FOCI OPTO offers virtually every type of Optical Encoder, both self-contained and modular. Incremental and absolute units are available in industrial, instrument, high resolution and economy packages including encoders with integral couplings. PC type Encoders provide direct data input to Programmable Controllers and Process Computers without special interface logic. All models include more than 150 resolutions in stock with a wide variety of mechanical and electrical options.

## Incremental Encoders

### Miniature Series 11A & 15A
- **Size:** 1.1" dia x 2" L (11A); 1.5" dia x 1.5" L (15A)
- **Resolution:** to 1024 cyc/rev (11A); to 2568 cyc/rev (15A)
- **Output Formats:** Single Channel, 2-Channel Quadrature, 2-Channel Quadrature plus Zero Index
- **Output Levels:** TTL or C-MOS Compatible
- **Detectors:** Phototransistors
- **High Accuracy & Resolution Series 25G**
  - **Size:** 2.625" dia x L (depends on output)
  - **Resolution:** to 4000 cyc/rev (without interpolation) to 20000 cyc/rev (with interpolation)
  - **Output Format:** Single Channel, 2-Channels Quadrature, 2-Channels Quardrature plus Zero Index, Direction-sensing with 1X, 2X, 4X Multiplication Logic
  - **Quadrature Accuracy:** ±23 ppm
  - **Frequency Response:** 60 kHz standard, 100 kHz available
  - **Illumination Source:** Single LED or Lamp
  - **Detectors:** Phototransistors or Photocells
  - **Output Levels:** TTL, C-MOS, HTL, Differential Line Driver and Complementary Outputs, Open Collector (30 vdc, 40 ma, max)

### Heavy Duty NEMA 13 Series 25HN
- **Size:** 2.5" dia x 2.5" L (25G)
- **Mounting:** Servo, Face (Bolt Circle) or Flange
- **Resolution:** to 2540 cyc/rev
- **Output Format/Levels:** Same as 25G
- **Shaft Dia:** 3/8" (25GN); 1/2" (25G)
- **Shaft Seal:** Buna N rubber with garter spring
- **Encoder with Integral Coupling and Flange**
  - **Size:** 2.5" dia encoder x 3/4" or 2" L (depends on output) Flange dia: 3.125"
  - **Resolution:** Same as 25G
  - **Output Formats:** Same as 25G
  - **Shaft Dia:** 1/4" or 1/8" boro
  - **Electrical Specs:** Same as 25G
  - **Axial Motion:** ≈ 0.030" max.
  - **Parallel Offset:** ≈ 0.012" max.
  - **Angular Misalign:** 5° max.

## Absolute Encoders

### Series 25H
- **Size:** 2.625" dia x L (depends on output)
- **Resolution:** to 135 bit CB or NB to 3599 Binary Coded Decimal
- **Output Codes:** CB, CB, CBOC & BCD standard
- **Output Levels:** TTL, C-MOS, Open Collector (30 vdc, 40 ma, max)
- **Detectors:** Single LED or Lamp
- **Photochip Detectors:** Phototransistors

### Heavy Duty NEMA 13 Series 30HR
- **Configuration:** (See Note) Input Shaft connected to any Series 25 Encoder through a flexible coupling
- **Size:** 2.5" dia x L (depends on options)
- **Shaft Dia:** 1/4" (uses 1/4" ID. roller bearings)
- **Shaft Loading:** 400 lbs (25G); 40 lbs (25GN)
- **Shaft Seal:** Buna N rubber with garter spring
- **NEMA 13 Programmable Controller Series 40HDN/PC**
  - **Size:** 2.5" dia x 2.5" L
  - **Resolution:** 3599 BCD, 999 BCD, 2" NB
  - **Output Levels:** TTL, C-MOS, Open Collector (30 vdc, 40 ma, max)
  - **Shaft Dia:** 3/8" or 1/2" boro
  - **Shaft Seal:** Buna N rubber with garter spring
  - **Illumination Source:** Single LED
  - **Detectors:** Phototransistors
  - **Note:** Data Hold Input, Data Ready Output, Direction Input Select and Multiplex Control Input Signals for direct hand-shaking capability with most Programmable Controllers.

## Hi-Res Encoders

FOCI OPTO offers a full line of absolute encoders with resolutions to 21 bits. Package sizes range from 3.5" to 12" dia. Hollow-shaft models are available with thru-holes to 7". FOCI OPTO Encoders offer the highest resolution and accuracy available today!

These encoders have been used by the military, NASA, other governmental agencies and industrial companies in a variety of applications including tracking mounts, radar and telemetry, and measuring equipment.

Many units have been fully qualified for operation aboard military aircraft, ships, in space and in environments from desert to ocean. A full complement of options and accessories is available, including electrical zeroing, on-line automatic checkout, redundancy with automatic switchover, displays and readouts, flexible couplings and test sets.

## Multi-Turn Encoder

### Heavy-Duty Absolute Multi-Turn Encoder Model 40RMT
- **Resolution:** 2" & 66,536 Turns (NB Code) 2" & 66,536 Turns (BCD Code)
- **Code:** Natural Binary or BCD
- **Output Levels:** TTL compatible, Open collector and High Level, directly interfaces with process computers and programmable controllers
- **Size:** 4" dia. x 5" axial length
- **Note:** Data ready signal for PC; provision for multiplexing multiple encoders

### Other Products
- Limit Programmers
- Encoded Motors
- Explosionproof Encoders
- Industrial Control Systems