

# SLIM Tach SL56



- Thin, compact, and only 0.75 inch thick
- Mounts to 4.5 inch 56 C-Face motors
- Rugged, reliable magnetoresistive sensor technology
- Easy installation with no brackets or couplings
- Anodized aluminum construction - Stainless Steel optional
- Single or dual sensor outputs available

## APPLICATION/INDUSTRY

The bearingless, heavy duty, ©NorthStar SLIM Tach SL56 mounts directly to 4.5 inch 56 C face motors. With resolutions up to 2048 PPR, it is only 0.75 inch thick and ideal for tight machine configurations.

## DESCRIPTION

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. It also comes in a wide variety of shaft sizes, cover choices, and connector options.

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, C-Face encoder available. For corrosive environments, a stainless steel version is available.

A high power line driver comes standard and guarantees clean, crisp signals over long cable lengths, minimizing the need for signal repeaters.

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 AND BENEFITS

- Thru-shaft-shaft versions are standard; double C face sandwich version is also available
- 64, 128, 256, 512, 1024, or 2048 pulses per revolution (PPR) with optional index pulse
- 5-24VDC operation, bi-directional quadrature signals with high power, differential line driver outputs

## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

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

### ELECTRICAL

Input Voltage Requirement: 5-15 or 5-26 Volts DC  
 Current Requirement:  
 With Electrical Option L or H: 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:  
 With Elec Option L or H: 5-15 V Line Driver, 150mA  
 With Elec Option V: 5-26 V Line Driver, 100mA  
 With Elec Option 5: 5V Line Driver, 150mA  
 Frequency Response: 0 - 120kHz Data & Index  
 Electrical Immunity: 2kV ESD, Reverse Polarity, Short Circuit  
 Connector: 10 pin industrial duty latching, sealed NEMA 4 & 12, IP65; MS connector or pig-tail

### 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 (5-15 VDC)	6	Red	D
B̄	7	Yellow	I
Ā	8	Gray	H
Z*	9	Orange	J
Shield	10	Braid	G

\* Index (Z) optional. See Ordering Information

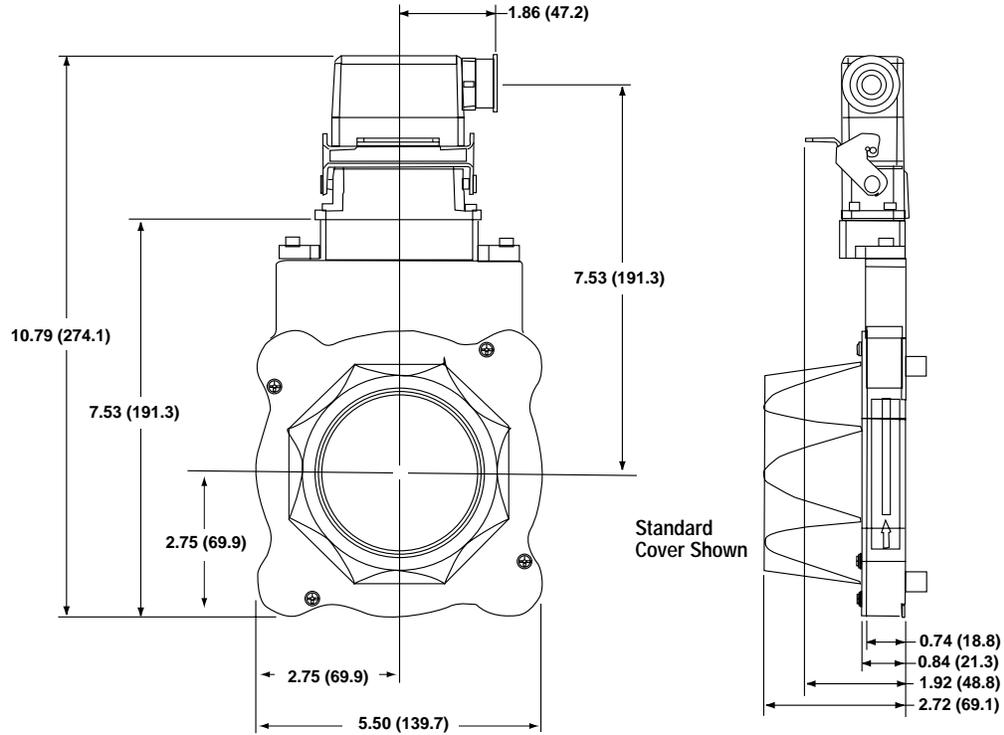
### MECHANICAL

Max. Shaft Speed: 5,000 RPM  
 Mounting Configuration: 4.5" 56C face mount for NEMA MG1 standards  
 Housing Material: Cast Aluminum (Stainless Steel optional)  
 Acceleration Rate: 12,000 rpm/sec max  
 Shaft Length Required: 0.7" min  
 Allowable Shaft End-Play: ± 0.045"  
 Allowable Shaft Runout: 0.002" TIR  
 Weight: Aluminum: 1.7 lbs (0.77 kg); Stainless: 3 lbs (1.36 kg)

### ENVIRONMENTAL

Operating Temperature Range:  
 Standard: -40°C to +90°C  
 Extended: -40°C to +120°C  
 Storage Temperature Range: -40°C to +120°C  
 Humidity: to 98% RH (non-condensing)  
 Shock (Sensor Module): 1 meter drop test, 30 G's Min  
 Vibration: 18 G's @ 5-2000 Hz spectrum

**DIMENSIONS**  
inches [mm]



**ORDERING INFORMATION**

Code 1: Model	Code 2: PPR	Code 3: Index	Code 4: Wheel Bore	Code 5: Termination	Code 6: Electrical	Code 7: Cover/Adapter
<input type="checkbox"/> 5	<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"/>	<input type="checkbox"/>
Ordering Information						
S5 Motor Mount Ring, for 4 1/2" C-Face Motors (56C) Single Output	0064	L No Index Available when Code 2 is 0512, 1024 or 2048 Z Differential Index (Z, Z̄)	J04 5/8" bore	C Latching Industrial Connector with 1/2" NPT E 3" extended height Latching Industrial Connector with 1/2" NPT M 10 pin MS Connector P 18" pigtail cable	L 5-15V in, 5-15V Line Driver (4428) out H Same as L with extended temp. to 120°C V 5-26V in, 5-26V Line Driver (IC-WE) out 5 5-15V in, 5V Line Driver (4428) out	C Standard Cover E Extra heavy duty steel cover F Flat Thru-hole cover S Double 56 C-Face Sandwich Adapter T Flat No Hole Cover
	0128		J05 7/8" bore			
D5 Motor Mount Ring, for 4 1/2" C-Face Motors (56C) Dual Output	0256		J06 1.00" bore	Available when Code 1 is S5 and Code 4 is J04 thru J07: S 18" pigtail cable with stainless steel housing	Differential, bidirectional signals (A, Ā, B, B̄)	
	0512		J07 1-1/8" bore			
	1024		K09 1-3/8" bore			
	2048		K10 1-1/2" bore			
			K11 1-5/8" bore			
			K12 1-3/4" bore			
			K13 1-7/8" bore			
			K14 2.00" bore			
			K15 2-1/8" bore			
			K16 2-1/4" bore			
			K17 2-3/8" bore			
			K18 2-1/2" bore			
			K19 2-7/8" bore			
			Additional Shaft Sizes Available Up to 3.75" Maximum			

HEAVY DUTY

Spare Pulse Wheel: Use "NS" followed by Code 2 (PPR) & Code 3 (Index) & Code 4 (Bore Size). Example: NS0512ZK11

Spare Mating Connector: Use "NS" followed by Code 1 (Model) & Code 5 (Termination). Example: NSS5C

Spare Cover: Use "NS" followed by Code 1 (Model) & Code 4 (Bore Size) & Code 7 (Cover). Example: NSS5K11C

5 foot Interface Cable: RIMCABLEDB10005. Other Length: final 4 digits is length in 5 ft increments. Example RIMCABLEDB10065 is 65 feet.