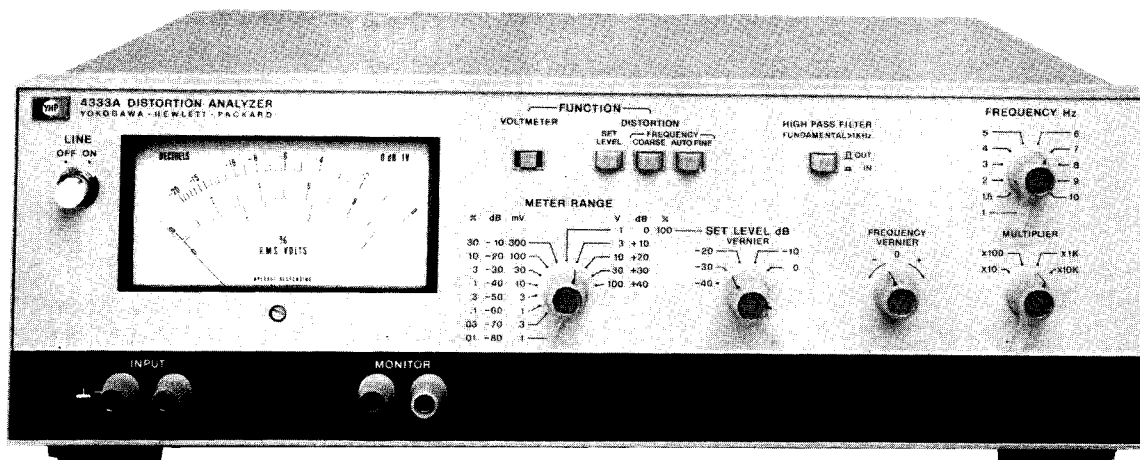


SIGNAL ANALYZERS

Ultra low distortion

Model 4333A

NEW



Description

General

Hewlett-Packard Model 4333A Distortion Analyzer measures total harmonic distortion down to 0.01% full scale at 41 spot frequencies between 10 Hz and 100 kHz; harmonics are indicated up to 600 kHz.

Automatic fundamental nulling reduces critical manual nulling operations where only coarse tuning of the frequency vernier ($\pm 8\%$ of spot frequency) to less than 3% of set level reference is required.

A 1 kHz high-pass filter which may be activated by a front panel switch is available for reducing the effects of hum components below 400 Hz.

A high sensitivity voltmeter mode offers 13 ranges in 10 dB steps; range is from 100 μV to 100 V rms full scale. The bandwidth is 10 Hz to 600 kHz for the 300 μV to 100 V ranges and 10 Hz to 200 kHz for the 100 V range. Meter indication is proportional to the average value of the sine wave and calibrated in rms volts/%; dB scale is calibrated dBV.

Specifications, Model 4333A

Distortion measurement range: distortion levels of 0.01% to 100% are measured full scale in nine positions of meter range.

Frequency range for distortion measurement: frequency and multiplier controls 41 spot frequencies (not including overlapping points) for choosing between 10 Hz through 100 kHz in a 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 9, 10 sequence. Any set frequency is variable more than $\pm 8\%$ with frequency vernier.

Distortion measurement accuracy

Harmonic measurement accuracy (full scale):

Range/Accuracy	$\pm 3\%$	$\pm 6\%$
100% - 0.03%	10 Hz - 400 kHz	10 Hz - 600 kHz
0.01%	10 Hz - 100 kHz	10 Hz - 200 kHz

Elimination characteristics

Fundamental rejection:

>100 dB, 10 Hz to 10 kHz (multiplier $\times 10$, $\times 100$, $\times 1 \text{ K}$)

>95 dB, 10 kHz to 100 kHz (multiplier $\times 10 \text{ K}$)

Second harmonic accuracy: better than $\pm 0.6 \text{ dB}$, 10 Hz to 100 kHz

Distortion introduced by instrument:

>-95 dB (0.0018%) from 10 Hz to 10 kHz (multiplier $\times 10$, $\times 100$, $\times 1 \text{ K}$)

>-90 dB (0.0032%) from 10 kHz to 30 kHz (multiplier $\times 10 \text{ K}$)

>-85 dB (0.0056%) from 40 kHz to 100 kHz (multiplier $\times 10 \text{ K}$)

Input

Impedance: 100 k Ω $\pm 5\%$ shunted by <80 pF

Single ended, low side chassis ground

Input level for distortion measurement: for 100% (0 dB) set level 1.0 V rms to 130 V rms. Minimum input for auto nulling is 1.0 V rms.

Voltmeter range: 100 μV to 100 V rms full scale (13 ranges) 10 dB per range.

Frequency range for voltage measurement:

10 Hz to 600 kHz: (300 μV - 100 V range)

10 Hz to 200 kHz: (100 μV range)

Voltmeter accuracy:

Range/Accuracy	$\pm 2\%$	$\pm 5\%$
100 μV	20 Hz to 50 kHz	10 Hz to 200 kHz
300 μV to 100 V	20 Hz to 300 kHz	10 Hz to 600 kHz

Voltmeter residual noise (600 Ω termination):

300 μV range: <25 μV rms

100 μV range: <10 mV rms

Monitor output: 0.1 V rms ± 0.01 V rms open circuit for full scale meter indication. 2 k Ω $\pm 10\%$ output impedance.

High-pass filter: 3 dB point at 400 Hz with 18 dB per octave rolloff. Normally used only with fundamental frequencies greater than 1 kHz.

General

Power supply: 100, 120, 200, 240 V $\pm 10\%$, 48 to 66 Hz, approximately 11 VA. Rear terminals are provided for external battery supply. Positive and negative voltages between 22 V and 40 V are required. Current drain from each supply is less than 200 mA.

Weight: net, 7.5 kg (16 $\frac{3}{4}$ lb). Shipping, 9.9 kg (22 lb).

Dimensions: 42.6 cm wide (16.75 in.) \times 13.3 cm high (5.25 in.) \times 34.9 cm deep (13.75 in.)

Options

907: Front Handle Kit

908: Rack Flange Kit

909: Rack Flange & Front Handle Combination Kit

4333A Distortion Analyzer

Price

add \$15

add \$10

add \$20

\$1980