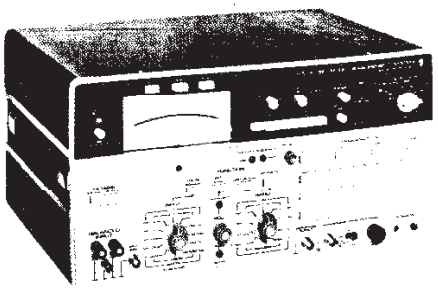
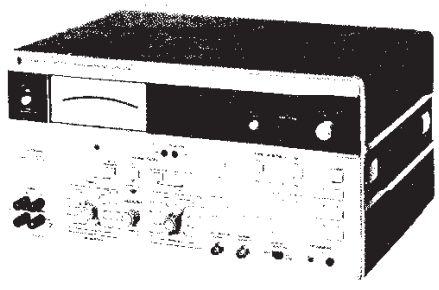
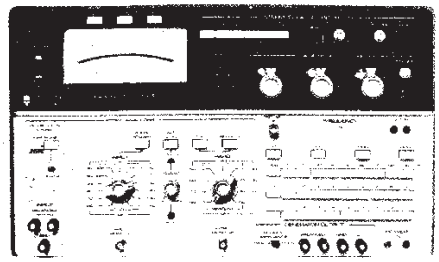
DISTORTION MEASUREMENT SYSTEMS



1701A



1700B



1710A

Choose from three distortion analyzers and oscillators simultaneously tuned in one fast and easy-to-use system

- Pushbutton frequency selection is fast and repeatable.
- Fully automatic nulling circuits measure distortion as low as 0.0009% in five seconds.
- RMS, peak, and average responding meter circuits let you measure to accepted standards.
- Measure floating sources from 30μV to 300V; break ground loops with the built-in balanced voltmeter; measure power in dBm or in watts across 8Ω.
- Internal 10 Hz to 110 kHz balanced and floating oscillator is adjustable from -90 to +26 dBm in 0.1 dB steps.
- Measure signal-to-noise ratios with 100 dB dynamic range.
- Automatic Set Level and IM Distortion measurements optional.

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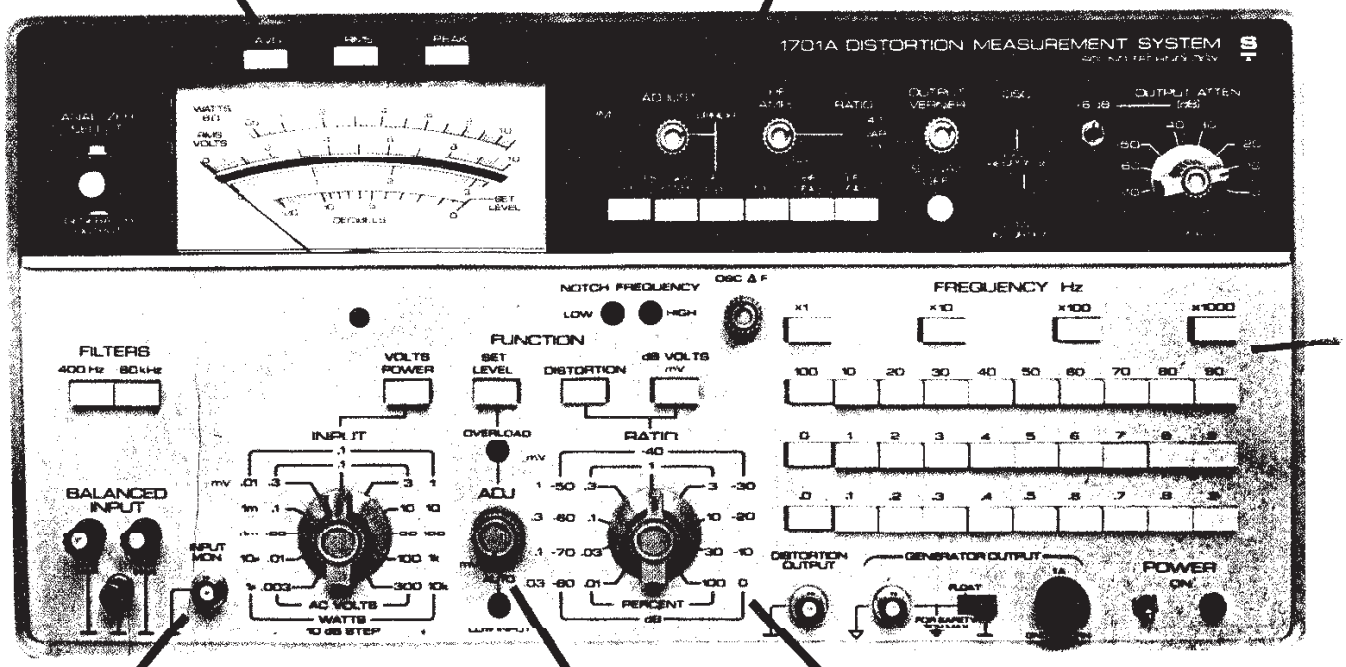
1700 SERIES

Distortion Measurement Systems

Sound Technology manufactures three Distortion Measurement Systems designed to provide precision audio measurements quickly and easily. The 1700B provides exceptional performance at an attractive price. The 1701A features extremely low distortion and switch selected meter response. The 1710A is designed for measurements in strong rf fields with balanced or single-ended systems. Many options for these instruments are available to speed and extend their measurement capability.

Pushbuttons allow selection of three meter responses: average, rms, or peak, to meet measuring standard requirements.

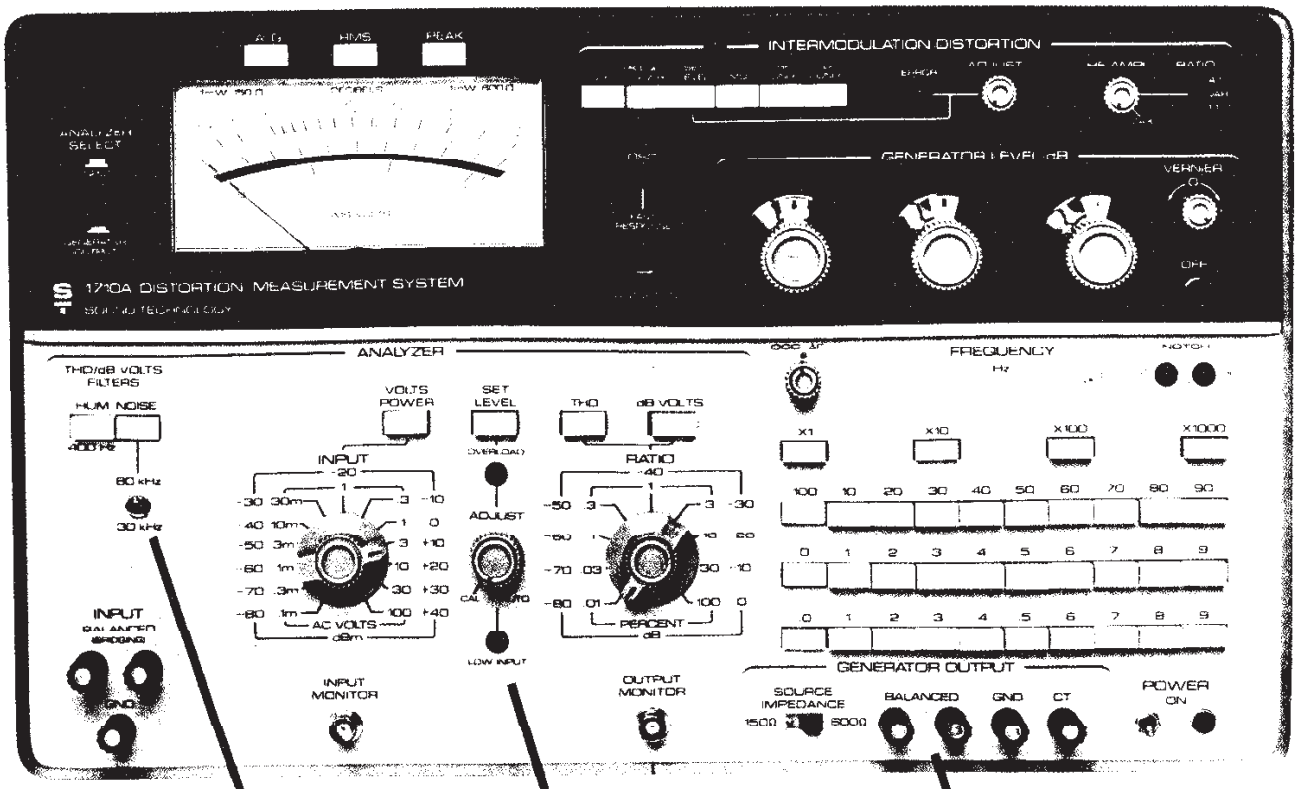
Intermodulation Distortion Analyzer Option 004, measures IM to 0.001% using SMPTE or DIN standards. Can be used with Auto Set Level Option 003 for even faster operation.



Scaled replica of input signal, referenced to chassis ground always available.

Set 100% reference level for THD measurements. Auto Set Level does it automatically!

Measure distortion to 0.0009%. and signal-to-noise ratios with 100 dB dynamic range Extend voltage measurements to 30 μV full scale.



18 dB/octave filters reject hum and high frequency noise.

Low Input and Overload indicators light if input signal is out of Auto Set Level range.

Balanced generator, variabl from +26 to -89.9 dBm into 150Ω or 600Ω.

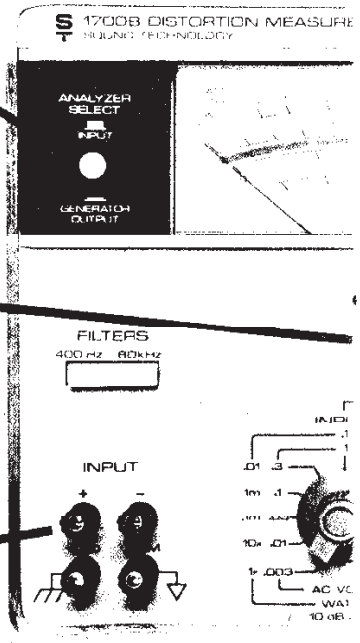
Simultaneously select generator and analyzer frequency with fast-to-use pushbuttons. Range is 10 Hz to 110 kHz.

No manual nulling controls are required — 1700 Series instruments automatically null in less than 5 seconds.

Measure the generator output with this button.

Fast, pushbutton operation lets you quickly set levels, measure voltage or power, and measure S/N ratios directly.

Balanced, differential input lets you measure strapped or floating amplifiers, or break ground loops.



The 1700 series of Distortion Measurement Systems are designed to make your audio measurements faster, easier, and more accurate. Here are some of the features that make this possible:

- You can get an IM Distortion Analyzer in the same instrument with the Harmonic Distortion Analyzer for comprehensive testing.
- You can get switch selectable average, true rms, or peak responding meter detection circuits, so you can measure accurately to IHF, EIA, and IEEE standards.
- You can get Automatic Set Level to save time and make measurements easier.
- You can get a truly balanced and floating generator, controllable in 0.1 dB steps up to +26 dBm, for accurate measurements in balanced and single-ended systems.
- You can get a system designed to be used in strong rf fields — the 1710A — to give accurate measurements where most distortion analyzers fail.
- You can overload a 1700 series meter and it will recover in seconds, undamaged, because the instruments are designed to provide fast, trouble-free operation.
- You can buy the generator section of the 1700B or the 1710A as separate instruments — the 1400 series for remote applications.

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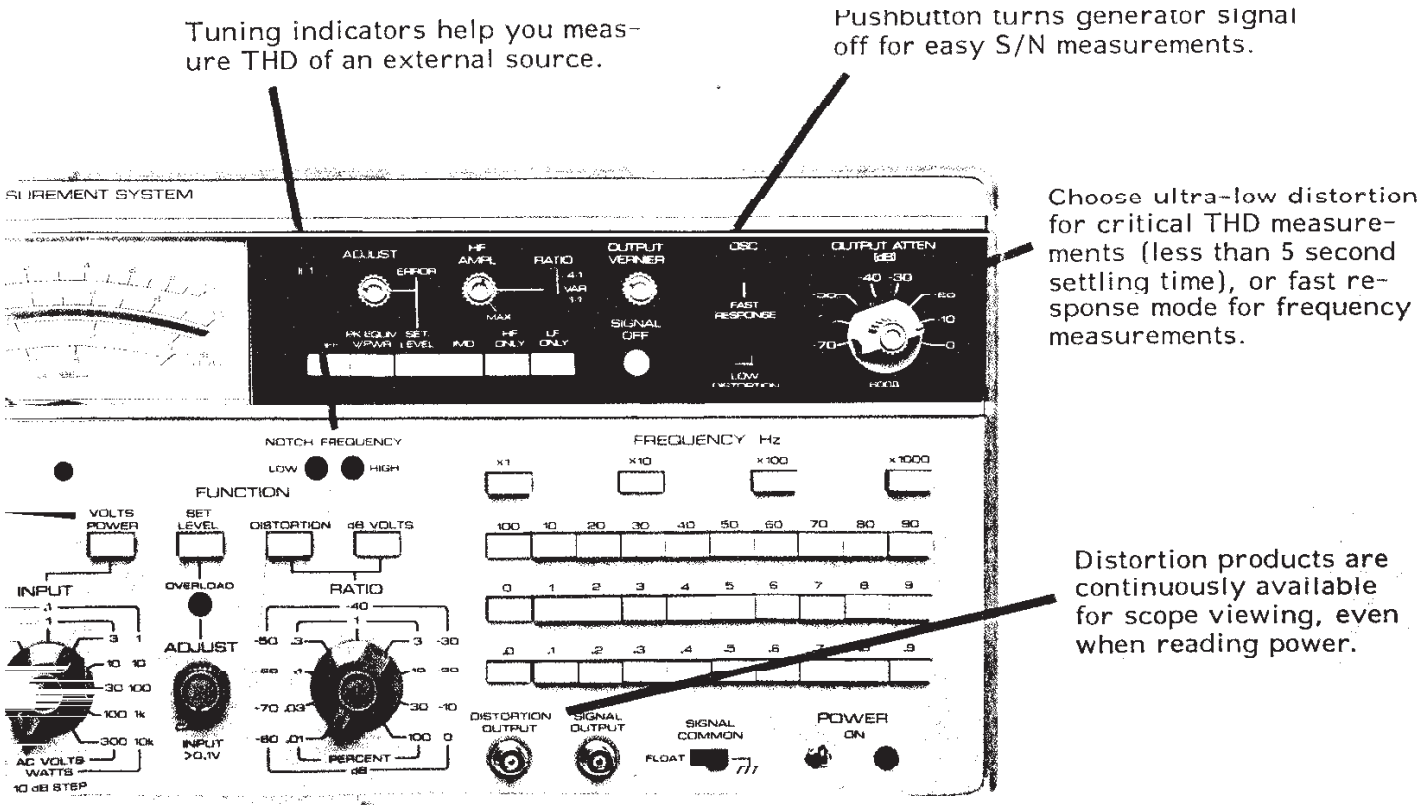

Specifications

GENERATOR	1700B	1701A●	1710A
Frequency Range/Accuracy	10.0 Hz to 110 kHz in four overlaping ranges/±2% of setting		
Frequency Vernier	None	±75% of least significant digit	
Frequency Response (referred to 1 kHz)	Flat within 0.2 dB		Balanced load: ±0.1 dB 10 Hz - 20 kHz, ±0.25 dB > 20 kHz. Unbalanced load: ±0.2 dB 10 Hz-20 kHz, ±0.6 dB > 20 kHz, +26 to -80 dBm.
Output Level	1 mV - 3V, continuously variable, open circuit	1 mV - 6V, open circuit	-26 to -89.9 dBm (ref to 600Ω) into 150 or 600Ω loads *
Output Control/Attenuator	Single-turn log pot *	70 dB range, 10 dB ±0.1 dB steps. Vernier has >10 dB range.	115.9 dB, 0.1 dB steps. Acc'y: ±0.15 dB (1.5%). Balance: >70dB to 20kHz, >50 dB >20 kHz. Vernier: ±1 dB
Output Impedance	Variable up to 625Ω *	600Ω ± 1%	150 or 600Ω ± 0.1%, balanced and floating (<2Ω on +26 dBm step)
Distortion - Low Distortion Mode	<0.002% 20 Hz - 20 kHz, <0.0025% 10 Hz - 20 Hz, <0.007% to 30 kHz, <0.02% to 50 kHz, <0.05% to 80 kHz, <0.1% to 100 kHz.	<0.001% 20 Hz - 10 kHz, <0.002% 10 Hz - 20 kHz, <0.003% to 30 kHz, <0.005% to 50 kHz, <0.01% to 110 kHz. Distortion doubles when using +6 dB switch.	Output level to +26 dBm with 600Ω load, or +20 dBm with 150Ω load: <0.002% 20 Hz - 10 kHz, <0.0025% 10 Hz - 20 Hz, <0.003% to 20 kHz, <0.007% to 30 kHz, <0.02% to 50 kHz, <0.15% to 80 kHz, <0.35% to 100 kHz. At -26 dBm 150Ω load, distortion doubles above 5 kHz.
Distortion - Fast Response Mode	<0.05% 100 Hz - 50 kHz <0.2% 20 Hz - 110 kHz		<0.05% 100 Hz - 50 kHz <0.35% 20 Hz - 110 kHz
Hum and Noise	100 dB below rated output		Greater of: 120 dB below 0 dBm, 600Ω balanced load (100 dB unbal load), or 100 dB below signal level

ANALYZER/VOLTMETER			
Frequency Range/Accuracy	Same as generator section. Analyzer tuned simultaneously with generator		
Input Impedance (THD Volts/Power Ratio)	Balanced, 100kΩ shunted by <100 pf each terminal to ground		Same, but <400 pf to ground
100% Set Level Input	0.1 to 300V		0.1 to 100V
Distortion Measurement Range	0.1% to 100% full scale in 9 ranges		
THD Acc'y (2nd-5th harmonics to 300 kHz)*	±1 dB 10 Hz - 20 kHz, ±2 dB 20.1 kHz - 50 kHz, ±3 dB 50.1 kHz - 110 kHz		
Fundamental Rejection	Greater than 100 dB		
THD Residual Distortion	<0.002% 10 Hz - 10 kHz, <0.003% to 20 kHz, <0.007% to 30 kHz, <0.02% to 50 kHz, <0.05% to 80 kHz, <0.1% to 100 kHz.	<0.001% 20 Hz - 10 kHz, <0.002% 10 Hz - 20 kHz, <0.003% to 30 kHz, <0.005% to 50 kHz, <0.01% to 110 kHz. (20% higher on 10V range).	<0.002% 10 Hz - 10 kHz, <0.003% to 20 kHz, <0.007% to 30 kHz, <0.02% to 50 kHz, <0.05% to 80 kHz, <0.1% to 100 kHz.
Noise (80 kHz filter in, signal >0.3Vrms. <0.3V: Voltmeter noise spec applies.)*	<0.0025% to 10 kHz <0.003% to 20 kHz	<0.002% to 20 kHz	<0.0025% to 10 kHz <0.003% to 20 kHz
Distortion Output (full scale deflection)	31.6 mVrms ±5%, open circuit. 1 kΩ ±5% output impedance		
Input Monitor (referred to chassis gnd)	Ranged reproduction of input signal		
Automatic Null Time (using internal osc)	<6 seconds, all THD ranges		
Meter Response (taut-band, rms calib)	Average value	AVG, RMS, or PEAK value ■	Average value*
Common Mode Rejection	ADJUST control fully ccw: >40 dB at 60 Hz; control fully cw: 25 dB (>40 dB with ASL Option)		
Maximum Common Mode Voltage	Not to exceed input voltage range setting or 1V, whichever is greater		
INPUT Filters	High Pass: 3 dB point at 400 Hz, 18 dB/oct roll-off. 60 Hz rejection: >40 dB. Low Pass: 3 dB point at 80 kHz (and 30 kHz for 1710A), 18 dB/octave roll-off		

Specifications (continued)

	1700B	1701A●	1710A
Voltmeter Input Range	3 mV to 300 V full scale, 1 μW – 10 kW across 8Ω, to 30 μV full scale using RATIO switch.		100 μV to 100 V full scale, -80 to +40 dBm, 600Ω
Voltmeter Accuracy	±2% 20 Hz – 20 kHz, ±5% 10 Hz – 110 kHz		±0.2 dB (2%) 20 Hz – 20 kHz ±0.6 dB (6%) 10 Hz – 110 kHz
Residual Noise (referred to input)	<8 μV (80 kHz filter in) <15 μV (80 kHz filter out)	<4 μV (80 kHz filter in) <10 μV (80 kHz filter out)	<5 μV (30 kHz filter in) <8 μV (80 kHz filter in) <15 μV (filters out)
RATIO Input for 0 dB Reference Set	0.1 V to 300 V		0.077 to 77 V (-20 to +40 dBm)
RATIO Measurement Accuracy	±0.2 dB 20 Hz – 20 kHz ±0.5 dB 10 Hz – 110 kHz		±0.2 dB 20 Hz – 20 kHz ±0.6 dB 10 Hz – 110 kHz

GENERAL

Power (115/230 V, ±10%, 50/60 Hz)	18 Watts maximum		36 Watts maximum
Dimensions – HWD (add 0.6" for mtg feet)	8.7 x 17.2 x 12" (22 x 44 x 31 cm)		10.5 x 17.2 x 14.5" (27 x 44 x 37 cm)
Weight – Net/Shipping: lbs (kg)*	16 (7.2) / 21 (9.5)	17 (7.7) / 22 (10)	25 (11.4) / 33 (15)

OPTION AVAILABILITY

Rack Mount Kit (Wt: 2 lbs/0.9 kg)	Option 002-1700	Option 002-1701	Option 002-1710
Automatic Set Level	Option 003	Option 003	Option 003
IM Distortion Analyzer (Wt: 5 lbs/2.3 kg)	Option 004	Option 004	Option 004
dBm Meter Scale/Front Panel▲	Option 005	Option 005	Standard
Meter/Atten for 150/600Ω Output	Not available	Not available	Option 005
Switch Selectable Meter Response (AVG, RMS, or PEAK value■)	Not available	Standard	Option 007

OPTION SPECIFICATIONS

Auto Set Level (ASL) Capture Range	10 dB with reading in upper 2/3 of scale in VOLTS/POWER mode	
ASL Harmonic Acc'y (add to THD Acc'y)	±0.2 dB 10 Hz – 20 kHz, ±0.5 dB 20.1 kHz – 50 kHz, ±1 dB 50.1 kHz – 110 kHz	
ASL Noise (80 kHz filter in)	<0.007% to 20 kHz with measured signal >0.3 Vrms. Noise decreases to analyzer specification as input voltage approaches full scale. ASL can be turned on/off.	
IMD Acc'y/Pk Eqv single-tone Vrms Acc'y	±2% full scale/±2% full scale	
Residual IMD and Noise	<0.0025% (DIN <0.004%) with internal generators set at 4:1 for input signals >0.3 V (10 mW across 8Ω); <0.004% (DIN <0.007%) for input signals 0.1 to 0.3 V	
IMD Output Level Control	70 dB attenuation, 10 dB ±0.1 dB steps. Vern: ±1 dB	Same as generator output atten and vernier
IMD Output Level and Impedance	Same as single frequency generator output	
IMD Low/High Frequency Generators	Low Freq: 60 Hz synchronized with power line or free-running (DIN: 250 Hz free-running), THD: <0.2%. High Freq: 7 kHz (DIN: 8 kHz)	
IMD LF/HF Ratio	Switch selectable 4:1 ±1%, 1:1 ±2%, or continuously variable from 1:1 to >16:1	
Warranty	2 years parts and labor	

*May be modified/changed by available option. ● 1701A meter set for AVG response. ■ True rms, waveform crest factor ≤ 3.
▲ dBm scale (1 mW/600Ω) replaces Power/Watts scale; dBV meter scale is removed; panel nomenclature compatible with dBm scale.