ShibaSoku

AD725D

AUDIO INSTRUMENTS

AUTOMATIC DISTORTION ANALYZER

General

The AD725D automatic distortion analyzer is an extremely accurate instrument capable of measuring THD and 2nd to 5th harmonics of fundamental frequencies from 4 Hz to 110 kHz. This unit is capable of measuring distortion on -120 dB (0.0001%) order, making this analyzer ideal for testing and evaluating the performance of high quality audio equipment and other applications where very low distortion measurements are required. With the built-in GP-IB interface, this unit can be incorporated into automated testing applications. The AG15C programmable low distortion oscillator is the recommended signal source for the AD725D.

Features

- Wideband distortion ratio measurements of fundamental frequencies: 4 Hz to 110 kHz.
- High performance impedance converter, BEF and noise reduction circuits enable very low distortion measurements on -120 dB (0.0001%) order.
- Normal mode offers harmonic analysis measurements in the 3rd to 5th harmonics of the fundamental frequency.
- Level measurements from 4 Hz to 500 kHz in a range of 0.1 to 100V.
- Sensitivity from 30 mV to 100 V (-90 to +40 dB) full scale in 14 ranges.
- Manual or auto range selection.
- True RMS or 3 average detection mode.
- High-pass, low-pass, and Weighting filters.
- Input frequency is displayed on a 4 digits LED display.
- Selectable chassis or floating ground output.
- GP-IB interface allows settings to be made by remote control.

Specifications

- Distortion measurement (in ANALYSIS mode)
- Measuring range 0.0003% to 30% (full scale in 11 ranges; 0.0003,0.001, 0.003, 0.01, 0.03, 0.1, 0.3, 1.0, 3.0, 10, 30%)
- Range selection Manual or auto
  Analysis gain (+10 dB) ON/OFF selectable
- Fundamental frequency range
  Unbalanced 4 Hz to 110 kHz
  Balanced 10 Hz to 100 kHz
- Fundamental frequency rejection ratio
  Unbalanced ≥105 dB: 4 to 5 Hz
  ≥120 dB: 5 Hz to 5 kHz
  ≥107 dB: 5 to 16 kHz
  ≥ 95 dB: 16 to 50 kHz
  ≥ 90 dB: 50 to 110 kHz
  Balanced ≥120 dB: 10 to 5 kHz
  ≥107 dB: 5 to 16 kHz
  ≥ 95 dB: 16 to 50 kHz
  ≥ 88 dB: 50 to 100 kHz
- Harmonic response
  (2nd to 5th harmonics, max. 500 kHz harmonic)
  ±0.5 dB: 4 Hz ~ 5 kHz
  ±1.0 dB: 5 to 15 kHz
  +0/-2.0 dB: 15 to 50 kHz
  +0/-3.0 dB: 50 to 110 kHz
- Residual distortion ratio
  When input level is 0.5 V or above
  Unbalanced ≤-105 dB: 4 to 5 Hz
  ≤-115 dB: 5 Hz to 2 kHz
  ≤-110 dB: 2 to 5 kHz
  ≤-102 dB: 5 to 16 kHz
  ≤ -91 dB: 16 to 50 kHz
  ≤ -85 dB: 50 to 110 kHz
  Balanced ≤-115 dB: 10 Hz to 2 kHz
  ≤-110 dB: 2 to 5 kHz
  ≤-102 dB: 5 to 16 kHz
  ≤ -91 dB: 16 to 50 kHz
  ≤ -85 dB: 50 to 100 kHz

When input level is 0.1 to 0.5 V
Unbalanced ≤ -102 dB: 4 to 5 Hz
≤ -105 dB: 5 to 10 Hz
≤ -110 dB: 10 Hz to 2 kHz
≤ -105 dB: 2 to 5 kHz
≤ -95 dB: 5 to 16 kHz
≤ -85 dB: 16 to 50 kHz
≤ -75 dB: 50 to 110 kHz
Balanced ≤ -105 dB: 10 to 20 Hz
≤ -110 dB: 20 Hz to 2 kHz
≤ -105 dB: 2 to 5 kHz
≤ -95 dB: 5 to 16 kHz
≤ -85 dB: 16 to 50 kHz
≤ -75 dB: 50 to 100 kHz

- Harmonic analysis
  Any harmonic wave is selected from 2nd to 5th harmonic wave and measured.
  Attenuation of adjacent harmonic wave: 29 dB min.
- Input level range 30 mV to 100 V

●Distortion measurement (in NORMAL mode)

- Measuring range 0.001% to 30%(full scale in 10 ranges; 0.001, 0.003, 0.01, 0.03, 0.1, 0.3, 1, 3, 10, 30%)
- Range selection Manual and auto
  Analysis gain +10 dB can be turned ON/OFF manually or automatically.
- Fundamental frequency range
  Unbalanced 4 Hz to 110 kHz
  Balanced 10 Hz to 100 kHz
- Fundamental frequency rejection ratio range
  Unbalanced ≥ 95 dB: 4 to 5 Hz
  ≥ 110 dB: 5 Hz to 5 kHz
  ≥ 102 dB: 5 to 16 kHz
  ≥ 94 dB: 16 to 50 kHz
  ≥ 90 dB: 50 to 110 kHz
  Balanced ≥ 105 dB: 10 to 20 Hz
  ≥ 110 dB: 20 Hz to 5 kHz
  ≥ 102 dB: 5 to 16 kHz
  ≥ 94 dB: 16 to 50 kHz
  ≥ 88 dB: 50 to 100 kHz
- Residual distortion ratio (excluding hum and noise)
  When input level is 0.5 V or above
  Unbalanced ≤ -95 dB: 4 to 10 Hz
  ≤ -103 dB: 10 Hz to 5 kHz
  ≤ -98 dB: 5 to 16 kHz
  ≤ -90 dB: 16 to 50 kHz
  ≤ -85 dB: 50 to 110 kHz
  Balanced ≤ -103 dB: 10 Hz to 5 kHz
  ≤ -98 dB: 5 to 16 kHz
  ≤ -90 dB: 16 to 50 kHz
  ≤ -85 dB: 50 to 100 kHz
  When input level is 0.1 to 0.5 V
  Unbalanced ≤ -86 dB: 4 to 10 Hz
  ≤ -92 dB: 10 Hz to 5 kHz
  ≤ -88 dB: 5 to 16 kHz
  ≤ -78 dB: 16 to 50 kHz
  ≤ -75 dB: 50 to 110 kHz
  Balanced ≤ -86 dB: 10 to 20 Hz
  ≤ -92 dB: 20 Hz to 5 kHz
  ≤ -88 dB: 5 to 16 kHz
  ≤ -78 dB: 16 to 50 kHz
  ≤ -75 dB: 50 to 100 kHz
- Input level range 30 mV to 100 V

●Level and voltage measurement

- Measuring range -100 to +40 dB (full scale in 15 ranges ; -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0,+10, +20, +30, +40 dB)
  10 mV to 100 V (full scale in 15 ranges ; 10, 30, 100, 300 μV, 1, 3, 10, 30, 100, 300 mV,1, 3, 10, 30, 100 V
- Range selection Manual and auto
- Frequency response
  Unbalanced ± 1 dB: 4 to 5 Hz
  ±0.5 dB: 5 Hz to 200 kHz
  ±1.5 dB: 200 to 500 kHz
  Balanced ±0.5 dB: 10 Hz to 100 kHz
- Accuracy ±0.5 dB: 4 Hz to 200 kHz
  ± 1 dB: 200 to 400 kHz
  ± 2 dB: 400 to 500 kHz
- Residual noise ≤ 5 μV (with 100 kHz LPF)
  ≤ 15 mV (with wide band)

●S/N ratio measurement

- Measuring range 100 dB
  (with 1 V reference input and 100 kHz LPF)
- Reference input adjustment range
  10 dB

●Frequency measurement
Frequency is measurable when the function is set to Cal chk, Dist NORMAL and Dist ANALYSIS.

- Measuring range 4 Hz to 500 kHz (4 ranges, auto selection)
- Input level 30 mV to 100 V
- Counter display Decimal, 3-1/2 digit, LED (including unit and decimal point)
- Measurement repetition
  Approx. 600 ms
- Accuracy ±(5 x 10^{-5} ±1 count)

●Response RMS/AVG
SLOW Corresponding to frequency in a range of 4 Hz to 500 kHz
MID Corresponding to frequency in a range of 20 Hz to 500 kHz
FAST Corresponding to frequency in a range of 100 Hz to 500 kHz

●Monitor outputs

- Dist ANALYSIS Approx. 0.3 V/meter full scale or above. 488.3 Hz fundamental frequency (all input signals converted into signals of 488.3 Hz fundamental frequency.)
- Dist NORMAL Approx. 0.3 V/meter full scale or above
- Level 1 V/meter full scale
- Trigger for oscilloscope
  Signal synchronized with fundamental frequency of waveform appearing at monitor's connector.
  Square wave for Dist ANALYSIS
  Sine wave for Dist NORMAL

●Input impedance
Parallel capacity ≤ 100 PF
Balanced 200 kΩ or 600 Ω, ±5%, selectable.
Unbalanced 100 kΩ or 600 Ω, ±5%, selectable.

Specifications

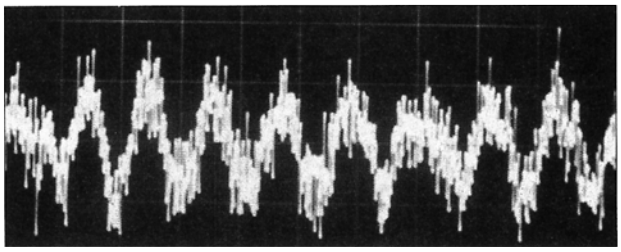
●Measuring filters

400 Hz HPF	18 dB/oct
30 kHz LPF	18 dB/oct
100 kHz LPF	18 dB/oct
"A" Weighting	Conform with JIS C1502 20 kHz LPF
20 kHz LPF	9th degree simultaneous chebyshev characteristics

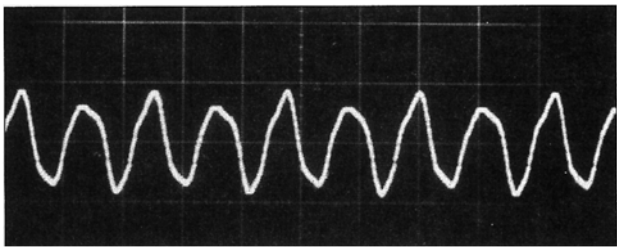
●General Specifications

Powrer supply	AC 100, 120, 220, 240 V ±10%, 50/60 Hz
Power consumption	Approx. 70 VA
Operating temperature range	0℃ to 40℃
Relative humidity	10% to 90% RH (non-dewing)
Dimensions	426 (W) x 149 (H) x 450 (D) mm
Weight	Approx. 14 kg

Note: Please specify required power voltage when ordering.



Harmonic signal containing noise component



Harmonic signal from which hum component has been removed by a noise-reduction circuit

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