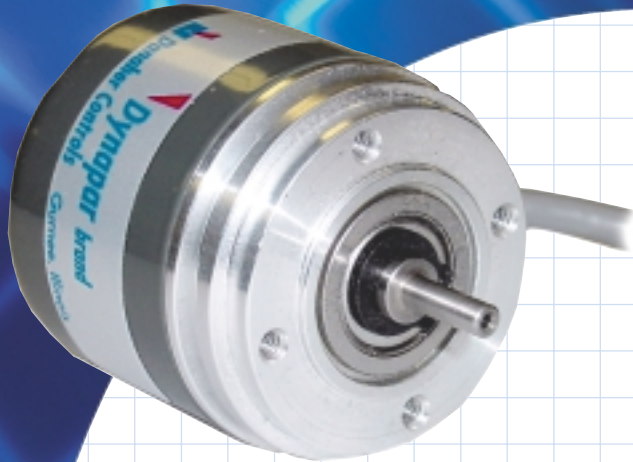


Series E15



- **Servo or face mount (1.5" diameter)**
- **Up to 1024 PPR with optional marker pulse**
- **Rugged all-metal housing**
- **Shielded cable standard**

The Series E15 is a totally enclosed, easy-to-install, incremental encoder designed for commercial and industrial applications with limited space. It is an industry-standard Size 15 (1.5" diameter), servo or face-mount unit with a rugged, metal housing.

The Series E15 includes precision bearings, an O-ring seal, and a choice of 1/4" or 1/8" diameter stainless steel shaft.

Series E15 incorporates the latest in microelectronic packaging, LED light sources, and matched sensors. Outputs are designed to be compatible with most 5V TTL circuits with options for higher voltage 12 and 15 VDC. Shielded cable is standard. Line drivers with complementary outputs are available for longer cable runs and/or higher ambient electrical noise immunity.

Typical Applications

- Industrial equipment
- Assembly machinery
- Phototypesetters and printers
- Robotics
- Medical diagnostic equipment
- Motor-mounted feedback
- Computer peripherals
- Instrumentation

Mechanical and Environmental Features

- Durable metal housing
- O-ring housing seal
- Rugged 1/4" or 1/8" diameter stainless steel shafts
- Up to 5000 RPM

Electrical Features

- Up to 1024 pulses per revolution including an optional marker pulse
- Higher electronic operating speed up to 100 kHz (Index to 50 kHz)
- LED light source and matched sensors
- Choice of 5, 12, or 15 VDC units
- Shielded cable and line driver available for higher electrical noise immunity

SPECIFICATIONS

Electrical

Code: Incremental

Resolution: 100 to 1024 PPR (pulses/revolution)

Format: Two channel quadrature (AB) with optional Index (Z) outputs

Phase Sense: A leads B for CW shaft rotation as viewed from the shaft end of the encoder

Accuracy: $\pm 3 \times (360^\circ \div \text{PPR})$ or ± 2.5 arc-min worst case pulse to any other pulse, whichever is less

Quadrature Phasing: $90^\circ \pm 36^\circ$ electrical

Symmetry: $180^\circ \pm 18^\circ$ electrical

Index: $360^\circ \pm 90^\circ$ electrical

Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

Input Power:

TTL: 5 VDC $\pm 5\%$ at 135 mA max.;

Line Driver: 5 VDC $\pm 5\%$ at 210 mA max.;

CMOS: 12 or 15 VDC $\pm 10\%$ at 100 mA max.; not including output loads

Outputs:

5 VDC TTL:

Logic "1" V_{OH} : 2.5 V min. at 10 TTL gate load or 10 mA source;

Logic "0" V_{OL} : 0.4 V max. at 20 mA sink

5 VDC Line Driver: 75158 or equivalent, 40 mA sink and source

12 or 15 VDC CMOS:

Logic "1" V_{OH} : $V_{CC} - 1.5$ V min. at 200 Ω load or 10 mA source;

Logic "0" V_{OL} : 0.4 V max. at 20 mA sink

Frequency Response: 100 kHz min. data channels; 50 kHz min. Index channel

Mechanical

Bearing Life: $(16 \times 10^6 \div \text{RPM})$ hours at max. load

Shaft Loading: 5 lb. radial, 3 lb. axial max.

Shaft Speed: 5,000 RPM max.

Starting Torque:

Shielded Bearing: 0.1 oz-in max. at 25 °C

Sealed Bearing: 0.9 oz-in max. at 25 °C

Running Torque:

Shielded Bearing: 0.08 oz-in max. at 25 °C

Sealed Bearing: 0.8 oz-in max. at 25 °C

Moment of Inertia: 4.5×10^{-6} oz-in-sec²

Weight: 3.0 oz. max.

Environmental

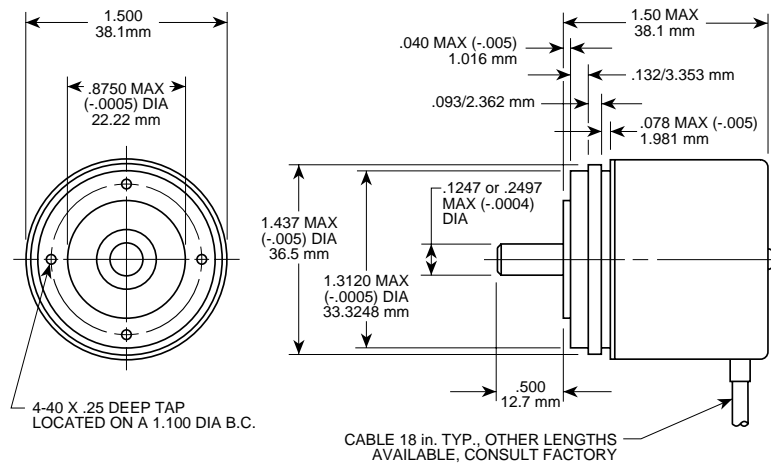
Operating Temperature: 0 to +70 °C

Storage Temperature: -25 to +70 °C

Humidity: to 98% without condensation

Enclosure Rating: NEMA12/IP54 (dirt tight, splashproof)

Approximate Dimensions (inches/mm)



Electrical Connections

Wire Color Code	Function		
	Standard Outputs 5, 12, or 15 VDC	w/ Line Driver Outputs	
		Unidirectional	Bidirectional
Red	Power Source	Power Source	Power Source
Black	Common	Common	Common
White	Signal A	Signal A	Signal A
Green	Signal B (if used)	Signal A	Signal B
Orange	Signal Z (if used)	No Connection	Signal B
Blue	No Connection	No Connection	Signal A
Shield	Floating	Floating	Floating
White/Black	—	—	Signal Z (if used)
Red/Black	—	—	Signal Z (if used)

Ordering Information

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: Pulses/Rev	Code 3: Mechanical	Code 4: Output	Code 5: Electrical	Code 6: Termination
E15	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E15 Size 15, Light Duty Enclosed	0100 0200 0250 0360 0500 0600 0625 0635 0750 0800 0900 1000 1024	0 1/4" Shaft, Sealed Bearing 1 1/8" Shaft, Sealed Bearing 2 1/4" Shaft, Shielded Bearing 3 1/8" Shaft, Shielded Bearing	0 Single Ended, Unidirectional 2 Single Ended, Bidirectional, no Index 3 Single Ended, Bidirectional, with Index 4 Differential, Unidirectional 6 Differential, Bidirectional, no Index 7 Differential, Bidirectional, with Index	available when Code 4 = 0, 2 or 3: 0 5 VDC 1 12 VDC 2 15 VDC available when Code 4 = 4, 6 or 7: 3 5V Line Driver	0 18" Cable 1 3' Cable 2 6' Cable 3 10' Cable 4 15' Cable