These instruments have the following exclusive features:

AUTOMATIC. Exclusive FSK communication allows automatic remote testing (without modems or computers).

COMPREHENSIVE. Complete audio testing including graphic and tabular printouts without using a computer.

INTERNALLY-PROGRAMMABLE. Store and chain up to 80 different front panel set-ups into 16 different proof locations.

INDUSTRY-LEADING SPECIFICATIONS. Will test the best 16-bit digital systems!

COMPREHENSIVE WAVEFORMS. 3100A Generator outputs precise Sinewaves, Squarewaves, SMPTE-IMD, Tone-burst and Sine/Step waveforms.

* Optional
SOUND TECHNOLOGY
1400 GILL AVE.
CARRIERS, CALIFORNIA 95008
(408) 378-8540

3100A PROGRAMMABLE
AUDIO GENERATOR

Snawave, Toneburst, Sine/Step
Minimum Frequency: 1 Hz (10 Hz during automatic sweep or panel recall)
Maximum Frequency: 102.39 kHz ± 4% Vernier
Frequency Accuracy: ± 0.3% fixed parameters
1% automatic sweep
Frequency Resolution: 0.1% to 102.39 kHz
Frequency Sweep: User selectable 4 to 255 pts/decade, internally calculated to provide linear increments on a log-frequency scale, start and stop frequencies selectable from 10 Hz to 102.39 kHz. Sweeps up or down.
Level Sweep: User selected end points in dBm (600 or 150) dB/STEP keyed-in 0.5 dB to 20.00 dB. Sweeps up or down.

Squarewave
Minimum Frequency: 1 Hz
Maximum Frequency: 50 kHz
Risetime: < 0.0015% to 50 kHz
Accuracy: ± 0.001% to 100 kHz
Phase: ± 0.01% fixed parameters
HP Filters: 22 Hz, 200 Hz, 400 Hz
Fundamental Rejection: 100 dB at 60 Hz
Residual Noise: < 0.002% to 100 kHz

SMpte IMD (option 004)
IMD Residual Distortion: < 0.001%

Toneburst (option 005)
Toneburst Time On/Off adjust: 5 msec to 99999 sec.
Toneburst Off adjust: burst off set from 5 to 60 dB in 5 dB increments
Sine/Step (option 005)
Sine/Step Sine On/Step On adjust: 5 msec to 9999 sec.

General
Maximum Output: 30.65 dBm/600 Ω load
Balanced or Unbalanced: 30.00 dBm/both channels loaded
Maximum open circuit voltage: 28.6V (Floating, DC coupled)
Level Resolution: ± 0.001% to 102.39 kHz
Accuracy: ± 0.001% to 100 kHz
Minimum Level: -90dBm (24.5 mV) for 600 Ω load
Level Measuring Speed (Sweep, autoranging off): 250 msec/reading
Amplitude Measuring Speed (Sweep, autoranging off): at 1 Hz - 5.0 seconds/reading
Phases: 180° ± 0.01°
Fundamental Rejection: 100 dB at 60 Hz
Residual Noise: < 4 μV with 80 kHz BW
Minimum Frequency: 1 Hz (10 Hz during automatic sweep or panel recall)
Maximum Frequency: 50 kHz
Level: 50mV to 100V
Frequency Resolution: ± 0.05°
Frequency Measuring Resolution: 5 digits
Frequency Measuring Error: ± 0.1% to 10 MHz

Audio Generator
3200A PROGRAMMABLE
TRANSMISSION/AUDIO ANALYZER

Level, Flat or Filtered
Units: Volts, dBm 600, dBm 150, Watts (80)
Bandwidth: > 300 kHz
Ranges: 30 μV to 100 V, Autoranging
Filtered: one each of Hi Pass and/or Lo Pass
Common Mode Rejection: > 100 dB at 60 Hz
Residual Noise: < 4 μV with 80 kHz BW

Ratio
Measures against user set reference level
Units: dB
Filters: Hi Pass, Lo Pass and Weighting selectable
THD
Units: % or dB
Range: 0.01% to 100% full scale
Residual Distortion: < 0.001% to 20 kHz
< 0.002% to 50 kHz
Residual Noise: < 4 μV with 80 kHz BW
Measurement bandwidth: > 300 kHz
Fundamental Rejection: > 10 dB below residual noise + Distortion
Accuracy: ± 1 dB to 20 kHz. ± 2 dB to 100 kHz
Minimum Level: 30 mV

Notch Lock (option 010)
Same as ratio except Notch Filter used. Notch auto-nulls with signals above 0.1 V. Then locks-up when signal drops below 0.1 V.
Time for ensuing measurement of noise is the presence of a low level signal (e.g. quantization noise). approx. 30 sec.

IMD (SMpte - option 004)
Residual Noise + Distortion: < 0.02%
Accuracy: ± 1 dB
Frequencies: 60 Hz, 7 kHz

Channel Separation
Measures cross-talk into selected channel
Residual cross-talk: 600 Ω to 20 kHz
80 dB to 100 kHz

General
Input Channels: 2
Frequency Measuring Error: 0.1%
Frequency Measuring Resolution: 5 digits
Flatness: 20 Hz to 50 kHz: < 0.1 dB
50 kHz to 100 kHz: < 0.2 dB
100 kHz to 20 kHz: < 0.3 dB
Crest Factor: 6
Detectors: AVG, RMS, Q-PEAK
LP Filters: 80 kHz, 30 kHz, 22 kHz, 15 kHz
HP Filters: 22 Hz, 200 Hz, 400 Hz
THD Measuring Speed (Sweep, autoranging off) at 1 Hz - 5.0 seconds/reading
at 1 kHz - 1.25 seconds/reading
Amplitude Measuring Speed (Sweep, autoranging off) at 1 kHz - 2.5 seconds/reading
at 10 kHz - 600 μsec/reading
at 1 kHz and above - 500 μsec/reading

Double above times for "autoranging ON"
Power: 100, 120, 220, 240 V, 48-66 Hz.
Dimensions: HWB: 8.0 x 10.1 x 17.4" (20 x 26 x 44 cm)
Weight: Net/Ship: 26.5 lbs (12 kg) / 36 lbs (16.5 kg)
Environmental: 90% RH, +50 to +104°F (+ 10 to + 40°C)
Printed in U.S.A.

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SYSTEM FLEXIBILITY

Sound Technology designed the 3000 series instruments with flexibility in mind. The ability to configure the system as a separate Generator and Analyzer allows for easy (and cost effective) remote testing. Impromptu automated remote testing is easy because of ST’s use of FSK automation. No computers, modems or phone lines are necessary. Bi-directional STL testing is also possible without the need for computers. The 3000 series also excels in bench-top testing applications.

AUTOMATED BENCHTOP TESTING

AUTOMATED REMOTE TESTING

AUTOMATED REMOTE TESTING: UNMANNED GENERATOR

OPTIONS

3100A GENERATOR
- Option 002 Rackmount Mainframe.
- Option 004 SMPTE-IMD waveform. Intermodulation Distortion (waveform per SMPTE method of 7kHz on 60Hz at 1:4 ratio).
- Option 006 De-emphasis Group. User selectable 75, 50, 25 and 10 micro-second de-emphasis curves for Broadcast proofs. Allows for de-emphasized fixed frequencies or frequency sweeps.
- Option 008 Rugged Flight Case.

3200A ANALYZER
- Option 002 Rackmount Mainframe.
- Option 004 IMD Analysis capability. As per SMPTE method.
- Option 008 Rugged Flight Case.
- Option 010 Notch Lock. Option for digital audio measurement. Allows for quantizing noise and distortion measurements. Locks-up normally auto-ranging notch filter for measurements in the presence of low level signals.
- Option 011 Graphics Printout. Print out test results in graphic format directly from the Analyzer to an Epson* compatible printer.

MECHANICAL

The 3000A Audio Test System (Generator and Analyzer in One Mainframe)
The Sound Technology 3000 Series...

**Automatic Bench-Top Remote Testing**

Simple bench-top operation or remote automation results from Sound Technology's unique use of FSK (Frequency-Shift Keying) generation-to-analyzer communication. The use of FSK, which is transmitted through the audio line(s), allows for automation without external computers! Up to 16 proofs or test sequences can be built into the Generator's program section. Running a proof is as easy as recalling a two-digit number.

**Internal Automation**

Easy as recalling a two-digit number. Automation results from Sound Technology's unique use of FSK (Frequency-Shift Keying) transmitted through the audio line(s). The technique built into the Generator's program section allows remote testing on any ST matrix products.

**Manual Mode**

Up until now, when purchasing an audio test system you had to make a choice. A choice between manual or automated testing. This conflict exists because Engineers naturally prefer a manual "mode" of operation when troubleshooting, and they prefer automation when they want to get an overall performance picture.

The solution is the 3000 Series. It exists both in manual use and under automatic control. Easy to understand and use front panels make manual troubleshooting easy. Exclusive two LED displays on both the Generator and Analyzer give you twice the information of competitive systems. And the Analyzer's exclusive Memory Storage section is continually storing away test results for your later use.

**Measurement Speed**

We designed the 3000 Series with an eye on optimizing the relationship between repeatable test results and measurement speed. We are proud to have achieved our goal: repeatable measurements and the following measurement acquisition times:

- Midband THD measurement: 1 second
- Level measurement: 500 mV
- Phase measurement: 300 mV

These timeframes allow for running abbreviated proofs in less than 60 second time periods. More extensive proofs only take a few minutes time.

**Industry-Leading Specifications**

The 3000 Series was designed for testing 16-bit digital audio systems. Here are some of our specifications:

- Gen. THD (80kHz LP) $<$ 0.01%
- Level flatness $<$ 0.1 dB
- Phase error tolerance $<$ 1 degree
- Residual noise (80kHz LP) $<$ 4.2uV
- Sinewave freq. accuracy $<$ 0.03%
- Sinewave time-base $<$ 0.5 uSec
- Crossstalk 20kHz residual $<$ 100 dB

The 3000 Series specifications are some of the best to be found. We welcome comparison to any other audio test system regardless of where manufactured. Beware of confusing specification claims when shopping for a new audio test system!

**Comprehensive Waveforms and Analysis**

More than just a sinewave generator, the 3000A is a low distortion function generator having the following waveform capabilities:

- Sinewave: 1 Hz to 102.39 kHz
- Squarewave: 1 Hz to 50 kHz

**More Than Just a Sinewave Generator**

The 3000A is a low distortion function generator having the following waveform capabilities:

- Sinewave: 1 Hz to 102.39 kHz
- Squarewave: 1 Hz to 50 kHz

- Toneburst: 100 Hz to 100 kHz
- Sinewave: 1 Hz to 102.39 kHz

For more information on the 3000 Series, please contact Sound Technology at 1-800-722-0700.