

Model 121 Auto-Aligning Modular



Ø53.3mm

Features

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

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.

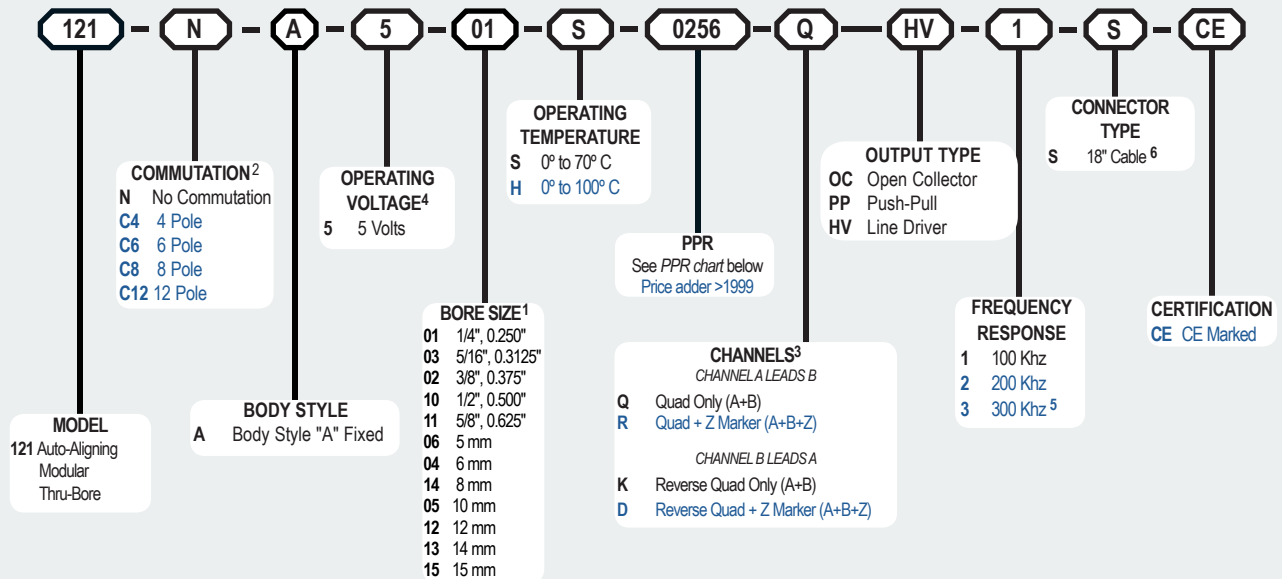
Common Applications

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

Model 121 Ordering Guide

Blue type indicates price adder options. Not all configuration combinations may be available.

Contact Customer Service for details.



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

Model 121 PPR Options

0200	0360	0500	0512	0720
1000	1024	1200	1250	1800*
2000*	2048*	2500*		

*Contact Customer service for application analysis

New PPR values are periodically added to those listed. Contact Customer Service to determine all currently available values. Special disk resolutions are available upon request and may be subject to a one-time NRE fee.

NOTES:

- 1 Contact Customer Service for additional options not shown.
- 2 Not available in all configurations, Contact Customer Service for availability.
- 3 Contact Customer Service for non-standard index gating options.
- 4 Please note - 5V Only - 12V Option no longer available.
- 5 Standard 0 - 70° C Operating temperature only.
- 6 For Non-standard cable length please contact Sales.

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Model 121 Specifications

Electrical

Input Voltage.....5 Vcc $\pm 10\%$ Fixed Voltage
 Input Current.....100 mA maximum with no output load
 Output FormatIncremental- Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the mounting face. Index optional
 Output TypesOpen Collector- 20 mA per channel max
 Push-Pull- 20 mA per channel max
 Line Driver- 20 mA max per channel (Meets RS 422 at 5 VDC supply)
 IndexOnce per revolution gated to channel A. Contact Customer Service for additional gating options.
 Freq. Response.....100 kHz standard, 200 kHz,
 Symmetry180° ($\pm 18^\circ$) electrical at 100 kHz
 Quad. Phasing.....90° ($\pm 22.5^\circ$) electrical at 100 kHz
 Min. Edge Sep.....67.5° electrical at 100 kHz
 AccuracyWithin 0.1° mechanical from one cycle to any other cycle, or 6 arc minutes
 CommutationOptional- three 120° electrical phase tracks for commutation feedback. (4, 6, 8, or 12 poles. Others available upon request)
 Comm. Accuracy1° mechanical

Mechanical

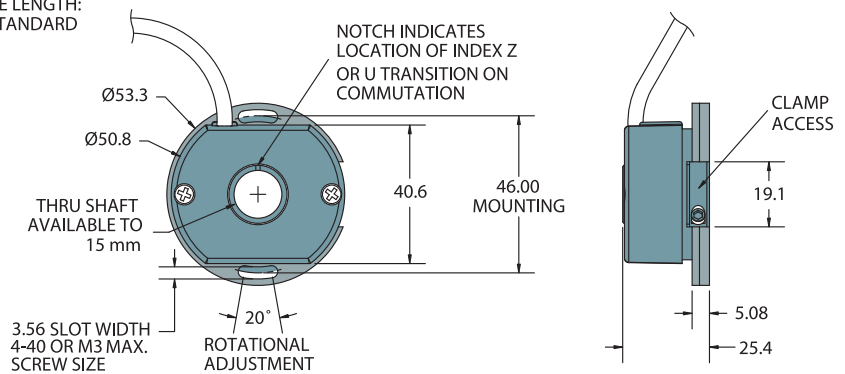
Max. Shaft Speed.....Determined by maximum frequency response
 Bore Size6mm through 15mm
 Bore ToleranceH7 bore fit for g6 shaft Class LC5
 User Shaft Tolerance
 Radial Runout.....0.05mm max
 Axial End Play..... ± 0.40 for PPR ≤ 512
 ± 0.250 for PPR 513 to 1250
 ± 0.125 for PPR > 1250
 Electrical Conn0.5 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 grams 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

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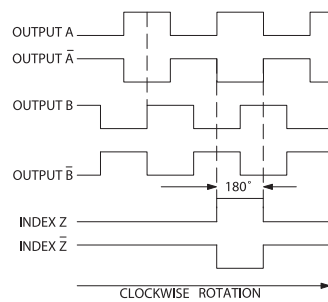
CABLE LENGTH:
2M STANDARD



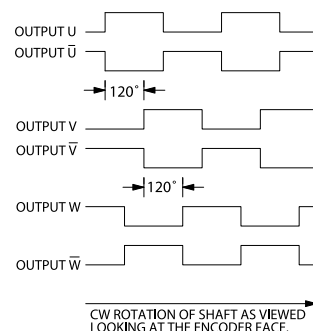
All dimensions are in mm with a tolerance of ± 0.127 or ± 0.254 unless otherwise specified.



Waveform Diagrams



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES



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Wiring Table

Function	Cable Wire Color
Com	Black
+Vcc	White
A	Brown
A'	Yellow
B	Red
B'	Green
Z	Orange
Z'	Blue
U	Violet
U'	Gray
V	Pink
V'	Tan or Turq
W	Red/Green
W'	Red/Yellow
Shield	Bare