Audio precision

2700 Series
Dual Domain Audio Analyzer

APx Series
Multichannel Audio Analyzer

ATS-2
Low Cost Audio Analyzer

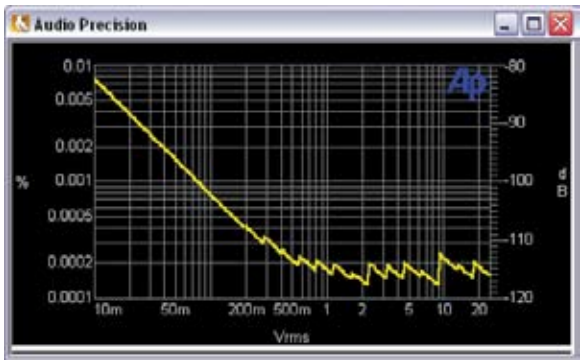
Portable 1 / ATS-1
Portable Audio Analyzers

Filters & Accessories

2700 Series Dual Domain Audio Analyzer

AP's flagship analyzer, the 2700 Series is designed for audio engineers who need the highest performance, lowest distortion and greatest flexibility possible in their audio analyzer.

The 2700 Series has the best performance of any audio analyzer in the world: its high-precision analog audio design is markedly superior to the best digital implementations in several key areas, especially residual noise and distortion, and high-bandwidth.



Analog system 1 kHz THD+N, 20 kHz BW ≤ –112 dB

- The unparalleled accuracy of a dedicated hardware instrument
- Fast instrument operation and powerful analysis under sophisticated control software
- Programmatic control for high-speed automation
- Serial digital interface testing
- True dual domain instrument for highest performance
- 192 kHz digital input and output capabilities
- 500 kHz analog / 100 kHz digital measurement bandwidth
- Vanishingly low residual noise and THD+N
- Generates and analyzes a broad palette of stimulus signals such as MLS, white and pink noise and other special purpose waveforms
- Connects to control PC via USB

Options

"A" models include AP2700 control software, APIB or USB interface, cable and full set of user manuals. "G" models include IEEE-488.2 GPIB control interface, cables and manuals.

SYS-2722A/G	*Dual domain. Two-channel analog input/output, analog analyzer and generator, DSP analyzer and generator, plus 192k digital input/output*
SYS-2722A-M	*Windows Vista Logo Test System: SYS-2722A with all required filters and cables for performing Windows Vista Logo audio tests*
SYS-2720A/G	*Digital domain only. DSP analyzer and generator with 192k digital input/output*
SYS-2712A/G	*Analog domain only. Two-channel analog input/output, analog analyzer and generator, DSP analyzer and generator*
SYS-2702A/G	*Analog domain only. Two-channel analog input/output, analog analyzer and generator*
2700-PROG	*Programmer's Starter Kit, including: GPIB Programmer's Reference Manual and GPIB utilities and samples CD-ROM*
S2-IMD	*Adds IMD generator & analyzer to SYS-2702, SYS-2712, or SYS-2722*
S2-W&F	*Adds wow and flutter analyzer to SYS-2702, SYS-2712, or SYS-2722*
S2-BUR	*Adds tone burst, square wave and noise generator to SYS-2702, SYS-2712, or SYS-2722*
S-AES17	*Adds multistage low-pass filter for D/A measurements to AES17 standard. Includes special pre-analyzer low-pass filter and analyzer low-pass option filters FLP-B20k and FLP-B40k*
OPT-2020	*Adds special pre-analyzer low-pass filter for measurements of signals with large amounts of out-of-band noise*
OPT-2711	*Adds the Dolby Digital Generator option to a new SYS-2722 or SYS-2720, allowing the encoding of stimulus tones in Dolby Digital (AC-3) before digital output. (Not compatible with GPIB instrument)*
EWP2-2700	*Two-year extended warranty for 2700 Series*

2700 Series Key Specifications

BASIC FORMAT

Channels
2

Computer interface
USB, APIB or GPIB

OS Compatability
Windows Vista, XP

Dimensions
3U

GENERATOR PERFORMANCE

Sine Frequency Range
10 Hz–204 kHz

Frequency Accuracy
2 ppm

IMD Test Signals
SMPTE, CCIF, DFD, DIM, TIM, DIN,

Maximum Amplitude (balanced)
26.43 Vrms

Amplitude Accuracy
±0.06 dB

Flatness (20 Hz–20 kHz)
±0.008 dB (typically <0.003 dB)

Residual THD+N, 1 kHz
–112 dB, + 1.0 µV , 22 kHz BW

Analog Output Configurations
unbalanced & balanced

Digital Output Sampling Rate
28 kHz–200 kHz

Dolby Digital Generator
Yes

ANALYZER PERFORMANCE

Maximum Rated Input Voltage
230 Vpk, 160 Vrms (dc to 20 kHz), overload protected in all ranges

Maximum Bandwidth
>500 kHz

Amplitude Accuracy (1 kHz)
±0.05 dB

Amplitude Flatness (20 Hz–20 kHz)
±0.02 dB

Residual Input Noise (22 kHz BW)
≤1.0 µV [–117.8 dBu]

Residual THD+N (20 kHz BW)
–112 dB + 1.0 µV, 22 kHz BW

FFT Resolution
Up to 4 M samples (87 seconds at a sample rate of 48 kHz)

IMD Measurement Capability
SMPTE, CCIF, DFD, DIM, TIM, DIN

DC Voltage Measurement
Yes, with DCX-127 Multifunction Module

APx Series Multichannel Audio Analyzer

The APx is a dedicated multichannel audio analyzer that combines a next generation user interface with AP's legendary commitment to performance. It's the perfect audio analyzer for R&D and production test users who need speed and ease-of-use.

Now available in an 8 or 16 channel configuration, the APx is capable of taking 14 measurements in as fast as 7 seconds, automatically generating a report of results with pass/fail limits and saving all test settings in a single, sharable project file.

The APx is designed specifically for multichannel device manufacturers for use in R&D and production test, with multiple channels, Dolby/ DTS confidence testing, and automated test sequencing.

- One-click measurements and saveable sequences
- 8 or 16 channels in, 8 channels out
- Real-time signal monitors including residual THD+N in oscilloscope view and one million point FFT
- New high- and low pass and weighting filters, automated reference levels, and playback-only test capability
- Documented API support

Winner of
Pro Audio Review's
PAR Excellence Award 2006
and
Test & Measurement
World's Best in Test 2007

APx Series Key Specifications

BASIC FORMAT

Channels
8 or 16

Computer interface
USB 2.0

OS Compatabiltiy
Windows Vista, XP

Dimensions
3U

GENERATOR PERFORMANCE

Sine Frequency Range
5 Hz to 80.1 kHz

Frequency Accuracy
3 ppm

IMD Test Signals
SMPTE, MOD, DFD

Maximum Amplitude (balanced)
14.4 Vrms

Amplitude Accuracy
±0.05 dB

Flatness (20 Hz–20 kHz)
±0.008 dB

Residual THD+N (20 kHz BW)
–103 dB + 1.4 µV

Analog Output Configurations
unbalanced & balanced

Digital Output Sampling Rate
22 kHz–192 kHz

Dolby Digital Generator
No

ANALYZER PERFORMANCE

Maximum Rated Input Voltage
110 Vrms

Maximum Bandwidth
>90 kHz

Amplitude Accuracy (1 kHz)
±0.05 dB

Amplitude Flatness (20 Hz–20 kHz)
±0.008 dB

Residual Input Noise (20 kHz BW)
1.3 µV

Residual THD+N (20 kHz BW)
–103 dB + 1.4 µV

Individual Harmonic Analyzer
d2–d10

FFT Resolution
Up to 1 million (1024 K)

IMD Measurement Capability
SMPTE, MOD, DFD

DC Voltage Measurement
±155 V

Options

APx585	*APx585 8-channel audio analyzer (Includes APx500 measurement software, USB 2.0 cable, manuals, CD & DVD Test Discs, and APx Resources Disc)*
APx586	*APx586 16-channel audio analyzer (16 analog inputs) (See APx585 for included peripherals)*
UPG-586	*Upgrades 8-channel audio analyzer to 16 analog input channels*
APx581	*8-channel switch mode filter*
CAB-585	*DB25M to DB25M balanced loopback cable; 9 BNC to BNC 14" analog and digital coax loopback cables; DB25M to 8-XLR male cable; DB25M to 8-XLR female cable; 18 BNC to RCA adapters; Ground strap*
CAB-586	*Cable kit for APx586 (includes above items for CAB-585 kit, with additional XLR to DB25 input cable for the second input module)*
EWP2-585	*Two-year extended warranty for APx585*
EWP2-586	*Two-year extended warranty for APx586*

Portable One and ATS-1

Portable One audio analyzers bring bench-quality, high-precision test and measurement to maintenance, engineering and production facilities. Whether in broadcast, communications, bench or production use, Portable One offers a complete, easy-to-use audio test set housed in a rugged fan-cooled clamshell case that's ready for almost anything.

Designed for rack-mount and production applications, the ATS-1 offers the same measurement functionality and ease-of-use as an equivalent Portable One, but is housed in a fan-cooled metal case, designed for front or rear modular connector placement and rack mounting.

Portable One Plus Access provides comprehensive two-channel analog generation and measurement. With twelve different measurement functions selectable at the push of a button, Portable One is comprehensive while remaining user-friendly. Easy-to-set-up sweep capability produces graphs of frequency response, distortion vs. frequency and even amplitude sweeps. Non-volatile storage of up to 30 tests allows easy, one-button recall of your favorite test setup.

Like the 2700 Series, the Portable One audio analyzer is available as a dual domain instrument providing simultaneous generation and analysis capabilities in both the analog domain and the digital domain.

Options

P1PA	*Portable One Plus Access audio test system with GPIB interface*
P1DD	*Portable One Dual Domain (digital and analog) audio test system with GPIB interface. Comes standard with 96 kHz digital sample rate*
P1-IMD	*SMPTE/DIN intermodulation distortion measurement and generation (analog and digital)*
ATS-1A	*ATS-1 Access audio test system with IEEE-488 GPIB interface (Specify connector type: BNC or XLR, front or rear mount.)*
ATS-1DD	*ATS-1 Dual Domain (digital and analog) audio test system with IEEE-488 GPIB interface. Comes standard with 96 kHz digital audio sample rate (Specify connector type: BNC or XLR, front or rear mount.)*
ATS-IMD	*SMPTE/DIN intermodulation distortion option (analog and digital domains)*
EWP2-ATS1	*Two-year extended warranty for ATS-1 Access or ATS-1 Dual Domain*
EWP2-P1	*Two-year extended warranty for Portable One Plus Access or Portable One Dual Domain*

P1/ ATS-1 Key Specifications

BASIC FORMAT

Channels
2

Computer interface
N/A Self-contained

OS Compatability
N/A Self-contained

Dimensions
3U

GENERATOR PERFORMANCE

Sine Frequency Range
10 Hz–120 kHz.

Frequency Accuracy
±0.5%

IMD Test Signals
SMPTE, DIN

Maximum Amplitude (balanced)
24.7 Vrms

Amplitude Accuracy
±0.3 dB

Flatness (20 Hz–20 kHz)
±0.05 dB

Residual THD+N, 1 kHz
0.0025% +3.6 µV

Analog Output Configurations
unbalanced & balanced

Digital Output Sampling Rate
28.8 kHz to 52.8 kHz

Dolby Digital Generator
No

ANALYZER PERFORMANCE

Maximum Rated Input Voltage
140 Vrms

Maximum Bandwidth
<10 Hz to 200 kHz

Amplitude Accuracy (1 kHz)
±0.1 dB +100 µV

Amplitude Flatness (20 Hz–20 kHz)
±0.02 dB

Residual Input Noise (20 kHz BW)
1.5 µV rms

Residual THD+N (20 kHz BW)
0.0025% [–92 dB] + 3 µV

FFT Resolution
N/A

IMD Measurement Capability
SMPTE, DIN

DC Voltage Measurement
N/A

ATS-2 Audio Analyzer

The ATS-2 is a general-purpose audio analyzer well suited to the design lab, broadcast facility or production line—anywhere you need high-precision, feature-rich audio test and measurement.

The ATS-2 offers an excellent value in audio analyzers. Its converter-based architecture keeps the cost down while offering a wide range of features at high levels of performance. Converter-based audio analyzers generate and analyze signals in the digital domain and use analog-to-digital converters (ADCs) and digital-to-analog converters (DACs) for analog input and output.

- Independent analog and digital signal generators
- Multitone analyzer with FFT for testing playback-only devices
- Converter-based analyzer delivers high performance at a lower price
- A wide range of analog and digital test signals
- Programmatic control for high-speed automation
- Optional digital interface testing capabilities
- A full complement of graphing and reporting options
- Auxiliary instruments are available for specialized testing
- Connects to control PC via USB

Options

ATS2A	*ATS-2 PC-Based Audio Test System with APIB or USB interface, ATS software and manuals, and Getting Started Manual*
ATS2G	*ATS-2 PC-Based Audio Test System with GPIB Interface, APIB Interface and Getting Started Manual (Software kit and ATS2G-PROG are not included, but are recommended for GPIB program development)*
ATS2-PERF	*Performance option for ATS-2*
ATS2-EURZ	*Changes generator output impedance selections to 40/200 Ω (Not compatible with 600Z option)*
ATS2-600Z	*Changes generator output impedance selections to 40/600 Ω and adds 600 Ω analyzer input termination selection (Not compatible with EURZ option)*
ATS2G-PROG	*GPIB Programmers' Reference Manual (Includes CD with samples, manuals, and support software)*
EWP2-ATS2	*Two-year extended warranty for ATS-2*

ATS-2 Key Specifications

BASIC FORMAT

Channels
2

Computer interface
USB, APIB or GPIB

OS Compatability
Windows Vista, XP

Dimensions
2U

GENERATOR PERFORMANCE

Sine Frequency Range
2 Hz–61.6 kHz (SR=131.072 kS/s).

Frequency Accuracy
±0.015625 Hz

IMD Test Signals
SMPTE, DIN

Maximum Amplitude (balanced)
24.1 dBm (Rs = 40)

Amplitude Accuracy
±0.09 dB [±1.0 %]

Flatness (20 Hz–20 kHz)
±0.007 dB

Residual THD+N, 1 kHz
0.0009% [–101 dB] +1.6 µV

Analog Output Configurations
unbalanced & balanced

Digital Output Sampling Rate
28.8 kHz to 108 kHz

Dolby Digital Generator
No

ANALYZER PERFORMANCE

Maximum Rated Input Voltage
140 V rms (dc to 20 kHz) overload protected in all ranges

Maximum Bandwidth
<10 Hz to 120 kHz (with performance option)

Amplitude Accuracy (1 kHz)
±0.09 dB [±1.0%]

Amplitude Flatness (20 Hz–20 kHz)
±0.01 dB, 20 Hz to 20 kHz (0.45SR if less)

Residual Input Noise (20 kHz BW)
1.6 µV rms

Residual THD+N (20 kHz BW)
0.0009% [–101 dB] + 1.6 µV

FFT Resolution
Up to 256 K

IMD Measurement Capability
SMPTE, DIN

DC Voltage Measurement
Yes with DCX-127 Multifunction Module

Other Instruments

SWR-2755 Switchers (Input, Output & Unbalanced)

Audio Precision offers three models of the SWR-2755 audio switchers: the **SWR-2755M Output Switcher** (balanced male XLRs), **SWR-2755F Input Switcher** (balanced female XLRs) and **SWR-2755U Unbalanced Switcher** (floating unbalanced BNCs).

All models are 12 X 2 with ability to cascade up to 16 units for a maximum of 192 channels. Generator outputs can be routed to any of the 12 channels. Inter-channel crosstalk is less than –150 dB at 20 kHz in the balanced models.

PSIA-2722 Programmable Serial Interface Adapter

This adapter enables the connection of chip-level devices, such as analog-to-digital converters, digital-to-analog converters and sample rate converters, to Audio Precision 2700 Series and System Two Cascade *Plus* audio analyzers. Devices under test may have a variety of interface protocols, including different logic families and voltage levels, clock rates, word orientations, and formats.

DCX-127 Multifunction Module

The DCX-127 Multifunction Module provides Audio Precision's PC-controlled audio analyzers with an interface toolkit of non-audio functions and interface capabilities that are often required in typical audio test applications. Applications include VCA gain control linearity, VCA distortion, amplifier DC offset and power supply checks, power amplifier load switching control, loudspeaker voice coil resistance measurements, temperature measurements, test fixture control, and testing DC parameters of A/D and D/A converters.

AUX-0025 & APx581 Switching Amplifier Measurement Filters

The Audio Precision AUX-0025 Switching Amplifier Measurement Filter is a dual-channel passive filter that provides the necessary attenuation of out-of-band signals for testing Class D amplifiers.

The APx581 is an 8-channel version suitable for use with the multichannel APx585.

AP Service

Audio Precision's dedicated Service Department and Tech Support staff are the most experienced professionals in the audio test and measurement industry.

AP offers free tech support for the life of our products. Simply put, there's virtually no audio test and measurement challenge AP Tech Support haven't already faced and solved. So if you have any questions about your Audio Precision products or if there's a particular challenge you'd like some help with, don't hesitate to contact us by phone or email.

For more information about AP Service, visit **ap.com/service**

Accredited calibration and the best warranty in the industry

All new PC-controlled AP analyzers are calibrated to the ISO 17025 standard before being shipped, and Audio Precision is proud to offer a limited three-year warranty on all new products (terms and conditions apply). Two-year extended warranties are also available.

European Service Center

Opened in 2007, the European Service Center allows faster warranty work, repairs, factory adjustments and other AP services for AP customers in Europe, the Middle East and Africa who do not wish to ship their instruments to the AP factory in Beaverton. The European Service Center offers accredited calibrations to the ISO 9000 standard.

Services

MODEL - ADJ	*Factory Adjustment to Specification*
MODEL - REP	*Repair & Factory Adjustment to Specification*
MODEL - CAL	*Accredited Calibration*
MODEL - CALP	*Calibration, Repair & Adjustment*
RUSH	*1 week rush service available*

AP Calibration Lab

Audio Precision is accredited by the American Association for Laboratory Accreditation under ISO/IEC 17025:2005 for equipment calibration at our US factory. Calibration provides documented and traceable verification that instruments meet or exceed all of their published specifications.

- **Accredited by A2LA under ISO/IEC 17025:2005**
  Documented Quality System for calibration; 17025 is the highest standard for calibration services.
- **Full service available**
  If the unit does not meet specification, we can repair or adjust it immediately. No extra time or cost shipping from the Cal lab to the Factory.
- **Dedicated audio engineers**
  Automated systems and experienced AP technicians who know audio.

A2LA ACCREDITED

Accredited by A2LA
under ISO/IEC 17025:2005
for equipment calibration

About Audio Precision

Since 1984, AP has been the worldwide leader of audio test and measurement. AP is committed to making audio test easier and more productive for R&D and production line test in consumer audio, pro sound, automotive and broadcast. For more information about any of our instruments, please visit the AP website at **ap.com**.

AP instruments are sold through an international network of knowledgeable distributors and US sales representatives who are ready to assist you with any sales questions, training or application engineering. For more information about your local sales partner, please visit the AP website at **ap.com/contact/sales** or email **sales@ap.com.**

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