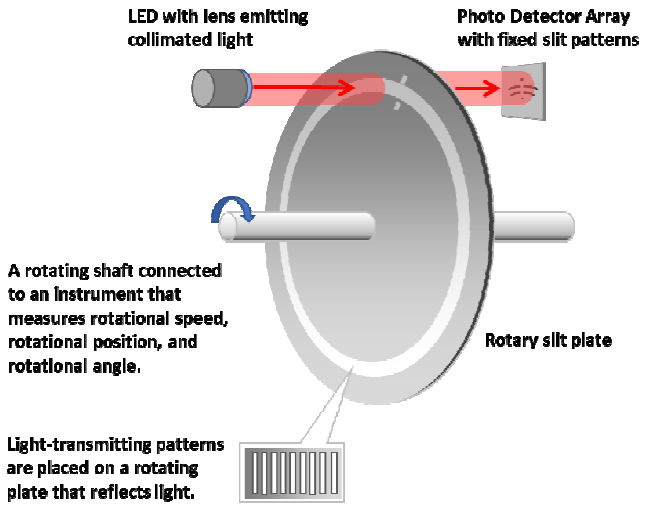
Optical Rotary Encoder Overview

1. Overview

Optical rotary encoders use light to detect the amount of mechanical displacement of rotation and convert the light into an electrical signal. The sensor processes this signal to output information on the number of rotations, angle of rotation, and rotational position.

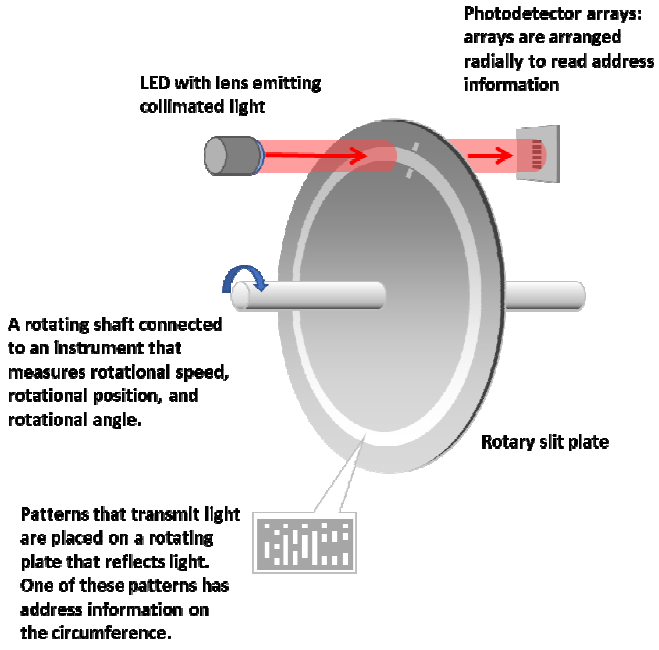
2. Incremental and transparent type

The incremental type detects relative positions and angles. Pulses are output as the rotation shaft turns, and the number of output pulses per rotation is fixed. The relative amount by which much it has rotated from an arbitrary starting point can be determined. Therefore, to perform position detection, it is necessary to return to the origin before starting. Also, when the system is turned off, it is required to return to the origin.



3. Absolute and transparent type

The absolute type is a method that detects absolute rotation. Since absolute position is detected, the specific position is retained even if the power is turned off (however, when multi-turns are detected with a general absolute encoder, a battery is required since the data of the number of rotations is stored in the memory). This makes it useful for machine tools, robots, and other applications that require an absolute amount from the origin.



Note: Information in this document is subject to change without notice.

Please confirm the information in this document with the latest version of the document before planning.

4. Reflective type

In the transmissive type, the height of the rotary encoder could not be reduced because the LED and photodetector array are placed on the top and bottom sides of the rotary slit plate. The reflective type, which mounts the LED and photodiode array on one side of the rotating slit plate, allows the height of the rotary encoder to be reduced. The overall length of the small motor with rotary encoder can be reduced.