

GR1 Instrument & performance summary

Telescope Aperture	50 cm	
Optical Design	Modified Ritchey-Chrétien with 4 channels: FUV & NUV Imaging, FUV & NUV Spectroscopy. FUV & NUV obtained simultaneously using dichroic beam splitter also acting as a field aberration corrector.	
Field of View	~1.25 degrees, circular	
Focal Length	3 m	
Telescope coatings	Al+MgF ₂	
Imaging/Grism Modes	Optics wheel with (1) CaF ₂ Imaging window, (2) CaF ₂ transmission grism; (3) Opaque position.	
Grism Rotation	Grism position angle may be selected with a resolution of 0.4 degrees, independent of S/C roll	
Dichroic/Corrector	Aspheric astigmatism corrector Ion-etched fused silica (aspheric surfaces on both sides) Dichroic beam splitter with dielectric multilayer coating on input side	
	FUV Channel	NUV Channel
Band (>10% of peak band sensitivity)	1344-1786 Å	1771-2831 Å
Beam path	Reflected from dichroic	Transmitted through dichroic
Filters	Blue edge filter (blocks OI, Ly α - transmission)	Red block filter/Fold mirror (blocks red Zodiacal light)
Detectors	Sealed tube Z-stack microchannel plate with crossed delay-line anodes	
Detector Window	MgF ₂ , includes power for field flattening	Fused Silica includes power for field flattening
Detector Photocathode	CsI, opaque, repeller grid on window	Cs ₂ Te, semitransparent 300 μm proximity gap
Detector peak QE	12%	8%
Detector maximum local countrate w/ 10% temporary rolloff within PSF	89 c/s	471 c/s
System angular resolution (current measured value, including image reconstruction, is ~20% larger)	6.0 arcsec (80% EE diam) 4.0 arcsec (FWHM)	8.0 arcsec (80% EE diam) 5.6 arcsec (FWHM)
Spectral Resolution	250-300	80-150
Imaging Effective Area	25 cm ²	44 cm ²
Photometric Zero Point [1 ct/s] m _{AB}	18.82	20.08
Spectroscopy Effective Area	20 cm ²	39 cm ²