

# SLIM Tach ST56

**NorthStar™ brand**

## Bearingless Encoder

### Key Features

- Redesigned Using Our Revolutionary Sensor Technology to Provide a Large Air Gap of 0.060"
- Redesigned Circuitry for On-Board Diagnostics with LED and Alarm Output
- Bearingless Design Mounts to 56 and 140 C-Face Motors
- Thin 3/4" Profile Saves Space and Can be "Sandwiched" Between Motor & Reducer
- Compact Height of 9.8" Designed with Options to Extend
- Anodized Aluminum Housing with Field-Serviceable Connector
- Single or Dual Isolated Outputs Available



## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

**Code:** Incremental, Magnetic  
**Pulses per Revolution:** 64-2048 PPR  
**Phasing Sense:** A leads B for Counter-Clockwise rotation (CCW) viewing encoder-mounted end  
**Quadrature Phasing:** 90° ± 45°  
**Symmetry:** 180° ± 54°  
**Index:** Less than phase A/B pulse width  
**Number of Output Modules:** Single or Dual

### ELECTRICAL

**Input Voltage Requirement:** 5-26 Volts DC  
**Current Requirement:** 95 mA typical per sensor module plus line driver load  
**Output Signals:**  
 IC-WE Differential Line Driver: 150mA, sink or source  
**Frequency Response:** 0 - 120kHz Data & Index  
**Noise Immunity:** Tested to EN61326-1  
**Electrical Immunity:** Reverse polarity and short circuit protected  
**Connector:** 10 pin industrial duty latching, sealed NEMA 4 & 12, IP65; MS connector or pig-tail

### MECHANICAL

**Bore Size:** 5/8" to 2-7/8"  
**Mounting Configuration:** 4.5" 56 C-Face Mount or 140 C-Face Mount for NEMA MG1 Standards  
**Max. Shaft Speed:** 7,000 RPM  
**Shaft Length Required:** 0.7" min  
**Allowable Shaft End-Play:** +0.050"/-0.125"  
**Allowable Shaft Runout:** 0.005" TIR  
**Acceleration Rate:** 3,600 rpm/sec max  
**Housing Material:** Aluminum  
**Weight:** 3.6 lbs.

### ELECTRICAL CONNECTIONS

Signal	Connector Pin	Pigtail Cable	MS 3102E18-IT#	Conduit Box
Common	1	Black	F	1
B	2	Green	B	5
A	3	Blue	A	3
Z *	4	Violet	C	7
No Connection	5	—	E	—
Vcc (5-26 VDC)	6	Red	D	2
B	7	Yellow	I	6
A	8	Gray	H	4
Z *	9	Orange	J	8
Shield	10	Braid	G	—

\* Index (Z) optional. See Ordering Information

### ENVIRONMENTAL

**Operating Temperature Range:**  
**Standard:** -40°C to +100°C  
**Extended:** -40°C to +120°C  
**Storage Temperature Range:** -40°C to +120°C  
**Shock:** 300 G's Min.  
**Vibration:** 20 G's @ 5-2000 Hz spectrum  
**Humidity:** Up to 98% (non-condensing)

**Ordering Information**

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: PPR	Code 3: Index	Code 4: Wheel Bore	Code 5: Termination	Code 6: Electrical	Code 7: Cover/Adapter
□ □ □	□ □ □ □	□	□ □ □	□	□	□

Ordering Information						
<b>ST5</b> Direct Motor Mounting on NEMA 56 flange (4.5"), Single Output  <b>DT5</b> Direct Motor Mounting on NEMA 56 flange (4.5"), Dual Output	<b>0064</b> <b>0128</b> <b>0256</b> <b>0512</b> <b>1024</b> <b>2048</b>	<b>L</b> No Index  <b>Z</b> Index	<b>C04</b> 0.625" <b>CB4</b> 16 mm <b>C05</b> 0.875" <b>C36</b> 24 mm <b>C06</b> 1.000" <b>C29</b> 25 mm <b>C07</b> 1.125" <b>C31</b> 30 mm <b>C08</b> 1.250" <b>CA4</b> 45 mm <b>C09</b> 1.375" <b>C58</b> 60 mm <b>C10</b> 1.500" <b>C40</b> 80 mm <b>C11</b> 1.625" <b>C12</b> 1.750" <b>C13</b> 1.875" <b>C14</b> 2.000" <b>C15</b> 2.125" <b>C16</b> 2.250" <b>C17</b> 2.375" <b>C18</b> 2.500" <b>C20</b> 2.625" <b>C19</b> 2.875"	<b>B</b> Conduit Box <b>C</b> Latching Industrial Connector with 1/2" NPT <b>D</b> 1" Extended Height Latching Industrial Connector with 1/2" NPT <b>E</b> 3" Extended Height Latching Industrial Connector with 1/2" NPT <b>F</b> Latching Industrial Connector without Mating Connector <b>G</b> 1" Extended Height Latching Industrial Connector <b>H</b> 3" Extended Height Latching Industrial Connector without Mating Connector <b>M</b> 10 Pin MS Connector <b>N</b> 10 Pin MS 3112 Connector <b>P</b> 18" Pigtail Cable (25" when Code 6 = H) <b>Q</b> Latching Industrial Connector on 18" Pigtail Cable <b>R</b> Latching Industrial Connector on 18" Pigtail Cable without Mating Connector	<b>V</b> 5-26V in, 5-26V Line Driver (IC-WE) out <b>5</b> 5-26V in, 5V out Line Driver (IC-WE) <b>H</b> Same as V but with High Temperature, Extended Operating Range to 120°C	<b>CC</b> Plastic Cover <b>EE</b> Extra Heavy Duty Steel Cover <b>FF</b> Flat Thru-Hole Cover <b>TT</b> Flat No Hole Cover
		For additional bore sizes up to 3.75" maximum, please consult factory.				

**Note:** See ACCESSORIES Section For Connectors, Spare Parts and Pulse Wheels

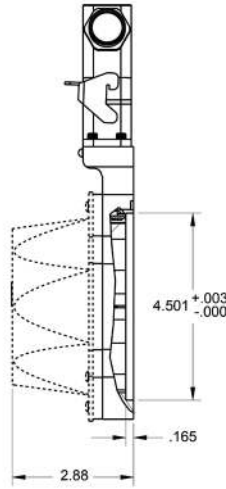
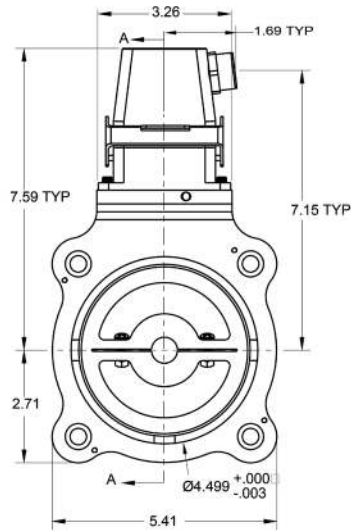
**SL56 LEGACY MODELS**

Dynapar's legacy SL56 product line is still available for configurations not currently available in the ST56 product line. For additional bore sizes up to 3.75" maximum, please consult the factory.

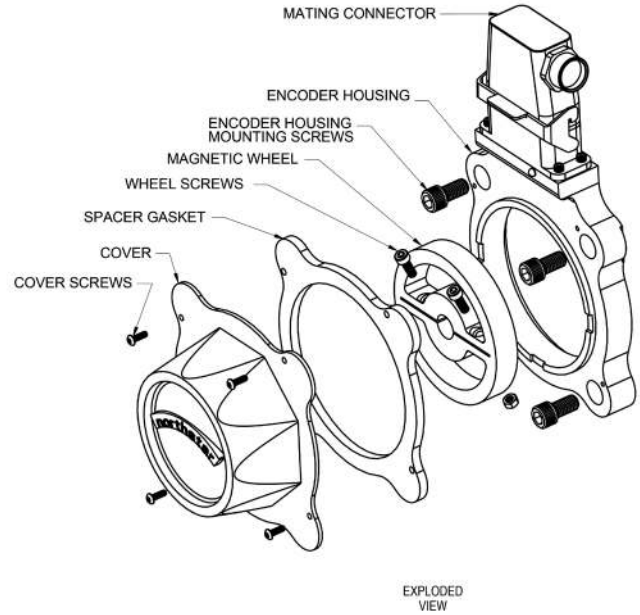
# SLIM Tach ST56



**DIMENSIONS** inches



SECTION A-A  
PLASTIC COVER OPTION



EXPLODED  
VIEW



[WWW.DYNAPAR.COM](http://WWW.DYNAPAR.COM)

Headquarters: 1675 Delany Road • Gurnee, IL 60031-1282 • USA

**Customer Service:**

Tel.: +1.800.873.8731  
Fax: +1.847.662.4150  
custserv@dynapar.com

**Technical Support**

Tel.: +1.800.234.8731  
Fax: +1.847.662.4150  
northstar.techsupport@dynapar.com

**European Sales Representative**

Hengstler GmbH  
Uhlandstrasse 49, 78554 Aldingen  
Germany  
[www.hengstler.com](http://www.hengstler.com)