Acousto-optic Frequency Shifters

STFS Series

2022 V1

For customized projects please Contact us:

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AO-Frequency Shifters

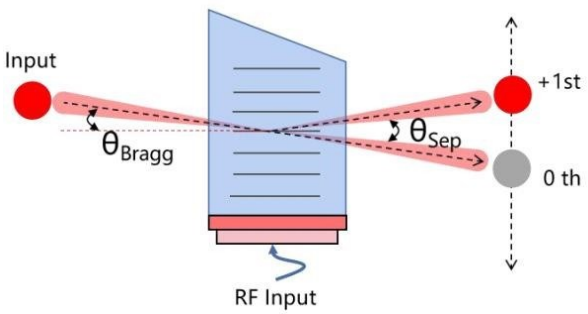
The acousto-optic device that converts the frequency of input light to the frequency of an RF drive

After the laser beam passes through all the acousto-optic devices, the diffraction output beam will generate a frequency shift. Acousto-optic frequency shifters (AOFS) are compact devices specially designed for frequency shifts. Depending on the selected angle of incidence, the AOFS will shift the frequency up or down by the frequency of the applied RF signal, and two or more devices can be cascaded to achieve a sum or difference frequency combination. SIMTRUM offers AOFS products that adopt specially designed acoustic absorber angles to minimize sound reflection and improve the efficiency of AOFS.

In addition to the conventional TEO_2-based products, SIMTRUM's AOFS also offers a variety of products, including UVFS and Ge single crystals, which can be used individually or in a cascade to achieve a 15-250 MHz frequency shift as required.

Applications

- Laser heterodyne interference
- Laser Doppler velocity measurement
- Doppler vibration measurement (LDV)



Product Specifications

General Specifications	
Interaction Material	Tellurium Dioxide
Acoustic Mode	Shear
Operating Wavelength	633 / 1064 nm
Polarization	Incident Beam: Linear, horizontal to base 1st Order Beam: Linear, vertical to base 0 Order Beam: Linear, horizontal to base
Transmission	> 95% ~ 97%
Active Aperture	1.0 / 3.0 mm
Center Frequency (Fc)	20 ~ 115 MHz
RF Bandwidth (RB)	5 ~ 15 MHz
Diffraction Efficiency @RB	> 80%
RF Power	< 1 ~ 2 W (Max)
Input Impedance	50Ω Nominal
VSWR @Fc	< 2.5:1 / < 3:1
RF Connector	SMA-F
Cooling	Conduction-cooled
Shell Material	Aluminum alloy 6063

Selection Guide

Ordering Information

	Fc		RB		Active aperture		Wavelength
STFS0001 - TS	XXX	-	XXX	-	XXX	-	XXX
	20 MHz 020		10 MHz 010		1 mm 010		266 nm 266
	42 MHz 042		50 MHz 050		2 mm 020		355 nm 355
	73 MHz 073		80 MHz 080		3 mm 030		633 nm 633

Product Code	Wavelength	Active Aperture	Center Frequency	Diffraction Efficiency	RF Power (Max)	Optical Material	Cooling
STFS1001-TS020-030-633	633 nm	3.0 mm	20 MHz	/	> 80 %	Tellurium dioxide	Conduction-cooled
STFS1002-TS042-030-633	633 nm	3.0 mm	42 MHz	/	> 80 %	Tellurium dioxide	Conduction-cooled
STFS1003-TL100-030-633	633 nm	3.0 mm	100 MHz	/	> 80 %	Tellurium dioxide	Conduction-cooled
STFS1004-TL115-030-633	633 nm	3.0 mm	115 MHz	/	> 80 %	Tellurium dioxide	Conduction-cooled
STFS1005-TS042-030-633	633 nm	3.0 mm	42 MHz	/	> 80 %	Tellurium dioxide	Conduction-cooled
STFS1006-TS020-030-633	633 nm	3.0 mm	20 MHz	/	> 80 %	Tellurium dioxide	Conduction-cooled
STFS2001-TS042-020-030-633	633 nm	3.0 mm	42 MHz & 20 MHz	/	> 80 %	Tellurium dioxide	Conduction-cooled
STFS1008-TS070_5-010-1064	1064 nm	1.0 mm	73 MHz	5 MHz	> 80 %	Tellurium dioxide	Conduction-cooled
STFS1007-TS073_15-010-1064	1064 nm	1.0 mm	73 MHz	15 MHz	> 80 %	Tellurium dioxide	Conduction-cooled

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