Encoders

Tracking motion, determining position and velocity just got easier - and less expensive - with OPTEK's OPE family of encoders.

Traditional encoders use a beam of light that shines through an encoder disk onto a light sensitive detector or group of detectors. OPTEK has eliminated the need for complicated through light designs by developing a unique approach. OPTEK's encoders use optical reflective paths that angle the light onto the sensitive areas of the detectors. By taking this approach we are now able to place the electronics on a single surface mount PCB -- reducing cost by eliminating complicated through light designs.

OPTEK's incremental encoders are offered in dual and single channel outputs with either hollow or shaft configurations and are ideally suited for low-speed applications such as printer and copier motors, machine automation, machine safety, motor control, control knobs, integrated packaging systems, and more.

The OPE1275 and OPE2275 Hollow Series are designed for small motors with a diameter of 2mm [0.079"] and a minimum height of 3.8mm [0.150"]. The OPE1275 provides a single channel analog output for speed of rotation while the OPE2275 provides a dual channel analog output for speed and direction of rotation.

Output of the OPE1275 provides a rise and fall pulse providing the designer two slopes for each pulse doubling the count capability while the OPE2275 provides quadrature rise and fall pulse patterns providing the design engineer 4 times the pulse per revolution count. Custom pulse per revolution discs are available upon request.

The OPE1275 and OPE2275 Shaft Series are designed to couple to the application via its built in shaft. The Shaft Series provides the same electrical characteristics as the Hollow Series.

TT electronics
OPTEK Technology

Market Segments:

- Office equipment
- Industrial
- Medical
- Gaming

Typical Applications:

- Printer and copier motors
- Machine automation
- Machine safety
- Motor control
- Control knobs
- Integrated packaging systems / conveyors

Advantage:

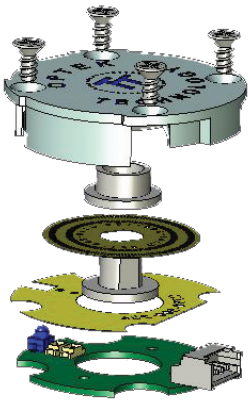
- Unique single PCB design (Patent Pending)
- Lost cost alternative
- Easy to use

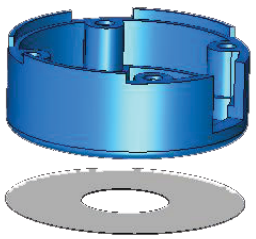
Incremental Shaft Encoder

- OPE1275S Single (Tachometer) Channel
- OPE2275S Dual Channel
- Body O.D. - 28mm [1.10"]
- Shaft Diameter - 6.35mm [0.25"]
- 3/8"- 32 UNF Thread
- Analog Output
- 100 - 5,000 RPM

Incremental Hollow Shaft Encoder

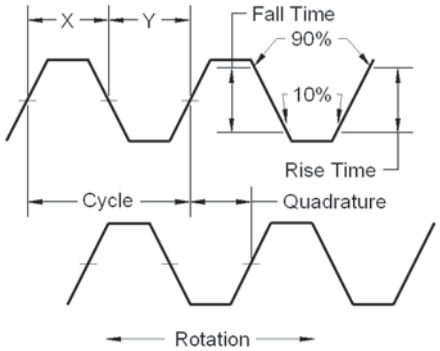
- OPE1275S Single (Tachometer) Channel
- OPE2275S Dual Channel
- Body O.D. - 28mm [1.10"]
- Motor Shaft Diameter 2mm [0.079"]
- Motor Shaft Length 3.8mm [0.150"]
- Analog Output
- 100 - 5,000 RPM





Hollow Shaft Assembly Instructions:

1. Peel the protective covering from the adhesive on the back of the base unit.
2. To center the base unit, carefully slide the base unit over the flange on the motor and press firmly.
3. Place the aperture plate on the base unit.
4. Slide the encoder wheel assembly over the motor shaft until it almost touches the aperture plate.
5. Carefully place the reflective lid on the encoder (rotate as necessary to align) and attach with 4 #2 self tapping screws (provided).
6. Connect the electrical interface to the encoder.



Timing Definitions:

PPR - Pulse Per Revolution

Electrical Degree (°e) - 1/360th of 1 cycle

Cycle - 360 electrical degrees (°e)

Symmetry - Relationship between X and Y in electrical degrees (°e).

Position Error - The difference between the actual shaft position and the position indicated by the encoder cycle count

Quadrature - The lead or lag difference between channels "A" and B" in electrical degrees (normally 90°e)

Cycle Error - The difference between the actual shaft rotational position and the cycle count rotational position.

Rise Time - Time required to switch between 10% and 90% of the highest to lowest signal levels.

Fall Time - Time required to switch between 90% and 10% of the highest to lowest signal levels.

TT electronics
OPTEK Technology
1645 Wallace Drive
Carrollton, TX 75006

Tel: 800.343.4747
Tel: 972.323.2200
Fax: 972.323.2396

E-mail: sensors@optekinc.com
www.optekinc.com