

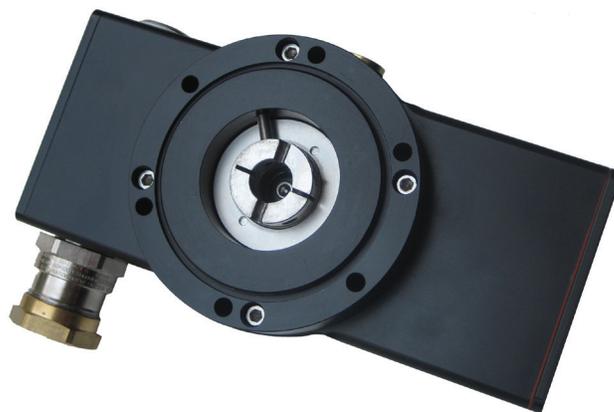
# SERIES EN44

# NorthStar™ brand

## Zone 1 Hazardous Area Rated Encoder

### Key Features

- Triple Certified Encoder for Hazardous Locations
- Hub-shaft 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 e IIC T4 Gb  
EX tb IIIC T119°C Db  
Sira 09ATEX5172X



Ex e ia mb IIC T4 Gb  
Certification No.  
CSA 14.2676947X



## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

**Code:** Incremental, Optical

**Resolution:** 1024 to 2048 PPR (pulses/revolution)

See Ordering Information

**Format:** Two channel quadrature (AB) with optional Index (Z, ungated), and complementary outputs

**Index:** 180 degrees ±18 degrees (electrical), ungated

**Phase Sense:** A leads B for CCW shaft rotation viewing the shaft clamp end of the encoder

**Quadrature Phasing:**

For resolutions 200 to 300 PPR and 1200 PPR and above: 90° ±30° electrical; all other resolutions: 90° ±15°

**Symmetry:**

For resolutions 200-300 PPR and above: 180° ±25° electrical; all other resolutions: 180° ±18°

**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

**Coupling:** 16mm, flexible

**Mounting:** 100mm IEC Flange

**Mating Shaft Length:** 0.47" to 0.83" (11.9mm to 28.1mm)

**Shaft Speed:** 6000 RPM, max.

**Bearings:** 6107

**Housing Material:** Aluminum Alloy, Black Anodized

**Shaft Material:** Stainless Steel

**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 e IIC T4 Gb

Ex tb IIIC T119°C Db

CSA 14.2676947X

Ex e ia mb IIC T4 Gb

Ex tb IIIC T119°C Db IP64

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

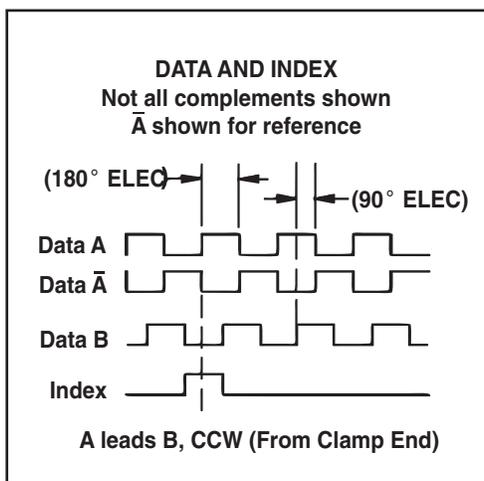
† Note: Armored Gland high-temperature specification limited to +80°C.

### 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 = -50°C to +100°C
1 or 3	10mA max per channel	Ta = -50°C to +100°C	Ta = -50°C to +100°C
1 or 3	15mA max per channel	Ta = -50°C to +90°C	Ta = -50°C to +90°C
4	90mA max per channel	Ta = -50°C to +60°C	Ta = -50°C to +60°C
4	60mA max per channel	Ta = -50°C to +95°C	Ta = -50°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]

