

Avtron XR12 SMARTSafe™ Sensor



**Severe Duty Magneto-resistive
Sensor for XR125 Encoders,
Fits Shafts up to 7
7/8" [200mm]**

Large Bore Hazardous Duty Encoder Sensor XR12

- | cULus Class I, Div 1 Listed, Groups A,B,C,D
 - | cULus Class I Zone Group IIC
- | cULus Class I, Div 2 Listed, Groups A,B,C,D
- | ATEX IECEx Rated: Zone 1 & 2, 21 & 22
 - | Fits Shafts up to 7 7/8" [200mm]
 - | Ideal for Oil and Gas Drilling
 - | Fully Potted Electronics
 - | Up to 8192 PPR
- | Wide Sensor-Rotor Gap: No Shimming or Scraping
 - | 3 Year No-Hassle Warranty

XR12 SMARTSafe™ modular incremental quadrature encoder sensors enable the world's first hazardous duty rotary encoders with removable electronics. They are cULus, ATEX and IECEx certified and offer incredibly reliable no-bearing construction! SMARTSafe sensors can be used in ATEX/IECEx gas and dust and UL gas hazardous environments. Also available: hollow shaft models ([XR685](#)), shafted models ([XR485](#)), no-bearing modular encoders ([XR125](#), [XR850](#)), and modular sensors for smaller bore applications ([XR5](#)).

For applications requiring ATEX/IECEx Zone 2 or 22 or cULus Class I, Division 2, Groups A,B,C,D use the XR12 directly in your application, with no barrier, isolator or cable gland required.

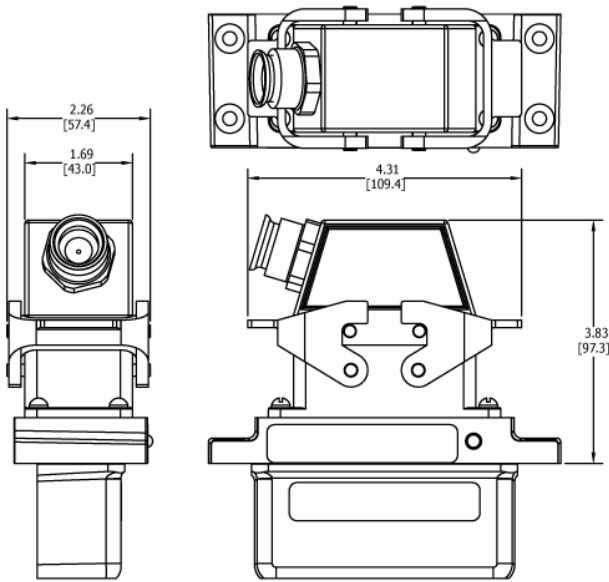
For applications requiring UL Division 1, ATEX/IECEx Zone 1 or 21 protection use the XRB3 isolator in your control cabinet which permits the use of intrinsically safe wiring instead of explosion-proof conduit or glands. The XR56 can also be used in UL Class I Div 1 & Zone 0 applications using the XRB3 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 XR12 directly on your machine and install the rotor on your main application or motor shaft. Vibration, shock, liquids, dust and dirt won't harm SMARTSafe™ XR12 encoders! Paint booths, draw works, coil tubing rigs...XR12 can keep them all working 24/7/365.

Eliminate the biggest cause of industrial encoder failure--eliminate the bearings with XR12 hazardous duty encoder sensors.

OUTLINE DRAWING



MORE XR12 ADVANTAGES

- ▮ Sensor PPR can be factory reprogrammed
- ▮ Full protection against short circuits, reverse voltage, phase-to-phase shorts
- ▮ Shrugs off dirt, oil, and water contamination
- ▮ No glass disks to break or optics to fail
- ▮ Sensor for XR125 encoder
- ▮ Direct machine-mount capability
- ▮ Self-Diagnostic LED and Alarm Output

XR12 SPECIFICATIONS

Operating Power: (add 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, 150 mA

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

Frequency Range: 0 to 165 KHz

PPR: 8-8192

Speed: 6000 RPM Max. (contact factory for higher speeds)

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 Positioning: +/-0.100" [+/-2.54mm] movement/misalignment

Sensor-Rotor Gap: 0.045", +0.015/-0.040" [1.14mm+0.38/-1.0]

Temperature: -40°C to 80°C (Storage -40°C to 100°C)

Environmental: Electronics-IP67 (see manual for details)

Vibration: 5-2000Hz, 18G; 100G Shock

Weight: 2.2 lbs. [1kg]

Certifications:

ATEX/IECEx Zone 1 & Zone 21 Group IIC

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

ATEX/IECEx Zone 2 & 22 Group IIC

cULus Class I, Division 2 Group 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

SELECTION GUIDE

XR12 Sensor Part Numbers				
Model	Line Driver	PPR	Connector Options	Modifications
XR12	See chart at right	X- none V- 900 F- 60 J- 960 G- 100 Y- 1024 H- 120 Z- 1200 A- 128 3- 2000 L- 240 4- 2048 N- 256 5- 2500 P- 300 D- 4096 E- 360 8- 4800 B- 480 9- 5000 Q- 500 0-special R- 512 S- 600	See chart at right	000- none 004- Super Magnetic Shielding 018- w/ Isolator XRB3 for cabinet mount 4xx- Special PPR (see table) 9xx- Special Cable Length (xx=ft/0.3m)

Line Driver Code				Connector Options
Level 1		Level 2		
Class 1 Div 1	Zone 1 & 21 (a)	Class 1 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
F		G		2- Tall Conduit Box, Terminal Block 3/4" NPT
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, 7 or 2 are dual labeled for for both cULus Class / Div and ATEX / IECEx Zones



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