

WHAT'S **NEW** IN OPTICS



Discover **180**
NEW PRODUCTS Designed
for Your Application Needs

High Energy
Polarizing Cube
Beamsplitters



TECHSPEC®
Germanium
Meniscus Lenses



TECHSPEC®
4.5mm Compact
Fixed Focal
Length Lens



AND MORE . . .



NEW PRODUCTS

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TECHSPEC® BROADBAND COATED $\frac{1}{10}\lambda$ FIRST SURFACE MIRRORS

NEW



Substrate: Fused Silica
Dimensional Tolerance: +0.00/-0.20mm
Thickness Tolerance: ±0.20mm
Surface Accuracy: $\frac{1}{10}\lambda$
Surface Quality: 20-10
Edges: Ground, 0.5mm max bevel
Clear Aperture: 90%
Parallelism: 30 arcsec
Back Surface: Commercial polish
Coating: $R_{avg} >98\%$ @ 0 - 45°, all polarizations
 $R_{avg} >99\%$ @ 0°, all polarizations

- Greater Than 99% Reflection Over Broad Wavelength Ranges
- High Reflectivity for all Polarization States from 0 - 45° AOI
- Low Coefficient of Thermal Expansion

TECHSPEC® Broadband Coated $\frac{1}{10}\lambda$ First Surface Mirrors are ideal for beam steering or reflection applications utilizing multiple laser sources. These optical mirrors feature improved reflection compared to standard metal coated mirrors, increasing system performance by minimizing energy loss. The highly durable fused silica substrate offers a low coefficient of thermal expansion and a high resistance to abrasion. TECHSPEC® Broadband Coated $\frac{1}{10}\lambda$ First Surface Mirrors are designed for applications in the visible to near-infrared spectra.

TECHSPEC® BROADBAND COATED $\frac{1}{10}\lambda$ FIRST SURFACE MIRRORS									
Dimensions (mm)	Thickness (mm)	Prices – 400 - 750nm Coating				Prices – 750 - 1100nm Coating			
		Stock No.	1-5	6-25	26+	Stock No.	1-5	6-25	26+
5.0	2.0	#87-366	\$75.00	\$60.00	Call For OEM Qty. Pricing	#87-376	\$75.00	\$60.00	Call For OEM Qty. Pricing
10.0	2.0	#87-367	\$75.00	\$60.00		#87-377	\$75.00	\$60.00	
12.5	3.0	#87-368	\$75.00	\$60.00		#87-378	\$75.00	\$60.00	
15.0	3.0	#87-369	\$85.00	\$68.00		#87-379	\$85.00	\$68.00	
20.0	3.0	#87-370	\$85.00	\$68.00		#87-380	\$85.00	\$68.00	
25.0	4.0	#87-371	\$95.00	\$76.00		#87-381	\$95.00	\$76.00	
30.0	5.0	#87-372	\$145.00	\$116.00		#87-382	\$145.00	\$116.00	
35.0	5.0	#87-373	\$165.00	\$132.00		#87-383	\$165.00	\$132.00	
40.0	5.0	#87-374	\$185.00	\$148.00		#87-384	\$185.00	\$148.00	
50.0	5.0	#87-375	\$195.00	\$156.00		#87-385	\$195.00	\$156.00	

TECHSPEC® BROADBAND DIELECTRIC COATED RIGHT ANGLE MIRRORS

NEW



Material: N-BK7
Dimensional Tolerance: ±0.1mm
Surface Quality: 40-20
Surface Accuracy: $\frac{1}{6}\lambda$
Angle Tolerance: ±2 arcmin
Bevel: 0.3mm x 45°
Hypotenuse Coating: $R_{avg} >98\%$ @ 400 - 750 or 750 - 1100 (as noted)

- Greater Than 98% Reflection Over Broad Wavelength Ranges
- High Reflectivity for all Polarization States
- Reflect Light at 90°

TECHSPEC® Broadband Dielectric Coated Right Angle Mirrors are designed for beam steering or precision alignment applications utilizing multiple laser sources or operating from the visible to near-infrared spectra. TECHSPEC® Broadband Dielectric Coated Right Angle Mirrors feature improved reflection compared to standard metal coated mirrors, increasing system performance by decreasing energy loss. These right angle mirrors are easily mounted and integrated into optical systems. and are crucial in many optical systems.

TECHSPEC® BROADBAND DIELECTRIC COATED RIGHT ANGLE MIRRORS									
Size (mm) A = C	Size (mm) B	Prices – 400 - 750nm Coating				Prices – 750 - 1100nm Coating			
		Stock No.	1-5	6-25	26+	Stock No.	1-5	6-25	26+
5.0	7.0	#87-386	\$85.00	\$68.00	Call For OEM Qty. Pricing	#87-396	\$85.00	\$68.00	Call For OEM Qty. Pricing
10.0	14.1	#87-387	\$95.00	\$76.00		#87-397	\$95.00	\$76.00	
12.5	17.5	#87-388	\$100.00	\$80.00		#87-398	\$160.00	\$80.00	
15.0	21.2	#87-389	\$110.00	\$88.00		#87-399	\$110.00	\$88.00	
20.0	28.3	#87-390	\$125.00	\$100.00		#87-400	\$125.00	\$100.00	
25.0	35.4	#87-391	\$150.00	\$120.00		#87-401	\$150.00	\$120.00	
30.0	42.4	#87-392	\$195.00	\$156.00		#87-402	\$195.00	\$156.00	
35.0	49.5	#87-393	\$210.00	\$168.00		#87-403	\$210.00	\$168.00	
40.0	56.6	#87-394	\$245.00	\$196.00		#87-404	\$245.00	\$196.00	
50.0	70.7	#87-395	\$295.00	\$236.00		#87-405	\$295.00	\$236.00	

ULTRAFAST BROADBAND LASER MIRRORS

NEW



Reflectivity: $R_{avg} >99\%$ @ 45°
Diameter: 25.4mm +0.0/-0.1mm
Thickness: 5.0mm ±0.25mm
Clear Aperture: >90%
Surface Accuracy: $\frac{1}{6}\lambda$
Parallelism: <1 arcmin
Adhesion and Durability: MIL-C-675A
Laser Damage Threshold: >50 mJ/cm², 50 fsec @ 800nm typical

- Greater than 99% Reflectivity
- High Damage Thresholds
- Low Group Velocity Dispersion

Ultrafast Broadband Laser Mirrors are designed for applications utilizing Er:Glass, Ti:Sapphire, or Ytterbium-doped material lasers. Ultrafast Broadband Laser Mirrors are optimized for maximum reflection over broad wavelength ranges. These optical mirrors feature low thermal coefficients and high damage thresholds needed for harsh laser applications. Designed at 45° for beam steering applications, these optical mirrors offer Group Velocity Dispersion (GVD) values that are sufficient for even the most demanding ultrafast laser applications.

ULTRAFAST BROADBAND LASER MIRRORS				
Wavelength Range (nm)	Stock No.	1-5	6-25	Typical Application
360-440	#84-621	\$275.00	\$247.50	Ti:Sapphire 2nd Harmonic
480-550	#84-620	\$225.00	\$202.50	Yb Doped 2nd Harmonic
720-880	#84-619	\$225.00	\$202.50	Ti:Sapphire 1st Harmonic
960-1100	#84-618	\$225.00	\$202.50	Yb Doped 1st Harmonic
1500-1600	#84-617	\$275.00	\$247.50	Er:Glass 1st Harmonic

ULTRAFAST THIN FILM POLARIZERS

- Ideal for Common Ti:Sapphire Laser Wavelengths
- High Damage Thresholds
- Excellent Extinction Ratio

Ultrafast Thin Film Polarizers utilize thin film coating technology for optimal performance in the near-infrared wavelength range. Ultrafast Thin Film Polarizers feature high damage thresholds, and are ideal for use with high power lasers, including Ti:Sapphire laser sources. Transmission polarizers are available with polarizing coatings on both sides of the polarizers, while reflection polarizers consist of a polarizing coating on the input face and an anti-reflection coating on the output face.



NEW

NEW LASER OPTICS

Substrate:	UV Fused Silica	Clear Aperture:	90%
Diameter:	25.4mm	Surface Accuracy:	$\frac{1}{8}\lambda$
Dimensional Tolerance:	+0.0/-0.12mm	Surface Quality:	20-10
Thickness:	3mm	Parallelism:	<30 arcsec
Thickness Tolerance:	± 0.2 mm	Damage Threshold (Typical):	5 J/cm ² @ 1064nm, 10ns
Angle of Incidence:	72°		

ULTRAFAST THIN FILM POLARIZERS

Type	Transmission or Reflection	Contrast	Prices – 750 - 850nm				Prices – 980 - 1090nm			
			Stock No.	1-10	11-25	26+	Stock No.	1-10	11-25	26+
Transmission	$T_p > 85\% / T_s < 4\%$	$T_p/T_s > 20:1$	#88-235	\$595.00	\$535.00	Call	#88-237	\$595.00	\$535.00	Call
Reflection	$R_s > 85\% / R_p < 1\%$	$R_s/R_p > 60:1$	#88-236	\$495.00	\$445.00	Call	#88-238	\$495.00	\$445.00	Call

HIGH ENERGY POLARIZING CUBE BEAMSPLITTERS

- Optically Contacted Design for Increased Damage Threshold
- Greater than 97% Transmission of P-Polarized Light
- High Extinction Ratio of Greater than 3000:1

High Energy Polarizing Cube Beamsplitters are an easy-to-mount, high contrast alternative to Brewster windows. High Energy Polarizing Cube Beamsplitters feature greater than 99.5% reflection of S-polarized light and over 97% transmission of P-polarized light, along with an $\frac{1}{8}\lambda$ surface accuracy for minimal wavefront distortion. To increase the laser damage threshold, these polarizers are constructed by optically contacting, rather than cementing, UV Fused Silica Right Angle Prisms. High Energy Polarizing Cube Beamsplitters are available for use with a variety of common Nd:YAG laser wavelengths.

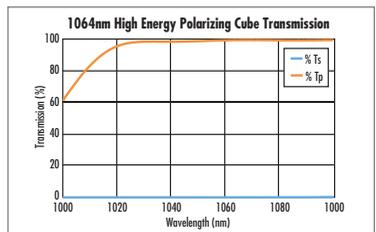
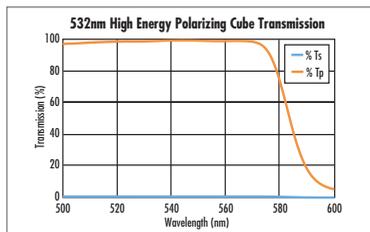
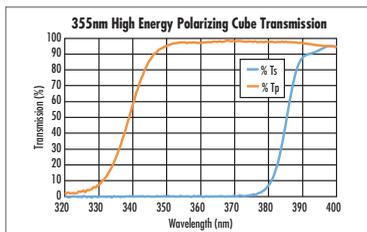


NEW

Substrate:	UV Fused Silica
Cube Size:	12.7mm
Dimensional Tolerance:	+0.0/-0.3mm
Clear Aperture:	90%
Surface Accuracy:	$\frac{1}{8}\lambda$
Surface Quality:	20-10
Beam Deviation:	<3 arcmin
Extinction Ratio:	$T_p/T_s > 3000:1$ @ Design Wavelength
Transmission:	$T_p > 97\%$ @ Design Wavelength
Damage Threshold (Typical):	15 J/cm ² @ 1064nm 10ns, 20Hz

HIGH ENERGY POLARIZING CUBE BEAMSPLITTERS

Design Wavelength (nm)	Stock No.	Prices		
		1-10	11-25	26+
355	#88-232	\$695.00	\$625.50	Call
532	#88-233	\$625.00	\$562.50	Call
1064	#88-234	\$625.00	\$562.50	Call



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OBIS® LASER SYSTEMS



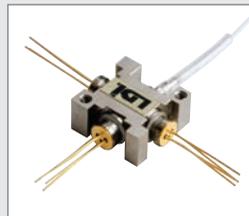
ZnSe ASPHERES



MOTORIZED GIMBAL MOUNT



FIBER-COUPLED COMBINERS



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TECHSPEC® GERMANIUM MENISCUS LENSES



- **Wavelength Range of 2 - 16µm**
 - **Durable Design for Demanding Applications**
 - **Superior Spherical Correction**
- TECHSPEC® Germanium Meniscus Lenses are designed for demanding infrared applications including infrared imaging or surveillance, remote sensing, or infrared spectroscopy. TECHSPEC® Germanium Meniscus Lenses offer superior spherical correction and smaller spot sizes than comparable focal length TECHSPEC® Germanium PCX Lenses.

Material:	Germanium, Optical Grade
Design Wavelength:	10.6 µm
Diameter Tolerance:	+0.0/-0.1mm
Center Thickness Tolerance:	±0.10mm
Centering Accuracy:	<3 arcmin
Clear Aperture:	90%
Surface Quality:	60-40

TECHSPEC® GERMANIUM MENISCUS LENSES

Diameter (mm)	Effective FL (mm)	Back FL (mm)	Center Thickness (mm)	Edge Thickness (mm)	Radius R ₁ (mm)	Radius R ₂ (mm)	Stock No. Uncoated	Prices – Uncoated		26+
								1-5	6-25	
25.00	25.00	23.34	2.5	1.3	28.32	42.46	#87-955	\$295.00	\$236.00	Call for OEM Qty. Pricing
25.00	30.00	28.31	2.5	1.5	33.38	50.04	#87-956	\$295.00	\$236.00	
25.00	35.00	33.29	2.5	1.6	38.43	57.61	#87-957	\$295.00	\$236.00	
50.00	50.00	46.69	5.0	2.6	56.64	84.91	#87-958	\$650.00	\$520.00	
50.00	75.00	71.56	5.0	3.5	81.89	122.77	#87-959	\$650.00	\$520.00	
50.00	100.00	96.49	5.0	3.8	107.03	160.46	#87-960	\$650.00	\$520.00	

TECHSPEC® BARIUM FLUORIDE (BaF₂) WINDOWS



- **Excellent Transmission from 200nm - 14µm**
- **Resistant to High-Energy Radiation**
- **Provide High Transmission without AR Coatings**

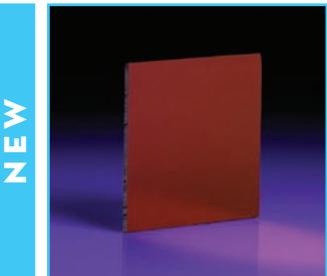
TECHSPEC® Barium Fluoride (BaF₂) Windows can be used in a variety of applications, such as infrared spectroscopy, due to their wide broadband transmission that extends from the deep ultraviolet to the long-wave infrared. Barium fluoride's low index of refraction of 1.48 provides high transmission without the need for anti-reflection coatings. Barium fluoride windows can be used up to 800°C in a dry environment, but prolonged exposure to moisture can degrade transmission in the vacuum ultraviolet range. While barium fluoride windows are less resistant to water than calcium fluoride, BaF₂ windows are the most resistant optical fluoride to high-energy radiation, but feature lower UV transmittance. BaF₂ has a Knoop hardness of 82. **Note:** These optical windows are very sensitive to thermal shock.

Material:	BaF ₂ UV Grade
Index of Refraction:	1.48
Clear Aperture:	90%
Dimensional Tolerance:	+0.0/-0.1 mm
Thickness Tolerance:	+/-0.1 mm
Surface Quality:	40-20
Surface Accuracy:	1/2λ
Parallelism:	<1 arcmin

TECHSPEC® BARIUM FLUORIDE (BaF₂) WINDOWS

Diameter (mm)	Thickness (mm)	Stock No.	Prices		26+
			1-5	6-25	
5	1.0	#87-699	\$79.00	\$71.10	Call
12.5	2.0	#87-700	\$125.00	\$112.50	
25	3.0	#87-701	\$195.00	\$175.50	
50	3.0	#87-702	\$495.00	\$445.50	

HIGH CONTRAST IR WIRE GRID POLARIZERS



- **AR Coated for Superior Transmission**
- **High Heat Resistance with Low Thermal Expansion**
- **Feature Wide Angle of Incidence Range without Performance Loss**

High Contrast IR Wire Grid Polarizers are ideal for broadband infrared applications that require high transmission and contrast, including spectroscopy, thermal imaging, or astronomy. High Contrast IR Wire Grid Polarizers are designed using a lightweight, thin, silicon substrate, making them ideal for weight-sensitive systems, such as UAVs. The polarizers' wire grid technology allows the angle of incidence to vary ±20° without displaying performance loss. **Note:** Due to the wire grid being exposed, special care should be taken when handling to prevent damage to the polarizer.

HIGH CONTRAST IR WIRE GRID POLARIZERS

Wavelength Range:	3 - 5µm		7 - 15µm	
Transmission:	T _p >85%, 3.0 - 3.7µm T _p >95%, 3.7 - 5.0µm		T _p >63%, 7.0 - 8.8µm T _p >55%, 8.8 - 15.0µm	
Contrast (min):	5,000:1, 3.0 - 3.7µm 7,000:1, 3.7 - 5µm		10,000:1	
Size	Stock No.	Price	Stock No.	Price
12.5 x 12.5mm	#88-245	\$850.00	#88-248	\$850.00
25 x 25mm	#88-246	\$1,650.00	#88-249	\$1,650.00
50 x 50mm	#88-247	\$2,495.00	#88-250	\$2,495.00

Substrate:	Silicon
Dimensional Tolerance:	±0.4mm
Thickness:	0.7mm
Thickness Tolerance:	±0.07mm
Angle of Incidence:	0° ±20°
Thermal Expansion:	2.6 x 10 ⁻⁶ /°C
Alignment Tolerance:	±2°

OLYMPUS SZX7 ZOOM STEREO MICROSCOPE

- **7:1 Zoom Ratio with Video Adaptability**
- **Long Working Distances**
- **Accessories Expand Magnification from 4X - 336X**

The Olympus SZX7 Zoom Stereo Microscope utilizes a Galilean optical system to provide superior image accuracy at high resolutions. The Olympus SZX7 Zoom Stereo Microscope offers video compatibility for image documentation and boom stand adaptability for precise positioning needs. Additionally, the SZX7 features an integrated click-stop mechanism to recall specific magnification settings. A variety of objective lenses and eyepieces are also available to provide superior image flatness to a wide range of specimens or applications, and to allow for imaging difficult-to-access samples.



NEW

NEW MICROSCOPES

OLYMPUS SZX7 ZOOM STEREO MICROSCOPE

Description	Stock No.	Price
Microscope Body (Required)		
SZX7 Stereo Microscope Body	#88-103	\$1,595.00
Stands (One Required)		
Basic Reflected Light Stand with Reversible Stage Plate	#88-207	\$353.00
Transmitted and Reflected LED Light Stand	#88-208	\$1,065.00
Observation Tubes (One Required)		
30° Binocular Observation Tube	#88-106	\$1,495.00
30° Trinocular Observation Tube (Camera Adapter Required)	#88-107	\$2,825.00
Eyepieces (Two Required)		
10X Widefield Eyepiece	#88-108	\$145.00
15X Widefield Eyepiece	#88-109	\$195.00
20X Widefield Eyepiece	#88-110	\$245.00
30X Widefield Eyepiece	#88-111	\$295.00
Objectives (One Required)		
1X Achromatic Objective Lens	#88-112	\$595.00
1.25X Achromatic Objective Lens	#88-113	\$625.00
0.75X Plan Achromatic Objective Lens	#88-114	\$1,050.00
2X Plan Achromatic Objective Lens	#88-115	\$1,425.00
1X Plan Apochromatic Objective Lens	#88-116	\$1,050.00
Camera Adapters (One Required for Video/Image Capture)		
1X Camera Adapter w/ C-mount Coupler	#88-209	\$245.00
0.63X C-Mount Adapter	#88-119	\$725.00
0.5X C-Mount Adapter	#88-120	\$725.00
Optional Accessories		
Ball & Socket Stage for Basic Light Stand	#88-123	\$275.00

OLYMPUS SZX7 SYSTEM SPECIFICATIONS

Objective Lens	10X Eyepiece		15X Eyepieces		20X Eyepieces		30X Eyepieces	
	F.N. 22		F.N. 16		F.N. 12.5		F.N. 7	
	Magnification	FOV (mm)						
0.5X	4X - 28X	55 - 7.8	6X - 42X	40 - 5.7	8X - 56X	31.3 - 4.5	12X - 84X	17.5 - 2.5
0.75X	6X - 42X	36.7 - 5.2	9X - 63X	26.7 - 3.8	12X - 84X	20.8 - 3	18X - 126X	11.7 - 1.7
1X	8X - 56X	27.5 - 3.9	12X - 84X	20 - 2.9	16X - 112X	15.6 - 2.2	24X - 168X	8.8 - 1.3
1.25X	10X - 70X	22 - 3.1	15X - 105X	16 - 2.3	20X - 140X	12.5 - 1.8	30X - 210X	7.0 - 1.0
1.5X	12X - 84X	18.3 - 2.6	18X - 126X	13.3 - 1.9	24X - 168X	10.4 - 1.5	36X - 252X	5.8 - 0.83
2X	16X - 112X	13.8 - 1.9	24X - 168X	10 - 1.4	32X - 224X	7.8 - 1.1	48X - 336X	4.4 - 0.63

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NEW



OLYMPUS SZ51 AND SZ61 ZOOM STEREO MICROSCOPES

- **Variable Magnification Ranges**
- **Trinocular Design Available for Camera Compatibility**
- **Multiple Mounting Stands and Configurations**

Olympus SZ51 and SZ61 Zoom Stereo Microscopes are used in the life sciences to provide superior image quality with ample depth of field for a variety of biological microscopy applications. Olympus SZ51/SZ61 Zoom Stereo Microscopes utilize a 10° angle of convergence Greenough optical system to feature excellent field flatness, along with high clarity, strong detail, and accurate color. Each microscope features convenient front-access controls, a zoom knob stopper for quickly repeatable magnification changes and a comfortable eye-piece design that features pupil aberration control and appropriate positioning at the eye.

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TECHSPEC® 4.5mm COMPACT FIXED FOCAL LENGTH LENS

NEW IMAGING LENSES

NEW



- Industry Leading Price to Performance Ratio
- Designed for True Factory Automation
- Supports up to 1/4.8" Sensors

TECHSPEC® 4.5mm COMPACT FIXED FOCAL LENGTH LENS

Focal Length:	4.5mm
Maximum Camera Sensor Format:	1/4.8"
Field of View, 1/4.8" Sensor:	72.0mm - 84.6°
Field of View, 1/2" Sensor:	61.9mm - 76.7°
Field of View, 1/3" Sensor:	44.0mm - 59.2°
Working Distance:	25mm - ∞
Aperture (f/#):	f2.0-11
Filter Thread:	M58 x 0.75 with required adapter, #87-425
Lens Mount:	C-Mount
Outer Diameter:	40.0mm
Length:	37.5 (including protruding front element)
Stock No.	#86-900
Price	\$495.00

Visit our website for our complete offering of Compact Fixed Focal Length Lenses

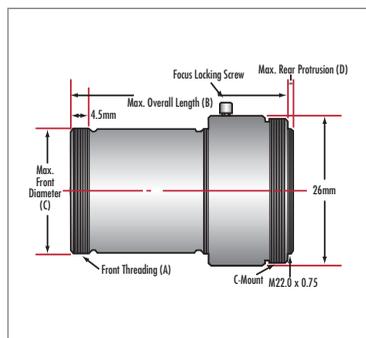
TECHSPEC® COMPACT INSTRUMENTATION IMAGING LENSES

NEW



- Compact, Streamlined Versions of Compact Fixed Focal Length Imaging Lenses
- Designed for Instrumentation Integration
- Wide Range of Fixed Aperture Options

Featuring low lens-to-lens variation and a broadband anti-reflection (AR) coating for maximum light transmission, TECHSPEC® Compact Instrumentation Imaging Lenses are ideal for a wide range of applications. An adjustable, lockable focus enables setting the best focus position prior to integrating into instrumentation, avoiding future adjustments. The wide range of fixed aperture options ensures maximum flexibility of resolution, throughput, and depth of field.



DIMENSIONS

Focal Length	A	B	C	D
6	M34.0 x 0.5mm	47.8mm	34.0mm	1.17mm
12	M22.0 x 0.75mm	29.0mm	22.0mm	0.96mm
16	M22.0 x 0.75mm	40.8mm	22.0mm	1.09mm
25	M22.0 x 0.75mm	29.9mm	22.0mm	1.33mm
35	M25.5 x 0.5mm	41.0mm	22.5mm	3.82mm

TECHSPEC® COMPACT INSTRUMENTATION IMAGING LENSES

Focal Length FL (mm):	6	12	16	25	35	
Max. Sensor Format:	1/4.8"	2/3"	2/3"	2/3"	2/3"	
FOV* Max Sensor Size:	141.0mm - 75.4°	159.4mm - 41.1°	61.4mm - 30.9°	35mm - 19.8°	39.3mm - 14.3°	
FOV* Range on 1/2" Sensor:	124.0mm - 68°	115.0mm - 30.3°	44.5mm - 22.7°	25.4mm - 14.5°	28.5mm - 10.4°	
FOV* Range on 1/3" Sensor:	90.0mm - 53.0°	85.9mm - 22.9°	33.3mm - 17.1°	19mm - 10.9°	21.4mm - 7.8°	
Working Distance:	75mm - ∞	200mm - ∞	100mm - ∞	100mm - ∞	165mm - ∞	
Stock Number	f1.4	#86-591	-	#85-348	#85-355	-
	f1.65	-	-	-	-	#85-362
	f1.8	#86-592	#86-607	#85-349	#85-356	#85-363
	f2.8	#86-593	#86-608	#85-350	#85-357	#85-364
	f4	#86-594	#86-609	#85-351	#85-358	#85-365
	f5.6	#86-595	#86-610	#85-352	#85-359	#85-366
	f8	#86-596	#86-611	#85-353	#85-360	#85-367
	f11	-	-	#85-354	#85-361	#85-368
Prices	f16	-	-	#85-336	#85-337	#85-338
	1-10	\$380.00	\$280.00	\$280.00	\$280.00	\$280.00
	11-24	\$350.00	\$250.00	\$250.00	\$250.00	\$250.00
	25-49	\$320.00	\$220.00	\$220.00	\$220.00	\$220.00
	50-99	\$295.00	\$195.00	\$195.00	\$195.00	\$195.00
100+	Call For OEM Quantity Pricing					

POINT GREY GRASSHOPPER®3 HIGH PERFORMANCE USB 3.0 CAMERAS

- Feature High Resolution, High Sensitivity CCD Sensors
- High Frame Rates Driven by USB 3.0 Interface
- Includes Image Capture Software and SDK

Point Grey Grasshopper®3 High Performance USB 3.0 Cameras are high speed, 14bit imaging cameras designed for demanding machine vision applications including metrology, gauging, or inspection. Point Grey Grasshopper®3 High Performance USB 3.0 Cameras feature a 128MB image buffer along with 2MB of flash memory. In addition to onboard image processing that includes color interpolation, gamma, and lookup table functionality, additional functionality is available using the included image capture software and SDK. USB 3.0 cameras are ideal alternatives for Camera Link systems. **Note:** USB 3.0 cable (sold separately) is required for operation.



NEW

NEW CAMERAS

POINT GREY GRASSHOPPER®3 HIGH PERFORMANCE USB 3.0 CAMERAS

Model Number:	GS3-U3-28S4C/M-C		GS3-U3-28S5C/M-C		GS3-U3-60S6M/C-C		GS3-U3-91S6M/C-C	
Imaging Device:	Progressive Scan		Progressive Scan		Progressive Scan		Progressive Scan	
Camera Sensor Format:	1/1.8"		2/3"		1"		1"	
Type of Sensor:	Sony ICX687 CCD		Sony ICX674 CCD		Sony ICX694 CCD		Sony ICX814 CCD	
Pixels (H x V):	1928 x 1448		1920 x 1440		2736 x 2192		3376 x 2704	
Pixel Size, H x V (µm):	3.69		4.54		4.54		3.69	
Frame Rate (fps):	26		26		13		9	
Mono	#88-049	\$1,350.00	#88-051	\$2,350.00	#88-053	\$3,550.00	#88-055	\$3,850.00
Color	#88-050	\$1,350.00	#88-052	\$2,350.00	#88-054	\$3,550.00	#88-056	\$3,850.00

ACCESSORIES

Description	Stock No.	Price
USB3.0 PCIe 2.0 x1 2 Port Card	#86-769	\$125.00
USB3.0 Locking Cable, 3m	#86-770	\$25.00
Grasshopper Tripod Mount	#88-057	\$20.00
USB3.0 Locking Cable, 5m	#88-058	\$35.00
8-pin GPIO Hirose Connector, 1m Cable	#88-059	\$65.00
8-pin GPIO Hirose Connector, 4.5m Cable	#88-060	\$85.00
Flea & Grasshopper Power Supply	#88-062	\$125.00

Pixel Depth:	8, 12, 16 and 24-bit digital data
Type of Shutter:	Global shutter
Electronic Shutter:	0.03 ms to 30 seconds
Transfer Speed:	5 Gbit/s
Image Buffer:	128 MB frame buffer
Flash Memory:	2 MB non-volatile memory
Synchronization:	External or Via Software
Video Output:	USB 3.0 interface with screw locks
Lens Mount:	C-Mount
Dimensions:	44 x 29 x 58mm
Operating Temperature:	0° to 50°C
Storage Temperature:	-30° to 60°C
Weight:	90g

POINT GREY BLACKFLY™ POE GigE CAMERAS

- Ultra-Compact Design
- Power over Ethernet (POE) for Maximum Flexibility
- Includes Image Capture Software and SDK

Point Grey Blackfly™ POE GigE Cameras are lightweight, cost effective solutions for space-sensitive imaging applications. Point Grey Blackfly™ POE GigE Cameras have a variety of features that are ideal for integration into machine vision systems including a 16MB image buffer in addition to on-camera imaging processing. These GigE Vision standard compliant cameras include capture software and SDK, and are compatible with Windows and Linux systems. **Note:** Two GigE cables are required if using the POE injector.



NEW

POINT GREY BLACKFLY™ POE GIGE CAMERAS

Model Number:	BFLY-PGE-05S2M/C-CS		BFLY-PGE-09S2M/C-CS		BFLY-PGE-13E4M-CS	
Imaging Device:	Progressive Scan		Progressive Scan		Progressive Scan	
Camera Sensor Format:	1/3"		1/3"		1/1.8"	
Type of Sensor:	Sony ICX693 CCD		Sony ICX692 CCD		e2v EV76C560 CMOS	
Pixels (H x V):	808 x 608		1288 x 728		1280 x 1024	
Pixel Size, H x V (µm):	6.0µm		4.08µm		5.3µm	
Frame Rate (fps):	50		30		60	
Electronic Shutter:	0.038ms to 3 seconds		0.1ms to 3 seconds		0.015ms to 1 second	
Mono	#88-039	\$525.00	#88-041	\$525.00	#88-043	\$550.00
Color	#88-040	\$525.00	#88-042	\$525.00	#88-044	\$550.00

ACCESSORIES

Description	Stock No.	Price
Power over Ethernet Injector (requires 2 GigE Cables)	#88-469	\$75.00
Cat 6 GigE Cable, 5m	#88-470	\$55.00
CS to C-Mount Adapter	#03-618	\$20.00
Blackfly 12V, 1.5A Power Supply	#88-063	\$95.00
6-pin GPIO Hirose Connector, 1m Cable	#88-064	\$45.00
6-pin GPIO Hirose Connector, 4.5m Cable	#88-065	\$55.00
6-pin GPIO Hirose Connector	#88-066	\$25.00

Pixel Depth:	8, 12, 16 and 24-bit digital data
Transfer Speed (Mbit/s):	10/100/1000
Type of Shutter:	Global shutter
Image Buffer:	16MB frame buffer
Flash Memory:	512 KB non-volatile memory
Synchronization:	External or Via Software
Video Output:	GigE/PoE with Screw Locks
Lens Mount:	CS-Mount
Dimensions:	29 x 29 x 30mm
Operating Temperature:	0 to 45°C
Storage Temperature:	-30 to 60°C
Weight (g):	90g

Visit WWW.EDMUNDOPTICS.COM/NEW-PRODUCTS for even more new products and availability

NEW



- Contains Necessary Parts to Build Basic Optomechanical Systems
- Ideal for Experimentation or Prototyping
- Includes Mounting Options for 12.5mm and 25mm Optical Components

The TECHSPEC® Cage System Components Kit contains an assortment of TECHSPEC® Optical Cage System components, including plates, rods, mounts, and the accessories needed to construct basic optomechanical systems. Designed to simplify the selection and purchase process, the TECHSPEC® Cage System Components Kit is ideal for researchers, engineers, or educators, and for demonstration or prototyping purposes.

Note: A storage cabinet is included that provides room for expansion. Adapter plates are also included that allow the TECHSPEC® Optical Cage System to be easily interfaced with an existing cage system.

TECHSPEC® CAGE SYSTEM COMPONENTS KIT

Description	Stock No.	Price
Basic Components Kit	#87-314	\$1,499.00

CONTENTS OF COMPONENTS KIT

Description	Usage	Stock No.	Quantity
25mm Standard Cage Mounting Plate	Basic Cage Construction Plate with M6 tapped hole	#85-632	8
30mm Standard Cage Mounting Plate	Basic Cage Construction Plate with M6 tapped hole	#85-630	8
30mm Square Mounting Plate	Interface for cage sphere and provides larger rod spacing than standard plate	#85-737	2
30mm Angle Plate	Used to introduce 30°, 60°, or 90° bends in the optical path	#85-622	2
Insertion Plate	Allows additions to a cage system without the need for disassembling the rods	#85-643	1
Filter Holder Plate	Easily swap filters within a cage system	#86-018	1
Interchangeable Filter Holder	Easily swap filters within a cage system	#85-649	2
Cage System Adapter Plate	Adapts 30mm rod spacing of other cage systems to the TECHSPEC® Optical Cage System	#86-846	2
C-Mount Adapter	Allows for easy interface to C-mount components	#85-719	4
Cage Sphere w/ 30mm Ports (x5), 43mm Port (x1)	Cube for intersecting optical paths	#85-624	1
30mm Port Cover	Cover for unused cube ports	#85-627	1
Plate Corner Connector	Used to connect cage plates at 90° angles	#85-664	8
12.5mm Dia. Lens Mount	Lens mounts designed to fit into cage plates	#85-549	2
12.7mm Dia. Thick Lens Mount	Lens mounts designed to fit into cage plates	#85-547	2
25/25.4mm Dia. Lens Mount	Lens mounts designed to fit into cage plates	#85-587	2
25/25.4mm Dia. Thick Lens Mount	Lens mounts designed to fit into cage plates	#85-588	2
25mm Simple Optic Mount	Lens mounts designed to fit into cage plates	#85-510	1
25/25.4mm Cube Beamsplitter Mount	Cube beamsplitter mount fits within 25mm cage plates	#85-688	1
6mm Dia. x 50mm Length Cage Rod	Polished 440 stainless steel rods for basic cage construction	#85-486	2
6mm Dia. x 100mm Length Cage Rod	Polished 440 stainless steel rods for basic cage construction	#85-488	4
6mm Dia. x 120mm Length Cage Rod	Polished 440 stainless steel rods for basic cage construction	#85-489	6
6mm Dia. x 150mm Length Cage Rod	Polished 440 stainless steel rods for basic cage construction	#85-490	6
6mm Dia. x 300mm Length Cage Rod	Polished 440 stainless steel rods for basic cage construction	#85-492	4
Blank Disk	Block beam path or to customize a simple mount	#85-539	1
M3 x 0.5 x 2.5mm Socket Head Set Screw	Used to lock 6mm rods in place	–	100
M3 x 0.5 x 6mm Socket Head Set Screw	Used to secure optic mounts and accessories	–	50
M3 x 0.5 x 10mm Socket Head Cap Screw	Used to assemble cage components	–	50
Allen Key for M3 SHSS	Tools for cage assembly	#55-452	1
Allen Key for M3 SHCS	Tools for cage assembly	#57-445	1
Optical Component Cabinet	Storage cabinet for the cage system components kit	#59-815	1

START BUILDING NOW! Visit www.edmundoptics.com/87-314