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# ESSENTIAL COMPONENTS

SENSING

## Bulletin 842HR Sine/Cosine Encoder

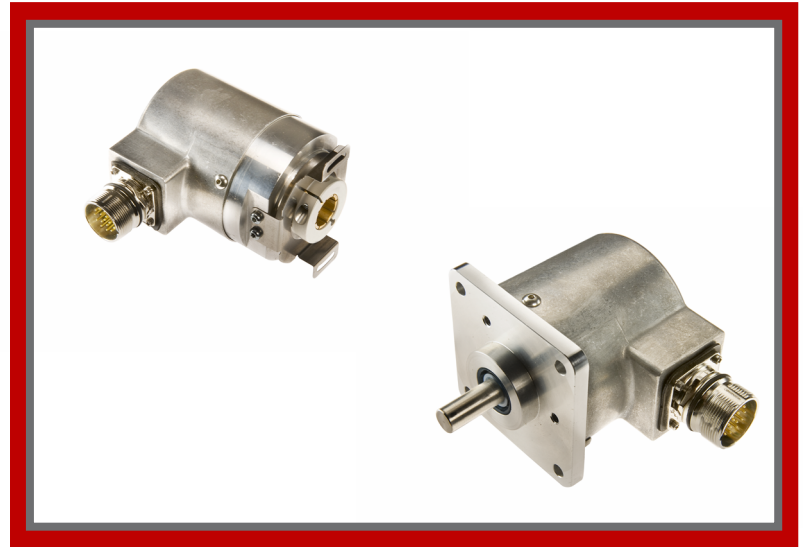
### A high-performance standalone solution for servo drive speed and position control

Allen-Bradley encoders are a high-quality complement to Rockwell Automation PLC-based motion control, providing both standard and advanced DeviceNet network enabled models to fit your architecture of choice. They also offer preferred compatibility with other Allen-Bradley servo positioning controls to deliver a complete application solution. The latest addition to the Allen-Bradley encoder offering is the new 842HR—a high performance Sine/Cosine encoder specifically designed to be the ideal solution for speed and position control in digital servo drive systems.

#### Replace multiple encoders with a single 842HR encoder

Today's high performance digital servo drive systems require absolute feedback for position control and high resolution incremental feedback for speed control. Conventional systems use multiple incremental and absolute encoders to achieve this. The new Allen-Bradley 842HR Sine/Cosine encoder combines the advantages of incremental and absolute encoder technologies in a single, standalone unit targeted for high performance digital servo drive systems.

The Bulletin 842HR is a 15-bit encoder featuring a hybrid digital/analog interface, transmitting sine/cosine signals via analog channels for incremental feedback and delivering absolute position information through the digital RS-485 channel. A single 842HR delivers control and relevant data feedback for servo drives by converting the angle information into an electrical signal for speed regulation, commutation and positioning. Plus, it delivers this information over just 8 wires for simple connection to today's Hiperface<sup>®</sup> enabled systems. The electrical and mechanical characteristics of these encoders increase system speeds and accuracy, decrease cycle times, and boost overall productivity in the manufacturing environment.



Compatible with a variety of motor control products including Kinetix<sup>®</sup> drives and the Allen-Bradley Guardmaster<sup>®</sup> MSR57 safe speed monitoring relay, the 842HR is a flexible solution for a wide range of industrial applications.

#### Features:

- Absolute feedback for position control
- High resolution Incremental feedback for speed control
- Commutation
- Sine/cosine differential interface
- Digital bi-directional RS-485 interface
- Compatible with Hiperface<sup>®</sup> interface
- Internal diagnostic functions

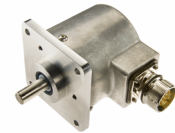
#### Benefits:

- High performance motor or auxiliary feedback
- High accuracy and resolution
- Low bandwidth
- Maximum noise immunity
- One interface for all servo motor applications
- Standalone housing (suitable for mounting external to a servo motor)

# PRODUCT SELECTION

842HR – S J DZ 1 15FWY 2

a                      b                      c                      d



**a**

Number of Turns	
Code	Description
S	Single-turn (1 turn)
M	Multi-turn (4096 turns)

**b**

Mounting Configuration (see Note)	
Code	Description
DZ	Square Flange, 3/8 inch solid shaft
DN	Square Flange, 3/8 inch solid shaft with flat
A1	Hub shaft, 15 mm blind hollow shaft
A2	Hub shaft, 1/2 inch blind hollow shaft
A3	Hub shaft, 12 mm blind hollow shaft
A4	Hub shaft, 10 mm blind hollow shaft
A5	Hub shaft, 3/8 inch blind hollow shaft
A6	Hub shaft, 8 mm blind hollow shaft
A7	Hub shaft, 1/4 inch blind hollow shaft
A8	Hub shaft, 6 mm blind hollow shaft

Note: Hub shaft units are supplied with 15 mm blind hollow shaft; For shaft bores smaller than 15 mm, a shaft insert is supplied having the correct ID.

**c**

Power Supply	
Code	Description
1	5... 12V DC
2	7... 12V DC

**d**

Connector Options	
Code	Description
2	MS 10-pin
D	M23 17-pin

## Output Termination: M23 17-Pin

Pin No.	Function	Explanation	Wire Color
1	SINE	Process Data Channel	Black
2	REFSINE	Process Data Channel	White/Black
3	COSINE	Process Data Channel	Red
4	REFCOSINE	Process Data Channel	White/Red
5	Data +	RS-485 parameter channel	Green
6	Data -	RS-485 parameter channel	White/Green
9	DC + Input	5V Supply voltage	Gray
10	DC Return	Ground Connection	White/Gray*
11	DC + Input	9V Supply voltage	Orange
13	N.C.		
14	N.C.		
15	N.C.		
16	N.C.		
17	N.C.		
7	CASE	Case Ground	Brown
8	N.C.		
12	DC Return	Ground Connection	*

\* Pin 12 internally tied to Pin 10

## Output Termination: MS 10-Pin

Pin No.	Function	Wire Color
A	+VS	Red
B	Common	Blue
C	Ref SIN	Brown
D	Ref COS	Black
E	Data +	Gray
F	Data -	Green
G	SIN	White
H	COS	Pink
I	Not used	
J	Case	Case

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

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