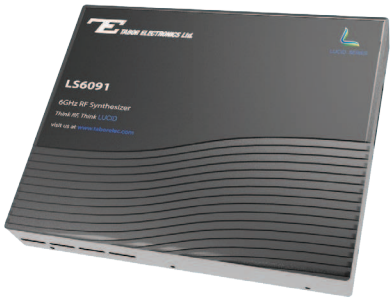
LUCID SERIES

Simulate, Stimulate, Test...

PRELIMINARY



LS3081M/LS6081M/LS1291M

3, 6 or 12 GHz RF Analog Signal Generator Modules

- 3, 6 & 12GHz RF Analog Signal Generator
- Extremely fast switching speed of <100µs
- AM, FM, PM Sweep & Pulse Modulation
- Extra small, compact module platform
- Exceptionally Low Phase Noise of -145dBc/Hz @100MHz and 10@kHz offset
- SPI and micro-USB integrated interfaces
- Remotely programmable via MATLAB, Python, LabVIEW and other software programming environments.
- Flixible modular platform for OEM and custom requirements and applications, to satisfy specific customer demands.
- Multi instrument synchronization capability

Tabor is proud to introduce its new line of RF analog signal generators. The all-new Lucid Series offers the most advanced features and industry leading performance in the most compact form factor. The series feature 3, 6 and 12 GHz single channel versions, all sharing the very same industry leading highlighted features, in a compact, small footprint module. Featuring extremely fast switching speed, superior signal integrity and purity, all the necessary modulated signals for analog communication systems, with built in SPI and micro-USB interface, the Lucid Series is designed to meet today's most demanding specifications, needed from the R&D benches to the production lines.

Extremely Fast Switching

In today's world, time is a crucial factor, whether in design, on the production floor or inside ATE systems. With a switching speed of less than 100µs, Tabor's All-New Lucid Series ensures maximum measurements at minimum time, setting the industry's highest throughput standard.

Signal Integrity and Purity

One of the most important requirement in today's test and measurement applications is high signal quality. With a typical SSB phase noise of -145dBc/Hz at 100MHz, and -132dBc/Hz at 1GHz, at 10 kHz carrier offset, Tabor's All-New Lucid Series platform delivers one of the best quality signals available on the market today, answering the ever-growing demand for clear and precise signals.

Modulation Schemes

Signal bursts and chirps have become common need in the daily life of any aerospace or defense application. With Tabor's All-New Lucid Series, any pulse modulation is possible, no matter if its "narrow" or "standard" pulse need. On top of its outstanding pulse modulation performance, the Lucid Series is also equipped with many CW interferers, and modulated signals such as AM, FM, PM and Sweep.

Multiple Ways to Control the Unit & Write Code

Tabor's Lucid Series comes with its own dedicated software to control the instrument functions, modes and features via a graphical user interface (GUI) as well as a complete set of drivers, allowing you to write your application in various environments including LabVIEW, Python, CVI, C++, VB and MATLAB. You may also link the supplied dll to other Windows-based API's or use low-level SCPI commands to program the instrument, regardless of whether your application is written for Windows, Linux or Macintosh operating systems.

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PRELIMINARY

Specification

FREQUENCY

Range:
- LS3081M: 100 kHz to 3GHz
- LS6081M: 100 kHz to 6GHz
- LS1291M: 100 kHz to 12GHz

Resolution: 0.001 Hz
Phase offset: 0.01 deg
Switching speed:
- Standard: 500us
- Fast (Option): 100 us
- List Mode (WB): 100us Full bandwidth
- List Mode (NB): <6us Narrow bandwidth (<10% BW)

Digital Sweep Mode (Frequency and amplitude):
- Range:
  - LS3081M: 100 kHz to 3GHz
  - LS6081M: 100 kHz to 6GHz
  - LS1291M: 100 kHz to 12GHz
- Dwell time: 10us to 1000s 1us resolution
- Number of points:
  - List: 2 to 4096
  - Step: 2 to 65535

Step change: Linear or logarithmic
Trigger: Free run, External, Bus, Timer

FREQUENCY REFERENCE

Temp. Stability: ±100 ppb, ±20 ppb (option)
Aging: ± 1.25 ppm for 10 years
Warm up time: 30 min
Internal:
- Output Frequency: 10 / 100 MHz
- Output Wave shape: Sine
- Output Power: +5 ±2 dBm
- Reference Mute: -60 dBm
- Locking Range: ± 2.0 ppm
- Output Impedance: 50Ω

External:
- Input Frequency: 10 / 100 MHz
- Input Power: -5 to +10 dBm
- Absolute Max. Input Level: +15 dBm
- Input Impedance: 50Ω
- Locking Range: 20Hz
- Wave shape: Sine or Square

AMPLITUDE

Max output power: +15 dBm
Min output power: -20 dBm
-90 dBm (option)
Resolution: 0.01 dB
Power Mute: -65dBm
Output Return Loss: -10dBm
Switching speed: 100 us
Accuracy (dB): ±0.5 (up to 10dBm)
±1(above 10dBm)

PHASE NOISE (dBc/Hz)

up to 1.5 GHz: -136 typ (-132 max)
1.5 to 3 GHz: -130 typ (-125 max)
3 to 6 GHz: -124 typ (-120 max)
6 to 12 GHz: -118 typ (-114 max)

HARMONICS (dBc)

up to 12 GHz: -40dBC

NON-HARMONICS (dBc)

up to 12 GHz: -60 dBC

MODULATION OPTIONS

FREQUENCY MODULATION

Maximum Deviation:
- 0.05*f: (<1.5GHz)
- 25MHz: (1.25 to 2.5 GHz)
- 50MHz: (2.5 to 5GHz)
- 100MHz: (5 to 10GHz)
- 200MHz: (>10GHz)

Resolution: 0.1% or 1 Hz (the greater)
Modulation Rate: 1 MHz

PHASE MODULATION

Peak Deviation: 300 rad

AMPLITUDE MODULATION

AM Depth Linear:
- Maximum settable: 90%
- Resolution: 0.1% of depth
- Accuracy (1 kHz rate): < ± 4% of setting

AM Depth Exponential:
- Maximum settable: 40 dB
- Resolution: 0.01 dB
- Accuracy (1kHz rate): < ± 4% of setting

Modulation rate: DC to 100 kHz

PULSE MODULATION

On/off ratio: 80 dB
Rise/fall time (10%-90%): 25ns
Resolution:
Minimum Width: 30ns
Pulse Repetition frequency: DC to 10 MHz

INPUTS

AM, FM MODULATION INPUTS

Connector Type: MMCX
Input Impedance: 50Ω
Max. input voltage: 1V
Input damage level: ±3.5V

PULSE MODULATION INPUT

Connector type MMCX
Input Impedance 50Ω
Input voltage TTL, CMOS compatible
- Low threshold 0V
- High threshold 1V

Damage level -0.42V, +5.42V

TRIGGER INPUT

Connector type MMCX
Input Impedance 50Ω or 10kΩ
Input voltage TTL, CMOS compatible
Damage level ±5V

EXTERNAL REFERENCE INPUT

Connector type SMA
Input Impedance 50Ω
Waveform Sine or Square
Frequency 10/100MHz

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OUTPUTS

RF OUT

Impedance	50Ω
Connector	SMA

REFERENCE OUT

Impedance	50Ω
Connector	SMA

GENERAL

Voltage:	+12.0 to +12.6 VDC
Absolute Max Supply Voltage	+15 V DC
Power Consumption:	24W max.
Normal Operation	18W nom.
Interface:	MICRO-USB, SPI
Dimensions:	12 x 16 x 2.5 cm (W x H x D)
Weight:	
Without Package	1 Kg
Shipping Weight	1.5 Kg
Temperature:	
Operating	0°C to +40°C
Storage	-40°C to +70°C
Warm up time:	15 minutes
Humidity:	85% RH, non-condensing
Safety:	CE Marked, IEC61010-1-1:2008
EMC:	IEC 61326-1:2006
Calibration:	1 years
Warranty:	1 / 3 year warranty plan

ORDERING INFORMATION

MODEL	DESCRIPTION
LS3081M:	3GHz RF Analog Signal Generator Module
LS6081M:	6GHz RF Analog Signal Generator Module
LS1291M:	12GHz RF Analog Signal Generator Module

OPTIONS

Option M:	AM, FM & PM Modulation
Option P:	Pulse Modulation
Option LP:	Low Power option to -90 dBm
Option FP:	Fast Switching option 100us

PHASE NOISE PLOT