Lab Brick
LMS Signal Generators

- USB powered and controlled
- Includes easy to install and use GUI
- Fast switching to 20 GHz
- Selectable internal/external 10 MHz reference
- Phase continuous frequency sweep (LFM)
- High-speed internal and external pulse modulation
- Autonomous operation from USB hub or battery pack
- Robust aluminum construction
- API DLL and LabVIEW compatible drivers available

The Lab Brick LMS Signal Generators cover frequencies from 0.5 MHz to 20 GHz with low phase noise, fast 100 microsecond switching time, and fine 100 Hz frequency resolution. They require no additional DC supply voltage and offer advanced features such as phase continuous linear frequency sweeping, internal/external 10 MHz reference, and optional pulse modulation. GUI software can track and control several connected signal generators, simplifying multiple-signal test setups. Each device stores settings in internal memory, allowing it to power up in a specific instrument state.

Applications include:
- Automated Test Equipment (ATE)
- Portable LO Source
- Engineering/Production Test Lab

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Phase Noise @ 10/100kHz offset</th>
<th>Output Power (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMS-271D</td>
<td>.5 to 270 MHz</td>
<td>-97/-103</td>
<td>+10 to -45</td>
</tr>
<tr>
<td>LMS-451D</td>
<td>70 to 450 MHz</td>
<td>-97/-103</td>
<td>+10 to -45</td>
</tr>
<tr>
<td>LMS-152D</td>
<td>.25 to 1.5 GHz</td>
<td>-95/-101</td>
<td>+10 to -45</td>
</tr>
<tr>
<td>LMS-232D</td>
<td>.5 to 2.3 GHz</td>
<td>-92/-99</td>
<td>+10 to -45</td>
</tr>
<tr>
<td>LMS-322D</td>
<td>.6 to 3.2 GHz</td>
<td>-90/-97</td>
<td>+10 to -45</td>
</tr>
<tr>
<td>LMS-402D</td>
<td>1 to 4 GHz</td>
<td>-85/-94</td>
<td>+10 to -45</td>
</tr>
<tr>
<td>LMS-602D</td>
<td>1.5 to 6 GHz</td>
<td>-85/-94</td>
<td>+10 to -45</td>
</tr>
<tr>
<td>LMS-802</td>
<td>4 to 8 GHz</td>
<td>-81/-89</td>
<td>+10 to -40</td>
</tr>
<tr>
<td>LMS-103</td>
<td>5 to 10 GHz</td>
<td>-81/-89</td>
<td>+10 to -40</td>
</tr>
<tr>
<td>LMS-123</td>
<td>8 to 12 GHz</td>
<td>-77/-86</td>
<td>+10 to -40</td>
</tr>
<tr>
<td>LMS-163</td>
<td>8 to 16 GHz</td>
<td>-75/-83</td>
<td>+10 to -30</td>
</tr>
<tr>
<td>LMS-203</td>
<td>10 to 20 GHz</td>
<td>-75/-83</td>
<td>+10 to -30</td>
</tr>
</tbody>
</table>

- Frequency Resolution: 100 Hz
- Accuracy: ±2 PPM
- Switching: 100 μs
- Spurious:
  - Typical: -80 dBc
  - Maximum: -70 dBc
- VSWR: 1.5:1
- Harmonics:
  - Typical: -40 dBc
  - Maximum: -15 dBc
- SubHarmonics:
  - LMS-802, LMS-103, LMS-123: -60 dBm
  - LMS-163, LMS-203: -25 dBc
- Selectable Internal/External Reference:
  - Frequency: 10 MHz
  - Input Level: 500 mV to 3V peak to peak
- Phase Continuous Linear Frequency Sweep (LFM):
  - Sweep Time: 1 ms to 1000 seconds
  - Sweep Direction: Up, down, bidirectional
- Optional Pulse Modulation:
  - Pulse Depth:
    - LMS-163, LMS-203: -45 dBc typical, -35 dBc min
    - All Other Models: -70 dBc typical, -60 dBc min
  - Rise/Fall Time: 30 ns typical
  - Internal/External Pulse Mode:
    - Pulse Width: 100 ns min
    - PRI: 100 ns plus pulse width min
    - Resolution: 100 ns
    - Trigger Input/Output: 0 to 5 Volts
- RF Connector: SMA-female
- USB Connector: B-female
- Dimensions: 4.90 x 3.14 x 1.59 in. (124 x 80 x 40 mm)
- Weight: < 1.0 lbs. (< .45 kg)
- Available Options:
  - Opt 003: Pulse modulation
  - Opt 004: External Frequency Sweep Trigger
- Included Accessories:
  - USB Flash Drive with GUI Software & User Manual/Programming Guide
  - 3’ USB Cable

1. Customized models are available tailored to specific performance requirements. Specifications are subject to change without notice.