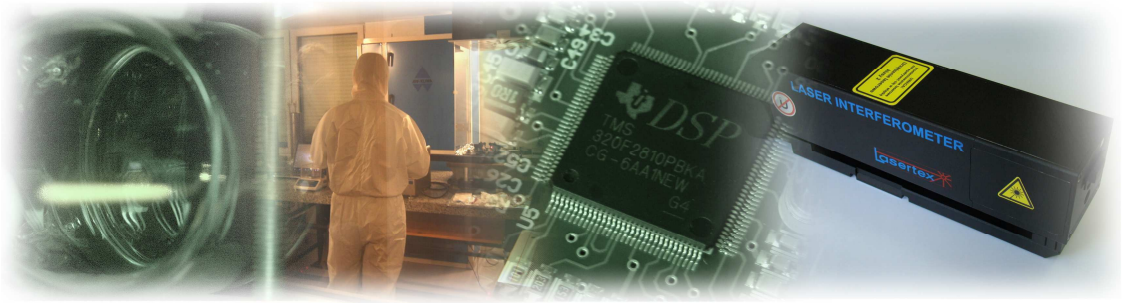
Lasertex Co. Ltd

We specialise in Laser Metrology

Product catalog



www.lasertex.eu

Lasertex

LASER METROLOGY FROM POLAND

Choice by application

Application \ Device	LSP30-3D	LL10	LS10	LSP30UF	OC-1100	OC-1100AN	LISC-01	LL10Petro
CNC calibration	**							
CMM calibration	**							
Machine positioning calibration	**							
Movement straightness measurement	**							
Base straightness measurement	**							
Velocity measurements	*	*	*	**				
Vibration measurements	**	*	*	**				
Machine geometry measurements	**							
Multiaxial measurements		**	*					
Dynamic measurements	*	**	*	**				
Lithography	*	**	*					
Vacuum interferometry		**						
Subnanometer measurements		**						
Measurements of very fast movements		*	*	**				
Optical signal detection					**	**		
Optical signal measurement					**	*		
Source of stable frequency							**	
Frequency etalon							**	
Laser controlled measurement setups		*	**					**
Automatic calibration of tank gauges			*					**

* - suitable
** - excellent

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About us

Lasertex Co. Ltd is R&D Company established in 1989. Laser Laboratory of the Company conducts scientific investigations and R&D projects. The results of the investigations are applied into practice by production department. With Lasertex collaborate high qualified and experienced researchers from Wrocław University of Technology. The Laser Laboratory is equipped with unique arrangement for testing and certification of the laser frequency repeatability and stability.

In 2002 the Firm won State Prize of Prime Minister for Research and Development Achievements.

Main subject of the scientific and R&D projects is application of the laser systems for measurements and control of the CNC machine tools. Lasertex company conducts RTD and scientific projects supported by Polish State Committee of Scientific Investigation and by European Union. In 2000 the European project conducted by the Firm: Laser interferometer for high quality manufacturing industry was awarded as the Success Story.

The main product of the firm - laser interferometer LSP30 - became the most commonly used laser measuring system in Poland and is exported.

The firm sponsors student diploma, doctor dissertations and research works carried on at Wroclaw University of Technology. The results of investigations were published in over 30 articles published in scientific journals and proceedings of the conferences.

LSP30-3D

Laser Measurement System LSP30-3D

Laser interferometer LSP30 – 3D in its basic configuration enables measurements of linear displacement, vibrations, velocity and positioning. The 3D system offers unique function of vertical and horizontal straightness measurement that makes the straightness measurements easy and time saving. Additionally the software of LSP30-3D displays the angular position of the laser head. This function speeds up the procedure of adjustment of optical path and makes the diagonal measurements much easier.

LSP 30-3D

Main Features

High resolution and accuracy
Over 20 years of experience in production of laser interferometers allows us offer resolution and accuracy of the laser tailored to customer needs (even the most demanding!).

Competitive price
We try to make the LSP30-3D a good choice both for demanding and cost-cutting clients. That is why we offer a complete Laser System for a price of competitors single components.

Portability
The complete laser system is transported in a light and handy case. Therefore it is easy to move it from one place to another—which is especially important during machine servicing.

Electronic beam alignment
This useful option not only speeds up the usually toilsome beam alignment procedure but also allows reducing cosine errors improving the overall performance of the system.

Results traceable to national standards
LSP 30-3D was many times successfully tested in variety of National Standards Laboratories. Moreover in some laboratories it is used as a standard for length comparations.

Operation at any angle
The unique laser head mounting makes the operation of the head at any angle a trifle. The application gives also information about the rotation and elevation of the head.

Small size and low weight
Dimensions of the LSP 30-3D simplify its transportation and operation.

Ease of use
Both hardware and software were constructed and are improved with a constant feedback from users. Thanks to this the ease of use of the LSP 30-3D is unbeatable on the market.

G-codes generation
Application consists free of charge module for tool path generation in G-codes simplifying and speeding up the positioning and straightness measurements.

3D measurements
Each LSP30-3D in its basic configuration is equipped in the unique 3D system allowing rapid simultaneous measurement in three axes with the standard linear optics.

Direct mount on machines
Each laser head is equipped in a magnetic base. Thanks to this the laser head can be put anywhere inside the machine reducing greatly the beam alignment time.

LSP 30-3D

Applications

The construction of the LSP 30-3D Laser Measurement System allows wide variety of different applications. The main applications are:

- **Positioning of CNC and CMM machines**
- **Machine geometry inspection**
- **Rapid assessment of machine geometry**
- **Flatness measurements**
- **Axes parallelism measurements**
- **Angular positioning**
- **Ball screw inspection**
- **Machine servicing**
- **Vibration measurements**
- **Straightness measurements**
- **Squarness measurements**
- **Dynamic measurements with internal or external strobe**
- **Small angle measurements**
- **Variety of laboratory applications**

LSP 30-3D

Main parameters

Measurement type	Range	Resolution	Accuracy
Distance	0 – 30 m	0.01 µm (0.001 µm)	0.4 µm/m
Velocity	0 – 2 m/s	0.25 µm/s	0.1 %
Angle	± 5 °	0.04 arcsec	± 0.2 %
Straightness measurement (with angular optics)	0 – 15 m	0.02 µm (for 100 mm base)	± 0.5 %
Flatness	0 – 15 m Vertical range ±2 mm	0.02 µm (for 100 mm base)	± 0.5 %
Straightness measurement (with Wollastone prism)	0 – 3 m	0.5 µm	± 1 % ± (0.5±0.15L²) µm L in meters
Straightness measurement 3D	0 – 5 m	0.1 µm	(5 ± 10 x L) µm L in meters
Squareness	± 1000 arcsec	0.4arcsec	± 1 % ± (1.5 arcsec)
Rotary measurements	0 – 3600 arcsec	0.04 arcsec	± 0.2 %

For more detailed information please contact us.

LSP 30-3D

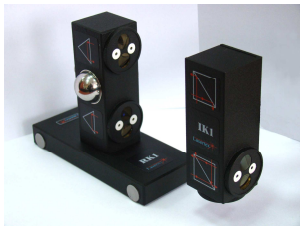
Main parameters

Laser type:	Zeeman HeNe laser with frequency stabilisation
Wavelength accuracy:	± 0.08 ppm
Short term stability:	± 0.002 ppm
Long term stability:	± 0.03 ppm
Output power:	1 mW
Maximum axis length	10 m (double pass optics) 30m (single pass optics) 80m (option)
Maximum velocity	-0.3 m/s, +2 m/s (single pass optics)
Resolution	1nm, 10nm
Laser MTBF	50000 hours
System work conditions	Temperature range: 0 –40°C Humidity range: 10 – 90 %
PC interface	USB 1.1, Bluetooth
Data readout frequency	User selectable: up to 1kHz (USB)
Compensation of environmental conditions	Automatic compensation. 1 x Air temperature sensor, 1x Air humidity sensor, 1 x Air pressure, 3 x Material temperature sensor

For more detailed information please contact us.

LSP 30-3D Basic Set
The Basic Set of the LSP 30-3D includes all elements necessary for linear measurements except for a PC computer. Those elements are:
1 x Laser head LH2
1 x Power supply PS2
1 x Tripod stand TS1
1 x Environmental Compensation Unit - (ECU) SM1
1 x Laser head to power supply cable CAB2
2 x Magnetic holder UM1
1 x Linear interferometer IL1
1 x Linear retro-reflector RL1
3 x Basis temperature sensor T1, T2, T3
1 x USB cable
1 x Manual Strobe cable STROBE
1 x sturdy ABS case
1 x PC software

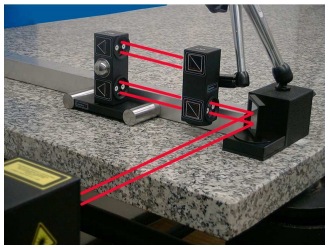
Reference number:
LSP30-3D



Angular measurement kit
Suitable for pitch and yaw errors measurement and for measurement of the straightness of the base up to 15 meters. Consists of:

- angular interferometer IK1;
- angular retro reflector RK1, 100 mm base)
- software

Reference number:
AMK-100



Flatness measurement kit
Suitable for flatness measurements of all types of surfaces of size up to 15 x 15 meters. Measurements in envelope or mesh configuration possibile. Consists of:

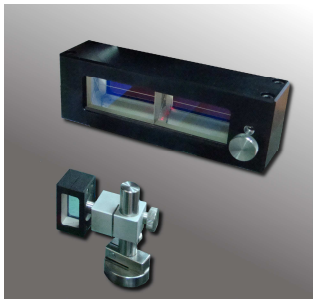
- angular interferometer IK1;
- angular retro reflector RK1, 100 mm base)
- 2 x beam bender BB2
- software

Reference number:
FMK-2

Straightness measurement kit
Suitable for straightness and paralellism measurements in two ranges: 3 meters or 10 meters. Consists of:

- Wollastone prism WP2-3 or WP2-10;
- retroprism WRP1
- software

Reference number:
SMK-3 (3m)
SMK-10 (10m)



Squarness measurement kit
Suitable for squarnessness measurements in ranges up to 3 meters. Consists of:

- Wollastone prism WP2-3 or WP2-10;
- retroprism WRP1
- right angle etalon RAE2
- software

Reference number:
QMK-1

Flat mirror measurement kit
Designed to be used in all measurements required to be done with the use of a flat mirror in both single and double pass configurations. Consists of:

- flat mirror interferometer FMI;
- measurement mirror (option)
- software

Reference number:
FMMK-1 (without mirror)
FMMK-1M (with mirror)

Angular positioning kit
Suitable for rotary measurements. Product made on user request. The time of delivery and the price will be the subject of negotiation

Reference number:
ROTARY

How to correct linear positioning errors with LSP30-3D

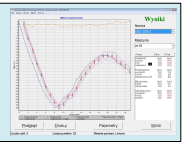
Positioning method choice:
- linear
- pilgrim 1
- pilgrim 2

G-Codes program generation for CMM or CNC machines in LSP30-3D software

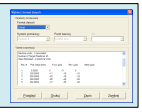
Loading G-Code program into machine

Performing linear positioning measurement by starting machine and pressing START in LSP30-3D Software (no user attendance during measurements necessary!)

Error report generation according to a chosen standard
(NMTBA, ISO, VDI/DGQ, BSI, PN, JIS)

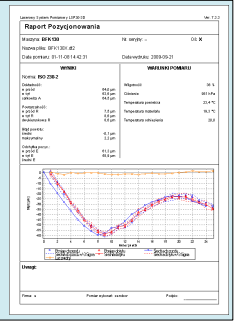


Error compensation table generation in a format best suited the corrected machine
(linear, incremental, Siemes, HP, Fanuc)



Downloading corrections into machine (if necessary)

Printing error report according to a chosen standard
(NMTBA, ISO, VDI/DGQ, BSI, PN, JIS)



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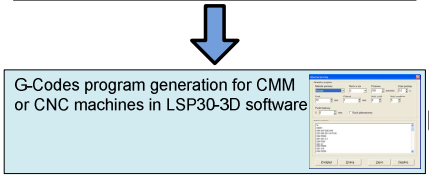
How to check straightness with LSP30-3D

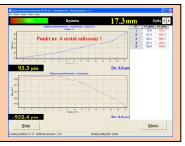
Straightness method choice
- Angular
- Wollastone
- 3-D



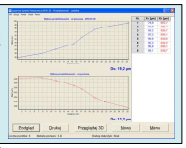
G-Codes program generation for CMM or CNC machines in LSP30-3D software

Loading G-Code program into machine

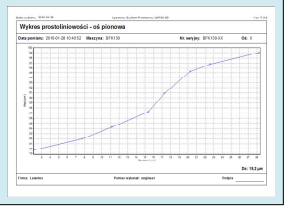
Performing straightness measurement by starting machine and pressing START in LSP30-3D Software



Obtaining straghtness chart versus machine shift



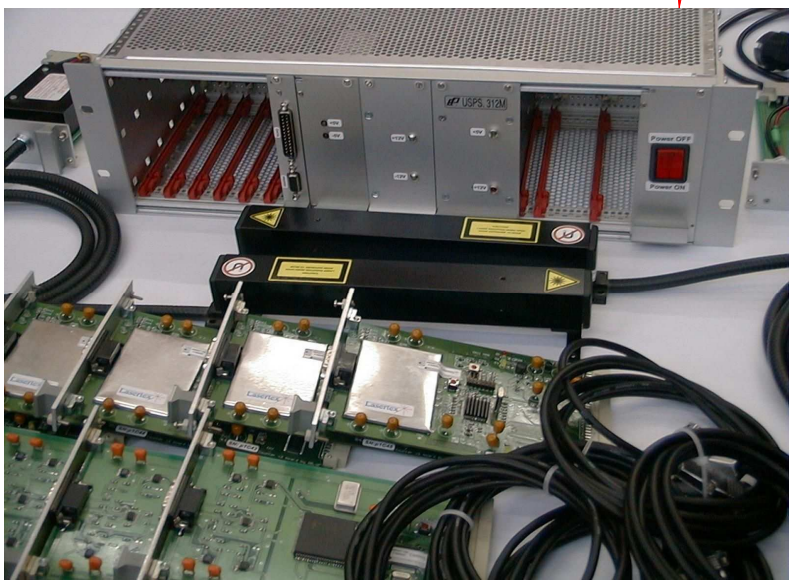
Printing straightness error report



LL 10

For high demanding applications

Laser Encoder LaserLiner LL10



LaserLiner LL10 is a complete laser encoder designed to be used in all applications where high accuracy, high quality, high versatility and low cost are important factors. LaserLiner LL10 is especially destined for measurements performed in vacuum, for laboratory use and for semiconductor industry.

Our uniquely stabilized laser heads, with patented solutions inside, guarantee stable operation over wide temperature range and long time.

LL 10

Main Features

Highest resolution and accuracy
Over 20 years of experience in production of laser interferometers allows us offer resolution and accuracy of the laser tailored to customer needs (even the most demanding!). LaserLiner LL10 offers ultimate resolution down to 25 pm and accuracy below 1 nm.

Competitive price
The price of LaserLiner LL10 is very competitive despite its excellent parameters.

Multiaxial measurements
One of the most important features of LaserLiner LL10 is the ability to measure simultaneously (data age difference 200ps) in up to 12 axes

Optical interface
Output data from the LL10 can be read either through fast serial electrical or optical interface. The protocol can be customized to customers needs.

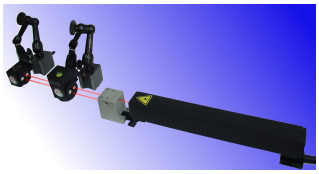
Vacuum compatibile optics
We offer very wide variety of different configurations of optical interferometers both for ambient air and vacuum applications

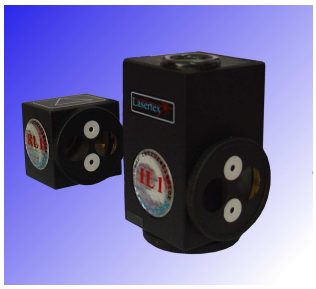
LL 10

Main parameters

Laser type:	Two mode HeNe laser with frequency stabilisation
Wavelength accuracy:	± 0.08 ppm
Short term stability:	± 0.002 ppm
Long term stability:	± 0.03 ppm
Output power:	900 µW
Maximum axis length	10 m (double and single pass optics) 30m (single pass optics)
Maximum velocity	2 m/s (single pass), 1m/s (double pass)
Resolution	User selectable, down to 50 pm
Laser MTBF	50000 hours
Output data format	User selectable: analogue sinA-cosB 1Vpp, digital TTL 5V, USB High speed optical interface
Data readout frequency	User selectable: up to 100kHz (USB) Up to 500kHz (optical interface)
Compensation of environmental conditions	Real time compensation. 1 x Air temperature sensor, 1x Air humidity sensor, 1 x Air pressure, 3 x Material temperature sensor

For more detailed information please contact us.





Laser Encoder LaserLiner LL10
LaserLiner LL10 Basic Set
consists of a complete kit of components necessary to operate the device. Those elements are:
1 x Frequency stabilized laser head
1 x Multiaxial data acquisition box
1 x Linear interferometer IL1
1 x Linear retro-reflector RL1
1 x Optical receiver OR-2
Necessary cables

Reference number:
LL10

Optical Receiver OR-2
Additional optical receiver OR-2 is used in multiaxial application or as a replacement part.

Reference number:
OR-2

Environmental Pack
Environmental Pack is an option necessary in highest precision applications. It consists of:
1 x Environmental compensation unit
1 x Air temperature sensor
1 x Air humidity sensor
1 x Air pressure sensor
3 x Base temperature sensor

Reference number:
METEO-2LL

LS 10

Laser Encoder LaserScaler LS10

LaserScaler LS10 is a complete laser encoder destined for usage in CMM and CNC machines, instead of traditional glass and magnetic scales. The use of laser encoder allows substantial increase of machines accuracy. The cost of LaserScaler LS10 is independent on the measured length! Besides, the device can be easily and cheaply enhanced for simultaneous measurement of two axes. The advanced electronics used in the device implements fully automatic, real time, compensation of the environmental factors influencing the accuracy of the measurement.

LS 10

Main Features

OEM usasge
LaserScaler LS10 is designed to be used as a replacement of magnetic and glass scales in all the places where quality and cost matters.

High resolution and accuracy
At prices comparable to glass scales LaserScaler LS10 offers accuracies in the range of 1µm with resolutions of 80nm (1nm on demand)

Multiaxial operation
LaserScaler LS10 can perform simultaneous measurements in one or two axes. The cost difference between single– and dual axis version is low.

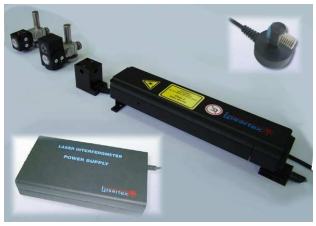
Sin/Cos outputs
LaserScaler LS10 is destined to be used as a part of a CNC machine. As such it offers sin/cos output signals in 1Vpp standard with programmable resolution from 1µm to 100µm.

LS 10

Main parameters

Laser type:	Two mode HeNe laser with frequency stabilisation
Wavelength accuracy:	± 0.08 ppm
Short term stability:	± 0.002 ppm
Long term stability:	± 0.03 ppm
Output power:	900 µW
Maximum axis length	20 m
Maximum velocity	2 m/s
Resolution	User selectable: 40nm, 1µm, 2µm, 5µm, 10µm, 20 µm
Laser MTBF	50000 hours
Output data format	User selectable: analogue sinA-cosB 1Vpp, digital TTL 5V, USB
Compensation of environmental conditions	Real time compensation. 1 x Air temperature sensor, 1x Air humidity sensor, 1 x Air pressure, 3 x Material temperature sensor

For more detailed information please contact us.



Laser Encoder LaserScaler LS10
LaserScaler LS10 Basic Set
consists of a complete kit of components necessary to operate the device. Those elements are:
1 x Frequency stabilized laser head
1 x Data acquisition box
1 x Linear interferometer IL1
1 x Linear retro-reflector RL1
1 x Optical receiver OR-1
Necessary cables

Reference number:
LS10

Optical Receiver OR-1
Additional optical receiver OR-1 is used in multiaxial application or as a replacement part.

Reference number:
OR-1

Environmental Pack
Environmental Pack is an option necessary in highest precision applications. It consists of:
1 x Environmental compensation unit
1 x Air temperature sensor
1 x Air humidity sensor
1 x Air pressure sensor
3 x Base temperature sensor

Reference number:
METEO-2LS

LSP 30UF

Laser Measurement System LSP30UF

Laser Measurement System LSP30UF is a complete laser interferometer, based on our successful LSP30-3D device. It is designed to be used in all applications where the movement speed and/or acceleration of the measured object are large. Maximal measured speed is up to 30 m/s (in one direction). Laser Measurement System LSP30UF is especially destined for linear interferometric measurements performed in laboratories and in machine industry.

LSP 30UF

Main Features

Very high speed
Laser Measurement System LSP30UF allows measurements of very high speed movements with resolutions down to 40nm.

Multiple data registration capabilities
The software of the LSP30UF offers control and registration of shift, velocity and acceleration at user chosen readout rate.

High readout rate
The LSP30UF offers possibility to register data at rates from 1 to 100000 Hz. The data can be read over standard USB interface.

Customizable software
The software of the LSP30UF can be tailored to customer needs.

LSP 30UF

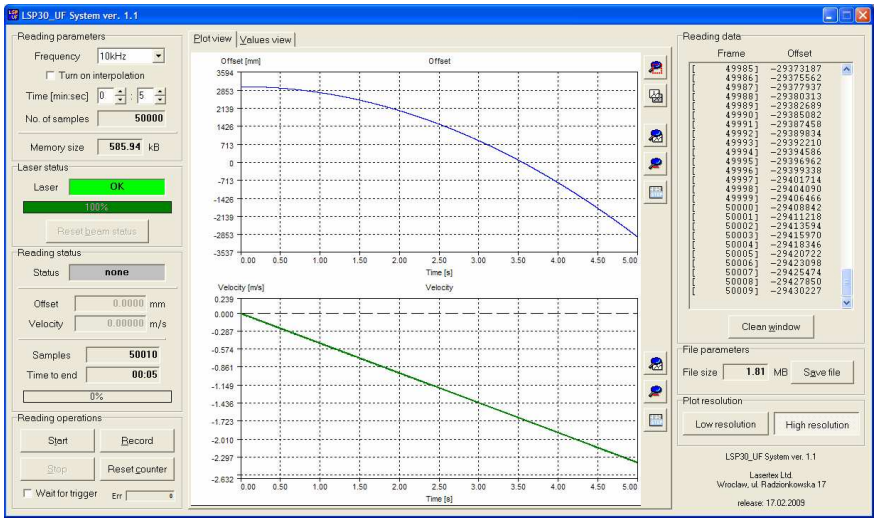
Main parameters

Laser type:	Single mode HeNe laser with frequency stabilisation
Wavelength accuracy:	± 0.05 ppm
Short term stability:	± 0.01 ppm
Long term stability:	± 0.08 ppm
Output power:	1000 mW
Maximum axis length	30m
Maximum velocity	+30 m/s, -0.3 m/s
Resolution	100 nm
Laser MTBF	50000 hours
Output data format	USB
Data readout frequency	User selectable: up to 100kHz (USB)

For more detailed information please contact us.

Laser Measurement System LSP30UF
Laser Measurement System LSP30UF consists of a complete kit of components necessary to operate the device. Those elements are:
1 x Frequency stabilized laser head
1 x Data acquisition box
1 x Linear interferometer IL1
1 x Linear retro-reflector RL1
Necessary cables
1 x PC software

Reference number:
LSP30UF



LSP30UF PC software view

OC-1100

Optical Counter OC-1100

Optical Counter OC-1100 is a unique device combining high sensitivity, high frequency, very low noise APD photodetector and a frequency counter. The device is enclosed in a compact and sturdy case with two outputs: analogue and USB, an external clock input and a power supply connector. The analogue output can be used for signal monitoring e.g. with an external spectrum analyser.

Optical Counter OC-1100 is especially destined for research and university laboratories.

OC-1100

Main Features

Wide input frequency range
The OC-1100 offers very wide measurement frequency range of 1MHz—1100MHz.

Integration of digital and analogue
Optical counter OC-1100 offers unique integration of very sensitive, low noise APD detector with PC-driven digital counter.

Automatic Allan Variance measurement
The OC-1100 offers automatic measurement of Allan Variance at averaging periods from 100μs to 1000s. The Allan Variance chart is automatically drawn by the software.

Analogue signal output
The detected optical signal can be either measured by the integrated digital counter or observed with an external equipment (oscilloscope, spectrum analyser).

Compact and sturdy case
Thanks to high scale of integration of internal electronics the Optical Counter OC-1100 is offered in a compact and sturdy case easily mountable e.g. on a laboratory table.

OC-1100

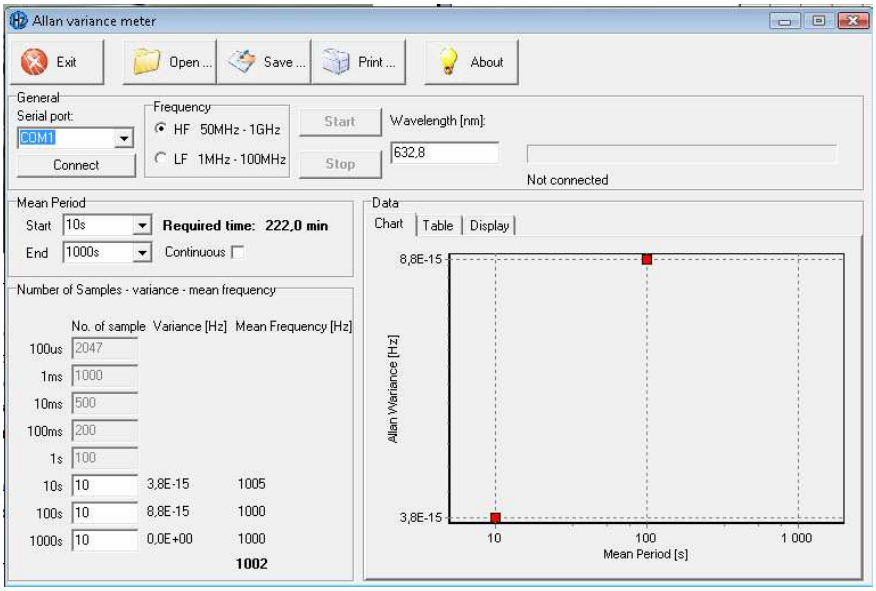
Main parameters

Optical Input:	Free space
Spectral Range:	400 – 1000 nm
Operating Temperature:	10 - 40 C
Frequency Range:	1 – 1100 MHz
Max Incident Power:	10 mW
Maximum Gain:	$>1*10^6$ V/W @1GHz, 800 nm (calculated)
Dark State Noise Level:	- 80 dBm (only analogue circuitry powered on) - 65 dBm
Output Connectors:	USB, analogue – AC coupled
Counter Timebase Frequency:	10 MHz
Timebase Stability:	0.3 ppm
Averaging Time	100 μs – 1000 s
Min Measured Power:	<1 μW @ 1MHz, 650 nm <5 μW @ 1100MHz, 650 nm

For more detailed information please contact us.

Optical Counter OC-1100
Optical Counter OC-1100 consists of a complete kit of components necessary to operate the device. Those elements are:
1 x APD Module
1 x PC software
1 x Power supply box
Necessary cables

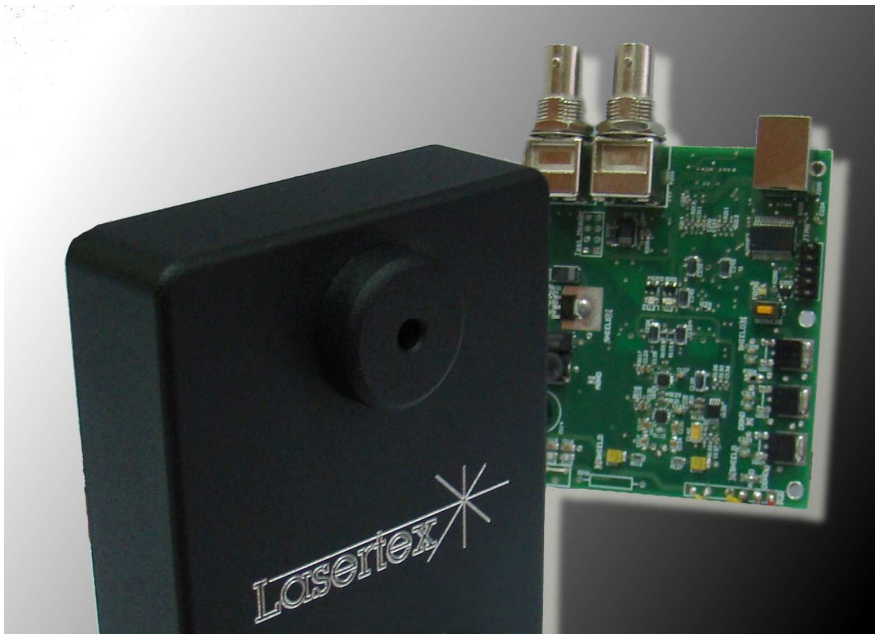
Reference number:
OC-1100



OC-1100 AlaIn Variance PC software view

OC-1100AN

APD module OC-1100AN



APD module OC-1100AN is an APD photodetector. Its main advantages are high sensitivity, wide input frequency range and very low noise at high gain. The maximum gain above 10^6 V/W and noise floor of –80dBm allows observation and detection of very weak signals. The device is enclosed in a compact and sturdy case with an analogue output and a power supply connector.

APD module OC-1100AN is especially destined for research and university laboratories.

OC-1100AN

Main Features

Wide input frequency range
The APD module OC-1100AN offers very wide measurement frequency range of:
1MHz-1050MHz at 3dB and
100kHz-1500MHz at 10dB.

Very low nosie level at high gain
The OC-1100AN offers extremely low output noise level of -80dBm observed in full bandwidth at gain exceeding $1*10^6$ V/W.

Analogue signal output
The detected optical signal can bobserved with an external equipment (oscilloscope, spectrum analyser) or measured with an external counter.

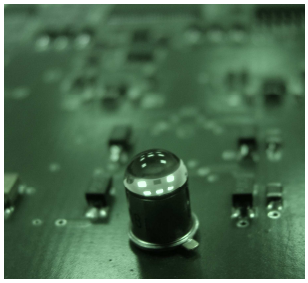
Compact and sturdy case
Thanks to high scale of integration of internal electronics the APD module OC-1100AN is offered in a compact and sturdy case easily mountable e.g. on a laboratory table.

OC-1100AN

Main parameters

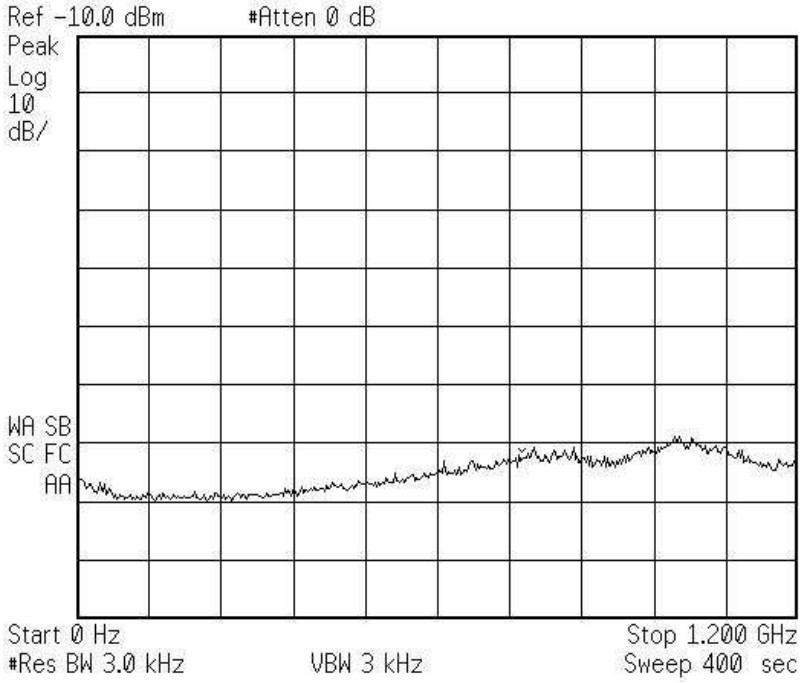
Optical Input:	Free space
Spectral Range:	400 – 1000 nm
Operating Temperature:	10 - 40 C
Frequency Range:	±3dB @ 1MHz - 1050MHz ±10dB @ 0.1MHz - 1500MHz
Max Incident Power:	10 mW
Maximum Gain:	>1*10^6 V/W @1GHz, 800 nm (calculated)
Dark State Noise Level:	- 80 dBm
Output Connectors:	analogue – AC coupled
Power supply:	230 VAC / 50 Hz

For more detailed information please contact us.



APD Module OC-1100AN
APD Module OC-1100AN consists of a complete kit of components necessary to operate the device. Those elements are:
1 x APD Module
1 x Power supply box
Necessary cables

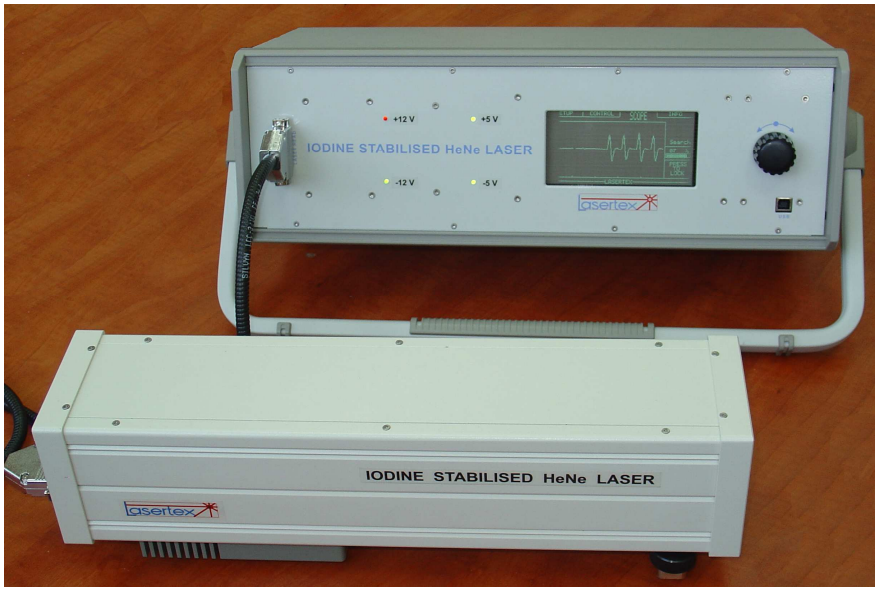
Reference number:
OC-1100AN



OC-1100AN noise floor In 0-1200 MHz range

LJSC-01

Laser Frequency Standard LJSC-01



Laser Frequency Standard LJSC-01-11, which reference frequencies base on the transition of atomic iodine isotope vapour, is an automatic laboratory device designed to be used in comparation and calibration of stabilized and non-stabilised He-Ne (632,8nm wavelength) lasers. Because of the internal construction after couple of hours heating time, the lock-up time of the laser is longer than 24 hours! Its parameters were many times check and confirmed in independent laboratories.

LJSC-01

Main Features

Results traceable to national standards
Laser Frequency Standard LJSC-01 was many times successfully tested in variety of National Standards Laboratories. Moreover in some laboratories it is used as a standard for frequency comparations.

Portability
Sturdy construction of the laser head and relatively small dimensions allow fairly easy transportation of the LJSC-01 e.g. between different laboratories.

Excellent parameters
The excellent frequency stability and frequency resetability were confirmed in many laboratories. Those parameters comply with CIPM 97 "Mise en pratique" recommendations for the realization of the meter

Long lock-up time
Thanks to its sturdy construction the Laser Frequency Standard LJSC-01 offers unique, very long lock-up time. In laboratory conditions it can be calculated in weeks.

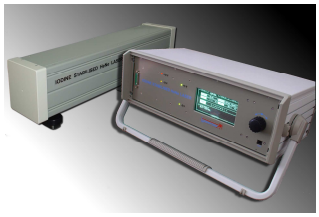
Integrated scope
The LJSC-01 offers a unique feature—integrated oscilloscope allowing constant observation of iodine peaks!

LJSC-01

Main parameters

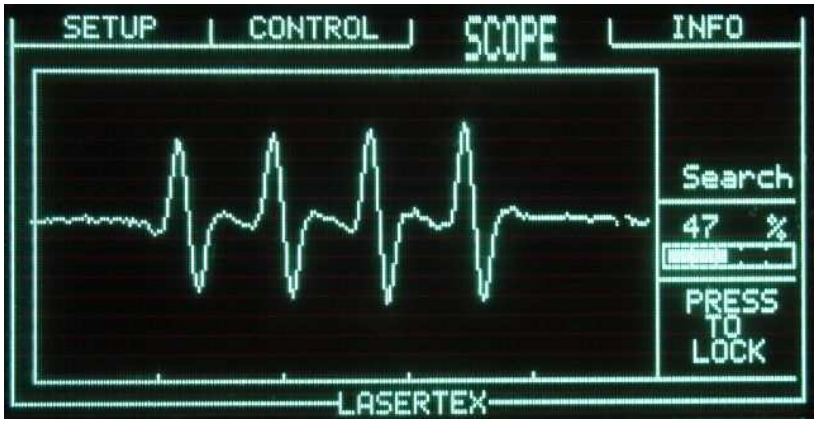
Wavelength	633 nm
Frequency stability (10s averaging time)	$<2.5 \times 10^{-12}$
Repeatability	2.5×10^{-11}
Method of stabilization	Third harmonic method
Accessible $^{127}I2$ hyperfine components	d,e,f,g,h,i,j,k,l,m,n of the 11-5 R(127) absorption
Iodine cell side arm temperature	15.0 ± 0.2 °C (Opportunity of selecting temperature in range 11.0 - 19.0 °C)
Output power	70 µW
Continuous frequency lock over 24 hours for ambient temperature 20 °C µ1°C	Yes
Automatic/Manual tune	Yes
Polarization	Linear, vertical

For more detailed information please contact us.



Laser Frequency Standard LJSC-01
Laser Frequency Standard LJSC-01 consists of a complete kit of components necessary to operate the device. Those elements are:
1 x Iodine stabilised Ha-Ne laser head
1 x Power supply / device control box
Necessary cables
1 x Comparation results

Reference number:
LJSC-01



LJSC-01 scope view (peaks 'd'-'g')

LL10 Petro

Tank Gauge Calibration Site LL10 Petro

LaserLiner LL10Petro is an automatic tank gauge probe calibration site working with a laser interferometer as a reference. Laser with the embedded electronics controls the movement of the table with fastened float kit and tests the accuracy of the probe in over 50 points according to ISO230-2. The choice of the measurement points is set automatically according the probe specification or requirements of local Office of Measures. The mechanical construction and the embedded software allows simultaneous measurement of two probes. The measurements consists from three testing procedure: start procedure, step positioning and pilgrim positioning. The total duration of the measurement procedure is less than an hour!

LL10 Petro

Main Features

Automatic calibration of gauges
Tank Gauge Calibration Site LL10Petro allows fully automatic calibration of tank gauges with high performance laser interferometer as a reference source.

High performance
The LL10 Petro is designed to perform simultaneous measurement of two tank gauges. The control keeps also the gauges reading time as short as possible.

Very high measurement accuracy
The readouts from tested tank gauges are compared to an ultimate length reference source—laser interferometer. Thanks to this the measurement accuracy is tens of μm.

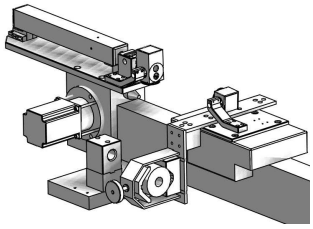
Variety of gauge types serviced
The most popular tank gauges types are serviced in standard configuration. The not-serviced types are added to the software cost free!

LL10 Petro

Main parameters

Laser type:	Two mode HeNe laser with frequency stabilization
Wavelength accuracy:	± 0.08 ppm
Short term stability:	± 0.002 ppm
Long term stability:	± 0.03 ppm
Output power:	900 µW
Maximum axis length	10 m
Resolution	1 µm
Laser MTBF	50000 hours
Output data format	USB
Measurement cycle duration	Ca. 1 hour
Max number of simultaneously measured probes	2
Types of read probes	Petrovend, TLS, DigiMag, (others on demand)

For more detailed information please contact us.



LL10 Petro
LaserLiner LL10Petro consists of a complete kit of components necessary to operate the device except for a PC computer. Those elements are:
1 x Frequency stabilised laser head
1 x Data acquisition box
1 x Receiver of optical signal
1 x Linear interferometer IL1
1 x Linear retro-reflector RL1
1 x PC software
Necessary cables
1 x High quality aluminium bench
1 x Stepping motor
1 x Stepping motor supply unit
1 x Stepping motor driver

Reference number:
LL10Petro

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