Fast steering mirrors

Dual axis fast steering mirrors with accurate position feedback

The compact MR-series mirrors combine the benefits of a large mirror surface with an exceptionally large tilt angle. The mirrors are suitable for automotive (LiDAR, headlights, ADAS), biometric, vision, free-space communication and medical applications. A built-in feedback system guarantees highly precise positioning control. Quasi-static and mixed quasi-static/resonant versions are available.

optotune

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Dual axis fast steering mirrors with position feedback

MR-15-30, MR-10-30

Compact, fast and precise

Optotune's dual axis mirror series is the ideal choice for applications that require a large field of view combined with a compact form factor. With a package size of 30 x 14.5 mm it achieves up to ±25° mechanical tilt, corresponding to 100° optical field-of-view. The mirrors contain a position feedback system enabling accurate control of deflection angle.

In addition to the popular quasi-static version, a resonant version is available with a linear quasi-static axis combined with a perpendicular resonant axis.

In contrast to galvo mirror heads, the rotation point is very close to the mirror surface. The mirrors are available for use with light in different wavelength ranges such as VIS, and NIR.

Specifications	MR-15-30	MR-10-30
Scan direction	bi-axial	bi-axial
Mechanical tilt angle	±25° X axis; ±25° Y axis	±25° (slow) X axis; ±12.5° (fast) Y axis
Mirror diameter	15 mm	10 mm
Resolution (closed loop)	22 µrad	22 µrad
Repeatability RMS (typical)	40 µrad	40 µrad (slow axis)
Full scale bandwidth	20 Hz	20 Hz (slow axis); 250 Hz (fast axis)
Mirror coating	gold, protected silver, dielectric VIS	gold, protected silver
Mirror reflectivity (gold coating)	avg >97% for NIR	avg >97% for NIR
Mirror flatness (P-V)	λ/2	λ/2

Mirror driver MR-E-2

> Interfaces: USB, UART, SPI, analog input
> Proxy board + CPU board constitutes a high volume OEM solution
> The standalone version with the proxy board integrated in the mirror head and a separate base unit is available as development kit
> Software SDKs for Python and C# are available

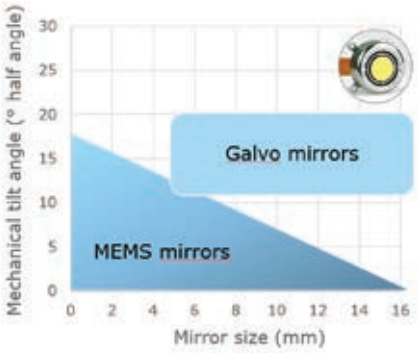
Advantages

> Large clear aperture and scan angle
> Reduced reflection loss (single mirror)
> Robust voice-coil actuation
> Optical real-time position feedback
> Compact & light-weight

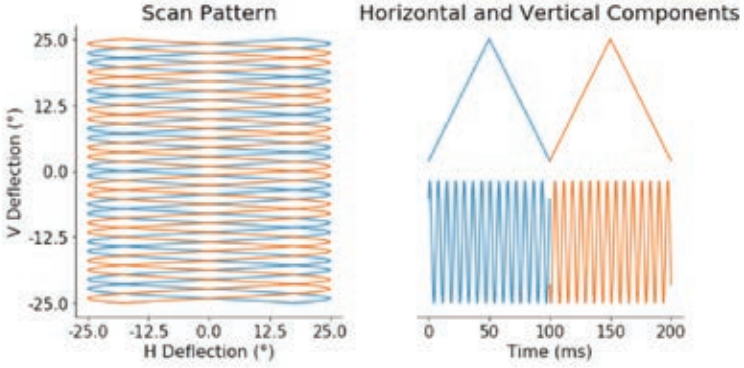
Applications

> Automotive (LiDAR, dynamic headlights, ADAS)
> Machine vision (field-of-view expansion)
> Free-space communication
> Biometric (eye-tracking)
> Diagnostics (e.g. OCT, fundus camera)

MR-15-30



MR-10-30 Laser Scanning for LiDAR



For more information, please contact sales@optotune.com