AT LAST! A reliable modular encoder that requires no calibration, gapping, or special tools to install! We have taken the performance of modular encoders to a new level with the Model 121 Auto-Aligning Modular Encoder. This new and innovative design provides simple, reliable, hassle free installation. Simply tighten the shaft clamp, install the mounting screws, and you're done!

The Model 121 incorporates the latest Optical ASIC technology for greatly enhanced performance. Common problems with other modular encoder designs are warping and deflection, caused by their extensive use of plastic, both of which are virtually eliminated by the Model 121's all metal construction. For brushless servo motor applications, the Model 121 can be specified with three commutation tracks to provide motor feedback. The optional 100° C temperature capability allows servo motors to operate at higher power outputs and duty cycles.

Common Applications
Servo Motor Control, Robotics, Speciality Assembly Machines, Digital Plotters, High Power Motors

Model 121 Ordering Guide
Red type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

**Features**
- Simple, Hassle Free Mounting
- Accepts Larger Shafts up to 15 mm
- Up to 12 Pole Commutation Available
- 0° to 100° C Operating Temperature Available
- Patented Design - #6,608,300B2
- Includes New IP50 Dust Seal Kit

Model 121 PPR Options

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**Body Style**
- A Body Style "A" (Fixed)

**Price adder >1000**

**Model 121 PPR Options**

**Operating Voltage**
- 9V 5 Volts
- 12V 12 Volts

**Frequency Response**
- 1 100 KHz
- 2 200 KHz

**Operating Temperature**
- ST 0° to 70° C
- HT 0° to 100° C

For specification assistance call Customer Service at +44 (0)1978 262100

Minimum Order Quantity
5 Units
Lead Time 14 Days

**NOTES:**
1. Not available in all configurations. Contact Customer Service for availability.
2. Please note - Fixed operating voltages, please specify

**Model 121 Ordering Guide**

**Body Style**
- A Body Style "A" (Fixed)

**Electrical Specification**
- PPR See PPR chart below
- NC No Commutation
- 4A 4 Pole
- 6B 6 Pole
- 8C 8 Pole
- 12D 12 Pole

**Operating Voltage**
- ST 0° to 70° C
- HT 0° to 100° C

**FREQUENCY RESPONSE**
- 1 100 KHz
- 2 200 KHz

**COMMITATION**
- NC No Commutation
- 4A 4 Pole
- 6B 6 Pole
- 8C 8 Pole
- 12D 12 Pole

**OUTPUT TYPE**
- OC Open Collector
- PP Push-Pull
- HV Line Driver

**FOR SPECIFICATION ASSISTANCE CALL**
Customer Service at +44 (0)1978 262100

**Minimum Order Quantity**
5 Units
**Lead Time** 14 Days

**NOTES:**
1. Not available in all configurations. Contact Customer Service for availability.
2. Please note - Fixed operating voltages, please specify

**Model 121 Ordering Guide**

**Red type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.**

**Model 121 Ordering Guide**

**Model 121 Options**

**Operating Voltage**
- 5V
- 12V

**For specification assistance call**
Customer Service at +44 (0)1978 262100

**Minimum Order Quantity**
5 Units
**Lead Time** 14 Days

**NOTES:**
1. Not available in all configurations. Contact Customer Service for availability.
2. Please note - Fixed operating voltages, please specify
Model 121 Specifications

Electrical

- Input Voltage: 5 Vcc ±10% Fixed Voltage
- Input Current: 120 mA maximum with no output load
- Output Format: Incremental- Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the mounting face. Index optional
- Output Types:
  - Open Collector- 20 mA per channel max
  - Push-Pull- 20 mA per channel max
  - Line Driver- 20 mA per channel max (Meets RS 422 at 5 VDC supply)
- Index: Once per revolution gated to channel A.
- Contact Customer Service for additional gating options.
- Freq. Response: 100 kHz standard, 200 kHz
- Symmetry: 180° (±18°) electrical at 100 kHz
- Quad. Phasing: 90° (±22.5°) electrical at 100 kHz
- Min. Edge Sep: 67.5° electrical at 100 kHz
- Accuracy: Within 0.1° mechanical from one cycle to any other cycle, or 6 arc minutes
- Commutation: Optional- three 120° electrical phase tracks for commutation feedback. (4, 6, 8, or 12 poles. Others available upon request)
- Comm. Accuracy: 1° mechanical

Mechanical

- Max. Shaft Speed: Determined by maximum frequency response
- Bore Size: 6mm through 15mm
- Bore Tolerance: H7 bore fit for g6 shaft Class LC5
- User Shaft Tolerance:
- Radial Runout: 0.05mm max
- Axial End Play: ±0.4mm for PPR <= 512
  ±0.25mm for PPR 513 to 1250
  ±0.15mm for PPR > 1250
- Max. Acceleration: 5 x 10^5 rad/sec^2
- Electrical Conn:
  - 0.5 Metre cable (foil and braid shield, 24 AWG conductors non-commutated, 28 AWG commutated)
- Housing: All Metal Aluminum and Zinc Alloy
- Mounting: Two screws on a 46mm PCD. (M3 maximum screw size)
- Weight: 150 gms typical

Environmental

- Operating Temp: 0° to 70° C for standard models
- 0° to 100° C for high temperature option
- Storage Temp: -25° to +100° C
- Humidity: 98% RH non-condensing
- Vibration: 10 g @ 58 to 500 Hz
- Shock: 50 g @ 11 ms duration

Waveform Diagrams

Wiring Table

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<td>Tan or Turq</td>
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<tr>
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<td>Red/Green</td>
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<tr>
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<td>Red/Yellow</td>
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