

Specifications: O^{2D}S X (2 & 6 kHz) Scanners



Models :	O ^{2D} S 130	O ^{2D} S 205	O ^{2D} S 430	O ^{2D} S 730	
Measurement data:					
Radial / Polar distance from mirror axis	80-180 mm	80-330 mm	180-680 mm	380-1080 mm	
Standard 20° scan arch	± 10°	± 10°	± 10°	± 10°	
Dept of Field (X)	97 mm	245 mm	489 mm	683 mm	
Field of View close end (Y)	28 mm	28 mm	63 mm	133 mm	
Field of View far end (Y)	62 mm	114 mm	225 mm	374 mm	
Maximum 50° scan arch	± 25°	± 25°	± 25°	± 25°	
Dept of field (X)	83 mm	219 mm	436 mm	599 mm	
Field of View close end (Y)	74 mm	74 mm	152 mm	321 mm	
Field of View far end (Y)	152 mm	278 mm	574 mm	911 mm	
Radial / Polar Resolution *)	0.01 mm	0.07 mm	0.2 mm	0.5 mm	
Radial / Polar Reproducibility *)	± 0.01 mm	± 0.07 mm	± 0.2 mm	± 0.5 mm	
Radial / Polar Linearity *)	± 0.1 mm	± 0.3 mm	± 0.5 mm	± 1 mm	
Scan rate (from one side to the other for 2 kHz model)	600 scans/min.	600 scans/min.	600 scans/min.	600 scans/min.	
Angular resolution at Minimum 20° scan arch (2 kHz)	< 0.16°	< 0.16°	< 0.16°	< 0.16°	
Angular resolution at Maximum 50° scan arch (2 kHz)	< 0.4°	< 0.4°	< 0.4°	< 0.4°	
Scan rate (from one side to the other for 6 kHz model)	1800, 900 or 450 scans/min.	1800, 900 or 450 scans/min.	1800, 900 or 450 scans/min.	1800, 900 or 450 scans/min.	
Angular resolution at Minimum 20° scan arch (6 kHz)	< 0.16° < 0.08° or < 0.04°	< 0.16° < 0.08° or < 0.04°	< 0.16° < 0.08° or < 0.04°	< 0.16° < 0.08° or < 0.04°	
Angular resolution at Maximum 50° scan arch (6 kHz)	< 0.4° < 0.2° or < 0.1°	< 0.4° < 0.2° or < 0.1°	< 0.4° < 0.2° or < 0.1°	< 0.4° < 0.2° or < 0.1°	
Temperature deviation	± 0.03% FS/C°	± 0.03% FS/C°	± 0.03% FS/C°	± 0.03% FS/C°	
Light source (nm)	LASER (655)	LASER (655)	LASER (655)	LASER (655)	
Size of spot	Ø 1 mm	Ø 2 mm	Ø 3 mm	Ø 3 mm	
Laser protection class: 2 kHz / 6 kHz	IEC 2 / IEC 2	IEC 2 / IEC 2	IEC 2 / IEC 3R	IEC 2 / IEC 3R	
Electrical data:		Environment data:		Physical data:	
Serial output : 2 kHz / 6 kHz	RS232 or RS422	Operating temperature	0 - +45 C°	Dimensions	187 x 193 x 50 mm
Baud rate : 2 kHz / 6 kHz	115200 / 230400	Storage temperature	-20 - +70 C°	Weight excl. Cable	2300 g
Supply voltage	22 - 36 VDC	Humidity non condensing	Max 90 % RH	Cable length	2.5 m
Power consumption, max	12 W	Degree of protection	IEC IP64	Housing	Steel / Aluminum/Glass

*) Static measurement on white paper without any averaging of the output signals, sampling and output frequency being equal.

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General description

The O^{2D}S sensor is an optical measuring device for non-contact precision measurement in two dimensions. The measurement is performed by oscillating the triangulation plane over X° up to 5 0°. A fine collimated or focused laser beam is diffusely reflected from the surface of almost any kind of material or fluid, and a CCD- camera records the image through an objective. This makes it possible for a Digital Signal 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.

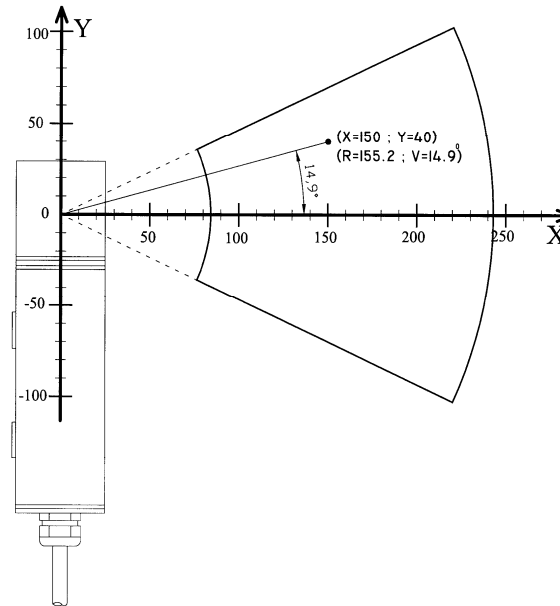
The O^{2D}S measuring system is a compact unit where optics, CCD-camera, and digital signal processing electronics all are integrated in the sensor housing. The schematic drawing to the right shows the scanner seen from the side. It is here indicated, with this orientation of the scanner, how the triangulation plane can sweep from minus 25° below the horizontal plane to plus 25° above the horizontal plane. The measured distance data is available with a measuring frequency of 2 & 6 kHz as a digital signal for an application running under Windows and using the O^{2D}S driver DLL.

The scanner is delivered with CD's containing the mentioned DLL and a Windows test/demo program. The PC program receives output data from the scanner over the RS232 or RS422/485 interface and a COM port via the DLL. The software either converts polar coordinates of a measurement point to orthogonal X, 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 size of the Y-increment and thus the length of the output table containing the profile data.

Standard Models of the O^{2D}S scanner can be delivered in 4 different measuring ranges, and

each in two versions with different measuring angles, either 20° or 50°.

The O^{2D}S scanner are also available in High target Temperature and high Laser light intensity versions, and can furthermore be customized to other than standard scan angles and measuring ranges.



Applications

The O^{2D}S scanner is developed for the need of 2D- / profile-measurement in any kind of industrial application. The ruggedly constructed scanner is designed to give a very reliable measuring performance with good measuring accuracy. With output data in the software-converted form, the Y-coordinates can be used for width or height measurement with a resolution dependent of the user ordered scan arch.

Dimensions

