

AM51C

AUDIO INSTRUMENTS

AUDIO ANALYZER



General

The AM51C is designed to measure various audio characteristics with a single unit. This unit includes both a audio analyzer and a highly accurate audio oscillator.

Eleven fundamental measuring functions include level, level ratio, S/N ratio, relative level, DC voltage, harmonic distortion, IMD, SINAD, frequency, phase difference and PCM dynamic range. The measuring unit also includes such functions as noise reduction and harmonic analyzer, and is equipped with 10 built-in filters. Together with a low-distortion oscillator with two independent output units, the AM51C can measure distortion down to as low as -120 dB and level to as low as 1 μ V.

The AM51C is easy to operate through the combination of a LCD and soft key setting of parameters. In addition to manual setting, automatic measuring using a memory card and remote control via GP-IB are also possible. A panel setting memory for 100 sets of parameters is also available.

Features

- Audio characteristics measurement conforms with EIAJ CP-307 "CD player measurement" standards.
- 2 channel (A,B) oscillator outputs and measuring inputs, and balanced/ unbalanced selection.
- Low-distortion, high-level output oscillator with 2 independent level setting capability.
- High-sensitivity level measurement with maximum resolution of 0.1 μ V.
- Level ratio measurement convenient for cross-talk and channel balance measurement.
- Automatic measurement of S/N with a built-in noise evaluation filter.
- Relative level measurement convenient for frequency response measurement.
- DC voltage measurement with a full scale range of ± 200 mV to ± 200 V.
- Distortion measurement using noise reduction and harmonics analysis function.
- IMD measurement according to SMPTE method.
- SINAD measurement for the evaluation of portable radio receivers.
- Frequency measurement with 5-digit display.

- Phase difference measurement for $\pm 180^\circ$ with resolution of 0.1°.
- Detects effective value, mean value, and peak value response.
- Panel setting memory for 100 ways of parameters and last memory function.
- GP-IB interface is standard.

Specifications

- Measuring section
 - Measurement items
 - Level
 - Level difference
 - S/N
 - Relative level
 - Harmonic distortion
 - IM distortion
 - SINAD
 - Frequency
 - Phase difference
 - DC voltage
 - PCM dynamic range
 - Additional functions
 - Noise reduction Available for harmonic distortion and level measurement
 - Harmonic analysis For harmonic distortion measurement; 2fo, 3fo, 4fo, or 5fo selectable
 - Number of inputs 2
 - Input impedance
 - Balanced 200 k Ω , 600 Ω
 - Unbalanced 100 k Ω , 600 Ω
 - Connector type
 - Balanced XLR-3
 - Unbalanced BNC-R
 - Monitor output BNC-R
 - Trigger output for oscilloscope BNC-R

- Measuring filters

400 Hz HPF	18 dB/oct
30 kHz LPF	18 dB/oct
80 kHz LPF	18 dB/oct
A filter	JIS-C1502A, JIS-C5551A, NAB-ASA-A
CCIR-468	CCIR-468-4 1986
CCIR/ARM	Dolby
DIN AUDIO	DIN45405 (AUDIO) 1978, CCIR-468-4 1986
15 kHz LPF	0.5 dB ripple, 9th degree simultaneous chebyshev characteristics
20 kHz LPF	"
22 kHz LPF	"
Option 1	Added with optional board
Option 2	Added with optional board
External filter	Via input & output BNC connectors on rear panel
- Level measurement

Frequency range	10 Hz to 500 kHz
Detection system	Effective value detection; RMS Mean value detection and converted to effective value; AVG Peak value detection and converted to effective value in sine wave; PEAK
Measuring range	10.0 μ V to 100.0 V with selection for level A or level B. Each measuring filter can be used 10 mVrms to 100 Vrms for simultaneous measuring.
Measurement units	μ V, mV, V, dB, dBm-50/75/600 Ω
- Level difference measurement

Level ratio	{B (A) level} - {A (B) level}
Frequency range	10 Hz to 500 kHz
Measuring range	(-100 to +40 dB) - (-40 to +40 dB); each measuring filter can be used.
Measurement unit	dB
- S/N measurement

Frequency range	10 Hz to 500 kHz
Measuring range	S level -40 to +40 dB (10 mV to 100 V) N level -100 to +40 dB (10 μ V to 100 V)
Measuring unit	dB
- Relative level measurement

Frequency range	10 Hz to 500 kHz
Measuring range	-100 to +40 dB
Measuring unit	dB
- Harmonic distortion measurement

Fundamental frequency range	10 Hz to 100 kHz
Input level range	36 mV to 100 V (-28.9 to +40 dB)
Measuring range	0.0003% to 100% (-110 to 0 dB) (0.0001% to 100% with noise reduction)
Detection	Effective value detection; RMS Mean value detection and converted to effective value; AVG
- Fundamental frequency tuning

a.	Automatic tuning to measured frequency(AUTO)
b.	Coupled to oscillator frequency (GANGED)
c.	Frequency setting with 10-key (PRESET)
- Others

Noise reduction available
Harmonic analysis possible
- IM distortion measurement

Frequency	Low: 70 Hz High: 7 kHz
Level ratio	70 Hz: 7 kHz = 4:1
Input level range	100 mVp-p to 282.8 Vp-p
Measuring range	0.001% to 100%
- SINAD measurement

Fundamental frequency range	10 Hz to 100 kHz
Input level range	36 mV to 100 V
Measuring range	0 to 100 dB
Detection	Effective value detection; RMS
Fundamental frequency tuning	a. Coupled to oscillator frequency (GANGED) b. Frequency setting with 10-key (PRESET)
- Frequency measurement

Frequency range	10 Hz to 500 kHz
Input level range	36 mV to 100 V
Display	5 digits
Accuracy	0.001%
- Phase difference measurement

Frequency range	10 Hz to 100 kHz
Input level range	36 mV to 100 V
Measuring range	\pm 180 degrees, resolution; 0.1 degrees
Accuracy	0.5 degrees
- DC voltage measurement

Measuring range	\pm 200 mV to \pm 200 V full scale and auto ranging
Input impedance	10 M Ω
- PCM dynamic range measurement

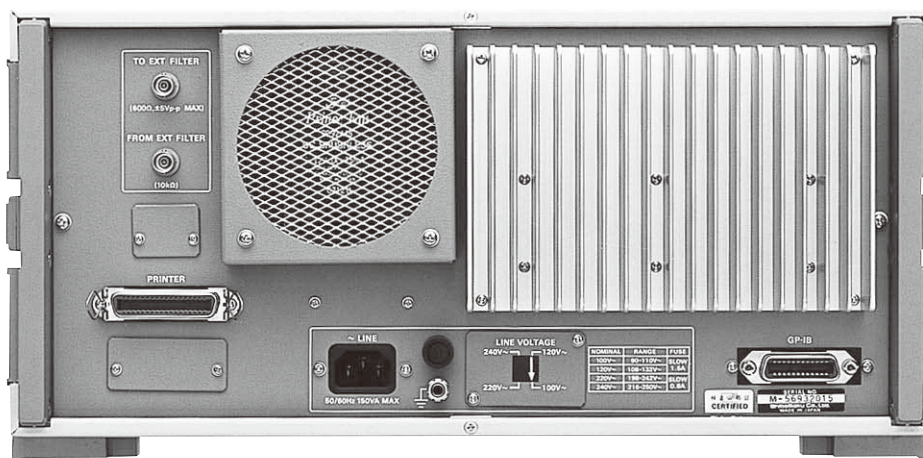
Input level range	1.0 to 4.2 mV, 1 kHz
Filters	15, 20, 22 kHz LPF and A filter
Measuring result	-(measured distortion) +60 dB
- Oscillator section
- Sine wave output

Frequency range	10.00 Hz to 100.00 kHz, last digit being 0 or 5
Frequency accuracy	\pm 0.5% of set frequency
Frequency setting resolution	10.00 to 99.95 Hz: in 0.05 Hz increments 100.0 to 999.5 Hz: in 0.5 Hz increments 1.000 to 9.995 kHz: in 5 Hz increments 10.00 to 100.00 kHz: in 50 Hz increments
- Output amplitude range

Balanced	-82.39 to +26.02 dBm (600 Ω /0 Ω)
Unbalanced	-88.41 to +20.00 dBm (600 Ω /0 Ω)
Flatness	Balanced \pm 0.1 dB Unbalanced \pm 0.05 dB

Specifications

- Output impedance
 - Balanced $\leq +20$ dBm; $600\ \Omega \pm 2\%$
 $\geq +20.01$ dBm; Max. $3\ \Omega$
 - Unbalanced $\leq +14$ dBm; $600\ \Omega \pm 2\%$
 $\geq +14.01$ dBm; Max. $1.5\ \Omega$
- Distortion
 - Balanced and unbalanced
 - 10 Hz to 3 kHz; 0.0001% (-120 dB)
 - 3 to 10 kHz; 0.00032% (-110 dB)
 - 10 to 50 kHz; 0.001% (-100 dB)
 - 50 to 100 kHz; 0.003% (-90 dB)
- IMD measurement output
 - Frequency
 - Low: 70 Hz $\pm 0.5\%$
 - High: 7 kHz $\pm 2\%$
 - Mixing ratio
 - 70 Hz: 7 kHz = 4:1
 - Output level
 - Balanced -82.39 to +26.02 dB
 - Unbalanced -88.41 to +20.00 dBm
 (0 dBm = 2.1909 Vp-p)
- Other function
- Operation
 - Push buttons and rotary knob setting guided by display and soft key menu
- Display
 - LCD
- Memory function
 - 100 memory for panel settings;
 - Last memory function to hold last panel settings when power turned off;
- Interface
 - GP-IB
- General Specifications
 - Power supply
 - AC 100, 120, 220, 240 V $\pm 10\%$, 50/60 Hz
 - Power consumption
 - Approx. 150 VA
 - Operating temperature range
 - 0°C to 40°C
 - Relative humidity
 - 25% to 90%RH (non-dewing)
 - Dimensions
 - 426 (W) x 199 (H) x 460 (D) mm
 - Weight
 - Approx. 25 kg



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