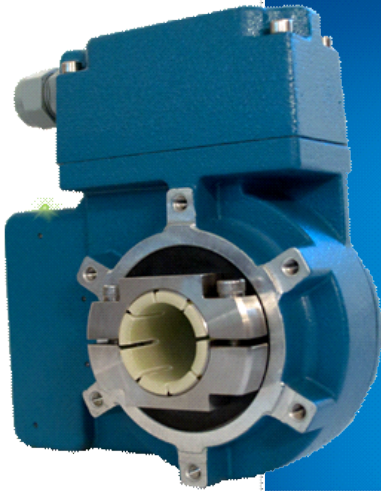# Nidec | Avtron ENCODERS

Avtron XR45 SMARTSafe™ Encoders

Hazardous Duty Hollow Shaft Magnetic Encoder, 5/8"- 1 1/8" [16-30mm]

A Breakthrough in Hollow Shaft Hazardous Duty Encoders

- Fits Shafts 5/8"- 1 1/8" [16mm-30mm]
- IECEx Rated: Zone 1 & 2, 21 & 22
- ATEX Rated for Zone 1, 2, 21 & 22 Applications
- Ideal for Oil & Gas Drilling
- No fragile optics, no glass disks
- Fully Potted Electronics
- Up to 5000 PPR
- Protected Against Wiring Errors
- 1 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

XR45

XR45 hollow shaft encoders are a unique industry first. By combining Avtron durable magnetic encoder technology with SMARTSafe™ systems, Avtron has created a truly durable hollow shaft encoder which can be used in hazardous environments and applications. It is ATEX, IECEx and cULus approved. SMARTSafe encoders can be used in gas and ATEX dust hazardous environments. Also available: ultra-high-shock and vibration model (XR47) shafted models (XR4F, XR485), and no-bearing modular encoders (XR56, XR67, XR85, XR115, XR125, XR850).

For Level 2 applications requiring ATEX/IECEx Zone 2 or 22 or UL Class I, Division 2, Groups A,B,C,D use the XR45 directly in your application, with no barrier, isolator or cable gland required.
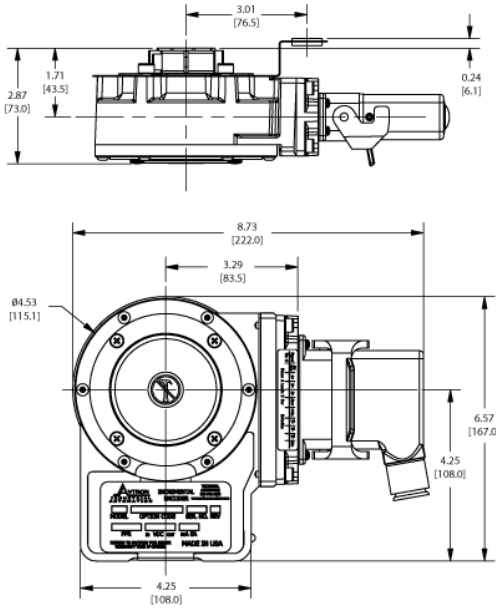
For Level 1 applications requiring ATEX/IECEx Zone 1 or 21 add the XRB1 or XRB2 isolator; XRB2 isolator systems enable use in Class I, Div 1 and Class I, Zone 0 applications. This permits the use of intrinsically safe wiring instead of explosion proof conduit or glands.

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

Instead of relying on a tiny optical encoder with weak bearings install the most rugged encoders available for your drilling or industrial applications. Vibration, shock, liquids, dust and dirt won't harm SMARTSafe encoders! Paint booths, draw works, coil tubing rigs...XR45 can keep them all working 24-7-365.

Select the Avtron XR45 SMARTSafe™ encoder to eliminate encoder problems in your hazardous duty application!

OUTLINE DRAWING

3.01 [76.5]
1.71 [43.5]
2.87 [73.0]
0.24 [6.1]

8.73 [222.0]
3.29 [83.5]
Ø4.53 [115.1]
6.57 [167.0]
4.25 [108.0]
4.25 [108.0]

Check out our website for more detailed specifications, drawings, and installation instructions. www.avtronencoders.com

MORE XR45 ADVANTAGES

l Directly replaces Baumer/Hubner EEx HOG 161 & other HOG models
l Eliminates large & costly flange adapters & flowerpots
l Fits US explosion-proof motors with stub shafts from 5/8" to 1 1/8"
l Fits European ATEX/IECEx rated motors with 16mm straight, 17mm taper shaft center-bolt systems & 16-30mm stub shafts
l Self-Diagnostic LED and Alarm Output

XR45 SPECIFICATIONS

Operating Power: (add load and cable drive current as req'd)
Level 1 (XRB1): 12-24VDC In, 10.6V Out, 150 mA
Level 1 (XRB2): 12-24VDC In/Out, 150 mA
Level 2 Protection: 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:
Level 1: Encoder 500' Isolator 1000'
Level 2 (5 to 12 VDC in) 500'
Level 2 (15 to 24 VDC in) 250'
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: 10-12lbs [4.5-5.5kg]
Certifications:
Level 1: ATEX/IECEx Zone 1 & 21 Group IIC
Level 1: cULus Class I Div I and Zone 0 Group A,B,C,D*
Level 2: ATEX/IECEx Zone 2 & 22 Group IIC
Level 2: cULus Class I Div. 2 Groups A,B,C,D
*See installation drawings for Warnings and Limitations.

SELECTION GUIDE

XR45 PART NUMBERS AND AVAILABLE OPTIONS

Model	Bore Size	Left Output PPR	Right Output PPR	Line Driver (blank=not available)				Connector Options	Tether	Channels	Modifications
				Level 1		Level 2					
				Class I, Div 1	Zone 1, 21	Class I, Div 2	Zone 2, 22				
XR45	**Clamping Collar Mount U.S.** C- 5/8" D- 3/4" E- 7/8" F- 1" G- 1 1/8" U- All US Sizes **Clamping Collar Mount Metric** S- 16mm T- 18mm V- 19mm W- 20mm Y- 25mm 3- 30mm Z- All Metric Sizes **End of Shaft: Center Bolt Mount** L- 16mm (no taper) M- 17mm (10:1 taper)	XX- None AF- 60 AG- 100 AH- 120 AA- 128 AL- 240 AN- 256 AP- 300 AE- 360 AB- 480 AQ- 500 AR- 512 AS- 600 AV- 900 AJ- 960 AW-1000 AY- 1024 AZ- 1200 CX- 1500 A3- 2000 A4- 2048 A5- 2500 AD- 4096 A8- 4800 A9- 5000 A0- Special	XX- None AF- 60 AG- 100 AH- 120 AA- 128 AL- 240 AN- 256 AP- 300 AE- 360 AB- 480 AQ- 500 AR- 512 AS- 600 AV- 900 AJ- 960 AW-1000 AY- 1024 AZ- 1200 CX- 1500 A3- 2000 A4- 2048 A5- 2500 AD- 4096 A8- 4800 A9- 5000 A0- Special	F			G	H- Terminal Box 1/2" US conduit	**X- None** **Flat Styles:** D- Fan Cover (T-bolt) E- 4.5" NEMA C-face F- 8.5" NEMA FC-face **Threaded Rod Styles:** G- 70-500mm w/bracket P- 70mm fixed w/screw T- Fan Cover 70-500mm w/T-bolt **Combinations:** H- Fan Cover & 8.5" C-face M- Fan Cover & 4.5" C-Face U- Universal (includes all styles)	**8, 10, 12 pin conn's** A- A,Ā, B,B̄, Z,Z̄ **6, 7 pin conn's** B- A,B,Ā,B̄ (no marker) E- A,B,Z (single ended) F- A,B (single ended, no marker) D- A,A (Diff Phase)	000- None 004- Super Magnetic Shielding 018- w/ Isolator XRB1 or XRB2 for cabinet mount 4xx- Special PPR (see chart) 9xx- Specify cable length xx=feet max 33ft (use w/ Option "Q","W", "Z")
				F	5		7	L- Terminal Box 1/2" US w/cord grip			
				F			G	M- Terminal Box 3/4" US conduit			
				F			G	N- Terminal Box 1" US conduit			
				F			G	8- Terminal Box 25mm conduit			
				F	5		7	A- 10 pin MS, Avtron/BEI HS35 Pinout, w/o plug C- 10 pin MS, Avtron/BEI HS35 Pinout, w/plug			
				F	5		7	E- 6 pin MS, BEI Pinout, w/o plug			
				F	5		7	J- 7 pin MS, BEI Pinout, w/o plug			
				F	5		7	R- Mini MS Twist Lock w/plug			
				F	5		7	T- M12/8 pin w/o plug, global pinout U- M12/8 pin w/o plug, US pinout			
				F	5		7	2- M23/12 pin w/o plug, L&L pinout 3- M23/12 pin w/o plug, Hubner pinout			
				F	5		7	G- Small Ind'l w/mate			
				F	5		7	W- 0.45m Cable or spcl			
				XRB2	XRB2	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 | Avtron ENCODERS

Nidec-Avtron Makes the Most Reliable Encoders in the World

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CE

All dimensions are in inches [millimeters].
Specifications and features are subject to change without notice.
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