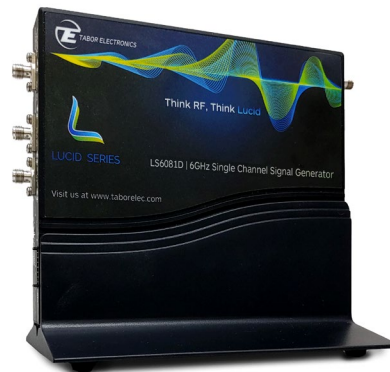


# LUCID SERIES THINK RF THINK LUCID

## LUCID Series



## LUCID Models & Options Selection Guide

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<b>EPR</b>	Extended Power Range (-130dBc to +27dB)	
<b>FS</b>	Fast Switching	
<b>LP</b>	Low Power (-90dBc)	
<b>Emulator Pack</b>	Includes emulators for Keysight, R&S, Anapico & Holzworth	
<b>Battery <sup>(5)</sup></b>	Battery for the Portable Platform	
<b>W-Rack</b>	Rack Mount Kit	

### Notes

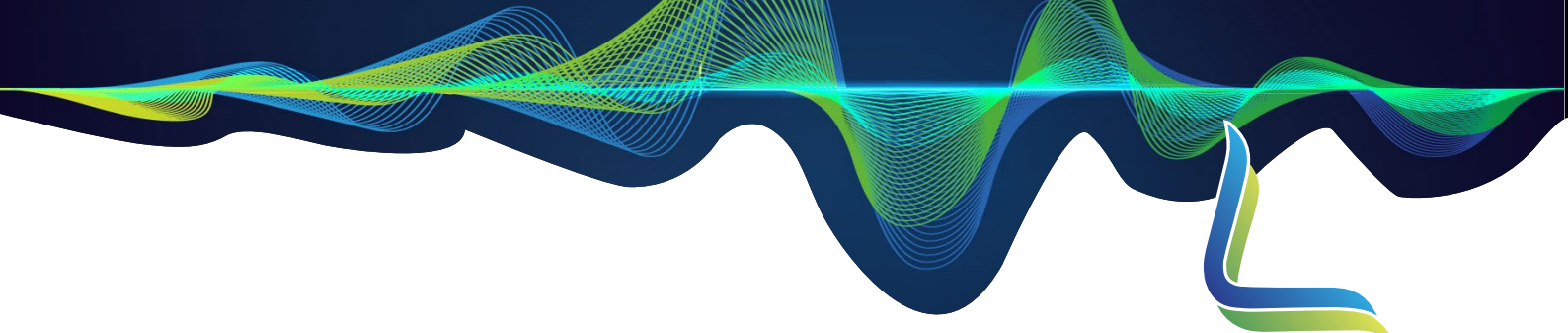
<sup>(1)</sup> EPR & ELP Options are not available on this platform.

<sup>(2)</sup> Built-in Modulation Package & Low Power option.

<sup>(3)</sup> FS & W-Rack Options are not available on this platform.

<sup>(4)</sup> Build-in Modulation Package.

<sup>(5)</sup> Available only for the Portable Platform.



## Modulation Schemes

Signal bursts and chirps have become a common need in most aerospace or defense applications. 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.

## Extremely Fast Switching

Time is a crucial factor, whether in design, on the production floor or inside ATE systems. With a switching speed of less than 100  $\mu$ s, Tabor's Lucid Series ensures maximum measurements at minimum time, setting the industry's highest throughput standard.

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

Tabor's Lucid Series have 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 APIs or use low-level SCPI commands to program the instrument, regardless of whether your application is written for Windows, Linux or Macintosh operating systems.

## 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 dBc at 100 MHz, and -136 dBc at 1 GHz, at 10 kHz carrier offset Tabor's Lucid Series platform delivers one of the best quality signals available on the market today.

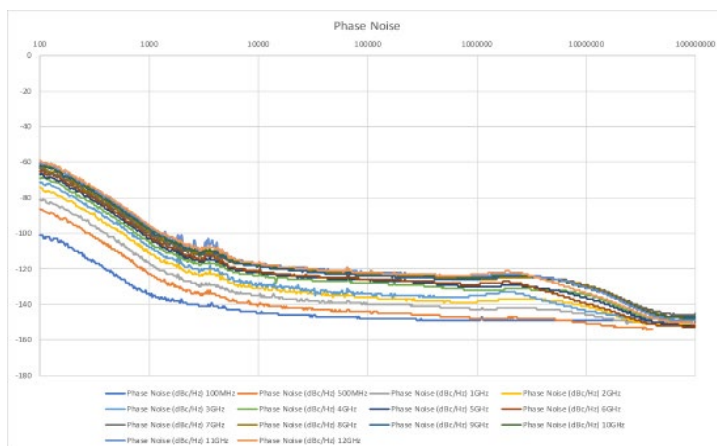
## LUCID SERIES THINK RF THINK LUCID

## Quick and Smooth Replacement for Current and Obsolete Products

The Lucid Series implements command emulators for both new and discontinued Signal Generators sold on the market. In so providing smooth transition either to upgrade current solutions or replace aging automatic test systems that face obsolescence and maintenance problems. This unique feature allows clients to easily "drop-in" the Lucid Series in slots vacated by obsolescence Keysight, R&S, Anritsu, NI/Phase Matrix QuickSyn, Holzworth or AnaPico models, solving TPS (Test Program Sets) replacement issues.

## Multi-channel, Phase Coherent, Generator

Many test systems and experimental setups require multiple RF channels, either separate or synchronized. The Lucid series offers up to 16, separate or phase coherent, RF outputs in a single, 19" box, saving up to 16 times the space compared to available solutions on the market. Tabor's all-new Lucid series saves both valuable bench or rack space and investment capital without compromising performance.



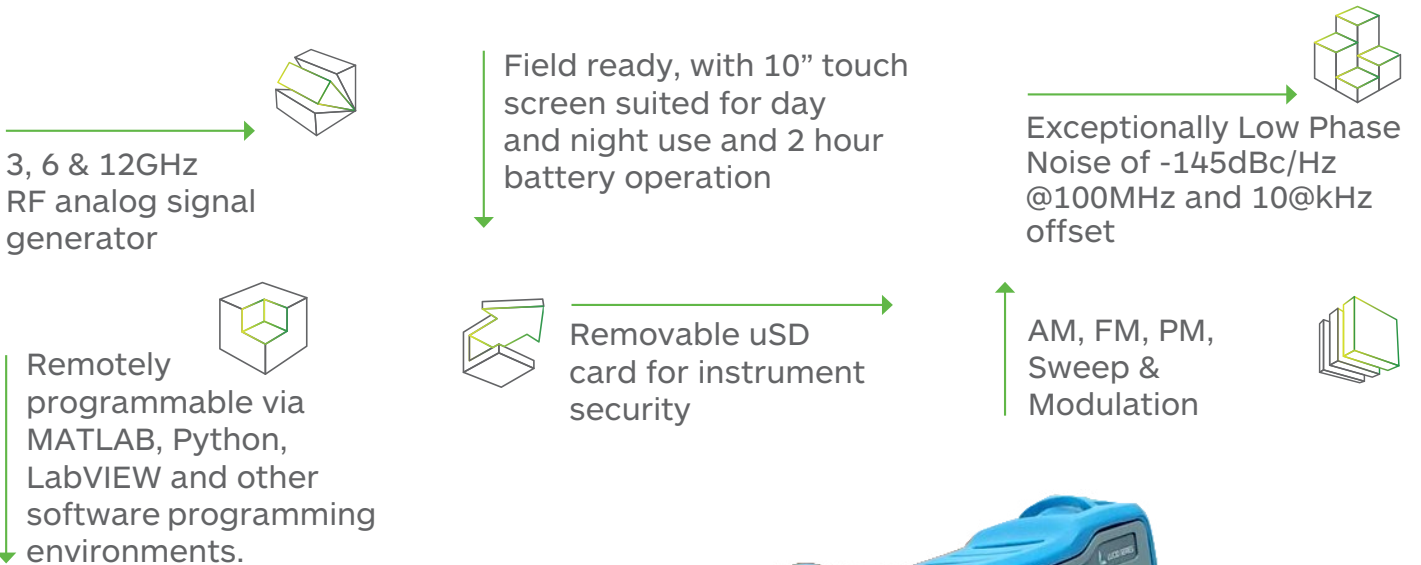


# LUCID SERIES

THINK RF THINK LUCID

## PORTABLE MODELS

Tabor's latest addition to its line of RF analog signal generators is by far the most advanced portable, handheld signal generator on the market. The all-new Lucid Series portable platform offers a modern design capable of operating either as a benchtop or a portable signal generator. The series feature 3, 6 and 12 GHz single channel versions, all sharing the very same industry leading highlighted features. Featuring superior signal integrity and purity, all the necessary modulated signals for analog communication systems, built in USB, optional LAN interfaces and removable micro-SD card, the Lucid Series is designed to meet today's most demanding applications, whether in the lab or out in the field.



# Specifications

FREQUENCY	
<b>Range:</b>	
LS3081P:	9 kHz to 3GHz
LS6081P:	9 kHz to 6GHz
LS1291P:	9 kHz to 12GHz
<b>Resolution:</b>	0.001 Hz
<b>Phase offset:</b>	0.01 deg
<b>Switching speed:</b>	500 µs

FREQUENCY REFERENCE	
<b>Temp. Stability:</b>	±25 ppb max.
<b>Aging:</b>	± 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 <sup>(2)</sup>
Up to 100MHz:	±0.3 (typ.)	±0.5 (typ.)
100MHz to 3GHz:	±0.4 (typ.)	±0.6 (typ.)
3GHz to 9GHz:	±0.7 (typ.)	±0.9 (typ.)
Above 9GHz:	±1 (typ.)	±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>(3)</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 and amplitude
<b>Dwell time:</b>	10 µs to 1000 s
<b>Resolution:</b>	1 µs
<b>Number of points:</b>	2 to 65535
<b>Step change:</b>	Linear
<b>Trigger:</b>	Free run, External, Bus, Timer

INPUTS	
<b>MODULATION INPUT</b>	
<b>Connector Type:</b>	SMA
<b>Input Impedance:</b>	50Ω
<b>Max. input voltage:</b>	±1V
<b>Input damage level:</b>	±3.5V
<b>PULSE / TRIGGER INPUT</b>	
<b>Connector type:</b>	SMA
<b>Input Impedance:</b>	50Ω
<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>	50Ω
<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>	±2 ppm

OUTPUTS	
<b>RF OUT</b>	
<b>Impedance:</b>	50Ω
<b>Connector type:</b>	SMA
<b>Number of channels:</b>	1

<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

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## Specifications

GENERAL	
<b>Voltage:</b>	+12.0 to +12.6 VDC
<b>Supply Voltage:</b>	+15 V DC
<b>Power Consumption:</b>	60W max. (45W typ)
<b>Display Type</b>	10", TFT capacitive touch screen
<b>Battery:</b>	
Type:	4-cell, replaceable
Standby:	Up to 2 hours
Max. load:	Up to 1 hours
<b>Interface:</b>	
Host:	2 x USB type A
Device:	1 x USB type B 1 x micro USB for LAN adapter
<b>Storage:</b>	Removable SD card
<b>Dimensions:</b>	280 x 225 x 65 mm (W x H x D)
<b>Weight:</b>	
Without Package:	3 kg
Shipping Weight:	4.5 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>	1/3 year warranty plan

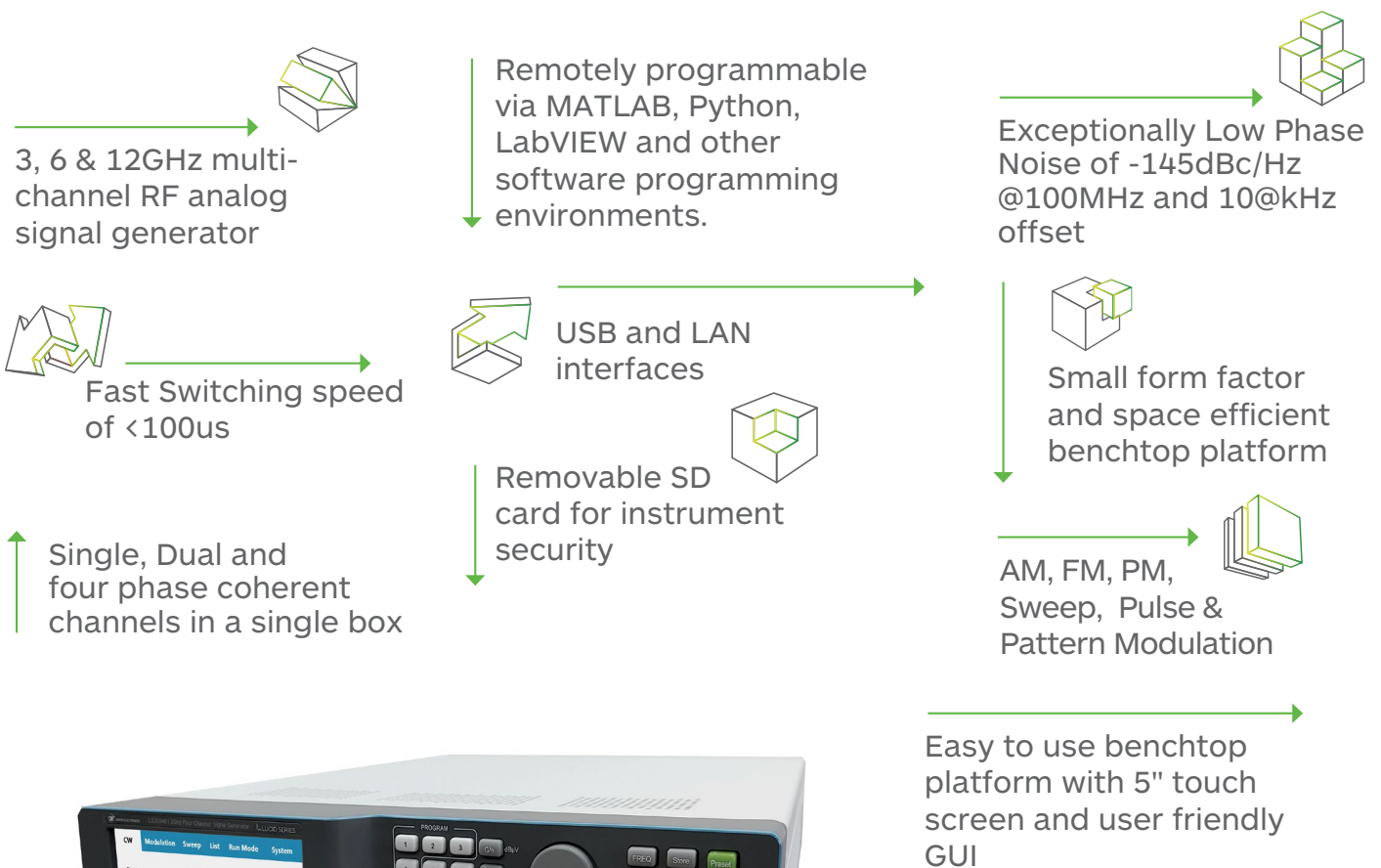
ORDERING INFORMATION	
MODEL	DESCRIPTION
LS3081P	3GHz Portable RF Analog Signal Generator
LS6081P	6GHz Portable RF Analog Signal Generator
LS1291P	12GHz Portable RF Analog Signal Generator
OPTION	
BAT	4-cell, replaceable battery
PLS	Pulse Modulation
PAT	Pattern Modulation
LP	Low Power

# LUCID SERIES

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## BENCHTOP MODELS

The all-new Lucid Series benchtop platform offers up to 4 phase coherent channels in a standalone compact unit. The series feature 3, 6 and 12 GHz models in single, dual or four channel versions, all sharing the very same industry leading highlighted features. 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 interfaces, the Lucid Series is designed to meet today's most demanding specifications, needed from the R&D benches to the production lines.





## Specifications

FREQUENCY	
<b>Range:</b>	
LS3081/2/4B:	9 kHz to 3GHz
LS6081/2/4B:	9 kHz to 6GHz
LS1291/2/4B:	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>	
LS3081/6081/1291B:	1
LS3082/6082/1292B:	2
LS3084/6084/1294B:	4
<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  $f > 6$ GHz; <sup>(5)</sup> Boundary spurs which may appear @ -100MHz to +100MHz offset from CW. <sup>(6)</sup> Specified for >100MHz.



## Specifications

GENERAL	
<b>Voltage Range:</b>	90VAC to 264VAC
<b>Frequency Range:</b>	47Hz to 63Hz
<b>Power Consumption:</b>	100W
<b>Display Type:</b>	5", TFT capacitive touch screen
<b>Interface:</b>	
Host:	2 x front panel USB type A 1 x rear panel USB type A
Device:	
USB:	1 x rear panel USB type B
LAN:	1 x rear panel 1000/100/10 BASE-T
<b>Storage:</b>	Removable SD card
<b>Dimensions (W x H x D):</b>	
Without feet	315 X 88 x 425 mm
With feet	315 X 102 x 425 mm
<b>Weight:</b>	
Without Package:	6 kg
Shipping Weight:	6.5 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, EC61010-1:2010
<b>EMC:</b>	IEC 61326-1:2013
<b>Calibration:</b>	2 years
<b>Warranty:</b>	1 / 3 year warranty plan

ORDERING INFORMATION	
MODEL	DESCRIPTION
LS3081B	3GHz Single Channel RF Analog Signal Generator
LS3082B	3GHz Dual Channel RF Analog Signal Generator
LS3084B	3GHz Four Channel RF Analog Signal Generator
LS6081B:	6GHz Single Channel RF Analog Signal Generator
LS6082B	6GHz Dual Channel RF Analog Signal Generator
LS6084B	6GHz Four Channel RF Analog Signal Generator
LS1291B	12GHz Single Channel RF Analog Signal Generator
LS1292B	12GHz Dual Channel RF Analog Signal Generator
LS1294B	12GHz Four Channel RF Analog Signal Generator
OPTIONS	
PLS	Pulse Modulation
PAT	Pattern Modulation
ELP	Extended Low Power (-150dBc)
EPR	Extended Power Range (-130dBc to +27dB)
FS	Fast Switching
EMU	Emulator pack for Keysight, R&S, Anapico & Holzworth
W-Rack	Rack mount kit

# LUCID SERIES

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## DESKTOP MODELS

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, 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.

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

Fast Switching speed of <100us

SPI and micro-USB integrated interfaces

Extra small, compact module platform

Multi instrument synchronization capability

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

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



# 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.

## 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 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>	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	
LP	Low Power
PLS	Pulse Modulation
PAT	Pattern Modulation
FS	Fast Switching

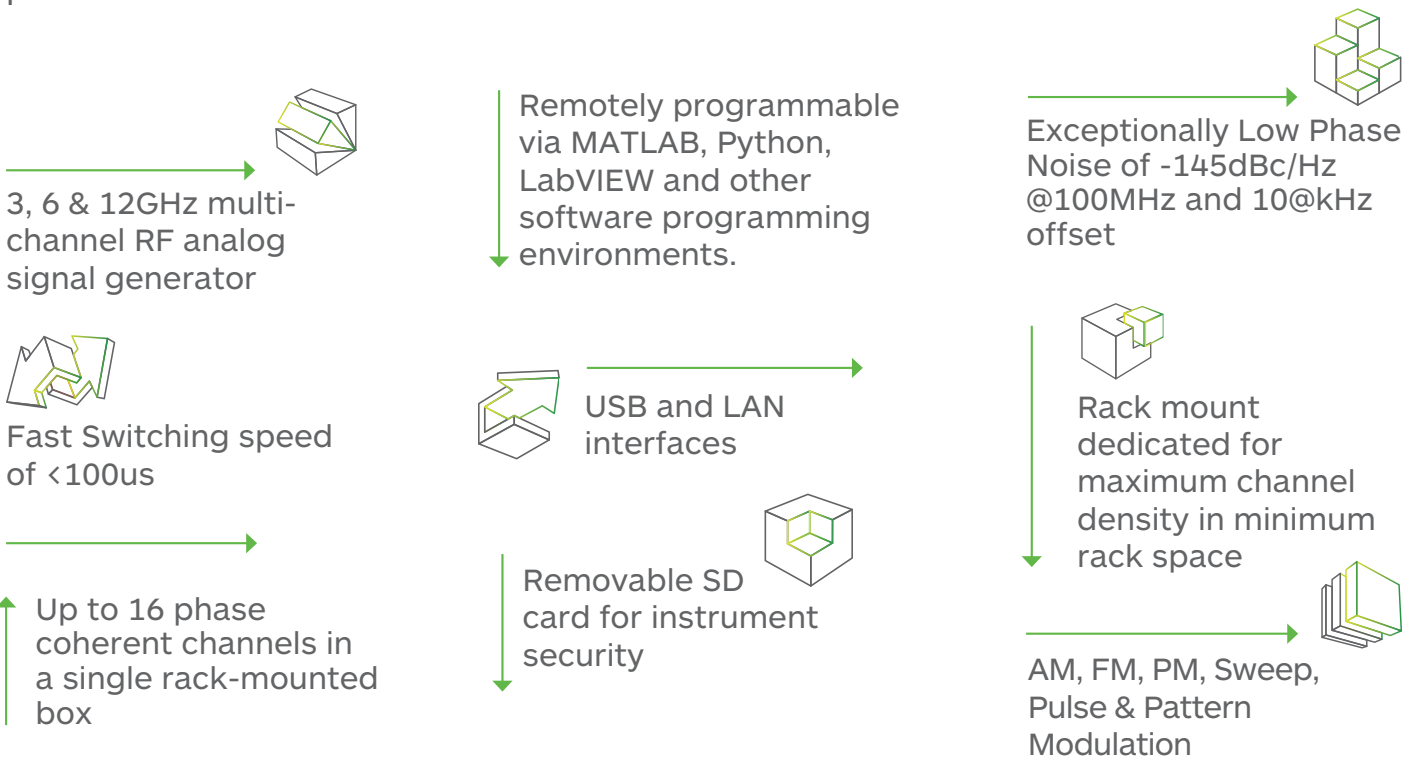


# LUCID SERIES

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 interfaces, the Lucid Series is designed to meet today's most demanding specifications, needed for ATE and production lines.



## 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.

## 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 kg
3U box:	12 kg
Shipping Weight:	
1U box:	7 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>	1 / 3 year warranty plan

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>	12GHz 16CH 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



LUCID SERIES  
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## Portable Platform Modular, Scalable and Compact

The Portable platform offers a modern design capable of operating either as a small footprint benchtop or a portable signal generator. Equipped with a field-ready 10" touch screen, it is suited for day and night use and more than 2-hour battery operation. This unique advanced handheld signal generator, is the best in its class on the market. The platform includes 3, 6 and 12 GHz single channel versions, all sharing the very same industry leading highlighted features, including superior signal integrity and purity, modulated signals, built in USB and optional LAN interfaces, and removable micro-SD card.

## Desktop Platform Compact and Space Efficient

The Desktop platform offers all the functionality of a fully featured full-size RF analog signal generator in the smallest footprint module available on the market. Its small size enables using it as a desktop unit or to easily scaling up to hundreds of channels, while keeping the required space to a minimum, let it be 3, 6, and 12 GHz. With excellent signal quality and integrity as well as fast switching speeds the Desktop platform offers the most advanced functionality and highest performance in the most space efficient platform.

## Benchtop Platform Standalone and Easy to Use

The Benchtop version of the Lucid series offers up to 4 phase coherent channels in a 2U 19" benchtop box. With a 5" touch display and front panel control buttons the Benchtop platform enables users to program the instrument without the need of an external PC. So for synchronized, phase coherent, multi-channel applications such as quantum physics and phased array antennas the Benchtop platform is an ideal, high performance and cost-effective solution.

## Rack Mount Platform

The Rack Mount platform is designed to offer maximum channel density at minimum cost of space. Offering up to 4 phase coherent channels in a 19" 1U box and up to 16 phase coherent channels in a 19" 3U box, the rack mount platform is by far the best in its class for signal density. 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 interfaces, this platform meets today's most demanding specifications, needed for ATE and production lines.

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