



STANDARD SERIES MONOCHROMATORS

FEATURES

- **Highly Customizable Modular Design**
- **Two Configurable Input and Output Ports**
- **Configurable turret and Grating Options**
- **USB2.0 Communication**
- **A Full Line of Input and Output Accessories**
- **Fully Integrated Software and Development Libraries**

Available



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1450 Global Drive, London, Ontario Canada, N6N 1R3
Phone: 519-644-0135 / Fax: 519-644-0136
E-mail: Sales@Sciencetech-Inc.com

STANDARD SERIES MONOCHROMATORS

SPECIFICATIONS

Model #	9010	9010F	9055	9055F	9057	9057F	9055DX
Input Focal Length (mm)	200	200	200	200	457	457	200 X 2
Output Focal Length (mm)	200	200	250	250	457	457	250 X 2
Wavelength Selection	Manual or Motorized	Manual or Motorized	Motorized	Motorized	Motorized	Motorized	Motorized
Communication	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Readout Mechanics	Sine Drive	Sine Drive	Direct drive stepping motor	Direct drive stepping motor	Direct drive stepping motor	Direct drive stepping motor	Direct drive stepping motor
Spectral Range* (wth 1200l/mm grating)	0-1050 nm	0-1050 nm	0-1350	0-1350	0-1450	0-1450	0-1350
Aperture	f/3.5	F/2.6	F/3.5	F/2.5	F/8	F/5.9	F/3.5
Maximum Grating Size (mm x mm)	50 x 50	64 x 64	50 x 50	64 x 64	50 x 50	64 x 64	50 x 50
Number of Gratings	2	2	3	2	3	2	3
Optical Resolution* (nm)	0.4	1	0.2	0.4	0.1	0.2	0.09
Stray Light	2 E-6	2 E-6	4 E-5	4 E-5	3E-05	3E-05	1E-7
Dispersion* (nm/mm)	4	4	4	3.3	1.79	1.79	1.7
Wavelength Accuracy (\pm nm)	0.2	0.2	0.2	0.2	0.04	0.04	0.2
Wavelength Reproducibility (\pm nm)	0.1	0.1	0.03	0.03	0.03	0.03	0.05
Flat Field Size (mm)	N/A	N/A	25	25	25	25	25
Flat Field Angle (deg)	N/A	N/A	-1.69	-1.69	-1.4	-1.4	Call
Optical Axis Height (mm/in)	76.2	76.2	76.2	86.4	76.2	76.2	76.2
Dimensions (mm)	255 x 290 x 140	255 x 290 x 140	395 x 262 x 130	395 x 262 x 130	605 x 265 x 130	605 x 265 x 130	800 x 525 x 260
Dimensions (in)	10.2x11.6x5.6	10.2x11.6x5.6	15.6x10.4x5.1	15.6x10.4x5.1	24.2x10.4x5.2	24.2x10.4x5.1	32 x 21 x 10.4
Weight (kg)	6	6	7.5	10	9	9	20

* With a 1200l/mm grating, ranges vary with grating groove density

[Browse Standard Series Monochromators on the Sciencetech Website](#)



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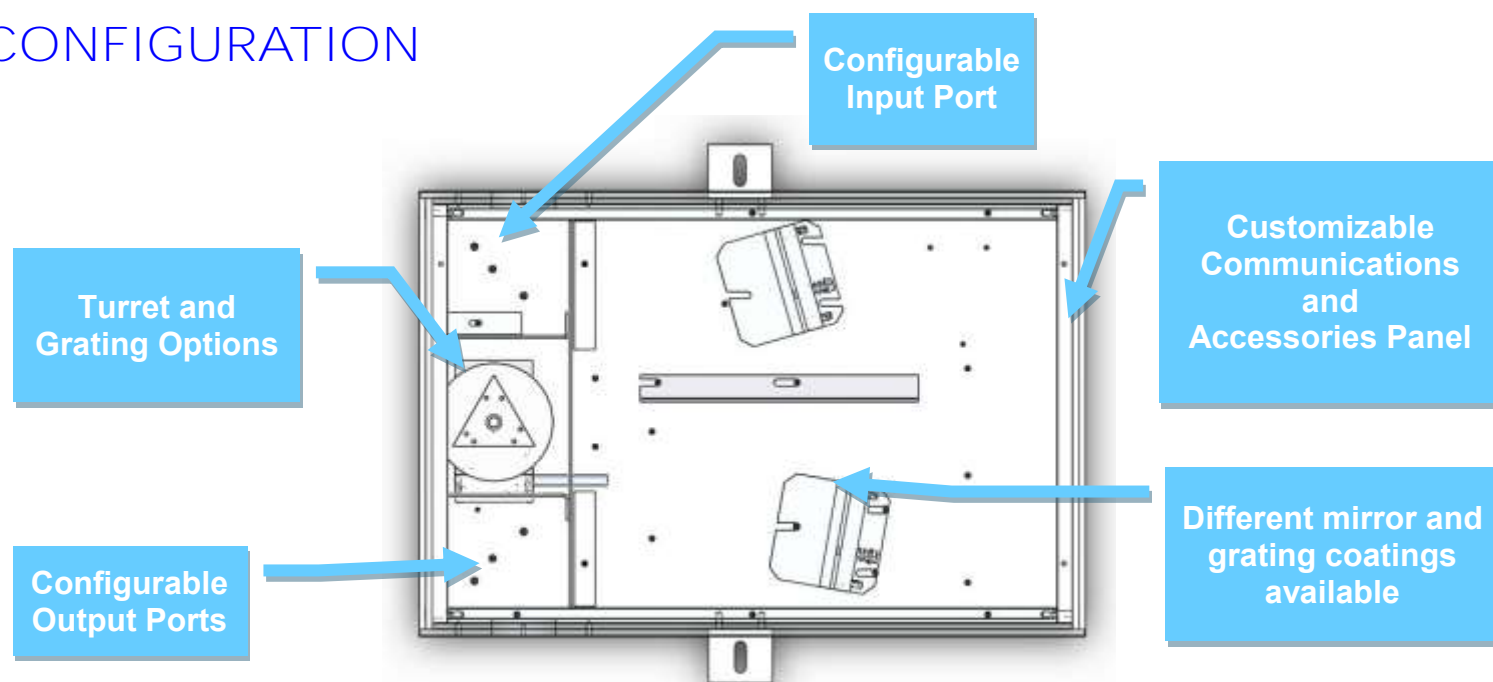
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CONFIGURATION



Step 1 Choose Chassis and F/#

Part #	Model	F/#	Focal Length	Turret Configuration
120-9002	9010	F/3.5	200	Double Grating
120-9001	9010F	F/2.6	200	Double Grating
120-9018	9055	F/3.5	200/250	Triple Grating
120-9023	9055F	F/2.5	200/250	Double Grating
120-9008	9057	F/8	500	Triple Grating
120-9042	9057F	F/5.9	500	Double Grating
120-9017	9055DX	F/3.5	200/250	Triple Grating

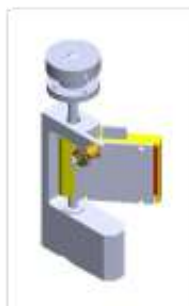
Step 2: Input Port Configuration

Part #	Model	Description
120-8042	9000-ST-IN	Side Input Port
120-8030	DPIN-ST-MAN	Dual Input Port
120-8072	DPIN-ST-MOT	Motorized Input Port

Step 3: Output Port Configuration

Part #	Model	Description
120-8043	9000-ST-OUT	Side Output Port
120-8031	DPOUT-ST-MAN	Dual Output Port
120-8073	DPOUT-ST-MOT	Motorized Output Port

[Browse Configuration Options on the Sciencetech Website](#)



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CONFIGURATION

Step 4: Grating Selection

There are three basic parameters to consider when choosing a grating for your standard series monochromator

A) Required Wavelength Range

The wavelength range available to you is determined by the grating groove density chosen and the angular mechanical limitation of the monochromator.

B) Grating Efficiency

Ruled gratings may be blazed to increase their efficiency over a specific wavelength band. Holographic gratings can be modulated such that they are more efficient at some wavelengths than at others. Grating efficiency curves are the best tool for determining the most efficient grating available for your application. It is important to note that grating efficiency curves do not represent the exact efficiency that should be expected when the grating is used in a monochromator as grating efficiency curves are taken at Littrow angle.

C) Required Resolution and Bandwidth

Resolution is a measure of an instrument's ability to separate adjacent spectral lines. Resolution is generally given in nm. The bandwidth (or bandpass) is the wavelength range that falls on the output port at any one time and is also given in nm. This is an important parameter when integrating a camera such as a linear array or CCD on the output port of the monochromator.

Turret Configuration	Maximum Grating Size
Triple Turret	50mm x 50 mm
Double Turret	64mm x 64mm

Grating Selection Table for 200/250mm Focal Length Monochromators								
Grating (l / mm)	75	150	300	600	1200	1800	2400	
Dispersion (nm/mm)	66.6	33.3	16.7	8.3	4	2.8	2.1	
Resolution (nm)*	3.75	1.6	0.8	0.4	0.2	0.134	0.1	
Bandwidth (nm)*	1650	840	420	210	105	73	52	
Maximum Suggested Wavelength(nm)	13900	6950	3475	1737	868	579	434	
Maximum Realistic Wavelength(nm)	21891	10945	5472	2736	1368	912	684	
Maximum Wavelength Attainable (nm)**	25377	12688	6344	3172	1586	1057	793	

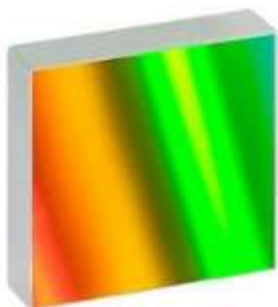
Application Note:

For Raman and when a laser is present ensure you choose a holographic grating.

***Bandwidth** based on: Dispersion x 25.4mm wide array (important if using a LDA or CCD)

* **Resolution** based on: 50um wide input slit * Dispersion

[Browse Gratings on the Sciencetech Website](#)



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CONFIGURATION

Step 5: Mirror and Grating Coatings

Standard mirror coatings are aluminum with a MgF2 protective layer. Standard gratings have an aluminum coating. metallic coating. If your application would benefit from different mirror or grating coatings please refer to the codes below at the time of order.

Mirror or Grating Coating	Useful Range	Code
Aluminum (MgF2 coating)	350nm +	Standard
UV enhanced Aluminum	200nm +	-UV
Silver	400nm +	-S
Gold	600nm – Far IR, best option for NIR	-G

Step 6: Imaging Option

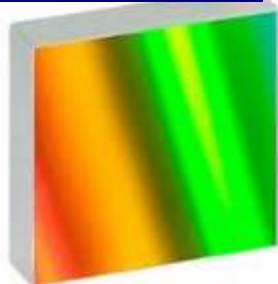
Standard Czerney-Turner type monochromators suffer from astigmatism in the output beam due to the use of off-axis spherical mirrors. Often the astigmatism is not an issue. For imaging applications a toroidal mirror is used to compensate for the inherent astigmatism in the optical system produce a direct image of the input slit at the output port. This is an important option for studying phenomena such as fast kinetics.

Imaging Option	Note	Code
9055-i Monochromator (previously 9060)	For 120-9018 Chassis only	120-9060
9057-i Monochromator	For 120-9008 Chassis only	120-9061
9055DX-i Imaging Double Monochromator	For 120-9017 Chassis only	120-9062

Need something that you don't see here?

Sciencetech has built our reputation on custom solutions. Whether you need a small modification to an existing system or a completely novel design built from the ground up to meet your technical specifications, Sciencetech's engineering and optical design teams are read to help.

[Browse Gratings on the Sciencetech Website](#)

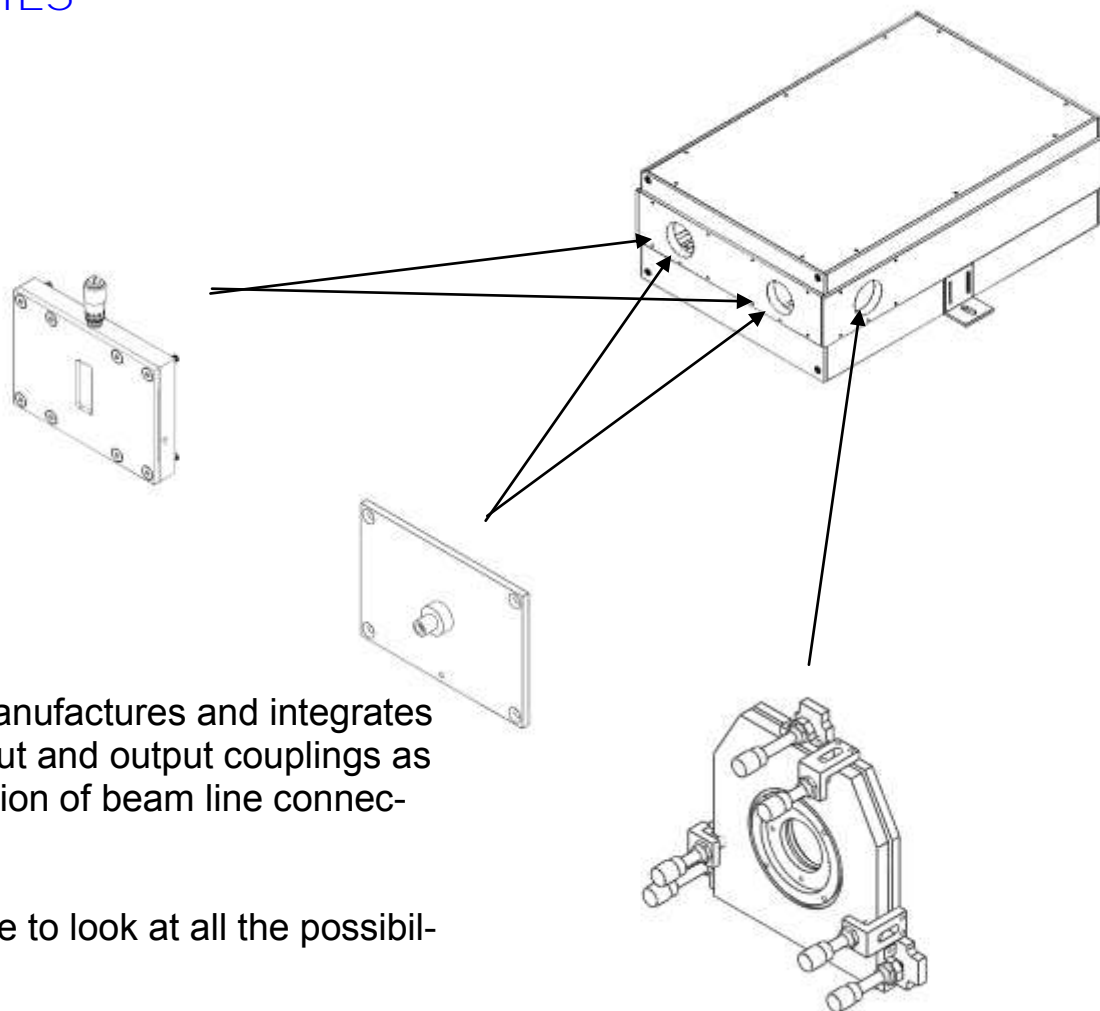


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ACCESSORIES



Sciencetech manufactures and integrates a full line of input and output couplings as well as a selection of beam line connections.

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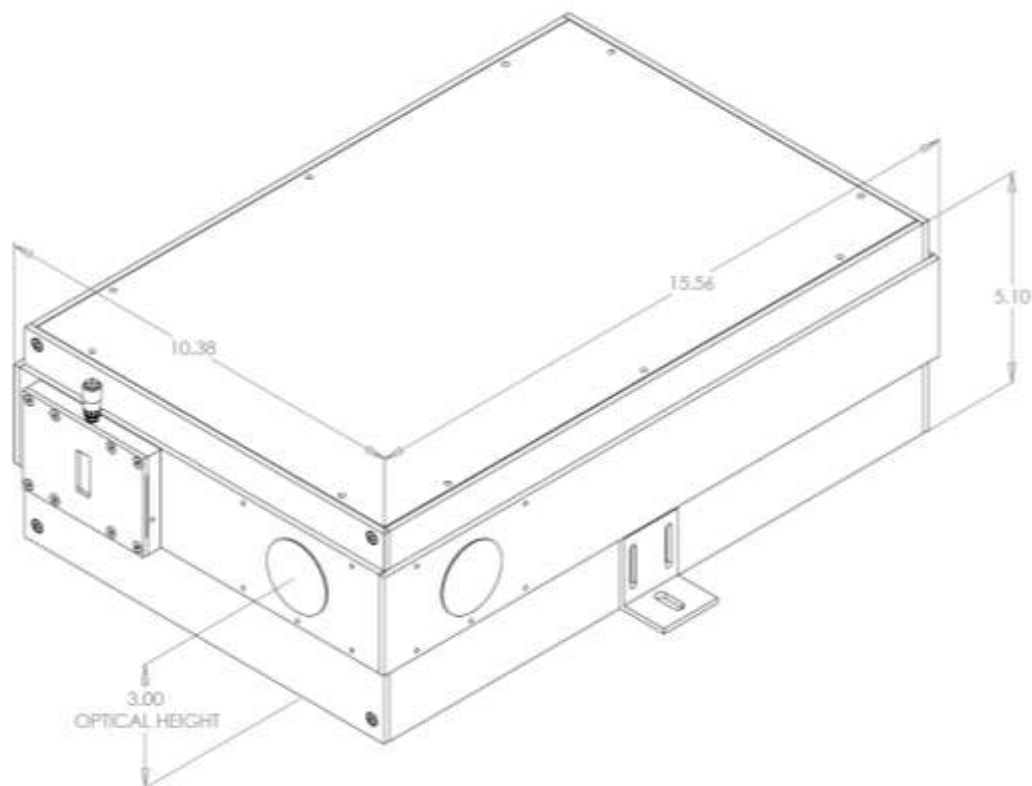


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DIMENSIONS (IN), 120-9018, 120-9023



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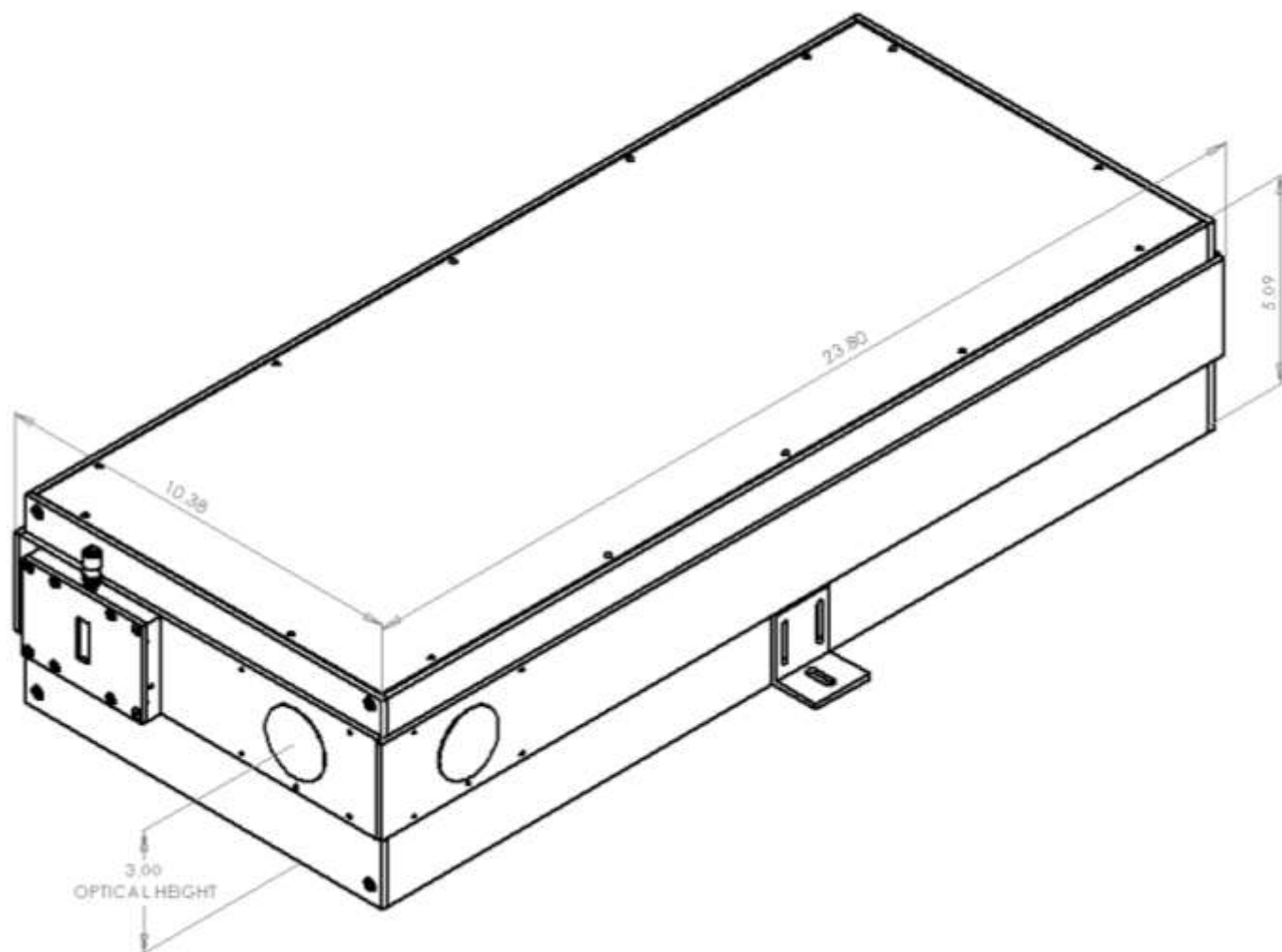
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STANDARD SERIES MONOCHROMATORS

DIMENSIONS (IN), 120-9008



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