Audio Analyzer A4

Multi-Channel/Multi-Interface/Low-Cost Solution for Laboratories and Production Lines

A4 is a flexible performance-oriented audio analyzer with 2-channel analog output/4-channel input. It supports high-performance electroacoustic test options and digital interface expansion (BT/HDMI/I2S), and is widely used in multi-channel audio products such as in-vehicle audio multimedia and mixers. In addition, when A4 is paired with the SW12 series switch box, the number of input and output channels can be expanded to 192.

Performance Indicators

System Performance	
Residual THD+ N (20kHz BW)	-106dB

Signal Source Indicators	
Sine Wave Frequency Range	2 Hz to 80.1 kHz
Frequency Accuracy	3 ppm
IMD Test Signals	SMPTE, MOD, DFD
Maximum Output Amplitude (Balanced)	16 Vrms
Amplitude Accuracy (1kHz)	±0.05dB
Amplitude Flatness (20Hz-20kHz)	±0.01 dB
Analog Output Configuration	Balanced & Unbalanced
Maximum Digital Output Sampling Rate	216kHz
Sampling Accuracy	3ppm
Bit Depth	8-24 bit
Dolby/dts Signal Source	Yes (Pre-encoded Files)

Analyzer Indicators	
Maximum Rated Input Voltage	230Vpk
Maximum Bandwidth	90kHz
IMD Testing Functions	SMPTE, MOD, DFD
Amplitude Accuracy (1kHz)	±0.05dB
Amplitude Flatness (20Hz—20kHz)	±0.01dB
Residual Input Noise (20kHz BW)	1.3μV
Independent Harmonic Analysis	d2-d10
Maximum FFT Length	1.0M points
DC Voltage Measurement	

Key Features

- 2-channel analog output, 4-channel input
- Standard support for SPDIF/TOSLINK/AES/EBU/ASIO digital interfaces
- Support for BT/HDMI/I2S interface expansion
- Complete and powerful electroacoustic analyzer functions
- Up to 60 testing functions, including oscilloscope, spectrum analyzer, continuous fast scanning, etc.
- Comprehensive testing within 3 seconds without any programming
- Support for LabVIEW, VB.NET, C#.NET, Python
- Automatic generation of test reports in various formats
- Support for Dolby&DTS digital stream playback

Options

Bluetooth R&D Interface Option	AX-BT-RD
Bluetooth Production Line Interface Option	AX-BT-PT
DSIO Interface Option	AX-DSIO
HDMI Interface Option	AX-HDMI
Electroacoustic R&D Test Option	AX-SPK-RD
Electroacoustic Production Line Test Option	AX-SPK-PT
Perceptual Audio Test Option	AX-PESQ/AX-POLQA2
Speech Transmission Test Option	AX-STIPA

General Specifications

Dimensions (W×D×H)	480mm* 405mm* 153mm
Weight	8.5kg±0.5kg
Operating Voltage (AC)	220V,50Hz/100V-240V,50Hz-60Hz

A2/A4 Digital Input/Output Options

AX-HDMI Option

The AX-HDMI option with HDMI+ARC (Audio Return Channel) is a versatile audio monitoring and measurement option. It is powerful, easy to use, and provides accurate measurement results. It can be widely used in audio quality testing of multimedia products, providing all standard audio measurement items, including level, signal-to-noise ratio, distortion, phase, crosstalk, group delay, etc.

Main Features of AX-HDMI Option

- Compliance Standard: HDMI 1.3
- Interface Type: Type A
- Number of Channels: 2, 8
- Bit Depth: 8bit to 24bit
- Supported Formats: PCM, Dolby Digital, DTS, etc.
- Connectivity for compatible receivers and TV ARC
- Capability to generate linear PCM audio streams, supporting lossless formats (Dolby TrueHD and dts-HD) and compressed formats (Dolby Digital and dts Digital Surround) from pre-encoded audio test files)
- Compatibility and resampling/downmixing/ transcoding functions
- Support for HDMI Audio Return Channel
- Ability to view and edit HDMI Enhanced Extended Display Identification Data (E-EDID)
- Capability to generate video signals (resolution up to 1080P) and support third-party videos

AX-DSIO Option

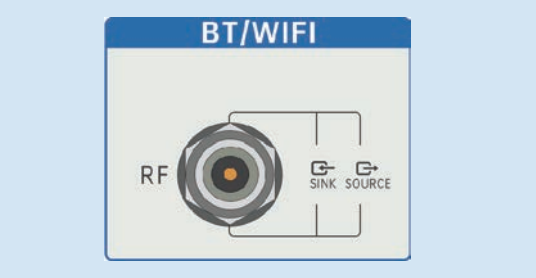
The DSIO option adds a multi-channel digital serial interface to the audio analyzer, providing direct connection for chip-level interfaces, playing a decisive role in circuit board design. It is easy to use, provides accurate test results, and can be widely used in audio quality testing of various digital devices.

Main Features of AX-DSIO Option

- Hardware Interface: HD-15 connector
- Number of Channels: 1, 2, 4, 8
- Formats: I2S, DSP, left-justified, right-justified
- Pulse Voltage: 1.8V, 2.5V, 3.3V
- Data Length: 8-32 bits
- Word Length: 8-128 bits
- Sampling Rate: 4 kHz-192 kHz
- Master Clock Rate: 4 kHz-49.152 MHz
- Master Clock Source: Transmitter (external/ internal), Receiver (external/internal), master clock can be inverted
- Bit/Clock Direction: Transmitter (IN/OUT), Receiver (IN/OUT)
- Bit/Clock Direction: Transmitter (IN/OUT), Receiver (IN/OUT)
- Jitter: ON or OFF selection
- Multi-channel Configuration: TDM and multi-data connection (1/2/4/8 channels)
- Concise and flexible configuration interface, allowing saving or loading of test configurations to facilitate user testing and greatly improve test efficiency

A2/A4 Digital Input/Output Options

AX-BT-RD Option

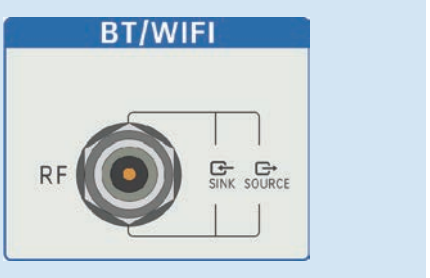


The BT option is the most economical solution for current Bluetooth audio testing. It has built-in Bluetooth wireless and Bluetooth protocol stack, enabling engineers to directly measure Bluetooth devices, eliminating the uncertainty and inconvenience of Bluetooth Dongles, and making Bluetooth audio testing faster, simpler, and more reliable for R&D and production testing.

Main Features of AX-BT-RD Option

- Bluetooth Device Core Version: 3.0
- Profile Versions:A2DP v1.3,AVRCP v1.4,HFP v1.7,HSP v1.2
- A2DP Audio Codecs: SBC, aptX
- HFP Audio Codecs: CVSD, mSBC
- RF Connection: N-type female, N-SMA
- RF Input Impedance: 50 Ω typical
- RF Output Impedance: 50 Ω typical
- RF Power: Typical maximum +4 dBm
- RF Sensitivity: ≤ -81 dBm Typical

AX-BT-PT Option



The BT-PT version Bluetooth module is a Bluetooth function option developed based on the needs of production line testing. It simplifies the pairing and connection process of traditional Bluetooth modules, can achieve fast pairing and connection in a very short time, has strong Bluetooth compatibility, and is mainly used in production lines of Bluetooth audio products or primary R&D testing.

Main Features of AX-BT-PT Option

- Bluetooth Device Core Version: 3.0
- Profile Versions: A2DP v1.3, AVRCP v1.4, HFP v1.7, HSP v1.2
- A2DP Audio Codecs: SBC
- HFP Audio Codecs: CVSD, mSBC
- RF Connection: N-type female, N-SMA
- RF Input Impedance: 50 Ω typical
- RF Output Impedance: 50 Ω typical
- RF Power: Typical maximum +4 dBm
- RF Sensitivity: ≤ -81 dBm Typical

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