

# FM3 Closed Loop

Galvanometer Scanners



Flexures scanners offer an alternative to bearing-based scanners providing extended life and smooth scanning in industrial and high resolution systems.

Note: Available with or without cooling fans.



## Extremely Long Life

The *FM3* optical scanners use flexures in place of bearings to achieve cycle life unmatched by any bearing scanner. Systems that scan at high frequencies and demand 24/7 operation can quickly use up the finite number of cycles a bearing scanner has to offer. Use of high inertial loads and repetitive scan patterns contribute to accelerated bearing wear and will reduce overall scanner lifetime. That's why GSI Group offers the *FM3 scanners* that combine the high torque of moving magnet scanners with flexure technology for extremely long life.

Use of the *FM3* scanners eliminates lubrication outgassing that can cause degradation of system optics-critical in near vacuum environments. *FM3* scanners can reduce the number of service calls and add to the bottom line.

## Extremely Smooth Scanning

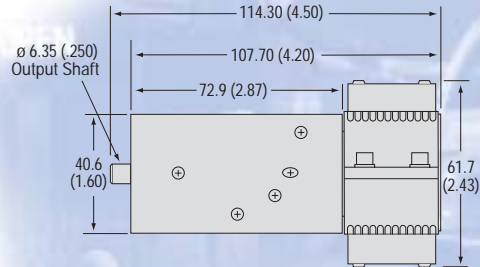
The *FM3* optical scanners were originally designed for use in photo-quality print engines, where even the lowest levels of jitter and wobble are intolerable. *FM3* scanners are free from the static and dynamic friction found in all bearing devices that contributes to jitter. Wobble caused by

imperfect bearing geometry is virtually eliminated. The *FM3* can achieve the lowest possible jitter and wobble of any galvanometric scanner. In the absence of wearing parts, *FM3 scanners* provide "out of the box" performance throughout the lifetime of your system!

*FM3 optical scanners... when your application demands a smoother scan or a longer cycle life than any ball bearing can deliver.*

## FM3 Specifications

Parameter	Units	FM3
Max Scan Angle	degrees, optical	±30°
Non-linearity (max)	% over ±20° optical	0.1
Offset Drift (max)	μ radians/°C	30
Gain Drift (max)	ppm/°C	100
Operating Temperature	°C	0-50
Optimal mirror size	mm, clear aperture	15-30+
Bandwidth <sup>1, 2</sup> (typical)	Hz	>700
Small Step Time <sup>1, 2</sup> (typical)	μS	<900



Dimensions in mm (inches)

<sup>1</sup> Dynamic specifications listed above will vary depending on mirror inertia, command waveform and servo adjustment. Open-loop models are also available.

<sup>2</sup> When used in combination with MiniSAX servo.

Specifications are subject to change. Consult GSI Group for details

[www.gsig.com/scanners](http://www.gsig.com/scanners)



### Americas

39 Manning Road  
Billerica, MA 01821  
U.S.A.  
TEL: +1 (978) 439-5511  
Toll Free: +1 (800) 342-3757  
FAX: +1 (978) 663-0131  
E-mail: ScannerSales-Americas@gsig.com

### Europe

Einsteinstrasse 2  
D-85716 Unterschleißheim  
Germany  
TEL: +49 (89) 31707-0  
FAX: +49 (89) 31707-250  
E-mail: sales.components@gsig.com

### Asia

Technoport Kamata, 16-1  
Minami-Kamata 2-Chome,  
Ohta-Ku Tokyo 144-0035, Japan  
TEL: +81 (3) 5714-0380  
FAX: +81 (3) 5714-0335  
E-mail: gsi\_scanners@gsig.com