

# Installation Instructions

Original Instructions



**Allen-Bradley**

by ROCKWELL AUTOMATION

## 842AS Absolute Encoders

Bulletin Number 842AS

**IMPORTANT** Save these instructions for future use.

### Specifications

Attribute	Value
<b>Electrical</b>	
Code format	Gray or natural binary
Code direction	CW/CCW configurable via programming tool or pin
Operating voltage	4.5...32V DC
Power requirements	300 mA at 5V (no load)
Steps/revolutions, max	8192
Revolutions, max	4096
Position forming time	125 $\mu$ s
Delay on power-up	100 ms
Clock +, Clock -, Data +, Data -	Serial synchronous interface (SSI)
CW/CCW	L active (L = 0 - 1 V, H = 2.0 - 5 V)
EMC	According to EN 61000-6-4
<b>Mechanical</b>	
Angular Acceleration	$5 \times 10^5 \text{ rad/s}^2$
Moment of inertia	2.5 gcm <sup>2</sup>
Working speed, max	6000 RPM at max shaft load
Operating speed, max	6000 RPM
Start torque	0.01 N•m (0.09 lb•in) [20 °C (68 °F)]
Shaft load [N (lbf)]	<ul style="list-style-type: none"> <li>Axial: 20 (4.5)</li> <li>Radial: 40 (8.99)</li> </ul>
<b>Environmental</b>	
Operating temperature [°C (°F)]	-20...+70 (-4...+158)
Storage temperature [°C (°F)]	-40...+100 (-40...+212)
Relative humidity	90% noncondensing
Enclosure ingress rating	IP66 and IP67 (IEC 60529)
Housing material	Zinc
Shock	100 g, 6 ms (EN 60068-2-27)
Vibration	20 g, 10...2000 Hz (EN 60068-2-6)
Approximate weight [g (oz)]	150 (5.29)

### Product Selection

842AS -  $\frac{10}{a}$  -  $\frac{G}{b}$  -  $\frac{B}{c}$

a		b		c <sup>(1)</sup>	
Shaft Diameter [mm (in.)]		Code Format		Revolutions	
Code	Description	Code	Description	Code	Description
6	Shaft: 6 (0.24) Pilot: 50 (1.97)	G	Gray Code	A	2048
		N	Natural Binary	B	4096
10	Shaft: 10 (0.39) Pilot: 36 (1.42)			D	512
				E	256

(1) See [Table 1](#) for explanation.

**Table 1 - Revolutions Explanation**

Code	Steps Per Revolution	SSI Bits MSB-LSB	No. of Revolutions	SSI Bits MSB-LSB
A	8192	12...24	2048	1...11
B	4096	13...24	4096	1...12
D	4096	13...24	512	4...12
E	4096	13...24	256	5...12

**Table 2 - Flange Adapters**

Cat. No.	Description
842AS-FA06	Adapts a face-mount flange with a 20 mm (0.79 in.) centering collar to a 50 mm (1.97 in.) servo flange. Use for Cat. No. 842AS-06xx.
842AS-FA10	Adapts a face-mount flange with a 20 mm (0.79 in.) centering collar to a 36 mm (1.42 in.) servo flange. Use for Cat. No. 842AS-10xx.

## Electrical Connections

The 842AS encoder comes with a cable with an M23 connector. Separately, order either the 845-12P mating connector, or the 845-CA-6-x pre-wired cable and connector assembly.

Table 3 - Pin Connection

Pin	Signal	Explanation
1	Gnd	Ground
2	Data+	Interface signal
3	Clock+	Interface signal
4	N/C	Not connected
5	N/C	Not connected
6	N/C	Not connected
7	N/C	Not connected
8	Us	Operating voltage
9	Preset	Electronic adjustment <sup>(1)</sup>
10	Data-	Interface signal
11	Clock-	Interface signal
12	V/R	Direction of rotation <sup>(2)</sup>
-	Screen	Housing potential

(1) See [Preset](#).

(2) When pin 12 is connects to DC+ (or left to float), the 842AS encoder counts up when the shaft turns CW when you examine the shaft. When pin 12 connects to DC-, the 842AS encoder counts up when the shaft turns CCW when you examine the shaft.

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

## Mounting Instructions

1. Select the proper size flexible coupling clamp to mate to the encoder shaft (for example, Cat. No. 845-FC-x-x). An 842AS encoder must pair with a Cat. No. 842AS-FAx flange adapter.

**IMPORTANT** Do not rigidly connect the encoder shaft to the machine; this action causes premature failure of the encoder or machine bearings. Always use a flexible coupling.

2. To determine the encoder mounting hole locations, see [Figure 1 on page 2](#).
3. Slide the flexible coupling onto the shaft, but do not tighten the set screws.
4. Mount the encoder and tighten with three size M4 mounting screws (not supplied).
5. Center the flexible coupling and tighten the set screws.
6. Rotate the machine slowly and verify that the flexible coupling does not deform beyond specifications.
7. Align the machine to its mechanical zero or home position.

## Preset

The Preset input is for electronic position adjustment. If the Preset pin is set to US for more than 250 ms, the mechanical position corresponds to the 0 value (the predetermined preset value). As the absolute position output changes abruptly when the preset value is set, the encoder shaft must not move while you assign the preset value. In Synchronous mode, you can only set a preset value if the controller clock signal stimulates the position formation.

## Approximate Dimensions

Figure 1 - 842AS-06 Encoder [mm (in.)]

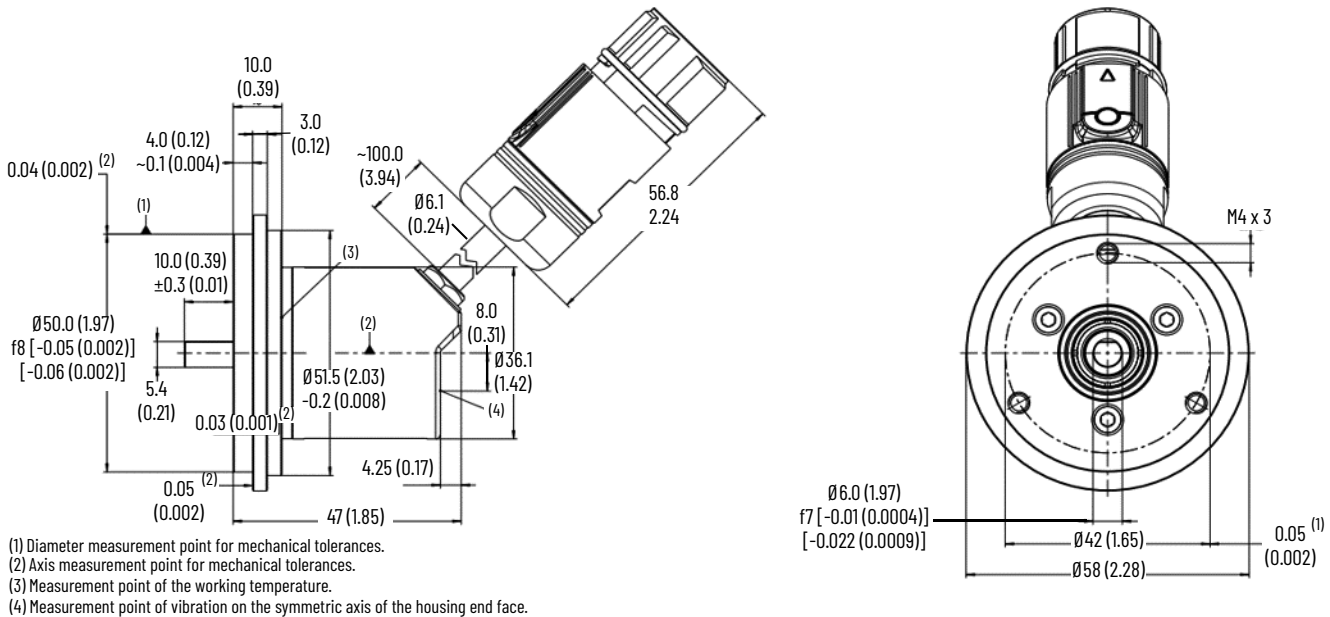
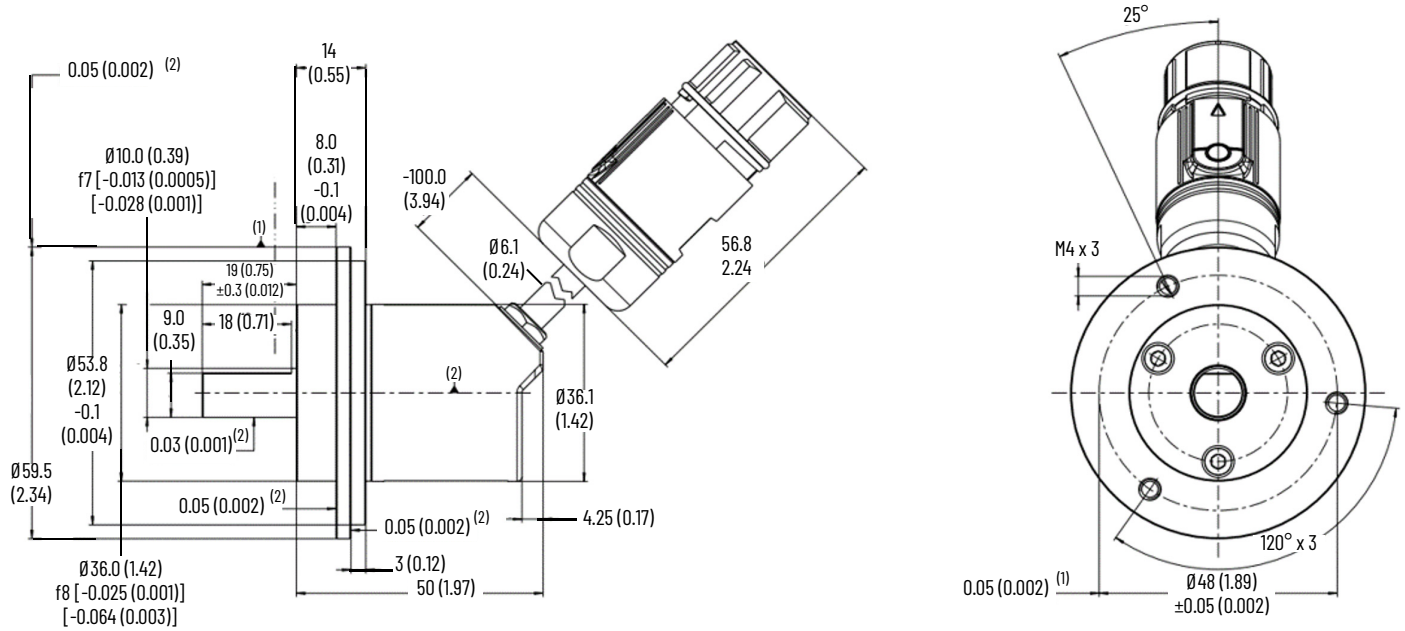
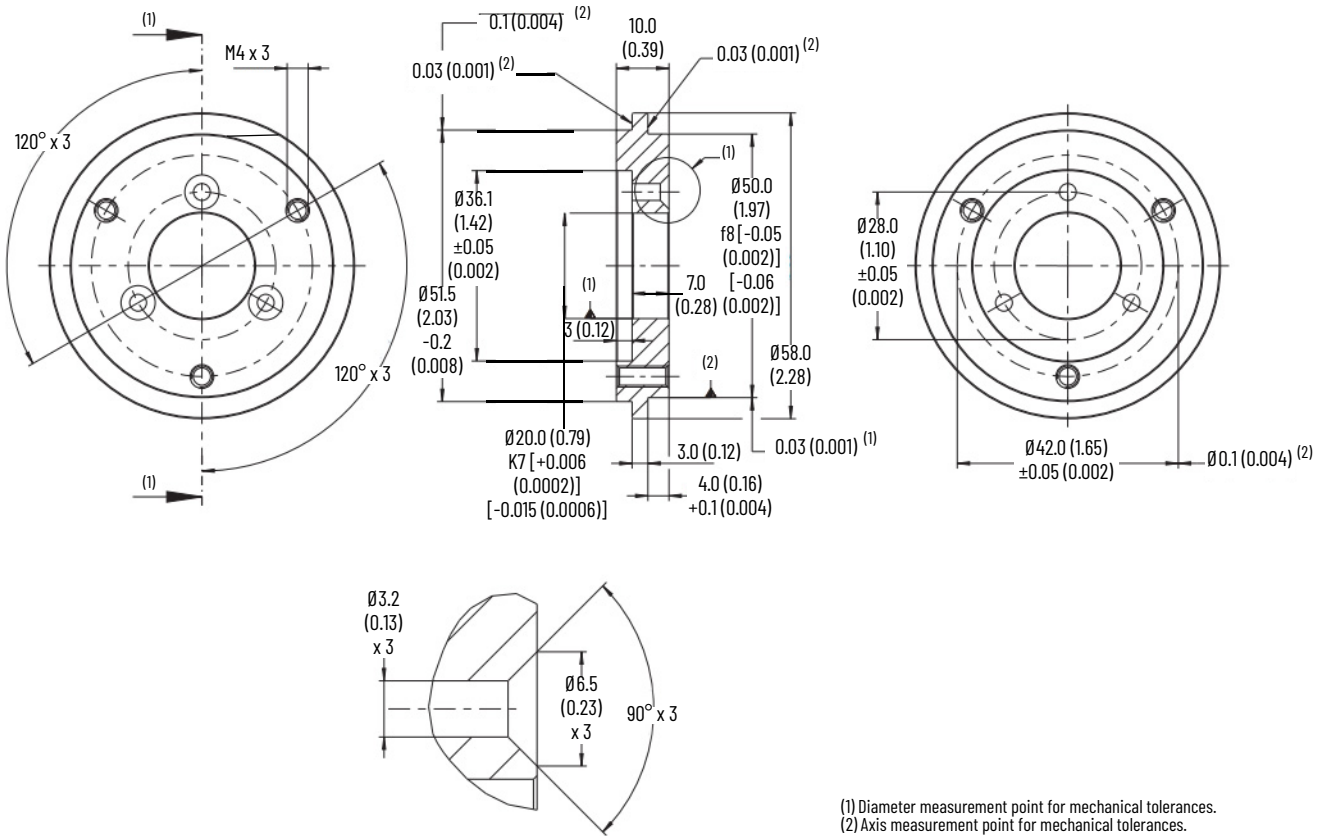


Figure 2 - 842AS-10 Encoder [mm (in.)]



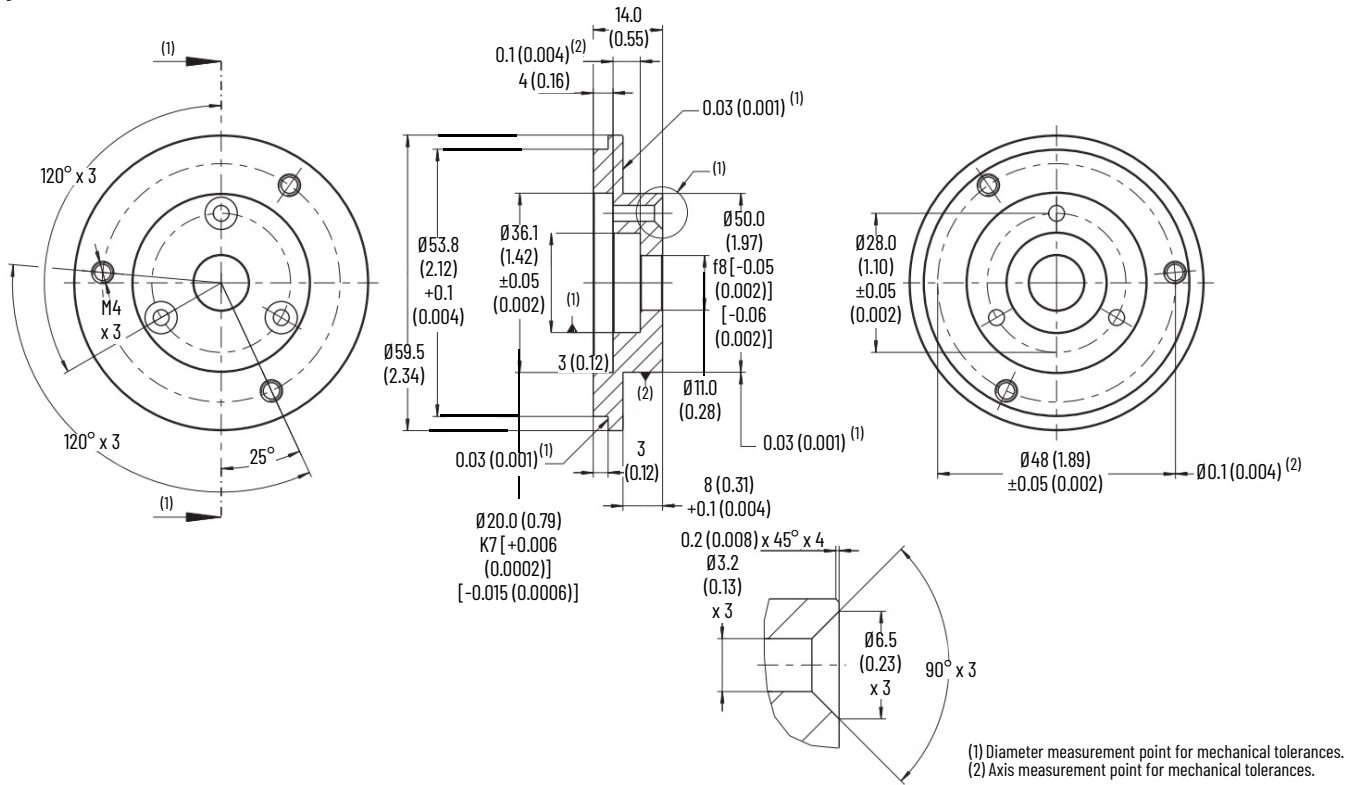
- (1) Diameter measurement point for mechanical tolerances.
- (2) Axis measurement point for mechanical tolerances.
- (3) Measurement point of the working temperature.
- (4) Measurement point of vibration on the symmetric axis of the housing end face.

Figure 3 - 842AS-FA06 Flange Adaptor [mm (in.)]



- (1) Diameter measurement point for mechanical tolerances.
- (2) Axis measurement point for mechanical tolerances.

Figure 4 - 842AS-10 Encoder [mm (in.)]



## Waste Electrical and Electronic Equipment (WEEE)







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

Rockwell Automation maintains current product environmental compliance information on its website at [rok.auto/pec](http://rok.auto/pec).

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Rockwell Otomasyon Ticaret A.Ş. Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400 EEE Yönetmeliğine Uygundur

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[rockwellautomation.com](http://rockwellautomation.com)

expanding human possibility®

AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

ASIA PACIFIC: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

UNITED KINGDOM: Rockwell Automation Ltd. Pitfield, Kiln Farm Milton Keynes, MK11 3DR, United Kingdom, Tel: (44)(1908) 838-800, Fax: (44)(1908) 261-917

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