

SLIM Tach[®] HS56[™] Hollow Shaft Encoder

For Fan Cooled and Non-Motor Applications

Features:

- Hollow shaft design allows for a variety of possible mountings; ideal to retrofit AC fan cooled motors.
- Rugged, zero-speed, magnetoresistive sensing technology is immune to grease, salt water, dust, or other common contaminants.
- Single or dual outputs
- 5-15 VDC operating voltage
- 512, 1024, or 2048 pulses per revolution with optional Index pulse
- Short circuit protected, high power line drivers
- Fits 0.625 - 1.125" shaft size
- Up to 80° C operation



©NorthStar's **HS56** has been designed especially for maintenance, motor repair, and field personnel. The model **HS56** offers an unparalleled means of applying a leading edge digital encoder to motors and other devices that require an innovative method of installation.

State-of-the-Art Electronics

The **HS56** incorporates leading edge magnetoresistive sensor technology. This high resolution sensor system is virtually immune to interference by common contaminants such as grease, oil, water, and dirt. The hardened encapsulated electronics of the **HS56** make it especially resistant to heavy machine vibration and accidental impacts. The advanced electronic design offers many features such as operation from 5-15 volts DC power, short circuit protected outputs, and EMI noise resistance. High power complimentary line driver outputs assure clean, crisp signals over long cable lengths.

Slim, Simple, Flexible Design

The **HS56** has a stainless steel and hard anodized aluminum alloy frame which provides exceptional strength, ruggedness, and superior corrosion resistance. An extra heavy duty bearing system is designed to maximize its operational life. Since the entire encoder rides on large motor style bearings, the unit can tolerate considerable shaft movement. A strong, insulated, stainless steel anti-rotation arm with multiple mounting holes allows the encoder to move axially, radially, and at a tangent. This measure of anti-rotation makes the **HS56** ideal for grill work commonly found on the shroud of fan cooled, variable speed, AC motors. The mill duty latching connector is very easy to field wire and has a common 1/2" NPT pipe thread for armored electrical conduit. The simple design of the model **HS56** is pre-aligned and does not require user adjustments.

Quick and Easy Mounting

The NorthStar **HS56** combines rugged reliable feedback with a flexible mounting design. The high resolution encoder can easily mount on motor shafts, conveyor equipment, assembly machines, material feeders, pumps, hydraulic equipment, and gear boxes. The **HS56** does not require mounting flanges or accessory brackets, therefore making the encoder well suited for mounting on stock, fan cooled motors. If a suitable shaft is not available, simply insert a stub shaft through the fan shroud into the motor shaft. Slide the **HS56** over the stub shaft and affix the anti-rotation arm. The entire encoder can be installed in minutes.

Dual Output Unit

The **HS56** is also available in a dual output unit. Each output is electrically insulated and can be operated at different voltages. This allows the user to send encoder signals to two different locations. Output can be sent to a data acquisition system or terminal for further processing, as well as to a motor drive. In addition to flexibility, the dual output unit provides the user security with encoder redundancy. This assures that a failed encoder can be quickly switched to the second encoder, thereby reducing downtime. This feature, used in concert with NorthStar's **Intellitach[™]**, virtually eliminates encoder related failure. The **Intellitach** continuously monitors and controls encoder feedback, automatically switching encoders in the case of signal failure. Overall, the dual output unit provides optimum control and flexibility to enhance performance and user satisfaction.

Electrical Specifications	
Resolution	512, 512Z, 1024, 1024Z, 2048 PPR.
Frequency Response	0 - 120 kHz
Pulse Code	A, B, Z (Index), and complements (A, B, Z)
Output Phases	A phase, B phase: 90° phase gap; Z phase; Once per rev.
Pulse Duty Cycle	50 ± 15% (within defined mechanical specifications)
Quadrature Accuracy	90 ± 22° (within defined mechanical specifications)
Output Type	High speed, differential line driver
Rise and Fall Time	Less than 1µs @ 10,000 pf typical load
Current Consumption	40mA typical plus line driver load
Output Current Capability	200mA maximum continuous
ESD Protection	2kV
Connector	10 pin epic style, NEMA 4, 12 industrial connector
Cable	22 AWG, 8 conductor, 18" shielded twisted pairs
Input Voltage	+5.0 to +15.0 VDC reverse polarity protected
Mechanical Specifications	
Maximum Operational Speed	3,600 RPM
Available Shaft Size	0.625" (15.875mm) - 1.125" (28.575mm)
Allowable Shaft Movement	±0.150" (38.1 mm) maximum
Shaft Radial Runout	.015" (.381mm) total indicated runout
Environmental Specifications	
Operating Temperature	-20° to +80°C
Operating Humidity	MIL-STD-810E
Vibration	Minimum 18 g's RMS, 5 - 2000 Hz
Chemical Resistance	Salt spray, most solvents, mild acids and bases
* Specification subject to change without notice.	

Ordering Information		
A Encoder Type	Single Output	HS56
	Dual Output	HD56
B Pulse Count	512, 512Z, 1024, 1024Z, 2048	
C Shaft Size	0.625" Thru-Shaft	J4
	0.750" Thru-Shaft	J24
	0.875"	J05
	1.000"	J06
	1.125"	J07
D Connections	18" Pigtail Cable	P
	Latching Industrial Connector	C
	Industrial Connector w/ 18" cable	Q
E Temperature	80°C	
		L

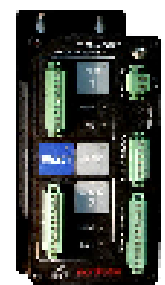
Example:

HS56	1024	J4	C	L
A	B	C	D	E

HS56 Dual Output unit:



Also From NorthStar:



Ideal use with NorthStar's **HS56™** Dual Output Unit, the **Intellitach™** continuously monitors and controls encoder feedback to eliminate downtime from loss of encoder signals. Powered from 115 or 230VAC with dual isolated, short circuit protected encoder power supplies. LED indicator, high power line driver outputs, cabinet mount.

Dimensions inches[mm]:

