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

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 μHz resolution in the 1 to 9,999 MHz range. In Normal mode, the accuracy is 0.001% with a stability of ± 1 x 10^-7.

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
Havertasine/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 k Ω ± 10%
Amplitude: 10.0 mVpp to 10.0 Vpp (50 Ω into 50 Ω)
2.00 Vpp to 20.0 Vpp (1 k Ω into 50 Ω)

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Sine V Vrms</th>
<th>Square</th>
<th>Triangle (50%)</th>
<th>Ramp (20-80%)</th>
<th>Pulse (20-80%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 kHz</td>
<td>± 3%</td>
<td>± 2%</td>
<td>± 3%</td>
<td>± 3%</td>
<td>± 2%</td>
</tr>
<tr>
<td>1 kHz-4.99 MHz</td>
<td>± 3%</td>
<td>± 2%</td>
<td>± 5%</td>
<td>± 5%</td>
<td>± 2%</td>
</tr>
<tr>
<td>5 MHz-19.9 MHz</td>
<td>± 5%</td>
<td>± 5%</td>
<td>± 10%</td>
<td>± 10%</td>
<td>± 5%</td>
</tr>
<tr>
<td>20 MHz-50 MHz</td>
<td>± 5%</td>
<td>± 5%</td>
<td>± 5% to -1.5%</td>
<td>-1.5%</td>
<td>-1.5%</td>
</tr>
</tbody>
</table>

Offset: 0 ± 10 mV to ± 5.00 V (50 Ω into 50 Ω)
0 ± 20 mV to ± 10.0 V (1 k Ω 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 k Ω into 50 Ω)
Prewheel/overshoot/ringing: ≤ ±5% (50 Ω into 50 Ω), ± 10% (1 k Ω 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 main, 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, CO, EI

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 x 426 mm W x 422 mm D (5.2 in x 16.8 in x 16.6 in)

Ordering Information
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 Rack Mount Flange Kit (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.
**For off-the-shelf shipment, call 800-452-4844.