

Model 802S Stainless Steel 50.80mm Diameter Encoder



Ø50.8 mm

Features

- Standard Size 20 Package (50mm x 50mm) Stainless Steel Package
- Flange, and Servo Mounting
- Up to 30,000 PPR
- 35Kg Max. Axial and Radial Shaft Loading
- IP67 Sealing Available

The Model 802S is a heavy duty, industry standard Size 20 (50.8 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 36 Kg 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 BEPC.

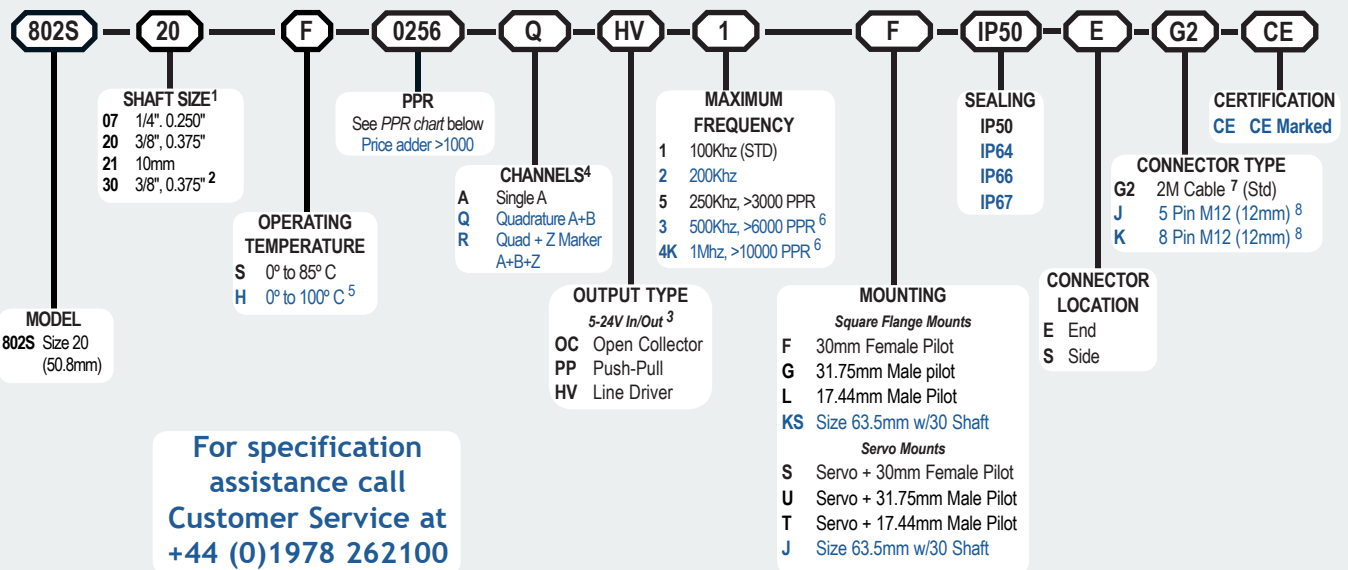
Common Applications

Motion Control Feedback, Conveyors, Elevator Controls, Machine Control, Food Processing, Process Control, Robotics, Material Handling, Textile Machines

Model 802S Ordering Guide

Blue type indicates price adder options. Not all configuration combinations may be available.

Contact Customer Service for details.



Model 802S PPR 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	0889	1000
1024	1200	1204 ^a	1250 ^a	1270 ^a	1440	1500	1800	2000
2048	2400 ^a	2500	2540 ^a	2880 ^a	3000 ^a	3600 ^a	4000 ^a	4096 ^a
5000 ^a	6000 ^a	7200 ^a	7500 ^a	9000 ^a	10,000 ^a	10,240 ^a	12,000 ^a	12,500 ^a
14,400 ^a	15,000 ^a	18,000 ^a	20,000 ^a	20,480 ^a	25,000 ^a	30,000 ^a		

NOTES:

- 1 Contact Customer Service for additional options not shown.
- 2 Shaft Size 30 ONLY available with KS and JS Mountings.
- 3 24Vcc Max for High Temperature Option.
- 4 Contact Customer Service for non-standard marker gating or phase relationship options.
- 5 0° to 85°C for certain PPR resolutions - See PPR options.
- 6 Standard Cable Length Only.
- 7 For non-standard cable lengths contact sales for availability and cost.
- 8 M12 Connector available on side mount option only.

* Contact Customer Service for High Temperature Option.

^a High Temperature Option (H) limited to 85° C maximum for these PPR options.

Contact Customer Service to determine all currently available PPR values. Special disk resolutions are available upon request. A one-time NRE fee may apply.

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Model 802S Specifications

Electrical

Input Voltage.....4.75 to 28 Vcc max for temperatures up to 70° C
4.75 to 24 Vcc 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 FormatIncremental- Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the encoder mounting face. See *Waveform Diagrams*.

Output TypesOpen 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 Vcc supply)

IndexOccurs once per revolution. The index for units >3000 PPR is 90° gated to Outputs A and B. See *Waveform Diagrams*.

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 PPR: 180° (±18°) electrical at 100 kHz output
6001 to 20,480 PPR: 180° (±36°) electrical

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

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

Rise Time.....Less than 1 microsecond

Accuracy.....Instrument and Quadrature Error: For 200 to 1999 PPR, 0.017° mechanical (1.0 arc minutes) from one cycle to any other cycle. For 2000 to 3000 PPR, 0.01° mechanical (0.6 arc minutes) from one cycle to any other cycle.
Interpolation error (units > 3000 PPR 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 Size0.250", 0.375" or 10 mm

Shaft Rotation.....Bi-directional

Radial Shaft Load.....35 Kg max. Rated load of 10 to 20 Kg for bearing life of 1.5×10^9 revolutions

Axial Shaft Load.....35 Kg max. Rated load of 10 to 20 Kg for bearing life of 1.5×10^9 revolutions

Starting Torque7.0615 x 10⁻³ Nm Typical with IP64 or no seal
2.0118 x 10⁻² Nm Typical with IP66 Seal

Connector Type.....M12 (12 mm) or gland with 2 Metres of cable (foil and braid shield, 24 AWG conductors)

Housing.....316 Stainless Steel

Bearings.....Precision ABEC ball bearings

Mounting.....Various flange or servo mounts

Weight.....680 grams 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 PPR Options.)

Storage Temp.....-25° to +85° C

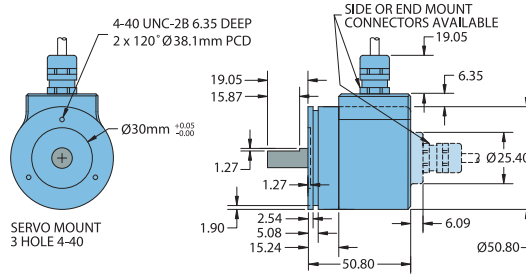
Humidity.....98% RH non-condensing

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

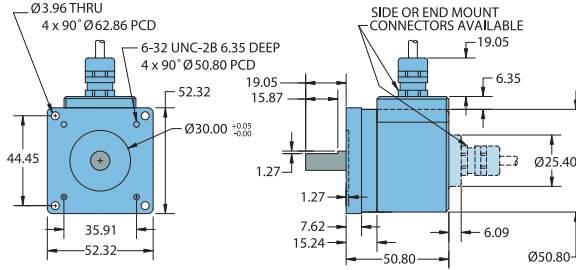
Shock.....75 g @ 11 ms duration

Sealing.....IP50 standard; IP64, IP66 or IP67 optional

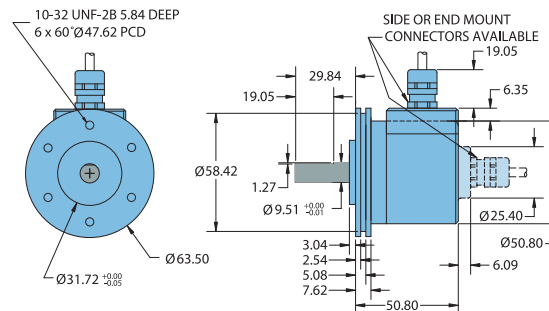
Model 802S Servo Mount (S)



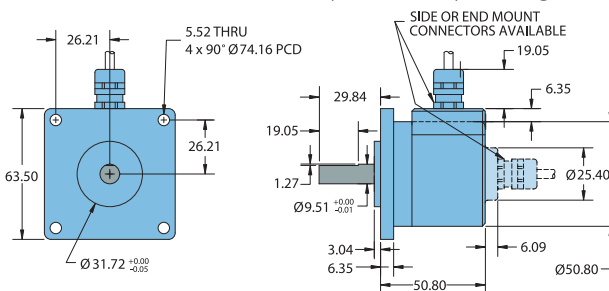
Model 802S Flange Mount (F)



Model 802S Size 25 (63.5mm) Servo Mount (J)

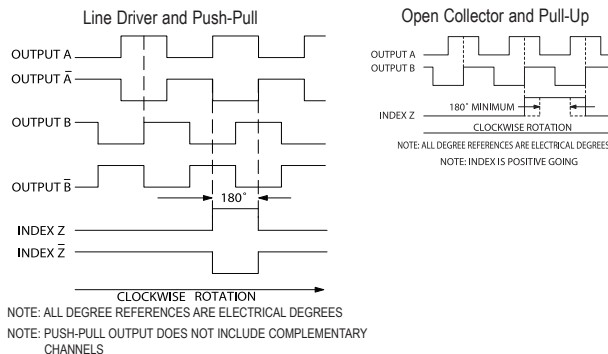


Model 802S Size 25 (63.5mm) Flange Mount (K)



All dimensions are in mm with a tolerance of ±0.127mm or ±0.254 unless otherwise specified

Waveform Diagrams



Wiring Table

Function	Gland Cable† Wire Color	5-pin M12** PP,OC,PU	8-pin M12** HV
0 Volts	Black	3	7
+VCC	Red	1	2
A	White	4	1
A'	Brown	--	3
B	Blue	2	4
B'	Violet	--	5
Z	Orange	5	6
Z'	Yellow	--	8
Shield	Green / Bare*	Case	Case

*CE: Cable shield (bare wire) is connected to internal case.

†Standard cable is 24 AWG conductors with foil and braid shield.

**CE: Shield is connected to connector case unless otherwise specified.