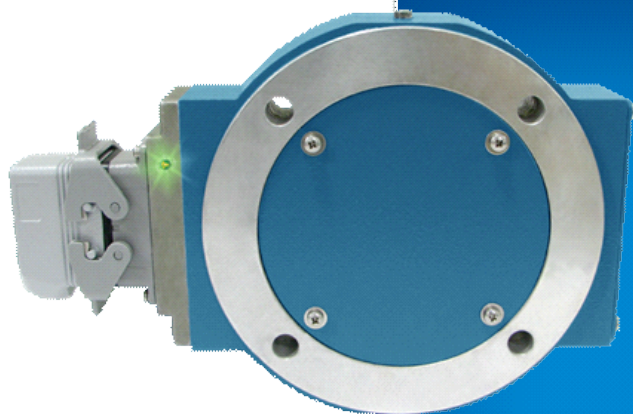


# Avtron XR850 SMARTSafe™ Encoders



## Hazardous Duty Magnetic Encoder, Heavy Duty 8.5" Modular

### Hazardous Duty No-Bearing Modular Encoder

- ┆ Fits NEMA 8.5" Flanges
- ┆ Fits Shafts up to 4 1/2" [115mm]
- ┆ ATEX/IECEx Rated for Zone 1, 2, 21 & 22 Applications
- ┆ Ideal for Oil and Gas Drilling
- ┆ No Bearings to Wear Out
  - ┆ Up to 5000 PPR
- ┆ Self-Diagnostic LED and Alarm Output
  - ┆ 3 Year No-Hassle Warranty
- ┆ cULus Class I Division 1 Groups A,B,C,D Listed
- ┆ cULus Class I Zone 0 Group IIC
- ┆ cULus Class I Division 2 Groups A,B,C,D Listed

### XR850

XR850 SMARTSafe 8.5" modular incremental quadrature rotary encoders are a breakthrough in hazardous duty encoders. They are ATEX/IECEx, cULus approved and offer reliable no-bearing construction! SMARTSafe encoders can be used in UL gas and ATEX/IECEx gas and dust hazardous environments. Also available: hollow shaft models (XR45, XR685), shafted models (XR4F, XR485), no-bearing modular encoders to fit other flange sizes (XR56, XR85, XR115, XR125, XR850), and modular sensors (XR5, XR12).

For applications requiring ATEX/IECEx Zone 2 or 22 or UL Class I, Division 2, Groups A,B,C,D, use the XR850 directly in your application, with no barrier, isolator or cable gland required.

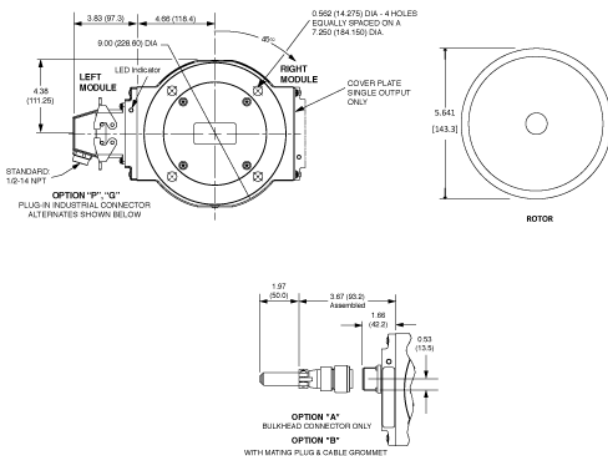
For applications requiring UL Division 1, ATEX/IECEx Zone 1 or 21 use the XRB3 isolator in your control cabinet which permits the use of intrinsically safe wiring instead of explosion proof conduit or glands. The XR850 can also be used in UL Class I, DIV 1 and Zone 0 applications using the XRB3 Isolator.

Unlike the competition, Avtron SMARTSafe encoder systems are protected against short circuits, power-to-output wiring, and output-to-ground faults.

Instead of mounting a tiny optical encoder with weak bearings on a wobbling stub shaft, mount XR850 directly on your main application shaft. Vibration, shock, liquids, dust and dirt won't harm SMARTSafe XR850 encoders! Paint booths, draw works, coil tubing rigs...XR850 can keep them all working 24/7/365.

Eliminate the biggest cause of industrial encoder failure eliminate the bearings with XR850 hazardous duty encoders.

## OUTLINE DRAWING



## MORE XR850 ADVANTAGES

- Easy-swap XR5 electronic sensors
- Sensors can be directly machine-mounted
- Shrugs off dirt, oil, and water contamination
- No glass disks to break or optics to fail
- 4,500,000+ hour MTBF design

## XR850 SPECIFICATIONS

**Operating Power:** (add load and cable drive current as req'd)

Division 1, Zone 1 (XRB3): 12-24VDC In/Out, 150 mA

Division 2, Zone 2: 5-24VDC In/Out, 150mA

**Output Format:** A Quad B with marker (A/A, B/B, Z/Z)

**Frequency Range:** 0 to 165 KHz

**PPR:** 8-6000

**Speed:** 5000 RPM

**Maximum Cable Length:**

Division 1, Zone 1: Encoder 500' Isolator 1000'

Division 2, Zone 2 (5 to 12 VDC in): 500'

Division 2, Zone 2 (15 to 24 VDC in): 250'

**Rotor Position:** +/- 0.100" [+/- 2.54mm].

**Sensor Rotor Gap:** 0.04", +0.015"/-0.030" [1.02mm +0.38/-0.76mm]

**Temperature:** -40°C to 80°C (storage -40°C to 100°C)

**Environmental:** IP54 (see manual for details)

**Vibration:** 5-2000Hz, 20G, 100G Shock

**Weight:** 9lbs [4kg]

**Certifications:**

ATEX/IECEX Zone 1 & 21 Group IIC

cULus Class I Div 1 and Zone 0 Group A,B,C,D\*

ATEX/IECEX Zone 2 & 22 Group IIC

cULus Class I Div. 2 Groups A,B,C,D

\*See installation drawings for Warnings and Limitations.

Check out our website for more detailed specifications, drawings, and installation instructions. [www.avtronencoders.com](http://www.avtronencoders.com)

## SELECTION GUIDE

XR850 PART NUMBERS AND AVAILABLE OPTIONS										
Model	Rotor Bore			Inboard & Outboard Cover Plates	Left Module		Right Module		Connector Options	Modifications
	US Thru	Metric Thru	GE EOS		Line Driver	PPR	Line Driver	PPR		
XR850	XX- none	MG- 25mm	UF- CD180-32x	X- none	X- none	X- none	X- none	X- none	See chart at right	000- none
	CB- 0.625	MF- 30mm	UN- CD39x	B- inboard, thru out board	See chart	F- 60	See chart	F- 60		003- w/RS61 analog converter
	CA- 0.750	MJ- 42mm	UP- CD49x	F- no inboard, flat outboard		G- 100		H- 120		004- super magnetic shielding
	CE- 0.875	MZ- 80mm	UQ- CD444/	N- inboard, flat outboard		H- 120		L- 240		018- w/Isolator XRB3
	CF- 1.000	MY- 85mm	505E**	T- no inboard, thru out-board		A- 128		N- 256		4xx- Special PPR (see chart)
	CH- 1.125	M4- 95mm	UR- CD507/509			L- 240		P- 300		700- large motor stator 8.5" C-face adapter**
	CI- 1.625		UD- CD43xx			N- 256		Q- 500		704- large motor stator adapter & super
	CK- 1.750		44xx, 54xx			E- 360		R- 512		9xx- special cable length (see chart)
	CL- 1.875		64xx, 65xx**			B- 480		S- 600		032- Conduit Box + Isolator
	CM- 2.000		UW- CD45xx			Q- 500		V- 900		039- Special ATEX Conduit Box
	CN- 2.125		75xx, 76xx**			R- 512		J- 960		
	CO- 2.250		UF- CD46xx			S- 600		Y- 1024		
	CP- 2.375		47xx, 48xx			V- 900		Z- 1200		
	CR- 2.500		86xx, 80xx**			J- 960		3- 2000		
	CT- 2.625		UZ- CD68xx			Y- 1024		4- 2048		
	CS- 2.771		U9- CD6xx-62xx			Z- 1200		D- 2500		
	C8- 2.875		v67xx-69xx**			3- 2000		D- 4096		
	CW- 3.250		UU- Universal CD180			4- 2048		E- 4800		
	CY- 3.375		CD90xx**			5- 2500		9- 5000		
	CZ- 3.421		U4- ABB 95mm			D- 4096		0- Special		
	C3- 3.500					E- 4800				
	TD- 3.625					9- 5000				
	TO- 3.750					0- Special				
	T4- 3.875									
	T1- 4.000									
	T7- 4.250									
	T6- 4.500									
	KE- 1.000	K- Keyed Single Cam								

Line Driver Code				Connector Options
Level 1	Level 2	Level 3	Level 4	
Class I Div 1	Zone 1 & 21 (a)	Class I Div 2	Zone 2 & 22	
F	H	n/a	7	A- 10 pin MS W/O Plug
F	H	n/a	7	B- 10 pin MS with Plug
F	H	n/a	7	*- 7 Pin MS
F	H	n/a	7	R- 10 Pin mini twist lock
F	H	n/a	7	W- Flexible cable with Gland
F	H	n/a	7	G- 10 Pin Industrial with Plug
F	G			4- Conduit Box, Terminal Block 1/2" NPT
F	G			5- Conduit Box, Terminal Block 3/4" NPT
F	G			6- Conduit Box, Terminal Block 1" NPT
F	G			7- Conduit Box, Terminal Block 25mm PT
XRB3	XRB3	None	None	Required Isolator: order separately or with option code 018

\*= E, F, J, K, S, T, U, V,

Units with connector options 4, 5, 6, or 7 are dual labeled for for both cULus Class / Div and ATEX / IECEx Zones



Nidec Industrial Solutions

243 Tuxedo Avenue - Cleveland, Ohio 44131

encoderhelpdesk@nidec-industrial.com

+1 216-642-1230 - [www.avtronencoders.com](http://www.avtronencoders.com)



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All dimensions approximate.