



# GSI AudioStar Pro™

## CLINICAL TWO-CHANNEL AUDIOMETER

### 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)

#### Channels

- Two Independent Channels

#### Pure Tone – Channels 1 and 2

##### Frequency Range:

- Standard Air Conduction: 125 Hz to 8000 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: -10 dB HL to 120 dB HL
- High Frequency:\* -20 dB HL to 100 dB HL
- Bone Conduction
  - Mastoid: -10 dB HL to 90 dB HL
  - Forehead: -10 dB HL to 80 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 120 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%

- Pulsed/FM: Pulsed and Modulated
- Pediatric Noise
- Pediatric Noise Pulsed

#### 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 100 dB HL
- Bone Conduction
  - Mastoid: -10 dB HL to 60 dB HL
  - Forehead: -10 dB HL to 50 dB HL
- Sound Field:\* -10 dB HL to 90 dB HL
- Paired Inserts: -10 dB HL to 95 dB HL

##### Masking Intensity Range:

- Speech Noise:
  - Air Conduction: -10 dB HL to 95 dB HL
  - Bone Conduction:
    - 10 dB HL to 50 dB HL (mastoid)
    - 10 dB HL to 40 dB HL (forehead)
  - Sound Field: -10 dB HL to 85 dB HL
- White Noise:
  - Air Conduction: -10 dB HL to 95 dB HL
  - Bone Conduction:
    - 10 dB HL to 60 dB HL (mastoid)
    - 10 dB HL to 50 dB HL (forehead)
  - Sound Field: -10 dB HL to 80 dB HL

#### Special Tests

- **ABLB or Fowler:** 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.
- **BKB-SIN:** Contains 18 List Paris. The sentences are presented at prerecorded signal-to-noise ratios that decrease in 3-dB steps. Each list in the pair is individually scored, and the results of the two lists are averages to obtain the List Pair score. Results are compared to normative data to obtain the SNR Loss.

#### PC Enabled/Stand Alone

- Transfer data to connected PC with an E-Record Solution Software
- Print complete report directly to a compatible USB printer

#### Special Tests (user defined)

- MLB
- Lombard test
- Pure Tone Stenger
- Speech Stenger
- SAL
- Doerfler - Stewart Test

#### Communications and Monitoring

- **Talk Forward:** Permits the tester to speak through the examiner microphone into the selected transducer.
- **Talk Back:** Allows the examiner to listen to comments from the patient in the testing booth.
- **Monitor:** The monitor headset or monitor speaker built into the instrument housing may be used by the examiner 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 examiner to speak directly to an Assistant and allows the assistant to hear what is being presented to the patient.
- **On-Board VRA Control:** The built-in VRA controls facilitate fast and simple activation of VRA systems.

#### Optional Accessories

- Wireless keyboard and mouse
- Gooseneck microphone

#### Environmental Requirements

- Temperature: +15°C to 40°C (59 to 104°F)
- 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: -20°C to + 60°C (-4°F to 140°F)
- Power Consumption: 90 Watts

#### 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

\* *Optional configuration*

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