

# SERIES EC23

**Dynapar™ brand**

## Miniature Encoder

### Key Features

- High 5000 PPR Capability
- Optional Screw Terminal Connections
- Standard Size 23 (2.3" diameter)



## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

**Code:** Incremental, Optical

**Resolution:** 3000 to 5000 PPR (pulses/revolution)

**Accuracy:** (Worst case any edge to any other edge)  $\pm 10.8^\circ$ /PPR

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

**Phase Sense:** A leads B for CW or CCW shaft rotation as viewed from the shaft end of the encoder; see Ordering Information

**Quadrature Phasing:**  $90^\circ \pm 25^\circ$  electrical

**Symmetry:**  $180^\circ \pm 25^\circ$  electrical

**Index:**  $90^\circ \pm 25^\circ$  electrical, gated with B

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

### ELECTRICAL

#### Input Power:

5 min. to 26 VDC max. at 80 mA max., not including output loads

#### Outputs:

7272 Push-Pull: 40mA, sink or source

7272 Differential Line Driver: 40 mA, sink or source

7273 Open Collector: 40mA, sink max

**Frequency Response:** 250 kHz min.

**Noise Immunity:** Tested to EN61326-1

**Electrical Immunity:** Reverse polarity and short circuit protected

**Termination:** Cable, Screw Terminals

**Cable:** PVC jacket, 105 °C rated, overall foil shield; 3 twisted pairs 26 AWG (output signals), plus 2 twisted pairs 24 AWG (input power)

### MECHANICAL

**Shaft Size:** 1/4"

**Shaft Loading:** 5 lbs. max radial and axial

**Shaft Runout:** 0.001" max. TIR

**Shaft Speed:** 10,000 RPM max. mechanical

**Shaft Tolerance:** Nominal  $-0.0004$ " /  $-0.0007$ "

#### Starting Torque:

Shielded bearings: 0.1 oz-in max.;

Sealed bearings: 0.2 oz.-in max.

**Moment of Inertia:**  $2.83 \times 10^{-4}$  oz-in-sec<sup>2</sup>

**Housing and Cover:** Aluminum

**Shaft Material:** Stainless Steel

**Disc Material:** Glass

**Weight:** 13 oz. max.

### ENVIRONMENTAL

#### Operating Temperature:

Standard: 0 to +70 °C

**Storage Temperature:** -40 to +90 °C

**Shock:** 50 G's for 11 milliseconds duration

**Vibration:** 5 to 2000 Hz at 20 G's

**Humidity:** Up to 98% (non-condensing)

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

### ELECTRICAL CONNECTIONS

Note: Wire color codes are referenced here for models that are specified with pre-wired cable.

Single Ended		
Term.	Function (If Used)	Wire Color Code
A	Signal A	BRN
B	Signal B	ORN
C	Signal Z	YEL
D	Power Source	RED
E	No Connection	—
F	Common	BLK
G	Case	GRN

Differential		
Term.	Function (If Used)	Wire Color Code
A	Signal A	BRN
B	Signal B	ORN
C	Signal Z	YEL
D	Power Source	RED
E	No Connection	—
F	Common	BLK
G	Case	GRN
H	Signal A	BRN/WH
I	Signal B	ORN/WH
J	Signal Z	YEL/WH

**Ordering Information**

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

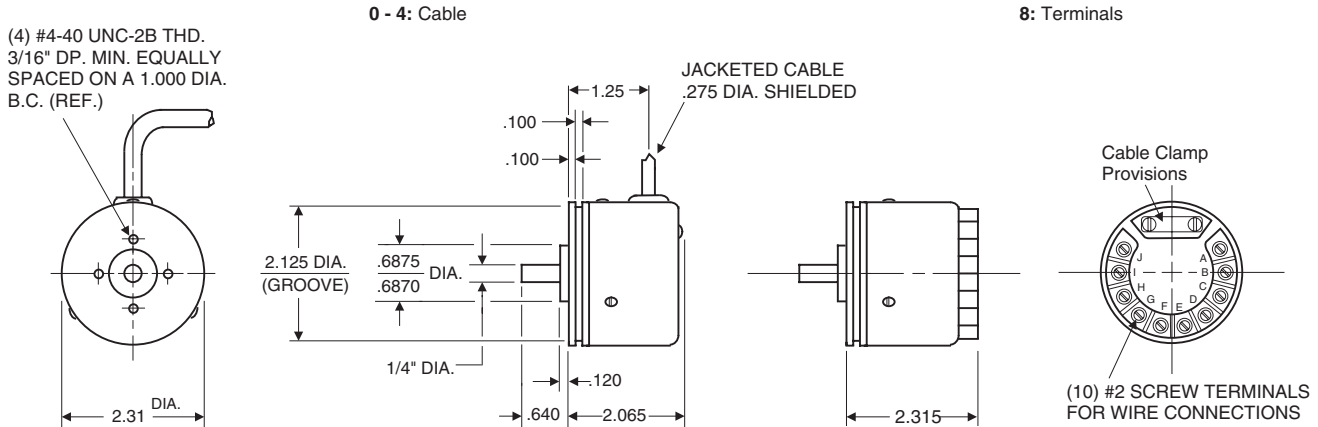
Code 1: Model	Code 2: Pulses/Rev	Code 3: Mechanical	Code 4: Output	Code 5: Electrical	Code 6: Termination
<b>EC23</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Ordering Information**

<b>EC23</b> Size 23 Enclosed	<b>3000</b>	<b>0</b> 1/4" Shaft, Shielded Bearings, 2.31" Dia. Servo Mount w/ 4-Hole Face Mount	<b>4</b> Single Ended, with Index, Format C	<b>0</b> 5-26V in, 5-26V Open Collector w/2.2kΩ Pullups out	<b>0</b> 18" Cable, Side Exit
	<b>3600</b>				
	<b>4096</b>	<b>1</b> 1/4" Shaft, Sealed Bearings, 2.31" Dia. Servo Mount w/ 4-Hole Face Mount	<b>5</b> Differential, with Index, Format C	<b>1</b> 5-26V in, 5-26V Open Collector out	<b>1</b> 3' Cable, Side Exit
	<b>5000</b>		<b>6</b> Single Ended, with Index, Format D	<b>2</b> 5-26V in; 5V out, Push-Pull out	<b>2</b> 6' Cable, Side Exit
			<b>7</b> Differential, with Index, Format D	<b>3</b> 5-26V in; 5V Line Driver out	<b>3</b> 10' Cable, Side Exit
			<b>8</b> Single Ended, No Index, Format C	<b>4</b> 5-26V in, 5-26V Line Driver out	<b>4</b> 15' Cable, Side Exit
			<b>9</b> Differential, No Index, Format C		<b>8</b> Screw Terminals

**Dimensions (inches/mm)**

**Code 6: Termination**



**Code 4: Output**



[WWW.DYNAPAR.COM](http://WWW.DYNAPAR.COM)

Headquarters: 1675 Delany Road • Gurnee, IL 60031-1282 • USA

**Customer Service:**  
Tel.: +1.800.873.8731  
Fax: +1.847.662.4150  
custserv@dynapar.com

**Technical Support**  
Tel.: +1.800.234.8731  
Fax: +1.847.662.4150  
dynapar.techsupport@dynapar.com

**European Sales Representative**  
Hengstler GmbH  
Uhländstrasse 49, 78554 Aldingen  
Germany  
[www.hengstler.com](http://www.hengstler.com)