



„How do you combine two rotary encoders with variable angle and torque of lock in a small design? That's when I called Elektrosil.“

Flexible miniature rotary encoder: Elektrosil developed a dynamic input solution in a compact format for various user interface concepts.

THE CHALLENGE

The challenge of combining the functionality of two encoders in one meant that high demands were placed on the design, flexibility and quality of the solution. In particular, the encoder should have a dynamically adjustable cogging torque and a variable cogging angle. Since sliding contacts had led to limited rotation cycles and quality problems in the past, their use was ruled out. In addition, the encoder had to meet the specified industry standards with regard to IP protection class as well as scanning and rotation cycles. Furthermore, the customer wanted both a USB and an SPI interface, a defined scanning function with a clear “click feeling” and an illuminated symbol in the rotary knob.

THE SOLUTION

We developed an innovative rotary encoder solution based on a brushless DC motor (BLDC motor). The special feature of this solution was the ability to flexibly adjust the detent angle and detent torque during operation so that, for example, the detent torque increases when the input value approaches a defined limit. This made a wide range of intuitive application and operating concepts possible.

Our solution not only met the requirements for robustness and protection according to industry standards but also automatically detected whether USB or SPI was used. The control knob received an illuminated symbol and the push-button function received precise haptic feedback with a clearly defined click point.

In addition, the customer was able to significantly simplify production and warehousing by replacing two encoders with a single one.

OUR STRENGTHS

- Comprehensive design expertise
- Matching the fan to the heat sink
- Fans and heat sinks from a single source lead to optimum synergies
- Extensive expertise in the product area of cooling solutions

Are you also looking for a custom-fit solution for your system and a competent partner? Then give us a call: +49 40 840001-0.

Project information

- Client: German industrial company
- Sector: Industry
- Project size: 10,000 units/year
- Product areas: Smart knob, system solutions
- Services: Development & production

Elektrosil's services

- Application consultation, development assistance, design-in support
- Quality assurance
- Engineering and production
- Completely customised applications