Press release

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**Tilting mirrors for dynamic beam steering**

**Fast Steering Mirrors (FSM) from Micro-Epsilon are miniature tilting mirrors that are used for precisely deflecting laser beams. The FSM3000 tilting mirror systems combine superior precision with maximum dynamics. They are easy to integrate, very robust and suitable for industrial, optical, aerospace and defense applications.**

Micro-Epsilon’s Fast Steering Mirrors are micro-mechatronic systems that are used for quickly and precisely deflecting laser beams. These miniature tilting mirrors offer an outstanding combination of dynamics and tilt angle. Due to the innovative voice coil technology, they achieve an impressive maximum frequency of 2 kHz, which is comparable to piezo-controlled systems but significantly more robust. At the same time, the large range of motion of the mirror of ±1.5° allows for additional degrees of freedom as well as flexible use options while maintaining a high level of accuracy. This makes them ideal for optical communication and for stabilizing laser beams in aerospace, defense and industrial applications as well as in optical metrology.

**Functional principle & system design**

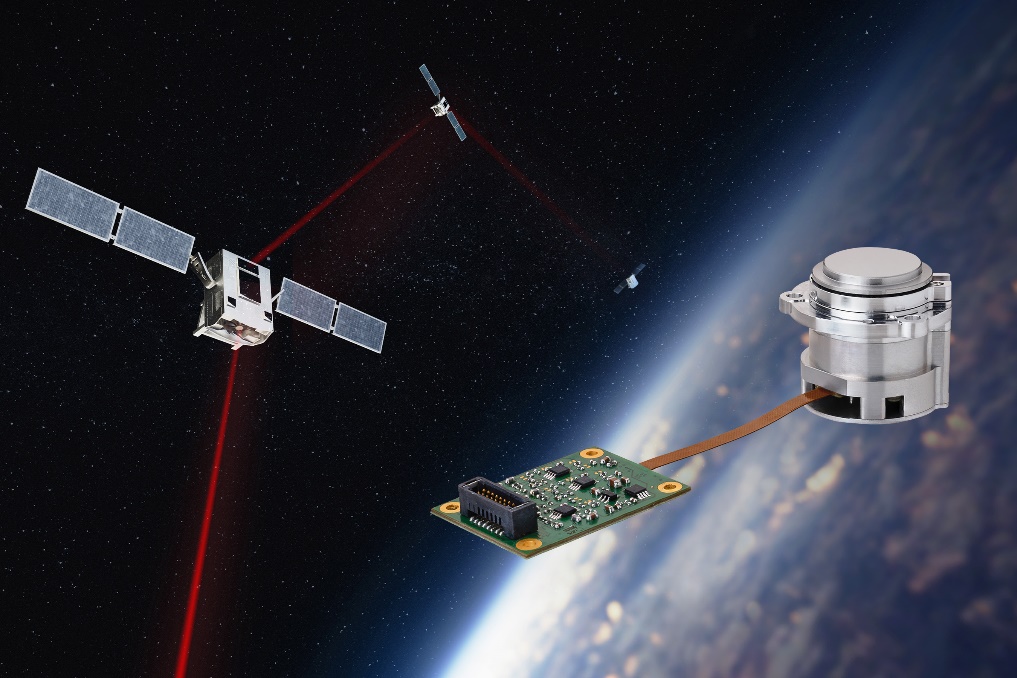
These dynamic systems use high-precision eddy current displacement sensors and a supremely flat mirror, which is moved by an actuator in the form of two electromagnetic coils per tilting axis. The Fast Steering Mirror can be controlled extremely precisely in two axes. A central pivot point allows synchronous movement without play or wear. The FSM3000 tilting mirror systems stand out with their robustness, compact design and low weight of around 55 g. The mirror itself is roughly the size of a table tennis ball which makes them not only easy to integrate, but also extremely resilient.

This means that tilting mirror systems in satellites can easily withstand the strong shocks and vibrations during rocket launches and work very precisely and reliably in orbit.

**Customizable for numerous applications**

Micro-Epsilon offers a wide range of standard mirrors (COTS), customer-specific adaptations (MOTS) and developments for OEM series applications in the FSM3000 series. For example, the mirror diameter, the coating and the sensor electronics of the tilting mirror can be adapted to the specific application.

*approx. 2,200 characters*

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