



## Specifications

## O<sup>2D</sup>S (6 kHz) Scanner series:



Models :		O <sup>2D</sup> S 130	O <sup>2D</sup> S 205	O <sup>2D</sup> S 430	O <sup>2D</sup> S 730
Measurement data:					
Measuring range		100 mm	250 mm	500 mm	700 mm
Radial / Polar distance from mirror axis		80-180 mm	80-330 mm	180-680 mm	380-1080 mm
Standard 10° scan arch		± 5°	± 5°	± 5°	± 5°
Length of scans close by		14 mm	14 mm	31 mm	66 mm
Length of scans far away		31 mm	57 mm	118 mm	188 mm
Maximum 50° scan arch		± 25°	± 25°	± 25°	± 25°
Length of scans close by		67 mm	67 mm	152 mm	321 mm
Length of scans far away		152 mm	278 mm	574 mm	913 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 (scans from one side to the other)		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 Standard 10° scan arch		< 0.08° < 0.04° or < 0.02°	< 0.08° < 0.04° or < 0.02°	< 0.08° < 0.04° or < 0.02°	< 0.08° < 0.04° or < 0.02°
Angular resolution at Maximum 50° scan arch		< 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°
Updating frequency		6000 Hz	6000 Hz	6000 Hz	6000 Hz
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 4 mm
Laser protection class		IEC 2	IEC 2/3R	IEC 3R	IEC 3R
Electrical data:		Environment data:		Physical data:	
Serial output	RS422	Operating temperature	0 - +45 C°	Dimensions	187 x 192 x 50 mm
Baud rate	230400	Storage temperature	-20 - +70 C°	Weight excl. Cable	2300 g
Supply voltage	24 VDC ± 10%	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

\*) Measurement on static white paper, sampling and output frequency being equal.

October 2006; Subject to change without notice.

## General description

The O<sup>2D</sup>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 50°. 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.

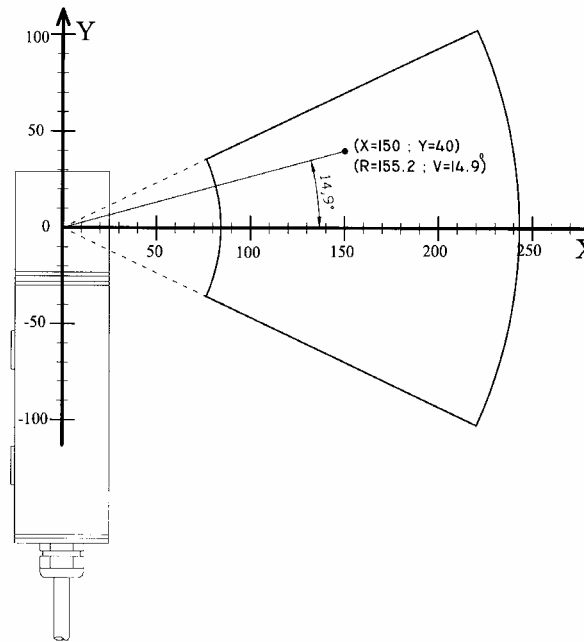
The O<sup>2D</sup>S measuring system is a compact unit where optics, CCD-camera, and digital signal processing electronics all are integrated in the sensor housing. The schematic drawing to the right shows the scanner seen from the side. It is here indicated, with this orientation of the scanner, how 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 5 kHz as a digital signal for an application running under Windows and using the O<sup>2D</sup>S driver DLL.

The scanner is delivered with diskettes containing the mentioned DLL and a Windows test/demo program. The PC application program receives output data from the scanner over the RS422 serial 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<sup>2D</sup>S scanner can be delivered in 4 different measuring ranges, and each in two versions with different measuring

angles, either 10° or 50° and then in two scan rates giving high or low angular resolution.

The O<sup>2D</sup>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<sup>2D</sup>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

