

# SLIM Tach SL85



- Only 1.250" thick, mounts directly onto 8.5" (180 C) face motor
- Rugged, zero-speed, magnetoresistive sensing technology is unaffected by grease, salt water, dust, and other common contaminants
- Up to 90°C operation

## APPLICATION/INDUSTRY

The ©NorthStar brand SLIM Tach® SL85 is a mill duty digital tachometer with high immunity to grease, oil, salt water, dirt, fibers, and dust is optimized for AC vector motor applications.

## DESCRIPTION

The magnetoresistive sensor of the SLIM Tach SL85 operates with an unparalleled immunity to grease, oil, salt water, dirt, fibers, and dust, thereby eliminating the need for sealing. It occupies only 1.250" of the motor shaft length, enabling the encoder and a flexible coupling or pulley to be mounted on the motor. The simple and sturdy design can be mounted in any attitude quickly and easily.

The sensor generates A and B phase quadrature signals and their complements  $\bar{A}$  &  $\bar{B}$ . The module provides transient and noise suppression, reverse polarity protection, and operates with DC power from +5 to +15 volts. A high power, complementary, line driver output assures clean, crisp signals over long cable lengths. The hardened encapsulated electronics of the SL85 make it especially resistant to heavy machine vibration and accidental impacts.

Mounting the SL85 onto the 8.5(180 C) face of a motor is quick and easy with no adapter plates, bearings, or flexible coupling. Installation can be completed in seconds with no gap adjustments or special tools. The encoder can be removed then reinstalled just as easily. The latching industrial connector requires only a simple screw driver to install. To replace a module, simply remove four screws and replace with a new module. No electrical adjustment or alignment is required.

The SL85 pulse wheel assembly is imprinted with magnetic poles that provide higher pulse counts than traditional gear tooth wheels. The higher resolution provides greater accuracy and more precise speed control in your applications. For flexible usage, wheel assemblies are available in a variety of mounting configurations.

## FEATURES AND BENEFITS

- Thru-shaft and end-of-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
- 5-15VDC 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:  $90^\circ \pm 22^\circ$   
 Symmetry:  $180^\circ \pm 54^\circ$   
 Index:  $270^\circ$  gated to falling B edge  
 Number of Output Modules: Single or Dual Redundant

### ELECTRICAL

Input Power Requirements: 5-15 Volts DC, 45 mA typical per sensor module plus line driver load  
 Output Signals: Line Driver, 150mA source/sink  
 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

### 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
$\bar{B}$	7	Yellow	I
$\bar{A}$	8	Gray	H
$\bar{Z}$ *	9	Orange	J
Shield	10	Braid	G

\* Index (Z) optional. See Ordering Information

### MECHANICAL

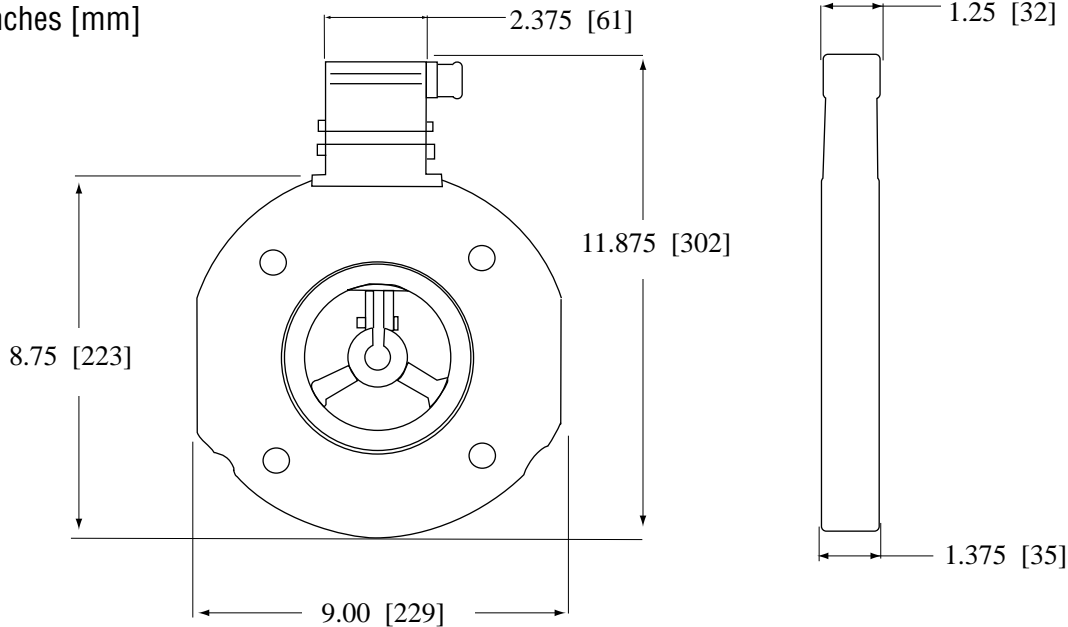
Max. Shaft Speed: 5,000 RPM  
 Mounting Configuration: 8.5" 180C face mount for NEMA MG1 standards  
 Housing Material: Cast Aluminum  
 Acceleration Rate: 3600 rpm/sec max  
 Shaft Length Required: 2.5" min  
 Allowable Shaft End-Play:  $\pm 0.050"$   
 Allowable Shaft Runout: 0.003" TIR

### ENVIRONMENTAL

Operating Temperature Range:  
 Standard:  $-40^\circ\text{C}$  to  $+90^\circ\text{C}$   
 Extended:  $-40^\circ\text{C}$  to  $+120^\circ\text{C}$   
 Storage Temperature Range:  $-40^\circ\text{C}$  to  $+120^\circ\text{C}$   
 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"/> 8	<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						
<b>S8</b> Motor Mount Ring, for 8 1/2" C-Face Motors (180C) Single Output	0064 0128 0256 0512 1024 2048	L No Index  Available when Code 2 is 0512, 1024 or 2048 Z Differential Index (Z, Z̄)	J04 5/8" bore J05 7/8" bore J06 1.00" bore J07 1-1/8" bore K09 1-3/8" bore 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 <b>End of Shaft Mounting</b> N01 1.125" EOS N06 2.125" EOS N08 2.375" EOS N10 2.875" EOS	C Latching Industrial Connector with 1/2" NPT  E Double C-Face Sandwich Version with 3" extended height Industrial Connector  M 10 pin MS Connector P 18" pigtail cable Q Latching Industrial Connector on 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  Differential, bidirectional signals (A, Ā, B, B)	C Standard Cover F Flat Thru-hole cover
<b>D8</b> Motor Mount Ring, for 8 1/2" C-Face Motors (180C) Dual Output						

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) and Code 5 (Termination). Example: NSS8C  
 Spare Cover: Use "NS" followed by Code 1 (Model) & Code 4 (Bore Size) & Code 7 (Cover). Example: NSS8K11C  
 5 foot Interface Cable: RIMCABLEDB10005. Other Length: final 4 digits is length in 5 ft increments. Example RIMCABLEDB10065 is 65 feet.