

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
- High Current Line Driver for Long Cable Runs
- 50G Shock and 20G Vibration Tolerant

HAZ
Hazardous Duty



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental

Resolution: 1 to 5,000 PPR (pulses/revolution)
See Ordering Information

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

Index: 180° default gated to B low

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

Quadrature Phasing: 90° ± 30° electrical

Symmetry: 180° ± 30° 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

Input Current: 100mA max., not including output loads

Outputs:

| Input/Output Type | Line Driver Type |
|-------------------|------------------|
| 7-15V/7-15V DC | 4428 |
| 7-26V/5V DC | 4428 |
| 10-30V/10-30V DC | 2707 |

Output Current: (Refer to Ordering Information Table, Code 4: Output Format)

| Code 4 Option | Current per Channel (max) |
|---------------|---------------------------|
| 0 or 2 | 125mA @ 80°C |
| 1 or 3 | 15mA @ 80°C |
| 4 | 60mA @ 80°C |

Frequency Response: 200 kHz (data and 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. (manufacturer's specs)

Housing and Cover: Hard Anodized Aluminum.

Disc Material: Aluminum

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" OSHCS 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 (on 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 UL 22.0040X

UL 22 ATEX 2655X

Ex eb ia mb IIC T4 Gb

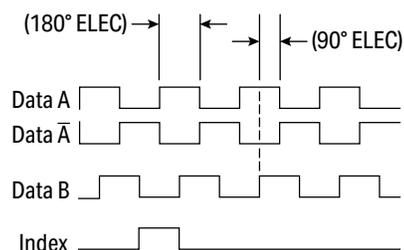
Ex tb IIIC T119°C Db

Class I, Zone 1, AEx eb ia mb IIC T4 Gb

Zone 21, AEx tb IIIC T119°C Db

STANDARD DATA AND INDEX

Not all complements shown
A̅ shown for reference



Index Width: 180° Default
A leads B, CCW (from clamp end)

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| 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 | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| EN42 Triple Certified ATEX Zone 1 Hollowshaft Encoder | 0015 0032 0100 0200 0240 0250 0500 0512 0600 1000 1024 1200 2000 2048 2500 4000 5000 | Stainless Steel Hub 8 5/8" 9 15 mm A 16mm D 3/4" F 7/8" H 1" NonIsolated 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* | 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) | 0 Slotted Tether 1 Heavy Duty Swivel Rod Tether | 0 Covers, Standard Flat and Extended |

* See Electrical Specifications for Details

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 +80°C | Ta = -25°C to +80°C |
| 1 or 3 | 10mA max per channel | Ta = -50°C to +80°C | Ta = -25°C to +80°C |
| 1 or 3 | 15mA max per channel | Ta = -50°C to +80°C | Ta = -25°C to +80°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 +80°C | Ta = -25°C to +80°C |

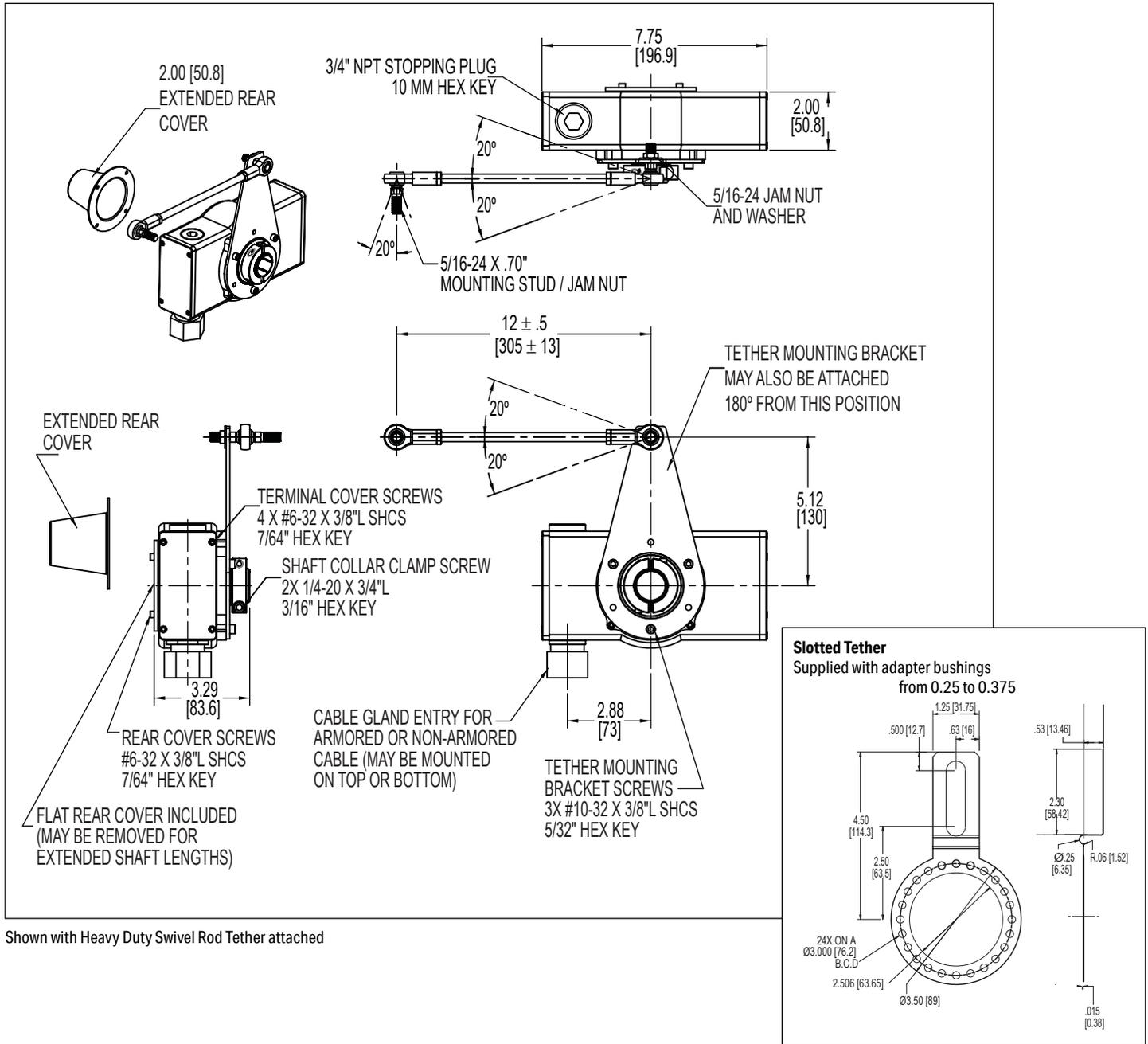
ELECTRICAL CONNECTIONS

| Encoder Function | Terminal Box Connection |
|------------------|-------------------------|
| Signal A | 1 |
| Signal \bar{A} | 2 |
| Signal B | 3 |
| Signal \bar{B} | 4 |
| Signal Z | 5 |
| Signal \bar{Z} | 6 |
| Power +V | 7 |
| Common | 8 |

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Dimensions: inch [mm]



Shown with Heavy Duty Swivel Rod Tether attached

Worldwide Brands: NorthStar™ • Dynapar™ • Hengstler™ • Harowe™

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