

# MODEL 858S – STAINLESS STEEL ENCODER



## FEATURES

- Industry Standard Size 58 (58 mm Diameter) Stainless Steel Package
- Up to 30,000 CPR
- 80 lb Maximum Axial and Radial Shaft Loading
- 100° C Operating Temperature Available
- IP67 Sealing Available

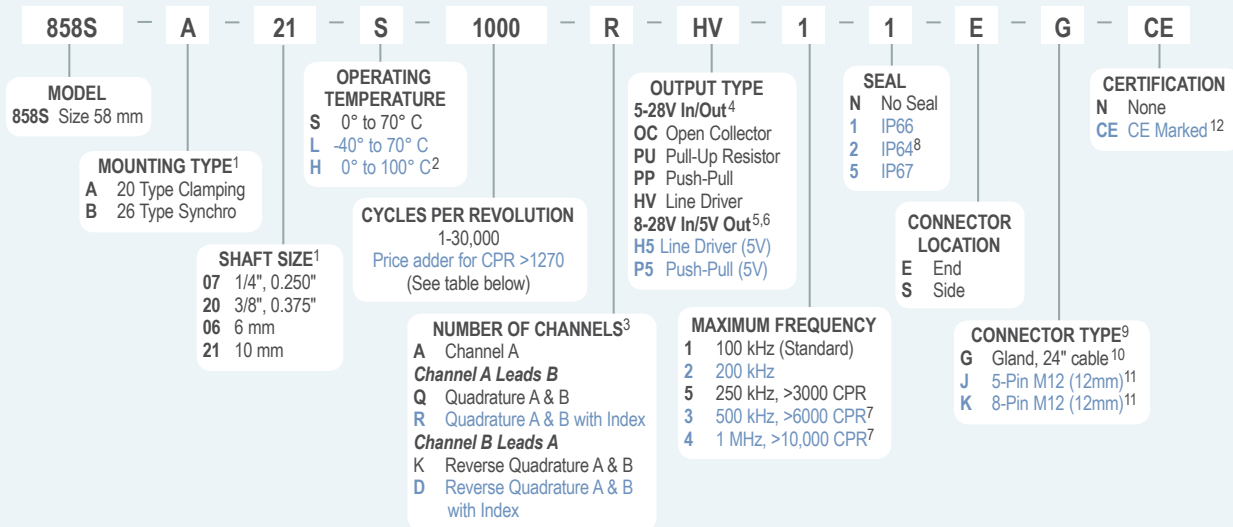
The Model 858S European Size 58 Accu-Coder™ is a heavy duty, extremely rugged, reliable encoder, in a 316 stainless steel package. Its compact design is well suited for harsh factory and plant floor environments that call for a metric solution. The double-shielded ball bearings are rated at 80 pound maximum axial and radial shaft loading, to ensure a long operating life. Shock rating is 75 g for 11 milliseconds duration. With the optional heavy-duty shaft seal installed, the Model 858S is rated at IP67. Two European standard mounting options are available, the Clamping Flange (20 Type), or the Synchro Flange (26 Type).

## COMMON APPLICATIONS

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

## MODEL 858S ORDERING GUIDE

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



## MODEL 858S 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*	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:

- The shaft on 20 Type mountings includes a 15.58mm flat. The shaft on 26 Type mountings is provided without a flat.
- 0° to 85° C for certain resolutions, see CPR Options.
- Contact Customer Service for non-standard index gating options.
- 24 VDC max for high temperature option.
- Standard temperature, 60 to 3000 CPR only.
- CE not available with H5/P5 output type options.
- 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).
- IP64 not available in low temp option.
- For mating connectors, cables, and cordsets see Encoder Accessories on page 102 or visit [www.encoder.com](http://www.encoder.com). For Pin Configuration Diagrams, see page 107 or visit [www.encoder.com](http://www.encoder.com).
- For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: G/6 = 6 feet of cable.
- M12 connector available on side mount option only.
- For additional information please refer to **Technical Bulletin TB100: When to Choose the CE Option** at [www.encoder.com](http://www.encoder.com).

## MODEL 858S 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 <i>Waveform Diagrams</i> .
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 <i>Waveform Diagrams</i> .
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 30,000 CPR: 180° (±36°) electrical
Quad Phasing .....	1 to 6000 CPR: 90° (±22.5°) electrical at 100 kHz output 6001 to 30,000 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)

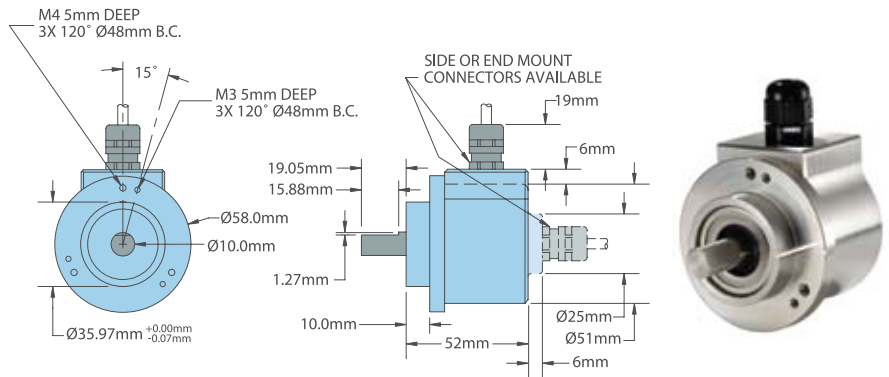
### Mechanical

Max Shaft Speed.....	8000 RPM. Higher shaft speeds may be achievable, contact Customer Service.
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 $1.5 \times 10^9$ revolutions
Starting Torque .....	1.0 oz-in typical with IP64 seal or no seal 3.0 oz-in typical with IP66 shaft seal 7.0 oz-in typical with IP67 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>
Housing .....	Type 316 Stainless Steel
Bearings.....	Precision ABEC ball bearings
Weight.....	1.5 lb typical

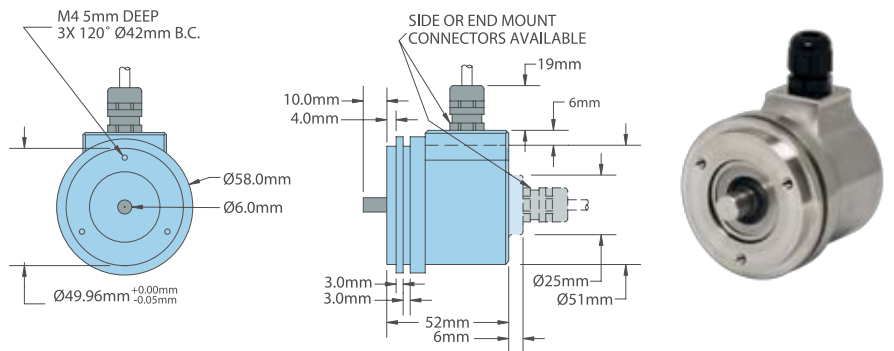
### Environmental

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, IP67 optional

## MODEL 858 CLAMPING FLANGE 20 TYPE (A)



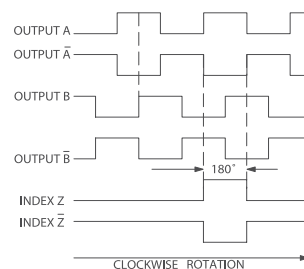
## MODEL 858 SYNCHRO FLANGE 26 TYPE (B)



All dimensions are in millimeters with a tolerance of  $\pm 0.17$  mm unless otherwise specified.

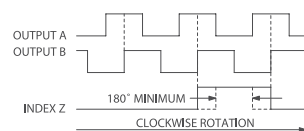
## WAVEFORM DIAGRAMS

### Line Driver and Push-Pull



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS  $\bar{A}$ ,  $\bar{B}$  FOR HV OUTPUT ONLY.

### Open Collector and Pull-Up



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. INDEX IS POSITIVE GOING

## WIRING TABLE

Function	Gland Cable <sup>†</sup> Wire Color	5-pin M12	8-pin M12
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
Shield	Bare*	--	--
Case	Green	--	--

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

<sup>†</sup>Standard cable is 24 AWG conductors with foil and braid shield.