

VP-7723D is equipped with pre-LPF for evaluation of audio signal providing high performance, and multi functions for your measur



Audio Analyzer VP-7723D

This Audio Analyzers is equipped with a low distortion signal source, measurement functions of AC level, DC level, Distortion, Frequency and Wow & Flutter (Factory Option).

In addition to various filters including 20 kHz pre-LPF which are essential for digital audio measurement, the audio analyzers have pre-set memory, judgment function, auto sequence function, GP-IB and remote control interface.

Features

Audio signal oscillator

- 5 Hz to 110 kHz, 16.2 dBm (14.0 dBV, 10 V at open end)
- 0.000 5 % distortion (1 kHz typical value) high performance signal source

AC Measurement

- AC level measurement: The audio analyzer has a highly sensitive AC level measurement function with indication response selectable from V [rms] or V [avg]. Seven measurement ranges are provided; 0.316 mV, 3.16 mV, 31.6 mV, 316 mV, 3.16 V, 31.6 V and 100 V full range.
- Relative level measurement: Deviation measurement against reference level is available. It is applied to frequency characteristics and level ratio measurement.
- Watt indication: By setting the imaginary load resistance (R_L) across the input voltage, the power value is calculated and displayed.

$$\text{Power} = (\text{Measured AC level value})^2 / R_L [\text{watt}]$$
- S/N measurement: In this mode, the oscillator is turned on for a length of time (1.5 to 3 s) and the signal component (S component level) is measured. Then, the oscillator turns off and the noise component (N component level) is measured when the input terminal of the D.U.T. is terminated with the characteristic impedance. The S/N ratio is obtained automatically by calculating the output signal (S component level) and N component level ratio.

DC Measurement

- 0.316 to 100 V full scale
- Available for D.U.T. supply voltage measurement.

Distortion Measurement

- The audio analyzer is capable of measuring distortion factors of the fundamental signal over the frequency range of 5 Hz to 110 kHz.
- Input level ranges from 0.1 V to 100 V [rms]. Also a high sensitivity 3.16 mV range is provided for the dynamic range measurement of digital audio equipment.

Frequency Measurement

- Reciprocal type high speed counter is installed.
- This function is available in AC level, Distortion and Wow & Flutter measurement modes.

Wow & Flutter measurement (Factory Option)

- Wow & flutter measurement meeting the quasi-peak and rms response requirement specified by the CCIR/DIN (Option 01) or JIS (Option 02) specifications can be installed optionally.

Analyzer

from digital sources, CD, MD and DVD, ements.

Measurement filters

- Nine filters are installed as standard and seven kinds of filters as options.

Standard filters

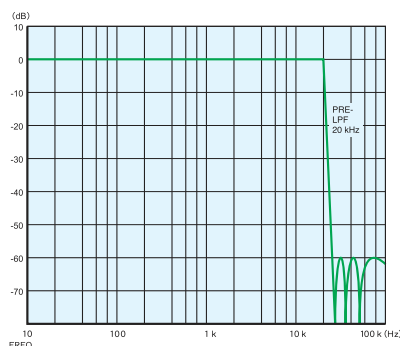
1. Pre-LPF 20 kHz: Filters for digital audio. It is applicable to CD,MD,DVD and semiconductors.(ADC)
One optional filter is available.
2. LPF 15 kHz: For DAT, BS and FM tuner
20 kHz: For digital audio.
80 kHz: For high frequency elimination.
One optional filter is available.
3. HPF 100 Hz: For eliminating AM stereo pilot signal(25 Hz).
200 Hz: For low band elimination in IHF-BPF.
4. PSOPHO A: IEC-A filter. CCIR/ARM: Dolby.* AUDIO: IEC AUDIO.
One optional filter is available.
(*Dolby is a registered trademark of Dolby Laboratory Inc.)

Optional filters

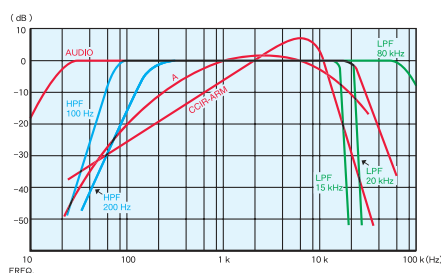
VQ-071H Series

- One option can be installed in LPF part and Psopho part respectively.
- VQ-071H01 CCITP53: For telecommunication(mainly Europe).
- VQ-071H02 C-MESSAGE: For telecommunication(mainly USA).
- VQ-071H03 1 kHz BPF: For crosstalk measurement.
- VQ-071H04 3 kHz BPF: For crosstalk measurement.
(Mainly for audio tape)
- VQ-071H05 IEC-C: For audio equipment.
- VQ-071H06 315 Hz BPF: For audio tape evaluation.
- VQ-071H07 30 kHz LPF : For high frequency elimination.

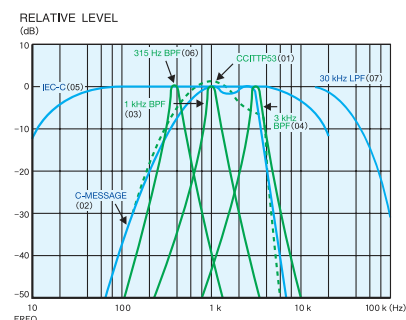
Filter Characteristics



▲ PRE LOW-PASS FILTER



▲ STANDARD FILTERS



▲ OPTIONAL FILTERS

Versatile interfaces are useful for construction of automated testing system

1. 100 points memory: Grouping function is included (max.10 groups).
2. Auto sequence: Sequence time can be set for each memory address.
3. Judgment function: Auto judgment function by UNDER/OVER/PASS.
4. External control: Remote control is available for memory address. 8 bits 2 ports input/output function for controlling the jigs, etc.
5. GP-IB: It is used for controlling peripheral equipment, transmitting measurement data, synchronized operation by talk only/ listen only mode and memory dumping.

Audio Analyzer VP-7723D

SIGNAL SOURCE

OSCILLATOR

Frequency Range	5 Hz to 110 kHz 4 ranges
Resolution (4 digits display)	0.1 Hz (5.0 to 200.9 Hz) 1 Hz (0.201 to 2.009 kHz) 10 Hz (2.01 to 20.09 kHz) 100 Hz (20.1 to 110.0 kHz)
Accuracy	±2 % of setting (0.201 to 20.09 kHz) ±3 % of setting (all ranges)
Output Range	14.0 to −85.9 dBV (0 dB=1 V [rms], load end) 16.2 to −83.7 dBm (0 dBm= 1 mW, 600 Ω load)
Resolution	0.1 dB
Accuracy	±0.5 dB of setting at 1 kHz (>−37.1 dBV) ±0.8 dB of setting at 1 kHz (≤−37.2 dBV) 600 Ω load
Flatness	±0.05dB (20.0 Hz to 20.09 kHz) ±0.3 dB (all ranges)
Noise level	Less than 10 μV [rms] (with output off)
Distortion	≤ 0.001 % (−100 dB) (20 Hz to 15 kHz, 80 kHz BW) ≤ 0.01 % (−80 dB) (All ranges)

ANALYZER

MEASUREMENT FUNCTIONS

Frequency measurement, AC level measurement (Includes the relative level measurement function), DC level measurement, S/N measurement, Distortion (THD + N), Wow & Flutter (factory option)

FREQUENCY MEASUREMENT

Range	5 Hz to 110 kHz (operates in AC level, Distortion, Wow & Flutter measurement mode)
Display resolution	5 digits, 0.01 Hz < 100 Hz
Accuracy	±5 × 10 ^{−5} ± 1 digit
Measuring system	Reciprocal counter

AC LEVEL MEASUREMENT

Full range display 0.316 0 mV to 100 V full range (7 ranges)		
Unit: (m)V	Unit: dB	Unit: dBm
100.0 V	40.0 dBV	42.2 dBm
31.60 V	30.0 dBV	32.2 dBm
3.160 V	10.0 dBV	12.2 dBm
316.0 mV	−10.0 dBV	−7.8 dBm
31.60 mV	−30.0 dBV	−27.8 dBm
3.160 mV	−50.0 dBV	−47.8 dBm
0.316 0 mV	−70.0 dBV	−67.8 dBm

Note: Approximate 10 % of overrange is provided for each range except the 100.0 V range

Accuracy	±2 % of full range display (at 1 kHz)
Frequency range	±5 % (20 Hz to 20 kHz) ±10 % (5 Hz to 110 kHz)
Residual noise	< 4 μV [rms] (with 80 kHz BW) < 10 μV [rms] (with 500 kHz BW)
Relative level range	±130 dB
Detection response	RMS or average response

WATTAGE DISPLAY FUNCTION

Method	Calculated by AC level measurement and imaginary load resistance. (Actual load is not equipped.)
Display resolution	Max. 5 digits 0.01 W
RL setting range	2 to 5 000 Ω (1 Ω resolution)

DC LEVEL MEASUREMENT

Range	100.0/31.60/3.160/316.0 mV 4 ranges
Over range	Approx. 10 % (except 100 V range)
Accuracy	± (0.3 % fs + 0.75 % reading)

S/N MEASUREMENT

Input level range	30 μV to 100 V [rms] (N component has to be lower than S component in amplitude)
Measurement range	0 to 130 dB

S component level (freq ≤ 10 kHz)	S/N Limit
≥ 31.6 V (30 dBV)	> 130 dB
≥ 3.16 V (10 dBV)	> 110 dB
≥ 316 mV (−10 dBV)	> 90 dB
≥ 31.6 mV (−30 dBV)	> 70 dB
≥ 3.16 mV (−50 dBV)	> 50 dB
≥ 0.316 mV (−70 dBV)	> 30 dB

Accuracy	±1 dB
Detection response	RMS or average response
S/N delay time	3 s (SLOW Response mode) 1.5 s (FAST Response mode)
S component accuracy	±2 % of full scale (1 kHz)

DISTORTION MEASUREMENT

Fundamental frequency range	5 Hz to 110 kHz
Measurement range	31.6/10.00/1.000/0.100 0/0.0100 0 % (−10.00/−20.00/−40.00/−60.00/−80.00 dB)

Display of measurement units

Selection of unit key	Input signal level	Distortion display
V, %	mV, V	%
dB, dBm	dB, dBm	dB

Detection characteristics	Input signal level : RMS responding Distortion : RMS or average responding
Second harmonic accuracy	±1 dB (20 Hz to 20.09 kHz) ±3 dB (all ranges)

Residual distortion detection

Input range	100, 31.6, 10, 3.16, 1V		0.316 V		Band width range
Input level	Full scale input	1/3 input of full scale	Full scale input	1/3 input of full scale	
5 Hz to 20 kHz	≤ -100 dB, 0.001 %	≤ -90 dB, 0.0032 %	≤ -94 dB, 0.002 %	≤ -85 dB, 0.0056 %	80 kHz BW
5 Hz to 110 kHz	≤ -80 dB, 0.01 %	≤ -80 dB, 0.01 %	≤ -76 dB, 0.016 %	≤ -74 dB, 0.02 %	500 kHz BW

3.16 mV range: < −45 dB (0.56 %) against 2 mV [rms]

(Fundamental freq.: 20 Hz to 10 kHz, 20 kHz BW)

Input signal level range	0.1 to 100 V [rms] /1 to 3.16 mV [rms]	
Measurement range	7 ranges	
Display unit (m)V	Unit: dBV	Unit: dBm
100.0 V	40.0 dBV	42.2 dBm
31.6 V	30.0 dBV	32.2 dBm
10.0 V	20.0 dBV	22.2 dBm
3.16 V	10.0 dBV	12.2 dBm
1.00 V	0 dBV	2.2 dBm
0.316 V	−10.0 dBV	−7.8 dBm
* 3.16 mV	−50.0 dBV	−47.8 dBm

* manual range setting only

Input signal level measurement accuracy	±2 % of full scale (1 kHz)
Input signal frequency range	±5 % (5 Hz to 110 kHz, except 100 V range) ±10 % (3.16 mV range, 10 Hz to 20 kHz, 1 kHz full scale reference)

WOW & FLUTTER MEASUREMENT (factory option)

Measurement center Frequency range	3 kHz, 3.15 kHz ± 200 Hz
Measurement range	10.00/1.000/0.100 0 %
Detection characteristics	Q-peak, DIN-CCIR (VP-7723D01) RMS, JIS (VP-7723D02)
Frequency characteristics	Psophometric characteristics based on DIN45507, (WTD) 0.5 Hz to 300 Hz (UNWTD)
Accuracy	± 5 % of full scale (4 Hz)
Input signal level range	Same as input range of distortion, measurement.

Specifications

COMMON FOR ALL MEASUREMENT

Input Impedance

100 k Ω shunted by < 250 pF (A, B terminal to common)
1 M Ω (DC terminal to common)

Filters

HPF	100 Hz (less than -40 dB at 25 Hz for AM stereo pilot signal elimination) 200 Hz (Cut-off frequency 180 Hz, 60 dB roll off/decade)
LPF	15 kHz (less than -30 dB at 19 kHz, 15 kHz cut-off frequency/ for elimination of FM pilot signal) 20 kHz (less than -30 dB at 24.1 kHz, 20 kHz cut-off frequency/ for digital audio) 80 kHz (Cut-off frequency 80 kHz, 60 dB roll off/decade) OPT (Option)
PSOPHO	A (IEC-A) CCIR ARM (DOLBY) AUDIO (Based on DIN 45405-1978) OPT (Option)

AC output

0.2 V [rms] (full scale input of AC, DISTN, S/N), output impedance 1 k Ω

MEMORY FUNCTION

100 points (Memory address 00 to 99)

Memorizes panel condition, EXT control I/O, and limit data as one point.

MODIFY FUNCTION

- 1) Modification of oscillator frequency and output amplitude
- 2) Modification of Input range/Measurement range in manual mode

LIMIT FUNCTION

One of three modes are predetermined (Upper limit only, Lower limit only, Upper and Lower limits) LED alarm is given when a result exceeded the limit.

I/O FUNCTION

GP-IB

- SH1, AH1, T7, L3, SR0, RL1, PR0, DC1, DT1, C0
- Memory copy (Talk/Listen only mode)
- Memory synchronizing function (Talk/Listen only mode)

EXT control I/O

- 1) Memory remote sequential recall
- 2) Memory remote direct recall
- 3) Control output
- 4) Comparison result output
- 5) 8 bits data read
- 6) Measured data printout

OTHERS

Power requirements 100 V/120 V/220 V/230 V, 50 or 60 Hz, Approx. 70 VA

Dimension & Weight W 426 mm \times H 132 mm \times D 400 mm approx. 13 kg

Accessories Power cable ---1, GP-IB connector cap ---1,

Spare fuse ---1, Instruction manual ---1

Wow & Flutter: Opt.01 (Q-Peak) Opt.02 (RMS)

Optional filters: VQ-071H01/CCITT P53 TEL

VQ-071H02/C-MESSAGE

VQ-071H03/1 kHz BPF

VQ-071H04/3 kHz BPF

VQ-071H05/IEC-C

VQ-071H06/315 Hz BPF

VQ-071H07/30 kHz LPF

Rack mount kit: VQ-069H32 EIA

VQ-069H31 JIS/Metric

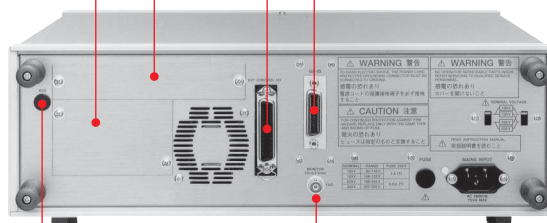
Rear Panel

W&F unit slot

Filter unit slot

Ext. control I/O

GP-IB connector



Monitor output

Spare terminal