

Installation Instructions

842E EtherNet/IP™ Encoders

High Resolution with DLR

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Description

The 842E is an ultra-high resolution encoder with EtherNet/IP interface. These encoders provide 18-bit single-turn resolution and 30-bit multi-turn resolution. The EtherNet/IP encoder is targeted for high performance and reliability in harsh industrial environments. Encoder includes an embedded EtherNet/IP switch to connect additional E/IP capable product in series and/or support a Device Level Ring (DLR) for ethernet media redundancy.

Features

- EtherNet/IP
- Embedded switch
- Hardware/software IP address setting
- Resolution up to 30 bits
- Protection class up to IP67
- Simple and fast set up
- Device Level Ring (DLR)
- Revolution divisor
- Solid and blind hollow shaft options

Configurable Parameters Typical Applications

- | | |
|-------------------------|----------------------------|
| • Counting direction | • Packing machines |
| • Counts per resolution | • Robotics |
| • Counts of revolution | • Printing machines |
| • Preset value | • Rotary table positioning |
| • Velocity unit | |
| • IP address | |

ENGLISH: This instruction sheet is available in multiple languages at www.rockwellautomation.com/literature. Select the publication language before typing in the search field.

CHINESE SIMPLIFIED:

CHINESE TRADITIONAL:

FRENCH:

GERMAN:

ITALIAN:

JAPANESE:

KOREAN:

PORTUGUESE:

SPANISH:

Specifications

Certifications	CE Marked for all applicable directives
Electrical	
Bus Connection	EtherNet/IP IEC 61784-1
Transmission Rate	10/100 MBit/s
Transmission Medium	Cat-5e cable
Code Type	Binary
Operating Voltage Range	10...30V
Power Consumption	3.0 W
Resolution	262,144 (18 bit)
No. of Revolutions, max.	4,096 (12 bit)
Error Limits	±0.03°
Repeatability	±0.002°
Operating Current, max., no load; 10...30V supply	≤200 mA
Mechanical	
Moment of Inertia	≤6.2 gcm ² (solid shaft) of the rotor ≤35 gcm ² (blind hollow shaft) of the rotor
Operating Speed	9,000 RPM (solid shaft), max. 6,000 RPM (blind hollow shaft), max.
Shaft Loading	Radial: 80 N max. (solid shaft) Axial: 40 N max. (solid shaft)
Permissible Shaft Movement	Radial (static/dynamic): ± 0.3 / ± 0.05 mm [of drive element (blind hollow shaft)] Axial (static/dynamic): ± 0.5 / ± 0.1 mm [of drive element (blind hollow shaft)]
Bearing Lifetime	3 x 10 ⁹ revolutions
Angular Acceleration	5 x 10 ⁵ rad/s ² , max.
Operating Torque	0.3 Ncm (solid shaft) @ 20 °C 0.6 Ncm (blind hollow shaft) @ 20 °C
Starting Torque	0.5 Ncm (solid shaft) at 20°C 0.8 Ncm (blind hollow shaft) at 20°C
Environmental	
Housing Material	Aluminum
Shaft Material	Stainless steel
Operating Temperature [C (F)]	-30...+85° (-22...+185°)
Storage Temperature [C (F)] ❶	-40...+100° (-40...+212°)
Relative Humidity ❷	90%
Shock ❸	100 g/6 ms
Vibration ❹	20 g/10...2000 Hz
Enclosure Type Rating ❺	IP67 (IEC 60529)
Weight	0.2 kg (0.44 lb)
Standards	EN 61000-6-2 and EN 61000-6-3 EMC

- ❶ Without packaging.
- ❷ To condensation not permitted.
- ❸ To DIN EN 60068-2-27.
- ❹ To DIN EN 60068-2-6.
- ❺ With mating connector inserted.

Product Selection

842E — $\frac{S}{a}$ $\frac{IP}{b}$ $\frac{10}{c}$ $\frac{B}{d}$ $\frac{A}{d}$

a

Number of Turns

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

b

Mechanical Interface

Code	Description
1	Solid shaft 3/8 in.
2	Solid shaft 3/8 in. with flat
3	Solid shaft 10 mm
4	Solid shaft 10 mm with flat
5	Hollow shaft 1/4 in.
6	Hollow shaft 8 mm
7	Hollow shaft 3/8 in.
8	Hollow shaft 10 mm
9	Hollow shaft 12 mm
10	Hollow shaft 1/2 in.
11	Hollow shaft 14 mm
12	Hollow shaft 15 mm

c

Connector

Code	Description
B	M12 connector

d

Resolution

Code	Description
A	262,144 (18 bit) steps per revolution

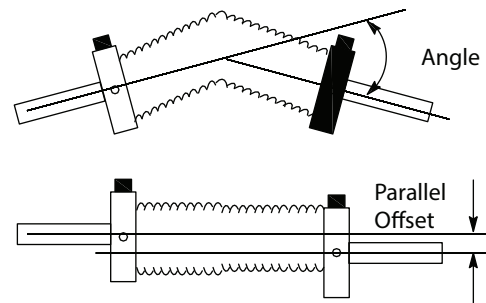
Accessories

Description	Note
Flexible couplings	For information on these products, please refer to www.ab.com/en/epub/catalogs
Mounting plates	
Ethernet media	
Cordsets & patchcords	

Suggested Mating Cables

Description	Cat. No.
4-wire cable spool, robotic TPE, 100 m	1585-C4TB-S100
M12 D-code patchcord, male/male, 1 m	1585D-M4TBJM-2
DC micro QD cordset, 4-pin, 2 m	889D-F4AC-2
DC micro QD patchcord, 4-pin, 2 m	889D-F4ACDM-2

Flexible Shaft Couplings



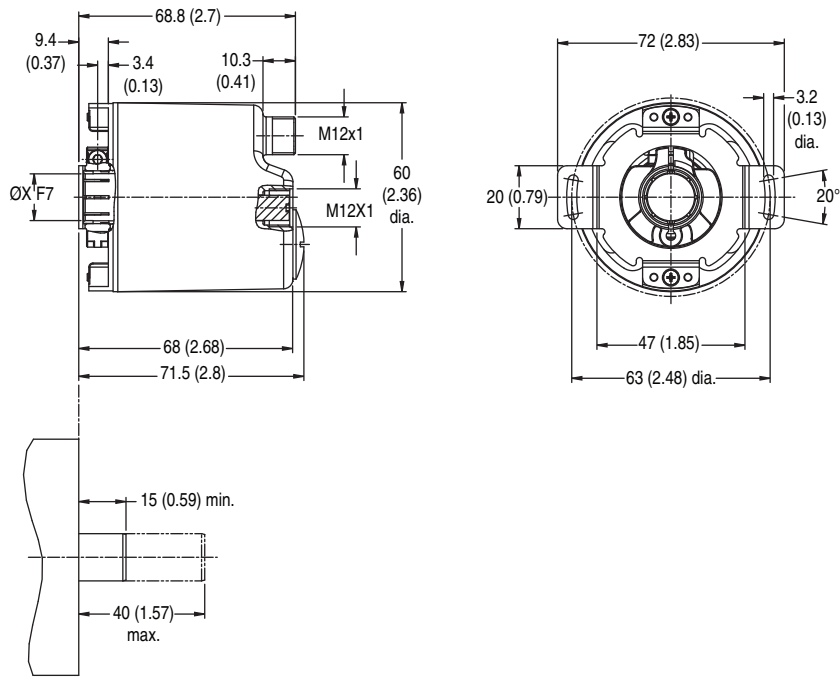
ATTENTION



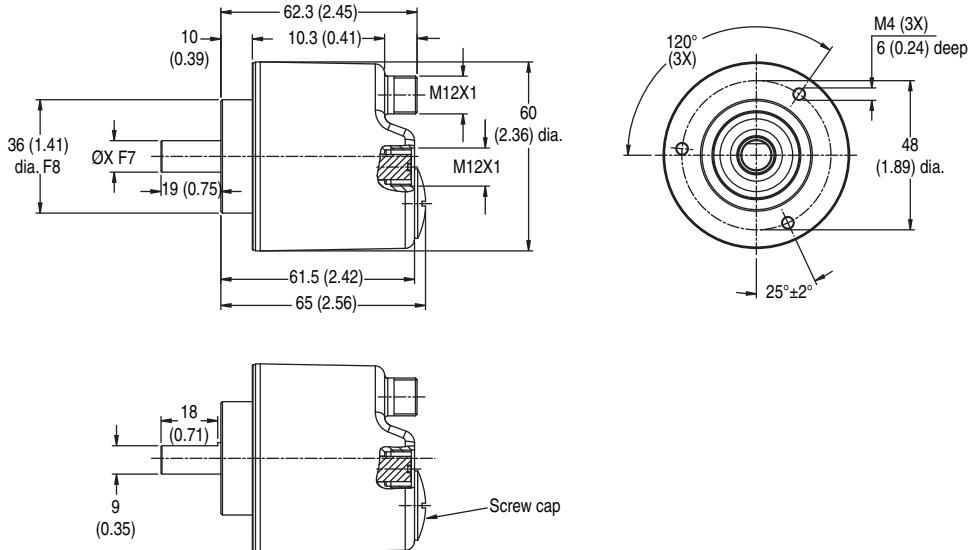
Rigidly coupling the encoder shaft to the machine shaft will cause a failure in either the bearings of the encoder or the bearings of the machine shaft.

Approximate Dimensions [mm (in.)]

Blind Hollow Shaft



Solid Shaft



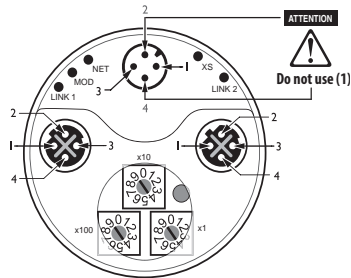
Pinout & Color Code

EtherNet/IP Pinout



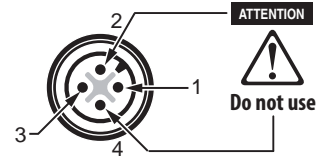
Pin	Signal Name	Color Code	Pair Assignment
1	TXD+	White Orange	Pair 1
3	TXD-	Orange	
2	RXD+	White Green	Pair 2
4	RXD-	Green	

LED Status



Module Status LED	Short Description
OFF	No power
Green	Device operational
Green flashing	Standby
Red flashing	Minor fault
Red	Major fault
Green/red flashing	Self-test
Network Status LED	Short Description
OFF	No power/IP address
Green flashing	No connected
Green	Connected
Red flashing	Minor fault
Red	Major fault
Green/red flashing	Self-test

Power Supply Pinout



Pin	Signal Name	Color Code	Pair Assignment
1	Vs	Brown	Supply voltage 10...32V DC
2	—	White	Do not use ❶
3	GND	Blue	0V DC (ground)
4	—	Black	Do not use ❶

❶ Applying power to pins 2 and 4 will damage the encoder.

Encoder Status LED	Short Description
OFF	No power
Green flashing	Wrong parameter
Green	Device operational
Red flashing	Minor fault
Red	Major fault
Green/red flashing	Self-test

Link 1 Status LED	Short Description
OFF	No link/power off
Green solid	LINK
Amber solid	Port disabled
Green flashing	Port activity
Amber flashing	Collision

Link 2 Status LED	Short Description
OFF	No link/power off
Green solid	LINK
Amber solid	Port disabled
Green flashing	Port activity
Amber flashing	Collision

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842E-IN001A-EN-P

10000169360 Ver 02 — July 2012

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