

Continuously Variable filter set for the range 320 nm to 760 nm

This filter set consist of three continuously variable filters: a long-wavelength-pass filter, a short-wavelength-pass filter, and a dichroic. CVLWP 310-850 (LF102475) can be combined with CVSWP 320-850 (LF102474) to make a continuously variable bandpass filter for the range 320 nm to 850 nm.

The Linear Variable Dichroic, LVDichroic 320 nm - 760 nm (LF102227), is a long-wavelength-pass type dichroic whose edge can be tuned from 320 nm to 760 nm. It can be combined with sets of the CVLWP 310-850 and CVSWP 320-850, for, e.g., fluorescence measurements. The LVDichroic's dependence on position is nearly linear.

Filter set specifications

λ_{center} tuning range	Minium bandwidth	Maximum bandwidth	Out of band Blocking	Product numbers
324 – 841 nm	6.4 – 17 nm	20 – 100 nm	OD2.4 (SW) OD4 (LW)	LF102474, LF102475

Detailed data for the three filters in this set are given below.

CVLWP 310-850 (LF102475)

Continuously variable long-wavelength-pass filter with $\lambda_{50\%}$ travelling from ≤ 310 nm to ≥ 850 nm within ≤ 58 mm

OD2 blocking reached within $0.01 * \lambda_{50\%}$

Near-edge average transmittance

T_{avg}	$\lambda_{50\%}$	Interval start	Interval end
$\geq 85\%$	310 nm – 420 nm	$1.01 * \lambda_{50\%}$	$1.1 * \lambda_{50\%}$
$\geq 92\%$	420 nm – 850 nm	$1.01 * \lambda_{50\%}$	$1.1 * \lambda_{50\%}$

Broad-band minimum transmittance

T_{avg}	$\lambda_{50\%}$	Interval start	Interval end
$\geq 80\%$	310 nm – 420 nm	$1.02 * \lambda_{50\%}$	$\lambda_{50\%} + 120$ nm
$\geq 90\%$	420 nm – 850 nm	$1.02 * \lambda_{50\%}$	$\lambda_{50\%} + 120$ nm

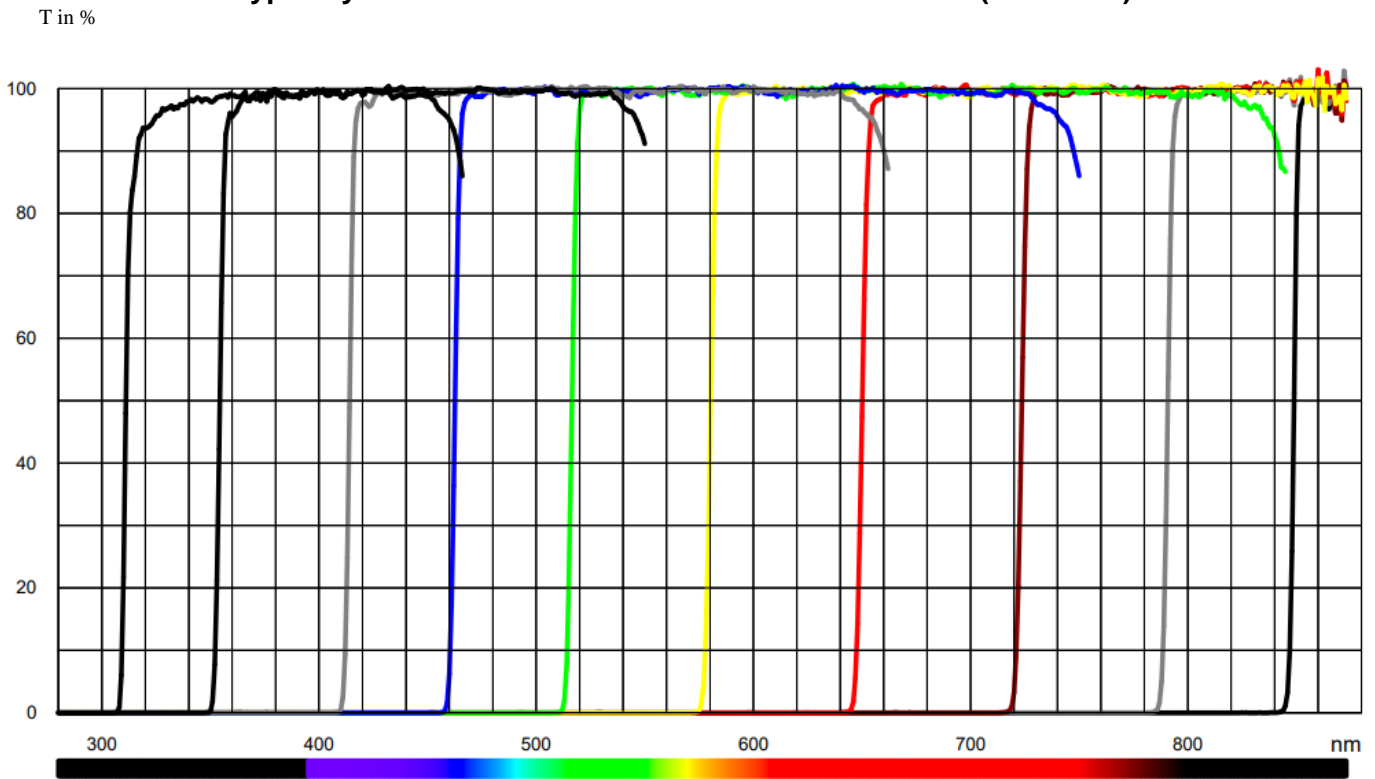
Broad-band blocking (maximum transmittance)

T_{max}	$\lambda_{50\%}$	Interval start	Interval end
$\leq 1\%$	310 nm – 850 nm	190 nm	$0.99 * \lambda_{50\%}$
$\leq 0.1\%$	310 nm – 850 nm	190 nm	$0.97 * \lambda_{50\%}$

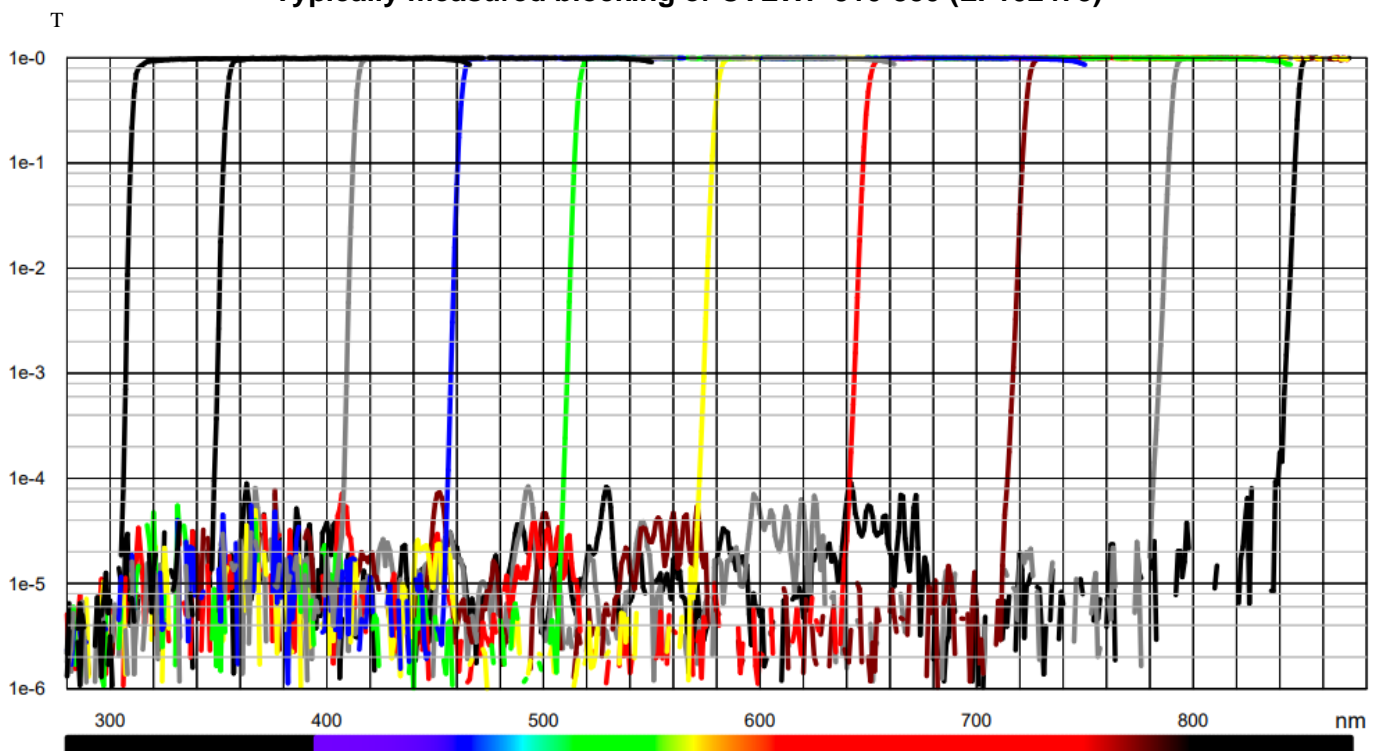
Broad-band blocking (average transmittance)

T_{avg}	$\lambda_{50\%}$	Interval start	Interval end
$\leq 0.05\%$	310 nm – 850 nm	190 nm	$0.97 * \lambda_{50\%}$

Typically measured transmittance of CVLWP 310-850 (LF102475)



Typically measured blocking of CVLWP 310-850 (LF102475)



CVSWP 320-850 (LF102474)

Continuously variable short-wavelength-pass filter with $\lambda_{50\%}$ travelling from ≤ 320 nm to ≥ 850 nm within ≤ 58 mm

OD2 blocking reached within $0.02 * \lambda_{50\%}$

Near-edge average transmittance

T_{avg}	$\lambda_{50\%}$	Interval start	Interval end
$\geq 42\%$	320 nm – 370 nm	$0.96 * \lambda_{50\%}$	$0.99 * \lambda_{50\%}$
$\geq 65\%$	370 nm – 430 nm	$0.95 * \lambda_{50\%}$	$0.99 * \lambda_{50\%}$
$\geq 85\%$	430 nm – 520 nm	$0.95 * \lambda_{50\%}$	$0.99 * \lambda_{50\%}$
$\geq 90\%$	520 nm – 850 nm	$0.95 * \lambda_{50\%}$	$0.99 * \lambda_{50\%}$

Broad-band minimum transmittance

T_{min}	$\lambda_{50\%}$	Interval start	Interval end
$\geq 40\%$	320 nm – 330 nm	305 nm	$0.98 * \lambda_{50\%}$
$\geq 60\%$	330 nm – 370 nm	$0.94 * \lambda_{50\%}$	$0.98 * \lambda_{50\%}$
$\geq 70\%$	370 nm – 430 nm	$0.88 * \lambda_{50\%}$	$0.98 * \lambda_{50\%}$
$\geq 80\%$	430 nm – 520 nm	$0.83 * \lambda_{50\%}$	$0.98 * \lambda_{50\%}$
$\geq 87\%$	520 nm – 850 nm	$\lambda_{50\%} - 100$ nm	$0.98 * \lambda_{50\%}$

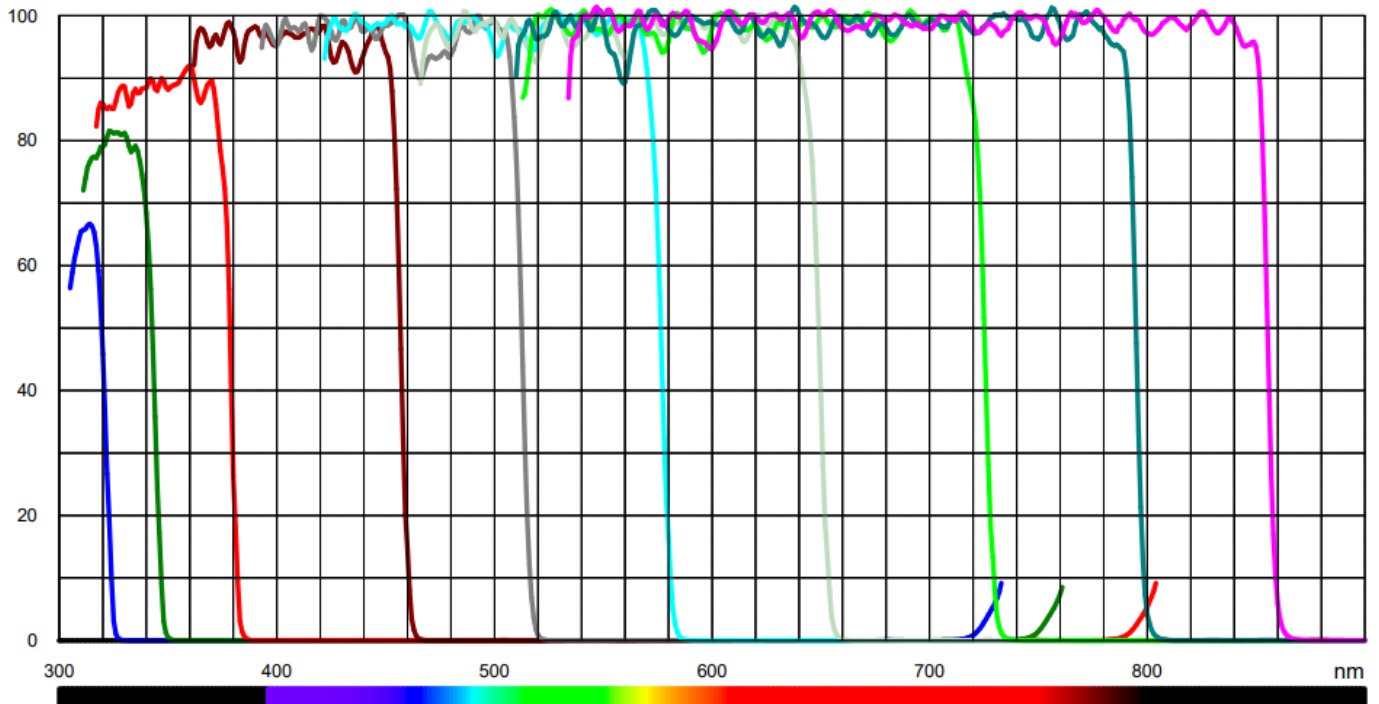
Broad-band blocking (maximum transmittance)

T_{max}	$\lambda_{50\%}$	Interval start	Interval end
$\leq 1\%$	320 nm – 850 nm	$1.02 * \lambda_{50\%}$	$1.45 * \lambda_{50\%} + 220$ nm
$\leq 0.2\%$	320 nm – 850 nm	$1.03 * \lambda_{50\%}$	$1.4 * \lambda_{50\%} + 220$ nm

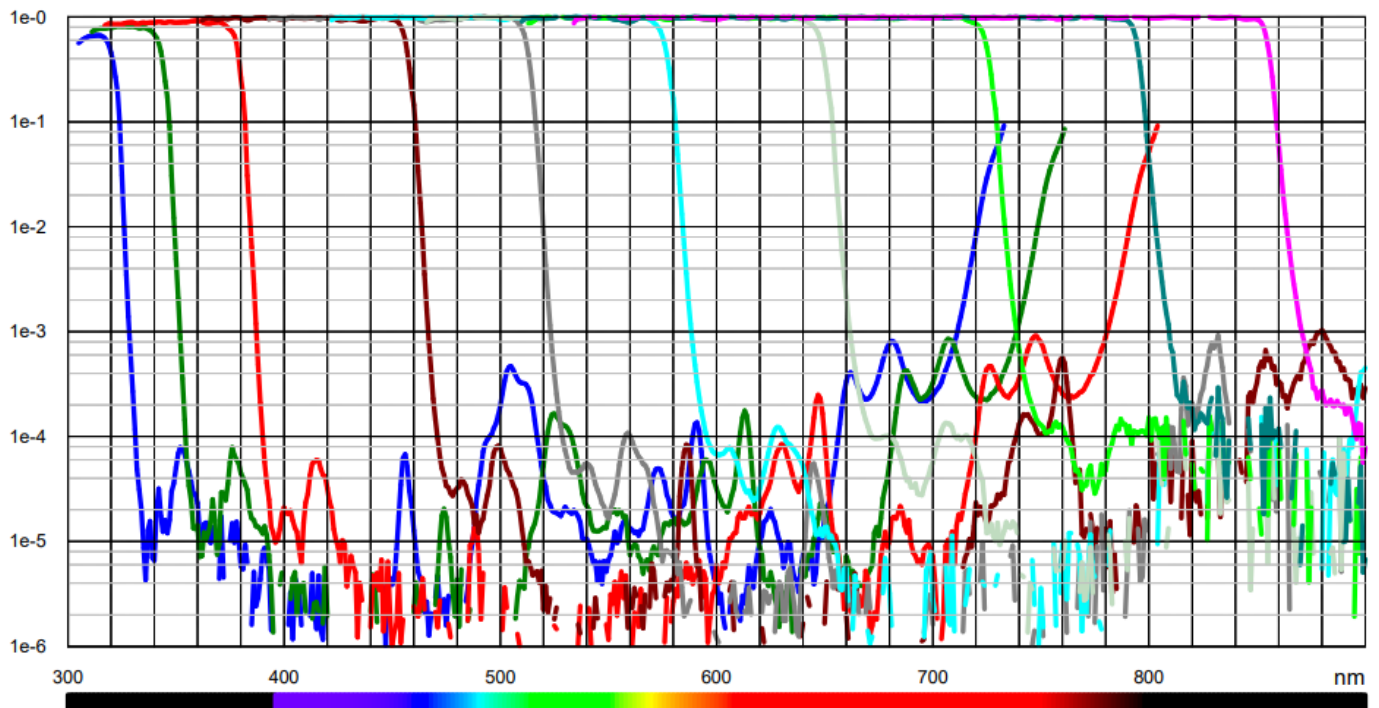
Broad-band blocking (average transmittance)

T_{avg}	$\lambda_{50\%}$	Interval start	Interval end
$\leq 0.02\%$	395 nm – 815 nm	$1.03 * \lambda_{50\%}$	$1.4 * \lambda_{50\%} + 220$ nm

Typically measured transmittance of CVSWP 320-850 (LF102474)



Typically measured blocking of CVSWP 320-850 (LF102474)



LV Dichroic 320 -760 (LF102227)

This filter is a Continuous Variable Long Wave Pass filter with a nominal Angle of Incidence (AOI) of 45° that can be used as a beam splitter.

Continuously Variable Long Wave Pass filter with $\lambda_{50\%}$ travelling from ≤ 320 nm to ≥ 760 nm within ≤ 58 mm

OD2 blocking reached within $0.035 * \lambda_{50\%}$

Small polarization split

Near-edge average transmittance

T_{avg}	$\lambda_{50\%}$	Interval start	Interval end
$\geq 85\%$	320 nm – 420 nm	$1.02 * \lambda_{50\%}$	$1.1 * \lambda_{50\%}$
$\geq 90\%$	420 nm – 760 nm	$1.02 * \lambda_{50\%}$	$1.1 * \lambda_{50\%}$

Broad-band minimum transmittance

T_{min}	$\lambda_{50\%}$	Interval start	Interval end
$\geq 81\%$	320 nm – 420 nm	$1.03 * \lambda_{50\%}$	$\lambda_{50\%} + 150$ nm or 870 nm (whichever is smallest)
$\geq 87\%$	420 nm – 760 nm	$1.03 * \lambda_{50\%}$	$\lambda_{50\%} + 150$ nm or 870 nm (whichever is smallest)

Broad-band blocking (maximum transmittance)

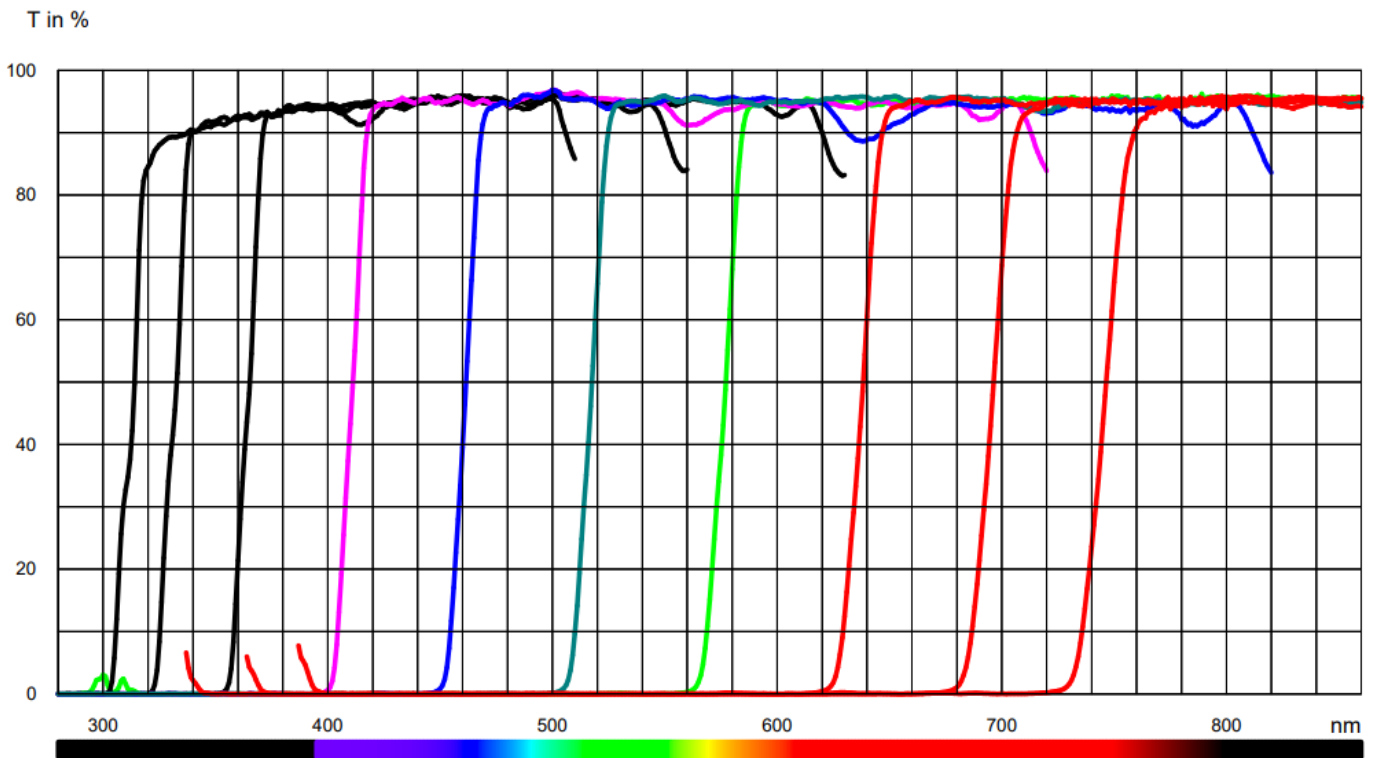
T_{max}	$\lambda_{50\%}$	Interval start	Interval end
$\leq 1\%$	320 nm – 760 nm	$0.553 * \lambda_{50\%}$	$0.963 * \lambda_{50\%}$

T_{max}	$\lambda_{50\%}$	Interval start	Interval end
$\leq 0.25\%$	320 nm – 420 nm	$0.56 * \lambda_{50\%}$	$0.96 * \lambda_{50\%}$
$\leq 0.65\%$	420 nm – 760 nm	$0.56 * \lambda_{50\%}$	$0.96 * \lambda_{50\%}$

Broad-band blocking (average transmittance)

T_{avg}	$\lambda_{50\%}$	Interval start	Interval end
$\leq 0.05\%$	320 nm – 420 nm	$0.56 * \lambda_{50\%}$	$0.96 * \lambda_{50\%}$
$\leq 0.1\%$	420 nm – 760 nm	$0.56 * \lambda_{50\%}$	$0.96 * \lambda_{50\%}$

Typically measured transmittance of LV Dichroic 320 - 760 (LF102227)



Typically measured blocking of LV Dichroic 320 - 760 (LF102227)

