

COSMOS FACT SHEET

COSMOS (4-m Blanco telescope)

High-throughput multi-object/longslit spectrometer/imager

- Peak total system throughput ~40%

Currently available configurations:

- Spectroscopy, R~2200 - ~4000 w/ 0.9 arcsec slit; long-slit coverage options:
- Also provides 0.6, 1.2, 1.5, and 3.0 arcsec slits, resolution scales accordingly

Disperser ¹	Fringe Frequency (lines/mm)	Blaze	Resolution with 3 pixel (0.9") slit	Wavelength Range ² (Å)	Dispersion ³ (Å/pixel)	Blocking Filter
Blue (b2k)	1172	500nm	2400 ⁴	3480-6190	0.66	N/A
				3795-6615	0.69	N/A
				4150-7070	0.71	GG-395
Red (r2k)	842	800nm	2300 ⁵	4985-9040	0.99	GG-455
				5515-9635	1.00	OG-530
				6080-10250	1.02	OG-570
High-Res Blue (hb4k)	1186	480nm	4000 ⁴	3770-5450	0.41	N/A
				4000-5695	0.41	N/A
				4230-5950	0.42	N/A
High-Res Visible (v4k)	1508	600nm	3900 ⁶	4805-6860	0.50	GG-395
				5070-7170	0.51	GG-395
				5350-7485	0.52	GG-395
High-Res Red (hr4k)	1141	790nm	3800 ⁷	6065-8925	0.70	GG-495
				6445-9340	0.71	GG-495
				6845-9765	0.71	GG-495
Wide (l2k) ⁸	905	480nm	1800 ⁴	2845-6250	0.83	N/A
				3160-6825	0.90	N/A
				3570-7420	0.94	N/A; GG-395 ⁹

¹COSMOS can hold up to five dispersers at a time. The number of dispersers that can be used during a night is limited by the time available for afternoon calibrations.

²The wavelength ranges given for each disperser correspond to the blue, center, and red slits respectively.

³The dispersion given for each disperser corresponds to the blue, center, and red slits respectively.

⁴At 5000Å.

⁵At 7000Å.

⁶At 6000Å.

⁷At 8000Å.

⁸The COSMOS optics are transmissive down to 3600Å. There is little value in using this grism with either the blue or center slits.

⁹This grism and slit combination can be affected by 2nd-order blue light from 3600Å - 3700Å appearing between 7200Å - 7400Å if the GG-395 blocking filter is not used. If this filter is used, light below 3950Å will not be transmitted.

- Multi-slit coverage similar; details depend on mask design
 - Recommended mask FOV ~5x10 arcmin

- Imaging: 10 arcmin diameter FOV, available filters comprise *most* KPNO and CTIO 4-inch filters.
 - Narrowband filter passbands shift to blue
 - Some filters aren't optically flat and degrade images
 - Consult manual for details on what's useful
- Detector is an e2v CCD: deep-depletion device with broadband coating
- *Check back for detector and grism upgrades!*

Download the User Manual for more information!

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