## AM MODULATION CHARACTERISTICS

<table>
<thead>
<tr>
<th>Source</th>
<th>Internal, External</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulation Ratio</td>
<td>0 to 100%</td>
</tr>
<tr>
<td>Int modulation</td>
<td>1 kHz</td>
</tr>
<tr>
<td>Ext Modulation</td>
<td>DC to 500 kHz</td>
</tr>
<tr>
<td>Ext Sensitivity</td>
<td>Less than 10 V p-p for 100% modulation</td>
</tr>
<tr>
<td>Burst Characteristics</td>
<td>Source: Internal, External</td>
</tr>
<tr>
<td>Burst W/ Output</td>
<td>Cont. variable from 5% to 90% of internal gating frequency</td>
</tr>
<tr>
<td>Repletion Rate</td>
<td>0.5 Hz to 50 Hz, internal</td>
</tr>
</tbody>
</table>

## Ext Modulation DC to 500 kHz external

| Ext Output | 4V to 14V ±0.5 p-p cont variable |
| Rise Time | ≤ 120 ns |

## Burst Characteristic

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<tr>
<td>Modulation Ratio</td>
<td>0 to 100%</td>
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<tr>
<td>Int deviation</td>
<td>0 to 5%</td>
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<tr>
<td>Ext Modulation</td>
<td>DC to 500 kHz</td>
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## Specifications

### Function Generators

#### 4040A

- **Wavelengths**: Sine, Square, Triangle, ± Pulse, ± Ramp
- **Range**: 0.2 Hz to 20 MHz in 8 ranges, 0.1 Hz to 10 MHz in 8 ranges
- **Resolution**: 5 digits
- **Tuning Range**: 10:1
- **Time**: ± 5% of coarse setting
- **Variable Duty Cycle**: 15.85:15 cont variable
- **Operating Modes**: Normal, sweep, VCG, AM, FM, burst

#### 4017A

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- **Resolution**: 5 digits
- **Tuning Range**: 10:1
- **Time**: ± 5% of coarse setting
- **Variable Duty Cycle**: 15.85:15 cont variable
- **Operating Modes**: Normal, sweep, VCG, AM, FM, burst

### Output Characteristics

- **Impedance**: 50Ω ± 10%
- **Level**: 20 V p-p Open circuit, 10V p-p into 50Ω
- **Amplitude**: Variable, 20 dB range typical
- **Attenuation**: -20 dB ± 1dB
- **DC Offset**: Preset ± 0.1 V typ Variable: ± 10V open-circuit ± 5 into 50Ω
- **SINE Wave**
  - **Distortion**: <3% typical at 1 kHz
  - **Flatness**: ±50Hz (45 dB) 0.1 Hz to 10 MHz
  - **Frequency**: ± 20Hz (2.0 dB) 10 MHz to 20 MHz (4040A)

- **Square wave**
  - **Symmetry**: ± 2% (45 dB) 0.1 Hz to 10 MHz
  - **Frequency**: ±20% (2.0 dB) 10 MHz to 20 MHz (4040A)

- **Triangle Wave**
  - **Linearity**: ≥ 98% to 100 kHz

### TTL Output

- **Level**: 0.8V to 2.4V
- **Rise time**: ≤ 20 ns
- **Dutycycle**: 50% typical

### CMOS Output

- **Max Frequency**: 2 MHz
- **Level**: 4V to 14V ± 0.5 p-p cont variable
- **Rise Time**: ≤ 120 ns

### VCG (Voltage controlled generator)

- **Input Voltage**: 0-10V ± 1V causes a 100:1 frequency change
- **Impedance**: 10kΩ ± 5%

### Sweep Operation

- **Mode**: LIN/LOG
- **Width**: 100:1 continuously variable
- **Rate**: 20 ms to 2 s cont variable, 0.5 s to 30 s cont variable
- **Sweep Output**: 0 to 2V, 0 to 10V
- **Start/Stop Frequencies**: Adjustable, NA

### Frequency Counter

- **Accuracy**: Time base accuracy ± 1 count
- **Time Base Accuracy**: ± 10 ppm (23°C ± 5°C)
- **Display**: 5 digit LED
- **Mode**: INT or EXT NA

### External Input

- **Frequency**: 5 Hz to 30 MHz Does not apply
- **Resolution**: 0.1, 1, 10, 100, 1 kHz
- **Sensitivity**: 25μVrms
- **Power Source**: 120/230 VAC ± 10% 50/60 Hz, internal jumper selectable

### Dimensions

- **5.5 x 11.75 x 10.575” (140 x 298 x 264mm)**
- **4.5 x 11.75 x 10.575” (114 x 298 x 264mm)**

### Accessories

- **Carrying Case**: (not included): LC-40

### Specifications

- **Model 4040A**
  - 20 MHz Sweep/Function Generator with Frequency Counter
  - 0.2 Hz to 20 MHz
  - AM & FM modulation
  - Burst operation
  - External frequency counter to 30 MHz
  - 5 digit LED display
  - All features of Model 4017A

- **Model 4017A**
  - 10 MHz Sweep/Function Generator with Digital Display
  - 0.1 Hz to 10 MHz
  - Linear and log sweep
  - 5 digit LED display
  - All features of Model 4011A

### Two Year Warranty