

Model 15S



Features

- Very High Performance Economical Encoder
- Low Profile- Less Than 1.0" (25.4 mm) Height and 1.5" (38 mm) Diameter
- Extended Temperature Operating Ranges Available
- Up To 12 Pole Commutation Optional (for brushless motor control)

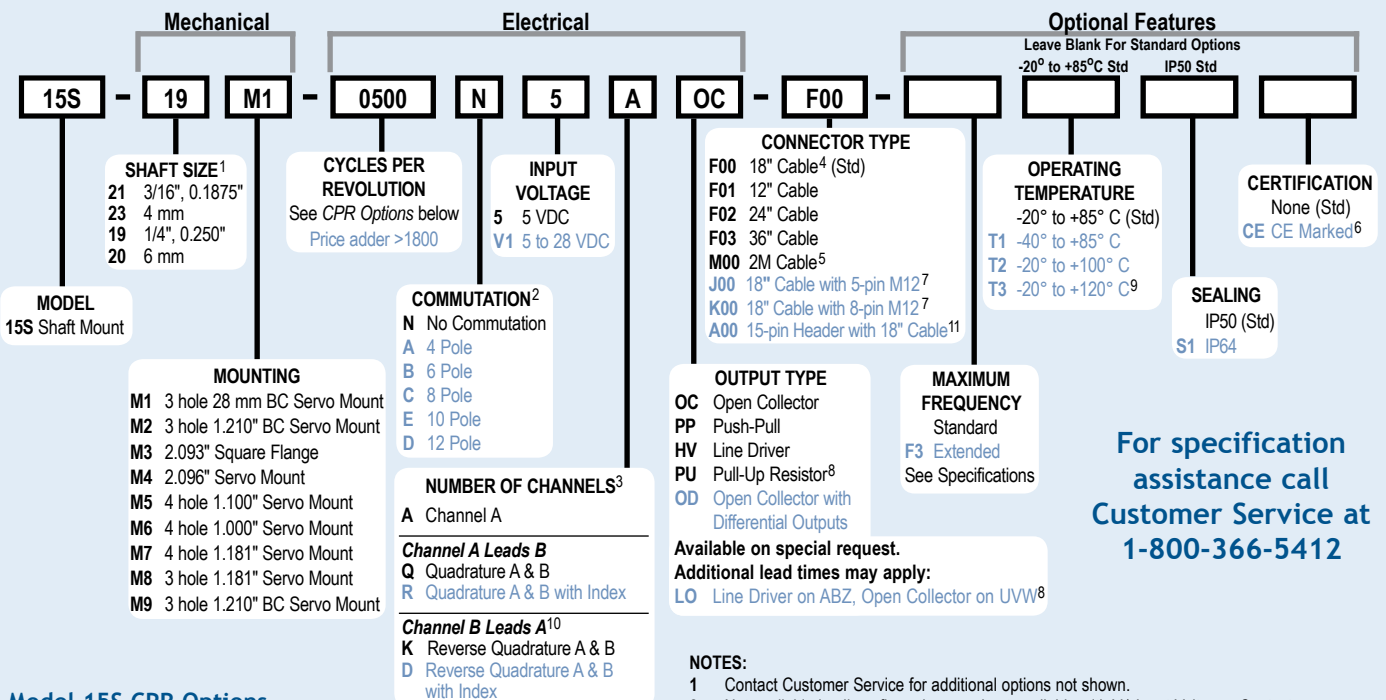
The Model 15S Accu-Coder™ offers a high performance feedback solution in a low profile package, making the Model 15S ideal for commercial and light-duty industrial applications. This industry standard Size 15 (1.5" diameter) encoder features a precision bearing set, sealing available to IP64, a durable stainless steel shaft, and a selection of servo, flange, and face mount options. The Model 15S may also be specified with features such as extended operating temperatures from -20° C to +120° C, or up to 12 pole commutation for brushless motor control. The Model 15S features EPC's Opto-ASIC circuitry for a clean, reliable signal. Its durable, yet economical design makes it an ideal encoder for high precision OEM applications.

Common Applications

Servo Motor Control, Robotics, Medical Diagnostic Equipment, Specialty Assembly Machines, Digital Plotters, Printers, Typesetting Equipment

Model 15S 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

Model 15S CPR Options

0001 thru 0189*	0198	0200	0250
0256	0300	0315	0360
0400	0415	0430	0480
0500	0512	0580	0600
0600	0612	0624	0648
0700	0712	0724	0744
0800	1000	1024	1200
1250	1500	1800	2000
2048	2500	2540	3000
3600	4000	4096	5000
6000	7200	8192	10,000

New CPR values are periodically added to those listed. Contact Customer Service to determine all currently available values. Special disk resolutions are available upon request and may be subject to a one-time NRE fee.

NOTES:

- 1 Contact Customer Service for additional options not shown.
- 2 Not available in all configurations, and not available with V1 Input Voltage. Contact Customer Service for availability.
- 3 Contact Customer Service for non-standard index gating or phase relationship options.
- 4 For non-standard English cable lengths enter 'F' plus cable length expressed in feet. Example: F06 = 6 feet of cable. Frequency above 300 kHz standard cable lengths only.
- 5 For non-standard metric cable lengths enter 'M' plus cable length expressed in meters. Example: M06 = 6 meters of cable.
- 6 Please refer to **Technical Bulletin TB100: When to Choose the CE Option** at www.encoder.com.
- 7 Not available with commutation. 5-pin not available with Line Driver (HV, OD, LO) outputs. Additional cable lengths available. Please contact Customer Service.
- 8 With Input Voltage above 16 VDC, operating temperature is limited to 85° C.
- 9 Only available with 5 VDC Input Voltage
- 10 Reverse Quadrature not available with PU output type.
- 11 Pin Header available with 5 VDC Input Voltage, HV Line Driver and standard quadrature phasing only. Not available with CE Certification. IP50 sealing option only.

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Model 15S Specifications

Electrical

Input Voltage 5 VDC $\pm 10\%$ Fixed Voltage
 4.75 to 28 VDC max for temperatures up to 85° C
 4.75 to 24 VDC for temperatures between 85° to 100° C

Input Current 100 mA max (65 mA typical) 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 encoder mounting face. See *Waveform Diagrams*.

Output Types Open Collector- 20 mA max per channel
 Push-Pull- 20 mA max per channel
 Pull-Up- Open collector with 2.2K ohm Pull-Up 20mA max per channel
 Line Driver- 20 mA max per channel (Meets RS 422 at 5 VDC supply)

Index Once per revolution.
 190 to 10,000 CPR: Gated to output A
 1 to 189 CPR: Ungated
 See *Waveform Diagrams*.

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 EN500811

Symmetry 180° ($\pm 18^\circ$) electrical

Quad. Phasing 90° ($\pm 22.5^\circ$) electrical

Min. Edge Sep 67.5° electrical

Accuracy Within 0.017° mechanical or 1 arc-minute from true position. (for CPR>189)

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

Comm. Accuracy 1° mechanical

Mechanical

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

Shaft Material Stainless Steel

Radial Shaft Load 5 lb max. Rated load of 2 to 3 lb for bearing life of 1.2×10^{10} revolutions

Axial Shaft Load 5 lb max. Rated load of 2 to 3 lb for bearing life of 1.2×10^{10} revolutions

Starting Torque IP50 0.05 oz-in
 IP64- 0.4 oz-in

Moment of Inertia 6.7×10^{-5} oz-in-sec² (4.8 gm-cm²)

Max Acceleration 1×10^5 rad/sec²

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 (braid shield), 15-pin Header with 18" Cable

Weight 3 oz typical

Environmental

Operating Temp -20° to +85° C for standard models
 -40° to +85° C for low temperature option
 -20° to +100° C for high temperature option
 -20° to +120° C for extreme temperature option

Storage Temp -25° to +85° C

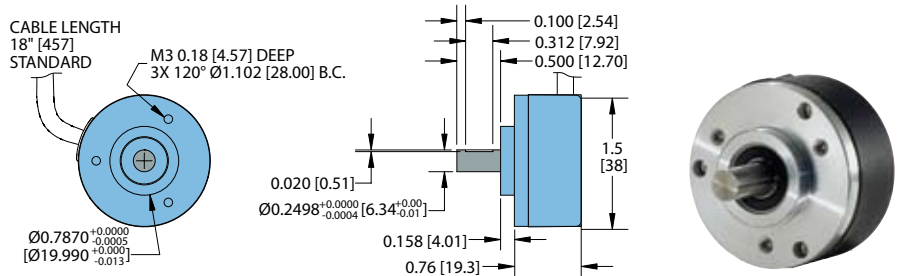
Humidity 98% RH non-condensing

Vibration 10 g @ 58 to 500 Hz

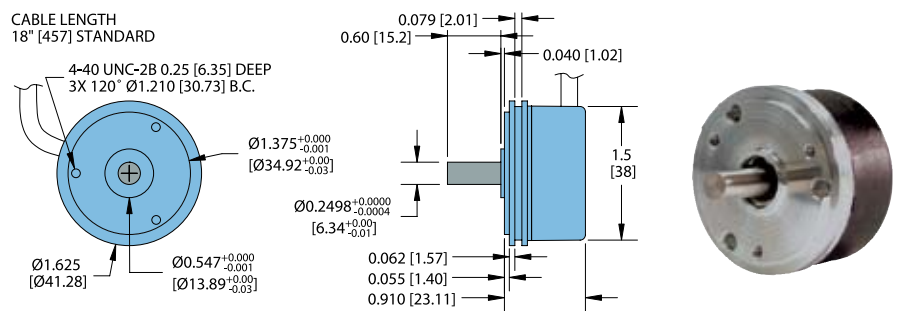
Shock 80 g @ 11 ms duration

Sealing IP50 standard; IP64 available

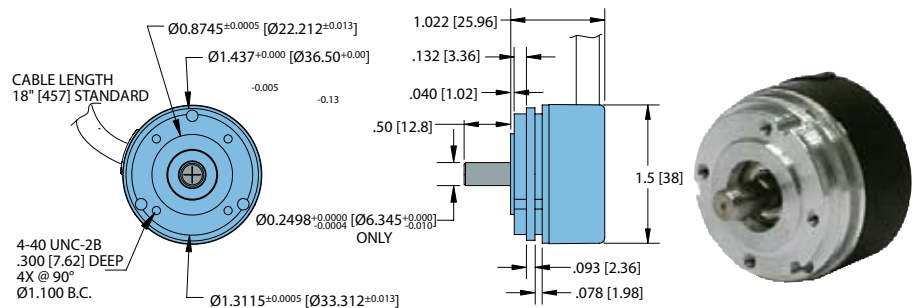
Model 15S Standard Servo Mount M1



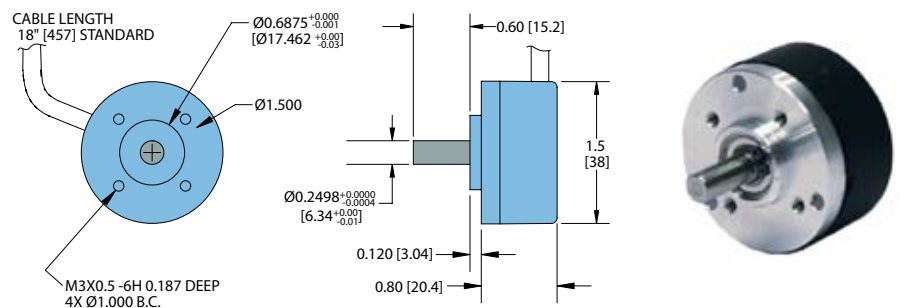
Model 15S Servo Mount M2 & M9*



Model 15S Servo Mount M5



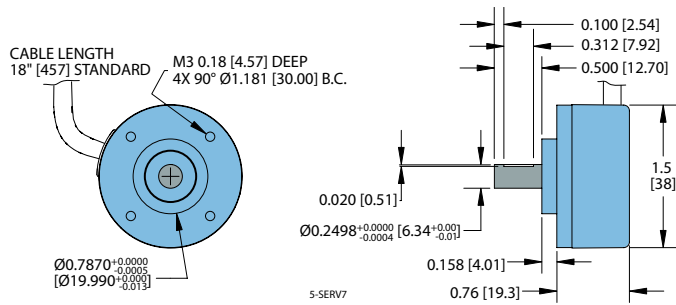
Model 15S Servo Mount M6



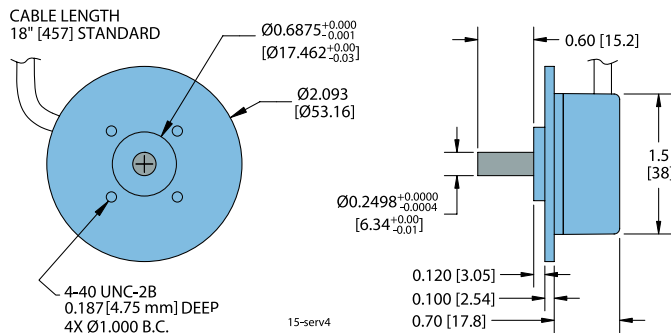
All dimensions are in inches with a tolerance of $\pm 0.005"$ or $\pm 0.01"$ unless otherwise specified
 Metric dimensions are given in brackets [mm]

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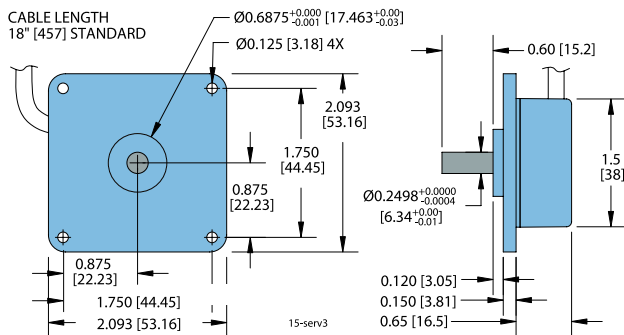
Model 15S Servo Mount M7



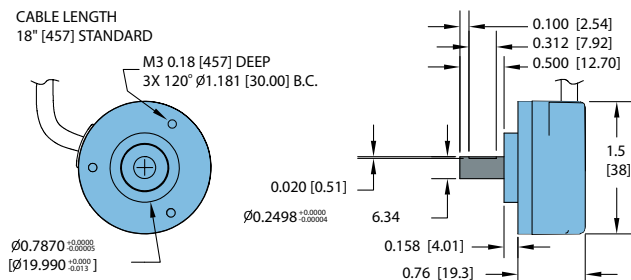
Model 15S Servo Mount M4



Model 15S Square Flange M3



Model 15S Servo Mount M8

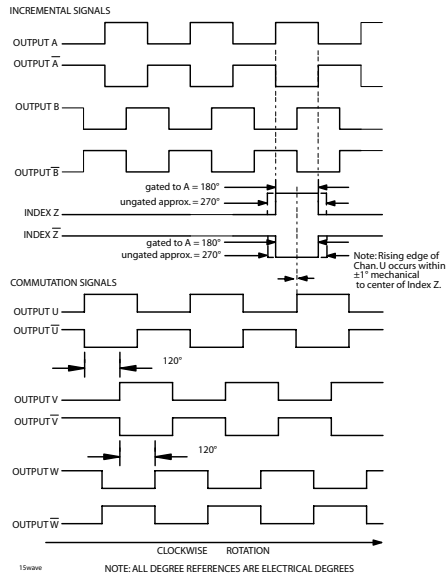


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Model 15S Connector Options

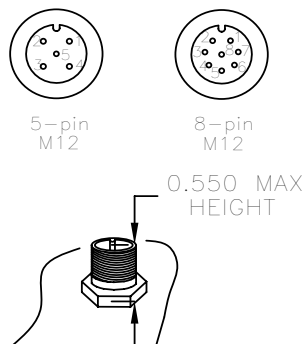
Waveform Diagrams



Wiring Table

Function	Cable Wire Color	5-pin M12 ²	8-pin M12 ²	15-pin Header	
Com	Black	3	7	1	¹ CE Option: Cable shield (bare wire) is connected to internal case. ² Non-CE Option: Cable shield is connected to M12 connector body. CE Option: Cable shield and M12 connector body is connected to internal case.
+VDC	White	1	2	2	
A	Brown	4	1	4	
A'	Yellow	--	3	3	
B	Red	2	4	6	
B'	Green	--	5	5	
Z	Orange	5	6	7	
Z'	Blue	--	8	8	
U	Violet	--	--	10	
U'	Gray	--	--	9	
V	Pink	--	--	14	
V'	Tan	--	--	13	
W	Red/Green	--	--	12	
W'	Red/Yellow	--	--	11	
Shield	Bare ¹	--	--	--	

Connector Pin-Outs



15-pin Header

