

# Model 802S



## Features

- Industry Standard Size 20 (2" diameter) Stainless Steel Package
- Flange and Servo Mounting
- Up to 30,000 CPR
- 80 lb Maximum Axial and Radial Shaft Loading
- IP66 Sealing Available

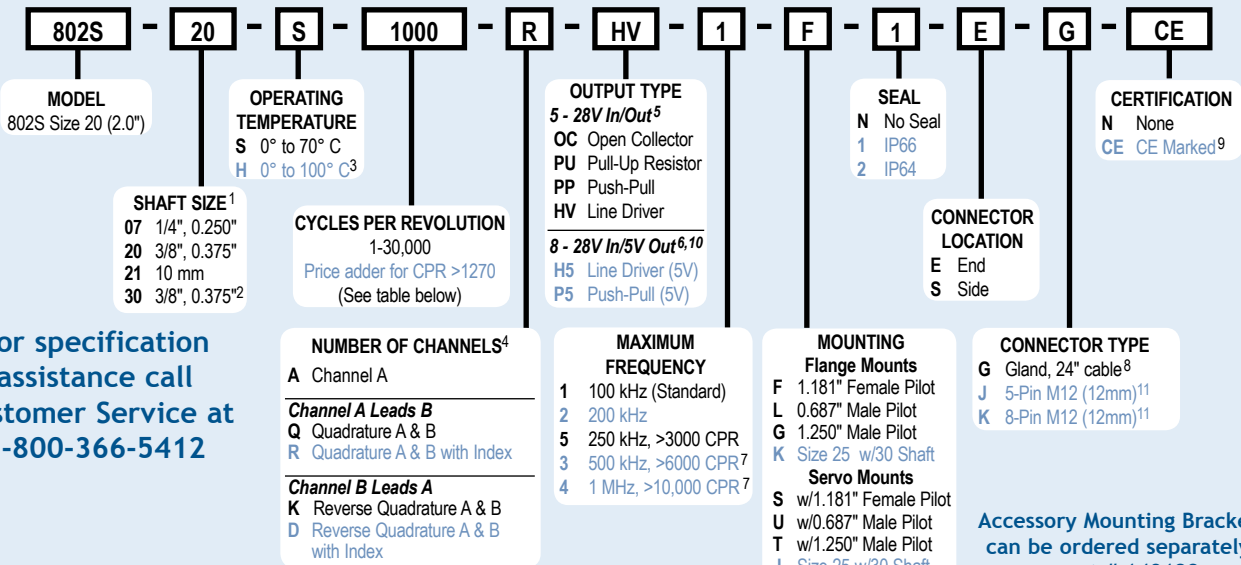
The Model 802S Accu-Coder™ is a heavy duty, industry standard Size 20 (2.0" diameter) encoder specifically designed for harsh factory and plant floor environments. The Model 802S is available with a variety of flange and servo mounting styles, making it easy to use in a broad range of applications. Its heavy duty, double shielded ball bearings are rated at 80 pounds maximum axial and radial shaft load, ensuring long operating life. This ultra-rugged, yet compact encoder is housed in a type 316 stainless steel enclosure, making it ideal for applications where contamination or exposure to caustic chemicals is a concern. But don't let its tough exterior fool you, the Model 802S provides the precise, reliable output you've come to expect from Accu-Coder™.

## Common Applications

Food Processing, Oil, Gas & Chemical Processing, Material Handling, Conveyors, Robotics, Elevator Controls, Textile Machines

## Model 802S Ordering Guide

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



For specification assistance call Customer Service at 1-800-366-5412

Accessory Mounting Bracket can be ordered separately as part # 140122. For more details [www.encoder.com](http://www.encoder.com)

## Model 802S CPR Options

0001*	0002*	0004*	0005*	0006*	0007*	0008*	0010*	0011*
0012*	0014*	0020	0021*	0024*	0025*	0028*	0030*	0032*
0033*	0034*	0035*	0038*	0040*	0042*	0045*	0050*	0060
0064*	0100	0120	0125	0128*	0144*	0150*	0160*	0192*
0200	0240*	0250	0254*	0256*	0300	0333*	0360	0400
0500	0512	0600	0625*	0635	0665*	0720	0768*	0800
0889	0900*	1000	1024	1200	1201 <sup>a</sup>	1203 <sup>a</sup>	1204 <sup>a</sup>	1250 <sup>a</sup>
1270 <sup>a</sup>	1440	1500	1800	2000	2048	2400 <sup>a</sup>	2500	2540 <sup>a</sup>
2880 <sup>a</sup>	3000 <sup>a</sup>	3600 <sup>a</sup>	4000 <sup>a</sup>	4096 <sup>a</sup>	5000 <sup>a</sup>	6000 <sup>a</sup>	7200 <sup>a</sup>	7500 <sup>a</sup>
9000 <sup>a</sup>	10,000 <sup>a</sup>	10,240 <sup>a</sup>	12,000 <sup>a</sup>	12,500 <sup>a</sup>	14,400 <sup>a</sup>	15,000 <sup>a</sup>	18,000 <sup>a</sup>	20,000 <sup>a</sup>
20,480 <sup>a</sup>	25,000 <sup>a</sup>	30,000 <sup>a</sup>						

\* Contact Customer Service for High Temperature Option.  
<sup>a</sup> High Temperature Option (H) limited to 85° C maximum for these CPR options.  
 New CPR values are periodically added to those listed. Contact Customer Service to determine all currently available CPR values. Special disk resolutions are available upon request.  
 A one-time NRE fee may apply.

## NOTES:

- 1 Contact Customer Service for additional options.
- 2 Shaft with Size 25 Mounting Adapter, J or K mounting only.
- 3 0° to 85° C for certain resolutions, see CPR Options.
- 4 Contact Customer Service for non-standard index gating options.
- 5 24 VDC max for high temperature option.
- 6 Standard temperature, 60 to 3000 CPR only.
- 7 Standard cable lengths only. For additional information please refer to **Technical Bulletin TB116: Noise and Signal Considerations** at [www.encoder.com](http://www.encoder.com).
- 8 For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: G/6 = 6 feet of cable.
- 9 For additional information please refer to **Technical Bulletin TB100: When to Choose the CE Option** at [www.encoder.com](http://www.encoder.com).
- 10 CE not available with H5/P5 output type options.
- 11 M12 connector available on side mount option only.

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## Model 802S Specifications

### Electrical

Input Voltage.....4.75 to 28 VDC max for temperatures up to 70° C  
 4.75 to 24 VDC for temperatures between 70° C to 100° C

Input Current 100 mA max with no output load  
 Input Ripple .....100 mV peak-to-peak at 0 to 100 kHz

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

Output Types .....Open Collector- 100 mA max per channel  
 Pull-Up- 100 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 .....Occurs once per revolution. The index for units >3000 CPR is 90° gated to Outputs A and B. See *Waveform Diagrams* below.

Max Frequency.....Up to 1 MHz.

Noise Immunity.....Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022 (with European compliance option); BS EN61000-6-2; BS EN50081-2

Symmetry .....1 to 6000 CPR: 180° (±18°) electrical at 100 kHz output  
 6001 to 20,480 CPR: 180° (±36°) electrical

Quad Phasing.....1 to 6000 CPR: 90° (±22.5°) electrical at 100 kHz output  
 6001 to 20,480 CPR: 90° (±36°) electrical

Min Edge Sep.....1 to 6000 CPR: 67.5° electrical at 100 kHz output  
 6001 to 20,480 CPR: 54° electrical  
 >20,480 CPR: 50° electrical

Rise Time.....Less than 1 microsecond

Accuracy.....Instrument and Quadrature Error: For 200 to 1999 CPR, 0.017° mechanical (1.0 arc minutes) from one cycle to any other cycle. For 2000 to 3000 CPR, 0.01° mechanical (0.6 arc minutes) from one cycle to any other cycle. Interpolation error (units > 3000 CPR only) within 0.005° mechanical.  
 (Total Optical Encoder Error = Instrument + Quadrature + Interpolation)

### Mechanical

Max Shaft Speed.....8000 RPM. Higher shaft speeds may be achievable, contact Customer Service.

Shaft Size .....0.250", 0.375", or 10 mm

Radial Shaft Load.....80 lb max. Rated load of 20 to 40 lb for bearing life of  $1.5 \times 10^9$  revolutions

Axial Shaft Load.....80 lb max. Rated load of 20 to 40 lb for bearing life of  $1.5 \times 10^9$  revolutions

Starting Torque .....1.0 oz-in typical with IP66 seal or no seal  
 3.0 oz-in typical with IP66 shaft seal

Moment of Inertia ..... $5.2 \times 10^{-4}$  oz-in-sec<sup>2</sup>

Max Acceleration..... $1 \times 10^5$  rad/sec<sup>2</sup>

Electrical Conn .....5 or 8-Pin M12 (12mm) or Gland with 24" cable (foil and braid shield, 24 AWG conductors)

Housing.....Type 316 Stainless Steel

Bearings.....Precision ABEC ball bearings

Mounting.....Various flange or servo mount styles.

Weight.....1.5 lb typical

### Environmental

Operating Temp.....0° to 70° C for standard models  
 0° to 100° C for high temperature option (0° to 85° C for certain resolutions, see CPR Options.)

Storage Temp -25° to +85° C

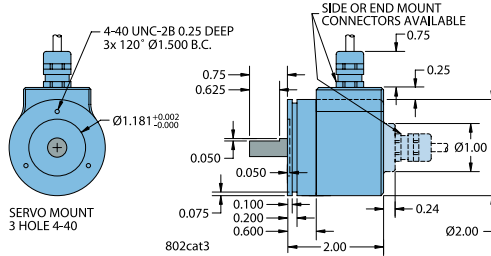
Humidity.....98% RH non-condensing

Vibration.....20 g @ 58 to 500 Hz

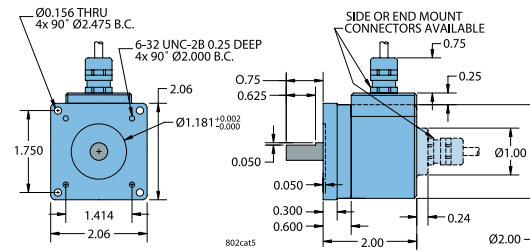
Shock.....75 g @ 11 ms duration

Sealing.....IP66 shaft seal (NEMA 13 and 4/4X); or IP64 bearing seal

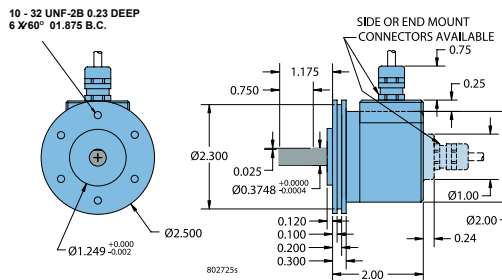
## Model 802S Servo Mount (S)



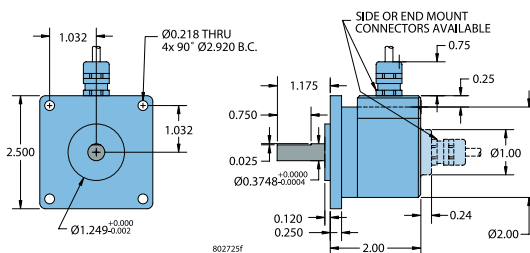
## Model 802S Flange Mount (F)



## Model 802S Size 25 (2.5") Servo Mount (J)

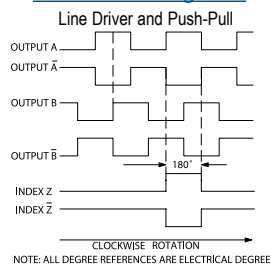


## Model 802S Size 25 (2.5") Flange Mount (K)

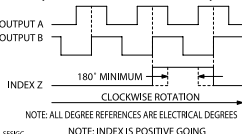


All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified

### Waveform Diagrams



### Open Collector and Pull-Up



### Wiring Table

Function	Gland Cable Wire Color	5-pin M12 <sup>2</sup>	8-pin M12 <sup>2</sup>
Com	Black	3	7
+VDC	Red	1	2
A	White	4	1
A'	Brown	---	3
B	Blue	2	4
B'	Violet	---	5
Z	Orange	5	6
Z'	Yellow	---	8
Case	Green	---	---
Shield	Bare <sup>1</sup>	---	---

\* CE Option: Cable Shield (bare wire) is connected to internal case