6.6 MPixel

light source	100 W halogen lamp
number of projected fringes	128
min. measuring time	6 sec.
sensor weight	6 kg
high resolution digitization (x,y) *	2 x 2.500 x 1.800 up to 2 x 3.000 x 2.200 pixel
field of view (FOV)	about 0.8 x 0.6 of image diagonal
depth of measuring volume	typically 1 / 2 of image diagonal
X,Y resolution	typically 1 / 3.000 of image diagonal
feature accuracy	typically 1 / 15.000 of image diagonal
noise (Z)	typically 1 / 20.000 of image diagonal

* Depending on the realised measurement range

For the stereo*SCAN*^{3D} we offer a large number of standard and extended FOV´s:

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

The measuring ranges are identified by their camera position, defining the corresponding base length (inner : B200 and outer : B450), and the approximate image diagonal, e.g.

B200-125 inner camera position, image diagonal 150 mm
B450-400 outer camera position, image diagonal 425 mm

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

To use the whole flexibility of our stereoSCAN-3D system, including the extended FOV´s, we recommend special training and certification.

standard / extended fields of view with triangulation angle of 30 degrees, inner camera position, base length = B200, operating distance = 380 mm					
image diagonale [mm] (1)	60	100	125	175	250
X,Y resolution [µm] (2)	16	30	35	50	70
resolution limit (Z) [µm] (3)	1.5	2	3	3	4
noise (Z) [µm] (4)	± 3	± 5	± 6	± 10	± 15
feature accuracy [µm]	± 8	± 10	± 12	± 17	± 20

standard / extended fields of view with triangulation angle of 30 degrees, outer camera position, base length = B450, operating distance = 880 mm						
image diagonale [mm]	175	300	400	525	725	950
X,Y resolution [µm]	50	80	110	140	200	260
resolution limit (Z) [µm]	3	6	8	12	15	20
noise (Z) [µm]	± 10	± 15	± 20	± 30	± 40	± 55
feature accuracy [µm]	± 17	± 25	± 35	± 45	± 60	± 85

Please note:

The measurement specifications given above are average values for the central field of view, which are achieved under defined measurement conditions and after precise calibration of the sensor. All details concerning accuracy and resolution are possibly dependent on the surface of the object and the environment.
The resolution limit is defined as the theoretical limit using a phase evaluation of 10 bit. The feature accuracy is defined as the difference of the measured positions of index marks towards the target-values (2σ value). The noise is measured as deviation of the measured points towards a best-fit curve. The data given above are valid for a single view only.

(1) all values stated in this data sheet are approximated values. They indicate the order of the value. For example the measurement range '400' may have an image diagonal between 375 and 425mm

(2) the values for lateral resolution are theoretically calculated (ratio of the field of view and pixel number of camera chip)

(3) the values for the resolution limit are theoretically calculated (ratio of the number and resolution of the projected fringes and pixel number of camera chip)

(4) the noise of the measured 3D-data depends strongly on the noise of the camera chip. Due to the already realized system tests it can be expected that the 6 MegaPixel system has a higher noise than the standard 1.4MPix system. Moreover, the sensitivity of the 6 MegaPixel camera chip is about 10 times lower than with the standard 1.4 MegaPixel chip

Breuckmann GmbH
Industrial 3D Image Processing and Automation
Torenstr.14 · 88709 Meersburg
Tel: +49 (0) 75 32 – 43 46 0
Fax: +49 (0) 75 32 – 43 46 50
info@breuckmann.com
www.breuckmann.com