

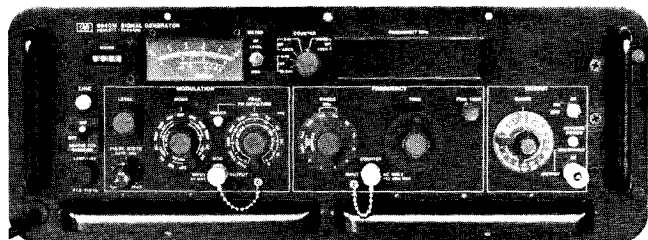
SIGNAL GENERATORS

Ruggedized signal generator, down converter

Models 8640M, 11710B

- 500 kHz to 512 MHz
- -40°C to +55°C operating temperature
- Phase lock stability, external count

- Extends frequency range down to 10 kHz on all 8640 and 8654 series generators
- Preserves calibrated output level and modulation



8640M

8640M Signal generator

The 8640M is a highly ruggedized version of the 8640B signal generator which adds field useability and retains the excellent stability and signal purity of the 8640B. Six-digit display, phase-lock and external count capability similar to the 8640B are standard on the 8640M. Internal Pulse modulation capability and 50 W reverse power protection are also standard.

The waterproof combination case, constructed to the requirements of Mil-T-21200J, provides a protective outer shell and cushioned mounts to assure tolerance to the shock and vibration rigors of off-road transportation. All controls on the front panel are drip-proof, and the air ducts are louvered to allow operation in wind, rain, or snow.

Reliability testing to Mil-Std-781 allows prediction of MTBF's in excess of 2200 hours. The testing included vibration, -40°C to +55°C temperature cycling, and power cycling. Maintainability testing to Mil-Std-471 has verified that the mean time to repair the 8640M is less than 2 hours.

8640M Specifications

Frequency characteristics

Range: 500 kHz to 512 MHz in 10 Octave ranges (to 1024 w/hz with External Frequency Doubler).

Internal counter resolution: same as 8640B (except no Expand X100 range; no extra 1/2 digit).

External counter resolution: from 0 to 10 MHz: 10 Hz; from 10 to 550 MHz: 1 kHz.

Stability

	Normal (Typical)	Locked
Time (after 3-hr. warm-up)	<15 ppm/10 min	<2 ppm/10 min
Temperature	<50 ppm/°C	<1 ppm/°C

Output range and accuracy

Output (dBm) Range	Using Top 10 dB of Vernier Range			Using Full Vernier Range
	+13 to -7	-7 to -47	-47 to -137	+18 to -145
Total Accuracy as Indicated on Level Meter	2.0 dB	2.5 dB	3.0 dB	Add ±0.5 dB

Modulation

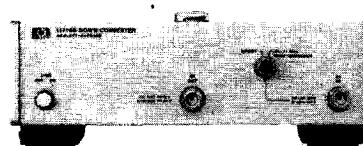
Types: internal AM, FM, and PULSE.
external AM, FM and PULSE.

Environmental performance

Temperature: MIL-STD-810B, Method 501, 502 Proc. 1.

Operating: continuous operation allowed between -40°C (-40°F) and +55°C (131°F). Intermittent operation (<20 min.) allowed up to +71°C (160°F).

Non-Operating: storage allowed between -60°C (-76°F) and +85°C (185°F).



11710B



Humidity: MIL-STD-810B, Method 507 Proc. 1. 10-day test.

Operating: -40°C (-40°F) to +40°C (104°F) at up to 95% R.H.

Non-Operating: storage allowed between -60°C (-76°F) and +60°C (140°F) up to 95% R.H. Condensation allowed.

Shock: MIL-T-21200J Class II. When mounted in its combination case, the 8640M will withstand 20 g's shock in any of 3 planes without damage.

Vibration: MIL-T-21200J Class II.

Rain: MIL-STD-810B Method 506 Proc. 1. Simulated rain and wind conditions up to 12 in./hour rainfall and up to 40 mph wind. Instrument was in normal operating configuration.

Explosive Atmosphere: MIL-STD-810B Method 511 Proc. 1. Type testing verified successful operation in potentially explosive atmosphere laden with avionic fuel vapor.

Salt Fog: MIL-STD-810B Method 509 Proc. 1. A mechanical mock-up was tested to verify the non-corrosive nature of parts, materials, and processes.

Fungus: non-fungus nutrient material used.

EMI: MIL-STD-461A, Class C1, Test Methods CE 03 and RE 02.

11710B Down converter

The 11710B Down Converter is an accessory for the 8640 and 8654 series signal generators. Frequency inputs from 50.01 to 61 MHz are down converted to the 10 kHz to 11 MHz range respectively. The output level and modulation functions of the 8640 and 8654 remain calibrated. A straight through selection allows the input to pass through unchanged and switch thus minimizes the necessity to move cables when testing.

11710B Specifications

Input characteristics

Down-conversion mode: 50.01 to 61.00 MHz at ≤0 dBm.

Straight-through mode: 0.01 to 1100 MHz.

Down-converted output characteristics

Frequency range: 10 kHz to 11 MHz.

Level range: 0 to -107 dBm.

Level flatness (referred to 4.0 MHz): ±0.5 dB.

Level accuracy: ± (1 dB plus input level accuracy).

Harmonics: >35 dB below the carrier (dBc).

Intermixing spurious: >60 dBc.

Local oscillator feed-through (50 MHz): <-80 dBm.

Internal reference characteristics

Time base output: 1 MHz or 5 MHz selectable, nominally >0.5 V p-p into 500Ω. This will drive an 8640B or 8655A External Time Base Input.

Typical overall accuracy: (within 3 mo. of calibration and from 15°C to 35°C): ±2 ppm.

General characteristics

Operating temperature range: 0 to 55°C.

Power requirements: 100, 120, 220, 240 V (+5%, -10%), 48 to 440 Hz; 12.5 VA.

Weight: net, 2.2 kg (4 lb 13 oz). Shipping 3 kg (6 lb 8 oz).

Dimensions: 102 mm H × 266 mm W × 290 mm D (4" × 10.5" × 11.4375").

Ordering information

8640M Signal generator

11710B Down converter

Price

\$8400

\$1000