

Acousto-optic tunable filters

Accurate, fast, adjustable wavelength selector

The **Acousto-optic tunable filters (AOTF)** are solid-state, electronically addressable, and random-access optical bandpass filters. Diffraction occurs when the acoustic beam and the light beam satisfy specific matching conditions. It can be used to quickly and dynamically select specific wavelengths from a wide spectrum.

CASTECH have designed AOTF products based on TeO₂ slow shear waves according to the existing material properties, achieving optimal performance in each wavelength range and meeting most applications: operating wavelength of 400-1450 nm, resolution as low as 3 nm, and effective aperture up to 10 mm. In most cases, AOTFs are designed with a non-collinear structure, and randomly polarized input light passing through the AOTF will diffract two orthogonal polarizations of ± 1 order that match the specific frequency of the ultrasonic wave. Users can easily use it and can be fiber-coupled as needed.

To achieve the best fit performance, it is recommended to use our RF drivers, which include fixed-frequency and variable-frequency series.

CASTECH's products are produced independently throughout the entire process and can be customized according to customer needs. Refer to the following list for standard products.



Applications

- Spectral polarization
- Hyperspectral imaging
- wavelength selection
- Optical communication
- Laser wavelength tuning

Model Number: CATF-w-a-mt-w-c-h

Wavelength (w)	Aperture (a)	Material (m)	Mode (t)	Sidlobe Suppression (s)	Wavelength Resolution (f)	RF Connector (c)	Housing (h)
640-1100 (640-1100 nm) ...	010 (1 mm) ...	CQ TE	C (Compressional) ...	A (Yes) B (No)	10 (10 nm) ...	AF (SMA-F) ...	C60 ...

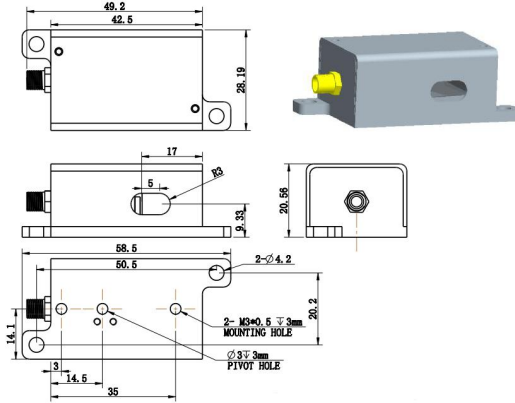
Typical Specifications

Wavelength	Aperture	Resolution	Diffraction efficiency	Input/output polarization
450-650 nm	2.5 mm	≤3 nm	≥80 %	vertical/horizontal
450-650 nm	8 mm	≤10 nm	≥75 %	horizontal/vertical
640-1100 nm	2 mm	≤10 nm	≥85 %	vertical/horizontal
400-900 nm	3 mm	≤5 nm	≥65 %	horizontal/vertical
430-1450 nm	2.5 mm	≤15 nm	≥50 %	horizontal/vertical

Acousto-Optic Tunable Filters

Housing dimensions(mm):

B70



C60

