

## Brushless DC Outer-Rotor Motors with Integral Drive

# KINETIMAX 24 EB SERIES

24 mm diameter, 6 mNm max. torque, up to 2.7 Watts Output

The KinetiMax 24 EB is a highly compact brushless DC motor with integrated drive electronics. This motor features an outer-rotor configuration and a robust bearing system capable of handling high side loads.

The external rotor and iron core stator design maximizes torque production, ensuring reliable performance. Built with high-quality components, the KinetiMax 24 EB guarantees a minimum operating life of 20,000 hours.



### KEY FEATURES & BENEFITS

#### Compact Design:

24 mm diameter brushless DC motors with integrated drive electronics.

#### Power Output:

Rated up to 2.7W at a nominal speed of 4300 RPM.

#### Voltage Options:

6, 12, or 24 VDC windings.

#### Control:

2-wire version is as simple to control as a DC motor, needing only a DC voltage to operate. 5-wire version for more precise speed control.

#### Low EMI Compliance:

Meets EN 55014-1/2, 61000-6-1/3 standards.

#### Direction Reversal:

5-wire version features an input option to enable direction reversal.

#### Protection and Voltage Reversal:

IP30 level protection sealing. Motors include built-in protection against voltage reversal.

#### Tachometer Output:

Features control input and tachometer output (18 pulses per revolution) for speed monitoring.

### **MJK, Inc.**

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## OPTIONS & ACCESSORIES

### Customized Shaft/Mounting Flange:

Tailored to meet specific application requirements.

### Custom Leads and Connector Configurations:

Adaptable to various electrical connections.

### Special Winding Configurations:

Optimized for specific performance characteristics.

### Gearbox Integration:

Provides additional torque and speed options.

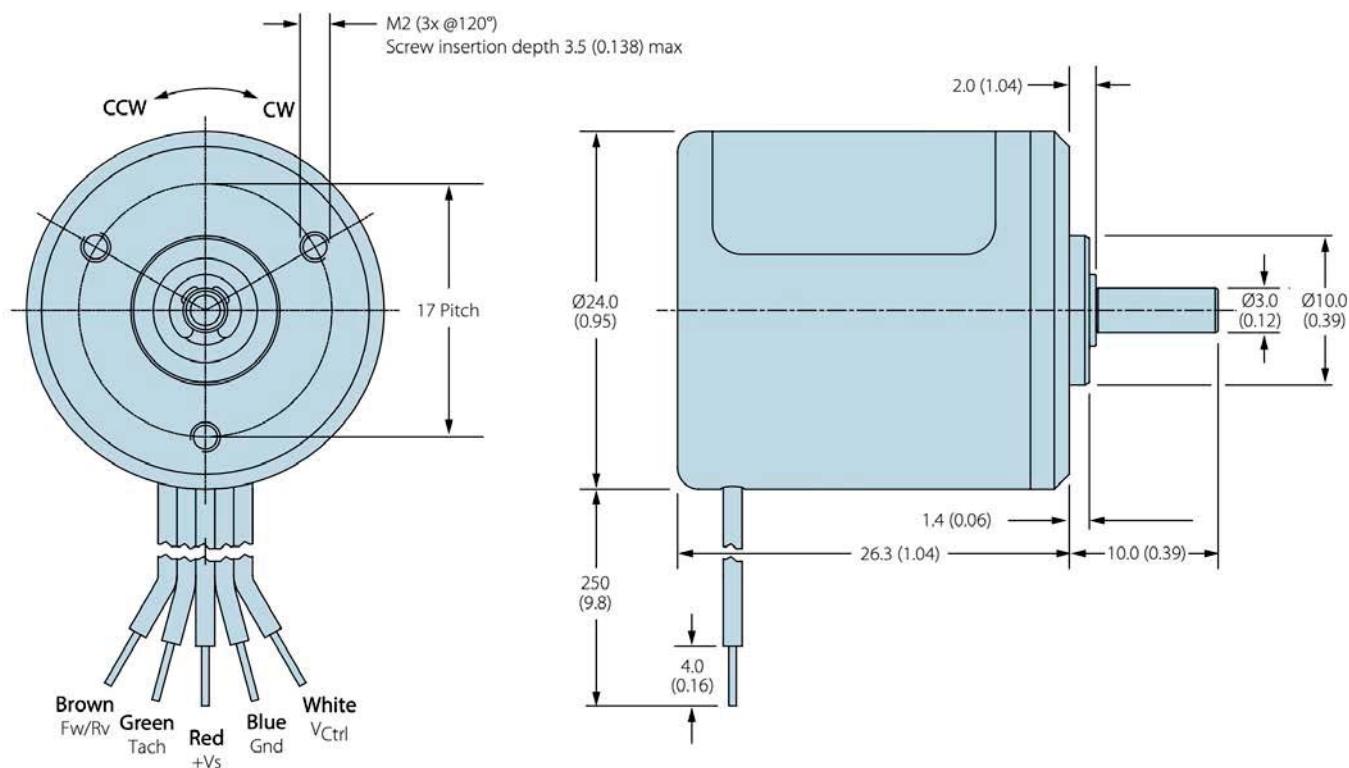
## APPLICATIONS

The KinetiMax 24 EB Series motors are an ideal solution for a variety of applications:

### *Including*

- Small pumps
- Laser scanners
- Small high performance fans
- Blowers
- Medical equipment

## DIMENSIONS



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## SPECIFICATIONS

Parameter		Unit			
Model	2-Wire CW Rotation		KMX-01621492	KMX-01621512	KMX-01621532
	2-Wire CCW Rotation		KMX-01621502	KMX-01621522	KMX-01621542
	5-Wire		KMX-01621513	KMX-01621523	KMX-01621533
Voltage	Nominal	VDC	6	12	24
	Range <sup>1</sup>		5.5 - 9	7 - 17	10 - 28
Rated Output Power		W	2.2	2.7	2.7
Torque	Rated	mNm (oz.in.)	5 (0.70)	6 (0.85)	6 (0.85)
	Max		7 (0.99)	9 (1.27)	9 (1.27)
Torque Constant		mNm/A (oz.in./A)	7.6 (1.07)	15.7 (2.16)	31.4 (4.45)
Speed	Rated	RPM	4200	4250	4300
	No-Load		7150	7050	7070
Current	Rated	A	0.75	0.445	0.23
	Max		0.95	0.63	0.33
	No-Load		0.105	0.062	0.04
Rotor Inertia		kgm <sup>2</sup> (oz.in.s <sup>2</sup> )	0.77 E-6 (1.09 E-4)		
Mechanical Time Constant		ms	47	35	35
Thermal Resistance	Housing-Ambient	°C/W	25.5		
Weight		g (oz)	30 (1.06)		
Protection Level			IP30		
Control Input <sup>2</sup>	Range	V	0 - 5		
	Threshold		1		
Direction Input	CW	V	High ≥ 3.5		
	CCW		Low ≤ 1.5		
Speed Output Signal <sup>2</sup>		PPR	18		
Operating Temperature Range		°C (°F)	0 - 90 (32 - 194)		
Thermal Limit Protection		°C	N/A (Maintain maximum motor housing temperature ≤ 90°C)		

Values valid for nominal voltage and Tamb = 22°C

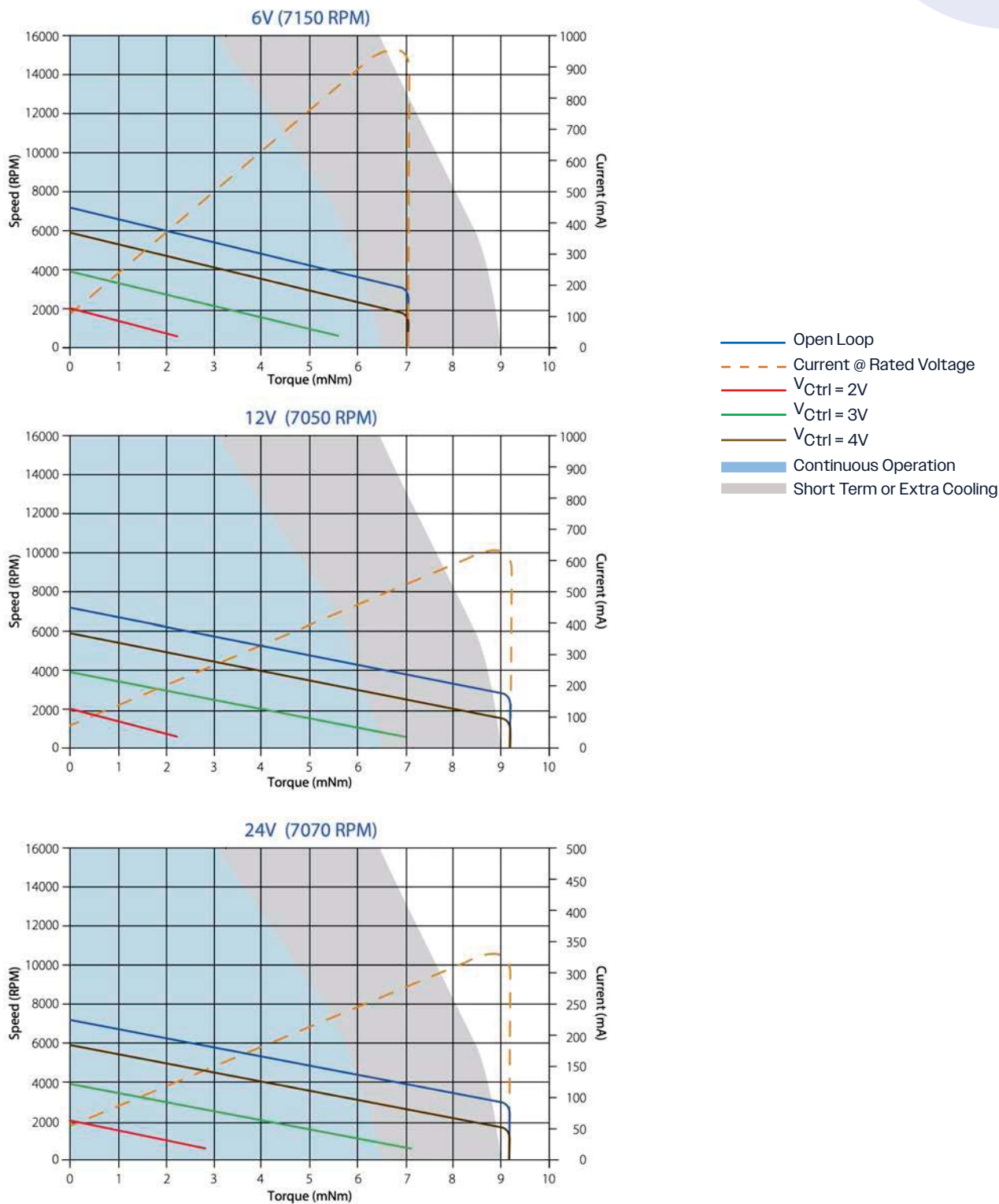
<sup>1</sup> Power supply provided with appropriate 68 µF buffer capacitor between supply voltage and common to comply with EN 55014-1/2.

<sup>2</sup> Applicable for 5 wire versions only.

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## PERFORMANCE

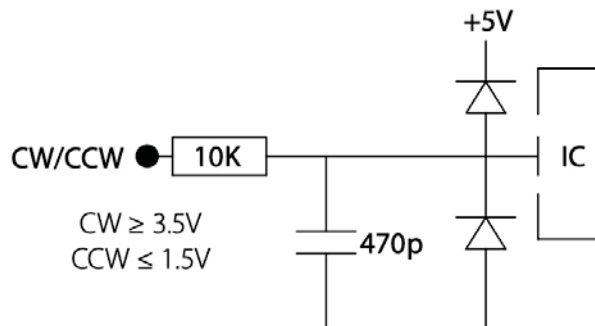


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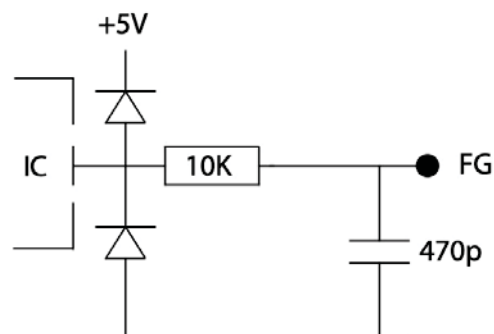
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## I/O SCHEMATICS

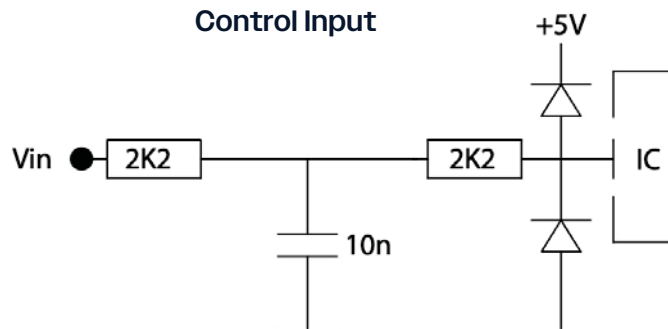
Direction Input



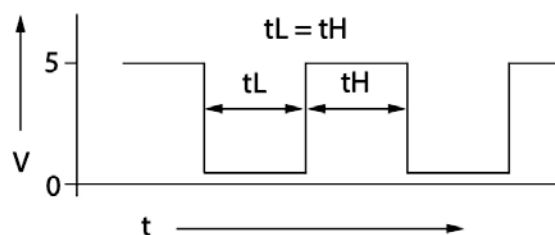
Speed Output



Control Input

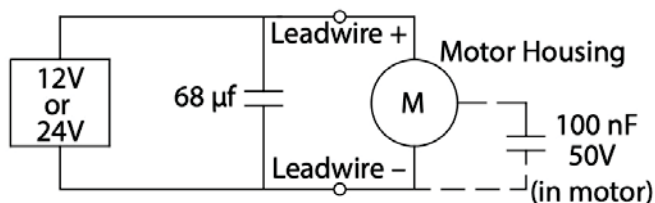


Speed Output Signal



## EMC

To meet EMC directive EN 55014, the power supply must be provided with a capacitor 68  $\mu$ f, 35V at the output:



## Electrical Connections

Version	Description	Wire Color (AWG 26)
2 - Wire (CW & CCW)	Supply Voltage (+Vs)	Red
	Common (GND, ground)	Blue
5 Wire	Supply Voltage (+Vs)	Red
	Common (GND, ground)	Blue
	Control Input ( $V_{Ctrl}$ , V)	White
	Speed Output (Tach, FG)	Green
	Direction Input (CW/CCW)	Brown

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