

# Model 260



## Features

- Low Profile 1.19"
- Up to 12 Pole Commutation
- Thru-Bore and Hollow Bore (Blind) Styles
- Simple, Innovative Flexible Mounting System
- Incorporates Opto-ASIC Technology
- CE marking available

New M12 Body Mount



The Model 260's larger bore (up to 0.625") and low profile make it the perfect solution for many machine and motor applications. Available in two distinct formats - a Hollow Bore and a complete Thru-Bore - the Model 260 uses EPC's pioneering Opto-ASIC design. The Model 260 uses EPC's innovative anti-backlash mounting system, allowing simple, reliable, and precise encoder attachment. Unlike traditional kit or modular encoder designs, its integral bearing set provides stable and consistent operation without concerns for axial or radial shaft runout. For brushless servo motor applications, the Model 260 can be specified with three 120° electrical phase tracks to provide up to 12 pole commutation feedback. The optional extended temperature capability allows servo motors to operate at higher power outputs and duty cycles.

## Common Applications

Brushless Servo Motor Commutation, Robotics, Motor-Mounted Feedback, Assembly Machines, Digital Plotters, High Power Motors

## Model 260 Ordering Guide

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

<b>260</b>	<b>N</b>	<b>T</b>	<b>01</b>	<b>S</b>	<b>0256</b>	<b>Q</b>	<b>OC</b>	<b>1</b>	<b>S</b>	<b>SF</b>	<b>1</b>	<b>N</b>
<b>MODEL</b> 260 Ultra Versatile Commutated Thru-Bore	<b>COMMUTATION</b> <sup>2</sup> N No Commutation C4 4 Pole C6 6 Pole C8 8 Pole C12 12 Pole	<b>HOUSING STYLE</b> B Hollow Bore (Blind) T Front Clamp Thru-Bore R Rear Clamp Thru-Bore	<b>BORE SIZE</b> <sup>1</sup> 01 1/4", 0.250" 02 3/8", 0.375" 10 1/2", 0.500" 11 5/8", 0.625" 06 5 mm 04 6 mm 14 8 mm 05 10 mm 09 11 mm 12 12 mm 13 14 mm 15 15 mm	<b>OPERATING TEMPERATURE</b> <sup>3</sup> L -40° to 70° C S 0° to 70° C H 0° to 100° C V 0° to 120° C	<b>CYCLES PER REVOLUTION</b> 1-2500 <sup>1</sup> See <i>CPR Options</i> below Price adder >1270	<b>NUMBER OF CHANNELS</b> Q Quadrature A & B R Quadrature A & B with Index Z <sup>4</sup>	<b>OUTPUT TYPE</b> OC Open Collector PP Push-Pull HV Line Driver	<b>FREQUENCY RESPONSE</b> 1 200 kHz 2 300 kHz	<b>CONNECTOR TYPE</b> S 18" Cable <sup>5</sup> J00 18" Cable with 5-pin M12 <sup>7</sup> K00 18" Cable with 8-pin M12 <sup>7</sup> SMJ 5-pin Body Mount M12 <sup>7</sup> SMK 8-pin Body Mount M12 <sup>7</sup>	<b>MOUNTING</b> SD 1.575" (40 mm) BC Flex Mount SF 1.811" (46 mm) BC Flex Mount XF 2.250" BC 3-point Flex Mount NF 2.375" BC 3-point Flex Mount FA Flex Arm FB Flex Arm	<b>SEALING</b> 1 IP50 for Thru-Bore 2 IP64 for Thru-Bore 3 IP64 for Hollow Bore 4 IP50 for Hollow Bore	<b>CERTIFICATION</b> N None CE CE Marked <sup>6</sup>

For specification assistance call  
Customer Service at  
1-800-894-0412

For enhanced connectivity, available with an M12 in-line connector



### Model 260 CPR Options

0001*	0010*	0011*	0012*	0020*	0025*	0030*
0040*	0050*	0060	0100	0120	0128*	0200
0250	0254	0256	0300	0360	0400*	0500
0512	0600	0720	0800	0840	1000	1024
1200	1220	1250	1270	1800	2000	2048
2500	2540					

\*Contact Customer service for High Temp option

Contact Customer Service for other disk resolutions; not all disk resolutions available with every commutation option.

### NOTES:

- 1 Contact Customer Service for additional options not shown.
- 2 Not available in all configurations. Contact Customer Service for availability.
- 3 5 to 16 VDC supply only for H option; 5 VDC supply only for V option. Contact Customer Service for availability and additional information.
- 4 Contact Customer Service for non-standard [index gating options](#).
- 5 For non-standard cable lengths add a forward slash (/) plus cable length expressed in feet. Example: S/6 = 6 feet of cable.
- 6 Please refer to [Technical Bulletin TB100: When to Choose the CE Option](#) at [www.encoder.com](http://www.encoder.com).
- 7 Not available with commutation or extreme temperature (V) option. 5-pin not available with Line Driver (HV) output. Additional cable lengths available. Please consult Customer Service.

# Model 260

## Model 260 Specifications

### Electrical

Input Voltage.....4.75 to 28 VDC for temperatures up to 70° C  
 5 to 16 VDC for 0° to 100° C operating temperature  
 5 VDC for 0° to 120° C operating temperature

Input Current.....100 mA max with no output load

Output Format.....Incremental- Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the mounting face. See *Waveform Diagrams* below.

Output Types.....Open Collector- 20 mA max per channel  
 Push-Pull- 20 mA max per channel  
 Line Driver- 20 mA max per channel (Meets RS 422 at 5 VDC supply)

Index.....Once per revolution gated to channel A. See *Waveform Diagrams* below.

Freq. Response.....200 kHz standard, 300 kHz optional

Noise Immunity.....Tested to BS EN61000-6-2; BS EN50081-2; BS EN61000-4-2; BS EN61000-4-3; BS EN61000-4-6, BS EN55011

Symmetry.....180° (±18°) electrical

Quad. Phasing.....90° (±22.5°) electrical

Min. Edge Sep.....67.5° electrical

Accuracy.....Within 0.01° mechanical from one cycle to any other cycle, or 0.6 arc minutes.

Commutation.....Up to 12-pole. Contact Customer Service for availability.

Comm. Accuracy.....1° mechanical

### Mechanical

Max Shaft Speed.....7500 RPM. Higher shaft speeds may be achievable, contact Customer Service.  
 Note: For extreme temperature operation, de-rate temperature by 5° C for every 1000 RPM above 3000 RPM

Bore Size.....0.250" through 0.625"  
 5 mm through 15 mm

Bore Tolerance.....-0.0000" / +0.0006"

User Shaft Tolerances  
 Radial Runout.....0.007" max  
 Axial Endplay.....±0.030" max

Starting Torque.....IP50 Thru-Bore: 0.50 oz-in  
 IP50 Hollow Bore: 0.30 oz-in  
 IP64 Thru-Bore: 2.50 oz-in  
 IP64 Hollow Bore: 2.0 oz-in  
 Note: Add 3.0 oz-in for -40° C operation

Moment of Inertia.....3.9 X 10<sup>-4</sup> oz-in-sec<sup>2</sup>

Max Acceleration.....1 X 10<sup>5</sup> rad/sec<sup>2</sup>

Electrical Conn.....18" cable (foil and braid shield, 24 AWG conductors non-commutated, 28 AWG commutated), 5- or 8-pin M12 (12 mm) in-line connector with 18" cable (foil and braid shield)

Housing.....Black non-corrosive finish

Mounting.....Slotted Flex Mount standard, additional flex mount options available (see Ordering Guide)

Weight.....3.5 oz typical

### Environmental

Operating Temp.....0° to 70° C for standard models  
 -40° to 70° C for low temperature option  
 0° to 100°C for high temperature option  
 0° to 120° C for extreme temperature option

Storage Temp.....-40° to +100° C

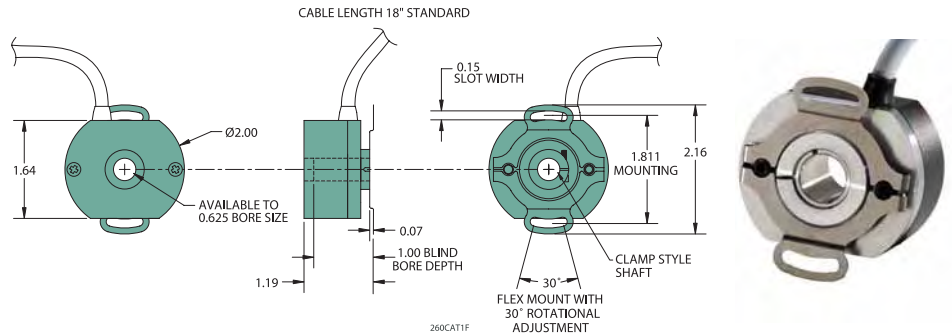
Humidity.....98% RH non-condensing

Vibration.....10 g @ 58 to 500 Hz

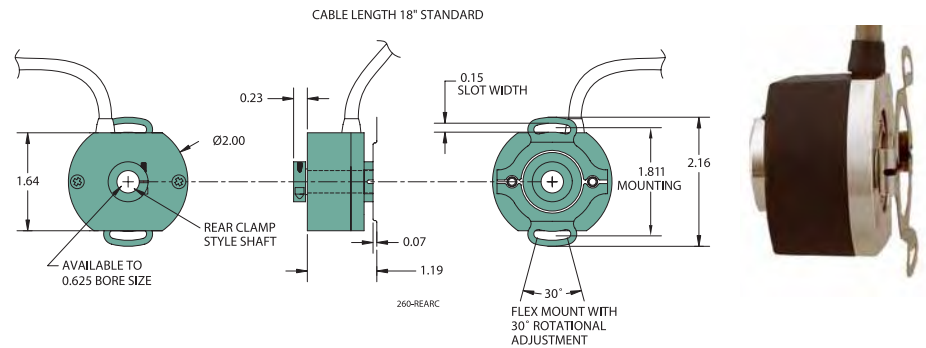
Shock.....50 g @ 11 ms duration

Sealing.....IP50; IP64 available

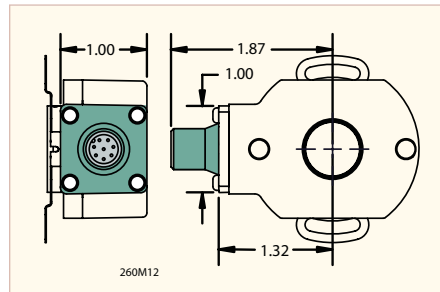
## Model 260 With Front Shaft Clamp (T) With 1.811" (46 mm) BC Slotted Flex (SF)



## Model 260 Rear Clamp (R) With 1.811" (46 mm) BC Slotted Flex (SF)



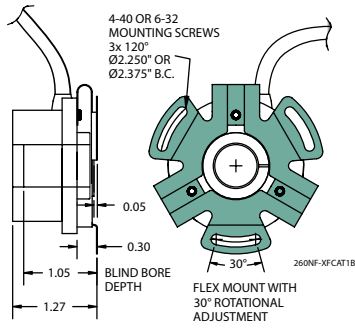
## Body Mount M12 (SMJ, SMK)



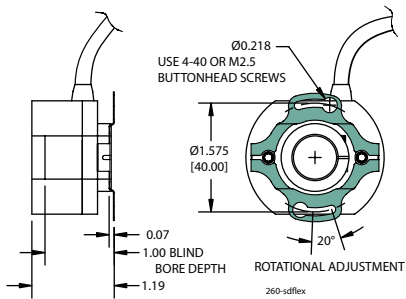
All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified

# Model 260 Additional Mounts

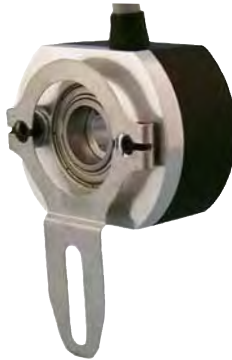
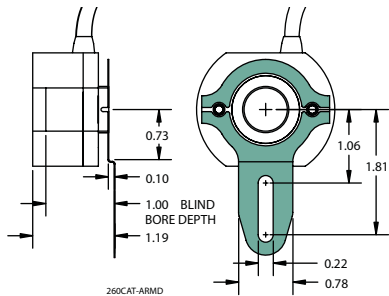
## Three Point Flex Mount (XF, NF)



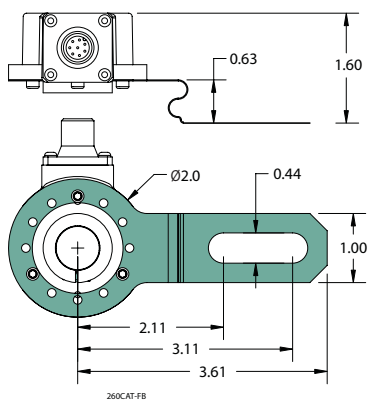
## 1.575" (40 mm) BC Flex Mount (SD)



## Flex Arm (FA)

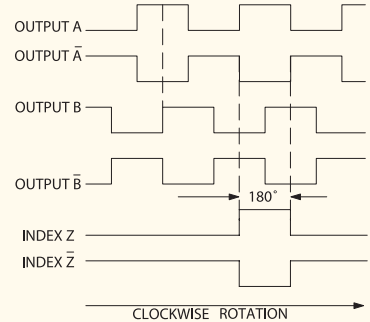


## Flex Arm (FB)



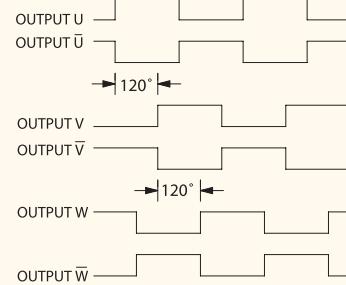
All dimensions are in inches with a tolerance of  $\pm 0.005"$  or  $\pm 0.01"$  unless otherwise specified

## Waveform Diagrams



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES

LD51GC



CW ROTATION OF SHAFT AS VIEWED  
LOOKING AT THE ENCODER FACE.

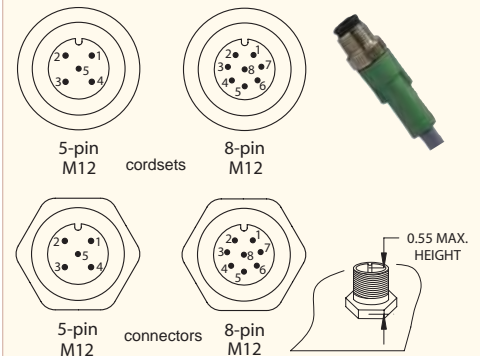
NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES.

COMM-SIGA

## Wiring Table

Function	Cable Wire Color	5-pin M12**	8-pin M12**	
Com	Black	3	7	* CE Option: Cable shield (bare wire) is connected to internal case
+VDC	White	1	2	
A	Brown	4	1	**Non-CE Option: Cable shield is connected to M12 connector body.
A'	Yellow	--	3	
B	Red	2	4	CE Option: Cable shield and M12 connector body is connected to internal case.
B'	Green	--	5	
Z	Orange	5	6	
Z'	Blue	--	8	
U	Violet	--	--	
U'	Gray	--	--	
V	Pink	--	--	
V'	Tan	--	--	
W	Red/Green	--	--	
W'	Red/Yellow	--	--	
Shield	Bare *	--	--	

## Connector Pin-Outs



Spring 2007