

MLS02-50 LASER TRIANGULATION SCANNER



- **Laser Triangulation Scanner with 10 to 50 deg arch rotating mirror scan**
- **Non-Contact Measurement of distance and angle off all surfaces.**
- **High temperature versions for surface temperatures of 1250°C**
- **Measurement range options: 100 to 1300 mm**
- **Stand off options: 200 to 1500 mm stand offs.**
- **Radial and Polar resolution: 0.03 mm to 0.7 mm**
- **Robust compact size of 310 x 190 x 64 mm**
- **RS232 or RS422 (115200—230400 Baud) Serial Interfaces**
- **Scan rate: 2kHz model with 300 or 600 scans/min
6kHz model with 450-1800 scans/min**
- **6kHz Class 3R / 3B Laser Output Models with 450, 900 or 1800 scan rates**

Performance

Model	MLS02-250	MLS02-325	MLS02-505	MLS02-1155	MLS02-1950	MLS02-1350
Measured range (mm)	100	250	100	300	900	1300
Radial Distance (mm) (From Rotary Mirror)	200-300	200-450	450—550	1000—1300	1500—2400	700—2000
Scan at 50 deg arch (Close /far (mm)	186-253	186-379	419/ 464	932 / 1098	1398 / 2028	652 / 1688
Radial / Polar Resolution / Reproducibility mm ¹⁾	0.03/±0.03	0.05/±0.05	0.05/±0.05	0.2/±0.2	0.6/±0.6	0.8/±0.8
Radial / Polar Linearity	±0.10	±0.2	±0.1	±0.5	±1.2	±1.6
Laser Class 2 kHz/ 6 kHz	IEC 2 / IEC 2	IEC 2 / IEC 3R	IEC 2 / IEC 3R	IEC 2 / IEC 3B	IEC 2 / IEC 3B	IEC 2 / IEC 3B
Laser Spot Size	1 mm	2 mm	1 mm	1 mm	2 mm	3 mm

Typical Applications

- **Width Measurement**
- **Thickness Measurement**
- **Weight/Volume Control**
- **Profile Measurement**
- **Tension Control**

Namely provide 2D profile measurement in any kind of industrial application with the output in a software converted form. Namely the Y coordinates used possibly for width or thickness according to the resolution and scan angle.

General Description

These MLS02 Laser Triangulation Scanners provide precision measurement in two dimensions. The measurement is performed by oscillating the triangulation plane by up to 50 deg. A fine collimated and focused laser beam is diffusely reflected from the surface of the material being measured and the internal CCD Camera records the image. This image is then processed by digital signal processor to calculate the radial distance from the centre of the mirror axis to the object surface as well providing an angular track off its position.

These Scanners are compact stand-alone units containing the optics, signal processing and camera unit. The Scanner view shown illustrates the scan line. The distance and angular values are provided at frequency of 2kHz or 6 kHz as a digital signal for application running under Windows using the MLS02 driver DLL.

The Scanners are delivered with a CD containing the DLL and a Windows test/demo program. The PC application programme receives the output data from the Scanner over RS422/RS232 serial interface and a COM port via the DLL. The software either converts the polar coordinates of a measured point to orthogonal X,Y co-ordinates or presents a profile (table of X, Y values) for each sweep from one side to the other. The user can specify the size of the Y increment in the application programme and thus the length the output and thus the length of time the output contains the profile data.

Each Scanner can be supplied with 3 differing scan rates of 1800, 900 or 450 scans/min and with differing measuring angle of between 10 deg to 50 deg. Also can be provided with 2kHz or 6 kHz output format giving high or lower resolution. Where required, customized versions can be supplied with non-standard scan angles and measuring ranges. Models are available for measuring off product at 1250 deg C.

MODULOC[®] Technology - Lasers for Precise Product Measurement

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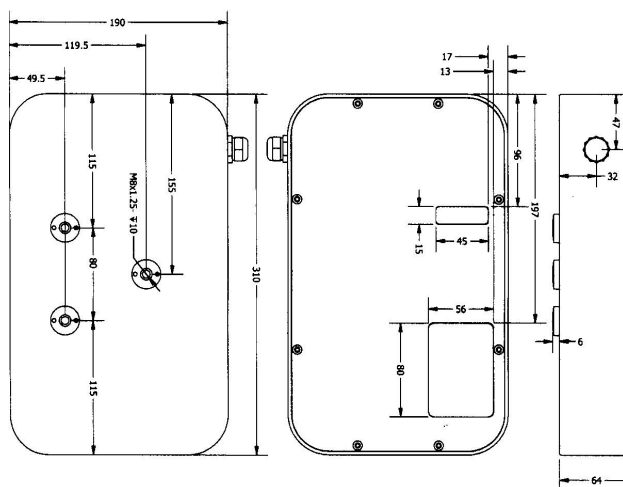
Dimensions

Housing: Blue oven baked painted Aluminum

Housing Rating: IEC IP65

Weight w/o Cable: 4.5 Kg

Cable Length: 2.5 M



General Specifications

Serial Output	RS232 Standard or RS422 option	Supply Voltage	22—36 VDC
Baud Rate 2kHz/6kHz	115200 / 230400	Power Consumption	12 Watt
Digital Output	Digital output 1/10 values of full range	Humidity	Max 90% RH (non condensing)
Scan Rate	600 or 300 scan/min	Operating Temperature	0°C (32°F) to +45°C (113°F)
Update Frequency	2000 Hz or 6000Hz	Storage Temperature	-20°C (-4°F) to +70°C (158°F)
Angular Resolution	10 deg Scan 2kHz - <0.08 or < 0.04 6 kHz - <0.08 , < 0.04 or <0.02		
Angular Resolution	50 deg Scan 2kHz - <0.4 or < 0.2 6kHz - <0.4, <0.2 or <0.1		
Temperature Deviation	±0.03% of F.S./°C	Product Temp. Limit	Standard 450°C (842°F) / 1250°C hi temp
Laser Source	Visible 655 nm Laser	Laser Class ⁴⁾	Class II, IEC 2 / IIIR / IIIB

1) Stated Resolutions determined with reference to white surface.

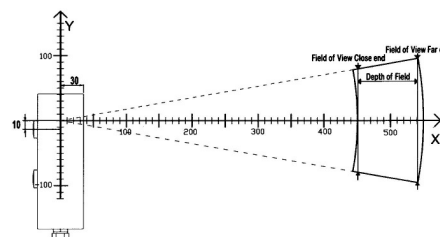
General Description

These MLS02 Scanners precisely measure in two dimensions. The measurement is performed by oscillating the triangulation plane by up to 50°. The fine collimated laser beam diffusely reflects from the surface of almost any kind of material or fluid, and the internal camera records the image. This makes it possible for the Processor to calculate the (radial) distance from the centre of the mirror axis to the object surface, as well as keeping track of the angular reference position.

The schematic drawing to the right shows the scanner seen from the side. In this orientation of the scanner, the triangulation plane sweeps from - 25° below the horizontal plane to + 25° above the horizontal plane.

The measured distance data is available as a digital signal for running under Windows and using the MLS02 driver DLL. The scanner is delivered with CD's containing the mentioned DLL and a Windows test/demo program. The application program receives data from the scanner over the serial interface and a COM port via the DLL.

Scan Angle configuration



The software either converts polar coordinates of a measurement point to orthogonal X and Y coordinates or presents a profile (table of X, Y-values) for each sweep from one side to the other. Within the application program the user can specify the seize of the Y increment and thus the length of the output table containing the profile data.

The MLS02 scanners are also available as synchronized versions, where the units are programmed to operate as either a SLAVE unit or as a MASTER unit controlling one or more SLAVE units.

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We reserve the right to alter specifications without prior notice. Specifications without tolerances are typical values.

Your Local Sales Representative:



Bulletin. MLS02
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