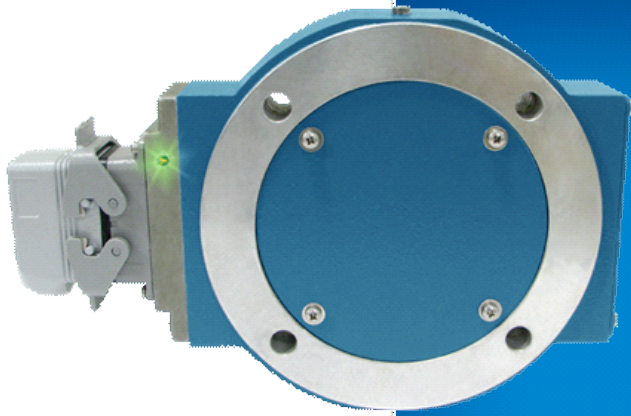


# Avtron XR850 SMARTSafe™ Encoders



## 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.

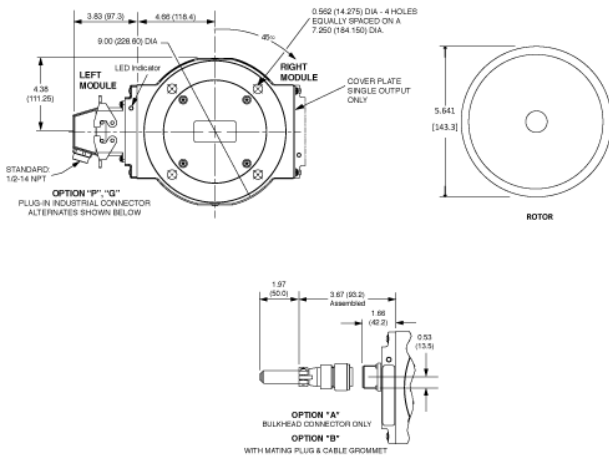
For applications requiring UL Division 1, ATEX/IECEx Zone 1 or 21 use the XRB3 isolator in your control cabinet which permits the use of intrinsically safe wiring instead of explosion proof conduit or glands. The XR850 can also be used in UL Class I, DIV 1 and Zone 0 applications using the XRB3 Isolator.

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	See chart at right	000- none	
	CB- 0.625	MF- 30mm	UN- CD09x	B- inboard, thru out board	F- 60	F- 60	F- 60		003- w/K661 analog converter	
	CA- 0.750	MJ- 42mm	UP- CD44x		G- 100	G- 100	G- 100		004- super magnetic shielding	
	CC- 0.875	MZ- 60mm	UQ- CD444/	F- no inboard, flat outboard	H- 120	H- 120	H- 120		018- w/Isolator XRB3	
	CE- 1.000	MY- 85mm	UR- CD507/509	N- inboard, flat outboard	A- 128	A- 128	A- 128		4xx- Special PPR (see chart)	
	CF- 1.125	M4- 95mm	US- CD43x	T- no inboard, thru out-board	L- 240	L- 240	L- 240		700- large motor stator 8.5" C-face adapter**	
	CH- 1.375	MC- 110mm	UV- CD43x		N- 256	N- 256	N- 256		704- large motor stator adapter & super	
	CJ- 1.625		UX- CD43x		P- 300	P- 300	P- 300		9xx- magnetic shielding** (see chart)	
	CK- 1.750		UY- CD43x		E- 360	E- 360	E- 360		002- Conduit Box + Isolator	
	CL- 1.875		UZ- CD43x		B- 480	B- 480	B- 480		039- Special ATEX Conduit Box	
	CM- 2.000		UV- CD45x		Q- 500	Q- 500	Q- 500			
	CN- 2.125		WV- 75x, 70x**		R- 512	R- 512	R- 512			
	CQ- 2.250		UF- CD46x		S- 600	S- 600	S- 600			
	CP- 2.375		UF- 47x, 65x		V- 900	V- 900	V- 900			
	CR- 2.500		UF- 86x, 80x**		J- 960	J- 960	J- 960			
	CS- 2.750		UZ- CD68x**		Y- 1024	Y- 1024	Y- 1024			
	CT- 2.875		U9- CD68x-62x**		Z- 1200	Z- 1200	Z- 1200			
	CU- 3.000		U9- v67x-69x**		3- 2000	3- 2000	3- 2000			
	CV- 3.125		U9- v67x-69x**		4- 2048	4- 2048	4- 2048			
	CW- 3.250		U9- v67x-69x**		5- 2500	5- 2500	5- 2500			
	CX- 3.375		U9- v67x-69x**		D- 4096	D- 4096	D- 4096			
	CZ- 3.421		U9- v67x-69x**		B- 4800	B- 4800	B- 4800			
	CA- 3.438		U9- v67x-69x**		9- 5000	9- 5000	9- 5000			
	CB- 3.500		U9- v67x-69x**		0- Special	0- Special	0- Special			
	CC- 3.625		U9- v67x-69x**							
	CD- 3.750		U9- v67x-69x**							
	CE- 3.875		U9- v67x-69x**							
	CF- 4.000		U9- v67x-69x**							
CG- 4.250		U9- v67x-69x**								
CH- 4.500		U9- v67x-69x**								
CI- 1.000		U9- v67x-69x**								

Line Driver Code		Level 1		Level 2		Connector Options
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 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	<b>Required Isolator: order separately or with option code 018</b>		

\*= 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



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