



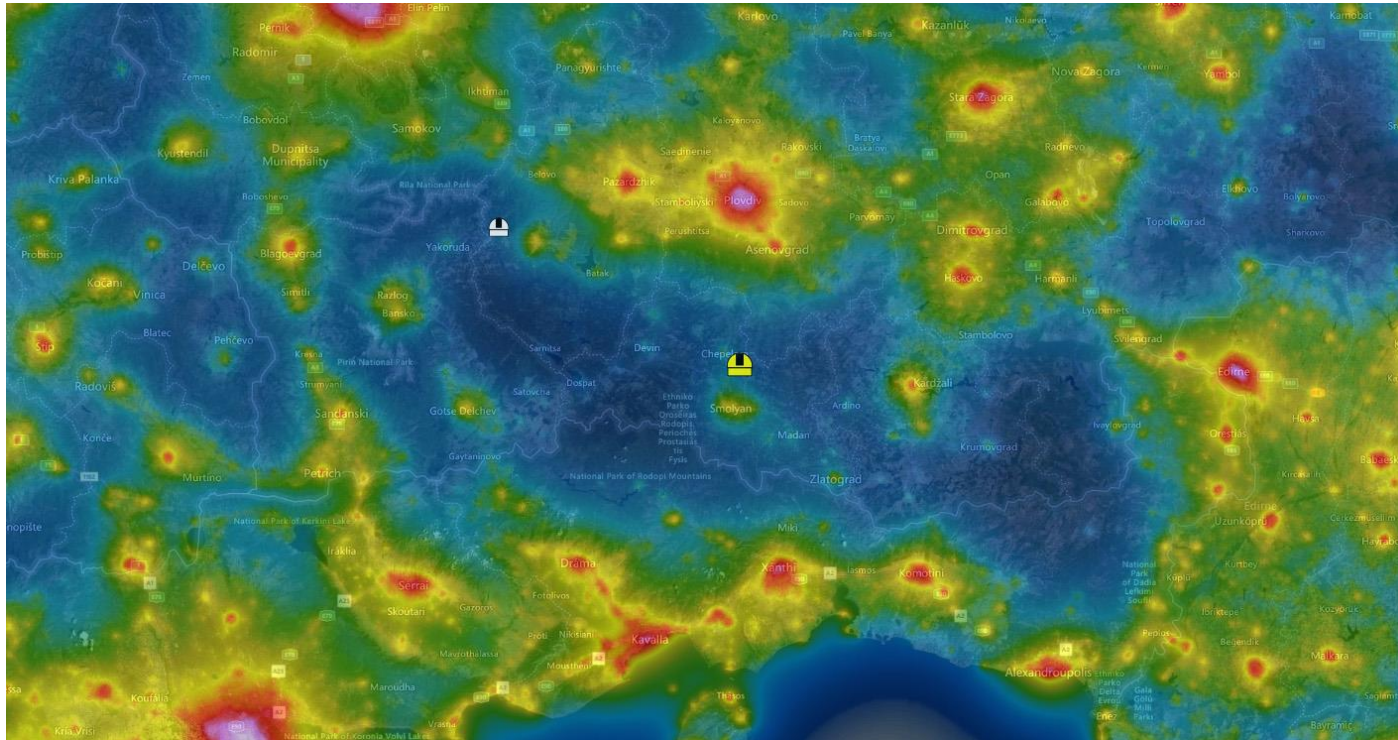
The new 1.5-meter robotic telescope for the Rozhen Observatory

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Stellar Variability, Stellar Multiplicity: Periodicity in Time & Motion
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National Astronomical Observatory Rozhen



NAO Rozhen is situated in the Rhodope Mountains at 1750 m altitude and coordinates: longitude: $1^{\text{h}} 38^{\text{m}} 58^{\text{s}}$ and latitude: $41^{\circ} 41' 48''$. The astronomical observatory is the biggest one-time Bulgarian investment in scientific infrastructure and a leading astronomical center in the South-East Europe.

NAO Rozhen

The NAO - Rozhen is an astronomical complex with four optical telescopes located in the Mountain Rodopi.



The 2-m telescope of Rozhen observatory is equipped with a Coudé and Eshelle spectrographs, new CCD cameras and two-channel focal reducer.

The 2-m RCC telescope

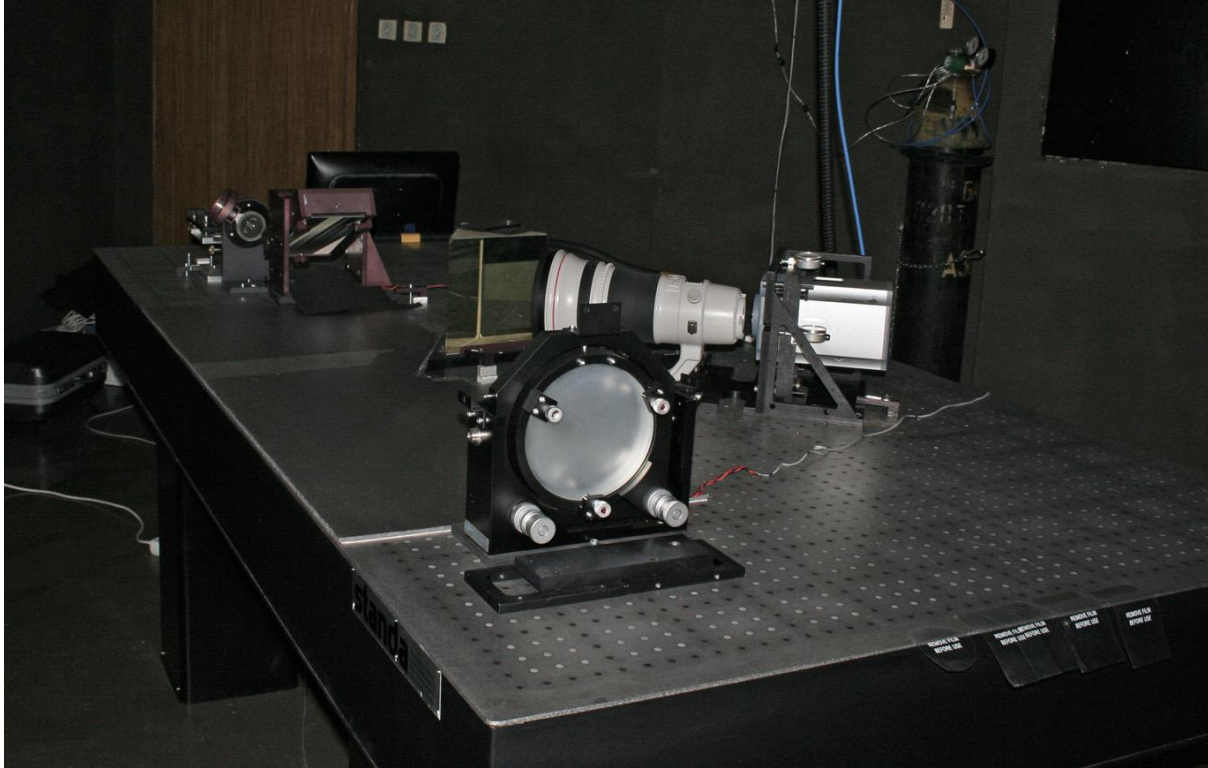


Observations with the focal reducer and in direct RC focus are carried out with ANDOR iKon-L BEX2-DD and ANDOR iKon-L E2V 42-40 CCD cameras (2048×2048 pixels, 13.5×13.5 μm size).



The Coudé-spectrograph allows us to obtain stellar spectra with a high resolution and “signal-to-noise” ratio of about 1000 and velocities in space with an accuracy of 500 m/s. It is equipped with ANDOR Newton 940 CCD camera (2048×512 ps, 13.5×13.5 μm).

Echelle SPectrograph ROzhen - ESPERO



The échelle-spectrograph is a cross-dispersed, bench-mounted, fiber-fed instrument giving a resolution from ~ 30000 to ~ 45000 .

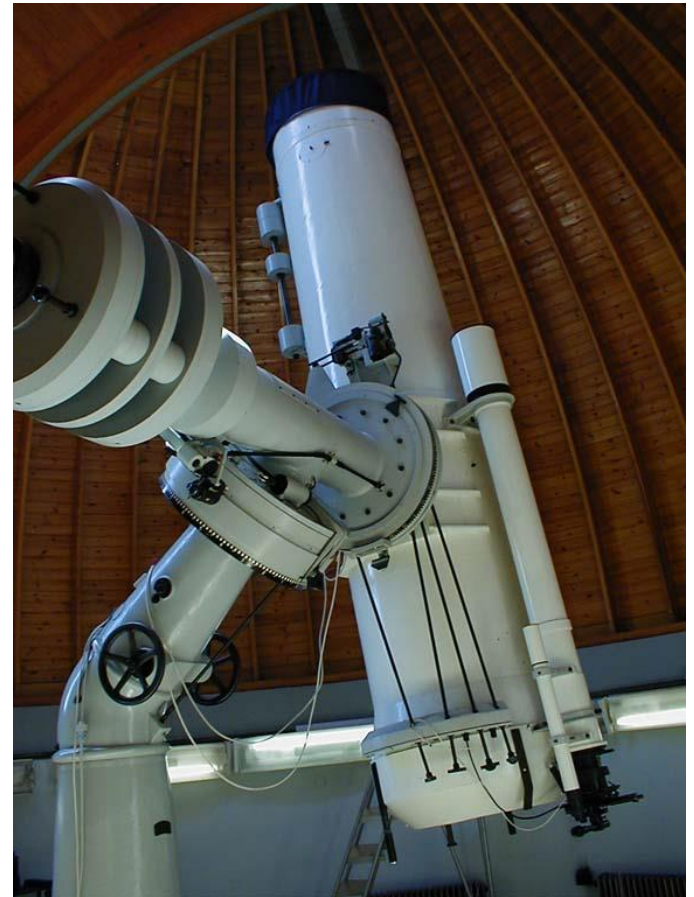
The spectral range obtained in one single image is from 3900 to 9000 Å.

The spectrograph is equipped with ANDOR iKon-L BEX2-DD CCD camera (2048×2048 pixels, 13.5×13.5 μm size).

The Schmidt telescope



The 50/70/172 cm Schmidt telescope of NAO is equipped with FLI PL 16803 (4096×4096 pixels, 9×9 μm size) CCD camera. The relatively big field of observation makes the telescope suitable for photometry of variable and fast moving objects.

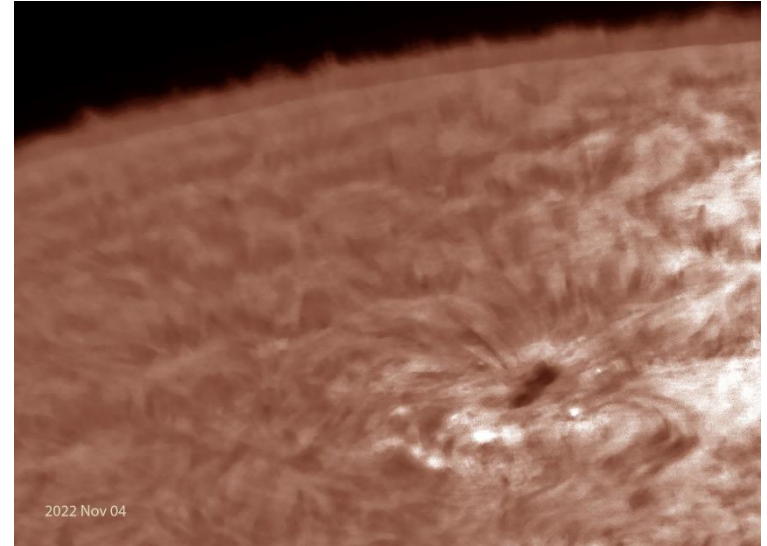


The 60-cm Cassegrain telescope



The 60-cm Cassegrain telescope of NAO Rozhen is equipped with FLI PL 9000 CCD camera (3056x3056 pixels, 12x12 μm).

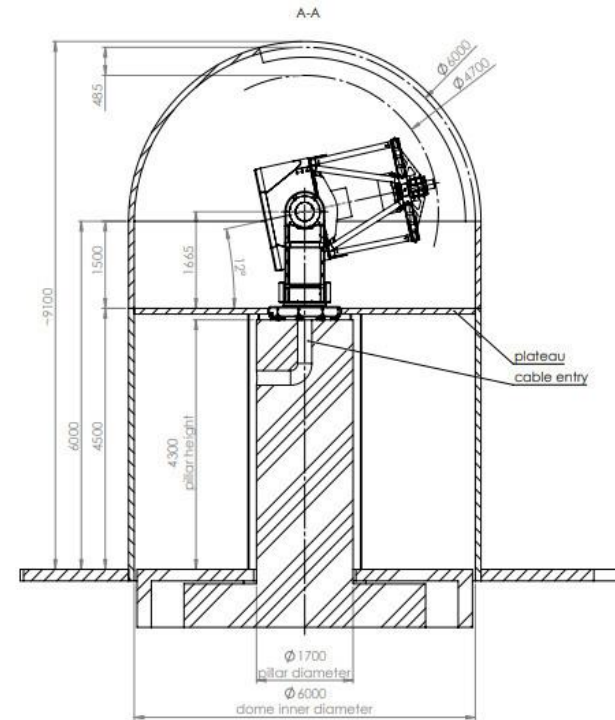
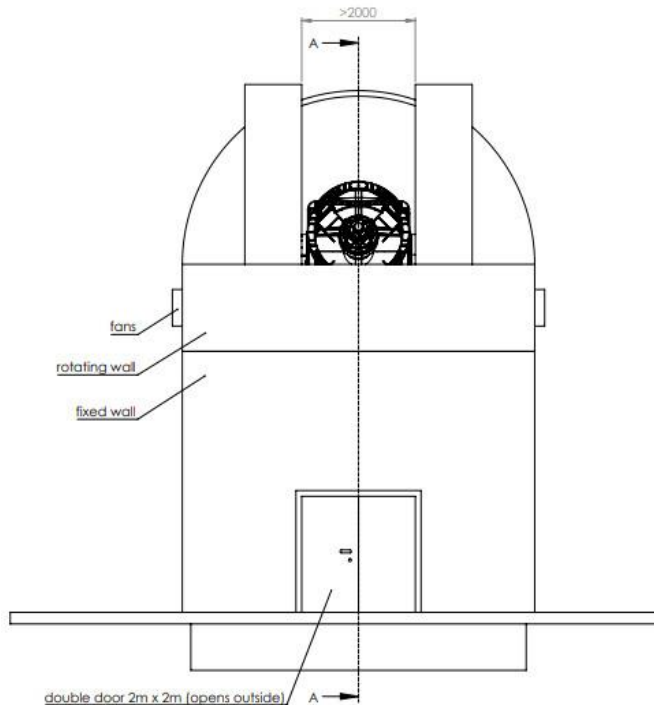
The Solar Telescope at NAO Rozhen




MEADE telescope for solar observations with 30 cm mirror, infrared and H- α filter, CMOS camera acA1920-155um.

Picture of a dark spot near the solar limb (end of the solar disk). The frame was received on November 4, 2022.

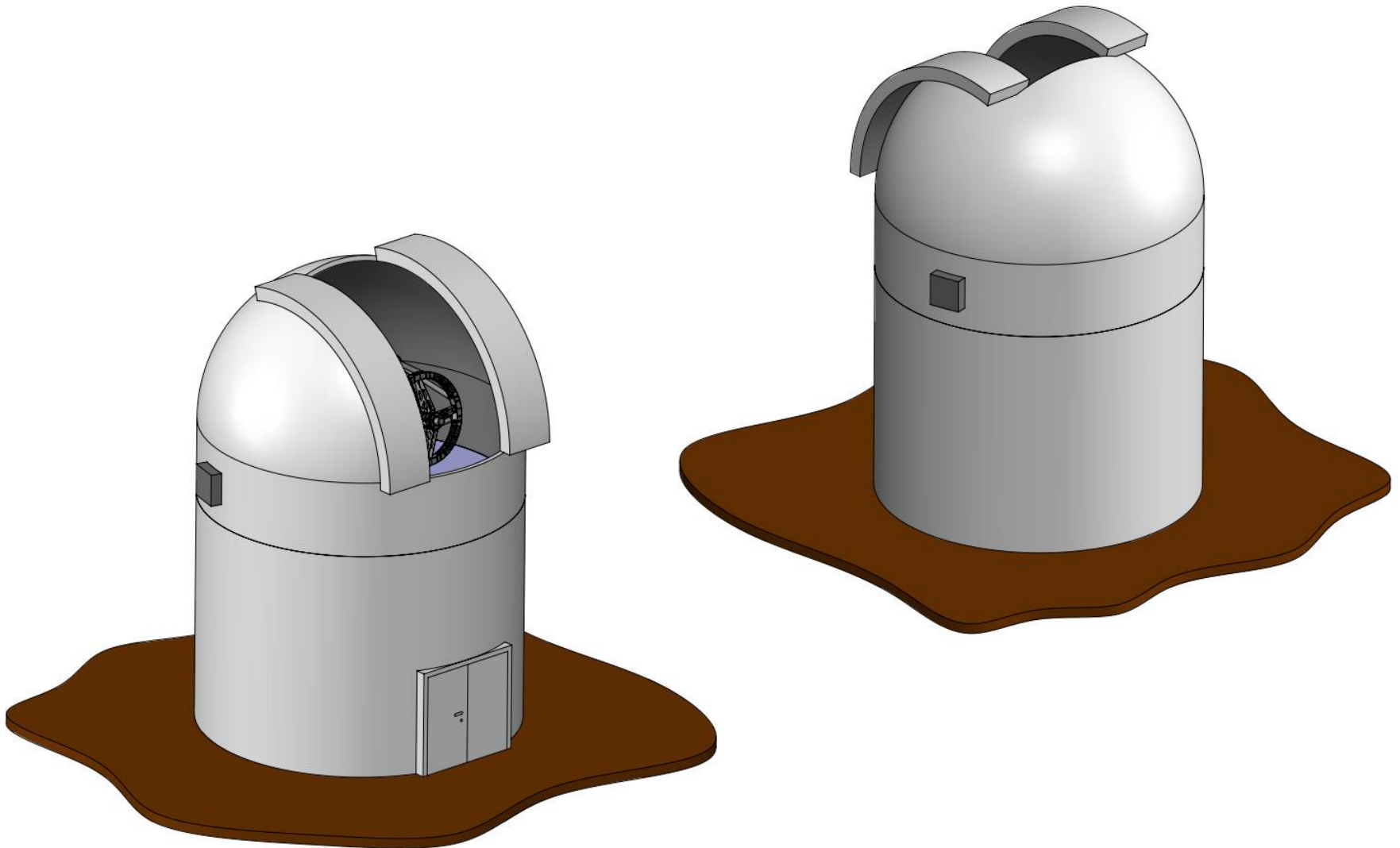
Plan for the new robotic telescope at NAO Rozhen



- System Type: Ritchey Chretien
- Clear Aperture ≥ 1500 mm
- Main mirror focal ratio $f/2$ ($R=6000$ mm)
- System focal ratio $f/6$ ($f=9000$ mm)
- Field of View ≥ 200 mm (>1.25 degree)
- Material M1, M2, M3 Fused Silica

Inhalt		Änderung		Datum		Name			
Schutzvermerk nach DIN ISO 14014 Jedes Veränderring hochdruckgepresst hergestellt an der PZ 12 Anlage nach dem Druck der unteren veränderten Zeichnung.				Allgemeinformat DIN ISO 2768 m / k Gewinde nach DIN 13				Oberfläche GewiPfl RZ Anhalt 1:50	
 ASA Astro Systeme GmbH Galgenw 19 A-4212 Neumarkt i. M.		Datum 11.02.21 11.02.21 11.02.21 11.02.21 11.02.21		Name 11.02.21 11.02.21 11.02.21 11.02.21 11.02.21		Benennung Gombolfo Kuppel 6m mit 6m hohen Wänden A82000148 Projekt P210238 Zeichnungsnummer 7900837A		Blatt 1 von 3	

Plan for the new robotic telescope at NAO Rozhen



The telescope in the factory of ASA in Austria



The telescope in the factory of ASA in Austria



Preparation of the base of the new telescope



Installation of the dome...



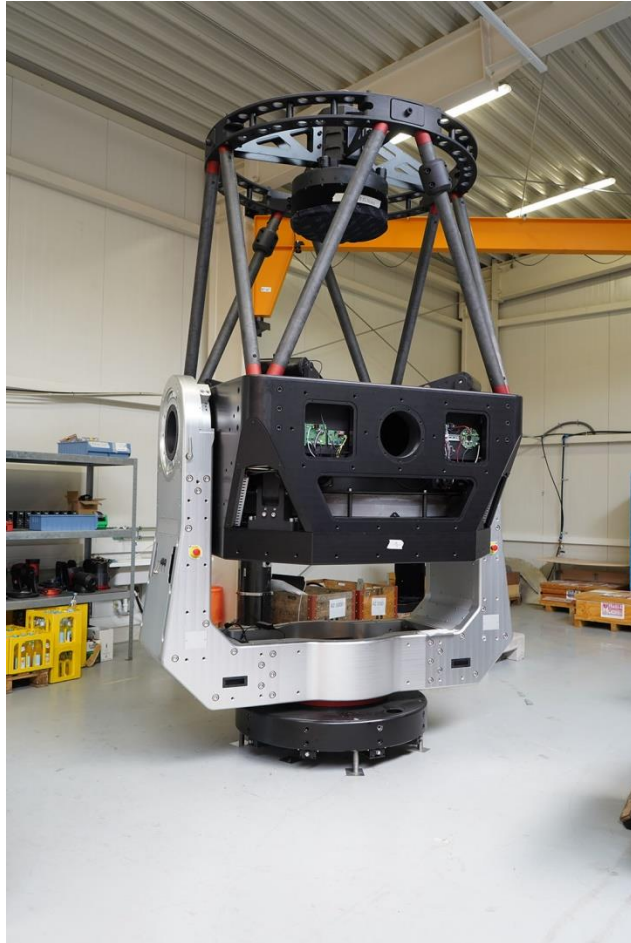
...and the telescope



The telescope in the dome



CCD cameras for the new telescope



C3-61000 PRO CMOS camera

Sensor: Sony IMX455

Resolution: 9576 × 6388 pixels

Pixel size: 3.76 × 3.76 μm

Image area: 36.01 × 24.02 mm

ANDOR XL-EA05-DS

iKon XL 231 BEX2, Compact Shutter

Resolution: 4096 x 4096 pixels

Pixel size: 15 × 15 μm

16.8 Megapixel CCD231-84

Back Illuminated Sensor.

Deep Cooled model (max. cooling -
100°C)

Thank you for your attention!