

# SERIES HSD44

**NorthStar™ brand**

## Extreme Heavy Duty Encoder

### Key Features

- **O-Ring Housing with Pilot Seals Against Motor for the Ultimate in Protection**
- **Isolated Coupling Compensates for Motor Shaft Runout and Endplay**
- **Perfect for Off-Highway Vehicle Applications with High Shock and Vibration**
- **Unbreakable Code Disc**
- **400G Shock and 20G Vibration Independently Validated**



## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

**Code:** Incremental, Optical  
**Resolution:** 15 to 5000 PPR (pulses/revolution), Others at special order  
**Format:** Two channel quadrature (AB) with Index (Z), and complementary outputs  
**Phase Sense:** A leads B for CCW shaft rotation viewing the shaft clamp end of the encoder  
**Quadrature Phasing:** 90° ± 15° electrical  
**Index:** 150° to 300° A leads B, CCW (From Clamp End)  
**Symmetry:** 180° ± 18° electrical  
**Waveforms:** Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pF

### MECHANICAL

**Mechanical Interface:** Electrically isolated stainless steel shaft flex coupling  
**Coupling:** 16mm, flexible  
**Mating Shaft Length:** 0.47" to 0.625" (11.9mm to 15.9mm)  
**Shaft Speed:** 6000 RPM, max.  
**Bearings:** 6107  
**Housing Material:** Aluminum Alloy  
**Disc Material:** Mylar  
**Weight:** 4 lbs.

### ENVIRONMENTAL

**Operating Temperature:** -30 to 100°C  
**Storage temperature:** -40 to 100°C  
**Shock:** 400g, 6mSec  
**Vibration:** 5-3000 Hz, 20g  
**Humidity:** Up to 98% (non-condensing)  
**Enclosure Rating:** NEMA 6 / IP67

### ELECTRICAL

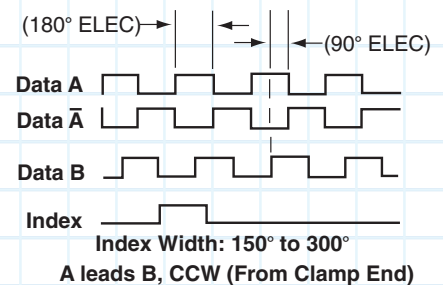
**Input Power:** 5-30VDC. 50 mA max., not including output loads.  
**Outputs:** 7272 Differential Line Driver: 40 mA, sink or source  
**Frequency Response:** 125 kHz (data & index)  
**Noise Immunity:** Tested to EN61326-1  
**Electrical Immunity:** Reverse polarity and short circuit protected  
**Termination:** 18" pigtail or 18" pigtail with MS Connector. See Ordering Information  
**Mating Connector:** 10 pin MS, style MS3106A-18-1S (MCN-N6)

### ELECTRICAL CONNECTIONS

Function	Pin	Wire Color
Sig. A	A	BRN
Sig. B	B	ORG
Sig. Z	C	YEL
Power +V	D	RED
Com.	F	BLK
Case	G	GRN
N/C	E	—
Sig. $\bar{A}$	H	BRN/WHT
Sig. $\bar{B}$	I	ORG/WHT
Sig. $\bar{Z}$	J	YEL/WHT

### DATA AND INDEX

Not all complements shown  
 $\bar{A}$  shown for reference



### Ordering Information

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

Code 1: Model	Code 2: PPR	Code 3: Bore	Code 4: Output Format	Code 5: Termination	Code 6: Options	Code 7: Special Option
<b>HSD44</b>	<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"/> <input type="checkbox"/>

### Ordering Information

<b>HSD44</b> Heavy Duty Hub Shaft Encoder	<b>0015</b> <b>0032</b> <b>0050</b> <b>0060</b> <b>0100</b> <b>0200</b> <b>0240</b> <b>0250</b> <b>0500</b> <b>0512</b> <b>0600</b> <b>1000</b> <b>1024</b> <b>1200</b> <b>2000</b> <b>2048</b> <b>3072</b> <b>4000</b> <b>4096</b> <b>5000</b>	<b>A</b> 16mm	<b>3</b> Differential ABZ, 5-30 in, 5-30 out (7272)	<b>A</b> 18" Cable <b>K</b> 1.5 ft (18") cable w/ in line 10 pin connector	<b>0</b> No Options <b>1</b> Slotted Tether <b>2</b> Single Point 4.5" C-face Tether <b>3</b> Single Point 8.5" C-face Tether <b>4</b> Dual Isolated Outputs, No Tether <b>5</b> Dual Isolated Outputs, Slotted Tether <b>6</b> Dual Isolated Outputs, 4.5" C-face Tether <b>7</b> Dual Isolated Outputs, 8.5" C-face Tether <b>A</b> Swivel Rod Tether <b>C</b> Metric Swivel Rod Tether <b>D</b> Dual Isolated Outputs, Swivel Rod Tether <b>E</b> Dual Isolated Outputs, Metric Swivel Rod Tether	<b>Blank</b> None <b>01</b> Extended Pilot (.156")
---	--	---------------	---	---	---	---

### Accessories

HSD44ADAPTER45 4-1/2" NEMA Motor Adapter Plate

### DIMENSIONS (in. [mm])

