

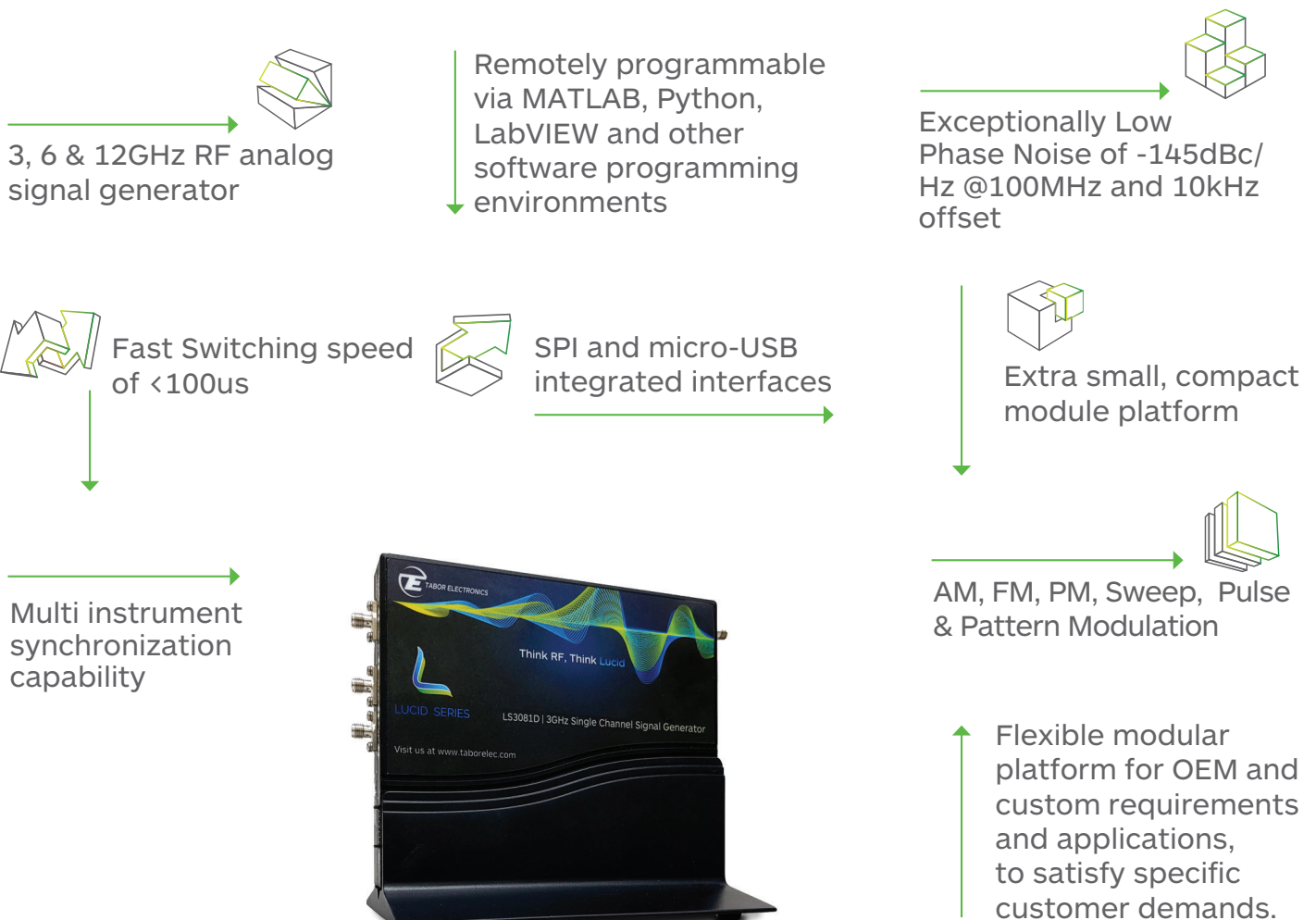


# LUCID SERIES

THINK RF THINK LUCID

## DESKTOP MODELS

The 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, built in SPI and micro-USB interfaces, the Lucid Series is designed to meet today's most demanding specifications, needed from the R&D benches to the production lines.



Distribution in the UK & Ireland



[www.lambdaphoto.co.uk](http://www.lambdaphoto.co.uk)



## Signal Integrity and Purity

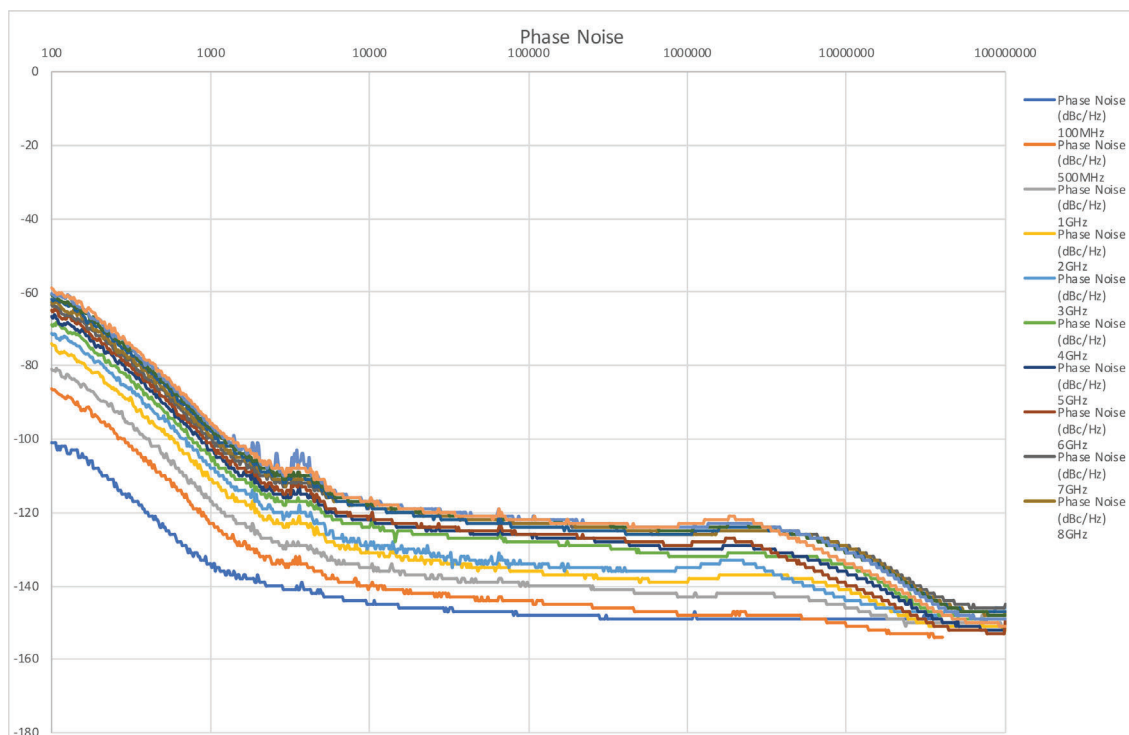
One of the most important requirements in today's testing and measurement applications is a high signal quality. With a typical SSB phase noise of  $-145\text{dBc}$  at  $100\text{MHz}$ , and  $-132\text{dBc}$  at  $1\text{GHz}$ , at  $10\text{ kHz}$  carrier offset, Tabor's Lucid Series platform delivers one of the best quality signals available on the market today.

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

Tabor's Lucid Series has a dedicated software to control the instrument functions, modes and features via a graphical user interface (GUI). It also includes 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 most aerospace or defense application. With Tabor's All-New Lucid Series, any signal modulation is possible, no matter if "narrow" or "standard" signals are required. 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, Pulse, Pattern and Sweep.



## Specifications

FREQUENCY	
<b>Range:</b>	
LS3081D:	9 kHz to 3GHz
LS6081D:	9 kHz to 6GHz
LS1291D:	9 kHz to 12GHz
<b>Resolution:</b>	0.001 Hz
<b>Phase offset:</b>	0.01 deg
<b>Switching speed:</b>	
Standard:	500 $\mu$ s
FS Option:	100 $\mu$ s

FREQUENCY REFERENCE	
<b>Temp. Stability:</b>	$\pm$ 25 ppb max.
<b>Aging:</b>	$\pm$ 3 ppm for 20 years
<b>Warm up time:</b>	30 min

AMPLITUDE		
<b>Max output power:</b>		
Settable:	+20 dBm	
Calibrated:	+15 dBm <sup>(1)</sup>	
<b>Min output power:</b>	Base	LP Opt.
Settable:	-30 dBm	-100 dBm
Calibrated:	-20 dBm	-80 dBm
<b>Resolution:</b>	0.01 dB	
<b>Power Mute:</b>	-95 dBm	
<b>Output Return Loss:</b>	-10 dBm	
<b>Accuracy (dB):</b>	-50dBm to +15dBm	-90dBm to -50dBm
Up to 100MHz:	$\pm$ 0.3 (typ.)	$\pm$ 0.5 (typ.)
100MHz to 3GHz:	$\pm$ 0.4 (typ.)	$\pm$ 0.6 (typ.)
3GHz to 9GHz:	$\pm$ 0.7 (typ.)	$\pm$ 0.9 (typ.)
Above 9GHz:	$\pm$ 1 (typ.)	$\pm$ 1.5 (typ.)

PHASE NOISE (dBc/Hz)	
<b>Measured @ 10kHz offset</b>	
<b>1 GHz:</b>	-138 (typ.)
<b>2 GHz:</b>	-133 (typ.)
<b>3 GHz:</b>	-130 (typ.)
<b>6 GHz:</b>	-124 (typ.)
<b>12 GHz:</b>	-118 (typ.)

HARMONICS (dBc)	
<b>Up to 100 MHz:</b>	-30 dBc
<b>100 MHz to 12 GHz:</b>	-50 dBc <sup>(2)</sup>

SUB-HARMONICS (dBc)	
<b>6 to 12 GHz:</b>	-55 dBm

NON-HARMONICS (dBc)	
<b>Up to 12 GHz:</b>	-90dBc (typ.) <sup>(4,5)</sup> -60dBc max. <sup>(6)</sup>

MODULATION	
<b>FREQUENCY MODULATION</b>	
<b>Maximum Deviation:</b>	10 MHz
Resolution:	0.1% or 1 Hz (the greater)
<b>Modulation Rate:</b>	1 MHz
Resolution:	1 Hz

AMPLITUDE MODULATION <sup>(6)</sup>	
<b>AM Depth:</b>	
Type:	Linear
Maximum settable:	90%
Resolution:	0.1% of depth
<b>Modulation rate:</b>	DC to 100 kHz

PHASE MODULATION	
<b>Peak Deviation:</b>	360 deg
<b>Modulation Rate:</b>	DC to 100 kHz

PULSE MODULATION (PLS OPTION)	
<b>On/off ratio:</b>	60 dB
<b>Rise/fall time: (10%-90%):</b>	15ns (typ.)
<b>Resolution:</b>	6.4ns
<b>Minimum Width:</b>	32ns
<b>Repetition frequency:</b>	DC to 10 MHz

PATTERN MODULATION (PAT OPTION)	
<b>Number of steps:</b>	1 to 2048
<b>Step Repetition:</b>	1 to 65535
<b>On/off time:</b>	32 ns to 20 days

SWEEP	
<b>Range:</b>	Same as freq. range
<b>Modes:</b>	Frequency step, Amplitude step, List
<b>Dwell time:</b>	10 $\mu$ s to 1000 s

<b>Resolution:</b>	1 $\mu$ s
<b>Number of points:</b>	
List:	2 to 4,096
Step:	2 to 65,535
<b>Step change:</b>	Linear
<b>Trigger:</b>	Free run, External, Bus, Timer

INPUTS	
<b>MODULATION INPUT</b>	
<b>Connector Type:</b>	MMCX
<b>Input Impedance:</b>	50 $\Omega$
<b>Max. input voltage:</b>	$\pm$ 1V
<b>Input damage level:</b>	$\pm$ 3.5V
<b>PULSE / TRIGGER INPUT</b>	
<b>Connector type:</b>	MMCX
<b>Input Impedance:</b>	50 $\Omega$
<b>Input voltage:</b>	TTL, CMOS compatible
Threshold:	1.5V
<b>Damage level:</b>	-0.42V or 5.42V
<b>EXTERNAL REFERENCE INPUT</b>	
<b>Connector type:</b>	SMA
<b>Input Impedance:</b>	50 $\Omega$
<b>Waveform:</b>	Sine or Square
<b>Frequency:</b>	10/100MHz
<b>Power:</b>	-3 dBm to +10 dBm
<b>Absolute Max. Level:</b>	+15 dBm
<b>Locking Range:</b>	$\pm$ 2 ppm

OUTPUTS	
<b>RF OUT</b>	
<b>Impedance:</b>	50 $\Omega$
<b>Connector type:</b>	SMA
<b>Number of outputs:</b>	1
<b>REFERENCE OUT</b>	
<b>Impedance:</b>	50 $\Omega$
<b>Connectors type:</b>	2 x SMA
<b>Frequency:</b>	10 MHz or 100 MHz
<b>Shape:</b>	Sine
<b>Power:</b>	3 to 7 dBm

<sup>(1)</sup> Above 25kHz; <sup>(2)</sup> With LP Option; <sup>(3)</sup> 750MHz to 900MHz -35dBc (typ.); <sup>(4)</sup> -60dBm max. @ 1GHz, 1.5GHz, 2.5GHz and 3GHz; <sup>(5)</sup> -75dBm max. @ -15dBm to +15dBm and f>6GHz; <sup>(6)</sup> Boundary spurs which may appear @ -100MHz to +100MHz offset from CW. <sup>(6)</sup> Specified for >100MHz.



LUCID SERIES  
THINK RF THINK LUCID

## Specifications

GENERAL	
<b>Voltage:</b>	+12.0 to +12.6 VDC
<b>Power Consumption:</b>	
Normal Operation:	18W nom.
Max:	24W max.
<b>Interface:</b>	MICRO-USB, SPI
<b>Dimensions:</b>	12 x 16 x 2.5 cm
<b>Weight:</b>	
Without Package:	1.0 kg
Shipping Weight:	1.5 kg
<b>Temperature:</b>	
Operating:	0°C to +40°C
Storage:	-40°C to +70°C
<b>Warm up time:</b>	15 minutes
<b>Humidity:</b>	85% RH, non-condensing
<b>Safety:</b>	CE Marked, IEC61010-1:2010
<b>EMC:</b>	IEC 61326-1:2013
<b>Calibration:</b>	2 years
<b>Warranty*:</b>	3 year standard * 1 year standard in India

ORDERING INFORMATION	
<b>MODEL</b>	<b>DESCRIPTION</b>
LS3081D	3GHz RF Analog Signal Generator Desktop Module
LS6081D	6GHz RF Analog Signal Generator Desktop Module
LS1291D	12GHz RF Analog Signal Generator Desktop Module
<b>OPTIONS</b>	
LP	Low Power Option (-90dBc)
PLS	Pulse Modulation
PAT	Pattern Modulation
FS	Fast Switching

Distribution in the UK & Ireland



**Lambda Photometrics Limited**  
Lambda House Batford Mill  
Harpenden Herts AL5 5BZ  
United Kingdom  
**E:** [info@lambdaphoto.co.uk](mailto:info@lambdaphoto.co.uk)  
**W:** [www.lambdaphoto.co.uk](http://www.lambdaphoto.co.uk)  
**T:** +44 (0)1582 764334  
**F:** +44 (0)1582 712084

All rights reserved to Tabor Electronics Ltd. Tabor makes no representations nor warranties with respect to the accuracy or completeness of the contents and reserves the right to make changes at any time without notice. ver\_2.4