

SPECTROSCOPY



The Andor Shamrock SR-303i, redefines the spectrograph. Andor have utilised many years experience in spectroscopy to deliver the ultimate spectrograph solution. The Shamrock is available as a pre-aligned detector/spectrometer option allowing for seamless integration of software, electronics, optics and detector. It is the first stand-alone spectrograph to have a USB interface, making it the most user-friendly spectrograph around. The Shamrock boasts a unique interchangeable triple grating turret for flexibility and convenience. There is also a fast and interactive graphical software interface allowing full control of all the spectrograph functions.

- Pre-aligned detector/spectrograph solution Enables fast, efficient experimental set-up
- Direct and responsive software interactivity The user can fully control all of the spectrograph functions including: wavelength control and calibration, grating selection, shutter control, slit control and filter selection
- Unique interchangeable triple grating turret Provides a simple, accurate and convenient way for the user to change gratings within the spectrograph unit
- USB interface Enables the user to benefit from "Plug and Play" convenience
- Image correcting toroidal optics Enables maximum light throughput and multi-track spectroscopy with multiple fibre inputs
- Wide range of accessories available Includes optical fibres and adaptors, motorized filter wheel, additional grating turrets with pre-installed gratings and detector adapters

● Spectrograph Overview Czerny-Turner arrangement with imaging toroidal optics

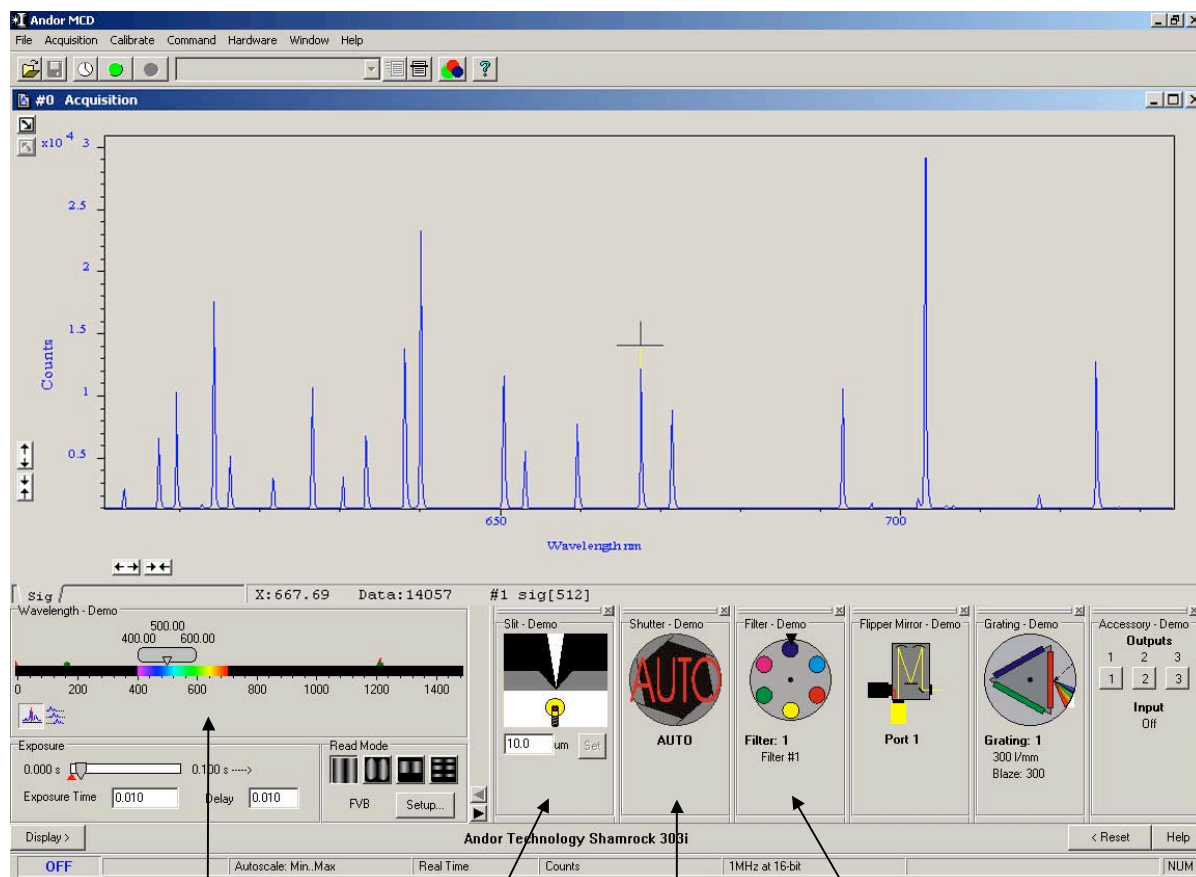
Focal Length (mm)	303
Aperture	f/4
Reciprocal dispersion (nm/mm, nominal)	2.6
Mechanical scan range (nm)	0 to 1450
Wavelength resolution (nm)	0.1 (<0.2nm with 26µm pixel CCD detector)
Wavelength accuracy (nm)	± 0.2
Wavelength reproducibility (nm)	± 0.05
Focal plane size (mm, W x H)	28 x 14
Stray Light (measured at 20nm from 633nm laser line)	1.5x10 ⁻⁴

(Note – quoted specifications are obtainable with a 1200 l/mm grating and 10µm slits at 435.8nm)



● Slit	Type	10 μ m to 2.5 mm, motorised, bilaterally adjustable
	Height options	4, 6, 8 or 14mm available
● Gratings	Size	68 x 68 mm
	Mount Type	Interchangeable triple grating turret
	*see page 4 for a full list of available gratings	
● Dimensions	Optical Axis	127 mm [5"] with pad feet
		143-173 mm [5.6-6.8"] with adjustable feet
	Size	length: 394 mm [15.5"] width: 238 mm [11.1"] height: 208 mm [8.2"] with pad feet
	Weight	20 kg [44 lb] (approx.)
● Shutter Specifications	Maximum Rep. Rate	10 Hz
	Minimum open/close time	15 ms
	Minimum lifetime	100K cycles

● Software Interface

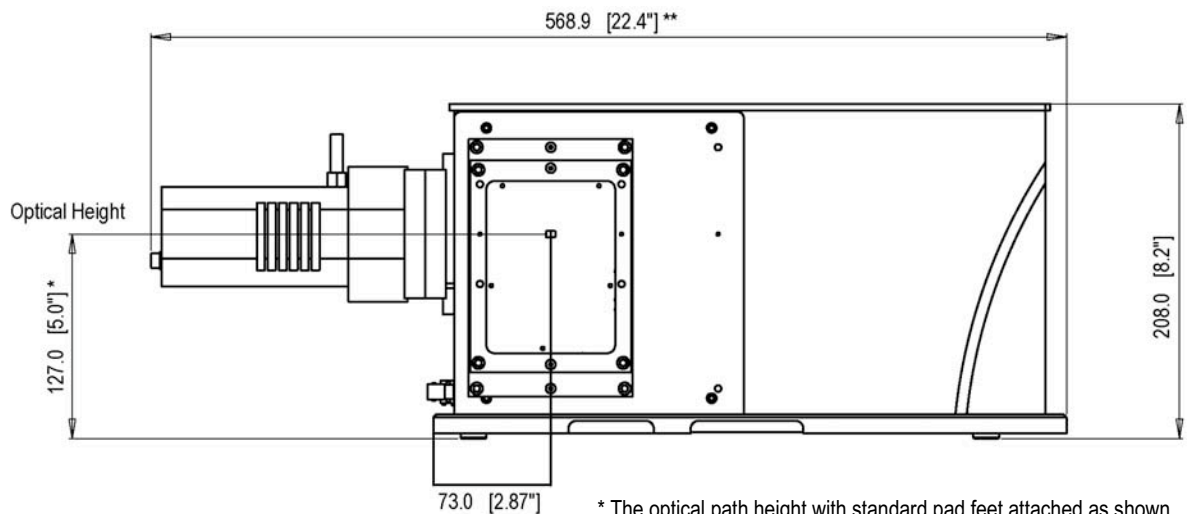
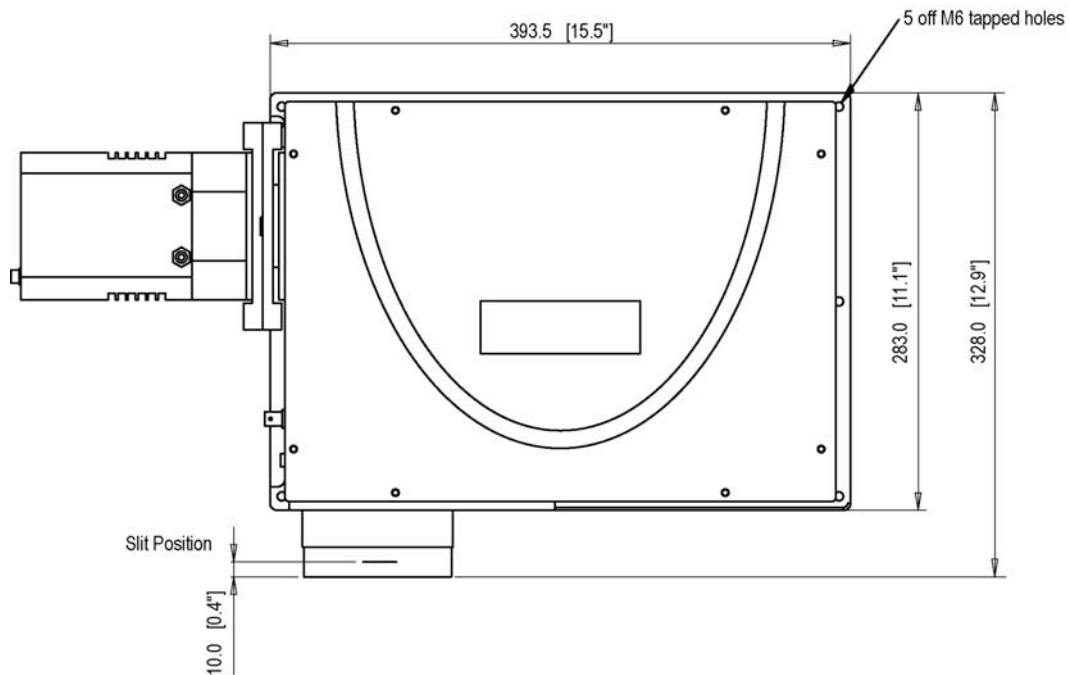


wavelength
selector

motorised slit
control

integrated
shutter control

filter wheel
control



* The optical path height with standard pad feet attached as shown. The height with adjustable feet varies between 143mm [5.6"] and 173mm [6.8"]

** The overall length with a standard Andor DV CCD model attached. The length with a DU CCD model is 570.5mm [22.43"] and with an iStar is 622.2mm [24.5"]

(Dimensions in mm unless otherwise stated)



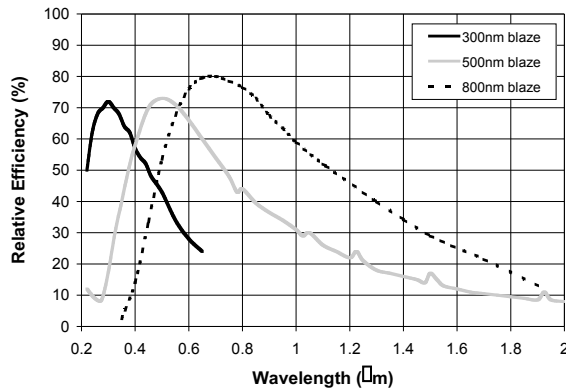
Unique Interchangeable Triple Grating Turret

The optical engine of the Shamrock 303i is an innovative triple grating turret, designed to offer flexibility and control over your choice and interchange of gratings. The triple grating turret can be easily and speedily removed, and replaced by an alternative turret with new gratings. The intelligent design of the Shamrock 303i means that only a simple offset adjustment is required once the new turret and gratings are added. For added flexibility the Shamrock 303i is shipped with the grating turret already in place, ensuring your system is ready for use straight out of the box. Additional grating turrets are available with up to three pre-installed gratings (see below for details). If the grating you require is not on the list, contact Andor for further details.

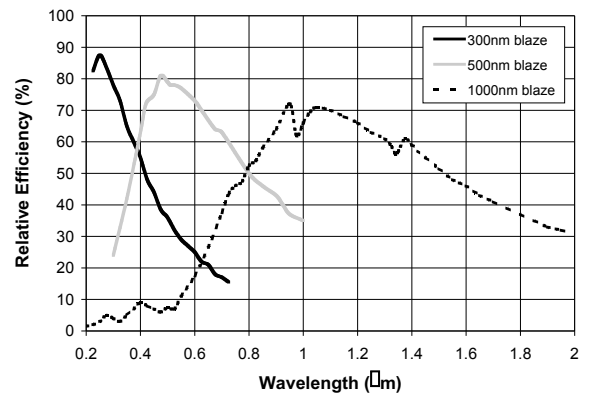
- A wide range of high quality replicated plane reflection and holographic gratings available
- The large gratings (68 x 68mm) remain fully illuminated throughout the entire scanning range
- A series of gratings can be chosen to optimize efficiency over a wavelength region or to have different dispersion properties. This allows maximum flexibility in the choice of gratings to optimise resolution and desired spectral range.
- The grating turret is field-replaceable - the pre-aligned mount simply drops into place.

Lines/mm ¹	Blaze (nm)	Recommended Spectral Region (nm)	Dispersion ² (nm/mm)	CCD /Array Bandpass ³ (nm)	Peak Efficiency ⁴ (%)	Andor Part Number
150	300	200 - 550	21.4	571	72	SR3-GRT-0150-0300
150	500	350 - 1050			73	SR3-GRT-0150-0500
150	800	450 - 1300			80	SR3-GRT-0150-0800
300	300	250 - 500	10.6	283	88	SR3-GRT-0300-0300
300	500	350 - 900			81	SR3-GRT-0300-0500
300	1000	650 - 1800			72	SR3-GRT-0300-1000
600	300	200 - 500	5.2	138	84	SR3-GRT-0600-0300
600	500	330 - 900			72	SR3-GRT-0600-0500
600	1000	650 - 1800			72	SR3-GRT-0600-1000
1200	300	200 - 500	2.4	65	72	SR3-GRT-1200-0300
1200	500	350 - 900			82	SR3-GRT-1200-0500
1200	1000	600 - 1400			69	SR3-GRT-1200-1000
1200	Holographic	400 - 1200			68	SR3-GRT-1200-EH
1800	Holographic	190 - 900	1.5	39	70	SR3-GRT-1800-DH
1800	Holographic	350 - 900			63	SR3-GRT-1800-FH
2400	300	250 - 800	0.9	25	68	SR3-GRT-2400-0300
2400	Holographic	190 - 800			68	SR3-GRT-2400-BH
2400	Holographic	250 - 600			74	SR3-GRT-2400-GH

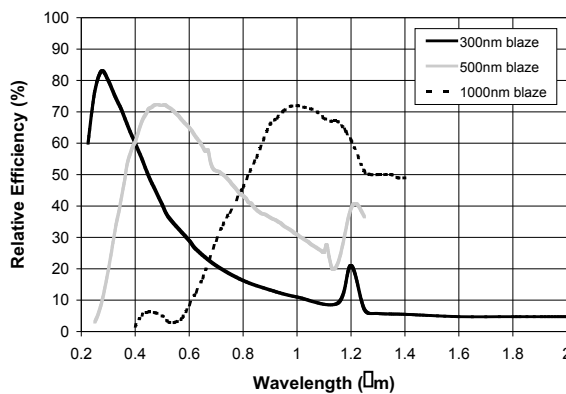
● Grating Efficiency Curves⁵



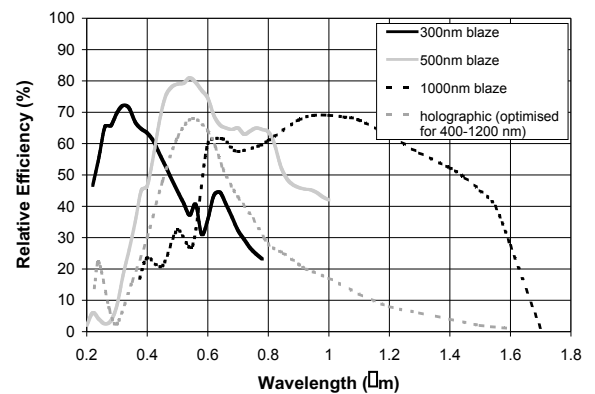
150 l/mm ruled



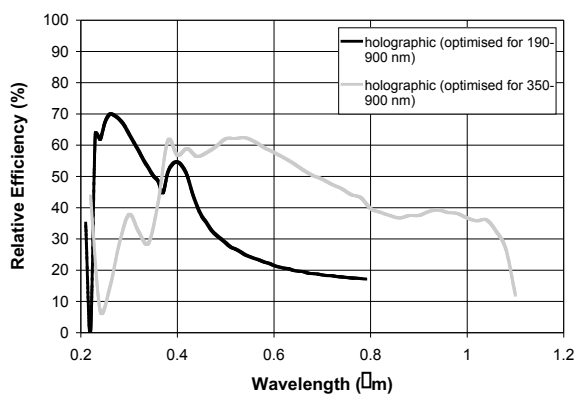
300 l/mm ruled



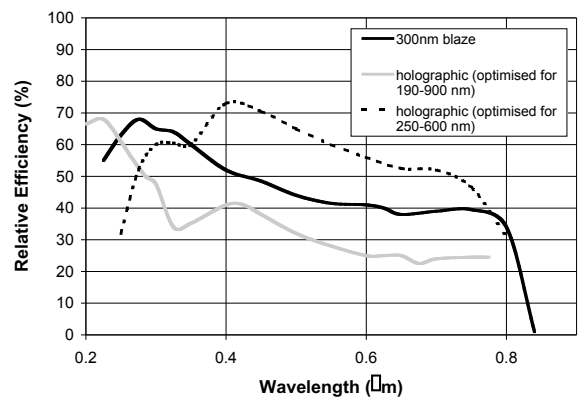
600 l/mm ruled



1200 l/mm ruled and holographic



1800 l/mm holographic



2400 l/mm ruled and holographic

NOTE - Specifications are subject to change without notice.

- 1 Additional gratings available on request.
- 2 Reciprocal linear dispersion (nm/mm) defined @ 435.8nm.
- 3 Bandpass defined for 1024 pixel CCD array with 26µm pixels. Quoted values are nominal @ 435.8nm.
- 4 Quantum efficiency of the CCD sensor is measured by the CCD Manufacturer.
- 5 The grating efficiency data is typical and should only be used for relative comparison to other gratings. Data supplied by grating manufacturer.

● **Ordering Information**

To order this spectrograph quote model number:

SR-303i-A	Shamrock spectrograph with single port
SR-303i-B	Shamrock spectrograph with dual output port

Accessories available for use with the SR-303i spectrograph include:

SR-OPT-8002/8027	Single and multi (2-5 way-input) fibres. Available in various material and core diameter options.
SR-ASM-8001	Fixed Fibre Adaptor
SR-ASM-8002	1.5" Flange Fibre Adaptor
SR-ASM-8006	X-adjustable Fibre Adaptor
SR-ASM-8012	Y-adjustable (fast kinetics) Fibre Adaptor
SR-ASM-8010	XY-adjustable Fibre Adaptor
SR-ASM-8003	Fixed SMA Fibre Adaptor
SR-ASM-8011	Fixed FC Fibre Adaptor
SR-SHT-9001	Shutter
SR-ASZ-7001	Filter Wheel
SR-OPT-7xxx	Order Sorting Filters
SR-ASM-0013	Camera Lens Adaptor
SR-ASM-0014	Pen-ray Lamp Mount
SR-ASM-0010/11/15/16/17	Motorized Slit Assembly Baffles
SR-ASZ-0005	Exit Port Motorized Slit Assembly
MFL-SR303I-IMAGE	Imaging Plane CCD Mounting Flange
MFL-SR303I-INTER	Intermediate Plane CCD Mounting Flange
MFL-SR303I-IXON	iXon Mounting Flange
SR3-GRT-xxxx-xxxx	Grating (General)
SR-ASE-0001	USB Cable
CABD-D15N003F04N	I ² C Cable - PCI
ELC-00647	I ² C Cable – iDus to shamrock
ELC-00648	I ² C Cable – iXon to shamrock
ELC-00649	I ² C Cable – with I/O box pigtail

Please contact Andor for any of your custom requirements.

Need more information? Contact us at:

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