

# Avtron XR4F SMARTSafe™ Encoders



## Hazardous Duty Shafted Encoder, 85mm B5 & B10-Flange or Foot Mount

### Heavy Duty Euro-Flange Encoder for Hazardous Applications

- | ATEX Rated: Zones 1 & 2, 21 & 22
- | IECEx Rated: Zones 1 & 2, 21 & 22
- | 10mm, 11mm & 18mm Shaft Sizes
  - | EURO B5 & B10 Flange Mount
  - | Up to 5000 PPR
- | Self-Diagnostic LED & Remote Alarm
- | Magnetic Sensors: No Glass Disks
  - | -40°C to +80°C Operation
  - | 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

## XR4F

XR4F solid shaft encoders are a unique industry first. By combining Avtron durable magnetic encoder technology with SMARTSafe™ systems, Avtron has created a truly durable solid shaft encoder which can be used in hazardous environments and applications. It is ATEX, IECEx & cULus certified. SMARTSafe encoders can be used in gas and ATEX dust hazard environments. Also available: hollow shaft models (XR45, XR685), NEMA style shafted model (XR485), and no-bearing modular encoders (XR56, XR85, XR115, XR125, XR850).

For applications requiring ATEX or IECEx Zone 2 or 22 or UL Class I, Division 2 use the XR4F directly with no barrier, isolator, special connector or cable gland required.

For applications requiring ATEX or IECEx Zone 1 or 21, we offer protection using the XRB3 isolator in your control cabinet to permit intrinsic safety wiring rather than explosion proof conduit or glands. For applications requiring NEC 500 UL Class I, Division 1, or NEC 505 (c)UL Class I, Zone 0, use the XRB3 isolator remotely and intrinsic safety wiring.

Unlike the competition, the Avtron SMARTSafe encoder systems are protected against short circuits, power-to-output wiring, and output-to-ground faults. Wiring errors won't harm this system.

Instead of relying on a tiny optical encoder with weak bearings, install the most rugged encoders available. Vibration, shock, liquids, dust and dirt won't harm SMARTSafe encoders! Mud pumps, paint booths, hazardous duty IEC motors...XR4F can keep them all working 24/7/365.

Select the Avtron XR4F SMARTSafe encoder to eliminate encoder problems in your hazardous duty application!



## OUTLINE DRAWING

## MORE XR4F ADVANTAGES

- Directly replaces Hubner OG9, FOG9, POG9, POG 9G, POG90, POG10 G, POG 11, POG 11G models
- Directly replaces Johannes Hubner FG4, FG40 models
- Bearings up to 4X larger than competitors models
- Foot, B5 or B10 Euro Flange Mount
- Fully Potted Electronics Withstand Liquids & Dusts
- Protected Against Surges and Wiring Problems

## XR4F 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

**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'

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

**Environmental:** 1P54 (see manual for details)

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

**Weight:** 10-12lbs [4.5-5.5kg]

**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

XR4F PART NUMBERS AND AVAILABLE OPTIONS														
<div></div>	<div></div>	<div></div> <div></div>	<div></div> <div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div> <div></div> <div></div>						
Model	Shaft Size	Left Output PPR	Right Output PPR	Line Driver (blank = not available)		Connector Options		Foot Mount Bracket	Channels	Modifications				
				Level 1	Level 2									
XR4F	N- 10mm H- 11mm, Std T- 18mm	XX- None	XX- None	Class 1, Div 1	Zone 1, 21	Class 1, Div 2	Zone 2, 22	X- None (for B10 flange mount) 1- Toshiba TS2113N bolt pattern (recommend ~1" 18mm shaft) (B35529 bracket) 2- POGxx, OGxx Hubner (Baumer) bolt pattern (B35555 bracket) 3- FG4 Johannes Hubner bolt pattern (B35338 bracket)	A- A, A, B, B, Z, Z E- A, B, Z (Single ended)	000- None 004- Super magnetic shielding 4xx- Special PPR (see chart) 018- w/ XRB3 isolator for cabinet mount 9xx- Special cable length xx=length x 0.3m (use w/ Connector Option "W")				
		AF- 60	AF- 60								F	G	H- Terminal Box 1/2" US conduit	
		AG- 100	AG- 100								F	5	7	L- Terminal Box 1/2" US w/cord grip
		AH- 120	AH- 120								F	G	M- Terminal Box 3/4" US conduit	
		AA- 128	AA- 128								F	G	N- Terminal Box 1" US conduit	
		AL- 240	AL- 240								F	G	8- Terminal Box 25mm conduit	
		AN- 256	AN- 256								F	5	7	G- (small) Ind'l w/plug
		AP- 300	AP- 300								F	5	7	T- M12 w/o plug, global pinout
		AE- 360	AE- 360								F	5	7	U- M12 w/o plug, US pinout
		AB- 480	AB- 480								F	5	7	W- 0.45m Cable or spcl
		AQ- 500	AQ- 500								F	5	7	2- M23 w/o plug, L&L pinout
		AR- 512	AR- 512								F	5	7	3- M23 w/o plug, Hubner pinout
		AS- 600	AS- 600											
		AV- 900	AV- 900											
AJ- 960	AJ- 960													
AW- 1000	AW- 1000													
AY- 1024	AY- 1024													
AZ- 1200	AZ- 1200													
CX- 1500	CX- 1500													
A3- 2000	A3- 2000													
A4- 2048	A4- 2048													
A5- 2500	A5- 2500													
AD- 4096	AD- 4096													
A8- 4800	A8- 4800													
A9- 5000	A9- 5000													
A0- Special	A0- Special													
				XRB3	XRB3	None	None	Isolator required: order separately or use modification code 018						

Units with connector options H,M,N or 8 are dual labeled 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)



Features and specifications are subject to change without notice.  
EU-SMART™, SMARTSafe™, SMARTach™, THIN-LINE™, WIDE-GAP™, SAFETach™ and BULLSEYE32™ are trademarks of Nidec Industrial Solution.  
All other trademarks and registered trademarks are the property of their respective owners. Nidec Industrial Solutions' standard warranty applies.  
All dimensions approximate.