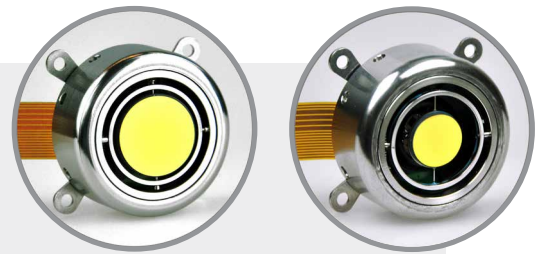# 2D beam steering

Dual axis vector scan 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 and medical applications. A built-in feedback system guarantees highly precise positioning control. Quasi-static and mixed quasi-static/resonant versions are available.

optotune

Dual axis vector scan mirrors with position feedback
MR-15-30, MR-10-30

Compact, fast and precise beam steering

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 ± 50° optical deflection. The mirrors contain a position feedback system enabling accurate control of deflection angle within ±100 µrad using a standard PID controller.

In addition to the popular quasi-static version, two resonant versions are available: First, a single axis resonant mirror. Second, a linear 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 UV, 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)	<5 µrad	<5 µrad
Repeatability RMS (typical)	30 - 100 µrad	30 - 100 µrad (slow) X axis
Full scale bandwidth	20 Hz	20 Hz (slow) X axis; 280 Hz (fast) Y axis
Mirror coating	gold, protected silver	gold, protected silver
Mirror reflectivity (gold coating)	avg >97% for NIR	avg >97% for NIR
Mirror flatness (P-V)	$\lambda/2$	$\lambda/2$

Mirror driver MR-E-2

> Interfaces: USB, SPI, analog
> 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
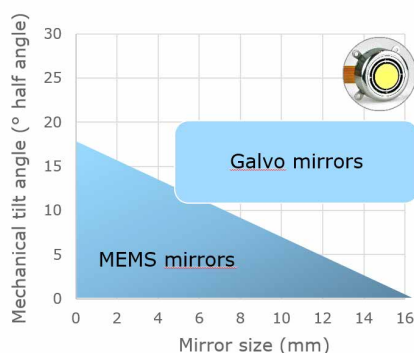> Release: in Q3 2019
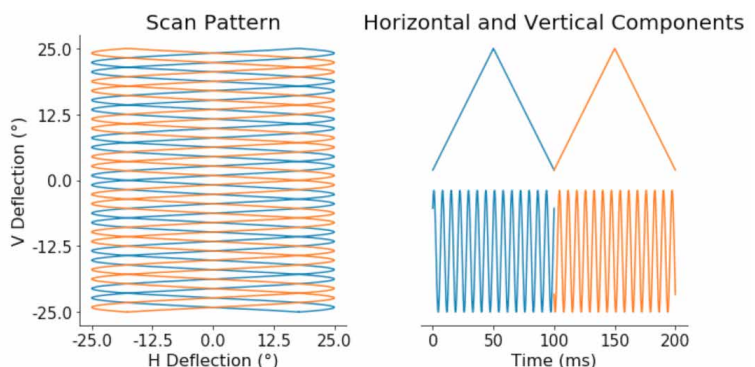
Advantages

> Large 2D scan angle
> Compact
> Precise

Applications

> Automotive (LiDAR, dynamic headlights, ADAS)
> Vision (field-of-view expansion, zoom)
> Biometric (eye-tracking) & diagnostic equipment

MR-15-30

MR-10-30 Laser Scanning for LiDAR

For more information, please contact sales@optotune.com