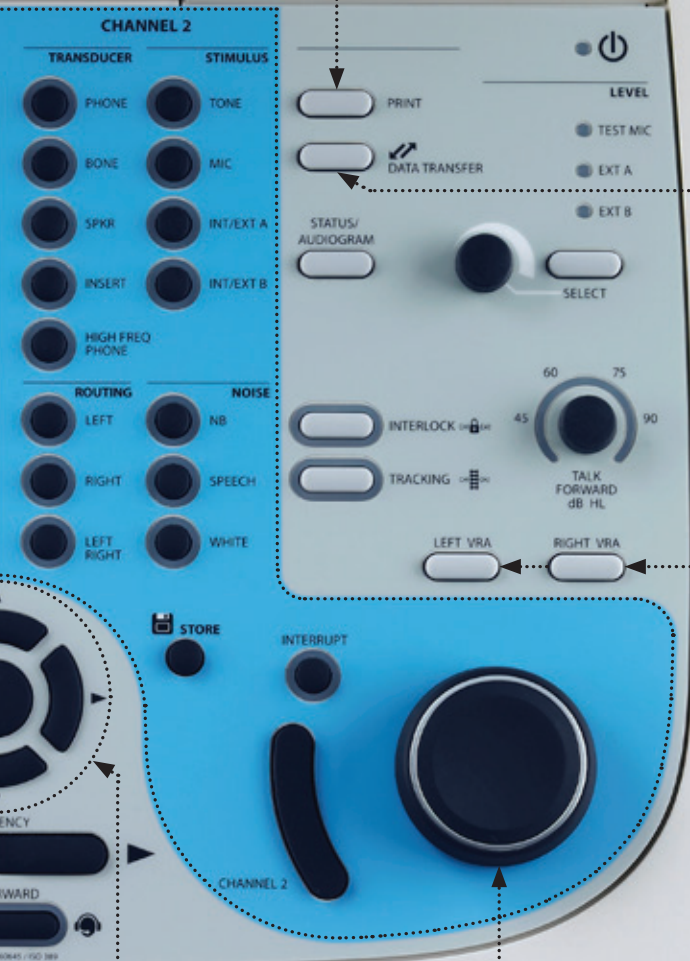
VRA Controls

The built-in VRA controls allow for fast and simple activation of VRA systems.

On-Board Navigation

Access integrated wordlists and menu selections using the front panel navigation.

CHANNEL 2

TRANSDUCER
- PHONE
- BONE
- SPKR
- INSERT
- HIGH FREQ PHONE

STIMULUS
- TONE
- MIC
- INT/EXT A
- INT/EXT B

ROUTING
- LEFT
- RIGHT
- LEFT RIGHT

NOISE
- NB
- SPEECH
- WHITE

PRINT

DATA TRANSFER

STATUS/ AUDIOGRAM

LEVEL
- TEST MIC
- EXT A
- EXT B

SELECT

INTERLOCK

TRACKING

TALK FORWARD dB HL

LEFT VRA   RIGHT VRA

STORE   INTERRUPT

CHANNEL 2

Full Frequency

Channel 1	Frequency	Channel 2
0 dB HL	1000 Hz	0 dB HL

audiostarpro™

Fast

Standard features, such as the headset microphone, allows the operator to communicate directly with patients while the built in monitor speaker makes it easy for third parties to participate in the hearing evaluation. The direct calibration for the TDH headset, insert headphones, high frequency headphones and the bone oscillator allows seamless transition between any transducer without unplugging or adding of correction factors. Sound field options are available from the standard 90 dB HL output to the high performance speakers with 96 dB HL – both without any external amplification needed. The maximum output of 102 dB HL is available with an external amplifier – achieving the highest output in the industry.

Familiar

The AudioStar Pro maintains the user friendly interface that has defined GSI since 1949. Audiologist will feel an immediate connection to both the display and intuitive control panel while being surrounded by new innovative

features. This revolutionary audiometer maintains maximum flexibility in a two channel audiometer allowing full control in testing procedures for every patient population.

Efficient

Additional features integrated into the AudioStar Pro make testing every patient even more seamless and eliminates the need for external devices. The built in VRA controls facilitate fast and simple activation of VRA systems eliminating the need for an external control box. The built in auxillary intercom allows direct communication between operator and assistant which eliminates the need for an external intercom system. The active microphone during tone presentation ensures there are no delays in reinforcing or coaching.

Customizable

Test type buttons allow access to protocols that are customized to facility preferences. The AudioStar Pro uses a Configuration Application software to customize preferences for efficient

and consistent testing. The AudioStar Pro is equipped with digital word lists (.Wav files) for repeatable and reliable recorded speech testing. Mouse control may be used to present, pause, repeat, skip, and score with ultimate ease, removing the main objection for recorded speech testing. The integrated selection of Special Tests including Quick SIN and TEN HL address research trends in hearing evaluation, and other speech-in-noise tests and word lists may be played from an external digital device connected to the AudioStar Pro.

Compatible

The AudioStar Pro addresses the challenges of data management such as patient security and HIPAA compliance through five electronic record solutions: (E-Record Solutions) GSI Suite, NOAH Module, Audbase, Direct Interface and Quasar Connect. These solutions safely and easily integrate audiometric data into every facility's data management system from VA, ENT, Private Practice, Hearing Aid, Cochlear Implant and Pediatric facilities.

For more information, go to www.audiostarpro.com

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Product Specifications

Dimensions and Weight

- W x D x H: 20.1 inches x 14.6 inches x 13.2 inches (LCD raised)
  51.0 cm x 37.0 cm x 33.5 cm
- Height with LCD lowered – 5.5 inches (14.0 cm)
- Weight: 17 lb (7.7 kg)
- Shipping Weight: 27 lb (12.25 kg)
- Power Consumption: 90 Watts

Channels

- Two Independent Channels

Pure Tone – Channels 1 and 2

Frequency Range:

- Air Conduction: 125 Hz to 12,000*** Hz
- High Frequency:* 8,000 Hz to 20,000 Hz
  (8 kHz, 9 kHz, 10 kHz, 11.2 kHz, 12.5 kHz, 14 kHz, 16 kHz, 18 kHz*** and 20 kHz***)
- Full Frequency Range:* 125 Hz to 20,000 Hz
- Bone Conduction: 250 Hz to 8,000 Hz
- Sound Field:* 125 Hz to 8,000 Hz
- Paired Inserts:* 125 Hz to 8,000 Hz
- Frequency Accuracy: ±1%
- Total Harmonic Distortion:
  - < 2% (earphones and paired insert phones*)
  - < 5% (bone vibrator)

Intensity Range:**

- Air Conduction (TDH): -10 dB HL to 120 dB HL
- High Frequency:* -20 dB HL to 100 dB HL (with Sennheiser HDA 200 Phones)
- Bone Conduction
  - Mastoid: -10 dB HL to 75 dB HL
  - Forehead: -10 dB HL to 70 dB HL
- Sound Field:*
  - -10 dB HL to 90 dB HL (basic speakers)
  - -10 dB HL to 96 dB HL (high performance speakers)
  - -10 dB HL to 102 dB HL (high performance speakers and external booster amplifier)
- Paired Inserts:* -10 dB HL to 110 dB HL
- Masking Intensity Range (Calibrated in effective masking)
  - Narrow Band Noise:
    Maximum dB HL is 15 dB below tone
  - White Noise:
    Maximum dB HL is 30 dB below tone

Signal Format:

- Steady: Tone continuously present.
- Pulsed: Tone pulsed 200 msec ON, 200 msec OFF
- FM: Modulation Rate: 5 Hz
  Modulation depth +/- 5%

Speech – Channels 1 and 2

- Microphone: For live voice testing and communications
- INT/EXT A & INT/EXT B: Can be utilized for internal wave files or recorded speech material from an external digital device

Intensity Range:

- Air Conduction: -10 dB HL to 105 dB HL
- Bone Conduction
  - Mastoid: -10 dB HL to 55 dB HL
  - Forehead: -10 dB HL to 55 dB HL
- Sound Field:* -10 dB HL to 80 dB HL
- Paired Inserts:* -10 dB HL to 95 dB HL

Masking Intensity Range:

- Speech Noise:
  - Air Conduction: -10 dB HL to 105 dB HL (TDH 50P and Insert Phones*)
  - Bone Conduction:
    -10 dB HL to 65 dB HL (mastoid)
    -10 dB HL to 55 dB HL (forehead)
  - Sound Field: -10 dB HL to 80 dB HL
- White Noise:
  - Air Conduction: -10 dB HL to 105 dB HL
  - Bone Conduction:
    -10 dB HL to 65 dB HL (mastoid)
    -10 dB HL to 55 dB HL (forehead)
  - Sound Field: -10 dB HL to 80 dB HL

Special Tests

- **ALT (ABLB):** Tone alternating between Channel 1 and Channel 2: Channel 1 is 400 msec ON, 400 msec OFF followed by Channel 2, 400 msec ON, 400 msec OFF.
- **SISI:** An intensity increment is added to a tone in the selected channel for 200 msec, every 5 seconds. The HL increments are in 1, 2 or 5 dB.
- **High Frequency:** * Pure tone testing in the frequency range of 8,000 Hz to 20,000 Hz using circum-aural headphones.
- **TEN:** TEN masking noise will be presented to the test ear. Pure tone stimuli between 500 Hz and 4000 Hz may be used at 1, 2, or 5 dB increments to obtain TEN thresholds.
- **QuickSIN:** Six (6) sentences with five (5) key words per sentence are presented in four-talker babble noise. The sentences are presented at pre-recorded signal-to-noise ratios. The SNR's used are 25, 20, 15, 10, 5, and 0.

Special Tests (user defined)

- MLB
- Lombard test
- Pure Tone Stenger
- Speech Stenger
- SAL

Communications and Monitoring

- **Talk Forward:** Permits the tester to speak through the test microphone into the selected transducer at approximately the intensity level set by the front panel controls.
- **Talk Back:** Allows the tester to listen to comments from the patient in the testing booth.
- **Monitor:** The monitor headset or monitor speaker built into the instrument housing can be used by the tester to listen to Channel 1, Channel 2, Aux intercom, and/or Talk Back signals.
- **Aux Intercom:** The built-in Auxiliary Intercom and Assistant headset allows the tester to speak directly to an Assistant without the patient hearing the conversation and allows the assistant to hear what is being presented to the patient.

Environmental Requirements

- Temperature: +15ºC to 40ºC (59 to 104ºF)
- Relative Humidity: 5% to 90% (non-condensing)
- Ambient Pressure Range: 98 kPa to 104 kPa
- Background Sound Level: <35 dB(A)
- Frequency of Use: Once a year to multiple times per day
- Storage Temperature: -20ºC to + 60ºC (-4ºF to 140ºF)

Quality System

- Manufactured, designed, developed and marketed under ISO 13485 certified quality systems

Compliance/Regulatory Standards

Designed, tested and manufactured to meet the following domestic (USA), Canadian, European and International Standards:

- ANSI S3.6, ANSI S3.43, IEC 60645-1, IEC 60645-2, ISO 389
- UL 60601-1 American Standards for Medical Electrical Equipment
- IEC/EN 60601-1 International Standards for Medical Electrical Equipment
- CSA C22.2 # 601-1-M90
- Medical Device Directive (MDD) to comply with "EC Directive" 93/42/EEC

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 * Optional configuration

** The maximum HL values are applicable to the middle frequencies only

*** Optional configuration

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