

AM50C

2 CH AUDIO ANALYZER



General

The AM50C is a 2 channels multi-function audio measurement system complete with an integral oscillator. All stereo audio parameters can be measured: noise, frequency response, level, relative level, gain, distortion, level difference, and phase difference.

The internal 100th memory allows automatic recall of previously stored settings for frequency, level, weighting filters, etc. This simplifies operation and reduces routine measurements. The GP-IB remote control interface makes the AM50C an ideal choice for both automatic production line testing or supervisory monitoring of broadcast stations.

Features

- 2 channel audio analyzer with integral oscillator.
- Measures level, relative level, S/N ratio, distortion, level ratio, phase difference, and frequency.
- Balanced or unbalanced inputs and outputs can be selected.
- Distortion can be measured to 0.2%, level to -74 dB, and phase difference to 0.1 degrees.
- Includes an integral memory for automatic settings of measurement functions.
- Equipped with a GP-IB remote control interface.

Specifications

(Specs reflect both balanced and unbalanced measurements unless specified.)

● Oscillator section

- Connector type Audio jack, low terminal grounded for unbalanced
- Output impedance
 - Balanced $\leq 2 \Omega$, for 7.75 Vrms (+17.79 dB or +20.01 dBm) or more 600 Ω , $\pm 2\%$ for 7.74 Vrms (+17.78 dB or +20.00 dBm) or less
 - Unbalanced $\leq 1 \Omega$, for 3.38 Vrms (+11.77 dB or +13.99 dBm) or more 600 Ω , $\pm 2\%$ for 3.37 Vrms (+11.76 dB or +13.98 dBm) or less
- Frequency range 10 Hz to 109.9 kHz

• Frequency resolution

0.1 Hz: 10 to 99.9 Hz
 1 Hz: 100 to 999 Hz
 10 Hz: 1.00 to 9.99 kHz
 100 Hz: 10.0 to 109.9 kHz

• Frequency accuracy

$\pm 1\%$

• Output level

Balanced 0.0776 mVrms to 15.5 Vrms, 600 Ω load
 -82.21 to +23.80 dB, 600 Ω load
 -79.99 to +26.02 dBm, 600 Ω load
 Unbalanced 0.0388 mVrms to 7.75 Vrms, 600 Ω load
 -88.23 to +17.78 dB, 600 Ω load
 -86.01 to +20.00 dBm, 600 Ω load
 0 dB = 0 dBV = 1 Vrms
 0 dBm = 1 mW(600 Ω) = 0.775 Vrms

• Output level resolution

V 3 digits
 dB (dBV), dBm 0.01 dB

• Output level accuracy (at max. output)

Balanced ± 0.1 dB: 20 Hz to 50 kHz
 ± 0.2 dB: 10 to 20 Hz, 50 to 109.9 kHz
 Unbalanced ± 0.05 dB: 20 Hz to 50 kHz
 ± 0.1 dB: 10 to 20 Hz, 50 to 109.9 kHz

• Level accuracy when output attenuator is used (to be added to accuracy at maximum output)

Balanced ± 0.5 dB: 0.0776 to 24.5 mVrms
 ± 0.2 dB: 24.6 mVrms to 15.5 Vrms
 ± 0.5 dB: -82.21 to -32.22 dB
 ± 0.2 dB: -32.21 to +23.80 dB
 ± 0.5 dB: -79.99 to -30.00 dBm
 ± 0.2 dB: -29.99 to +26.02 dBm
 Unbalanced ± 0.25 dB: 0.0388 to 12.2 mVrms
 ± 0.1 dB: 12.3 mVrms to 7.75 Vrms
 ± 0.25 dB: -88.23 to -38.24 dB
 ± 0.1 dB: -38.23 to +17.78 dB
 ± 0.25 dB: -86.01 to -36.02 dBm
 ± 0.1 dB: -36.01 to +20.00 dBm

• Distortion + Noise $\leq 0.0032\%$ (-90 dB): 10 Hz to 10 kHz $\leq 0.01\%$ (-80 dB): 10 to 109.9 kHz

Specifications

<ul style="list-style-type: none"> ● Input <ul style="list-style-type: none"> Max. input voltage is 100 Vrms for High input impedance, and 30 Vrms for 600Ω input impedance. When excessive voltage is applied, the input alert lamp illuminates, requiring lower input voltage. If not, internal circuitry may be burnt. When 100 Vrms voltage is applied to 600 Ω input, the fuse in the input circuit will be blown. • Connector type Audio jack, low terminal grounded for unbalanced • Input impedance <ul style="list-style-type: none"> Balanced 600Ω/200kΩ, ±2%, 150 pF Unbalanced 600Ω/100kΩ, ±2%, 150 pF • Common mode rejection ratio <ul style="list-style-type: none"> 50 dB or better, 10 to 100 Hz 60 dB or better, 100 Hz to 330 kHz ● Measurement items <ul style="list-style-type: none"> • Level and voltage measurement <ul style="list-style-type: none"> Frequency range 10 Hz to 330 kHz Measurement unit and range <ul style="list-style-type: none"> V 200 μVrms to 100 Vrms (full scale in 7 ranges, manual or auto selection) dB (dBV) -74 to +40 dB (full scale in 7 ranges, manual or auto selection) dBm -71.8 to +42.2 dBm (full scale in 7 ranges, manual or auto selection) Note: Max. input level for 600Ω input impedance is 30 Vrms (= +29.5 dBV or +31.8 dBm). 0 dB = 0 dBV = 1 Vrms 0 dBm = 1 mW (600Ω) = 0.775 Vrms Accuracy <ul style="list-style-type: none"> 10 Hz to 20 kHz ±(2% + 1 digit of reading) or ±0.3 dB 20 to 100 kHz ±(5% + 1 digit of reading) or ±0.5 dB 100 to 330 kHz ±(10% + 1 digit of reading) or ±1 dB Residual noise <ul style="list-style-type: none"> ≤ 5 μVrms, 30 kHz BW ≤ 10 μVrms, 80 kHz BW ≤ 20 μVrms, 550 kHz BW (No filter) ≤ 3.5 μVrms, JIS-A filter BW ≤ 20 μVrms, CCIR 468 BW Cross talk <ul style="list-style-type: none"> 90 dB or better, 10 Hz to 20 kHz 70 dB or better, 20.1 to 330 kHz Detection system <ul style="list-style-type: none"> Effective value detection <ul style="list-style-type: none"> Crest factor in each range varies between 3 (for higher signal level) and 30 (for lower signal level). Quasi-peak <ul style="list-style-type: none"> Quasi-peak detection is employed automatically when the CCIR-468 filter is selected. • Relative level measurement <ul style="list-style-type: none"> Measurement unit dB Measuring range Upper limit is 100 Vrms and lower limit is to the residual noise level against the level when “REL dB” button is pushed. (Other specs are the same as for level and voltage measurement.) 	<ul style="list-style-type: none"> • Distortion Measurement <ul style="list-style-type: none"> Fundamental frequency range <ul style="list-style-type: none"> 10 Hz to 109.9 kHz Measuring frequency range <ul style="list-style-type: none"> 10 Hz to 330 kHz Tuning system Auto, coupled with oscillation frequency, direct setting with GP-IB and automatic fine tuning Measuring level range <ul style="list-style-type: none"> 36 mVrms to 100 Vrms -29 to +40 dB (dBV) -26.8 to +42.2 dBm (The max. input level for the input impedance of 600Ω is 30 Vrms, +29.5 dBV or +31.8 dBm.) 0 dB = 0 dBV = 1 Vrms 0 dBm = 1 mW (600Ω) = 0.775 Vrms Measurement unit and range <ul style="list-style-type: none"> % 0.2% to 100% (full scale in 4 ranges, auto or manual selection) dB -54 to 0 dB (full scale in 4 ranges, auto or manual selection) Fundamental frequency rejection <ul style="list-style-type: none"> ≥ 100 dB, 10 Hz to 20 kHz ≥ 85 dB, 20 to 109.9 kHz Harmonic characteristics <ul style="list-style-type: none"> Residual distortion and noise <ul style="list-style-type: none"> At input level of 1 Vrms, 550 kHz BW <ul style="list-style-type: none"> ≤ 0.005%, 10 Hz to 20 kHz ≤ 0.01%, 20 to 109.9 kHz At input level of 1 Vrms, 80 kHz BW <ul style="list-style-type: none"> ≤ 0.0032%, 10 Hz to 16 kHz At input level of 1 Vrms, 30 kHz BW <ul style="list-style-type: none"> ≤ 0.0032%, 10 to 20 Hz ≤ 0.0016%, 20 Hz to 6 kHz Detection system <ul style="list-style-type: none"> Effective value detection <ul style="list-style-type: none"> Crest factor in each range varies between 3 (for higher signal level) and 30 (for lower signal level). • Frequency measurement <ul style="list-style-type: none"> Measuring range 10 Hz to 550 kHz Input level range 36 mVrms to 100 Vrms at distortion, level ratio and phase different measurement 100 mVrms to 100 Vrms at level and voltage measurement Accuracy ±(1 × 10⁻⁴ + 1 digit) • Level ratio measurement <ul style="list-style-type: none"> Frequency range 10 Hz to 109.9 kHz Measuring level range <ul style="list-style-type: none"> 36 mVrms to 100 Vrms for A & B inputs Measuring unit dB Accuracy <ul style="list-style-type: none"> 10 Hz to 20 kHz: ±0.05 dB when resolution is 0.01 dB ±0.2 dB when resolution is 0.1 dB 20 to 109.9 kHz: ±0.2 dB Detection system <ul style="list-style-type: none"> Average value detection
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Specifications

- Phase difference measurement
 - Frequency range 10 Hz to 109.9 kHz
 - Input level range 36 mVrms to 100 Vrms
 - Measuring range ± 180 degrees
 - Resolution
 - ± 0.2 degrees : 10 Hz to 20 kHz
 - ± 1.0 degrees : 20 to 109.9 kHz
- Measuring filters
 - 400 Hz HPF 400 Hz, -3 dB ± 0.5 dB, 18 dB/oct
 - 30 kHz LPF 30 kHz, -3 dB ± 0.5 dB, 18 dB/oct
 - 80 kHz LPF 80 kHz, -3 dB ± 0.5 dB, 18 dB/oct
 - A filter Conforms to JIS and IHF standards
 - CCIR-468 Conforms to CCIR recommendation
- Monitor Output
 - Level, voltage measurement
 - 1 Vrms open, when each range is full scale
 - Relative level measurement
 - 1 Vrms open, when each range is full scale
 - Distortion measurement
 - 1 Vrms open, when each range is full scale
 - Level & phase difference measurement
 - No output
 - Output resistance
 - 600 Ω
- Memory functions
 - Memory items Oscillator frequency, level and front panel settings excluding range up/down, modify, memory up/down, store, recall, local & ground SW, power switch & GP-IB address switch
 - Number of memory items
 - 100 ways and last memory
- Remote control
 - GP-IB Conforms to IEEE (SH1, AH1, T6, L4, SR1, RL1, PP ϕ , DC ϕ , DT ϕ , C ϕ)
- General specifications
 - Power supply AC 100, 120, 220, 240 V $\pm 10\%$, 50/60 Hz
 - Power consumption
 - Max. 65 VA
 - Operating temperature range
 - 0°C to 40°C
 - Relative humidity 25% to 90% RH(non-dewing)
 - Dimensions 426 (W) x 149 (H) x 460 (D) mm
 - Weight Approx. 13.3 kg