

# 520 MHz Signal Generator

- 100 Hz Resolution
- Phase Locked Over Entire Range
- Complex Modulation: AM/FM, FM/FM, AM/AM
- Four Internal Modulation Frequencies
- BCD Programmable

## Versatility

Model 3006 is a rugged, solid state, synthesized signal generator which incorporates unique modulation capabilities, excellent accuracy and stability, and many standard and optional features. The frequency range is 1 kHz to 520 MHz, with 100 Hz resolution.

## Modulation Flexibility

Internal and external modulation capabilities provide unique complex, or simultaneous, modulation: FM on FM, AM on AM or AM on FM. This feature makes these Wavetek models ideal in tests of two-way radios, mobile telephones, paging receivers, and other systems that utilize techniques which superimpose subaudible tones or tone coded signals on voice (or other) channels.

Easily operated front panel controls allow the selection of not just two modulation frequencies (as in most generators), but four: the two standard frequencies of 400 Hz and 1 kHz, plus any other two, user-preset frequencies between 100 Hz and 10 kHz. Internal or external FM deviation (0 to 100 kHz) and percent AM modulation (0 to 90%) are easily set and read on the large, front panel meter. For increased readability and accuracy, two AM scales (30 or 100% full scale) and four FM scales (3, 10, 30, or 100 kHz full scale) are provided.

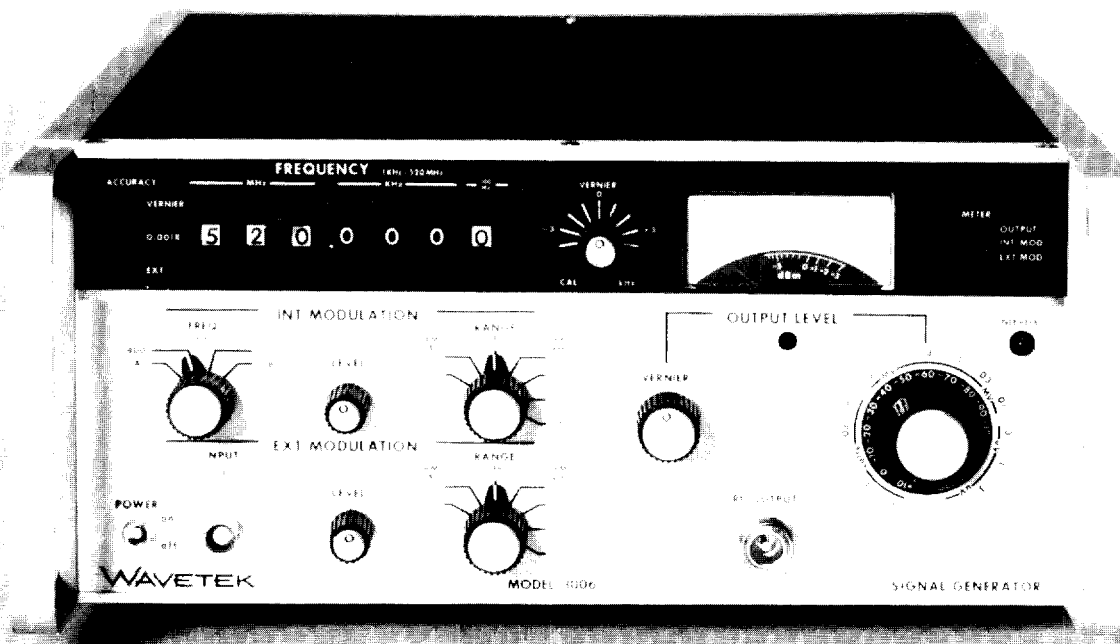
## High Accuracy and Stability

Frequency of Model 3006 is set via seven level/indicator switches with 100 Hz resolution. Signal accuracy

is 0.001% (typically 0.0002%) over their entire frequency range. Standard stability is 0.2 ppm/hour. Option 05, External Reference, allows accuracy over the entire frequency range to equal the accuracy of an external standard. Option 06, High Stability Reference, used in conjunction with Option 05 provides typical overall accuracy of 0.2 ppm (0.00002%) and aging of 0.005 ppm/day.

## Programmability

Frequency programmability through rear panel input connector using BCD coded TTL voltages or BCD coded contact closures is standard. The programmability of Model 3006 makes it ideal for automatic and semi-automatic test applications.



## MODEL 3006

## SIGNAL GENERATORS

**FREQUENCY****Range**

1 kHz to 520 MHz.

**Readout****Leveler/Indicator Switches:** 7 digits.**Resolution**

100 Hz.

**Accuracy**

± 0.001% in all modes.

(Typical: ± 0.0002% after 2 hours.)

**Stability**

0.2 ppm/hr. 500 Hz/10 min when frequency vernier is not in CAL position.

**Programmability**

Frequency programmability through rear-panel input connector using BCD-coded TTL voltages or BCD-coded contact closures is standard. Option 01C permits RF level programming.

**RF OUTPUT****Power Level Range**+ 13 to - 137 dBm (1V to 0.03  $\mu$ V rms).**Level Control**

Continuously adjustable in 10 dB steps with an 11 dB vernier. Output level is indicated on a front panel meter calibrated in volts and dBm.

**Total Level Accuracy****+ 13 to - 7 dBm:** ± 1.25 dB.

(Typical: ± 0.75 dB.)

**- 7 to - 77 dBm:** ± 1.95 dB.

(Typical: ± 1.25 dB.)

**- 77 to - 137 dBm:** ± 2.75 dB.

(Typical: ± 1.5 dB.)

**Accuracy Breakdown****Flatness (+ 13 to - 7 dBm):**

± 0.75 dB (Typical: ± 0.5 dB.)

**Output Meter:** ± 0.5 dB.**Step Attenuator:**

± 0.5 to 70 dB (± 0.2 dB cal. error);

± 1.0 to 130 dB (± 0.5 dB cal. error).

**Impedance**50  $\Omega$  (SWR < 1.2 at RF output levels below 0.1V).**Leakage**< 1  $\mu$ V into a 2 turn, 1 in. dia. loop held 1 in. from any surface.**SPECTRAL PURITY****Harmonic Output****1 to 10 MHz:** > 26 dBc.**10 to 520 MHz:** > 30 dBc.**1 kHz to 1 MHz:** > 30 dBc.**Subharmonics**

None detectable.

**Nonharmonics****Fundamental**

1 kHz to 3 MHz

3 to 250 MHz

3 to 350 MHz

3 to 520 MHz

**Spurious Level**

&gt; 60 dBc in 1 to 3 MHz band

&gt; 65 dBc in 3 to 250 MHz band

&gt; 55 dBc in 3 to 350 MHz band

&gt; 35 dBc in 3 to 1000 MHz band

**Residual AM**

&gt; 65 dB below carrier in a 50 Hz to 15 kHz post-detection bandwidth.

**Residual FM**

&lt; 100 Hz in 300 Hz to 3 kHz post-detection bandwidth. (Typical: &lt; 50 Hz.)

&lt; 200 Hz in a 50 Hz to 15 kHz post-detection bandwidth. (Typical: &lt; 100 Hz.)

**AMPLITUDE MODULATION****Internal Frequency**

400 Hz, 1000 Hz and two preset frequencies between 100 Hz and 10 kHz (accuracy: ± 2%).

**External Frequency**DC to 20 kHz (3 dB bandwidth). Input level required: 1V rms into 600  $\Omega$  to provide full-scale adjustment with EXT MOD LEVEL control.**Range**

0 to 90%.

**Distortion**

(Measured at 1 kHz.)

**0 to 70% AM:** < 3%. (Typical, 0 to 30% AM: < 1.5%.)**0 to 90% AM:** < 5%.**Meter**

Scales of 30% AM and 100% AM.

**Accuracy:** ± (2% of full-scale reading + 5% of meter reading) at 1 kHz modulation frequency.**FREQUENCY MODULATION****Internal Frequency**

400 Hz, 1000 Hz and two preset frequencies between 100 Hz and 10 kHz (accuracy: ± 2%).

**External Frequency**50 Hz to 20 kHz (1 dB bandwidth) with frequency vernier in CAL. DC to 25 kHz (1 dB bandwidth) with frequency vernier not in CAL. Input level required: 1 Vrms into 600  $\Omega$  to provide full-scale adjustment with EXT MOD LEVEL control.**Range**

0 to 100 kHz deviation.

**Distortion**

(Measured at 1 kHz.)

**10 kHz to Max Deviation:** < 2%.**3 kHz to 10 kHz Deviation:** < 4%.**Meter**

Scales of 3, 10, 30 and 100 kHz deviation.

**Accuracy:** ± 3% of full scale reading. (Measured with 1 kHz modulation.)**GENERAL****Output Connector**

Type N.

**Dimensions**

30.3 cm (12 in.) wide; 13.4 cm (5 1/4 in.) high; 34.9 cm (13 3/4 in.) deep.

**Weight**

13 kg (28.6 lb) net; 13.6 kg (30 lb) shipping.

**Power**

115 or 230V ± 10%; 50 to 400 Hz; approximately 40 watts.

**OPTIONS***NOTE: Option combinations are restricted as shown on model/option availability chart (page 124). Options are described on this page also.***03**

Reverse Power Protection

**05**

External Reference (Required with Option 06)

**05A**

External Reference/High Stability Reference (1 ppm accuracy)

**06**

High Stability Reference (Requires Option 05)

**ACCESSORIES****K108**

Rack Mount Adapter (P/N 1019-00-0031). See page 172 for details.

**FACTORY/FOB****Beech Grove, IN**