Solo

compact and portable

screening and diagnostic

ABR and ASSR

the budget friendly solution

We've listened to you and have integrated your feedback into a portable and cost-effective ABR device. We are excited to introduce the Solo: a sleek, portable, and compact solution for screening and diagnostic ABR and ASSR.
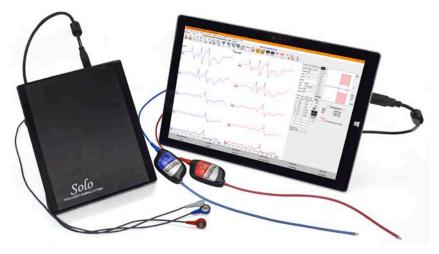
stellar performance

Over 35 years of engineering design experience, combined with unsurpassed expertise in evoked responses, have culminated in the **next generation bio-amplifier** bringing you superior data quality of recordings.

Repeatable, reliable data you can count on
- High definition responses
- Cleaner, more robust responses
- Increased signal-to-noise ratio (SNR)
- Lower residual noise

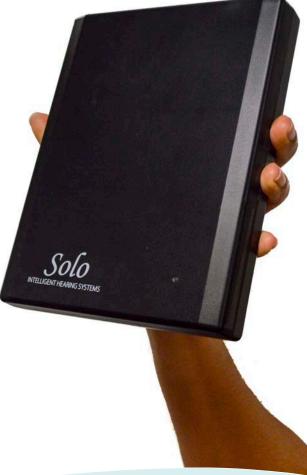**Reduced test times** without compromising data quality

dressed up for performance

The newest member of the Universal Smart Box family, the Solo, is IHS quality in a smaller package

- Ultra light weight, at less than 2 lbs (1 kg)
- USB powered: use with a Windows laptop or tablet
- One recording channel
- Built-in isolation: can be used in any location, including the NICU and OR

Test in more places without sacrificing flexibility

ready for the clinic

Solo is a great tool for recording ABRs and ASSRs in clinics wanting a cost-effective 1-channel solution.

Solo features the iChirp stimulus family

The following modules are available on Solo:

SmartEP
- Click ABR
- Toneburst ABR
- Narrowband and broadband chirp ABR

SmartEP-ASSR
- Click and Broadband chirp ASSR
- Singe or multi-frequency tone or chirp ASSR

SmartScreener-Plus2
- Automated ABR screening

Add the options that meet your clinic's needs and upgrade at any time.

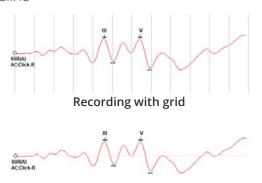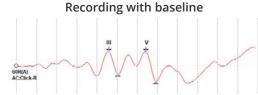# designed for an improved clinical experience

SmartEP

The ideal clinical tool for recording Toneburst, Chirp, and Click ABR.

user friendly interface simplifies acquisition

- Improved toolbar and button design for fast access to key features
- Easy access to all parameters from a simplified control panel and streamlined menus
- Quickly load your own or preset protocols
- Automated impedance checking with on-screen display
- Single channel with automatic electrode switching
- Easily view ongoing EEG display for quick assessment of patient state during testing
- Great variety of options allow you to perform the tests the way you want
- Choose from a variety of stimuli, or generate or import your own custom stimuli
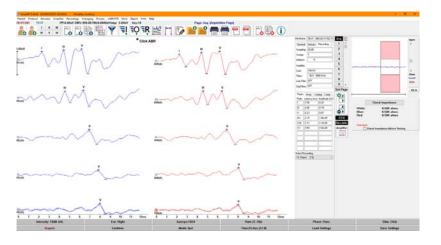- Display or hide a subtle vertical grid or horizontal baseline

Recording with grid

Recording with baseline

Recording with grid and baseline

streamlined workflow

- Easily mark waveforms using over thirty pre-defined peak labels, or create your own custom labels. Easily adjust them using a mouse or keyboard
- View latencies and amplitudes of peaks directly on waveforms and in newly embedded recording information panel.
- Automatically arrange recordings by intensity, acquisition order, or rate
- Quickly resize the waveforms using the zoom in/out buttons
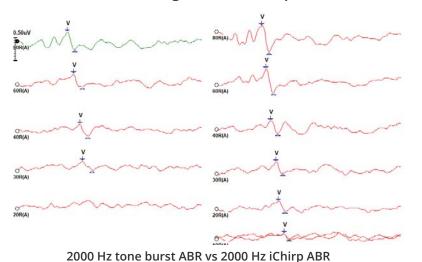

Click ABR

iChirp™ stimuli included

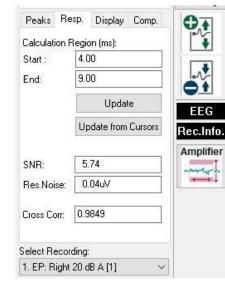The intelligent Chirp for SmartEP and SmartEP-ASSR is included in the base package.

- Broadband and narrowband (500, 1000, 2000, 4000 Hz)
- Improved threshold detection
- Robust amplitude responses
- Optimized wave V identification
- Optional, innovative custom chirp design utility

Beneficial for recording ABR on active patients.
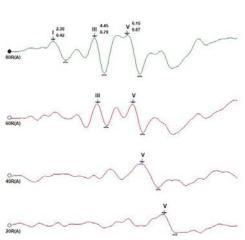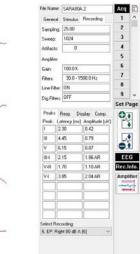

2000 Hz tone burst ABR vs 2000 Hz iChirp ABR

- Cross-correlation value displayed in information panel
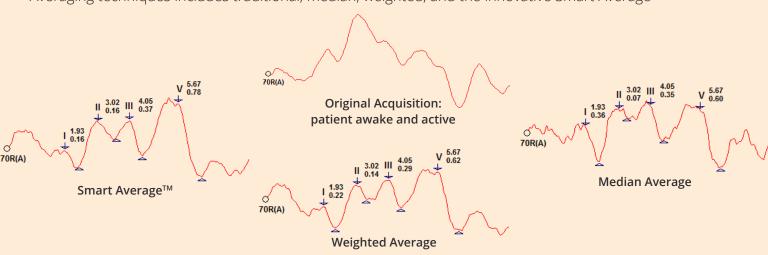- View repeatability, SNR, and Residual Noise value for each recording

- Latency-Intensity graphs displaying normative data ranges are automatically generated from marked waveforms
- Quickly add, subtract, invert, time shift, or cross-correlate recordings
- Split-sweep view to easily and conveniently visualize single recording repeatability
- Multi-page display and reports with customizable page labels
- Easy PDF report generation
- Auto-save reports on program exit

smarter averaging display options

- Option to automatically acquire and store data in sweep blocks for more powerful processing
- Easily analyze acquired waveforms using additional averaging techniques for further noise reduction
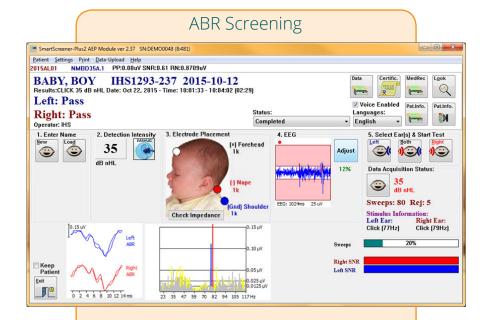- Averaging techniques includes traditional, median, weighted, and the innovative Smart Average

- Objective response measurements provide indicators of recording quality
- Automated averaging stopping rules using residual noise measures allow data to be acquired automatically with consistent quality and noise levels

SmartScreener-Plus2

SmartScreener-Plus2 is the most cost-effective, complete, and easy to use infant hearing screener.
It is simple to operate, with step-by-step visual operator instructions.
Friendly voice prompts and alerts are available to guide you through the screening process.

- Fast, accurate, and reliable automated ABR screening
- Automatic Pass or Refer results
- Screening results in as little as two minutes
- Screen patients of any age
- Setup different users with varying levels of access
- Create ABR protocols with up to three different stimulus levels
- Stimulus Intensity Level may be set and locked by users with administrative privileges
- Display of the ABR waveform
- Integrated Data Back-Up utility allows for a seamless transfer of results to central databases for easy export to Hi*track, OZ-esp, and other databases
- Easily customize and print certificates, parent information letters, and medical records
- Quickly categorize and track pending and completed screenings
- Built-in System Maintenance Utility for easy system checks and automated data quality analysis
- Documents & Videos Module can be setup as desired using user-supplied materials

ABR Screening

- Simultaneous testing of both ears
- Fast, mid-line ABR recording electrode setup requiring only three electrodes
- ABR recording electrode placement and impedance values shown on the screen
- Password protected, user-selectable intensity level

SmartEP-ASSR

Full-featured screening and diagnostic Auditory Steady State Response system.

- Provides quick, accurate threshold detection using automated statistical analysis
- Test both ears at the same time, up to four frequencies per ear
- iChirp (broadband & frequency specific) for robust amplitudes and harmonic component analysis for improved threshold detection and reduced test times
- Automated audiogram generation in both SPL and HL
- Cost effective add-on to SmartEP

Accessories

- All cables feature quick-disconnect connections
- Two types of electrode cables for use with disposable and reusable electrodes
- Shielded ER-3C insert earphones

baby-friendly EarHug

Designed with the baby's comfort in mind.

- Cost-effective disposable ear coupler
- Special flexible material adheres to the skin firmly but is gentle enough for comfortable removal
- Large adhesive surface keeps the EarHug from detaching during screening
- Comfortable design allows the baby to easily fall asleep even when lying on the EarHug
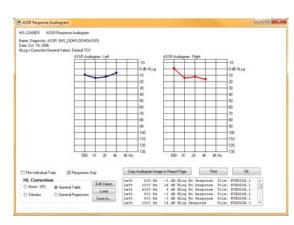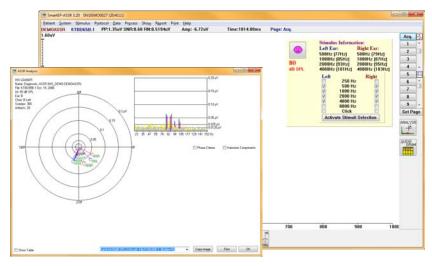
Specifications

SmartEP

Stimulus: Clicks, Tones, iChirps, and user-defined

Stimulus duration in µsec or cycles

Stimulus Envelopes: Rectangular, Blackman, Cosine, Hamming, Hann, Bartlett, Trapezoidal (Rise/fall time), Extended Cosine (Rise/fall time), Triangular, Gaussian

Stimulus presented continuously or only while acquiring

Contralateral noise masking with specified level or tracking the stimulus level

SmartScreener-Plus2

Stimulus: Clicks

Simultaneous testing of both ears

Option to display or hide:
- ABR waveforms
- spectral graphs
- test status indicators

Impedance is automatically measured periodically to monitor electrode integrity during the screening procedure

SmartEP-ASSR

Stimulus: Clicks, Tones, iChirps, and user-defined

Frequencies: 250, 500, 1000, 2000, 4000, and 8000 Hz

Simultaneous testing of both ears

Test up to four frequencies per ear

EP Amplifier

One channel

A/D Converter: 16-bit

Gain: 100K

High Pass: 30 Hz (-12 dB/Oct)

Low Pass: 1500 Hz (-12 dB/Oct)

Adjustable artifact rejection level and time region

Line Frequency Notch Filter (-12 dB/Oct) 50 or 60 Hz

Common Mode Rejection:

   ≥ 105 dB at 1 kHz

   ≥ 115 dB at 60/50Hz

Noise Level: ≤ 200 nV RMS

Input Impedance: > 10 MOhms

Sampling rate: 200 to 40000 Hz

Transducers

ER-3C Insert Earphones:

   Intensity: 0 - 130 dB SPL

   Frequency Range: 125 - 8000 Hz

Power Requirements

USB Powered:

   +5V DC, 0.65 A 3.25W

Operating Environment

Portable Equipment

Indoor use

Operating temperature: 15 °C - 35 °C

Relative humidity: 15% to 90% at 40 °C non-condensing

Altitude: 0 - 3000 m

Storage

Temperature: 0 °C - 50 °C

Standards Compliance

Safety: IEC 60601-1

   Class II, Type BF

EMC: IEC 60601-1-2

EP: IEC 60601-2-40

Medical Device Directive: 93/42/EEC

Computer Requirements

Windows 7 or 10 operating system

Minimum 4 GB RAM

Minimum 5 GB hard drive space

Minimum SXGA or WXGA display (Minimum vertical resolution of 900 px)

Grounded, 3-prong power supply

Compliant with IEC 60950

Mouse or other pointing device

One available USB Port

Removable media, network drive, or secure Internet storage site for data backup (recommended)

Printer (optional)

USB   EARPHONES   ELECTRODES

CE
2460