

High Resolution Incremental Optical Encoders

Catalog Numbers 847A, 847B, 847H, 847T

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Summary of Changes

This publication now includes Accessories.

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation® industrial system.
Product Certifications website, http://www.rockwellautomation.com/global/certification/overview.page	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <http://www.rockwellautomation.com/global/literature-library/overview.page>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

LISTEN.
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847A and 847B Hollow Shaft Incremental Encoders



Description

Bulletin 847A blind hollow shaft and 847B through hollow shaft incremental encoders are used to monitor the position or speed of a rotating shaft electronically. Shaft position is converted to digital pulses in an A quad B format.

Bulletin 847A and 847B encoders offer a built-in flexible coupling, which reduces installation cost and mounting space requirements. Additionally, the Bulletin 847B encoder is a through-shaft design, which allows additional accessories to be mounted to the same shaft.

Features

- Blind or through-shaft designs
- Integral flex mount
- PPR of 00001 to 65536
- 50.8 mm (2 in.) diameter housing

Specifications

Attribute	847A and 847B Catalog Numbers
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 that is viewed from shaft end)
Signal phase relation	90° ± 22° channels
Symmetry	40...60%
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

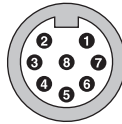
Attribute	847A and 847B Catalog Numbers
Cable O.D.	6.2 mm (0.25 in.)
Cable Type	300V, 105 °C (221 °F), 26 AWG, 9-conductor with overall braided shield, UL AWM type 20327 for use in fixed (non-flexing) installations; RoHS compliant
Cable bend radius	Minimum 5x outer diameter
Mechanical	
Operating Speed	6,000 RPM, max.
Angular Acceleration	500,000 radians/s ²
Moment of Inertia	40 g-cm ²
Starting Torque	0.8 N-cm @ 20 °C (68 °F)
Torque to Operate	0.6 N-cm @ 20 °C (68 °F)
Permissible Shaft Movement	Radial—Static: ± 0.3 (0.012); Dynamic: ± 0.05 (0.002) Axial—Static: ± 0.5 (0.02); Dynamic: ± 0.1 (0.004)
Shaft Diameter	9.5 mm (3/8 in.) or 12.7 mm (1/2 in.)
Weight	0.16 kg (0.35 lb) with M12 connector
MTTFd (EN ISO 13849-1)	330 years
Environmental	
Enclosure Type Rate	Per IEC 60529: Shaft: IP65; Housing, connector version with mating connector installed: with blind hollow shaft: IP67 with through hollow shaft: IP65 Housing, cable version: with blind hollow shaft: IP67 with through hollow shaft: IP65
Operating Temperature [C (F)]	-30...80° (-22...176°)
Storage Temperature [C (F)]	-40...100° (-40...212°)
Relative Humidity	90% noncondensing
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 aluminum
Housing Finish	Powder coat paint, color RAL 9005, Pantone® black C (jet black)
Flange Material	6061-T6 aluminum
Shaft Material	SAE 303 stainless steel
Certifications	UL Listed, RoHS compliant, and CE Marked for all applicable directives

847A & 847B Hollow Shaft Incremental Encoders

Connector Pins and Signal Availability

Signal Name	Wire Color (Attached Cable)	Pin Number (M12 8-pin Connector)
V DC	Red	8
Common	Black with red band	7
A output	White	2
AN output	Black with white band	1
B output	Blue	4
BN output	Black with blue band	3
Z output	Green	6
ZN output	Black with green band	5
Zero set input	Yellow	—
Case	Black	—
Recommended mating cable	(Attached to encoder)	889D-F8FB-2

M12 Pins On Encoder Connector



Accessories ¹

Description	Catalog Number
Differential Encoder buffer board	845-BB
M12 cable	889D-F8FB- ²

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

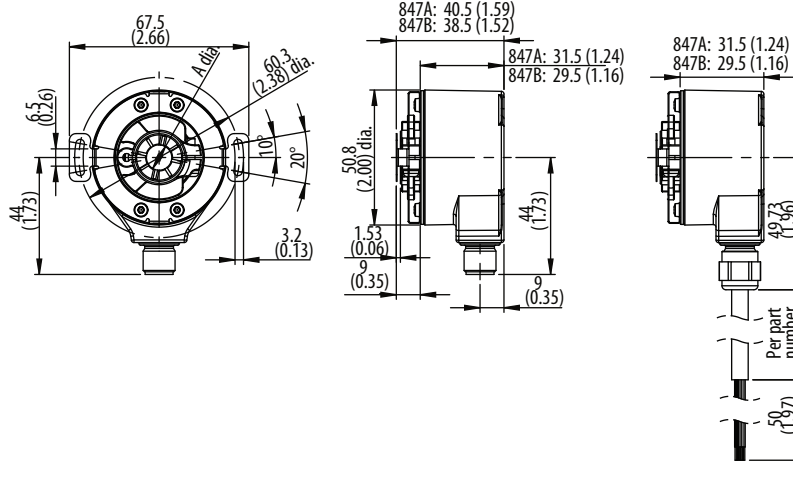
² Add 2, 5, or 10 to the end of the catalog number for cable lengths in meters.

847A & 847B Hollow Shaft Incremental Encoders

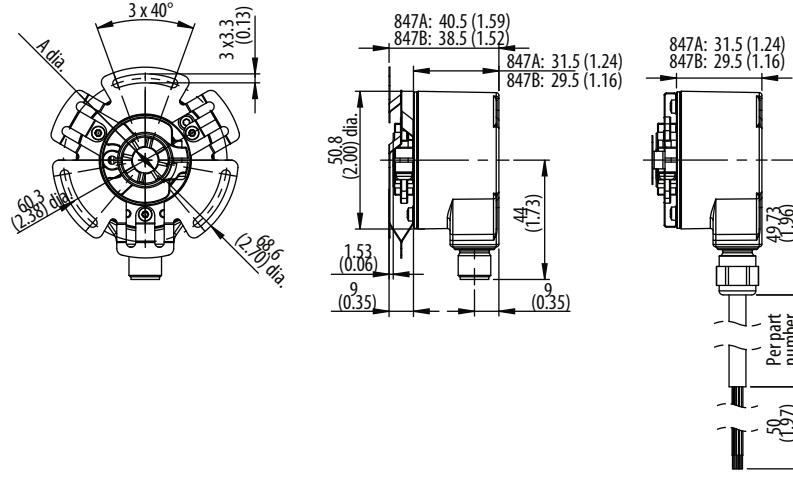
Approximate Dimensions

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

Two-point Mounting

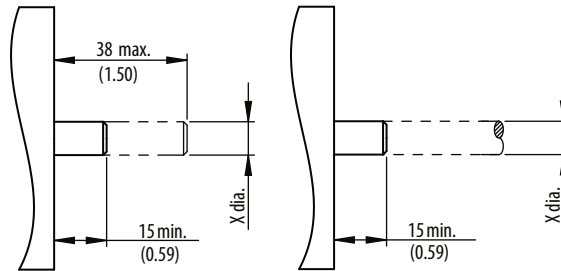


Three-point Mounting



Nominal	Bore Diameter A	Cable Options
3/8 in.	9.543...9.558 mm (0.3757...0.3763 in.)	1.5 m (4.9 ft)
1/2 in.	12.716...12.734 (0.5006...0.5013)	5 m (16.4 ft)
		10 m (32.8 ft)

Customer Shafts



Nominal	Shaft Diameter X	Cable Options
3/8 in.	9.535...9.520 (0.3754...0.3748)	1.5 m (4.9 ft)
1/2 in.	12.712...12.694 (0.5005...0.4998)	5 m (16.4 ft)
		10 m (32.8 ft)

847H Incremental Encoders 2.5 in. Diameter Solid Shaft



Description

Bulletin 847H High Performance Industrial Incremental Encoders provide code disk resolutions of up to 65536 pulses per revolution at an operating speed of up to 9000 revolutions per minute.

Features

- Optional sink, source, open collector, or differential line driver output configurations
- English and metric options
- Input reverse polarity protection

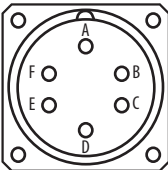
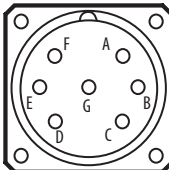
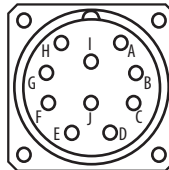

Specifications

Attribute	847H Catalog Numbers
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 that is 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 (221 °F), 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

Attribute	847H Catalog Numbers
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 @ 20 °C (68 °F)
Torque to Operate	0.6 N-cm @ 20 °C (68 °F)
Weight	0.16 kg (0.35 lb) 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 x 10 ⁹ revolutions at 9,000 RMP and 80 °C (176 °F) ambient temperature
Shaft diameter [mm (in.)]	6 mm (0.24 in.), 10 mm (0.39 in.), 6.4 mm (1/4 in.), 9.5 mm (3/8 in.)
Environmental	
Enclosure Type Rate	Per IEC 60529: Shaft: IP65; Housing, connector version with mating connector installed: IP67; Housing, cable version: IP67
Operating Temperature	-30...80 °C (-22...176 °F)
Storage Temperature	-40...100 °C (-40...212 °F)
Relative Humidity	90% noncondensing
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 aluminum
Housing Finish	Powder coat paint, color RAL 9005, Pantone black C (jet black)
Flange Material	6061-T6 aluminum
Shaft Material	SAE 303 stainless steel
Certifications	UL Listed (valid only for encoders with cable and M12 connections), RoHS Compliant, and CE Marked for all applicable directives

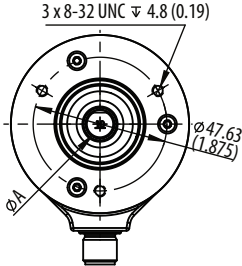
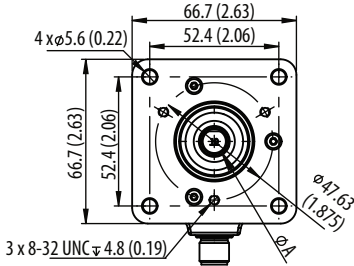
847H Incremental Encoders 2.5 in. Diameter Solid Shaft

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	-	-	B	1	Black with white band
B output	D	B	C	4	Blue
BN output	-	-	H	3	Black with blue band
Z output	C	C	I	6	Green
ZN output	-	-	J	5	Black with green band
Zero set input	-	E	E	-	Yellow
Case	F	G	G	-	Black
Encoder connectors/ cable view					—
Recommended mating cable catalog numbers	845-CA-A-*	845-CA-B-*	845-CA-C-*	889D-F8FB-*	(Attached to encoder)

Approximate Dimensions

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

Standard Servo Mount Encoder with Radial M12 Connector	Standard Square Flange Encoder with Radial M12 Connector
	

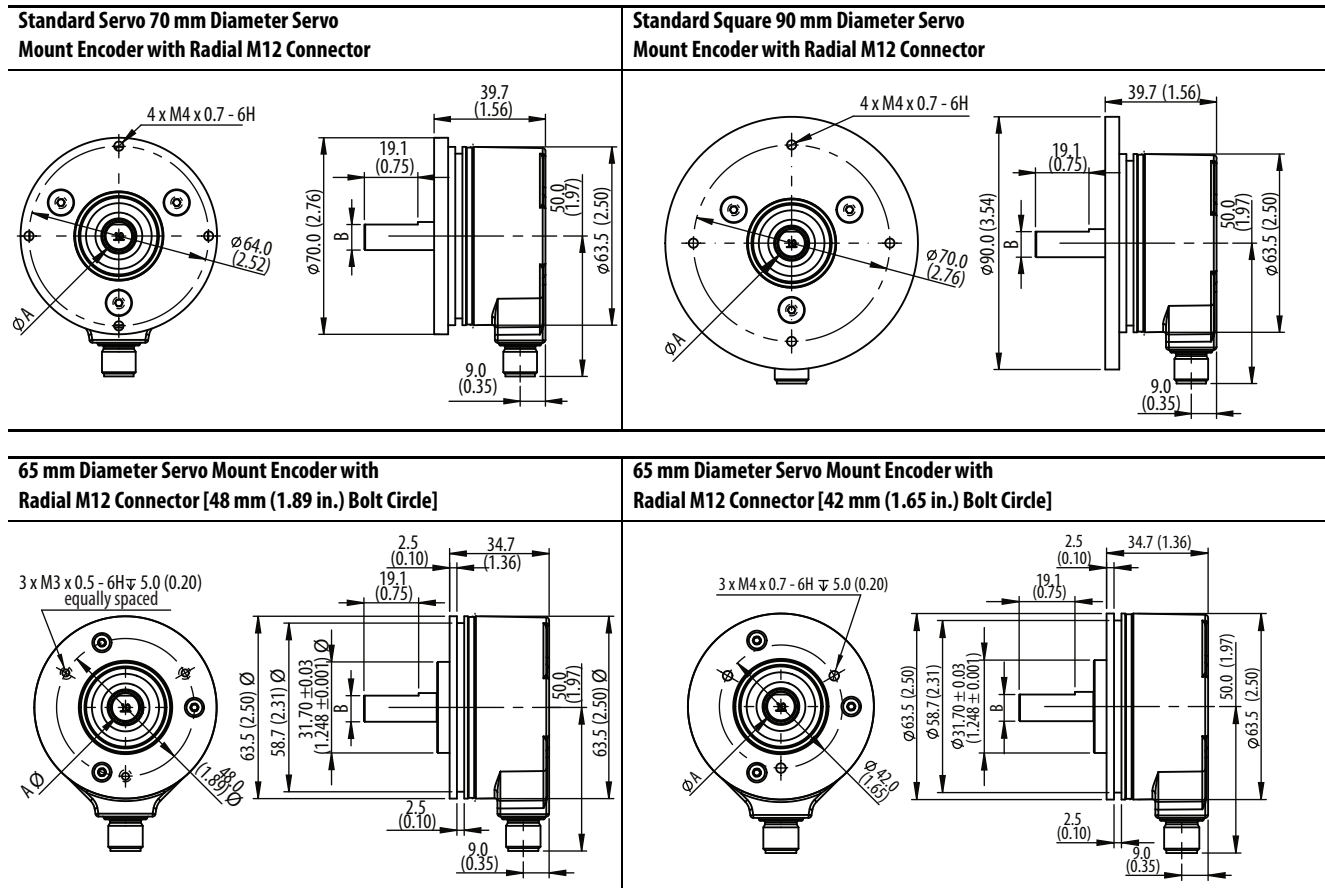
Shaft Dimensions

Nominal Diameter	Shaft Diameter A	Flat Dimension B
1/4 in.	6.237/6.312 (0.2491/0.2485)	5.5 (0.22)
6 mm	6.000/5.988 (0.2362/0.2357)	5.5 (0.22)
3/8 in.	9.507/9.492 (0.3743/0.3737)	8.5 (0.33)
10 mm	9.977/9.962 (0.3928/0.3922)	9.0 (0.35)

847H Incremental Encoders 2.5 in. Diameter Solid Shaft

Approximate Dimensions

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



Accessories¹

Description	Catalog Number	Description	Catalog Number
High-performance flexible coupling	845-FC	Mating connectors	845-6P
Measuring wheels	845-MW		845-7P
Servo clamps	845-SC		845-7P-RT
			845-10P
Mounting plates	845-MB	Differential Encoder buffer board	845-BB
Prewired cables	845-CA	M12 cable	889D-F8FB ²

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

² Add 2, 5, or 10 to the end of the catalog number for cable lengths in meters.

847H-F Incremental Encoders 2.5 in. Diameter Solid Shaft with Bell Housing and Coupler



Description

Bulletin 847H High Performance Industrial Incremental Encoders provide code disk resolutions of up to 65536 pulses per revolution at an operating speed of up to 9000 revolutions per minute.

Features

- Optional sink, source, open collector, or differential line driver output configurations
- English and metric options
- Input reverse polarity protection

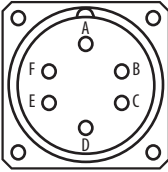
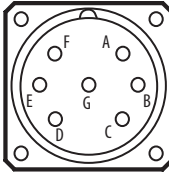
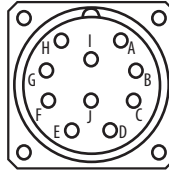

Specifications

Attribute	847H-F Catalog Numbers
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
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 (221 °F), 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

Attribute	847H-F Catalog Numbers
Mechanical	
Operating Speed	9,000 RPM, max.
Angular Acceleration	500,000 radians/s ²
Moment of Inertia	41 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	0.40 kg (0.86 lb) with M12 connector
MTTFd (EN ISO 13849-1)	330 years
Angular shaft misalignment	5° standard coupler, 10° high-performance coupler
Parallel shaft misalignment	0.25 mm (0.010 in.) standard coupler, 0.5 mm (0.020 in.) high-performance coupler
Coupling axial compliance	± 0.76 mm (0.030 in.) standard coupler, ± 1.52 mm (0.060 in.) high-performance coupler
Coupler bore size	9.52 mm (3/8 in.) or 6.4 mm (1/4 in.) diameter
Environmental	
Enclosure Type Rate	Per IEC 60529: Shaft: IP65; Housing, connector version with mating connector installed: IP67; Housing, cable version: IP67
Operating Temperature	-30...+80 °C (-22...+176 °F)
Storage Temperature	-40...+100 °C (-40...+212 °F)
Relative Humidity	90% noncondensing
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	—
Housing Finish	Powder coat paint, color RAL 9005, Pantone black C (jet black)
Flange Material	6061-T6 aluminum
Shaft Material	SAE 303 stainless steel
Certifications	UL Listed (valid only for encoders with cable and M12 connections), RoHS compliant, and CE Marked for all applicable directives

847H-F Incremental Encoders 2.5 in. Diameter Solid Shaft with Bell Housing and Coupler

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	-	-	B	1	Black with white band
B output	D	B	C	4	Blue
BN output	-	-	H	3	Black with blue band
Z output	C	C	I	6	Green
ZN output	-	-	J	5	Black with green band
Zero set input	-	E	E	-	Yellow
Case	F	G	G	-	Black
Encoder connectors/ cable view					—
Recommended mating cable catalog numbers	845-CA-A-*	845-CA-B-*	845-CA-C-*	889D-F8FB-*	(Attached to encoder)

Accessories ¹

Description	Catalog Number
Prewired cables	845-CA
Mating connectors	845-6P
	845-7P
	845-7P-RT
	845-10P
Differential Encoder buffer board	845-10P-RT
	845-BB
M12 cable	889D-F8FB- ²

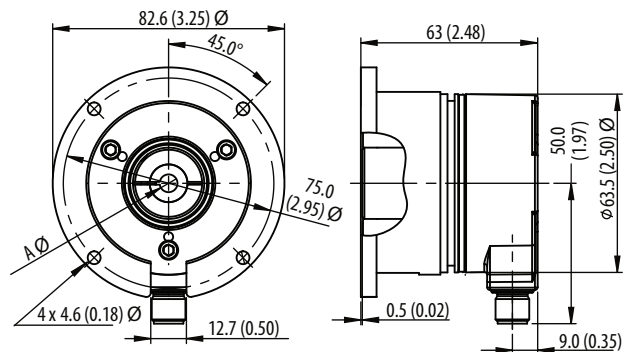
¹ For more accessory details, visit our website at <http://ab.rockwellautomation.com>

² Add 2, 5, or 10 to the end of the catalog number for cable lengths in meters.

Approximate Dimensions

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

Shaft Dimensions		
Nominal Diameter	Shaft Diameter A	Bore Depth
1/4 in.	6.35/6.43(0.250/0.253)	12.7 (0.50)
3/8 in.	9.53/9.61 (0.375/0.378)	12.7 (0.50)



847T Incremental Encoders 2 in. Diameter Solid Shaft



Description

Bulletin 847T Incremental Encoders provide metal code disk resolutions up to 65536 pulses per revolution at an operating speed of up to 9000 revolutions per minute.

Features

- Optional sink, source, open collector, or differential line drive output configurations
- English and metric options
- Input reverse polarity protection
- Available in standard square, standard servo, and 5PY mounting

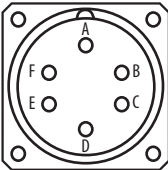
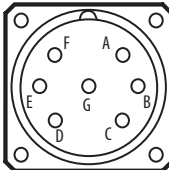
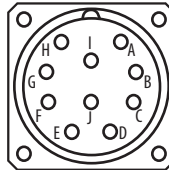
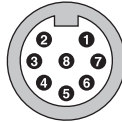
Specifications

Attribute	847T Catalog Numbers
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 that is 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 (221 °F), 26 AWG, 9-conductor with overall braided shield, UL AWM type 20327 for use in fixed (non-flexing) installations; RoHS compliant

Attribute	847T Catalog Numbers
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	0.16 k (0.35 lb) with M12 connector
MTTFd (EN ISO 13849-1)	330 years
Shaft Load	80 N radial, 20 mm (0.79 in.) from front bearing and 40 N axial provide L10 life of 3.6 x 10 ⁹ revolutions at 9,000 RPM and 80 °C ambient temperature
Shaft Diameter	6 mm (0.24 in.), 10 mm (0.39 in.), 6.4 mm (0.25 in.), and 9.2 mm (0.38 in.) diameter for solid shaft encoders 7.94 mm (0.313 in.) for encoder with PY mounting
Environmental	
Enclosure Type Rate	Per IEC 60529: Shaft: IP65; Housing, connector version with mating connector installed: IP67; Housing, cable version: IP67
Operating Temperature	-30...+80 °C (-22...+176 °F)
Storage Temperature	-40...+100 °C (-4...+212 °F)
Relative Humidity	90% noncondensing
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 aluminum
Housing Finish	Powder coat paint, color RAL 9005, Pantone black C (jet black)
Flange Material	6061-T6 aluminum
Shaft Material	SAE 303 stainless steel
Certifications	UL Listed only with cable or M12 connections, RoHS compliant, and CE Marked for all applicable directives

847T Incremental Encoders 2 in. Diameter Solid Shaft

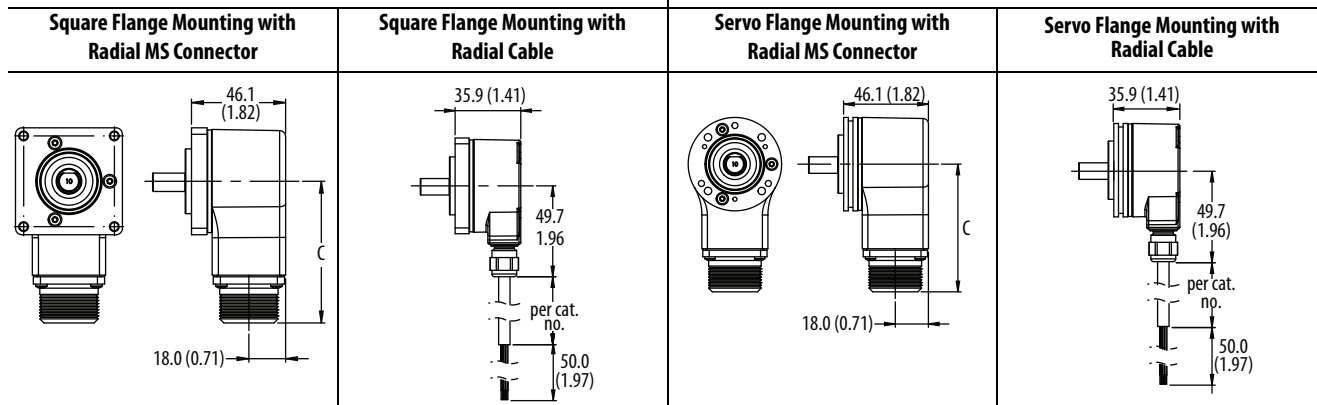
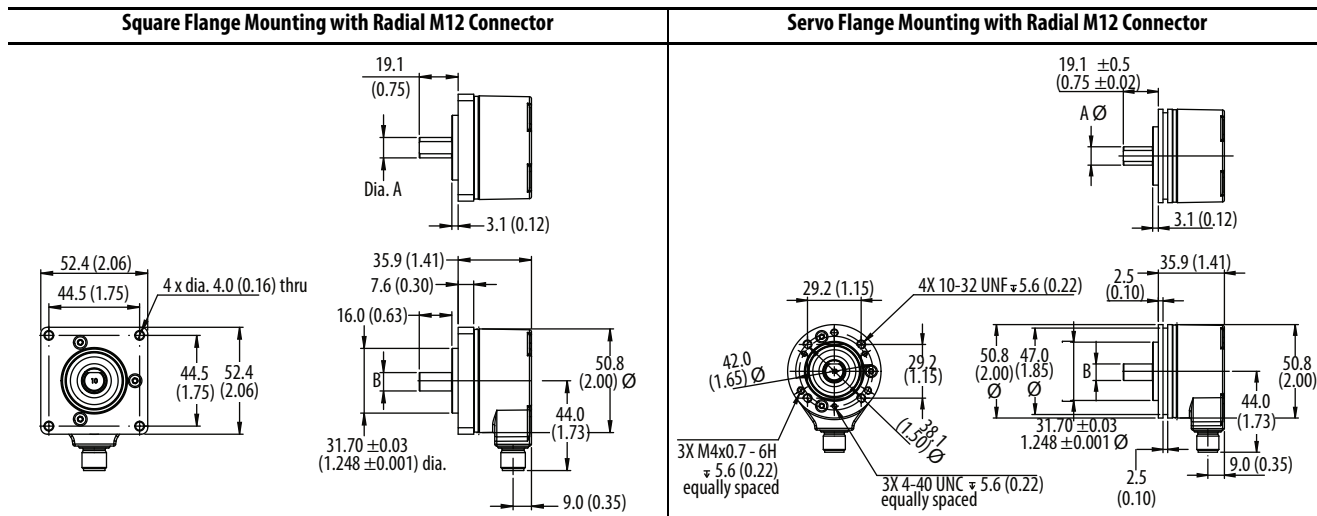
Connector Pins and Signal Availability

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	-	-	B	1	Black with white band
B output	D	B	C	4	Blue
BN output	-	-	H	3	Black with blue band
Z output	C	C	I	6	Green
ZN output	-	-	J	5	Black with green band
Zero set input	-	E	E	-	Yellow
Case	F	G	G	-	Black
Encoder connectors/ cable view					—
Recommended mating cable catalog numbers	845-CA-A-*	845-CA-B-*	845-CA-C-*	889D-F8FB-*	(Attached to encoder)

847T Incremental Encoders 2 in. Diameter Solid Shaft

Approximate Dimensions

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



Shaft Options			MS Connector Options		Accessories ¹	
Nominal	Shaft Diameter A	Flat Dimension, B	Type	C	Description	Catalog Number
1/4 in.	6.327/6.312 (0.2491/0.2485)	5.5 (0.22)	6-pin	63.9 (2.52)	High-performance flexible coupling	845-FC
			7-pin	63.9 (2.52)		
			10-pin	69.4 (2.73)		
3/8 in.	9.507/9.492 (0.3743/0.3737)	8.5 (0.33)	Cable Options		Measuring wheels	845-MW
					Servo clamps	845-SC
6 mm	6.000/5.988 (0.2362/0.2357)	5.5 (0.22)	1.5 m (4.9 ft)		Mounting plates	845-MB
			5 m (16.4 ft)		Pre-wired cables	845-CA
10 mm	9.977/9.962 (0.3928/0.3922)	9 (0.35)	10 m (32.8 ft)		Mating connectors	845-6P
						845-7P
						845-7P-RT
						845-10P
					845-10P-RT	
					M12 cable	889D-F8FB ³

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

² Not available for PY mounting

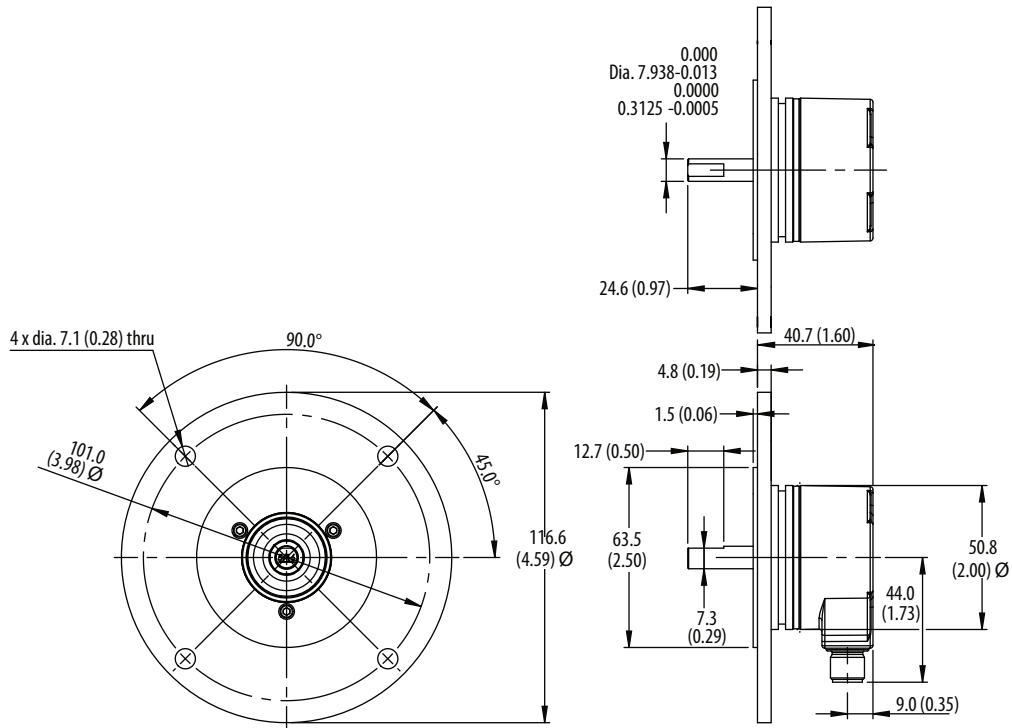
³ Add 2, 5, or 10 to the end of the catalog number for cable lengths in meters.

847T Incremental Encoders 2 in. Diameter Solid Shaft

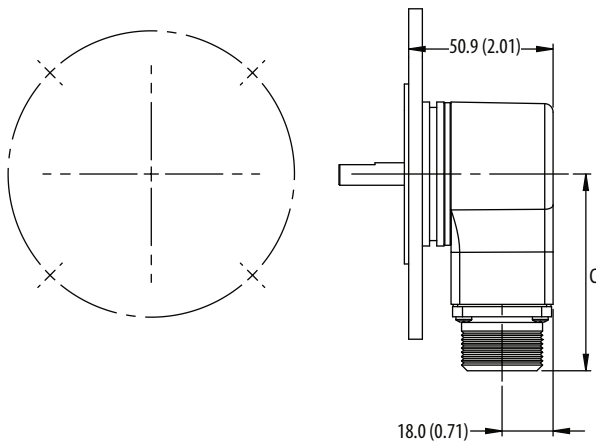
Approximate Dimensions

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

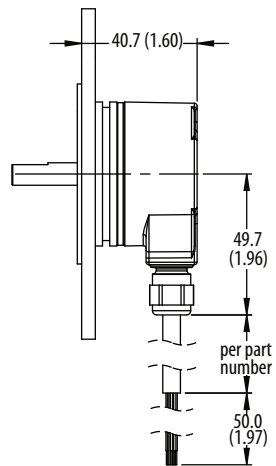
PY Flange Mounting with Radial M12 Connector



PY Flange Mounting with Radial MS Connector



PY Flange Mounting with Radial Cable



845 Encoder Accessories — Prewired Cable Assemblies



6-pin Connector
845-CA-A-50

Description

The following prewired cable assemblies are available for use with Allen-Bradley® encoder products. The cables are wired to the appropriate mating connector for the encoder with which they are used. The other end of the cable is a stripped and tinned pigtail. Connector catalog numbers that are shown below are from Amphenol Corporation.

Product Selection

$$\frac{845}{\text{---}} \text{ --- } \frac{\text{CA}}{\text{---}} \text{ --- } \frac{\text{C}}{\text{a}} \text{ --- } \frac{25}{\text{b}}$$

a

Connector		
Code	Description	Cable Type
A	6-pin (847T)	Alpha 6054C or equivalent
B	7-pin (847H, T)	
C	10-pin (845H, T, 844D)	
D	19-pin (845D, G, GM)	Alpha 5199/20C or equivalent
G	12-pin (842A, 845G, GM)	Alpha 6054C or equivalent
H	17-pin (845G)	Alpha 5199/20C or equivalent
K	10-pin (847H, T)	Alpha 6318 or equivalent ¹
PY	10-pin (845T-PY)	Alpha 6054C or equivalent

b

Cable Length ²	
Code	Description
10	10 ft
25	25 ft
50	50 ft ³
100	100 ft ³

¹ Low capacitance cable for long cable runs.

² See table on page 16 for other available lengths.

³ Not recommended for 5V DC powered encoders.

Catalog Number	Wire Pair	Wire Color	Function	Pin
845-CA-A-_ (With 6-pin ACS06E14S- 6S (023) connector)	Red/Black/Shield	Red	+DC Input	B
		Black	DC Common	A
	White/Black/Shield	White	CH A	E
		Black	N/C	—
	Blue/Black/Shield	Blue	CH B	D
		Black	N/C	—
	Green/Black/Shield	Green	CH Z	C
		Black	N/C	—

Catalog Number	Wire Pair	Wire Color	Function	Pin
845-CA-B-_ (With 7-pin ACS06E16S- 1S (023) connector)	Red/Black/Shield	Red	+DC Input	D
		Black	DC Common	F
	White/Black/Shield	White	CH A	A
		Black	N/C	—
	Blue/Black/Shield	Blue	CH B	B
		Black	N/C	—
	Green/Black/Shield	Green	CH Z	C
		Black	N/C	—

Catalog Number	Wire Pair	Wire Color	Function	Pin
845-CA-C-_ (With 10-pin ACS06E18- 1S (023) connector)	Red/Black/Shield	Red	+DC Input	D
		Black	DC Common	F
	White/Black/Shield	White	CH A	A
		Black	CH A	H
	Blue/Black/Shield	Blue	CH B	B
		Black	CH B	I
	Green/Black/Shield	Green	CH Z	C
		Black	CH Z	J

Catalog Number	Wire Color	Pin	Wire Color	Pin
845-CA-D-_ (With 19-pin PT06E14- 19S connector)	Brown	A	White/Red	L
	Orange	B	White/Yellow	M
	Yellow	C	White/Green	N
	Green	D	White/Blue	P
	Blue	E	White/Black	R
	Violet	F	White/Violet	S
	Grey	G	Black	T
	White	H	White/Grey	U
	White/Orange	J	Red	V
	White/Brown	K	White/Black/Brown	—
	—	—	Shield	Shield

Catalog Number	Wire Pair	Wire Color	Function	Pin
845-CA-G-_ (With 12-pin connector)	Red/Black/Shield	Red	+DC Input	8
		Black	DC Common	1
	White/Black/Shield	White	Clock +	3
		Black	Clock -	11
	Blue/Black/Shield	Blue	Data +	2
		Black	Data -	10
	Green/Black/Shield	Green	CW/CCW	12
		Black	Reset	9

Catalog Number	Wire Color	Pin	Wire Pair	Pin
845-CA-H-_ (With 17-pin MS3106E20- 29S connector)	White/Orange	A	White/Green	L
	White	B	White/Yellow	M
	Grey	C	White/Red	N
	Violet	D	White/Blue	P
	Blue	E	Black	R
	Yellow	F	Red	S
	Orange	G	Green	T
	Brown	H		
	White/Violet	J		
	White/Brown	K		
	—	—	Shield	Shield

Cat. No.	Wire Pair	Wire Color	Function	Pin
845-CA-K- (With 10-pin ACS06E18- 1S (023) connector)	Red/Black/Shield	Red	+DC Input	D
		Black	DC Common	F
	White/Black/Shield	White	CH A	A
		Black	CH A	H
	Blue/Black/Shield	Blue	CH B	B
		Black	CH B	I
	Green/Black/Shield	Green	CH Z	C
		Black	CH Z	J
All Shields	—	Shield	G	

Cat. No.	Wire Pair	Wire Color	Function	Pin
845-CA-PY- (With 10-pin ACS06E18- 1S (023) connector)	Red/Black/Shield	Red	+DC Input	D
		Black	DC Common	F
	White/Black/Shield	White	CH A	A
		Black	CH A	H
	Green/Black/Shield	Green	CH B	B
		Black	CH B	I

Cat. No.	Description	Cat. No.	Description
845-CA-A-10	6-pin Connector for 847T—3 m (10 ft)	—	—
845-CA-A-25	6-pin Connector for 847T—7.6 m (25 ft)		
845-CA-A-50	6-pin Connector for 847T—15.2 m (50 ft)		
845-CA-A-100	6-pin Connector for 847T—30.4 m (100 ft)		
845-CA-B-10	7-pin Connector for 847H, T—3 m (10 ft)	845-CA-G-10	12-pin Connector for 842A, 845G ¹ , GM ¹ —3 m (10 ft)
845-CA-B-25	7-pin Connector for 847H, T—7.6 m (25 ft)	845-CA-G-25	12-pin Connector for 842A, 845G ¹ , GM ¹ —7.6 m (25 ft)
845-CA-B-50	7-pin Connector for 847H, T—15.2 m (50 ft)	845-CA-G-50	12-pin Connector for 842A, 845G ¹ , GM ¹ —15.2 m (50 ft)
845-CA-B-100	7-pin Connector for 847H, T—30.4 m (100 ft)	845-CA-G-100	12-pin Connector for 842A, 845G ¹ , GM ¹ —30.4 m (100 ft)
845-CA-C-10	10-pin Connector for 847H, T, 844D—3 m (10 ft)	845-CA-H- 10	17-pin Connector for 845G—3 m (10 ft)
845-CA-C-25	10-pin Connector for 847H, T, 844D—7.6 m (25 ft)	845-CA-H- 25	17-pin Connector for 845G—7.6 m (25 ft)
845-CA-C-50	10-pin Connector for 847H, T, 844D—15.2 m (50 ft)	845-CA-H- 50	17-pin Connector for 845G—15.2 m (50 ft)
845-CA-C-100	10-pin Connector for 847H, T, 844D—30.4 m (100 ft)	845-CA-H-100	17-pin Connector for 845G—30.4 m (100 ft)
845CA-C-200	10-pin Connector for 847H, T, 844D—60.9 m (200 ft)	845-CA-K-10	10-pin Connector ² —3 m (10 ft)
845CA-C-330	10-pin Connector for 847H, T, 844D—100.5 m (330 ft)	845-CA-K-25	10-pin Connector ² —7.6 m (25 ft)
845-CA-D-10	19-pin Connector for 845D, G, GM—3 m (10 ft)	845-CA-K-50	10-pin Connector ² —15.2 m (50 ft)
845-CA-D-25	19-pin Connector for 845D, G, GM—7.6 m (25 ft)	845- CA- K-100	10-pin Connector ² —30.4 m (100 ft)
845-CA-D-50	19-pin Connector for 845D, G, GM—15.2 m (50 ft)	845- CA- K-200	10-pin Connector ² —60.9 m (200 ft)
845-CA-D-100	19-pin Connector for 845D, G,GM—30.4 m (100 ft)	845- CA- K-300	10-pin Connector ² —91.4 m (300 ft)
845-CA-D-150	19-pin Connector for 845D, G, GM—45.7 m (150 ft)	845- CA- K-400	10-pin Connector ² —121.9 m (400 ft)
845-CA-D-200	19-pin Connector for 845D, G, GM—60.9 m (200 ft)	845-CA-PY-10	10-pin Connector for 847T-PY—3 m (10 ft)
		845-CA-PY-25	10-pin Connector for 847T-PY—7.6 m (25 ft)
		845-CA-PY-50	10-pin Connector for 847T-PY—15.2 m (50 ft)
		845-CA-PY-100	10-pin Connector for 847T-PY—30.4 m (100 ft)

Cables 50 ft and longer are not recommended for 5V DC powered encoders.

¹ 845-CA-G-** for 845G and 845GM SSI models.

² Low capacitance cable.

845 Encoder Accessories — Mating Connectors



Mating Connectors

Description

Mating connectors that are listed are either included with, or available as standard options for all encoder products.

Product Selection

845	—	10P
		a

a

Connector	
Code	Description
6P	6-pin (847T)
7P	7-pin (847H, T)
7P - RT	7-pin, Right Angle (847H, T)
10P	10-pin (847H, T, 844D)
10P - RT	10-pin, Right Angle (845H, T, 844D)
12P	12-pin (842A, G, GM)
SCD	19-pin, KPT06F-14-19S
17P	17-pin, MS3106E20-29S (845G)

845 Encoder Accessories — Mounting Plates

Description

Mounting plates are used for physically mounting the encoder to the rotating member that is to be monitored.

Product Selection

845	—	MB	—	1
				a

a

Plate	
Code	Description
1	5PY Mounting Plate for Size 25 Face or Servo Mount (847H, G, D)
2	BC42 Mounting Plate for Size 25 Face Mount (847H, G, D)
3	5PY Mounting Plate for Size 20 Face Mount (847T)
4	Integral Coupling Flange, Miniature Style (845D, G, 847H, T) ¹
5	Integral Coupling Flange, High Performance (845D, G, 847H, T) ¹
6	BC48 Servo to Square (842A) ²
7	0.1875 Servo to Square (847H) ²
8	NEMA 180 C-face Mount (847H) ³
9	Low Profile Coupling Flange Miniature Style (845D, G, 847H, T)
10	842E Clamp Ring
11	60 mm (2.36 in.) 2-point Stator Coupling (842E)
12	60 mm (2.36 in.) Face Mount (842E)
13	2 in. 2-point Stator Coupling (847A, B)
14	2 in. 3-point Stator Coupling (847A, B)
15	842HR Tether
16	844D Tether B
17	844D Tether C

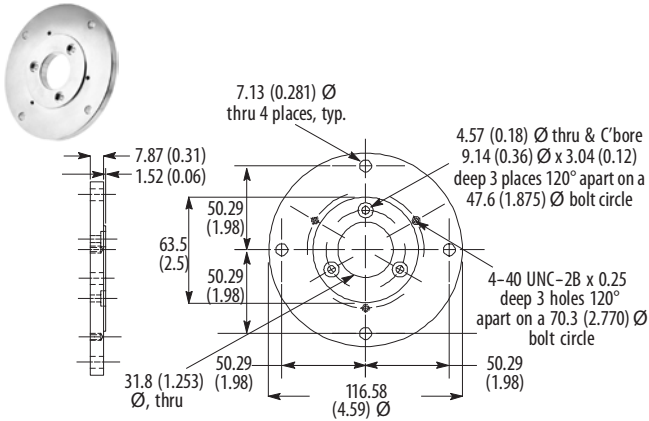
¹ For size 20/25 face mount.

² Square flange adapter.

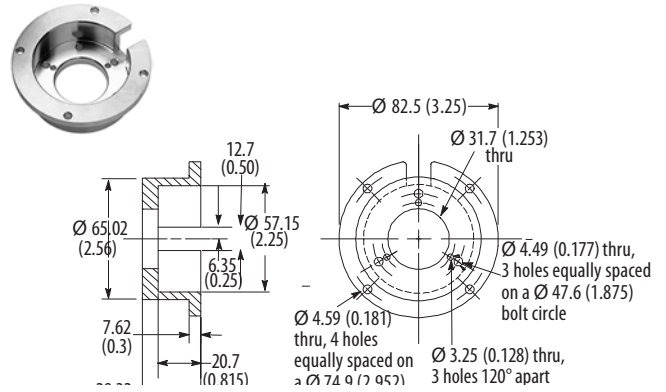
³ Face or servo mount.

Approximate Dimensions [mm (in.)]

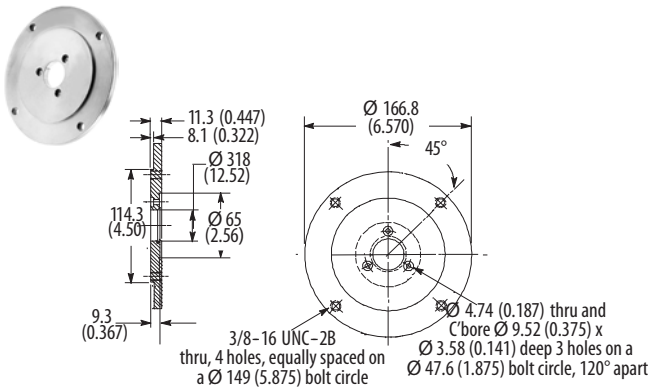
845-MB-1



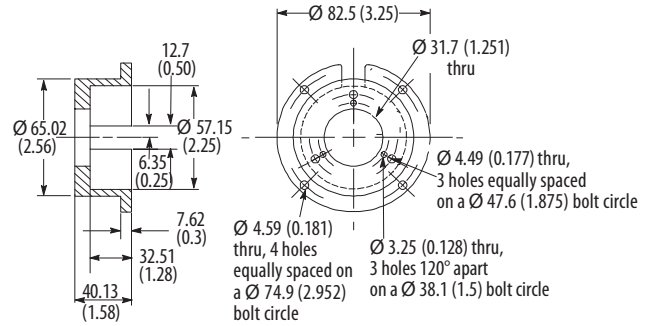
845-MB-4



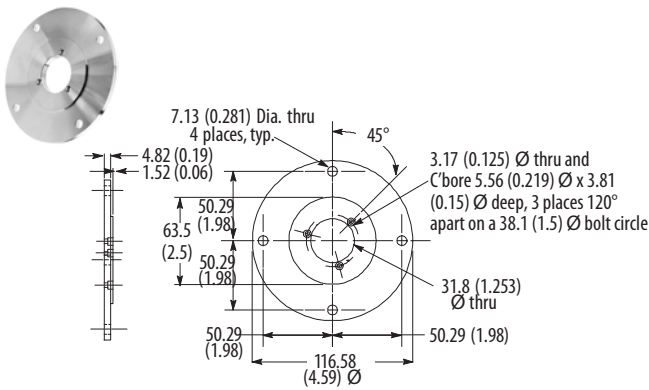
845-MB-2



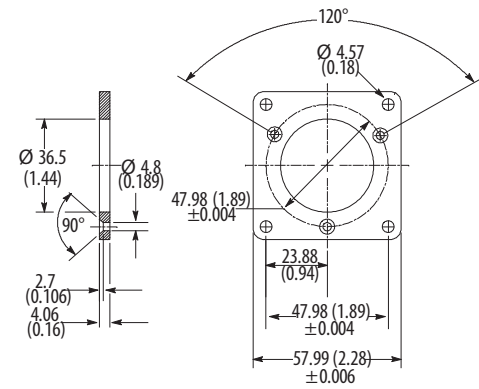
845-MB-5



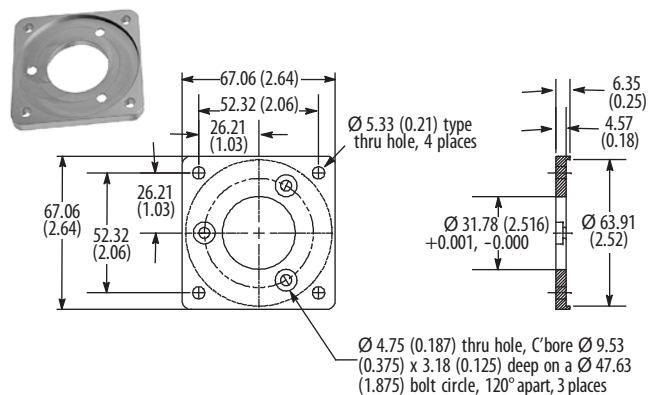
845-MB-3



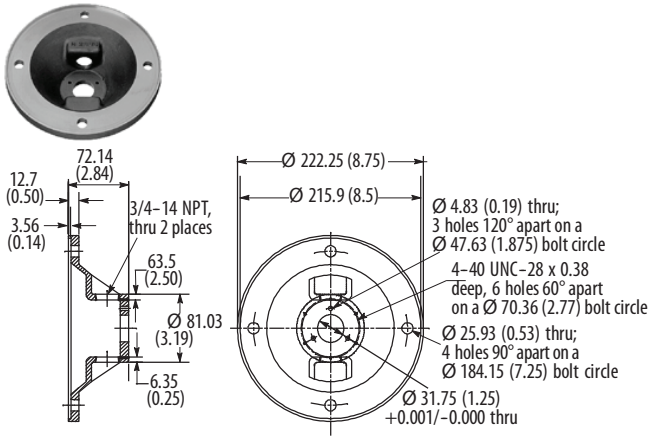
845-MB-6



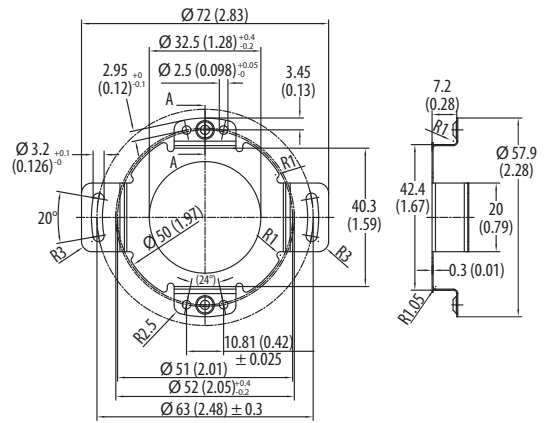
845-MB-7



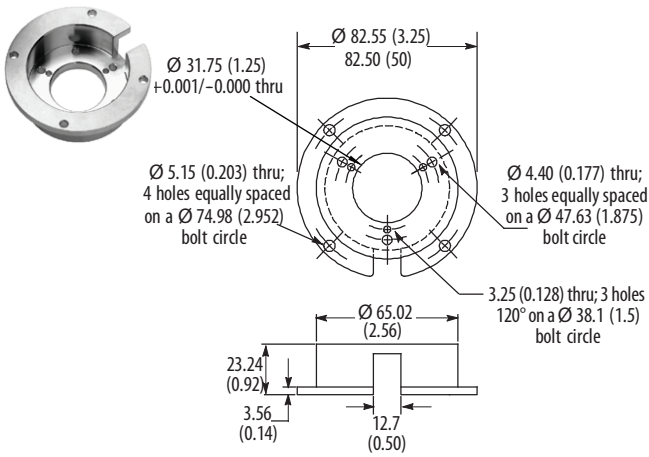
845-MB-8



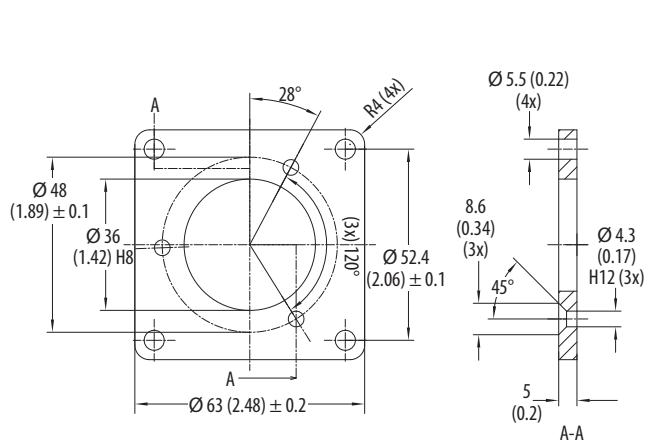
845-MB-11



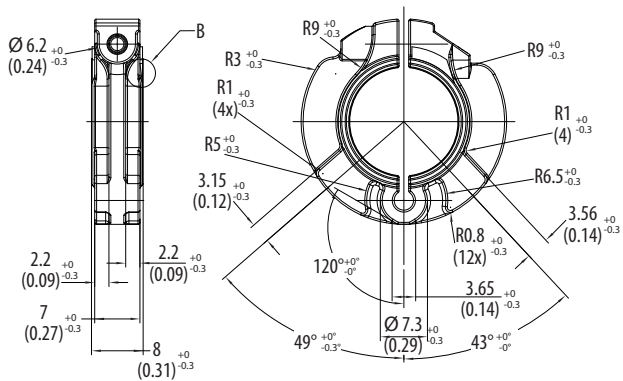
845-MB-9



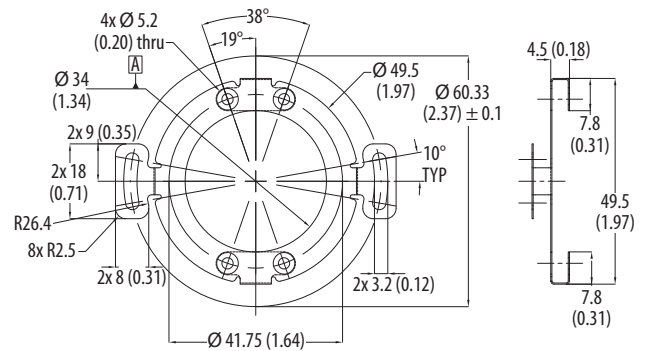
845-MB-12



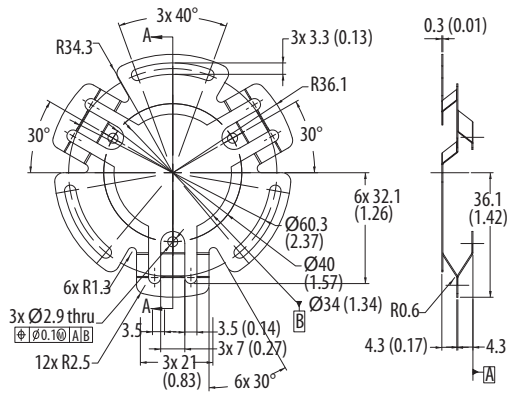
845-MB-10



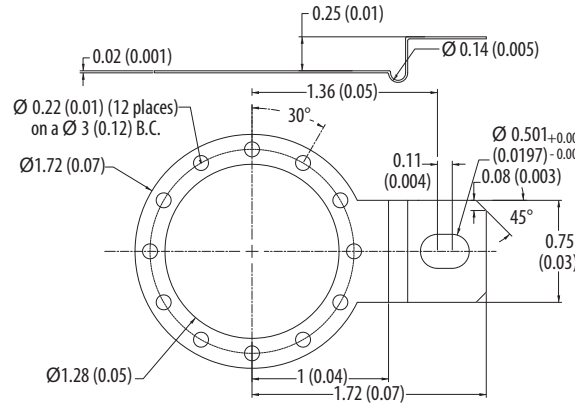
845-MB-13



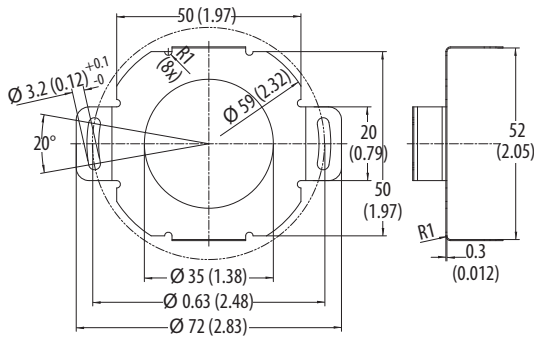
845-MB-14



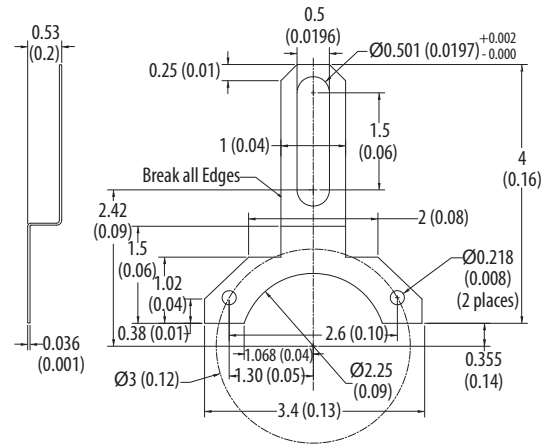
845-MB-16



845-MB-15



845-MB-17



Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment can be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

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Publication 847-TD001B-EN-P - April 2018

Supersedes Publication 847-TD001A-EN-P - July 2015

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