

**LEVEL FUNCTION**

**Modes** — Volts, dBm (600  $\Omega$ ), or dB ratio with push to set zero dB reference.

**Level Ranges** — 200  $\mu$ V full scale to 200 V full scale in ten steps, manual or autoranging.

**Accuracy** —

Frequency	Volts	dBm or dB ratio
20 Hz to 20 kHz	$\pm 2\%$	$\pm 0.3$ dB
10 Hz to 100 kHz*	$\pm 4\%$	$\pm 0.5$ dB

( $V_{in} \geq 100 \mu$ V, level ranging indicators extinguished).

**Bandwidth** —  $\geq 300$  kHz.

**Residual Noise** —  $\leq 3.0 \mu$ V ( $-108$  dBm) with 80 kHz and 400 Hz filters.

$\leq 1.5 \mu$ V ( $-114$  dBm) with "A" weighting filter.

\*On the 200  $\mu$ V range, accuracy above 50 kHz is  $+4\%$ ,  $-6\%$  ( $+0.5$  dB,  $-0.7$  dB).

**INTERMODULATION DISTORTION FUNCTION (OPTION 01)**

**SMPTE and DIN Tests** — Lower frequency range: 50 Hz to 250 Hz.

Upper frequency range: 3 kHz to 100 kHz.

Level ratio range: 1:1 to 5:1 (lower:upper).

Residual IMD:  $\leq 0.0025\%$  ( $-92$  dB) for 60 Hz and 7 kHz or 250 Hz and 8 kHz, 4:1 level ratio.

**CCIF Difference Frequency** — Frequency range: 4 kHz to 100 kHz.

Difference frequency range: 50 Hz to 1 kHz.

Residual IMD:  $\leq 0.0018\%$  ( $-95$  dB) with 14 kHz and 15 kHz.

Minimum input level: 60 mV ( $-22$  dBm).

**Accuracy** —  $\pm 1$  dB.

**ALL FUNCTIONS**

**Filters** — 400 Hz high pass:  $-3$  dB at 400 Hz  $\pm 5\%$ ; at least  $-40$  dB rejection at 60 Hz.

80 kHz low pass:  $-3$  dB at 80 kHz  $\pm 5\%$ .

30 kHz low pass:  $-3$  dB at 30 kHz  $\pm 5\%$ .

\*"A" weighting: Meets specifications for Type 1 sound level meters (ANSI S 1.4, IEC Recommendation 179).

EXT: Allows connection of external filters.

**Input Impedance** — 100 k $\Omega$   $\pm 2\%$ , each side to ground, fully differential.

**Maximum Input** — 300 V pk, 200 V RMS either side to ground or differentially.

Fully protected on all ranges.

**Common Mode Rejection** —  $\geq 50$  dB at 50 or 60 Hz.

Typically  $\geq 40$  dB to 300 kHz.

**Detection** — Average or true RMS for waveforms with crest factors  $\leq 3$ .

**FRONT PANEL SIGNALS**

**Input Monitor** — Provides constant amplitude version of signal applied to input. Output voltage: 1 V RMS  $\pm 10\%$  for input signals  $> 50$  mV. Source impedance: 1 k $\Omega$   $\pm 5\%$ .

**Function Output** — Provides a scaled sample of selected function signal (1000 count display = 1 V RMS  $\pm 3\%$ ). Source impedance: 1 k $\Omega$   $\pm 5\%$ .

**Auxiliary Input** — Provides input to detector circuit when EXT FILTER button is depressed. Sensitivity: 1 V RMS  $\pm 3\%$  = 1000 count display. Impedance: 100 k $\Omega$   $\pm 5\%$ , ac coupled.

**REAR INTERFACE SIGNALS**

**Rear INTFC INPUT** — Front panel selected. Same as main INPUT except, maximum signal input is limited to 42 V pk, 30 V RMS. (Potential crosstalk at rear interface may degrade noise and distortion on performance).

**Monitor** — Same as front panel INPUT MONITOR.

**Function Output** — Same as front panel FUNCTION OUTPUT.

**Auxiliary Input** — Same as front panel AUXILIARY INPUT.

**Converter Output** — DC output of selected response converter. 1 V  $\pm 5\%$  for 1000 count display. Source impedance: 500  $\Omega$   $\pm 5\%$ .

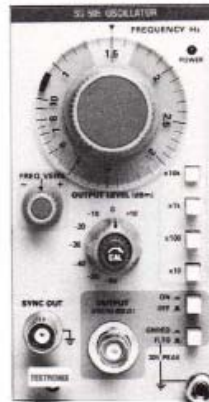
**dB Output** — Dc output of logarithmic dB converter. 10 mV  $\pm 5\%$  per 1 dB of display. Source impedance: 1 k $\Omega$   $\pm 5\%$ .

**ORDERING INFORMATION**

AA 501 Distortion Analyzer ..... \$1950

Option 01 Intermodulation Distortion ..... Add \$650

**SG 505**



Oscillator

**SG 505**

10 Hz to 100 kHz Sinewave (typically 9 Hz to 110 kHz)

Ultra-Low Distortion—0.0008% THD (typically 0.0003%)

Floating Output—600  $\Omega$  Source

Vernier Frequency Control

Isolated and Ground Referenced Sync Output

Calibrated Output into 600  $\Omega$ —+10 dBm to -60 dBm

The SG 505 Oscillator: it features the lowest distortion level commercially available today in the 10 Hz to 110 kHz band (0.0008% between 20 Hz and 20 kHz). The SG 505 assures you of freedom from residual distortion effects, particularly critical when making audio and communication measurements. And, this extremely low distortion is coupled with many designed-in convenience features.

For instance, the main signal output may be floated to help avoid interference due to troublesome ground loops, or it may be ground referenced. The SG 505 also features an isolated and ground referenced sync output. This allows you to monitor the phase or the frequency of the output of the oscillator without disturbing the floating output of the main signal.

**MAIN OUTPUT**

**Frequency Range** — 10 Hz to 100 kHz in four overlapping bands. Accurate within 3% of dual setting (with Vernier at center). Vernier Range is at least  $\pm 1\%$  of frequency setting.

**Calibrated Output** — Selectable from +10 dBm to -60 dBm into 600  $\Omega$  in eight 10 dB steps. Accurate to within 0.2 dB at +10 dBm and 1 kHz. Step accuracy is  $\pm 0.1$  dB/10 dB step. An uncalibrated control provides continuous variation from at least +2.2 dB to  $< -10$  dB from calibrated position.

**Amplitude Response** — Level flatness  $\pm 0.1$  dB from 10 Hz to 20 kHz (1 kHz ref); within 0.2 dB from 20 kHz to 100 kHz excluding -60 dB output level range.

**Harmonic Distortion** —  $< 0.0008\%$  ( $-102$  dB) THD from 20 Hz to 20 kHz (typically 0.0003%); 0.0018% ( $-95$  dB) THD from 10 Hz to 20 Hz, and from 20 kHz to 50 kHz; 0.0032% ( $-90$  dB) THD from 50 kHz to 100 kHz ( $R_L \geq 600 \Omega$ ).

**Output Impedance** — 600  $\Omega$   $\pm 2\%$ ; floating or grounded through  $\approx 30 \Omega$ . Output impedance does not change with OUTPUT ON/OFF selection. Maximum floating voltage  $\pm 30$  V peak.

**Max Output Voltage** — At least 5 V RMS open circuit; 3.16 V RMS (+10 dBV or +12.2 dBm) into 600  $\Omega$ .

**SYNC OUTPUT**

**Signal** — 200 mV RMS  $\pm 20\%$  sinewave to 20 kHz, at least 120 mV RMS at 100 kHz.

**Frequency** — Same as main output.

**Impedance** — 1 k $\Omega$   $\pm 10\%$ , ground referenced and isolated from main output.

**REAR INTERFACE SIGNALS**

**Buffered Main Output** — Buffered version of actual output signal from front panel connector,  $\approx 300 \Omega$  Output impedance.

**Sync Output** — Same as front panel SYNC OUTPUT except output impedance is  $\approx 50 \Omega$ .

**OPTION 01 IM TEST SIGNAL**

Selecting the IM Test Signal causes a LF sinewave to be mixed with the normal oscillator signal in a 4:1 amplitude ratio.

**Lf Frequency** — Internally selectable 60 Hz ( $\pm 1$  Hz) or 250 Hz ( $\pm 3$  Hz).

**Main Output** — Composite p-p output within 0.2 dB of normal oscillator mode output.

**Residual IMD** — Typically  $< 0.0005\%$  from 2.5 kHz to 10 kHz.

**Sync Output** — Lf signal component only, 200 mV RMS  $\pm 20\%$ .

**ORDERING INFORMATION**

SG 505 Oscillator ..... \$690

Option 01 (IM Test Signal) ..... Add \$150