KROHN-HITE CORPORATION

"Quality" in Test and Measurement Since 1949

DC Source/Calibrators, Tunable Electronic Filters,
Wideband Power Amplifiers
Precision Phasemeters, Distortion Analyzers
Function Generators, RC Oscillators

Model 6900B

Fully Automatic Distortion Analyzer

- Fully Automatic Distortion Measurements
- Frequency Range: 5Hz to 1MHz, Auto Nulling
- Voltage Range: 100mV rms to 130V rms, Auto Leveling
- Measures Distortion Down to 0.005%
- Measures AC Voltage: 0.010V rms to 130V rms, 5Hz to 1MHz
- Internal Oscillator: 1kHz, <.003% Distortion
- "Hands Off" Operation

DESCRIPTION

The Krohn-Hite Model 6900B is the first and only fully automatic Distortion Analyzer to provide an easy solution to your distortion and AC voltage measurements over the frequency range from 5Hz to 1MHz.

EASE OF OPERATION

Compare the ease of operation of the 6900B to any other distortion analyzer. The 6900B requires only an input signal. Auto frequency nulling, auto level setting and auto-ranging of the digital meter automatically displays the total harmonic distortion (THD). The 6900B measures THD from typically 3Hz to an unprecedented 1MHz and input levels from 100mV rms to 130V rms. Ultra-low distortion can be measured with a resolution of 0.001%. Measurements can be made in less than 3 seconds from 50Hz to 1MHz.

FILTERS

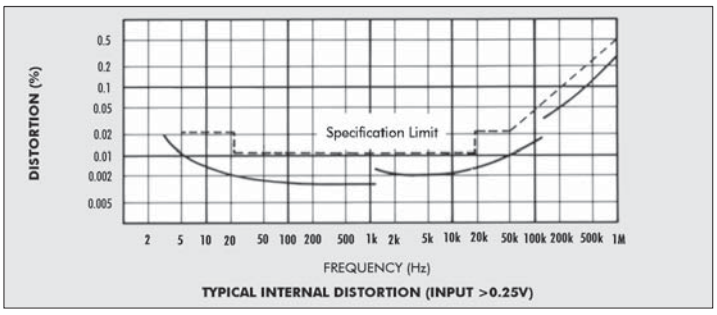
Three switch-selectable filters are provided. A 400Hz high-pass to reduce the effects of hum, 30kHz and 80kHz low-pass to reduce the effects of high frequency noise. An internal low-pass tracking filter is automatically activated at distortion levels below 0.1%.

AC VOLTMETER

As an ac voltmeter, the 6900B measures rms voltage from typically 3Hz to 1MHz at input levels from 10mV to 130V with an accuracy of 2%. A 3 digit auto-ranging display provides 1mV resolution.

ADDITIONAL FEATURES

The Model 6900B provides a distortion output signal which is the input signal after the fundamental is removed. This distortion signal can be used for additional analysis with an oscilloscope or spectrum analyzer. An analog output provides a dc voltage proportional to the distortion signal. An ultra-low distortion (<.003%) 1kHz sinewave oscillator can be used as a source for checking linearity of components and system distortion characteristics. An optional BCD output is available, making the 6900B very useful in an automatic test system. This fully automatic distortion analyzer is ideal for both precision laboratory measurements and routine production testing. It provides faster error free measurements for the unskilled operator.



TYPICAL INTERNAL DISTORTION (INPUT >0.25V)

SPECIFICATIONS

DISTORTION METER

Fundamental Frequency Range: 5Hz to 1MHz automatically tuned over entire specified input frequency range. An intermittent meter display indicates an "out-of-range" condition.

Input: No presetting required over input level from 100mV rms to 130V rms; Impedance, 110k ohms shunted by 100pF.

Distortion Range: A digital panel meter with auto-ranging displays percentage of total harmonic distortion (THD) to 19.9%.

Measurement (%)	Resolution (%)
.10 to 2.00	.01
2.0 to 19.9	.1

Distortion Measurement Accuracy:

Input Volts/Dist. Levels	Frequency	Specifications
.1 to .25: >0.01%	10Hz to 50kHz	±15% of reading or 0.01% whichever is greater.
	5Hz to 100kHz	±15% of reading or 0.02% whichever is greater.
	100kHz to 500kHz	±15% of reading or 0.1% whichever is greater
	500kHz to 1MHz	±25% of reading or 0.5% whichever is greater.
.25 to 130: >0.005%	10Hz to 50kHz	±15% of reading or 0.005% whichever is greater.
	5Hz to 100kHz	±15% of reading or 0.01% whichever is greater.
	100kHz to 500kHz	±15% of reading or 0.05% whichever is greater.
	500kHz to 1MHz	±25% of reading or 0.5% whichever is greater.

Settling Time (to 0.1% THD): Typically <3s from 50Hz to 1MHz. Longer at lower frequencies.

Fundamental Rejection: Greater than 10dB below residual THD.

Residual Distortion and Noise:

Input	Frequency	Specification
0.1V to 0.25V	20Hz to 20kHz	<0.02%
	5Hz to 1MHz	<0.03%, 5Hz to 50kHz, rising to 0.5% at 1MHz.
0.25V to 130V	20Hz to 20kHz	<0.01%
	5Hz to 1MHz	<0.02%, 5Hz to 50kHz, rising to 0.5% at 1MHz.

Filters:

400Hz High-Pass: –3dB at 400Hz ±10%, 40dB/decade rolloff.

30kHz Low-Pass: –3dB at 30kHz ±5%, 60dB/decade rolloff.

80kHz Low-Pass: –3dB at 80kHz ±5%, 60dB/decade rolloff.

Distortion Output (Residual signal after fundamental is nulled):

Voltage: 100mV rms/% THD.

Impedance: <500 ohms.

Analog Output: 100mV dc/% THD.

Impedance: <1k ohms.

Display: 3 digit meter with auto-ranging.

AC VOLTMETER

Frequency Range: 5Hz to 1MHz.

Voltage Range: 0.01V rms to 130V rms.

Voltage Range	Resolution
0.01V to 1V	0.001V
1V to 10V	0.01V
10V to 130V	0.1V

Accuracy: ±2% ±1 digit from 10Hz to 500kHz; ±5% ±1 digit from 5Hz to 1MHz over specified voltage range.

Display: 3 digit meter with auto-ranging.

Input Impedance: 110k ohms shunted by 100pF.

OSCILLATOR OUTPUT

Frequency: 1kHz, fixed.

Output: 5V rms at 3mA max.

Distortion: <0.003%.

Impedance: 600 ohms.

GENERAL

Meter Display: 0.55", 7 segment, green LED.

Controls:

Front Panel: Mode switch for selecting either VOLTMETER or DISTORTION operation. Filter switch for selecting 400Hz high-pass, 30kHz low-pass or 80kHz low-pass operation. Power switch.

Rear Panel: Switches for selecting 120/240V ac line operation, or NORMAL/LOW ac line voltage.

Connectors (BNC):

Front Panel: Input, 1kHz oscillator output and distortion output.

Rear Panel: Input, analog output.

Operating Temperature Range: 0°C to 45°C.

Maximum DC Component: 100V.

Isolation to Chassis: 500V dc.

Power Requirements: Switch selectable, 90-110, 108-132, 180-220 or 216-264 volts, single phase, 50-400Hz, 15 watts.

Dimension and Weights: 3" (8.9cm) high, 16" (42.2cm) wide, 14" (37.5cm) deep; 11 lbs (5.2kg), shipping, 13 lbs (6.1kg).

Accessories: 3-terminal line cord; operating manual.

OPTIONS

BCD Output: Provides 13 lines of parallel BCD output, plus 1 MODE output, 3 decimal point outputs and 4 separate 3-state control lines. Compatible with DTL, RTL and TTL logic.

002, dB Readout: Switch selectable. Displays the distortion being measured either in percent (%) or dB, as referenced to the level at the Analyzer INPUT.

Rack Mounting Kit: Part No. RK-316 permits the installation of the Model 6900B into a standard 19" rack spacing.

Extended 1 Year Warranty: Part No. EW6900B.

OPTIONAL ACCESSORIES

CAB-025: Cable, BNC, 3ft, Low Noise.

Specifications are subject to change without notice.