



**PENLÍNK**

## Absolute Rotary Encoders for Harsh Environments

Our electrical encoders meet the requirements for use in a wide variety of harsh environment applications, including space, avionics, and defense. The absolute rotary encoders, contactless core with its holistic structure is extremely durable and resistant to vibration and shock. The low profile, hollow shaft structure, suits compact, high-density designs.

## The Ultimate Position Sensor

The encoder is designed for various applications, starting from industrial automation and robotics, through surveillance, military and defense to avionic and space.

The product range of the absolute-position, rotary electric encoders, is characterized by high accuracy, low profile, hollow shaft geometry, and remarkable low weight and inertia. The unique encoder technology and design enables extreme environmental conditions of shock and vibration resistance while maintaining the accuracy with extremely high reliability.

Among the cutting-edge features: Zero magnetic signature, insensitivity to EMI/RFI and magnetic fields, low weight, low inertia, and narrow profile ( $\leq 10$  mm). The electrical encoder will provide with reliable data for rotary positioning in your application.

## Applications

- + Electro Optical Gimbals
- + Active Air Defense Systems
- + Wheel Position Measuring Tester
- + Agricultural Robotics

## Typical Environment Conditions

EMC	IEC 6100-6-2, IEC 6100-6-4
Operating Temp. Range	-40°C to +85°C
Relative Humidity	< 98% non-condensing
Shock Endurance	100 g for 11 ms
Vibration Endurance	20 g for 10 to 2000 Hz



## Encoders for Gimbals in Harsh Environments

Our electrical encoders are proven to be a perfect fit for electro-optical gimbals for aerial, ground, and marine missions, delivering day and night capabilities of surveillance & targeting. These systems must have a stabilized fast and slow Azimuth & Elevation motion in the harshest environmental conditions including shock, vibration, and temperature, and all within the smallest size and weight.

We have seen that the most popular models for electro optical gimbals are the DS and DF absolute rotary electrical encoders. They are compact, lightweight, has low profile, and a wide bore: Allowing high integration level for a small size system design, which is ideal for gimbals.

The encoder is very reliable due to its high precision and resolution for very accurate slow motion and long-range pointing. It process up to 21-bit resolution or above with 10mDeg or better accuracy. This is crucial for applications in the military and surveillance sector, where precision and reliability are key for any operation.

### Features

- + Frameless & contactless, introducing minimal weight & inertia (load) to the system.
- + Wide & extreme working temperatures & vibration span and shock resistance.
- + Special safety algorithms with real-time BIT (Built-In Test) over SSI or BiSS.





## Electrical Encoders for Active Air Defense Systems

The electrical encoder operates seamlessly inside DIRCM: Directional Infrared Counter Measures, detecting & jamming missile systems on commercial airplanes and military aircraft. These solutions are used for protecting aircraft against heat-seeking ground-to-air missiles. These systems integrate advanced laser technology together with a high-rate thermal camera and a small, highly dynamic mirror turret to provide effective protection to all types of aircraft and under all operational conditions.

Requirements for any active air defense system are the need for the component to operate in extreme shocks, vibrations, temperature span, and to handle electric shocks. The external payload on the aircraft's body or wings also requires lightweight, robust, extreme noise immunity and low profile for minimal weight & drag.

Our absolute position rotary encoders are a perfect fit for these type of systems. The most popular models are DS and DF. They are compact, lightweight, and has wide bore and low profile: Allowing high-level integration for a small size system design.

### Features

- + Frameless & contactless with a negligible rotor weight: Introducing no extra weight & inertia (load) to the system.
- + Wide & extreme working temperature and vibration span.
- + Extreme EMI / RFI sustainability.





## Electrical Encoders for Wheel Position Measuring Tester

Our electrical encoders have shown great results in applications such as Vehicle Kinematics and Compliance test machines. The machines are designed to combine the most realistic possible simulation of an on-road vehicle behavior with the highest possible measurement accuracy. Due to the nature of our encoders, it provides data with high precision and reliability, enabling analytic advantages of testing wheel positioning.

For these type of applications our DS-58 and DS-70 have become popular, with extended accuracy from the DS line you can be guaranteed the results that you want. The encoder handles extreme working temperatures and vibration span during operation, which ideal for reliable measuring.

### Features

- + Compact, low profile, lightweight & wide bore: Allowing high integration level for a small size system design.
- + High precision and resolution for very accurate slow motion and long-range pointing.
- + Frameless & contactless with a negligible rotor weight, Introducing no extra weight & inertia (load) to the system.





## Electrical Encoders for Agricultural Robotics

The DS electrical encoders enables designers of agricultural robots to incorporate into their design the small, lightweight, and robust line of rotary encoders, providing accurate and reliable angular position measurements of the multiple joints in every arm of the robot, in the demanding environment of agricultural fields, plantations or enclosed greenhouses.

For these types of applications, you need the component to be able to operate in dense and harsh environments. They also need to deliver good performance in a very small footprint and while withstanding the conditions. Our electrical encoder will provide you with the reliability and resistance needed in these systems.

The DS-25 electrical encoder as well as other small-size DS series encoders have a compact form, low profile, lightweight, and wide bore which allows for easy integration into small robotic systems. With the high precision and resolution for very accurate slow-motion measurements, in all multiple joints, enables for excellent gripping accuracy.

### Features

- + Frameless and contactless with negligible weight, introducing no extra inertia (load) to the robotic system.
- + Maintains accuracy under extreme weather conditions and at high vibration.
- + The DS series is Smart Sensors featuring real-time BIT (Built-In Test) over SSI or BiSS, zero position assignment, and more.



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