

# Brushless Servo Motor

## BLM-N23-50-1000-B

### Product Description

The BLM-N23-50-1000-B brushless servo motor with incremental encoder is a low cost, high performance motor well suited for OEM applications. This motor has a high torque to inertia ratio making it ideal for point-to-point applications requiring fast acceleration. The BLM-N23-50-1000-B provides 55 oz-in of continuous torque in a Nema 23 frame size package.



*BLM-N23-50-1000-B  
 Brushless Servo Motor  
 with Encoder*

### Features

- 55 oz-in continuous torque; 120 oz-in peak torque
- 4.6 amp continuous current; 48 Volts for 5000 rpm maximum speed
- Small size: Nema 23 frame
- High torque-to-inertia ratio for fast acceleration and high response point-to-point applications
- Extremely low cogging and smooth low speed performance; accurate motion profiling at all speeds
- 1000 line differential quadrature encoder with differential hall sensor outputs and shielded cable
- HD 15-pin D connects directly to Galil's AMP-430x0, AMP-205x0, and AMP-195x0 amplifiers

*Note:* Specify BLM-N23-50-1000-B (for DMC-4000) if connecting the motor to DMC-4000 amplifiers.

### Specifications

#### *Differential Quadrature Incremental Encoder*

- Resolution:* 1000 lines, with index pulse
- Input Power:* 5VDC  $\pm$ 5% at 120 mA max
- Output Signals:* Line Driver AM26LS31 (20 mA absolute maximum sink or source per output channel)
- Moment of Inertia:*  $3.5 \times 10^{-3}$  in-oz sec<sup>2</sup>  
( $2.5 \times 10^{-5}$  kg-m<sup>2</sup>)
- Maximum Acceleration:* 100000 rad/sec<sup>2</sup> max.
- Maximum Velocity:* 5000 RPM max
- Operating Temperature:* -20 °C to 100 °C
- Storage Temperature:* -40 °C to 125 °C
- Relative Humidity:* 98% non-condensing

### Encoder Pin Header

#### *15 Pin, HD D-Type :*

<i>Wire Color</i>	<i>Description</i>
1 Orange	Index+
2 Blue	Channel B+
3 Brown	Channel A+
4 Red/white	Hall V-*
5 Black	GND
6 Yellow	Index-
7 Green	Channel B-
8 White	Channel A-
9 NC	N/A
10 Violet	Hall U+
11 Grey	Hall U-*
12 Yellow/white	Hall W-*
13 Brown/white	Hall V+
14 Orange/white	Hall W+
15 Red	+5V

*\*Unused with Galil amplifiers*

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## Specifications

PARAMETER	UNITS	MODEL NUMBER BLM-N23-50-1000-B
$K_t$ —Torque Constant	Nm/A	0.08
	oz-in/A	12.1
$T_c$ —Continuous Torque	Nm	0.39
	oz-in	55
$T_p$ —Peak Torque	Nm	0.83
	oz-in	120
Continuous Current	A	4.9
Peak Current	A	10.4
$J_m$ —Moment of Inertia	kg·m <sup>2</sup>	$2.5 \times 10^{-5}$
	oz-in-s <sup>2</sup>	$3.5 \times 10^{-3}$
Recommended Supply Voltage	volts	48
$\omega_m$ —Maximum Speed	rpm	5000
R—Armature Resistance	ohm	1.2
L—Armature Inductance	mH	2.6
$R_{th}$ —Thermal Resistance	°C/W	1.04
$T_m$ —Electro-mechanical Time Constant	msec	4.5
Length with Encoder	in	4.5
Diameter	in	2.2459
Shaft Diameter	in	0.25
Weight	kg	1.0
	lbs	2.2
Encoder Resolution	lines/rev	1000

Price: qty 1 \$450  
 Price: qty 100 \$335

BLM-N23-50-1000-B

Phase A—Red  
 Phase B—White  
 Phase C—Black

