

15T / 15H Encoder

Hollow Bore Performance Encoder



Flex Mount Options



Slotted Flex Mount (SF)



Two Hole Flex Mount (SA)



Small Diameter Slotted Flex (SB, SC, SD)

The Model 15T or 15H offers a high performance feedback solution in a low profile package. Unlike modular or kit encoders, the Model 15 utilizes an integral bearing set, and an innovative flexible mounting system which is much more tolerant to axial misalignment or radial shaft run-out. The slotted flex mounts provide 20 or 30 degrees of rotational adjustment for commutation or index pulse timing.

Installation is quick and easy. For brushless servo motor applications, three 120° electrical phase tracks can provide up to 12 pole commutation feedback. The optional 100°C and 120°C temperature options allow servo motors to operate at higher power outputs and duty cycles. The Model 15 provides stable and reliable operation and is an excellent replacement for other manufacturers modular encoders where a high performance solution is desired.

Key Features

- High Performance Economical Encoder
- Low Profile 1.0" (25.4 mm) Height and 1.5" (38 mm) Diameter
- Thru-Bore (sizes up to 0.375" or 10 mm)
- Simple, Innovative Flex Mounting System (Global Mounting Standards)
- Up To 12 Pole Commutation Optional (for brushless motor control)

Applications

- Servo motor control
- Robotics
- Specialist assembly machines
- Digital plotters
- High power motors

Specifications

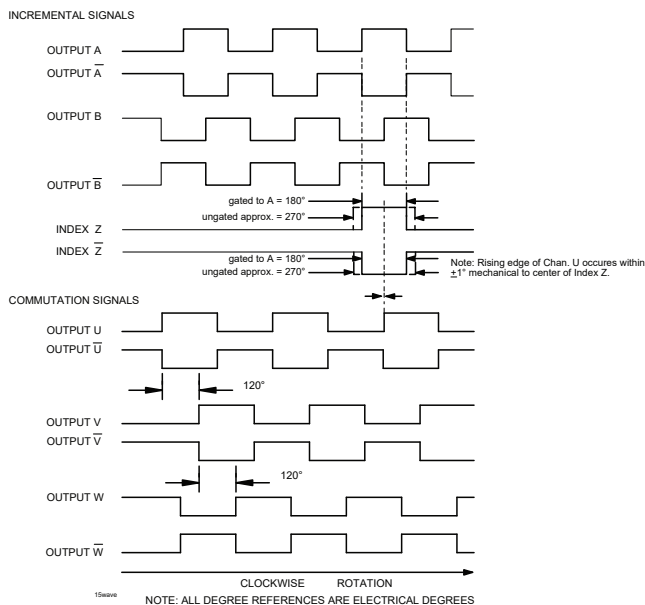
Electrical

Input Voltage	5 VDC $\pm 10\%$ Fixed Voltage 12 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 mount-ing face. <i>See Waveform Diagrams.</i>
Output Types	Open Collector- 20 mA max per channel Push-Pull- 20 mA max per channel Pull-Up- Open collector with 22K ohm Pull-Up 20 mA 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 <i>See 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 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)
Commuation	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.
Bore Size	0.1875" through 0.375", 5 mm through 10 mm
Bore Tolerance	-0.0000" / +0.0006"
User Shaft Tolerances	
Radial Runout	0.008" max
Axial Endplay	± 0.030 " max
Starting Torque	IP50 Hollow Bore: 02 oz-in IP50 Thru-Bore: 0.3 oz-in IP64: 0.6 oz-in
Moment of Inertia	6.7 x 10-5 oz-in-sect (4.8 gm-cm 2)
Max Acceleration	1 x 105 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)
Mounting	1.812" (46 mm) Slotted Flex mount 1.812" (46 mm) Two Hole Flex Mount 1.142" (29 mm) Slotted Flex Mount 1.2795" (32.5 mm) Slotted Flex Mount 1.575" (40 mm) Slotted Flex Mount (See mechanical drawings for dimensions)
Weight	3 oz typical
Environmental	
Operating Temp	-20° to +85° C 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	10g@58 to 500 Hz
Shock	80 g @ 11 ms duration
Sealing	IP50 standard; IP64 available

Waveform Diagrams



Wiring Table

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

