

# Model 260



Optional M12 Body Mount!



### 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

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<sup>2</sup></b> N No Commutation C4 4 Pole C6 6 Pole C8 8 Pole C10 10 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<sup>1</sup></b> 01 1/4", 0.250" 02 3/8", 0.375" 76 7/16", 0.4375" 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>CYCLES PER REVOLUTION</b> 1-10,000 See <i>CPR Options</i> below Price adder >1999	<b>NUMBER OF CHANNELS<sup>4</sup></b> <i>Channel A Leads B</i> Q Quadrature A & B R Quadrature A & B with Index <i>Channel B Leads A</i> K Reverse Quadrature A & B D Reverse Quadrature A & B with Index	<b>OUTPUT TYPE</b> OC Open Collector PP Push-Pull HV Line Driver	<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> SMH 10-pin Body <sup>8</sup> Mount Bayonet	<b>CERTIFICATION</b> N None CE CE Marked <sup>6</sup>	<b>MAXIMUM FREQUENCY</b> 1 Standard 2 Extended See specifications for explanation.	<b>SEALING</b> 1 IP50 for Thru-Bore 2 IP64 for Thru-Bore 3 IP64 for Hollow Bore 4 IP50 for Hollow Bore	<b>MOUNTING</b> SD 1.575" (40 mm) BC Flex Mount SF 1.811" (46 mm) BC Flex Mount SL 2.36" (60 mm) BC Flex Mount XF 2.250" BC 3-point Flex Mount NF 2.375" BC 3-point Flex Mount FA 1.06" to 1.81" BC Flex Arm FB 1.50" to 3.13" BC Flex Arm	<b>OPERATING TEMPERATURE<sup>3</sup></b> L -40° to 70° C S 0° to 70° C H 0° to 100° C V 0° to 120° C

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

### Model 260 CPR Options

0001 thru 0189*	0200	0250	0254	0256	0300
0360	0400*	0500	0512	0600	0720
0840	1000	1024	1200	1220	1250
1500	1800*	2000	2048	2500	2540
3600*	4000	4096	5000	6000	8192
7200*	10,000				

\*Contact Customer service for availability

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. Frequency above 300 kHz standard cable lengths only.
- 6 Please refer to Technical Bulletin TB100: *When to Choose the CE Option* at Encoder website.
- 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.
- 8 Not available with commutation.

# Model 260

## Model 260 Specifications

### Electrical

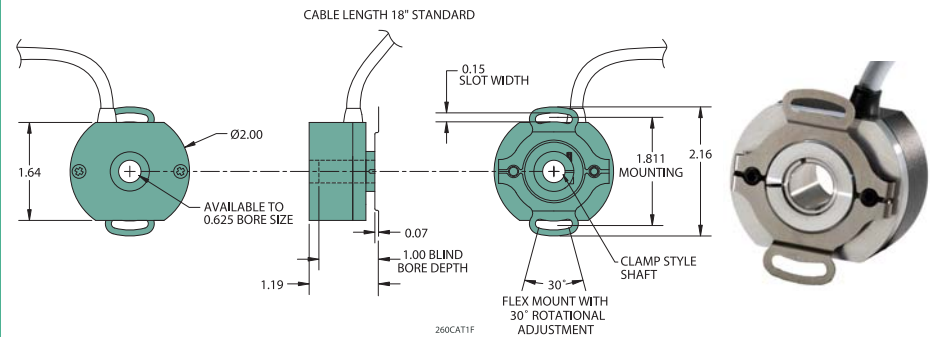
Input Voltage.....	4.75 to 28 VDC for temperatures up to 70° C 5 to 16 VDC for 0° to 100° C operating temperature 5 VDC for 0° to 120° C operating temperature
Input Current.....	100 mA max with no output load
Output Format.....	Incremental- Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the mounting face. See <i>Waveform Diagrams</i> .
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 <i>Waveform Diagrams</i> .
Max. Frequency.....	Standard Frequency Response is 200 kHz for CPR 1 to 2540 500 kHz for CPR 2541 to 5000 1 MHz for CPR 5001 to 10,000 Extended Frequency Response (optional) is 300 kHz for CPR 2000, 2048, 2500, and 2540
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
Quadrature.....	67.5° electrical or better is typical, 54° electrical minimum at temperatures > 99° C
Edge Separation.....	electrical minimum at temperatures > 99° C
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), 5- or 8-pin M12 body mount, 10-pin Bayonet
Housing.....	Black non-corrosive finish
Mounting.....	Slotted Flex Mount standard, additional flex mount options available (see Ordering Guide)
Weight.....	3.5 oz typical
<b>Environmental</b>	
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

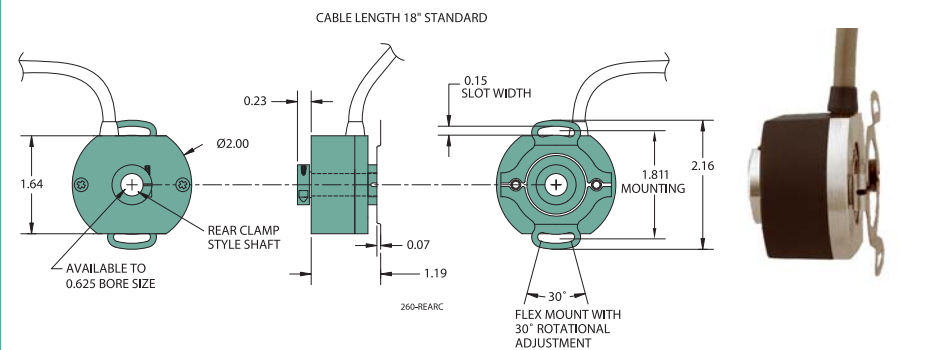
## Model 260 With Front Shaft Clamp (T)

With 1.811" (46 mm) BC Slotted Flex (SF)

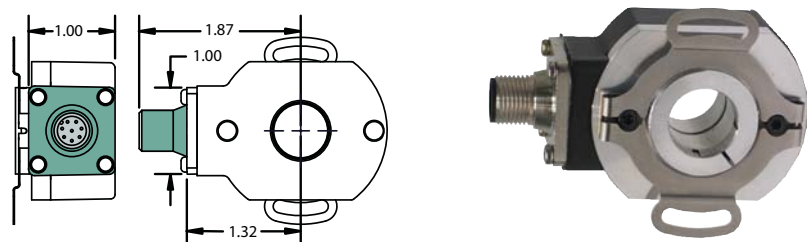


## Model 260 Rear Clamp (R)

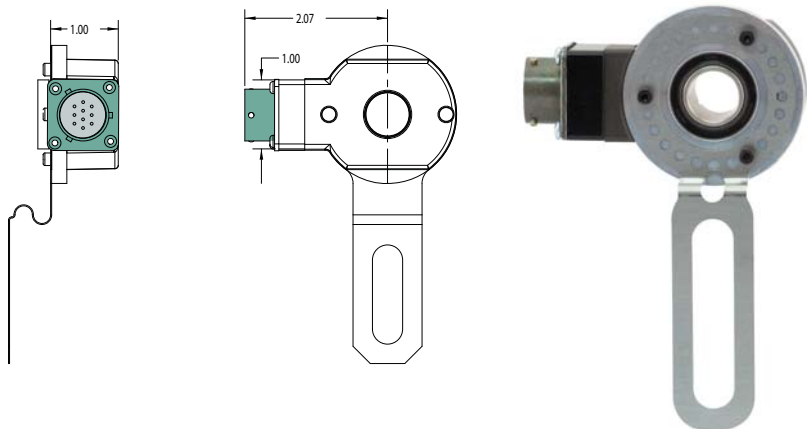
With 1.811" (46 mm) BC Slotted Flex (SF)



## Body Mount M12 (SMJ, SMK)



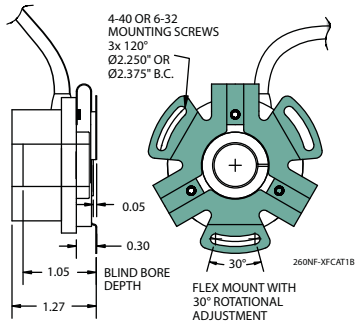
## Body Mount 10-pin Bayonet (SMH)



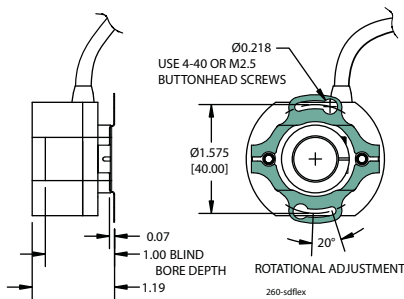
All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified

# Model 260

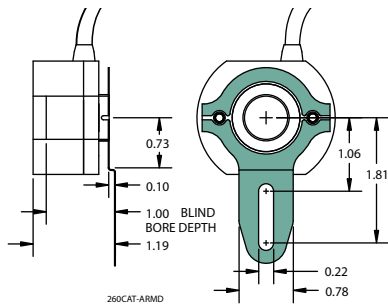
## Three Point Flex Mount (XF, NF)



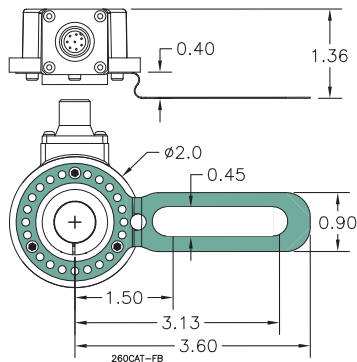
## 1.575" (40 mm) BC Flex Mount (SD)



## 1.06" to 1.81" Flex Arm (FA)



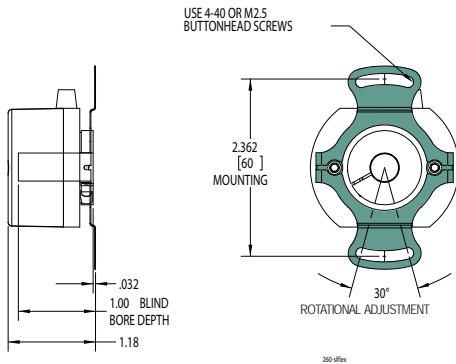
## 1.50" to 3.13" Flex Arm (FB)



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

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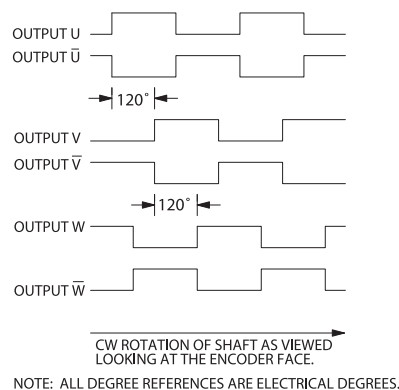
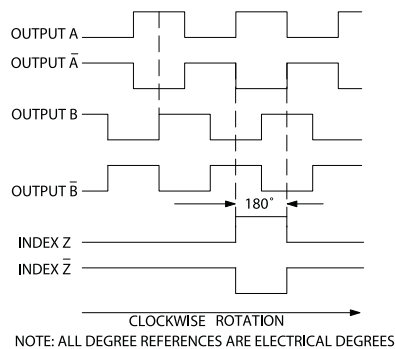
## 2.36" (60 mm) BC Flex Mount (SL)



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

## Model 260 Connector Options

### Waveform Diagrams



### Wiring Table

Function	Cable Wire Color	5-pin M12 <sup>2</sup>	8-pin M12 <sup>2</sup>	10-pin Bayonet <sup>3</sup>	
Com	Black	3	7	F	<sup>1</sup> CE Option: Cable shield (bare wire) is connected to internal case.
+VDC	White	1	2	D	
A	Brown	4	1	A	<sup>2</sup> Non-CE Option: Cable shield is connected to M12 connector body. CE Option: Cable shield and M12 connector body is connected to internal case.
A'	Yellow	--	3	H	
B	Red	2	4	B	<sup>3</sup> CE Option: Pin G is connected to internal case.
B'	Green	--	5	J	
Z	Orange	5	6	C	
Z'	Blue	--	8	K	
U	Violet	--	--	--	
U'	Gray	--	--	--	
V	Pink	--	--	--	
V'	Tan	--	--	--	
W	Red/Green	--	--	--	
W'	Red/Yellow	--	--	--	
Shield	Bare <sup>1</sup>	--	--	--	

### Connector Pin-Outs

