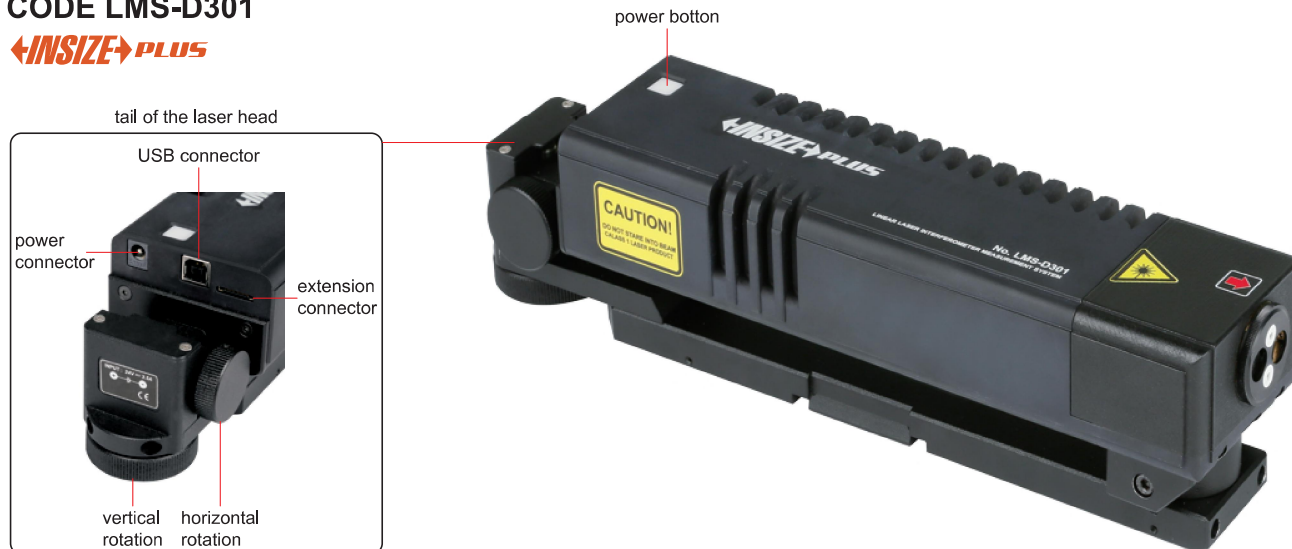


# LINEAR LASER INTERFEROMETER MEASUREMENT SYSTEM CODE LMS-D301

**INSIZE PLUS**



- The laser uses a special combination of heterodyne and homodyne optical configurations to achieve a resolution of 100 pm (0.1nm)
- High frequency architecture design, max measurable velocity up to  $\pm 7\text{m/s}$
- Built-in alignment tools indicator for the laser head, it shows the pitch and yaw angles, it helps to reduce setup time
- Laser head with magnetic base that can be mounted inside the unit to reduce mounting constraints
- Unique machine tools analysis capability, high dynamic sampling frequency
- Compensated measurement of linear positioning accuracy for CNC/CMM machines
- Automatic generation of G-code program, integrated code conversion program for Fanuc, Siemens, Heidenhain and other systems (or automatic compensation file)
- Applications: positioning, straightness, squareness, flatness, parallelism, pitch/yaw, diagonal, vibrations, angular positioning

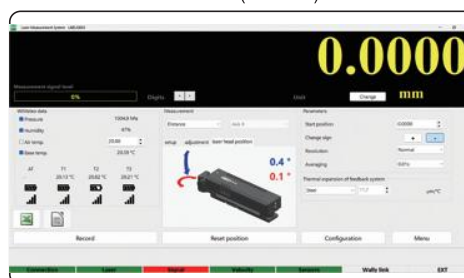
## LASER HEAD SPECIFICATION

Laser type	He-Ne laser
Wavelength accuracy	$\pm 0.005\text{ppm}$
Short term stability	$\pm 0.001\text{ppm}$
Long term stability	$\pm 0.001\text{ppm}$
Output power	900 $\mu\text{W}$
Maximum axis length	0~80m (optional LMS-D-LR)
Maximum velocity	$\pm 7\text{m/s}$ (linear optics) or $\pm 20\text{m/s}$ (optional)
Laser source MTBF	20000 hours
Environment compensation	wireless air temperature, humidity, pressure sensor
Material compensation	wireless material temperature sensor
Power supply	100~240V, 50/60Hz
Dimension (L×W×H)	255×70×45mm
Weight	1.2kg

laser head and tripod (included)



software (included)



linear retro-reflector (included)



linear interferometer (included)



magnetic base (included)



environment compensation sensor (included)



material temperature compensation sensor (included)



wireless remote (included)



SPECIFICATION

Distance	range	0~30m
	resolution	100pm (0.1nm)
	accuracy	±0.4µm/m
Velocity	range	0~7m/s
	resolution	0.25µm/s
	accuracy	±0.1%
Angular	range	0~3600arcsec
	resolution	0.001arcsec
	accuracy	±0.1ppm
Straightness (angular optics)	range	0~15m
	resolution	0.01µm (for 100mm base)
	accuracy	±0.2%
Straightness (Wollaston prism)	range	0.3~9m (vertical range ±30mm)
	resolution	0.01µm
	accuracy	±0.5%Lµm*
Straightness (3D optics)	range	0~6m
	resolution	0.1µm
	accuracy	±(10+10L)µm*
Flatness	range	0~15m (vertical range ±2mm)
	resolution	0.01µrad (for 100mm base)
	accuracy	±0.2%L*
Squareness	range	±1000arcsec
	resolution	0.01µm
	accuracy	±0.5arcsec
Rotary	range	±720°
	resolution	0.04arcsec
	accuracy	±0.2%

\* L-the distance between optical components in meters

WALLY ROTARY ENCODER SPECIFICATION

Accuracy	1arcsec
Reproducibility	0.5arcsec
Resolution	0.01arcsec
Range	without limit
Maximum turning speed	30RPM
Operation temperature range	10°C~35°C
Triggering and control	wireless link, 2.4GHz
Power supply	rechargeable battery (rechargeable within 3h, 30h of operation)
Weight	2.6kg (Wally rotary encoder) 7.2kg (Wally rotary encoder set)

STANDARD DELIVERY

Main unit	1 pc
Software	1 set
Linear retro-reflector	1 pc
Linear interferometer	1 pc
Material temperature compensation sensor	3 pcs
Environment compensation sensor	1 pc
Magnetic base	2 pcs
Tripod	1 pc
Micro-adjustment tripod head	1 pc
Wireless remote	1 pc
Mounting pillar	3 pcs
Clamp block	2 pcs
Power supply	1 pc
USB cable	1 pc
Reinforced case	1 pc

OPTIONAL ACCESSORY

Wally angular encoder kit	LMS-D-AE	Wally angular encoder 1 pc, angular interferometer 1 pc, mounting base 1 pc, power supply 1 pc, reinforced case 1 pc
Off-Axis mount for Wally	LMS-D-AEM	off-axis mount 1 pc
Angular optics kit	LMS-D-AP	angular interferometer 1 pc, angular retro-reflector 1pc, base plate (100mm) 1pc
Straightness (Wollaston method) optics kit	LMS-D-WP	Wollaston prism 1 pc, Wollaston reflector 1pc, vertical-horizontal adapter 1pc, target plate 1pc, magnetic base for wollaston 1pc, reinforced case 1pc
Wollaston right angle etalon kit	LMS-D-WPS	Wollaston right angle etalon 1 pc, Wollaston right angle reflector 1 pc
Right angle etalon	LMS-D-AR	right angle etalon 1 pc, reinforced case 1 pc
Flatness measurement kit	LMS-D-FM	beam bender 2 pcs
Long range linear kit	LMS-D-LR	interferometer 1 pc, long range retroreflector 1pc, reinforced case 1pc
Double pass optics	LMS-D-DP	double pass interferometer 1 pc

Wollaston right angle etalon kit, code: **LMS-D-WPS (optional)**

- Wollaston right angle etalon are suitable for measurement perpendicularity or parallelism



right angle etalon



right angle reflector

Angular optics measurement, code: **LMS-D-AP (optional)**

- Suitable for pitch and yaw error measurement and for the straightness of abase up to 15 meters measurement



angular retro-reflector



angular interferometer

Wally rotary encoder, code: **LMS-D-AE (optional)**

- Automatic work: after setting just push start button to begin measurement, everything is done automatically
- Highest accuracy and precision: 1 arcsec precision with 0,5 arcsec repeatability
- Wireless operation: the Wally angle encoder connection is wireless
- Module mountings: special mountings are designed to fit every kind of machine tool
- Off axis measurements: new software allows for off axis measurements which are used especially for 5-axis machines



Wally rotary encoder

Right angle etalon, code: **LMS-D-AR (optional)**

- Used in measurements of axes perpendicularity and parallelism, the device is also useful for 90° beam redirection for fast axis switch



right angle etalon

Flatness measurement kit, code: **LMS-D-FM (optional)**

- The set is used for table flatness measurement as well as diagonal measurements, beam Benders are adjustable for beam alignment and may be used for beam redirection



beam benders

Long range linear kit, code: **LMS-D-LR (optional)**

- Long range linear optics can be used in the same way as linear optics but for measurements up to 80 meters
- Bigger reflector makes adjustment much easier
- Linear interferometer adapter helps to split the beams further from each other, to avoid interference on longer distances caused by machine vibration



long range retroreflector

Straightness (Wollaston method) optics kit, code: **LMS-D-WP (optional)**

- Kit for straightness measurement of movement (up to 9 m)



vertical-horizontal adapter



Wollaston prism



Wollaston reflector