

SERIES HD25

NorthStar™ brand

Harsh Duty Optical Encoder

Key Features

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



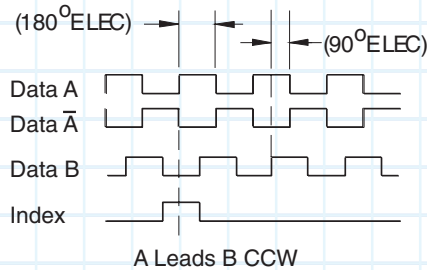
SPECIFICATIONS

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° ± 15° electrical; For resolutions over 625 PPR: 90° ± 30° electrical
Symmetry:
 For resolutions to 1024PPR: 180° ± 18° electrical
 For resolutions over 1024PPR: 180° ± 25° electrical
Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

DATA AND INDEX

Not all complements shown.
 A shown for reference



ELECTRICAL

Input Power: 5-26VDC, 5-15VDC dependant on output type. 50 mA max., not including output loads. ATEX: 5VDC, 7-26VDC
Outputs: 2N2222, 4469, ET7272, ET7273
Frequency Response: 125 kHz (data & index)
Termination: 6, 7, or 10 pin MS Connector; 18" 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)

MECHANICAL

Shaft Material: 303 stainless steel (passivated)
Shaft Speed: 6,000 RPM, maximum
Shaft loading: Up to 100 lbs axial and radial
Shaft runout: 0.0005 TIR at midpoint
Starting torque: 2.5 in-oz. maximum (at 25°C)
Bearings: 5200 ZZ double row
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. Also available in Electroless Nickel finish and Stainless Steel.
Disc material: Metal or plastic
Weight: 14 ounces, typical

ENVIRONMENTAL

Operating Temperature: -40 to 100°C
Operating Temperature ATEX: -40 to 80°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

ELECTRICAL CONNECTIONS

6, 7 & 10 Pin MS 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 Exit with Seal
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	
Sig. A	E	BRN	A	BRN	A	BRN	A	BRN	GREEN
Sig. B	D	ORG	B	ORG	B	ORG	B	ORG	BLUE
Sig. Z	C	YEL	C	YEL	—	—	C	YEL	ORANGE
Power +V	B	RED	D	RED	D	RED	D	RED	RED
Com	A	BLK	F	BLK	F	BLK	F	BLK	BLACK
Case	—	—	G	GRN	G	GRN	G	GRN	WHITE
N/C	F	—	E	—	—	—	E	—	—
Sig. A	—	—	—	—	C	BRN/WHT	H	BRN/WHT	VIOLET
Sig. B	—	—	—	—	E	ORG/WHT	I	ORG/WHT	BROWN
Sig. Z	—	—	—	—	—	—	J	YEL/WHT	YELLOW

Note: "MS" type mating connectors and prebuilt cables are rated NEMA 12.

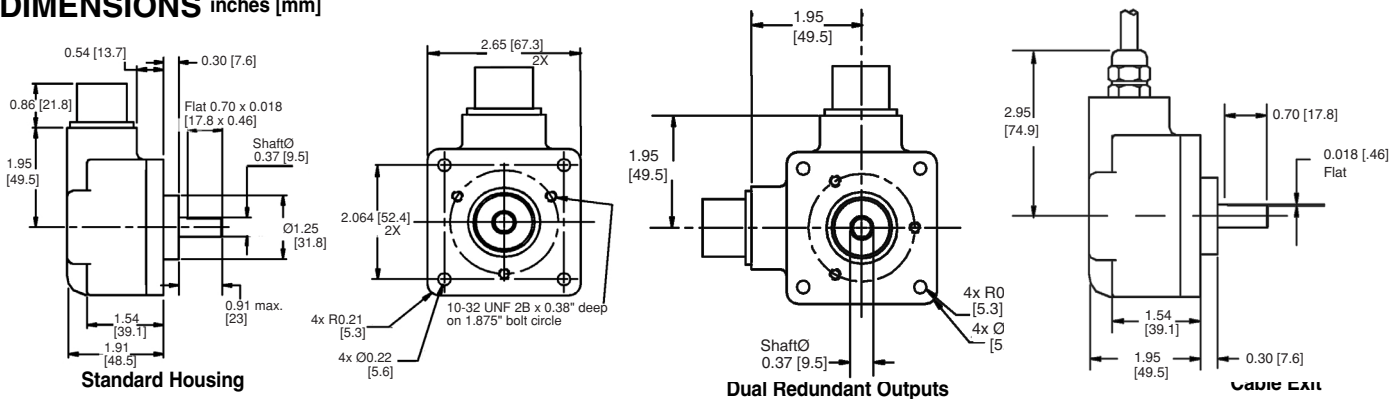
For watertight applications, use NEMA4 10 pin cable & connector 109209-XXXX.

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					
<p>Size 25 Extreme Heavy Duty Encoder</p> <p>1 Unidirectional 2 Bidirectional 3 Bidirectional with Index</p>	<p>0001 0625 0024 0720 0025 0900 0035 1000 0040 1024 0050 1200 0060 1250 0100 1440 0120 1524 0192 1600 0200 1800 0240 2000 0250 2048 0256 2500 0300 2540 0360 2600 0500 3600 0512 4096 0600 5000</p>	<p>0 3/8" Dia. Shaft with flat 4 10mm Dia. Shaft, with flat 6 12mm Dia. Shaft</p>	<p>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)</p> <p>available when: Code 1 is 1,2 and Code 5 is 3 through H, or Code 1 is 3 and Code 5 is 5 through H:</p> <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)</p>	<p>1 6 Pin Connector 3 7 Pin Connector 5 10 Pin 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</p>	<p>0 No Options 1 Nickel Finish Housing 2 Stainless Steel Housing 3 Redundant Outputs (Dual Connector Housing). See † NOTE 4 Nickel Finish Housing with Redundant Outputs. See † NOTE 5 Stainless Steel Housing with Redundant Outputs. See † NOTE</p> <p>A Same as "0" w/ ATEX Type 1 B Same as "1" w/ ATEX Type 1 C Same as "2" w/ ATEX Type 1 D Same as "3" w/ ATEX Type 1. See † NOTE E Same as "4" w/ ATEX Type 1. See † NOTE F Same as "5" w/ ATEX Type 1. See † NOTE</p> <p>Available when Code 4 is 0-3, F or G G Same as "0" w/ ATEX Type 2 H Same as "1" w/ ATEX Type 2 I Same as "2" w/ ATEX Type 2 J Same as "3" w/ ATEX Type 2. See † NOTE K Same as "4" w/ ATEX Type 2. See † NOTE L Same as "5" w/ ATEX Type 2. See † NOTE</p> <p>Available when Code 4 is 4 M Same as "0" w/ ATEX Type 3 N Same as "1" w/ ATEX Type 3 O Same as "2" w/ ATEX Type 3 P Same as "3" w/ ATEX Type 3. See † NOTE Q Same as "4" w/ ATEX Type 3. See † NOTE R Same as "5" w/ ATEX Type 3. See † NOTE</p> <p>Available when Code 4 is 6: S Same as 0, w/ATEX Type 4 T Same as 1, w/ATEX Type 4 U Same as 2, w/ATEX Type 4 V Same as 3, w/ATEX Type 4. See † NOTE W Same as 4, w/ATEX Type 4. See † NOTE Y Same as 5, w/ATEX Type 4. See † NOTE</p>
<p>10 foot Cable Assemblies with MS Connector</p> <p>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</p> <p>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)</p>					
<p>*Note: Available ATEX Certified Options</p> <p>ATEX Type 1: ATEX Certified; 5V in, 5V out only ATEX Type 2: ATEX Certified; 7-26V in, 7-26V out ATEX Type 3: ATEX Certified; 7-26V in, 5V out ATEX Type 4: ATEX Certified; 5-15V in, 5-15V out <i>NOTE: ATEX voltages replace those shown in Code 4.</i></p> <p>† NOTE: Simultaneous use of redundant outputs may void ATEX certification. Consult factory for details.</p>					

DIMENSIONS inches [mm]



Headquarters: 1675 Delany Road • Gurnee, IL 60031-1282 • USA
Phone: +1 847.662.2666 • Fax: +1 847.662.6633

Satellite Locations:
North America: North Carolina, South Carolina, Connecticut, Massachusetts, New York, Canada, St. Kitts • Europe: United Kingdom, Italy, France, Germany, Spain, Slovakia
• Latin America: Brazil • Asia: China, Japan, Korea, Singapore

www.dynapar.com

Customer Service:
Tel.: +1.800.873.8731
Fax: +1.847.662.4150
custserv@dynapar.com

Technical Support
Tel.: +1.800.234.8731
Fax: +1.847.782.5277
northstar.techsupport@dynapar.com

