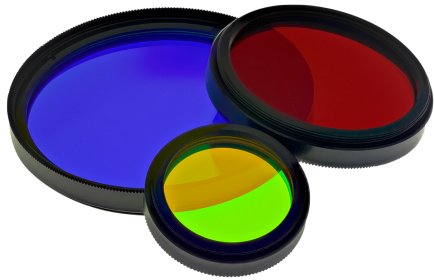


# BANDPASS FILTERS

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**MIDOPT**  
MIDWEST OPTICAL SYSTEMS, INC.



MidOpt Bandpass Filters are the simplest, quickest and most cost-effective way to improve the image contrast, repeatability, and long term stability of any industrial vision system.

## FEATURES

- Enhance contrast for viewing of desired features
- Designed for use with all common LED wavelengths used in machine vision lighting
- Designed for use with laser diodes and capturing of UV excited fluorescence emissions
- Shields systems from the variability of unwanted ambient light
- Eliminates the need for cumbersome and expensive shrouding
- Helps to counter the negative effects of chromatic aberration
- Less susceptible to angle of incidence variation than traditional interference filters
- Used to mimic LED lighting when testing to determine the optimal wavelength of lighting to select for an application
- Aids in increasing LED light stability and longevity by facilitating operation at reduced power levels
- For UV, Visible and/or Near-IR wavelengths
- Essential for imaging in the UV and near-IR, as visible light should be blocked in these cases

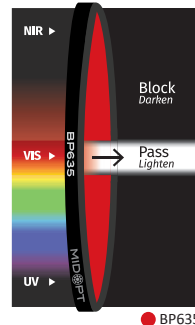
**Useful for:** Industrial inspection, security, traffic control, medical and forensic applications

## MOUNT & SIZE OPTIONS

- Threaded mount sizes from M13.25-M105, C/CS mounts, Slip mounts, Unmounted
- Custom shapes and sizes; mounted or unmounted versions available

## BP Series

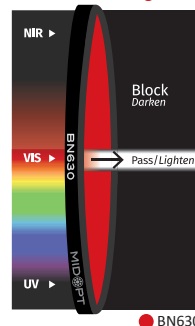
For standard machine vision and surveillance applications



● BP635

## BN Series

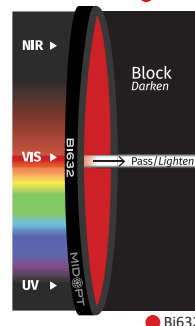
For outdoor applications or situations involving overwhelming ambient light



● BN630

## Bi Series

For laser diode or other narrow spectrum light source applications



● Bi632

**DEFINITION** – A bandpass filter transmits a specific portion of the spectrum while blocking shorter and longer wavelengths. Increasing signal-to-noise, results in improved contrast and better control over changes that may occur over time in ambient lighting conditions. In the case of bandpass filters, “broad” and “rugged” are necessary in most machine vision applications. This allows for use with wide angle lenses and for variations in the spectral output of LEDs and laser diodes, while providing environmental stability and mechanical durability.

	Part #	Description	Useful Range	FWHM	Tolerance	Peak Transmission	Surface Quality	
<b>BP SERIES — BROAD BANDWIDTH</b>								
UV	BP250	Deep-to-Near UV Bandpass	230-275nm	70nm	+/- 10nm	>40%	40/20	
	BP324	Near-UV Bandpass	290-365nm	105nm	+/- 10nm	>90%	40/20	
	BP365	Near-UV Bandpass	335-400nm	80nm	+/- 10nm	>85%	40/20	
VIS	BP470	Blue Bandpass	435-495nm	85nm	+/- 10nm	>90%	40/20	
	BP500	Green-Blue Bandpass	440-555nm	248nm	+/- 10nm	>85%	40/20	
	BP505	Cyan Bandpass	485-550nm	90nm	+/- 10nm	>90%	40/20	
	BP525	Light Green Bandpass	500-555nm	80nm	+/- 10nm	>90%	40/20	
	BP550	Near-IR/UV Block-Visible Bandpass	410-690nm	300nm	+/- 10nm	>90%	40/20	
	BP590	Orange Bandpass	560-600nm	70nm	+/- 10nm	>90%	40/20	
	BP635	Light Red Bandpass	610-650nm	65nm	+/- 10nm	>90%	40/20	
NIR	BP660	Dark Red Bandpass	640-680nm	65nm	+/- 10nm	>90%	40/20	
	BP695	Near-IR Bandpass	680-720nm	65nm	+/- 10nm	>90%	40/20	
	BP735	Near-IR Bandpass	715-780nm	90nm	+/- 10nm	>90%	40/20	
	BP800	Near-IR Bandpass	745-950nm	315nm	+/- 10nm	>90%	40/20	
	BP810	Near-IR Bandpass	790-830nm	65nm	+/- 10nm	>90%	40/20	
	BP850	Near-IR Bandpass	820-910nm	160nm	+/- 10nm	>90%	40/20	
	BP880	Near-IR Bandpass	845-930nm	130nm	+/- 10nm	>90%	40/20	
	<b>BN SERIES — NARROW BANDWIDTH</b>							
VIS	BN470	Narrow Blue Bandpass	460-490nm	50nm	+/- 10nm	>85%	40/20	
	BN532	Narrow Green Bandpass	525-550nm	55nm	+/- 10nm	>85%	40/20	
	BN595	Narrow Orange Bandpass	580-610nm	45nm	+/- 10nm	>85%	40/20	
	BN630	Narrow Light Red Bandpass	625-645nm	45nm	+/- 10nm	>85%	40/20	
NIR	BN660	Narrow Dark Red Bandpass	645-675nm	45nm	+/- 10nm	>85%	40/20	
	BN740	Narrow Near-IR Bandpass	730-755nm	50nm	+/- 10nm	>85%	40/20	
	BN785	Narrow Near-IR Bandpass	770-790nm	45nm	+/- 10nm	>85%	40/20	
	BN810	Narrow Near-IR Bandpass	798-820nm	50nm	+/- 10nm	>85%	40/20	
	BN850	Narrow Near-IR Bandpass	840-865nm	45nm	+/- 10nm	>85%	40/20	
	BN880	Narrow Near-IR Bandpass	855-890nm	45nm	+/- 10nm	>85%	40/20	
	<b>BI SERIES — NARROW INTERFERENCE BANDWIDTH</b>							
	VIS	Bi632	Light Red Interference Bandpass	625-640nm	28nm	+/- 3nm	>88%	40/20
Bi660		Dark Red Interference Bandpass	650-665nm	28nm	+/- 3nm	>88%	40/20	

\*Due to continuous product improvement, specifications are subject to change without notice.

## BP Series – Broad Bandwidth

### ULTRAVIOLET (UV) < 400nm

UV filters transmit selected UV wavelength ranges. Typically these filters must pass UV light while blocking visible and near-IR wavelengths. They can be placed over lenses and are sometimes placed over UV light sources to trim/block output of visible light.

UV Blocking filters typically transmit visible light while blocking UV light over a specified range. These filters are used in UV fluorescence applications.

### VISIBLE 400-700nm

Block all unwanted visible, UV and near-IR wavelengths except for a specific portion of the visible spectrum. Typically these are matched to the wavelength output of an LED light, laser diode or visible fluorescence emitted by an inspection subject following excitation with UV light. In these cases the subject typically appears white or lighter in contrast color when the filter is used together with a monochrome camera.

Visible block filters improve resolution by reducing the wavelength range of light allowed to pass through the camera lens, thus eliminating chromatic aberrations.

### NEAR-INFRARED (NEAR-IR) > 700nm

Near-IR filters block all UV and visible wavelengths so that maximum contrast can be achieved while using near-IR illumination provided by the sun or artificial light sources. Often they are matched to the output wavelength of an LED or laser diode. In the presence of normal room light or daylight conditions, the desired contrasting effect is often completely lost without the use of a near-IR pass filter.

Near-IR blocking filters block all or selected near infrared (and sometimes red) wavelengths of light. This is particularly important in color imaging applications in order for a color camera to be able to produce good color rendition. When used together with a monochrome camera, these filters can also help to alleviate problems caused by overly bright lighting conditions. These filters improve resolution in the IR.

Also available: BN & Bi Series Bandpass Filters

