

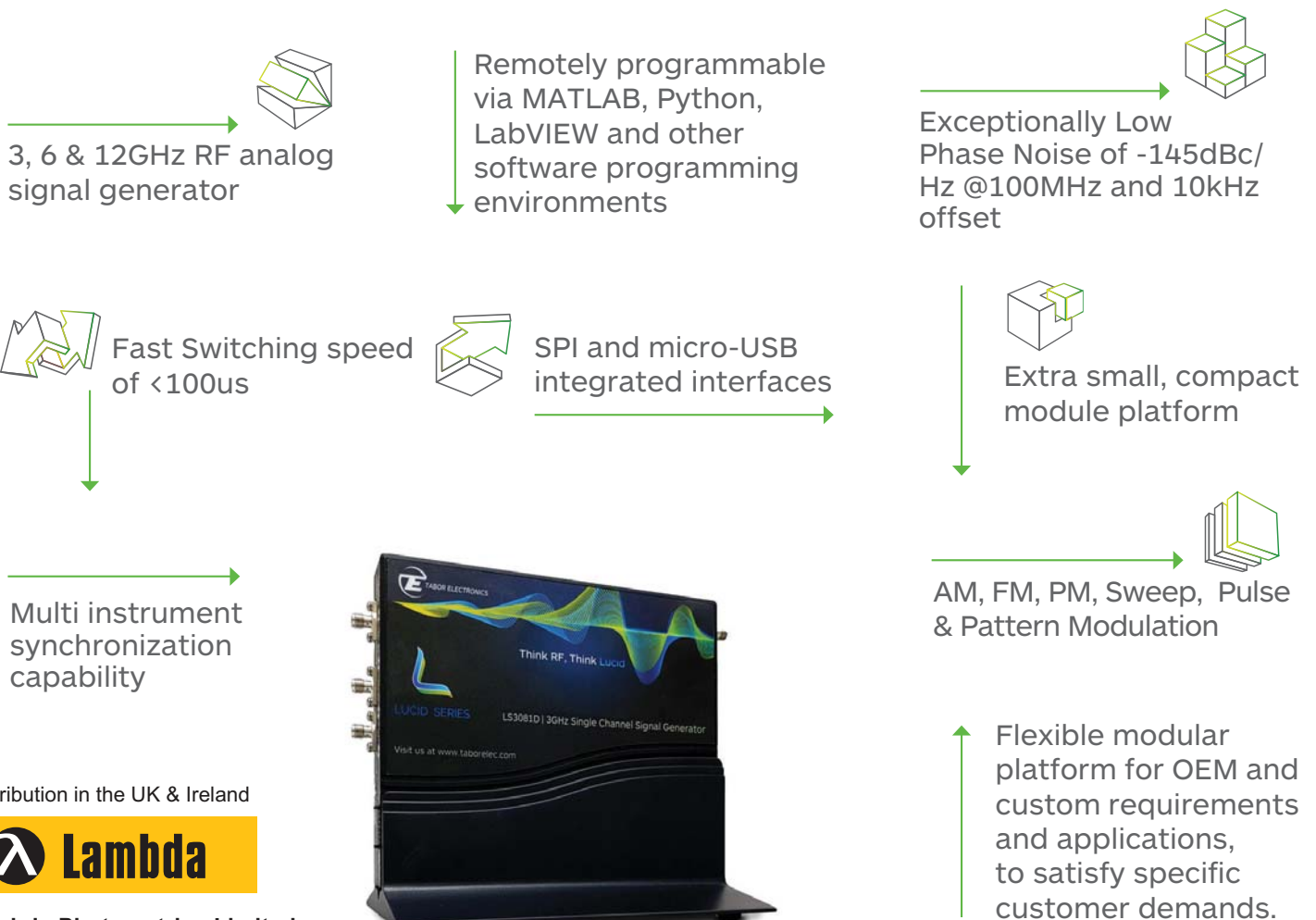


## LUCID SERIES

THINK RF THINK LUCID

### DESKTOP MODELS

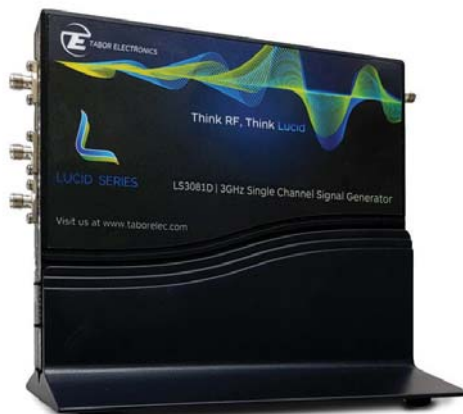
The Lucid Series offers the most advanced features and industry leading performance in the most compact form factor. The series feature 3, 6 and 12 GHz single channel versions, all sharing the very same industry leading highlighted features, in a compact, small footprint module. Featuring extremely fast 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



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## Signal Integrity and Purity

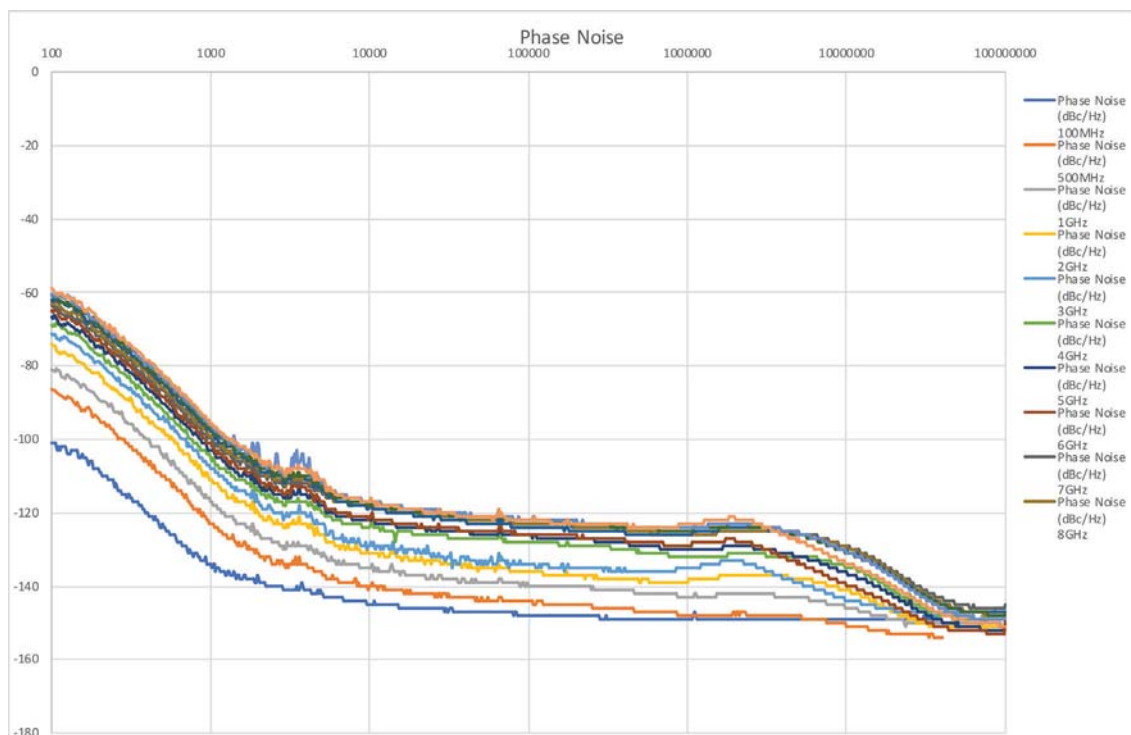
One of the most important requirements in today's testing and measurement applications is a high signal quality. With a typical SSB phase noise of  $-145\text{dBc}$  at  $100\text{MHz}$ , and  $-132\text{dBc}$  at  $1\text{GHz}$ , at  $10\text{ kHz}$  carrier offset, Tabor's Lucid Series platform delivers 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)    |             |
|-------------------------|-------------|
| Measured @ 10kHz offset |             |
| <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><br>-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    |                       |
|-------------------------|-----------------------|
| <b>AM Depth:</b>        |                       |
| Type:                   | Linear                |
| Maximum settable:       | 90%                   |
| Resolution:             | 0.1% of depth         |
| Accuracy (1 kHz)        | $< \pm$ 4% of setting |
| <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>              | 80 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



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## 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>          | 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 Option (-90dBc)                       |
| PLS                  | Pulse Modulation                                |
| PAT                  | Pattern Modulation                              |
| FS                   | Fast Switching                                  |

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