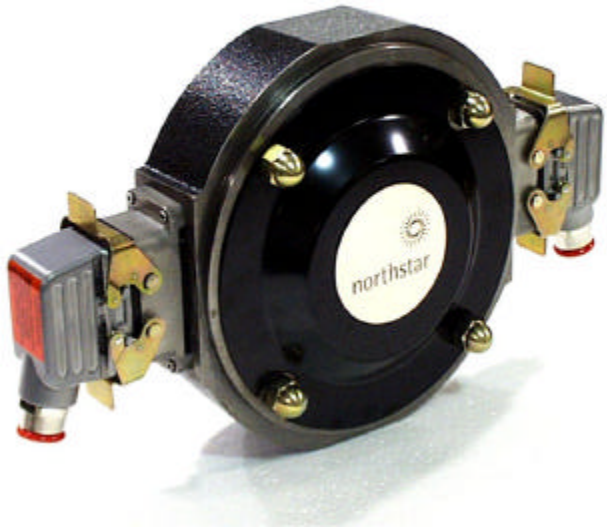
RIM Tach® 8500
Thru-Shaft & End-of-Shaft

Features

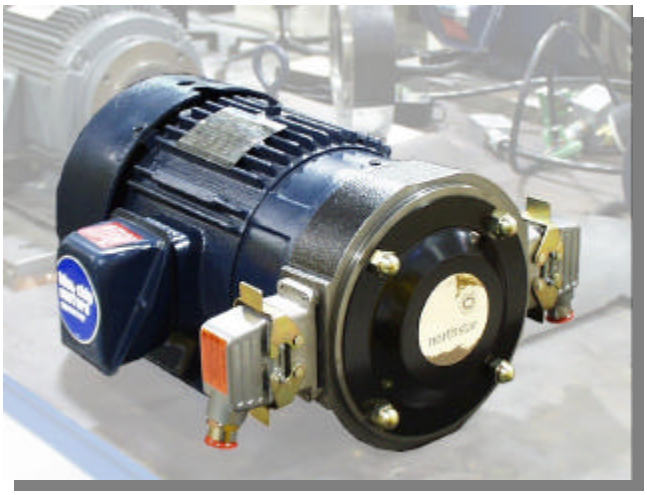
- **Provides high performance feedback for AC and DC drive control systems**
- **Thin, pancake style design mounts directly on the motor without bearings or couplings**
- **Rugged, zero speed, magnetoresistive sensing technology is unaffected by grease, salt water, dust or other contaminants**
- **Highly reliable speed signals for mill duty applications**
- **Stainless steel and cast iron construction**
- **Resolution to 1200 pulses per revolution PPR**



The ©**NorthStar RIM Tach® 8500** is a mill duty digital tachometer which provides precise, reliable speed signals for even the most difficult mill processes. This high performance tachometer, available in either thru-shaft or end-of shaft models, was specifically designed to provide feedback for AC and DC drive control systems. The **8500** is the most reliable magnetoresistive digital tachometer found on the market today.

Rugged Mill Duty Construction

The **8500** is constructed of a ductile cast iron enclosure ensuring rugged and reliable performance in even the harshest environments. The bearingless design eliminates failures caused by repeated couplings or bearing failures. The **8500** features a magnetized drum that accommodates large (up to 4.5") thru-shaft or end-of-shaft designs.



Reliable Magnetoresistive Technology

The **8500** accepts one or two stainless steel sensor modules with patented magnetoresistive technology. Each module generates A and B signals in quadrature, an optional index pulse Z, and each of their complements (A, B, Z). These reliable sensor modules can utilize DC power from +5 to +15 volts, provide transient and noise suppression, and reverse polarity protection. The **8500** high performance tachometer provides resolutions up to 1200 pulses per revolution, which is much higher than traditional encoders.

Easy Installation

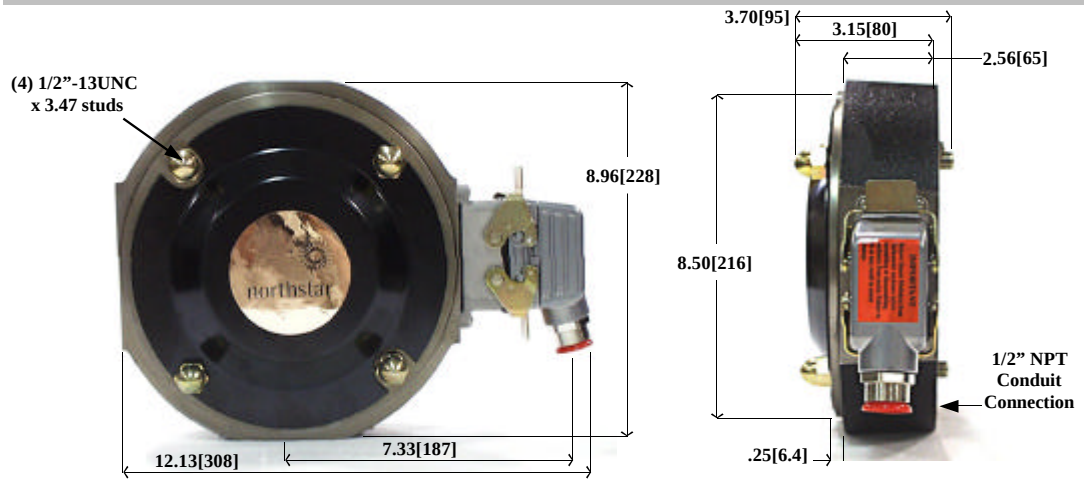
The **8500** has standard mill duty latching connectors. These sealed connectors are a snap to wire by simple inserting the stripped conductor in the plug and tightening the screw terminals. There is no need to field solder or to struggle with a crimp pin. The unit easily mounts on a standard NEMA 180 C face (8.5") and requires no gap adjustments. The pulse count output is very simple to change, just remove four screws and slide the desired pulse count sensor module in place. Finally, an optional shaft grounding brush can be added to the unit to reduce or eliminate motor shaft currents, thereby allowing for a longer motor bearing life.

©NorthStar Technologies, Inc. /A LakeShore Company **575 McCorkle Blvd., Westerville, OH 43082** **Tel: (614) 818-1150 Fax: (614) 891-6909**
www.northstar-tec.com **sales@northstar-tec.com, service@northstar-tec.com** **791-7010-00 Rev. 1**

Electrical Specifications	
Frequency Response	0 - 120 kHz
Pulse Code	A, B, Z (Index), and complements (A, B, Z)
Output Phases	A, B phase @ quadrature 90°C, Z phase: One per rev (gated)
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	45 mA typical plus line driver load
Output Current	150 mA maximum continuous
ESD Protection	2 kV
Mechanical Specifications	
Maximum Operational Speed	7,000 RPM or 120 kHz
Shaft Axial End Play	Up to ± 0.050"
Enclosure Configuration	8.5" dia. 180 C motor face or accessory flange for NEMA MG1-4 standards
Slew Rate	3,600 RPM/second, 12,000 RPM/sec w/ optional high slew rate pulse wheel
Enclosure Material	Ductile iron casting
Sensor Module Material	Stainless steel
Box Weight/Box Dimensions	25.0 lbs. (11.4 kg) / 22.0"(559mm) x 12.0"(305mm) x 9.0"(229mm)
Environmental Specifications	
Operational Temperature	-40° to +80° C
Operational Humidity Capability	Maximum of 90%
Chemical Resistance	Salt spray, most solvents, mild acids and bases
Vibration	Minimum 18 g's RMS, 5-2000 Hz shock spectrum
Shock (Sensor Module)	1 meter drop tested, min. 30g's
Interface Specifications	
Power	+5.0 to +15.0 VDC
Output	Differential output swinging between Vcc - 0.6V & ground
Connector	10 pin industrial latching connector w/ ½" NPT fitting, IP-65 NEMA 4, 12 rated
Suggested Cable	22 - 16 AWG, 10 conductor, shielded, twisted pair

*Specifications subject to change without notification.

Dimensions inches[mm]



Ordering Information

Tachometer Type

RIM8.5 RIM8.5

Pulse Count

60, 64, 75, 120, 128, 150, 240, 256, 300, 480, 480Z, 512, 512Z, 600, 600Z, 960, 960Z, 1024, 1024Z, 1200, 1200Z

Shaft Size

0.625" TS* clamp style	TB
0.750" TS clamp style	TC
0.875" TS clamp style	TD
1.000" TS clamp style	TE
1.125" TS clamp style	T01
1.375" TS set screw style	T02
1.625" TS set screw style	T03
1.875" TS set screw style	T04
2.000" TS set screw style	T05
2.125" TS set screw style	T06
2.250" TS set screw style	T07
2.375" TS set screw style	T08
2.500" TS set screw style	T09
2.625" TS set screw style	T19
2.875" TS set screw style	T10
Non-standard TS sizes	TXX
40mm TS	M40
50mm TS	M50
75mm TS	M75
1.125" EOS*	E01
2.125" EOS	E06
2.375" EOS	E08
2.875" EOS	E10
Non-standard EOS sizes	EXX
0.5-4.5" (12-115mm)*	

Number of Sensor Modules

Single Module	1
Second isolated module	2

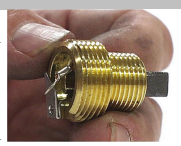
Output Circuit Type

Line Driver LD

TS= Thru-Shaft, EOS= End-of-Shaft
***not all combinations available**

Example:
RIM8.5 1024Z T01 2 LD

Grounding Brush (optional)



R I M ® T a c h Shaft Grounding Brush provides low resistance, electrical contact to the motor shaft to reduce or eliminate induced shaft currents in AC or DC mo-

Also from ©NorthStar

RIM Tach® High Temperature Sensor Module withstands up to 120°C. With temperature monitoring sticker for user verification of operating conditions. Magnetoresistive for greater reliability. Stainless steel.

Intellitach™ feedback monitoring system eliminates downtime from encoder failure. Continuously analyzes encoder signals and automatically switches to back-up encoder. High power line driver outputs.

RIM Tach® Signal Splitter™ routes one encoder's signals to multiple, isolated locations. Accepts either A & B alone or with complements, and outputs two, independent, quadrature signals. Also repeats and boosts signals.

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