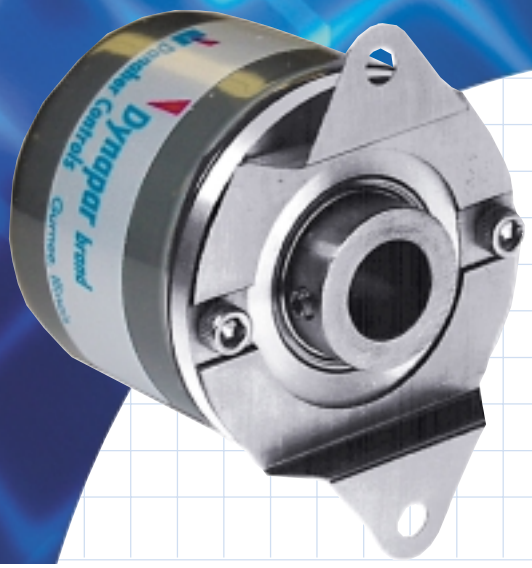
Series E15 Hub Shaft

This product has been discontinued.
Please contact Dynapar for assistance.
1-800-873-8731
www.dynapar.com



- ***Easy installation on motor or machine shafts***
- ***Large and small hub availability***

The Dynapar brand Series E15 Hub Shaft encoder is designed for easy installation on motor or machine shafts. Its hub shaft design and flexible spring mount eliminate the need for a mounting flange adapter and flexible coupling. This not only reduces the encoder's depth, but also lowers installation cost.

The Series E15 Hub Shaft includes precision bearings, an O-ring seal, and a selection of bore sizes ranging from 6 mm to 5/8".

Series E15 incorporates the latest in micro-electronic 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. A 5V line driver with complementary outputs is available for longer cable runs and higher electrical noise immunity.

Mechanical and Environmental Features

- Durable metal housing
- O-ring housing seal
- Hub sizes ranging from 6 mm to 5/8"
- Up to 5000 RPM
- NEMA 12 / IP56

Electrical Features

- Up to 1024 pulses per revolution, optional marker pulse
- Operating speed up to 100 kHz
- LED light source and matched sensors
- Choice of 5, 12, or 15 VDC power
- 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: ±3 x (360° ÷ PPR) or ± 2.5 arc-min worst case pulse to any other pulse, whichever is less

Quadrature Phasing: 90° ± 36° electrical

Symmetry: 180° ± 18° electrical

Index: 360° ± 90° electrical

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

Input Power:
TTL: 5 VDC ± 5% at 135 mA max.;
Line Driver: 5 VDC ± 5% at 210 mA max.;
CMOS: 12 or 15 VDC ± 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}: Vcc–1.5V 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 x 10^6 ÷ RPM) hours at max. load

Shaft Speed: 5,000 RPM max.
Hub Dia. Tolerance: nominal -0/+0.0005" (0.013mm)

Mating Shaft Length: 0.25" (6 mm) min.; 0.50" (12 mm) max.

Mating Shaft Runout: 0.008" (0.2 mm) max. TIR

Mating Shaft Endplay: ±0.010" (0.25 mm) 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:
6 to 10 mm hub: 6.03 x 10^{-5} oz–in–sec^2
12 mm to 5/8" hub: 2.4 x 10^{-4} oz–in–sec^2

Weight:
6 to 10 mm hub: 3.5 oz. max.
12 mm to 5/8" hub: 4.5 oz. max.

Environmental

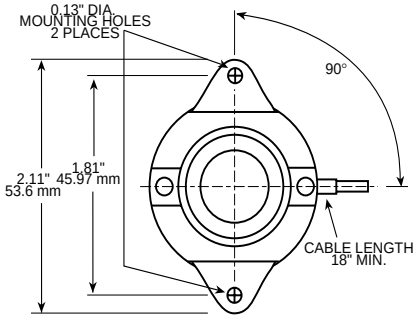
Operating Temperature: 0 to +70 °C

Storage Temperature: –25 to +70 °C

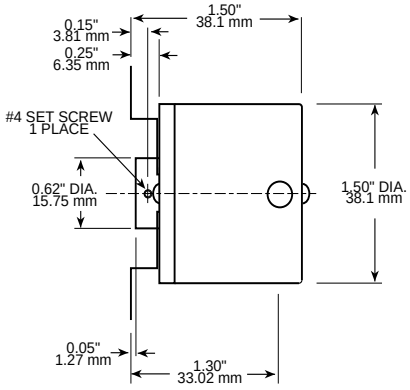
Humidity: to 98% without condensation

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

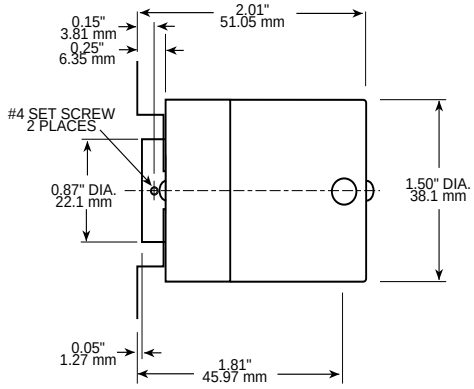
Code 3: Mechanical



D - H: 1/4" to 10 mm



J - M: 12 mm to 5/8"



Electrical Connections

Wire Color Code	Function		
	Standard Outputs	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 $\overline{A}$	Signal B
Orange	Signal Z (if used)	No Connection	Signal $\overline{B}$
Blue	No Connection	No Connection	Signal $\overline{A}$
Shield	Floating	Floating	Floating
White/Black	——	——	Signal Z (if used)
Red/Black	——	——	Signal $\overline{Z}$ (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: Hub I.D.	Code 4: Output	Code 5: Electrical	Code 6: Termination
E15	☐☐☐☐	☐	☐	☐	☐
E15 Size 15, Hub Shaft	**0100** **0200** **0250** **0360** **0500** **0600** **0625** **0635** **0750** **0800** **0900** **1000** **1024**	**D** 6 mm **E** 1/4" **F** 5/16" **G** 3/8" **H** 10 mm **J** 12 mm **K** 1/2" **L** 14 mm **M** 5/8" **N** 8 mm	**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