



# LUCID SERIES


THINK RF THINK LUCID

## RACK MOUNT MODELS


The all-new Lucid Series Rack mount platform is designed to offer maximum channel density at minimum cost of space. The rack-mounted platform, offers up to 4 phase coherent channels in a 19" 1U box and up to 16 phase coherent channels in a 19" 3U box. Featuring extremely fast switching speed, superior signal integrity and purity, removable memory card for maximum security, all the necessary modulated signals for analog communication systems, built in LAN and USB interface, the Lucid Series is designed to meet today's most demanding specifications, needed for ATE and production lines.



3, 6 & 12GHz multi-channel RF analog signal generator




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




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




Fast Switching speed of <100us




USB and LAN interfaces




Rack mount dedicated for maximum channel density in minimum rack space



Up to 16 phase coherent channels in a single rack-mounted box



Removable SD card for instrument security



AM, FM, PM, Sweep, Pulse & Pattern Modulation



## 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. Lucid delivers one of the best quality signals available on the market today.

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

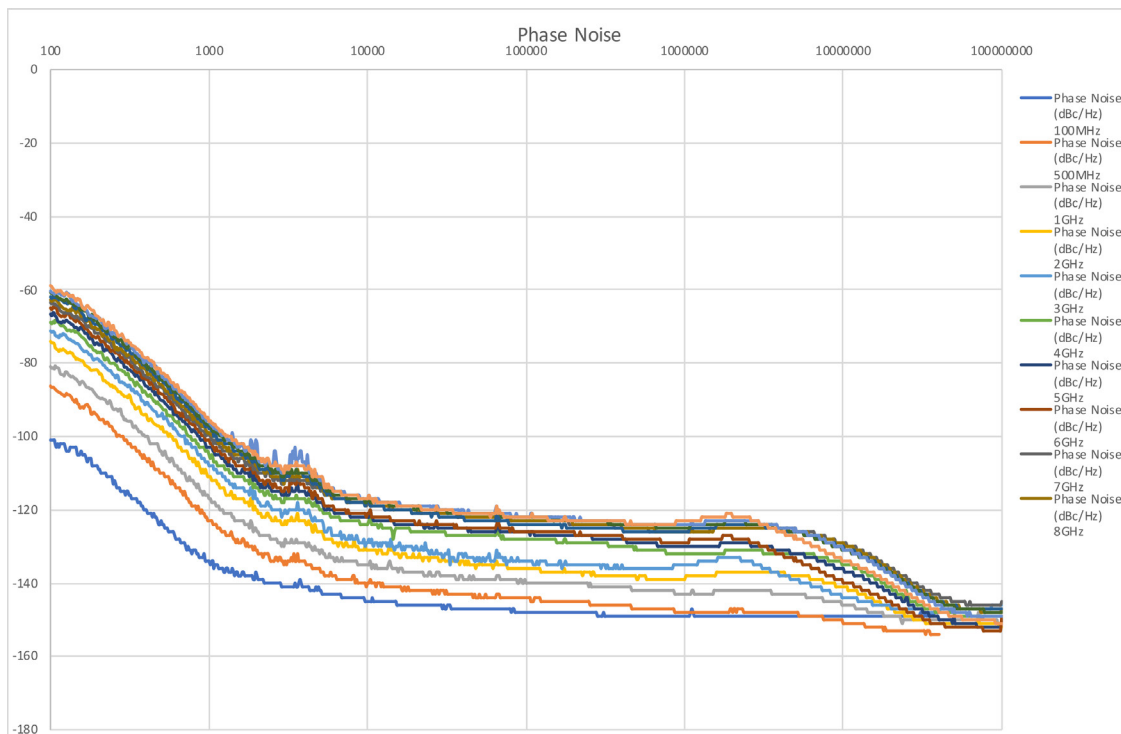
The Lucid Series has a dedicated software to control the instrument functions, modes and features via a graphical user interface (GUI). It also includes a complete set of drivers, allowing you to write applications in various environments, including LabVIEW, Python, CVI, C++, VB and MATLAB. You may also link the supplied DLL to other Windows-based API's or use low-level SCPI commands to program the instrument, regardless of whether the 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 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.

## Multi-channel, phase coherent, benchtop generator

Many test systems and experimental setups require multiple RF channels, either separate or synchronized. The Lucid series rack mounted platform offers up to 16 separate or phase coherent, RF outputs in a single 19" 3U box, saving up to 16 times the space compared to available rack mounted solutions on the market. You can save both valuable bench/rack space and investment capital without compromising performance.



## Specifications

FREQUENCY	
<b>Range:</b>	
LS3081/2/4/16R:	9 kHz to 3GHz
LS6081/2/4/16R:	9 kHz to 6GHz
LS1291/2/4/16R:	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>		
Settable:	-100 dBm	
Calibrated:	-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>(3,4)</sup> -60dBc max. <sup>(5)</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>	BNC
<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>	BNC (per channel)
<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>	BNC (per channel)
<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>	
LS3081/6081/1291R:	1
LS3082/6082/1292R:	2
LS3084/6084/1294R:	4
LS30816/60816/12916R:	16
<b>REFERENCE OUT</b>	
<b>Impedance:</b>	50 $\Omega$
<b>Connectors type:</b>	2 x BNC
<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> 750MHz to 900MHz -35dBc (typ.); <sup>(3)</sup> -60dBm max. @ 1GHz, 1.5GHz, 2.5GHz and 3GHz;

<sup>(4)</sup> -75dBm max. @ -15dBm to +15dBm and f>6GHz; <sup>(5)</sup> Boundary spurs which may appear @ -100MHz to +100MHz offset from CW. <sup>(6)</sup> Specified for >100MHz.

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## Specifications

GENERAL	
<b>Voltage Range:</b>	90VAC to 264VAC
<b>Frequency Range:</b>	47Hz to 63Hz
<b>Power Consumption:</b>	
1U box:	100W
3U box:	400W
<b>Interface:</b>	
Host:	2 x front panel USB type A 1 x rear panel USB type A
Device: USB: LAN:	1 x rear panel USB type B 1 x rear panel 1000/100/10 BASE-T
<b>Storage:</b>	Removable SD card
<b>Dimensions (W x H x D):</b>	
1U box:	450 X 43 x 500 mm
3U box:	450 X 129 x 500 mm
<b>Weight:</b>	
Without Package:	
1U box:	6.0 kg
3U box:	12 kg
Shipping Weight:	
1U box:	7.0 kg
3U box:	13 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, EC61010-1:2010
<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	
MODEL	DESCRIPTION
<b>LS3081R:</b>	3GHz 1CH Rack-Mounted Analog Signal Generator
<b>LS3082R:</b>	3GHz 2CH Rack-Mounted Analog Signal Generator
<b>LS3084R:</b>	3GHz 4CH Rack-Mounted Analog Signal Generator
<b>LS30816R:</b>	3GHz 16CH Rack-Mounted Analog Signal Generator
<b>LS6081R:</b>	6GHz 1CH Rack-Mounted Analog Signal Generator
<b>LS6082R:</b>	6GHz 2CH Rack-Mounted Analog Signal Generator
<b>LS6084R:</b>	6GHz 4CH Rack-Mounted Analog Signal Generator
<b>LS60816R:</b>	6GHz 16CH Rack-Mounted Analog Signal Generator
<b>LS1291R:</b>	12GHz 1CH Rack-Mounted Analog Signal Generator
<b>LS1292R:</b>	12GHz 2CH Rack-Mounted Analog Signal Generator
<b>LS1294R:</b>	12GHz 4CH Rack-Mounted Analog Signal Generator
<b>LS12916R:</b>	16GHz 4CH Rack-Mounted Analog Signal Generator
OPTIONS	
<b>PLS</b>	Pulse Modulation
<b>PAT</b>	Pattern Modulation
<b>ELP</b>	Extended Low Power (-150dBc)
<b>EPR</b>	Extended Power Range (-130dBc to +27dB)
<b>FS</b>	Fast Switching
<b>EMU</b>	Emulator pack for Keysight, R&S, Anapico & Holzworth
<b>W-Rack</b>	Rack mount kit



### 绿测科技有限公司

广州总部：广州市番禺区陈边村金欧大道83号江潮创意园A栋208室  
 深圳分公司：深圳市龙华区龙华街道 油松社区东环一路1号耀丰通工业园1-2栋2栋607  
 南宁分公司：广西自由贸易试验区南宁片区五象大道401号五象航洋城1号楼3519号  
 广州分公司：广州市南沙区凤凰大道89号中国铁建·凤凰广场B栋1201房  
 电话：020-2204 2442  
 传真：020-8067 2851  
 邮箱：Sales@greentest.com.cn  
 官网：www.greentest.com.cn



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