

# SLIM Tach<sup>®</sup> SL56

## Bearingless Heavy Duty Encoder

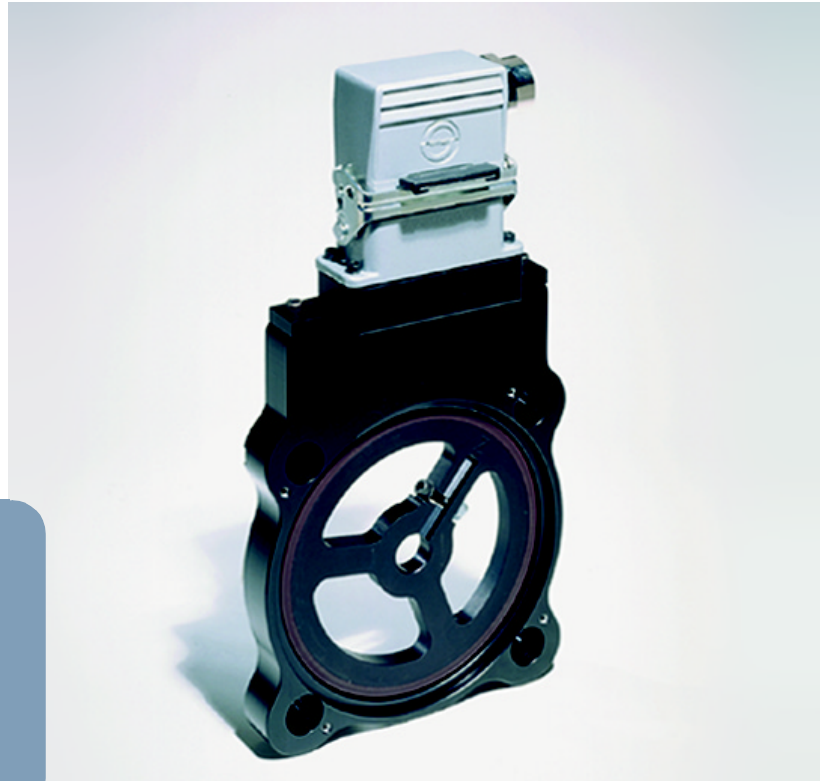
The bearingless, heavy duty, NorthStar SLIM Tach SL56 has been designed to mount directly to 4.5 inch 56 C face motors. With resolutions up to 2048 PPR, it is only 0.75 inch thick and is ideal for tight machine configurations. This reliable encoder may be configured with one or two electrically independent and totally isolated outputs. A high temperature version is available to meet operational needs up to 120° C. It also comes in a wide variety of shaft sizes, cover choices, and connector options.

### Benefits

The durable SL56 operates with unequalled resistance to grease, oil, salt water, dirt, fibers, and dust. Its hardened, encapsulated electronics make it immune to contamination, heavy machine vibration, and accidental impact, decreasing downtime. Hard, anodized aluminum of aircraft quality makes the SL56 the toughest, yet lightest, encoder available. A high power line driver comes standard and guarantees clean, crisp signals over long cable lengths, minimizing the need for signal repeaters.

### Application

Each version of the SL56 is easy to mount, requiring no bearings, adapter plates, or flexible couplings. Because the SL56 occupies only 0.75 inch of the motor shaft length, a brake, pulley, gear box, or coupling can also be placed on the shaft. The sandwich version provides double C face mounting for applications which need the encoder between the motor and another device.



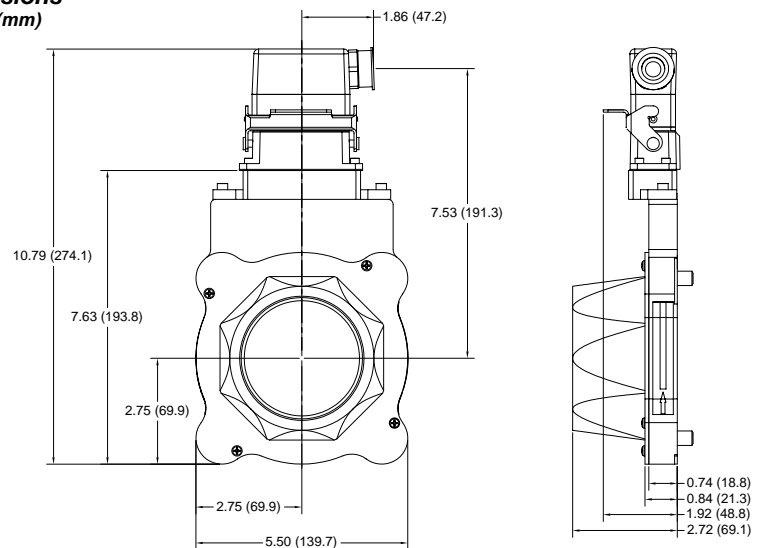
#### Features:

- Thin, compact, and only 0.75 inch thick*
- Mounts to 4.5 inch 56 C face motors*
- Rugged, reliable magneto-resistive sensor technology*
- Easy installation with no brackets or couplings*
- Hard, anodized aluminum construction*
- Single or dual sensor outputs available*



For more information on this product, visit [www.northstarencoders.com](http://www.northstarencoders.com) and enter: SL56

#### Dimensions inches(mm)



# SLIM Tach SL56 Specifications

Electrical	
Pulses Per Revolution (Resolution)	64, 128, 256, 512, 512Z, 1024, 1024Z, 2048, 2048Z
Frequency Response	0 - 120 kHz
Output Format	A, B phase @ quadrature, Z (index) phase once per rev (gated), and complements ( $\bar{A}, \bar{B}, \bar{Z}$ )
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 500 ns @ 10,000 pf typical load with 5 - 15 VDC line driver OR Less than 1 µs @ 10, 000 pf typical load with 5 - 24 VDC line driver
Supply Voltage	5 - 24 VDC
Current Consumption	40 mA typical plus line driver load with 5 - 15 VDC line driver OR 65 mA typical plus line driver load with 5 - 24 VDC line driver
Current Output	150 mA with 5 - 15 VDC line driver OR 250 mA with 5 - 24 VDC line driver
Output Voltage Levels	Differential output: (Supply Voltage less 0.6V) during on cycle, ground during off cycle
Connector	Pigtail, conduit box, latching connector See ordering table for options
Suggested Cable	22 - 16 AWG, 10 conductor, shielded, twisted pair
Output Circuit Type	5 - 15 VDC line driver (standard) OR 5-24 VDC line driver (optional)
ESD Protection	2 kV
Electrical Protection	Reverse polarity and short circuit protected
Mechanical	
Maximum Operational Speed	10,000 RPM
Available Shaft Sizes	Thru-shaft clamp style, Thru-shaft set screw style, OR End-of-shaft style available See ordering table for sizes
Shaft Axial End Play	Up to ± 0.045" (1.14 mm)
Acceleration Rate	12,000 RPM/sec
Shaft Radial Runout	0.002" Total indicated runout
Air Gap	0.019" (0.48 mm) ± 0.008" (0.2 mm)
Mechanical Options	Standard cover, Extra heavy duty steel cover, Double 56 C face sandwich kit, Flat thru-hole cover, OR Flat cover without hole
Number of Encoder Outputs	Single or Dual
Nominal Encoder Diameter	6" (152 mm)
Enclosure Material	Anodized aluminum
Enclosure Configuration	4.5" diameter 56 C motor face to meet NEMA MG1-4 standards
Unit Weight/Unit Dimensions	2.5 lbs. (1.1 kg) / 5.5" (140mm) x 10.8" (274 mm) x 2.72" (69 mm)
Boxed Unit Weight/Boxed Unit Dimensions	4.0 lbs. (1.8 kg) / 20" (508 mm) x 12" (305 mm) x 4" (102 mm)
Environmental	
Operating Temperature Ranges	-40° C to 90° C OR -40° C to 120° C
Storage Temperature	-40° C to 120° C OR -40° C to 120° C
Operational Humidity	98% condensing
Vibration	5 to 2000 Hz at 18 Gs
Shock	1 meter drop tested, minimum 30Gs shock spectrum
Environmental Rating	IP65, NEMA 4 & 12 (sensor, electronics, connector)
Chemical Resistance	Salt spray, most solvents, mild acids and bases
*Specifications subject to change without notice	

# SL56 Ordering Information

Call 877.311.4190 for Assistance

<b>A Encoder Types</b>	Single Sensor Output SL56	S560
	Dual Sensor Output SL56	D560
<b>B Pulses Per Revolution</b>	64, 128, 256, 512, 512Z, 1024, 1024Z, 2048, 2048Z	
	<b>C Shaft Sizes</b>	
	0.625" thru-shaft clamp	J04
	0.875" thru-shaft clamp	J05
	1.000" thru-shaft clamp	J06
	1.125" thru-shaft clamp	J07
	1.250" thru-shaft clamp	J08
	1.375" thru-shaft set screw	J09
	1.500" thru-shaft set screw	J10
	1.625" thru-shaft set screw	J11
1.750" thru-shaft set screw	J12	
1.875" thru-shaft set screw	J13	
2.000" thru-shaft set screw	J14	
2.125" thru-shaft set screw	J15	
2.250" thru-shaft set screw	J16	
2.375" thru-shaft set screw	J17	
2.500" thru-shaft set screw	J18	
End-of-shaft and custom bore shaft sizes 0.500" to 3.750" available. Contact NorthStar for ordering number.		
<b>D Connectors</b>	18" pigtail cable	P
	Conduit box with terminal strip	B
	3" Extended height conduit box	E
	Latching industrial connector	C
	Industrial connector on 18" cable	Q
<b>E Temperature Ranges</b>	-40° C to 90° C Operation	L
	-40° C to 120° C Operation	H
<b>F Options</b>	5-24 VDC Line Driver	V
	Extra heavy duty steel cover	E
	Double 56 C face sandwich kit	S
	Flat thru-hole cover	F
	Flat cover without hole	T

### Example:

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
S560	1024Z	J06	E	L	VE



What is Straight Shot? Straight Shot directs you to the web portal where you can quickly access the product information you need. Straight Shot codes, such as RIM6200, exist for each product or class of product. Go to our web site ([www.northstarencoders.com](http://www.northstarencoders.com)) and type the appropriate product code in the clearly defined box and hit "GO".

