

## OPTICAL SENSOR TO MEASURE THE ABSOLUTE ANGULAR POSITION USING POLARIMETRY TECHNIQS

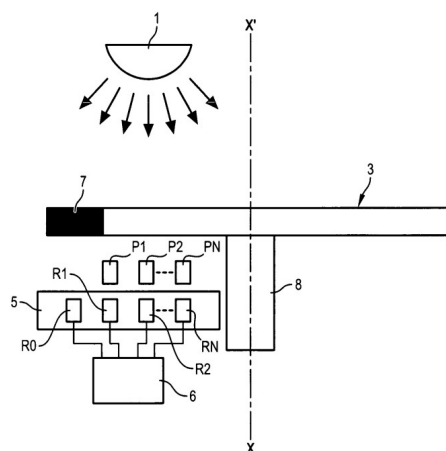
### Technological advantages

- 🔗 All optical technology
- 🔗 Accurate and reliable angular measurements
- 🔗 Reduced number of mechanical parts
- 🔗 Absolute measurements up to 360°

### Invention synthesis

The invention presents an optical sensor for 360° measurement in the absolute angular position.

A rotating mobile disk on an axis allows for a rectilinear polarization of a light source (between 500 et 1200nm). A chromium deposit is added on the disk periphery. The reflective disk surface treatment diverts the ray lights towards the receivers. Located after the disk, a set of fixed polarizer with different polarization directions. A set of multichannel receivers allows for the measurement of the light intensity that depends on the polarization angle of the first element (the disk) and the polarization angle of the second element (the fixed polarizer set). A coding signal allows for the detection of every disk half-turn.



**Schematic of the optical device**

- (1) Light source
- (3) Mobile polarizing disk
- (8) Rotation axis
- (5) Multichannel receiver module
- (Pi) Fixed polarizer
- (Ri) Reception channels for signals from Pi
- (6) Module for the mathematical treatment

### Commercial benefits

- Accurate and reliable system for the 360° absolute angular measurements suited to the aeronautical and space domains.

### Potential applications

- Aeronautical and space domains

*Patented invention - under license.*