

Near Infrared Imager and Slitless Spectrograph, NIRISS



The JWST Near Infrared Imager and Slitless Spectrograph (NIRISS) provides observing modes for slitless spectroscopy, high-contrast interferometric imaging, and imaging, over wavelengths between 0.6 and 5.0 μm . Although NIRISS is packaged with the [Fine Guidance Sensor \(FGS\)](#), the two instruments are functionally independent of each other.

When used in specific combinations, optical elements in the NIRISS pupil and filter wheel enable four observing modes:

- [Wide field slitless spectroscopy \(WFSS\)](#) over the entire field of view, using one or both of a pair of identical gratings and a selection of blocking filters to isolate specific wavelength intervals between 0.8 and 2.2 μm . The gratings are mounted to disperse light in orthogonal directions on the detector.
- [Single object slitless spectroscopy \(SOSS\)](#) with a cross-dispersed grating designed to deliver broad wavelength coverage and spectro-photometric stability, optimized for time-series observations (TSOs).
- [Aperture masking interferometry \(AMI\)](#) through specific filters that is enabled by a mask with seven sub-apertures.
- [Imaging](#) in seven wide- and five medium-band filters that are closely matched to the NIRCams filter set between 0.9 and 5.0 μm .

External NIRISS links and documents

[STScI NIRISS website](#)

[CSA NIRISS website](#)

[NASA NIRISS website](#)

Lectures

[JWST Community Lecture Series - NIRISS Overview \(R. Doyon\)](#)

Other documents

[JWST Pocket Guide](#)

[JWST technical documents](#)

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