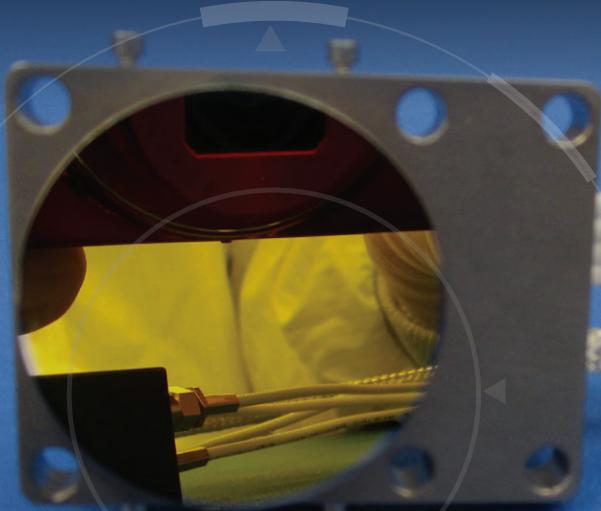


1" Fast Steering Mirror (FSM)





bluehalo.com | sales@bluehalo.com

1" Fast Steering Mirror (FSM)

BlueHalo has been developing and delivering custom high performance Fast Steering Mirrors (FSMs) for ground-based, airborne, and space-qualified applications for over ten years. Our FSMs are used to reduce jitter and provide pointing accuracy in Directed Energy Weapon (DEW) systems, long range Laser Communications (Laser Comm), and other optical imaging and scanning systems. ATA's 1-inch FSM is delivered on a Firm Fixed Price (FFP) contract with a set delivery schedule and no Non-Recurring Engineering (NRE).

Features

BlueHalo FSMs use silicon carbide, single crystal silicon or metal (aluminum or beryllium) substrates depending on the specific requirements of the application. We can provide mirrors with virtually any coating requirement from basic metal coatings to high reflectivity dielectric coatings designed for HEL applications. BlueHalo's 1" FSM is space-qualified, providing high acceleration (>5,000 radians/sec²), high bandwidth (>2 kHz optical, >1 kHz position), and extremely low jitter (<1 μ rad, 1-1,000 Hz). All FSMs come with a digital controller.

Benefits

BlueHalo FSMs are competitively priced to reduce program costs. Our mechanism designs are scalable, which eliminates NRE. Different mirror substrates and coatings provide customers the flexibility to tailor their FSM to specific program requirements. High acceleration provides greater torque authority enabling high bandwidth and providing rapid scanning capability. High bandwidth enables accurate jitter rejection from base motion and atmospheric turbulence in tip/tilt.



Specifications for the 1" FSM

Optical	
Mirror Size	1" Circular
Clear Aperture	0.8" Circular
Mirror Substrate	Beryllium
Wavefront Error	32 nm RMS
Coating	Enhanced Gold
Performance	
Angular Range (Mechanical)	Up to ± 1 deg (17.5 mrad)
Acceleration	>5000 rad/s ²
Bandwidth (Closed-Loop, 3 dB Point)	>2.0 kHz Optical >1.0 kHz Position
Jitter (1-1000 Hz)	<1 μ rad (Depends on Angular Range)
Accuracy	<5 μ rad/mrad (Depends on Angular Range)
Mechanical/Electrical	
Mechanism Size	1.2" x 1.6" x 0.8"
Mechanism Mass	0.2 lbs.
Reactionless	No
Digital Controller Size	10" x 10" x 3"
Digital Controller Mass	8 lbs.
External Command/Status Interface	Ethernet, Serial (232, 422), SpaceWire, SPI, CAN
Input Voltage	28 VDC
Peak Power	20 W
Cable Length	<20 ft.
Environmental	
Temperature Range (Operating)	-30 to +60 °C
Humidity (Operating)	0 to 80% (non-condensing)
Vibration (Non-operating)	18 g RMS (0-2000 Hz)
Shock (Non-operating)	100 g (10 msec pulse)

Specifications subject to change without notice.