

MODEL 15T/H – INCREMENTAL ENCODER



Ø1.5"

FEATURES

- High Performance Economical Encoder
- Low Profile – 1.0" (25.4 mm) Height and 1.5" (38 mm) Diameter
- Thru-Bore with sizes up to 0.375" (10 mm)
- Simple, Innovative Flex Mounting System (Global Mounting Standards)
- Up to 12 Pole Commutation Optional for Brushless Motor Control

The Model 15T or 15H Accu-Coder™ 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 are much more tolerant to axial misalignment or radial shaft runout. The slotted flex mounts provide 20 to 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. With its stable and reliable operation, the Model 15 is an excellent replacement modular encoder when you need a high-performance solution.

COMMON APPLICATIONS

Servo Motor Control, Robotics, Specialty Assembly Machines, Digital Plotters, High Power Motors

MODEL 15T/H ORDERING GUIDE

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

Mechanical			Electrical					Optional Features			
								Leave Blank For Standard Options			
								-20° to 85° C Std			
								IP50 Std			
								None Std			

MODEL 15T/H 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° and 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 <i>Waveform Diagrams</i> .
Output Types.....	Open Collector – 20 mA max per channel Push-Pull – 20 mA max per channel Pull-Up – Open Collector with 2.2K ohm internal resistor, 20 mA max per channel Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)
Index.....	Once per revolution 1 to 189 CPR: Ungated 190 to 10,000 CPR: Gated to output A See <i>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
Electrical Protection ..	Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.
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
Quadrature.....	67.5° electrical or better is typical,
Edge Separation	54° electrical minimum at temperatures > 99° C
Waveform Symmetry...	180° ($\pm 18^\circ$) electrical (single channel encoder)
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

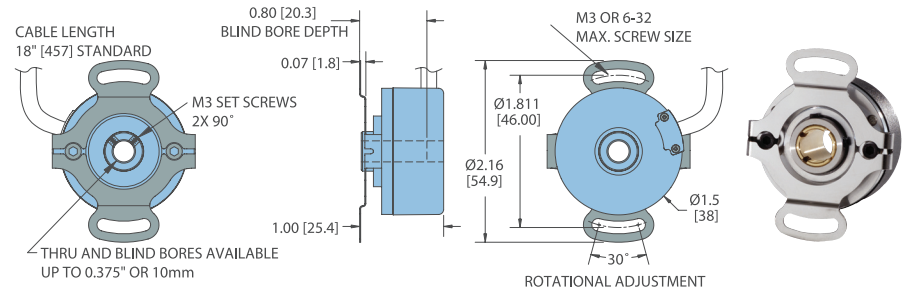
Mechanical

Max Shaft Speed	8000 RPM. Higher speeds may be achievable, contact Customer Service.
Bore Tolerance	-0.0000" / +0.0006"
User Shaft Tolerances	
Radial Runout	0.008" max
Axial Endplay.....	± 0.030 " max
Starting Torque	IP50 Hollow Bore: 0.2 oz-in IP50 Thru-Bore: 0.3 oz-in IP64: 0.6 oz-in
Moment of Inertia ...	6.7×10^{-5} oz-in-in ² (4.8 gm-cm ²)
Weight.....	3 oz typical

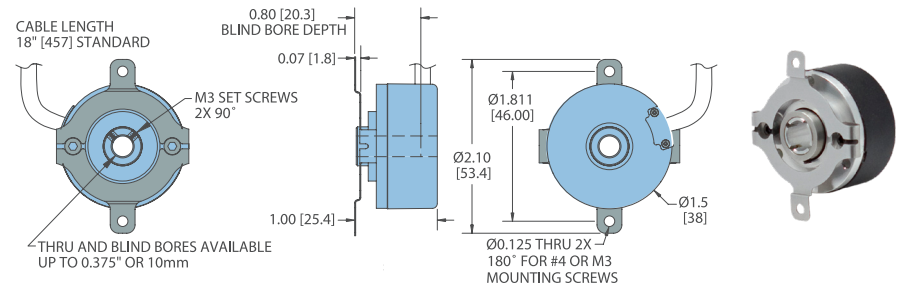
Environmental

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

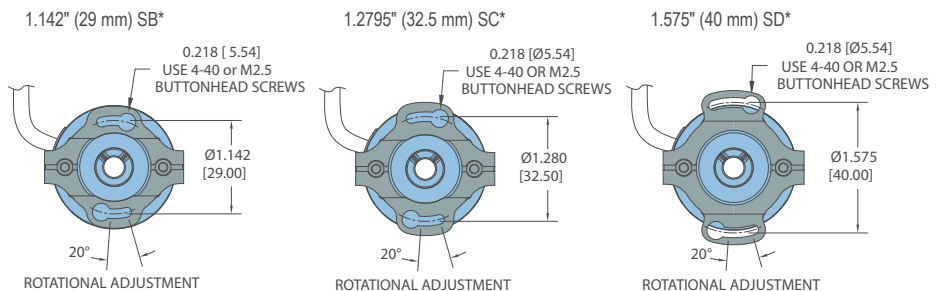
MODEL 15T/H 1.811" (46 MM) SLOTTED FLEX MOUNT (SF)



MODEL 15T/H 1.811" (46 MM) TWO HOLE FLEX MOUNT (SA)



MODEL 15T/H SMALL DIAMETER SLOTTED FLEX MOUNTS



*Order Appropriate No Charge Mounting and Installation Kit for SB, SC, or SD Option. Each kit contains 10 screws for mounting 5 encoders.

- 176150-01** Installation Kit, 4-40 Buttonhead Screws with 0.062" Shortened Hex Wrench
176149-01 Installation Kit, M2.5 Buttonhead Screws with 1.5 mm Shortened Hex Wrench

Encoder length and diameter are the same as SF and SA mounts detailed above. All dimensions are in inches with a tolerance of ± 0.005 " or ± 0.01 " unless otherwise specified. Metric dimensions are given in brackets [mm].



SB Slotted Flex Mount

WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable.

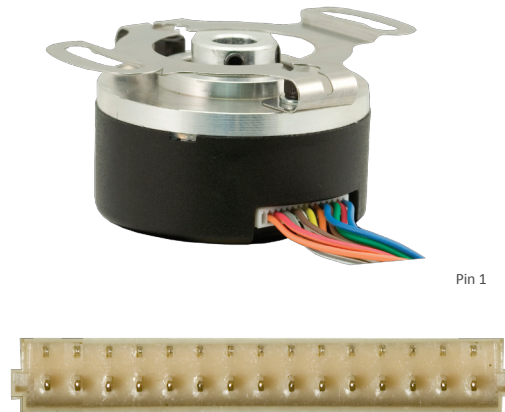
Function	Flying Leads Cable† Wire Color	5-pin M12**	8-pin M12**	15-pin Header
Com	Black	3	7	1
+VDC	White	1	2	2
A	Brown	4	1	4
A'	Yellow	--	3	3
B	Red	2	4	6
B'	Green	--	5	5
Z	Orange	5	6	7
Z'	Blue	--	8	8
U	Violet	--	--	10
U'	Gray	--	--	9
V	Pink	--	--	14
V'	Tan	--	--	13
W	Red/Green	--	--	12
W'	Red/Yellow	--	--	11
Shield	Bare*	--	--	--

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

†Standard cable for non-commutated models is 24 AWG. For commutated units, conductors are 28 AWG.

**CE Option: Use cable cordset with shield connected to M12 connector coupling nut.

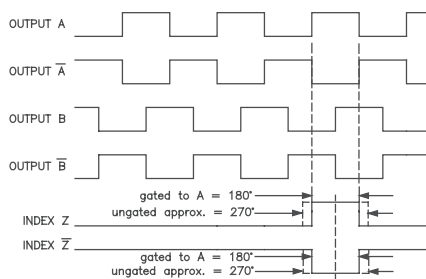
15-pin Header



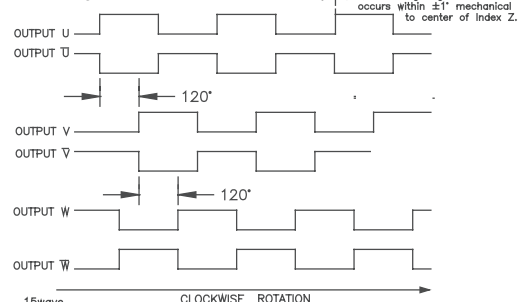
Pin 1

WAVEFORM DIAGRAMS

Incremental Signals



Commutation Signals



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES.
 WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY
 SIGNALS A, B, Z FOR HV AND OD OUTPUTS ONLY.