

847T Incremental Encoders

2 in. Diameter Solid Shaft



Description

Bulletin 847T Incremental Encoders are heavy duty, IP65-rated shaft encoders housed in a compact, 2 in. diameter IP67 rated enclosure. They provide metal code disk resolutions up to 65536 pulses per revolution and a frequency response of 820 kHz for line driver and 150 kHz for open collector outputs. You can use them for machine tools, packaging machinery, motion controls, and robotics.

Features

- Wide set bearing
- F-technology sensor
- Available in standard square, standard servo, and 5PY mounting

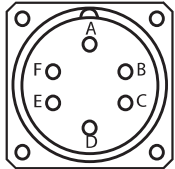
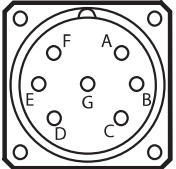
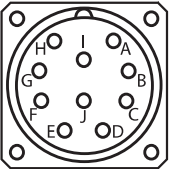

Specifications

Electrical	
Code Format	Incremental, two channels with zero index
Signal options	A-leads-B, 180° marker gated with A or B-leads-A, 180° marker gated with BN (clockwise rotation viewed from shaft end)
Signal phase relation	90° ± 22° channels
Symmetry	50% ± 10%
Zero index channel	Gated 1/2 cycle
Supply Current	50 mA
Frequency Response	4.5...5.5V line driver output: 820 kHz; 8...30V line driver output: 820 kHz; Open collector: 150 kHz
Resolution	1...65536 pulses/revolution
Load Current	30 mA for all output types
Output Drivers	4.5...5.5V line driver: IC HD2; 8...30V line driver: IC HD2; Open collector: 7406
Protection	Reverse polarity and short circuit for all output types
Cable O.D.	6,2 mm (0,25 in.)
Cable Type	300V, 105°C, 26 AWG, 9-conductor with overall braided shield, UL AWM type 20327 for use in fixed (non-flexing) installations; RoHs compliant
Cable Bend Radius	Minimum 5x outer diameter
Mechanical	
Operating Speed	9,000 RPM, max.
Angular Acceleration	500,000 radians/s ²
Moment of Inertia	15 g•cm ²
Starting Torque	0,8 N•cm at 20°C (68°F)
Torque to Operate	0,6 N•cm at 20°C (68°F)
Weight [kg (lb)]	0,16 (0,35) with M12 connector
MTTFd (EN ISO 13849-1)	330 years
Shaft Loading	80 N radial, 20 mm (0,79 in.) from front bearing and 40 N axial provide L10 life of 3,6 x10 ⁹ revolutions at 9,000 RPM and 80°C ambient temperature
Shaft Diameter [mm (in.)]	6 (0,24), 10 (0,39), 6,4 (0,25), and 9,2 (0,38) diameter for solid shaft encoders 7,94 (0,313) for encoder with PY mounting
Environmental	
Enclosure Type Rating	Per IEC 60529: Shaft: IP65; Housing, connector version with mating connector installed: IP67; Housing, cable version: IP67
Operating Temperature [C (F)]	-30...80° (-22...176°)
Storage Temperature [C (F)]	-40...100° (-4...212°)
Relative Humidity	90% non-condensing
Shock	100 g/11 ms duration
Vibration	30 g/10...2,000 Hz
EMC	EN 61000-6-2 and EN 61000-6-3 (M12 connector)
Housing Material	EN AC-47100 die-cast aluminium
Housing Finish	Powder coat paint, color RAL 9005, Pantone black C (jet black)
Flange Material	6061-T6 aluminium
Shaft Material	SAE 303 stainless steel
Certifications	UL Listed only with cable or M12 connections, RoHS compliant, and CE Marked for all applicable directives

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Connector Pins and Signal Availability

Signal Name	MS 6-pin	MS 7-pin	MS 10-pin	M12 8-pin	Cable Wire Colors
V DC	B	D	D	8	Red
Common	A	F	F	7	Black with red band
A output	E	A	A	2	White
AN output	—	—	H	1	Black with white band
B output	D	B	B	4	Blue
BN output	—	—	I	3	Black with blue band
Z output	C	C	C	6	Green
ZN output	—	—	J	5	Black with green band
Zero set input	—	E	E	—	Yellow
Case	F	G	G	—	—
Encoder connectors					—
Recommended mating cable cat. no.	845-CA-A-2	845-CA-B-2	845-CA-C-2	889D-F8FB-2	(Attached to encoder)

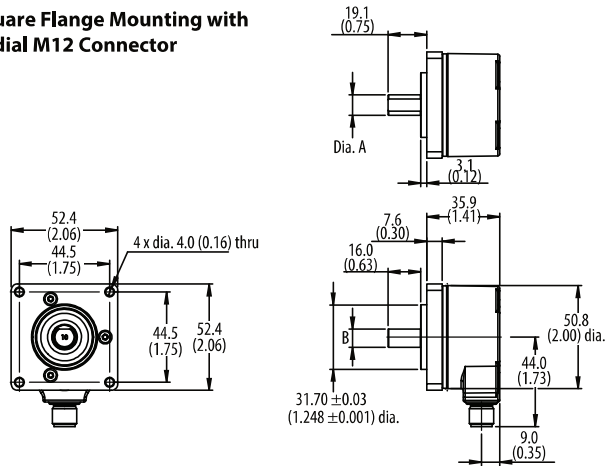
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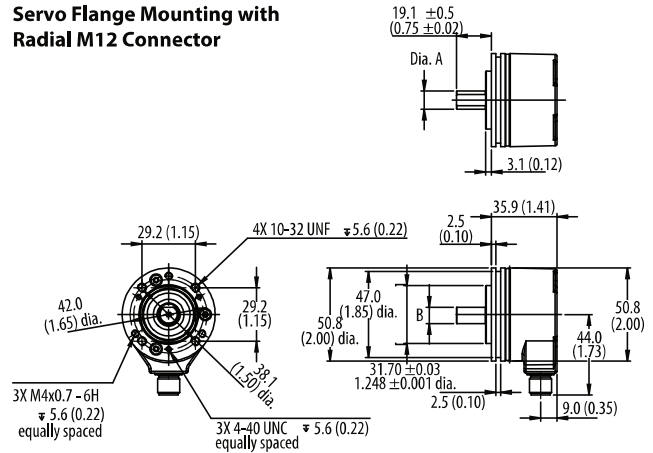
Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.

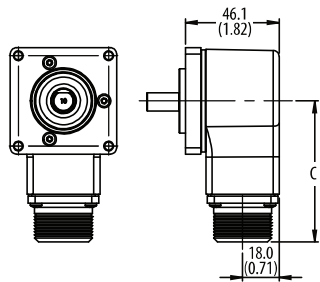
Square Flange Mounting with Radial M12 Connector



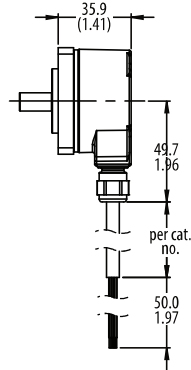
Servo Flange Mounting with Radial M12 Connector



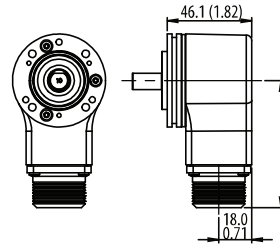
Square Flange Mounting with Radial MS Connector



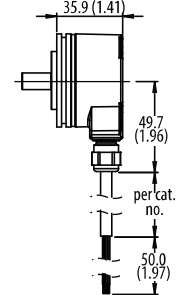
Square Flange Mounting with Radial Cable



Servo Flange Mounting with Radial MS Connector



Servo Flange Mounting with Radial Cable



Shaft Options		
Nominal	Shaft Diameter A	Flat Dimension, B
1/4 in.	6.327/6.312 (0.2491/0.2485)	5.5 (0.22)
3/8 in.	9.507/9.492 (0.3743/0.3737)	8.5 (0.33)
6 mm	6.000/5.988 (0.2362/0.2357)	5.5 (0.22)
10 mm	9.977/9.962 (0.3928/0.3922)	9 (0.35)

MS Connector Options	
Type	C
6-pin	63.9 (2.52)
7-pin	63.9 (2.52)
10-pin	69.4 (2.73)

Cable Options	
1.5 m (4.9 ft)	
5 m (16.4 ft)	
10 m (32.8 ft)	

Accessories ¹

Description	Cat. No.
High-performance flexible coupling ²	845-FC
Measuring wheels ²	845-MW
Servo clamps ²	845-SC
Mounting plates	845-MB
Pre-wired cables	845-CA
Mating connectors	845-6P 845-7P 845-7P-RT 845-10P 845-10P-RT
Differential Encoder buffer board	845-BB
M12 cable	889D-F8FB- ³

¹ For more accessory details visit our website at <http://ab.rockwellautomation.com>

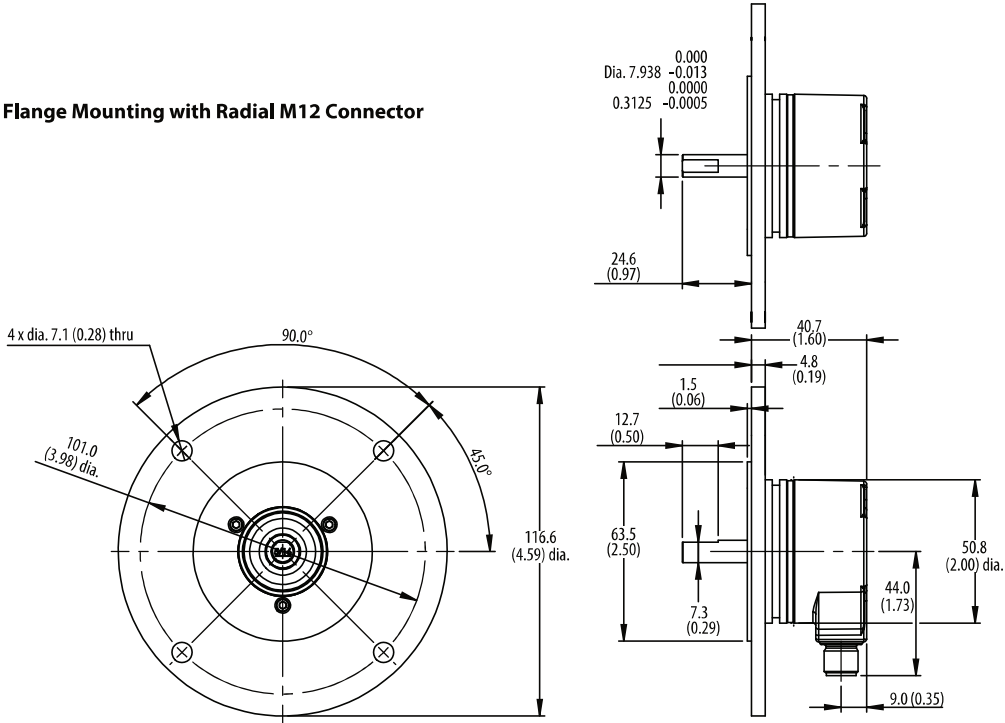
² Not available for PY mounting.

³ Add 2, 5, or 10 to the end of the cat. no. for cable lengths in meters.

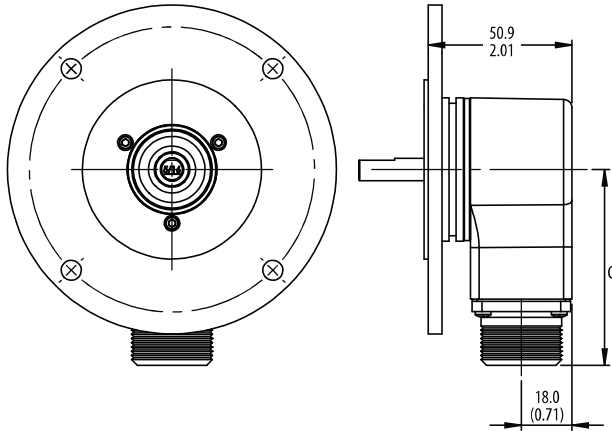
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PY Flange Mounting with Radial M12 Connector

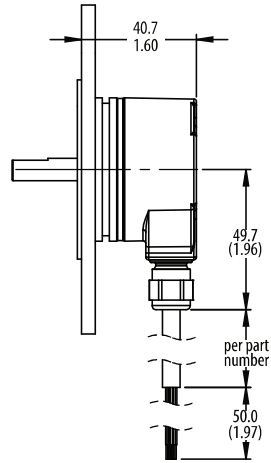


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