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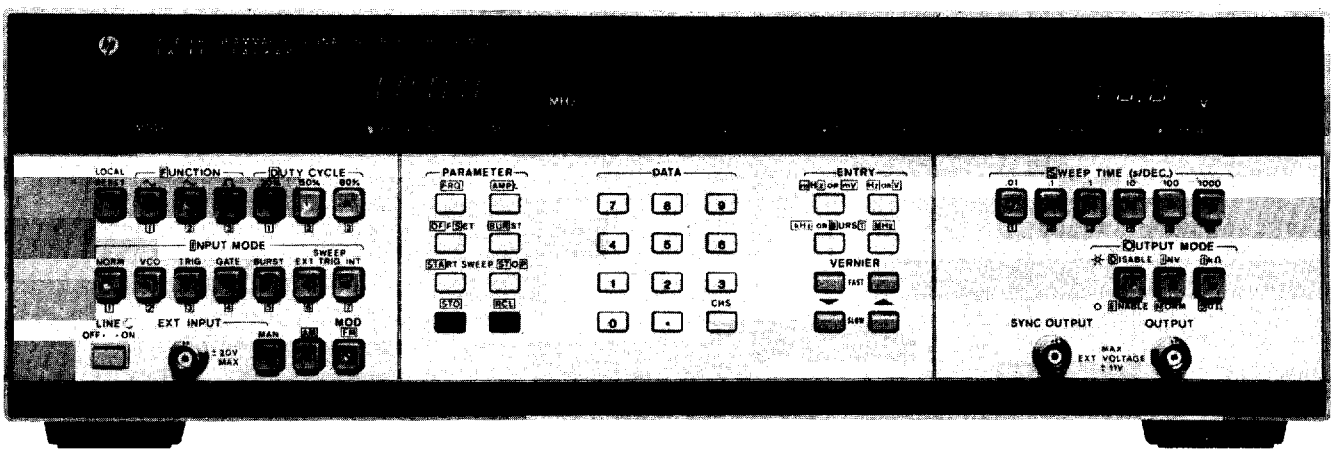
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# FUNCTION GENERATORS & WAVEFORM SYNTHESIZERS

## 50 MHz Programmable Signal Source

### HP 8165A

- Pulse/function capability
- Sine, triangle, and square to 50 MHz
- Pulses and ramps to 20 MHz
- Trigger, gate, and counted burst
- Synthesizer stability, precision amplitude
- Storage of operating parameters




DESIGNED FOR HP-IB SYSTEMS

HP 8165A with Option 002, AM, and Logarithmic Sweep

### Versatility and Simplicity for Systems and Bench

The HP 8165A Programmable Signal Source is a versatile function generator with good accuracy and many trigger features. Microprocessor control assures rapid, accurate setup whether you're programming locally or via HP-IB.

### Operating Set Storage

Ten complete sets of operating information can be stored and recalled. In the event of power failure, battery back-up retains all data plus the active settings.

### Stability and Resolution

Stable frequency is ensured with an internal crystal. The four-digit frequency display provides a 1 $\mu$Hz resolution in the 1 to 9.999 mHz range. In Normal mode, the accuracy is 0.001% with a stability of $\pm 1 \times 10^{-6}$.

## Specifications

### Waveforms and Frequency Range

**Sine, square, and triangle** (50% duty cycle): 1.000 mHz to 50.00 MHz
**Pulse/ramp** (20, 80% symmetry): 1.000 mHz to 19.99 MHz
**Haversine/havertriangle:** Please inquire for special option

### Output Characteristics

**Range:** Amplitude and offset independently variable within ± 10 V window
**Source impedance:** selectable 50 Ω ± 1% or 1 kΩ ± 10%
**Amplitude:** 10.0 mVpp to 10.0 Vpp (50 Ω into 50 Ω)
2.00 Vpp to 20.0 Vpp (1 kΩ into 50 Ω)

| Accuracy | Sine V Vrms | Square | Triangle (50%) | Ramp (20%–80%) | Pulse (20%–80%) |
|---|---|---|---|---|---|
| <1 kHz | ±3% | ±2% | ±3% | ±3% | ±2% |
| 1 kHz–4.99 MHz | ±3% | ±2% | ±3% | ±5% | ±2% |
| 5 MHz–19.9 MHz | ±8% | ±5% | ±10% | ±10% | ±5% |
| 20 MHz–50 MHz | ±8% | ±5% | +5% to −20% | — | — |

**Offset:** 0 ±10 mV to ±5.00 V (50 Ω into 50 Ω)
0 ± 20 mV to ±10.0 V (1 kΩ into 50 Ω)
**Accuracy:** ± 1% programmed value ± 1% signal Vpp ± 20 mV

### Sine characteristics

**Distortion:** Total harmonic distortion (THD) for fundamental up to 1 MHz: 38 dB
**Harmonic signals:** (Fundamental above 1 MHz): ≤ −30 dBc

### Square/pulse characteristics

**Transition times:** (10% to 90%): ≤ 5 ns (50 Ω into 50 Ω), ≤ 7 ns (1 kΩ into 50 Ω)
**Preshoot/overshoot/ringing:** ≤ ±5% (50 Ω into 50 Ω), ± 10% (1 kΩ into 50 Ω)

### Triangle/ramp characteristics

**Linearity:** (10% to 90%): ≤ ± 1% (≤ ± 5% above 5 MHz)

### Operating Modes

**Norm** (Continuous phase locked), **VCO** (external sweep voltage)
**Trig** (Ext or man. one-shot), **Gate, Burst** (1 to 9999 counted cycles)

### Frequency modulation

**HP-IB:** Control and learn capability for all modes and parameters
**Interface functions*:** SH1, AH1, T6, L4, SR1, RL1, PP0, DC0, DT1, C0, E1

### General

**Memory:** Nonvolatile. 10 addressable locations plus one for active operating state. Each location can store a complete set of operating parameters and modes.
**Power:** 100/120/220/240 Vrms; ±5%, −10%; 48 to 66 Hz, 200 VA max
**Operating temperature:** 0° to 50° C
**Weight:** Net 12 kg (26.5 lbs); shipping 16 kg (35.3 lbs)
**Size:** 133 mm H × 426 mm W × 422 mm D (5.2 in × 16.8 in × 16.6 in)

### Ordering Information

| | Price |
|---|---|
| **HP 8165A** Programmable Signal Source** | $9600 |
| **Opt. 002** AM and logarithmic sweep | $1200 |
| **Opt. 003** Rear Panel Connectors | $0 |
| **Opt. 907** Front Handle Kit (Part No HP 5062-3989) | $56 ☎ |
| **Opt. 908** Rack Mount Flange Kit (Part No HP 5062-3977) | $33 ☎ |
| **Opt. 909** Opt 907, 908 combined (Part No HP 5062-3983) | $82 ☎ |
| **Opt. 910** Additional Operating and Service Manual | $71 |
| **Opt. W30** Extended repair service see page 671. | $210 |

*For more on these codes, refer to the HP-IB section of this catalog.
**HP-IB cables not supplied; see page 615.

☎ For off-the-shelf shipment, call 800-452-4844.

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