

# WHAT'S **NEW** IN OPTICS

Thousands of New Products Online,  
Latest Technology Inside



**TECHSPEC®**

**TECHSPEC® Unmounted Fluorescence  
Bandpass Filters**

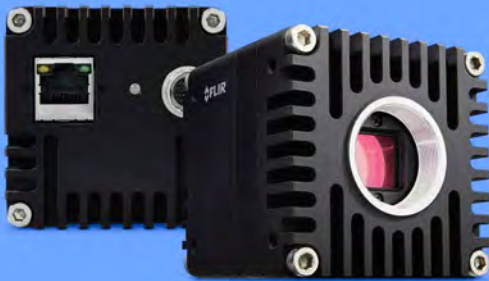
Page 2



**TRUMPF TruPulse nano Pulsed Fiber Lasers**

Page 13

 **TELEDYNE**



**FLIR Oryx® 10GigE Cameras**

Page 14

**OLYMPUS**



**Olympus CX43 Biological Microscope**

Page 7

Contact us today!

**USA:** +1-856-547-3488 | **EUROPE:** +44 (0) 1904 788600  
**ASIA:** +65 6273 6644 | **JAPAN:** +81-3-3944-6210

 **Edmund**  
optics | worldwide

[www.edmundoptics.com/new-products](http://www.edmundoptics.com/new-products)

**NEW**



- **Designed for Use With Common Fluorophores**
- **Excitation and Emission Filters Available**
- **High Transmission with Deep >OD 6.0 Blocking**

TECHSPEC® Unmounted Fluorescence Bandpass Filters are designed with center wavelengths and bandwidths that match the excitation and emission wavelengths of common fluorophores. These filters feature high transmission up to >93% in their passband with deep >OD 6.0 blocking outside of their passband, resulting in high contrast images when used in fluorescence imaging systems. The low transmitted wavefront error of these filters further enhances image quality by minimizing image distortion. TECHSPEC® Unmounted Fluorescence Bandpass Filters are available with a 12.5 or 25mm diameter and are ideal for integration into life science and biotech instrumentation including polymerase chain reaction (PCR) testing platforms, DNA sequencers, fluorescence detectors, flow cytometers, and fluorescence imaging systems.

**Substrate:** UV Grade Fused Silica  
**Clear Aperture (%):** 90  
**Diameter Tolerance (mm):** ±0.1  
**Thickness (mm):** 2.00 ±0.1  
**Optical Density OD (Average):** ≥6.0

**Surface Quality:** 60-40  
**AOI (°):** 0 ±5  
**Blocking Wavelength Range (nm):** 250 - 1100  
**Environmental Durability:** MIL-STD-810F, Section 507.4  
**Physical Durability:** MIL-C-48497A, Section 3.4.1  
**Transmitted Wavefront, RMS:** λ/4

**TECHSPEC® Unmounted Fluorescence Bandpass Filters**

CWL (nm)	Bandwidth (nm)	FWHM (Typical)	Transmission (% Average over Bandwidth)	12.5mm Diameter			25mm Diameter			Compatible Fluorophore
				Stock No.	1-5	6-25	Stock No.	1-5	6-25	
357	44	48	≥75	#18-366	\$225.00	\$190.00	#18-384	\$285.00	\$240.00	Tryptophan Emission
370	36	40	≥85	#18-367	\$225.00	\$190.00	#18-385	\$285.00	\$240.00	Sirius Excitation
387	11	15	≥90	#18-368	\$225.00	\$190.00	#18-386	\$285.00	\$240.00	DAPI Excitation / BFP & GFP Excitation
448	20	25	≥93	#18-369	\$225.00	\$190.00	#18-387	\$285.00	\$240.00	442nm Laser Excitation
472	30	35	≥93	#18-370	\$225.00	\$190.00	#18-388	\$285.00	\$240.00	GFP Excitation
482.5	31	36	≥93	#18-371	\$225.00	\$190.00	#18-389	\$285.00	\$240.00	FITC Excitation / CFP Emission
520	36	41	≥93	#18-372	\$225.00	\$190.00	#18-390	\$285.00	\$240.00	GFP Emission
534	20	25	≥93	#18-373	\$225.00	\$190.00	#18-391	\$285.00	\$240.00	SpectrumGold™ Excitation
534.5	43	48	≥93	#18-374	\$225.00	\$190.00	#18-392	\$285.00	\$240.00	Cy3 Excitation / FITC Emission
572	28	33	≥93	#18-375	\$225.00	\$190.00	#18-393	\$285.00	\$240.00	SpectrumGold™ Emission
586	20	26	≥93	#18-376	\$225.00	\$190.00	#18-394	\$285.00	\$240.00	SpectrumOrange™ Emission / SpectrumRed™ Excitation
615	20	26	≥93	#18-377	\$225.00	\$190.00	#18-395	\$285.00	\$240.00	Alexa Fluor® 594 Emission / Cy3 Emission
623	24	30	≥93	#18-378	\$225.00	\$190.00	#18-396	\$285.00	\$240.00	Cy5 Excitation / Texas Red® Emission
624	40	46	≥93	#18-379	\$225.00	\$190.00	#18-397	\$285.00	\$240.00	Texas Red Emission / Cy5 Excitation
628	32	38	≥93	#18-380	\$225.00	\$190.00	#18-398	\$285.00	\$240.00	SpectrumRed™ Emission / Cy5 Excitation
676	29	36	≥93	#18-381	\$225.00	\$190.00	#18-399	\$285.00	\$240.00	Cy5 Emission
692	40	47	≥93	#18-382	\$225.00	\$190.00	#18-400	\$285.00	\$240.00	Cy5 Emission
832	37	45	≥93	#18-383	\$235.00	\$199.50	#18-401	\$295.00	\$250.00	ICG-A Excitation

**Coherent® Single Frequency OBIS™ LX Laser Systems**

**NEW**



- **Single Frequency, Collimated, TEM<sub>00</sub> Output Beam**
- **Long Coherence Length >1 Meter**
- **Excellent Signal-to-Noise Ratio**

Coherent® Single Frequency OBIS™ LX Laser Systems incorporate Coherent's SureLock™ volume holographic grating (VHG) stabilized laser diodes to deliver consistent, single frequency performance in the same form factor as all other OBIS LX/LS platforms. Available in 405, 633, and 660nm, these laser systems excel in application spaces requiring very low RMS signal-to-noise of less than 0.05%. An excellent alternative to stabilized HeNe lasers, each laser is stabilized using Coherent's PowerLocker® volume holographic grating ensuring precise and stable center wavelengths, low temperature dependence, and consistent optical performance. Coherent® Single Frequency OBIS™ LX Laser Systems are ideal for applications such as confocal microscopy, DNA sequencing, flow cytometry, and interferometry and are compatible with all other OBIS LX/LS power supplies, accessories, and software.

<b>Spatial Mode:</b> TEM <sub>00</sub>	<b>RMS Noise (%) (20Hz to 20MHz):</b> ≤0.05	<b>Laser Safety Classification:</b> 3b
<b>Warm-up Time:</b> <5 min.	<b>Peak-to-Peak Noise (%) (20Hz to 20MHz):</b> <0.5	<b>Pointing Stability:</b> <30µrad
<b>ESD Protection:</b> EN61326-1	<b>Operating Temperature (°C):</b> 10 to 50	<b>Polarization Ratio:</b> 100:1 (minimum)

**Coherent® Single Frequency OBIS™ LX Laser Systems**

Wavelength (nm)	Output Power (mW)	Beam Quality, M <sup>2</sup>	Beam Dia. @ 1/e <sup>2</sup> (mm)	Line Width (MHz) (typical)	Line Width (pm) (maximum)	Coherent Model No.	Stock No.	Price
405	40	≤1.5	0.4	160	0.3	1448284	#18-722	\$6,819.00
633	70	≤1.3	0.5	150	0.3	1448283	#18-723	\$4,195.00
660	35	≤1.4	1.1	300	1.5	1447430	#18-724	\$4,195.00

**Accessories**

\*Coherent® Single Frequency OBIS™ LX Laser Systems are compatible with all OBIS™ Accessories

Description	Coherent Model No.	Stock No.	Price
Coherent® OBIS™ Heat Sink with Integrated Cooling Fan	1193289	#87-474	\$395.00
Coherent® OBIS™ Remote with DC Power Supply & Power Cord (CDRH)	1214875	#87-473	\$595.00
Coherent® OBIS™ DC Power Supply and Power Cord (Non-CDRH)	1214874	#87-472	\$84.00

## Laser Alignment Eyewear

- **Increased Visibility of Discrete Wavelengths for Laser Alignment**
- **CE Certified Laser Radiation Protection**
- **Available in Fit Over Rx Glasses and Adjustable Wrap Around Styles**

Laser Alignment Eyewear provide a balance of protection and visibility with reduced optical densities at discrete wavelengths compared to Laser Safety Eyewear, allowing for alignment of visible lasers. These eyewear products feature durable lenses molded with laser-protective absorptive dyes, which prevents surface scratches from affecting lens performance. Multiple lens designs are available that offer alignment beam visibility at Nd:YAG and diode laser lines including 532nm, 561nm, and 650nm. Laser Alignment Eyewear products are CE certified and come in a protective hard case with an included neck cord and microfiber cloth.



NEW

### Laser Alignment Eyewear

Filter	Color	Optical Density (Average)	Visible Light Transmission VLT (%)	Adjustable Temples Wrap Around Frame		Fit Over Rx Glasses		Adjustable Bridge Wrap Around Frame	
				Stock No.	Price	Stock No.	Price	Stock No.	Price
LA01	Topaz	>5 @ 190 - 400nm >2 @ 518 - 523nm >2 @ 533 - 536nm >3 @ 524 - 532nm	47	#17-627	\$170.50	#17-631	\$170.50	#17-635	\$170.50
LA02	Aqua	>5 @ 190 - 400nm >3 @ 625 - 660nm	32	#17-628	\$126.50	#17-632	\$126.50	#17-636	\$126.50
LA03	Purple	>6 @ 190 - 400nm >3 @ 532nm >3 @ 561nm >2 @ 654 - 664nm >3 @ 659nm	10	#17-629	\$159.50	#17-633	\$159.50	#17-637	\$159.50
LA04	Amber	>5 @ 190 - 400nm >3 @ 532nm >4 @ 808 - 850nm >5 @ 851 - 1075nm >6 @ 910 - 980nm >7 @ 981 - 1070nm	33	#17-630	\$231.00	#17-634	\$231.00	#17-638	\$231.00

## Near Infrared (NIR) Detection YAGLASS-T Filters

- **Convert NIR Light to Visible Light**
- **Minimum Sensitivity of 30mW/mm<sup>2</sup> @ 1064nm for Emission**
- **Ideal Alternative to Laser Detection Cards for High Power Applications**

Near Infrared (NIR) Detection YAGLASS-T Filters convert near-infrared (NIR) light between 900 - 1070nm to visible light with emission at 550 and 660nm. These nanocrystal doped glass filters emit visible light with as little as 30mW/mm<sup>2</sup> of incident light at 1064nm without blooming or requiring pre-charging. The high transparency of the glass allows for beam size, shape, and mode to be easily viewed. NIR Detection YAGLASS-T Filters have a high damage threshold of 51 J/cm<sup>2</sup> @ 1064nm, 10ns, making them an ideal alternative to Laser Detection Cards in high power laser applications with NIR lasers including Nd:YAG, Nd:doped, and Yb:doped lasers. NIR Detection YAGLASS-T Filters are available in standard 12.5 and 25mm diameter sizes; please contact us if your application requires custom dimensions.



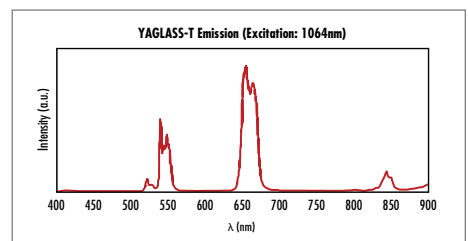
NEW

<b>Substrate:</b>	YAGLASS-T	<b>Excitation Wavelength (nm):</b>	900 - 1070
<b>Diameter Tolerance (mm):</b>	±0.10	<b>Peak Emission Wavelengths (nm):</b>	550, 660
<b>Thickness Tolerance (mm):</b>	±0.10	<b>Index of Refraction n<sub>d</sub>:</b>	1.539

**Minimum Sensitivity:** 30 mW/mm<sup>2</sup> @ 1064nm  
**Transformation Temperature (°C):** 584

### Near Infrared (NIR) Detection YAGLASS-T Filters

Diameter (mm)	Thickness (mm)	Stock No.	Price	
			1-9	10-25
12.5	3.00	#17-254	\$250.00	\$225.00
25.0	3.00	#17-255	\$395.00	\$355.50



## UltraFast Innovations (UFI) Third Order Dispersion (TOD) Ultrafast Mirrors

NEW



- **Highly Negative Third Order Dispersion (TOD) up to  $-2500\text{fs}^3$  at  $7^\circ$  AOI**
- **Ideal to Compensate for TOD without Introducing Additional GDD**
- **Low Group Delay Dispersion (GDD) of  $0\text{fs}^2$**

UltraFast Innovations (UFI) Third Order Dispersion (TOD) Ultrafast Mirrors provide high throughput, zero group delay dispersion (GDD) and highly negative third order dispersion. These TOD mirrors compensate for the dispersion typically introduced by grating compressors for pulse durations below 50 femtoseconds. At an angle of incidence of  $7^\circ$ , these mirrors feature high reflectance  $>99.9\%$  for p-polarization to limit losses in laser compressors. UltraFast Innovations (UFI) Third Order Dispersion Ultrafast Mirrors are ideal to compensate for TOD without introducing additional GDD. Please contact us if your laser system requires a custom size, wavelength, or pulse profile.

<b>Substrate:</b>	Fused Silica	<b>Thickness Tolerance (mm):</b>	$\pm 0.05$	<b>Surface Quality:</b>	10-5
<b>Diameter Tolerance (mm):</b>	$+0.00/-0.05$	<b>Clear Aperture (%):</b>	80	<b>Irregularity (P-V) @ 632.8nm:</b>	$\lambda/10$
<b>Thickness (mm):</b>	6.35	<b>Back Surface:</b>	Commercial Polish	<b>Wedge (arcmin):</b>	10

### UltraFast Innovations (UFI) Third Order Dispersion (TOD) Ultrafast Mirrors

DWL (nm)	Diameter (mm)	AOI ( $^\circ$ )	Wavelength Range (nm)	GDD ( $\text{fs}^2$ , p-polarization)	TOD ( $\text{fs}^3$ , p-polarization)	Reflection @ DWL (%)	Stock No.	Price	
								1-9	10+
800	25.4	7	740 - 860	0	-2500	$>99$	#17-065	\$950.00	\$855.00

## UltraFast Innovations (UFI) Highly-Dispersive Ultrafast Mirrors with Reduced Thermal Lensing

NEW



- **Ultrafast Highly-Dispersive Coating with Reduced Thermal Lensing**
- **Highly Negative GDD up to  $-1000\text{fs}^2$  at  $5^\circ$  AOI**
- **$>99.5\%$  Minimum Reflection (P-Polarization) across 50nm Bandwidth**

UltraFast Innovations (UFI) 1030nm Highly-Dispersive Ultrafast Mirrors with Reduced Thermal Lensing provide a GDD of  $-1000\text{fs}^2$  and low loss with negligible thermal effects. Thermal lensing can occur if an active gain medium is hotter along the beam axis than the rest of the medium, resulting in a transverse refractive index gradient. This can misalign the laser cavity and lead to different laser mode profiles and drifts in beam pointing. These mirrors are designed to provide a high degree of control over beam stability and feature reflectance  $>99.5\%$  (P-polarization) between 1010 - 1050nm. At a design angle of incidence (AOI) of  $5^\circ$ , these mirrors maximize the number of reflections between a pair of ultrafast mirrors and allow for pulse compression while limiting thermal lensing. UltraFast Innovations (UFI) 1030nm Highly-Dispersive Ultrafast Mirrors with Reduced Thermal Lensing are ideal for intra-cavity applications, ultrafast high energy oscillators, and amplifiers such as Yb:YAG thin-disk laser systems. Please contact us if your laser system requires a custom size, wavelength, or pulse profile.

<b>Substrate:</b>	Fused Silica	<b>Thickness Tolerance (mm):</b>	$\pm 0.05$	<b>Surface Quality:</b>	20-10
<b>Diameter Tolerance (mm):</b>	$+0.00/-0.05$	<b>Clear Aperture (%):</b>	80	<b>Irregularity (P-V) @ 632.8nm:</b>	$\lambda/10$
<b>Thickness (mm):</b>	6.35	<b>Back Surface:</b>	Commercial Polish	<b>Wedge (arcmin):</b>	10

### UltraFast Innovations (UFI) Highly-Dispersive Ultrafast Mirrors with Reduced Thermal Lensing

DWL (nm)	Diameter (mm)	AOI ( $^\circ$ )	Wavelength Range (nm)	GDD ( $\text{fs}^2$ , p-polarization)	Reflection @ DWL (%)	Stock No.	Price	
							1-9	10+
1030	25.4	5	1010 - 1050	-1000	$>99.5$	#17-070	\$945.00	\$850.50

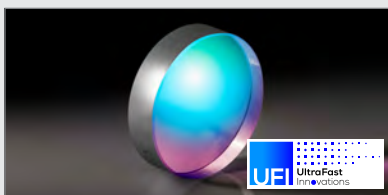
## So Much More Online...



### UFI Positive Dispersion Ultrafast Mirrors

- Positive GDD of  $100\text{fs}^2$  at  $5^\circ$  AOI
- High Reflectance  $>99.5\%$  for S and P Polarizations
- Broadband Performance for 700 - 1100nm

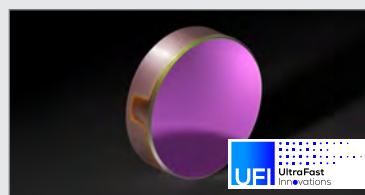
[www.edmundoptics.com/4157](http://www.edmundoptics.com/4157)



### UFI 255-277nm Negative Dispersion UV Ultrafast Mirrors

- Negative GDD of  $-145\text{fs}^2$  at  $5^\circ$  AOI
- Ideal for Pulse Compression or Dispersion Compensation of UV Ultrafast Laser Beams

[www.edmundoptics.com/4158](http://www.edmundoptics.com/4158)



### UFI 3200nm Highly-Positive Dispersive Ultrafast Mirrors

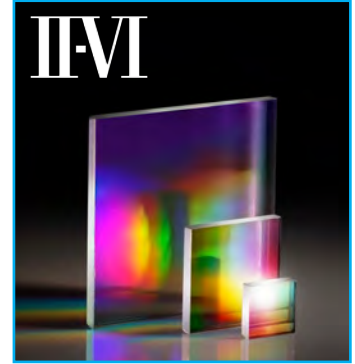
- Positive GDD of  $500\text{fs}^2$  at  $5^\circ$  AOI
- $>99.9\%$  Minimum Reflection (P-Polarization)
- Broadband Mid-IR Coating Design Covers 2800 - 3600nm

[www.edmundoptics.com/4160](http://www.edmundoptics.com/4160)

## II-VI LightSmyth™ Transmission Diffraction Gratings

- **High Diffraction Efficiency (>94% Absolute) and Low Scatter**
- **Polarization Independent and Single Polarization Optimized Gratings**
- **Robust Inorganic Materials for Superior Power Handling and Reliability**

II-VI LightSmyth™ Transmission Diffraction Gratings are manufactured through a precision lithographic wafer-scale fabrication process and provide excellent optical performance, low polarization sensitivity, and low scatter. These gratings have a high diffraction efficiency of  $\geq 94\%$ , minimizing optical losses when used in multi-pass configurations. Gratings designed for near infrared (NIR) wavelengths between 800 - 1800nm are available with all featuring a precision line density uniformity of 0.001 lines/mm. II-VI LightSmyth™ Transmission Diffraction Gratings are used in demanding applications including Spectral Beam Combining (SBC), LiDAR, optical telecommunications, pulse compression of pico- and femtosecond pulses, and spectroscopy. These gratings contain no organic materials and can be used with high power lasers and in environments up to 500 °C with no effects on performance. Please contact us for custom sizes or OEM requirements.



NEW

<b>Substrate:</b>	Fused Silica	<b>Surface Quality:</b>	60-40
<b>Thickness Tolerance (mm):</b>	$\pm 0.050$	<b>AOI Tolerance (°):</b>	$\pm 1$
<b>Clear Aperture (%):</b>	See web	<b>Alignment of Grooves to Edge (°):</b>	0.1 (typical)

### II-VI LightSmyth™ Transmission Diffraction Gratings

\*S-Polarization defined with E-field parallel to the grating grooves.

Dimensions (mm)	Thickness (mm)	Grooves/mm	DWL (nm)	Polarization*	AOI (°)	Stock No.	Price
12.70 x 12.70	0.95	1398.6	800 $\pm$ 20	S and P	34	#16-859	\$350.00
24.00 x 14.90	0.95	1398.6	800 $\pm$ 20	S and P	34	#16-860	\$495.00
130.00 x 14.90	0.95	1398.6	800 $\pm$ 20	S and P	34	#16-861	\$2,795.00
24.80 x 15.80	0.68	1503.76	875 $\pm$ 20	S and P	41	#16-862	\$495.00
31.80 x 12.30	0.95	1600	1030 $\pm$ 10	S	55.5	#16-863	\$495.00
31.80 x 20.20	0.95	1600	1030 $\pm$ 10	S	55.5	#16-866	\$950.00
31.80 x 24.80	0.95	1600	1030 $\pm$ 10	S	55.5	#16-864	\$950.00
120.00 x 20.00	0.95	1600	1030 $\pm$ 10	S	55.5	#16-865	\$3,595.00
130.00 x 15.00	0.95	1739.13	1030 $\pm$ 10	S	63.6	#16-867	\$2,795.00
12.30 x 12.30	0.95	1000	1040 $\pm$ 20	S and P	31.3	#16-868	\$295.00
31.80 x 12.30	0.95	1000	1040 $\pm$ 20	S and P	31.3	#16-869	\$495.00
31.80 x 24.80	0.95	1000	1040 $\pm$ 20	S and P	31.3	#16-870	\$950.00
120.00 x 20.00	0.95	1000	1040 $\pm$ 20	S and P	31.3	#16-871	\$3,295.00
12.30 x 12.30	0.95	1600	1060 $\pm$ 20	S	58	#16-872	\$295.00
27.00 x 10.00	0.68	1201.2	1275 - 1345	S and P	52	#16-873	\$425.00
24.00 x 14.00	0.68	940.07	1525 - 1565	S and P	46.5	#16-874	\$495.00
27.00 x 10.00	0.68	966.18	1525 - 1565	S and P	48.3	#16-875	\$495.00
31.80 x 12.30	0.95	1000	1525 - 1565	S and P	50.6	#16-876	\$550.00
27.00 x 10.00	0.68	940.07	1528 - 1610	S and P	48.4	#16-877	\$450.00
31.80 x 20.00	0.95	711.24	1500 - 1800	S and P	35.55	#16-878	\$1,095.00

## Adjustable Grating Mounts

- **Mount up to 60mm Tall Diffraction Gratings**
- **Easy Adjustment via Side Locking Screws**
- **Designed for Integration into 25.4mm Diameter Optic Mounts**

Adjustable Grating Mounts are designed to hold diffraction gratings without damaging their sensitive grating surface. Featuring a 3-point mounting style with spring and metal contacts, these mounts provide adequate clamping pressure while allowing for easy adjustment via side locking screws. A 25.4mm diameter extension on the rear of the mount allows for integration into Edmund Optics' kinematic and fixed mirror mounts. Adjustable Grating Mounts can be adjusted to accommodate a range of grating sizes, up to 60mm in height.

**Note:** Kinematic mount, mounting plate, post, and post holder sold separately.



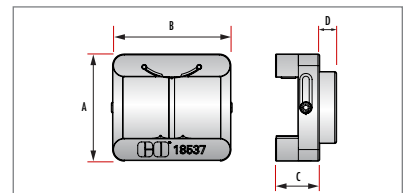
NEW

### Adjustable Grating Mounts

Compatible Optic Height (mm)	A	B	C	D	Stock No.	Price
<20.0	38	42	15.5	6	#18-537	\$95.00
20.0 - 40.0	58	42	15.5	6	#18-538	\$120.00
40.0 - 60.0	78	42	15.5	6	#18-539	\$140.00

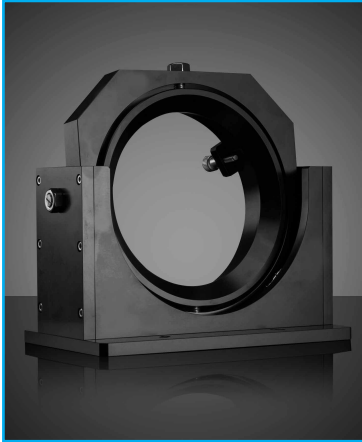
### Compatible Kinematic Mounts

Description	Stock No.	Price
25.0/25.4mm Optic Dia., E-Series Kinematic Mount	#15-866	\$39.00
25.0/25.4mm Optic Dia., Kinematic Mount, 2-Screws	#58-851	\$82.00
25.0/25.4mm Optic Dia., Kinematic Mount, 3-Screws	#58-854	\$90.00



## Large Diameter Gimbal Optical Mirror Mounts

NEW



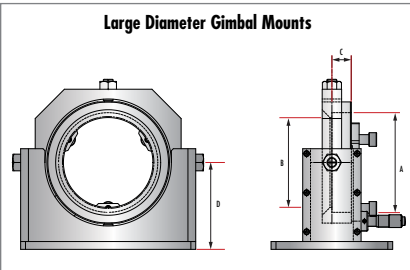
- **Gimbal Movement for Precision Tip and Tilt Alignment**
- **Compatible with 4", 4.25", 6" and 8" Diameter Optics**
- **Direct Mounting to English and Metric Breadboards for System Integration**

Large Diameter Gimbal Optical Mirror Mounts are ideal for integrating large diameter precision mirrors or other optical components into OEM and benchtop systems. These gimbal mirror mounts are compatible with 4.25" (with an included adapter for 4"), 6", and 8" diameter optics. Gimbal movement centers the axes of rotation on the optical surface, which when combined with micrometer driven precision tip and tilt adjustment, allows for accurate control of the beam path. Large Diameter Gimbal Optical Mirror Mounts feature mounting slots for direct breadboard mounting at either parallel to or 45° to the beam path. The mounting slots are compatible with both M6 and 1/4"-20 mounting hardware.

### Large Diameter Gimbal Optical Mirror Mounts

Optic Diameter (mm)	Optic Diameter (inches) A	Clear Aperture (mm) B	Max. Optic Thickness (mm) C	Optical Axis Height (inches) D	Optical Axis Height (mm) D	Fine Tilt Angle (°)	Fine Tip Angle (°)	Stock No.	Price
101.6 / 108.0	4/4.25	92	20	3.5	88.9	±6.0	±6.0	#17-410	\$1,590.00
152.4	6	140	30	4.5	114.3	±4.5	±4.5	#17-411	\$1,850.00
203.2	8	190	40	6.25	158.8	±6.5	±6.5	#17-412	\$2,450.00

Large Diameter Gimbal Mounts



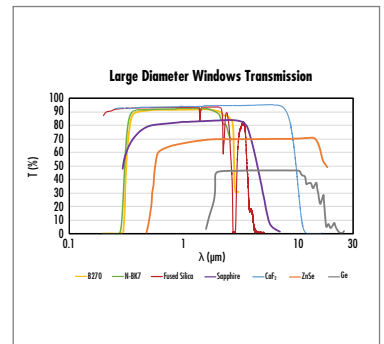
## Large Diameter Windows

NEW



- **Uncoated Window Substrates up to 150mm Diameter**
- **Many Options for IR, VIS, and UV Spectra**
- **Ideal for Protecting Sensitive Equipment**

Large Diameter Windows are available in B270, N-BK7, fused silica, sapphire, calcium fluoride, zinc selenide, and germanium substrates in diameters up to 150mm. Visible optical windows are ideal for use in imaging applications or as protective displays for industrial or environmental devices to prevent detectors and other sensitive components from being saturated or damaged by light. UV and IR windows are ideal for use in FTIR spectroscopy, thermal imaging, gas sensing, and FLIR or medical systems. For OEM applications, custom coatings and sizes are available.



### Large Diameter Windows

\*ZnSe Windows are 101.6 and 127mm Diameters, respectively

Substrate	Wavelength Range (nm)	Surface Flatness	Surface Quality	100mm Diameter		125mm Diameter		150mm Diameter		Notes
				Stock No.	Price	Stock No.	Price	Stock No.	Price	
B270	360 - 2700	$\lambda$	60-40	#17-169	\$128.00	#17-170	\$168.00	#17-171	\$209.00	Visit <a href="http://www.edmundoptics.com/1755">www.edmundoptics.com/1755</a> for complete specs
N-BK7	350 - 2200	$\lambda/4$	60-40	#11-856	\$179.00	#11-857	\$267.00	#11-858	\$383.00	Visit <a href="http://www.edmundoptics.com/1923">www.edmundoptics.com/1923</a> for complete specs
Fused Silica	200 - 2200	$\lambda/10$	20-10	#17-561	\$434.00	#17-562	\$545.00	#17-563	\$765.00	Visit <a href="http://www.edmundoptics.com/2331">www.edmundoptics.com/2331</a> for complete specs
Sapphire	330 - 5500	2-4 $\lambda$	80-50	#17-233	\$1,065.00	#19-507	\$1,320.00	#19-508	\$1,730.00	Visit <a href="http://www.edmundoptics.com/1904">www.edmundoptics.com/1904</a> for complete specs
Calcium Fluoride	200 - 7000	$\lambda$	60-40	#17-605	\$1,730.00	#17-606	\$3,055.00	N/A	—	Visit <a href="http://www.edmundoptics.com/2676">www.edmundoptics.com/2676</a> for complete specs
Zinc Selenide	600 - 18000	$\lambda/10$	60-40	#17-609*	\$2,545.00	#17-610*	\$3,565.00	N/A	—	Visit <a href="http://www.edmundoptics.com/2721">www.edmundoptics.com/2721</a> for complete specs
Germanium	2000 - 14000	$\lambda/10$	60-40	#17-669	\$1,830.00	#17-670	\$3,055.00	#17-671	\$4,075.00	Visit <a href="http://www.edmundoptics.com/2685">www.edmundoptics.com/2685</a> for complete specs

## Olympus CX43 Biological Microscope

- Ergonomically Designed for Long Observation Periods
- Ideal for Brightfield and Darkfield Observation of Biological Specimens
- Trinocular Design Available for Camera Compatibility

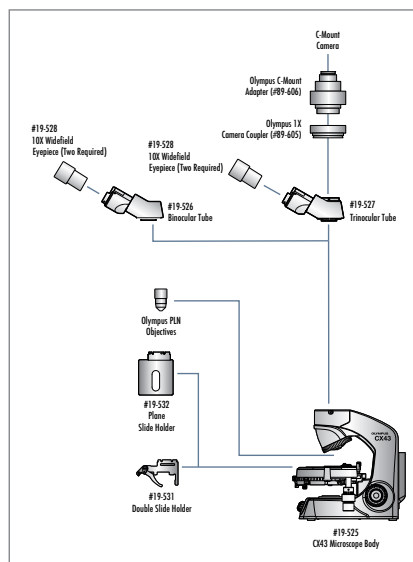
The Olympus CX43 Biological Microscope is an ergonomically designed microscope used for brightfield and darkfield observation. This microscope system uses Olympus Plan Achromatic Objectives to provide clear, flat images and can accommodate up to five objectives in its revolving nose-piece. The integrated LED illumination produces daylight conditions with consistent color temperature at any brightness, allowing for specimens to be viewed with their natural colors, and has a long lifetime of 60,000 hours. The Olympus CX43 Biological Microscope is ideal for use in education, research, and benchtop environments to observe cells, tissues, and other biological specimens. A trinocular observation tube and camera adapters are available for digital imaging and two specimen holders are available: a plane holder that allows for the specimen to be moved freely and a double slide holder that can retain one large specimen or two specimens in place.



NEW

Olympus CX43 Biological Microscope		
Description	Stock No.	Price
<b>Microscope Body (Required)</b>		
<b>CX43 Microscope Body with Fixed Condenser and LED Illumination</b>	#19-525	\$995.00
<b>Observation Tube (One Required)</b>		
<b>Binocular Observation Tube</b>	#19-526	\$450.00
<b>Trinocular Observation Tube (Camera Adapter and Coupler Required)</b>	#19-527	\$975.00
<b>Eyepieces (Two Required)</b>		
<b>10X Widefield Eyepiece</b>	#19-528	\$185.00
<b>Objectives (One Required)</b>		
<b>Olympus PLN 2X Objective</b>	#16-879	\$620.00
<b>Olympus PLN 4X Objective</b>	#86-812	\$150.00
<b>Olympus PLN 10X Objective</b>	#86-813	\$360.00
<b>Olympus PLN 20X Objective</b>	#86-814	\$440.00
<b>Olympus PLN 40X Objective</b>	#86-815	\$660.00
<b>Olympus PLN 100X Oil Immersion Objective</b>	#86-816	\$1,130.00
<b>Power Cable (One Required)</b>		
<b>110V US Power Cable</b>	#19-529	\$30.00
<b>220V EU Power Cable</b>	#19-530	\$30.00
<b>Optional Accessories</b>		
<b>Double Slide Holder</b>	#19-531	\$125.00
<b>Plane Slide Holder</b>	#19-532	\$95.00
<b>Camera Adapters (Both Required for Trinocular Observation Tube)</b>		
<b>1X Camera Coupler</b>	#89-605	\$110.00
<b>C-Mount Adapter</b>	#89-606	\$200.00

Olympus CX43 Biological Microscope Specifications						
Objective Lens	Numerical Aperture (NA)	Working Distance (mm)	Immersion Liquid	10X Eyepiece (F.N. 20)		
				Magnification	Depth of Field (µm)	FOV (mm)
2X	0.06	5.80	N/A	20X	See Web	1.0
4X	0.10	18.50	N/A	40X	115.0	0.5
10X	0.25	10.60	N/A	100X	18.4	0.2
20X	0.40	1.20	N/A	200X	6.09	0.1
40X	0.65	0.60	N/A	400X	2.0	0.05
100X	1.25	0.15	Oil	1000X	0.69	0.02



## Mitutoyo Brightfield and Darkfield (BD) Infinity Corrected Objectives

- Ideal for Brightfield and Darkfield Microscopy Applications
- Long Working Distances and High Numerical Apertures
- Plan Apochromat Design

Mitutoyo Brightfield and Darkfield (BD) Infinity Corrected Objectives offer long working distances with high numerical apertures. The high-quality plan apochromatic design allows these objectives to maintain high numerical apertures and contrast while correcting chromatic aberration in the visible wavelength region. These objectives are available in standard Plan APO and Plan APO SL for extended working distances, and feature M40 x 36TPI mounting threads. Mitutoyo Brightfield and Darkfield (BD) Infinity Corrected Objectives are optimized for both brightfield and darkfield illumination for applications including surface inspection and advanced life science microscopy.

**Note:** If compatible tube lens MT-1 (#54-774) or MT-2 (#56-863) are used to build a custom setup, an additional darkfield stop is needed to use darkfield illumination.



NEW

Mitutoyo Brightfield and Darkfield (BD) Infinity Corrected Objectives						
Description	NA	FL (mm)	WD (mm)	Model Number	Stock No.	Price
BD Plan Apo 2X	0.055	100.00	34	378-831-12	#18-402	\$965.00
BD Plan Apo 5X	0.14	40.00	34	378-832-7	#18-403	\$885.00
BD Plan Apo 7.5X	0.21	26.67	34	378-830-7	#18-404	\$1,630.00
BD Plan Apo 10X	0.28	20.00	34	378-833-7	#18-405	\$1,085.00
BD Plan Apo 20X	0.42	10.00	20	378-834-7	#18-406	\$2,410.00
BD Plan Apo 50X	0.55	4.00	13	378-835-7	#18-407	\$3,240.00
BD Plan Apo 100X	0.7	2.00	6	378-836-7	#18-408	\$3,745.00
BD Plan SL 20X	0.28	10.00	30.5	378-840-7	#18-409	\$3,240.00
BD Plan SL 50X	0.42	4.00	20	378-841-7	#18-410	\$3,415.00

<b>Focal Length (mm):</b>	200
<b>Maximum Diameter (mm):</b>	44
<b>Parafocal Length (mm):</b>	95
<b>Maximum Sensor Format:</b>	2/3"
<b>Mounting Threads:</b>	M40 x 36 TPI
<b>Wavelength Range (nm):</b>	435 - 655
<b>Operating Temperature (°C):</b>	+5 to +40

Visit [www.edmundoptics.com/3504](http://www.edmundoptics.com/3504)  
for Brightfield/Darkfield Video Microscope Unit

## Advanced Illumination UltraSeal Washdown Bar Lights



- IP69K Certified for Extreme Washdown Environments
- Proprietary Housing to Prevent Corrosion and Overheating
- High Intensity Output up to 70,200 Lux

Advanced Illumination UltraSeal Washdown Bar Lights offer intense, direct illumination up to 70,200 Lux while providing maximum protection in extreme environmental conditions. These IP69K certified Bar Lights were designed with a crevice-free design to withstand high temperature wash-down procedures and material buildup. The proprietary nickel-plated aluminum housing makes these bar lights highly corrosion-resistant and eleven times more thermally conductive than stainless steel. Advanced Illumination UltraSeal Washdown Bar Lights are ideal for hygienic and aseptic manufacturing applications, such as prolonged liquid immersion and high-pressure steam cleaning common in food and beverage inspection and processing. **Note:** Requires 24V power supply #66-855. Manual Intensity Adjustment #86-887 and #89-555 are recommended and sold separately.

<b>Input Voltage (V):</b>	24	<b>LED Lifetime (hours):</b>	50,000
<b>Operating Temperature (°C):</b>	0 to +60	<b>Environmental Rating:</b>	IP69K
<b>Dimensions (mm) L x H x W:</b>		<b>Weight (g):</b>	
	8" Bar Light: 171.4 x 42.9 x 24		8" Bar Light: 417
	14" Bar Light: 323.8 x 42.9 x 24		14" Bar Light: 657

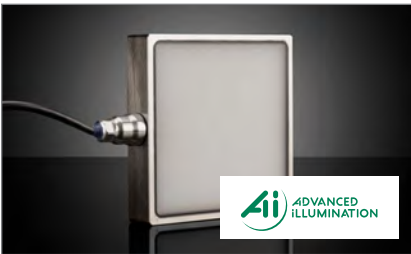
### Advanced Illumination UltraSeal Washdown Bar Lights

Color	Wavelength (nm)	8" Bar Light			14" Bar Light		
		Min Input Current (A)	Stock No.	Price	Min Input Current (A)	Stock No.	Price
White	—	0.35	#18-623	\$848.00	0.70	#18-631	\$1,312.00
Blue	470	0.35	#18-625	\$848.00	0.70	#18-632	\$1,312.00
Green	530	0.35	#18-626	\$848.00	0.60	#18-630	\$1,312.00
Red	625	0.30	#18-624	\$848.00	0.40	#18-633	\$1,312.00
IR	850	0.20	#18-627	\$848.00	0.40	#18-634	\$1,312.00
IR	940	0.20	#18-628	\$848.00	0.70	#18-629	\$1,312.00

### Accessories

Description	Stock No.	Price
Industrial DIN Mountable Intensity Adjustment	#89-555	\$143.00
24V Power Supply with Tinned Leads	#66-855	\$108.00
DCS-100E Single Output Controller	#18-645	\$583.00

## Advanced Illumination UltraSeal Washdown Backlights



- IP69K Certified for Extreme Washdown Environments
- Proprietary Housing to Prevent Corrosion and Overheating
- Intensity Output up to 15,000 Lux

Advanced Illumination UltraSeal Washdown Backlights offer intense, even illumination up to 15,000 Lux while providing maximum protection in extreme environmental conditions. These IP69K certified backlights feature a crevice-free design to withstand high temperature washdown procedures and material buildup. The proprietary nickel-plated aluminum housing makes these backlights highly corrosion-resistant and eleven times more thermally conductive than stainless steel. Advanced Illumination UltraSeal Washdown Backlights are ideal for hygienic and aseptic manufacturing applications, such as prolonged liquid immersion and high-pressure steam cleaning common in food and beverage inspection and processing. **Note:** Requires 24V power supply #66-855. Manual Intensity Adjustment #86-887 and #89-555 are recommended and sold separately.

	4 x 4"	6 x 6"	8 x 4"
<b>Dimensions (mm) L x W x H:</b>	122.2 x 122.2 x 24.0	173.0 x 173.0 x 24.0	223.8 x 122.2 x 24.0
<b>Input Voltage (V):</b>	24	24	24
<b>Environmental Rating:</b>	IP69K	IP69K	IP69K
<b>Min. Input Current (A):</b>	0.48	1.08	0.96
<b>Operating Temperature (°C):</b>	0 to +60	0 to +60	0 to +60
<b>LED Lifetime (hours):</b>	50,000	50,000	50,000
<b>Weight (g):</b>	386	635	635

### Advanced Illumination UltraSeal Washdown Backlights

Color	Wavelength (nm)	4 x 4"		6 x 6"		8 x 4"	
		Stock No.	Price	Stock No.	Price	Stock No.	Price
White	—	#18-608	\$1,129.00	#18-618	\$1,582.00	#18-613	\$1,485.00
Blue	470	#18-610	\$1,129.00	#18-620	\$1,582.00	#18-615	\$1,485.00
Green	520	#18-611	\$1,129.00	#18-621	\$1,582.00	#18-616	\$1,485.00
Red	660	#18-609	\$1,129.00	#18-619	\$1,582.00	#18-614	\$1,485.00
IR	880	#18-612	\$1,129.00	#18-622	\$1,582.00	#18-617	\$1,485.00

### Accessories

Description	Stock No.	Price
Industrial DIN Mountable Intensity Adjustment	#89-555	\$143.00
24V Power Supply with Tinned Leads	#66-855	\$108.00
DCS-100E Single Output Controller	#18-645	\$583.00



## Fiber-Coupled Laser Modules

- 400µm Core Multimode Fiber with SMA Connector
- 50 and 100mW Output Power Options
- VIS and NIR Wavelengths Available

Fiber-Coupled Laser Modules feature an integrated 1m long, 400µm core fiber with an SMA905 connector. These cost-effective lasers provide up to 100mW of output power and have a long expected lifetime of 5000 hours. Common wavelengths used in alignment applications including 405, 450, 532, 635, and 808nm are available with TTL analog modulation. Fiber-Coupled Laser Modules are ideal for use in laser alignment, laser pointing, and laser measurement applications where a free-spaced laser diode module may be difficult to position. These lasers' compact size and easy operation make them well suited for integration into OEM systems.

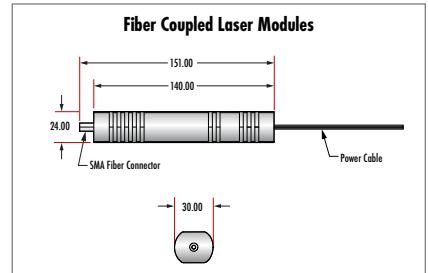


NEW

Wavelength Tolerance (nm):	±5	Fiber Output Connector:	SMA
532nm:	±1	Operating Temperature (°C):	+15 to +30
Laser Class CDRH:	IIIb	Operating Voltage (V):	5
Dimensions (mm):	30 Dia. x 151 Length		#19-478: 6
Length of Fiber (m):	1		

### Fiber-Coupled Laser Modules

Wavelength (nm)	Output Power (mW)	Modulation Frequency (kHz)	Stock No.	Price
405	50	1 - 10	#19-477	\$695.00
405	100	1 - 10	#19-478	\$795.00
450	50	1 - 10	#19-479	\$695.00
450	100	1 - 10	#19-480	\$795.00
532	50	N/A	#19-481	\$795.00
635	50	1 - 10	#19-482	\$595.00
635	100	1 - 10	#19-483	\$695.00
808	50	1 - 10	#19-484	\$595.00
808	100	1 - 10	#19-485	\$695.00



### SMA Fiber Optic Collimators

Alignment Wavelength (nm)	Numerical Aperture	Stock No.	Price
543	0.22	#47-221	\$187.00
633	0.22	#67-725	\$187.00
780	0.22	#47-222	\$187.00

### Accessories

Description	Stock No.	Price
5V Power Supply	#83-855	\$56.00
6V Power Supply, for #19-478	#19-468	\$56.00

## Energetiq Fiber Coupled Laser-Driven Light Source

- Ultra High Brightness with Broadband Spectral Output from 190 - 2500nm
- Long Bulb Lifetime of >10,000 Hours
- UV or Broadband Output Fiber Available with FC or SMA Terminations

The Energetiq Fiber-Coupled Laser-Driven Light Source (LDLS™) is a high brightness fiber-coupled light source with excellent spatial and power stability for repeatable high performance. This light source operates through focusing a laser onto a proprietary bulb where a high-intensity plasma is generated, radiating light from 190 - 2500nm. The broad output of this light source makes it an ideal alternative to deuterium, tungsten, and xenon arc lamps, simplifying lab setups. The Energetiq Fiber Coupled LDLS™ is ideal for a range of applications including thin-film measurements, stray light testing, UV-NIR spectroscopy, optical component testing, and advanced imaging in life sciences. A fiber optic cable assembly is required for use and sold separately; UV-VIS solarization-resistant and VIS-NIR broadband fiber optic cable assemblies are available. **Note:** The Energetiq Fiber-Coupled LDLS™ should only be used with Energetiq fiber optic cable assemblies which are specially designed to withstand the high brightness of this light source. Nitrogen purge is optional but recommended for best performance, especially for applications operating in the UV.

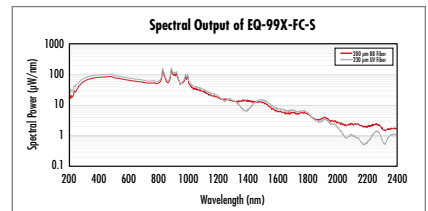


NEW

Dimensions (mm):	84 x 78 x 87	Lamp Lifetime (hours):	>10,000
Plasma Size, FWHM (µm):	100 x 180 (average)		

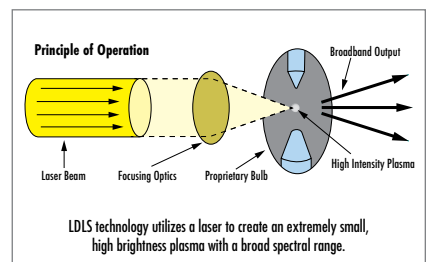
### Energetiq Fiber Coupled Laser-Driven Light Source

Model Number	Wavelength Range (nm)	Numerical Aperture	Stock No.	Price
EQ-99X-FC-S	190 - 2500	0.22	#17-595	\$22,995.00



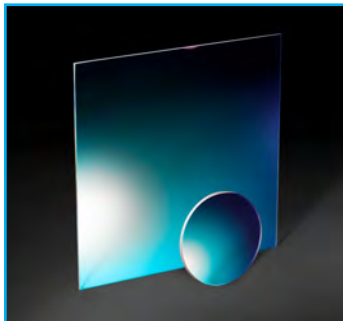
### Fiber Optic Cable Assemblies (One Required)

Wavelength (nm)	Core Size (µm)	Length (m)	FC-FC	FC-SMA	Price
			Stock No.	Stock No.	
190 - 350	230	1	#17-596	#17-597	\$975.00
350 - 2500	200	1	#17-598	#17-599	\$975.00



## High Ion-Exchange Chemically Strengthened Windows

NEW



- AGC Dragontrail™ and SCHOTT Xensation® Substrates
- High Resistance to Scratches and Breakage
- Ideal as Cover Glass for Electronic Displays

High Ion-Exchange Chemically Strengthened Windows are constructed from thin, flexible glass substrates that undergo an ion-exchange salt bath chemical strengthening process to improve surface compressive strength, scratch resistance, and breakage resistance. AGC Dragontrail™ and SCHOTT Xensation® windows are available with high transmission in the visible spectrum. High Ion-Exchange Chemically Strengthened Windows are ideal for use as protective windows for electronic displays, image sensors, and capacitive touch surfaces.

High Ion-Exchange Chemically Strengthened Windows						
Dimensions (mm)	Thickness (mm)	Dragontrail™	SCHOTT Xensation®	Price		26+
		Stock No.	Stock No.	1-5	6-25	
12.50 Dia.	1.10	#17-256	#17-260	\$17.50	\$14.00	Call
25.00 Dia.	1.10	#17-257	#17-261	\$19.50	\$15.60	
50.00 x 50.00	1.10	#17-258	#17-262	\$29.50	\$23.60	
100.00 x 100.00	1.10	#17-259	#17-263	\$37.50	\$30.00	

Clear Aperture (%):	90
Surface Quality:	80-50
Index of Refraction n <sub>r</sub> :	1.51

## EAGLE XG® Windows

NEW



- Thin 0.7mm EAGLE XG® Substrates
- High Chemical Resistance and Excellent Durability
- Low Density for Weight Sensitive Applications

EAGLE XG® Windows are constructed from heavy-metal free glass through a fusion drawn process, providing these windows with exceptionally smooth, flat surfaces. These windows have high transmission in the visible spectrum, excellent environmental durability, and high chemical resistance. The low density of Corning® EAGLE XG® coupled with the thinness of these windows makes them ideal for weight and space sensitive applications. EAGLE XG® Windows are used as substrates for mobile device LCDs, substrates for polarizers, wafers for semiconductor applications, or protective windows for electronic displays.

Substrate:	EAGLE XG®	Thickness Tolerance (mm):	±0.07
Index of Refraction (n <sub>r</sub> ):	1.51	Surface Quality:	80-50
Clear Aperture (%):	90	Coating:	Uncoated
Dimensional Tolerance (mm):	±0.25		

## EAGLE XG® Windows

Dimensions (mm)	Thickness (mm)	Stock No.	Price		26+
			1-5	6-25	
12.5 Dia.	0.70	#18-292	\$20.50	\$15.50	Call For OEM Qty, Pricing
25.0 Dia.	0.70	#18-293	\$23.50	\$18.00	
50.0 Dia.	0.70	#18-294	\$33.50	\$26.00	
25.0 x 25.0	0.70	#18-295	\$23.50	\$18.00	
50.0 x 50.0	0.70	#18-296	\$33.50	\$26.00	
100.0 x 100.0	0.70	#18-297	\$40.50	\$32.00	

## So Much More Online...



### SCHOTT Matte Colored Glass Filter Plates

- Unpolished Colored Glass Plates
- Large Raw Material Sizes up to 165 x 165mm
- Available in All SCHOTT Colored Glass Types

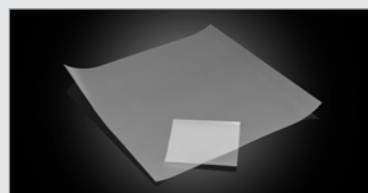
[www.edmundoptics.com/4162](http://www.edmundoptics.com/4162)



### Optics Packaging

- Glassine Bags, Jewel Boxes, and Cloth Pouches for General Optics
- Non-Contact Impact Cases for Laser and Precision Optics
- Ideal for Storing or Transporting Optics

[www.edmundoptics.com/4170](http://www.edmundoptics.com/4170)



### Light Diffusing Film

- Diffusion of UV to NIR Illumination
- Flexible Polymer Substrate
- Easily Cut to Size

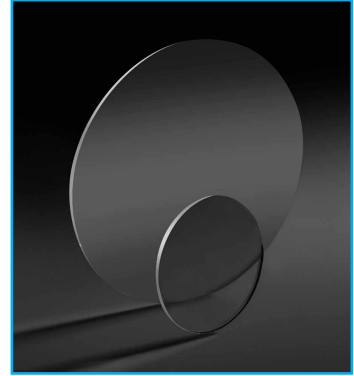
[www.edmundoptics.com/4180](http://www.edmundoptics.com/4180)

## UV Wire Grid Linear Polarizers

<b>Substrate:</b>	Fused Silica
<b>Surface Quality:</b>	60-40
<b>Wavelength Range (nm):</b>	240 - 400
<b>Extinction Ratio:</b>	4:1 @ 240nm 15:1 @ 254nm 20:1 @ 260nm 90:1 @ 300nm 200:1 @ 340nm 1600:1 @ 400nm
<b>Diameter Tolerance (mm):</b>	±0.40
<b>Thickness (mm):</b>	1.00 ±0.10
<b>Transmission (%):</b>	40 @ 240nm 65 @ 254nm 67 @ 260nm 75 @ 300nm 80 @ 340nm 82 @ 400nm
<b>Angle of Incidence (°):</b>	0 ±20
<b>Operating Temperature (°C):</b>	+150 (Maximum)
<b>Alignment Tolerance (°):</b>	±1.0

- **High Transmission from 240 - 400nm**
- **Uniform Brightness and Contrast**
- **Ideal for UV or Deep UV Applications**

UV Wire Grid Linear Polarizers have high transmission from 240 - 400nm, making them ideal for applications in the ultraviolet (UV) or deep UV. S-polarized light reflects off the wire grid of these polarizers while p-polarized light is transmitted. These polarizers provide a wide acceptance angle, uniform brightness and contrast, and high grid uniformity. UV Wire Grid Linear Polarizers are used in biomedical, forensic, photo-alignment, spectroscopic, security, semiconductor manufacturing, and UV curing applications. Visible Wire Grid Polarizers and Infrared (IR) Wire Grid Polarizers are also available. **Note:** These polarizers should be handled with care to avoid touching the wire grid surface to prevent damage to the part.



NEW

### UV Wire Grid Linear Polarizers

Diameter (mm)	Thickness (mm)	Clear Aperture (mm)	Stock No.	Price
12.5	1.0	10	#17-153	\$1,150.00
25.0	1.0	22	#17-154	\$1,490.00
50.0	1.0	47	#17-155	\$2,650.00

## UV Curing Pens

- **Wireless, Battery Powered UV LED Pen**
- **365nm Center Wavelength**
- **Up to 2W/cm<sup>2</sup> UV Irradiance**

UV Curing Pens are wireless, battery powered devices that provide up to 2W/cm<sup>2</sup> of UV irradiance with up to 2 hours of battery life. Each pen comes as a kit with all accessories required for use including rechargeable batteries, a battery charger with USB cable, UV protective glasses, and a protective case. These pens operate by an on/off switch located on the pen body and provide instant, continuous UV light output when turned on. UV Curing Pens are ideal for use in optical workshops or laboratories where their lightweight, wireless design facilitates ease of use for UV curing applications, such as curing Norland Optical Adhesives.

<b>Power Requirement:</b> 1 x Li-ion Battery (Included)	<b>Beam Diameter (mm):</b> 7 @ 5 mm WD 10 @ 20 mm WD	<b>Irradiance (W/cm<sup>2</sup>):</b> 2
--	--	---



NEW

### UV Curing Pen

Description	Diameter (mm)	Length (mm)	Wavelength (nm)	Working Distance (mm)	Stock No.	Price
UV Curing Pen Kit	25	146	365	5 - 20	#17-319	\$1,150.00

## So Much More Online...



### Epolite FH-5313 Epoxy

- Optical and Electrical Grade
- Cures at Room Temperature
- Ideal for bonding glass, metal, or plastic

[www.edmundoptics.com/4193](http://www.edmundoptics.com/4193)



### UV Pencil Lamp Field Packs

- Lightweight, 9V Battery Powered UV Pencil Lamps
- Interchangeable 254nm and 365nm Lamps
- Ideal for Spectral Calibration in Spectroscopy Applications

[www.edmundoptics.com/4172](http://www.edmundoptics.com/4172)



### First Contact™ 30mL Trial Cleaning Kit

- Kit includes Cleaning Solution, Swabs, Pipettes, Mesh, Tabs, and Instructions
- Low Cost of \$49.50

[www.edmundoptics.com/17013](http://www.edmundoptics.com/17013)

## E-Series Clear Edge Kinematic Optical Mirror Mounts

NEW



- **120° Clear Edge for Mounting Beamsplitters and Transmissive Optics**
- **Economically Priced**
- **Essential Mounts for Experiments and OEM Systems**

E-Series Clear Edge Kinematic Optical Mirror Mounts offer many features essential for applications in R&D, prototyping, and system integration. Featuring a 120° cut out, these mounts are ideal for mounting beamsplitters and transmissive optics while accommodating a wider beam path when mounted at a 45° angle. The two M6 x 0.25 (101.6 TPI) adjustment screws provide smooth movement and can be driven by hand or by Allen key (2mm key size) for tip and tilt optical adjustment and alignment ( $\pm 3.5^\circ$ ). The adjustment screw knobs are removable to create a more compact form factor. E-Series Clear Edge Kinematic Optical Mirror Mounts feature mounting holes with both a counterbore designed to accommodate M4 or 8-32 mounting hardware, and M6 x 1.0 internal threads for increased mounting versatility and direct compatibility to TECHSPEC® Metric Stainless Steel Mounting Posts and Pedestal Posts.

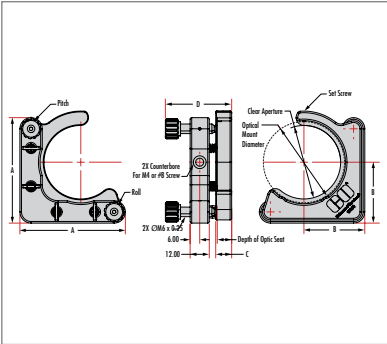
<b>Number of Adjustment Screws:</b> 2	<b>Linear Resolution:</b> 0.25mm
<b>Tip/Tilt Range:</b> $\pm 3.5$	<b>Post Compatibility:</b> M6 x 1.0, M4 x 0.7, 8-32

### Dimensions

Optical Mount Dia. (mm)	A (mm)	B (mm)	C (mm)	D (mm)	Clear Aperture (mm)	Depth of Optic Seat (mm)
12.5/12.7	43.5	25.4	8.0	39.5	11.5	5.5
25/25.4	43.5	25.4	8.0	39.5	23.0	6.5
50/50.8	66.0	38.1	10.0	41.5	46.0	9.0

### E-Series Clear Edge Kinematic Optical Mirror Mounts

Optic Dia. (mm)	Clear Aperture (mm)	Min. Optic Thickness (mm)	Optical Axis Height (mm)	Stock No.	Price	
					1-9	10+
12.5/12.7	11.5	2	25.4	#17-278	\$49.00	\$46.50
25/25.4	23	2	25.4	#17-279	\$49.00	\$46.50
50/50.8	46	2	38.1	#17-280	\$99.00	\$94.00



## Quick Start Optical Mounts

NEW



- **Common 5" (127mm) Optical Axis Heights**
- **Optical Mounts and Pedestal Posts Paired for Easy System Integration**
- **Ideal for Setting Up New Benchtop Optical Systems**

Quick Start Optical Mounts are designed with a common 5" (127mm) optical axis height from the lab table surface, combining all necessary mounting hardware for easy system integration. With Quick Start Optical Mounts designed for a wide variety of optical components, complex systems and experiments can be easily arranged without the need for extensive optical axis adjustment. Quick Start Optical Mounts are ideal for quickly and conveniently setting up new benchtop optical systems with essential Edmund Optics mounts like the E-Series Kinematic Optical Mirror Mounts, TECHSPEC® Kinematic Optical Mirror Mounts, Compact Mirror & Lens Mounts, and Optic Component Mounts.

<b>Post Diameter:</b>	25.4	<b>Optical Axis Height (mm):</b>	127.0
-----------------------	------	----------------------------------	-------

For additional Quick Start Optical Mount Options, visit [www.edmundoptics.com/4185](http://www.edmundoptics.com/4185)

### 25.0/25.4mm Optic Diameter, X-Y Translating Mount

	Stock No.	Price
25.0/25.4mm Optic Dia., X-Y Translating Optic Mount	#62-956	\$237.00
Pedestal Extender 20.8mm, M6, 8-32	#16-460	\$9.80
Pedestal Post, English, 76.2mm	#15-849	\$28.00
<b>Buy as Kit and Save!</b>	#17-513	<del>\$274.80</del> \$261.10

### 25.4mm with Micrometer, Polarizer Mount

	Stock No.	Price
25.4mm w/ Micrometer, Polarizer Mount	#55-011	\$405.00
Pedestal Extender 18.0mm, 8-32, M6	#16-322	\$9.50
Pedestal Post, English, 76.2mm	#15-849	\$28.00
<b>Buy as Kit and Save!</b>	#17-525	<del>\$346.50</del> \$420.40

### 25/25.4mm Diameter, E-Series Kinematic Mount

	Stock No.	Price
25.0/25.4mm Optic Dia., E-Series Kinematic Mount	#15-866	\$39.00
Pedestal Post, English, 101.6mm	#15-850	\$35.00
<b>Buy as Kit and Save!</b>	#17-521	<del>\$74.00</del> \$70.30

### 25.4mm Optic Diameter, Thin Mirror Mount, M4

	Stock No.	Price
25.4mm Optic Dia., Thin Mirror Mount, M4	#13-590	\$17.50
Pedestal Post, Metric, 101.6mm	#15-844	\$35.00
<b>Buy as Kit and Save!</b>	#17-534	<del>\$52.50</del> \$49.88

### 25.4mm Optic Diameter, Fixed Optic Mount

	Stock No.	Price
25.4mm Optic Dia., 10mm Max Optic Thickness, Optic Mount	#64-561	\$27.00
Pedestal Shim $\frac{5}{32}$ " (3.97mm)	#16-305	\$7.90
12.5mm Length $\frac{1}{4}$ "-20, #8-32 Thread Adapter	#16-333	\$15.00
Pedestal Post, English, 101.6mm	#15-850	\$35.00
<b>Buy as Kit and Save!</b>	#17-515	<del>\$84.90</del> \$80.70

### 25/25.4mm ID, Precision Gimbal Mount

	Stock No.	Price
25.0/25.4mm Optic Dia., Precision Gimbal Mount	#54-999	\$399.00
Pedestal Shim $\frac{1}{16}$ " (1.59mm)	#16-308	\$6.40
10.5mm Length M6, #8-32 Thread Adapter	#16-329	\$12.00
Pedestal Post, English, 76.2mm	#15-849	\$28.00
<b>Buy as Kit and Save!</b>	#17-517	<del>\$317.40</del> \$419.80

## Z-Laser ZAT Battery Powered Lasers

- **Bright Red 635nm Wavelength**
- **Line, Crosshair, or Dot Projection**
- **Battery Powered Operation with a Fixed Focus**

Z-Laser ZAT Battery Powered Lasers are ideal for positioning and alignment applications. Their battery powered design provides maneuverability by removing the need for a fixed power supply. IP40 rated, shock proof, and vibration proof with a sturdy, metal housing makes these lasers excellent for harsh environments and repeated use. Z-Laser ZAT Battery Powered Lasers are suitable for use in industrial environments such as Automotive, Paper, Wood, Ceramic, and Metal. Available with 1 or 5mW output powers, the lasers utilize one AA battery (not included) ensuring easy maintenance and an extended lifetime.



<b>Wavelength:</b>	635nm	<b>Dimensions (Dia. x L):</b>	20 x 124mm
<b>Environmental Rating:</b>	IP40	<b>Weight (g):</b>	162
<b>Power Requirement:</b>	1 AA Battery (Not Included)		

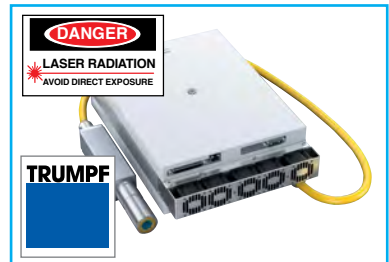
### Z-Laser ZAT Battery Powered Lasers

Wavelength (nm)	Output Power (mW)	Output Type	Fan Angle (°)	Working Distance (m)	Stock No.	Price
635	1	Elliptical Dot	N/A	2	#19-443	\$190.00
635	5	Elliptical Dot	N/A	2	#19-444	\$240.00
635	5	Gaussian Line	90	1.2	#19-538	\$240.00
635	5	Crosshair	5	1.2	#19-539	\$300.00
635	5	Crosshair	60	1.5	#19-540	\$300.00

## TRUMPF TruPulse nano Pulsed Fiber Lasers

- **Pulse Durations from 3 to 2000ns With Up to 4MHz Pulse Repetition**
- **20, 50, 70, and 100W Output Power Options**
- **Industry Leading Reliability & Maintenance Free Operation**

TRUMPF TruPulse nano Pulsed Fiber Lasers combine high power and pulse rates, industry leading reliability, and maintenance free operation to maximize output in laser material processing applications. These lasers feature PulseTune technology, allowing for user selection of up to 48 optimized PulseTune waveforms with pulse widths from 3 to 2000ns and pulse repetition up to 4MHz. TRUMPF TruPulse nano Pulsed Fiber Lasers are available with output powers from 20 to 100W and are ideal for laser ablation, cutting, engraving, marking, scribing, and welding. A range of collimators are offered to collimate the output beam of the laser to common beam diameters used with laser scan heads including 3, 5, 7.5, and 10mm. **Note: See website for additional terms and conditions.**



<b>Wavelength:</b>	1062.0 ±3nm	<b>Pulse Repetition Rate:</b>	1 - 4000kHz
<b>Beam Diameter:</b>	7.5 ±1.5mm	<b>Peak Power:</b>	>10kW
<b>Beam Divergence:</b>	0.36 ±0.072mrad	<b>Power Requirement:</b>	24 V DC
<b>Polarization:</b>	Random		

### TRUMPF TruPulse nano Pulsed Fiber Lasers

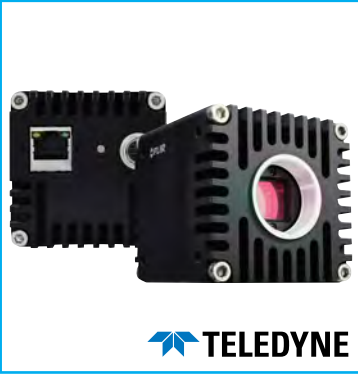
Wavelength (nm)	Output Power (W)	Pulse Energy (mJ)	Pulse Width (ns)	Dimensions (mm)	Operating Temperature (°C)	Laser		Power Supply	
						Stock No.	Price	Stock No.	Price
1062	20	>1.2 (maximum)	3 - 2000	347 x 201 x 95	0 to +45	#18-306	\$10,599.00	#18-311	\$199.00
1062	50	>1.2 (maximum)	3 - 2000	347 x 201 x 95	0 to +40	#18-307	\$15,349.00	#18-311	\$199.00
1062	70	>1.2 (maximum)	3 - 2000	377 x 249 x 95	0 to +40	#18-308	\$19,899.00	#18-310	\$545.00
1062	100	>1.3 (maximum)	4 - 2000	377 x 249 x 115	0 to +40	#18-309	\$25,499.00	#18-310	\$545.00

### Collimator Accessories

Output Beam Diameter (mm)	Cylindrical		Flanged	
	Stock No.	Price	Stock No.	Price
3.0 ±0.6	#18-312	\$540.00	#18-316	\$540.00
5.0 ±1.0	#18-313	\$540.00	#18-317	\$540.00
7.5 ±1.5	#18-314	\$540.00	#18-318	\$540.00
10.0 ±2.0	#18-315	\$540.00	#18-319	\$540.00

## FLIR Oryx® 10GigE Cameras

NEW



TELEDYNE

- **10GBASE-T (10GigE) Ethernet Interface**
- **3.2 to 12.3 Megapixel**
- **Supports 4K60, 12-bit System Integration**

FLIR Oryx® 10GigE Cameras are the next step in high speed camera design for machine vision applications. Oryx's® 10GBASE-T interface allows for capture of 4K resolution, 12-bit images at over 60FPS by supporting transfer speeds up to 10Gbit/s. The 10GigE capabilities of the Oryx® provides stable and reliable data transfer at cable lengths over 50m on CAT6a. FLIR Oryx® 10GigE Cameras are supported by FLIR's Spinnaker software development kit (SDK) and are GenICam and GigE Vision compliant which allows for compatibility with popular third-party software and vision libraries.

<b>Type of Sensor:</b>	CMOS	<b>Machine Vision Standard:</b>	GigE Vision v1.2
<b>Pixel Depth:</b>	8/10/12 bit	<b>Housing:</b>	Full
<b>Synchronization:</b>	Hardware Trigger (GPIO) or Software Trigger	<b>Interface Port Orientation:</b>	Back Panel
<b>Video Output:</b>	10GigE	<b>Operating Temperature (°C):</b>	0 to +70
<b>Mount:</b>	C-Mount	<b>Storage Temperature (°C):</b>	-30 to +60
<b>Dimensions (mm):</b>	60 x 60 x 64	<b>GPIO Connector Type:</b>	12-pin Hirose (HR10)
		<b>Weight (g):</b>	386

### FLIR Oryx® 10GigE Cameras

Model Number	ORX-10GS-32S4M/C-C		ORX-10GS-51S5M/C-C		ORX-10GS-89S6M/C-C		ORX-10GS-123S6M/C-C	
Camera Sensor Format:	1/4.8"		3/8"		1"		1.1"	
Resolution (MegaPixels):	3.2		5.0		8.9		12.3	
Imaging Device:	Sony IMX252		Sony IMX250		Sony IMX255		Sony IMX253	
Pixels (H x V):	2,048 x 1,536		2,448 x 2,048		4,096 x 2,160		4,096 x 3,000	
Pixel Size, H x V (µm):	3.45 x 3.45		3.45 x 3.45		3.45 x 3.45		3.45 x 3.45	
Frame Rate (fps):	216		163		93		68	
Shutter:	Global		Global		Global		Global	
Monochrome, C-Mount	#19-796	\$1,725.00	#19-794	\$2,195.00	#19-792	\$3,925.00	#19-798	\$4,250.00
Color, C-Mount	#19-797	\$1,725.00	#19-795	\$2,195.00	#19-793	\$3,925.00	#19-799	\$4,250.00

### Accessories

Visit [www.edmundoptics.com/4227](http://www.edmundoptics.com/4227) for additional accessories.

Description	Stock No.	Price
Oryx 12pin GPIO cable, 4.5m	#19-802	\$75.00
Oryx 12pin GPIO cable w/ Power Supply	#19-803	\$120.00
Tripod Adapter for 64mm Oryx	#19-804	\$60.00

## Lucid Vision Labs Atlas10 10GigE Power over Ethernet (PoE) Cameras



NEW



LUCID VISION LABS

- **10GigE Ethernet Interface with PoE+**
- **5.0 to 24.5 Megapixel Sony 4th Gen Pregius S Sensors**
- **Compact 55 x 55mm Form Factor**

Lucid Vision Labs Atlas10 10GigE Power over Ethernet (PoE) Cameras combine 4th generation Sony Pregius S sensors with 10GigE interface, delivering fast frame rates at high resolution and image quality in a compact and rugged housing. The 10GBASE-T Power over Ethernet PoE+ interface allows for data transfer speeds of up to 1.2 GB/s and can also provide power to the camera over one CAT6a cable up to 25m in length. The high bandwidth enables the cameras to run at high bit depths (10/12-bit) to maximize image quality while maintaining smooth frame rates. The back-illuminated CMOS sensors offer high sensitivity, dynamic range and low noise, and are actively aligned to the lens mount at the same optical axis to minimize performance discrepancies resulting from sensor tilt and rotation. Lucid Vision Labs Atlas10 10GigE Power over Ethernet (PoE) Cameras are GigE Vision compliant and feature rugged M12 Ethernet and M8 GPIO connectors, making them ideal choices for industrial, automotive, factory automation, process control, and other machine vision applications requiring high resolutions and bandwidth.

Visit [www.edmundoptics.com/4154](http://www.edmundoptics.com/4154) for accessories

<b>Type of Sensor:</b>	CMOS Sensor	<b>Input/Output Options:</b>	Opto-isolated: 1 input, 1 output Non-isolated: 2 bi-directional
<b>Video Output:</b>	10GigE w/ PoE+	<b>Operating Temperature (°C):</b>	-20 to 55
<b>GigE Vision Connector:</b>	10GBASE-T, M12 Ethernet	<b>Dimensions (mm):</b>	55 x 55 x 95.5
<b>Power Requirement:</b>	Power Over Ethernet (PoE+) or 12 to 24V via GPIO	<b>Weight (g):</b>	304

### Lucid Vision Labs Atlas10 10GigE Power over Ethernet (PoE) Cameras

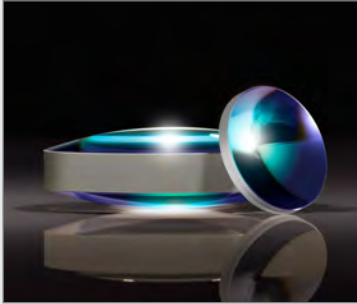
Model Number	ATX051S		ATX081S		ATX124S		ATX162S		ATX204S		ATX245S	
Camera Sensor Format:	1/4.8"		3/8"		1/2.1"		1.1"		1.1"		3/8"	
Resolution (MegaPixels):	5		8.1		12.3		16.2		20.4		24.5	
Imaging Device:	Sony IMX537		Sony IMX536		Sony IMX535		Sony IMX532		Sony IMX531		Sony IMX530	
Pixels (H x V):	2,448 x 2,048		2,840 x 2,840		4,096 x 3,000		5320 x 3040		4504 x 4504		5320 x 4600	
Pixel Size, H x V (µm):	2.74 x 2.74		2.74 x 2.74		2.74 x 2.74		2.74 x 2.74		2.74 x 2.74		2.74 x 2.74	
Frame Rate (fps):	205		136.7		89.7		76.1		61		50.6	
Shutter:	Global		Global		Global		Global		Global		Global	
Monochrome, C-Mount	#18-478	\$2,095.00	#18-476	\$2,365.00	#18-474	\$3,095.00	#17-118	\$3,595.00	#17-116	\$4,150.00	N/A	-
Color, C-Mount	#18-477	\$2,095.00	#18-475	\$2,365.00	#18-473	\$3,095.00	#17-119	\$3,595.00	#17-117	\$4,150.00	N/A	-
Monochrome, TFL-Mount	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-	#17-114	\$4,450.00
Color, TFL-Mount	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-	#17-115	\$4,450.00



**Nd:YAG Laser Replacement Parts**

- Output Couplers, Laser Line Mirrors, and Nd:YAG Rods
- 80% or 90% Reflectivity @ 1064nm Output Couplers
- 0.6% Nd Dopant Nd:YAG Rods

[www.edmundoptics.com/4188](http://www.edmundoptics.com/4188)



**TECHSPEC® Double-Sided Aspheric Lenses**

- Designed for 1X Magnification
- Ideal for Finite Conjugate Applications
- 10 to 50mm Diameter Options

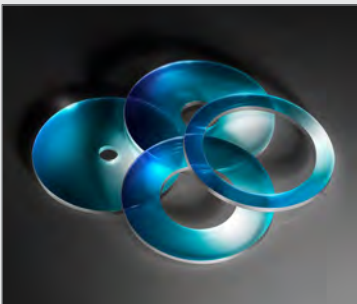
[www.edmundoptics.com/4224](http://www.edmundoptics.com/4224)



**Roscolux® Color Filters**

- Wide Range of Color and Diffusion Filters
- Heat Resistant and Flame Retardant
- Extruded Polycarbonate and Deep-Dyed Polyester Substrates

[www.edmundoptics.com/4213](http://www.edmundoptics.com/4213)



**Sapphire Windows with Through Holes**

- 25.4mm Diameter Sapphire Substrates
- 3.2 - 19.1mm Through Hole Diameters
- High Transmission From 0.33 - 5.5µm

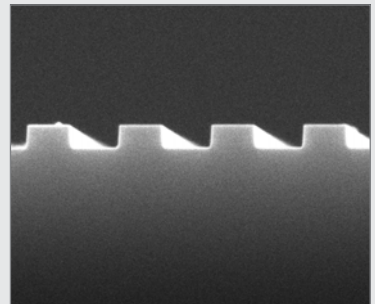
[www.edmundoptics.com/4163](http://www.edmundoptics.com/4163)



**TECHSPEC® Precision Molded Aspheric Lenses**

- Precision Glass Molded Lenses
- Ideal for High Volume Production Requirements
- Available in Convenient Packs of 10 for Volume Integration

[www.edmundoptics.com/4155](http://www.edmundoptics.com/4155)



**II-VI LightSmyth™ Nanopatterned Silicon Stamps**

- Nanoscale-Textured Grooved Surfaces
- Variable Groove Period and Groove Depth
- Ideal for Nanophotonics Research Applications

[www.edmundoptics.com/4151](http://www.edmundoptics.com/4151)



**TECHSPEC® Ultrafast-Enhanced Silver Laser Mirrors**

- New 800 - 1150nm Coating Design
- 0 ±30fs<sup>2</sup> Group Delay Dispersion
- Available on Flat, Concave, and Off-Axis Parabolic Mirrors

[www.edmundoptics.com/4002](http://www.edmundoptics.com/4002)



**C-Mount Turrets**

- 4 Position Turrets with C-Mount for Easy System Integration
- M26 x 0.706 Option for Mitutoyo Objectives
- M25 x 0.75 Option for Nikon Objectives

[www.edmundoptics.com/4225](http://www.edmundoptics.com/4225)



**Mitutoyo Widefield and BD Video Microscope Unit (VMU)**

- Widefield VMUs Support C and F-Mount Cameras
- Brightfield/Darkfield (BD) VMUs Support Mitutoyo BD Objectives
- In-Line Illumination Port for Easy System Integration

[www.edmundoptics.com/3504](http://www.edmundoptics.com/3504)

# WATERPROOF Machine Vision Products for Demanding Environments

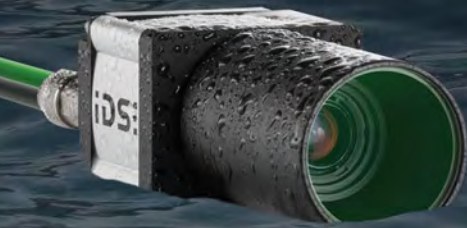


Edmund Optics® offers a full range of machine vision imaging lenses, cameras, and illumination products that feature stringent Ingress Protection (IP) ratings. Ideal for washdown in food processing, pharmaceutical, and agricultural applications, these products are designed to ensure optimal performance in the most demanding conditions. Edmund Optics® has the complete imaging solution for harsh environments.



## TECHSPEC® Cw Series Fixed Focal Length Lenses

- Meets IEC Ingress Protection Ratings of IPX7 and IPX9K
- Wide Range of Focal Lengths and f/#s Available



## IDS Imaging uEye+ FA IP65/67 PoE Cameras

- Robust IP65/67 Housing for Dust and Washdown Protection
- Compatible with TECHSPEC® Cw Series Lenses



## Advanced Illumination UltraSeal Washdown Lights

- IP69K Certified for Extreme Washdown Environments
- Proprietary Housing to Prevent Corrosion and Overheating

Expert Product and Application Support Engineers are available

**Monday – Friday 24 hours, and Saturday, 10AM to 6PM ET**

to offer complimentary assistance in designing your  
machine vision imaging systems for **HARSH ENVIRONMENTS.**