

Camera Calibration Certificate

Camera Name	Phase One iXM-RS150F-RMA142036
Back Serial Number	MM010016
Sensor Resolution	14204 x 10652 (150 MP) (X Axis; Y Axis)
Pixel Size	3.76 μ m
Lens Type & Focal Length	50 MM
Lens Serial Number	12402537
C	51.5245 mm (Australis format)
Xp, Yp, Kn, Pn, Bn	0 (for images corrected in iX Capture)
Distance Setting	Infinity [m]
Date Of Calibration	07-March-2022



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Calibration results

(Australis Format)

PARAMETER	VALUE	STD Deviation
FOCAL LENGTH	51.5245 (mm)	0.0001 (mm)
PRINCIPAL POINT OFFSET		
XP	-0.0482 (mm)	0.0001 (mm)
YP	-0.2553 (mm)	0.0000 (mm)
RADIAL DISRORTION		
K1	1.60992e-05	3.18701e-09
K2	-6.03410e-09	7.19746e-12
K3	1.26531e-12	4.89480e-15
RADIAL-ASYMMETRIC AND TANGENTIAL DISTORTION		
P1	1.61214e-06	6.30436e-09
P2	1.86902e-06	5.20061e-09
AFFINITY AND NON-ORTHOGONALITY		
B1	5.98497e-06	1.36077e-07
B2	-3.86817e-05	1.36947e-07

Calibration pictures exported using iX-Capture 3.4

Lens distortion correction parameter used in exporting raw Tiffs – 0% correction.

The coefficients follow the model used by the photogrammetric software Australis where the corrected image coordinates (x_{corr} , y_{corr}) can be calculated from the measured coordinates (x_{meas} , y_{meas}) by using the following formulas:

$$x = x_{meas} - x_p$$

$$y = y_{meas} - y_p$$

$$r^2 = x^2 + y^2 \quad \text{Where } x \text{ and } y \text{ are now with respect to the principal point.}$$

$$dr = K1 * r^3 + K2 * r^5 + K3 * r^7$$

$$x_{corr} = x + x * \frac{dr}{r} + P1 * (r^2 + 2 * x^2) + 2 * P2 * x * y + B1 * x + B2 * y$$

$$y_{corr} = y + y * \frac{dr}{r} + P2 * (r^2 + 2 * y^2) + 2 * P1 * x * y$$

Calibration results

(USGS format)

Camera	iXM-RS150F (50 MM)
Width	14204
Height	10652
PW	0.00376
PH	0.00376
F	51.5239
XP	-0.0481866
YP	-0.255286
K0	0
K1	1.59877e-05
K2	-5.6303e-09
K3	7.27806e-13
K4	2.38105e-16
P1	1.57641e-06
P2	1.83023e-06
P3	3.78411e-05
P4	-1.59577e-08

Calibration results
(INPHO format)

Camera	iXM-RS150F (50 MM)
CCD_COLUMNS	14204
CCD_ROWS	10652
Pixel Width	0.00376
Pixel Height	0.00376
Focal length	51.5241
PIXEL_REFERENCE	Center Top Left
PPA X	7088.69
PPA Y	5393.39
K0	0
K1	-1.60067e-05
K2	5.69998e-09
K3	-8.09108e-13
K4	-2.08103e-16
P1	-1.60757e-06
P2	-1.86683e-06
P3	0
P4	0