

# SERIES HS56

**NorthStar™ brand**

## Hollow Shaft Encoder

### Key Features

- **Hollowshaft Design with Heavy-Duty Bearings Ideal for TEFC AC Motor Mounting**
- **Magneto-Resistive Technology**
- **Accommodates Shaft Sizes from 5/8" to 1-1/8"**
- **Stainless Steel and Anodized Aluminum Construction**
- **Dual Isolated Outputs Available for Redundancy**



## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

**Code:** Incremental, Magnetic  
**Pulses per Revolution:** 64-2048 PPR  
**Phasing Sense:** A leads B for Counter-Clockwise rotation (CCW) viewing encoder-mounted end  
**Quadrature Phasing:** 90° ± 22°  
**Symmetry:** 180° ± 54°  
**Index:** 270°, ungated (optional gated to falling B edge)  
**Number of Output Modules:** Single or Dual

### ELECTRICAL

**Input Voltage Requirement:** 5-15 or 5-26 Volts DC  
**Current Requirement:**  
 With Electrical Option L: 45 mA typical per sensor module plus line driver load  
 With Electrical Option V or 5: 65 mA typical per sensor module plus line driver load  
**Output Signals:**  
 4428 Differential Line Driver: 150mA, sink or source  
 IC-WE Differential Line Driver: 150mA, sink or source  
**Frequency Response:** 0 - 120kHz Data & Index  
**Noise Immunity:** Tested to EN61326-1  
**Electrical Immunity:** Reverse polarity and short circuit protected  
**Connector:** 10 pin industrial duty latching, sealed NEMA 4 & 12, IP65; MS connector or pig-tail

### MECHANICAL

**Bore Diameter:** 5/8" to 1-1/8"  
**Mounting Configuration:** Hollow Shaft mount with Anti-Rotation Tether  
**Shaft Speed:** 3,600 RPM  
**Shaft Length Required:** 2.0" min  
**Allowable Shaft End-Play:** ± 0.150" (tether limit)  
**Allowable Shaft Runout:** 0.015" TIR typical (rpm dependent)  
**Starting Torque:** 7 in-oz  
**Acceleration Rate:** 3,600 rpm/sec max  
**Housing Material:** Hard Anodized Aluminum W/Stainless Steel Hub  
**Weight:** 9.3 lbs

### ELECTRICAL CONNECTIONS

Signal	Connector Pin	Pigtail Cable	MS 3102E18-IT#
Common	1	Black	F
B	2	Green	B
A	3	Blue	A
Z *	4	Violet	C
No Connection	5	—	E
Vcc +	6	Red	D
B	7	Yellow	I
A	8	Gray	H
Z *	9	Orange	J
Shield	10	Braid	G

\* Index (Z) optional. See Ordering Information

### ENVIRONMENTAL

**Operating Temperature Range:** -20°C to +80°C  
**Storage Temperature Range:** -40°C to +120°C  
**Shock (Sensor Module):** 30 G's Min  
**Vibration:** 18 G's @ 5-2000 Hz spectrum  
**Humidity:** Up to 98% (non-condensing)

**Ordering Information**

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

Code 1: Model	Code 2: PPR	Code 3: Index	Code 4: Wheel Bore	Code 5: Termination	Code 6: Electrical
<b>H</b> □	□□□□	□	□□□	□	□
Ordering Information					
<b>H5</b> Hollow Shaft Mount	<b>0064</b> <b>0128</b> <b>0256</b> <b>0512</b>	<b>L</b> No Index  Available when Code 2 is 0512, 1024 or 2048	<b>J04</b> 5/8" <b>J05</b> 7/8" <b>J06</b> 1.00" <b>J07</b> 1-1/8"	<b>C</b> Latching Industrial Connector with 1/2" NPT  <b>F</b> Latching Industrial Connector without Mating Connector	<b>L</b> 5-15V in, 5-15V Line Driver (4428) out  <b>V</b> 5-26V in, 5-26V Line Driver (IC-WE) out
<b>HD</b> Hollow Shaft Mount Dual Output	<b>1024</b> <b>2048</b>	<b>G</b> Gated Index (Z, Z̄)  <b>Z</b> Differential Index (Z, Z̄)	<b>J55</b> 20 mm  For additional bore sizes, please consult factory.	<b>M</b> 10 pin MS Connector <b>P</b> 18" Pigtail Cable <b>Q</b> Latching Industrial Connector on 18" Pigtail Cable <b>R</b> Latching Industrial Connector on 18" Pigtail Cable without Mating Connector	<b>5</b> 5-15V in, 5V Line Driver (4428) out  Differential, bidirectional signals (A, Ā, B, B̄)

**Note:** See ACCESSORIES Section For Connectors, Spare Parts and Pulse Wheels

**DIMENSIONS** <sup>inch</sup>  
[mm]

