APx517 B Series | ACOUSTIC ANALYZER
Acoustic Production Test Redefined

KEY FEATURES
♦ 35 W mono power amplifier
♦ 2-channel headphone amplifier with field-swappable 1/4-in, 3.5 mm, or dual-BNC headphone connector panel
♦ Integrated dual-channel Kelvin impedance measurement capabilities
♦ 2 analog microphone input channels (XLR and BNC)
♦ Built-in TEDS support
♦ Integrated microphone power supplies with ICP/IEPE, DCV and 48 V phantom power
♦ APx Module I/O support for digital I/O requirements
♦ Overload, short circuit, and reverse current protection

A complete, integrated solution for loudspeaker and headphone test

The APx517 B Series acoustic audio analyzer is specifically designed, configured and priced to meet production-line needs. It is ideal for the testing of speakers, microphones, headphones, headsets and the wide range of consumer electronics incorporating speakers and microphones. With the APx517B, manufacturers can deploy an integrated acoustic test system that brings the renowned quality, reliability and robustness of Audio Precision’s lab-oriented analyzers to their manufacturing lines.

Fast Setup & Reconfiguration

On a production line, any time spent setting up a new test system, calibrating a system for a new shift, or reconfiguring a system for a change in DUT (device under test), is effectively a “line down” situation. As an integrated system combining audio analyzer (signal generation and acquisition), power amplifier, headphone amplifier, and microphone power supplies, along with any required digital interface such as Bluetooth®, the APx517B has the power to drastically reduce setup and reconfiguration time by eliminating multiple individual components (from a variety of vendors) and their associated cabling. Additionally, and unlike those individual components, the APx517B is uniquely delivered with a Certificate of Traceability, confirming that each unit meets its published specification.

Quality & Reliability

Most, if not all, current acoustic analysis systems are an assortment of individual components from different vendors. As such, an additional “line down” risk of these systems is the quality and reliability of each component, along with the configuration of each connection point. In contrast, the APx517B is an integrated system engineered and assembled to the same standard as all other APx analyzers and is delivered with a three-year warranty and Certificate of Traceability. For 36 years, AP analyzers have been recognized as much for their quality and reliability as they have been for their performance and measurement accuracy.

Configuration & Options

The APx517B maintains the APx Series’ tradition of flexibility and configurability. In its base configuration, APx517B is a ready-to-go system for measuring analog speakers, microphones, headphones, or headsets. For digital devices, APx517B has a module slot for the addition of a single APx digital interface module, such as Bluetooth, PDM or HDMI. On the software side, a standard system provides a core set of measurements and functionality to allow out-of-the-box, fundamental test of acoustic devices. Additional advanced measurement options are available, either individually or in groups.
APx Digital Options

APx B Series audio analyzers offer world-class performance and flexibility. Our modular systems allow you to select the interfaces and options that make sense for the work you do, covering the widest range of digital I/O in the industry.

Bluetooth®
The B Series APx Bluetooth Duo supports A2DP, AVRCP, HFP, and HSP profiles for comprehensive wireless audio testing. With two integrated radios, APx Bluetooth Duo easily supports source/sink, audio gateway/handsfree, and target/controller profile roles.

PDM 16
The B Series APx PDM 16 option provides 16 acquisition channels for audio devices that have a PDM output (such as MEMS microphones), connecting through the module’s PDM 16 remote pod. All 16 channels can be measured simultaneously to provide sample-accurate interchannel timing information. With cables available in lengths of 2, 5, and 10 meters, the acoustically silent remote pod can be placed next to the analyzer or up to 10 meters away, facilitating anechoic chamber testing.

Digital Serial
The Digital Serial I/O option adds a multichannel digital serial interface. This provides a direct connection to chip-level interfaces such as i2S and supports all popular serial interface formats including left justified, right justified, and DSP.

HDMI
The B Series APx HDMI option (HDMI+ARC) allows you to measure HDMI audio quality and audio format compatibility on devices such as surround sound receivers, set-top boxes, HDTVs, smartphones and tablets, and DVD or Blu-ray Disc® players.

AES/SPDIF
The B Series APx DIO option provides AES3, AES/EBU balanced digital I/O on XLR, unbalanced SPDIF digital I/O on BNC, and TOSLINK optical digital I/O.

KEY SPECIFICATIONS

SYSTEM LEVEL
- 192 kHz SR (High-Res Audio Ready)
- Quiet, thermostatically controlled fans, Universal 100-240 V power supply

ANALOG OUTPUTS
- 35 W Mono Power Amplifier
  - 17 Vrms max output
  - 2 – 8 Ω @ 35 W
  - ≤-80 dB THD+N
- Impedance Accuracy
  - ≤ 1% for resistive loads
  - > 350 Ω, 20 Hz to 20 kHz
  - ≤ 1% for resistive loads
  - > 350 Ω to 800 Ω, 20 Hz to 6 kHz
  - ≤ 3% for resistive loads
  - > 350 Ω to 800 Ω, 6 kHz to 20 kHz
- Output current limited
- Reverse overload protected
- Integrated, dual-channel (Vsense, Vdriver)
- Kelvin impedance measurement

ANALOG INPUTS
- BNC Unbalanced
  - 40 Vpk max input
  - ICP / IEPE mic power, 4 or 10 mA
  - DC Bias mic power, 0 - 12 V
  - ≤-100 dB THD+N
  - Input overload protection
- XLR Balanced
  - 40 Vpk max input
  - 48 V phantom power
  - ≤-100 dB THD+N
  - Input overload protection

Production testing can easily be automated with the built-in measurement sequencer and saved as a project that can be used with any APx analyzer. Production Test mode provides an optional simplified operator interface with multiple run statistics, created and supervised by a manufacturing engineer. Access the API if you prefer: documentation for VB.NET, C#.NET, MATLAB, and LabVIEW is included.
APx517B Measurement Options

The APx517B uses the same APx500 measurement software that is used on all other APx series analyzers and includes features like input signal monitors and file analysis. To minimize the cost of the measurement software, the system is offered using the APx500 FLEX option model, which provides seven standard measurements, allowing additional measurements to be purchased in cost-effective Flex Packs or as individual measurements.

Software maintenance options are available to extend the standard year of coverage that comes with a new APx analyzer. Software maintenance options entitle the user to receive the next major software release, and can be extended for multiple years.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>INCLUDED MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Base Configuration</td>
<td>Standard with APx500 Flex: Frequency, Level &amp; Gain, Loudspeaker Production Test (incl. Rub &amp; Buzz), Pass/Fail, Stepped Frequency Sweep, Signal Acquisition, THD+N.</td>
</tr>
<tr>
<td>APX-FLEX-PACK-2</td>
<td>Flex Pack 2</td>
<td>Includes the following measurements: Crosstalk, Crosstalk Sweeps, DC Level, DC Level Sweep, DUT Delay, Frequency Response, Interchannel Phase, Level Ratio, Measurement Recorder, Noise, Noise Recorder, Q-Peak Noise, SNR, SINAD, Stepped Level Sweep.</td>
</tr>
<tr>
<td>APX-FLEX-PACK-3</td>
<td>Flex Pack 3</td>
<td>Includes the following measurements: Continuous Sweep, Digital Error Rate, Dynamic Range–AES17, IMD, IMD Frequency Sweep, IMD Level Sweep, Input Sample Rate, Maximum Output, Maximum Output (CEA–2006), Multitone Analyzer, Regulated Frequency Sweep, Signal Analyzer.</td>
</tr>
</tbody>
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APx517B Measurement Options (continued)

In addition to Flex Packs, measurement options can be purchased individually so that you can get just the measurements you need, without paying for ones you don’t. Measurements can be added to an APx517B when ordering a new acoustic analyzer or they can be delivered electronically to add to an existing APx517B. APx500 software’s Bench Mode is also available, as are specialized perceptual audio tests such as ABC-MRT, STI, PESQ and POLQA.

### INDIVIDUAL MEASUREMENT OPTIONS

<table>
<thead>
<tr>
<th>ABC-MRT</th>
<th>Frequency Response</th>
<th>Noise Recorder</th>
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<tbody>
<tr>
<td>Acoustic Response</td>
<td>IMD</td>
<td>Pass/Fail*</td>
</tr>
<tr>
<td>Bandpass Frequency Sweep</td>
<td>IMD Level Sweep</td>
<td>PESQ</td>
</tr>
<tr>
<td>Bandpass Level</td>
<td>IMD Frequency Sweeps</td>
<td>Polar Plots</td>
</tr>
<tr>
<td>Bandpass Level Sweep</td>
<td>Impedance/Thiele-Small</td>
<td>POLQA</td>
</tr>
<tr>
<td>Crosstalk Sweep, 1 Channel Driven</td>
<td>Input Sample Rate</td>
<td>Q-peak Noise</td>
</tr>
<tr>
<td>Crosstalk Sweep, 1 Channel Undriven</td>
<td>Interchannel Phase</td>
<td>Regulated Frequency Sweep</td>
</tr>
<tr>
<td>Crosstalk, 1 Channel Driven</td>
<td>Level &amp; Gain*</td>
<td>Signal Acquisition*</td>
</tr>
<tr>
<td>Crosstalk, 1 Channel Undriven</td>
<td>Level Ratio</td>
<td>Signal Analyzer</td>
</tr>
<tr>
<td>Crosstalk, Custom Measurement</td>
<td>Loudspeaker Production Test*</td>
<td>SNR</td>
</tr>
<tr>
<td>DC Level</td>
<td>Maximum Output Level</td>
<td>SINAD</td>
</tr>
<tr>
<td>DC Level Sweep</td>
<td>Maximum Output per CEA-2006</td>
<td>Stepped Frequency Sweep</td>
</tr>
<tr>
<td>Digital Error Rate</td>
<td>Measurement Recorder</td>
<td>Stepped Level Sweep*</td>
</tr>
<tr>
<td>Dynamic Range (AEX17)</td>
<td>Modulated Noise</td>
<td>STI</td>
</tr>
<tr>
<td>DUT Delay</td>
<td>Multitone Analysis</td>
<td>THD+N*</td>
</tr>
<tr>
<td>Frequency*</td>
<td>Noise</td>
<td>Transfer Function</td>
</tr>
</tbody>
</table>

* These measurements are included in the base configuration

### SOFTWARE MAINTENANCE OPTIONS

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>MEASUREMENT/FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW-MAINT-1/3/5</td>
<td>Software Maintenance</td>
<td>Provides 1, 3, or 5 years of software maintenance for an existing APx Legacy or B Series audio analyzer.</td>
</tr>
<tr>
<td>SW-EXT-3/5</td>
<td>Software Maintenance</td>
<td>Provides 2 or 4 additional years of software maintenance with the purchase of a new APx B Series analyzer.</td>
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