

SERIES HD25

NorthStar™ brand

Harsh Duty Optical Encoder

Key Features

- Size 25 Heavy-Duty Encoder with Single or Dual Isolated Outputs
- Unbreakable Code Disc up to 5000PPR
- Special Housing and Seals for IP67 Rating
- Anodized Aluminum, Stainless Steel, or Nickel Plated Housing



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental

Resolution: 1 to 5000 PPR (pulses/revolution)

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

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

Quadrature Phasing: For resolutions to 625PPR: $90^\circ \pm 15^\circ$ electrical; For resolutions over 625 PPR: $90^\circ \pm 30^\circ$ electrical

Symmetry:

For resolutions to 1024PPR: $180^\circ \pm 18^\circ$ electrical

For resolutions over 1024PPR: $180^\circ \pm 25^\circ$ electrical

Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

ELECTRICAL

Input Power: 5-26VDC, 5-15VDC dependant on output type. 50 mA max., not including output loads.

Outputs: 2N2222, 4469, ET7272, ET7273

Frequency Response: 125 kHz (data & index)

Termination: 6, 7, or 10 pin MS Connector;

Cable exit w/seal

Mating Connector:

6 pin, style MS3106A-14S-6S (MCN-N4);

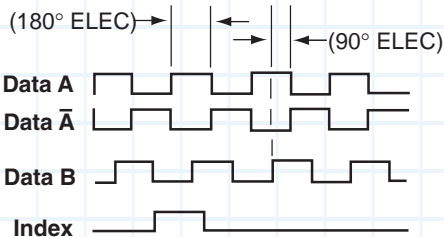
7 pin, style MS3106A-16S-1S (MCN-N5);

10 pin, style MS3106A-18-1S (MCN-N6)

10 pin, NEMA 4 style (MCN-N6N4)

DATA AND INDEX

Not all complements shown
A shown for reference



Index Width: 150° to 330°

A leads B, CCW (From Shaft End)

ENVIRONMENTAL

Operating Temperature: -40 to 100°C

Storage temperature: -40 to 100°C

Shock: 50G's for 11msec duration

Vibration: 5 to 2000Hz @ 20 G's

Humidity: 100%

Enclosure Rating: IP67

MECHANICAL

Shaft Material: 303 stainless steel (passivated)

Shaft Speed: 6,000 RPM, maximum

Shaft loading: Up to 100 lbs axial and radial

Starting torque: 2.5 in-oz. maximum (at 25°C)

Bearings: 5200 ZZ double row

Bearing life: 5×10^8 revs at rated shaft Loading, 5×10^{11} revs at 10% of rated shaft loading.(manufacturers' specs)

Housing and cover: Hard Anodized Aluminum. Also available in Electroless Nickel finish and Stainless Steel.

Disc material: Plastic

Weight: 14 ounces, typical

ELECTRICAL CONNECTIONS

6, 7 & 10 Pin MS, 5 & 8 Pin M12, Connectors and Cables

Connector & mate/accessory cable assembly pin numbers and wire color information is provided here for reference. Models with direct cable exit carry the color coding as shown in the right hand column.

| Encoder Function | Cable #108594-6 Pin Single Ended | | Cable # 108595-7 Pin Single Ended | | Cable #108596-7 Pin Dif Line Drv w/o ldx | | Cable # 1400635- or 109209- (NEMA4) 10 Pin Dif Line Drv w/ ldx | | Cable # 112859-M12, 5 Pin Single Ended | | Cable # 112860-M12, 8 Pin Dif | | Cable Exit with Seal |
|------------------|----------------------------------|------------|-----------------------------------|------------|--|------------|--|------------|--|------------|-------------------------------|------------|----------------------|
| | Pin | Wire Color | Pin | Wire Color | Pin | Wire Color | Pin | Wire Color | Pin | Wire Color | Pin | Wire Color | Wire Color |
| Sig. A | E | BRN | A | BRN | A | BRN | A | BRN | 4 | BLK | 1 | BRN | GREEN |
| Sig. B | D | ORG | B | ORG | B | ORG | B | ORG | 2 | WHT | 4 | ORG | BLUE |
| Sig. Z | C | YEL | C | YEL | — | — | C | YEL | 5 | GRY | 6 | YEL | ORANGE |
| Power +V | B | RED | D | RED | D | RED | D | RED | 1 | BRN | 2 | RED | RED |
| Com | A | BLK | F | BLK | F | BLK | F | BLK | 3 | BLU | 7 | BLK | BLACK |
| Case | — | — | G | GRN | G | GRN | G | GRN | — | — | — | — | WHITE |
| N/C | F | — | E | — | — | — | E | — | — | — | — | — | — |
| Sig. A | — | — | — | — | C | BRN/WHT | H | BRN/WHT | — | — | 3 | BRN/WHT | VIOLET |
| Sig. B | — | — | — | — | E | ORG/WHT | I | ORG/WHT | — | — | 5 | ORG/WHT | BROWN |
| Sig. Z | — | — | — | — | — | — | J | YEL/WHT | — | — | 8 | YEL/WHT | YELLOW |

Note: "MS" type mating connectors and prebuilt cables are rated NEMA 12. For watertight applications, use NEMA4 10 pin cable & connector 109209-XXXX.

Ordering Information

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

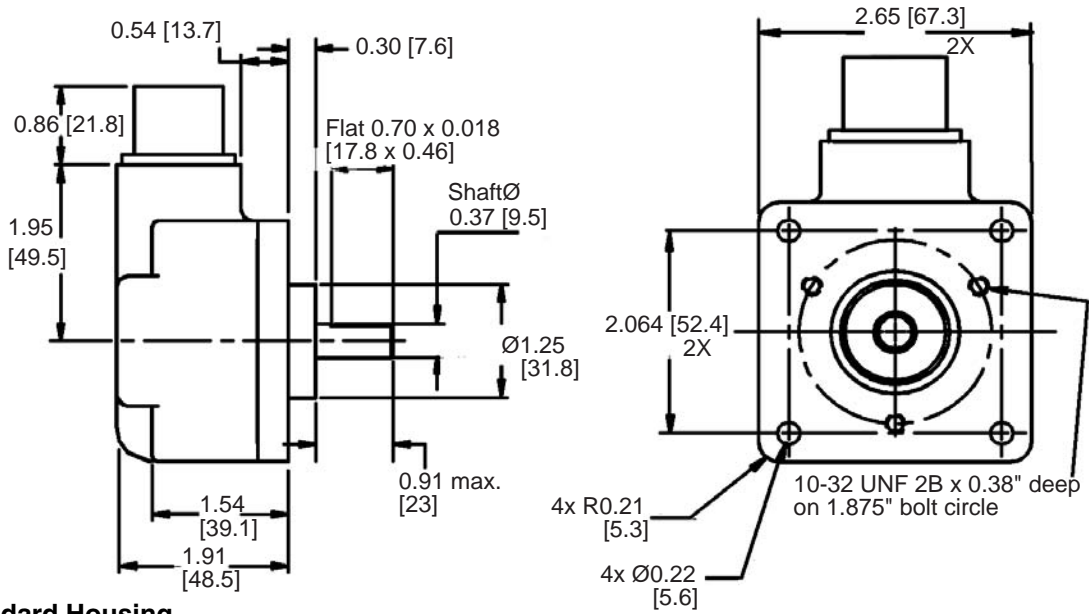
| | | | | | |
|---------------|-------------|---------------|--------------------|---------------------|-----------------|
| Code 1: Model | Code 2: PPR | Code 3: Shaft | Code 4: Electrical | Code 5: Termination | Code 6: Options |
| HD25 □ | □□□□ | □ | □ | □ | □ |

| Ordering Information | | | | | |
|--|--|---|--|--|---|
| Size 25 Heavy Duty Encoder | 0001 0600 0024 0625 0025 0720 0035 0900 0040 1000 0050 1024 0060 1200 0100 1250 0120 1440 0192 1524 0200 1600 0240 1800 0250 2500 0256 2540 0300 2600 0360 3600 0500 4096 0512 5000 | 0 3/8" Dia. Shaft with flat 4 10mm Dia. Shaft, with flat 6 12mm Dia. Shaft | 0 5-26V in, 5-26V Open Collector out (7273) 2 5-26V in, 5-26V Push-Pull out F 5-26V in, 5-26V Open Collector out (2222) G 5-26V in, 5-26V Open Collector out with 2.2 kΩ Pullups (2222) Available when: Code1 is 1, 2 and Code 5 is 3,5 or D through P, or Code 1 is 3 and code 5 is 5 or D through P: 3 5-26V in, 5-26V Differential Line Driver out (7272) 4 5-26V in, 5V Differential Line Driver out (7272) 6 5-15V in, 5-15V Differential Line Driver out (4469) | 1 6 Pin Connector 3 7 Pin Connector 5 10 Pin Connector 9 5 Pin M12 Connector A 8 Pin M12 Connector D 18" Sealed Cable E 3' Sealed Cable F 6' Sealed Cable G 10' Sealed Cable H 15' Sealed Cable P 5m Sealed Cable | 0 No Options 1 Nickel Finish Housing 2 Stainless Steel Housing 3 Redundant Outputs (Dual Connector Housing). 4 Nickel Finish Housing with Redundant Outputs. 5 Stainless Steel Housing with Redundant Outputs. |
| Note: 10 foot Cable Assemblies with MS Connector 108594-0010 6 Pin MS, Cable Assy. For Use with Single Ended Outputs 108595-0010 7 Pin MS, Cable Assy. For Use with Single Ended Outputs 108596-0010 7 Pin MS, Cable Assy. For Use with Differential Line Driver w/o Index Outputs 1400635-0010 10 Pin MS, Cable Assy. For Use with Differential Line Driver with Index Outputs 109209-0010 NEMA4 10 pin MS, Cable Assy. For use with differential line driver with index outputs Mating Connectors (no cable) 6 pin, style MS3106A-14S-6S (MCN-N4) 7 pin, style MS3106A-16S-1S (MCN-N5) 10 pin, style MS3106A-18-1S (MCN-N6) 10 pin, NEMA 4 style (MCN-N6N4) | | | | | |

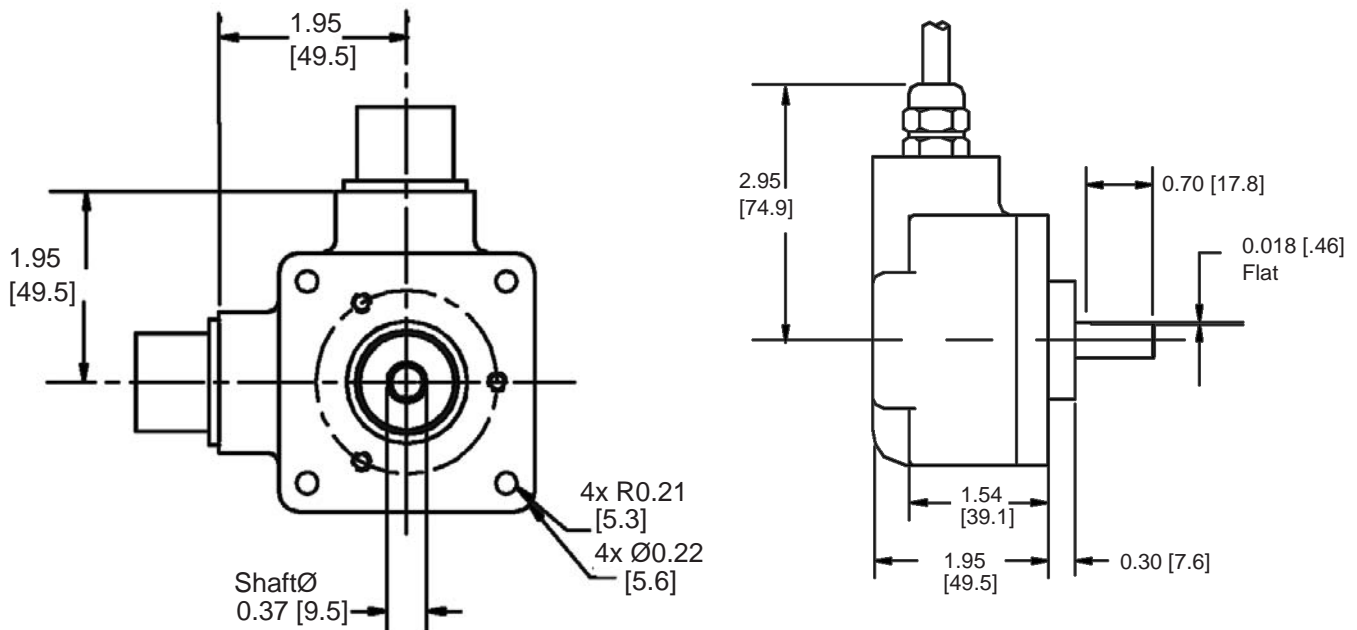
SERIES HD25



DIMENSIONS inches [mm]

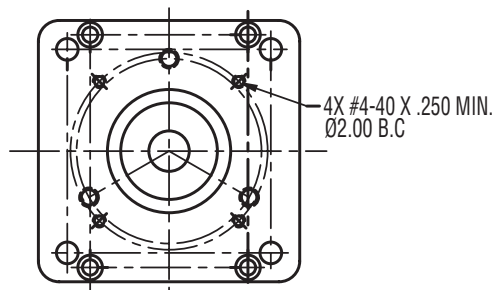


Standard Housing



Dual Redundant Outputs

Cable Exit



With 4 hole 2.00" B.C.

HEAVY DUTY

NorthStar™ brand



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

DYNAPAR™
INNOVATION - CUSTOMIZATION - DELIVERY

WWW.DYNAPAR.COM

Headquarters: 1675 Delany Road • Gurnee, IL 60031-1282 • USA

Customer Service:

Tel.: +1.800.873.8731

Fax: +1.847.662.4150

custserv@dynapar.com

Technical Support

Tel.: +1.800.234.8731

Fax: +1.847.662.4150

northstar.techsupport@dynapar.com

European Sales Representative

Hengstler GmbH

Uhlandstrasse 49, 78554 Aldingen

Germany

www.hengstler.com