



smartSCAN^{3D}-HE

Data Sheet

smartSCAN^{3D}-HE – 1.4 MegaPixel

Technical Specifications

Camera sensor	b/w or colour, CCD, FireWire® IEEE 1394b	
Camera resolution	2 x 1.388 x 1.038 Pixel	
Projection unit	Miniaturised Projection Technique	
Light source	Standard	100 W halogen lamp
	High Power Lamp (HPL)	250 W halogen lamp
Luminous intensity	Standard	150 ANSI Lumen
	High Power Lamp (HPL)	300 ANSI Lumen
Number of projected line pairs	128	
Minimum measuring time	980 msec	
Sensor weight	4.0 kg	
Power supply	AC 110 / 230 Volt, 50 – 60 Hz	
Control unit	150 W / 300 W, USB 2.0	
Operating system	Windows 7 64 Bit	

Fields of View

	Triangulation angle: 27 degrees Base length: 470 mm Working distance: 1.000 mm					
Field of view [mm] ⁽¹⁾	M-125	M-200	M-300	M-475	M-600	M-850
Field of view size [mm] ⁽²⁾	110 x 80	165 x 125	250 x 185	395 x 295	480 x 410	650 x 560
Measuring depth [mm] ⁽³⁾	60	100	150	240	300	400
x, y resolution [µm] ⁽⁴⁾	80	120	180	285	345	470
Resolution depth (z) [µm] ⁽⁵⁾	2	4	5	8	11	16
Noise (z) [µm] ⁽⁶⁾	± 3	± 5	± 8	± 12	± 15	± 21
Feature accuracy [µm] ⁽⁷⁾	± 8	± 13	± 18	± 30	± 38	± 54

	Triangulation angle: 32.5 degrees Base length: 240 Working distance: 370 mm			Triangulation angle: 18 degrees Base length: 470 Working distance: 1.500 mm	
Field of view [mm] ⁽¹⁾	S-030	S-060	S-125	L-750	L-1500
Field of view size [mm] ⁽²⁾	25 x 20	50 x 40	100 x 75	560 x 470	1250 x 950
Measuring depth [mm] ⁽³⁾	15	25	60	400	750
x, y resolution [µm] ⁽⁴⁾	20	35	70	400	900
Resolution limit (z) [µm] ⁽⁵⁾	1	1	2	13	28
Noise (z) [µm] ⁽⁶⁾	± 2	± 2	± 3	± 19	± 38
Feature accuracy [µm] ⁽⁷⁾	± 5	± 6	± 8	± 48	± 96



Annotation:

All fields of view (FOV) can be realised using the same basic components, cameras and projection unit just by changing the objectives of the cameras and / or projector and – if necessary – the position of the cameras.

To simplify the setup and calibration of the standard measuring ranges, they will only be offered with a special tested set of lenses for each FOV. The lenses will be delivered with a predefined factory setting for the aperture and focal depth, which is optimised for the corresponding FOV and which must not be changed by the user.

Please note:

All data and value specified in this data sheet only apply to a single capture.

The measurement specifications itemised are average values for the central measuring range which have been achieved under predefined measurement conditions and after precise calibration of the sensor. They solely apply in combination with a system configuration provided by Breuckmann. Furthermore, all accuracy and resolution details depend on the object surface and the ambient scanning conditions.

- (1) All values stated in this data sheet are indications to express the range of values. The image diagonal of a stated field of view, for instance, may vary by $\pm 10\%$.
- (2) Size of FOV in relation to zero level.
- (3) Maximum extension in z-direction.
- (4) The values for lateral resolution are theoretically calculated (ratio of field of view to number of pixels of the camera chip).
- (5) The resolution limit is defined as the theoretically achievable accuracy (ratio of field of view to number of pixels of the camera chip).
- (6) The noise value is measured as deviation of the measured points against a best-fit curve. The noise of the measured 3D data highly depends on the noise of the camera chip.
- (7) Characteristic feature accuracy of the type series. The determination of the characteristic feature accuracies is based on VDI Guideline 2634.

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