

MODEL 776 – INCREMENTAL ENCODER



Ø4.3"

FEATURES

- Slim Profile—Only 1.36" In Depth
- Thru-Bore Design For Easy Mounting
- Incorporates Opto-ASIC Technology
- Resolutions to 4096
- Bore Options to 1.875"
- CE Marking Available

The Thru-Bore Series Accu-Coder™ Model 776 encoder is designed to fit directly on either a motor or other shaft where position, direction, or velocity information is needed. The advanced Opto-ASIC based electronics provide the superior noise immunity necessary in many industrial applications. The Model 776 conveniently features a clamp type mount for fast and easy mounting over a large range of shaft sizes. An optional anti-rotation flex mount maintains housing stability.

COMMON APPLICATIONS

Motor Feedback, Velocity & Position Control, Robotics, Conveyors, Material Handling

MODEL 776 ORDERING GUIDE

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

776	A	H	1024	Q	OC	C	Y	N	N	CE
MODEL 776 Slim Thru-Bore	OPERATING TEMPERATURE S 0° to 70° C H 0° to 100° C		CYCLES PER REVOLUTION 1 - 4096 See CPR Options below for available resolutions. Price adder for CPR >1024		OUTPUT TYPE 5 - 28V In/Out ² OC Open Collector PU Pull-Up Resistor PP Push-Pull HV Line Driver ³		ANTI-ROTATION FLEX MOUNT N None A Style A		CERTIFICATION N None CE CE Marked ⁶	
HOUSING STYLE A Completely encloses motor shaft, and eliminates access to motor shaft. For physical protection only. B Thru-Bore housing version. Allows access to motor shaft.		NUMBER OF CHANNELS¹ Channel A Leads B Q Quadrature A & B R Quadrature A & B with Index Channel B Leads A K Reverse Quadrature A & B D Reverse Quadrature A & B with Index See http://www.encoder.com/literature/index-phasing.pdf for additional options, and waveforms.			BORE SIZE G 1-7/16", 1.4375" C 1-1/2", 1.500" D 1-5/8", 1.625" F 1-3/4", 1.750" E 1-7/8", 1.875" L 35 mm I 38 mm J 40 mm M 42 mm N 43 mm		MATING CONNECTOR N No Connector Y Yes		CONNECTOR TYPE⁴ P Gland Nut with 24" Cable ⁵ W 6-pin MS Y 7-pin MS X 10-pin MS J 5-pin M12 (12 mm) K 8-pin M12 (12 mm) 9D 9-pin D-subminiature	

MODEL 776 CPR OPTIONS

0060	0100	0120	0240	0250	0256	0500
0512	0600	1000	1024	2048	2500	4096

Contact Customer Service for other disk resolutions; not all disk resolutions available with all output types

NOTES:

- Contact Customer Service for index gating options.
- 5 to 24 VDC max for high temperature option.
- Not available with 5-pin M12 or 6-pin MS connector. Available with 7-pin MS connector only without Index Z.
- For mating connectors, cables, and cordsets see Encoder Accessories on page 102 or visit www.encoder.com. For Pin Configuration Diagrams, see page 107 or visit www.encoder.com.
- For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: P/6 = 6 feet of cable.
- Please refer to **Technical Bulletin TB100: When to Choose the CE Option** at www.encoder.com.

MODEL 776 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 Current100 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 mounting face.
 See *Waveform Diagrams*.
 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.....Once per revolution.
 0475 to 4096 CPR: Gated to output A
 0001 to 0474 CPR: Ungated
 See *Waveform Diagrams*.
 Max Frequency200 kHz
 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
 Quadrature.....67.5° electrical or better is typical,
 Edge Separation 54° electrical minimum at temperatures > 99° C

Rise Time.....Less than 1 microsecond

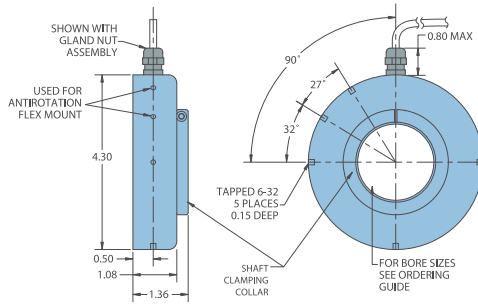
Mechanical

Max Shaft Speed.....3500 RPM. Higher shaft speeds may be achievable, contact Customer Service.
 User Shaft Tolerances
 Radial Runout0.005"
 Axial Endplay.....±0.030" with appropriate flex mount
 Moment of Inertia ...3.3 x 10⁻³ oz-in-sec² typical
 HousingAll metal construction
 Weight.....1.0 lb with gland nut or D-sub connector option 1.5 lb with MS connector option
 Note: All weights typical

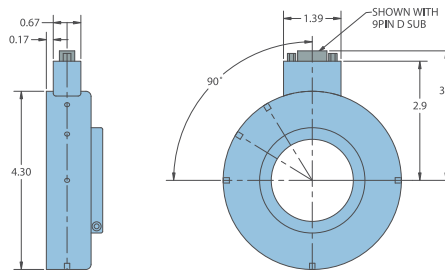
Environmental

Storage Temp-25° to 100° C
 Humidity.....98% RH non-condensing
 Vibration.....10 g @ 58 to 500 Hz
 Shock.....50 g @ 11 ms duration
 Sealing.....IP50

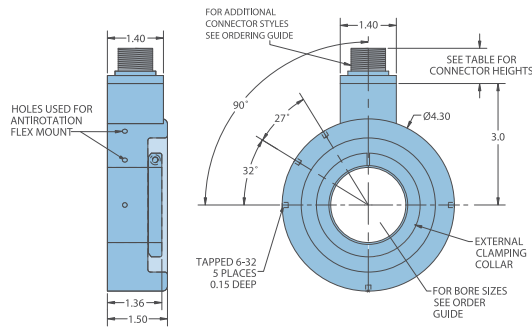
MODEL 776 WITH GLAND NUT CABLE (P)



MODEL 776 WITH 9-PIN D-SUB CONNECTOR (9D)



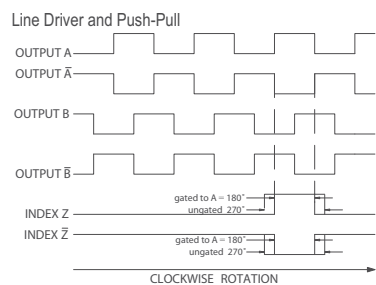
MODEL 776 EXTENDED HOUSING (W, X, Y, J, K)



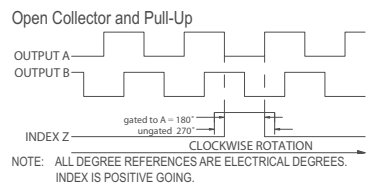
CONNECTOR TYPE	HEIGHT
6- OR 7-PIN MS	0.67"
10-PIN MS	0.90"
5- OR 8-PIN M12	0.50"

All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.

WAVEFORM DIAGRAMS



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS A-bar, Z-bar FOR HV OUTPUT ONLY.



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

WIRING TABLE

Function	Gland Cable† Wire Color	5-pin M12++ PU, PP, OC	8-pin M12++	10-pin MS	7-pin MS HV	7-pin MS PU, PP, OC	6-pin MS PU, PP, OC	9-pin D-sub
Com	Black	3	7	F	F	F	A, F	9
+VDC	Red	1	2	D	D	D	B	1
A	White	4	1	A	A	A	D	2
A'	Brown	--	3	H	C	--	--	3
B	Blue	2	4	B	B	B	E	4
B'	Violet	--	5	I	E	--	--	5
Z	Orange	5	6	C	--	C	C	6
Z'	Yellow	--	8	J	--	--	--	7
Case	--	--	--	G**	G**	G**	--	8*
Shield	Bare*	--	--	--	--	--	--	--

*CE Option: Cable shield (bare wire) is connected to internal Case.
 **CE Option: Pin G is connected to Case. Non-CE Option: Pin G has No Connection.
 †CE Option: Pin G is connected to Case. Non CE Option: Pin 8 has No Connection.
 ‡CE Option: Read *Technical Bulletin TB111* at www.encoder.com.
 †Standard cable is 24 AWG conductors with foil and braid shield.