

# Avtron XR115 SMARTSafe™ Encoders



## Hazardous Duty Magnetic Encoder, Heavy Duty 115mm Modular

### Revolutionary No Bearing Design

- Fits IEC 115mm Motor Flanges
- 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 5000 PPR
- Wide Sensor-Rotor Gap: No Shimming or Scraping
  - Protected Against Wiring Errors
- 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

### XR115

XR115 SMARTSafe 115mm modular incremental quadrature rotary encoders are a breakthrough in hazardous duty encoders. They are ATEX and UL approved and offer incredibly reliable no-bearing construction! SMARTSafe encoders can be used in gas and ATEX dust hazardous environments. Also available: hollow shaft models (XR45, XR47, XR685), shafted models (XR4F, XR485), and no-bearing modular encoders to fit other flange sizes (XR56, XR67, XR85, XR125, XR850).

For Level 2 applications requiring ATEX/IECEx Zone 2 or 22 or UL Class I, Division 2 (Gas) Groups A,B,C,D use the XR115 directly in your application, with no barrier, isolator or cable gland required.

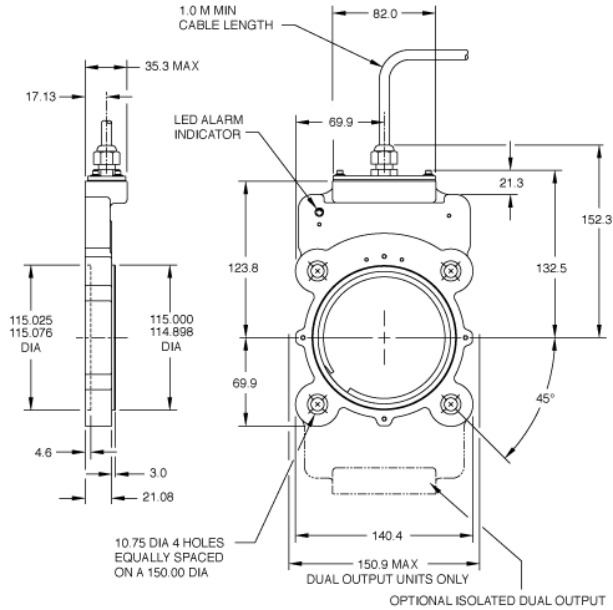
For Level 1 applications requiring ATEX/IECEx Zone 1 or 21 protection use the XRB1 or XRB2 isolator in your control cabinet which permits the use of intrinsically safe wiring instead of explosion-proof conduit or glands. The XR115 can also be used in UL Class I Div 1 & Zone 0 applications using the XRB2 Isolator.

Unlike the competition, 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...XR115 can keep them all working 24-7-365.

Eliminate the biggest cause of Industrial Encoder failures. Eliminate the bearings with XR115 Hazardous Duty Encoders

# OUTLINE DRAWING



# MORE XR115 ADVANTAGES

- Replaces Hubner POG and OG and other shafted flange-mount encoders
- Eliminates large & costly flange adapters & flowerpots
- Fits shafts 10 - 85 mm
- Thin profile reduces overall motor depth
- 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

# XR115 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:** 2-3lbs [9.1-1.4kg]

**Certifications:**

Level 1: ATEX/IECEx Zone 1 & 21 Group IIC

Level 1: cULus Class I Div 1 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.

Check out our website for more detailed specifications, drawings, and installation instructions. [www.avtronencoders.com](http://www.avtronencoders.com)

# SELECTION GUIDE

Model	Housing Type	Shaft Size (Thru Shaft Rotor)	Cover Style	Line Driver	Single/Left Output (PPR)	Right Output (PPR)	Connector	Modifications
XR115	1- Single Output 2- Dual Output	D0- Non-Std. Shaft Size XX- None <b>Thru Shaft Rotor (Metric)</b> D2- 10mm DK- 38mm D4- 11mm DL- 42mm D3- 12mm DM- 45mm D8- 14mm DN- 48mm D5- 15mm DP- 52mm D6- 16mm DR- 55mm D4- 18mm DS- 60mm D7- 19mm DU- 65mm* D9- 24mm DV- 70mm* D5- 25mm DW- 75mm* D8- 26mm DX- 80mm* D9- 30mm DZ- 85mm* DT- 32mm DJ- 36mm * Set Screw Rotor only	E- Extended Shaft Cover F- Flat Thru-Hole Cover with Shaft Seal (Seal not available on shafts larger than 75mm)	See chart at right	F- 60 Y- 1024 G- 100 Z- 1200 H- 120 3- 2000 A- 128 4- 2048 L- 240 5- 2500 N- 256 D- 4096 P- 300 8- 4800 E- 360 9- 5000 B- 480 0- Non-std. Q- 500 R- 512 S- 600 V- 900 J- 960	X- None J- 960 F- 60 Y- 1024 G- 100 Z- 1200 H- 120 3- 2000 A- 128 4- 2048 L- 240 5- 2500 N- 256 D- 4096 P- 300 8- 4800 E- 360 9- 5000 B- 480 0- Non-std. Q- 500 R- 512 S- 600 V- 900	See chart at right	000- No Modification 005- Super Magnetic Shielding 018- w/ Isolator XRB1 or XRB2 for cabinet mount 4xx- Special PPR Code, consult factory 9xx- Special Cable Length, xxx=length * 0.3m

Line Driver Code				Connector Options
Level 1	Level 2			
Class I Div 1	Zone 1 & 21 (II)	Class I Div 2		Zone 2 & 22
F	H	n/a	7	C- 10 pin MS (Avtron)
F	H	n/a	7	D- 10 pin MS (Dynapar)
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	H- Conduit Box, Terminal Block 1/2" NPT
F			G	M- Conduit Box, Terminal Block 3/4" NPT
F			G	N- Conduit Box, Terminal Block 1" NPT
F			G	B- Conduit Box, Terminal Block 25mm PT
XRB2	XRB2	None	None	Required Isolator: order separately or with option code 018

\*= E, F, J, K, S, T, U, V  
Units with connector options H, M, N or 8 are dual labeled for for both cULus Class / Div and ATEX / IECEx Zones



All dimensions are in inches [millimeters]. Specifications and features are subject to change without notice. EU-SMART™, SMARTSafe™, SMARTach II™, THIN-LINE™, THIN-LINE II™, WIDE-GAP™, and BULLSEYE32™ are trademarks of Nidec Avtron Automation. All other trademarks and registered trademarks are the property of their respective owners.

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