

Installation Instructions

Bulletin 844A and 844B Hollow Through-Shaft Incremental Encoders

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Selection

844 — A Z3 05D 02500
a b c d

a

Coupling Options	
Code	Description
A	Front (Hollow-Shaft)
B	Rear (Through-Shaft)

b

Shaft Options	
Code	Description
Z3	3/8"
Z4	1/2"

c

Power Supply & Output	
Code	Description
05D	5V DC DLD RS422 Output
05C	5V DC NPN Open Collector
12C	12V DC NPN Open Collector
24D	8-24V DC Line Driver

d

Resolution			
Code	Description	Code	Description
0010	10	0800	800
0020	20	0900	900
0030	30	0960	960
0050	50	1000	1000
0060	60	1024	1024
0100	100	1140	1140
0128	128	1152	1152
0150	150	1200	1200
0180	180	1230	1230
0200	200	1250	1250
0240	240	1260	1260
0250	250	1270	1270
0256	256	1386	1386
0300	300	1500	1500
0336	336	1512	1520
0360	360	1800	1800
0400	400	1888	1888
0500	500	2000	2000
0512	512	2048	2048
0600	600	2400	2400
0720	720	2500	2500

Specifications

Electrical	
Code Format	2 channels with zero index
Quadrature	90° ± 22 channel A leads B CW
Symmetry	40% to 60%
Power Requirements	120mA (no load)
Maximum Output Frequency	100kHz
Resolution	Up to 2500 pulses per revolution
Integral Cable	457mm (18in)
Output Drivers	RS422 Line driver—3487 Open collector—7406 8-24V Line driver—7272

Mechanical

Angular Acceleration	50,000 radians/sec ²
Moment of Inertia	2.75 x 10 ⁻⁴ oz-in-sec ² (19.4gcm ²)
Maximum Operating Speed	3000rpm at max shaft loading
Permissible Shaft Movement	Radial 0.13mm (0.005in) Axial ± 0.76mm (± 0.030in)
Shaft Loading	Radial 0.45kg (1lb) Axial 1.36kg (3lb)
Shaft Size	3/8" or 1/2"

Environmental

Housing	Aluminum
Temperature	0°C to 70°C working -20°C to 85°C storage
Humidity	95% noncondensing
Protection	IP40 (IEC529)
Shock	20Gs/11ms
Vibration	5Gs/10-150Hz
Approximate Weight	0.12kg (4oz)

Mounting Instructions

IMPORTANT: Be sure mating shaft is chamfered and grease-free.

- Loosen the screw on the clamping ring with the 5/64 hexagon socket wrench.
- Slide the encoder onto the mating shaft until the flex mount rests on the machine surface.

The encoder should slide freely onto the shaft; if not, do not force. Check the shaft for interferences such as gouges, burrs, rust or size.

If mounting holes already exist, proceed to Step 6.

- Hold encoder firmly and mark the three mounting holes.
- Slide the encoder off. Drill and tap the marked holes to accept #4-40 (or equivalent) screws.
- Slide the encoder back onto the shaft until the flex mount rests on the machine surface.
- Attach the encoder with three #4-40 (or equivalent) screws.

IMPORTANT: Do not stress the flex mount while tightening the screws.

- Tighten the clamping ring screw to 8 in-lbs.
- Make the electrical connections according to the table under Electrical Connections.

IMPORTANT: Wiring must be in accordance with the National Electric Code and applicable local codes and ordinances.

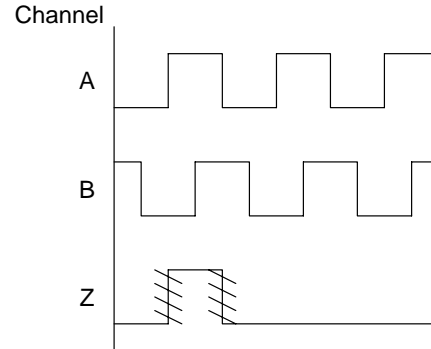
- Apply the specified voltage.

Electrical Connections

Function	Line Driver Wire Color	Open Collector Wire Color
V DC	Red	Red
Common	Black	Black
A Output	White	White
B Output	Green	Green
Z Output	White/Black	White/Black
\bar{A} Output	Blue	NC
\bar{B} Output	Orange	NC
Z Output	Red/Black	NC
Shield	Drain Wire	Drain Wire

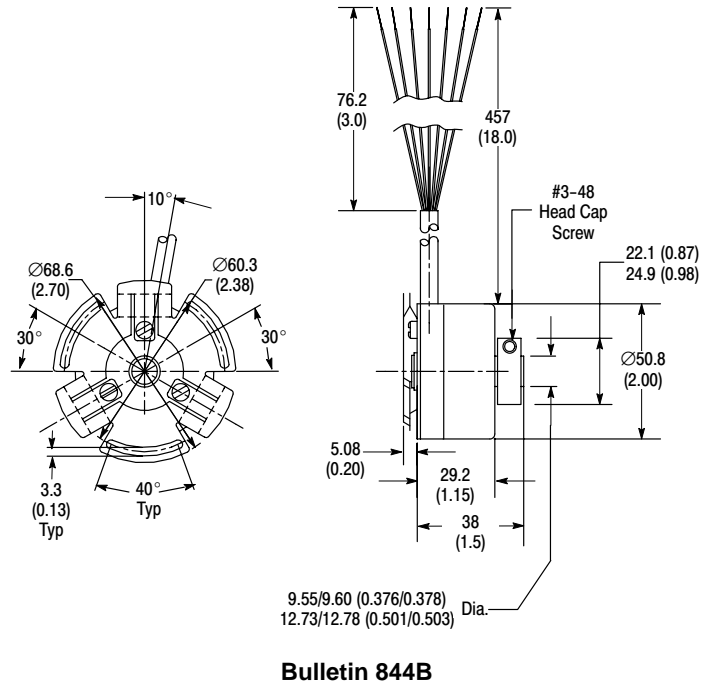
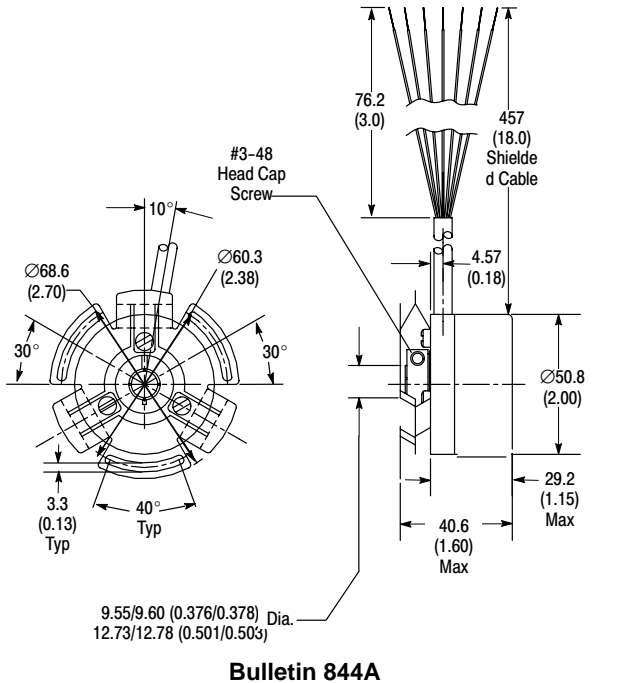
Output Waveforms

- Channel A leads Channel B for clockwise rotation when viewed from face of the encoder.
- Complementary signals (\bar{A} , \bar{B} , and \bar{Z}) are supplied only on units with line drivers.
- Marker Pulse is nongated and is approximately centered on the positive-going edge of Channel B for clockwise rotation and is $180^\circ \pm 90^\circ$ wide.



Shaded areas represent the locus of leading and trailing edges of marker pulse.

Dimensions—mm



844A Mating Shaft Tolerance—mm (inches)

Bore	Diameter	Length
3/8"	9.47/9.53 (0.373/0.375)	10.7/31 (0.42/1.22)
1/2"	12.65/12.70 (0.498/0.500)	10.7/31 (0.42/1.22)

Permissible shaft movement

844B Mating Shaft Tolerance—mm (inches)

Bore	Diameter	Length (minimum)
3/8"	9.47/9.53 (0.373/0.375)	41 (1.6)
1/2"	12.65/12.70 (0.498/0.500)	

Radial 0.13mm (0.005in)
Axial ± 0.76 mm (± 0.030 in)