

Laser Measurement System HPI-3D



Bluetooth

0.4
μm/m

Accuracy

**Electronic
Alignment
Tool**

**Lifetime
Software
Support**

Laser Measurement System HPI-3D is one of the most advanced laser interferometers available on the market. It offers many new options for users with unprecedented measurement precision and resolution. Very easy to use, can be used both in research laboratories and in machines geometry measurements.

Accurate machine calibration is essential to provide quality product. With our system you can perform quick and accurate calibration. Basic configuration enables measurements of linear displacement, vibrations, velocity and positioning. The 3D system offers the unique function of vertical and horizontal straightness measurement that makes the straightness measurements easy and time saving.

Additionally the software of **HPI-3D** offers a unique electronic alignment tool. This function makes long lines alignment easy and fast and in short lines it decreases cosine errors. Laser interferometer **HPI-3D** simplifies the measurements even further thanks to bluetooth communication to a PC or wireless sensors.

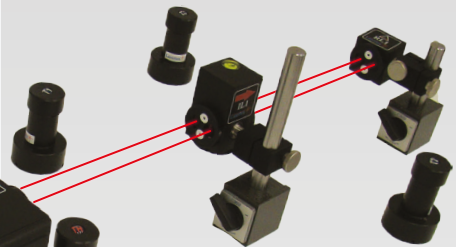
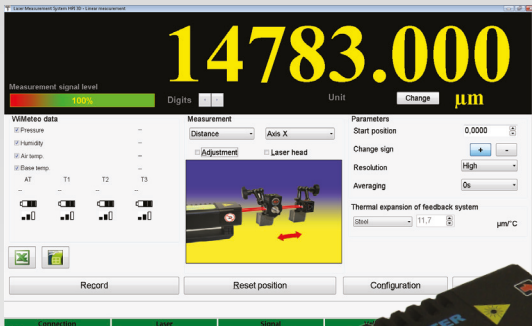
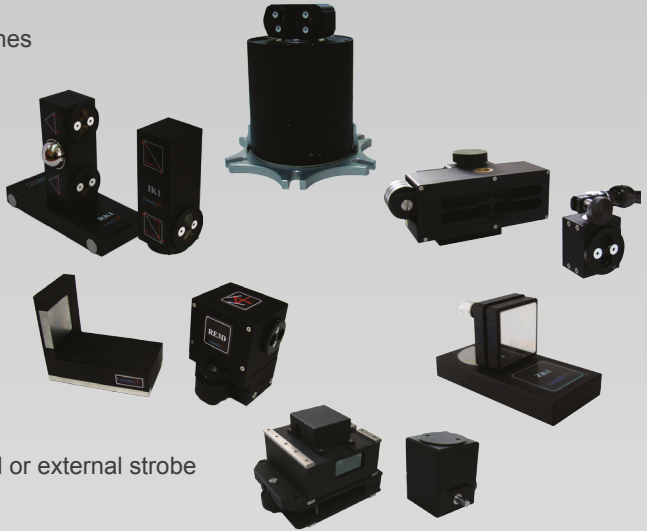
Laser Measurement System HPI-3D

Applications:

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

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

* additional optics required



Laser Measurement System HPI-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 customers most demanding needs.

Competitive price

We try to make the **HPI-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.

Wireless operation

Thanks to the wireless connection to a PC and wireless environmental sensors the usage of the laser system becomes more flexible and faster.

Electronic alignment tool

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

HPI-3D was many times successfully tested in variety of National Standards Laboratories. Moreover in some laboratories it is used as a standard for length comparisons.

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.

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. It is especially important during machine servicing.

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 **HPI-3D** is unbeatable on the market.

G-codes generator

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 **HPI-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.

Laser Measurement System HPI-3D

Basic set of the HPI-3D includes:

- Laser head with build-in compensation unit LH 02
- Linear interferometer LI 01
- Linear retroreflector LR 01
- Wireless environmental sensor – EC 01
- Wireless temperature sensors T1, T2, T3
- Manual wireless trigger
- Mounting element ME 01 x 2
- Mounting element with M5 thread x 2
- Magnetic mounting base MH 01 x 2
- PC software on pendrive
- Power supply adapter PS 02
- USB cable
- Ultra durable case
- Tripod TS1



Main parameters

Measurement type	Range	Resolution	Accuracy
Distance	0 - 30 m	100 μm	0,4 $\mu\text{m}/\text{m}$
Velocity	0 - 7 m/s	0,25 $\mu\text{m}/\text{s}$	$\pm 0,1 \%$
Angular	0 - 3600 arcsec	0,001 arcsec	$\pm 0,1 \text{ ppm}$
Straightness angular	0 - 15 m	0,01 μm (for 100mm base)	$\pm 0,2 \%$
Straightness Wollaston	0,3 - 9 m $\pm 30\text{mm}$	0,01 μm	$\pm 0,5 \% * L \mu\text{m}$
Straightness 3D	0 - 6 m	0,1 μm	$\pm (10 + 5 * L) \mu\text{m}$
Flatness	0 - 15 m $\pm 2\text{mm}$	0,01 μrad	$\pm 0,2 \% * L$
Squarness	$\pm 1000 \text{ arcsec}$	0,01 μm	$\pm 0,5 \text{ arcsec}$
Rotary	$\pm 720^\circ$	0,04 arcsec	$\pm 0,2 \%$