SLIM Tach[®] RL67

Reliance / \otimes NorthStar modular encoder for RPMⁱⁿ DC & AC motors

Features

- Unique mechanical design for Reliance RPM[™] motors
- Rugged, zero-speed, magnetoresistive sensing technology is unaffected by grease, salt water, dust, and other common contaminants
- Modular, bearingless, low profile "pancake" design adds only 1.5" to motor length
- 5-15 VDC operation with bi-directional quadrature and signals, with high power differential line driver outputs
- 64, 128, 256, 512, 1024, & 2048 pulses per revolution (PPR) with optional Index pulse
- Up to 90°C operational temperature



The **SLIM Tach**[®] **RL67** heavy duty encoder is a breakthrough innovation in feedback technology. Incorporating dual mounting features, the RL67 was designed especially for Reliance Electric, Inc. RPM[®] AC or DC motors.

Rugged, Bearingless Construction

The hard anodized aluminum alloy frame provides strength, ruggedness, and corrosion resistance. The hardened encapsulated electronics offer outstanding reliability under heavy machine vibration and accidental impacts. The electronics range from +5 to +15 volts DC and include the latest in short circuit proof design on all output pins. High power, complementary, line driver outputs assure clean, crisp signals over long cable lengths. These outputs are compatible with most drives or other input devices. The advanced magnetoresistive sensing technology operates with an unparalleled immunity to grease, oil, salt water, dirt, fibers, and other contaminants. This eliminates the need to seal the encoder.

Slim, Simple, Sturdy Design

The compact RL67 adds only 1.5" to the motor length. Designed to maximize the ease of field installation, the RL67 retrofits onto older existing motors as well as new motors. In some cases, it may be necessary to change the accessory stub shaft in the motor. This stub shaft is available from NorthStar.

Quick and Easy Installation

The RL67 will mount directly in the 6.75" machined accessory recess of the 4.5" accessory flange found on the motor. This unique modular design mounts quickly and easily with no adapter plates, bearings, or flexible couplings. Installation can be completed in minutes, without gap adjustments or special tools. The encoder can be removed then reinstalled just as easily.

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 791-7015-00 Rev. 1

| Electrical Specifications | | Ordering Information | |
|--|--|--|----------|
| Resolution | 64, 128, 256, 512, 512Z, 1024, 1024Z, 2048, 2048Z PPR | Encoder Type | |
| Frequency Response | Minimum 120 kHz | RL67 | RL67 |
| Pulse Code | A, B, Z (Index), and complements (A, B, Z) | Pulse Count | |
| Output Phases | A phase, B phase: 90° phase gap; Z phase: Once per revolution | 512, 512Z, 1024, 1024Z, 2048, 2 | 2048Z |
| Pulse Duty Cycle | $50 \pm 15\%$ (within defined mechanical specs) | Shaft Size | |
| Quadratic Accuracy | $90^{\circ} \pm 22^{\circ}$ | 0.625" thru-shaft clamp style | J4 15 |
| Output Type | High Speed, Differential Driver | 1.000" thru-shaft clamp style | J6 |
| Rise and Fall | Less than 500 ns @ 10,000 pf (typical) | 1.125" thru-shaft clamp style | J7 |
| Current Consumption | 40 mA typical plus line driver load | Custom thru-shaft | JX |
| ESD Protection | 2 kV | - Connections | |
| Output Current Capability | 145 mA typical [350 mA maximum (worst case)] | 18" pigtail cable | Р |
| Cable | 22 AWG, 8 conductor, 18" length individually shielded, twisted pair | Latching industrial connector Industrial connector on 18" cable | C Q |
| Input Voltage | +5.0 to +15.0 VDC | Temperature | Ţ |
| | Mechanical Specifications | 90°C standard | L |
| Maximum Operational Speed | 6,000 RPM (120 kHz) | Mechanical Options Standard cover | _ |
| Nominal Air Gap | $0.019 \text{ inch} \pm 0.008 \text{ inch}$ | Flat thru-hole cover | F |
| Shaft Axial End Play | Up to ± 0.045 inch maximum | Grounding brush assembly Special instructions | G X |
| Enclosure Configuration | 4.5" diameter, 56 C motor face or accessory flange to meet NEMA MG1-4 standards or 6.75" machined recess | - | |
| Acceleration Rate | 12.000 RPM per second | Example: | |
| Unit Weight / Dimensions | 3lbs. (1.5 kg) / 9.00" (230mm) x 9.00" (230mm) x 4.00" (102mm) | RL6710224J4CI | Ĺ— |
| Box Weight / Dimensions | 1 lb. (0.46 kg) / 14.25" (6.5mm) x 9.00" (230mm) x 4.25" (2mm) | - | |
| | Environmental Specifications | Assembly | |
| Operational Temperature | -40° to $+90^{\circ}$ C | Tissembry | |
| Operational Humidity Range | Maximum of 98% | | Sa |
| Chemical Resistance | Salt spray, most solvents, mild acids and bases | 4 | R |
| Vibration | Minimum 18 g's RMS, 5-2000 Hz | | C.S. |
| Shock (Encoder Housing) | 1 meter drop tested, min 30 g's shock spectrum | Som | S |
| *Specifications subject to change without no | otice. | 1 Stalle | 16 |

Specifications subject to change without in

Dimensions



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line driver encoder or digital tachometer. Outputs of ± 10 VDC, 0/4-20mA, or ± 300 VDC, & 10 selectable PPR values & output voltage scales. Auto calibrates to correct drift.

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Also from ©NorthStar

RIM Tach® F2V-a frequency to voltage instrument that converts digital encoder signals to analog DC tachometer format.

Old analog tachometers can now be re-

placed by the digital

encoders of today. Accepts inputs from any