

HP 8791 Signal Simulators



- Model 10 Frequency Agile Signal Simulator (Hardware)
- Model 100 Precision Signal Generator (Instrument-on-a-Disk software)
- Model 200 Radar Simulator (Instrument-on-a-Disk software)
- Model 2000 Advanced Agile Threat Simulator (System)

Traditionally, custom simulators were designed and built when requirements for advanced signals arose. Although they performed well, difficulties were often encountered with reliability, repeatability, serviceability, cost of ownership, and other factors associated with one-of-a-kind equipment. If only off-the-shelf advanced signal simulators were available. Now they are! From Hewlett-Packard.

Introducing the HP 8791 Advanced Signal Simulators:

The Simulator as Standard Test Equipment

- Off-the-shelf
- Accurate
- Reliable
- Repeatable
- Documented
- Serviceable

High-Performance Signal Simulation

- Frequency agility
- Intrapulse modulation
- Synthesized precision
- High spectral purity
- Dynamic waveform control

Reconfigurable with High-Level Software

- Easy to use
- Extended instrument life
- Easy to integrate
- Reusable

Low Cost of Ownership

- High-level software reduces training and operation costs
- Mean time between failures of 5000 hours and powerful diagnostics reduce maintenance and calibration costs
- Software reconfigurability and modular hardware design reduce obsolescence costs

DATA SHEETS
(RETURN TO RED BINDERS)



The HP 8791 Signal Simulators: Instrument-grade simulation with advanced modulation for receiver system design, verification and operational testing in EW, Radar, and Communications.

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Model 2000 Advanced Agile Threat Simulator (AATS)

Advanced threat simulators become standard test equipment with the HP 8791 Model 2000 Advanced Agile Threat Simulator. Available off-the-shelf as an advanced emitter building block for EW simulation or as a stand-alone bench-top simulator, the Model 2000 gives you repeatable, accurate signals up to 18.5 GHz using the banded microwave upconverter. The Model 2000 includes:

- Model 10** Frequency Agile Signal Simulator (Hardware)
- Model 100** Precision Signal Generator (Instrument-on-a-Disk software)
- Model 200** Radar Simulator (Instrument-on-a-Disk software)
- HP 8671B opt Kxx Upconverter** - choice of bands to 18.5 GHz (contact your HP sales representative for other upconversion requirements)

Model 10 Frequency Agile Signal Simulator (HP FASS)

The HP FASS combines direct digital synthesis with agile upconversion for accurate, repeatable signal generation. This also gives you reconfigurability for ease-of-use and cost-saving reuse of hardware. Dynamic Data provides the real-time capability to modulate signals with an external data source.

- Frequency Range:** 0.01 to 3 GHz (to 18.5 GHz with upconversion)
- Frequency Resolution:** 0.125 Hz
- Frequency Agile Switching Speed:** < 250 ns over full 3 GHz BW
- Fast Level Control Switching Speed:** < 250 ns in 6.02 dB steps
- Output Power:** +10 to -107 dBm
- Instantaneous Modulation Bandwidth:** 40 MHz
- Modulation:** Arbitrary FM, PM, AM, Pulse
- Spurious Response:** -55 dBc, typical
- Phase Noise:** < -125 dBc/Hz @ 10 kHz offset from 2 GHz, typical
- Dynamic Data:** AM, FM, PM, carrier frequency, pulse
- Dynamic Data Rates:** Up to 33 megawords/sec/channel

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Model 100 Precision Signal Generator

The Model 100 Precision Signal Generator Instrument-on-a-Disk (ID) configures your HP FASS to be a precise signal generator that replaces other microwave sources and associated function generators in receiver test ATE systems.

- Carrier:** Amplitude, phase, frequency
- AM:** Modulation index: 0 to 9999% (80 dB DSB-SC)
Modulation frequency: 0.0625 Hz to 20 MHz
Peak phase deviation: 0° to 180°
- PM:** Modulation frequency: 0.0625 Hz to 10 MHz
(upper limit dictated by 40 MHz modulation bandwidth)
- FM:** Frequency deviation: 0.125 Hz to 20 MHz
Modulation frequency: 0.0625 Hz to 10 MHz
(upper limit dictated by 40 MHz modulation bandwidth)
- Modulation Waveforms:** Sine: AM, PM, FM
Rectangle: 0 to 100% duty cycle AM (allows for pulse modulation)
Arbitrary user-defined: ≤ 8192 points

Model 200 Radar Simulator

The Model 200 Radar Simulator Instrument-on-a-Disk (ID) software configures your HP FASS to simulate advanced pulsed radar emitters.

- Frequency Hopping:** Constant, burst, pseudo-random, stepped, user-defined
- Intrapulse Modulation:** Coherent, non-coherent, chirp, Barker, user-defined
- Pulse Width:** 29.8 ns to 100 ms
- Rise and Fall:** 29.8 ns to 230 us
- Pulse Shapes:** Gaussian, exponential, user-defined
- Pulse Repetition Frequency:** 1 Hz to 625 kHz
- PRF Patterns:** Constant, burst, stagger, jitter, wobble, user-defined
- Antenna Scan Rate:** 4 to 100,000 rpm
- Main Beam Width:** 0.1° to 360°
- Antenna Scan Patterns:** Circular, conical, raster, sector, user-defined
- Antenna Radiation Patterns:** Rectangular, Hamming, Hanning, Blackman, 3-term, cosⁿ, programmable