

Integrated Motion on EtherNet/IP

Catalog Numbers 842E-CM-SIPxBA, 842E-CM-MIPxBA

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Description

The Bulletin 842E-CM encoder 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 (c-UL-us and TÜV) 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 MBps
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	4096 (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	9000 RPM (solid shaft), max 6000 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 N-cm (solid shaft) @ 20 °C (68 °F) 0.6 N-cm (blind hollow shaft) @ 20 °C (68 °F)
Starting torque	0.5 N-cm (solid shaft) at 20 °C (68 °F) 0.8 N-cm (blind hollow shaft) at 20 °C (68 °F)
Environmental	
Housing material	Aluminum
Shaft material	Stainless steel
Operating temperature	-30... +85 °C (-22... +185 °F)
Storage temperature ¹	-40... +100 °C (-40... +212 °F)
Relative humidity ²	90%
Shock ³	100 g/6 ms
Vibration ⁴	20 g/10...2000 Hz
Enclosure rating shaft	IP65
Enclosure rating housing ⁵	IP67
Weight	0.2 kg (0.44 lb)
Standards	EN 61000-6-2 and EN 61000-6-3 EMC

¹ Without packaging
² Condensation not permitted
³ DIN EN 60068-2-27
⁴ DIN EN 60068-2-6
⁵ With mating connector inserted

Product Selection

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

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
13	Servo mount solid state 6 mm with flat
14	Solid shaft 10 mm with key
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, see the Integrated Motion on EtherNet/IP Absolute Encoders product page .
Mounting plates	
Ethernet media	
Cordsets and 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

Pinout and Color Code

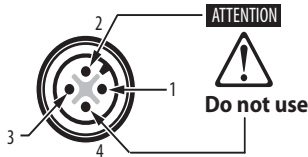
EtherNet/IP Pinout



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	

MOD LED	Description
OFF	No power
Green	Running
Green flashing	Standby
Red	Major fault
Red flashing	Minor fault
Green/red flashing	Self-test
NET LED	Description
OFF	No power/IP connection
Green	Connected
Green flashing	No connection
Red	Major fault
Red flashing	Minor fault / Duplicate IP

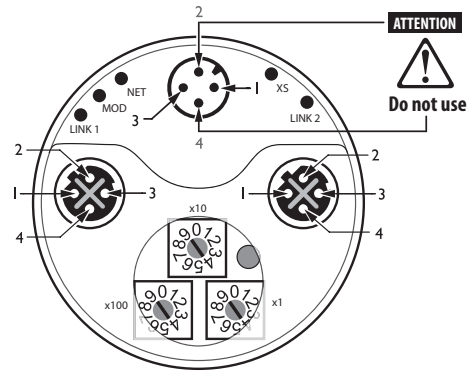
Power Supply Pinout



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

¹ Applying power to pins 2 and 4 damages the encoder.

LED Status



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

Rockwell Automation Support

For technical support, visit
<http://www.rockwellautomation.com/support/overview.page>.

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
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