

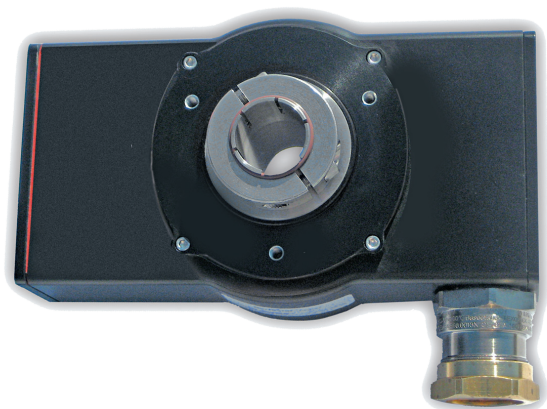
SERIES EN42

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



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



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental, Optical

Resolution: 15 to 5000 PPR (pulses/revolution) See Ordering Information

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

Index: 180 degrees ± 25 degrees (electrical), ungated, A leads B, CCW (from clamp end)
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° $\pm 30^\circ$ electrical; all other resolutions: 90° $\pm 15^\circ$

Symmetry:
For resolutions 200-300 PPR and above 1024 PPR: 180° $\pm 25^\circ$ electrical; all other resolutions: 180° $\pm 18^\circ$

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

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

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

Housing and Cover: Hard Anodized Aluminum

Shaft Material: Stainless steel or anodized aluminum (See ordering information)

Disc Material: Metal or Plastic

Accessory Fasteners, 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 (see page 2)

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	Code 6: Tether	Code 7: Cover
EN42	□□□□	□	□	□	□	□
Ordering Information						
EN42 Triple Certified ATEX Zone 1 Hollowshaft Encoder	0015	1000	<div>Stainless Steel Hub</div> <div>0 Differential AB, 7-15V in, 7-15V out*</div> <div>1 Differential AB, 7-26V in, 5V out*</div> <div>2 Differential ABZ, 7-15V in, 7-15V out*</div> <div>3 Differential ABZ, 7-26V in, 5V out*</div> <div>4 Differential ABZ, 10-30V in, 10-30V out*</div> <div>* See Electrical Specifications for Details</div>	<div>0 No Gland</div> <div>1 Ex Gland for non-armored cables (8.5 - 13.5mm OD)</div> <div>2 Ex Gland for armored cables (12.5 - 20.5mm OD)</div> <div>See †Note</div>	<div>0 Slotted Tether</div> <div>1 Heavy Duty Swivel Rod Tether</div>	<div>0 Covers, Standard Flat and Extended</div>
	0032	1024				
	0100	1200				
	0200	2000				
	0240	2048				
	0250	2500				
	0500	4000				
	0512	5000				
	0600					

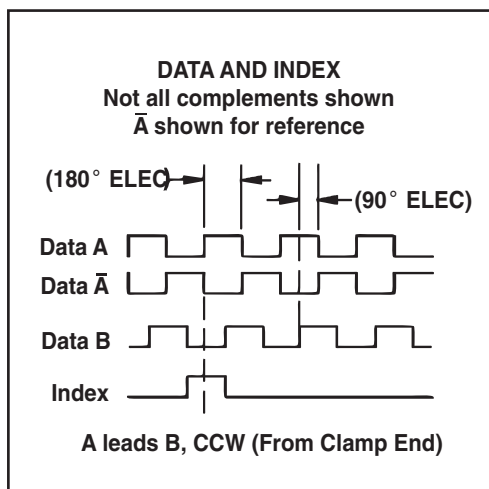
† **Note:** Armored Gland high-temperature specification limited to +80°C.

TEMPERATURE RANGE

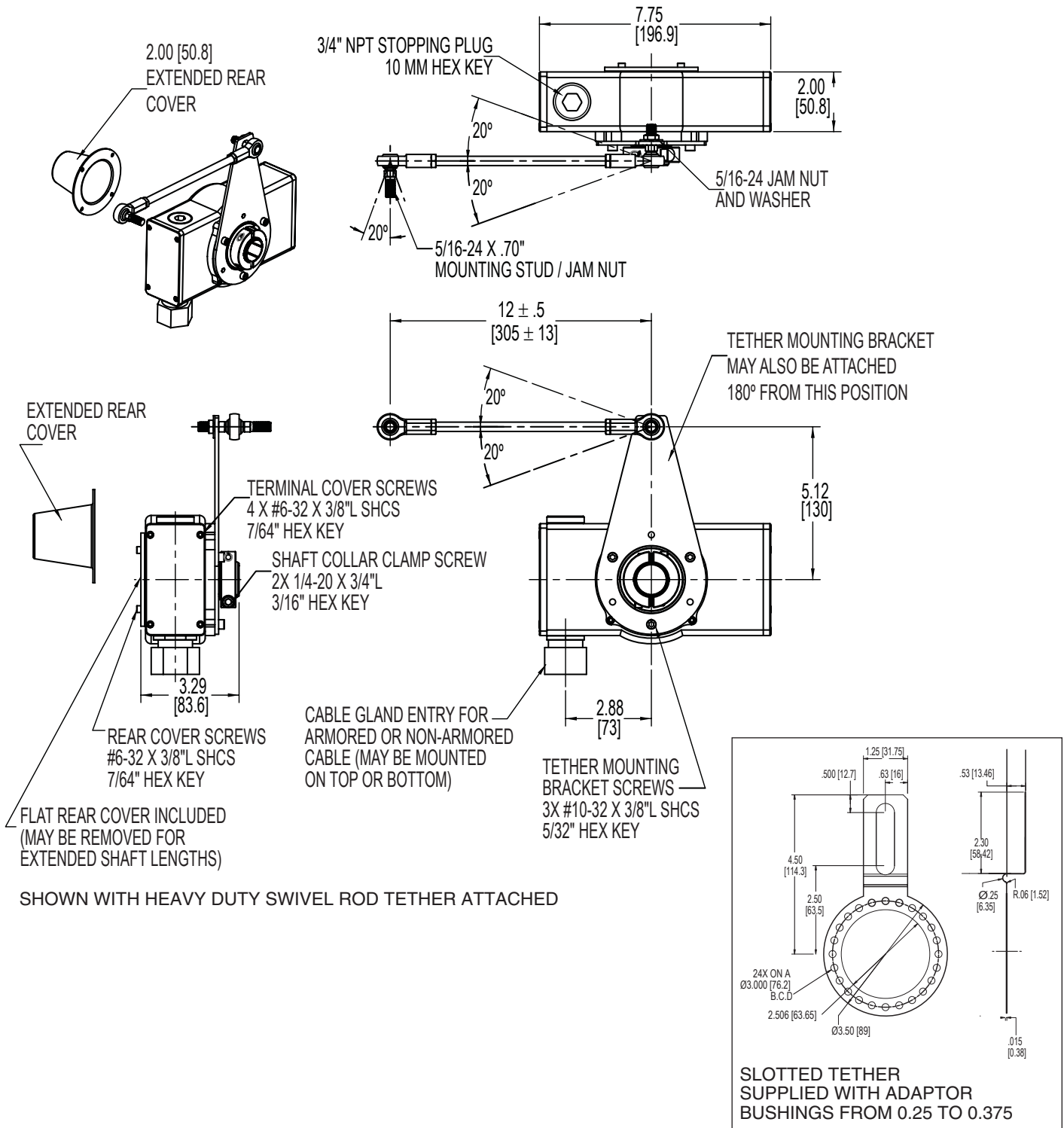
Code 4 Option	Output Current	Group II Ambient Temperature Range	Group III Ambient Temperature Range
0 or 2	125mA max per channel	Ta = -50°C to +100°C	Ta = -50°C to +100°C
1 or 3	10mA max per channel	Ta = -50°C to +100°C	Ta = -50°C to +100°C
1 or 3	15mA max per channel	Ta = -50°C to +90°C	Ta = -50°C to +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 (Inch [metric])



SHOWN WITH HEAVY DUTY SWIVEL ROD TETHER ATTACHED