Switchable Tunable Notch Filters

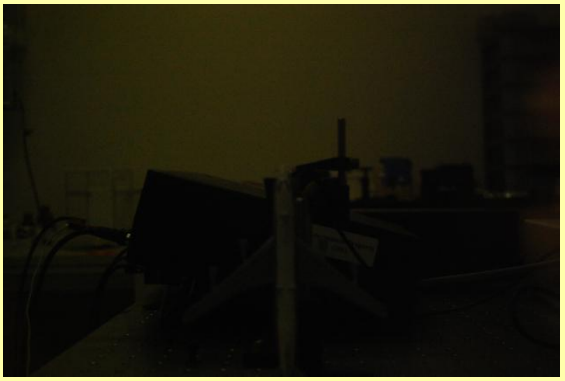
The *S-TNF™* series filters are one-of-a-kind products - they are both *switchable and tunable*. Their performance is superior to the competitive products offered in the marketplace. They have *2X* higher out-of-notch transmittance over a *super-wide spectral range* in the non-blocking state, which is critical for capturing weak brightness scenes under low environment light. The filters consist of *all active components made from liquid crystal* which *does not rely on light absorption mechanism.*

The *S-TNF™* products can be used either as system components or standalone devices. Typical applications include laser protection, spectral filtering, laser beam directing, beam splitting, remote sensing, vision-aids, etc.

S-TNF™ series has optical density (OD) >3 at the notch wavelength in active blocking state, > 40% transmittance outside the notch band, and a switching time of ~5 ms.

S-TNF™ series come with a compact power supply; either battery or 110/220 V wall-plug powered. Customers options include the selection of spectral range, operational mode (manual or computer control), substrate material, shape and aperture. All products are offered at a competitive price. A demo is available upon request.

S-TNF™ enhances sensor low illumination performance.



Sensor performance is significantly degraded with currently available commercial tunable notch filters.

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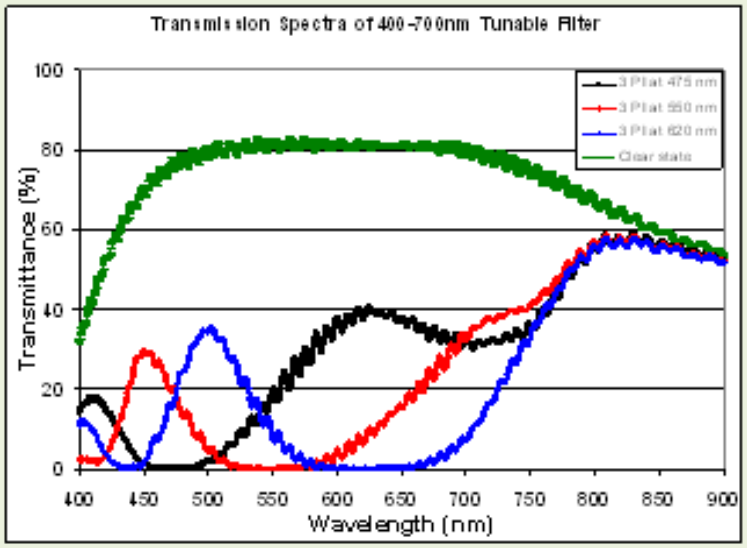
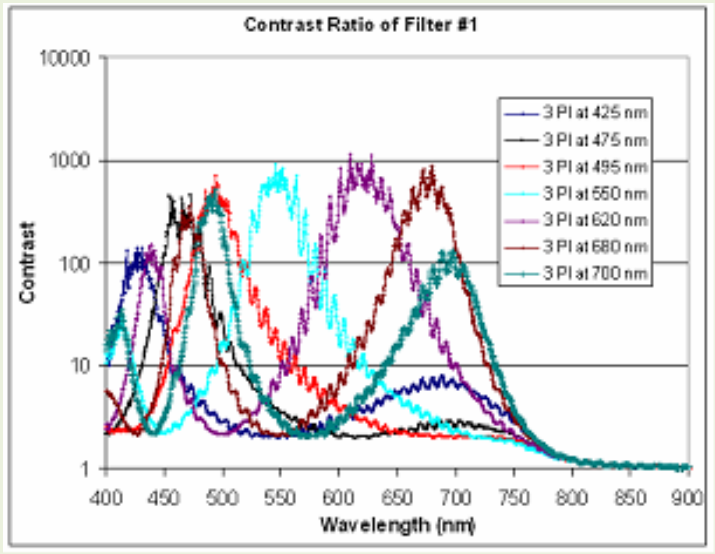
KentOptronics

S-TNF™ Tunable Notch Filters



Blocking & non-blocking
Transmission



Blocking state
contrast ratio

S-TNF™ Specifications

Parameter	Specification		Parameter	Specification
Spectral region	0.4 – 2.7 μm		Uniformity of retardance	<0.1 OD across the clear aperture
Transmittance (blocking inactive)	~80%		Wavefront distorsion	< 0.5 wavelength at 633 nm
Scene spectral neutrality (blocking inactive)	Neutral		Parallelism	< 2 arcminutes
Polarizing properties	Polarization insensitive		Response time	5.3ms switching to blocking mode
Tunable narrowband blocking waveband	>300 nm (continuously tunable blocking)		Rate of change of temperature	Survive a rate of change of temperature of 3 °C per minute
Tunable narrowband blocking optical density	OD> 3 over the bandwidth		Driving voltage	Polarizer: 280V RMS Retarder: 0-1.5V RMS
Angular range for broadband transmission (parallel light operation)	> 25° in air		Computer interface	USB interface w/PC
Angular range for tunable narrowband blocking (parallel light operation)	> 25° in air		Weight	< 100g (filter only)
Clear aperture	Diameter: 5 - 50 mm (circular) Area: 5×5 to 50×50 mm^2 (square)		Substrate material	Glass, quartz and plastic (PC)
Thickness	< 10mm		Cable length	1 m
Operating temperature range	-5°C to 55°C without heating mechanism; -40 °C to 55 °C with heating mechanism		Input power to the driver	110V or 220V/50-60Hz AC or 9V battery
Survival temperature range	-51 °C to 120 °C		Total power consumption	< 120mW/cm^2
Laser damage threshold	>1 J/cm^2 (5ns pulsed @ 532nm >1kW/cm^2(CW @ 532nm)		Power Supply Weight	200g