Installation Instructions
842E-CM Integrated Motion on EtherNet/IP™

EtherNet/IP™ Absolute Encoder (with 1588 Precision Clock Synchronization)

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Description

The 842E-CM is an ultra-high resolution encoder with EtherNet/IP interface with time synchronization for motion control. 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 with IEEE 1588 Precision Clock Synchronization
- 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)
- Solid and blind hollow shaft options

Typical Applications

- Packing machines
- Robotics
- Printing machines
- Motion Control on EtherNet/IP

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Specifications

Certifications	CE Marked for all applicable directives NRTL mark (cTUVus) for UL 508 CAN/CSA C22.2.14-10
Electrical	
Bus Connection	EtherNet/IP IEC 61784-1
CIP Sync	IEEE 1588 (IEC 61588, precision clock synchronization)
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 Rating Shaft	IP65
Enclosure Rating Housing ❺	IP67
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.

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Product Selection

842E-CM — S IP 10 B A
a *b* *c* *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

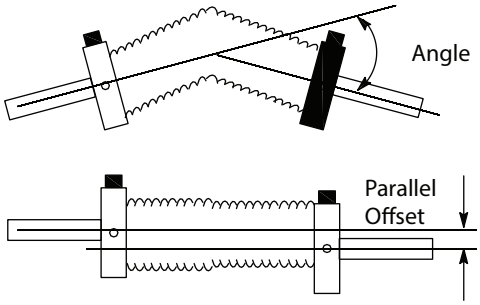
Accessories

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.
M12 to RJ45 patchcord, 2 m	1585D-M4TBJM-2
M12 D-code patchcord, male/male, 2 m	1585D-M4TBDM-2
DC micro QD cordset, 4-pin, 2 m	889D-F4AC-2

Flexible Shaft Couplings

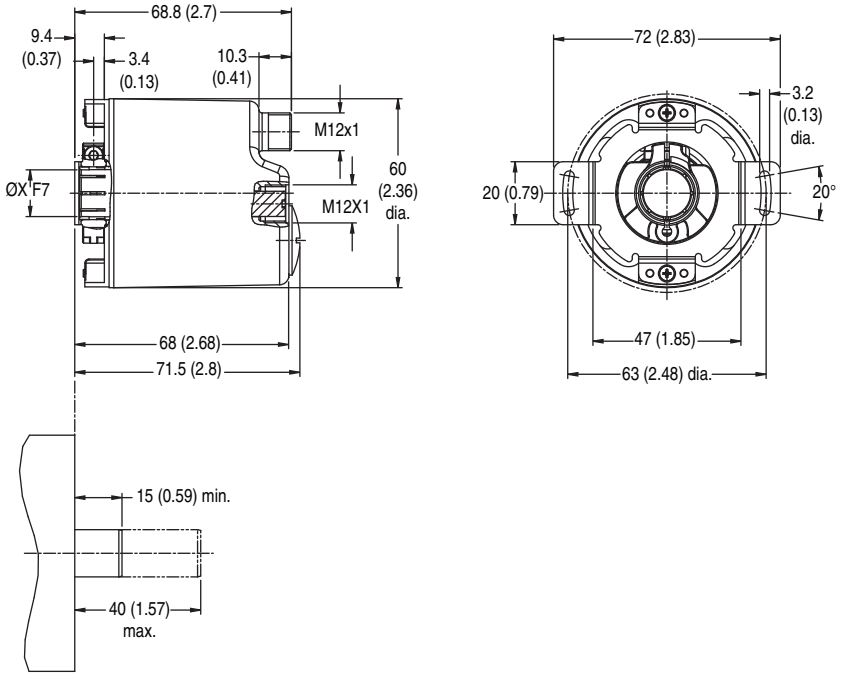


ATTENTION

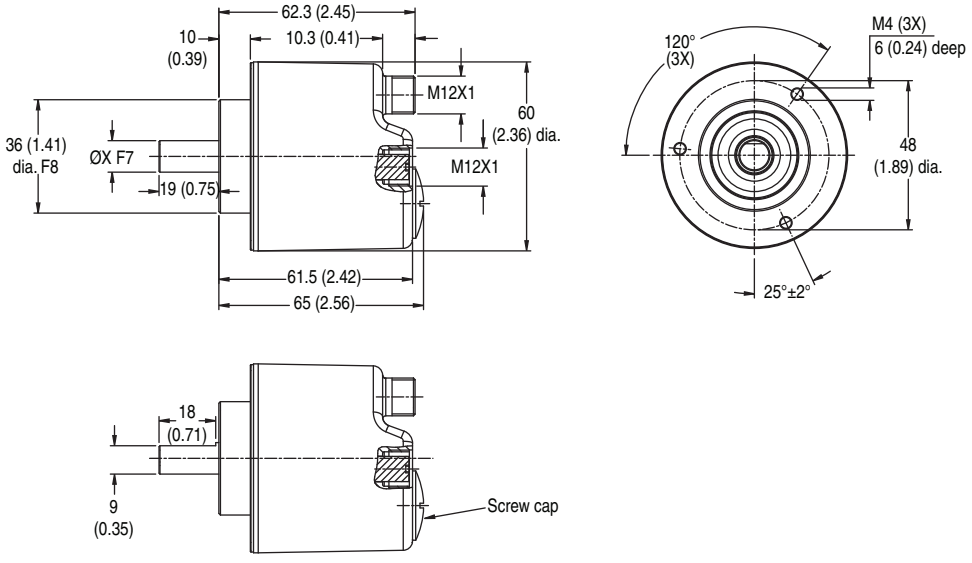
Rigidly coupling the encoder shaft to the machine shaft will cause a failure in either the bearings of the encoder or the bearings of the machine shaft.

Approximate Dimensions [mm (in.)]

Blind Hollow Shaft



Solid Shaft



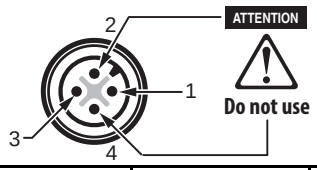
Tightening torque for screw cap: 7 in-lb (0.8 Nm)

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	

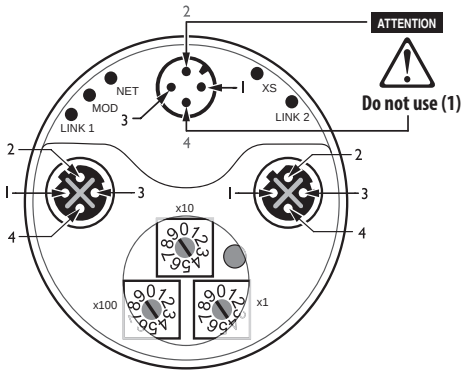
Power Supply Pinout



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.

LED Status



MOD LED	Description
OFF	No power
Green	Running
Green flashing	Standby
Red	Major fault
Red flashing	Minor fault
Green/red flashing	Self-test

XS (AXIS) LED	Description
OFF	No power
Green	Running
Green flashing	Standby
Red flashing	Minor fault or Firmware updating
Amber	Major fault
Amber flashing	Self-test at power-on

NET LED	Description
OFF	No power/IP connection
Green	Connected
Green flashing	No connection
Red	Major fault
Red flashing	Minor fault / Duplicate IP

LINK 1 and LINK 2 LEDs	Description
OFF	No power/IP address
Green	LINK
Green flashing	Port activity
Amber	Port disabled
Amber flashing	Collision

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