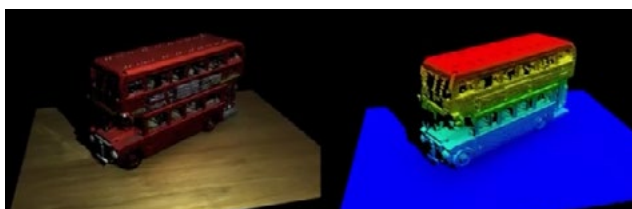
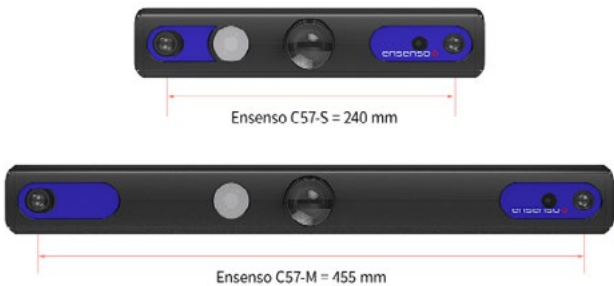




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ENSENSO C-SERIE – COLOURED 3D VISION

Without compromise, the new C series combines all Ensenso advantages in the 3D vision environment. Digital twins can finally also distinguish colour. Despite simplified handling and a more compact design, voluminous applications benefit from higher reproducible Z-accuracy and more light output from the projector electronics. And the more uniform housings of the available model variants also enable a higher cost efficiency in the 3D upper class.



200 watt projector

The new optimized design of the C-Series enables highly efficient operation of the projector electronics with up to 200 watt power. This results in exceptionally high luminosity of the new FlexView3 Pattern, improving pattern contrast on objects even at long distances.

Readymade models

Various model variants with alternative baselines (distance of the stereo cameras: S: 240 mm, M: 455 mm) and focal lengths are available for various application scenarios. The coordinate systems of the stereo and RGB cameras are fully calibrated against each other. In addition, all lenses, including the pattern projector, are factory preset to the field of view and working distance of the respective model, thus facilitating handling and commissioning.

Fully integrated RGB sensor

The additional RGB sensor generates texture data that supplements the 3D point cloud with true colour information, thus ensuring realistic 3D images. This makes it easier to distinguish coloured objects for subsequent processes.

Z-noise < 0.1 mm

With a large baseline and small field of view, the M models (455 mm) achieve a reproducible Z accuracy of 0.1 mm at 1 m object distance. The optimized housing design minimizes temperature-related deviations of the depth values to a minimum (e.g.: 0.075 mm deviation at 30 cm distance and 10°C temperature change).

Technische Daten

Ensenso C57-S 3D system Projected Texture Stereo Vision **Stereo sensors** 2472 x 2064 (5 MP) Global Shutter **RGB sensor** 2 MP Global Shutter **Projection** 200 W LED projector with C-Mount **3D-point clouds per second** up to 10 **Stereo baseline** 240 mm **Z accuracy** 0.1 mm at 1 m distance **Focus distance** 975 mm **Focal length / working distance** 6 mm / 500 mm - 5000 mm 8 mm / 650 mm - 2200 mm 12 mm / 800 mm - 1300 mm **Interfaces** Gigabit Ethernet 1x Flash/GPIO 1x Trigger **Power supply** 24 V DC oder PoE++ (802.3bt) 90 W **Housing** Aluminium **Protection class** IP65/67 **Dimensions** 290 x 58 x 100 mm **Weight** 1160 g

Ensenso C57-M 3D system Projected Texture Stereo Vision **Stereo sensors** 2472 x 2064 (5 MP), Global Shutter **RGB sensor** 2 MP Global Shutter **Projection** 200 W LED Projektor mit C-Mount **3D-point clouds per second** bis zu 10 **Stereo baseline** 455 mm **Z accuracy** 0.1 mm bei 1 m Abstand **Focus distance** 1850 mm **Focal length / working distance** 6 mm / 650 mm - 5000 mm 8 mm / 900 mm - 5000 mm 12 mm / 1300 mm - 3600 mm **Interfaces** Gigabit Ethernet 1x Flash/GPIO 1x Trigger **Power supply** 24 V DC oder PoE++ (802.3bt) 90 W **Housing** Aluminium **Protection class** IP65/67 **Dimensions** 506 x 58 x 100 mm **Weight** 1660 g



Specification

Technical data

Full Model Name	C57-5M2C-6/2.8 8/1.6 3.7/2.8 975-240/7
Dimensions	290 x 58 x 100 mm
Weight	1160 g
Resolution	2472 x 2064 (5 MP)
Colour sensor Resolution	1920 x 1200 (2 MP)
Frames per Second	3 - 10
Interface	Gigabit Ethernet
Inputs	1 x Trigger
Outputs	1 x Flash/GPIO
Input Voltage	24 V DC / PoE++
Projector	Aluminium, IP65/67
Sensors	
Temperature - Operation	0 - 40 °C
Temperature - Storage	-10 - 50 °C
Vibration Resistance	30 - 500 Hz 5 g (sine)
Shock Resistance	60 g, 1.9 ms / 25 g, 6 ms (half sine)

Optics

Lenses - Focal Length	6 mm
Lenses - f-number	2.8
Colour sensor Lens - Focal Length	3.7 mm
Colour sensor Lens - f-number	2.8
Vergence Angle	7°
Baseline (Pupillary Distance)	240 mm
Focus Distance	975 mm
Operating Distance	750-1500 mm
Calibration Plate - Dimensions	390 x 390 x 3 mm
Calibration Plate - Grid Dots / Spacing	15 x 15 / 48 mm

Current Data Settings

Measurement Distance 750 mm - 1450 mm

Data Table

Distance to working volume [mm]	Z-Accuracy [mm]	Pixel Size [mm]	Pixel Size Colour [mm]	View Field X [mm]	View Field Y [mm]	View Field X Colour [mm]	View Field Y Colour [mm]	Optics Blur [px]	Optics Blur Colour [px]
750	0.123	0.315	0.608	775.73	650.24	1166.96	729.12	2.265	0.252
800	0.140	0.336	0.648	811.44	693.59	1244.76	777.73	1.651	0.184
850	0.158	0.357	0.689	847.16	736.94	1322.55	826.34	1.110	0.123
900	0.177	0.378	0.729	882.87	780.29	1400.35	874.95	0.629	0.070
950	0.198	0.399	0.770	918.59	823.64	1478.15	923.55	0.215	0.022
1000	0.219	0.420	0.810	954.30	866.99	1555.95	972.16	0.189	0.021
1050	0.241	0.441	0.851	990.02	910.34	1633.74	1020.77	0.539	0.060
1100	0.265	0.462	0.891	1025.74	953.69	1711.54	1069.38	0.858	0.095
1150	0.289	0.483	0.932	1061.45	997.04	1789.34	1117.99	1.149	0.128
1200	0.315	0.504	0.972	1097.17	1040.39	1867.14	1166.59	1.415	0.157
1250	0.342	0.525	1.013	1132.88	1083.74	1944.93	1215.20	1.661	0.185
1300	0.370	0.546	1.054	1168.60	1127.08	2022.73	1263.81	1.887	0.210
1350	0.399	0.567	1.094	1204.31	1170.43	2100.53	1312.42	2.097	0.233
1400	0.429	0.588	1.135	1240.03	1213.78	2178.32	1361.03	2.291	0.255
1450	0.460	0.609	1.175	1275.74	1257.13	2256.12	1409.64	2.473	0.275



Specification

Technical data

Full Model Name	C57-5M2C-8/2.8 12/1.6 4.3/2.4 975-240/7
Dimensions	290 x 58 x 100 mm
Weight	1160 g
Resolution	2472 x 2064 (5 MP)
Colour sensor Resolution	1920 x 1200 (2 MP)
Frames per Second	3 - 10
Interface	Gigabit Ethernet
Inputs	1 x Trigger
Outputs	1 x Flash/GPIO
Input Voltage	24 V DC / PoE++
Projector	Aluminium, IP65/67
Sensors	
Temperature - Operation	0 - 40 °C
Temperature - Storage	-10 - 50 °C
Vibration Resistance	30 - 500 Hz 5 g (sine)
Shock Resistance	60 g, 1.9 ms / 25 g, 6 ms (half sine)

Optics

Lenses - Focal Length	8 mm
Lenses - f-number	2.8
Colour sensor Lens - Focal Length	4.3 mm
Colour sensor Lens - f-number	2.4
Vergence Angle	7°
Baseline (Pupillary Distance)	240 mm
Focus Distance	975 mm
Operating Distance	850-1100 mm
Calibration Plate - Dimensions	390 x 390 x 3 mm
Calibration Plate - Grid Dots / Spacing	15 x 15 / 48 mm

C57-8-S (1009349)
Data Table

Distance to working volume [mm]	Z-Accuracy [mm]	Pixel Size [mm]	Pixel Size Colour [mm]	View Field X [mm]	View Field Y [mm]	View Field X Colour [mm]	View Field Y Colour [mm]	Optics Blur [px]	Optics Blur Colour [px]
860	0.123	0.274	0.600	668.05	565.36	1151.40	719.40	2.281	0.177
870	0.126	0.277	0.607	673.03	571.94	1164.79	727.77	2.058	0.160
880	0.129	0.280	0.614	678.01	578.51	1178.18	736.13	1.841	0.143
890	0.131	0.283	0.621	682.99	585.08	1191.57	744.50	1.629	0.126
900	0.134	0.287	0.628	687.96	591.66	1204.95	752.86	1.421	0.110
910	0.137	0.290	0.635	692.94	598.23	1218.34	761.23	1.218	0.094
920	0.140	0.293	0.642	697.92	604.81	1231.73	769.59	1.020	0.079
930	0.144	0.296	0.648	702.89	611.38	1245.12	777.96	0.825	0.064
940	0.147	0.299	0.655	707.87	617.95	1258.51	786.32	0.635	0.049
950	0.150	0.303	0.662	712.85	624.53	1271.90	794.69	0.449	0.035
960	0.153	0.306	0.669	717.83	631.10	1285.28	803.05	0.272	0.021
970	0.156	0.309	0.676	722.80	637.68	1298.67	811.42	0.225	0.007
980	0.159	0.312	0.683	727.78	644.25	1312.06	819.78	0.205	0.007
990	0.163	0.315	0.690	732.76	650.82	1325.45	828.15	0.258	0.020
1000	0.166	0.319	0.697	737.74	657.40	1338.84	836.51	0.426	0.033
1010	0.169	0.322	0.704	742.71	663.97	1352.23	844.88	0.591	0.046
1020	0.173	0.325	0.711	747.69	670.55	1365.61	853.24	0.752	0.058
1030	0.176	0.328	0.718	752.67	677.12	1379.00	861.61	0.911	0.071
1040	0.180	0.331	0.725	757.65	683.69	1392.39	869.97	1.066	0.083
1050	0.183	0.334	0.732	762.62	690.27	1405.78	878.34	1.218	0.094
1060	0.186	0.338	0.739	767.60	696.84	1419.17	886.70	1.368	0.106
1070	0.190	0.341	0.746	772.58	703.42	1432.56	895.07	1.514	0.117
1080	0.194	0.344	0.753	777.56	709.99	1445.94	903.43	1.658	0.129
1090	0.197	0.347	0.760	782.53	716.56	1459.33	911.80	1.799	0.140
1100	0.201	0.350	0.767	787.51	723.14	1472.72	920.16	1.938	0.150
1110	0.204	0.354	0.774	792.49	729.71	1486.11	928.53	2.074	0.161
1120	0.208	0.357	0.781	797.46	736.29	1499.50	936.89	2.208	0.171
1130	0.212	0.360	0.788	802.44	742.86	1512.89	945.26	2.339	0.181
1140	0.216	0.363	0.795	807.42	749.43	1526.27	953.62	2.468	0.191



Specification

Technical data

Full Model Name	C57-5M2C-12/2.8 16/1.6 7/1.6 975-240/7
Dimensions	290 x 58 x 100 mm
Weight	1160 g
Resolution	2472 x 2064 (5 MP)
Colour sensor Resolution	1920 x 1200 (2 MP)
Frames per Second	3 - 10
Interface	Gigabit Ethernet
Inputs	1 x Trigger
Outputs	1 x Flash/GPIO
Input Voltage	24 V DC / PoE++
Projector	Aluminium, IP65/67
Sensors	
Temperature - Operation	0 - 40 °C
Temperature - Storage	-10 - 50 °C
Vibration Resistance	30 - 500 Hz 5 g (sine)
Shock Resistance	60 g, 1.9 ms / 25 g, 6 ms (half sine)

Optics

Lenses - Focal Length	12 mm
Lenses - f-number	2.8
Colour sensor Lens - Focal Length	7 mm
Colour sensor Lens - f-number	1.6
Vergence Angle	7°
Baseline (Pupillary Distance)	240 mm
Focus Distance	975 mm
Operating Distance	900-1100 mm
Calibration Plate - Dimensions	390 x 390 x 3 mm
Calibration Plate - Grid Dots / Spacing	15 x 15 / 48 mm

Current Data Settings

Measurement Distance 910 mm - 1060 mm

Data Table

Distance to working volume [mm]	Z-Accuracy [mm]	Pixel Size [mm]	Pixel Size Colour [mm]	View Field X [mm]	View Field Y [mm]	View Field X Colour [mm]	View Field Y Colour [mm]	Optics Blur [px]	Optics Blur Colour [px]
910	0.092	0.194	0.390	478.77	400.75	748.41	467.61	2.175	0.377
920	0.094	0.196	0.394	481.39	405.16	756.63	472.75	1.820	0.315
930	0.096	0.198	0.398	484.02	409.56	764.86	477.89	1.473	0.255
940	0.098	0.201	0.403	486.64	413.97	773.08	483.03	1.134	0.196
950	0.100	0.203	0.407	489.27	418.37	781.31	488.16	0.801	0.139
960	0.102	0.205	0.411	491.89	422.77	789.53	493.30	0.476	0.082
970	0.105	0.207	0.415	494.51	427.18	797.76	498.44	0.358	0.027
980	0.107	0.209	0.420	497.14	431.58	805.98	503.58	0.336	0.027
990	0.109	0.211	0.424	499.76	435.99	814.20	508.72	0.461	0.080
1000	0.111	0.213	0.428	502.38	440.39	822.43	513.86	0.761	0.132
1010	0.113	0.216	0.433	505.01	444.79	830.65	519.00	1.055	0.183
1020	0.116	0.218	0.437	507.63	449.20	838.88	524.13	1.343	0.233
1030	0.118	0.220	0.441	510.26	453.60	847.10	529.27	1.626	0.282
1040	0.120	0.222	0.445	512.88	458.01	855.33	534.41	1.903	0.330
1050	0.123	0.224	0.450	515.50	462.41	863.55	539.55	2.175	0.377
1060	0.125	0.226	0.454	518.13	466.81	871.77	544.69	2.441	0.423



Specification

Technical data

Full Model Name	C57-5M2C-6/2.8 8/1.6 3.7/2.8 1850-455/7
Dimensions	506 x 58 x 100 mm
Weight	1660 g
Resolution	2472 x 2064 (5 MP)
Colour sensor Resolution	1920 x 1200 (2 MP)
Frames per Second	3 - 10
Interface	Gigabit Ethernet
Inputs	1 x Trigger
Outputs	1 x Flash/GPIO
Input Voltage	24 V DC / PoE++
Projector	Aluminium, IP65/67
Sensors	
Temperature - Operation	0 - 40 °C
Temperature - Storage	-10 - 50 °C
Vibration Resistance	30 - 500 Hz 5 g (sine)
Shock Resistance	60 g, 1.9 ms / 25 g, 6 ms (half sine)

Optics

Lenses - Focal Length	6 mm
Lenses - f-number	2.8
Colour sensor Lens - Focal Length	3.7 mm
Colour sensor Lens - f-number	2.8
Vergence Angle	7°
Baseline (Pupillary Distance)	455 mm
Focus Distance	1850 mm
Operating Distance	1100-5000 mm
Calibration Plate - Dimensions	390 x 390 x 3 mm
Calibration Plate - Grid Dots / Spacing	15 x 15 / 48 mm

Current Data Settings

Measurement Distance	1304 mm - 1807 mm
Disparities Max/Min (Num)	59/-172 (232)

Data Table

Distance to working volume [mm]	Z-Accuracy [mm]	Pixel Size [mm]	Pixel Size Colour [mm]	View Field X [mm]	View Field Y [mm]	View Field X Colour [mm]	View Field Y Colour [mm]	Optics Blur [px]	Optics Blur Colour [px]
1304	0.196	0.548	1.057	1320.71	880.66	2028.95	1267.70	1.659	0.185
1350	0.210	0.567	1.094	1367.30	911.72	2100.53	1312.42	1.468	0.163
1400	0.226	0.588	1.135	1417.94	945.49	2178.32	1361.03	1.274	0.142
1450	0.243	0.609	1.175	1454.18	979.26	2256.12	1409.64	1.093	0.122
1500	0.260	0.630	1.216	1488.63	1013.03	2333.92	1458.24	0.925	0.103
1550	0.277	0.651	1.256	1523.09	1046.79	2411.72	1506.85	0.767	0.085
1600	0.296	0.672	1.297	1557.54	1080.56	2489.51	1555.46	0.619	0.069
1650	0.314	0.693	1.337	1592.00	1114.33	2567.31	1604.07	0.480	0.053
1700	0.334	0.714	1.378	1626.45	1148.10	2645.11	1652.68	0.350	0.039
1750	0.354	0.735	1.418	1660.91	1181.86	2722.91	1701.28	0.226	0.025
1800	0.374	0.756	1.459	1695.36	1215.63	2800.70	1749.89	0.115	0.012
1807	0.377	0.759	1.464	1700.18	1220.36	2811.59	1756.70	0.110	0.011



Specification

Technical data

Full Model Name	C57-5M2C-8/2.8 12/1.6 4.3/2.4 1850-455/7
Dimensions	506 x 58 x 100 mm
Weight	1660 g
Resolution	2472 x 2064 (5 MP)
Colour sensor Resolution	1920 x 1200 (2 MP)
Frames per Second	3 - 10
Interface	Gigabit Ethernet
Inputs	1 x Trigger
Outputs	1 x Flash/GPIO
Input Voltage	24 V DC / PoE++
Projector	Aluminium, IP65/67
Sensors	
Temperature - Operation	0 - 40 °C
Temperature - Storage	-10 - 50 °C
Vibration Resistance	30 - 500 Hz 5 g (sine)
Shock Resistance	60 g, 1.9 ms / 25 g, 6 ms (half sine)

Optics

Lenses - Focal Length	8 mm
Lenses - f-number	2.8
Colour sensor Lens - Focal Length	4.3 mm
Colour sensor Lens - f-number	2.4
Vergence Angle	7°
Baseline (Pupillary Distance)	455 mm
Focus Distance	1850 mm
Operating Distance	1400-2600 mm
Calibration Plate - Dimensions	390 x 390 x 3 mm
Calibration Plate - Grid Dots / Spacing	15 x 15 / 48 mm

Current Data Settings

Measurement Distance 1500 mm - 2500 mm

Data Table

Distance to working volume [mm]	Z-Accuracy [mm]	Pixel Size [mm]	Pixel Size Colour [mm]	View Field X [mm]	View Field Y [mm]	View Field X Colour [mm]	View Field Y Colour [mm]	Optics Blur [px]	Optics Blur Colour [px]
1500	0.197	0.478	1.046	1160.63	986.10	2008.26	1254.77	2.085	0.162
1600	0.224	0.510	1.116	1251.38	1051.84	2142.14	1338.42	1.396	0.109
1700	0.253	0.541	1.185	1301.15	1117.58	2276.02	1422.07	0.788	0.061
1800	0.284	0.573	1.255	1350.93	1183.32	2409.91	1505.72	0.248	0.019
1900	0.316	0.605	1.325	1400.70	1249.06	2543.79	1589.37	0.235	0.018
2000	0.350	0.637	1.395	1450.47	1314.80	2677.67	1673.02	0.670	0.052
2100	0.386	0.669	1.464	1500.25	1380.53	2811.56	1756.67	1.064	0.083
2200	0.424	0.701	1.534	1550.02	1446.27	2945.44	1840.33	1.422	0.111
2300	0.463	0.733	1.604	1599.79	1512.01	3079.33	1923.98	1.748	0.136
2400	0.504	0.764	1.674	1649.57	1577.75	3213.21	2007.63	2.048	0.159
2500	0.547	0.796	1.743	1699.34	1643.49	3347.09	2091.28	2.323	0.181



Specification

Technical data

Full Model Name	C57-5M2C-12/2.8 16/1.6 7/1.6 1850-455/7
Dimensions	506 x 58 x 100 mm
Weight	1660 g
Resolution	2472 x 2064 (5 MP)
Colour sensor Resolution	1920 x 1200 (2 MP)
Frames per Second	3 - 10
Interface	Gigabit Ethernet
Inputs	1 x Trigger
Outputs	1 x Flash/GPIO
Input Voltage	24 V DC / PoE++
Projector	Aluminium, IP65/67
Sensors	
Temperature - Operation	0 - 40 °C
Temperature - Storage	-10 - 50 °C
Vibration Resistance	30 - 500 Hz 5 g (sine)
Shock Resistance	60 g, 1.9 ms / 25 g, 6 ms (half sine)

Optics

Lenses - Focal Length	12 mm
Lenses - f-number	2.8
Colour sensor Lens - Focal Length	7 mm
Colour sensor Lens - f-number	1.6
Vergence Angle	7°
Baseline (Pupillary Distance)	455 mm
Focus Distance	1850 mm
Operating Distance	1600-2200 mm
Calibration Plate - Dimensions	390 x 390 x 3 mm
Calibration Plate - Grid Dots / Spacing	15 x 15 / 48 mm

Current Data Settings

Measurement Distance 1600 mm - 2150 mm

Data Table

Distance to working volume [mm]	Z-Accuracy [mm]	Pixel Size [mm]	Pixel Size Colour [mm]	View Field X [mm]	View Field Y [mm]	View Field X Colour [mm]	View Field Y Colour [mm]	Optics Blur [px]	Optics Blur Colour [px]
1600	0.150	0.341	0.685	813.14	704.62	1315.89	822.17	2.487	0.433
1650	0.160	0.352	0.707	852.77	726.64	1357.01	847.86	1.930	0.336
1700	0.169	0.363	0.728	892.40	748.66	1398.13	873.56	1.405	0.244
1750	0.180	0.373	0.750	914.17	770.68	1439.25	899.25	0.910	0.158
1800	0.190	0.384	0.771	927.29	792.70	1480.37	924.94	0.442	0.077
1850	0.201	0.395	0.792	940.41	814.72	1521.49	950.64	0.161	0.000
1900	0.212	0.405	0.814	953.53	836.74	1562.61	976.33	0.419	0.073
1950	0.223	0.416	0.835	966.65	858.76	1603.74	1002.02	0.816	0.142
2000	0.235	0.427	0.857	979.77	880.78	1644.86	1027.71	1.194	0.208
2050	0.246	0.437	0.878	992.89	902.80	1685.98	1053.41	1.553	0.270
2100	0.259	0.448	0.900	1006.01	924.82	1727.10	1079.10	1.895	0.330
2150	0.271	0.459	0.921	1019.13	946.84	1768.22	1104.79	2.221	0.386