

## Magnetic modular encoders, ask the experts

Lika Electronic designs and manufactures a **comprehensive range of incremental and absolute magnetic modular encoders** in a huge variety of mechanical design types and electrical interface options. They can be **customized according to needs** and paired with magnetic rings, segmented rings, arcs, curved structures, or also with magnetic hubs.

Magnetic modular encoders are basically available in two construction types: *housed encoders and frameless encoders*.

**Housed magnetic modular encoders** are made up of a readhead equipped with an MR sensing element and an active measurement scale, namely a coded magnetic ring. They withstand dirt, dust, water, and most contaminants such as moisture, humidity, oil, grease, chemical agents. They enable to easily adopt PCB protection methods such as encapsulating, tropicalization, conformal coating, varnishing. So they can achieve the highest protection rates (IP67 to IP69K) and are suitable to reliably operate in the harshest industrial environments. ATEX models are used in potentially explosive atmospheres.

**Frameless magnetic modular encoders** consist of a stator equipped with an IC sensor and a magnet integral with the drive shaft (rotor). They are very compact and even miniature and lightweight. They are ideally suited for integration into constricted spaces and in applications that require minimum footprint and weight such as robotic systems, robotic joints, and motors.

All modular encoders are **shaftless and bearingless**, they are wear-free and work together without contact. This allows to limit the risk of failures due to vibration, shocks, or mechanical stresses; while the lack of wear virtually eliminates machine downtimes and maintenance. They can be easily customized in nearly any shape and in a range of sizes.

Their mechanical and electrical features can be tailored to meet individual needs and the varied market requirements. They enable great flexibility and freedom of design and Lika's range offers a variety of encoder configurations: encoders with small to very large diameter rings, encoders with segmented rings for large shaft machinery, encoders with flat rings for axial mounting of the sensor (instead of radial mounting as usual), encoders specifically engineered for installation on the inner side of arcs, encoders for C-face motors, encoders for toothed structures, etc.

Among the available solutions are **SMAR1 / SMAR4 and SMAB**, they offer off-axis installation. SMARs have frameless design while SMAB is fully encapsulated with up to IP69K protection. They are paired with rings having shaft diameters from 14 to 80 mm.

**SMA3 is equipped with an integrated multi-adaptive range sensor MARS**, this allows the width of the pole divisions to be varied in such a way that they adapt to the magnetic ring in the respective application. It is suitable for shaft diameters over 6 mm and has a resolution down to 0.29  $\mu\text{m}$ .

**AMM33 is frameless and lightweight** (~22 g) and integrates the **Energy Harvesting Technology** for battery-less multiturn counter. It can reach a total resolution up to 42 bits with SSI and BiSS interfaces.

Lika also designs and manufactures a great variety of rings, segmented rings, arcs, and curved structures complete with magnetic tape. Dimensions, materials, and mounting methods can be evaluated from time to time in order to fit each application exactly.

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