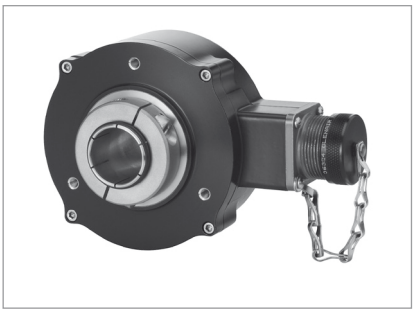
Incremental



- Single or Dual Output
- Double-Sealed Housing
- ATEX Certification for Intrinsically Safe Applications
- High Resolution Unbreakable Disk
- Electrically and Thermally Isolated
- Industrial Duty Connector
- NEMA 4X, 6 / IP66, 67 Rated
- Rugged Cast-Aluminum Housing
- Stainless Steel Housing Available

HEAVY DUTY NorthStar™ CE

NUMBER OF PULSES

0015 / 0032 / 0100 / 0200 / 0240 / 0250 / 0500 / 0512 / 0600 / 1000 / 1024 / 1200 / 2000 / 2048 / 2500 / 4000 / 5000

GENERAL INFORMATION

EXTREME HEAVY DUTY HOLLOWSHAFT ENCODER

NorthStar's HSD37 Extreme Duty Industrial Hollowshaft Encoder accepts up to 1" diameter shafts and operates reliably from -40 to +100°C. Its Hard Anodized finish enclosure exceeds IP66/IP67 and NEMA 6 enclosure requirements.

This robust encoder features a double-sealed housing that allows application where regulatory washdown or caustic chemicals are present. Utilization of an advanced Opto ASIC with innovative packaging techniques enables the encoder to operate in high shock and vibration environments.

It is also available in an Intrinsically Safe version, certified to ATEX EEx ia IIB T4, when used with the appropriate IS Barrier.

APPLICATIONS

The HSD37 extreme duty encoder features simple installation on motor or machine shafts. It is often mounted on the back of motors where encoder feedback is needed in harsh environment applications. It is ideal for use in environments that demand heavy washdown protection.

- Converting Machinery
- Material Handling
- Packaging Equipment
- Processing Equipment

Industries

Chemical, Food & Beverage, Oil & Gas, Paper, Steel and any other where a precise encoder is needed to operate in harsh environments.

TECHNICAL DATA
mechanical

Housing diameter	95.25 mm
Shaft diameter	12 mm / ½" / 15 mm / ⅝" / 16 mm / ¾" / 0.875" (Through hollow shaft)
Flange (Mounting of housing)	Tether
Mounting of shaft	Front clamping ring
Protection class shaft input (EN 60529)	NEMA 4X or NEMA 6 IP66 or IP67

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TECHNICAL DATA
mechanical (continued)

Protection class housing (EN 60529)	NEMA 4X or NEMA 6 IP66 or IP67
Shaft tolerance	31,75 mm
Bearing life	max. 5 x 10^{11} revs.
Starting torque typ.	2.8 Ncm
Vibration resistance (DIN EN 60068-2-6)	200 m/s² (5 ... 2000 Hz)
Shock resistance (DIN EN 60068-2-27)	500 m/s² (11 msec)
Operating temperature	-40 °C ... +100 °C ATEX: -40 °C ... +80 °C
Material shaft	Aluminum
Material housing	Hard anodized Aluminum, Stainless Steel
Weight	approx. 1000 g
Connection	MS, radial Cable, radial with M12 connector

TECHNICAL DATA
electrical

Supply voltage	DC 5 - 26 V
Current w/o load typ.	50 mA
Code	Incremental, optical
Max. pulse frequency	125 kHz
Phasing	Incremental signals (A leads B): A leads B by 90° for ccw shaft rotation viewing the shaft clamp end of the encoder
Pulse shape	Square wave

ELECTRICAL CONNECTIONS
6, 7 & 10 Pin MS connector / Cable

Encoder Function	Cable 6 Pin Single Ended		Cable 7 Pin Single Ended		Cable 7 Pin Dif Line Drv w/o Idx		Cable 10 Pin Dif Line Drv w/ Idx		Cable Exit with Seal
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Wire Color
Sig. A	E	brown	A	brown	A	brown	A	brown	green
Sig. B	D	orange	B	orange	B	orange	B	orange	blue
Sig. Z	C	yellow	C	yellow	--	--	C	yellow	orange
Power +V	B	red	D	red	D	red	D	red	red
Com	A	black	F	black	F	black	F	black	black
Case	--	--	G	green	G	green	G	green	white
N/C	F	--	E	--	--	--	E	--	--
Sig $\overline{A}$	--	--	--	--	C	brown/white	H	brown/white	violet
Sig $\overline{B}$	--	--	--	--	E	orange/white	I	orange/white	brown
Sig $\overline{Z}$	--	--	--	--	--	--	J	yellow/white	yellow

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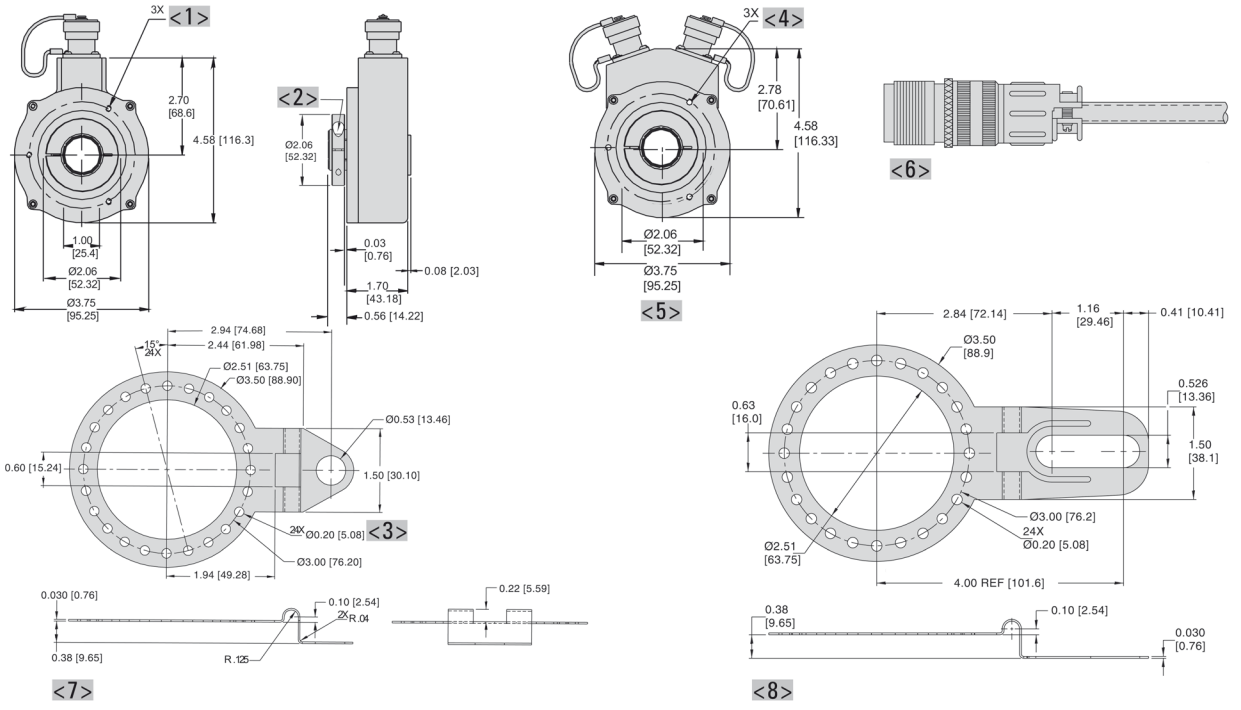
ELECTRICAL CONNECTIONS
5 & 8 Pin M12 Accessory Cable

Encoder Function	Cable 5 Pin Single Ended		Cable 8 Pin Single Ended		Cable 8 Pin Differential	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	4	black	1	brown	1	brown
Sig. B	2	white	4	orange	4	orange
Sig. Z	5	grey	6	yellow	6	yellow
Power +V	1	brown	2	red	2	red
Com	3	blue	7	black	7	black
Sig. $\overline{A}$					3	brown/white
Sig. $\overline{B}$					5	orange/white
Sig. $\overline{Z}$					8	yellow/white

DIMENSIONED DRAWINGS



<1> 10-32 UNF x .38 deep on a Ø 3.000 bolt circle
<2> 10-32 clamp screw
<3> on 3.00 [76.20] bolt circle
<4> 10-32 UNF x .38 deep on a Ø 3.000 bolt circle
<5> Redundant Version
<6> Pigtail with MS Connector (K Option)
<7> Single Point Tether
<8> Slotted Tether

Dimensions in inch [mm]

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ORDERING INFORMATION

Type [1]	Number of pulses	Shaft Ø	Output format [2,3]	Connection	Options	Special options
☐	☐	☐	☐	☐	☐	☐
HSD37 Heavy Duty Hollow-shaft encoder **ISD37** Atex Intrin-sically Safe	**15 ... 5000**	**0** 6 mm **1** 1/4" **2** 5/16" **3** 8 mm **4** 3/8" **5** 10 mm **6** 12 mm **7** 1/2" **8** 5/8" **9** 15 mm **A** 16 mm **C** 19 mm **D** 3/4" **E** 20 mm **H** 1" Non Isolated **P** 25 mm Non Isolated **R** 1" Isola-ted	**0** Single Ended, 5-26 VDC push pull **6** Differential ABZ, 5-26 in, 5V out (7272) **7** Differential ABZ, 5-26 in, 5-26 out (7272) **A** Single Ended ABZ, 7-26V in, 7-26V out push-pull (7272) **C** Single Ended ABZ, 5V in, 5V out push-pull (7272) **K** Differential ABZ, 5V in, 5V out (7272) **L** Differential ABZ, 7-26 in, 7-26 out (7272) **M** Differential ABZ, 7-26 in, 5V out (7272)	**0** 6 pin connector **1** 7 pin connector **2** 10 pin connector **4** 10 pin Bayonet connector **6** 7 pin+mating connector **7** 10 pin+mating connector **8** 12 CW pin+mating connector **9** 10 pin Bayonet+mating connector **A** 0.5 m (18") cable **C** 1 m (36") cable **D** 2 m (72") cable **H** 5 pin M12 con-nector **J** 8 pin M12 con-nector **K** 1.5 ft (18") cable w/ in line 10 pin connector **M** 5 ft (60") cable **N** 10 ft (120") cable **T** Terminal box w/ conduit entry	**0** No options **1** Slotted Tether **2** Single point 4.5" C-face tether **3** Single point 8.5" C-face tether **4** Dual isolated Ou-touts, No tether **5** Dual isolated Out-puts, Slotted Tether **6** Dual Isolated Outouts, 4.5" C-face tether **7** Dual isolated Outputs, 8.5" C-face Tether **A** Swivel Rod tether **C** Metric Swivel Rod tether **D** Dual Isolated Outputs, Swivel Rod Tether **E** Dual Isolated Out-puts, Metric Swivel Rod Tether **A** 7pin+mating con-nector **7** 10 pin+mating	**Blank** None **01** Nickel Plated **02** Stainless Steel

[1] Type HSD 37 only available with Output format "0", "6" und "7"
[2] Output format "6", "7", "K", "L" and "M" are not available with connector "1" and "6"
[3] Output format Open Collector on request