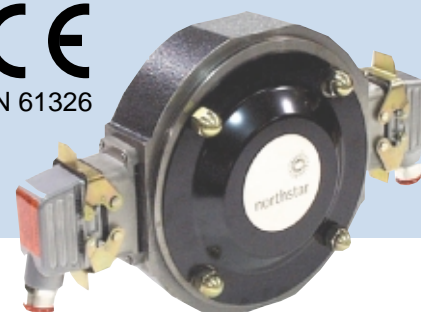


# RIM Tach 8500

- High performance feedback for AC and DC drive control systems
- Thin, pancake style design mounts to 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



## APPLICATION/INDUSTRY

The ©NorthStar brand RIM Tach® 8500 is a mill duty digital tachometer which provides precise, reliable speed signals for even the most difficult mill processes.

## DESCRIPTION

The 8500 is the most reliable magnetoresistive digital tachometer found on the market today. Available in either thru-shaft or end-of shaft models, it is specifically designed to provide feedback for AC and DC drive control systems.

Its ductile cast iron enclosure ensures rugged and reliable performance in the harshest environments. Its bearingless design greatly reduces failures and loading on the system. The 8500 features a magnetized drum that accommodates large (up to 4.5") thru-shaft or end-of-shaft mounting.

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.

Its standard mill duty latching connectors are very easy to wire by simply inserting the stripped conductors into the plug and tightening the screw terminals. There is no need to field solder or to struggle with crimp pins. The unit easily mounts on a standard NEMA180 C face (8.5") and requires no gap adjustments. The sensor module is very simple to change, just remove four screws and slide the new sensor module in place. Finally, an optional shaft grounding brush can be added to the unit to reduce or eliminate motor shaft currents, thereby increasing motor bearing life.

## FEATURES AND BENEFITS

- Rugged Mill Duty Construction
- Reliable Magnetoresistive Technology
- Easy Installation

## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

**Code:** Incremental  
**Pulses per Revolution:** 60-1200  
**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

### 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	A
B	2	Green	E
A	3	Blue	D
Z *	4	Violet	C
No Connection	5	—	—
Vcc (5-15 VDC)	6	Red	B
B	7	Yellow	H
A̅	8	Gray	G
Z̅ *	9	Orange	I
Shield	10	Braid	J

\* Index (Z) optional. See Ordering Information

### MECHANICAL

**Shaft Speed:** 7,000 RPM  
**Mounting Configuration:** 8.5" 180C face mount for NEMA MG1 standards  
**Housing Material:** Cast Iron/Stainless Steel  
**Acceleration Rate:** 3600 rpm/sec max  
**Shaft Length Required:** 2.5" min  
**Allowable Shaft End-Play:** ± 0.050"  
**Allowable Shaft Runout:** 0.003" TIR

### ENVIRONMENTAL

**Operating Temperature Range:** -40°C to +80°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

Specifications are for base models with standard features only unless otherwise noted. Specifications subject to change without notice in accordance with our DBS policy of continuous improvement. All product and brand names are trademarks of their respective owners. All rights reserved.

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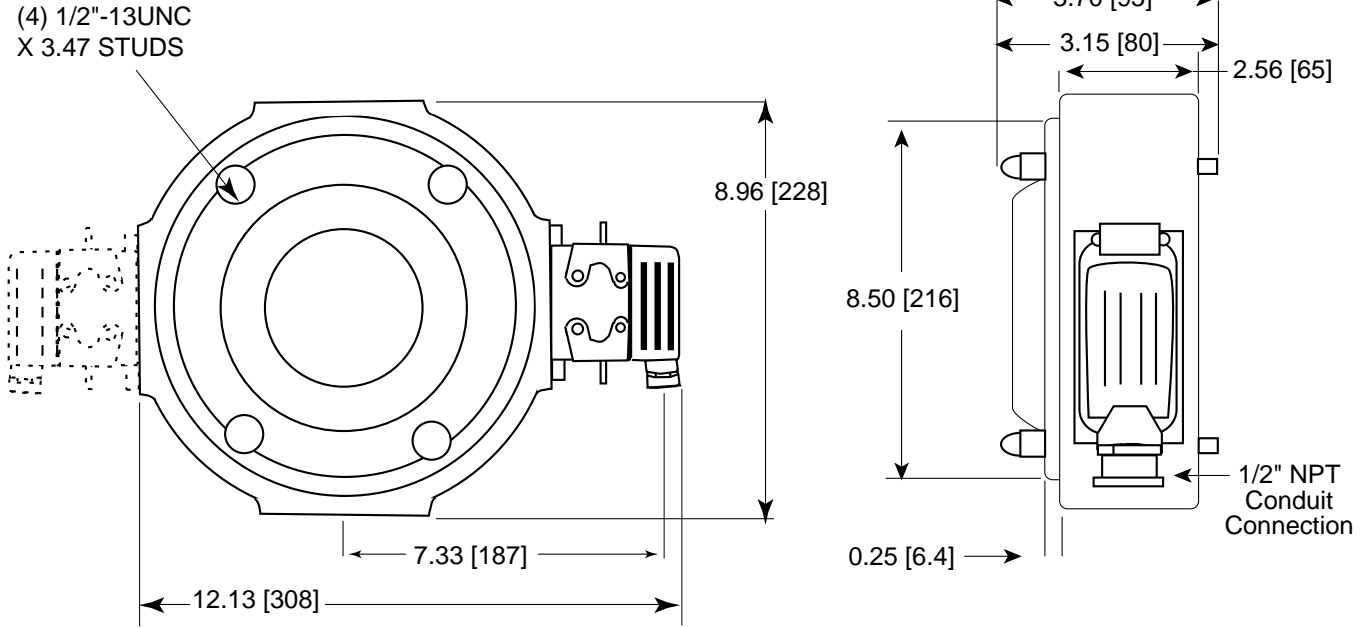
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NorthStar brand RT8500 Data Sheet (02/08)

**DIMENSIONS**

inches [mm]

# RIM Tach 8500



**ORDERING INFORMATION**

Code 1: Model	Code 2: PPR	Code 3: Index	Code 4: Wheel Bore	Code 5: Output	Code 6: Electrical	Code 7: Termination
<b>R8</b>	<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>R8</b> Motor Mount Ring, for 1/2" C-Face Motors (180C)	<b>0060</b> 0300 <b>0064</b> 0480 <b>0075</b> 0512 <b>0120</b> 0600 <b>0128</b> 0960 <b>0150</b> 1024 <b>0240</b> 1200 <b>0256</b>	<b>L</b> No Index Available when Code 2 is 0480, 0512, 0600, 0960, 1024 or 1200 <b>Z</b> Differential Index (Z, Z̄)	<b>J04</b> 5/8" bore <b>J05</b> 7/8" bore <b>J06</b> 1.00" bore <b>J07</b> 1-1/8" bore <b>K09</b> 1-3/8" bore <b>K10</b> 1-1/2" bore <b>K11</b> 1-5/8" bore <b>K12</b> 1-3/4" bore <b>K13</b> 1-7/8" bore <b>K14</b> 2" bore <b>K15</b> 2-1/8" bore <b>K16</b> 2-1/4" bore <b>K17</b> 2-3/8" bore <b>K18</b> 2-1/2" bore <b>K19</b> 2-7/8" bore Additional Shaft Sizes Available Up to 3.75" Maximum <b>End of Shaft Mounting</b> <b>E01</b> 1.125" EOS <b>E06</b> 2.125" EOS <b>E08</b> 2.375" EOS <b>E10</b> 2.875" EOS	<b>1</b> Single <b>2</b> Dual (Isolated)  Differential, bidirectional signals (A, Ā, B, B̄)	<b>L</b> 5-15V in, 5-15V Line Driver (4428) out  <b>H</b> Same as L with extended temp. to 120°C  <b>R</b> 15-26V in, 15V Line Driver (4428) out  <b>5</b> 5-15V in, 5V Line Driver (4428) out	<b>C</b> Latching Industrial Connector with 1/2" NPT  <b>M</b> 10 pin MS Connector  <b>P</b> 18" Pigtail
<div style="border: 1px solid black; padding: 5px;">                     Spare Sensor Module: Use "NS" followed by <b>Code 1</b> (Model) &amp; <b>Code 2</b> (PPR) &amp; <b>Code 3</b> (Index) &amp; <b>Code 6</b> (Electrical) &amp; <b>Code 7</b> (Termination). Example: NSR80512ZLC                      Spare Pulse Wheel: Use "NS" followed by <b>Code 2</b> (PPR) &amp; <b>Code 3</b> (Index) &amp; <b>Code 4</b> (Bore Size). Example: NS0512ZK11                      Spare Mating Connector: Use "NS" followed by <b>Code 1</b> (Model) &amp; <b>Code 7</b> (Termination). Example: NSR8C                      5 foot Interface Cable: RIMCABLEDB10005. Other Length: final 4 digits is length in 5 ft increments. Example RIMCABLEDB10065 is 65 feet.                 </div>						



# Gordy's Sensors

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