

SERIES EN42

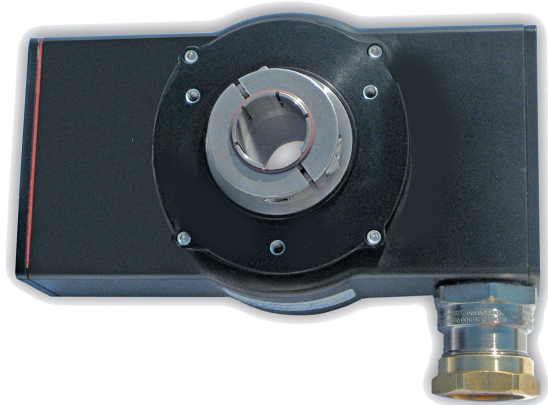
NorthStar™ brand

Zone 1 Hazardous Area Rated Encoder

Key Features

- Triple Certified Encoder for Hazardous Locations
- 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

HAZ
Hazardous Duty



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

SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental
Resolution: to 5000 PPR (pulses/revolution) See Ordering Information
Format: Two channel quadrature (AB) with optional Index (Z, ungated), and complementary outputs
Index: 180 degrees \pm 25 degrees (electrical), ungated
Phase Sense: A leads B for CCW shaft rotation viewing the shaft clamp end of the encoder
Quadrature Phasing: For resolutions to 1200 PPR: 90° \pm 15° electrical; For resolutions over 1250 PPR: 90° \pm 30° electrical
Symmetry: 180° \pm 18° 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 @ 60C; 60mA max per channel at 95°C
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

Shaft Material: Stainless steel or anodized aluminum (See ordering information)
Bore Diameter: 1.00", 0.875, 0.750", 0.625", 16mm, 15mm. Insulated inserts provided for bores under 1 inch
Mating Shaft length: 2.00", Minimum; 2.50", Recommended
Shaft Speed: 3600RPM Maximum continuous; 6000RPM Peak
Starting torque: 8.0 in-oz. maximum (at 25°C)
Running Torque: 5.0 in-oz. maximum (at ambient)
Bearings: 61806-ZZ
Bearing Life: 5 x 10⁸ revs at rated shaft Loading, 5 x 10¹¹ revs at 10% of rated shaft loading. (manufacturers' specs)
Housing and Cover: Hard Anodized Aluminum.
Disc Material: Metal or Plastic
Accessory Fastners, Provided With:
 Tether Bracket: (3) #10-32 x 3/8" SHCS Socket Head Cap Screws
 Threaded Rod: (2) 5/16-24 x .70" Mounting Bolts
 Rear Cover: (4) #6-32 x 3/8" SHCS Socket Head Cap Screws
 Terminal Box: (4) #6-32 x 3/8" SHCS Socket Head Cap Screws
Weight: 6.5 lb, 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 eb 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	Code 6: Tether	Code 7: Cover	
EN42	□□□□	□	□	□	□	□	
Ordering Information							
EN42 Triple Certified ATEX Zone 1 Hollowshaft Encoder	0015	1000	Stainless Steel Hub 8 5/8" 9 15 mm A 16mm D 3/4" F 7/8" H 1" Non-Isolated Anodized Aluminum Hub R 1" Isolated	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* * See Electrical Specifications for Details	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	0 Slotted Tether 1 Heavy Duty Swivel Rod Tether	0 Covers, Standard Flat and Extended
	0032	1024					
	0100	1200					
	0200	2000					
	0240	2048					
	0250	2500					
	0500	4000					
	0512	5000					
	0600						

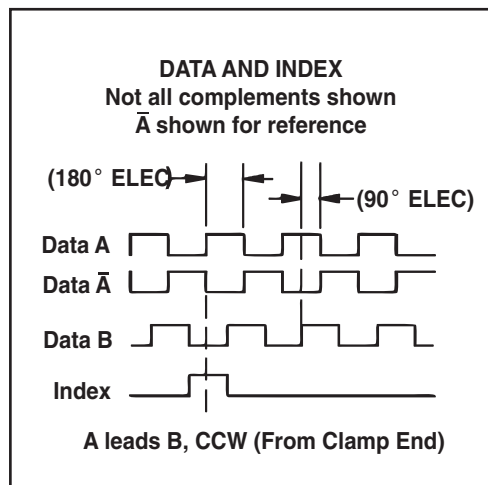
† Note: Armored Gland high-temperature specification limited to +80°C.

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



SERIES EN42

DIMENSIONS (Inch [metric])

