## Data sheet

# Function Generators

## Models 4017A & 4040A


Model 4040A

These analog function generators offer familiar controls, stable output, and reliable operation at budget-saving price points.

### 4017A
### 10 MHz Sweep Function Generator

- 0.1 Hz to 10 MHz
- Sine, Square, Triangle, Pulse, & Ramp output
- Coarse and Fine tuning
- 5 digit LED display
- Linear and log sweep
- Variable duty cycle
- Variable DC offset
- cUL certified

### 4040A
### 20 MHz Sweep Function Generator

- 0.2 Hz to 20 MHz
- Sine, Square, Triangle, Pulse, & Ramp output
- Coarse and Fine tuning
- AM & FM modulation
- Burst operation
- External frequency counter to 30 MHz
- Linear and log sweep
- Variable duty cycle
- Variable DC offset
- cUL certified

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| Model 4040A | |
|---|---|
| **AM Modulation Characteristics** | |
| Source | Internal, External |
| Modulation Ratio | 0 to 100% |
| Int modulation | 1 kHz |
| Ext Modulation | DC to 500 kHz |
| Ext Sensitivity | Less than 10V p-p for 100% modulation |
| **FM Modulation Characteristics** | |
| Source | Internal, External |
| Modulation Ratio | 0 to 100% |
| Deviation | 0 to 5% |
| INT Modulation | 1 kHz |
| Ext Modulation | DC to 500 kHz |
| Ext Sensitivity | Less than 10V p-p for 100% modulation |
| **Burst Characteristic** | |
| Source | Internal, External |
| Burst Width | Cont. variable from 5% to 90% of internal gating frequency |
| Repition Rate | 0.5 Hz to 50 Hz, internal<br>DC to 500 kHz external |
| External Level | TTL levels |
| Burst Frequency | Determined by main generator frequency setting |

| Specifications | 4017A | 4040A |
|---|---|---|
| **Frequency Characteristics** | | |
| Waveforms | Sine, Square, Triangle, ±Pulse, ±Ramp | |
| Range | 0.1 Hz to 10 MHz in 8 ranges | 0.2 Hz to 20 MHz in 8 ranges |
| Resolution | 5 digits | 5 digits |
| Tuning Range | 10:1 | 10:1 |
| Fine | ±5% of coarse setting | ±5% of coarse setting |
| Variable Duty Cycle | 15:85:15 cont variable | 15:85:15 cont variable |
| Operating Modes | Normal, sweep, VCG | 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 (at 3 Vp-p) | ±5% (.45 dB) 0.1 Hz to 8 MHz<br>±20% (2.0 dB) 8 MHz to 10 MHz | ±5% (.45 dB) 10 Hz to 8 MHz<br>±20% (2.0 dB) 8 MHz to 20 MHz |
| **Square wave** | | |
| Symmetry | 0.1 Hz to 100 kHz <2% | 0.2 Hz to 100 kHz <2% |
| Rise time | ≤ 30 ns | |
| Triangle Wave | Linearity: ≥ 98% to 100 kHz | |
| **TTL Output** | | |
| Level | 0.8V to 2.4V | |
| Rise time | ≤ 20 nS | |
| Duty Cycle | 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 | 0.5 s to 30 s cont variable | 20 ms to 2 s cont variable |
| Sweep Output | 0 to 10 V | 0 to 2 V |
| Start/Stop Frequencies | NA | Adjustable |
| **Frequency Counter** | | |
| Accuracy | Time base accuracy ±1 count | |
| Time Base Accuracy | ±10 ppm (23° ±5°C) | |
| Display | 5 digit LED | |
| Mode | NA | INT or EXT |
| **External Input** | | |
| Frequency | Does not apply | 5 Hz to 30 MHz |
| Resolution | Does not apply | 0.1, 1, 10, 100, 1 kHz |
| Sensitivity | Does not apply | 25 mVrms |
| **General** | | |
| AC Input | 120/230 VAC ±10%, 50/60 Hz, internal jumper selectable | |
| Dimensions | 4.5 x 11.75 x 10.575"<br>(140 x 298 x 264mm) | 5.5 x 11.75 x 10.575"<br>(114 x 298 x 264mm) |
| Weight | 4 lbs. (1.8 kg) | 4.5 lbs. (2 kg) |
| | | ***Two-Year Warranty*** |
| Included Accessories | Output Cable with BNC to Alligator Clips,<br>Instruction Manual Carrying Case (not included): LC-40 | |



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