Avtron XR125 SMARTSafeTM Encoders



Hazardous Duty Magnetic Encoder, Heavy Duty 12.5" Modular

Magnetic Durability in a Compact Encoder

Fits NEMA 12.5" Flanges Fits Shafts up to 7 7/8" [200mm] ATEX/IECEx Rated for Zone 1, 2, 21 & 22 Applications Ideal for Oil and Gas Drilling

No Bearings to Wear Out

Fully Potted Electronics

Up to 8192 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

XR125

XR125 SMARTSafe 12.5" modular incremental quadrature rotary encoders are a breakthrough in hazardous duty encoders to fit large shaft applications. They are ATEX/IECEx and cULus approved and offer incredibly reliable no-bearing construction! SMARTSafe encoders can be used in ATEX/IECEx gas and dust and UL gas environments. Also available: hollow shaft models (XR45, XR685), shafted models (XR4F, XR485), no-bearing modular encoders to fit other flange sizes (XR56A, XR85A, XR115, 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 XR125 directly in your application, with no barrier, isolator or cable gland required.

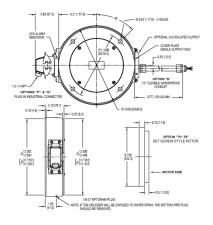
For applications requiring UL Division 1, ATEX/IECEx Zone 1 or 21 use the XRB3 isolator in your control cabinet which permits the use of intrinsically safe wiring instead of explosion proof conduit or glands. The XR125 can also be used in UL Class I Division 1 and Zone 0 applications using the XRB3 Isolator.

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 XR125 directly on your main application shaft. Vibration, shock, liquids, dust and dirt won't harm SMARTSafe XR125 encoders! Paint booths, draw works, coil tubing rigs...XR125 can keep them all working 24/7/365.

Eliminate the biggest cause of industrial encoder failure--eliminate the bearings with XR125 hazardous duty encoders!

OUTLINE DRAWING



MORE XR125 ADVANTAGES

- Easy-swap electronic modules
- Sensors can be directly machine-mounted for OEM flexibility
- No air gap adjustment required
- Shrugs off dirt, oil, and water contamination
- No glass disks to break or optics to fail
- 4,500,000+ hour MTBF design
- Wide Sensor-Rotor Gap: No Shimming or Scraping

MORE XR125 SPECIFICATIONS

Operating Power: (add cable drive current as req'd) Division 1, Zone 1 (XRB3): 12-24VDC In, 10.6V Out, 150mA Division 2, Zone 2: 5-24VDC In/Out, 100mA

Output Format: A Quad B with marker (A,/A, B,/B, Z,/Z) Frequency Range: 0 to 165 kHz

PPR: 8-8192

Speed: 5000 RPM Max. (contact factory for higher speeds) Maximum Cable Length:

Division 1, Zone 1 (Local/Remote): 1000' [300m] / 400' [120m]

Division 2, Zone 2: 500' [150m] @ 5-12V; 200' [60m] @ 24V Rotor Positioning: Up to +/-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, 20G; 100G Shock Weight: 15-18 lbs. [7-8kg]

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



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SELECTION GUIDE

MODEL	ROTOR BORE SIZE	COVER PLATES	LEFT OUTPUT LINE DRIVER	LEFT OUTPUT PPR	RIGHT OUTPUT LINE DRIVER	RIGHT OUTPUT PPR	CONNECTOR	MODIFICATIONS



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XR125	CH - 1.375 in. Thru- Shaft Rotor	F - Flat Outboard Cover	X - No Left Output 7 - Level 2 Protection,	X - No Left Output F - 60 PPR	X - No Right Output H - Level 1 Protection	X - No Right Output F - 60 PPR	A - 10 pin MS style without Mating Plug	000 - None 004 - Super Magnetic
	CJ - 1.625 in. Thru- Shaft Rotor	T - Outboard Seal Plate for Thru-Shaft	(ATEX/IECEx Zone 2 & 22) 5-24v, 5-24V out	G - 100 PPR H - 120 PPR	(ATEX/IECEx Zone 1 & 21), 5-7v in, 5v out	G - 100 PPR H - 120 PPR	(Avtron large encoder pinout)	Shielded Sensors 008 - Modify to "Tall"
	CL - 1.875 in. Thru-	X - No Cover Plates	H - Level 1 Protection	A - 128 PPR	(NOTE Requires XRB3	A - 128 PPR	B - 10 pin MS style with	conduit box (ATEX
	Shaft Rotor CM - 2.000 in. Thru-		(ATEX/IECEx Zone 1 & 21), 5-7v in, 5v out	L - 240 PPR N - 256 PPR	Isolator) 7 - Level 2 Protection,	L - 240 PPR N - 256 PPR	Plug (Avtron large encoder pinout)	only), 3/4" NPT threads (conduit box '4' only)
	Shaft Rotor		(NOTE Requires XRB3	P - 300 PPR	(ATEX/IECEx Zone 2 &	P - 300 PPR	J - 7 pin MS style with	018 - Include XRB3 Remote Level 1
	CN - 2.125 in. Thru- Shaft Rotor		F - Level 1 Protection,	E - 360 PPR B - 480 PPR	22) 5-24v, 5-24V out F - Level 1 Protection,	E - 360 PPR B - 480 PPR	Plug (A, B, Z signals) (Avtron/BEI HS35 style	Isolator for Cabinet
	CQ - 2.250 in. Thru- Shaft Rotor		(UL Class I, Div 1, UL/cUL Class I, Zone 0	Q - 500 PPR R - 512 PPR	(UL Class I, Div 1, UL/cUL Class I, Zone 0	Q - 500 PPR R - 512 PPR	pinout) K - 7 pin MS style with	Mount 405 - 16 (Special) Left
	CP - 2.375 in. Thru-		Listed) 5-7v, 5V out	S - 600 PPR	Listed) 5-7v, 5V out	S - 600 PPR	Plug (A, B, Z signals)	PPR, (Set PPR Codes
	Shaft Rotor CR - 2.500 in. Thru-		(NOTE Requires XRB3 Isolator)	V - 900 PPR J - 960 PPR	Isolator)	V - 900 PPR J - 960 PPR	(Avtron/BEI HS35 style pinout)	= 0) 404 - 16 (Special)
	Shaft Rotor CT - 2.625 in. Thru-		G - Level 2 Protection, (UL Class I, Div 2	Y - 1024 PPR Z - 1200 PPR	G - Level 2 Protection, (UL Class I, Div 2	Y - 1024 PPR Z - 1200 PPR	G - Industrial EPIC Style with LED alarm	Right PPR, (Set PPR Codes = 0)
	Shaft Rotor		Listed) 5-24v, 5-24V	6 - 1800 PPR	Listed) 5-24v, 5-24V	6 - 1800 PPR	P - Industrial EPIC	406 - 6000 (Special)
	C2 - 2.875 in. Thru- Shaft Rotor		R - US CLASS I, DIV 2,	3 - 2000 PPR 4 - 2048 PPR	out R - US CLASS I, DIV 2,	3 - 2000 PPR 4 - 2048 PPR	Style with LED and remote alarm contact	Left PPR, No Right Output (Set PPR
	CV - 3.125 in. Thru- Shaft Rotor		ZONE 2, RECOGNIZED, 5-24v in, 5-24v out	5 - 2500 PPR D - 4096 PPR 8 - 4800 PPR 9 - 5000 PPR 0 - Non-Standard	ZONE 2, RECOGNIZED, 5-24v in, 5-24v out	5 - 2500 PPR D - 4096 PPR 8 - 4800 PPR 9 - 5000 PPR 0 - Non-Standard		Codes = 0) 407 - 2800 (Special) Left PPR, 2800 PPR Right Output (Set PPR Code = 0)
	CW - 3.250 in. Thru-							
	Shaft Rotor CY - 3.375 in. Thru-							
	Shaft Rotor C4 - 3.875 in. Thru-						Leads 2 - "Tall" conduit box,	408 - 1400 (Special) Left PPR, No Right
	Shaft Rotor						3/4" NPT threads	Output (Set PPR
	C1 - 4.000 in. Thru- Shaft Rotor						4 - Std conduit box (ATEX/IECEx/UL/cUL),	Codes = 0) 410 - No Left Output,
	CB - 4.125 in. Thru- Shaft Rotor						1/2" NPT threads,	6000 (Special) Right PPR (Set PPR Codes
	C5 - 4.250 in. Thru-						5 - Std conduit box	= 0)
	Shaft Rotor CC - 4.375 in. Thru-						(ATEX/IECEx/UL/cUL), 3/4" NPT threads,	901 - Special 11/0.3m cable built into sensor
	Shaft Rotor						mating term. blocks	902 - Special 2'/0.6m
	C6 - 4.500 in. Thru- Shaft Rotor						6 - Std conduit box (ATEX/IECEx/UL/cUL),	cable built into sensor 903 - Special 3'/0.9m
	CD - 4.625 in. Thru- Shaft Rotor						1" NPT threads, mating term. blocks	cable built into sensor 905 - Special 5'/1.5m
	CE - 4.690 in. Thru-						7 - Std conduit box	cable built into sensor
	Shaft Rotor CA - 4.875 in. Thru-						(ATEX/IECEx/UL/cUL), 25mm threads, mating	910 - Special 10'/3m cable built into sensor
	Shaft Rotor CG - 5.000 in. Thru-						term. blocks X - No	915 - Special 15'/4.5m cable built into sensor
	Shaft Rotor						Connector/Sensor,	920 - Special 20'/6m
	TZ - 5.001 in. Thru- Shaft Rotor						Housing & Rotor Only	cable built into sensor 925 - Special 25'/7.5m
	CK - 5.250 in. Thru- Shaft Rotor							cable built into sensor
	C7 - 5.375 in. Thru-							930 - Special 30'/9m cable built into sensor
	Shaft Rotor C3 - 6.000 in. Thru-							933 - Special 33'/10m cable built into sensor
	Shaft Rotor							
	CF - 6.250 in. Thru- Shaft Rotor							
	TU - 6.375 in. Thru- Shaft Rotor							
	C8 - 6.750 in. Thru-							
	Shaft Rotor T9 - 7.875 in. Thru-							
	Shaft Rotor DG - 25mm Thru-Shaft							
	Rotor							
	DY - 85mm Thru-Shaft Rotor							
	D1 - 100mm Thru-							
	Shaft Rotor DC - 110mm Thru-							
	Shaft Rotor DE - 120mm Thru-							
	Shaft Rotor							
	DK - 120mm Thru- Shaft Rotor for ISO m6							
	DF - 160mm Thru- Shaft Rotor							
	D8 - 170mm Thru-							
	Shaft Rotor TH - Obsolete, use CH							
	for 1.375 in. Thru-Shaft Rotor, Cam Screw							
	Mount							
	TJ - Obsolete, use CJ for 1.625 in. Thru-Shaft							
	Rotor, Cam Screw							
	Mount TL - Obsolete, use CL							
	for 1.875 in. Thru-Shaft Rotor, Cam Screw							
	Mount							
	TM - Obsolete, use CM for 2.000 in. Thru-Shaft							
	Rotor, Cam Screw Mount							
	TN - Obsolete, use CN							
	for 2.125 in. Thru-Shaft Rotor, Cam Screw							
	Mount TQ - Obsolete, use CQ							
	for 2.250 in. Thru-Shaft							
	Rotor, Cam Screw Mount							
	TP - Obsolete, use CP							
	for 2.375 in. Thru-Shaft Rotor, Cam Screw							
	Mount TR - Obsolete, use CR							
	for 2.500 in. Thru-Shaft							
	Rotor, Cam Screw Mount							
	TT - Obsolete, use CT for 2.625 in. Thru-Shaft							
	Rotor, Cam Screw							
	Mount T2 - Obsolete, use C2							
	for 2.875 in. Thru-Shaft							
	Rotor, Cam Screw							
	Mount			1	1			
	TV - Obsolete, use CV							
	TV - Obsolete, use CV for 3.125 in. Thru-Shaft Rotor, Cam Screw							
	TV - Obsolete, use CV for 3.125 in. Thru-Shaft Rotor, Cam Screw Mount							
	TV - Obsolete, use CV for 3.125 in. Thru-Shaft Rotor, Cam Screw							



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