



Light filtering is a typical need in machine vision measurement applications. For instance, you may need to avoid possible interactions between your LED illuminator and other light sources in an industrial environment.

Moreover, sun light is very frequently causing errors in imaging systems due to unexpected reflections from the surface of the parts being measured. In these cases, a band-pass or long-pass filter that matches the emission wavelength of the illuminator is usually integrated in front of the objective; this way, only the light coming from the illuminator is collected while the rest of the spectrum is cut out. Furthermore, many machine vision applications require monochromatic illumination in order to enhance or suppress particular object features: under these conditions, only the features with a certain color are imaged and can be measured.



PART NUMBER	DESCRIPTION	MATCHING PRODUCTS
Filter Mount		
TC-FILTER	Filter Mount for Telecentric Lenses	Telecentric lenses TC12yy, TC23yy, TC2M, TC4M 1 2 2
Filters		
Collimated illuminators		
COBP470D17.5	Blue (470 nm) bandpass filter, 17.5 mm diameter	/B LED sources
COBP525D17.5	Green (525 nm) bandpass filter, 17.5 mm diameter	/G LED sources
COBP635D17.5	Red (635 nm) bandpass filter, 17.5 mm diameter	/R LED sources
COBP880D17.5	IR (880 nm) bandpass filter, 17.5 mm diameter	/IR890 LED sources
COLP920D17.5	IR (920 nm) longpass filter, 17.5 mm diameter	/IR940 LED sources
COPRO32D17.5	Polarizer, 17.5 mm diameter	

- 1** Except TC2304, TC2307, TC2309, TC2312
- 2** C-mount versions only

Putting a filter in front of a telecentric lens can be very inconvenient when the size of the lens is very big. The filter should be as large as the front element of the lens, thus becoming very expensive.

To overcome size and cost issues, Opto Engineering designed a smart filter adaptor that can be easily plugged into the rear part of the lenses. This simple and cost effective accessory is compatible with all TC12yy and TC23yy TC series bi-telecentric lenses and the C-mount versions of TC4M and TC2M series bi-telecentric lenses.

The bi-telecentricity of the Opto Engineering lenses makes this solution very efficient, since the rays remain parallel when passing through the filter. This allows for the optical bandpass to be maintained across the entire image surface.

Since inserting the filter will increase the back focal length of the lens, spacers (included in the TC lens package) must be added to the C-mount in order to set the lens back to its nominal working distance; the overall thickness of the spacers is usually equal to 1/3 of the filter thickness.

The supported filter diameter is 17,50 mm and the maximum recommended filter thickness is 4,00 mm.

Opto Engineering also offers a selection of standard filters fitting OE Telecentric Lenses and Collimated Illuminators.

