

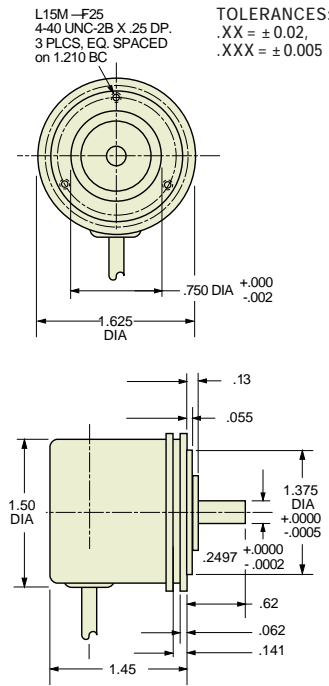
# L15 Incremental Optical Encoder

The L15 encoder provides the industrial marketplace with a rugged optical encoder in a size 15 servo package. Ideal for space-limited applications, these compact encoders discount size without compromising performance. Each L15 encoder package has field-proven ASIC electronics, sealed bearings and BEI's accurate code disk in an all metal housing to ensure ruggedness and reliability.



The L15 offers resolution to 2540 cycles per turn, quadrature output with index, a 1/4-inch diameter stainless steel shaft with 5 pounds radial or axial load capability and an electronic operating speed of 100kHz, minimum.

Other features include voltage selection of +5, +12 or +24 VDC, differential line driver option with complementary outputs, and an extended temperature range for operation from -40°C to +85°C. The T2 interpolation option can be used to double the base resolution (i.e. 4096-T2).



## Mechanical Specifications

- Shaft Diameter:** 1/4 inch nominal
- Shaft Loading:** Up to 5 pounds axial and 5 pounds radial
- Shaft Runout:** 0.00 T.I.R. at midpoint of shaft
- Starting Torque at 25°C:** 0.20 in-oz (max)
- Bearings:** Sealed, instrument grade
- Shaft Material:** 416 stainless steel
- Bearing Housing:** Aluminum with iridite finish
- Cover:** Drawn aluminum
- Bearing Life:** 1 X 10<sup>9</sup> revs (10,000 hrs at 1500 RPM)
- Maximum RPM:** 5,000 RPM nominal (see Frequency Response, below)
- Moment of Inertia:** 1.0 X 10<sup>-4</sup> oz-in-sec<sup>2</sup>
- Weight:** 6 oz (max)

## Electrical Specifications

- Code:** Incremental Output Format, 2 channels in quadrature, 1 cycle (nominal) ungated index (other index options and commutation channels available—consult factory).
- Cycles Per Shaft Turn:** 50 to 5,000 (see Table 2, on this page)
- Supply Voltage:** 5, 12-15, 24 VDC
- Current Requirements:** 125 mA typical, 175 mA max
- Output Device:** Line Driver 5 – 28 VDC, V<sub>out</sub> = V<sub>in</sub>
- Protection Level:** Reverse, output short circuit
- Frequency Response:** 100kHz
- Output Termination Pinouts:** See Table 1, on this page

## Environmental Specifications

- Enclosure Rating:** NEMA 3. (IP53)
- Temperature:** Operating, 0° to 70° C; extended temperature testing available, -40° to 85°; storage, -40° to 90° C
- Shock:** 30 G's for 11 msec duration
- Vibration:** 5 to 2000 Hz @ 10 G's
- Humidity:** 98% RH non-condensing

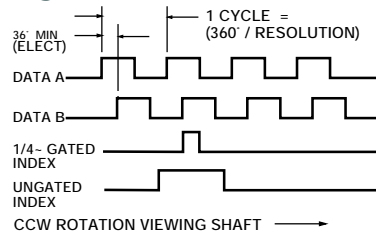
COLOR	FUNCTION
RED	+V (SUPPLY)
BLK	0 V (GROUND)
YEL	A
WHT/YEL	$\bar{A}$
BLU	B
WHT/BLU	$\bar{B}$
ORN	Z
WHT/ORN	$\bar{Z}$
BARE	SHIELD DRAIN

Table 2 L15 Disc Resolutions

50 60 100 200 250 256 300 360 500 512 625 1000  
1024 1200 1440 1600 1800 2000 2048 2500 2540

Other resolutions available—consult factory.

Figure 1 Output Waveforms



## L15 Incremental Ordering Options

FOR ASSISTANCE CALL 800-350-2727

Use this diagram, working from left to right to construct your model number (example: L15M-F25-256-ABZC-5V/V-SC18). All notes and tables referred to can be found on pages 50-51.

