843ES CIP Safety over EtherNet/IP Encoders

Improve performance and productivity with Integrated Safety

843ES CIP Safety over EtherNet/IP™ Encoders are designed for safety applications that require speed, direction, or position monitoring safety functions. These encoders support the GuardLogix® controller-based safety functions, according to IEC 61800-5-2, in the Studio 5000 Logix Designer® application. By providing auxiliary feedback directly through an EtherNet/IP network on CIP Safety, it makes it easier to achieve the desired safety integrity or performance level by reducing the number of components needed and utilizing the already available advanced drive safety instructions.

Benefits

Added safety – When used as part of an integrated safety system that includes a GuardLogix® 5580ES controller or Compact GuardLogix 5380ES controller, the 843ES CIP Safety Encoder provides safety ratings up to and including SIL CL3 and PLe Cat 3. (Studio 5000 Logix Designer® application version 31 or later is required.)

Reduced design time – The ability to integrate the safety functions over EtherNet/IP provides the opportunity to reduce hardware and installation costs. Use the position, velocity, and acceleration feedback from the 843ES CIP Safety encoder to program safety functions on the same network and controller as the standard control.

Higher productivity – The ability to continue production while safely monitoring for speed, direction, or position helps improve productivity and overall machine performance.

More visibility – The integration of the safety and standard control systems provides operators and maintenance personnel with visibility to all machine events – including safety events. This helps enable a quick response that allows the machine to return to full production faster.

Features

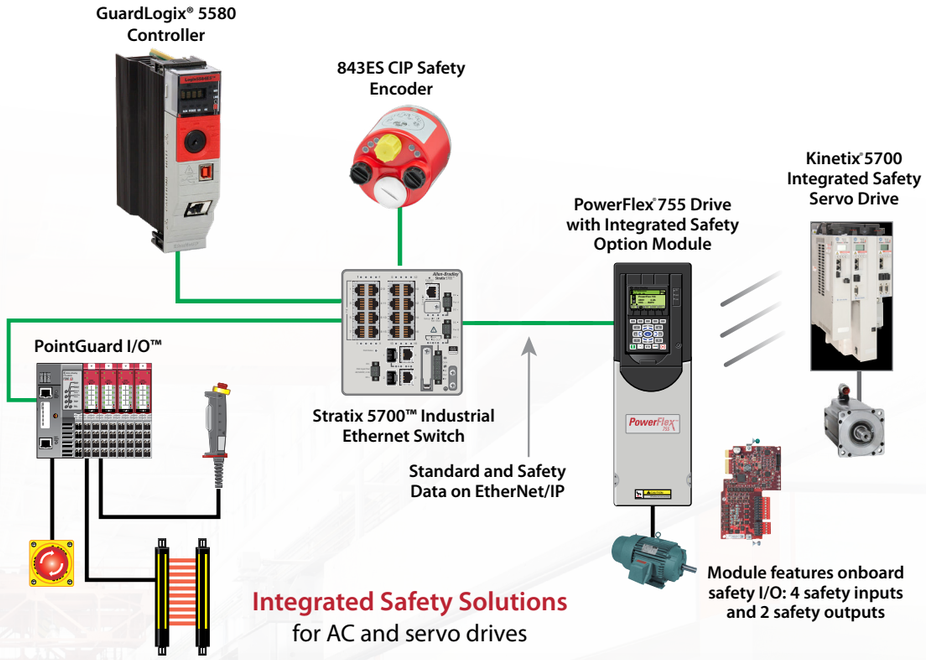
- Rated up to and including SIL 3 according to IEC 61800-5-2, IEC 620261, and IEC 61508-1
- Rated up to and including PLe, Cat. 3, according to ISO 13849-1
- Clamping, synchro, and square flange options for solid shaft
- Blind-hollow shaft available with stator coupling
- Feather key solid shaft to prevent relative rotation
- Dual Ethernet ports with embedded EtherNet/IP switch for linear networks and Device Level Ring topologies
- IP67 washdown rating
- Small form factor
- 15-bit safety resolution, 18-bit standard resolution
- 12-bit multi-turn resolution

The first and only encoder on the market featuring CIP Safety over EtherNet/IP up to – and including – SIL 3/PLe safety applications

Benefits of Controller-based Safety/Integrated Safety

Networked safety solutions provide the ability to simplify your machine design and minimize equipment redundancies. Fewer components mean smaller panel enclosures which helps reduce machine footprint. It also offers these other important benefits:

- A single GuardLogix® controller manages both safety and standard control
- Complete safety function integration within one software environment – Studio 5000 Logix Designer® – for configuration, programming and maintenance
- The integration of the safety and standard control systems provides operators and maintenance personnel with improved visibility to all machine events – including safety events
- Reduces complexity with a single network, EtherNet/IP for motion and safety functions
- Use EtherNet/IP to provide rich diagnostic data
- Simplifies zoning and reduces changeover time
- Integrated or hardwired safety – Safe Torque-Off – SIL3 PLe
- Advanced safety with five safe stop functions and three safe monitoring functions
- Safety and standard control share the same EtherNet/IP network



Integrated Safety Solutions
for AC and servo drives

Management of multiple safety zones

In the past, a safety event in one section of a machine could result in the entire machine shutting down because the standard system had limited knowledge of the safety event. But Integrated Safety allows the control and safety systems to coexist on the same network and to share data between the safety and standard applications. This allows "zone control" where one zone of the machine is brought to a safe state while other zones continue to operate. Modifications to your application are simplified which helps to save you both time and money.

Key Applications & Industries

The 843ES CIP Safety Encoder is a solution for OEMs requiring safe monitoring and safe stop functions with GuardLogix® or Compact GuardLogix controllers. It is the ideal choice for machine builders that want to retrofit or modify machines to add drive safety functions or require SIL 3/PL e rated systems. The 843ES CIP Safety Encoder helps address advanced safety application needs in a wide variety of industries, including:

- Entertainment
- Material handling
- Metals & Mining
- Automotive & Tire
- Converting, print, web

Encoder Catalog Number Explanation

843ES	M	IP	7	BA	6
	a		b		c

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

Shaft	
Code	**Description**
7	Hollow shaft 9.52 mm (3/8 in.)
8	Hollow shaft 10 mm (0.39 in.)
9	Hollow shaft 12 mm (0.47 in.)
10	Hollow shaft 12.7 mm (1/2 in.)
11	Hollow shaft 14 mm (0.55 in.)
12	Hollow shaft 15 mm (0.59 in.)
14	solid shaft 10 mm (0.39 in) with key
15	Solid shaft 12 mm (0.47 in.) with key
16	Solid shaft 9.52 mm (3/8 in.) with key

Flange	
Code	**Description**
1	Clamping flange 58 mm (2.28 in.)
4	Synchro flange 58 mm (2.28 in.)
6	Diameter flange 63 mm (2.48 in.)
7	Square flange 63.5 mm (2.5 in.)

Power Cords

First End Connector	Second End Connector	Cable Type	Catalog Number
Straight Female	Straight Male	Braided shield, 22 AWG, 4-pin M12, Color Code A	889D-F4ECDM-2
Straight Female	Right Angle Male		889D-F4ECDE-2
Right Angle Female	Straight Male		889D-R4ECDM-2
Right Angle Female	Right Angle Male		889D-R4ECDE-2
Straight Female	Flying leads		889D-F4EC-2
Right Angle Female	Flying leads		889D-R4EC-2
Straight Female	Straight Male	Foil and braided shield, 22 AWG, 4-pin M12, Color Code A	889D-F4FCDM-2
Straight Female	Right Angle Male		889D-F4FCDE-2
Right Angle Female	Straight Male		889D-R4FCDM-2
Right Angle Female	Right Angle Male		889D-R4FCDE-2
Straight Female	Flying leads		889D-F4FC-2
Right Angle Female	Flying leads		889D-R4FC-2

Ethernet Cables

First End Connector	Second End Connector	Cable Type	Catalog Number
Male M12 D-Code, straight	Flying leads	Foil and braided shield, 4 conductor, teal PUR, flex rated, halogen-free	1585D-M4UB-2
Male M12 D-Code, straight	Male M12 D-Code, straight		1585D-M4UBM-2
Male M12 D-Code, right angle	Male M12 D-Code, right angle		1585D-E4UBDE-2
Male M12 D-Code, straight	Male M12 D-Code, right angle		1585D-M4UBDE-2
Male M12 D-Code, straight	Female M12 D-Code, straight		1585D-M4UBDF-2
Male M12 D-Code	RJ45		1585D-M4UBJM-2

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