# Model 121 Auto-Aligning Modular





### **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!

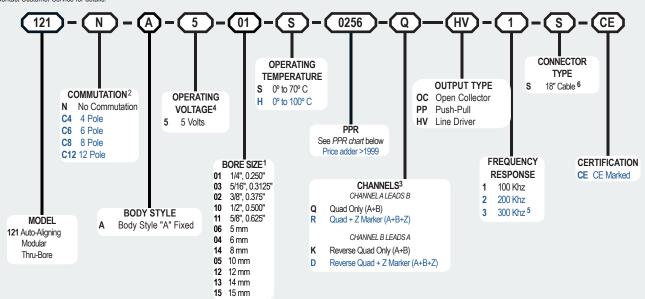
The Model 121 incorporates the latest Optical ASIC technology for greatly enhanced performance. Common problems with other modular encoder designs are warping and deflection, caused by their extensive use of plastic, both of which are virtually eliminated by the Model 121's all metal construction. For 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.



### 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.

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

### NOTES:

- 1 Contact Customer Service for additional options not shown.
- 2 Not available in all configurations, Contact Customer Service for availabilty.
- 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

Rev:

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# **Model 121 Specifications**

### Electrical

Input Voltage	.5 Vcc ±10% Fixed Voltage
Input Current	.100 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 max per channel
	(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)

#### Mechanical

Comm. Accuracy ..... 1° 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	Э
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 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 may

mum screw size)

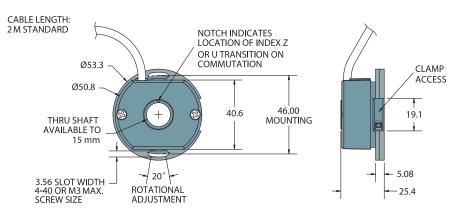
..150 grams typical

### Environmental

Weight.

Operating Temp0° to 70° C for standard models
0° to 100° C for high temperature option
Storage Temp25° to +100° C
Humidity98% RH non-condensing
Vibration10 g @ 58 to 500 Hz
Shock50 g @ 11 ms duration

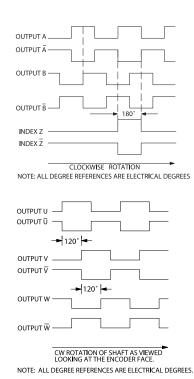
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All dimensions are in mm with a tolerance of  $\pm 0.127$  or  $\pm 0.254$  unless otherwise specified.



### Waveform Diagrams



### Wiring Table

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