STARLIGHT XPRESS

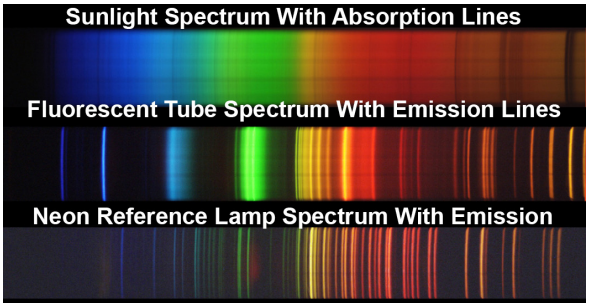
SCIENTIFIC IMAGING SYSTEMS

Spectrograph PRO
Datasheet

The first SX Spectrograph was introduced in 2016, but was intended for local operation, where the user could change slits, focus etc., by hand. The market has since evolved to include many remote observatories, well beyond the direct reach of the observer, so we have now automated most of the spectrograph functions. The Spectrograph PRO allows you to change slits, adjust the imaging camera focus and wavelength setting, and switch on a calibration lamp, or flat field lamp, remotely.

General description:

The SX Spectrograph PRO is machined from a single block of aluminium to ensure it will not flex during use or changes to the ambient temperature. The optical design is based on a highly corrected, 550 grooved concave reflecting grating, that provides a spectral length of 31 mm from 340 to 900 nM. The entire spectrum is accessible by adjusting a sliding camera carrier, using a motor driven threaded drive screw, but most of the visible spectrum can be seen without adjustment, when using a TRIUS PRO-694 imaging camera. A 6 position slit wheel, with various slit widths and lengths, is provided and will allow the sensitivity and resolution to be optimised for the user's project. The best resolution R factor when using the smallest slit width (20 microns) is approximately 1500 - 2000, depending on the F number of the telescope used.



The SX spectrograph design incorporates a Lodestar PRO guide camera, which observes the image field via a 10% / 90% beam splitter cube. The slit is not directly visible in the field, but its position co-ordinates are provided and marked by a cursor box, generated by the PHD2 tracking software. It is therefore quite easy to move the object of interest into the slit cursor box and then to select any convenient guide star in the Lodestar field for tracking.

Key Features:

- Self-collimating concave reflective grating spectrograph with a highly corrected flat field toroidal grating. Minimal attenuation of near UV, due to mostly reflecting optics. Built-in Lodestar PRO Guide Camera and calibration source.
- Grating specifications: Groove pitch - 550 grooves per mm at centre of grating. Blaze wavelength - 400 nM.
- Spectral efficiency at 400 nM - Greater than 50%.
- Useful spectral range - 340 to 900 nM
- Useful grating aperture - 26 x 26 mm.
- Rotary slit wheel with 6 slit positions:
  Position 1 - 20 uM x 1 mm - Position 2 - 30 uM x 2 mm
  Position 3 - 55 uM x 2 mm - Position 4 - 115 uM x 2 mm
  Position 5 - 325 uM x 2 mm - Position 6 - 3mm x 3 mm circular
- Input / Output: Female T2 thread (42 x 0.75 mm) input
  Male T2 thread output
- Input back focal distance - approximately 37 mm
- Output back focal distance - nominally 17 mm, adjustable between approximately 10 and 20 mm
- Power 12v DC at 1 amp max. Positive centre on 2.1 x 5.5mm socket.
- Size - 120 x 115 x 70 mm Weight - 1.17 kg

Electronic Positioning Control
Control the position of the imaging camera relative to the spectrum remotely

Electronic Focus Control
Control the focusing of the imaging camera remotely

USB2.0, 12Vdc Inputs & Guider
The USB2.0 input allows the control of the Lodestar PRO Guide camera and automated function of the spectrograph

T-thread Female Adapter
Allows simple connection to the telescope. Back focus to the slit, only 37mm.

www.sxccd.com
info@starlight-xpress.co.uk