


# LUCID SERIES


THINK RF THINK LUCID


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.


→   
3, 6 & 12GHz RF analog signal generator

↓ Remotely programmable via MATLAB, Python, LabVIEW and other software programming environments

→   
Exceptionally Low Phase Noise of -145dBc/Hz @100MHz and 10kHz offset


  
Extremely Fast Switching speed of <100us

→   
SPI and micro-USB integrated interfaces

↓   
Extra small, compact module platform

→ Multi instrument synchronization capability

↑ Flexible modular platform for OEM and custom requirements and applications, to satisfy specific customer demands.

→   
AM, FM, PM Sweep & Pulse Modulation



## 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.

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### Signal Integrity and Purity

One of the most important requirement in today's testing and measurement applications is high signal quality. With a typical SSB phase noise of -145dBc at 100MHz, and -132dBc 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.

### Multiple Ways to Control the Unit and Write Your 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.

### 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.

## Specifications

### FREQUENCY

<b>Range:</b>	
LS3081D:	100 kHz to 3GHz
LS6081D:	100 kHz to 6GHz
LS1291D:	100 kHz to 12GHz
<b>Resolution:</b>	0.001 Hz
<b>Phase offset:</b>	0.01 deg
<b>Switching speed:</b>	
Standard:	500us
Fast (Option):	100 μs
List Mode (WB):	100 us Full bandwidth
List Mode (NB):	<6us Narrow bandwidth (<10% BW)

### Digital Sweep Mode (Frequency and amplitude):

<b>Range:</b>	
LS3081D:	100 kHz to 3GHz
LS6081D:	100 kHz to 6GHz
LS1291D:	100 kHz to 12GHz
<b>Dwell time:</b>	10us to 1000s 1us resolution
<b>Number of points:</b>	
List:	2 to 4096
Step:	2 to 65535
<b>Step change:</b>	Linear or logarithmic
<b>Trigger:</b>	Free run, External, Bus, Timer

### FREQUENCY REFERENCE

<b>Temp. Stability:</b>	±100 ppb, ±20 ppb (option)
<b>Aging:</b>	± 1.25 ppm for 10 years
<b>Warm up time:</b>	30 min
<b>Internal:</b>	
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
<b>External:</b>	
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

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

### PHASE NOISE (dBc/Hz)

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

### HARMONICS (dBc)

<b>up to 12 GHz:</b>	-40dBc
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### NON HARMONICS (dBc)

<b>up to 12 GHz:</b>	-60dBc
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### MODULATION

#### FREQUENCY MODULATION

<b>Maximum Deviation:</b>	
0.05*f:	(<1.5GHz)
25MHz:	(1.25 to 2.5 GHz)
50MHz:	(2.5 to 5GHz)
100MHz:	(5 to 10GHz)
200MHz:	(>10GHz)
<b>Resolution:</b>	0.1% or 1 Hz (the greater)
<b>Modulation Rate:</b>	1 MHz

#### PHASE MODULATION

<b>Peak Deviation:</b>	300 rad
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#### AMPLITUDE MODULATION

<b>AM Depth Linear:</b>	+15 dBm
Maximum settable:	90%
Resolution:	0.1% of depth
Accuracy (1 kHz rate):	< ± 4% of setting
<b>AM Depth Exponential:</b>	
Maximum settable:	40 dB
Resolution:	0.01 dB
Accuracy (1kHz rate):	< ± 4% of setting
<b>Modulation rate:</b>	DC to 100 kHz

### PULSE MODULATION (Option)

<b>On/off ratio:</b>	80 dB
<b>Rise/fall time (10%-90%):</b>	25ns
<b>Resolution:</b>	6.4ns
<b>Minimum Width:</b>	30ns
<b>Pulse Repetition frequency:</b>	DC to 10 MHz

### INPUTS

#### AM, FM MODULATION INPUTS

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

#### PULSE MODULATION INPUT (Option)

<b>Connector type</b>	MMCX
<b>Input Impedance</b>	50Ω
<b>Input voltage</b>	TTL,CMOS compatible
Low threshold	0V
High threshold	1V
<b>Damage level</b>	-0.42V +5.42V

#### TRIGGER INPUT

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

#### EXTERNAL REFERENCE INPUT

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

## Specifications

OUTPUTS	
RF OUT	
Impedance	50Ω
Connector type	SMA
REFERENCE OUT	
Impedance	50Ω
Connector type	SMA

GENERAL	
Voltage:	+12.0 to +12.6 VDC
Absolute Max	-20 dBm (option)
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:	2 years
Warranty:	1 / 3 year warranty plan

ORDERING INFORMATION	
MODEL	DESCRIPTION
LS3081D	3GHz RF Analog Signal Generator Desktop Module
LS6081D	6GHz RF Analog Signal Generator Desktop Module
LS1291D	12GHz RF Analog Signal Generator Desktop Module
OPTIONS	
Pulse	Pulse Modulation
LP	Low Power option to -90 dBm
FS	Fast Switching option 100us
Emulator pack	Emulator for Keysight, R&S, Anapico & Holzworth

