

SLIM Tach[®] SL85

rugged, bearingless, heavy duty encoder

Features

- 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
- 5-15VDC operation, bi-directional quadrature signals with high power, differential line driver outputs
- 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
- Up to 90°C operation



The **NorthStar SLIM Tach[®] SL85** heavy duty encoder is a breakthrough innovation in feedback technology. This high resolution, bearingless encoder is optimized for AC vector motor applications. The model SL85 provides resolutions of 512, 1024, or 2048 pulses per revolution, much higher resolutions than traditional gear tooth ring kits.

Unparalleled Technology & Electronics

The magnetoresistive sensor of the SL85 operates with an unparalleled immunity to grease, oil, salt water, dirt, fibers, and dust, thereby eliminating the need for sealing. The sensor generates A and B phase quadrature signals and their complements (A & 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.

Slim & Rugged Design

The rugged construction of the SL85 offers the user wide flexibility in a variety of applications. The SL85 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.

Easy Installation

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.

Pulse Wheel

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. They are manufactured using a rugged material capable of withstanding hot, wet, and dirty environments.

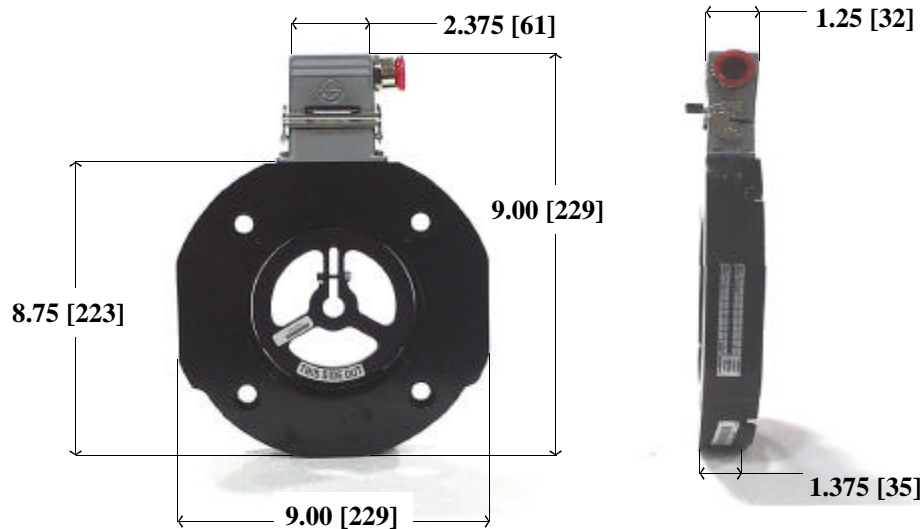
Electrical Specifications	
Resolution	64, 128, 256, 512, 512Z, 1024, 1024Z, 2048, 2048Z PPR
Frequency Response	0 to 120KHz maximum
Pulse Code	A, B, Z (Index), and complements (A, B, Z)
Output Channels	A & B (incremental), Z (marker)
Duty Cycle	50% ± 15% (within defined mechanical specs)
Quadrature Accuracy	90° ± 22° (within defined mechanical specs)
Output Type	High speed, differential driver
Rise and Fall Time	Less than 500 ns @ 10,000 pf (typical)
Current Consumption	40 mA typical plus line driver load
ESD Protection	2 kV
Output Current Capability	150 mA typical [350 mA maximum (worst case)]
Connector	10 pin Epic style, NEMA 4, 12 industrial connector
Suggested Cable	22 AWG, 8 conductor, 18" length, 4 twisted shield pairs
Input Voltage	+5.0 to +15.0 VDC

Mechanical Specifications	
Maximum Operational Speed	6,000 RPM
Nominal Air Gap	0.019 ± 0.008 inch
Shaft Axial End Play	Up to ± 0.045 inch maximum
Enclosure Configuration	4.5" Diameter, 56 C motor face or accessory flange to meet NEMA MG1-4 standards
Acceleration Rate	12,000 RPM per second
Approx. Box Weight / Dimensions	4 lbs. (1.8 kg) / 17.5" (445mm) x 2.75" (70mm) x 10.75" (274mm)
Unit Weight / Dimensions	4.8 lbs. (2.2 kg)/9.00"(229mm) x 1.25"(32mm) x 8.75" (223mm)

Environmental Specifications	
Operational Temperature	-40° to + 90° C
Operational Humidity Range	Maximum of 98%
Chemical Resistance	Salt spray, most solvents, mild acids and bases
Vibration	Minimum 18 g's RMS, 5-2000 Hz
Shock (Encoder Housing)	1 meter drop tested, min 30 g's shock spectrum

*Specifications subject to change without notice.

Dimensions inches [mm]



Ordering Information

Encoder Type
S850 S85

Pulse Count
512, 512Z, 1024, 1024Z, 2048, 2048Z

Shaft Size

0.500" thru-shaft clamp style	J03
0.625" thru-shaft clamp style	J04
0.875" thru-shaft clamp style	J05
0.9375" thru-shaft clamp style	J21
1.000" thru-shaft clamp style	J06
1.125" thru-shaft clamp style	J07
1.250" thru-shaft clamp style	J08
0.9375" thru-shaft set screw style	J22
1.375" thru-shaft set screw style	J09
1.500" thru-shaft set screw style	J10
1.625" thru-shaft set screw style	J11
1.750" thru-shaft set screw style	J12
1.875" thru-shaft set screw style	J13
2.000" thru-shaft set screw style	J14
2.125" thru-shaft set screw style	J15
2.250" thru-shaft set screw style	J16
2.375" thru-shaft set screw style	J17
2.500" thru-shaft set screw style	J18
2.625" thru-shaft set screw style	J20
2.875" thru-shaft set screw style	J19
3.000" thru-shaft set screw style	J23

1.125" end-of-shaft	N01
2.125" end-of-shaft	N06
2.375" end-of-shaft	N08
2.875" end-of-shaft	N10
Custom bore sizes (0.500-3.750")	J??

Connections

18" pigtail cable	P
3" extended height conduit box	E
Latching industrial connector	C
Industrial connector on 12" pigtail cable	Q

Temperature
90° C L

Mechanical Options

Flat thru-hole cover	F
Grounding brush assembly	G
Special instructions	X

Electrical Options
Standard —

Example:
S851024J07CLF—

