



LASER-POWERED SENSOR SYSTEMS



# Preliminary Datasheet

## LSAOL 1.2

### Laser-Powered Analog Optical Links

### 1 MHz ... 3 / 4 / 6 GHz



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The **LSAOL 1.2** Laser-Powered Analog Optical Links with integrated pre-amplifiers are **50  $\Omega$  RF over fiber** signal transmission systems. They are ideally suited for EMC emission testing and antenna measurements. Say goodbye to grounding issues and high attenuation of long coaxial cables! Laser-powered operation eliminates the need for batteries.

The LSAOL 1.2 system is controlled and monitored either directly via the built-in touchscreen, or remotely via its Ethernet connection. Simple SCPI commands make third party software integration super easy!

LSAOL 1.2 consist of a Front Unit and a Base Unit.

The RF transmission system is designed modularly, so that the signal direction can be changed by the user:

**Configuration as receiver:** The signal is picked up by the Front Unit, transmitted optically, and converted back to an electrical signal by the Base Unit. The signal is analyzed by an EMC Test Receiver or a Spectrum Analyzer.

**Configuration as transmitter:** The signal is picked up by the Base Unit, transmitted optically, and converted back to an electrical signal by the Front Unit. The signal is transmitted via an antenna or fed into a DUT directly.

### Analog Transmitter Module Options & Specification

Analog Link Model	LSAOL 1.2-3G	LSAOL 1.2-4G	LSAOL 1.2-6G
High Frequency Cutoff (HFC)	3 GHz	4 GHz	6 GHz
Low Frequency Cutoff	1 MHz	1 MHz	1 MHz
Frequency Response	$\pm 1.5$ dB	$\pm 1.5$ dB	$\pm 1.5$ dB
Input VSWR	1.7:1	1.7:1	1.7:1
Spurious Free Dynamic Range*			
With LNA (@ 1 GHz / @ HFC)	108 / 104 dB/Hz <sup>2/3</sup>	105 / 104 dB/Hz <sup>2/3</sup>	105 / 101 dB/Hz <sup>2/3</sup>
Without LNA (@ 1 GHz / @ HFC)	109 / 104 dB/Hz <sup>2/3</sup>	107 / 102 dB/Hz <sup>2/3</sup>	107 / 100 dB/Hz <sup>2/3</sup>
RF Link Gain			
With LNA	+20 dB	+17 dB	+17 dB
Without LNA	0 dB	0 dB	0 dB
Input Third Order Intercept			
With LNA (@ 1 GHz / @ HFC)	10 / 8 dBm	8 / 8 dBm	8 / 6 dBm
Without LNA (@ 1 GHz / @ HFC)	28 / 25 dBm	27 / 25 dBm	26 / 24 dBm

\*) With/without LNA is a built-time option of the RF Receiver module. Single RX/TX RF modules are available on request.

### Customized Application Example



LSAOL 1.2 Front Unit integrated in antenna body

### System Specification

Front Unit	
RF Connector	SMA female, 50 $\Omega$
Dimensions (W x D x H)	100 x 100 x 50 mm
Base Unit	
RF Connector	SMA female, 50 $\Omega$
Remote Control Interface	Ethernet
Power Supply	100 V to 240 V (50 Hz to 60 Hz)
Dimensions (W x D x H)	250 x 280 x 80 mm
Fiber-Optic Cables	
Maximum Length	>100 m
RF Optical Link	1x SC/APC, singlemode
Laser Power Supply	2x FC/PC, multimode
Data Communication	1x ST/PC, multimode
Operating Temperature	0 °C to 40 °C



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