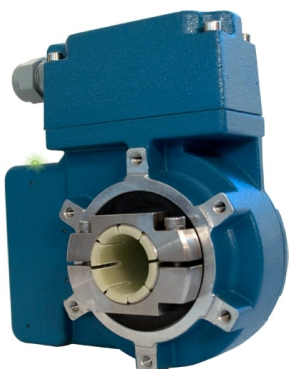


# Avtron XR45 SMARTSafe™ Encoders



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

### Magnetic Durability in a Compact Encoder

- Ideal for Oil & Gas Drilling

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- Protected Against Wiring Errors

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- 3 Year No-Hassle Warranty

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- ATEX Rated for Zone 1, 2, 21 & 22 Applications

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- Fully Potted Electronics

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- No fragile optics, no glass disks

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- Fits Shafts 5/8" - 1 1/8" [16mm-30mm]

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- Up to 5000 PPR

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- IECEX Rated: Zone 1 & 2, 21 & 22

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- cULus Class I Division 1 Groups A,B,C,D Listed

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- cULus Class I Zone 0 Group IIC

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- 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: shafted models (XR4F, XR485), and no-bearing modular encoders (XR56A, XR85A, XR115, XR125, XR850).

For 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.

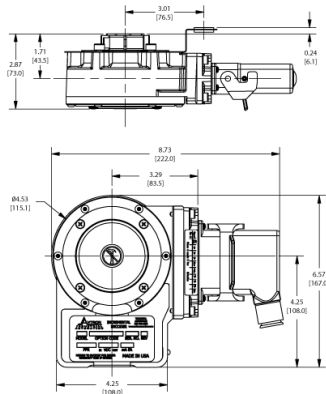
For applications requiring UL Division 1, ATEX/IECEX Zone 1 or 21 add the XRB3 isolator; XRB3 isolator systems enable use in Class I, Div 1 and Class I, Zone 0 applications. This permits the use of intrinsically safe wiring instead of explosion proof conduit or glands.

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



## MORE XR45 ADVANTAGES

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

## MORE XR45 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:** IP54 (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 I 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

MODEL	HOLLOW SHAFT BORE SIZE	LEFT OUTPUT PPR	RIGHT OUTPUT PPR	LINE DRIVER	CONNECTOR OPTIONS	ANTI-ROTATIONAL TETHER	OUTPUT CHANNELS	MODIFICATIONS
XR45	C - 5/8 inch bore via insert: universal end of shaft and thru shaft fit D - 3/4 inch bore via insert: universal end of shaft and thru shaft fit E - 7/8 inch bore via insert: universal end of shaft and thru shaft fit F - 1 inch bore via insert: universal end of shaft and thru shaft fit G - 1-1/8 inch bore via insert: universal end of shaft and thru shaft fit K - 1 3/8 in bore, requires insulated bearing option, universal end or thru shaft mountable L - 16mm center-bolt style mount: european-style end of shaft fit M - 17mm tapered center-bolt style: european-style end of shaft fit S - 16mm bore via insert: universal end of shaft and thru shaft fit V - 19mm bore via insert: universal end of shaft and thru shaft fit W - 20mm bore via insert: universal end of shaft and thru shaft fit Y - 25mm bore via insert: universal end of shaft and thru shaft fit U - 1/2" thru 1 1/8" bore insert sizes included (Universal USA): universal end of shaft and thru shaft fit Z - 16mm thru 30mm bore insert sizes included (Universal Metric): universal end of shaft and thru shaft fit 3 - 30mm bore: universal end of shaft and thru shaft fit	XX - No Left Output AF - 60 PPR AK - 80 PPR AG - 100 PPR AH - 120 PPR AA - 128 PPR AM - 200 PPR AL - 240 PPR AN - 256 PPR AP - 300 PPR AE - 360 PPR AC - 400 PPR AB - 480 PPR AQ - 500 PPR AR - 512 PPR AS - 600 PPR AV - 900 PPR AJ - 960 PPR AW - 1000 PPR AY - 1024 PPR AZ - 1200 PPR CX - 1500 PPR A3 - 2000 PPR A4 - 2048 PPR A5 - 2500 PPR AT - 3072 PPR A7 - 3600 PPR A8 - 4800 PPR A9 - 5000 PPR	XX - No Right Output BC - 50 PPR AF - 60 PPR AK - 80 PPR AG - 100 PPR AH - 120 PPR AA - 128 PPR AM - 200 PPR AL - 240 PPR AN - 256 PPR AP - 300 PPR AE - 360 PPR AC - 400 PPR AB - 480 PPR AQ - 500 PPR AR - 512 PPR AS - 600 PPR AV - 900 PPR AJ - 960 PPR AW - 1000 PPR AY - 1024 PPR AZ - 1200 PPR A3 - 2000 PPR A4 - 2048 PPR A5 - 2500 PPR AT - 3072 PPR A7 - 3600 PPR A8 - 4096 PPR A9 - 5000 PPR	H - Level 1 Protection (ATEX/IECEx Zone 1 & 21), 5-7v in, 5v out (NOTE Requires XRB3 Isolator) F - Level 1 Protection, (UL Class I, Div 1, UL/cUL Class I, Zone 0 Listed) 5-7v, 5V out (NOTE Requires XRB3 Isolator) 7 - Level 2 Protection, (ATEX/IECEx Zone 2 & 22) 5-24v, 5-24V out G - Level 2 Protection, (UL Class I, Div 2 Listed) 5-24v, 5-24V out R - US CLASS I, DIV 2, ZONE 2, RECOGNIZED, 5-24v in, 5-24v out	A - 10 pin MS style w/o Plug, Avtron/BEI Pinout, LED Diagnostics B - 10 pin MS style w/o Plug, (Dynapar Phasing) C - 10 pin MS style w/ Plug, Avtron/BEI Pinout, LED Diagnostics D - 10 pin MS style w/ Plug, (Dynapar Phasing) E - 6 pin MS style w/o Plug, BEI/Avtron HS35 pinout, LED Diagnostics F - 6 pin MS style w/o Plug (Dynapar Phasing) G - 10 pin Industrial (Small-EPIC Style) w/ Plug, NorthStar Pinout H - Terminal box w/ USA 1/2" conduit entry (UL/ATEX/IECEx) J - 7 pin MS style w/o Plug, Avtron/BEI HS35 Pinout, LED Diagnostics K - 7 pin MS style w/o Plug, (Dynapar Phasing), LED Diagnostics L - Terminal box w/ USA 1/2" + cord grip, (Adds cUL/UL/ATEX/IECEx certification to all models/versions) M - Terminal box w/ USA 3/4" conduit entry (Adds cUL/UL/ATEX/IECEx certification to all models/versions) N - Terminal box w/ USA 1" conduit entry (Adds cUL/UL/ATEX/IECEx certification to all models/versions) 8 - Terminal box w/ 25mm conduit entry (Adds cUL/UL/ATEX/IECEx certification to all models/versions) P - 10 pin Industrial (Small EPIC Style) w/ Plug, LED & Remote Alarm Diagnostics R - Baldor Mini MS style Twist-Lock w/plug, LED & Remote Alarm Diagnostics T - M12 w/o plug, Global Pinout, LED Diagnostics U - M12 w/o plug, USA Pinout, LED Diagnostics W - Cable (18 inch or special length), LED Diagnostics and remote alarm contact 2 - M23 w/o plug, Leine and Linde & Hubner pinout, LED Diagnostics 3 - M23 w/o plug, Inverted Hubner Signals, LED Diagnostics	X - No tether A - Fan Cover - 1/4" Mounting D - T-bolt Fan Cover Tether (NEMA style) E - 4.5" NEMA C-Face Tether F - 8.5" NEMA C-Face Tether G - Threaded rod arm kit, adjustable 70-500mm (4.25"-12") H - Fan cover T-bolt and 8.5" NEMA C-face tethers M - Fan cover T-bolt and 4.5"/6.75" NEMA C-face tethers P - Threaded rod arm kit, fixed 70mm length T - Threaded rod arm kit, adjustable 70-500mm w/ T-bolt for fan cover U - Universal Tether/Arm Kit (includes all)	A - Standard, All Channels A,A',B,B',Z,Z' B - 2 Channels A,A',B,B' D - Single Channel A,A' (N/A w/ Reverse Phasing) E - 2 Channels A,B,Z F - 2 Channels A,B	000 - No Special Options 001 - Ceramic Bearings 004 - Super Magnetic Shielding 018 - Include XRB3 Remote Level 1 Isolator for Cabinet Mount 901 - 0.3m/1' Special Cable Length, No Connector 902 - 0.6m/2' Special Cable Length, No Connector 903 - 0.9m/3' Special Cable Length, No Connector 905 - 1.5m/5' Special Cable Length, No Connector 910 - 3m/10' Special Cable Length, No Connector 915 - 4.5m/15' Special Cable Length, No Connector 920 - 6m/20' Special Cable Length, No Connector 925 - 7.5m/25' Special Cable Length, No Connector 930 - 9m/30' Special Cable Length, No Connector 933 - 10m/33' Special Cable Length, No Connector



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