Astronomical source definition

Spatial profile and brightness: *(more info)*
Choose one of point, extended or user-defined source profile and the brightness in any filter/wavelength

(•) **Point source** (nominal PSF) with spatially integrated brightness [1e-5] [Jy ▾] (e.g. 19.3 mag or 2e-17 W/m²/μm)

Extended source having ...(When this option is selected the image quality selection in section 3 of the ITC is disabled.)

( ) Gaussian profile with full width half maximum (including seeing) of [1.0] arcsec and spatially integrated brightness of [20] [mag ▾] (e.g. 19.3 mag or 2e-17 W/m²/μm)

( ) Uniform surface brightness [22.0] [mag/arcsec² ▾] (e.g. 21.6 mag/arcsec²)

with the above **brightness normalisation** applied in filter [J (1.25 μm) ▾] band

[Calculate]

Spectral distribution: *(more info)*
Choose one SED, the redshift and extinction

( ) Library spectrum of a non-stellar object [Spiral galaxy (Sc, 22 nm - 9.7 μm) ▾]

( ) Library spectrum of a [A0V ▾] star (300 nm - 6 μm)

( ) Single emission line at wavelength [0.656] μm with line flux [5.0e-17] [erg/s/cm² ▾] and line width [500.0] km/s on a flat (in wavelength) continuum of flux density [1.0e-17] [erg/s/cm²/Å ▾]

( ) Model black body spectrum with temperature [10000] K

(•) Model power-law spectrum (S_lambda = lambda ^ [-1.0])

( ) User-defined spectrum read from file (size < 1MB) [Choose File] no file selected

with the **spectrum mapped** to a redshift (•) z = [0.0] or a radial velocity ( ) v = [0.0] km/s

[Calculate]

Instrument (GMOS North) and telescope configuration

Instrument optical properties: *(more info)*

Grating: [R831 grating ▾]   Spectrum central wavelength: [710] nm

Filter: [none ▾]   Focal plane unit: [1.0 arcsec slit(let) ▾]

Detector properties: *(more info)*

CCD type: ⦿ Hamamatsu array ◯ EEV DD legacy array

Detector binning:

- Spatial: ◯ 1 (no binning) ⦿ 2 pixels ◯ 4 pixels
  (For imaging this applies to both the x- **and** y-directions. For spectroscopy this corresponds to the y-direction.)

- Spectral: ◯ 1 (no binning) ⦿ 2 pixels ◯ 4 pixels
  (This corresponds to the x-direction for spectroscopy. It is unused for imaging.)

Regions of Interest: ⦿ Full Frame Readout ◯ Central Spectrum: spectroscopy of central 80" FOV

Amp gain: [Low ⬍]   Amp read mode: [Slow ⬍]

Telescope configuration: *([more info](#))*

Mirror coating: ⦿ silver

Instrument port: ⦿ side-looking (3 reflections)

Wavefront sensor for tip-tilt compensation: ◯ PWFS ⦿ OIWFS

[Calculate]

Observing condition constraints

Please read the [explanatory notes](#) for the meaning of the percentiles and to ensure that your selected conditions are appropriate for the observing wavelength. Further details are available on the [observing condition constraints](#) pages.

Image Quality:	◯ 20%/Best	⦿ 70%/Good	◯ 85%/Poor	◯ Any
Cloud Cover:	⦿ 50%/Clear	◯ 70%/Cirrus	◯ 80%/Cloudy	◯ Any
Water Vapor:	◯ 20%/Low	◯ 50%/Median	◯ 80%/High	⦿ Any
Sky Background:	◯ 20%/Darkest	◯ 50%/Dark	⦿ 80%/Grey	◯ Any/Bright
Airmass:	◯ <1.2	⦿ 1.5	◯ 2.0	

[Calculate]

Details of observation

Calculation method: *([more info](#))*
Select calculation method (note: second method is not available for spectroscopy)

⦿ Total S/N ratio resulting from [40] exposures each having an exposure time of [900] secs and with a fraction [1.0] of exposures that observe the source

◯ Total integration time to achieve a S/N ratio of [5] using an exposure time for each exposure of [900] secs and with a fraction [1.0] of exposures that observe the source

Telescope offset: *(more info)*

Dither offset size: `5.0` arcsec

Analysis method (non IFU): *(more info)*

◉ Software aperture that gives 'optimum' S/N ratio and with a sky aperture `5` times the target aperture

◯ Software aperture of diameter (or slit length) `2` arcsec and with a sky aperture `5` times the target aperture

Analysis Method for Integral Field Unit (IFU) spectroscopy:
Note: A single IFU element is a 0.2 arcsec diameter hexagon (more info)

Number of IFU fibres for sky: `250` (250 for IFU red/blue, 500 for IFU-2)

◯ Select an individual IFU element offset by `0.0` arcsec from the center

◯ Select multiple IFU elements along a radius with offsets of `0.0` to `3.0` arcsec

◯ Sum all IFU elements within `1.0` arcsec of the center

Output:

For spectroscopy, ◉ autoscale or ◯ specify limits for plotted spectra (lower wavelength `0.500` µm and upper wavelength `0.900` µm)

Calculate

Calculate   Reset to defaults