

SERIES EN44

NorthStar™ brand

Zone 1 Hazardous Area Rated Encoder

Key Features

- Triple Certified Encoder for Hazardous Locations
- Hubshaft Design with Isolated Coupling to Compensate for Shaft Endplay
- Encapsulated Electronics with Increased Safety Interface for Zone 1 Use Eliminates Need for I.S. Barrier
- Industry Leading -50 to +100°C Temperature Range
- High Current Line Driver for Long Cable Runs
- 50g Shock and 20G Vibration Tolerant
- 2 Year Warranty

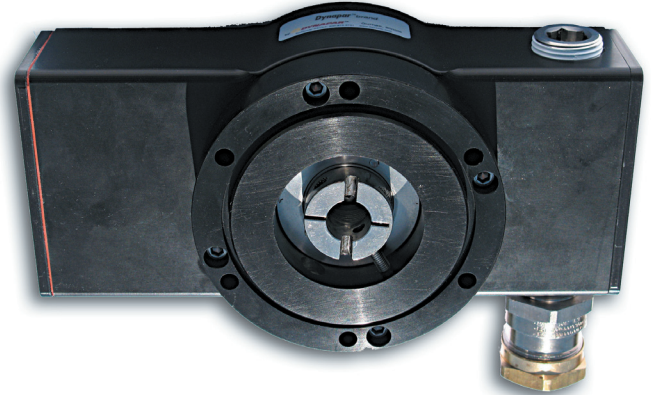


II 2 G D
Ex ia mb eb IIC T4 Gb
EX tb IIIC T119°C Db
Sira 09ATEX5172X



C US
Ex eb ia mb IIC T4 Gb
Certification No.
CSA 2676947

HAZ
Hazardous Duty



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental
Resolution: to 2048 PPR (pulses/revolution) See Ordering Information
Format: Two channel quadrature (AB) with optional Index (Z, ungated), and complementary outputs
Index: 180 degrees \pm 18 degrees (electrical), ungated
Phase Sense: A leads B for CCW shaft rotation viewing the shaft clamp end of the encoder
Quadrature Phasing: 1200 PPR: 90° \pm 15° electrical; 2048 PPR: 90° \pm 30° electrical
Symmetry: 180° \pm 25° electrical
Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pF

ELECTRICAL

Input Voltage: 7-15VDC, 7-26VDC, 10-30VDC (see ordering information)
Input Current: 65mA max., not including output loads
Outputs: 4428 (7-15VDC), 7272 (7-26VDC) and High Powered Mosfet Line Drivers (10-30VDC)
Output Current: (Refer to Ordering Information Table, Code 4: Output Format)
Code 4, Option 0 or 2: 125mA max. per channel
Code 4, Option 1 or 3: 10mA max. per channel @ 100°C; 15mA max. per channel @ 90°C
Code 4, Option 4: 90mA max per channel @ 60°C; 60mA max per channel at 95°C

ELECTRICAL (cont.)

Frequency Response: 125 kHz (data & index)
Termination: Terminal block - Ex screwless w/spring cage-clamp
Interface: HAWKE type "E" increased safety rated gland for armored and non-armored cables.
HAWKE Part Numbers:
Non-Armored Gland: HAWKE 501/421 A 3/4" NPT S (accepts 8.5 - 13mm cable, OD)
Armored Gland: HAWKE 501/453 UNIV A 3/4" NPT (accepts 12.5 - 20.5mm cable, OD)

MECHANICAL

Mechanical Interface: Electrically isolated stainless steel shaft flex coupling
Mounting: 100mm IEC Flange
Mating Shaft Length: 0.47" to 0.83" (11.9mm to 28.1mm)
Coupling: 16mm, flexible
Shaft Speed: 6000 RPM, max.
Bearings: 6107
Bearing life: 5 x 10⁸ revs at rated shaft Loading, 5 x 10¹¹ revs at 10% of rated shaft loading. (manufacturers' specs)
Housing Material: Aluminum Alloy, Black Anodized
Disc material: Mylar®
Weight: 6 lb. 6 oz, typical

ENVIRONMENTAL

Operating Temperature: Refer to Temperature Range Table (below)
Storage temperature: -50 to 100°C. Armored Gland high-temperature specification limited to +80°C.
Shock: 50G's for 11msec duration
Vibration: 5 to 2000Hz @ 20 G's
Humidity: 100%
Enclosure Rating: IP67
CERTIFICATIONS
 IECEx SIR 15.0051X
 Sira 09ATEX5172X
 Ex ia mb eb IIC T4 Gb
 Ex tb IIIC T119°C Db
 CSA 2676947
 Ex eb ia mb IIC T4 Gb
 Ex tb IIIC T119°C Db IP64
 Ex mb IIC T4 Gb and Class III, Div 1; Class II, Div 1, Groups E, F and G
 Class I, Zone 1, AEx e ia mb IIC T4 Gb
 Zone 21, AEx tb IIIC T119°C Db IP64

Ordering Information

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: PPR	Code 3: Bore Size	Code 4: Output Format	Code 5: Termination
EN44	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ordering Information				
EN44 Triple Certified ATEX Zone 1 Hollowshaft Encoder	1024 2048	A 16mm	0 Differential AB, 7-15V in, 7-15V out* 1 Differential AB, 7-26V in, 5V out* 2 Differential ABZ, 7-15V in, 7-15V out* 3 Differential ABZ, 7-26V in, 5V out* 4 Differential ABZ, 10-30V in, 10-30V out*	0 No Gland 1 Ex Gland for non-armored cables (8.5 - 13.5mm OD) 2 Ex Gland for armored cables (12.5 - 20.5mm OD) See †Note
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> * See Electrical Specifications for Details </div>				

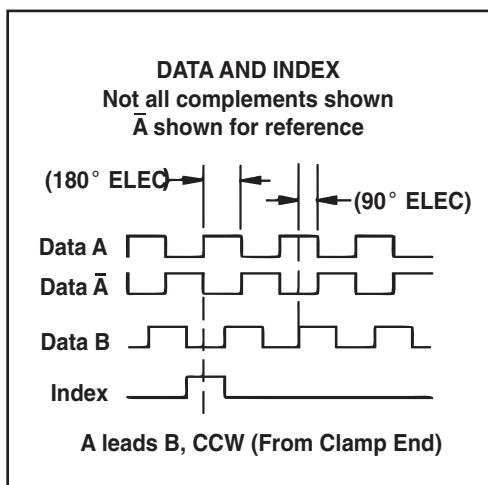
† **Note:** Armored Gland high-temperature specification limited to +80°C.

TEMPERATURE RANGE

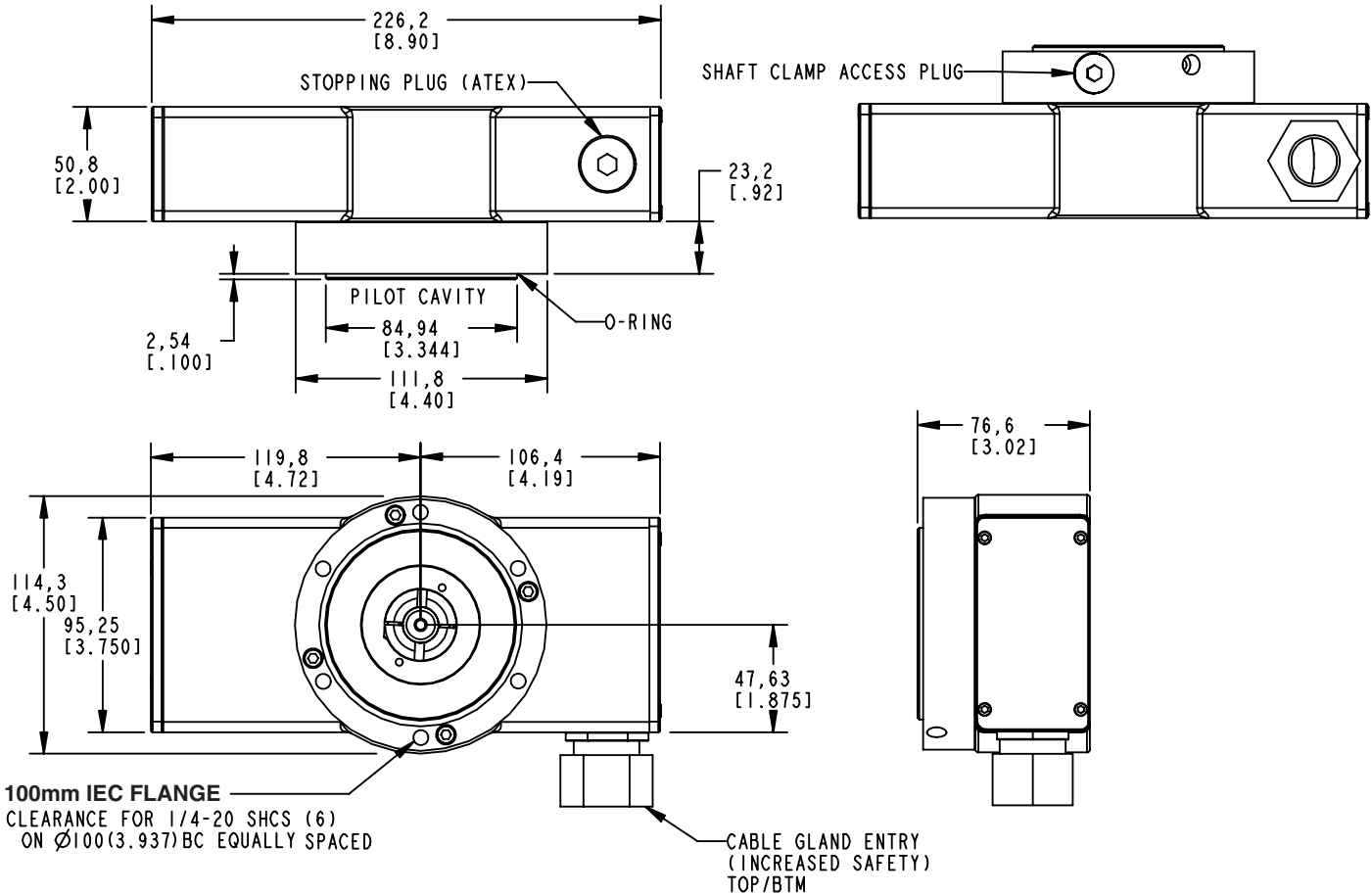
Code 4 Option	Output Current	Group II Ambient Temperature Range	Group III Ambient Temperature Range
0 or 2	125mA max per channel	Ta = -50°C to +100°C	Ta = -25°C to +100°C
1 or 3	10mA max per channel	Ta = -50°C to +100°C	Ta = -25°C to +100°C
1 or 3	15mA max per channel	Ta = -50°C to +90°C	Ta = -25°C to +90°C
4	90mA max per channel	Ta = -50°C to +60°C	Ta = -25°C to +60°C
4	60mA max per channel	Ta = -50°C to +95°C	Ta = -25°C to +95°C

ELECTRICAL CONNECTIONS

Encoder Function	Terminal Box Connection
Sig. A	1
Sig. \bar{A}	2
Sig. B	3
Sig. \bar{B}	4
Sig. Z	5
Sig. \bar{Z}	6
Power +V	7
Com	8



DIMENSIONS mm [inch]



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