

MICROTRAK™ 4

HIGH SPEED DIGITAL LASER DISPLACEMENT SENSOR



RANGES FROM

• 2mm

•

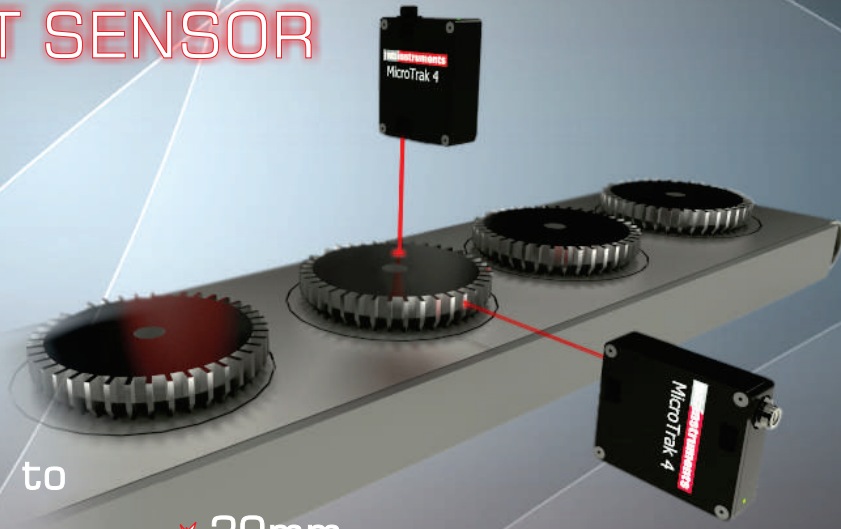
•

•

•

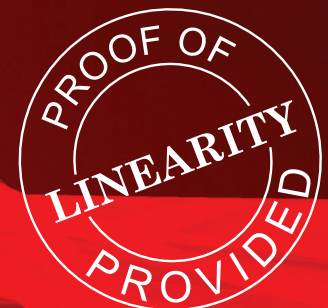
to

• 20mm



- Direct power from USB port
- ~40kS/sec. CMOS sensor full frame rate
- Included Software Development Kit (DLL and .NET)

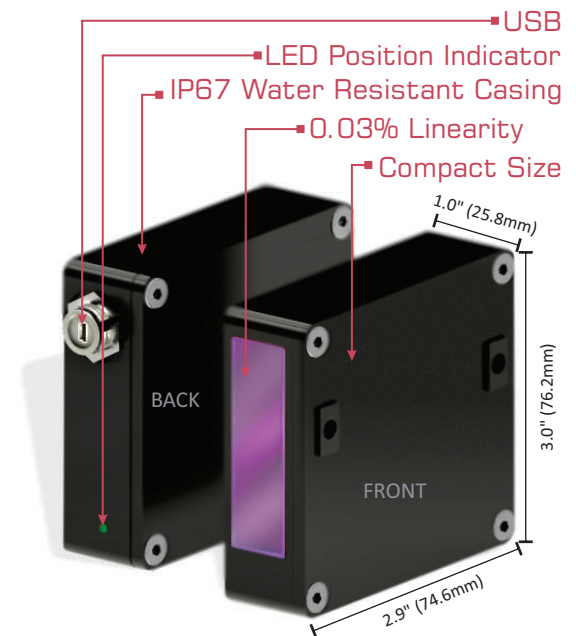
Accurate and repeatable measurements from highly reflective to dull surfaces



with every system shipped!

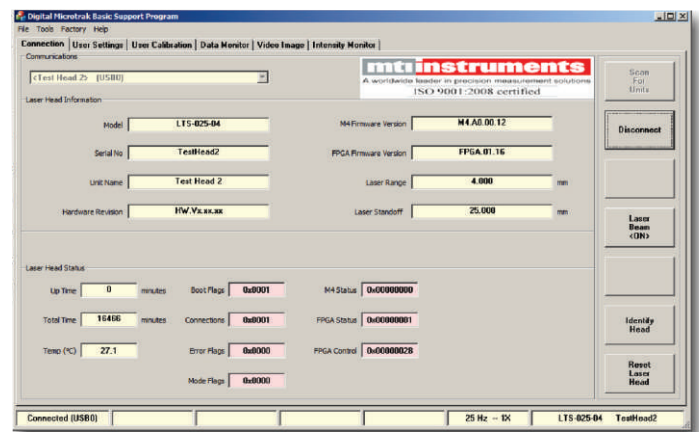
4 Highly Accurate Models to Choose From

| Model | | DTS-025-02 | DTS-025-04 | DTS-050-10 | DTS-050-20 |
|---------------------------------------|--------|------------|------------|------------|------------|
| Standard Range | mm | 2 | 4 | 10 | 20 |
| Standoff | mm | 25 | 25 | 50 | 50 |
| Displacement | | | | | |
| Close Extended Mode | mm | 23.75 | 22.5 | 43.75 | 37.5 |
| Close Standard Mode | mm | 24 | 23 | 45 | 40 |
| Standoff | mm | 25 | 25 | 50 | 50 |
| Far Standard Mode | mm | 26 | 27 | 55 | 60 |
| Far Extended Mode | mm | 26.25 | 27.5 | 56.25 | 62.5 |
| Linearity (standard range) | | | | | |
| 1X exposure | %FSO | 0.0375% | | | |
| 2X exposure | %FSO | 0.0300% | | | |
| 1X exposure | μm | 0.75 | 1.50 | 3.75 | 7.50 |
| 2X exposure | μm | 0.6 | 1.2 | 3 | 6 |
| Laser angle for Specular heads | | | | | |
| | θ | 45° | | 30° | |
| Noise (2X, 500Hz) | | | | | |
| At standoff to white target | μm RMS | 0.125 | 0.25 | 1.25 | 2.5 |
| Spot Size | | | | | |
| Major at standoff | μm | 30 | 30 | 25 | 25 |
| Maximum Resolution | | | | | |
| | nm | 38 | 76 | 191 | 381 |



Key Features

- Simple Software Interface - Out of the box, the MTI basic program runs on your PC to make measurements. Intuitive and straight forward buttons makes configuring and acquiring data simple.
- Software Development Kit Included - for custom programs used by system integrators.
- Visible Laser Spot - Allows for easy positioning and alignment of the laser head.
- No Controller Needed - With the built-in 5-color position indicator, there is no need for an external controller to determine the laser mounting location and attain the precise distance placement.
- Built-in Low Pass Filters
- Auto Gain Circuitry - Automatically determines and adjusts the ideal laser power needed for accurate and repeatable measurements on different surface types.
- Cut-Time Feature - Ignore holes and cutouts with its bridging function.

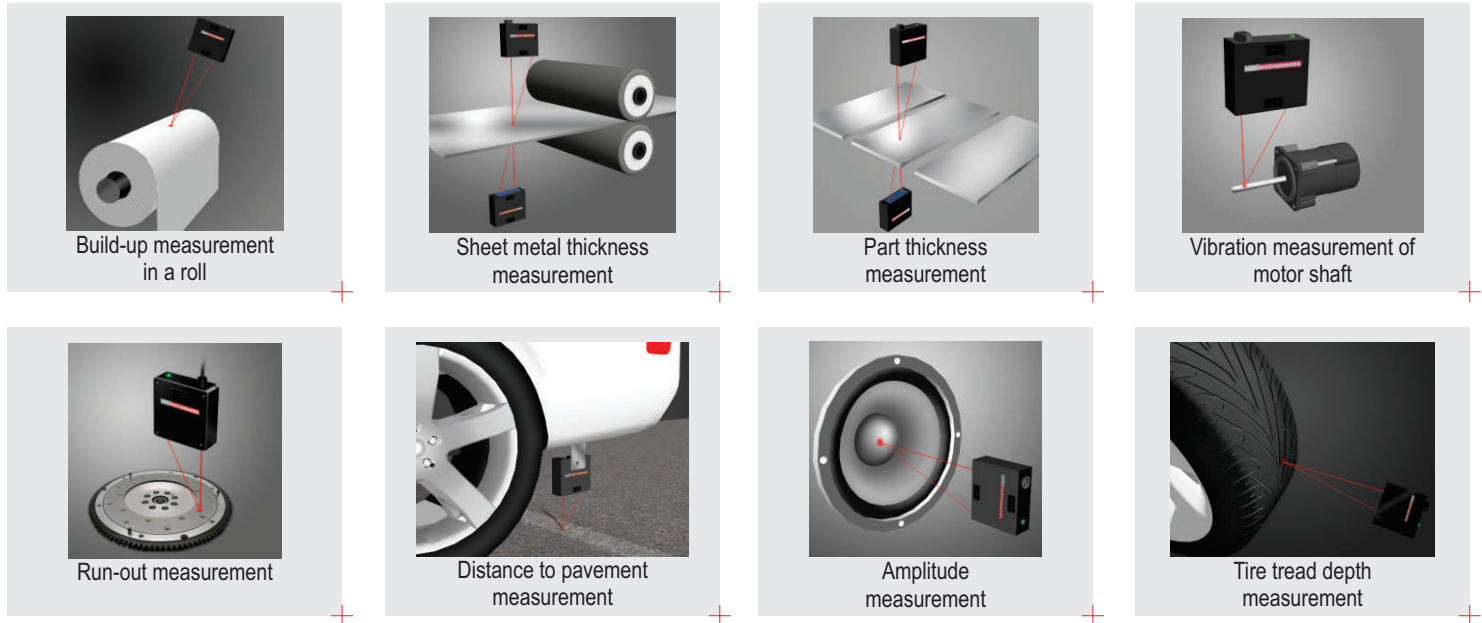


- USB
- No separate power supply needed
- All digital output

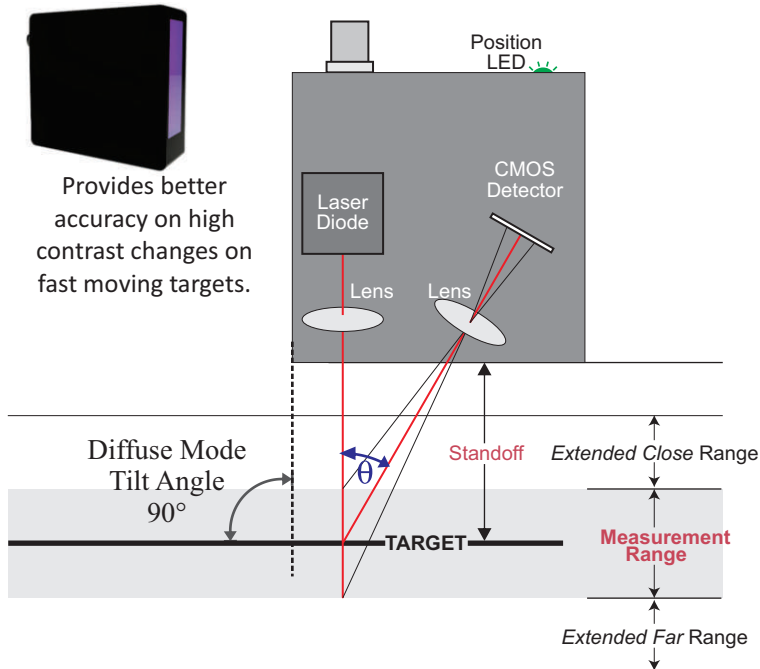
Applications

- Thickness
- Warpage
- Alignment
- Displacement
- Vibration
- Step Height
- Shaft Run-out
- Road Profile
- Presence
- Fill Height
- Flatness
- Profiling
- Thermal Expansion/ Contraction
- Structural Dynamics
- Dimensional Gauging

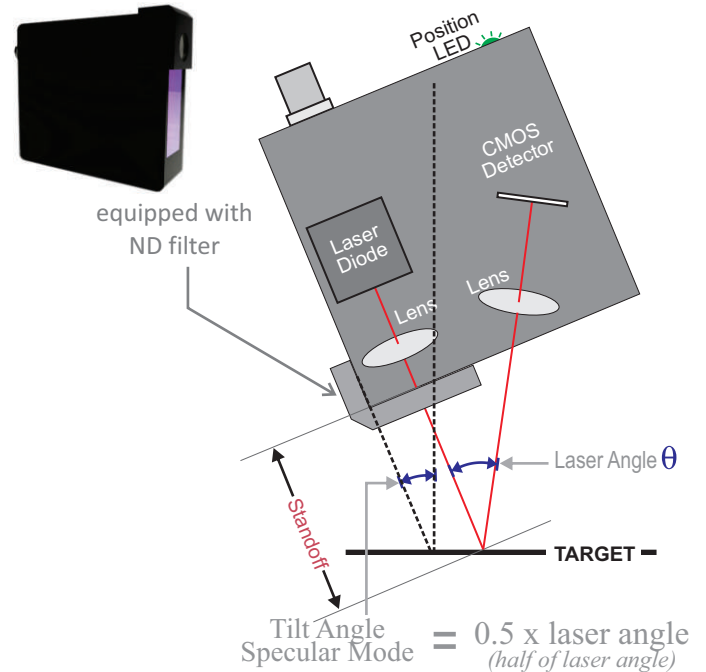
Unmatched Features for Different Types of Applications



Diffuse Mode



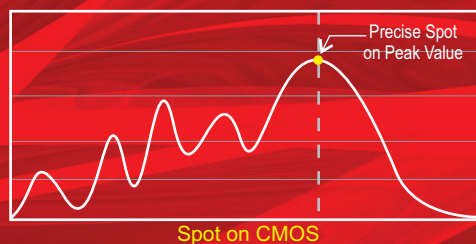
Specular Mode (recommended for shiny surfaces)



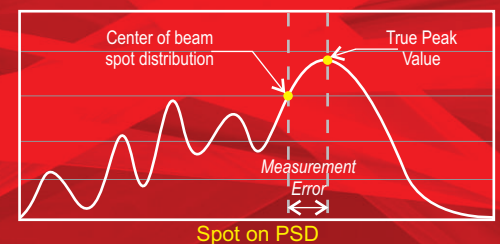
MICROTRAK™ 4 uses Highly Precise CMOS Technology

The Microtrak™ 4 laser displacement sensor head is the ideal solution for quality and process control applications. Using the latest CMOS technology, the Microtrak™ 4 precisely monitors the intensity of light received on a pixel array and optimizes itself to the sensed conditions.

Accurate advanced CMOS sensor



Errors occur using competitive PSD sensors



Technical Specifications

| | |
|---|---|
| Maximum Sampling Rate (sensor) | 40k (38277.5) Frames/s |
| Exposure Time | |
| 1X | 25 μ s |
| 2X | 50 μ s |
| Filter | 0.1 to 20kHz (1st order, exponential) |
| Practical Maximum Output Bandwidth | 15kHz (Per Nyquist) |
| Interfaces Supported | |
| Digital | USB2.0 (conforming, not certified) |
| Analog | None |
| Supported Data rates | 100, 200, 500, 1k, 5k, 10k, 20k Samples/s |
| Software | |
| MicroTrak™ 4 Basic | Windows® 7, 8, 10 |
| Supported Interface Software | |
| DLL | Windows® 7, 8, 10 |
| .NET | Windows® 7, 8, 10 |
| LabVIEW™ | In Development |
| Laser Wavelength | 670 nm |
| Maximum Power Level (factory set) | |
| Maximum | 4.9 mW |
| Typical | 3 mW |
| Laser Power Class | 3R IEC60825 |
| Nominal Supply Voltage | |
| SELV from USB2.0 | 5 V |
| Maximum Supply Ripple | 100 mVpp |
| Nominal Supply Current | 100 mA During Enumeration |
| Intrusion Protection | IP67 IEC60529 |
| Operational Temperature Range | 0 to 40 °C |
| Storage Temperature Range | -20 to 70 °C |
| Humidity | 5 to 95 % Non-Condensing |



What's in the box

(1) Diffuse Sensor Head

(1) Specular Sensor Head

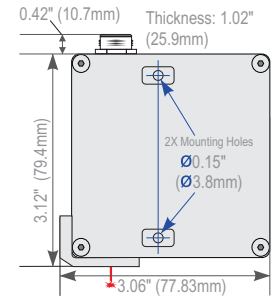
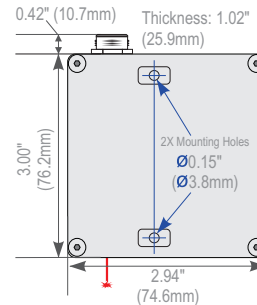


OR



| Model | P/N |
|------------|-----------|
| DTS-025-02 | 8000-7040 |
| DTS-025-04 | 8000-7032 |
| DTS-050-10 | 8000-7033 |
| DTS-050-20 | 8000-7034 |

| Model | P/N |
|------------|---------------|
| DTS-025-02 | 8000-7040-001 |
| DTS-025-04 | 8000-7032-001 |
| DTS-050-10 | 8000-7033-001 |
| DTS-050-20 | 8000-7034-001 |



(1) USB drive
Software, Manual &
Drivers



NOTE: USB/Power cable is available as a separate item. Please check selections below.

Optional Accessories

USB/Power Cable

| | |
|----------|---------------|
| 1 meter | 8000-7020-001 |
| 2 meters | 8000-7020-002 |



FS-5 Laser Head Mount
and Positioner
P/N: 8000-6725



FS6-1 Right Angle Bracket
(25/50) P/N: 8000-6431



MTI Instruments, Inc.

325 Washington Avenue Extension

Albany, NY 12205-5505

PH: +1-518-218-2550

OR USA TOLL FREE: 1-800-342-2203

FAX: +1-518-218-2506

EMAIL: sales@mtiinstruments.com

www.mtiinstruments.com

mtiinstruments

A subsidiary of Mechanical Technology, Inc.(MKTY)