

Synthesizers

2500 OEM Modular Synthesizer

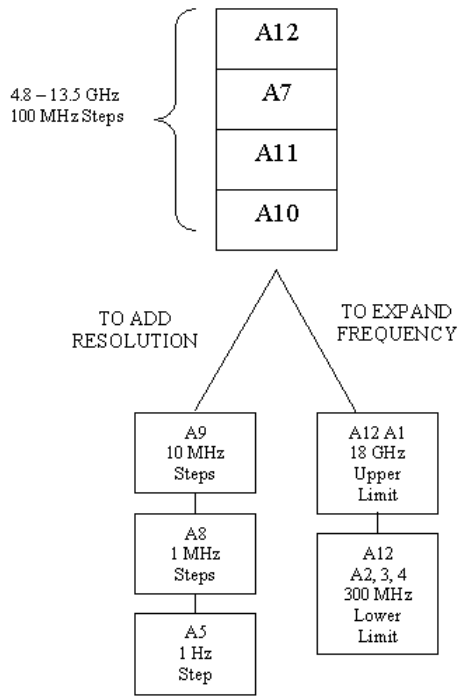
AEROFLEX
A passion for performance.



Supports hundreds of fast switching, high spectral purity applications

- Truly modular construction
- Wide frequency range from a single unit
- Amplitude levelling
- Hop states faster than 1 Megahop/sec
- Wide variety of standard and custom interface options
- High performance modulation: chirp, pulse, AM and FM
- Highest spectral purity

The Aeroflex 2500 series synthesizers feature superior performance never available before. They stand at the pinnacle of a family of frequency synthesizers that exemplify cutting edge performance. The 2500 series synthesizers are more reliable, ultra-fast, exceptionally clean, and low cost. They are an ideal source for agile radar, radar simulators, radar upgrades, fast antenna, RCS measurements, and ultra-fast ATE. The high-speed source is based on direct-synthesis techniques with generous use of sharp-rolloff bandpass filters for low-spurious performance. The instrument realization is housed in a 3U rack mountable chassis with display, keyboard, IEEE-488 interface, and parallel BCD interface for ultra- fast switching control. The architecture developed around direct analog frequency synthesis is inherently insensitive to vibration - there are no VCOs or sensitive phase lock loops. The components and modules supporting the architecture have also been selected for their rugged and temperature stable qualities. The architecture has been implemented using the most advanced technology presently available.



100 MHz steps from 13.5 GHz and 26.5 GHz (Finer steps possible as a special option - contact factory)

Spectral Purity

Phase Noise

Absolute SSB Phase Noise in dBc/Hz (includes noise of internal reference)

Frequency Offset	Carrier Frequency (GHz) 0.5	1.0	3.0	8.0	18.0
10 Hz	-86	-80	-71	-60	-55
100 Hz	-105	-85	-99	-90	-84
1 kHz	-110	-95	-110	-110	-102
10 kHz	-130	-120	-124	-120	-113
100 kHz	-140	-132	-128	-122	-115
1 MHz	-142	-139	-132	-123	-116
10 MHz	-143	-148	-140	-136	-130
100 MHz	-143	-150	-150	-138	-132

Spurious and Harmonic Signals

Frequency Range (GHz)	Spurious (dBc)	Sub-Harmonics (dBc)	Harmonics (dBc)
0.3 - 2.4	-80	None	-50
2.4 - 4.8	-76	None	-50
4.8 - 13.5	-70	None	-50
13.5 - 20	-64	-60	-50
20 - 26.5	-64	-50	-50

Operating Temperature

0°C to 50°C

Storage temperature

-20°C to 85°C

Power Requirements

18:120/220/240 VAC ±10%, 48 to 440 Hz, 320 W, 380 VA

Dimensions

16.75" W x 5.22" H x 23.88" D

(42.55 x 13.66 x 60.66)

Weight

55 lbs (24.9 kg)

SPECIFICATION

Frequency Range and Resolution

Model Number	Frequency Range (GHz)	Frequency Resolution
2513	0.3 to 13.5	0.5 MHz
2518	0.3 to 18	1 MHz
2520	0.3 to 20	1 MHz
2526	0.3 to 26.5	1 MHz

Switching Speed

<200 ns

Output Power

+10 dBm (50 Ω) nominal

Flatness

±2 dB (±5°C of calibration temperature)

Amplitude setting

Within 2 dB of final level <200 ns

Reference Oscillator

Internal: 100 MHz Quartz Oscillator, 5 x 10⁻⁸ per day after 30 days in normal operating environment

External Tuning Input

±2 VDC, pull range ± 100 Hz per volt nominal at 1 GHz

Frequency and Accuracy Stability

Same as reference oscillator

Remote Programming Control Interfaces

20 bits parallel BCD 1, 2, 4, 8 (1 MHz resolution)

Optional 44 bits parallel BCD 1, 2, 4, 8 (1 Hz resolution)

IEEE-488-1978

Phase Coherence

Frequency steps of 50 MHz from 4.8 to 13.5 GHz

AVAILABLE OPTIONS

1 Hz frequency resolution

FM Chirp (Wideband FM)

FM Normalized

40 GHz Frequency doubler, +10 dBm, SMA (F) Input, K (F) Output, Rack Mount Unit

(Dimensions: 2.2" H x 19" W x 6" D, weight: <2 lbs)

10 MHz Phase Lock Capability. Internal reference can be phase locked to 10 MHz Signal at 0 dBm ± 2 dB.

19 inch standard equipment rack mount slides

FREQUENCY MODULATION OPTION

SENSITIVITY

1.0 V peak for full scale deviation

The amplitude of the FM input signal must be adjusted to obtain the desired deviation according to the output frequency range.

Source

External Only

Input impedance: 50 Ω

Modes: DC and AC

Frequency Stability

AC Mode - The FM Oscillator is phase locked to the synthesizer reference. Consequently the carrier has the same stability as in CW Mode.

DC Mode - The FM Oscillator Phase Lock is unlocked to introduce the DC or very low frequency FM signal. The oscillator is thus free running.

Linearity

<10% for maximum deviation

FM Deviation

Frequency Deviation (MHz)	Rate (MHz)(min.)	(MHz/ms)
300-600	± 8.0	22.0
600-1200	± 15.0	44.0
1200-2400	± 30.0	88.0
2400-4800	± 60.0	175.0
4800-13500	± 120.0	350.0
13500-18000	± 240.0	700.0
20000-26500	± 240.0	700.0

VERSIONS, OPTIONS AND ACCESSORIES

When ordering please quote the full ordering number information.

Ordering Numbers

Versions

2513	300 MHz to 13.5 GHz (0.5 MHz Resolution) Keyboard Main Frame
2518	300 MHz to 18.0 GHz (1 MHz Resolution) Keyboard Main Frame
2520	300 MHz to 20.0 GHz (1 MHz Resolution) Keyboard Main Frame
2526	300 MHz to 26.5 GHz (1 MHz Resolution) Keyboard Main Frame

Options

201	1 Hz Frequency Resolution
202	10 MHz Phase Lock Capability, internal reference can be phase locked to 10 MHz signal at 0 dBm \pm 2 dBm
220	FM Chirp (Wideband FM)
229S	Differential BCD, 100 Pin Connector, 1 Hz Frequency Resolution
240	40 GHz Frequency Doubler, +10 dBm, SMA (F) input, K(F) Output, Rack Mount Unit Dimensions: 2.2"H x 19"W x 6"D, Weight < 2 lbs.)
905	19 Inch Standard Equipment Rack Mounting Slides

EXPORT CONTROL:

This product is controlled for export under the International Traffic in Arms Regulations (ITAR). A license from the U.S. Department of State is required prior to the export of this product from the United States.

EXPORT WARNING:

Aeroflex's military products are controlled for export under the International Traffic in Arms Regulations (ITAR) and may not be sold or proposed or offered for sale to certain countries including: Belarus, Burma, China, Cuba, Haiti, Iran, Liberia, Libya, North Korea, Somalia, Syria, Sudan, and Vietnam. See ITAR 126.1 for complete information.

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